



The Rail Park, Phase 1 Methods

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The full case study can be found at: <https://landscapeperformance.org/case-study-briefs/the-rail-park>

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Research Overview and Strategy



Figure 1: Oblique view of The Rail Park Phase I in Philadelphia, PA.

The Rail Park Phase I, a quarter-mile linear neighborhood park, opened in June 2018. As the only public park in the Callowhill and adjacent neighborhoods, The Rail Park Phase I has provided and continues to provide a much needed green and shady space for those who live, work in or near, and visit this section of Philadelphia.

The Rail Park Phase I is located within a ten-minute walk to Center City, the Pennsylvania Convention Center, and the Reading Terminal Market. Additionally, Callowhill is adjacent to Philadelphia's Chinatown.

The Rail Park Phase I sits on what was known as "the Viaduct", a partially elevated four-line abandoned railway that was built in the 1890s. Rail transportation declined from the 1940s-1970s as car, truck, and trolley transportation grew. Once rail transportation on the Viaduct was discontinued in 1984, the structure was left to decay and become overgrown for over twenty years. Rather than dismantling the Viaduct, costs for which were estimated to be between \$35.5 and \$51.5 million, the City of Philadelphia and Viaduct advocacy groups began to consider alternatives, primarily as a potential neighborhood green space and a park that would ultimately cost \$10.8 million. This alternative approach saved the City of Philadelphia up to \$41 million.

A community engagement process was conducted from 2013 to 2016 to generate ideas and gather feedback on the park's design concepts developed by landscape architecture firm Studio

Bryan Hanes (SBH). Working with local stakeholders, including community residents and businesses, Friends of the Rail Park, Philadelphia's Center City District, and the Philly Department of Commerce, SBH proposed the following goals for the park:

Rail Park Phase I -- Project Goals

- **Provide a community park** for the surrounding Callowhill and Chinatown North neighborhoods and adjacent Chinatown and West Poplar neighborhoods, all of which lack public green space within a ten-minute walk.
- **Increase shaded outdoor social space for nearby residents**, many of whom live in converted factories without stoops, porches, or yards.
- **Increase cross-group interaction and social sustainability** between area residents, local organizations, stakeholder groups, and the Center City District by creating a venue for events.
- **Preserve a historic structure** by repairing and adapting it for new use.
- **Provide an experience of rich, thick vegetation using native species.**
- **Encourage the redevelopment of vacant land and surface parking areas**, especially for housing, as part of a goal of the 2004 Chinatown Neighborhood Plan and subsequent area plans located adjacent to and near the Rail Park.
- **Create the first segment of a cross-city green route** to link ten neighborhoods.

The park's design and features, including industrial materials such as weathering steel, and views of converted factory buildings and warehouses provide reminders of the Callowhill neighborhood's history as part of Philadelphia's status as "Workshop of the World" (Sanborn, 1950). In 2010, a 5.7-acre portion of the neighborhood was listed on the National Register of Historic Places as the "Callowhill Industrial Historic District" (see Figure 3, Jaslow, 2009). The viaduct is considered the only "contributing structure" among the thirty-three designated industrial buildings, structures, and sites within this historic district.

KEY:

Callowhill Industrial Heritage District Boundary (in red)

Viaduct Rail Line (in green)

Remaining buildings with a steel or concrete frame (in yellow)

Remaining brick buildings (in purple)

Former coal yard and "significant site" (in gray)

Sanborn Fire Insurance Maps Key, 1950

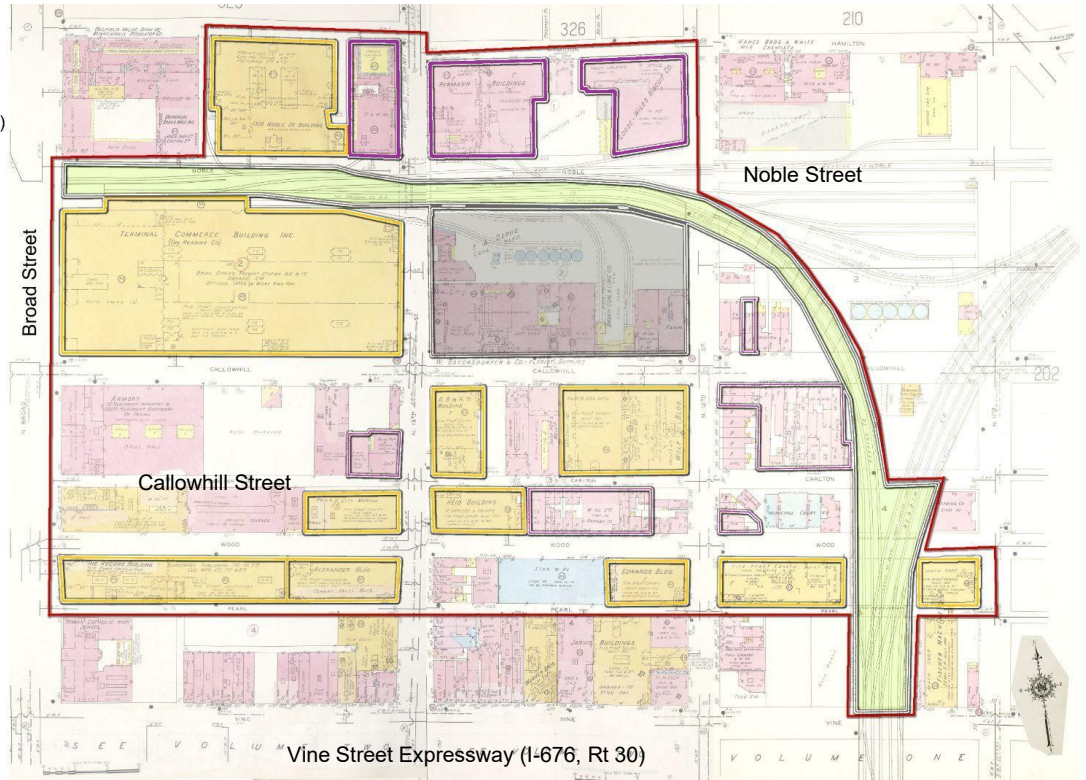


Figure 2: Sanborn Fire Insurance Map from 1950. The Callowhill Industrial Heritage District, listed on the National Register of Historic Places in 2010, is outlined in red. Remaining contributing buildings with a steel or concrete frame are outlined in yellow. Remaining and “contributing brick buildings are outlined in purple. The one relevant “site”, the former coal yard adjacent to the Viaduct, is outlined in gray.

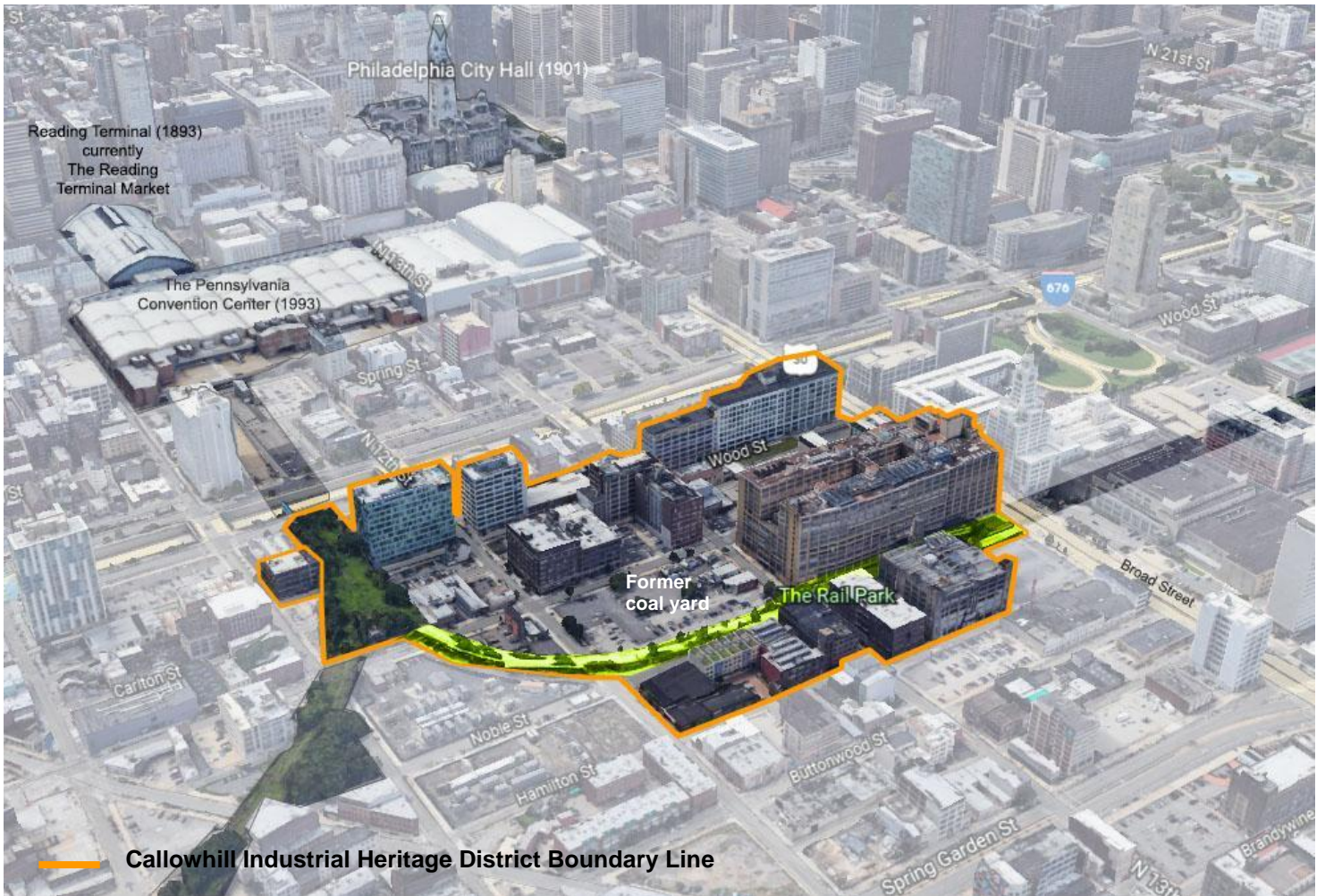


Figure 3: Aerial oblique image with the Callowhill Industrial Heritage District outlined in orange. Note the proximity to Philadelphia's Center City District, located across the Vine Street Expressway (I-676 / Route 30). Source: Google Earth, Accessed November 20, 2022.

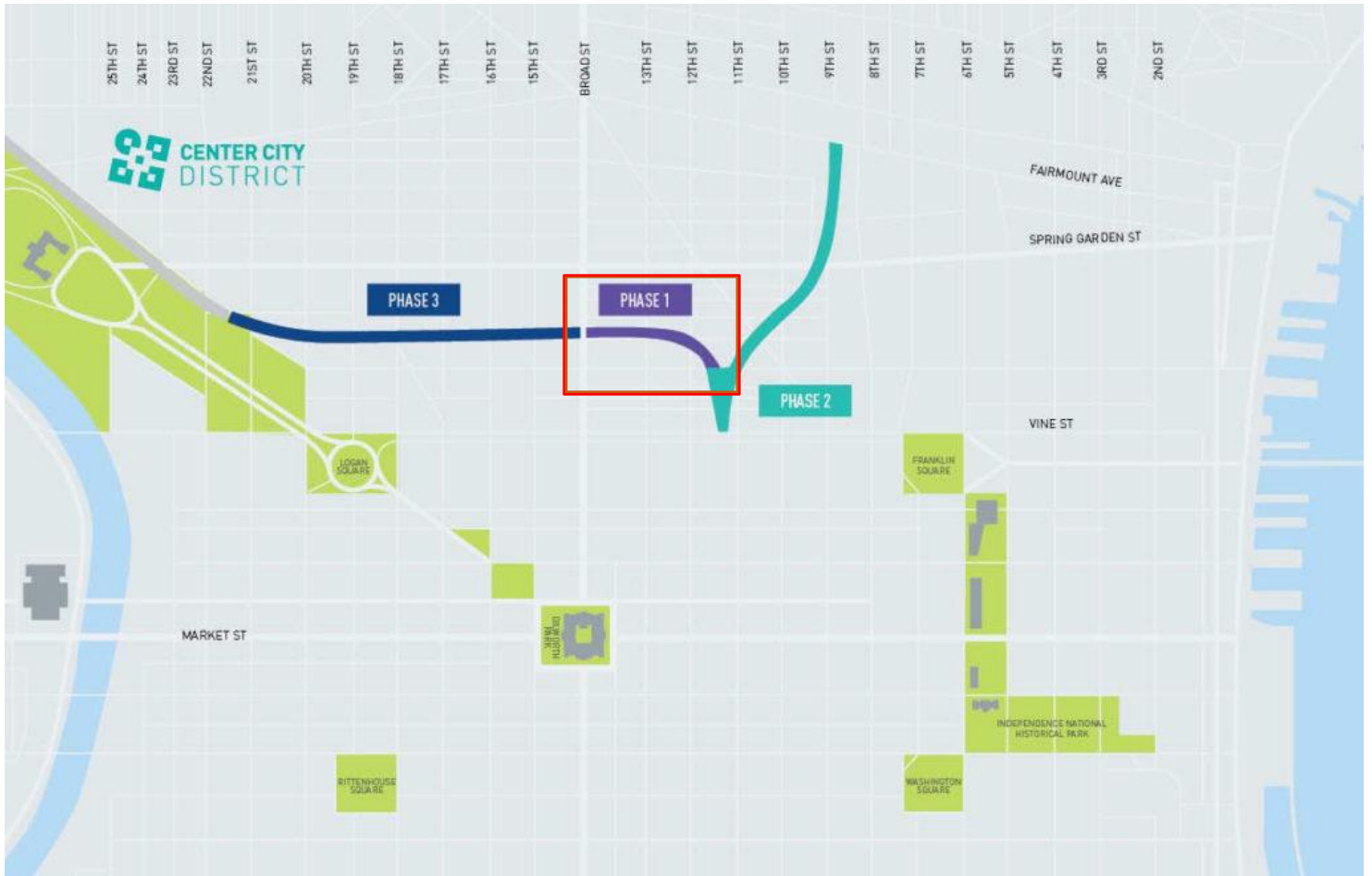


Figure 4: Philadelphia Center City District’s map of the proposed three phases of the Viaduct’s redevelopment. The Rail Park Phase 1 is set within the red rectangle. Source: Center City District, <https://centercityphila.org/pressroom/philadelphia-s-rail-park-opens-to-the-public>, accessed July 25, 2022.

The Rail Park Phase 1 represents the first of three park phases as seen in Figure 4. The Friends of the Rail Park are responsible for planning the next two phases. These next phases will lengthen the Rail Park to three miles and connect ten neighborhoods across Philadelphia. One of the primary goals of this investigation is to help inform the planning and design efforts of these next two phases.

This Case Study Investigation of the Rail Park Phase I took place between February to October 2022. At that time, the Rail Park Phase I had been open for four years. During those four years, significant cultural and public health related crises have substantially impacted Philadelphia, its residents, and visitors. The two most prominent examples are the COVID-19 pandemic, which began in late March 2020, and the Black Lives Matter protests which began in late May 2020. These have shifted Philadelphia’s economy, perceptions and use of urban space, and social interactions.

Green space provides many benefits to a community, providing space for physical activity, social cohesion, stress management, and ecosystem regulation, which in turn positively impacts overall public health. This investigation has shown that the Rail Park Phase I offered much-needed public green space since its opening in 2018, particularly through the civil unrest of 2020 and ongoing COVID-19 pandemic, and it has continued to serve as a valuable resource in 2022.

Our team's research approach relied heavily on information initially gathered during site visits and on discussions and collaboration with the Landscape Architecture Foundation's Megan Barnes, the design firm Studio Bryan Hanes, and stakeholders and individuals involved in previous research on the Viaduct and Rail Park Phase I. We also developed our understanding of landscape performance, methods, and techniques from reviewing previous CSI projects' Methods Documents.

Particularly helpful in the initial stages of our research include: The Landscape Architecture Foundation's *Evaluating Landscape Performance: A Guidebook for Metrics and Methods selection*, Bo Yang's *Landscape Performance: Ian McHarg's Ecological Planning in The Woodlands, Texas*, and the seven articles in the "Landscape Performance Special Journal Issue" of the Chinese publication *Landscape Architecture*.

In the CSI project development and planning stages, the research team worked with SBH's project goals listed above as well as identified the following features that provide range of environmental, social, and economic benefits:

Site Features:

- Site reuse and remediation
- Reuse of historic infrastructure
- Historical interpretation
- Public art
- Scenic views
- Gathering platforms and benches
- Five large-scale porch swings
- One rain garden
- Over 1,100 native plants planted
- Use of engineered soil in planting beds
- Green space in a neighborhood that lacked green space within a 10-min walk
- Creation of a large, neighborhood-scale "front stoop"

For the three benefit categories (environmental, social, and economic) our research team posed the following questions:

Environmental benefits:

1. Is the Rail Park Phase I an improvement in terms of species richness relative to the undeveloped and overgrown rail line?
2. How much stormwater runoff is the Rail Park Phase I and the adjacent rain garden reducing and capturing?
3. Is this small park making an environmental impact by sequestering carbon?
4. Given the park is surrounded by concrete, asphalt, and buildings, can the park make an impact on the urban heat island effect and reduce air temperatures? How do the Rail Park Phase I's temperatures compare to the undeveloped rail line?

To answer these questions, we used the following methods, equipment, and software to gather data:

| Environmental Benefits | Methods, Software, Equipment, and Data Source |
|--|---|
| 1) Stormwater management – on the Rail Park surface 2) Carbon sequestration | <ul style="list-style-type: none"> ● Caliper and measuring tape for measuring trees' "diameter at breast height" (DBH) ● i-Tree Eco Software - Version 6 ● Microsoft Excel |
| 3) Stormwater management -- the Noble Street Rain Garden | <ul style="list-style-type: none"> ● Secondary data provided by the Philadelphia Water Department |
| 4) Species Richness | <ul style="list-style-type: none"> ● Universal Floristic Quality Assessment tool -- <i>Coefficients of Conservatism (C)</i>, drawing from the Mid-Atlantic Coastal Plain database ● Secondary data – plant lists provided by Studio Bryan Hanes and plant ecologist Marion Holmes ● Adobe Photoshop mapping studies ● Microsoft Excel |
| 5) Temperature and Urban Heat Island (UHI) | <ul style="list-style-type: none"> ● FLIR One - thermal imaging camera ● iPhone and iPad + piece of 8.5x11" paper ● Adobe Photoshop mapping studies ● Secondary data – provided by Drexel University's Department of Engineering |

Social Benefits:

Our research team worked with survey instruments and SOPARC observational methods implemented in 2018-2019 by Andrew Mowen’s research team from Penn State University’s Department of Recreation, Parks, and Tourism Management. Both the 2018-2019 baseline study and our 2022 follow-up study asked the following questions:

1. How do park users perceive the park (e.g., perceived personal and neighborhood ownership, park design)? Have perceptions changed since the initial park opening?
2. How do users perceive the social atmosphere of the park (e.g., social interactions with other park visitors)? Have social interactions changed since the initial park opening?
3. How do park visitors perceive the impact of the Rail Park for themselves, their families, and the local community?

To answer these questions and to address the design goal of “increasing cross-group interaction and social sustainability,” we used the following methods, equipment, and software to gather data:

| Social Benefits | Methods, Software, Equipment, and Data Source |
|--|---|
| 1) Recreational and social value 2) Health and well-being 3) Access and equity | <ul style="list-style-type: none"> ● Visitor and Area Resident survey instruments – Google Forms (in English, Mandarin, and Spanish) ● Microsoft Excel and SPSS Statistics Base – Version 27 (and above) software – for statistical analyses ● Social media – images gathered from Facebook and Instagram ● <i>ParkServe</i> – Trust for Public Land (TPL) website, with ESRI 2021 Demographic Forecast Block Groups data ● Adobe InDesign used to create a flyer with a QR code ● Secondary data – survey instrument provided by Penn State’s Department of Recreation, Parks and Tourism Management |

Economic Benefits:

We were particularly interested in understanding the economic impact that the Rail Park Phase I has had on the Callowhill neighborhood. To assess this impact, we asked the following questions:

1. Have property values changed as a result of the Rail Park Phase I’s presence?
2. How have the Rail Park Phase I and the recent improvements to the Viaduct contributed to economic development in the neighborhood?

| Economic Benefits | Methods, Software, Equipment, and Data Source |
|-------------------------|---|
| 1) Property values | <ul style="list-style-type: none"> ● Mapping studies using GIS and Phila.gov database ● Microsoft Excel |
| 2) Economic development | <ul style="list-style-type: none"> ● Area businesses impact survey ● Local stakeholder groups provided assisted with businesses' contact information and survey distribution ● Adobe Photoshop |

The research team was also interested in understanding the differences in benefits between the Rail Park Phase I and the High Line in New York City, since both have a similar design, layout, and vocabulary of design elements (Norden and Chan, 2021). Table 1 below presents the primary differences between these two park spaces.

We used the Trust for Public Land's *ParkServe* online mapping and demographics analytical tool and reviewed the High Line's *Case Study Investigation* Methods document from 2017 to better understand the differences and the benefits these two parks provide (see Appendix C for the *ParkServe* reports for both sites.)

