

Public Lands Transportation Scholar Final Report

Developing Multimodal Transportation Options to Public Lands in Philadelphia, PA and the Northeast Region

September 2017



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Western Transportation Institute.*

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ABBREVIATIONS

ACS	American Community Survey
BG	Bartram's Garden
BLM	Bureau of Land Management
BLVD	Boulevard
CCCEEC	Cobbs Creek Community Environmental Education Center
DVRPC	Delaware Valley Regional Planning Commission
ELDCA	Eastwick Lower Darby Creek Area
EPA	Environmental Protection Agency
FBMS	Financial and Business Management System
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
IPR	Income-to-Poverty
JHNWRT	John Heinz National Wildlife Refuge at Tinicum
MBI	Michael Baker International
MOA	Memorandum of Agreement
MPO	Metropolitan Planning Organization
NBW	Neighborhood Bike Works
NPS	National Park Service
NWR	National Wildlife Refuge
OBNWR	Occoquan Bay National Wildlife Refuge
OTIS	Office of Transportation Infrastructure Services
PCPC	Philadelphia City Planning Commission
PennDOT	Pennsylvania Department of Transportation
PLTS	Public Lands Transportation Scholar
PNK	Philly Nature Kids

PRA	Philadelphia Redevelopment Authority
PRNWR	Parker River National Wildlife Refuge
PRR	Patuxent Research Refuge
ROW	Right of Way
SAM	System of Award Management
SEPTA	Southeastern Pennsylvania Transportation Authority
SNAP	Supplemental Nutrition Assistance Program
SOW	Scope of Work
TNC	Transportation Network Company
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
WTI	Western Transportation Institute

ABSTRACT

The John Heinz National Wildlife Refuge at Tinicum (“JHNWRT” or “Refuge”) is a 993-acre National Wildlife Refuge located in southeastern Pennsylvania. It is arguably the most urban piece of land managed by the U.S. Fish and Wildlife Service.

Despite its urban location and close proximity to millions of people, the JHNWRT struggles to attract non-traditional visitors. Intimidating and poorly-kept infrastructure, an industrial landscape, and a lack of awareness are several factors that are believed to contribute to the challenge of reaching these visitors.

In June 2016 Dan Brooks, a Public Lands Transportation Scholar (“Scholar”) was placed at JHNWRT to assess the site’s transportation barriers, deliver a transportation status report for the Refuge, as well as create, plan, and coordinate programs contributing to improved, equitable transportation access for the site. Additional emphasis was focused on multimodal and active transportation barriers and projects.

In addition to his work at JHNWRT, the Scholar was expected to contribute to other urban National Wildlife Refuges (NWRs) in the Northeast Region (Region 5). This resulted in the Scholar working on several projects at Patuxent Research Refuge (PRR) in Laurel, MD, as well as assisting during a site visit for proposed projects at the Potomac River National Wildlife Refuge Complex in Virginia.

This document examines and analyzes the Scholar’s projects at these sites, primarily at JHNWRT, but also at PRR. It will end with an analysis of his experience during his tenure in this position from June 2016-December 2017.

INTRODUCTION

The John Heinz National Wildlife Refuge at Tinicum is a 993-acre National Wildlife Refuge located in southwestern Philadelphia and Delaware Counties. Roughly two-thirds of JHNWR acreage is in Delaware County, but the primary access point and visitor center are both in southwest Philadelphia. Visitation was estimated to be 250,000 people in 2015.

The boundaries of southwest Philadelphia vary, but at its greatest extent it is bordered by Baltimore and University Aves to the north, the Schuylkill River to the east, and the Philadelphia County lines to the south and west. The area is a diverse urban landscape. Industrial and transportation land uses, such as oil processing plants, an Environmental Protection Agency (EPA) Superfund site, the Philadelphia International Airport and Interstate 95 share the Refuge's immediate surroundings with over 600,000 residents.¹ Much of the infrastructure that serves these diverse land uses divides neighborhoods and makes it difficult to move through and within local communities. It also cuts off resources located on the neighborhoods' peripheries, such as the Refuge. Image 1 shows the intersection of Lindbergh Blvd and Island Ave. Although this intersection is the largest in the area, it is representative of the many large, intimidating pieces of infrastructure that separate the communities of Southwest Philadelphia and the neighborhood of Eastwick,² specifically.

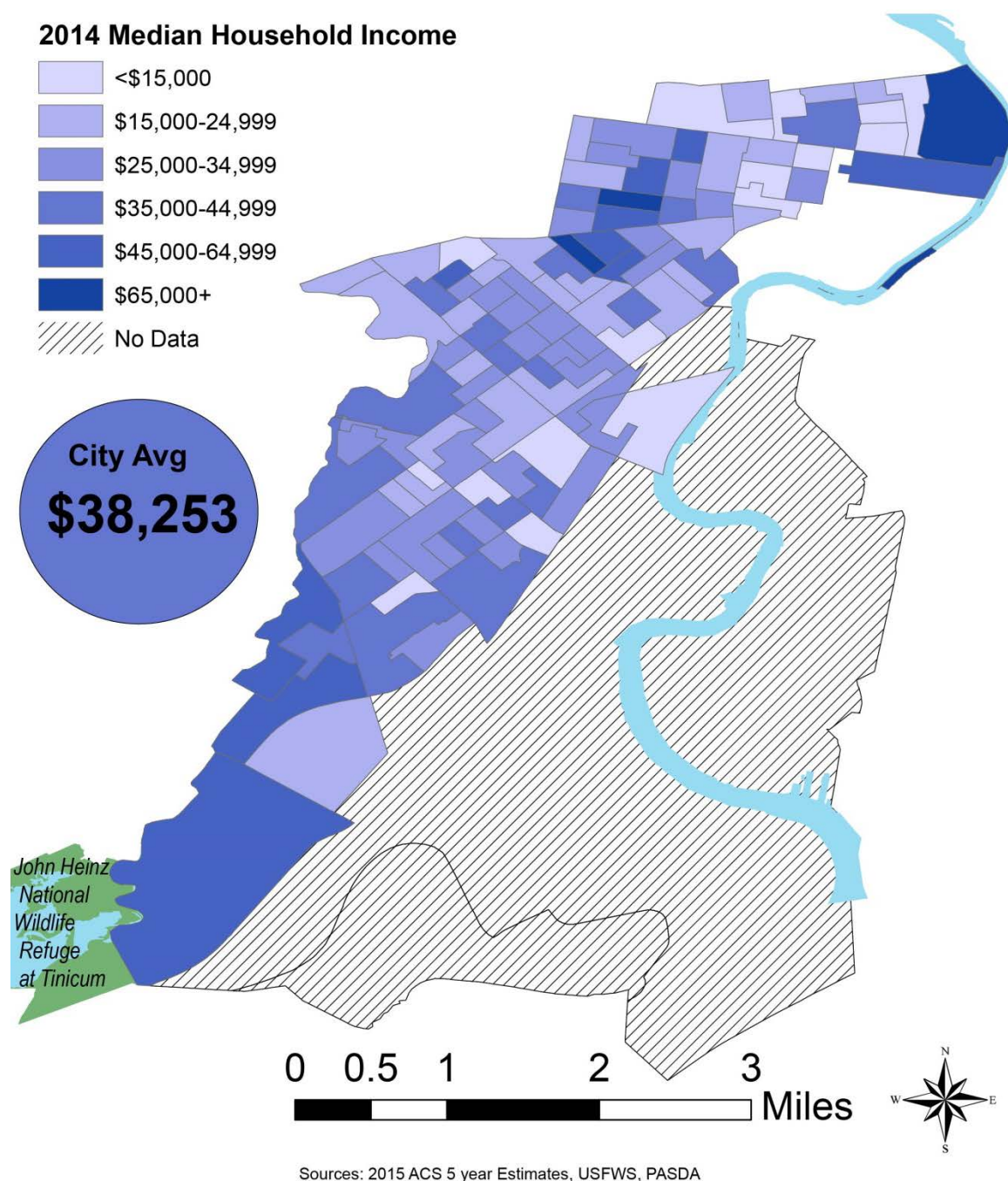
¹ USFWS, John Heinz National Wildlife Refuge at Tinicum, <https://www.fws.gov/urban/whereweare.php>

² Neighborhood boundaries also have many definitions. In this case the neighborhood of Eastwick is roughly defined at the area between the county lines to the south up 70th St, bordered by Elmwood Ave leaving to the county line to the west, and Bartram Ave leading to I-95 and the Philadelphia International Airport to the east.

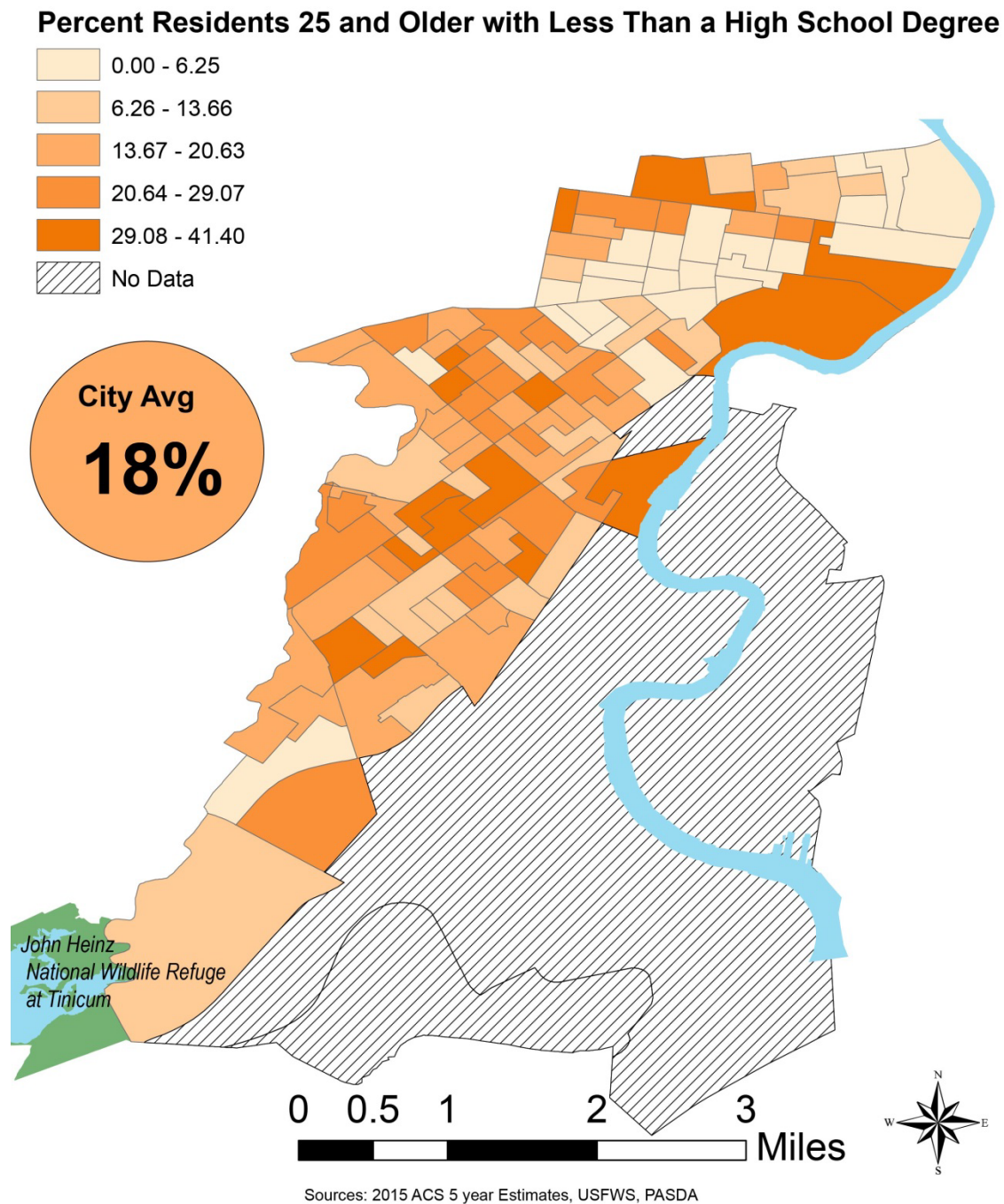


Image 1. The intersection of Island Ave & Lindbergh Blvd. This intersection is roughly one mile from JHNWRT. There are over 40 lanes at this intersection, no protected bicycle infrastructure, and pedestrian crossing restrictions.

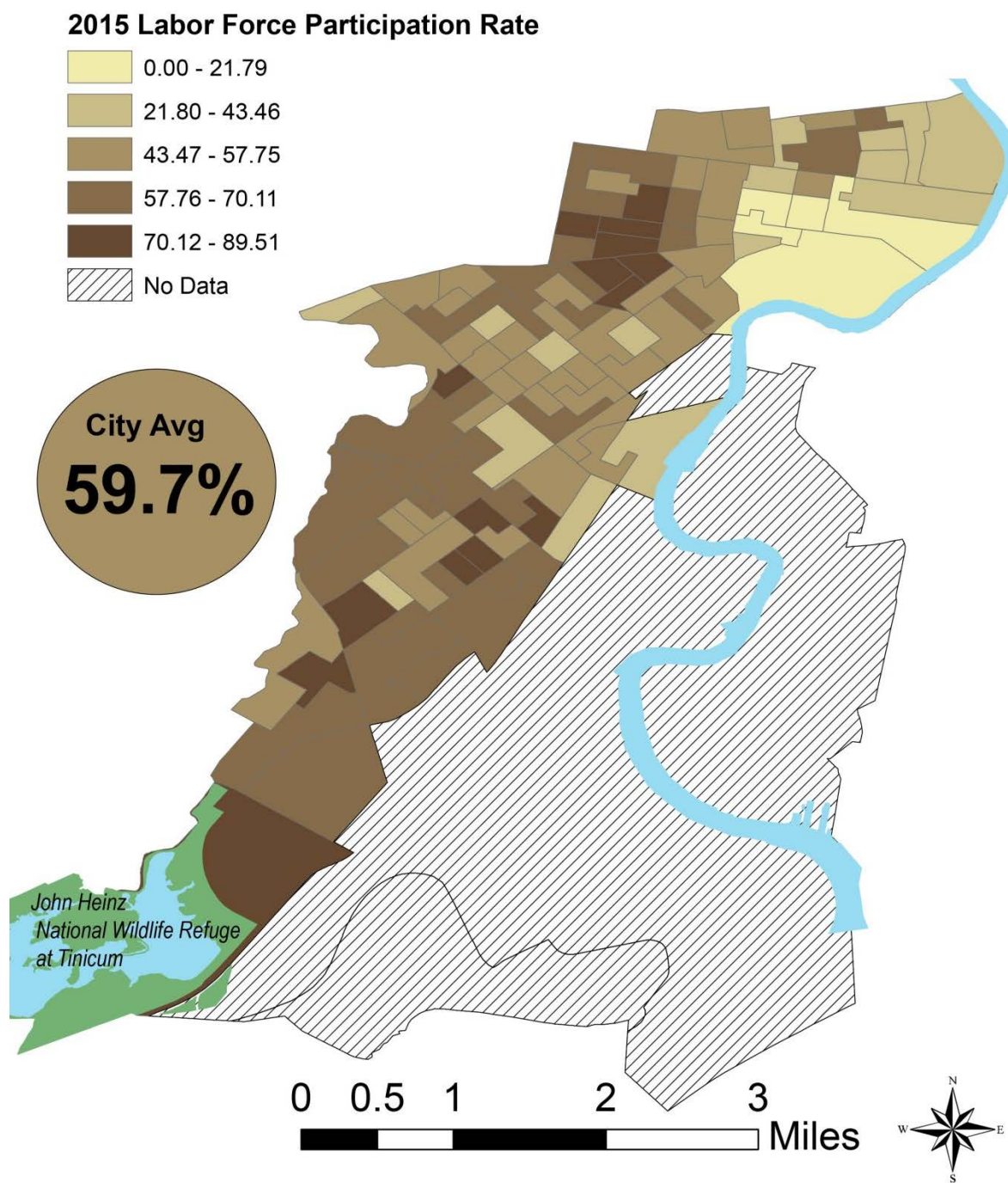
Intimidating infrastructure is not the only characteristic of this area. Lower household incomes, lower educational attainment, and a lower labor force participation rate are just three of many demographic categories in which these neighborhoods in Philadelphia and Delaware County lag behind other local neighborhoods. Map 1-Map 3 display these demographic characteristics. Attainment gaps are compounded by reduced quantity and quality of community resources available in these neighborhoods. It is within these physical and community contexts in which the Refuge must not only fulfill its founding mission as a NWR, but also be a supportive and valuable community resource and neighbor.



Map 1. 2014 Median Household Income in 2015 Inflation Adjusted Dollars in Southwest Philadelphia



Map 2. Percent 2015 southwest Philadelphia residents with less than a high school degree.



Map 3. 2015 southwest Philadelphia labor force participation rate.

In 2011, the United States Fish Wildlife Service (USFWS) released *Conserving the Future*, a “document represent[ing] the Service’s vision for how the Refuge System can contribute in” a

diversifying and changing United States (12).”³ One product of this document was the Urban Wildlife Conservation Program, which focused on NWRs located within 25 miles of at least 250,000 people and was created to more effectively engage with the urbanizing demographics of the United States and to help the USFWS maintain relevancy as a conservation agency. In 2013, eight urban partner cities were announced as urban refuges, which included Philadelphia. In 2016, it was announced that John Heinz was one of four new priority urban refuges. Each of these four refuges received additional funding to focus on their urban mission.

In order to analyze and help overcome these barriers, JHNWRT received a Public Lands Transportation Scholar in June 2016; his goal was to start a multimodal transportation program that would help navigate the Refuge through both physical and programmatic changes that would help JHNWRT meet the standards of being a priority urban refuge.

As the transportation program developed, the Scholar also worked to create and oversee different projects described in the transportation status report; these projects were aimed at alleviating the many transportation barriers preventing residents, and non-residents, from accessing the resources the Refuge offers.

This report will discuss the Scholar’s projects across all refuges. For each project it will examine the project’s methodology and the constituencies involved. The steps towards implementation and the project’s connection to the wider transportation community will also be discussed. Over the course of 19 months at JHNWRT the Scholar oversaw a variety of projects. These are listed in Table 1.

³ U.S. Fish and Wildlife Service, “Conserving the Future” 35
<https://www.fws.gov/refuges/pdfs/FinalDocumentConservingTheFuture.pdf>

Table 1. Transportation Scholar Projects

Project	Location	Status
Transportation Status Report	JHNWRT	Complete
2016 PA FLAP Grants Applications	JHNWRT	Complete
Southwest Community Shuttle	JHNWRT	Complete
Philadelphia Needs Index Maps	JHNWRT	Complete
Philly Nature Kids School Access Maps	JHNWRT	Complete
Abandoned Bicycle Policy	JHNWRT	Complete
Refuge Rideshare	JHNWRT	Ongoing
Community Group Representation	JHNWRT	Ongoing
Vehicle and Trail Counters	JHNWRT	Ongoing
PA-420 Bridge and Trail Redevelopment	JHNWRT	Ongoing
Cobbs Creek Segment D Construction	JHNWRT	Ongoing
Refuge Wayfinding	JHNWRT	Ongoing
Lower Eastwick Public Land Strategy Planning Process	JHNWRT	Ongoing
Refuge Bicycle Share	JHNWRT	Ongoing
Install Bicycle Parking	JHNWRT	Ongoing
SEPTA Bus Stop Announcement	JHNWRT	Ongoing
SEPTA Bus Stop and Shelter Improvements	JHNWRT	Ongoing
PRR Vehicular Wayfinding Program	PRR	Complete
PRR South Tract Trail Signage Gap Analysis	PRR	Complete
PRR Needs Index Maps	PRR	Complete
Urban Transportation Connections Study Assistance	OBNWR	Complete
Grant Research and Matrix	PRNWR	Complete

The final sections will step back and examine these projects within the public lands transportation landscape. This will be followed by the Scholar's personal thoughts on this program and his specific position, before ending with a personal reflection on the Scholar's growth and development within the transportation field.

TRANSPORTATION PROJECTS AT JOHN HEINZ NATIONAL WILDLIFE REFUGE AT TINICUM

This section will describe the 16 separate projects undertaken by the Scholar during his tenure at JHNWRT. These projects sometimes comprise more than one discrete activity or action (i.e. vehicle and trail counters). They are divided into “complete” and “ongoing” projects.

COMPLETE PROJECTS

Transportation Status Report

The primary project listed in the Scholar’s initial scope of work was the delivery of a multimodal transportation program that identifies existing and planned access to JHNWRT. The focus of the program is equitable access, as well as access via active transportation. Over the course of his term the Scholar identified existing modes and plans, documented existing conditions, worked with local stakeholders, and composed a program for implementing potential projects.

Methodology

The Scholar began simultaneously reviewing documents relating to the Refuge, the city of Philadelphia, and Delaware County, as well as walking, cycling, driving, and taking transit to and around JHNWRT. An assessment was preformed of the existing conditions, transportation network gaps, and current or previous plans concerning the area. In addition to the Delaware County Open Space Master Plan, Philadelphia Trails Report, Philadelphia Complete Streets Report, and Lower Southwest District Plan, a local community advocacy group commissioned an Eastwick Trails Feasibility Study that was completed in 2015. Examining the demographics at multiple levels, neighborhood, city, and region, helped add quantitative data to the qualitative data collection.

As the Scholar spent more time at the Refuge and in the area, an array of potential partners developed. This included city agencies, community groups, other park and education sites, public interest groups, and private businesses. Increasing familiarity with the background, physical location, resources, and residents helped lead to a program of different projects that worked to address transportation obstacles surrounding the refuge.

The program concludes with funding and implementation matrices that discuss a schedule for the Refuge to continue its work improving transportation access after the Scholar’s term concludes.

Constituencies

The program describes many projects that involve a wide variety of organizations. These include:

- U.S. Fish and Wildlife Service (USFWS)
- City of Philadelphia, including
 - Office of Transportation and Infrastructure Services
 - Department of Parks and Recreation
 - Philadelphia Redevelopment Authority
- Delaware County
- Pennsylvania Department of Transportation (PennDOT)
- Southeastern Pennsylvania Transportation Authority (SEPTA)
- Michael Baker International (MBI)
- Clean Air Council
- Eastwick Friends & Neighbors Coalition
- Friends of Heinz Refuge
- School District of Philadelphia
- Bartram's Garden (BG)

Next Steps & Implementation

The report has been completed and submitted to JHNWRT leadership. The report includes next steps and an implementation plan for each project discussed. Particular attention is paid to major projects that will be continuing after the Scholar has departed such as the ridesharing partnership with Lyft, wayfinding and trail signage information, and the possible addition of a bicycle sharing program on the Refuge. It also includes instructions on how to continue projects that the Scholar has completed, such as the Southwest Community Shuttle.

FLAP Grant Applications

The Federal Lands Access Program (FLAP) is a Federal Highway Administration (FHWA) program designed “to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands.”⁴ The Refuge applied for two grants, and was awarded full funding for both projects. The first project, submitted by the City of Philadelphia, is a protected bicycle lane along Lindbergh Boulevard (Blvd) between 84th St and 58th St; it received \$184,500 for the \$255,500 project. The second project, submitted by PennDOT, is the rehabilitation of the parking lots along PA-420; it received \$359,040 of the \$448,800 project. Both projects are currently in the initial stage developing the Memorandums of Agreement and setting project schedules.

The Scholar's role in these applications varies. Although he led the planning for JHNWRT in both applications, his role with the PA-420 application was much larger. He arranged for meetings with PennDOT to discuss the project and receive their approval, wrote the entire

⁴ Federal Highway Administration. Federal Lands Access Program.
<https://flh.fhwa.dot.gov/programs/flap/>

application, and prepared the supporting plans. The city of Philadelphia's application was more collaborative as he wrote certain sections, edited the application, and compiled all the letters of support.

Table 2. Lindbergh Blvd FLAP application synopsis

Applicant	City of Philadelphia
Project	Install protected bicycle lane along Lindbergh Blvd
Features	<ul style="list-style-type: none"> • Install a protected bicycle lane along Lindbergh Blvd between 58th St and 84th St • Will meet with Cobbs Creek Segment D at 84th and existing lane at 58th • Will include restriping, enhanced crosswalks, stop bars, and signage • Installation will occur alongside road repavement
Total Cost	\$255,500
Award	\$184,000
Letters of Support	<ul style="list-style-type: none"> • JHNWRT • U.S. Fish and Wildlife Service Region 5 (Northeast) • Eastwick Friends and Neighbors Coalition • Friends of Heinz Refuge • Bartram's Garden
Notes	<ul style="list-style-type: none"> • USFWS to provide matching funds of 16% • City of Philadelphia to provide in-kind match of 12% • Programmed for FY 2017-18
Current Status	Assessment of Memorandum of Agreement by parties

Table 3. PA-420 FLAP application synopsis

Applicant	PennDOT
Project	Rehabilitate both JHNWRT parking lots along PA-420 (Wanamaker Ave)
Features	<ul style="list-style-type: none"> • Grading paving/re-paving both parking lots • Paint parking spaces • Install new fencing • Install lighting • Install bicycle rack • Install signage • Install trash cans • Upgrade information kiosks • Landscape overgrown trees, bushes, and weeds
Total Cost	\$448,800
Award	#359,040
Letters of Support	None
Notes	<ul style="list-style-type: none"> • USFWS to provide matching funds of 20% • Programmed for FY 2017-18 • Project to be led and delivered by FHWA
Current Status	Assessment of Memorandum of Agreement by parties

Methodology

Both FLAP applications underwent similar steps. An evaluation of potential transportation projects that met the FLAP criteria was undertaken by the Scholar and reviewed with Refuge

staff. This included a review of two previous FLAP applications submitted by the Refuge in 2015 that did not receive awards. Next was a call with FHWA officials to review previous applications and discuss possible projects for 2016. The Scholar also spent substantial time reviewing previous successful FLAP applications from around the country that were found online, as well as through the help of USFWS Headquarters. Additionally, FHWA and the Programming Decision Committee for each state publishes the scoring rubric and application guidance; the Scholar studied this diligently.

Two projects stood out to the Scholar and Refuge staff; one was a resubmission of a 2015 application to rehabilitate the PA-420 parking lots, and the other was the installation of a protected bicycle lane along Lindbergh Blvd to facilitate safe, comfortable, low-stress bicycle access to JHNWRT. After identifying these projects, it was necessary to contact the facility owners since the FLAP program requires the actual owners, or those in charge of maintenance, to be the applicants. The refuge then worked with these owners to prepare the applications and letters of support.

Lindbergh Blvd

The city's Office of Transportation and Infrastructure Services (OTIS) was very receptive to a protective bicycle lane that could be funded by the FLAP program. OTIS told JHNWRT that they already had preliminary designs for a protected facility along Lindbergh should funding become available. Several meetings were held to discuss the cost, the application, a delegation of tasks, and what the design and application would consist of. Steps were taken to develop the project to meet published Pennsylvania-specific FLAP goals, such as the addition of crosswalks to expand affected modes and to make the project \$200,000 in size, the preferred minimum for the state. While the Scholar composed the first draft of the application, an ensemble of city staff, Clean Air Council Staff, and the Scholar composed the final application after a round of editing. This FLAP application is available in Appendix A: Lindbergh Blvd FLAP Application and Letters of Support.

PA-420

PennDOT was much less eager to begin a project on their land. Although they were not even sure they owned the land in question, A USFWS study from several years earlier had determined they did. After declaring they would not manage any project, JHNWRT reached out to FHWA for an estimate on the cost of the project if it was managed and delivered by FHWA. After receiving this quote JHNWRT re-approached PennDOT, who indicated they were willing to apply if FHWA managed and delivered the project. The Scholar prepared the entirety of this application. This FLAP application is available in Appendix B: PA-420 FLAP Application.

Constituencies

Lindbergh Blvd

Several agencies within Philadelphia supported the application, including the Office of Transportation and Infrastructure Services and Streets Department, as well as the Clean Air

Council, Friends of Heinz Refuge, Eastwick Friends and Neighbors Coalition, and Bartram's Garden (BG).

PA-420

The PA-420 project required support from PennDOT and Tinicum Township.

Next Steps & Implementation

The grant awards were first announced in late August 2017, several months after the expected decision. Each application partnership held initial meetings in October 2017 to discuss the next steps. The first step for FLAP projects is for all parties with a financial stake in the project to sign a Memorandum of Agreement (MOA) with FHWA. FHWA is still preparing these MOAs, and they will be sent out for party review. FHWA says this review generally takes 2- 4 weeks. Until these MOAs are signed it is not possible for any costs to be reimbursed. The program administrator for FHWA told JHNWRT their goal was to have the MOAs signed before 2018.

Lindbergh Blvd

The city is also arranging a meeting to discuss final design of the bicycle lane with the district councilperson. Councilmanic Prerogative is a Philadelphia-legislative custom that requires local council people to approve of all projects occurring in their district. Once the final design is supported by the councilperson, the city and JHNWRT will begin outreach. After signing the MOA in late 2017, the city hopes to make this a fall 2018 project after awarding the contract in early-mid 2018.

PA-420

FHWA is going to begin scoping the project before the MOA is signed so that they can have a better idea of the final costs and the project timeline. The goal would be to have this project constructed in the summer of 2019 or 2020, but it is difficult to assign a specific timetable before scoping has occurred.

Southwest Community Shuttle

2016 Methodology

JHNWRT leadership had been interested in using a shuttle of some type to bring community residents to the refuge, but never had someone able to create and oversee the project. The arrival of the Scholar was a perfect opportunity to begin a pilot program.

The shuttle began as a pilot project in 2016. JHNWRT leadership decided less than a month before the 2016 Philly Fall Nature Fest to supply transportation for the event. The vision was a small to mid-size, free vehicle that would stop at designated places around Southwest Philadelphia. JHNWRT's larger vision was to have a service that connected the three organizations in the area that focused on environmental education and conservation: JHNWRT, Bartam's Garden (BG), and the Cobbs Creek Community Environmental Education Center (CCCEEC).

Both BG and CCCEEC were receptive to partnering in this endeavor, but had limited resources to contribute to the project. In addition to these partners, several other community organizations were approached to serve as partners and stops. Kingsessing Library, Myers Recreation Center, Cibotti Recreation Center, and Tilden Middle School were contacted about being pick-up locations. These sites were chosen based on several factors. They were all:

- Community resources
- Offered easy and safe locations for the shuttle bus to pick up and drop off passengers
- Existed in different, target neighborhoods

Additionally, Kingsessing Library and Myers Recreation Center are located in areas with very low levels of vehicle ownership, particularly compared to the rest of the region.

The city of Philadelphia's Right of Way (ROW) department was contacted about putting signs in the city ROW to mark pick-up locations, but the city did not approve the application before the service started. Without this approval, plastic signs were ordered and placed within the partner's property.

A schedule was made and rack cards were distributed to partners and the public about the service. These are displayed in Image 2. However, the short turnaround time between project genesis and commencement left very limited time for public outreach.



Image 2. The 2016 Southwest Community Shuttle rack card, front and back.

A shuttle service was hired that provided a 21-passenger vehicle, and included a driver. Costs are detailed in Table 4.