Table 1: The Rail Park Phase I and The High Line – differences in length, acreage, neighborhoods and populations served, nearby parks, vegetation, and materials.

| | The Rail Park Phase 1 Philadelphia, PA | The High Line Manhattan, New York City, NY |
|---------------|---|---|
| Length | 0.27 mile | 1.45 miles |
| Acres | 0.60 acre | 5.5 acres |

| | | |
|--|---|---|
| <p>Neighborhoods and populations served</p> | <p>The Rail Park serves three neighborhoods: Callowhill, Chinatown to the east and southeast, and West Poplar to the west. There are approximately 8,600 individuals that live within a 10-minute walk. Those living nearby are primarily adults with household incomes evenly split between low, middle, high incomes. Together, Black, Asian, and Hispanic communities comprise the majority of the area's population (66%.) (See Appendix E for the Trust for Public Land's <i>ParkServe</i> park demographics report. Data is derived from ESRI's 2021 Demographic Forecast Block Groups data.)</p> | <p>The High Line serves the neighborhoods of West Chelsea and the Meat Packing District. Currently, there are approximately 66,000 individuals who live within a 10-minute walk. The majority of these households are high income households (55%) and white adults (65%). (See Appendix E for the Trust for Public Land's <i>ParkServe</i> park demographics report. Data is derived from ESRI's 2021 Demographic Forecast Block Groups data.)</p> |
| <p>Nearby parks</p> | <p>There are no other green spaces or public parks within a 10-minute walk of The Rail Park Phase 1.</p> | <p>There are ten small to larger-scale parks within a 10-minute walk of the High Line, including Chelsea Park and the Hudson River Park.</p> |
| <p>Vegetation</p> | <p>There are three planting zones in the Rail Park Phase 1: "the hedgerow", "the woodland", and "old field." 100% of the plants that were planted on the Rail Park Phase 1 are considered native to the Mid-Atlantic region.</p> <p>The plantings were inspired by the native plant types found on the undeveloped rail line. The hedgerow and woodland plants are planted on the rail bed that is located at grade and/or set within soil contained by retaining walls on either side (between Broad St. and N. 12th Street). The transition to old field plantings begins in the shallower, sandy soil matrix that the former rail line's bridge structure can accommodate — between N. 12th Street to the Callowhill St. entrance.</p> | <p>There are sixteen distinct vegetation or garden zones on the High Line, all of which were inspired by native plant communities that formerly grew on the undeveloped elevated rail line and/or native plant communities found in the region. Approximately 50% of the plants on the High Line are native to North America. Roughly 30% of the native plants are considered endemic to the New York City region (Plunz and Moskalenko, 2017).</p> |

| | | |
|------------------|--|---|
| Materials | Primary materials used in the Rail Park Phase I are chipseal paving, lpe wooden platforms and benches, and weathering steel. | Primary materials used on the High Line include bonded aggregate, metal grating, and teak lumber. |
|------------------|--|---|

The most significant difference between these two parks is the social benefits the parks provide. The Rail Park Phase I was designed and intended to be a neighborhood park in a neighborhood with zero green space nearby. Prior to the Rail Park Phase I's development, there was no place for area residents and workers to gather outside.

The park has indeed become part of the neighborhood, a social space where the neighborhood's residents and workers can meet. The Rail Park Phase I is a place that promotes social cohesion, better health, and increased well-being.

The neighborhood demographics in Callowhill, Philadelphia and Chelsea, New York are significantly different. The Rail Park Phase I serves historically underserved populations and provides much needed access to green space to lower and middle-income area residents.

Lessons Learned:

The Rail Park provides area residents with much needed green space and ground for community building. Since the park's opening in 2018, the park has become firmly integrated into the community and the surrounding urban fabric, providing multiple environmental, social, and economic benefits.

There is room for improvement regarding "green gentrification" challenges resulting from The Rail Park's presence. The Friends of the Rail Park is committed to ensuring that the Chinatown/ Chinatown North community members feel a sense of ownership over The Rail Park Phase I and are directly involved in the planning process for the Rail Park's future and future park phases.

Continued communication (in multiple languages), ongoing community engagement, and implementing an equitable design plan as well as inclusive policies will be critical for successfully designing and developing future phases of the park and green space in and around Callowhill.

Environmental Benefits

- ***Reduces stormwater runoff by 1,501 cu ft or 11,200 gallons annually with 102 newly planted trees.***
- ***Sequesters an estimated 1,172 lbs of atmospheric carbon annually in 102 newly planted trees and is projected to sequester 27,632 lbs of atmospheric carbon over the next 25 years.***

Method: On-site tree measurements of the 102 newly-planted trees were taken using Diameter at Breast Height (DBH) measuring tape and a caliper tool. Measurements were entered into the i-Tree Eco Version 6's field data app. I-Tree Eco v6 is a model that uses tree measurements and characteristics to estimate ecosystem services of urban and rural forests.

i-Tree Eco v6 was developed by the US Forest Service, Davey Tree Expert Company, Arborday Foundation, Society of Municipal Arborists, International Society of Arboriculture, Casey Trees, and SUNY College of Environmental Science and Forestry.

An i-Tree analysis was conducted using a "Complete Inventory" which is typically used for smaller public areas or private properties such as corporate campuses, parks, apartment complexes, individual homes, or cemeteries. iTree Eco Version 6 analyzed the vegetation structure, function, and value of the urban forest at The Rail Park and produced a report that included percentage of tree cover, pollution removal, carbon storage and sequestration, oxygen production, avoided runoff, and replacement values. See Appendix A for the report.

Six indicators of tree species: condition, trunk circumference or diameter, sun exposure, distance from a building, adjacent building's construction date, and orientation of trees relative to adjacent buildings were entered into i-Tree Eco Version 6. The last three indicators are only considered when the tree is within 60 ft of a building. Tree conditions are categorized by excellent, good, fair, poor, critical, dying, and dead. Trunk circumference is measured at 4.5 feet above the ground. The diameter at this height is called "diameter at breast height" (dbh), which is the standard measurement of tree trunk width.

Calculations for surface runoff avoidance:

From iTree Eco Version 6.0.27 Ecosystem Analysis report:

- 1,510 cubic feet (x 7.48 gallons) avoided runoff, equivalent to 11,295.58 gallons per year.
- Avoided runoff is estimated based on local weather data from the nearest weather station. In 2019, The total annual precipitation was 49.6 inches at the Rail Park.

Calculations for carbon sequestration: Trees remove carbon dioxide from the atmosphere; this is called carbon sequestration. Currently, the park has 102 trees. 23.5% of these trees have a diameter of more than six inches. The twelve London Plane trees, which make up 11.5% of the park's tree population, sequester the majority of the carbon in The Rail Park—approximately 500 lbs annually.

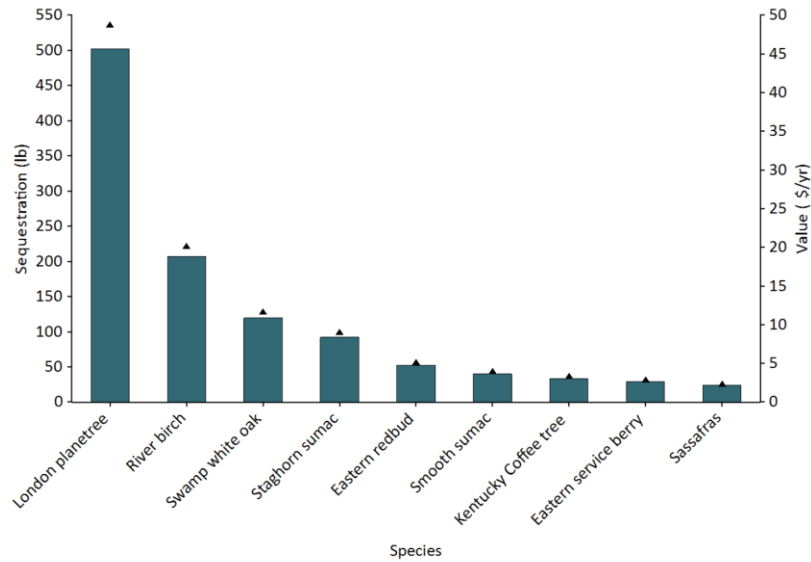


Figure 5: Estimated annual gross carbon sequestration (lbs) for urban tree species

Carbon Sequestration Over Time

Location: Philadelphia, Philadelphia, Pennsylvania, United States of America
 Project: The Rail Park, Series: Phase 1, Philadelphia, PA, Year: 2022, Forecast: Default
 Generated: 9/7/2022



| Year | Total Gross Carbon Sequestration (pounds) |
|------|---|
| 1 | 1,155.9 |
| 2 | 1,098.1 |
| 3 | 1,074.0 |
| 4 | 994.8 |
| 5 | 1,009.3 |
| 6 | 1,034.5 |
| 7 | 1,045.6 |
| 8 | 1,044.1 |
| 9 | 1,072.5 |
| 10 | 1,097.5 |
| 11 | 1,097.3 |
| 12 | 1,124.1 |
| 13 | 1,138.3 |
| 14 | 1,161.7 |
| 15 | 1,181.0 |
| 16 | 1,147.5 |
| 17 | 1,095.4 |
| 18 | 1,068.3 |
| 19 | 1,096.8 |
| 20 | 1,118.3 |
| 21 | 1,147.1 |
| 22 | 1,160.2 |
| 23 | 1,186.7 |
| 24 | 1,168.6 |
| 25 | 1,153.9 |

Figure 6: Total Carbon Sequestration (lbs) estimated over 25 years.

Limitations:

i-Tree Eco V6 tools provide an estimate of the environmental effects and value of the study area's urban tree population using complete tree inventory field data coupled with local, hourly air pollution and meteorological data. i-Tree Eco V6 does not include groundcover in its analyses and while shrubs can be taken into account, they were not included in this analysis.

There were discrepancies in comparing the number of counted trees for iTree versus the planted ones in the planting plan because of tree deaths over the past few years. Losses among species include *Sassafras*, *Amelanchier*, and at least one *Cercis canadensis*. A few trees have been added since 2018. The landscape architecture firm does not always hear about dying trees. Landscape contractors with Philadelphia's Department of Parks and Recreation remove all dead trees.

Source:

i-Tree Eco v6.0.27. Accessed August 2022 <https://www.itreetools.org/tools/i-tree-eco/i-tree-eco-overview>

- ***Manages an estimated 8,419 gallons of stormwater per year in the Noble Street rain garden, equivalent to 2,105 flushes of a 4-gallon toilet.***

Background: Studio Bryan Hanes designed and documented the Noble Street rain garden as part of the Rail Park Phase I. The Philadelphia Water Department (PWD) currently maintains it. The curb bump-out is a slow release SMP that is part of the city's Green City, Clean Waters green stormwater infrastructure program. It was completed in June 2018. The Green City, Clean Waters program is a 25-year plan implemented in 2011 with the goal to restore local waterways through the implementation of green stormwater infrastructure and investments in traditional infrastructure.

Method: Rain garden data were provided by the Philadelphia Water Department (PWD), Urban Engineers, and Studio Bryan Hanes. The following calculations used this data.

Calculations:

The Philadelphia Water Department measures their progress via *Greened Acres*. A *Greened Acre* is an expression of the volume of stormwater managed by green stormwater infrastructure, based on the design for the project and is conditional on the proper operation and maintenance of the project.

One Greened Acre is equivalent to 1 inch of managed stormwater from 1 acre of drainage area, or 27,158 gallons of managed stormwater. These volumes are tracked as Greened Acres (GAs) using the following equation:

$$GA = IC * Wd$$

IC is the impervious cover using green stormwater infrastructure (acres). This quantity can include the area of the stormwater management feature itself, as well as the area that drains to it.

Wd is the depth of water over the impervious surface that can be physically managed in the facility (inches). Green stormwater infrastructure designs aim to control at least 1.0 inch of runoff, and up to 1.5 inches of runoff, unless otherwise deemed feasible by engineering design.

Calculation for the Rail Park - Phase I:

1 Greened Acre (GA) = 27,158 gallons

The project site is .31 GA

$(.31) \times 27,158 = 8418.98$ gallons

$8418.98/4 = 2104.75$ number of toilet flushes

Sources:

Green City, Clean Waters Year 10 Evaluation and Adaptation Plan

By the City of Philadelphia Water Department, May 30, 2022

<https://water.phila.gov/pool/files/gccw-year-10-eap.pdf>

Limitations:

Stormwater implementation has not been verified with on-site measurements. Results are based on the Construction Documentation.

- **Improves ecological integrity, with a mean C value of 4.2 for test plots at the Rail Park as compared to 2.6 on the undeveloped rail line representing pre-construction conditions. The Rail Park's Floristic Quality Index (FQI) score is 15.7, as compared to 12.5 for the undeveloped rail line.**

Background: The plant community that thrived on the decommissioned rail line prior to its current use as a park included a mix of native and non-native woody and herbaceous plants. This same plant community can still be observed on the remaining undeveloped portions of the rail line. Stakeholders and community members worked closely with Studio Bryan Hanes to replace this "urban wild" with a plant community that kept the "urban wild" character while providing an exclusively native plant palette that would provide a richer and more diverse habitat for area wildlife and pollinators.

Method: On-site field data was gathered over the course of four site visits. A total of forty-eight square meters were surveyed, with twenty-four square meters in each the park and the undeveloped rail line. Taking measurements at both the park and the undeveloped rail line provided a means to compare the designed and "wild" plant communities.

On the undeveloped rail line we observed six, 2x2 meter plots for herbaceous species and six, 30-ft transects for woody species. In the Rail Park, we recorded species in plant beds in corresponding surface areas to the plots measured on the undeveloped rail line. Six, 30-ft transect studies were conducted in sections of the Rail Park with denser shrubs/tree cover. See Figure 7 for a map of the data points.

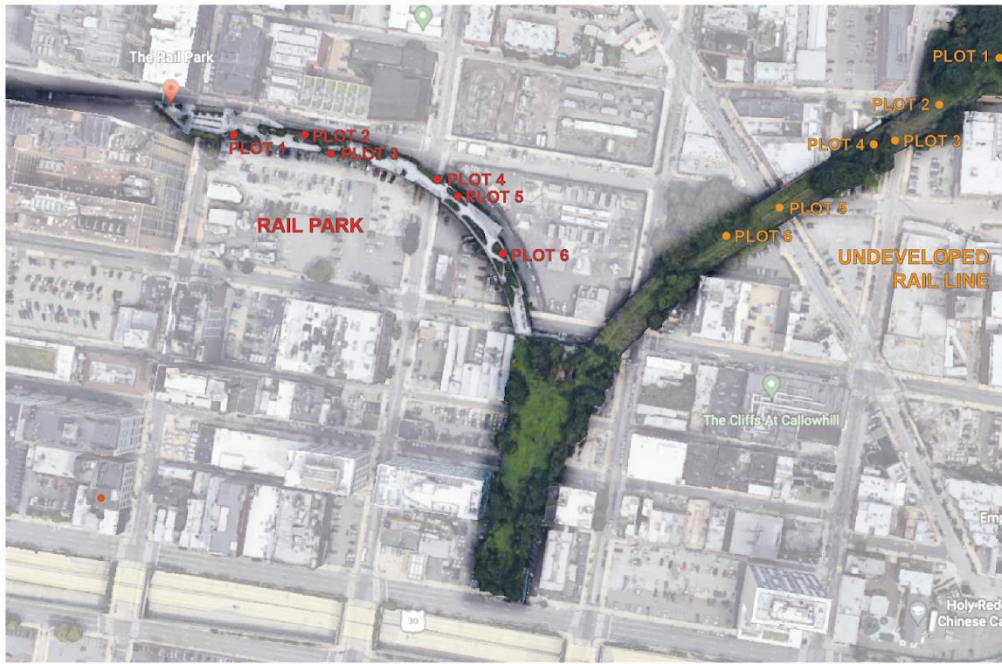


Figure 7: Aerial image of the Rail Park and undeveloped line with points showing the locations of vegetation assessment plots. Plot locations in the Rail Park Phase I are in red. Plot locations in the undeveloped viaduct are in orange.

Table 2: List of plant species observed and recorded at the Rail Park in Plots 1-6.
 **Aesculus parviflora* and *Baptisia alba* are native to the southern regions of the United States and are not typically found in the mid-Atlantic region.

| Scientific Name | Family | Acronym | Native? | C |
|------------------------------|------------------|---------|------------|---|
| <i>Aesculus parviflora</i> | Hippocastanaceae | n/a | non-native | 0 |
| <i>Aruncus dioicus</i> | Rosaceae | n/a | native | 4 |
| <i>Asclepias tuberosa</i> | Asclepiadaceae | n/a | native | 3 |
| <i>Baptisia alba</i> | Fabaceae | n/a | non-native | 0 |
| <i>Betula nigra</i> | Betulaceae | n/a | native | 4 |
| <i>Cercis canadensis</i> | Fabaceae | n/a | native | 6 |
| <i>Cornus racemosa</i> | Cornaceae | n/a | native | 8 |
| <i>Delphinium tricornis</i> | Ranunculaceae | n/a | native | 7 |
| <i>Deschampsia flexuosa</i> | Poaceae | n/a | native | 4 |
| <i>Itea virginica</i> | Grossulariaceae | n/a | native | 7 |
| <i>Platanus occidentalis</i> | Platanaceae | n/a | native | 5 |
| <i>Quercus imbricaria</i> | Fagaceae | n/a | native | 6 |
| <i>Rhus glabra</i> | Anacardiaceae | n/a | native | 3 |
| <i>Rhus typhina</i> | Anacardiaceae | n/a | native | 2 |

Table 3 : List of plants observed and recorded on the undeveloped viaduct in Plots 1-6.

| | | | | |
|-----------------------------|---------------|-----|------------|---|
| <i>Quercus bicolor</i> | Fagaceae | n/a | native | 8 |
| <i>Quercus rubra</i> | Fagaceae | n/a | native | 6 |
| <i>Rhus typhina</i> | Anacardiaceae | n/a | native | 2 |
| <i>Rubus phoenicolasius</i> | Rosaceae | n/a | non-native | 0 |
| <i>Solidago altissima</i> | Asteraceae | n/a | native | 2 |
| <i>Solidago canadensis</i> | Asteraceae | n/a | native | 2 |
| <i>Ulmus rubra</i> | Ulmaceae | n/a | native | 4 |

» Species:

| Scientific Name | Family | Acronym | Native? | C |
|------------------------------------|------------------|----------------|----------------|----------|
| <i>Artemisia vulgaris</i> | Asteraceae | n/a | non-native | 0 |
| <i>Asclepias syriaca</i> | Asclepiadaceae | n/a | native | 1 |
| <i>Celastrus orbiculatus</i> | Celastraceae | n/a | non-native | 0 |
| <i>Chamaecrista fasciculata</i> | Fabaceae | n/a | native | 2 |
| <i>Daucus carota</i> | Apiaceae | n/a | non-native | 0 |
| <i>Eupatorium hyssopifolium</i> | Asteraceae | n/a | native | 1 |
| <i>Juniperus virginiana</i> | Cupressaceae | n/a | native | 3 |
| <i>Liatris spicata</i> | Asteraceae | n/a | native | 7 |
| <i>Malus prunifolia</i> | Rosaceae | n/a | non-native | 0 |
| <i>Panicum virgatum</i> | Poaceae | n/a | native | 4 |
| <i>Parthenocissus quinquefolia</i> | Vitaceae | n/a | native | 3 |
| <i>Paulownia tomentosa</i> | Scrophulariaceae | n/a | non-native | 0 |
| <i>Petrorhagia prolifera</i> | Caryophyllaceae | n/a | non-native | 0 |
| <i>Platanus occidentalis</i> | Platanaceae | n/a | native | 5 |
| <i>Prunus maritima</i> | Rosaceae | n/a | native | 7 |
| <i>Prunus serotina</i> | Rosaceae | n/a | native | 3 |

Calculations:

Method 1. The plant species from both the Rail Park and undeveloped line were analyzed using the Universal Floristic Quality Assessment tool. This analysis method uses *Coefficients of Conservatism (C)*, drawing from the Mid-Atlantic Coastal Plain database.

The (C) values are a number between 1-10 and are assigned to each plant species based on tolerance to degradation and faithfulness to remnant habitats. Introduced species have a coefficient of 0 while species <3 are the most anthropogenic. Species with a score >7 are associated with the least disturbance. The mean C is the average C value for all species within an assessment area.

- The mean C of all the species on the Rail Park was 4.2 compared to the mean C of 2.6 on the undeveloped rail line.

Method 2. To account for species richness in addition to abundance, the Floristic Quality Index (FQI) is used. This calculation weighs mean C by species richness.

$$I = \bar{C}\sqrt{n},$$

Where \bar{C} = mean C and n = species richness. The range for FQI categorizes values from 1-19 to be low habitat quality, 20-35 to be high quality, and greater than 35 to be exceptional quality.

See Appendix A for plant lists and Floristic Quality Assessment (FQA) data.

Sources:

Conversation with Marion Holmes on May 4, 2022.

“Universal FQA Calculator.” Universal FQA Calculator. Accessed October 20, 2022.
<https://universalfqa.org/>.

Freyman, William A., Linda A. Masters, and Stephen Packard. “The Universal Floristic Quality Assessment (FQA) Calculator: An Online Tool for Ecological Assessment and Monitoring.” *Methods in Ecology and Evolution* 7, no. 3 (2015): 380–83.
<https://doi.org/10.1111/2041-210x.12491>.

Lotze, Nate. “Floristic Quality Assessment.” Pennsylvania Land Trust Association, 2019.
<https://conservationtools.org/guides/33-floristic-quality-assessment>.

Limitations:

- Season that observations were made can limit which species were observed and recorded. The size of the sample plots also influences FQI, larger plots typically result in a higher mean C due to incorporating a wider range of species.
- Because FQA was created with regard to remnant native habitats, its place alongside habitat plantings, recreations, or other novel habitats is unclear. There is little guidance available for how comparisons of restorations vs. remnants should be made and interpreted (Spyreas, 2019). With that said, C values assignments have a degree of subjectivity and may be skewed to deliver higher values for advanced successional communities versus more disturbance-dependent communities.

Social Benefits

- ***Supports cross-group interaction, with 78% of 45 surveyed visitors reporting observing people of different backgrounds interacting at the park in a 2022 survey. This is an increase from a 2019 survey, when 51% of surveyed visitors reported observing this type of interaction.***
- ***Promotes sense of ownership, with 81% of 32 surveyed nearby residents reporting feeling that they belong, and 94% reporting feeling welcome at the park.***
- ***Improves health and well-being as self-reported by 78% of 45 surveyed visitors. This is an increase from a 2019 survey, when 61% surveyed visitors reported that the park improved health and well-being.***

Method: Our team conducted a follow-up, post-pandemic survey using an instrument developed and implemented in 2018-2019 by Penn State's Department of Recreation, Parks and Tourism Management. It was part of the *Reimagining the Civic Commons* initiative funded by the William Penn Foundation.