Table 4. 2016 Southwest Community Shuttle costs

Item	Cost
Shuttle (bus, driver and gratuity, insurance)	\$700
Signs	\$172.89
Magnets	\$140.17
Pamphlets	\$183.90
Total	\$2,597
Cost per Day	\$865.65

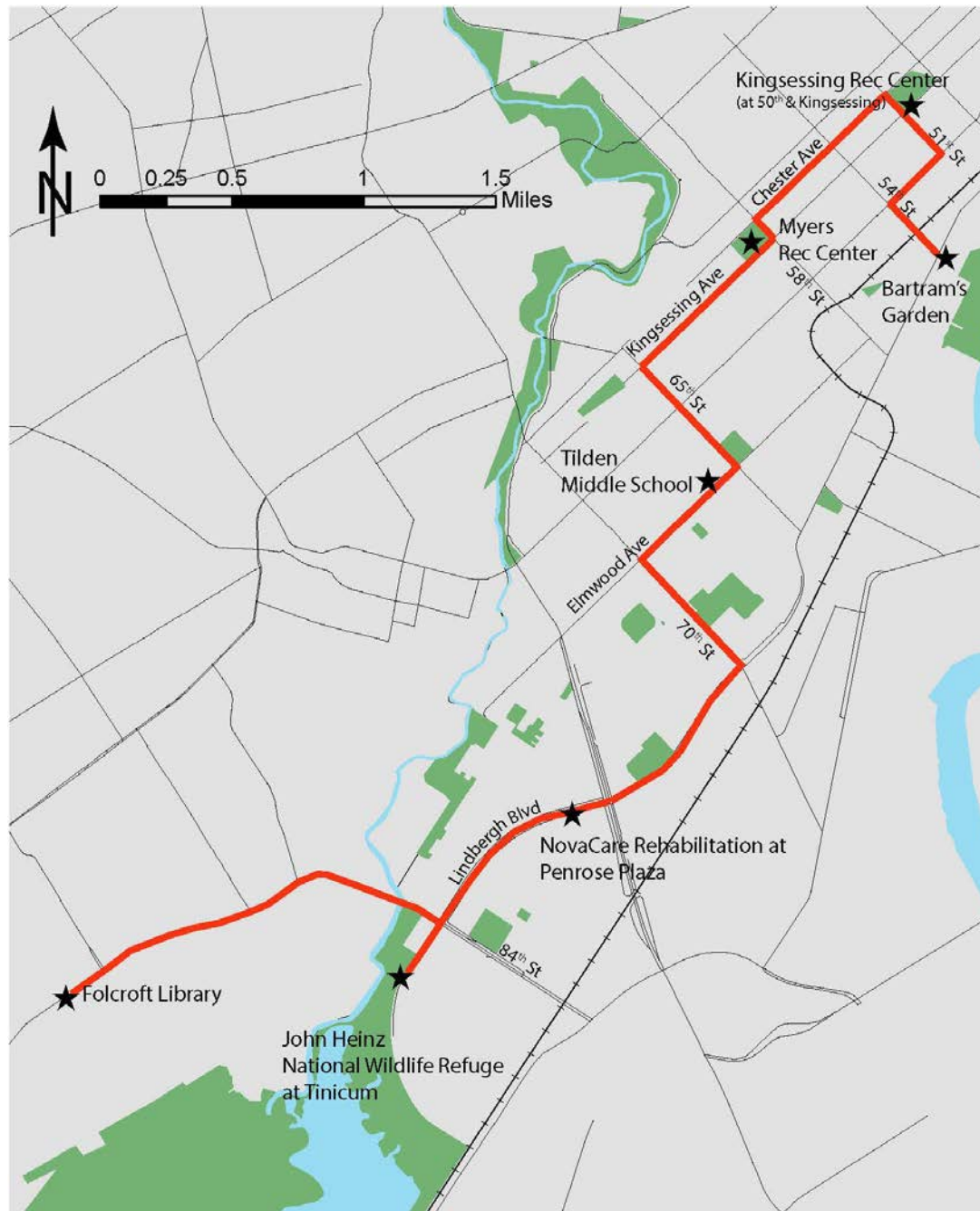
The 2016 shuttle ran on three consecutive Saturdays in October from 9 AM -4 PM. The shuttle ran a continuous loop along the route the entire time, with the three environmental centers acting as “terminals” along this triangular route, as shown in Map 4.

Ridership was very low; it carried 7 unlinked trips over the three days.

Although one of the three Saturdays was very bad weather, it is unlikely that this actually affected the public’s plan to use the shuttle. While the program met some of the initial objectives, others were unmet. An evaluation of this program determined that with some reasonable structural changes it could be successful. These changes focused on improved and earlier outreach to the public. This evaluation is available in Appendix C: 2016 Shuttle Evaluation Report.

2017 Methodology

Over the winter of 2017 JHNWRT leadership reviewed the 2016 program and evaluation prepared by the Scholar. It was decided to continue the program with changes. The biggest change was the inclusion of BG as a primary shuttle partner. Although a formal agreement was never signed, JHNWRT and BG decided to use their respective resources to promote this program. Specifically, JHNWRT would use its deeper financial resources and transportation planning professional to pay for the shuttle, design a new route (shown in Map 4) and oversee the program, while BG would use its community ties, particularly within the Kingsessing neighborhood to promote the service. Additionally, BG has a rather innovative promotional strategy, using small sums of money to find local leaders who will be employed to promote projects. BG has found that these “grants” create large amounts of buy-in among local residents, who then spread information about the event, take on and feel more responsibility for an event, and develop closer ties to the organization as a whole. As a nonprofit organization BG is in a position to deploy a program such as this, while a federal agency could not.



Map 4. The 2017 Southwest Community Shuttle Route.

The 2017 Southwest Community Shuttle ran three times between June and October 2017. Each date aligned with a major event at either JHNWRT or Bartram's Garden (see Table 5). The partner not hosting the major event also held a small event that day to encourage people to visit both locations. The shuttle ran from 8 AM – 6 PM on Saturday June 3, Saturday October 14, and Sunday October 15. A 21-person van from the same company used in 2016, King Limo, was used. However, because there were several months to tweak the schedule and service, there were some differences between the June and October runs.

Table 5. 2017 Southwest Community Shuttle events and stops

Date	June 3	October 14	October 15
Day of Week	Saturday	Saturday	Sunday
Primary Event	Riverdays at Bartram's Garden	Philly Fall Nature Fest at JHNWRT	HarvestFest at Bartram's Garden
Stops	<ul style="list-style-type: none"> • Bartram's Garden • <i>Kingsessing Library</i> • Myers Rec Center • Southwest Senior Center • <i>Penrose Plaza (no specific partner)</i> • <i>Eastwick Train Station</i> • JHNWRT • <i>Sharon Hill Library</i> 	<ul style="list-style-type: none"> • Bartram's Garden • Kingsessing Rec Center • Myers Rec Center • Tilden Middle School • NovaCare Rehabilitation (Penrose Plaza) • JHNWRT • Folcroft Library 	<ul style="list-style-type: none"> • Bartram's Garden • Kingsessing Rec Center • Myers Rec Center • Tilden Middle School • NovaCare Rehabilitation (Penrose Plaza) • JHNWRT • Folcroft Library
Notes: Stops are listed in north south order of route; stops that were removed are italicized, while stops that were added are bolded.			

The Scholar rode the shuttle each day. His role was to scour the area near the shuttle stop and direct people waiting for the shuttle. Some stops, such as the recreation centers were diffuse areas where people could wait inside or outside, and it would be possible for these riders to miss the bus. As a rented bus, it was not possible to adorn or wrap the bus with anything distinctive for the public to see.

The Scholar also collected specific data on who rode the shuttle, where they got on and off, and how they learned about the service. Having a representative riding the shuttle afforded the opportunity to speak to a captive audience about the different features and resources of the sites.

The 2017 shuttles were much more successful than the 2016 iteration. Table 6 displays the ridership information.

Table 6. Southwest Community Shuttle ridership by year and date

	All 3 2016 Dates	June 3, 2017	October 14, 2017	October 15, 2017	2017 Totals
Number of Rides	7	29	41	38	108

Each day of the 2017 shuttle marked not only a huge increase over the 2016 totals, but it also showed an impressive cost per rider when compared with SEPTA's cost per rider on lines in this part of the city. Table 7 and Table 8 display the breakdown of the cost per rider for 2017 and then how this cost compares to the local SEPTA lines.

Table 7. 2017 Southwest Community Shuttle cost per rider

Date	"Out-of-Pocket" Cost per day	Rides	Cost per Rider
June 3	\$1001.63	29	\$ 34.54
October 14	\$1001.63	41	\$ 24.43
October 15	\$1001.64	38	\$ 26.36
Total	\$3004.90	108	\$ 27.82

Table 8. Cost per rider of southwest Philadelphia SEPTA lines and Southwest Community Shuttle

Route	Mode	Annual Ridership	Fully Allocated Costs	Cost per User
108	Bus	193,960	\$6,907,927	\$20.36
SCS	Shuttle	108	\$3,005	\$27.82
37	Bus	193,960	\$6,907,927	\$35.62
115	Bus	66,092	\$15,729,261	\$44.70
Total		1,632,332	\$46,657,464	\$28.58

JHNWRT did make an important outreach adjustment between the June and October shuttle runs. In addition to utilizing BG's community connections, the Scholar led several canvassing events where JHNWRT employees walked down the commercial corridor on Woodland Ave between 58th St and 66th St talking to people about Philly Fall Nature Fest and the shuttle. They also canvassed in Penrose Plaza, speaking to people in the parking lot.

Constituencies

The Southwest Community Shuttle worked with many different partners. These included:

- USFWS
- Bartram's Garden
- Cobbs Creek Community Environmental Education Center
- Several libraries
 - Kingsessing
 - Folcroft
 - Sharon Hill
 - Paschall
- Several Philadelphia Recreation Centers
 - Myers
 - Kingsessing
 - Cibotti
- NovaCare Rehabilitation
- SW Senior Center
- Friends of Heinz Refuge
- Southwest Globe-Times
- King Limo

Next Steps & Implementation

While there was a huge uptick in ridership in 2017, several possible improvements were still identified, such as earlier and better coordinated outreach and canvassing, and increased attention to recreation centers, which have consistently been good drivers of shuttle riders. Overall, the cost per rider is still very high, even if it compares favorably with SEPTA routes in

this area of the city. Bartram's Garden has also expressed interest in bringing this project to an outside funder, who may provide increased money for advertisement and materials.

This could address the most important future question for the shuttle: who will run the shuttle after the departure of the Scholar, who was in charge of route creation, shuttle procurement, data collection and analysis, much of the outreach, and day-of activities?

Smaller questions, such as how to effectively produce riders from Delaware County or how to best make the shuttle stop apparent, are also questions this program must confront. Another hurdle to consider is how to accommodate increased usage. The shuttle was full at several times on October 14. The shuttles at noon and 3 PM (representing a late arrival to the refuge and departure from the refuge at the end of the event) were both full. Although the shuttle could transport more people if they came to the event earlier, the end time of the event will always represent a large volume of people that may exceed shuttle capacity.

Philadelphia Needs Index Maps

Methodology

As an urban refuge, John Heinz has a goal of “bring[ing] nature into the city by working with communities and partners to build neighborhood ‘pocket parks,’ developing exhibits and natural areas at sites throughout Philadelphia and contributing toward regional environmental and sustainability initiatives.”⁵

To best work with the local community and on projects outside of the Refuge boundary it is important to use a mixture of qualitative and quantitative data. There is nothing more important than speaking with local residents, finding out what resources or services they need or desire, or do not need or desire, and then working with them to achieve shared goals. Since these communities can be geographically large and the opportunities to work on projects can be many, using quantitative data to sift through project possibilities and locations is a valuable complement to these conversations.

After reviewing the CARLESS California study⁶ conducted jointly by the USFWS, United States Forest Service (USFS), National Park Service (NPS) and Bureau of Land Management (BLM) the PLTS decided to create a similar needs index map.⁷ This map used similar but slightly different data categories for Philadelphia.

Although the goal was to focus mainly on Southwest Philadelphia, it was the same amount of work to create the map for the entire city of Philadelphia. A full Philadelphia map could be helpful in future outreach and programming. Therefore, the map was created for the entire city.

⁵ U.S. Fish and Wildlife Service. Engaging Communities in Philly.
<https://www.fws.gov/urban/PDFs/Engaging%20Communities%20in%20Philly.pdf>

⁶ U.S. Forest Service. CAR-LESS California
<https://www.fs.usda.gov/detail/r5/workingtogether/?cid=stelprdb5373419>

⁷ U.S. Forest Service. CAR-LESS California. Technical Memorandum #1.
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5421426.pdf, pg. 11.

Delaware County and other surrounding areas were not included. However, an analogous map for Delaware County could be a useful tool for the refuge; while Philadelphia offers a higher concentration of people, particularly the non-traditional users the USFWS would like to reach with this initiative, Delaware County is an important part of the refuge base, both culturally and geographically.

After reviewing the CARLESS California Draft Technical Memos, the Scholar put together a list of potential data points the Refuge could use in creation of its own Philadelphia Needs Map. This process is detailed in Appendix D: John Heinz Needs Index Data Assessment.

There were several stipulations that the data needed to meet. The categories needed to be available from the US Census, or other source, at the block group level. To display as much detailed information as possible, block groups were chosen as the appropriate scale.

The Scholar met with the Refuge Manager to identify what categories the refuge wanted to use on their map. Twenty different data categories were initially considered by the Scholar. Six categories of interest to the Refuge were chosen:

1. Percentage of people receiving Supplemental Nutrition Assistance Program (SNAP) benefits over the past 12 months
2. Vehicle Ownership per household
3. Income-to-poverty (IPR) ratio
4. Labor force participation rate
5. Percentage of population under 25 years old⁸
6. Percentage of population 65 years old and above

Income-to-poverty ratio (IPR) offered some complexities as a category. For IPR, it was determined to map only one of the 7 ratios within the data file. However, determining which of these ratios to map was unknown. Identifying poverty is an imperfect analysis. The federal government designates a dollar-value threshold based on family size, regardless of other conditions, such as geography. In 2015, the threshold for a family of four was \$24,257. The median household income in Philadelphia in 2015 was \$38,253. Although very rough, an IPR for a family of 4 earning the median household income in Philadelphia (\$38,253) compared to the federal poverty level for a family of 4 (\$24,257) would result in an income-to-poverty ration of 1.5769. To hew to the census delineations within the IPR category, it was decided that an IPR of 1.5 (which would result in an income of \$36,386 (a difference of less than 10% to the 2015 Philadelphia median household income) or less would be mapped. The entire category would be percentage of people with an IPR of less than 1.5.

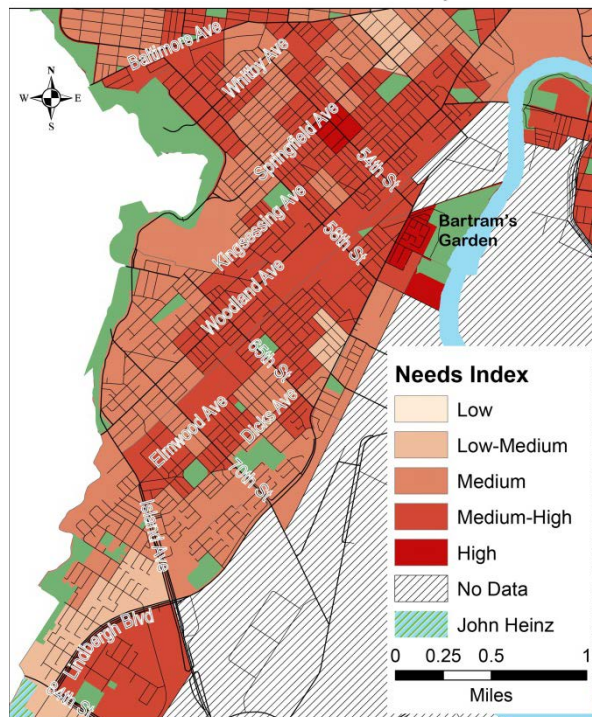
For age, 25 was chosen as the first cut-off due to the USFWS designation of youth being anyone 25 or younger.

None of the categories were weighted for importance, although this could be an improvement made in future iterations, if desired.

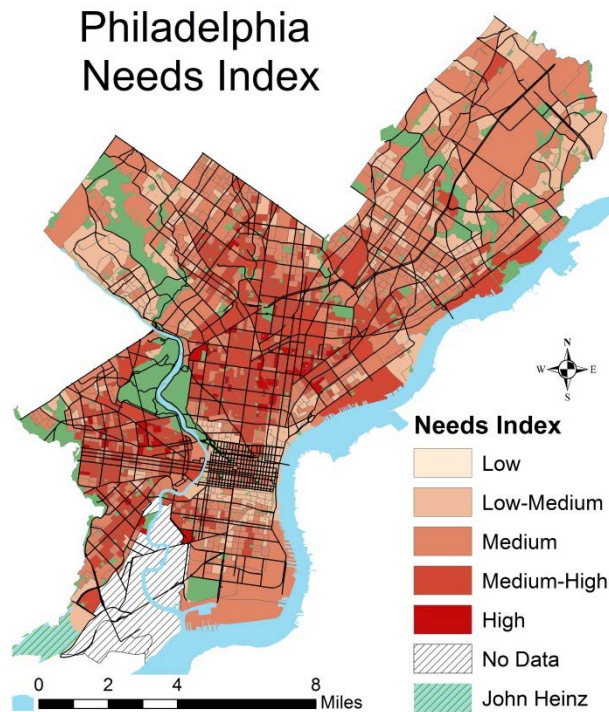
⁸ Since the creation of these maps, the USFWS definition of youth has changed. Future maps should consider raising category (5) to population under the age of 30 to align with the new USFWS definition.

To create the index, Jenks Natural Breaks in ArcGIS were used to delineate five different categories, showing the areas that had the highest prevalence of each category. For each category, the block group would receive a grade of 1-5, depending on where it fell within the natural break. These six grades (one for each category), would then be added together and averaged, for an overall score of that block group. Each category was graded so that the higher number would indicate a higher representation of that category (i.e. More people 65 and over, more people under 25, more people receiving SNAP benefits, a *lower* rate of vehicles/household, a *lower* IPR, and *fewer* people participating in the labor force).

Southwest Philadelphia Needs Index Map



Map 5 Needs Index Map for Southwest Philadelphia



Map 6 Needs Index Map for Philadelphia County

Constituencies

This project was conducted completely by the Scholar under the supervision of JHNWRT management.

Next Steps & Implementation

These maps were made using 2015 5-year American Community Survey (ACS) data. Although it is unnecessary to update them every year, as new datasets come out, the creation of new maps will keep JHNWRT more up to date on the neighborhoods' demographics.

Changes to the methodologies can also be made, such as changing some of the categories or weighting some categories more heavily.

These maps should be used to focus on external relationships within the community. This could be through off-site programming in specific locations where resources are fewest. It could inform land acquisition as the refuge works with different organizations to create community gardens throughout Southwest Philadelphia. Areas where the needs are highest are likely also areas that know less about the refuge and could be the focus of targeted outreach for major events or programming.

Abandoned Bicycle Policy

Methodology

The introduction of more bicycles and bicycle amenities on JHNWRT has many positive benefits, but more bicycles on-refuge also raises the possibility that some bicycles may be brought to the refuge and left there. To grapple with this possibility the Scholar developed an abandoned bicycle policy. Reviews of other NWR System and USFWS regulations did not uncover any bicycle-specific policies on which the JHNWRT policy could be based. However, USFWS does have regulations governing property forfeiture. This policy and abandoned bicycle policies from several cities and universities informed the policy developed by the Scholar. The policy is included in Appendix E: JHNWRT Abandoned Bicycle Policy.

Constituencies

This policy will affect all refuge users.

Next Steps & Implementation

The Scholar submitted the policy to JHNWRT management for their review. Implementation of this policy will rely on JHNWRT leadership and the JHNWRT Law Enforcement Officer.

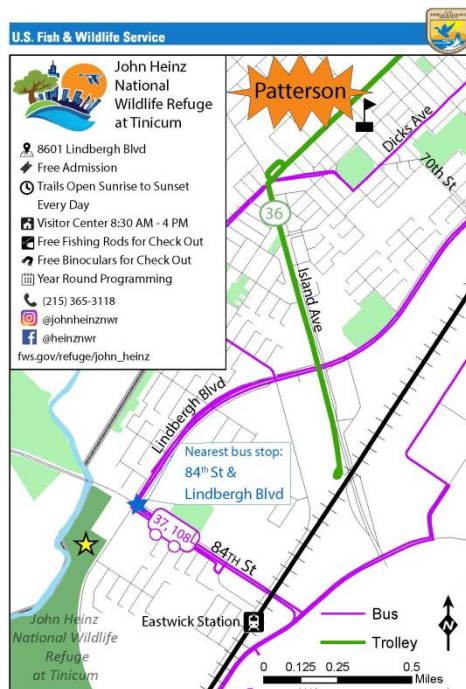
Philly Nature Kids School Access Maps

Methodology

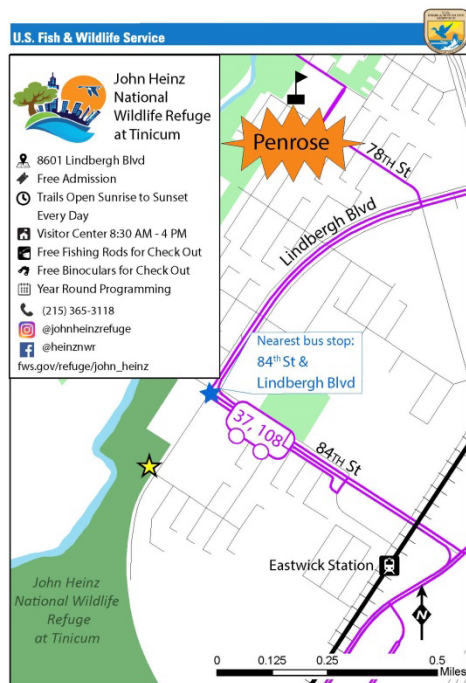
JHNWRT works with local students primarily through the Philly Nature Kids (PNK) program. This program connects JHNWRT environmental education staff, through on- and off-site science lessons, with hundreds of local middle and elementary school children each year. The Scholar created maps that would help PNK students see where they live and learn in relation to JHNWRT.

These maps (two of which are displayed in Map 7 and Map 8, and the full version of which are available in Appendix F: Patterson Middle School Access Map, Appendix G: Penrose Elementary School Access Map, and Appendix H: Tilden Middle School Access Map) are handed out to students directly by PNK staff when they work with the students at their schools. The maps contain transit information, as well as basic information about refuge amenities and facilities. Most importantly, it puts a map of where the refuge is located in the neighborhood into the hands of students and, potentially, their families. This basic information is often unknown to local residents.

Mediating JHNWRT information through Philly Nature Kids is a form of direct engagement that the refuge can expand to disseminate important refuge information.



Map 7. The School Access Maps for Patterson Middle School



Map 8. Penrose Elementary School

Constituencies

This is a project that serves school children and their families, although the maps can be used by anyone. It is possible it also increases SEPTA usage since the maps include public transit information.

This is a project that is led by USFWS, but requires the support of individual teachers within each Philly Nature Kids school.

Next Steps & Implementation

These maps are complete and available to refuge employees. The Philly Nature Kids educators must continue to disseminate the maps in their classrooms.

ONGOING PROJECTS

Refuge Rideshare

Methodology

Transportation Network Companies (TNC) represent a new but swiftly growing percentage of the transportation landscape. Millennials, younger, and urban residents have especially taken to this form of transportation, known colloquially as ridesharing. JHNWRT saw ridesharing as a new tool that could help transport people directly to the refuge, could expand the reach of the refuge, and could also reveal valuable data regarding from what parts of the Philadelphia region visitors were arriving.

Research had not revealed any other federal land management agency creating or using ridesharing to facilitate site access. Centennial, CO, a city that had partnered with Lyft, was consulted about their experience and lessons learned, but their program, as a municipal transit supplement, had very different goals from JHNWRT. An outside consultant had previously suggested JHNWRT try to arrange a program where the Refuge would discount rides on these services if they started or ended at a local SEPTA station. They envisioned a seamless, intermodal network utilizing SEPTA and ridesharing. However, the Scholar argued that this put too much of a burden on visitors to use multiple forms of transit, creating another barrier and obviating the benefit of ridesharing. The goal of the program should be quick and easy transportation in order for visitors to enjoy the Refuge for what it offers and not worry about difficulties encountered in arriving to or leaving from the site.

After JHNWRT management agreed upon the goals of what a ridesharing program may look like, the Scholar visited Uber's Philadelphia office to try and make a direct contact. It is located in southwest Philadelphia, not far from the Refuge. He gave his information to a manager at the office, and he was told that Philadelphia's Marketing Manager would reach out to him shortly. Lyft did not yet have a city office, and the Scholar had to reach out to them through online customer service.

After some follow-up by the Scholar, both companies eventually reached out to JHNWRT. Although both companies initially said they would be excited to work with the Refuge, after several months it became obvious that Uber was not interested in being a partner; they would postpone meetings, would not return calls or emails, and misinterpreted and misremembered the goals and desires of the program as stated in previous meetings. Eventually Uber directed the refuge to their Uber events service, which allows someone to buy a specific code that could be disseminated to visitors. This option still put an onus on the visitors, requiring them to input the code in a clunky, hidden interface within the app. It did not allow for customization of how much subsidy each rider received, something the Refuge envisioned to ensure that lower-income people from the neighborhood received a higher subsidy than a higher-income center city visitor. Uber had also recently announced a project with SEPTA where Uber rides going to or from certain Regional Rail stations automatically received a discount. However, Uber was not

willing to work with the Refuge to create a similar program. Finally, they were unwilling to share any basic data with JHNWRT.

Lyft was much more willing to meet with the Refuge and create a program that met JHNWRT's needs. After discussion with Lyft and JHNWRT management, it was decided that JHNWRT would dedicate \$10,000 to a program that would subsidize up to \$10 for rides beginning or ending at JHNWRT. This meant that someone who lived locally and might only be an \$8 ride away would have their entire trip subsidized, while someone from further away would still have \$10 subsidized, but their longer trip would still result in a balance for which they were responsible. The following restrictions were also built into the program:

- Visitors must use the Visitor Center parking lot as the pick-up/drop off area to receive the discount.
- The rides must occur between 5 am and 10 pm.
- The refuge will subsidize up to \$20 worth of trips per month per user account; this is at least one round-trip use per account. However, they do not have to be used as round-trips. If someone wishes to use Lyft to arrive at the refuge and depart via another mode, that is allowable.
- There are no date limitations; the program will continue until the refuge investment is fully consumed.
- The refuge will be in charge of publicizing the program.
- Lyft will share ZIP code-level data with the refuge for riders using the program.
- The specific data points shared will include where people are coming from/going to, the time of day and date. More data categories could be shared if each party agrees to do so.
- Lyft will be responsible for limiting the charges to the predetermined refuge investment level.

Defining the program parameters was only the first of several important hurdles to clear. Identifying how to transmit the money to the company and getting the USFWS regional office of the Solicitor to approve the MOA remained.

Lyft told JHNWRT that for these agreements, they could not simply accept a credit card for payment. A different type of funds transfer was required. This presented a problem for the Refuge since it is the primary form of payment for goods and services. The Refuge has already received clearance from the regional office that these charges could be considered acceptable, and an Acquisition Request for the service would not be needed any time the credit card was charged. The Refuge Manager, worked with the contracting office to identify a “cooperative agreement” as a vehicle that would allow JHNWRT to transmit money to Lyft for use in this program. The details on the agreement are listed below:

1. The NET amount of \$10,000 will be obligated with no promise of a minimum number of rides/amount to be reimbursed.
2. Monthly, or preferable quarterly billing will occur.
3. Invoices should be for a specific (non-duplicative) time period and accompanied by list of zip codes traveled from and date of trip, at minimum.
4. Lyft must maintain active System of Award Management (SAM) registration.

5. Period of Performance must not exceed 9/30/18 due to use of 178 funding.
6. To obligate the regional office will need the following:
 - Public Voucher (SF 1034) approved by the refuge manager, refuge zone supervisor, and the administrative officer.
 - Memorandum of Understanding and/or Statement of Work (SOW).
 - Statement re maintenance of SAM Registration.
 - Period of Performance NET 9/30/18.
 - Method to verify services provided (invoicing with zip/date).
 - Monthly or quarterly billing plan.
7. The public voucher should describe services to be provided (can refer to attached MOA/SOW) and provide line of accounting. Once obligated a document number will be given.
8. Once obligated, manual payment packages can be prepared and submitted via Financial and Business Management System (FBMS) for direct deposit to the banking information provided in vendor's SAM registration.
9. A complete payment package includes:
 - Payment Package Cover Sheet
 - Invoice
 - Invoice backup paperwork
 - OK to pay from refuge manager
 - Copy of Public Voucher
 - Copy of MOA
10. Payment package to be submitted via FBMS manual referencing payment process (at station)

In the spring of 2017 the Scholar began writing a Memorandum of Agreement for the program. It was based on an MOA that JHNWRT had crafted for a program with L.L. Bean. After review, this MOA was sent to Lyft for their assessment and approval. After several weeks it came back with minor changes. These changes were incorporated, and the new MOA was submitted to the USFWS solicitor for review.

Unfortunately, program approval has moved slowly. The Solicitor's office has had difficulty determining if FWS can move forward with the program since this is an unprecedented program for FWS. There is nothing in the USFWS regulation that prohibits the program, but there is also nothing in the regulation that approves it. It is a catch-22. This placed the office in a bind. As of this writing it has yet to give final approval.

Constituents

This program is comprised of JHNWRT and Lyft, but has also included support from the regional office for contracting and legal advice. Future partners may also assist with publicity and outreach for the program.

Next Steps & Implementation

The last major obstacle is receiving approval from the Solicitor's office. Lyft has indicated they are ready to move forward once USFWS is. Publicity and overseeing the money in the fund are expected to be the two most important next steps. Outreach has historically been an issue for the Refuge, but based on improved outreach for the Philly Fall Nature Fest, Southwest Community

Shuttle, and the Philly Nature Kids program, it is reasonable to think that this is less of an obstacle than it used to be.

Program oversight will be required for two important factors, however. The first requires both monitoring and strategizing regarding the account balance. It is believed that the program will move slowly at first, but once it reaches enough people it could be utilized very quickly by visitors. If usage follows that arc, there is a legitimate worry that the money might deplete very quickly and strand some people who expected subsidized rides.

Additionally, Lyft will be providing ZIP code-level data on who is arriving to the refuge and from where they come. This data will be the first of its kind for the refuge, and it will be invaluable in assessing where the Refuge does successful/unsuccessful outreach, where its visitors live, from where in the city people are willing to visit the refuge, and could give clues to future locations of offsite programs and projects. Once received, someone will need to oversee and analyze this data, or it will go to waste.

Community Group Representation

Methodology

The refuge interfaces with many different organizations and people. However, there is slapdash coordination between the refuge and these groups. Generally, the refuge manager is the main point of contact. However, there are too many different meetings and groups for him to act as the sole point of contact. Since transportation projects require public input and support it was natural for the Scholar to take on the responsibility of interfacing with many of the community organizations. This included approaching them about events, attending public meetings, participating on listservs/email announcements, and acting as a first point of contact.

Constituencies

The following are a list of organizations the Scholar liaised with:

- Eastwick Lower Darby Creek
Community Advisory (ELDCA) Group
- Clean Air Council
- Delaware Valley Regional Planning
Commission
- Bicycle Coalition of Greater Philadelphia
- City of Philadelphia Office of
Transportation and Infrastructure
Services
- PennDOT
- Tinicum Township
- Tilden Community Partners
- Neighborhood Bike Works
- Kingsessing Library
- Sharon Hill Library
- Folcroft Library
- Myers Recreation Center
- Kingsessing Recreation Center
- Cibotti Recreation Center

- NovaCare Rehabilitation at Penrose Plaza
- Bartram's Garden
- SEPTA
- Ofo Bicycles

Next Steps & Implementation

Although most of the partnerships listed above do not require constant maintenance, it is important that JHNNWRT maintain their relationships with these entities. Relationships that are nurtured and strengthened generally result in more positive outcomes.

The refuge has an open position on their organizational chart for a Community Outreach Coordinator. Filling this position when they are allowed will be very important in keeping and building these partnerships.

Vehicle and Trail Counters

Methodology

JHNNWRT has very limited quantitative data on the number of visitors to the refuge. Prior to the Scholar, Refuge staff and volunteers record the number of visitors who entered the visitor center during operating hours. Anyone not entering the visitor center or utilizing the site at different hours is not recorded by these hand counts. The counts were not taken during major events, omitting the presence of many visitors.

To remedy this lack of data JHNNWRT has pursued the acquisition and installation of both vehicle and trail counters to arrive at a more accurate idea of refuge visitation.

Vehicle

Repaving and restriping the entrance road and main parking lots was a scheduled project before the Scholar arrived, and this project began in summer 2017. The project included the installation of an inductive loop traffic counter. However, this was a purchase that needed to be made by the Scholar.

The counter had several requirements. It had to work with the inductive loop being installed by the repaving contractors, it had to give timestamp data on vehicles that entered the site, and it had to have intuitive and flexible software that would allow JHNNWRT to produce and visualize this data. Other features, such as wireless data transmission or vehicle classification ability were seen as desirable amenities if they fit within the price range.

After researching several counters and software packages the Scholar facilitated the purchase of a Diamond TT-200 with Data Logger, a feature that gave the refuge timestamp data.

The counter was installed in September, and the installation, collection, and analysis has experienced some bumps. The Diamond software for this model is Centurion Free. Although downloading it to the computer was no problem, installing and synching the software with the counter took several days of troubleshooting. Eventually USFWS IT fixed the program and the software ran well. However, recently the software has been unable to generate reports on the

data. After contacting Diamond, the Scholar was sent a software patch for the problem. More troublingly, were clear over counts at seemingly-random times. Reports showed several hundred counting events in several 15 minute-intervals over multiple days. Through analysis of BIN files Diamond confirmed that the counts were valid, but was still researching what caused the over counts.

Continued discussion with Diamond seems to have smoothed out the bumps. The counter now looks to be operating correctly. The data does not appear to have any egregious over counts, and reports are generated easily and correctly. Staff at JHWNRT will continue to monitor this counter and use this data to improve JHWNRT.

Trail

In fall 2016 the Scholar discussed the possibility of conducting bicycle and pedestrian counts on the refuge to get a better idea of how many people were actually using these modes for both access and recreation. He was told that USFWS headquarters, through a contract with Kimley-Horn, had recently begun a project to install bicycle and pedestrian counters at select refuges, including JHWNRT.

Although this project would supply JHWNRT with more data than ever before, the project was scheduled to install TrafX infrared trail counters. These counters rely on infrared technology that counts any event that breaks the infrared beam. These models treat all travel modes (bicycle, pedestrian, horse, etc.), and any item that crosses the infrared beam, in the same manner. While this information would still be an improvement over the existing dearth of data, it does not supply specific data. Knowing more discrete information about trail users, such as the direction they are headed or their travel mode, is important for refuge planning, such as knowing what amenities users may like.

The Scholar began to simultaneously research trail counters while pushing USFWS headquarters and Kimley Horn to accommodate more advanced counters in the project. Several counter companies, including Eco-Counters, TrafX, and Jamar Technologies, were consulted to learn about trail counters. The Scholar consulted the Friends of the Wissahickon, a group that had recently installed counters in another large Philadelphia park, as well as Scott Brady, the manager of the Office of Travel Monitoring for DVRPC. The Scholar compared available traffic counter models and arranged this information in Table 9 and Table 10.

Table 9. Eco Counter trail counter models

	Eco-Counters		
	Pyro	Zelt	Multi
Style	Infrared	Inductive Loop	Infrared/Inductive Combo
Range	4'/15/50'		12'/15'/24'
Battery Type	Lithium (proprietary)	Lithium (proprietary)	Lithium (proprietary)
Life	10 years	2 years	2/10 years
Information Retrieval	Bluetooth in Field	Bluetooth in Field	Bluetooth in Field
Directional	Yes		Yes
Mode			
All	All, but one at a time		
Ped Only			
Bike Only		Bike Only	
Other			
Ped/Bike			Ped/Bike
Cost	\$3,055-\$3,475		\$4,160-\$5,960
# of Counts			
Portable/Permanent	Both	Permanent	Permanent

Table 10. TrafX trail counter models

	TrafX			
Style	Trail	Vehicle	OHV	Bike
Range	Infrared	Magnetometer	Magnetometer	Magnetometer
Battery Type	20'	20'	6.6'	6.6'
Life	AAx3	C x 3	C x 3	C x 3
Information Retrieval	3 years	12-14 Months	7-8 Months	7-8 Months
Directional	Use Dock in Field	Use Dock in Field	Use Dock in Field	Use Dock in Field
Mode	No	No	No	No
All	All			
Ped Only				
Bike Only				
Other				
Ped/Bike		Vehicles Only	Dirt Bikes/ATVs	Bikes Only
Cost				
# of Counts		3 for \$2,195, \$445-520 for each additional		
Portable/Permanent		400 Mil	400 Mil	400 Mil
	Portable	Portable		

Headquarters worked with FHWA (the project was FHWA-funded) to alter the project scope for JHNWRT to allow the purchase of two Eco Counter counters as opposed to three TrafX counters. Limited funds restricted the purchase to only one of the most advanced MULTI counters, along with a second infrared counter that also tracked the direction of travel.

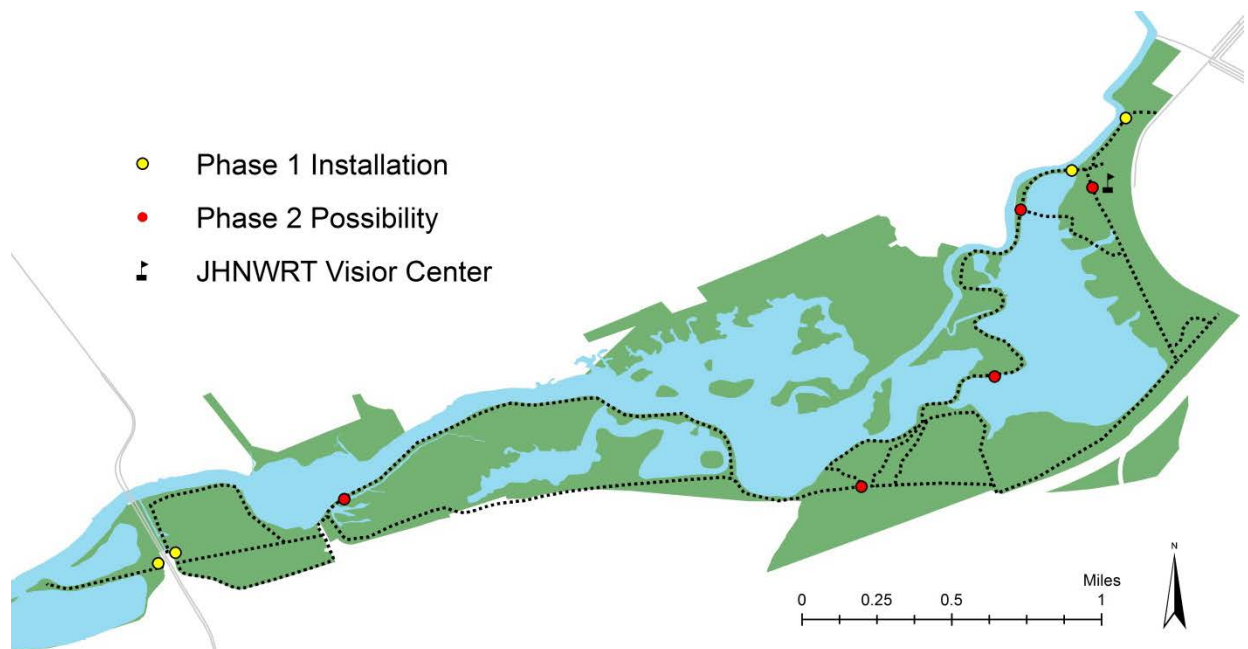
TrafX counters were supposed to be installed in fall/winter 2016. Altering the contract pushed the installation to spring 2017. Delays to this project continued, and despite consistent check-ins from the Scholar, these counters have yet to be purchased and installed. This delay motivated JHNWRT leadership to purchase their own counters; they were worried that another season of trail usage would arrive without the ability to track trail usage.

Eco-Counters were too expensive for the refuge to purchase. Management decided to purchase the simpler and cheaper TrafX counters. The TrafX counters would be used until the Eco-Counters were installed.

The scholar created a map (Map 9) of sites within the refuge that could yield valuable trail data. These sites were divided into primary and secondary locations. JHNWRT decided to purchase four infrared counters, to cover the four sites from which they most desired usage information. Phase 1 sites are:

1. Dike Road trail entrance
2. 420 East parking lot
3. 420 West parking lot
4. Bicycle/pedestrian entrance.

Once the advance Eco-Counters arrived the TrafX counter could be permanently installed in one of five secondary locations.



Map 9. Installation locations of trail counters on JHNWRT

When the two Eco Counters arrive, the refuge will have two additional counters that can be installed in a second phase. These would acquire more specific data on where trail users may be going along the trail. For example, a counter could be placed along either boardwalk to determine how many visitors use that amenity, or a counter could be placed further into the refuge to try and compare the number of users near trail entrances with the number of users going deeper in the refuge.

Constituencies

Vehicle and trail counters will support all refuge users; their data will support improvements for people driving, parking, and using the trails at JHNWRT. This affects every single person coming to the refuge.

Bringing this project to fruition has been supported by USFWS – at the refuge, regional, and headquarters level – as well as Kimley Horn, FHWA, Diamond Traffic Products, Eco Counters, TrafX, and DVRPC.

Next Steps and Implementation

The initial three TrafX counters arrived in early October 2017, shortly before the refuge's largest event of the year. Although staff was too busy to install then, the Scholar worked with facilities to site the installation of these counters when time permitted. In the meantime, the Scholar set up and formatted the counters, began the online TrafX account that analyzes the data and generates reports.

Once the Eco Counters are installed, JHNWRT has agreed to work with DVRPC to share their data so it can be incorporated into DVRPC's regional bicycle counts and reports. Since DVRPC's counter program is mode-specific it is expected that they will not be able to incorporate TrafX data into their program.

PA-420 Bridge and Trail Redevelopment

Methodology

The PA-420 bridge, a state bridge owned and maintained by the Pennsylvania Department of Transportation (PennDOT), spans the Darby Creek; it is structurally deficient. Replacing this bridge is on Pennsylvania Transportation Improvement Program, and PennDOT is currently in the design phase of replacing the bridge. The Delaware Valley Regional Planning Commission (DVRPC), the local Metropolitan Planning Organization (MPO), has pushed for the new design to include a separated multiuse path that would allow cyclists and pedestrians to cross both the creek and street. Image 3 and Image 4 show the JHNWRT PA-420 parking lots, which are just past the southern edge of bridge. These parking lots are the ends of JHNWRT trails, and the proximity of the bridge to JHNWRT would make this trail a de facto extension of refuge trails. The proposed design includes a "duck under" which would raise the bridge at a slightly greater angle to allow safe passage for pedestrians and cyclists to safely cross from one side of the street to the other. Currently people must run across this divided highway to get from one side to the other.



Image 3. Looking northbound along PA-420. The division is visible to the left. The entrance to the PA-420 parking lot is visible on the right. The bridge being replaced is just past the entrance to the parking lot.



Image 4. Looking southbound along PA-420. The entrance to the PA-420 west parking lot is to the right, just before the entrance to I-95 south.

PennDOT and their design consultant were amenable to inclusion of a multiuse path, but they required a party to take maintenance responsibility for the path. Standard PennDOT maintenance agreements are 25 years in length. Because of the proximity to the refuge and that this “duck under” would connect JHNWRT trails PennDOT wanted JHNWRT to sign a maintenance agreement. Although JHNWRT volunteered to maintain the trail anyway (something they already do, even though much of the path is PennDOT property), the Antideficiency Act prohibits government agencies from allocating future funds that have yet to be allocated to the agency. Signing a 25-year PennDOT maintenance agreement would violate this act.

In cooperation with JHNWRT staff, the Scholar reached out to Tinicum Township and discussed with them the possibility of Tinicum being the signatory to this agreement, while JHNWRT agreed to do all the work. Due to the long history and good relationship between the refuge and the Township, Tinicum agreed to the arrangement. PennDOT and DVRPC were satisfied, and the “duck under” and multiuse path were included in the design.

Although this project is directly to adjacent to the PA-420 FLAP project, the two projects are not directly connected to each other. The proximity and shared focus of this area will, however, require PennDOT and FHWA to work together.

Constituencies

Including the multiuse path in the bridge design required the cooperation of many partners. They are:

- JHNWRT
- PennDOT
- Tinicum Township
- Prospect Park Borough
- Delaware Valley Regional Planning Commission
- Clean Air Council
- Gannett Fleming (design consultant)

Next Steps & Implementation

In May 2017 PennDOT held an open house to display their new bridge design. The design received pushback from the public, and PennDOT incorporated comments into a new design which was revealed to partners in September 2017.

The new design does not require JHNWRT to complete additional tasks, but at the September partner meeting there was a short discussion about working with PennDOT to ensure a smooth alignment between this project and the FLAP project. This included the signage component of the FLAP grant and smaller amenities such as trashcans.

JHNWRT will be responsible for pruning trees near the bridge, as well as monitoring cameras to be installed along the duck under. The project is estimated to begin construction in 2020 and be completed by 2022. It is important that someone at JHNWRT continue to be an active participant in these meetings to make sure that refuge goals are met and satisfactory.

Cobbs Creek Segment D Construction

Methodology

Southwest Philadelphia has limited protected bicycle infrastructure. One multiuse path, the Cobbs Creek Trail, currently terminates at the intersection of 70th St and Cobbs Creek Parkway. The city of Philadelphia is working to extend this trail to JHNWRT. They have divided this project into four segments. The segment closest to the refuge, Segment D, runs between 84th St and the JHNWRT entrance on Lindbergh Blvd.

Lindbergh Blvd does not have a uniform width west of 84th St, but is around 60 feet wide. It is two lanes, with parking along each side. Segment D is designed to be a raised and separated shared-use path that will narrow driving lanes to 11 feet, preserve both parking lanes, and offer protection for this multiuse path.

Image 5. Cross-section of Cobbs Creek Segment D Multiuse Path

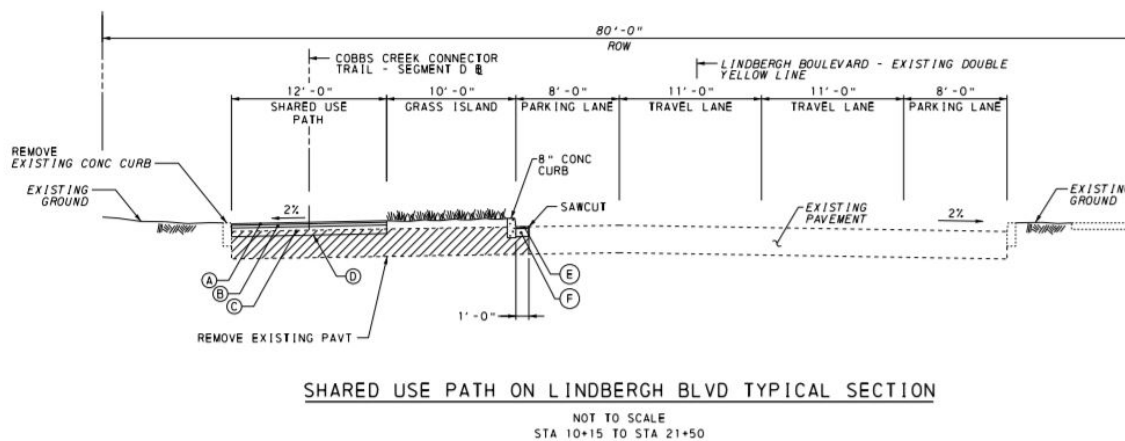


Image courtesy Michael Baker International

As shown in Image 5, the path will be 12 feet wide: six feet in either direction. A ten-foot-wide grass median will separate users from the parking lane. The path will also be raised eight inches above Lindbergh Blvd. It will turn into the refuge at the new bicycle and pedestrian entrance trail at grade.

The project also included upgrading the intersection of 84th St and Lindbergh Blvd; installing new crosswalks, adding ADA curb ramps, renovating and expanding deteriorated asphalt curbs, and creating a link to the rest of the Cobbs Creek Connector Trail as it develops.

The project was expected to be completed in 2017, but Streets Department design review delayed the project; since the project affected the intersection they wished to consolidate this work with new traffic signals, which are to be installed. This caused the project to go over budget, and most of 2017 was spent on obtaining the funding to cover the additional work. As of September, the city seemed close to signing a work order for the additional work that is necessary to cover the project expansion.

Cobbs Creek Segment D will increase JHNWRT's connection to the local community and greater Philadelphia. The infrastructure will accommodate multiple modes, and it will help satisfy the city's #1 priority watershed trail from both 2016 and 2017.⁹

Coupled with the Lindbergh Blvd FLAP project, this trail will also be an important bicycle artery through Southwest Philadelphia and, in the near future, to Center City Philadelphia and even Valley Forge National Historical Park.

The Scholar worked with the city and consultant to ensure the design satisfied the refuge, and worked internally to align the new pedestrian/cyclist entrance trail with the project design. The Scholar was also helpful in synthesizing technical information contained in the engineering designs to refuge staff.

Constituencies

Cobbs Creek Segment D has required many partners, and it will benefit a wide variety of refuge users. It will offer direct, calm, and protected access for pedestrians and cyclists coming from Center City, West, and Southwest Philadelphia. Transit users will also benefit from the improved intersection and will have the opportunity to use the crossing at 84th St to enter the refuge via the trail.

Drivers and Korman residents may also benefit from reduced speeds on Lindbergh Blvd. Currently speeds can get very high, even on the short stretch between 84th St and 86th St, due to over 30 feet of minimally marked roadway. Narrowing these lanes will create a safer, more pleasant experience for all.

The USFWS has worked with the city of Philadelphia Streets Department, the Clean Air Council, and Michael Baker International (MBI) on the project. The Clean Air Council has been a crucial partner; they raised the funds to hire MBI to design the trail.

Next Steps & Implementation

The trail is past 90% design, and is waiting on the completion of a work order so MBI can incorporate the necessary traffic signal upgrades the Streets Department requires. The city has told JHNWRT that it expects the trail to be complete by the end of 2018.

JHNWRT has finished their bicycle and pedestrian entrance trail. It has installed bollards and is awaiting the new trail and accompanying signage. The refuge is currently investigating removing the curb at the end of this trail to make it more accessible until the project begins. Although the refuge would also like to install signage, the refuge will wait until the Segment D is complete before installing anything permanently. Some temporary signage is waiting for installation to direct pedestrians and bicyclists onto the trail after they enter using the main, vehicular entrance.

⁹ Philadelphia City Planning Commission. 2017 Trail Master Plan Update. 8.
http://www.phila.gov/CityPlanning/projectreviews/PDF/2017_TrailPlan_Update.pdf, 8

The draft plan for the Lower Eastwick Public Land Strategy calls for senior housing to be developed on the six-acre parcel at the corner of 84th St and Lindbergh Blvd. If residential development is recommended for this parcel there will be a conflict with Segment D and the placement of this entrance. It will be practically impossible to enter this parcel along 84th St, which would require entrance along Lindbergh Blvd. For this reason, it is very important that the refuge continues to follow and participate in this process.

Refuge Wayfinding

Signage at JHNWRT is inadequate. Wayfinding signage leading to the refuge, regardless of mode, and wayfinding signage once on the refuge are both incomplete. The Scholar worked to ameliorate both situations.

Vehicular Wayfinding

Methodology

Assessing the existing signs and their location was the first step in creating a vehicular wayfinding plan. The Scholar and the Visitor Services Manager assessed these signs, noting their placement, message, and condition. After completing the assessment, the existing signs were reviewed, as was FHWA and USFWS guidance for signs. The Scholar then mapped the existing sign locations and created a new map that included new signs, replacement signs, any signs to be removed, and the messages the signs should contain.



Map 10. Vehicular wayfinding signage locations leading towards JHNWRT

Constituencies

This project is being led by USFWS, but includes FHWA and PennDOT. All signs were off-refuge, and would require working with PennDOT or the city as JHNWRT looks to replace signs on local, state, and federal roads.

Next Steps & Implementation

Sign acquisition and replacement will extend past the Scholar's tenure. Now that an updated sign map exists (see Map 10), the refuge must determine the budget it can spend on signs and then create an evaluation tool to determine the order of sign replacement. The signs can then be ordered and installed by the proper jurisdictions.

Vehicular wayfinding signage is still critical for helping bring people to the refuge. Driving is still the dominant mode of transportation; almost 60% of Philadelphians used motor vehicles as their primary mode of transportation according to 2016 ACS estimates.¹⁰

¹⁰ U.S. Census Bureau. 2015 American Community Survey 5-Year Estimates: Means of Transportation to Work by Age. Table B08101

Trail Wayfinding

Methodology

Walking the trails of John Heinz immediately reveals unsigned and inadequately signed trails. Image 6 and 7 are examples of the poor trail signage currently installed along refuge trails. Visitors often comment to refuge staff that they find the trail signage confusing and difficult to follow. In 2016 visitor got lost on the refuge because they thought the blue triangle was a directional arrow they were supposed to follow.

This included the new bicycle and pedestrian entrance trail, which was completely unsigned and unaccounted for in previous sign plans.

JHNRWRT currently has a contract in place to create new trail signage. The Scholar worked with refuge leadership to offer feedback on current and proposed wayfinding signage.

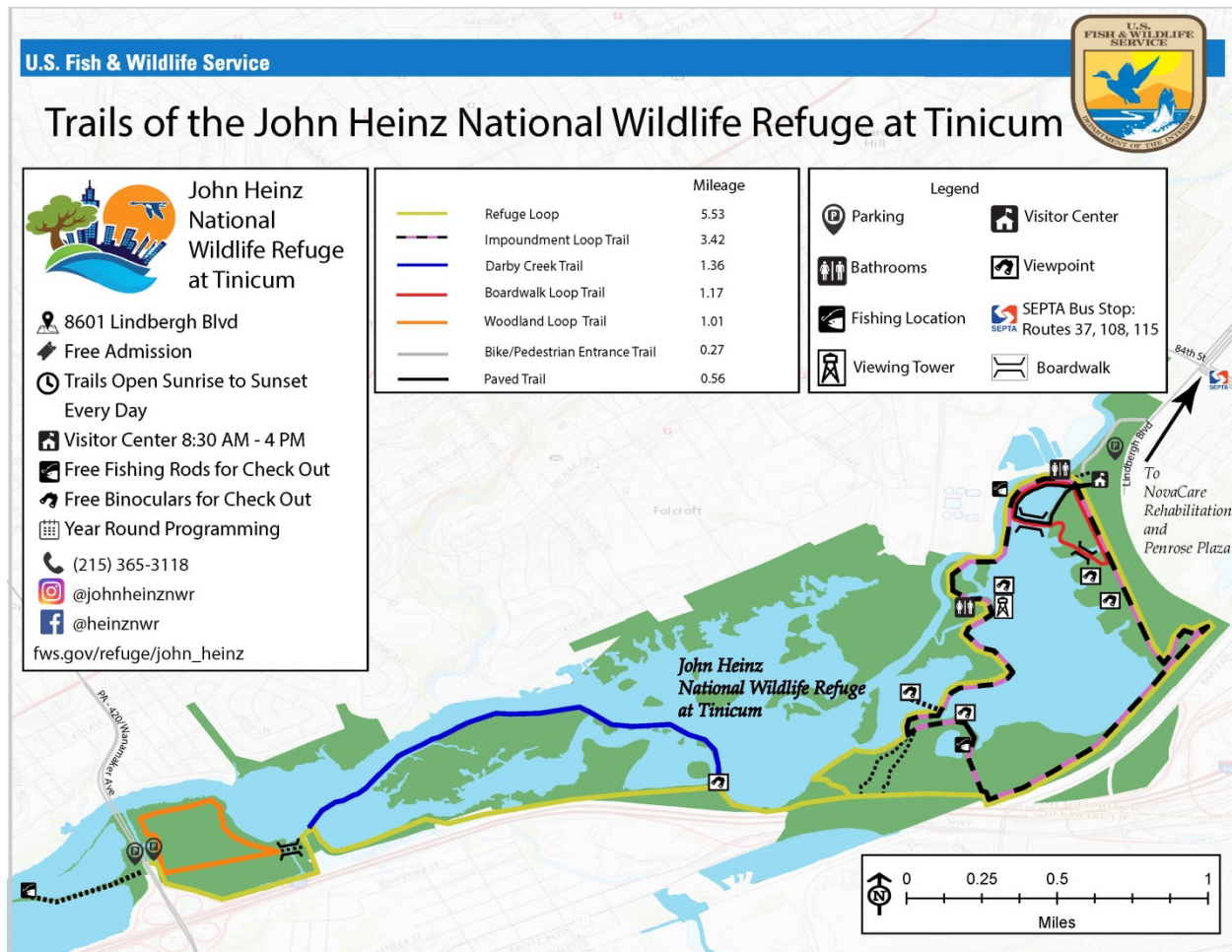


Image 6. Current trail signage along Trolley Bed Trail. The images are two sides of the same post. The white directional plaque reads “The [blue triangle] points the way to the visitor center and parking lot. The [yellow circle] shows the way to Rt. 420.” Visitors have commented on the substandard trail signage.



Image 7. Current trail signage along Trolley Bed Trail. The images are two sides of the same post.

In addition to poor trail signage, JHNWRT relies on a very old, black-and white map. This map contains two views, a large-scale and medium-scale perspective of the refuge, but is overall rather general. To support a partnership with NovaCare Rehabilitation for the Southwest Community Shuttle, the Scholar created a new trail map detailing the lengths of trails. This map was shared with JHNWRT leadership, and it may be used as the base or core of an updated trail map JHNWRT staff plan on producing in 2018. The map is shown in Map 11 below.



Map 11. Trail map produced for a community partnership.

Constituencies

This project is being led by USFWS, but has included Formations, a graphic design team. It will benefit all users.

Next Steps & Implementation

The Scholar has ordered several signs for the new bicycle and pedestrian path, but these remain to be installed. As Formations completes the sign design, in accordance with the Scholar's plan, JHNWRT will review, order, and install new wayfinding signage.

Lower Eastwick Public Land Strategy Planning Process

Methodology

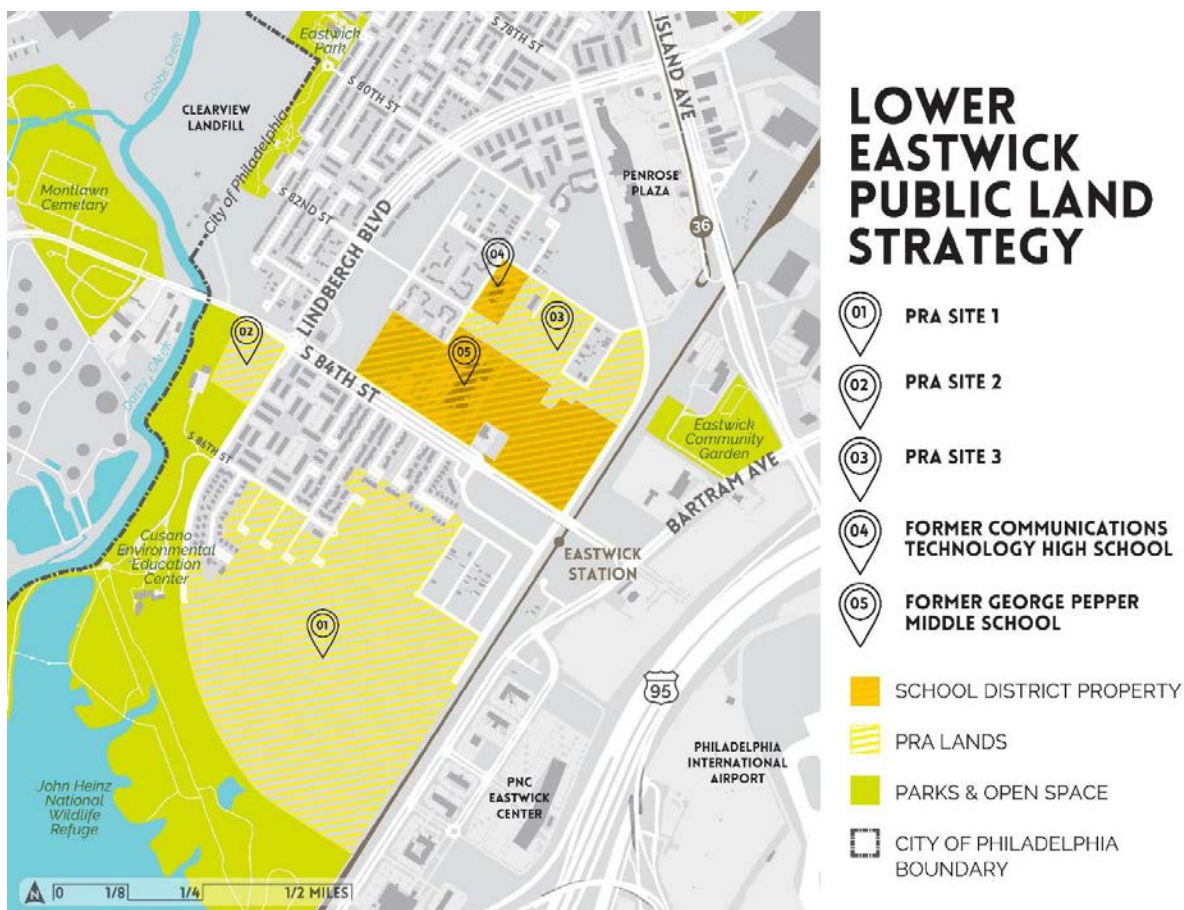
Across from the Philadelphia JHNWRT entrance is over 128 acres of undeveloped land. This land was sold by the city of Philadelphia to the Korman corporation in the mid-20th century, but was recently reacquired by the city in 2015 after local objections to Korman's plans and holdings. In 2017 the Philadelphia Redevelopment Authority (PRA) hired a local planning firm

to lead a planning process to get the community's vision for this land. In addition to the 128 acres, the visioning process included several other parcels of land in the area, including the 6 acres that are adjacent to JHNWRT land at the corner of 84th St and Lindbergh Blvd. Map 12 shows the different parcels the study is considering.

JHNWRT was not included on the steering committee, but the refuge manager was interviewed by the principal of the planning firm about the refuge and its relation to these lands.

At the outset of this process the Scholar met with the Philadelphia City Planning Commission (PCPC) to discuss their approach to this project; the PCPC is the planning arm of the city of Philadelphia. Through the Land Strategy the Scholar has attended public meetings and roundtable discussions, and worked with refuge leadership and neighborhood residents to analyze new developments and draft proposals coming from the process.

In addition to arriving at a vision that supports conservation and satisfies neighborhood residents, one of the primary goals of the Scholar is to have the plan include a trail connection between Eastwick Station and the Refuge. This would be an important connection that would facilitate center city access to JHNWRT.



Map 12. The sites included in the 2017 Lower Eastwick Public Land Strategy Planning Process. The refuge is in the lower left of the map, while Eastwick Station is in the center right. Two sites, 01 and 02, are directly adjacent to JHNWRT, including the largest site (01) (Interface Studio).