The Friends of the Rail Park reviewed the survey questions and determined which would be the most helpful to revisit in the 2022 follow-up survey instrument. Our survey instrument and flyer were translated into Mandarin and Spanish and distributed in-person as well as via social media, email, and with a QR code on flyers posted at The Rail Park.

45 online and in-person surveys were collected between July-October 2022. 32 area residents (n=32) and 13 visitors who lived outside of the neighborhood boundary (n=13) completed the survey.

The area resident survey instrument consists of 40 detailed questions and took respondents approximately 15-30 minutes to complete. The visitor survey was shorter, consisting of 25 questions and taking 10-20 minutes to complete (see Appendix B).

Survey items pertained to the following:

- Visitor behaviors
- Use history
- Preferences
- Attitudes regarding the quality of the park
- Perceptions of belonging
- Health and wellbeing
- Social capital
- Trust
- Social interaction within the Rail Park
- Comparison of the landscape before and after construction
- Demographics

The research team used SPSS Statistics Version 27 and higher to calculate the statistical significance and effect sizes of the responses (see Tables 4-8).

Calculations:

The following calculations focused on statistical means of individuals responding to questions related to 1. “Social and cross-group interaction,” 2. “Personal ownership and sense of welcome,” 3. “Neighborhood ownership and community use,” 4. “Neighborhood Perceptions and sense of trust,” and 5. “Health and wellness.” See Appendix B for the full visitor and area resident survey instruments, the flyer with QR code, and data analysis.

1. Social and cross-group interactions

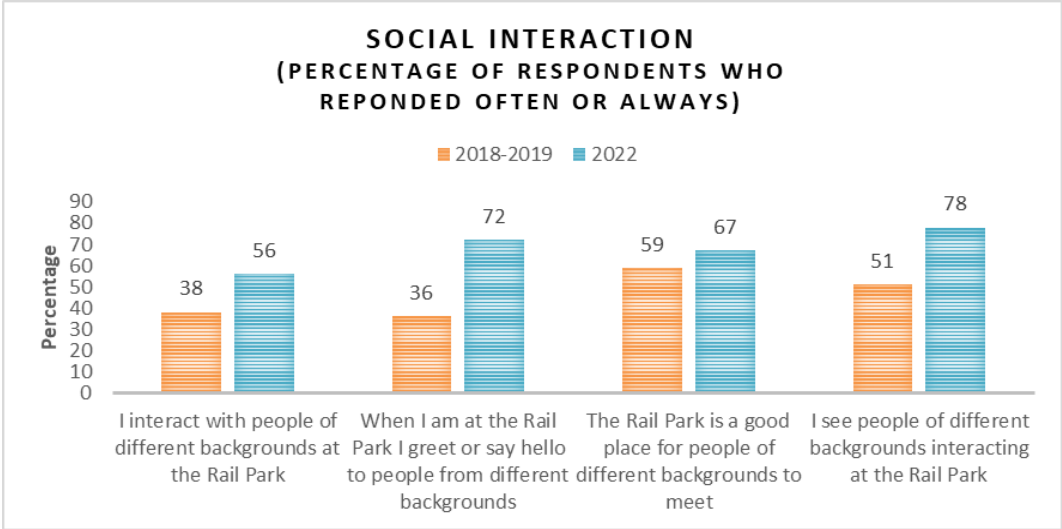


Figure 8: Bar chart of perceived social interactions at the park. The majority of respondents either responded with “often” or “always” with regard to social interaction. The data suggests that social cohesion has increased significantly since 2018-2019.

| Social and cross-group Interactions | Mean (%) 2018-2019 | Mean (%)* 2022 | Standard Deviation 2022 | p-value* 2022 (<0.05 = Null hypothesis is rejected) | Cohen's d* 2022 | Cohen's d Interpretation Color Key: < 0.2 = minimal effect 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|--|-----------------------|-------------------|----------------------------|--|--------------------|---|
| I interact with people of different backgrounds at the Rail Park | 3.2 (38%) | 3.63 (56%) | 1.26 | 0.066 | 0.34 | Lower effect or change since 2018-2019 |
| When I am at the Rail Park, I greet or say hello to people from different backgrounds. | 3.2 (36%) | 3.78 (72%) | 1.24 | 0.012 | 0.47 | Moderate effect or change from 2018-2019 |
| The Rail Park is a good place for people of different backgrounds to meet. | 3.4 (59%) | 4.09 (67%) | 1.09 | 0.001 | 0.64 | Moderate effect or change from 2018-2019 |
| I see people of different backgrounds interacting at the Rail Park | 3.3 (51%) | 4.23 (78%) | 1.08 | 0.00001 | 0.85 | Large effect or change from 2018-2019 |

Table 4: Means, standard deviation, p-value, Cohen's d, and Cohen's d interpretation.
*P-value is used to indicate that there are significant differences between the data from 2022 and 2018-2019. Cohen's d indicates the size or amount of change (or effect) that has taken place from 2018-2019 to 2022.

The data suggest that moderate to large changes have taken place since the 2018-2019 surveys, indicating that the Rail Park is indeed providing a space for social cohesion and cross-group interaction.

2. Personal Ownership and Sense of Welcome

| Personal Ownership and Sense of Welcome | Mean (%) 2019 | Mean (%)* 2022 | Standard Deviation 2022 | p-value* 2022 (<0.05 = Null hypothesis is rejected) | Cohen's d* 2022 | Cohen's d Interpretation – < 0.2 = minimal effect 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|---|---------------|----------------|-------------------------|---|-----------------|---|
| I feel a high degree of personal ownership for the Rail Park. | 4.3 (37%) | 5.59 (53%) | 1.63 | 0.16 | 0.26 | Low effect or change since 2018-2019 |
| I sense that the Rail Park is mine. | 4.3 (46%) | 4.72 (47%) | 1.68 | 0.89 | 0.03 | Minimal effect or change since 2018-2019 |
| The Rail Park is my park. | 5.0 (65%) | 4.34 (78%) | 1.41 | 0.02 | 0.42 | Low to moderate effect or change since 2018-2019 |
| The Rail Park is for people like me. | 5.4 (79%) | 5.69 (86%) | 1.40 | 0.26 | 0.21 | Low effect or change since 2018-2019 |
| I feel welcome at the Rail Park | 6.1 (90%) | 5.84 (94%) | 1.08 | 0.19 | 0.24 | Low effect or change since 2018-2019 |
| I feel like I belong at the Rail Park | 5.6 (77%) | 5.74 (81%) | 1.49 | 0.60 | 0.10 | Minimal effect or change since 2018-2019 |

Table 5: Means, standard deviation, p-value, Cohen's d, and Cohen's d interpretation.

*P-value is used to indicate that there are significant differences between the data from 2022

and 2018-2019. Cohen's d indicates the size or amount of change (or effect) that has taken place from 2018-2019 to 2022.

The data suggests that in 2022, area residents felt a degree of personal ownership very similar to what they felt in 2018-2019. The data also indicates that there has been a slight increase in feeling that "the Rail Park is my park."

3. Neighborhood Ownership and Use

| Community / Neighborhood Ownership and Use | Mean (%) 2018-2019 | Mean (%) 2022 | Standard Deviation 2022 | p-value* 2022 (<0.05 = Null hypothesis is rejected) | Cohen's d* 2022 | Cohen's d Interpretation Color Key: < 0.2 = minimal effect 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|---|--------------------|---------------|-------------------------|---|-----------------|--|
| Our neighborhood feels a high degree of ownership for the Rail Park. | 5.3 (70%) | 5.0 (69%) | 1.76 | 0.34 | -0.17 | Minimal effect or change since 2018-2019 (lower) |
| The Rail Park is our neighborhood park. | 5.8 (87%) | 5.97 (90%) | 1.26 | 0.45 | 0.13 | Minimal effect or change since 2018-2019 |
| I sense that the Rail Park belongs to the local neighborhood. | 5.7 (88%) | 5.5 (78%) | 1.54 | 0.47 | -0.13 | Minimal effect or change since 2018-2019 (lower) |
| People from the local neighborhood use the Rail Park for celebrations and events. | 4.5 (52%) | 5.13 (72%) | 1.10 | 0.003 | 0.57 | Moderate effect or change since 2018-2019 |
| The Rail Park benefits the local neighborhood. | 5.9 (92%) | 6.09 (91%) | 1.17 | 0.36 | 0.17 | Minimal effect or change since 2018-2019 |

| | | | | | | |
|--|---------------|---------------|------|------|------|--------------------------------------|
| The Rail Park is a neighborhood meeting place. | 5.15 (66%) | 5.56 (84%) | 1.19 | 0.06 | 0.35 | Low effect or change since 2018-2019 |
| The Rail Park is a very important part of this neighborhood. | 5.8 (91%) | 6.19 (91%) | 1.18 | 0.07 | 0.33 | Low effect or change since 2018-2019 |

Table 6: Means, standard deviation, p-value, Cohen’s d, and Cohen’s d interpretation.
*P-value is used to indicate that there are significant differences between the data from 2022 and 2018-2019. Cohen’s d indicates the size of the effect between 2018-2019 to 2022.

The data suggests that in 2022 area residents felt a sense of neighborhood ownership similar to what they felt in 2018-2019, believing that “the Rail Park is their neighborhood park.” The data indicates that there has been a moderate increase in feeling that “people from the local neighborhood use the Rail Park for celebrations and events.”

It is important to note that The Friends of the Rail Park has played a significant role in providing numerous programs and events that create additional structured and unstructured opportunities for social and cross-group interactions, ultimately fostering social cohesion. These include events such as the “Summer Sunset” music series, block parties, clean-up and park stewardship events, “Final Fridays”, “Spanish Yoga”, plant swaps, and Chinese Lunar New Year celebrations.

4. Neighborhood perceptions and trust

| Neighborhood Perceptions and Trust | Mean (%) 2018-2019 | Mean (%) 2022 | Standard Deviation 2022 | p-value* 2022 (<0.05 = Null hypothesis is rejected) | Cohen’s d* 2022 | Cohen’s d Interpretation Color Key: < 0.2 = minimal effect 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|--|-----------------------|------------------|----------------------------|---|--------------------|---|
| I’m starting to see a lot of good things happening in this neighborhood. | 4.10 (84%) | 3.75 (56%) | 0.98 | 0.05 | -0.36 | Low effect or change since 2018-2019 (lower) |

| | | | | | | |
|--|--------------|---------------|------|---------|-------|--|
| This neighborhood is heading in the right direction. | 4.2 (89%) | 3.84 (65%) | 0.88 | 0.03 | -0.40 | Low to moderate effect or change since 2018-2019 (lower) |
| I feel optimistic about the future of this neighborhood. | 4.3 (92%) | 3.91 (75%) | 0.89 | 0.02 | -0.44 | Low to moderate effect or change since 2018-2019 (lower) |
| I feel I can trust the people who live in my neighborhood. | 3.6 (68%) | 3.66 (53%) | 0.87 | 0.71 | 0.07 | Low to no effect or change since 2018-2019 |
| I feel I can trust the managers of the Rail Park | 3.9 (76%) | 3.59 (56%) | 0.95 | 0.08 | -0.32 | Low to moderate effect or change since 2018-2019 (lower) |
| I feel I can trust the police. | 3.6 (66%) | 2.72 (34%) | 1.32 | 0.001 | -0.67 | Moderate to large effect or change since 2018-2019 (lower) |
| I feel like I can trust the local government. | 3.4 (51%) | 2.56 (15%) | 0.98 | 0.00001 | -0.85 | Large effect or change since 2018-2019 (lower) |

Table 7: Means, standard deviation, p-value, Cohen's d, and Cohen's d interpretation. *P-value is used to indicate that there are significant differences between the data from 2022 and 2018-2019. Cohen's d indicates the size of the effect between 2018-2019 to 2022.

The data suggests that in 2022 area residents felt significantly more mistrust relative to those who responded in 2018-2019. In part, the data indicates that there has been a notable decline in trust in the local government and in the local police. Additionally, area residents are feeling less optimistic about the future and direction of the neighborhood than they did just three or four years ago.

1. Health and Wellness

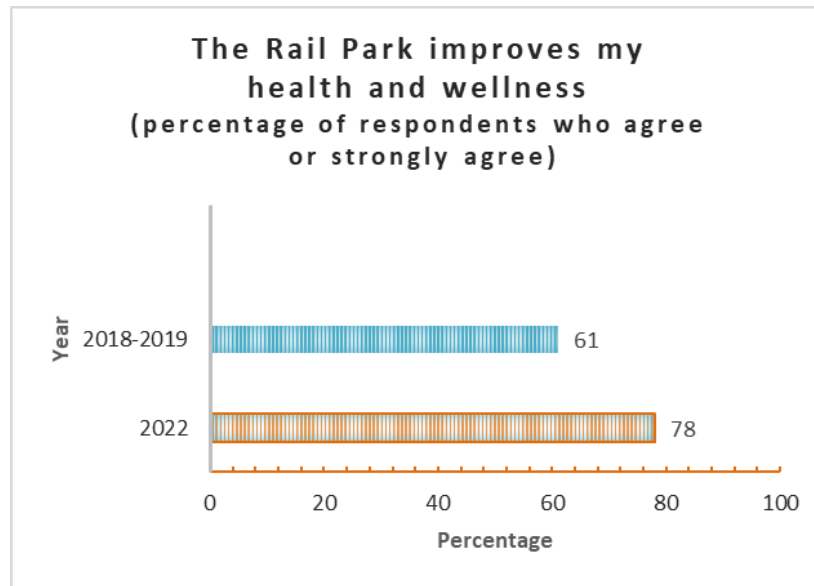


Figure 9: The sense of “health and wellness” felt by visitors and area residents increased 17% from 2019 to 2022 based on data provided by the 45 survey respondents.

| Health and Wellness | Mean (%) 2018-2019 | Mean (%) 2022 | Standard Deviation 2022 | p-value* 2022 (<0.05 = Null hypothesis is rejected) | Cohen’s d* 2022 | Cohen’s d Interpretation Color Key: < 0.2 = minimal effect 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|--|--------------------|---------------|-------------------------|---|-----------------|--|
| The Rail Park improves my health and wellness. | 3.7 (61%) | 4.2 (78%) | 0.84 | 0.0001 | 0.59 | Moderate effect or change since 2018-2019 |

Table 8: Means, standard deviation, p-value, Cohen’s d, and Cohen’s d interpretation.

*P-value is used to indicate that there are significant differences between the data from 2022 and 2018-2019. Cohen’s d indicates the size of the effect between 2018-2019 to 2022.

The data suggests that in 2022 a larger percentage of visitors *and* area residents found that the Rail Park improved their health and wellness than did those who responded in 2018-2019.

Open-ended question (n=45), visitors (n=13) and area residents’ (n=32) responses):

In your opinion, what has been the impact of the Rail Park for yourself, your family, or for the local community?

Comments related to health, well-being, and recreation:

“... It's a nice place to clear my mind.”

“... It has been good for my mental health bc it gets me outside, allows me to relax and be mindful, when the pandemic hit this Park was my saving grace!”

“... An excellent place to walk and relax near our apartment. It's beautiful and I always enjoy it here. I just wish it were longer.”

“... A great place to take a walk any time of day.”

“... Green space mental need.”

“... It's quiet and a lovely place to relax.”

“... Relaxing”

“... cool place to hang out”

“... The Rail Park is one of the few public spaces near my home where I can sit and relax. The only alternatives are local businesses or parks that are too far away to walk to regularly.”

“... It's tough to say. My impression is that everyone loves it, and has been incredibly eager to see it expand. So there's been frustration and a loss of enthusiasm as it feels like expansion plans haven't moved (yes, I know the pandemic messed some things up). But it's so small right now. I see it used more as a relaxation place for individuals, dog walkers, and people reading or eating lunch, than I do for groups of people meeting up. It is beautiful and meditative and I think it contributes greatly to the mental well-being of the community. It COULD contribute to the physical well-being if it were longer. But as it is, you go there and either just walk through it in 3-4 minutes, or sit down.”

Comments related to green space, open space, vegetation, and nature:

“... Good place to be in nature in a neighborhood that severely lacks green space.”

“... preserving open space”

“... an outdoor space”

“... It's been a positive place to sit outside since we are in the city”

“... I love having a calm green space near my home. It feels like an escape from the city. Because of the tall greens, I feel like I am surrounded.”

“... Planted areas need more maintenance”

“... Philly has an unfortunate lack of high quality, safe, and well-maintained public spaces outside of the heart of the CBD. This park is the rare exception, and it is absolutely critical. There aren't other high quality spaces like it nearby.”

Comments related to social cohesion and dogs:

“... It was a massive help during the pandemic, providing an open space to see other people.”

“... It's beautiful, but I can't say that the community is involved here at all.”

“... Having just gotten a dog the Thanksgiving before, we quickly were able to make friends and connections with people in the immediate neighborhood at a time when we weren't seeing many if any of our traditional circles.”

“... Met a lot of dogs here. I wish it was longer and maybe had a dog park?”

“... A safe place for my dog to explore and to sit in the sun!”

“... a somewhat nice space to walk our dog and see neighbors”

Comments related to signage:

“... Signage/directions to Callowhill entrance is required.”

Comments related to safety:

“... Used to be a good place to meet others from the neighborhood over the past year people do not feel safe thus it's no longer a good meeting spot.”

“... It gives the community a place to be outdoors and be safely.”

Comments related to programming:

“... our friend Ava works for the Rail Park and I love the programming she brings here (musical performances)”

Comments related impact on the neighborhood and aesthetics:

“... Great for the neighborhood.”

“... proud”

“... It's still very small, but it represents an optimism about the future of the neighborhood.”

“... Very positive impact, it has become a central focal point of this area”

“... The Rail Park has been used as a means to take over our neighborhood and force us to pay a tax to support it. The neighbors organized and defeated CNA and then Arts and Crafts. Let Paul Levy pay for his pet project himself and leave us alone.”

“... I think it might be an addition to beautifying the neighborhood.”

“... I really, really like it and its minimalist aesthetic, but there's not a lot of comfortable seating. The big swings look nice, but are so big that everyone's legs dangle off and did no one anticipate how the materials would wear and tear? Because now all the swings squeak, clip, and grind as they move, so no one actually swings on them. The rest of the park has no other seating with back support--just benches or kind of awkwardly-shaped and angled (I don't know what to call them) ramps? Really, go there and try to find a place to sit and fully relax and sink into the seating for a long reading session or talk with someone. You can't really do that. So in the next sections, better seating would be really appreciated and maybe even tables and chairs. I would love to get my coffee at a nearby coffee shop and then meet a friend at a table in the rail park to talk.”

“... It is an excellent use of the space, is clean, not crowded, and has great aesthetics”

“... The impact has been very good. A pleasant Walkway for people living in the area.”

Sources:

Mowen, Andrew and Samantha L. Powers. “A Systematic Evaluation of the Rail Park: a full report of post-opening study results,” State College, PA: Penn State University, Department of Recreation, Park and Tourism Management, 2020.

Powers, Samantha L., Alan R. Graefe, Jacob A. Benfield, Benjamin Hickerson, Birgitta L. Baker, Lauren E. Mullenbach & Andrew J. Mowen. 2022. “Exploring the conditions that promote intergroup contact at urban parks,” *Journal of Leisure Research*, 53:3, 426-449. DOI: 10.1080/00222216.2021.1910089

Limitations: The sample size of survey respondents (n=45) for 2022 is smaller than that of the 2018-2019 Penn State area resident study (n=63.) In addition, it appears that few respondents (n=1 or 2) took the 2022 survey that historically had been concerned about “green gentrification” and cultural displacement resulting from the presence of the Rail Park. There were no respondents (n=0) to the survey instrument translated into both Mandarin and Spanish. Lastly, the length of the survey instrument (six pages for the visitor survey, twelve pages for the area resident survey) most likely played a role in smaller sample size.

- ***Creates access to public green space within a 10-minute walk (half mile) for the neighborhood's 8,634 residents, resulting in 3,005 sf of green space per 1,000 residents.***
- ***Increases park access for Asian residents. 22% of Asian residents in the neighborhoods surrounding the Rail Park have access to a park within a 10-minute walk, while only 7.8% of Asian residents of Philadelphia as a whole have access to a park within a 10-minute walk.***

Method: The Trust for Public Land's *ParkServe* database and mapping app called *ParkReviewer* creates a 10-minute walkable service area using a nationwide walkable road network dataset provided by ESRI. Using park boundaries, *ParkReviewer* determines the 10-minute walkable service area and calculates several demographic variables, including race/ethnicity, age, and income, and a report with the data in tables and graphs. Population statistics are based on ESRI 2021 US Census Demographic Forecast Block Group data.

Calculations:

According to ESRI 2021 U.S. demographic estimates census data mapped in the Trust for Public Land’s *ParkServe* database, The Rail Park Phase I serves a local and growing population of approximately 8,634 people, the majority between ages 20 to 64. 62% of the neighborhood residents are people of color, and 37% are white. Household incomes are split nearly evenly between those with low, middle, and high incomes.

Previously, the neighborhood that The Rail Park serves lacked any public green space within a 10-minute walk (0.5 mile.) The development of The Rail Park Phase I introduced access to public green space within a ten-minute walk (0.5 mile) for the neighborhood’s 8,634 residents. The Rail Park is 0.60 acres, which increased the park acreage per 1000 residents from 0 to 0.07 acres or 3,005 square feet, the equivalent of a typical four to five-bedroom single family home.

| Approximate park acreage | Total population served | Approximate park acreage per 1000 residents |
|--------------------------------|-------------------------|--|
| Philadelphia: 10,200.00 | 1,587,882 | <p style="text-align: right;">6.4 acres</p> <p style="text-align: right;">(=10,200/157,882 * 1000)</p> <p style="text-align: right;">(=6.4 * 43560 = 278,784 sq ft)</p> |
| The Rail Park: 0.60 | 8,634 | <p style="text-align: right;">0.07 acres</p> <p style="text-align: right;">(=0.60/ 8,634 * 1000)</p> <p style="text-align: right;">(=0.07 * 43560 = 3,005.64 sq ft)</p> |

Table 9: Park acreage in Philadelphia relative to the neighborhood surrounding The Rail Park Phase 1.