Constituencies

Creating a plan for this many acres and for many different uses affects many people. In addition to local residents and businesses, the refuge, the city of Philadelphia, and the School District of Philadelphia are all directly affected. Philadelphia International Airport, which has a right of first refusal for use of the 128 acres based on PRA's reacquisition contract, is also a major institutional player. In addition to Eastwick Friends and Neighbors Coalition, Eastwick United, a new community organization asserted itself as a community representative.

Next Steps & Implementation

The final land strategy plan will not dictate exactly what is built. It is a "land strategy" that the PCPC has stated it will use to influence future city plans and decisions in the area. For example, if no developer wants to build on the corner of 84th St & Lindbergh Blvd, nothing will be built by the city.

The most recent public meeting in October 2017 revealed a draft plan for all of the land. The meeting sought public input on these ideas; public comment was closed several weeks later. Several refuge employees, including the Scholar, submitted comments.

PRA and the studio leading the planning process have already postponed the announcement of the final plan. It is unknown when this information will be revealed. Based on the draft proposal, it appears that the six acres of land on the corner of 84th St and Lindbergh Blvd will be proposed as a location for housing. This parcel will be bounded by the Cobbs Creek Connector Trail Segment D (see page 37 for more details), and this corner is an important location for the installation of additional refuge signage. It is necessary for the refuge to work with its partners and the city to ensure that the Segment D trail plan is not affected by this land strategy.

The refuge must continue to monitor and participate in the land strategy process and pay attention to the status of the land once the process concludes. Cobbs Creek Segment D, refuge signage at the corner of 84th St and Lindbergh Blvd, and a trail between Eastwick Station and the refuge entrance are all important pieces of transportation infrastructure that could be affected by the recommendations in this final plan. It is important the refuge stays active about improving these areas to the refuge's and community's benefit.

Refuge Bicycle Share

Adopting bicycle share on and around the refuge is an idea JHNWRT leadership has entertained for several years. In 2015 the refuge supported a FLAP application to extend Indego, the Philadelphia Bike Share system, to Southwest Philadelphia via four stations. One of these Indego stations would have been at the Eastwick regional rail station, a second would have been on the refuge, and two others would have been dispersed throughout the neighborhood. Although this project had serious planning issues¹¹ and was not funded, it illustrated JHNWRT's

¹¹ NACTO recommends a station density of at least 28 stations per square mile, requiring generally no more than a 5 minute walk to the closest station. This proposal would have probably have had less than 1 station per square mile, depending on where the other two stations were installed.

desire to increase bicycling opportunities for visitors both as a mode of transportation and recreation.

Methodology

JHNWRT does not have any type of bicycle rental or bicycle share on-site. Currently, if a visitor wishes to ride a bicycle on the refuge they must supply the bicycle themselves. In 2015 the refuge supported a FLAP grant submitted by the city of Philadelphia to extend the Indego bicycle share system to Southwest Philadelphia; they were not awarded the grant. Since not receiving FLAP money to initiate local bicycle share, the refuge has considered different ways to supply bicycles for visitors. One method utilizes refuge-owned bicycles that are “rented” out of a refuge building to visitors, at no cost, similar to how visitors can now “rent” fishing poles or binoculars. This method would require hiring people to give out and accept returned bicycles, oversee repairs, acquire parts and materials, and it would require space to do the repairs. It also requires JHNWRT to make decisions and regulations about who can rent a bicycle (such as age limits), how people use it (will there be a time limit?), and important decisions on safety and liability (will a helmet be required? If so, will the refuge provide one?).

The other tack being considered is to allow a concessionaire to run bicycles on the refuge. This could be a traditional bicycle rental or a bicycle share system. Bicycle share in 2017 is very different than bicycle share in 2014-15, when the refuge supported the Philadelphia FLAP grant. Currently, a dock-less bike share company out of China, Ofo, has expressed interest in working with JHNWRT to provide bicycles for the public to rent. Dock-less bicycle share requires less infrastructure investment: the bicycles are the only product that needs to be placed. The company is also in charge of bicycle repair and replacement. However, dock-less bicycle share offers less control than other bicycle share or rental. It is possible, although practically unlikely in a setting such as JHNWRT, that someone could simply end their ride in the middle of the refuge and the bicycle will have to be retrieved. The refuge also has less control over the program since the bicycles are made to be ridden to, through, around, and from different areas.

During the 2017 Philly Fall Nature Fest, Ofo brought 15 bicycles to the refuge for a free demonstration to visitors. Image 8 shows some users on these bicycles. The bicycles were popular, and Ofo has been working with the city of Philadelphia to receive permission to put their bikes on the streets. The city has put them in touch with the councilman whose district includes the refuge, to gauge his interest. As Ofo works with the city and the councilman, JHNWRT has been invited by the company to be part of the process.



Image 8. Visitors riding free Ofo bikeshare bicycles during Philly Fall Nature Fest 2017

Constituencies

In general bicycle share should be open to all refuge visitors. Some restrictions, such as age or ability, are decisions that will need to be made by either the refuge, the company overseeing bike share, or by each partner in conjunction with one another.

The city of Philadelphia, JHNWRT, and companies like Ofo are the potential partners for these projects. If the refuge decides to operate the bike share themselves, a partnership with a bicycle maintenance shop or organization, such as Neighborhood Bike Works (NBW), a local community development organization, might be able to supply parts, knowledge, and labor at cost to the refuge.

Next Steps & Implementation

Ofo's discussion with the city of Philadelphia and the Councilman are the next major steps informing JHNWRT's decision on bicycle share. If the city approves of new companies bringing bicycles to the street, the refuge will have to seriously compare providing bicycle rental on their own or through a company. The refuge must continue to follow the city's deliberations about these products. If Philadelphia allows these companies to operate in the city the refuge must then decide if it wishes to pursue the service.

The Scholar believes having a company oversee the service would be beneficial. Limited capacity to store bikes, maintain and repair them, quickly acquire parts to repair bikes, and regulatory decisions (will a helmet be required? If someone is caught without a helmet what is the penalty? Etc.) makes an outside operator more appealing. Some members of management feel otherwise. Until the city blesses this service, however, it is a moot point.

If dock-less bicycle share becomes a possibility for the refuge, the refuge will need to consider where they want the bicycles left when people are done, improved maps must be produced, and the refuge and Ofo should discuss whether or not there are ways to limit what locations their bikes can access. For example, could a geofence around certain places keep people from storing or leaving their bikes in certain places? Would visitors adhere to posted rules or read brochures with rules if the refuge supplied them?

Install Bicycle Parking

Methodology

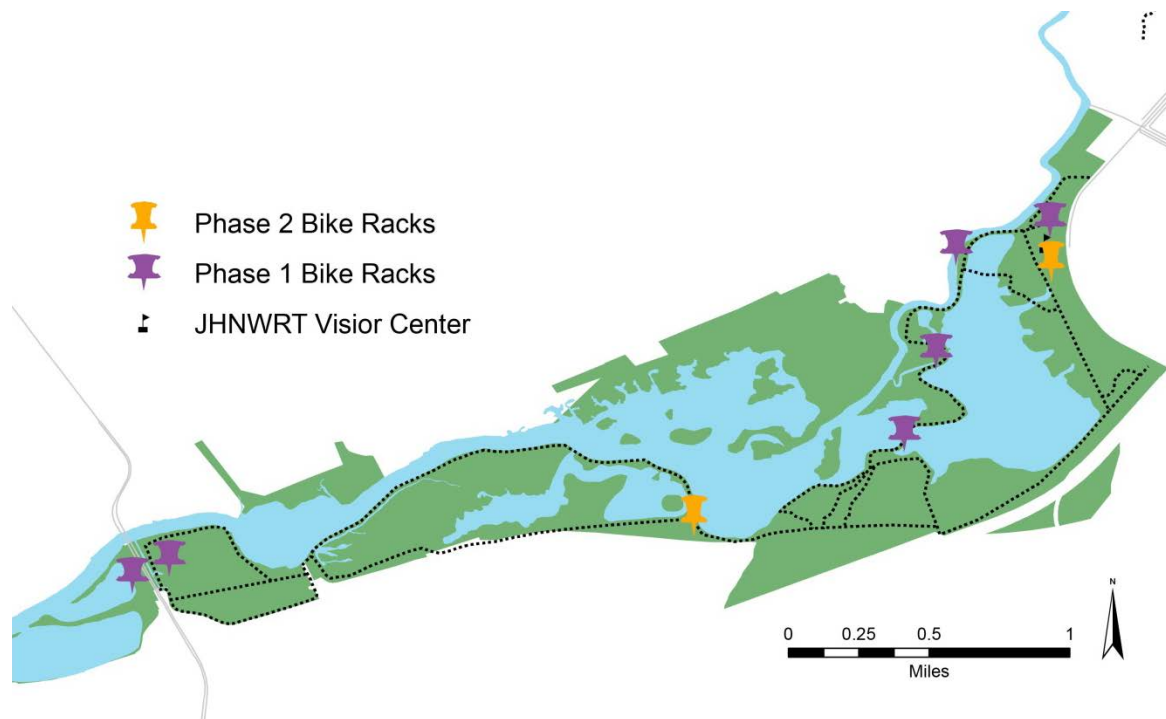
If JHNNWRT wants more people arriving by bicycle it is necessary to accommodate the bicycles when they arrive. Except for one older, comb style rack at the visitor center entrance there was no on-site bicycle parking available to cyclists. This rack was located to the side of the visitor center entrance, easily missed, and is considered an outdated rack by cyclists since it does not provide at least three points of contact for the bicycle.

The Scholar assessed the refuge bicycle access points to figure out the number of racks, the cost of them, their style, and their installation schedule. Map 13 was created to show where bicycle racks could be installed in two phases.

The quantity of racks (one rack holds 2 bicycles) required a compromise between need and cost. Determining the need without any hard data on the number of bicycle users was difficult. Ultimately it was decided that three racks at the main entrance would be sufficient to start, and if demand turned out to be higher there would be room to install more racks. One rack was designated to be at major viewpoints and trail heads around the refuge. The junction of pedestrian-only trails with main trails offered some good locations for racks, and one rack is to be installed at the eastern parking lot on PA-420.

These racks will also facilitate any onsite bicycle share or rental that the refuge pursues. The racks will become natural places for people to leave bikes if they venture down pedestrian trails or want to spend more time in a particular spot.

A memo describing the rack locations, rack costs, and installation phases was submitted to JHNNWRT management. Since the total bicycle rack locations exceeded the number the refuge could immediately order, installation phasing was included. The Scholar has worked with facilities employees and a contractor to lay down concrete where necessary and complete the first phase of installation. So far five racks have been installed.



Map 13. Installation locations for bicycle racks on JHNWRT

Dero racks had recently designed a U-style rack that included a blue goose for the NWR System. Philadelphia uses a “staple” or “downtown” design. JHNWRT combined the blue goose design with this style for a cohesive Philadelphia, NWR-specific style, as seen in Image 9. There was some worry about the mounting style needed, JHNWRT went with the simpler surface-mounting technique. Although there were some worries that an enterprising scrap metal hauler would try to cut them and steal the racks, this has so far been an unwarranted fear.



Image 9. Newly installed bicycle racks on JHNWRT

JHNWRT did not want to order more racks than could be ordered with a credit card and under their discretionary spending limit. Table 11 displays this cost of the racks. The quantity ordered does affect the unit cost, and since Dero had to cut a new design for a “Downtown” style rack an additional cost was incurred, as well.

Table 11. Bicycle rack costs

Item	Quantity	Cost per item	Cost
Bicycle Racks	8	\$278	\$2,224
Shipping	2	\$220	\$220
Total			\$2,444

Constituencies

This project will benefit all bicyclists using the refuge. Even people who do not bring their locks to the refuge can utilize the new racks as places to store their bikes as they enjoy the view points.

Next Steps & Implementation

JHWNRT has not finished the first phase of bicycle rack implementation. Two racks remain to be installed: one at the impoundment boardwalk and the two for the PA-420 parking lots. Since the PA-420 parking lot received FLAP funding, which included new bicycle racks, it may be possible to re-allocate the rack designated for this area elsewhere, such as the main viewpoint at the junction of the Darby Creek Trail and I-95 trail.

For future rack installations the refuge will either have to retain the services of a worker who specializes in laying concrete or create the concrete pads themselves. For the initial installation the refuge hired someone as opposed to purchasing, mixing, and laying the concrete themselves.

Additionally, although the locations for future installations have been identified, specific siting is still necessary to determine where, exactly, in each location is the best spot for the rack. The refuge will also have to order the additional racks from Dero.

SEPTA Bus Stop Announcement

Methodology

Several public transit lines, run by the Southeastern Pennsylvania Transportation Authority run near the refuge. They are shown in Map 14. The closest SEPTA stop is on 84th St just south of the intersection with Lindbergh Blvd. Three SEPTA lines, 37, 108, 115, pick up and drop off passengers at these stops. The refuge is very close, although not directly adjacent, to the stop. Two churches on two different corners, and one edge of the Korman development are the only other residences, businesses or community resources within a significant distance of this stop.



Map 14. Southwest Philadelphia Public Transit network.

Despite the proximity of the refuge to public transportation, SEPTA does not announce the presence of the refuge when making the stop at 84th St. Other lines will make announcements about resources available at stops. For example, the 38 bus announces “5th St for Independence National Historical Park.”

This project will help connect JHNWRT with SEPTA and the greater Philadelphia region. The 37, 108, and 115 routes go a variety of places – South Philly, Philadelphia International Airport, Chester, Media/Delaware County, and West Philadelphia, among them – and creates a wider space in which the refuge can grow visitation.

Linking with SEPTA on these bus routes could also help JHNWRT in regards to the Eastwick Station and Regional Rail. A closer relationship with SEPTA and the airport line could offer a direct connection to 30th St Station, Center City, and most of Philadelphia

The Scholar rode several different lines (bus and subway) to verify that announcements were made at other stops, and then reached out to a contact at SEPTA to identify which department handled bus announcements. After several weeks of being bounced around, the manager of Community/Local Affairs was contacted; her office oversees bus announcements. She worked with the Scholar to identify the stop and released the project to her planning team. Announcements for recording are made twice a year, and the manager believed JHNWRT could be included in the next round of announcements.

Constituencies

This project will serve SEPTA bus riders.

This project requires joint support from USFWS and SEPTA.

Next Steps & Implementation

SEPTA recently contacted JHNWRT and said their planners deemed the refuge too far from the stop to receive a bus announcement. The Scholar requested that SEPTA share their official guidance or regulation regarding announcing bus stops. The refuge *is* close to the stop; the entrance is 0.25 miles from the intersection, which is the distance many studies have found riders are willing to walk to reach a bus. There are no other commercial entities or public resources in the area between the refuge entrance and bus stop.

SEPTA should support public resources such as the refuge. SEPTA's strategic plan states that the organization has a goal of "provid[ing] Best-in-Class Transportation Services that Meet[s] or Exceed[s] Customer Expectations" and notes that "build[ing] a customer service culture," "upgrad[ing] communication platforms," and "nurtur[ing]" stakeholder relationships" are strategies to meet this goal.¹² Announcing the presence at the refuge at this stop fits all these strategies and supports this goal at almost no cost to the public.

JHNWRT does have to make a decision about how much time and political capital they wish to spend on this project. These stops serve relatively low numbers of riders. While it is important to reach out to them, and perhaps make them aware of this community resource that they may not have been aware of, it may take a lot of time and energy to penetrate SEPTA's bureaucracy. The refuge must continue to stay in contact with SEPTA's Office of Community Affairs and planners and continue to apply pressure to SEPTA to make this announcement. A written letter to both SEPTA and local political leaders, such as the local councilman, may be necessary to force this change.

SEPTA Bus Stop & Shelter Improvements

Methodology

Although the bus stop at 84th St and Lindbergh Blvd is close by, it is a barren bus stop. The shelter on the west side of the road (where residents coming from Center City Philadelphia would alight for JHNWRT) is a concrete pad in the median between the local and express lanes along 84th St. As shown in Image 10 the metal sign indicating a SEPTA stop is affixed to a PECO telephone pole. There is no bench or shelter. Across the street, buses headed towards Center City pick up/drop off people at a stop with an old shelter, which is shown in Image 11.

¹²



Image 10. The current SEPTA transit stops on the west (top) side of 84th St at Lindbergh Blvd. Routes 37, 108, and 115 stop here. They do not announce the presence of JHNWRT, however.



Image 11. The current SEPTA transit stops on the east (bottom) side of 84th St at Lindbergh Blvd. Routes 37, 108, and 115 stop here. They do not announce the presence of JHNWRT, however.

JHNWRT is working with the OTIS, Intersection (the company contracted with the city to replace transit shelters and oversee advertising on these shelters), SEPTA, and the Philadelphia Streets Department to replace these shelters.

Multiple jurisdictions (OTIS oversees the shelter, Philadelphia Streets Department maintains the land on which the shelter stands, and SEPTA plans the routes) requires multiple layers of approval. OTIS oversees shelter installation and determines where new shelters will be installed; their contract with Intersection dictates the number of shelters installed each year.

The Transit Program Manager, at OTIS has been the primary contact with the city. She and JHNWRT have put together a loose design to install a map of community gardens and information about pollinators at the new shelters. This would help satisfy an OTIS goal of putting unique cultural information at each station.

Locations for new shelters require nearby utilities to support digital information being supplied at the shelter. Both shelters are adjacent to PECO lines. The city's biggest hurdle for the shelters is making them ADA compliant. The western stop should be relatively simple due to the location of the median and the redesign of the intersection accompanying the installation of Cobbs Creek Segment D. However, the eastern stop might have to be moved 100 or so feet, which would add significant cost to the project.

Constituencies

This program requires extensive relationships with multiple agencies within the city of Philadelphia, as well as SEPTA. This includes the Office of Transportation and Infrastructure Services and Streets Department. Private companies Intersection (who works with the city on bus shelter installation) will be involved, and if the project links with Cobbs Creek Segment D, Michael Baker International, the consultants designing that project, will also be involved.

This project will serve SEPTA riders.

Next Steps & Implementation

The OTIS manager is considering the possibility of linking the installation of these shelters with the Cobbs Creek Segment D renovation. Doing the necessary work while the city already has workers and equipment at that intersection will significantly reduce the cost of the project. The refuge is also considering the availability of funds to cover the cost of extending the sidewalk if the eastern shelter is moved; this is necessary for ADA accessibility. The exact distance is unknown, but it is estimated that it would cost around \$5,000 for about 75 feet of sidewalk.

OTIS is looking to have these shelters added to the 2018 list of bus shelters, and they have stated several times they are optimistic about the plan being ready. The refuge must stay in touch with OTIS to ensure these shelters are added to the list. It is also possible that by participating at contributing to this project that the refuge can work with the city to have SEPTA announce JHNWRT at these stops.

TRANSPORTATION PROJECTS AT PRR

Patuxent Research Refuge (Patuxent or PRR) is 10,000-acre research and recreation site in Laurel, MD. It is suburban in character, and it is largely surrounded by other government facilities such as Fort Meade and a Secret Service shooting range. It is designated as an urban refuge by the USFWS, and is very close to Bowie, MD.

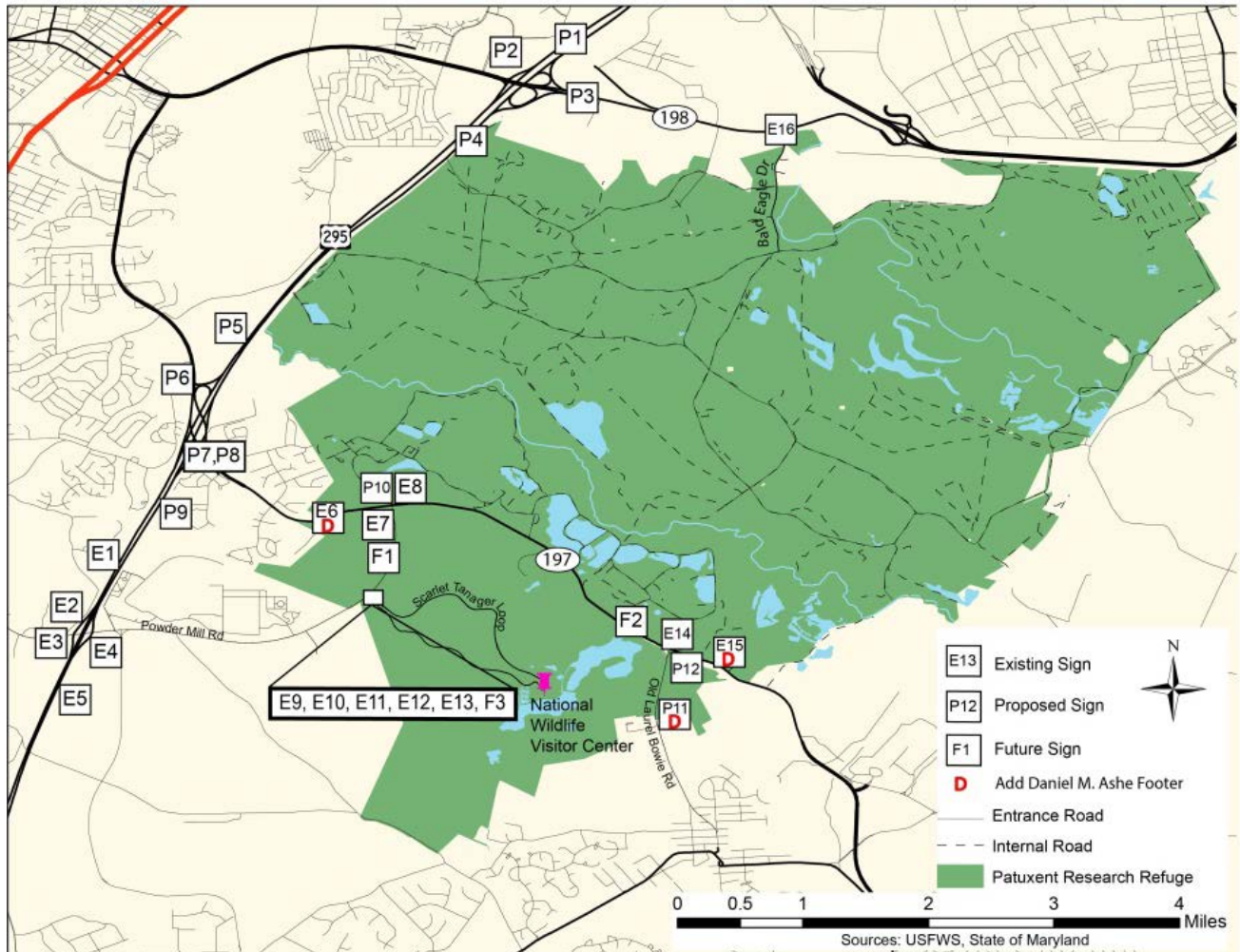
PRR Vehicular Wayfinding Program

Methodology

Motor vehicle is the predominant access mode for visitors to Patuxent. However, vehicular wayfinding signage is inconsistent and incomplete. Signage was installed at different times and uses different names for PRR, adding confusion and inconsistency. The Scholar produced a vehicular wayfinding program for Patuxent to follow.

The Scholar visited once per month between February and September 2017 to discuss wayfinding with Patuxent leadership, study the local roads, and survey the existing conditions. The state of Maryland has its own Manual on Uniform Traffic Control Devices (MUTCD), and this document was consulted heavily in addition to the FHWA national MUTCD.

The Scholar produced a map, shown below in Map 15, that included existing, proposed, and future signs, which he gave to Patuxent leadership. The accompanying tables describing the signs are displayed in Appendix I: Patuxent Research Refuge Vehicular Wayfinding Maps and Charts.



Map 15. Proposed, existing, and future vehicular wayfinding signage at Patuxent Research Refuge

USFWS does not have complete, approved guidance on signage for refuges; the Scholar completed these maps and the accompanying program based on personal assessments, draft sign guidance from 2005, and input from the Patuxent Visitor Services, Facilities, and Refuge Managers.

The Scholar examined property ownership, local and federal regulation, and cost while developing the wayfinding program. Appendix J: PRR Vehicular Wayfinding Program Results includes the Scholar's findings.

Constituencies

This project will serve people who are accessing PRR by car. This population is not limited to visitors; the signage will aid visiting employees, delivery-persons, or researchers, for example.

The project will require cooperation between the Federal Highway Administration (FHWA), National Park Service (NPS), and FWS. NPS maintains the stretch of the Baltimore-Washington

Parkway that would receive the new and renovated signs. They currently fix issues with the existing Powder Mill Rd highway sign.

Next Steps & Implementation

PRR staff recently conducted fieldwork to identify the specific locations where they want signs installed. GPS coordinates, sign dimensions, and sign messages must be submitted to NPS. PRR staff should work with Eric Harris, the chief of Maintenance for the road, to define the request for signs. PRR staff has been given the NPS Sign Request Form. Once this form is filled out it will be submitted to the NPS sign committee, who will approve or disapprove of the request. If approved, PRR will have to purchase the signs and work with NPS to install them. If disapproved PRR staff should work with Eric Harris to fix the issues or errors in their application.

PRR South Tract Trail Signage Gap Analysis

Methodology

The Scholar completed a gap analysis of trail signage within the South Tract of PRR. Trail signage was evaluated for their condition, their verbiage, and their presence. The Scholar found that many of the issues plaguing off-site PRR signs were also found in trail signage. Many signs were in poor conditions and not visible or discernible to users. Signs that had been installed as temporary signs had never been upgraded and were left in place, and many signs did not clearly express the destination to where they led.

Constituencies

This project will support all trail users at the refuge. It will be performed by FWS staff.

Next Steps & Implementation

PRR staff should use the gap analysis to identify which trails and trail signage should be permanent. Signs that should be kept must be replaced with new signs and then installed. Maintenance of some trails will also reveal signs that have been covered with overgrowth. PRR Visitor Services staff is currently working on a sign plan that will utilize the Gap Analysis findings to remove old and unnecessary signs and replace them with new signs.

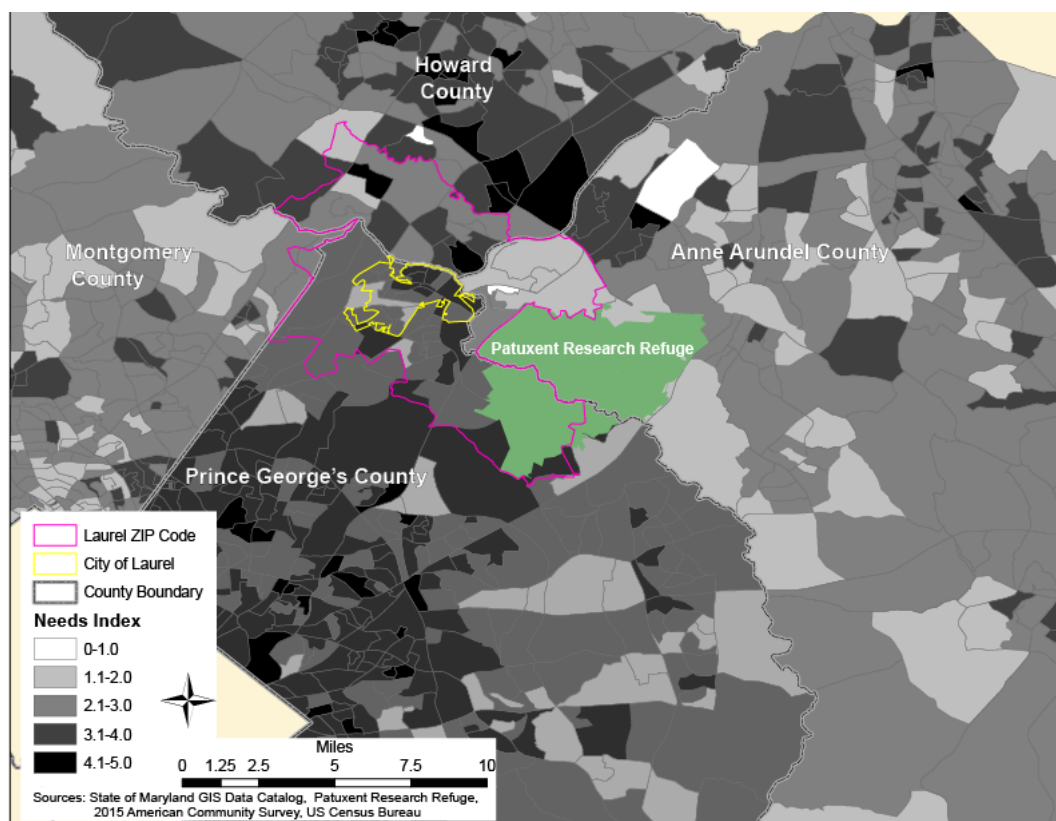
PRR Needs Index Maps

Methodology

The Scholar produced Needs Index Maps for Patuxent that were similar to those produced for JHNWRT. The process for the map production was the same, but different categories were used. They were:

1. Percentage of people within a block group under the age of 20¹³
2. Percentage of people in a block group ages 65 and older¹⁴
3. Labor force participation rate within a block group¹⁵
4. Percentage of people within a block group with an “income to poverty ratio” (IPR) below 2.0. This category was weighted to be worth twice as much as the other categories.¹⁶
5. Median household income within the block group.¹⁷

The Scholar made several maps for Patuxent. Two maps were made at a regional extent, one with identifying roads and the other without, and two were made to focus on schools PRR works with. Map 16 and Map 17 show two of these maps.



Map 16. Patuxent Research Refuge Needs Index Map

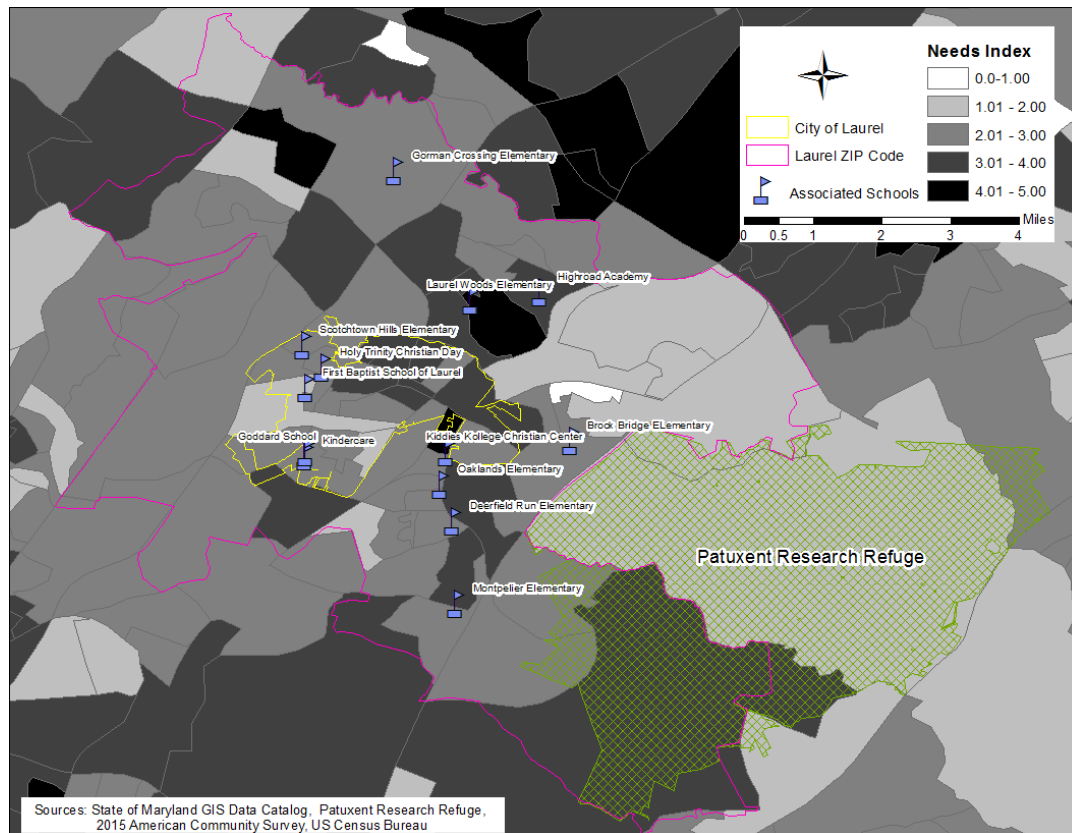
¹³ U.S. Census 2015 American Community Survey 5-Year Estimates: Table B01001

¹⁴ U.S. Census 2015 American Community Survey 5-Year Estimates: Table B01001

¹⁵ U.S. Census Bureau. 2015 American Community Survey 5-Year Estimates: Employment Status for the Population 16 and Older. Table B23025

¹⁶ U.S. Census Bureau. 2015 American Community Survey 5-Year Estimates: Ratio of Income to Poverty Level in the Past 12 Months. Table C17002

¹⁷ U.S. Census Bureau. 2015 American Community Survey 5-Year Estimates: Median Household Income. Table B19013



Map 17. Patuxent Research Refuge Needs Index Map with local schools included

Constituencies

These are internal maps that will be used by FWS employees to improve programming and resource allocation.

Next Steps & Implementation

These maps should be used to focus on external relationships within the community. They will assist FWS staff with deciding in what areas PRR wishes to focus resources. For example, these maps could help the refuge choose schools to work with or different events to attend off-site.

In the future these maps could be altered if PRR wishes to focus on different demographic characteristics. Choosing different categories or weighting certain categories differently would create maps with a different focus.

OCCOQUAN BAY NATIONAL WILDLIFE REFUGE (OBNWR)/POTOMAC RIVER NATIONAL WILDLIFE REFUGE COMPLEX

Occoquan Bay National Wildlife Refuge (OBNWR) is one of three refuges in the Potomac River National Wildlife Refuge Complex. OBNWR is located in Woodbridge, VA, approximately 25 miles south of Washington, D.C. The surrounding area is relatively dense, but suburban in character. The refuge is around 650 acres in size.

Urban Transportation Connections Study Assistance

Methodology

The Scholar was part of the study team for the Urban Connection Study, a USFWS study being led by Kimley Horn and Associates. This study is analyzing the barriers to access surrounding different urban wildlife refuges. The study focuses on one refuge from each region (except Region 7: Alaska); OBNWR is the refuge for the Northeast Region. The study consists of a multiday site visit including tours of the area, stakeholder interviews, and discussion with refuge staff and leadership regarding what transportation issues they confront on the ground. The study will produce a “Refuge Access Plan” for each of the seven refuges visited, as well as an online template that leadership at all urban refuges can use to assess and improve access to their sites.

The Scholar participated in the site visit for OBNWR. The refuge is part of the Potomac River National Wildlife Refuge Complex and is located in Woodbridge, VA. The study team took an auto tour of the refuge to see major destinations and access points. They examined the local parks and trails, examined the public transportation options, and learned about future transportation projects such as the Potomac Heritage Trail, a multiuse trail that will be leading into Featherstone National Wildlife Refuge, a refuge within the Potomac River Complex. The study team also conducted two days of focus groups with an array of local constituents, ranging from the local Boys and Girls Club to a Prince William County’s District Supervisor.

Participation with this study was not limited to the OBNWR site visit. The Scholar was in a unique position to beta test a program evaluation matrix Kimley Horn and Associates had developed for their urban refuge template. This tool is to help refuge management evaluate and compare different transportation projects so they can focus their limited time and resources on projects that will be most beneficial to their refuge. The Scholar’s experience at JHNRWRT gave the team an opportunity to see how easily this evaluation template can be understood by someone in a refuge complex, but who is unfamiliar with the actual tool. It also offers a chance to see how well the tool compares different transportation projects occurring in an urban national wildlife refuge-context.

Constituencies

This project is led by Kimley Horn with support from FWS. Many different FWS staff are assisting on the project, including RTCs, headquarters staff, and local refuge employees. Additionally, the Urban Transportation Connections Study works with many different local organizations and stakeholders. The OBNWR focus groups included the following groups:

- Virginia Department of Transportation: Northern Virginia District
- Fairfax Alliance for Better Bicycling
- National Parks Service: National Capital Region
- Prince William County Department of Transportation
- Leesylvania State Park
- Prince William County Parks & Recreation Department
- Northern Virginia Community College
- Boys and Girls Club (Hylton Woodbridge Club)
- Virginia Cooperative Extension: Prince William County
- George Mason University: Prince William County Campus
- Northern Virginia Transportation Commission
- Prince William County Woodbridge District Supervisor's Office
- Prince William County Occoquan District Supervisor's Office
- Fairfax County Department of Planning and Zoning
- Potomac and Rappahannock Transportation Commission
- Northern Virginia Regional Commission
- Prince William Conservation Alliance
- Washington Metropolitan Area Transportation Authority
- U.S. Representative for the Prince William County/Fairfax County District Office

Next Steps & Implementation

Kimley Horn will be producing several deliverables for the project. For each specific refuge they are creating a "Refuge Access Plan" that will be a short, digestible planning product that refuge leadership can use in planning discussions with different constituents. This plan will help guide the refuge when considering transportation access to the refuge, and it will also help when choosing different projects to pursue.

Kimley Horn will also be producing a template for the refuge to use to evaluate different project possibilities. This template will not be specific to OBNWR like the Refuge Access Plan will be, but it will be a tool that refuge leadership can use to consider project ideas that arrive after the delivery of the Refuge Access Plan.

Once these guides are delivered to OBNWR it will be up to OBNWR staff to choose which projects would be of most use to the staff and the refuge. The materials will include a scoring matrix to assist refuge leadership in making these decisions.

PARKER RIVER NATIONAL WILDLIFE REFUGE (PRNWR)

Parker River National Wildlife Refuge in Newbury, MA. It is adjacent to Newburyport, MA, is just under 40 miles north of Boston, and is about 10 miles south of the New Hampshire border. The refuge is over 4,500 acres in size, and primarily consists of the majority of Plum Island, a barrier island.

Grant Research and Matrix

Methodology

PRNWR in Newburyport, MA is working to install a new multiuse path through the refuge. Region 5 has allocated some money for this boardwalk, but the estimate for design and construction exceeds the regional allocation. The Scholar researched local, regional, and national grants for funding that could cover this deficit. After creating a grant matrix with this information, the project was passed to the Volpe Center for further research and application.

Constituencies

The grant matrix is for FWS staff. The Volpe Center, the research arm of the United States Department of Transportation, took over this project to continue more in-depth research of grants and to oversee the application process.

Next Steps & Implementation

The Volpe Center is continuing to research local and national grants that may be appropriate for the refuge to pursue. The Volpe Center and the refuge will partner together to apply to and grants that are appropriate for the refuge to pursue for the multiuse path funding.

The matrix could be a valuable project that is continued even after funding for the path is secured. A grant matrix that NWRs or other FWS properties could look to when they need additional funding is a valuable tool that FWS HQ should consider pursuing for the future.

CONNECTION TO WIDER TRANSPORTATION COMMUNITY

Urban National Wildlife Refuges are special sites for many reasons. One of these is the fine line they must toe among being a federally-managed site, conforming to the congressionally-mandated operating guidelines, being a local, community-based and –focused “park” site, as well as creating practical and feasible transportation solutions. These worlds can often collide within a transportation project.

Within this melee the urban NWR must satisfy a demand that many transportation projects in other settings do not. While much of the USA’s current transportation planning focuses on projects that move people as quickly and safely as possible, NWRS and similar sites must also generate interest and be successful attractors in and of themselves. Convincing people to often take a further step and arrive via any mode other than personal vehicle expands the transportation obstacles these sites face.

Making the connection to the local transportation community is another barrier in and of itself. In Philadelphia, SEPTA has had little interest in expanding bus service to come into the refuge, claiming that it would add too much time to their routes; the closest bus stop is 0.25 miles from the refuge entrance and it is 0.5 miles to the refuge visitor center. However, SEPTA has also responded intransigently to the request to announce the presence of JHNWRT at this bus stop. Overall the agency seems to have little, if any, desire to partner with the USFWS.

Not all municipal or regional transportation agencies have the same obstinacy or disinterest in pursuing projects, transportation or otherwise. However, the connection that refuges have with municipal governments and planning agencies seems to vary a great deal. Refuges with stronger outreach programs and well-connected staff are consulted and brought in on projects, while refuges with fewer resources are often not consulted when master planning or grant applications are undertaken by municipal agency. Fractured connections such as these hinder the ability to create and improve sites’ transportation facilities, which then makes it more difficult for the public to arrive, and a vicious cycle begins.

PUBLIC LANDS TRANSPORTATION LANDSCAPE

Urban National Wildlife Refuges often act as a local, public park. These spaces can have very different meanings than traditional NWRs or other federally-managed land. JHNWRT works diligently to introduce people who don't traditionally visit these spaces (or who are generally believed to not visit these spaces) to green and open space. This can sometimes create conflict with traditional users and smaller subsets of people who have supported these spaces for many years and believe passionately in their conservation mission.

This potential cleavage between users also affects transportation projects within and to a refuge. Bicycling can be a great activity on a refuge, particularly for new users who need to develop their own appreciation for the space, but an activity such as this might aggravate established user groups, such as birdwatchers. These are the type of considerations a scholar must think about when considering or pursuing a transportation project on public lands.

Dealing with competing user groups is not the only challenge the Public Lands Transportation Scholar (PLTS) faces. As many previous scholars have noted, working within government agencies can be an extremely slow process, even within the transportation field. There are multiple levels of bureaucracy that must be navigated, and introducing new transportation techniques and technologies must go through additional consideration and scrutiny. For example, while ridesharing is increasingly permeating the transportation landscape all over America, but especially in urban settings, the USFWS has been slow to pursue these programs. They are new, guideline for these programs do not exist, and so many refuge employees have so much responsibility already, creating a new program is a significant lift. However, creating ridesharing programs is something NWRs must explore to stay relevant and expand visitation in the 21st century.

The ability to conduct successful public outreach is also something that many federally-managed lands lack. Although these lands are an important public resource, the focus and staffing of these sites has not resulted in enough strong relationships between the sites and their neighborhood communities. The inability for a site and their neighbors to discuss transportation projects and identify needs highlights this division. However, the gap between sites and their neighborhood can be seen in many areas. This was an issue that seemed to consistently arise in the Urban Transportation Connections Study. NWRs (and probably most public sites) need to learn more about their communities and do a better job interacting with them. Limited staff time does not make this easy, but it is crucial.

In general, transportation projects are something that requires more attention on USFWS sites. It seems like transportation is being recognized as an important component of these spaces, but these projects still have very limited resources. Regions often have just one person—their Regional Transportation Coordinator (RTC)—working on all transportation projects (funding, grants, partnerships, etc.) for dozens of refuges. This is not nearly sufficient for the amount of work that needs to be done. It is especially unfortunate because NWRs are amazing, often unique, sites, but if people cannot easily get there, or have a bad initial experience getting there, they may choose to never return.

CASE STUDY FOR FUTURE PUBLIC LANDS TRANSPORTATION SCHOLARS

As many previous reports have mentioned, one of the most difficult, but sometimes most alluring, aspects of this position is that the scholar is often the only transportation professional working in these sites and on these projects. While this results in much autonomy for choosing and pursuing different projects, it also limits the on-the-ground guidance the scholar has. If a refuge manager or leader is not able to give adequate time or guidance it could be very difficult to move forward on projects.

It is important to get feedback from leadership. It is vital to make sure they understand transportation projects and their importance. Transportation can be a complex subject, and in all likelihood, no one else on the refuge will understand the variety of transportation issues as well as the scholar does.

Community outreach, as mentioned in the previous section, is not a strength of the USFWS. Yet, outreach is crucial in urban settings. NWRs must build and nourish relationships to learn how they can support the community and what projects the community wants to see. This can only be done effectively by talking with people, attending local meetings, and show residents that the scholar and NWR care about the community and want to be a part of it. Additionally, the ubiquity and ease of using the internet to mediate discussion and outreach is a dangerous hole that NWRs, and the scholar by extension, must work to avoid. An event posted to Facebook may reach a lot of people, but their relationship to this event is minimal. If a scholar wants to coordinate a walk or bike ride or shuttle, speaking to just a few of the right people will be much more effective than posting it for one thousand apathetic people.

Successful community outreach is just one important part of transportation projects. Transportation projects at NWRs require more than just one person conceiving an idea and bringing it to fruition. A NWR is an interdigitated network of many departments, and it is important to work with all departments, facilities, visitor services, etc., to make sure they are included in the planning process. Although it may seem unlikely at the outset, these people will often have valuable and different perspectives on transportation on the refuge.

The variety of people and projects, transportation and otherwise, occurring on an NWR can be vast, but it is important the scholar does not forget their original scope of work, and they should make sure to not assume too many projects. Limited staff and a seemingly limitless array of potential projects will make it easy for a scholar to get sidetracked from their original work plan. With such a limited amount of time it is important that the scholar does not take on too many projects.

The length of the scholar's tenure is something that the scholar and program managers should consider and examine. It is very difficult to complete projects in only 11 months. It takes several months to learn the area, stakeholders, and begin to have a better idea of the current surrounding the refuge. Extending the amount of time scholars have at their site could be very beneficial to everyone involved in the program.

Finally, every scholar should never forget to thoroughly enjoy the site as much as possible. These are very special places. Even though spaces lose luster and excitement when we are mandated to use them (such as going to work there), don't forget to appreciate them and use them as the public would. Using these spaces also provides invaluable professional knowledge.

PROFESSIONAL DEVELOPMENT

The PLTS position offers a substantial amount of professional development opportunities. The work puts scholars in touch with municipal, county, state, regional, and federal officials. There is also work with non-profits, consultants, local and national, and a variety of different agencies. In this case the Scholar worked with officials from the FWS, EPA, NPS, and FHWA on a variety of projects.

The opportunity to attend different conferences also affords chances to expand a professional network. Presenting a poster at a major, national conference such as the TRB annual conference is a big deal and a great opportunity for scholars to meet and interact with many different people.

The Scholar participated in the 2017 TRB annual meeting, as well as the midyear meeting for the TRB committee ADA40 on the Transportation Needs of National Parks and Public Lands. At these conferences the Scholar was able to discuss new issues for transportation on public lands, such as the advent of ridesharing, and meet other professionals in the field. The conference added a good chance to peruse new scholarship and strategies being used by other FLMA sites to combat transportation obstacles.

Conferences aren't limited to TRB, and having a professional development budget was appreciated. However, between travel and conference attendance, the budget was fully stretched. The Scholar's travel, lodging, and attendance at the Society of Outdoor Recreation Professionals annual conference would not have been fully covered if the Scholar had not received an additional scholarship for the conference on his own.

Professional development does require substantial internal motivation to search for, and reach out to, other transportation professionals. This is a difficult skill, and if a scholar has only 11 months to get acquainted with an area and begin to make these connections, it might not leave the scholar with a lot of time to meet people in that place. While joining local professional organizations might create new professional connections, it is difficult to develop strong relationships from scratch in less than a year. If it is possible for WTI to arrange a connection, either through the refuge or other means, with a local planning firm or consultant, this might be a way to introduce Scholars to local planners. This local connection would not have to review or work with the Scholar, but they could act as an introduction to other area professionals.

Overall, this program does offer participants a great opportunity to meet and network with a variety of transportation professionals in many different transportation specialties and geographic areas. It also offers participants something extremely valuable: the opportunity to work alongside transportation professionals on important projects. This opportunity gives scholars time to showcase their skills, knowledge, work ethic, and passion.

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APPENDIX A: LINDBERGH BLVD FLAP APPLICATION AND LETTERS OF SUPPORT

Eastern Federal Lands Access Program Project Application

General Information:

The Federal Lands Access Program was created by the "Moving Ahead for Progress in the 21st Century Act" (MAP-21) to improve state and local transportation facilities that provide access to and through federal lands for visitors, recreationists and resource users. See <http://flh.fhwa.dot.gov/programs/flap/> for more information.

Instructions:

Proposed projects or studies must be located on a public highway, road, bridge, trail or transit system that is located on, is adjacent to, or provides access to Federal lands for which the facility title or maintenance responsibility is vested with a State, county, city, township, tribal, municipal, or local government. A 20% matching share is required for this program. Other Federal (non-title 23 or 49) funds may be used as match.

All projects must be submitted using this Eastern Federal Lands (EFL) Access Program Application form. The applicant must be the facility owner, have maintenance responsibility or must supply a letter from the facility owner/maintainer indicating the application is being submitted on their behalf. It is the responsibility of the applicant to supply the necessary information to complete the application to the best of their ability.

Project applications must be sponsored by the appropriate Federal Land Management Agency (FLMA) with an application signature and/or letter of support. Attachments such as cost estimates, maps, photos etc. may be included but are limited to 10 pages. Letters supporting the project do NOT count towards the 10 additional pages allowed for application support.

E-mail your completed application package to Efl.planning@dot.gov. If you need assistance in completing this application form or have questions about the program, please contact: Lewis Grimm, PE, FHWA-EFL Planning Team Leader at 703-404-6289 or Lewis.Grimm@dot.gov or the FHWA PDC member listed on the EFL FLAP web page for the respective state.

Implementation:

The Programming Decisions Committee (PDC) for each state will review project applications and prioritize them based on weighted selection criteria developed by the PDC. The selection criteria are reflective of needs in that state and Federal regulations and guidelines. Project approval resides with the PDC. The PDC will select a balanced program that maximizes funding and addresses critical needs, in consultation with applicable FLMA's.

Memorandums of Agreement (MOA) will be required for each programmed project. The project MOA will indicate the project delivery method, match requirements, funding sources/limitations, scope, schedule, and responsibilities of the project signatories.

Project delivery with stewardship and oversight will be through FHWA-EFL or State Department of Transportation (DOT). Local public agencies that are certified by the State DOT may be permitted to deliver the projects contingent on the joint approval of the FHWA-EFL and the State DOT.

For partner delivered projects, fund obligations will be requested following an executed MOA by the State DOTs through a standardized PR-2 form. Access program funds will not reimburse work performed prior to execution of the MOA and the PR-2 (i.e. Right of Way transfers or Engineering services).

Program goals, eligible activities, application tips and the Call for Projects Standard Operating Procedures (including the selection criteria) for this application are located under the appropriate state on the Eastern Federal Lands web site at: <http://www.efl.fhwa.dot.gov/programs/federal-lands-access.aspx>

Eastern Federal Lands Access Program Project Application

Project Name: Protected Bike Facilities to Heinz Refuge		Route Number: Lindbergh Boulevard	
Facility Owner: City of Philadelphia/PennDOT		Facility Maintainer: City of Philadelphia	
Requested Project Delivery Agency:			
<input type="checkbox"/> Eastern Federal Lands (EFLHD) <input type="checkbox"/> State DOT <input checked="" type="checkbox"/> Local Agency <input type="checkbox"/> Other			
Functional Classification:		Project Design Standards:	
<input type="checkbox"/> National Highway System <input checked="" type="checkbox"/> Arterial <input type="checkbox"/> Major Collector <input type="checkbox"/> Minor Collector <input type="checkbox"/> Local Road <input type="checkbox"/> Other		<input type="checkbox"/> AASHTO <input type="checkbox"/> State DOT <input checked="" type="checkbox"/> Local Government <input type="checkbox"/> Federal Lands Highway (FLH)	
Type of Project Proposed: (Check all that apply)		Estimated Project Budget	
<input type="checkbox"/> New Project <input checked="" type="checkbox"/> Rehabilitation <input checked="" type="checkbox"/> Expansion/Enhancement <input type="checkbox"/> Other		Preliminary Engineering: Construction Engineering: Construction Cost: \$255,500.00 Right-of-Way: Other Costs: Total Project Cost: \$255,500.00	
<input type="checkbox"/> Design <input type="checkbox"/> Preliminary Engineering <input type="checkbox"/> Environmental (NEPA Document) <input type="checkbox"/> Right of Way <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Paving, road base or surface course projects <input checked="" type="checkbox"/> Safety enhancements or structures <input type="checkbox"/> Minor drainage <input type="checkbox"/> Major concrete structures <input checked="" type="checkbox"/> Bicycle/pedestrian facility <input type="checkbox"/> Construction Contract <input type="checkbox"/> Construction Engineering <input type="checkbox"/> Planning/Technical Study or Research <input type="checkbox"/> Other (e.g. Intermodal or transit facilities, ITS, environmental mitigation) If Other, specify:		Project Funding Requested FLAP Funds: \$184,500.00 Estimated Match Local \$46,125.00 Other: See email, add match \$24,875.00 Total Project Cost: \$255,500.00 Calculated Match Percent 20% Match Formula: FLAP Funds / Federal Share(80%) - FLAP Funds	
Project Location:		Benefitting Federal Land Unit(s)	
City: Philadelphia		John Heinz National Wildlife Refuge	
County: Philadelphia		Federal Land Management Agency (FLMA) managing the above unit(s)	
State: Pennsylvania		<input type="checkbox"/> Bureau of Land Management <input checked="" type="checkbox"/> Fish and Wildlife Service <input type="checkbox"/> Forest Service <input type="checkbox"/> National Park Service <input type="checkbox"/> U.S. Army Corps of Engineers <input type="checkbox"/> Other (e.g. DOD,)	
Longitude/Latitude 39.917906, -75.226060		Specify	
Congressional District(s) 1			
Project Applicant:		FLMA Signature of Project Acknowledgement & Concurrence	
Name: Michael A. Carroll, PE		LAMAR GORE	
Position: Acting Streets Commissioner		Digitally signed by LAMAR GORE Date: 2016.11.15 16:26:17 -05'00'	
Agency: City of Philadelphia Streets Department		Name: Lamar Gore	
Phone: (215) 686-5947		Title: Refuge Manager	
E-mail: michael.carroll@phila.gov		Phone: (215) 365-3118 x122	
Address: 1401 John F. Kennedy Blvd., Suite 900 Philadelphia, PA 19102		E-mail: lamar_gore@fws.org	

Eastern Federal Lands Access Program Project Application

Prioritization Factors:

- | | | |
|---|---|-----------------------------|
| -FLMA, StateDOT, and facility owner agree that the project is an Economic/Visitation Generator. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| -FLMA, StateDOT, and facility owner agree that the project is a priority. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| -Project is consistent with the metropolitan, statewide and/or regional planning process. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| -Project is consistent with currently adopted agency plans. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| -If local delivery is requested, the applicant is certified by the State DOT to administer local agency projects following Federal Highway Administration requirements. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

Project Development Status

	Not Started	In Progress	Completed	N/A	Completion Date/Comments
Project on TIP/STIP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paving to be completed as part of
Right of Way	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No additional ROW acquisition required
Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No additional utility work required
Preliminary Engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Preliminary Engineering completed by City Engineerin
NEPA Document	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No ground disturbance anticipated. Project will consist
Permits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	City of Philadelphia responsible for facility and project
Anticipated Delivery Calendar Year:	2017				
Latest Possible Delivery Calendar Year	2019				

Resource Protection:

Please identify any impacts to known natural, cultural or physical resources associated with this project. (Check all that apply)

Negative Impact Positive Impact

- | | | |
|--------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Wetlands/Water Resources |
| <input type="checkbox"/> | <input type="checkbox"/> | Threatened & Endangered Species |
| <input type="checkbox"/> | <input type="checkbox"/> | Species of concern/state listed |
| <input type="checkbox"/> | <input type="checkbox"/> | Other biological resources (fisheries, rookeries) |
| <input type="checkbox"/> | <input type="checkbox"/> | Wild & Scenic River (or other state classifications) |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Non-attainment areas (air quality) |
| <input type="checkbox"/> | <input type="checkbox"/> | Historic & archeological resources |
| <input type="checkbox"/> | <input type="checkbox"/> | Native American areas/concerns |
| <input type="checkbox"/> | <input type="checkbox"/> | Wilderness or roadless areas |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Parks & recreation areas/wildlife refuge [Section 4(f) 6(f)] |
| <input type="checkbox"/> | <input type="checkbox"/> | Hazardous materials/contamination site |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Air, noise, and/or visual impacts |

Eastern Federal Lands Access Program Project Application

1. Project Description

Please provide a summary of the purpose and need for the proposed project. Provide a detailed description of the project activities that would be funded with Access Program funds. Describe the overall design concept, any unusual design elements, design standards, and any work affecting structures (bridges and major culverts). Include widths, surfacing type, earthwork needs or roadside safety features. Include options and funding breakdown for scaling/phasing the project, if applicable.

The proposed project will construct 2.1 miles of protected bicycle lanes in each direction along Lindbergh Boulevard (Lindbergh) from 58th Street to 84th Street. The addition of protected bicycle lanes will increase the accessibility to the John Heinz National Wildlife Refuge (JHNWR) from many Philadelphia neighborhoods via a protected bicycle-friendly route. Though the JHNWR has a large surrounding residential population, its programs are adversely affected by inaccessibility. This project will construct a dedicated bicycle access route, improve connections between JHNWR and surrounding communities and partners, fill a priority gap in Philadelphia's bicycle network, and provide a direct link from Bartram's Garden (an historic garden on the National Register of Historic Places) to JHNWR.

Lindbergh Boulevard is an arterial street connecting to JHNWR. The roadway width ranges from four to eight lanes with intermittent long distances between signalized intersections. Due to the arterial nature of the roadway, a number of the intersections are expansive; some having over 20 lanes at four approaches. For these reasons, walking and bicycling along Lindbergh can be challenging due to long crossing distances and areas of high speed vehicular traffic. Still, as Lindbergh Boulevard functions as a connector between communities and with Center City Philadelphia, and since there is an existing shoulder along the major portion of the corridor, many bicyclists use Lindbergh Boulevard for all or part of their trip. In fact, this portion of Lindbergh Boulevard is designated as the East Coast Greenway on-road route, an urban trail route connecting Maine to Florida.

The project will connect to and complement two funded trail projects. First, the Cobbs Creek Trail, funded on the Pennsylvania State Transportation Improvement Program (TIP), is a two-way protected bicycle lane from the JHNWR entrance at 86th Street to 84th Street at Lindbergh Boulevard. The Grays Crossing Bridge is funded by a Transportation Investment Generating Economic Recovery (TIGER) grant to construct a new bridge over the Schuylkill River to extend and connect the Schuylkill River Trail (SRT) to Bartram's Garden and Southwest Philadelphia. North of the bridge, on the Grays Crescent portion of the Schuylkill River Trail, bicyclists can continue to Center City Philadelphia using the signed East Coast Greenway on-road route through the Grays Ferry and Graduate Hospital neighborhoods. The SRT then extends more than 60 miles along the river to Valley Forge National Historical Park (Valley Forge) and Pottsville, PA. Together, these three projects will link the JHNWR with Bartram's Garden, Center City, and Valley Forge.

JHNWR and the US Fish and Wildlife Service have a long range sustainability goal of "adopt[ing] and promot[ing] sustainable transportation practices." Promoting bicycle access to the refuge supports this goal. The protected bicycle lanes will consist of reflective plastic curbs and plastic flexible delineator posts along a concrete curb-side bicycle lane in each direction of Lindbergh Boulevard. Together these elements will create visual and physical separation from motorists. In addition to the plastic curbs and flexible delineator posts, bicycle regulation and wayfinding signage, lane striping, and improved pedestrian crosswalks will be installed. One part of this project will require an ordinance to remove the existing on-street parking. There are concurrent projects to augment the impact of this project, including: (1) The Philadelphia Water Department (PWD) expressed interest in installing green stormwater infrastructure along Lindbergh Boulevard and enhancing pedestrian and bicycle safety in conjunction with their work. PWD's proposed green stormwater intervention areas overlap with this project's proposed protected bike lanes.

(2) The City is scheduled to resurface and restripe Lindbergh Boulevard from 84th Street – 65th Street in the upcoming 2017 paving season with city crews. A newly resurfaced roadway is the ideal surface for installation of new line striping and protected bicycle facility infrastructure, as a new paving surface will best hold paint and the proposed vertical elements. Estimated costs for the project are:

1. A portion of the restriping of 84th – 65th Streets: \$ 30,000; 2. Curb-Type Base and Post, 84th – Harley: \$187,750; 3. Signing, Stop Bars, Crosswalks: \$ 17,250; 4. Contingency (10%): \$ 20,500; Total Project Cost: \$255,500
5. City of Philadelphia match (A portion of the restriping of 84th – 65th Streets): \$ 30,000
6. John Heinz National Wildlife Refuge Match: \$ 41,000
- FLAP Grant Ask: \$184,500

Eastern Federal Lands Access Program Project Application

2. Safety Benefits

Please describe how this project addresses issues related to safety. Will the project improve safety for all users (pedestrians, bicycles, motor vehicles, etc.)? Will this project improve identified crash sites or hazardous conditions (road safety audits or engineering assessments)?

Adding protected bicycle lanes to Lindbergh Boulevard will improve safety for all road users along this corridor that connects several distinct neighborhoods to an historic urban garden and wildlife refuge. According to PennDOT, between 2011 and 2015, 274 reportable traffic crashes, including 22 pedestrian-involved crashes and 7 bicyclists-involved crashes, occurred on Lindbergh between 84th St & Elmwood. These traffic crashes resulted in 3 individuals killed and 339 individuals with injuries. It has been documented, that protected bicycle lanes, where there is a physical barrier between the bicyclist and the vehicle travel lane, increase safety for all road users. This type of bicycle lane is emerging as a popular investment in cities with high bicycle use because it not only improves safety for bicyclists; it also leads to fewer collisions among all roadway users based on a traffic calming effect. According to NYCDOT, protected bike lanes shorten crossing distances, control turning conflicts and reduce vehicular traffic weaving. In some major cities, protected bicycle lanes have resulted in a significant decrease in sidewalk bicycling and an increase in bicyclists obeying stoplights. This behavior increases the predictability of bicycle movements. Pedestrians also benefit from a separation of uses since protected bicycle lanes tend to narrow roadways and lower vehicle speeds. Lower vehicular speeds lead to fewer conflicts and crashes, especially crashes that result in serious injuries or deaths.

There are SEPTA bus routes along some stretches of Lindbergh Boulevard. The physical separation of protected bicycle lanes reduces conflicts with buses because there is a reduction in bus/bike “leapfrogging” and mixing on routes with curbside stop locations. This change in traffic behavior creates safer spaces for transit vehicles and users.

The specific type of protected bike lane to be installed is a reflective curb-type base made out of plastic, along with attached flexible delineator posts. The bases and posts are installed every 20 to 40 linear feet within a painted buffer between the travel lane and bicycle facility. This protected bicycle lane type is cost effective in installation and maintenance when compared to a planted buffer, a cement curb, or other solutions to create a protected bike lane.

3. Accessibility and Mobility Benefits

Please describe how the proposed project routes are connected to a FLMA inventory route. Describe how the project addresses the need on FLMA plan, State or County Comprehensive Plan. Describe how the proposed project will fill missing links in the network, remove travel restrictions and bottlenecks. How will the plan improve mode choice, explore and enhance transit system (i.e. operation and maintenance of transit facilities, etc.)? Will the plan reduce traffic congestion; enhance visitor mobility and accessibility?

The nearest transit stops in most places are too far away to encourage Refuge visitation without having a car. This prevents the Refuge from reaching the audience it most seeks to serve. One of the USFWS primary initiatives is to better reach urban audiences and to expose younger generations to the outdoors.