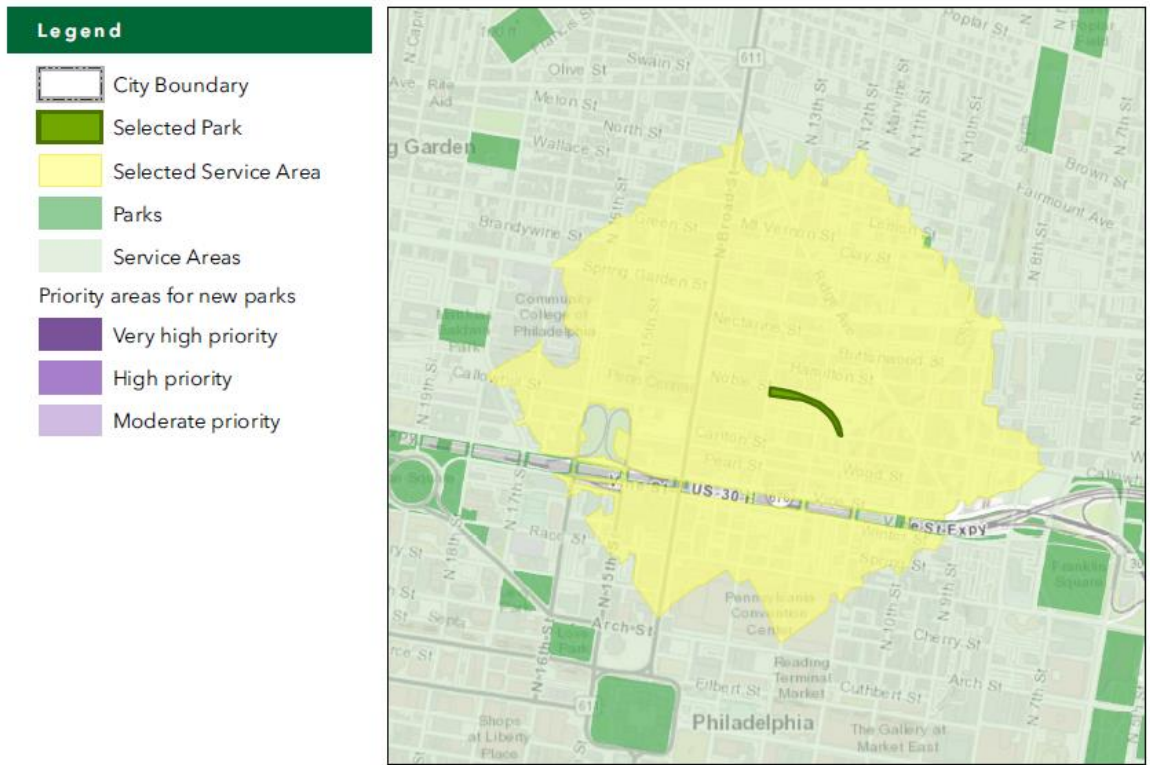


Figure 10: Parkserve map of the 10-minute walkable service area (yellow with a green boundary line) around The Rail Park.

Access to public green space for Asian populations in the neighborhood surrounding The Rail Park were compared to Asian populations in the City of Philadelphia that have access to parks within a 10-minute walk. These calculations used the ESRI 2021 US Census Demographic Forecast Block Group data in the Trust for Public Land’s *ParkServe* database.

| Number of people who live within a 10-minute walk of a park | Number (%) of Asian residents that live within a 10-minute walk of a park |
|---|---|
| In Philadelphia: 1,504,143 | 116, 803 (7.8%) |
| The Rail Park: 8,643 | 1,924 (22%) |

Table 10: Total number of people and total number (%) of Asian residents in Philadelphia that live within a 10-minute walk to a park relative to the number of residents and Asian residents in the neighborhood surrounding The Rail Park Phase 1. This is an increase of 22% for the nearby Asian resident, providing access to park space to an historically underserved population.

Source:

Trust for Public Land *ParkServe* database. Accessed August 2022.
<https://www.tpl.org/parkserve/about>

Limitations: Calculations were performed using estimates from the ESRI 2021 US Census Demographic Forecast Block Group data. The data may be incomplete. In particular, it seems likely to omit people of lower economic status and to inaccurately reflect the incomes of those who participate in informal economies, and/or those whose wages are not fully reported. It also does not reflect actual usership of the park, only access. It does not take into account physical barriers to access e.g. highway crossings.

Economic Benefits

- ***Contributed to a 238% increase in mean assessed property value of structures within a quarter mile of the Rail Park from 2015 to 2022.***

Background: The redevelopment of the Viaduct began in 2011 as political support, funding, news coverage, and public meetings began. The real estate market may have begun to shift in 2011 in response to plans for development of The Rail Park Phase I.

Method: Data was retrieved from the City of Philadelphia's *Atlas Property App* and Open Data Philly to gather information about a property's address, sales history, and value over time. Market value data from 2015, three years prior to the park's completion, was compared with 2022 market values. Inflation was accounted for by multiplying 2015 values by 1.25 per the "cumulative price change" of 25.02% between 2015 and 2022.

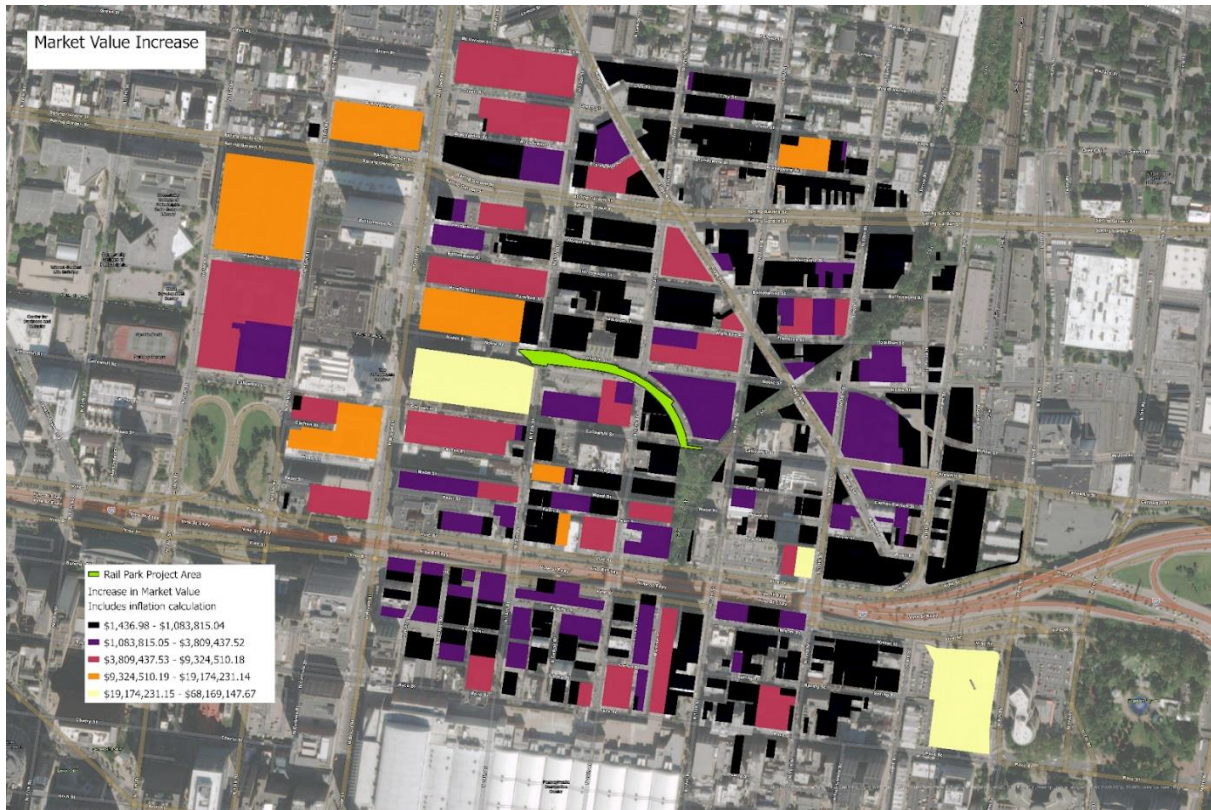


Figure 11: Map showing the Market Value increase surrounding a 0.25 mile of the Rail Park.

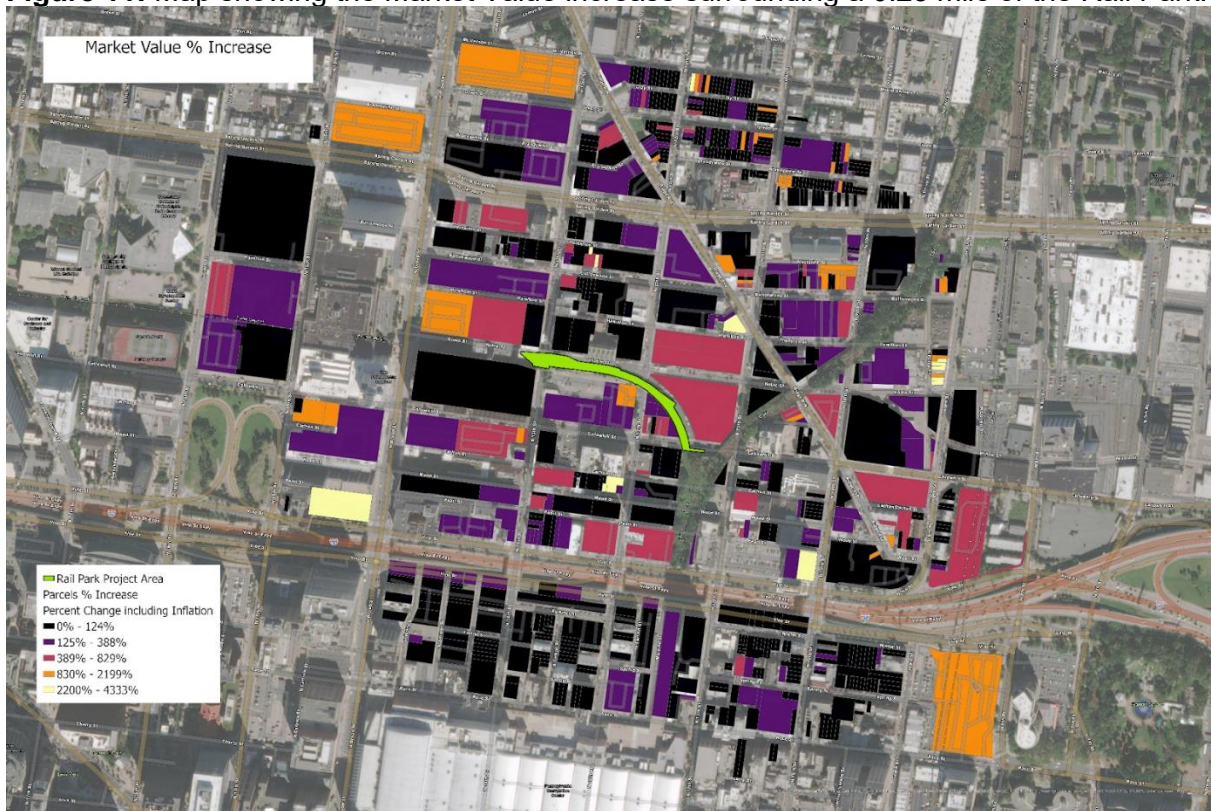


Figure 12: Map showing the percent increase in market value surrounding 0.25 mile of the Rail Park.

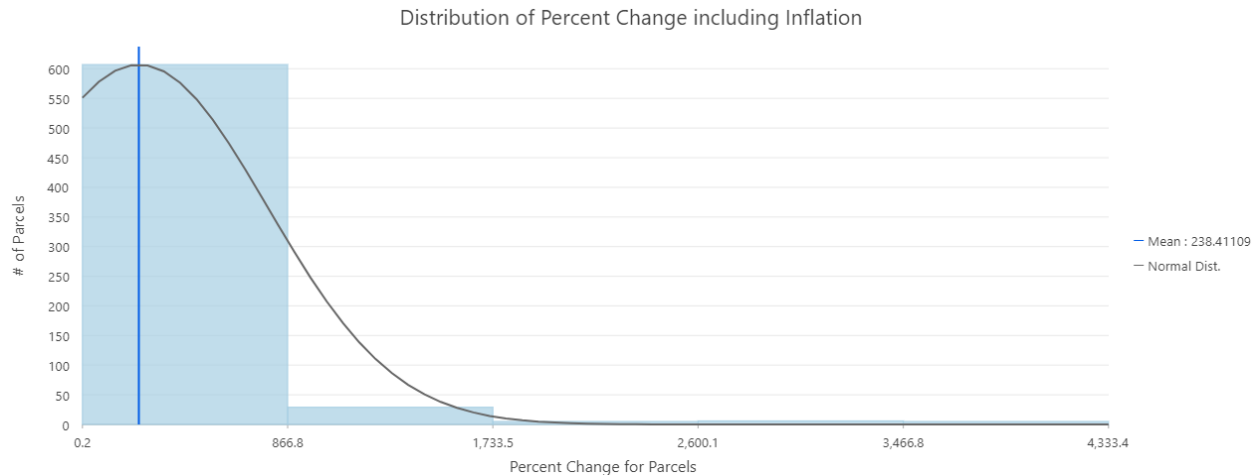


Figure 13: Graph indicating the distribution of percent change for parcels after accounting for inflation.

Sources:

Property Value Study: <https://property.phila.gov/>

Official Data Inflation Calculator. Accessed August 2022.
<https://www.officialdata.org/us/inflation/2015?amount=10>

Census tract 376 <https://censusreporter.org/profiles/14000US42101037600-census-tract-376-philadelphia-pa/>

Strategic Economics. “Philadelphia Rail Park Property Value Impact Study, Final Report,” Philadelphia, PA: Philadelphia Chinatown Development Corporation, July 2020.

Limitations:

This method does not account for other market factors that could impact property values around the Rail Park. Real estate appraisals and tax data are available from 2015 to 2022. This does not include decrease in property values.

- ***Supports at least 5 businesses and community organizations within a half-mile of the Rail Park who reported that the park has played a role in business decisions and positively impacted their customers. The park has served as a catalyst for the establishment of at least 3 new businesses within a quarter-mile radius of the park.***

Background: Economic benefits were evaluated using a business and organization impact survey. One of the significant challenges indicated by the Chinatown Development Corporation is the potential displacement and “green gentrification” resulting from Rail Park’s presence. However, they noted that they have found partnering with the Friends of the Rail Park helpful since it affirms their cultural identity and provides engaging and inclusive programming as well as open space for all.

Method: Interviewed businesses and organizations (n=11) located within a quarter-mile radius from both the Noble Street entrance and the Callowhill Street entrance to the park. The business survey asked five questions:

1. When was your business established?
2. If your business was established after 2018, did the Rail Park have something to do with your decision to open your business?
3. If your business was established prior to 2018, do you think the Rail Park had a positive, negative or no impact on your business?
4. Do you think the proximity of your business to the Rail Park has had any impact on your business? If so please describe:
5. What is your relationship to the business?

Calculations:

11 of the 18 businesses and community organizations that were contacted responded to the survey via email, representing a 61% response rate. 8 were from businesses and 5 were from non-profit organizations.

- 5 (or 45%) of the businesses and community organizations that responded stated that the Rail Park has played a role in business decisions and has positively impacted their customers.
- Businesses located east and northeast of the park have seen little to no direct impact from the construction of The Rail Park, but these businesses and organizations stated that they are looking forward to the development of The Viaduct - Phase 2.
- Organizations noted that they enjoy partnering with The Friends of the Rail Park.
- Business and community organizations most positively impacted by the Rail Park include coffee shops, breweries, and a local homeless shelter, the Sunday Breakfast Rescue Mission.
 - The Volunteer and Community Relations Manager for the Sunday Breakfast Rescue Mission stated that *“The Rail Park has had a positive and welcoming impact on our guests. We even use The Rail Park in the spiritual care of our guests by taking them on field trips to The Rail Park to enjoy being outside, do devotionals, and build relationships. The fact that The Rail Park is intentional in using inclusive styles of benches, etc that do not intend to force the homeless out allows our guests to feel comfortable and cared for in their community.”*

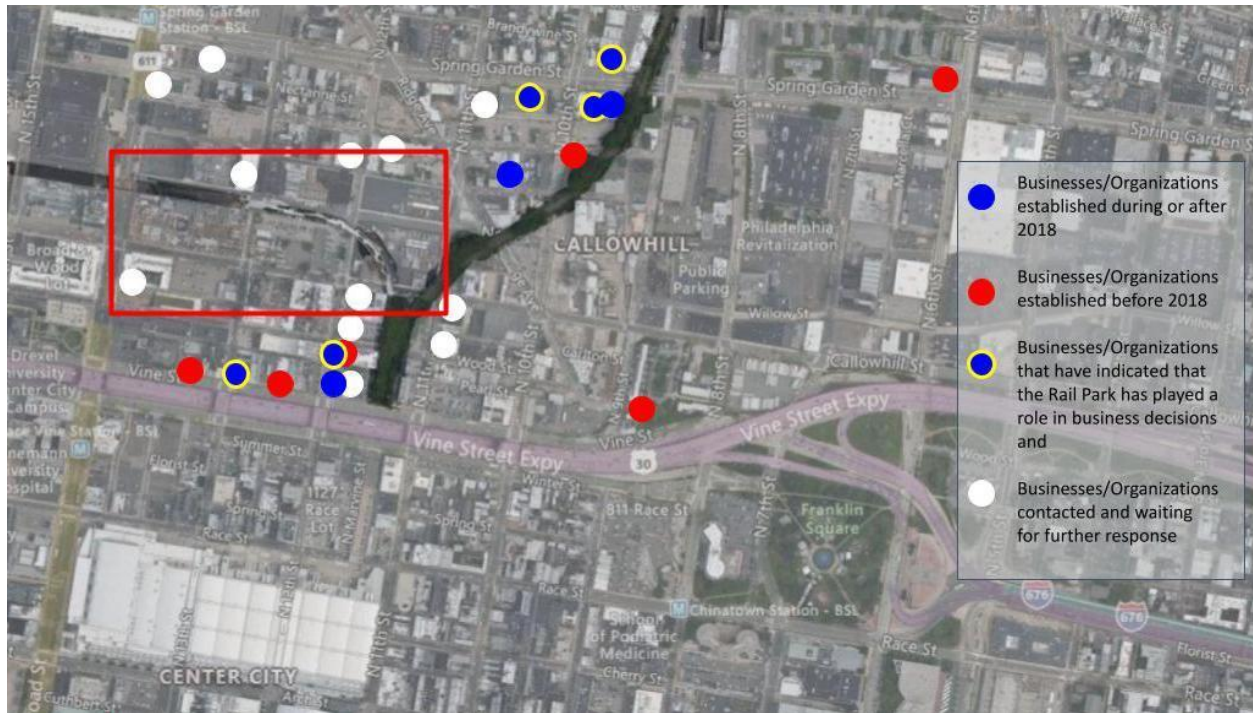


Figure 14: Locations of businesses and organizations (red, blue, blue and yellow, and white dots) that either completed the Business Impact Survey or were contacted by our research team. The Rail Park Phase I is located within the red rectangle. Businesses and organizations (in blue and yellow dots) noted that the Rail Park has played a role in their decision making processes and has had a positive impact on their users.

Sources:

Data from local businesses and organizations was collected with the Friends of the Rail Park’s assistance.

Limitations:

- There were fewer responses than desired to either the online or in-person surveys, particularly by businesses and organizations located within a quarter mile radius of the Rail Park. Several business owners cited that they were short staffed and unable to complete the survey.

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Appendix A

i-Tree Eco V6 - Ecosystems Report (e e e)

Floristic Quality Assessment data and analysis

The Rail Park h e 1

1

e e e Rail Line

i-Tree Ecosystem Analysis

The Rail Park



Urban Forest Effects and Values
August 2022

Summary

Understanding an urban forest's structure, function and value can promote management decisions that will improve human health and environmental quality. An assessment of the vegetation structure, function, and value of the The Rail Park urban forest was conducted during 2022. Data from 102 trees located throughout The Rail Park were analyzed using the i-Tree Eco model developed by the U.S. Forest Service, Northern Research Station.

- Number of trees: 102
- Tree Cover: 61.3 %
- Most common species of trees: Staghorn sumac, Smooth sumac, River birch
- Percentage of trees less than 6" (15.2 cm) diameter: 76.5%
- Pollution Removal: 44.11 pounds/year (\$614/year)
- Carbon Storage: 18.93 tons (\$3.23 thousand)
- Carbon Sequestration: 1172 pounds (\$100/year)
- Oxygen Production: 1.563 tons/year
- Avoided Runoff: 1.509 thousand cubic feet/year (\$101/year)
- Building energy savings: N/A – data not collected
- Avoided carbon emissions: N/A – data not collected
- Replacement values: \$80.7 thousand

Ton: short ton (U.S.) (2,000 lbs)

Monetary values \$ are reported in US Dollars throughout the report except where noted.
Ecosystem service estimates are reported for trees.

I. Tree Characteristics of the Urban Forest

The urban forest of The Rail Park has 102 trees with a tree cover of 61.3 percent. The three most common species are Staghorn sumac (41.2 percent), Smooth sumac (13.7 percent), and River birch (12.7 percent).

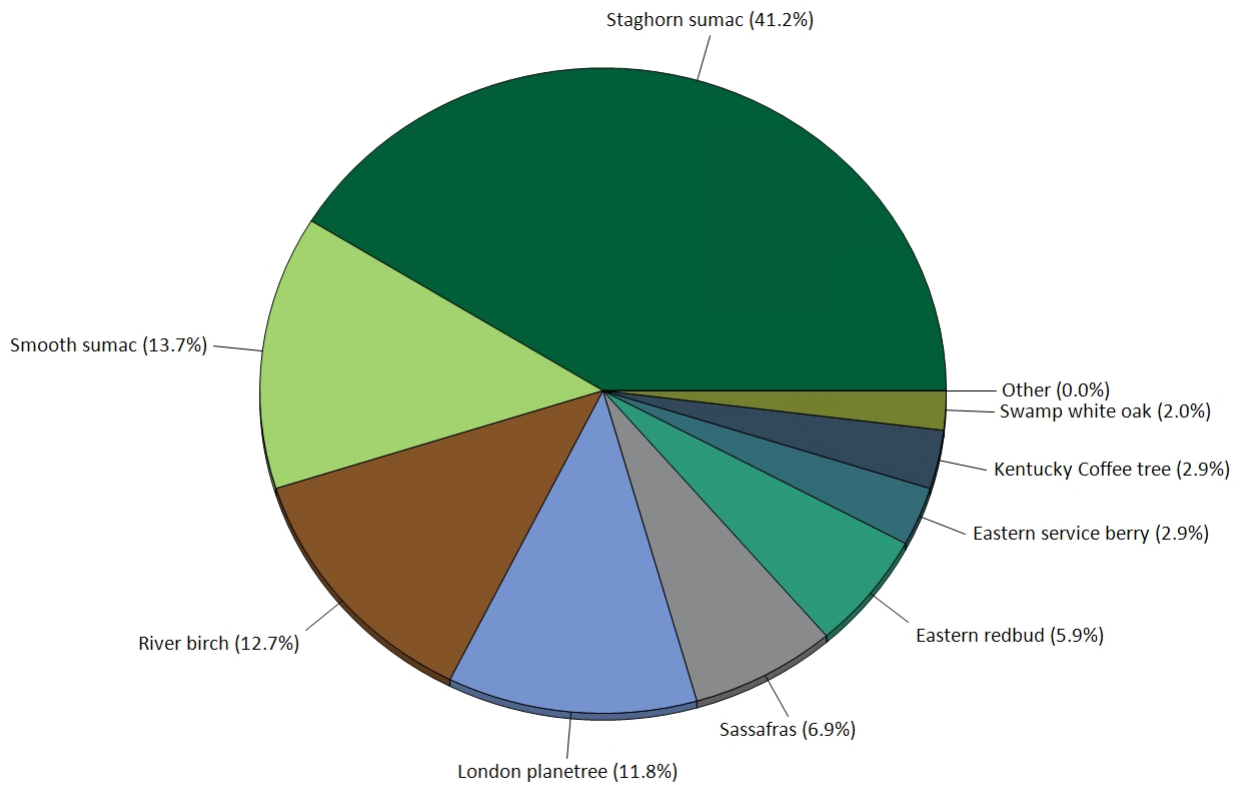


Figure 1. Tree species composition in The Rail Park

The overall tree density in The Rail Park is 80 trees/acre (see Appendix III for comparable values from other cities).

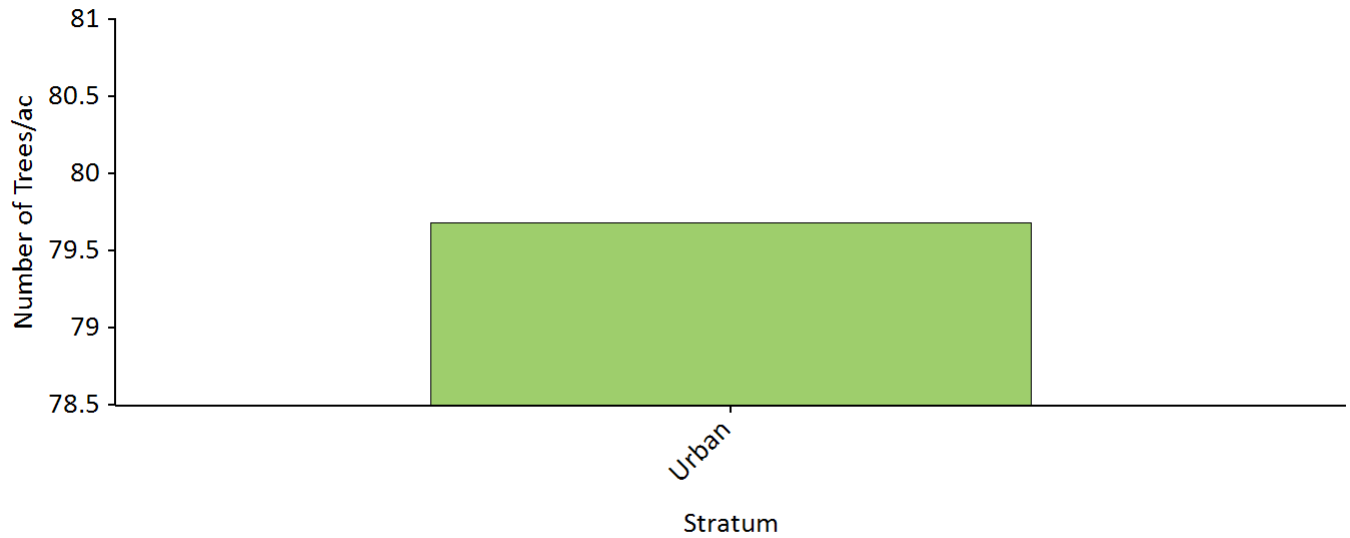


Figure 2. Number of trees/ac in The Rail Park by stratum

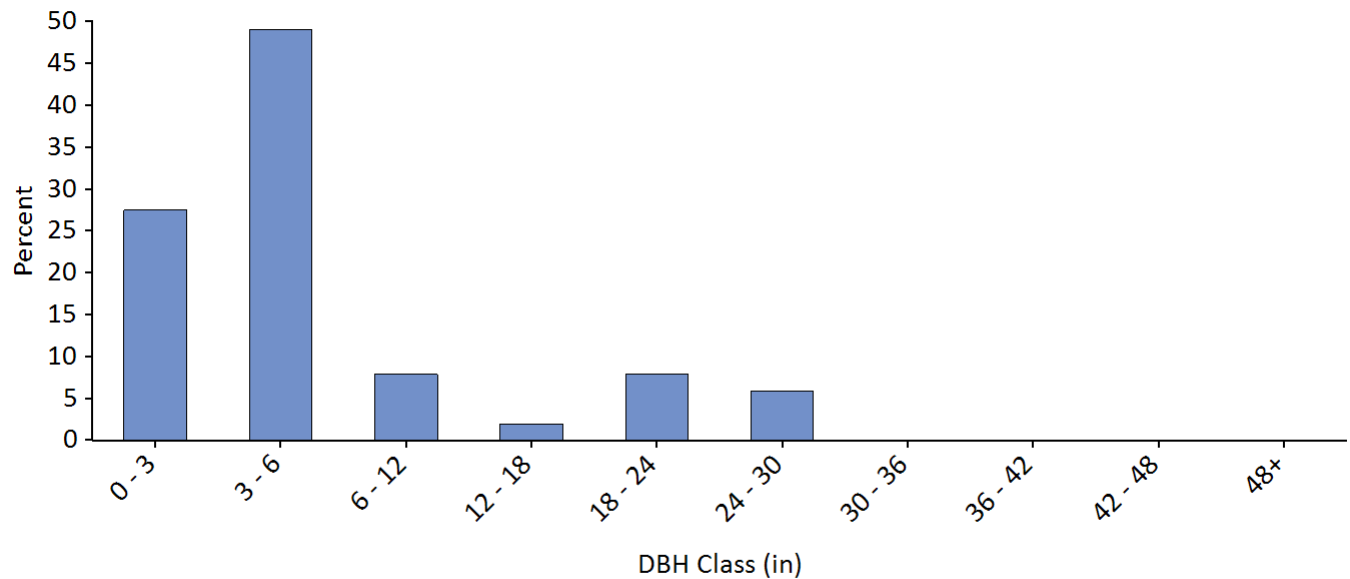


Figure 3. Percent of tree population by diameter class (DBH - stem diameter at 4.5 feet)

Urban forests are composed of a mix of native and exotic tree species. Thus, urban forests often have a tree diversity that is higher than surrounding native landscapes. Increased tree diversity can minimize the overall impact or destruction by a species-specific insect or disease, but it can also pose a risk to native plants if some of the exotic species are invasive plants that can potentially out-compete and displace native species. In The Rail Park, about 88 percent of the trees are species native to North America, while 85 percent are native to Pennsylvania. Species exotic to North America make up 12 percent of the population. Most exotic tree species have an origin from Unknown (12 percent of the species).

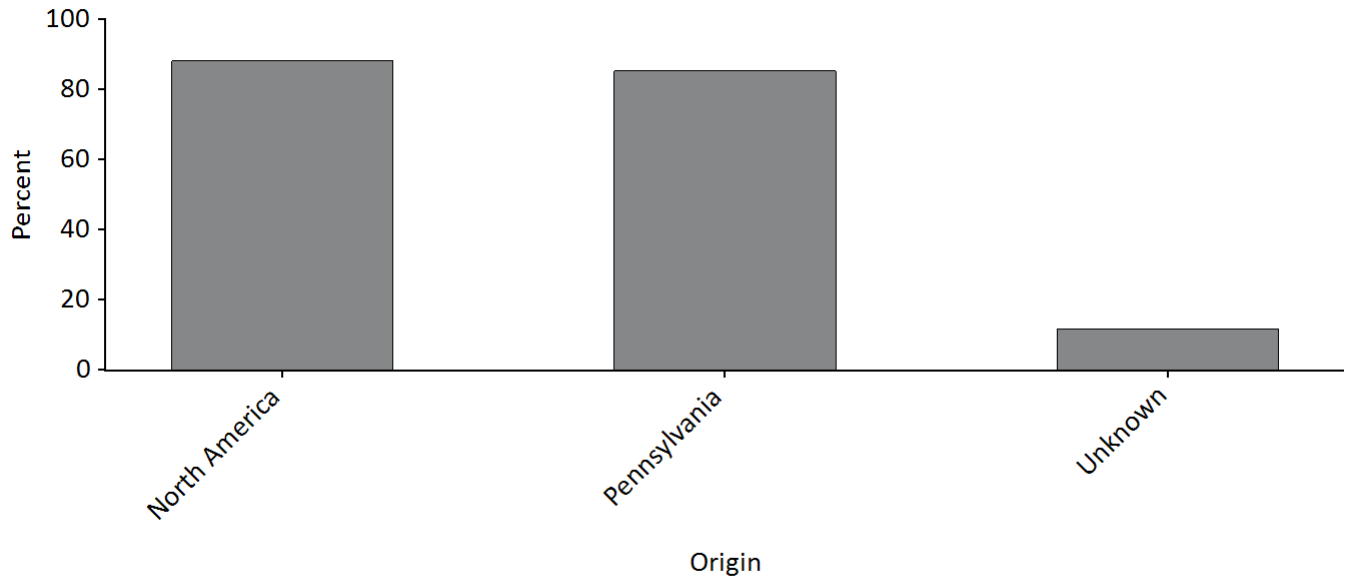


Figure 4. Percent of live tree population by area of native origin, The Rail Park

Invasive plant species are often characterized by their vigor, ability to adapt, reproductive capacity, and general lack of natural enemies. These abilities enable them to displace native plants and make them a threat to natural areas. Zero of the 9 tree species in The Rail Park are identified as invasive on the state invasive species list (Department of Conservation and Natural Resources).

II. Urban Forest Cover and Leaf Area

Many tree benefits equate directly to the amount of healthy leaf surface area of the plant. Trees cover about 61 percent of The Rail Park and provide 3.284 acres of leaf area. Total leaf area is greatest in Urban.

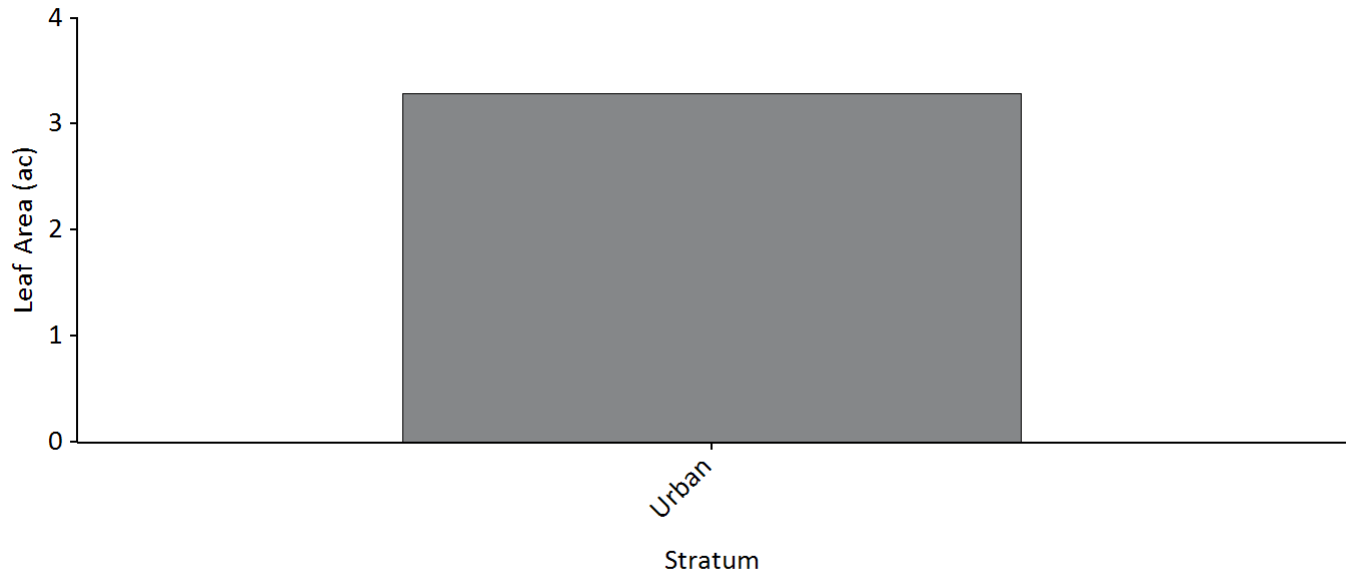


Figure 5. Leaf area by stratum, The Rail Park

In The Rail Park, the most dominant species in terms of leaf area are London planetree, Swamp white oak, and River birch. The 9 species with the greatest importance values are listed in Table 1. Importance values (IV) are calculated as the sum of percent population and percent leaf area. High importance values do not mean that these trees should necessarily be encouraged in the future; rather these species currently dominate the urban forest structure.

Table 1. Most important species in The Rail Park

| <i>Species Name</i> | <i>Percent Population</i> | <i>Percent Leaf Area</i> | <i>IV</i> |
|-----------------------|---------------------------|--------------------------|-----------|
| London planetree | 11.8 | 63.6 | 75.3 |
| Staghorn sumac | 41.2 | 6.1 | 47.3 |
| River birch | 12.7 | 9.9 | 22.6 |
| Smooth sumac | 13.7 | 1.3 | 15.0 |
| Swamp white oak | 2.0 | 11.0 | 12.9 |
| Eastern redbud | 5.9 | 5.4 | 11.3 |
| Sassafras | 6.9 | 0.7 | 7.6 |
| Kentucky Coffee tree | 2.9 | 1.3 | 4.3 |
| Eastern service berry | 2.9 | 0.8 | 3.7 |

IV. Carbon Storage and Sequestration

Climate change is an issue of global concern. Urban trees can help mitigate climate change by sequestering atmospheric carbon (from carbon dioxide) in tissue and by altering energy use in buildings, and consequently altering carbon dioxide emissions from fossil-fuel based power sources (Abdollahi et al 2000).

Trees reduce the amount of carbon in the atmosphere by sequestering carbon in new growth every year. The amount of carbon annually sequestered is increased with the size and health of the trees. The gross sequestration of The Rail Park trees is about 1172 pounds of carbon per year with an associated value of \$100. See Appendix I for more details on methods.

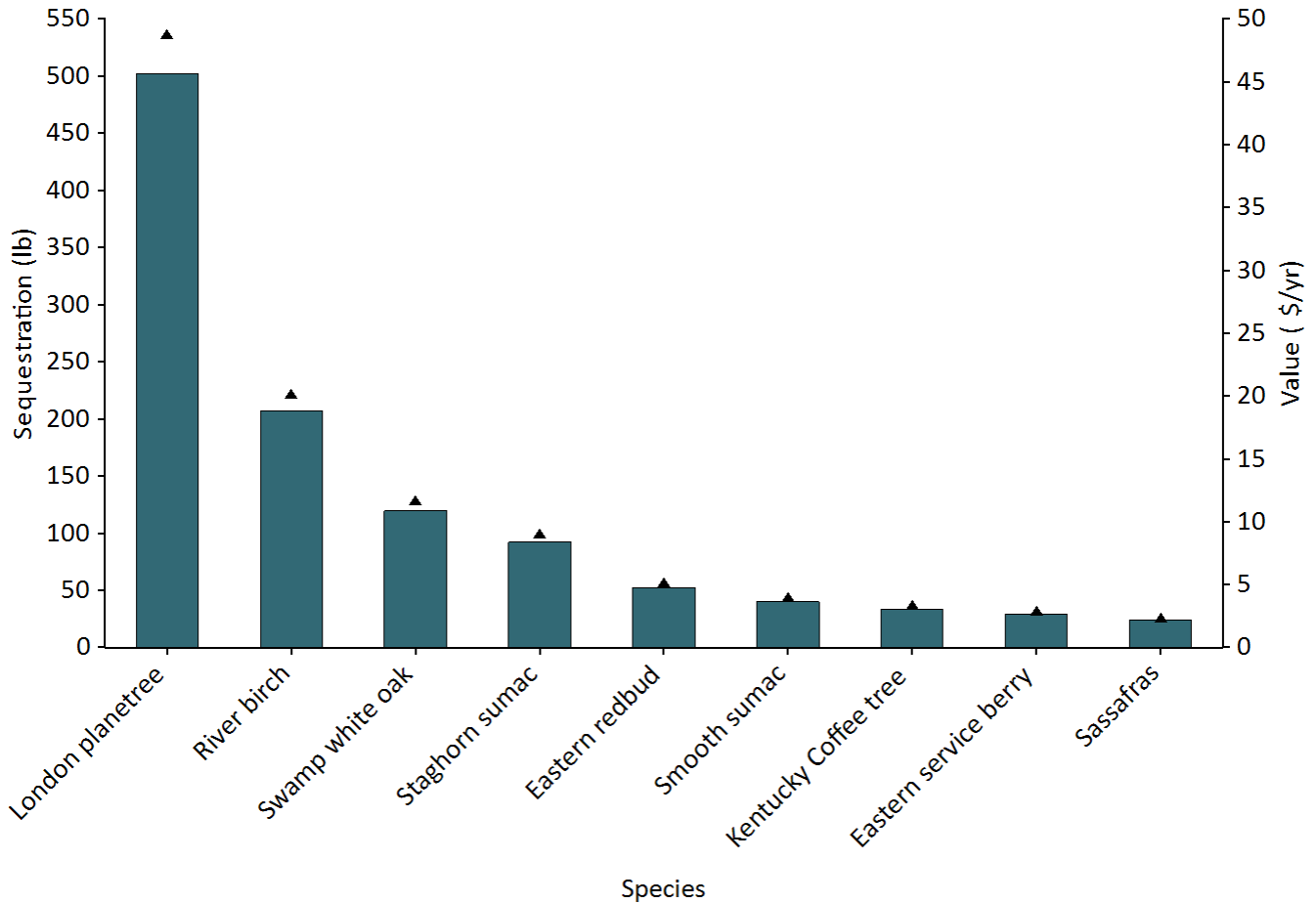


Figure 8. Estimated annual gross carbon sequestration (points) and value (bars) for urban tree species with the greatest sequestration, The Rail Park

Carbon storage is another way trees can influence global climate change. As a tree grows, it stores more carbon by holding it in its accumulated tissue. As a tree dies and decays, it releases much of the stored carbon back into the atmosphere. Thus, carbon storage is an indication of the amount of carbon that can be released if trees are allowed to die and decompose. Maintaining healthy trees will keep the carbon stored in trees, but tree maintenance can contribute to carbon emissions (Nowak et al 2002c). When a tree dies, using the wood in long-term wood products, to heat buildings, or to produce energy will help reduce carbon emissions from wood decomposition or from fossil-fuel or wood-based power plants.

Trees in The Rail Park are estimated to store 18.9 tons of carbon (\$3.23 thousand). Of the species sampled, London

planetree stores and sequesters the most carbon (approximately 62.9% of the total carbon stored and 45.7% of all sequestered carbon.)