The JHNWR inventory route ends at the intersection of Lindbergh Boulevard and 86th Street. The Cobbs Creek Trail two-way protected bicycle lane will run from 86th Street to 84th Street. This project links to the Cobbs Creek Trail at 84th Street and runs to the driveway of Bartram’s Garden, 2.1 miles down Lindbergh Boulevard. With this project and other funded projects in the final design and construction phases, a bicyclist could ride directly from the JHNWR FLMA route to Center City Philadelphia along Lindbergh Boulevard, the Schuylkill River Trail, and the East Coast Greenway on-road route.

This project will fill a critical gap in Philadelphia’s bicycling network. The 2015 Philadelphia Pedestrian & Bicycle Plan Progress Report identifies this portion of Lindbergh Boulevard as a Tier One priority for the addition of bicycle facilities, which indicates that the corridor is crucial for connectivity and demand of the bicycle network.

The project will significantly expand transportation mode choices for neighborhood residents, nearby employment hubs, and potential JHNWF visitors by providing a bicycle link between the JHNWR and Center City Philadelphia. The project could decrease passenger car volume on Lindbergh Boulevard as JHNWR visitors opt for bicycle travel.

Eastern Federal Lands Access Program Project Application

4. Preservation Benefits

Will this project improve the National Bridge Inventory System (NBIS) deficient bridge rating? How will the project improve surface conditions? Will the project reduce operating costs? How will the project contribute to the protection of specific natural, cultural, historic, and/or scenic resources?

The protected bicycle lane elements proposed as part of this project are low impact on the existing roadway, which will be resurfaced in conjunction with this project. The plastic curb base and attached delineator posts are designed to be hit; however after multiple hits and damage, they can be replaced easily, as opposed to a crumbling concrete curb.

The reflective curb-type base with flexible delineator posts has a lower maintenance cost than other structural alternatives. When one breaks, the replacement of that unit is simple and low cost.

This project will connect and enhance the experience at two historic/scenic areas and encourage neighborhood residents to access these resources. The protected lanes will connect the JHNWR with Bartram's Garden, a popular destination that many visitors pair with JHNWR. At Bartram's Garden, there will also be a connection to the SRT, which will eventually stretch from Philadelphia to Pottsville, through historic areas like Valley Forge.

5. Economic Development Benefits

Please describe how this project will attract tourism/visitation. Will the project address more than one Federal Land Management Agency (FLMA) area? How will this project influence economic development? How will this project address visitor mobility, access, and experience?

It is anticipated that this project, in combination with two funded future projects (Cobbs Creek Trail, Grays Crossing Bridge), would greatly expand tourism by filling one of the major gaps in the trail and bicycle networks between southwest Philadelphia and Valley Forge. The project will provide a link between JHNWR, Bartram's Garden and Center City Philadelphia.

Protected bike lanes have been shown to have positive economic effects. They promote traffic calming, increase commercial visibility, and facilitate access for both employees and consumers. Health care costs for bicyclists are typically reduced because bicycling improves both physical and mental health. Protected bicycle lanes have been shown to reduce bicycle crashes and other crash types, which in turn, decrease insurance, vehicular repair, and health care costs.

6. Sustainability and Environmental Quality Benefits

Please describe how the proposed project contributes to the environmental goals and objectives of the Federal Land Management Plan or other applicable land management plan. How will the proposed project avoid/minimize/mitigate potential impacts to environmental or cultural resources? Will the project improve fish passage and/or wildlife connectivity? How does the proposed project contribute to the use of sustainable energy sources for transportation?

This project facilitates the use of active, alternative transportation to access the JHNWR. This will reduce motor vehicle use of those accessing the refuge and surrounding communities and lower greenhouse gas emissions, improving air quality.

This project will have limited, if any, negative impacts to local environmental or cultural resources. The installations will be on existing roadway and will not require construction or development that would adversely affect the environment.

This project is an excellent complement to JHNWR's mission because it publicly demonstrates JHNWR's commitment to conservation and stewardship. As more people use the bicycle facilities on Lindbergh Boulevard to visit JHNWR, they will practice alternative transportation and learn more about the conservation goals that JHNWR promotes.

**EASTWICK FRIENDS & NEIGHBORS COALITION**

EastwickFNC@gmail.com
www.EastwickFriends.wordpress.com
P.O. Box 16985, Philadelphia, PA 19142

Facebook/EastwickFNC
Twitter @EastwickFNC

Date: November 11, 2016

To: APPLICANT
City of Philadelphia, PA

From: Eastwick Friends and Neighbors Coalition, Inc.

Subject: Recognition and Support of Grant Application Submitted to install a protected bike lane connecting Southwest communities on Lindbergh Boulevard from Bartram's Garden to John Heinz National Wildlife Refuge at Tinicum

Eastwick Friends and Neighbors Coalition (EFNC) is pleased to provide this letter of support for the Federal Lands Access Program (FLAP) application being submitted by the City of Philadelphia. EFNC is a Registered Community Organization in Southwest Philadelphia, and 501(c)3 organization; the majority of the Lindbergh Boulevard project falls within the EFNC service area.

This project improves connections both within Eastwick and to other Philadelphia neighborhoods. It is an important step in improving the mobility and accessibility for residents within the neighborhood, and provides for the health benefits of enhanced recreational opportunity.

Thank you for considering this important project, which will serve to improve safe connections through our Eastwick neighborhood and to two important green spaces in our community.

If you have any questions regarding EFNC support for this project, please don't hesitate to contact me at 267-581-1026 or terrywilliams0529@yahoo.com, or EastwickFNC@gmail.com.

Sincerely

Terry Williams
President, Eastwick Friends & Neighbors Coalition, Inc.
www.EastwickFriends.wordpress.com
EastwickFNC@gmail.com



SUPPORTING AMERICA'S FIRST URBAN NATIONAL WILDLIFE REFUGE
PO BOX 333 • FOLCROFT, PA 19032-0333 • 215-365-3118 • friendsofheinzrefuge.org

FOHR
FRIENDS OF
HEINZ REFUGE

Date: November 9, 2016

To: APPLICANT
City of Philadelphia, PA

From: Jaclyn Rhoads, Vice-President, Friends of Heinz Refuge

Subject: Recognition and Support of Grant Application Submitted to install a protected bike lane connecting Southwest communities on Lindbergh Boulevard from Bartram's Garden to John Heinz National Wildlife Refuge at Tinicum

It's my pleasure to provide a letter of support for the Federal Lands Access Program (FLAP) application being submitted by the City of Philadelphia. This project aligns perfectly with the goal of the Friends of Heinz Refuge. Our mission is to support the John Heinz National Wildlife Refuge at Tinicum (the refuge), promote public understanding and expand public support of the refuge and the local environment. By facilitating safe, alternative transportation access to the refuge, this project will help accomplish all the aspects of our mission. Additionally, this project continues the U.S. Fish and Wildlife Service (Service) and the refuge focus on better integrating with the city and communities of Philadelphia.

If you have any questions regarding our support for this project, please don't hesitate to contact me at 267-221-5274 or by email at jaclynrhoads36@gmail.com.

Thank you for your consideration of this important application, and we look forward to hearing from you in the future.

Sincerely,


Jaclyn Rhoads



United States Department of the Interior

FISH AND WILDLIFE SERVICE

300 Westgate Center Drive
Hadley, MA 01035-9589



Date: November 14, 2016

To: APPLICANT
City of Philadelphia, PA

From: Carl Melberg, Regional Transportation Coordinator

Subject: Recognition and Support of Grant Application Submitted to install a protected bike lane connecting Southwest communities on Lindbergh Boulevard from Bartram's Garden to John Heinz National Wildlife Refuge at Tinicum

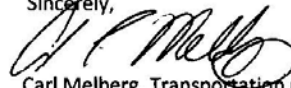
It's my pleasure to provide a letter of support for the Federal Lands Access Program (FLAP) application being submitted by the City of Philadelphia. This project is a high priority as it facilitates and promotes a safe, alternative transportation option leading to the John Heinz National Wildlife Refuge at Tinicum (the refuge). There are currently no protected bikeways that connect Center City Philadelphia and the refuge, and the bicycle lanes that serve this part of the city are limited. This new infrastructure will be protected infrastructure. Studies have shown that protected infrastructure is strongly preferred by current and potential cyclists; increasing this type of infrastructure is an important step towards getting more people using alternative transportation and accessing the refuge.

The U.S. Fish and Wildlife Service (Service) is focused on supporting our Urban Refuge Initiative and better connecting Americans with Federal Lands. This project is an important step in improving connections to the refuge. Because of the importance of this project, the Service will commit to applying Federal Lands Transportation Project funds totaling \$41,000 in addition to the City of Philadelphia's in-kind services match of \$30,000. The total of \$71,000 would be more than a 31% match for this FLAP application.

If you have any questions regarding this project, please don't hesitate to contact me at 413-253-8586 or by email at carl_melberg@fws.gov.

Thank you for your consideration of this important application, and we look forward to hearing from you in the future.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Melberg', written over a horizontal line.

Carl Melberg, Transportation Coordinator



United States Department of the Interior

FISH AND WILDLIFE SERVICE



John Heinz National Wildlife Refuge at Tinicum
America's First Urban Refuge
8601 Lindbergh Boulevard
Philadelphia, PA 19153

Date: November 15, 2016

To: APPLICANT
City of Philadelphia, PA

From: Lamar Gore, Refuge Manager, John Heinz National Wildlife Refuge at Tinicum

Subject: Recognition and Support of Grant Application Submitted to install a protected bike lane connecting Southwest communities on Lindbergh Boulevard from Bartram's Garden to John Heinz National Wildlife Refuge at Tinicum

The refuge fully supports this effort and if funded will be at the table whenever needed to see this project move forward. We hope that this letter of support and others for the Federal Lands Access Program (FLAP) application being submitted by the City of Philadelphia will help this their application to be successful. This is a high priority project, which, if funded, will bring America's First Urban Refuge much closer to connecting and closely engaging with our surrounding communities. It will also help to facilitate and promote safe, alternative transportation to the John Heinz National Wildlife Refuge at Tinicum (the refuge). There are no protected bikeways that connect Center City Philadelphia and the refuge, and the bicycle lanes that serve this part of the city are very limited. This new infrastructure will be protected infrastructure, and encourage residents and tourists to use this safer means of access. Studies have shown that protected infrastructure is strongly preferred by current and potential cyclists; increasing this type of infrastructure is an important step towards getting more people using alternative transportation and accessing the refuge. The refuge has focused on better integrating with the city and communities of Philadelphia, while also supporting the use of alternative modes to access the refuge. This project will help accomplish both these goals. Because of the importance of this project the Service is committed to sponsoring \$41,000 to assist with match requirement for this FLAP application.

If you have any questions regarding this project, please don't hesitate to contact me at 215-364-3118 x122 or by email at Lamar_Gore@fws.gov.

Thank you for your consideration of this important application, and we look forward to hearing from you in the future.

Sincerely,

Lamar Gore

**BARTRAM'S GARDEN**

14 Nov 2016

Lamar Gore
Refuge Manager
John Heinz National Wildlife Refuge at Tinicum
8601 Lindbergh Boulevard
Philadelphia, PA 19153

Dear Mr. Gore:

Re: Recognition and Support of Grant Application Submitted to install a protected bike lane connecting Southwest communities on Lindbergh Boulevard from Bartram's Garden to John Heinz National Wildlife Refuge at Tinicum

It's my pleasure to provide a letter of support for the Federal Lands Access Program (FLAP) application being submitted by the City of Philadelphia. This project is a crucial link between two important West Philadelphia Green Spaces. A protected bicycle lane along Lindbergh Blvd will allow safe, alternative transportation between our major green, community resources, and it will help strengthen our community's connections to the local environment.

As a National Historic Landmark, Bartram's Garden is committed to increasing awareness of our local history and environment, promoting environmental education, and encouraging outdoor, green recreation. This protected bicycle lane will support all of these goals by directly connecting us to the John Heinz National Wildlife Refuge at Tinicum.

Thank you for considering this important project for Southwest Philadelphia and I look forward to its fruition. We trust that the proposal will be given the highest level of consideration in support of the Southwest Philadelphia community. Please do not hesitate to reach out if you need further information. I can be reached at 215 729 5281x101, or mroy@bartramsgarden.org.

Sincerely,

Maitreyi Roy, Executive Director
John Bartram Association

A NATIONAL HISTORIC LANDMARK HOUSE & GARDEN

John Bartram Association, 54th St. & Lindbergh Blvd., Philadelphia, PA 19143 T: (215) 729.5281 F: (215) 729.1047

BARTRAMSGARDEN.ORG

APPENDIX B: PA-420 FLAP APPLICATION

Eastern Federal Lands Access Program Project Application

General Information:

The Federal Lands Access Program was created by the "Moving Ahead for Progress in the 21st Century Act" (MAP-21) and continued in the "Fixing America's Surface Transportation" (FAST) Act of 2015 to improve state and local transportation facilities that provide access to and through federal lands for visitors, recreationists and resource users.

Instructions:

Proposed projects or studies must be located on a public highway, road, bridge, trail or transit system that is located on, is adjacent to, or provides access to Federal lands for which the facility title or maintenance responsibility is vested with a State, county, city, township, tribal, municipal, or local government. A 20% matching share is required for this program. Other Federal (non-title 23 or 49) funds may be used as match.

All projects must be submitted using this Eastern Federal Lands (EFL) Access Program Application form. The applicant must be the facility owner, have maintenance responsibility or must supply a letter from the facility owner/maintainer indicating the application is being submitted on their behalf. It is the responsibility of the applicant to supply the necessary information to complete the application to the best of their ability.

Project applications must be sponsored by the appropriate Federal Land Management Agency (FLMA) with an application signature and/or letter of support. Attachments such as cost estimates, maps, photos etc. may be included but are limited to 10 pages. Letters supporting the project do NOT count towards the 10 additional pages allowed for application support.

E-mail your completed application package to Efl.planning@dot.gov. If you need assistance in completing this application form or have questions about the program, please contact: Lewis Grimm, PE, FHWA-EFL Planning Team Leader at 703-404-6289 or Lewis.Grimm@dot.gov or the FHWA PDC member listed on the EFL FLAP web page for the respective state.

Implementation:

The Programming Decisions Committee (PDC) for each state will review project applications and prioritize them based on weighted selection criteria developed by the PDC. The selection criteria are reflective of needs in that state and Federal regulations and guidelines. Project approval resides with the PDC. The PDC will select a balanced program that maximizes funding and addresses critical needs, in consultation with applicable FLMA's.

Memorandums of Agreement (MOA) will be required for each programmed project. The project MOA will indicate the project delivery method, match requirements, funding sources/limitations, scope, schedule, and responsibilities of the project signatories.

Project delivery with stewardship and oversight will be through FHWA-EFL or State Department of Transportation (DOT). Local public agencies that are certified by the State DOT may be permitted to deliver the projects contingent on the joint approval of the FHWA-EFL and the State DOT.

For partner delivered projects, fund obligations will be requested following an executed MOA by the State DOTs through a standardized PR-2 form. Access program funds will not reimburse work performed prior to execution of the MOA and the PR-2 (i.e. Right of Way transfers or Engineering services).

Program goals, eligible activities, application tips and the Call for Projects Standard Operating Procedures (including the selection criteria) for this application are located under the appropriate state on the Federal Lands Highway website. <http://flh.fhwa.dot.gov/programs/flap/>

Eastern Federal Lands Access Program Project Application

Project Name: Wanamaker Ave Parking Lot Rehabilitation		Route Number: PA-420													
Facility Owner: Pennsylvania Department of Transportation		Facility Maintainer: US Fish and Wildlife Service													
Requested Project Delivery Agency:															
<input checked="" type="checkbox"/> Eastern Federal Lands (EFLHD) <input type="checkbox"/> State DOT <input type="checkbox"/> Local Agency <input type="checkbox"/> Other 															
Functional Classification:		Project Design Standards:													
<input checked="" type="checkbox"/> National Highway System <input checked="" type="checkbox"/> Arterial <input type="checkbox"/> Major Collector <input type="checkbox"/> Minor Collector <input type="checkbox"/> Local Road <input type="checkbox"/> Other		<input checked="" type="checkbox"/> AASHTO <input type="checkbox"/> State DOT <input type="checkbox"/> Local Government <input type="checkbox"/> Federal Lands Highway (FLH)													
Type of Project Proposed: (Check all that apply)		Estimated Project Budget													
<input type="checkbox"/> New Project <input checked="" type="checkbox"/> Rehabilitation <input type="checkbox"/> Expansion/Enhancement <input type="checkbox"/> Other <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Preliminary Engineering <input checked="" type="checkbox"/> Environmental (NEPA Document) <input type="checkbox"/> Right of Way <input checked="" type="checkbox"/> Construction <input checked="" type="checkbox"/> Paving, road base or surface course projects <input checked="" type="checkbox"/> Safety enhancements or structures <input type="checkbox"/> Minor drainage <input type="checkbox"/> Major concrete structures <input checked="" type="checkbox"/> Bicycle/pedestrian facility <input checked="" type="checkbox"/> Construction Contract <input checked="" type="checkbox"/> Construction Engineering <input type="checkbox"/> Planning/Technical Study or Research <input type="checkbox"/> Other (e.g. Intermodal or transit facilities, ITS, HSIP, environmental mitigation) If Other, specify: 		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Preliminary Engineering:</td><td style="text-align: right;">\$50,000.00</td></tr> <tr><td>Construction Engineering:</td><td style="text-align: right;">\$50,000.00</td></tr> <tr><td>Construction Cost:</td><td style="text-align: right;">\$340,000.00</td></tr> <tr><td>Right-of-Way:</td><td style="text-align: right;"></td></tr> <tr><td>Other Costs:</td><td style="text-align: right;">\$8,800.00</td></tr> <tr><td>Total Project Cost:</td><td style="text-align: right;">\$448,800.00</td></tr> </table>		Preliminary Engineering:	\$50,000.00	Construction Engineering:	\$50,000.00	Construction Cost:	\$340,000.00	Right-of-Way:		Other Costs:	\$8,800.00	Total Project Cost:	\$448,800.00
Preliminary Engineering:	\$50,000.00														
Construction Engineering:	\$50,000.00														
Construction Cost:	\$340,000.00														
Right-of-Way:															
Other Costs:	\$8,800.00														
Total Project Cost:	\$448,800.00														
		Project Funding													
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Requested FLAP Funds:</td><td style="text-align: right;">\$359,040.00</td></tr> <tr><td>Estimated Match Other:</td><td style="text-align: right;">\$89,760.00</td></tr> <tr><td>Other: FWS FLTP</td><td style="text-align: right;"></td></tr> <tr><td>Total Project Cost:</td><td style="text-align: right;">\$448,800.00</td></tr> <tr><td>Calculated Match Percent</td><td style="text-align: right;">20%</td></tr> </table>		Requested FLAP Funds:	\$359,040.00	Estimated Match Other :	\$89,760.00	Other: FWS FLTP		Total Project Cost:	\$448,800.00	Calculated Match Percent	20%		
Requested FLAP Funds:	\$359,040.00														
Estimated Match Other :	\$89,760.00														
Other: FWS FLTP															
Total Project Cost:	\$448,800.00														
Calculated Match Percent	20%														
		Match Formula: FLAP Funds / Federal Share(80%) - FLAP Funds													
Project Location:		Benefitting Federal Land Unit(s)													
City: Tinicum		John Heinz National Wildlife Refuge at Tinicum													
County: Delaware															
State: Pennsylvania		Federal Land Management Agency (FLMA) managing the above unit(s)													
Longitude/Latitude: 39.873429, -75.303144		<input type="checkbox"/> Bureau of Land Management <input checked="" type="checkbox"/> Fish and Wildlife Service <input type="checkbox"/> Forest Service <input type="checkbox"/> National Park Service <input type="checkbox"/> U.S. Army Corps of Engineers <input type="checkbox"/> Other (e.g. DOD,)													
Congressional District(s): 7th		Specify 													
Project Applicant:		FLMA Signature of Project Acknowledgement & Concurrence													
Name: Charles H. Davies		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="height: 30px;"></td></tr> <tr><td style="height: 30px;"></td></tr> <tr><td style="height: 30px;"></td></tr> <tr><td style="height: 30px;"></td></tr> <tr><td style="height: 30px;"></td></tr> </table>													
Position: Asst. District Executive for Design															
Agency: Pennsylvania Department of Transportation															
Phone: 610-205-6670															
E-mail: cdavies@pa.gov															
Address: 7000 Geerdes Boulevard King of Prussia, PA 19406		Name: Title: Phone: E-mail: 													

Eastern Federal Lands Access Program Project Application

Prioritization Factors:

- | | | |
|---|---|--|
| -FLMA, StateDOT, and facility owner agree that the project is an Economic/Visitation Generator. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| -FLMA, StateDOT, and facility owner agree that the project is a priority. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| -Project is consistent with the metropolitan, statewide and/or regional planning process. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| -Project is consistent with currently adopted agency plans. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| -If local delivery is requested, the applicant is certified by the State DOT to administer local agency projects following Federal Highway Administration requirements. | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |

Project Development Status

	Not Started	In Progress	Completed	N/A	Completion Date/Comments
Project on TIP/STIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A PA STIP project is directly adjacent to parking lots
Right of Way	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Preliminary Engineering	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NEPA Document	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Permits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Anticipated Delivery Calendar Year:	2017				
Latest Possible Delivery Calendar Year	2019				

Resource Protection:

Please identify any impacts to known natural, cultural or physical resources associated with this project. (Check all that apply)

Negative Impact Positive Impact

- | | | |
|--------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Wetlands/Water Resources |
| <input type="checkbox"/> | <input type="checkbox"/> | Threatened & Endangered Species |
| <input type="checkbox"/> | <input type="checkbox"/> | Species of concern/state listed |
| <input type="checkbox"/> | <input type="checkbox"/> | Other biological resources (fisheries, rookeries) |
| <input type="checkbox"/> | <input type="checkbox"/> | Wild & Scenic River (or other state classifications) |
| <input type="checkbox"/> | <input type="checkbox"/> | Non-attainment areas (air quality) |
| <input type="checkbox"/> | <input type="checkbox"/> | Historic & archeological resources |
| <input type="checkbox"/> | <input type="checkbox"/> | Native American areas/concerns |
| <input type="checkbox"/> | <input type="checkbox"/> | Wilderness or roadless areas |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Parks & recreation areas/wildlife refuge [Section 4(f) 6(f)] |
| <input type="checkbox"/> | <input type="checkbox"/> | Hazardous materials/contamination site |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Air, noise, and/or visual impacts |

Eastern Federal Lands Access Program Project Application

1. Project Description

Please provide a summary of the purpose and need for the proposed project. Provide a detailed description of the project activities that would be funded with Access Program funds. Describe the overall design concept, any unusual design elements, design standards, and any work affecting structures (bridges and major culverts). Include widths, surfacing type, earthwork needs or roadside safety features. Include options and funding breakdown for scaling/phasing the project, if applicable.

Although almost two million people live within 10 miles of John Heinz National Wildlife Refuge at Tinicum (alternatively “John Heinz” or “the refuge”), there are only two access points for the refuge: a northern and a southern entrance. This project would address deficiencies that exist at the southern refuge entrance. These deficiencies create dangerous barriers at John Heinz and separate communities from the refuge and each other.

The southern entrance to John Heinz is located in Tinicum Township, PA. The entrance is divided by State Route 420 (Wanamaker Ave) into two separate pieces of land. Both are owned by the Pennsylvania Department of Transportation (PennDOT). The west lot leads to a single, short trail that is used primarily for fishing, and comprises about 10% of refuge property. This parking lot is roughly one-half acre in size.

The east lot, which receives much more use than the west lot, leads to the bulk of refuge land, including the visitor center, both boardwalks, an observation tower, and multiple birding blinds. However, this lot is unpaved, uneven, and pock-marked with pot holes. A derelict fence surrounds most of the site; it is twisted and broken in spots. There is no signage indicating the refuge’s presence or any refuge regulations. Untamed landscaping breaks through ground and makes it unsightly. It is a notorious spot for low-level criminal activity such as vandalism and drug use. This parking lot is roughly one-quarter of an acre in size. Visitors have vocalized their displeasure with the condition of these parking lots and how the state of the lots affects their use of the refuge.

This project will focus on making these parking lots a welcoming, safe, and helpful access point to the public. FLAP funds would support nine elements:

- 1) Grading and paving the eastern parking lot and re-paving the western parking lot.
- 2) Painting lines for parking spaces and installing parking blocks.
- 3) Installing new fences separating USFWS and PennDOT property.
- 4) Landscaping, including some removal of overgrown trees, bushes, and vines.
- 5) Installing lighting in each lot.
- 6) Installing new bicycle racks.
- 7) Installing new directional signage.
- 8) Installing new trash cans.
- 9) Upgrading the information kiosks.

This project would naturally support an adjacent Pennsylvania Statewide Transportation Improvement Program project. PennDOT and DVRPC are currently redesigning the PA-420 bridge, which is directly north of the lots. The PA-420 bridge reconstruction is on the 4-year STIP, and it will facilitate access to these lots.

Refurbishing these lots will also create strong, safe, multimodal connections. The new PA-420 bridge design includes a multiuse path and new sidewalk that will connect to the refuge to several major trails including the East Coast Greenway, the September 11th National Memorial Trail. This multi-use path will also connect the refuge to a local park in the neighboring borough of Prospect Park. However, this multiuse path will not connect directly to the refuge; it will end at the parking lots. As it currently stands, this important new trail will remain separated from the refuge by these dangerous and unwelcoming parking lots. This project will help transform this project into more-usable infrastructure.

Since the southern entrance is two lots, this project can naturally occur in two phases. The first phase would focus on improving the east lot. The second phase would focus on the west lot.

Eastern Federal Lands Access Program Project Application

2. Safety Benefits

Please describe how this project addresses issues related to safety. Will the project improve safety for all users (pedestrians, bicycles, motor vehicles, etc.)? Will this project improve identified crash sites or hazardous conditions (road safety audits or engineering assessments)?

All aspects of this project significantly contribute to increased safety.

New asphalt and paint will assist drivers, bicyclists and pedestrians navigating this access point. New signage will signal the location of the parking lots to users, allowing them to slow down and safely approach the lots. The project will reduce conflicts by instructing pedestrians, bicyclists, and motorists on how to enter the refuge and how to access trails or features that exist near, or extend from, the refuge. New lighting will allow all users to see each other, see the area around them, and reassure people that this is an overseen, safe space. Cameras will be able to deter illegal activities while also reassuring users that this is a regulated area. These features will help introduce order into what is currently chaotic and can seem unregulated. Most importantly, these changes will make these lots dramatically safer.

Unfortunately, these parking lots have high rates of vandalism and are known as locations of frequent illicit drug use. Visitors have commented on the neglect of this area, and noted how its current state has affected their use of the refuge. Refurbishing these parking lots will indicate that this isn't a forgotten area or an ignored part of the refuge. A clean, organized space will signal to the public that these lots are cared for; it should reduce the number of crimes occurring at these locations. Not only will crimes be reduced, but the project will also induce more visitations. As more people continue to access the refuge via these lots, the area will become safer.

3. Accessibility and Mobility Benefits

Please describe how the proposed project routes are connected to a FLMA inventory route. Describe how the project addresses the need on FLMA plan, State or County Comprehensive Plan. Describe how the proposed project will fill missing links in the network, remove travel restrictions and bottlenecks. How will the plan improve mode choice, explore and enhance transit system (i.e. operation and maintenance of transit facilities, etc.)? Will the plan reduce traffic congestion; enhance visitor mobility and accessibility?

These parking lots connect directly to the John Heinz inventory route. This project's enhancements will create a safe and accessible transition from PA-420 to the John Heinz inventory route.

The renovated lots will augment the new pedestrian path that will connect both sides of the refuge across PA-420, closing an existing bicyclist and pedestrian gap. Currently, to reach the other side of the refuge a pedestrian or cyclist must cross four lanes of fast-moving traffic, as well as a concrete median. This is extremely dangerous. Installing new signage, lights and landscaping will allow pedestrians and bicyclists to safely, easily, and naturally navigate this new crossing. Both local and long-distance users benefit from this connection. It will assist in closing a gap in several long-distance trails such as the East Coast Greenway and September 11th National Memorial Trail, and it will also make it easy for people from the adjacent borough of Prospect Park to walk and bike to the refuge.

These improvements align with several local plans. The parking lots are mentioned in the refuge's Comprehensive Conservation Plan (CCP) finalized in August 2012. The CCP recommends a new roadway approach, improved maintenance, and replacement of the kiosk for the parking lots off Route 420 to better welcome and orient visitors. During the public comment period, several people noted that improved signage and bathroom facilities would improve the visitor experience.

Both the 2009 Delaware County Bicycle Plan and 2015 Delaware County Open Space and Recreation Plan emphasize the importance of a path along PA-420 leading safely from John Heinz to the local communities, for recreational purposes and to correct unsafe conditions.

Eastern Federal Lands Access Program Project Application

4. Preservation Benefits

Will this project improve the National Bridge Inventory System (NBIS) deficient bridge rating? How will the project improve surface conditions? Will the project reduce operating costs? How will the project contribute to the protection of specific natural, cultural, historic, and/or scenic resources?

The PA-420 bridge has been deemed structurally deficient. This project supports increased use of the multi-use path being installed in the new bridge design, which facilitates movement of both motorized and non-motorized transportation to the refuge.

Morton Homestead State Park is on the National Record of Historic Places and is located directly across the PA-420 bridge. Improving the John Heinz Parking Area will facilitate movement between the sites by a variety of modes, whether through increased signage for motorists or a safe pedestrian passage.

Upgrading the entrance for visitors of all types and modes will increase the awareness and use of the refuge, which will not only contribute to the protection of local natural and scenic resources, but will also enhance the fish, wildlife, plants, and habitat of John Heinz for the benefit of local visitors, per the Fish and Wildlife Service mission.

5. Economic Development Benefits

Please describe how this project will attract tourism/visitation. Will the project address more than one Federal Land Management Agency (FLMA) area? How will this project influence economic development? How will this project address visitor mobility, access, and experience?

Visitors have commented for years on the unappealing state of the PA-420 parking lots. This project makes it easy for visitors to identify, access and move through this part of the refuge.

These parking lots are John Heinz's connection to Delaware County, which has over 500,000 people according to 2014 ACS. Major county employers such as the Philadelphia International Airport, UPS, and Fed-Ex are within three miles of the parking lots. At the airport alone, almost 20,000 workers are just these few miles away.

Increasing usage and facilitating access will not only generate more trips and usage for local employees, but will stimulate economic value for local homeowners as well. Using the results of a 2012 study analyzing home values adjacent to refuges in the northeast, the approximately 1,100 households within 0.5 miles of the parking lot could see a 4-5% increase in median value, resulting in an increase between \$7,000 and almost \$9,000 per home.

6. Sustainability and Environmental Quality Benefits

Please describe how the proposed project contributes to the environmental goals and objectives of the Federal Land Management Plan or other applicable land management plan. How will the proposed project avoid/minimize/mitigate potential impacts to environmental or cultural resources? Will the project improve fish passage and/or wildlife connectivity? How does the proposed project contribute to the use of sustainable energy sources for transportation?

The project improves pedestrian and cycling facilities, which will lower emissions, and improve air quality. Ameliorating conditions at the lots will impact local trips, and make it much easier and more inviting to walk or bike to the refuge.

Improving these lots will also help focus visitor usage and preserve unpaved, permeable surfaces around the lots. Currently, several footpaths around the broken fence and within the unregulated area lead to and from the refuge. Improving and delineating a path will focus usage in one area, preserving the rest of the area and preventing additional trail degradation.

By improving an existing lot and facilitating current bicycle and pedestrian access, this project affords an opportunity to increase visitation and usage without a large, environmentally-harmful construction project. By enhancing the current lots, the environmental impact of facilitating more visitation will be minimized.