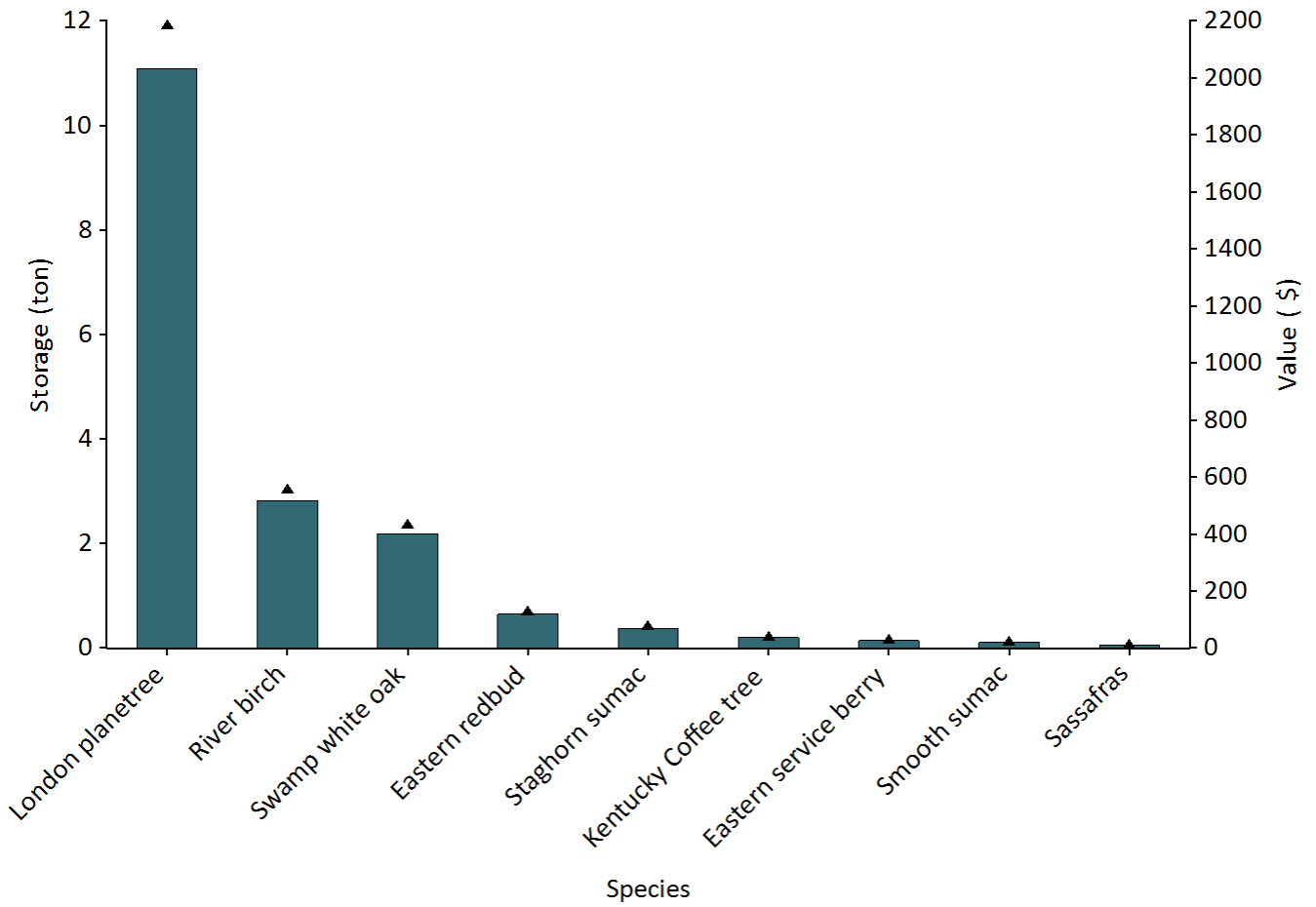


Figure 9. Estimated carbon storage (points) and values (bars) for urban tree species with the greatest storage, The Rail Park

VI. Avoided Runoff

Surface runoff can be a cause for concern in many urban areas as it can contribute pollution to streams, wetlands, rivers, lakes, and oceans. During precipitation events, some portion of the precipitation is intercepted by vegetation (trees and shrubs) while the other portion reaches the ground. The portion of the precipitation that reaches the ground and does not infiltrate into the soil becomes surface runoff (Hirabayashi 2012). In urban areas, the large extent of impervious surfaces increases the amount of surface runoff.

Urban trees and shrubs, however, are beneficial in reducing surface runoff. Trees and shrubs intercept precipitation, while their root systems promote infiltration and storage in the soil. The trees and shrubs of The Rail Park help to reduce runoff by an estimated 1.51 thousand cubic feet a year with an associated value of \$100 (see Appendix I for more details). Avoided runoff is estimated based on local weather from the user-designated weather station. In The Rail Park, the total annual precipitation in 2019 was 49.6 inches.

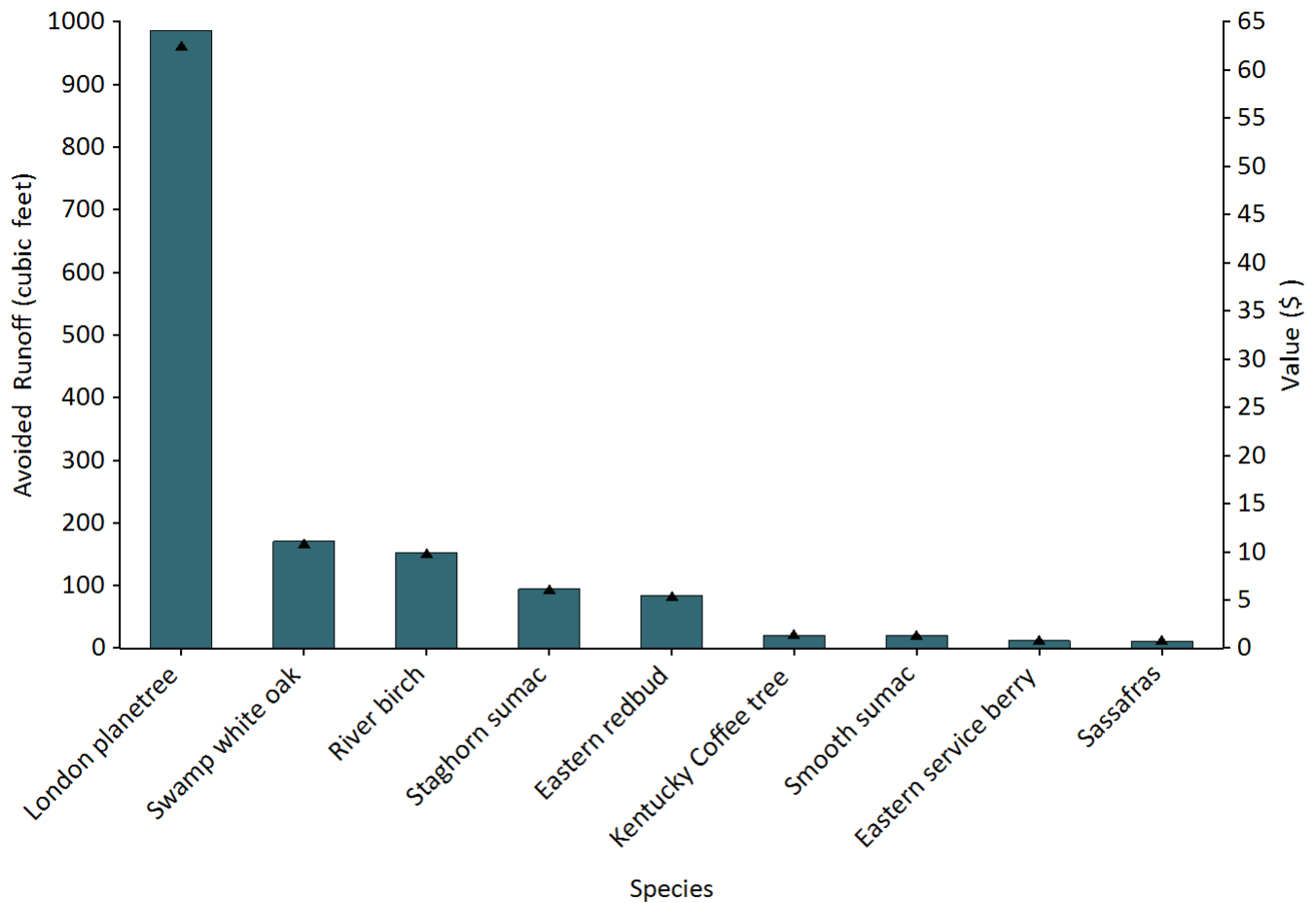


Figure 10. Avoided runoff (points) and value (bars) for species with greatest overall impact on runoff, The Rail Park

| | | | | | | | | | |
|-----------------------------|---|--------|--|--|--|--|--|--|--|
| Park Vegetation | | | | | | | | | |
| 2022-07-08 | | | | | | | | | |
| Rail Park Phase I | | | | | | | | | |
| Philadelphia | | | | | | | | | |
| PA | | | | | | | | | |
| PA | | | | | | | | | |
| United States | | | | | | | | | |
| FQA DB Region: | Mid-Atlantic Coastal Plain with invasives | | | | | | | | |
| FQA DB Publication Year: | 2012 | | | | | | | | |
| FQA DB Description: | MAWWG | | | | | | | | |
| Practitioner: | Sidney | | | | | | | | |
| Latitude: | | | | | | | | | |
| Longitude: | | | | | | | | | |
| Weather Notes: | | | | | | | | | |
| Duration Notes: | Taken over the course of 4 days | | | | | | | | |
| Community Type Notes: | | | | | | | | | |
| Other Notes: | | | | | | | | | |
| Private/Public: | Public | | | | | | | | |
| Conservatism-Based Metrics: | | | | | | | | | |
| Total Mean C: | 4.2 | | | | | | | | |
| Native Mean C: | 4.9 | | | | | | | | |
| Total FQI: | 15.7 | | | | | | | | |
| Native FQI: | 17 | | | | | | | | |
| Adjusted FQI: | 45.4 | | | | | | | | |
| % C value 0: | 14.3 | | | | | | | | |
| % C value 1-3: | 21.4 | | | | | | | | |
| % C value 4-6: | 42.9 | | | | | | | | |
| % C value 7-10: | 21.4 | | | | | | | | |
| Native Tree Mean C: | 0 | | | | | | | | |
| Native Shrub Mean C: | 0 | | | | | | | | |
| Native Herbaceous Mean C: | 0 | | | | | | | | |
| Species Richness: | | | | | | | | | |
| Total Species: | 14 | | | | | | | | |
| Native Species: | 12 | 85.70% | | | | | | | |

| | | | | | | | | | |
|-----------------------------|-----------------|---------|------------|---|-------|-------------|----------|-------------|--|
| Non-native Species: | 2 | 14.30% | | | | | | | |
| Species Wetness: | | | | | | | | | |
| Mean Wetness: | n/a | | | | | | | | |
| Native Mean Wetness: | n/a | | | | | | | | |
| Physiognomy Metrics: | | | | | | | | | |
| Tree: | n/a | | | | | | | | |
| Shrub: | n/a | | | | | | | | |
| Vine: | n/a | | | | | | | | |
| Forb: | n/a | | | | | | | | |
| Grass: | n/a | | | | | | | | |
| Sedge: | n/a | | | | | | | | |
| Rush: | n/a | | | | | | | | |
| Fern: | n/a | | | | | | | | |
| Bryophyte: | n/a | | | | | | | | |
| Duration Metrics: | | | | | | | | | |
| Annual: | n/a | | | | | | | | |
| Perennial: | n/a | | | | | | | | |
| Biennial: | n/a | | | | | | | | |
| Native Annual: | n/a | | | | | | | | |
| Native Perennial: | n/a | | | | | | | | |
| Native Biennial: | n/a | | | | | | | | |
| Species: | | | | | | | | | |
| Scientific Name | Family | Acronym | Native? | C | W | Physiognomy | Duration | Common Name | |
| <i>Aesculus parviflora</i> | Hippocastanac | n/a | non-native | | 0 n/a | n/a | n/a | n/a | |
| <i>Aruncus dioicus</i> | Rosaceae | n/a | native | | 4 n/a | n/a | n/a | n/a | |
| <i>Asclepias tuberosa</i> | Asclepiadaceae | n/a | native | | 3 n/a | n/a | n/a | n/a | |
| <i>Baptisia alba</i> | Fabaceae | n/a | non-native | | 0 n/a | n/a | n/a | n/a | |
| <i>Betula nigra</i> | Betulaceae | n/a | native | | 4 n/a | n/a | n/a | n/a | |
| <i>Cercis canadensis</i> | Fabaceae | n/a | native | | 6 n/a | n/a | n/a | n/a | |
| <i>Cornus racemosa</i> | Cornaceae | n/a | native | | 8 n/a | n/a | n/a | n/a | |
| <i>Delphinium tricornes</i> | Ranunculaceae | n/a | native | | 7 n/a | n/a | n/a | n/a | |
| <i>Deschampsia flexuosa</i> | Poaceae | n/a | native | | 4 n/a | n/a | n/a | n/a | |
| <i>Itea virginica</i> | Grossulariaceae | n/a | native | | 7 n/a | n/a | n/a | n/a | |

| | | | | | | | | | |
|-----------------------|---------------|-----|--------|---|-----|-----|-----|-----|--|
| Platanus occidentalis | Platanaceae | n/a | native | 5 | n/a | n/a | n/a | n/a | |
| Quercus imbricaria | Fagaceae | n/a | native | 6 | n/a | n/a | n/a | n/a | |
| Rhus glabra | Anacardiaceae | n/a | native | 3 | n/a | n/a | n/a | n/a | |
| Rhus typhina | Anacardiaceae | n/a | native | 2 | n/a | n/a | n/a | n/a | |

| | | | | | | | | | |
|------------------------------|---|--|--|--|--|--|--|--|--|
| 2022-07-25 | | | | | | | | | |
| Undeveloped rail line | | | | | | | | | |
| Philadelphia | | | | | | | | | |
| PA | | | | | | | | | |
| PA | | | | | | | | | |
| United States | | | | | | | | | |
| FQA DB Region | Mid-Atlantic Coastal Plain with invasives | | | | | | | | |
| FQA DB Public | 2012 | | | | | | | | |
| FQA DB Descr | MAWWG | | | | | | | | |
| Practitioner: | Sidney, Michelle | | | | | | | | |
| Latitude: | | | | | | | | | |
| Longitude: | | | | | | | | | |
| Weather Notes: | | | | | | | | | |
| Duration Notes: | | | | | | | | | |
| Community Type Notes: | | | | | | | | | |
| Other Notes: | | | | | | | | | |
| Private/Public: | Public | | | | | | | | |
| Conservatism-Based Metrics: | | | | | | | | | |
| Total Mean C: | 2.6 | | | | | | | | |
| Native Mean C: | 3.8 | | | | | | | | |
| Total FQI: | 12.5 | | | | | | | | |
| Native FQI: | 15.2 | | | | | | | | |
| Adjusted FQI: | 31.7 | | | | | | | | |
| % C value 0: | 30.4 | | | | | | | | |
| % C value 1-3: | 39.1 | | | | | | | | |
| % C value 4-6: | 17.4 | | | | | | | | |
| % C value 7-10: | 13 | | | | | | | | |
| Native Tree Me | 0 | | | | | | | | |
| Native Shrub M | 0 | | | | | | | | |

| | | | | | | | | | |
|----------------------|--------|---------|---------|---|---|-------------|----------|-------------|--|
| Native Herbace | 0 | | | | | | | | |
| Species Richness: | | | | | | | | | |
| Total Species: | 23 | | | | | | | | |
| Native Species | 16 | 69.60% | | | | | | | |
| Non-native Spe | 7 | 30.40% | | | | | | | |
| Species Wetness: | | | | | | | | | |
| Mean Wetness | n/a | | | | | | | | |
| Native Mean W | n/a | | | | | | | | |
| Physiognomy Metrics: | | | | | | | | | |
| Tree: | n/a | | | | | | | | |
| Shrub: | n/a | | | | | | | | |
| Vine: | n/a | | | | | | | | |
| Forb: | n/a | | | | | | | | |
| Grass: | n/a | | | | | | | | |
| Sedge: | n/a | | | | | | | | |
| Rush: | n/a | | | | | | | | |
| Fern: | n/a | | | | | | | | |
| Bryophyte: | n/a | | | | | | | | |
| Duration Metrics: | | | | | | | | | |
| Annual: | n/a | | | | | | | | |
| Perennial: | n/a | | | | | | | | |
| Biennial: | n/a | | | | | | | | |
| Native Annual: | n/a | | | | | | | | |
| Native Perenni | n/a | | | | | | | | |
| Native Biennial | n/a | | | | | | | | |
| Species: | | | | | | | | | |
| Scientific Name | Family | Acronym | Native? | C | W | Physiognomy | Duration | Common Name | |

| | | | | | | | | | |
|--------------------------|------------------|-----|------------|---|-----|-----|-----|-----|--|
| Artemisia vulgaris | Asteraceae | n/a | non-native | 0 | n/a | n/a | n/a | n/a | |
| Asclepias syriaca | Asclepiadaceae | n/a | native | 1 | n/a | n/a | n/a | n/a | |
| Celastrus orbiculus | Celastraceae | n/a | non-native | 0 | n/a | n/a | n/a | n/a | |
| Chamaecrista fasciculata | Fabaceae | n/a | native | 2 | n/a | n/a | n/a | n/a | |
| Daucus carota | Apiaceae | n/a | non-native | 0 | n/a | n/a | n/a | n/a | |
| Eupatorium hyssopifolium | Asteraceae | n/a | native | 1 | n/a | n/a | n/a | n/a | |
| Juniperus virginiana | Cupressaceae | n/a | native | 3 | n/a | n/a | n/a | n/a | |
| Liatris spicata | Asteraceae | n/a | native | 7 | n/a | n/a | n/a | n/a | |
| Malus prunifolia | Rosaceae | n/a | non-native | 0 | n/a | n/a | n/a | n/a | |
| Panicum virgatum | Poaceae | n/a | native | 4 | n/a | n/a | n/a | n/a | |
| Parthenocissus vitacea | Vitaceae | n/a | native | 3 | n/a | n/a | n/a | n/a | |
| Paulownia tomentosa | Scrophulariaceae | n/a | non-native | 0 | n/a | n/a | n/a | n/a | |
| Petrorhagia prostrata | Caryophyllaceae | n/a | non-native | 0 | n/a | n/a | n/a | n/a | |
| Platanus occidentalis | Platanaceae | n/a | native | 5 | n/a | n/a | n/a | n/a | |
| Prunus maritima | Rosaceae | n/a | native | 7 | n/a | n/a | n/a | n/a | |
| Prunus serotina | Rosaceae | n/a | native | 3 | n/a | n/a | n/a | n/a | |
| Quercus bicolor | Fagaceae | n/a | native | 8 | n/a | n/a | n/a | n/a | |
| Quercus rubra | Fagaceae | n/a | native | 6 | n/a | n/a | n/a | n/a | |
| Rhus typhina | Anacardiaceae | n/a | native | 2 | n/a | n/a | n/a | n/a | |
| Rubus phoeniceus | Rosaceae | n/a | non-native | 0 | n/a | n/a | n/a | n/a | |
| Solidago altissima | Asteraceae | n/a | native | 2 | n/a | n/a | n/a | n/a | |
| Solidago canadensis | Asteraceae | n/a | native | 2 | n/a | n/a | n/a | n/a | |
| Ulmus rubra | Ulmaceae | n/a | native | 4 | n/a | n/a | n/a | n/a | |

Appendix B

Survey instrument

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The Rail Park -- Phase I Visitor Survey

Please tell us what you think!

June-August 2022

Hi!

We are from Temple University's Landscape Architecture and Horticulture Department and this summer we are working with Friends of the Rail Park to conduct a brief survey of visitors to the Rail Park.

We would like to better understand your experience of the Rail Park. May we have about 15-20 minutes of your time to complete this survey?

Your feedback will contribute to a larger case study investigation, analyzing the ecological, social, and economic benefits that this park provides area residents and visitors. Your input will ultimately help in the design of future park spaces not only here in Philadelphia, but also nationally and beyond.

Once the case study is complete, you and your work will be acknowledged in the Landscape Architecture Foundation's Landscape Performance Series (LPS)! For more information on the LPS, please see the following link:

<https://www.landscapeperformance.org/case-study-briefs>

If you have any questions, please reach out to Landscape Architecture Adjunct Professor, Bess Wellborn Yates, at bess.wellborn@temple.edu.

Thank you very much for your time and help with this valuable study!

6b. What are your favorite parts of the park? And least favorite part(s) of the park?

7a. Looking at these maps, please indicate whether you live or work in the immediate neighborhood or live/work outside these boundaries.

- Live here
- Work here
- Both
- Neither



7b. What town/state are you from?

8a. Do you currently, or plan to, use the Rail Park to get to other places?

- Yes
- No

8b. If you answered yes to the previous question, where will you take this path?

9. Were you aware there are plans to expand the Rail Park further along the former railroad line?

- Yes
- No

10. If the Rail Park was extended, would you use the new section(s)?

- Yes
- No

If yes, what purpose would you use it for?

- Social / recreational
- Work / errands
- Both
- Other:

11. How much did your visit to the Rail Park contribute to your enjoyment of your trip to Philadelphia?

- None at all
- A little

- A moderate amount
- A lot
- A great deal
- Other:

12. How much money did you or other members of your personal group spend within walking distance of the Rail Park (e.g. at restaurants/bars, lodging)? (enter approximate dollar amount)

13. What businesses/assets did you or will you visit?

- Hotel, lodging, etc.
- Restaurants & bars
- Special events
- Local transportation (bus, shuttle, etc.)
- Parks, public spaces (other than the Rail Park)

Mental Restoration

14. The Rail Park improves my health and wellness.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

15. In your opinion, what has been the impact of the Rail Park for yourself, your family, or for the local community?

16. Reflecting on the design of the Rail Park, how much do you like or dislike the design and layout of the Rail

| | | | | | | |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------|
| | 1 | 2 | 3 | 4 | 5 | |
| Dislike a great deal | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Like a great deal |

Park?

Demographics

This final section contains questions about you, the Rail Park visitor.

17. What is your gender?

- Male
- Female

- Non-binary
- Prefer not to answer
- Other:

18. What year were you born? _____

19. Which of the following best describes your race and/or ethnic background? Please choose all that apply.

- Black or African American
- Asian
- Multiple ethnicities
- White
- Native Hawaiian or Pacific Islander
- Hispanic/Chicano/Latino
- American Indian or Alaskan Native
- Don't know
- Other:

20. Into which income category would you say your household fell in 2021?

- \$10,000 or less
- \$10,001 to \$20,000
- \$20,001 to \$40,000
- \$40,001 to \$60,000
- \$60,001 to \$80,000
- \$80,001 to \$100,000
- \$100,001 to \$120,000
- Over \$120,000
- Don't know
- Other:

21. What is the highest level of education you have completed?

- Some high school
- High school diploma or GED
- Some college
- Associate's or Bachelor's degree
- Some graduate school
- Graduate or Professional degree
- Don't know

Thank you!!!

The Rail Park -- Phase I Area Resident Survey:

Please tell us what you think!

June-August 2022

Hi!

We are from Temple University's Landscape Architecture and Horticulture Department and this summer we are working with Friends of the Rail Park to conduct a brief survey of visitors to the Rail Park.