The lots and their location in relation to the rest of John Heinz (Sources: PASDA, USFWS)



A diagram of the project.



The eastern lot



The ground is rough, ungraded, and unpaved.



One edge of the eastern lot. The current road lamp is visible, but partially blocked by a tree that should be removed.



A break in the fence separating USFWS & PennDOT property.



The current border between PennDOT and USFWS land. The fence is old and sagging. The current trash can is a basic rubber receptacle



The view from the street adjacent to the parking lot. There is no signage indicating that the lot or the refuge are accessible from this point.



The western lot



The fence to the western lot is old, rusted in places, and frequently overgrown



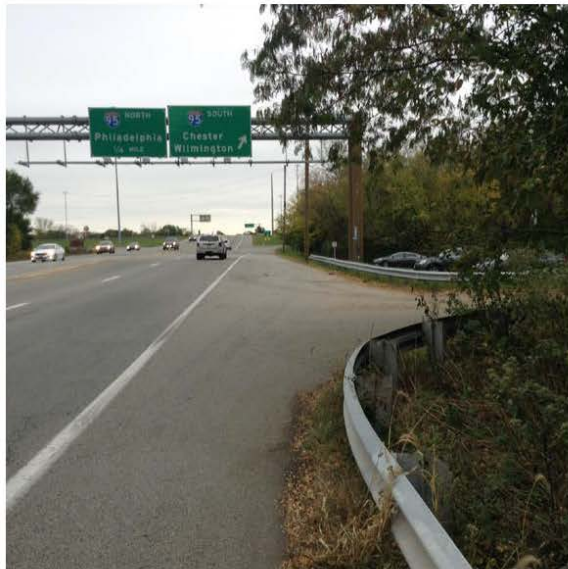
The current information kiosk is wooden, and the roof is falling apart after many years



There is no signage indicating the parking lot or refuge is accessible from this road



Another view, closer to the entrance, showing the lack of signage



APPENDIX C: 2016 SHUTTLE EVALUATION REPORT

Fall 2016 John Heinz Shuttle Pilot Program Evaluation

Executive Summary

- There were 7 total shuttle rides during the 3 days of operation: 3 people on October 1st and 4 people on October 15. No one rode on October 8. Note: there was poor weather that day.
- Most people rode between Heinz and Myers, although some people did get on/off at Kingessing Library and Bartram's Garden.
- The shuttle spent money on 4 different items: the shuttle itself (along with a driver, tip for the driver and insurance), signs to advertise stops, rack cards to advertise and magnets for the shuttle. These costs added up to \$2,597.
- Four objectives for the shuttle were developed, 3 of which were met.
 - These objectives were:
 - During the Shuttle period, transport at least 20 people per day (Not met)
 - During the Shuttle period, create three new relationships and partnerships with local organizations (Met)
 - Advertise the John Heinz NWR in two new methods (Met)
 - Learn about how to operate shuttle for the future (Met)
- Based on SEPTA's costs per rider on the 3 closest bus lines (37,108,115) and Airport Line, the cost per ride for servicing this part of Philadelphia is \$33.38/rides. To equal that cost, the shuttle needed to have 78 distinct rides. The objective to receive 60 rides was based on this number of rides and then reduced due to the infancy of this project

SEPTA cost/rider on bus lines 37,108, 115 and Airport Line	\$33.38
Total shuttle costs	\$2,597
Shuttle cost/day	\$865.67
Rides/day needed to equal adjacent SEPTA lines	27

- The shuttle was effective for reaching new organization and strengthening current partnerships.
 - SW Area libraries, Myers Recreation Center, and the 58th Street Homes are new, important potential partners.
 - The shuttle gave and continues to give good opportunities to increase projects with Bartram's Garden and Cobbs Creek Community Environmental Education Center
- Achieving the shuttle's ridership goals is attainable, and continuing the program at its low cost should be considered.
- Modifying the program to run for special events or to run once a month to generate an expected, repeated service would be a good option to consider during another round of shuttle operation.
- Increasing advertisement, a concerted marketing plan, working with more partners to create buzz about the shuttle, and starting promotion earlier are possible avenues to improve ridership.
- Route and stop modification should be considered. Cobbs Creek Community Environmental Education Center and Cibotti Playground should be examined as to whether or not they are appropriate stops.

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Figure 1. The John Heinz Refuge Shuttle

Introduction

In October 2016, the John Heinz National Wildlife Refuge at Tinicum (“John Heinz” or “the Refuge”) oversaw a pilot program, the John Heinz Refuge Shuttle (“the shuttle”), introducing a community shuttle program for southwest Philadelphia. The program operated on the first three Saturdays of that month, from 9am-4pm and the shuttle was free for all.

The program had several aims. In its most basic form, the shuttle operated as a way to get local residents to the Refuge by helping surmount transportation and geographic barriers to the refuge for. The shuttle allowed the refuge to market itself to more distant neighborhoods. The program was an opportunity to create and/or strengthen relationships with community partners. The shuttle could connect disparate organizations within southwest Philadelphia that have the same environmental and preservation foci. By its temporary nature, the program was also an opportunity to experiment with a new transportation option to gauge interest, the efficacy of, and results of this type of program.

Goals and Objectives

The U.S. Fish and Wildlife Service (FWS) has national and regional transportation plans. Each enumerates the same six goals for FWS programs. The shuttle pertained to two of these stated goals: Coordinated Opportunities and Access, Mobility and Connectivity.

Coordinated Opportunities: The program will seek joint transportation opportunities that support the Service mission, maximize the utility of Service resources, and provide mutual benefits to the Service and external partners.

Access, Mobility and Connectivity: The program will ensure that units open to the public have adequate transportation options for all users including underserved, underrepresented, and mobility limited populations.

In concert with these two goals four specific objectives were developed.

1. During the Shuttle period, transport at least 20 people per day
2. During the Shuttle period, create three new relationships and partnerships with local organizations
3. Advertise the John Heinz NWR in two new methods
4. Learn about how to operate shuttle for the future

Measures were developed to support each objective. They are listed below.

- 1.1 The number of people riding the shuttle each day
- 2.1 The number of new organizations worked with
- 3.1 Existence of Heinz advertisements on shuttle
- 3.2 Location of pamphlets distributed advertising shuttle

The fourth objective was not one that easily lent itself to measurement. However, the opportunity to test the program is an important part of shuttle. For this reasons, the objective was included despite not being time-sensitive or quantifiable.

Costs

There were four expenditures for operating the shuttle, not including staff time: the costs of the shuttle, signs for each shuttle stop, pamphlets and rack cards to advertise the shuttle, and magnets to mark the shuttle as the John Heinz Shuttle. The cost of the

There were four expenditures for operating the shuttle, not including staff time: the costs of the (1) **shuttle**, (2) **signs** for each shuttle stop, (3) **pamphlets and rack cards** to advertise the shuttle, and (4) **magnets** to mark the shuttle as the John Heinz Shuttle

shuttle rental included insurance, a driver and gratuity for the driver. Table 1 displays the shuttle costs.

Table 1. Shuttle Costs

Item	Cost
Shuttle (bus, driver and gratuity, insurance)	700
Signs	172.89
Magnets	140.17
Pamphlets	183.90
Total	\$2,597
Cost per Day	\$865.65

Partners

The John Heinz Refuge Shuttle included seven different partners, six of which were members of different parent organizations. The partners were:

Table 2: Shuttle partners

Partner	Parent Organization
John Heinz National Wildlife Refuge	U.S. Fish and Wildlife Service
Bartram's Garden	Bartram's Garden/ Philadelphia Department of Parks & Recreation
Cobbs Creek Community Environmental Education Center	Cobbs Creek Community Environmental Education Center
Francis Myers Recreation Center	Philadelphia Department of Parks and Recreation)
Kingessing Library	The Free Library of Philadelphia
Tilden Middle School	The School District of Philadelphia
Cibotti Playground	Philadelphia Department of Parks and Recreation)

Some of these partners were established Refuge partners while others were new. Francis Myers Recreation Center, Cibotti Playground, and Kingessing Library were all new partners with whom the refuge had not previously worked. Both Bartram's Garden and Cobbs Creek Community Environmental Education Center share similar missions with Heinz, but rarely do the different organizations work closely together. These two organizations represent major opportunities for the refuge to increase local partnerships. Tilden Middle School is a major partner as part of Philly Nature Kids, where Heinz educators teach 6th and 8th graders about conservation and the environment.

Route

Several different routes were considered for the shuttle. The primary options were (1) to create a longer route that would engage more partners and wind through the community or 2) create a faster, direct shuttle between Bartram's Garden and the Refuge. The first option was chosen since creating new community partnerships was an objective of the program. The decision was made to create a route that would take less than an hour to go from Bartram's Garden to the refuge. Creating too long of a route would discourage people from taking the shuttle.

The final route began at the parking loop at Bartram's Garden. It exited onto Lindbergh Boulevard before turning left on 54th street. At Greenway Avenue the Shuttle turned right, after which it turned left on 51st street. The first stop was on 51st street, outside Kingsessing Library. After the library, the shuttle turned left on to Springfield Avenue. At 58th street the shuttle turned right, which it took until it turned left at Cobbs Creek Parkway. Cobbs Creek Parkway was followed until the second stop at Cobbs Creek Community Environmental Education Center (CCCEEC). After turning into CCCEEC (when the gate was open), the shuttle turned around and followed the same path down Cobbs Creek Parkway and on to 58th St. At Myers Recreation Center, along 58th street, the shuttle made its next stop. The shuttle continued down 58th street until Elmwood Avenue, where it turned right. At Tilden Middle School on Elmwood Avenue the shuttle made its next stop. It then continued down Elmwood Avenue, until the street curved into 77th street, and stopped at Cibotti Playground. Shortly after Cibotti Playground the shuttle turned right onto Buist Avenue. It made its first left at 78th street and then a right at Lindbergh Boulevard. The shuttle continued until the John Heinz Refuge, where it made its final stop outside the visitor center. Figure 2 displays the shuttle route.

Number of stops	7
Duration of route (one way), stops included	60 minutes
Average mileage (one way)	10 miles
Number of daily trips	4
Full length of service	7 hours

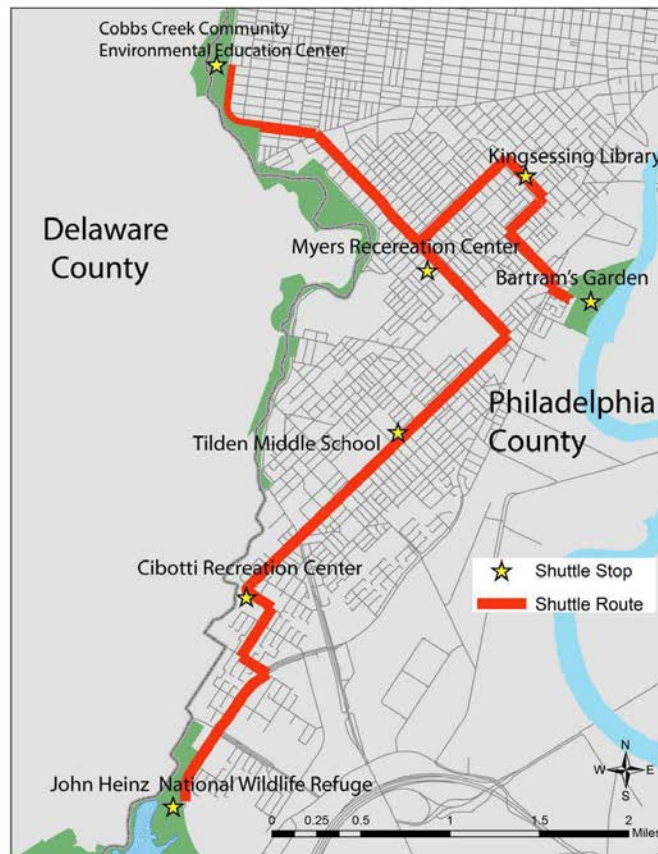


Figure 2: The Fall 2016 shuttle route map.

After completing the route in one direction, the shuttle would, after a 15 minute break, drive the same route, but in the opposite direction.

Although the exact time varied slightly, the route generally took 45 minutes to complete.

The shuttle ran from 9am to 3:45 pm each Saturday it was in operation.

On Saturday the 8th and Saturday the 15th there were two instances where the shuttle deviated from the schedule. On the 8th, CCCEEC decided to close early, at 1pm, due to inclement weather. In this case, the driver removed CCCEEC from his route and elongated his breaks to fill the gap in time. On the 15th, CCCEEC was not open. The driver looped through local roads to arrive at the stop and turn around on 58th street.

Stops

Despite application to the Philadelphia Streets Department several weeks in advance, approvals for signs in city right of way did not arrive by the first day of shuttle operation. To address this issue it was decided that temporary signage that could be taken down and put up each day, on non-city property was the best method to indicate the location of a stop. Additionally, because the program was temporary the refuge was not interested in investing resources to create a sign that could look very different or be located in a different place were the program to be rolled out on a permanent or semi-permanent basis.

The Refuge applied to the city of Philadelphia for permits to install temporary signage at all shuttle stops, but never received a response

Each of the seven stops the shuttle made had a 2' x 3' "John Heinz Refuge Shuttle" temporarily mounted on one side of the street by the stop. These signs were mounted differently depending on the location, but in general were either attached to a fence or mounted on prongs which were then placed in the ground. 8.5" x 14" laminated copies of the timetable were attached to each sign. At the end of each shuttle day, the Refuge's Public Lands Transportation Scholar ("the Scholar") would remove the signs from each stop location.

Ridership

Ridership was low, but improved cooperation with partners, increased planning and repetition of the program offer optimism for increased future ridership

Ridership for the shuttle was low. However, this was expected due to the very limited pre-shuttle promotion period, as well as the shuttle being the first time any program of this type had ever occurred at the Refuge. Over the three days there were 7 total riders, far below the desired 60 in the stated objective. Three rides occurred on the shuttle on the first Saturday,

October 1st, no one rode in on October 8th, and there were four rides on October 15th. Calendar and meteorological effects probably had an impact on ridership. October 1st was the Refuge's "Philly Fall Nature Fest," a heavily promoted, event-filled day that brought an estimated 1000 people to the refuge. October 8th was very poor weather; it had the second lowest counted visitor in the visitor center out of all Saturdays in October 2016.

The Refuge was either the beginning or end of every trip on the shuttle. No passengers used the shuttle to make a community trip that did not include Heinz. The most popular stop after Heinz was Myers Recreation Center (2), followed by Bartram's Garden (1) and Kingsessing Library (1). Since Heinz was the destination for many people, it was also the most popular stop to alight, or disembark the shuttle. After Heinz, Bartram's Garden was the most popular alighting location (2), followed by Myers Recreation Center (1).

The refuge was the beginning or end of every shuttle ride

Cobbs Creek Community Environmental Education Center, Tilden Middle School and Cibotti Playground had no one get on or off at the stop. Kingessing library had one person board at the library, but had no one alight.

Projected Rides

Predicting the amount of riders, and how many rides would mean “success” for the shuttle was difficult. The shuttle is unique in several respects. Although it is a transportation service for a federally-managed land, it operated primarily outside the refuge. The community surrounding the Refuge is also extremely urban, probably more so than any other National Wildlife Refuge in the United States. Additionally, measureable and available data varies from one organization to another.

Based on Refuge context and available data, it was determined that using SEPTA as a proxy would be appropriate.

An analysis of 2016 SEPTA ridership statistics for the three SEPTA bus lines that serve the 84th St and Lindbergh Blvd stop and the Airport Line Regional Rail line. These four routes are the closest public transit routes to the Refuge. After taking the average weekly ridership and transforming it into an annual number, SEPTA’s fully allocated costs were divided by this number, giving a rough cost per user.¹ Table 3 displays this data. This is an imperfect method, particularly given that line ridership does not indicate where people are alighting on each line. It should be expected that most riders of those lines are actually riding them for airport service, either as employees or as travelers.

Table 3. Costs per user of adjacent SEPTA routes

Route	Annual Ridership	Fully Allocated Costs	Cost per User
37	202,488	\$6,902,174	\$34.09
108	288,132	\$5,760,932	\$19.99
115	58,604	\$2,463,143	\$42.03
Airport Line	372,372	\$15,632,614	\$41.98
TOTAL	921,596	\$30,758,863	\$33.38

Once the cost per user of these local SEPTA routes was identified, this number was divided into the cost of running the shuttle per day. The shuttle cost per day was \$865.65. To achieve a cost per user

equivalent to SEPTA’s rider equivalent on adjacent routes, there would require at least 27 riders per day. This average cost per user was rounded down slightly, to account for several notable features of the shuttle, particularly 1) that this was a program that had never been rolled out before and 2) there had been very little time to publicize and draw support for the shuttle before this pilot was implemented.

Total shuttle costs	\$2,597
Cost/day	\$865.67
Number of rides needed to equal cost of SEPTA ridership	27/day

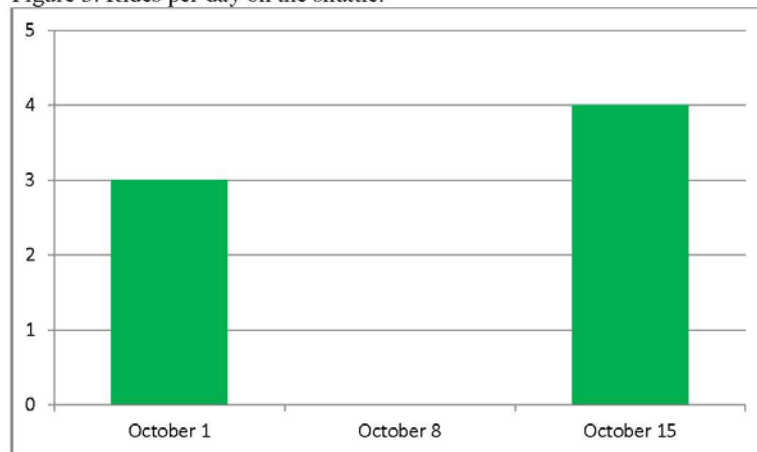
¹ 2016 data was used after the program’s rollout to identify the specific number desired
<http://www.septa.org/strategic-plan/reports/route-statistics.pdf>

Actual Ridership

Figures 3-6 display the riders by day, time of day, boarding, and alighting locations for the shuttle.

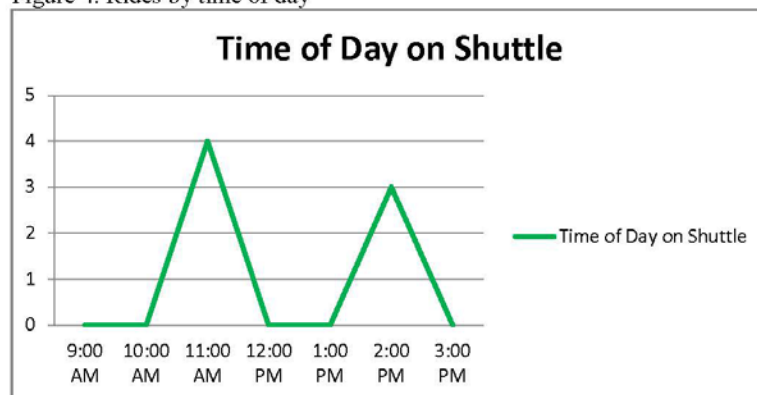
More people rode the shuttle on October 15 than October 1. The difference between the two days, however, was only one ride. No one rode on October 8, which could have been due to the weather.

Figure 3. Rides per day on the shuttle.



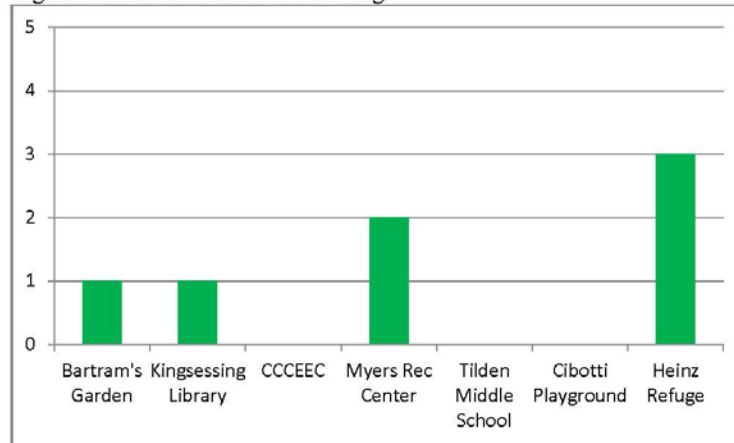
Everyone who rode on the shuttle used it between 11 and 2pm.

Figure 4. Rides by time of day



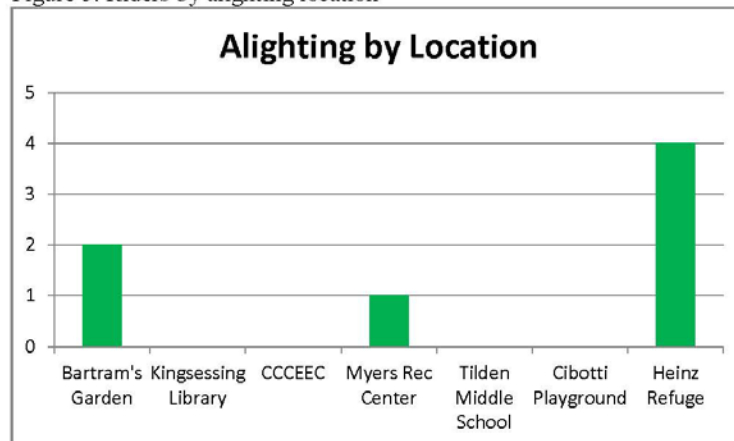
Most of the rides started at the Refuge

Figure 5. Location of shuttle boarding



Similarly, most of the riders got off the shuttle at the Refuge.

Figure 5. Riders by alighting location



Weather

Weather's effect on refuge visitation and any accompanying transportation systems is demonstrable. The three days the shuttle ran each had very different weather, which helps explain some of the ridership disparity.

October 1st was cloudy, with an average temperature of 65. Although the gray skies lasted the entire day, rain did not begin to fall until the conclusion of Philly Fall Nature Fest and the shuttle. Although slightly threatening, the weather did not seem to affect refuge visitation.

October 8 was rainy the entire day. More than a quarter-inch of rain fell, and overall refuge visitation was very low. This could have contributed to the lack of riders during this day. Although the temperature was still only 67, this was the coldest temperature that week, which had climbed up to 78 on the previous day.

October 15 was mostly sunny with scattered clouds. It was 68; the weather probably contributed to high number of visitors, as well as the highest number of shuttle riders during the program

Table 4. Weather during the shuttle program.

Date	Temperature	Precipitation	Shuttle Riders
October 1	65	Traces of rain	3
October 8	67	Rain all day	0
October 15	68	None	4

Shuttle Genesis and Planning

The decision to undertake the shuttle was made on comparatively short notice for a major transportation project. The idea grew from a discussion held in late July with Maitreyi Roy, the Executive Director of Bartram's Garden. Justin DeBerardinis, the Director of Community and Government Relations for Bartram's Garden, Lamar Gore, Refuge Manager for the John Heinz National Wildlife Refuge, and Dan Brooks, the Public Lands Transportation Scholar for the Refuge. Both the Refuge and Bartram's Garden had been searching for new ways to support the community and facilitate access to their sites. As the idea for the shuttle was discussed, the refuge considered how it could be incorporated into that fall's Philly Fall Nature Fest.

The Scholar began reaching out to local community partners about hosting stops and participating as partners. He also spoke with the Right-of Way Manager for the city of Philadelphia about installing temporary signs in the city right-of-way designating shuttle stops. During this period the Refuge continued internal discussions on the name, logo, timing and dates of the shuttle. The Refuge eventually settled on three days of shuttle service due to budgetary constraints.

After a brief discussion with the University City District about using their shuttles for the three dates, the focus turned towards finding a local transportation company. After several weeks, a 12-passenger van from local company Rides Are Us was arranged to operate on those dates. Unfortunately, an unforeseen prior scheduling conflict with that company required the refuge to find a new provider. Eventually, King Limousine & Transportation Service was hired to operate a 21 passenger van.

An additional obstacle appeared when the city of Philadelphia never replied to requests for temporary signage. The refuge made the decision to continue and only place signage on the property of participating partners.

Shuttle Advertisement

One thousand rack cards were ordered to advertise and inform the public about the shuttle. The cards listed the stops of the shuttle and the dates it would be operating. The back of the card was a timetable for the shuttle.

The cards were distributed to all partners, as well as to other community organizations such as Paschalville Library, the 58th Street Presbyterian Homes, The Common Place, and Cornerstone Christian Academy. Cards were also available at the visitor center of John Heinz.

There was a very limited time to disseminate these cards and other information about the shuttle. The cards arrived only one week before the initiation of the shuttle. Final information about the shuttle was only available the week before the shuttle began. Although the Scholar led an information blitz, including handing out fliers, posting on Facebook, and writing an article for Southwest Globe-Times, this extremely short lead up to the program no doubt had a negative effect on ridership.

Figure 7. The front of the rack card advertising the shuttle



FREE shuttle to the John Heinz National Wildlife Refuge
Enjoy hiking, biking, fishing, birdwatching,
amazing views, visitor center and much more!

Free Transportation between Southwest community sites:

John Heinz National Wildlife Refuge
Bartram's Garden
Cobbs Creek Environmental Education Center
Cibotti Playground
Tilden Middle School
Myers Rec Center
Kingsessing Library


Shuttle runs Saturdays 9am - 4pm

October 1 October 8

October 15

Figure 8. The back of the rack card advertising the shuttle

Bartram's Garden	Kingsessing Library	Cobbs Creek	Myers	Tilden	Cibotti	Heinz Refuge	Heinz Refuge	Cibotti	Tilden	Myers	Cobbs Creek	Kingsessing Library	Bartram's Garden
9:00am	9:06am	9:17am	9:26am	9:33am	9:38am	9:45am	10:00am	10:07am	10:13am	10:20am	10:29am	10:40am	10:45am
11:00am	11:06am	11:17am	11:26am	11:33am	11:38am	11:45am	12:00	12:07	12:13	12:20	12:29	12:40	12:45
1:00	1:06	1:17	1:26	1:33	1:38	1:45	2:00	2:07	2:13	2:20	2:29	2:40	2:45
3:00	3:06	3:17	3:26	3:33	3:38	3:45							



There are several important ways that advertisement of the shuttle could improve in the future. Beginning promotion earlier would be one simple way to improve advertisement. This would allow for fuller saturation of Southwest Philadelphia and reminders of the shuttle program. More

Promoting the shuttle earlier, and in collaboration with more partners, offers a lot of opportunity to grow ridership.

media could also be reached. For instance, while the Southwest Globe-Times covers much of the shuttle area, Cobbs Creek Community Environmental Education Center and that neighborhood is served by a different neighborhood paper.

Some refuge staff indicated they felt the timetable could be confusing to some people and keep them away from the shuttle. Other formats, such as stop

specific timetables or a different orientation could be considered in the future.

Company and Drivers

The shuttle was operated by King Limousine & Transportation Service. King provided insurance, the driver and gratuity for the driver with their charge. The company was able to provide the shuttle at very short notice after a scheduling issue with Rides Are Us was revealed. There was one issue of overbilling with King. On October 8th, the refuge was charged for an additional hour of time. This raised the cost of gratuity and associated charges, resulting in an overall extra payment of \$101.25. Since no additional time was used for the shuttle, this was brought to the attention of King, who refunded the refuge.

There were two different drivers during the three weeks of the shuttle. The first driver had grown up in Philadelphia and was loosely familiar with the area. The other driver had never been to this area before. Both drivers figured out the schedule quickly; the Scholar rode with them for the first two hours to assist in navigation and to help answer any questions that might arise.

Cobbs Creek Community Environmental Education Center closed midway through the day on October 1; due to this scheduling change the driver was required to slow down his times to match the scheduled time. The Center also never opened on October 15, requiring the same schedule alteration.

Drivers were asked to record data on riders, where they boarded, and where they alighted. They were also asked to note if there were questions asked about the shuttle or route, if there were questions about where, specifically, the shuttle would pick up or drop off riders, if people had accessibility issues, or if riders were carrying equipment such as fishing equipment or bicycles.

Evaluation of Measures

Three quantifiable objectives were developed for the shuttle.² The objectives, as discussed above, were:

1. During the Shuttle period, transport at least 20 people per day
2. During the Shuttle period, create three new relationships and partnerships with local organizations
3. Advertise the John Heinz NWR in two new methods

Of these three objectives, four measures were being used to gauge success:

1. The number of people riding the shuttle each day
2. The number of new organizations worked with
3. Existence of Heinz advertisements on shuttle
4. Previously unused locations of pamphlets distributed advertising shuttle

The shuttle did not meet Objective 1; only 7 riders used the shuttle, cumulatively, over the three days of operation. However, there are reasons to think that given the obstacles with rolling out a new transportation program so quickly, that this ridership objective could be met in the near future.

Objective 2 was met; the shuttle facilitated new relationships with Kingsessing and Paschalville Libraries, the Southwest District of the Free Library of Philadelphia, Myers Recreation Center and Cibotti Playground. The shuttle also strengthened relationships with Bartram's Garden and Cobbs Creek Community Environmental Education Center, although many more actions can be taken to continue solidifying those partnerships. With the extensive Philly Nature Kids programming involving Tilden Middle School, the shuttle probably added very little, if anything, to that relationship.

² The fourth objective, although equally important, was not easily quantifiable.

Both measures used to grade objective 3 were met. 6-square-foot magnets were placed around the hood of the shuttle's cab to advertise the shuttle. Pamphlets were also distributed to new and old partners, where they were available to the public. Additionally, new places such as the 58th Street Homes and Cornerstone Christian Academy received pamphlets for the shuttle

Lessons Learned

Several important lessons were learned during the pilot program.

1. Future marketing is crucial for the success of the shuttle. A Volpe Center Marketing Analysis³ of shuttles in different urban National Parks and National Historical Areas identified concerted marketing strategies as pivotal for successful shuttle ridership. The successful systems they analyzed had a cost per rider of under \$10, which is far less than the John Heinz Shuttle Goal.
2. A more formal agreement among partners, even something like a memorandum of understanding, should be considered between shuttle partners, especially if the costs and supporting actions (eg. promotion, etc) for the shuttle become more equally spread between partners.
3. The current timing of the route worked very well. However, with additional passengers and increased boardings and alightings, it could be delayed slightly. If ridership increases, future objectives could include on-time performance
4. Eastwick Train Station should be considered as a possible stop. EFNC members mentioned this as a potential stop. Previous discussions with the PCPC indicated that fewer people used Eastwick train station than thought, but connecting to the train station would allow stronger connections to SEPTA, the Regional Rail system, and the greater Philadelphia area.
5. Consider removing Cibotti Playground and Cobbs Creek Community Environmental Education Center.

Cibotti Playground is very close to the refuge, in a section of Eastwick with high car ownership. Many people from that area may find it quicker and easier to simply walk to Heinz on their own schedule, weather permitting.

Cobbs Creek Community Environmental Education Center offered several obstacles. While it is a community partner with a similar mission, it is geographically much further than all other partners. This distance adds significantly to the length of route. Administratively, they were also very difficult to deal with. They have one, part-time employee who did not return calls or emails. A gentleman who sits on their board, George Ambrose, eventually had to be brought in to make sure the CCCEEC was going to be open on shuttle days. Even with this, they decided to close during the day due to inclement weather. On one day they did not open at all. There was no prior indication that they would be closed that day.