We would like to better understand your experience of the Rail Park. May we have about 15-20 minutes of your time to complete this survey?

Your feedback will contribute to a larger case study investigation, analyzing the ecological, social, and economic benefits that this park provides area residents and visitors. Your input will ultimately help in the design of future park spaces not only here in Philadelphia, but also nationally and beyond.

Once the case study is complete, you and your work will be acknowledged in the Landscape Architecture Foundation's Landscape Performance Series (LPS)! For more information on the LPS, please see the following link:

<https://www.landscapeperformance.org/case-study-briefs>

If you have any questions, please reach out to Landscape Architecture Adjunct Professor, Bess Wellborn Yates, at bess.wellborn@temple.edu.

Thank you very much for your time and help with this valuable study!

Do you live or work near the Rail Park? Here is a map of the Rail Park and its adjacent neighborhoods:



Please indicate if you live in one of the designated areas in the map above or not.*

- Section 1
- Section 2
- Section 3
- Section 4
- Live outside the designated section

What is your ZIP code?*

- 19106
- 19107
- 19123
- 19130
- Other

6a. Please rate the Rail Park on the following scale from extremely poor to excellent. If you haven't experienced or aren't familiar with an amenity or feature, mark as N/A

6b. What are your favorite parts of the park? And least favorite part(s) of the park?

7a. Looking at these maps, please indicate whether you live or work in the immediate neighborhood or live/work outside these boundaries.

- Live here
- Work here
- Both
- Neither



7b. What town/state are you from?

8a. Do you currently, or plan to, use the Rail Park to get to other places?

- Yes
- No

8b. If you answered yes to the previous question, where will you take this path?

9. Were you aware there are plans to expand the Rail Park further along the former railroad line?

- Yes
- No

10. If the Rail Park was extended, would you use the new section(s)?

- Yes
- No

If yes, what purpose would you use it for?

- Social / recreational
- Work / errands
- Both
- Other:

11-14. For the following questions, please indicate the extent you disagree or agree with the following statements regarding your personal opinions of the Rail Park.

11. Park ownership and sense of belonging and welcome

| | Strongly disagree | Disagree | Somewhat disagree | Neither agree no disagree | Somewhat agree | Agree | Strongly agree |
|---|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| The Rail Park is my park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel a high degree of personal ownership for the Rail Park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I sense that the Rail Park is mine | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The Rail Park is for people like me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel welcome in the Rail Park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel like I belong at the Rail Park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The Rail Park is a comfortable place to hang out | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| At the Rail Park, I feel like I matter | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I sense that the Rail Park belongs to the local neighborhood | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Our neighborhood feels a high degree of community ownership for the Rail Park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The Rail Park is our neighborhood park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

12. Impact on the local neighborhood

| | Strongly disagree | Disagree | Somewhat agree | Neither agree no disagree | Some what agree | Agree | Strongly agree |
|--|-----------------------|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| People from the local neighborhood frequently visit the Rail Park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| People from the local neighborhood use the Rail Park for celebrations and events | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The Rail Park benefits the local neighborhood | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The Rail Park is a neighborhood meeting place | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The Rail Park is a very important part of this neighborhood | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

13. Social cohesion and cross-group interactions

| | Never | Rarely | Sometimes | Often | Always | Agree | Strongly agree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| When I am here I greet or say hello to people from different backgrounds | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I interact with people of different backgrounds at the Rail Park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The Rail Park is a good place for people of different backgrounds to meet | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I see people | | | | | | | |
| How often do you and other visitors in the Rail Park (not people you go there with) ask favors of each other? For example, watch each other's children, share equipment, etc | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| How often are park visitors willing to help one another? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

13b - Have you participated in any planned events or programs at The Rail Park?

- yes - I have attended 1-3 events so far
- yes - I have attended 3+ events

14b. Neighborhood perceptions and trust

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly Agree |
|--|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I'm starting to see a lot of good things happening in this neighborhood. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This neighborhood is heading in the right direction | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel optimistic about the future of this neighborhood | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel I can trust the people who live in my neighborhood | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel I can trust the managers of the Rail Park | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel I can trust the police | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel I can trust the local government | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

15. Is the Rail Park within walking distance from your house/place of work?

- Yes
- No

Mental Restoration

16a. Please rate how well the following states describe you on a scale where 1 is “not at all” and 5 is “totally”

| | 1 | 2 | 3 | 4 | 5 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I feel calmer after being here | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| After visiting this place I always feel restored and relaxed | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I get new enthusiasm and energy for my everyday routines from here | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My concentration and alertness clearly increase here | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I can forget everyday worries here | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Visiting here is a way of clearing and clarifying my thoughts | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

16b. The Rail Park improves my health and wellness.

- 1 Strongly disagree
- 2 Disagree
- 3 Neither agree nor disagree
- 4 Agree
- 5 Strongly agree

17. OPEN-ENDED QUESTION: In your opinion, what has been the impact of the Rail Park for yourself, your family, and/or for the local community?

18. Reflecting on the design of the Rail Park, how much do you like or dislike the design and layout of the Rail Park?

| | 1 | 2 | 3 | 4 | 5 | |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------|
| Dislike a great deal | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Like a great deal |

Demographics

This final section contains questions about you, the Rail Park visitor.

19. What is your gender?

- Male
- Female
- Non-binary
- Prefer not to answer
- Other:

20. What year were you born? _____

21. Which of the following best describes your race and/or ethnic background? Please choose all that apply.

- Black or African American
- Asian
- Multiple ethnicities
- White
- Native Hawaiian or Pacific Islander
- Hispanic/Chicano/Latino
- American Indian or Alaskan Native
- Don't know
- Other:

22. Into which income category would you say your household fell in 2021?

- \$10,000 or less
- \$10,001 to \$20,000
- \$20,001 to \$40,000
- \$40,001 to \$60,000
- \$60,001 to \$80,000
- \$80,001 to \$100,000
- \$100,001 to \$120,000
- Over \$120,000
- Don't know
- Other:

23. What is the highest level of education you have completed?

- Some high school
- High school diploma or GED
- Some college
- Associate's or Bachelor's degree
- Some graduate school
- Graduate or Professional degree
- Don't know

24. About how many years have you lived and worked in this neighborhood?

- Less than 3 years
- More than 3 years

25. New residents (<2 years): did the Rail Park factor into your decision to move here?

- Yes
- No
- N/A

26. Longtime residents (3 or more years): Has the Rail Park been part of why you stay here?

- Yes
- No
- N/A

27. Do you own or rent your house/apartment?

- Own
- Rent

28. How would you rate your satisfaction with the Rail Park in its current state compared with its previous state prior to its reconstruction in 2018?

- More satisfied
- Less satisfied
- Feel the same
- Neutral
- I am not familiar with the site prior to its reconstruction

Please use this space to reflect on the current state compared to its previous state before reconstruction:

29. Do you find the Rail Park to have improved in the quality of any of the following categories? Please select all that apply.

- Aesthetic
- Environmental
- Cultural
- Accessibility
- I am not familiar with the site prior to its reconstruction

30. OPEN-ENDED:

**Do you feel that the neighborhood is different from 5 to 10 years ago?
If so, how is it different?**

31. OPEN-ENDED:

**Do you feel that the neighborhood has changed since the beginning of the pandemic?
If so, how is it different?**

Thank you!!!

Social Interactions survey analysis

| Social Interactions | Mean (%) 2018-2019 | Mean (%)* 2022 | Standard Deviation 2022 | p-value 2022 | Cohen's d* 2022 | Cohen's d Interpretation – 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|--|-----------------------|-------------------|----------------------------|-----------------|--------------------|---|
| I interact with people of different backgrounds at the Rail Park | 3.2 (38%) | 3.63 (56%) | 1.26 | 0.066 | 0.34 | Lower effect or change since 2018-2019 |
| When I am at the Rail Park, I greet or say hello to people from different backgrounds. | 3.2 (36%) | 3.78 (72%) | 1.24 | 0.012 | 0.47 | Moderate effect or change from 2018-2019 |
| The Rail Park is a good place for people of different backgrounds to meet. | 3.4 (59%) | 4.09 (67%) | 1.09 | 0.001 | 0.64 | Moderate effect or change from 2018-2019 |
| I see people of different backgrounds interacting at the Rail Park | 3.3 (51%) | 4.23 (78%) | 1.08 | 0.00001 | 0.85 | Large effect or change from 2018-2019 |

1. I interact with people of different backgrounds at the Rail Park

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| I interact with people of different backgrounds at the Rail Park. | 32 | 3.6250 | 1.26364 | .22338 |

One-Sample Test

Test Value = 3.2

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|-------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| I interact with people of different backgrounds at the Rail Park. | 1.903 | 31 | .066 | .42500 | -.0306 | .8806 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|--|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| I interact with people of different backgrounds at the Rail Park | Cohen's d | 1.26364 | .336 | -.023 | .690 |
| | Hedges' correction | 1.29527 | .328 | -.022 | .673 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

2. When I am at the Rail Park, I greet or say hello to people from different backgrounds.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| When I am at the Rail Park, I greet or say hello to people from different backgrounds. | 32 | 3.7813 | 1.23744 | .21875 |

One-Sample Test

Test Value = 3.2

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|-------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| When I am at the Rail Park, I greet or say hello to people from different backgrounds. | 2.657 | 31 | .012 | .58125 | .1351 | 1.0274 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|--|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| When I am at the Rail Park, I greet or say hello to people from different backgrounds. | Cohen's d | 1.23744 | .470 | .832 |
| | Hedges' correction | 1.26842 | .458 | .812 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

3. The Rail Park is a good place for people of different backgrounds to meet.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| The Rail Park a good place for people of different backgrounds to meet. | 32 | 4.0938 | 1.08834 | .19239 |

One-Sample Test

Test Value = 3.4

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|-------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| The Rail Park a good place for people of different backgrounds to meet. | 3.606 | 31 | .001 | .69375 | .3014 | 1.0861 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| a good place for people of different backgrounds to meet. | Cohen's d | 1.08834 | .637 | .252 | 1.014 |
| | Hedges' correction | 1.11558 | .622 | .246 | .989 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

4. I see people of different backgrounds interacting at the Rail Park

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| I see people of different backgrounds interacting at the Rail Park | 31 | 4.2258 | 1.08657 | .19515 |

One-Sample Test

Test Value = 3.3

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|-------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| I see people of different backgrounds interacting at the Rail Park | 4.744 | 30 | .000 | .92581 | .5272 | 1.3244 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|--|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| I see people of different backgrounds interacting at the Rail Park | Cohen's d | 1.08657 | .852 | .435 | 1.259 |
| | Hedges' correction | 1.11472 | .831 | .424 | 1.227 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

Personal Ownership and Sense of Welcome survey analysis

| Personal Ownership and Sense of Welcome | Mean (%) 2019 | Mean (%)* 2022 | Standard Deviation 2022 | p-value 2022 | Cohen's d* 2022 | Cohen's d Interpretation – 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|---|---------------|----------------|-------------------------|--------------|-----------------|---|
| I feel a high degree of personal ownership for the Rail Park. | 4.3 (37%) | 5.59 (53%) | 1.63 | 0.16 | 0.26 | Low effect or change since 2018-2019 |
| I sense that the Rail Park is mine. | 4.3 (46%) | 4.72 (47%) | 1.68 | 0.89 | 0.03 | Minimal effect or change since 2018-2019 |
| The Rail Park is my park. | 5.0 (65%) | 4.34 (78%) | 1.41 | 0.02 | 0.42 | Low to moderate effect or change since 2018-2019 |
| The Rail Park is for people like me. | 5.4 (79%) | 5.69 (86%) | 1.40 | 0.26 | 0.21 | Low effect or change since 2018-2019 |
| I feel welcome at the Rail Park | 6.1 (90%) | 5.84 (94%) | 1.08 | 0.19 | 0.24 | Low effect or change since 2018-2019 |
| I feel like I belong at the Rail Park | 5.6 (77%) | 5.74 (81%) | 1.49 | 0.60 | 0.10 | Minimal effect or change since 2018-2019 |

1. I feel a high degree of personal ownership for the Rail Park..

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|-----------------------------------|----|--------|----------------|-----------------|
| high degree of personal ownership | 32 | 4.7188 | 1.63104 | .28833 |

One-Sample Test

Test Value = 4.3

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|-----------------------------------|-------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| high degree of personal ownership | 1.452 | 31 | .156 | .41875 | -.1693 | 1.0068 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|-----------------------------------|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| high degree of personal ownership | Cohen's d | 1.63104 | .257 | .607 |
| | Hedges' correction | 1.67187 | .250 | .592 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

2. I sense that the Rail Park is mine.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|-------------------------------------|----|--------|----------------|-----------------|
| I sense that the Rail Park is mine. | 32 | 4.3438 | 1.67735 | .29652 |

One-Sample Test

Test Value = 4.3

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|-------------------------------------|------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| I sense that the Rail Park is mine. | .148 | 31 | .884 | .04375 | -.5610 | .6485 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | | |
|-------------------------------------|---------------------------|----------------|-------------------------|-------|------|
| | | | Lower | Upper | |
| I sense that the Rail Park is mine. | Cohen's d | 1.67735 | .026 | -.321 | .372 |
| | Hedges' correction | 1.71934 | .025 | -.313 | .363 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

3. The Rail Park is my park.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---------------------------|----|--------|----------------|-----------------|
| The Rail Park is my park. | 32 | 5.5938 | 1.41100 | .24943 |

One-Sample Test

Test Value = 5.0

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---------------------------|-------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| The Rail Park is my park. | 2.380 | 31 | .024 | .59375 | .0850 | 1.1025 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---------------------------|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| The Rail Park is my park. | Cohen's d | 1.41100 | .421 | .780 |
| | Hedges' correction | 1.44633 | .411 | .760 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

4. The Rail Park is for people like me.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--------------------------------------|----|--------|----------------|-----------------|
| The Rail Park is for people like me. | 32 | 5.6875 | 1.40132 | .24772 |

One-Sample Test

Test Value = 5.4

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--------------------------------------|-------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| The Rail Park is for people like me. | 1.161 | 31 | .255 | .28750 | -.2177 | .7927 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | | |
|--------------------------------------|---------------------------|----------------|-------------------------|-------|------|
| | | | Lower | Upper | |
| The Rail Park is for people like me. | Cohen's d | 1.40132 | .205 | -.147 | .554 |
| | Hedges' correction | 1.43641 | .200 | -.143 | .540 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

5. I feel welcome at the Rail Park

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|----------------------------------|----|--------|----------------|-----------------|
| I feel welcome at the Rail Park. | 32 | 5.8438 | 1.08090 | .19108 |

One-Sample Test

Test Value = 6.1

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|----------------------------------|--------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| I feel welcome at the Rail Park. | -1.341 | 31 | .190 | -.25625 | -.6460 | .1335 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|----------------------------------|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| I feel welcome at the Rail Park. | Cohen's d | 1.08090 | -.237 | .116 |
| | Hedges' correction | 1.10796 | -.231 | .113 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

6. I feel like I belong at the Rail Park

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| I feel like I belong at the Rail Park. | 31 | 5.7419 | 1.48251 | .26627 |

One-Sample Test

Test Value = 5.6

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| I feel like I belong at the Rail Park. | .533 | 30 | .598 | .14194 | -.4019 | .6857 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | | |
|--|---------------------------|----------------|-------------------------|-------|------|
| | | | Lower | Upper | |
| I feel like I belong at the Rail Park. | Cohen's d | 1.48251 | .096 | -.258 | .448 |
| | Hedges' correction | 1.52091 | .093 | -.251 | .436 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

Community/Neighborhood Ownership and Use survey analysis

| Community / Neighborhood Ownership and Use | Mean (%) 2018-2019 | Mean (%) 2022 | Standard Deviation 2022 | p-value 2022 | Cohen's d* 2022 | Cohen's d Interpretation – 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|---|--------------------|---------------|-------------------------|--------------|-----------------|--|
| Our neighborhood feels a high degree of ownership for the Rail Park. | 5.3 (70%) | 5.0 (69%) | 1.76 | 0.34 | -0.17 | Minimal effect or change since 2018-2019 (lower) |
| The Rail Park is our neighborhood park. | 5.8 (87%) | 5.97 (90%) | 1.26 | 0.45 | 0.13 | Minimal effect or change since 2018-2019 |
| I sense that the Rail Park belongs to the local neighborhood. | 5.7 (88%) | 5.5 (78%) | 1.54 | 0.47 | -0.13 | Minimal effect or change since 2018-2019 (lower) |
| People from the local neighborhood use the Rail Park for celebrations and events. | 4.5 (52%) | 5.13 (72%) | 1.10 | 0.003 | 0.57 | Moderate effect or change since 2018-2019 |
| The Rail Park benefits the local neighborhood. | 5.9 (92%) | 6.09 (91%) | 1.17 | 0.36 | 0.17 | Minimal effect or change since 2018-2019 |
| The Rail Park is a neighborhood meeting place. | 5.15 (66%) | 5.56 (84%) | 1.19 | 0.06 | 0.35 | Low effect or change since 2018-2019 |
| The Rail Park is a very important part of this neighborhood. | 5.8 (91%) | 6.19 (91%) | 1.18 | 0.07 | 0.33 | Low effect or change since 2018-2019 |

1. Our neighborhood feels a high degree of ownership for the Rail Park.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| Our neighborhood feels a high degree of ownership for the Rail Park. | 32 | 5.0000 | 1.75977 | .31109 |

One-Sample Test

Test Value = 5.3

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|-------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| Our neighborhood feels a high degree of ownership for the Rail Park. | -.964 | 31 | .342 | -.30000 | -.9345 | .3345 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|--|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| Our neighborhood feels a high degree of ownership for the Rail Park. | Cohen's d | 1.75977 | -.170 | .180 |
| | Hedges' correction | 1.80382 | -.166 | .176 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

2. The Rail Park is our neighborhood park.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| The Rail Park is our neighborhood park. | 32 | 5.9688 | 1.25684 | .22218 |

One-Sample Test

Test Value = 5.8

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| The Rail Park is our neighborhood park. | .760 | 31 | .453 | .16875 | -.2844 | .6219 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---|---------------------------|----------------|-------------------------|------------|
| | | | Lower | Upper |
| The Rail Park is our neighborhood park. | Cohen's d | 1.25684 | .134 | -.215 .481 |
| | Hedges' correction | 1.28830 | .131 | -.210 .470 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

3. I sense that the Rail Park belongs to the local neighborhood.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| I sense that the Rail Park belongs to the local neighborhood | 32 | 5.5000 | 1.54502 | .27312 |

One-Sample Test

Test Value = 5.7

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|-------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| I sense that the Rail Park belongs to the local neighborhood | -.732 | 31 | .470 | -.20000 | -.7570 | .3570 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|--|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| I sense that the Rail Park belongs to the local neighborhood | Cohen's d | 1.54502 | -.129 | .220 |
| | Hedges' correction | 1.58370 | -.126 | .214 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

4. People from the local neighborhood use the Rail Park for celebrations and events.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| People from the local neighborhood use the Rail Park for celebrations and events. | 32 | 5.1250 | 1.09985 | .19443 |

One-Sample Test

Test Value = 4.5

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|-------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| People from the local neighborhood use the Rail Park for celebrations and events. | 3.215 | 31 | .003 | .62500 | .2285 | 1.0215 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---|---------------------------|----------------|-------------------------|-----------|
| | | | Lower | Upper |
| People from the local neighborhood use the Rail Park for celebrations and events. | Cohen's d | 1.09985 | .568 | .190 .938 |
| | Hedges' correction | 1.12739 | .554 | .186 .915 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

5. The Rail Park benefits the local neighborhood.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| The Rail Park benefits the local neighborhood. | 32 | 6.0938 | 1.17389 | .20752 |

One-Sample Test

Test Value = 5.9

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| The Rail Park benefits the local neighborhood. | .934 | 31 | .358 | .19375 | -.2295 | .6170 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | | |
|--|---------------------------|----------------|-------------------------|-------|------|
| | | | Lower | Upper | |
| The Rail Park benefits the local neighborhood. | Cohen's d | 1.17389 | .165 | -.185 | .513 |
| | Hedges' correction | 1.20328 | .161 | -.181 | .500 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

6. The Rail Park is a neighborhood meeting place.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| The Rail Park is a neighborhood meeting place. | 32 | 5.5625 | 1.18967 | .21031 |

One-Sample Test

Test Value = 5.15

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|-------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| The Rail Park is a neighborhood meeting place. | 1.961 | 31 | .059 | .41250 | -.0164 | .8414 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|--|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| The Rail Park is a neighborhood meeting place. | Cohen's d | 1.18967 | .347 | -.013 | .701 |
| | Hedges' correction | 1.21946 | .338 | -.013 | .684 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

7. The Rail Park is a very important part of this neighborhood.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| The Rail Park is a very important part of the neighborhood. | 32 | 6.1875 | 1.17604 | .20790 |

One-Sample Test

Test Value = 5.8

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|-------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| The Rail Park is a very important part of the neighborhood. | 1.864 | 31 | .072 | .38750 | -.0365 | .8115 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| The Rail Park is a very important part of the neighborhood. | Cohen's d | 1.17604 | .329 | -.029 | .683 |
| | Hedges' correction | 1.20548 | .321 | -.028 | .666 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

Neighborhood Perceptions and Trust survey analysis

| Neighborhood Perceptions and Trust | Mean (%) 2018-2019 | Mean (%) 2022 | Standard Deviation 2022 | p-value 2022 | Cohen's d* 2022 | Cohen's d Interpretation – 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|--|--------------------|---------------|-------------------------|--------------|-----------------|--|
| I'm starting to see a lot of good things happening in this neighborhood. | 4.10 (84%) | 3.75 (56%) | 0.98 | 0.05 | -0.36 | Low effect or change since 2018-2019 (lower) |
| This neighborhood is heading in the right direction. | 4.2 (89%) | 3.84 (65%) | 0.88 | 0.03 | -0.40 | Low to moderate effect or change since 2018-2019 (lower) |
| I feel optimistic about the future of this neighborhood. | 4.3 (92%) | 3.91 (75%) | 0.89 | 0.02 | -0.44 | Low to moderate effect or change since 2018-2019 (lower) |
| I feel I can trust the people who live in my neighborhood. | 3.6 (68%) | 3.66 (53%) | 0.87 | 0.71 | 0.07 | Low to no effect or change since 2018-2019 |
| I feel I can trust the managers of the Rail Park | 3.9 (76%) | 3.59 (56%) | 0.95 | 0.08 | -0.32 | Low to moderate effect or change since 2018-2019 (lower) |
| I feel I can trust the police. | 3.6 (66%) | 2.72 (34%) | 1.32 | 0.001 | -0.67 | Moderate to large effect or change since 2018-2019 (lower) |
| I feel like I can trust the local government. | 3.4 (51%) | 2.56 (15%) | 0.98 | 0.00001 | -0.85 | Large effect or change since 2018-2019 (lower) |

1. I'm starting to see a lot of good things happening in this neighborhood.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| I'm starting to see a lot of good things happening in this neighborhood. | 32 | 3.7500 | .98374 | .17390 |

One-Sample Test

Test Value = 4.1

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|--------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| I'm starting to see a lot of good things happening in this neighborhood. | -2.013 | 31 | .053 | -.35000 | -.7047 | .0047 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|--|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| I'm starting to see a lot of good things happening in this neighborhood. | Cohen's d | .98374 | -.356 | -.711 | .004 |
| | Hedges' correction | 1.00837 | -.347 | -.693 | .004 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

2. This neighborhood is heading in the right direction.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| This neighborhood is heading in the right direction | 32 | 3.8438 | .88388 | .15625 |

One-Sample Test

Test Value = 4.2

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|--------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| This neighborhood is heading in the right direction | -2.280 | 31 | .030 | -.35625 | -.6749 | -.0376 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| This neighborhood is heading in the right direction | Cohen's d | .88388 | -.403 | -.039 |
| | Hedges' correction | .90601 | -.393 | -.038 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

3. I feel optimistic about the future of this neighborhood.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| I feel optimistic about the future of this neighborhood. | 32 | 3.9063 | .89296 | .15785 |

One-Sample Test

Test Value = 4.3

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|--------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| I feel optimistic about the future of this neighborhood | -2.494 | 31 | .018 | -.39375 | -.7157 | -.0718 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| I feel optimistic about the future of this neighborhood | Cohen's d | .89296 | -.441 | -.074 |
| | Hedges' correction | .91532 | -.430 | -.073 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

4. I feel I can trust the people who live in my neighborhood.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| I feel I can trust the people who live in my neighborhood | 32 | 3.6563 | .86544 | .15299 |

One-Sample Test

Test Value = 3.6

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| I feel I can trust the people who live in my neighborhood. | .368 | 31 | .716 | .05625 | -.2558 | .3683 |

One-Sample Effect Sizes

| | | Standardize | Point | 95% Confidence Interval | |
|--|--------------------|----------------|----------|-------------------------|-------|
| | | r ^a | Estimate | Lower | Upper |
| I feel I can trust the people who live in my neighborhood. | Cohen's d | .86544 | .065 | -.282 | .411 |
| | Hedges' correction | .88711 | .063 | -.275 | .401 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

5. I feel I can trust the managers of the Rail Park.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|----------------|-----------------|
| I feel I can trust the managers of the Rail Park | 32 | 3.5938 | .94560 | .16716 |

One-Sample Test

Test Value = 3.9

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|--|--------|----|-----------------|-----------------|---|-------|
| | | | | | Lower | Upper |
| I feel I can trust the managers of the Rail Park | -1.832 | 31 | .077 | -.30625 | -.6472 | .0347 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|--|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| I feel I can trust the managers of the Rail Park | Cohen's d | .94560 | -.324 | -.677 | .034 |
| | Hedges' correction | .96927 | -.316 | -.661 | .033 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

6. I feel like I can trust the police.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|------------------------------------|----|--------|----------------|-----------------|
| I feel like I can trust the police | 32 | 2.7188 | 1.32554 | .23432 |

One-Sample Test

Test Value = 3.6

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|------------------------------------|--------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| I feel like I can trust the police | -3.761 | 31 | .001 | -.88125 | -1.3592 | -.4033 |

One-Sample Effect Sizes

| | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|------------------------------------|---------------------------|----------------|-------------------------|-------|
| | | | Lower | Upper |
| I feel like I can trust the police | Cohen's d | 1.32554 | -.665 | -.277 |
| | Hedges' correction | 1.35872 | -.649 | -.270 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

7. I feel like I can trust the local government.

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| I feel like I can trust the local government. | 32 | 2.5625 | .98169 | .17354 |

One-Sample Test

Test Value = 3.4

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|--------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| I feel like I can trust the local government. | -4.826 | 31 | .00001 | -.83750 | -1.1914 | -.4836 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| I feel like I can trust the local government. | Cohen's d | .98169 | -.853 | -1.254 | -.442 |
| | Hedges' correction | 1.00626 | -.832 | -1.223 | -.431 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

Health and Wellness survey analysis

| Health and Wellness | Mean (%) 2018- 2019 | Mean (%) 2022 | Standard Deviation 2022 | p- value 2022 | Cohen's d* 2022 | Cohen's d Interpretation – 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|--|---------------------------|---------------------|-------------------------------|---------------------|-----------------------|--|
| The Rail Park improves my health and wellness. | 3.7 (61%) | 4.2 (78%) | 0.84 | 0.0001 | 0.59 | Moderate effect or change since 2018-2019 |

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|--|----|--------|-------------------|--------------------|
| The Rail Park improves my health and wellness. | 45 | 4.2000 | .84208 | .12553 |

One-Sample Test

Test Value = 3.7

| | t | df | Sig. (2- tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---------------------|-------|----|---------------------|--------------------|--|-------|
| | | | | | Lower | Upper |
| health and wellness | 3.983 | 44 | .00001 | .50000 | .2470 | .7530 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---------------------|--------------------|---------------------------|-------------------|----------------------------|-------|
| | | | | Lower | Upper |
| health and wellness | Cohen's d | .84208 | .594 | .274 | .908 |
| | Hedges' correction | .85678 | .584 | .269 | .893 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

| Park Design | Mean (%) 2018-2019 | Mean (%)* 2022 | Standard Deviation 2022 | p-value 2022 | Cohen's d* 2022 | Cohen's d Interpretation – 0.2 = low effect 0.5 = moderate effect 0.8 = large effect |
|---|-----------------------|-------------------|----------------------------|-----------------|--------------------|---|
| Reflecting on the design of the park, how much do you like or dislike the design of the park? | 4.7 (76%) | 4.36 (47%) | 0.68 | 0.001 | 0.51 | Moderate effect or change since 2018-2019 (lower) |

Scale where 1= dislike a lot, 2=dislike a little, 3=neutral, 4=like a little, 5=likes a lot

*Percent of percent who selected "likes a lot"

One-Sample Statistics

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|----|--------|----------------|-----------------|
| Reflecting on the design of the park, how much do you like or dislike the design of the park? | 45 | 4.3556 | .67942 | .10128 |

One-Sample Test

Test Value = 4.7

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|--------|----|-----------------|-----------------|---|--------|
| | | | | | Lower | Upper |
| Reflecting on the design of the park, how much do you like or dislike the design of the park? | -3.401 | 44 | .001 | -.34444 | -.5486 | -.1403 |

One-Sample Effect Sizes

| | | Standardizer ^a | Point Estimate | 95% Confidence Interval | |
|---|--------------------|---------------------------|----------------|-------------------------|-------|
| | | | | Lower | Upper |
| Reflecting on the design of the park, how much do you like or dislike the design of the park? | Cohen's d | .67942 | -.507 | -.815 | -.194 |
| | Hedges' correction | .69129 | -.498 | -.801 | -.190 |

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

Reflecting on the design of the park, how much do you like or dislike the design of the park

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | 3.00 | 5 | 11.1 | 11.1 | 11.1 |
| | 4.00 | 19 | 42.2 | 42.2 | 53.3 |
| | 5.00 | 21 | 46.7 | 46.7 | 100.0 |
| | Total | 45 | 100.0 | 100.0 | |

Tell us what you think!

Help researchers from Temple University's Landscape Architecture & Horticulture Department understand your experience of the Rail Park.

Your feedback will help in the design of future park spaces not only here in Philadelphia, but also nationally and beyond.

COMPLETE THIS ONLINE SURVEY

To participate, scan
the QR code

or go to this link:

<https://forms.gle/7d6EPvX8ZrnA4PgKA>

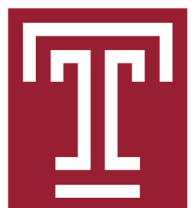


This study is part of the Landscape Architecture Foundation's Case Study Investigation program and will be included in its Landscape Performance Series.

For more information on the Landscape Performance Series, please see the following link: <https://www.landscapeperformance.org/case-study-briefs>

Contact Bess W. Yates at bess.wellborn@temple.edu with any questions.

Thank you!



请分享您的看法

请帮助天普大学景观建筑与园艺系研究人员了解您使用铁道公园的经验

您的反馈不仅有助于未来费城的公园空间设计，也有助于全国及其他地方的公园空间设计

完成这份网上问卷调查

请扫描这个二维码来参加这份问卷调查

或者点击此一连结：

<https://forms.gle/jgu3JGjpEkZ9PCgZ7>

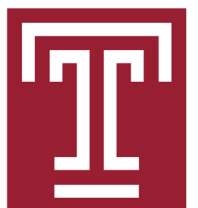


本研究项目是《景观建筑基金方案研究调查项目》的一部分，将包括在《景观展示系列》之中。

欲知更多有关《景观展示系列》的信息，请点击下方连结
<https://www.landscapeperformance.org/case-study-briefs>

如有任何疑问请联系天普大学的叶慈（Yates）教授
bess.wellborn@temple.edu

十分感谢



Appendix C

Trust for Public Land's ParkServe reports

| | |
|--------------------|-----|
| The Rail Park..... | 112 |
| High Line..... | 114 |



Project Areas

Philadelphia, PA - Rail Park

All statistical results are aggregated for the listed project areas and their service areas. Service areas are based on 10-minute (1/2 mile) walk times from project access points defined for each project area and based upon the walkable network.

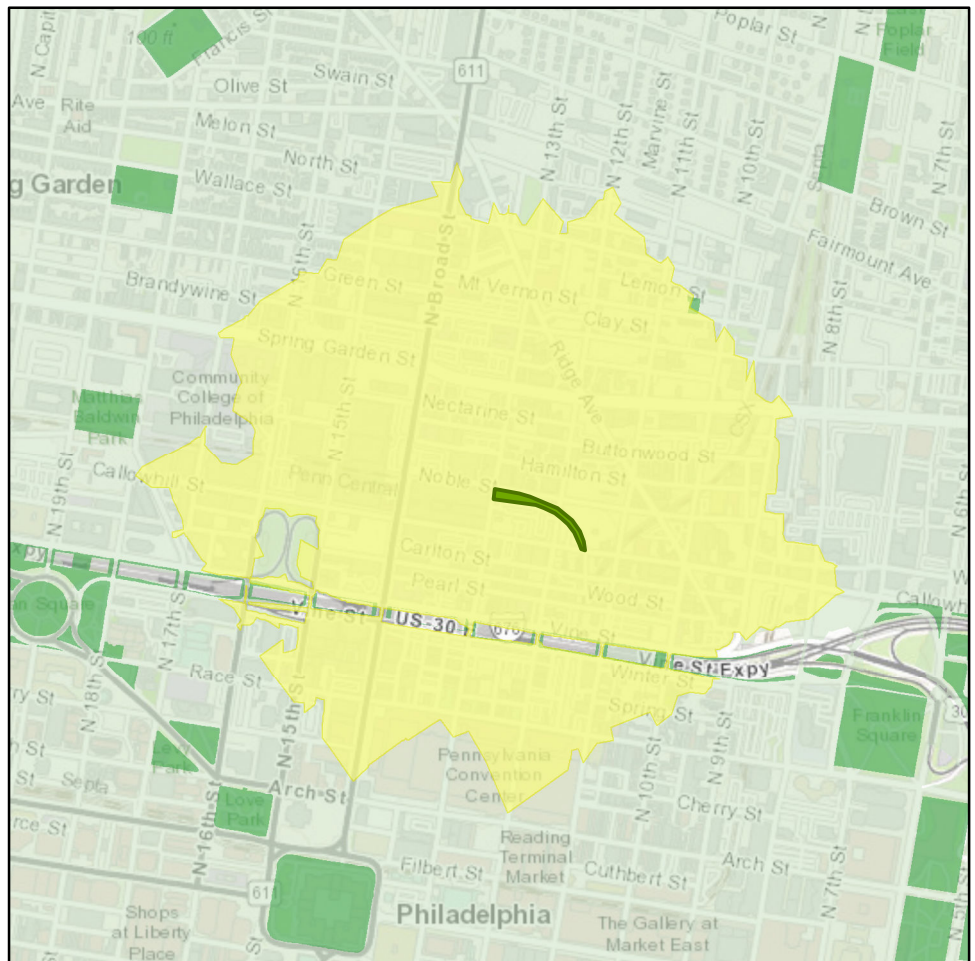
City Statistics

Current

| | |
|------------------------|-----------|
| City: Philadelphia, PA | |
| Park Acres | 11,660 |
| Total Population | 1,587,882 |
| Served Population | 1,504,143 |
| Percent Served | 94.7% |

Legend

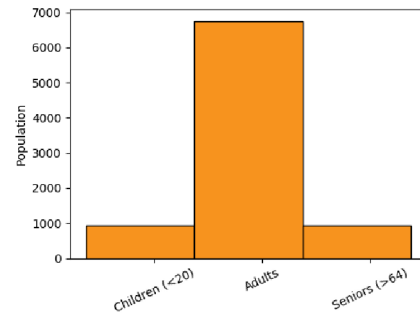
- City Boundary
- Selected Park
- Selected Service Area
- Parks
- Service Areas
- Priority areas for new parks
 - Very high priority
 - High priority
 - Moderate priority





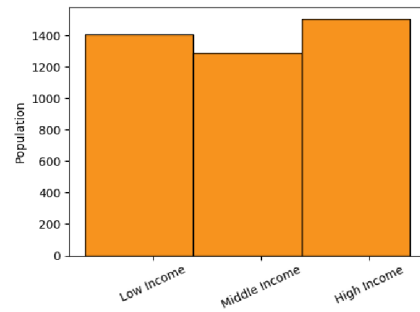
| Population | Served |
|------------------|--------|
| Total Population | 8,634 |

| Age | Served |
|-----------------------------|--------|
| Children (less than age 20) | 941 |
| Adults (age 20 to age 64) | 6,751 |
| Seniors (age 65 and up) | 929 |

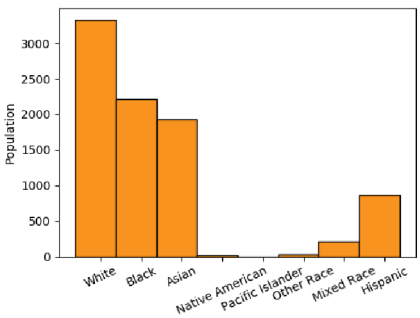


| Households by Income | Served |
|----------------------|--------|
| Low income | 1,408 |
| Middle income | 1,288 |
| High income | 1,503 |

(Generated From Regional Median Incomes)



| Race/Ethnicity | Served |
|-------------------|--------|
| White* | 3,325 |
| Black* | 2,214 |
| Asian* | 1,924 |
| Native American* | 21 |
| Pacific Islander* | 0 |
| Other Race* | 27 |
| Mixed Race* | 207 |
| Hispanic | 864 |



* Excludes those that report Hispanic origin (which is captured separately from race by the U.S. Census)

Demographic information is derived from ESRI 2021 Demographic Forecast Block Groups data.



Project Areas

New York, NY - The High Line

All statistical results are aggregated for the listed project areas and their service areas. Service areas are based on 10-minute (1/2 mile) walk times from project access points defined for each project area and based upon the walkable network.

City Statistics

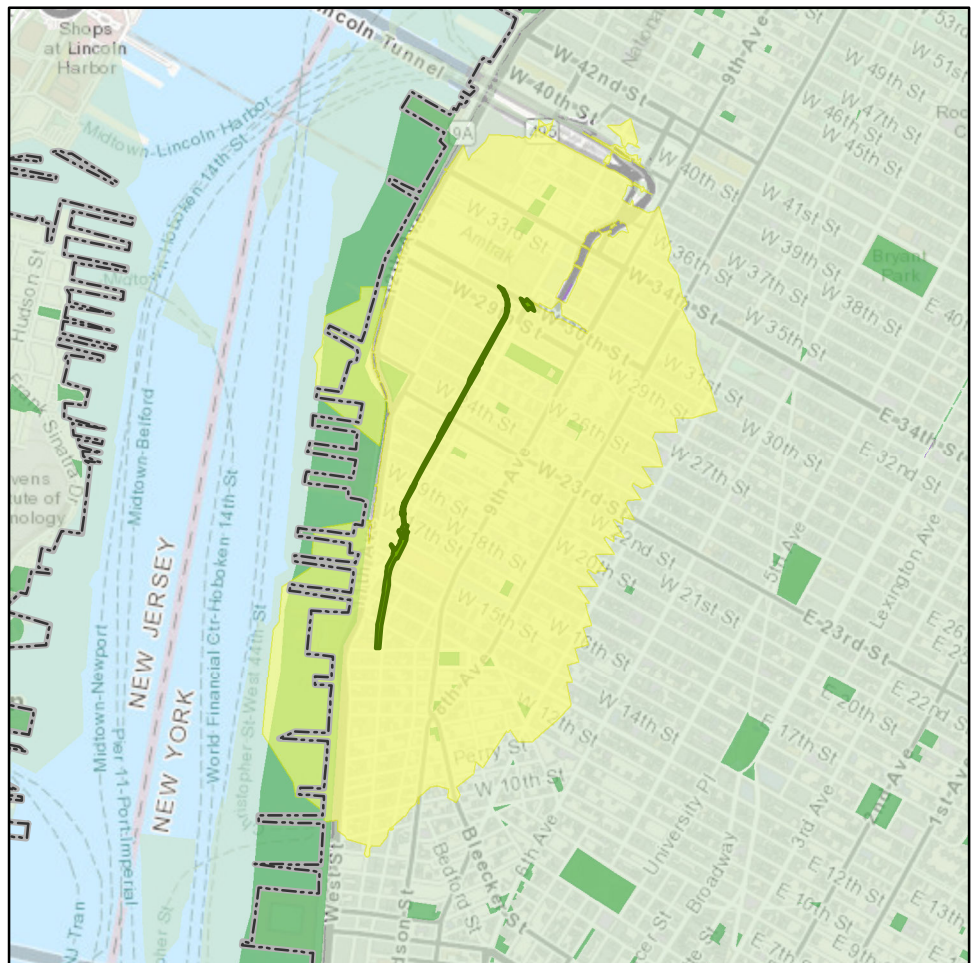
Current

111

| | |
|--------------------|-----------|
| City: New York, NY | |
| Park Acres | 31,162 |
| Total Population | 8,373,659 |
| Served Population | 8,296,586 |
| Percent Served | 99.1% |

Legend

- City Boundary
- Selected Park
- Selected Service Area
- Parks
- Service Areas
- Priority areas for new parks
 - Very high priority
 - High priority
 - Moderate priority

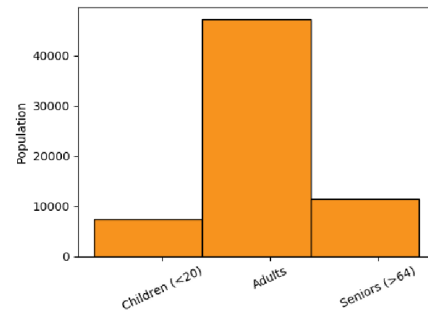


This report was created on January 11, 2023 using the ParkServe® interactive mapping site. It is for informational purposes only. The providers of this report disclaim any and all warranties, express or implied, including fitness for a particular purpose or merchantability, and make no representation that the report is complete, accurate, or error free. Use and reliance on this report is at the sole risk of the party using same.



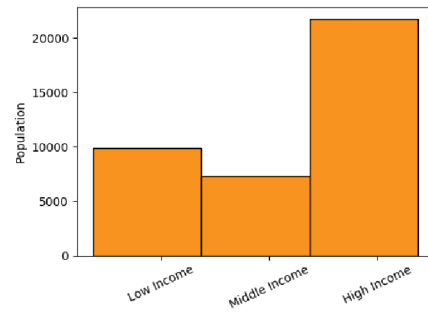
| Population | Served |
|------------------|--------|
| Total Population | 66,146 |

| Age | Served |
|-----------------------------|--------|
| Children (less than age 20) | 7,456 |
| Adults (age 20 to age 64) | 47,266 |
| Seniors (age 65 and up) | 11,385 |

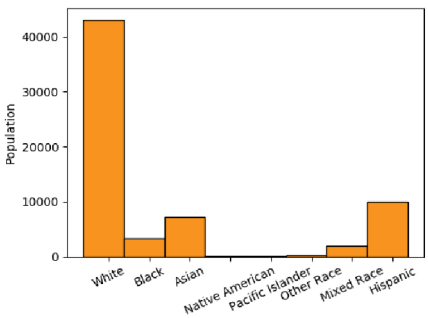


| Households by Income | Served |
|----------------------|--------|
| Low income | 9,899 |
| Middle income | 7,292 |
| High income | 21,740 |

(Generated From Regional Median Incomes)



| Race/Ethnicity | Served |
|-------------------|--------|
| White* | 43,071 |
| Black* | 3,372 |
| Asian* | 7,237 |
| Native American* | 52 |
| Pacific Islander* | 8 |
| Other Race* | 212 |
| Mixed Race* | 1,929 |
| Hispanic | 10,041 |



* Excludes those that report Hispanic origin (which is captured separately from race by the U.S. Census)

Demographic information is derived from ESRI 2021 Demographic Forecast Block Groups data.