³ https://ntl.bts.gov/lib/55000/55000/55025/MNRAA_Confluence_Shuttle_Market_Analysis.pdf

6. More buy in is needed from the community to support this program. In addition to needing more time to effectively promote the shuttle, getting buy-in from prominent residents, aligning the shuttle to support other events happening concurrently, and creating a neighborhood base to use the shuttle is paramount to its success.
7. The shuttle has a vinyl wrap that does not allow for magnets advertising the shuttle to be placed on the side. Only the cab of the shuttle can support these magnets.
8. Shuttle parking availability varies widely between the sites. The Refuge, Bartram's Garden and Cibotti playground had ample space to pull over and accept or discharge passengers. Parking at Cobbs Creek was difficult; the Center is at the bottom of a hill far from the road and existing multiuse path, and the building and parking lot are out of the public's view. Myers, Tilden and Kingsessing all have street parking that may or may not be available. These spaces could be filled up by cars at any point during the day, however, during the three pilot days that was never an issue. Tilden is also along the 11 trolley line, which can pose an additional hurdle for parking. Further down the 6600 and 6700 block southwest along Elmwood Ave is a section of street where no one is supposed to park, which can operate as a shuttle parking spot, if necessary. However, it is several hundred feet from the school, where passengers would wait. Also, when the shuttle is operating in the other direction, there is no "emergency" parking in that direction.
9. There are myriad national and regional companies with shuttles of 20-28 person capacities. However, finding a local company, especially one familiar with Southwest Philadelphia is not only good socially, but can be helpful if there are traffic or network issues.
10. King Limousine, if used again, was very strict on "extra" time. After asking the driver to spend a few extra minutes talking to the Scholar about his experiences driving, the refuge received a charge for an extra hour of time. After receiving the invoice the following week, the refuge had to contact King and follow a refund process that required refuge staff time to rectify.
11. It is imperative that the schedule for the shuttle bring people from the refuge back to the community for its final leg.
12. Although the shuttle was successful at creating partnerships, work must be done to maintain these partnerships and allow the shuttle to benefit from them programmatically. For example, the refuge wanted to make the schedule consistent and use the same times for three Saturdays in a row. However, Bartram's Garden was hosting a big event on Sunday, October 16, the day after the final shuttle run. Deeper consideration and planning by the refuge and Bartram's Garden may have resulted in a better transportation and programming alignment.
13. It should be kept in mind that an unmarked van/bus circling through a neighborhood does not look attractive and can seem "bad" or "creepy". Through partnership work and branding it could be possible to overcome this barrier.

The Future

Future iterations of the shuttle are recommended, although changes should be made to address some of the issues and implement lessons learned.

There are several possible manifestations for the future. One possibility is running the shuttle as regular transportation on the weekends, similar to how it ran for the first three weeks of October. This would reinforce the shuttle's role as a neighborhood transportation system, like SEPTA. However, this is a very expensive option. Even if the shuttle was going to be run only in the high season on weekends, the shuttle is estimated to cost over \$300,000 over the next 7 years, if the refuge purchased a shuttle. Renting a shuttle, at the current rate, would be \$235,200 over that period.⁴

A second possibility would be to run the shuttle only for events. This would reinforce the event and help focus staff energy on that event. It could also ease partnership building. For instance, the refuge and Bartram's Garden could each plan an event for the same day or weekend, cross-promote the event and use their different resources to fill the shuttle for that special occasion.

Another possibility would be to run the shuttle regularly, but more infrequently. An example would be the shuttle running on the first Saturday of every month. This could happen year round, which would also provide transportation for the coldest months of the year. Modeling the shuttle in this manner would also allow the shuttle to gain some recognition and regularity. It would also allow for the possibility of pairing the shuttle with refuge events each day. This might help integrate the refuge into people's lives with more regularity. The refuge has recently hired on several new visitor services staff, and by 2018, perhaps they could consider expanding their events to support a monthly event that the shuttle would support. Depending on staff capacity, this option could be considered then or further down the road. Costs for this option would not be significantly higher. At the same rate the overall cost would only be \$8400 a year. Over 7 years, this is less than the estimated costs of \$69,051 dollars to purchase and maintain a passenger van, let alone a small- or medium-sized shuttle.

Shuttle Partnership Contact Matrix

Organization	Name	Title	Phone	Email
Bartram's Garden	Justin DeBerardinis Assel Rasheed	Director of Community and Government Relations Welcome Center Manager	Ext 113 Ext 109	Justin@bartramsgarden.org ARasheed@bartramsgarden.org
Kingsessing Library	Conita Pierson Tracey Ray	Kingsessing Branch Manager SW Area Administrator		
Cobbs Creek Community Environmental Education Center	George Ambrose		484-802-2990	gamb370294@aol.com
Myers Recreation Center	Erik Pitts		267-294-6579 (o) 215-685-2658 (o)	erikpitts@gmail.com
Tilden Middle School				
Cibotti Playground	Brian Mango			

⁴ A bus lifecycle cost model developed by Volpe Center was used for this and other estimates. It is available in the appendix/

Appendix A

The following Bus Lifecycle Cost Model was developed by the Volpe Center, the research arm of the U.S. Department of Transportation, to analyze what the costs of hosting community transportation on federally-managed land areas would be.

A full-size passenger van was used as the vehicle input. This is a 15 passenger van: smaller than the capacity of the vehicle rented for the John Heinz Refuge Shuttle, with lower operating costs. The inputs for the model are displayed in table 5. The column “default value” indicates if the value supplied was from Volpe Center or was specific to the John Heinz National Wildlife Refuge:

Table 5. Shuttle lifecycle costs inputs

Input	Value	Default Value?
Bus Type	Full Size Passenger Van	Yes
Bus Price	25,000	Yes
Route Round Trip Mileage	20	No
Average Round Trip Travel Time	60	No
Driver Hourly Wage	30	Yes
Road Condition Majority	Fair	Yes
Inflation Rate	3.0	Yes
Number of Buses	1	No
Number of Daily Trips	4	No
Annual Service Days	Up to 12	No
Maintenance Cost per Mile	0.75	Yes
Fuel Economy (MPG)	11.2	Yes
Engine Overhaul Cost	15,000	Yes
Transmission Overhaul Cost	10,500	Yes
Mileage Point for Overhaul	250,000	Yes
Fuel Cost per Gallon	3	No

Costs of a once/month shuttle system:

Annual O&M costs		\$2,160
Bus type	Full-size passenger van	
Number of buses		1
VMT per fleet		960
VHT per fleet		48
Driver costs per fleet		\$1,440
Fuel cost per mile		\$0.27
Fuel costs (per fleet)		\$257
Maintenance cost per mile		\$0.75
Maintenance cost (per fleet)		\$720
Overhaul mileage trigger		250,000
Engine overhaul cost		\$15,000
Transmission overhaul cost		\$10,500
Battery replacement (hybrid)		\$27,500
Marketing costs		\$0
Inflation rate		3.0%

Year one costs		\$25,000
Purchase cost		\$25,000
Startup costs		\$0
Maintenance facility		\$0
Fueling station		\$0
Bus stops and shelters		\$0

Costs per year							
Year	O&M	Miles per bus	Engine overhaul	Transmission overhaul	Battery replacement (hybrids)	Total costs per year	Cumulative costs
Year 1 O&M only	\$2,160	960				\$2,160	
Year 1	\$27,160	960			\$0	\$27,160	\$27,160
Year 2	\$2,225	1,920	\$0	\$0	\$0	\$2,225	\$29,385
Year 3	\$2,292	2,880	\$0	\$0	\$0	\$2,292	\$31,676
Year 4	\$2,360	3,840	\$0	\$0	\$0	\$2,360	\$34,037
Year 5	\$2,431	4,800	\$0	\$0	\$0	\$2,431	\$36,468
Year 6	\$2,504	5,760	\$0	\$0	\$27,500	\$30,004	\$66,472
Year 7	\$2,579	6,720	\$0	\$0	\$0	\$2,579	\$69,051
Year 8	\$0	7,680	\$0	\$0	\$0	\$0	\$69,051
Year 9	\$0	8,640	\$0	\$0	\$0	\$0	\$69,051
Year 10	\$0	9,600	\$0	\$0	\$0	\$0	\$69,051
Year 11	\$0	10,560	\$0	\$0	\$0	\$0	\$69,051
Year 12	\$0	11,520	\$0	\$0	\$0	\$0	\$69,051

APPENDIX D: JOHN HEINZ NEEDS INDEX DATA ASSESSMENT

Background

As an urban refuge, John Heinz has a goal of "bring[ing] nature into the city by working with communities and partners to build neighborhood 'pocket parks,' developing exhibits and natural areas at sites throughout Philadelphia and contributing toward regional environmental and sustainability initiatives."¹⁸

To best work with the local community and on projects outside of the Refuge boundary it is important to use a mixture of qualitative and quantitative data. There is nothing more important than speaking with local residents, finding out what resources or services they need or desire, or do not need or desire, and then working with them to achieve shared goals. Since these communities can be geographically large and the opportunities to work on projects can be many, using quantitative data to sift through project possibilities and locations is a valuable complement to these conversations.

After reviewing the CARLESS California study¹⁹ conducted jointly by the USFWS, USFS, NPS and BLM the Public Lands Transportation Scholar ("the Scholar") decided to create a similar needs index map.²⁰ This map would use similar but slightly different data categories and would be for Philadelphia.

Although the goal was to focus mainly on Southwest Philadelphia, it was the same amount of work to create the map for the entire city of Philadelphia. A full Philadelphia map could be helpful in future outreach and programming. Therefore, the map was created for the entire city. Delaware County and other surrounding areas were not included. However, an analogous map for Delaware County could be a useful tool for the refuge; while Philadelphia offers a higher concentration of people, particularly the non-traditional users the FWS would like to reach with this initiative, Delaware County is an important part of the refuge base, both culturally and geographically.

Methodology

After reviewing the CARLESS California Draft Technical Memos, the Scholar put together a list of potential data points the Refuge could use in creation of its own Philadelphia Needs Map. This process is detailed in the "John Heinz Needs Index Data Assessment" document available in Appendix A.

There were several stipulations that the data needed to meet. The categories needed to be available from the US Census, or other source, at the block group level. To display as much detailed information as possible, block groups were chosen as the appropriate scale.

¹⁸ <https://www.fws.gov/urban/PDFs/Engaging%20Communities%20in%20Philly.pdf>

¹⁹ <https://www.fs.usda.gov/detail/r5/workingtogether/?cid=stelprdb5373419>

²⁰ https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5421426.pdf, pg. 11.

Data Categories

The Scholar met with Lamar Gore, Refuge Manager to identify what categories the refuge wanted to use on their map. Twenty different data categories were initially considered by the Scholar. Six categories of interest to the Refuge were chosen:

1. Percentage of people receiving SNAP benefits over the past 12 months
2. Rate of vehicles per household
3. Income-to-poverty ratio
4. Labor force participation rate
5. Percentage of population under 25 years old
6. Percentage of population 65 years old and above

Income-to-poverty ratio (IPR) offered some complexities as a category. For IPR, it was determined to map only one of the 7 ratios within the data file. However, determining which of these ratios to map was unknown. Identifying poverty is an imperfect analysis. The federal government designates a dollar-value threshold based on family size, regardless of other conditions, such as geography. In 2015, the threshold for a family of four was \$24,257. The median household income in Philadelphia in 2015 was \$38,253. Although very rough, an IPR for a family of 4 earning the median household income in Philadelphia (\$38,253) compared to the federal poverty level for a family of 4 (\$24,257) would result in an income-to-poverty ration of 1.5769. To hew to the census numbers within the Income-to-poverty category, it was decided that an IPR of 1.5 (which would result in an income of \$36,386 (a difference of less than 10% to the 2015 Philadelphia median household income) or less would be mapped. The entire category would be percentage of people with an IPR of less than 1.5.

For age, 25 was chosen as the first cut-off due to the FWS designation of youth being anyone 25 or younger.

None of the categories were weighted for importance, although this could be an improvement made in future iterations, if desired.

To create the index, Jenks Natural Breaks in ArcGIS were used to delineate five different categories, showing the areas that had the highest prevalence of each category. For each category, the block group would receive a grade of 1-5, depending on where it fell within the natural break. These six grades (one for each category), would then be added together and averaged, for an overall score of that block group. Each category was graded so that the higher number would indicate a higher representation of that category (i.e. More people 65 and over, more people under 25, more people receiving SNAP benefits, a *lower* rate of vehicles/household, a *lower* IPR, and *fewer* people participating in the labor force).

The natural breaks used are listed in Appendix B.

Needs Index Maps

Two maps were developed: one for the entire city and one for southwest Philadelphia. Both are listed below.

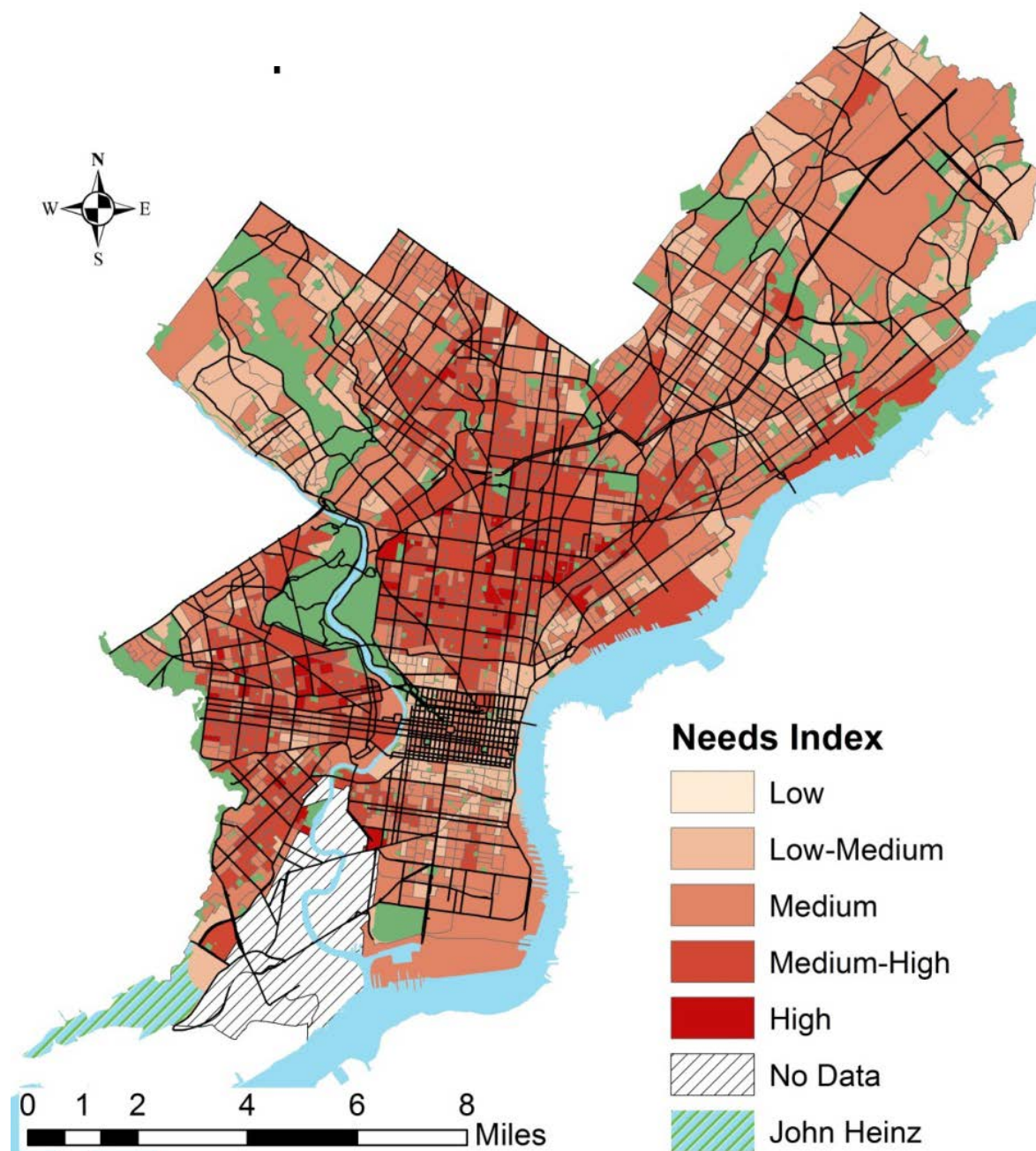


Figure 1. Philadelphia needs-index map.

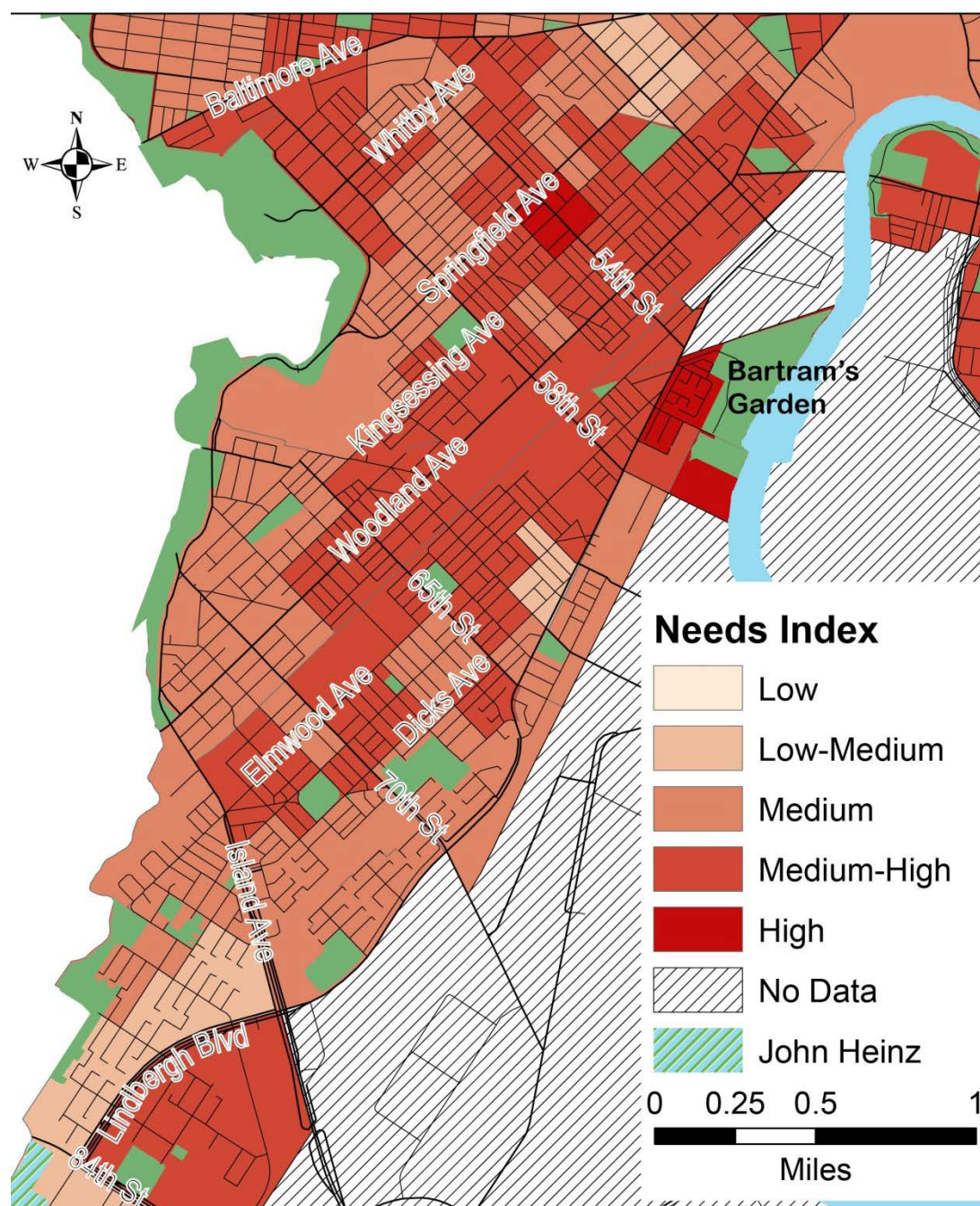


Figure 2. Southwest Philadelphia needs-index map

Analysis

This analysis will only discuss the Southwest Philadelphia Needs Index.

Need	Number of Block Groups	% of Total Block Groups	Land Area	% of Total Land Area
High	2	2.4	518,251	3.4
Medium-High	42	51.2	5,998,013	39.5
Medium	33	40.2	6,053,560	39.8
Low-Medium	5	6.1	2,626,560	17.3
Low	0	0	0	0
Total	82	99.9	15,196,384*	100*

*These totals omit census tract 989900 block group 1 and census tract 980400 block group 1; neither tract contains residential population

There are only two block groups that are in the high needs category. The block groups are both adjacent to 54th St. One of these is directly next to Bartram's Garden, while the other is along 54th between Springfield Ave and Kingsessing Ave.

Medium-high need block groups are the most numerous in Southwest Philadelphia, although by percentage of total area they total slightly less than medium-need block groups. East of 70th St medium-high need block groups are much more frequent, and they become even more frequent east of 65th St. Almost all the block groups in the southwest south of Woodland Ave are medium-high need.

There are fewer medium-need block groups than medium-high need, but they compose a slightly higher percentage of total land. It is difficult to know if there is any correlation between these facts. Medium-need block groups may have larger family numbers which requires larger houses and larger properties. Physical and topographical differences, such as the existence of railroad tracks though some of these block groups, probably contributes to the greater land area of this category.

There are only five low-medium need block groups in the Southwest. These groups are spread throughout the southwest. Two of them are adjacent to the refuge in the southwest corner of the Southwest, while another is north of Lindbergh along 61st. The final two are in the northeast corner of the Southwest, largely surrounding the intersection of Springfield Ave and 49th St, ranging from the area on the northeast side of the Kingsessing Rec Center up to Baltimore Ave. The percent of total land area of these tracts is particularly notable; it is almost three times higher than it should be based on the total number of block groups composing the southwest. It is likely that this is the result of larger houses and properties due to higher wealth. For instance, many of the houses in tract 005500 block group 3 have attached garages in between the row homes. Qualitatively, these houses seem to be occupied by a wealthier set of residents, often with newer, more expensive cars parked along these streets. This tract also has a higher rate of vehicles per household and labor force participation rate.

Except for one tract to the southeast of 84th St and Lindbergh Blvd, the medium-high need block groups cleave from medium need block groups at relatively clean angles. Medium-high need

groups are located between Dicks Ave and Kingessing Ave and 70th St and 49th St. The stretch of medium-high need block groups narrows slightly from north to south, but continues until Island Ave. The railroad tracks running east-west between Paschall Ave and Grays Ave act as a block group border and this index shows them to be a physical demarcation between neighborhoods in the southwestern part of the map.

Southwest of Island Ave is a more divergent area in terms of this index. In contrast to the medium-high block group to the southeast of 84th St and Lindbergh Blvd, two of the Southwest's five low-medium need block groups are located west of Island Ave. They occupy the land directly adjacent to the refuge within Philadelphia, including the Korman development across Lindbergh Blvd. Even the two block groups west of Island Ave that are medium need have a need-average of 2, the lowest parameter in the medium need category. This shows that most residents in this section of the area are relatively well-off.

Future Community Impact

John Heinz already works alongside community partners throughout the southwest. Several existing projects, such as the Cecil St (or Intergenerational) Garden (Kingessing Ave & Cecil St) and Unity Garden (5552 Chester Ave) have received frequent resources from the Refuge. King Garden (5100 Kingessing Ave) and gardens at several local schools (Tilden, Longstreth, Mitchell and Penrose) have all worked with SCA crews to receive labor and care. The Refuge is constantly looking to increase involvement with the neighborhood through outdoor conservation and neighborhood greening projects. These locations are scattered throughout the southwest in block groups that span several categories. The catchment zones of these schools, all of which are K-8, except Tilden, which is only 5-8, encompass most of the Southwest, leaving only area east of 54th St and some area above Whitby Ave. Figure 3 displays the needs index map with school catchment zones and current garden project locations.

Many factors affect the location of future community garden and projects locations. If, however, all things are equal, there are a few spaces within the Southwest that aren't covered by current projects and that are in high need areas.

Most of the medium-high need block groups do not have projects in or near them. The school garden for Tilden is the only project between Island Ave and 58th St, which is the core of the large stretch of medium-high need block groups. Unity Garden is just southwest of one of the two high need block groups. The large, medium-high need block group at the corner of 84th St and Lindbergh Blvd should also be considered as a potential area for projects. Although it is close to the Refuge, it is still separated by empty, private land and large arterial streets.

This map does not need to only be used for picking community garden sites. It could help inform school programming, community events, and used as a basis for community programs such as the shuttle route. It is a tool designed to offer quantitative insight to the community, particularly in regards to community members that are under 25, 65 or older, receiving SNAP assistance, have fewer personal automobiles, have a lower income, and are less likely to participate in the labor force.

Ride Sharing

The refuge is pursuing a partnership to create a ridesharing program that will subsidize access to the refuge via a ridesharing service. Up until this past week, Uber had previously offered to build a map that would allow certain subsidies to specifically apply to different spaces around the region. This would allow one neighborhood to receive a higher subsidy than another. This map could be used to detail the subsidy zones for a ridesharing service.

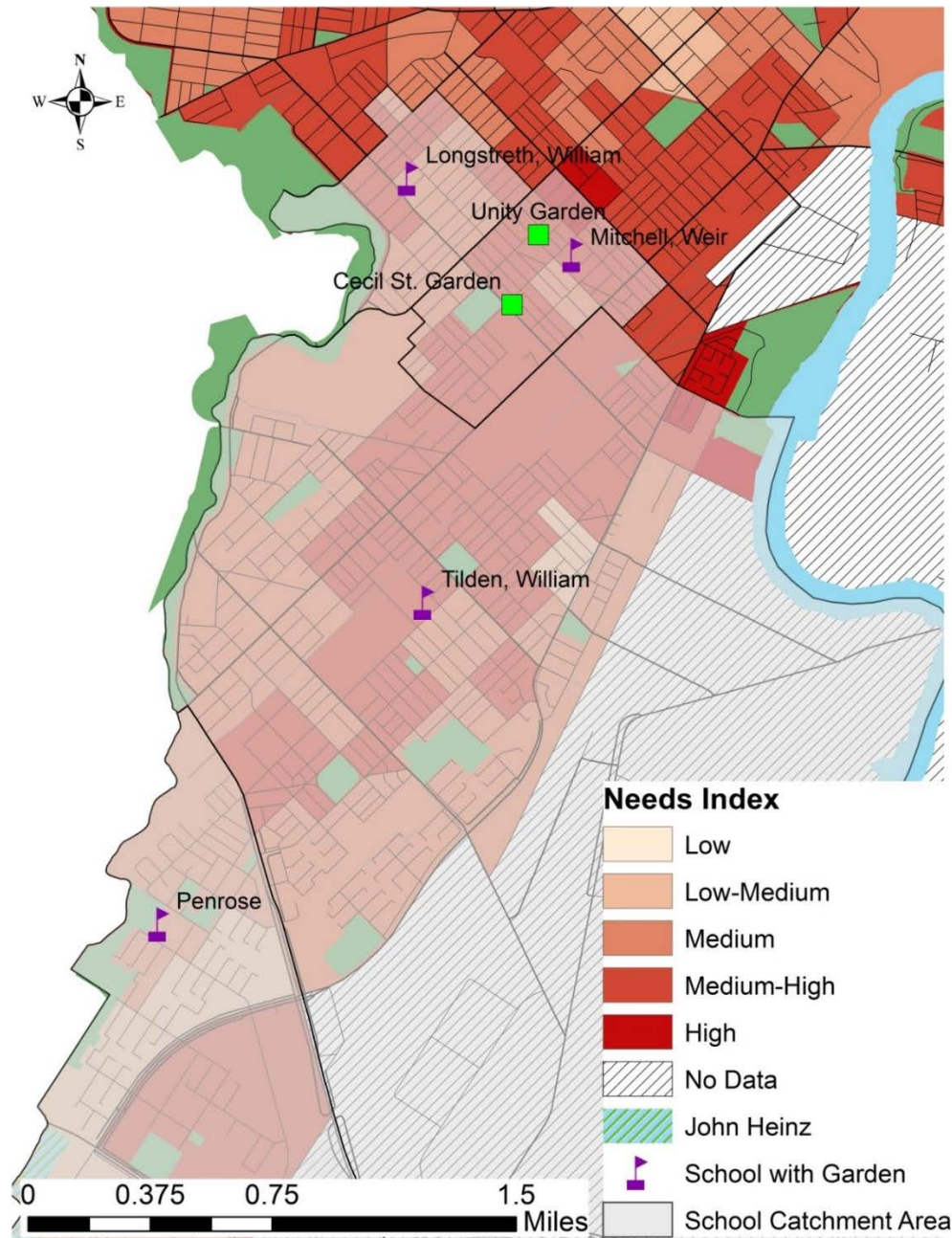


Figure 3. John Heinz has worked with various schools around the Southwest; SCA projects were considered for these 4 schools. Their catchment zones were overlaid onto the existing needs index map.

Appendix A

John Heinz Needs Index Data Assessment

In order to better utilize the John Heinz National Wildlife Refuge at Tinicum (the Refuge) resources, a determination was made to create a granular, neighborhood level map to try and identify where, within Southwest Philadelphia, Refuge money and staff time could best be directed. Using census tract-level data, refuge staff can choose to focus on specific blocks in SW Philadelphia for projects.

This idea was based on the CARLESS California²¹ study commissioned by US Fish and Wildlife Service (the Service) in conjunction with the Volpe Center. That study created a Needs Index for California regions within which the Service could focus their work on a regional scale. A possible instance of this occurring in Southwest Philadelphia could occur if the Refuge has a choice to build a community garden in one area versus another. This index map could be used as a tool to guide which location may be better. It should not be used as a substitute for crucial qualitative information (e.g. ease of purchase, cost of land, community support, etc.), but in conjunction with the qualitative facts to help identify a preferred, reasoned course of action.

To help create this map, it is necessary to create the categories that will comprise this index and if these categories will be weighted equally or unequally. The Refuge Manager, Deputy Manager, and Transportation Scholar will be meeting next month to determine the specifics components and weight of the index.

In the interim, the CARLESS California Draft Technical Memo #1, the 2015 American Community Survey Questionnaire²² and the Philadelphia Works 2016 Workforce Innovation and Opportunity Act Plan²³ were used to identify categories that could be considered for the index.

Categories

Types of indices

Rankings for each type

The following categories were identified by the Scholar as categories that should be considered by the group at their meeting:

- Income
- Race
- Rate of household car ownership
- "Schools" (free/reduced lunch/SNAP)
- Public Health Issues
- Age (divided into two categories, over 65 and under either 18 or 25)

²¹ https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5421426.pdf

²² <http://www2.census.gov/programs-surveys/acs/methodology/questionnaires/2015/quest15.pdf>

²³ http://www.philaworks.org/sites/philaworks.org/files/pdf/Philadelphia_WIOA_Transitional_Local_Plan_June_2016.pdf

- Presence of outdoor/environmental educational efforts
- Female head of household
- Population density
- Employment status, below poverty level
- Unemployment by gender
- Receiving public assistance
- Rent as a percentage of income
- Disability
- Income to poverty ratio
- Internet
- Means of transportation to work (for use as a proxy for ease/comfort/willingness to use public transportation)
- Labor force participation
- Unemployment rate
- Ethnicity

Of the above categories, the scholar decided that for a general index he would rank the top 10 as most important:

1. Income
2. Age
3. Labor Force Participation
4. Population Density
5. Rate of Household Car Ownership
6. Receiving Public Assistance
7. Race
8. Female Head of Household
9. Unemployment by Gender
10. Receiving SNAP Benefits

The specific community project or activity could affect the best or most appropriate categories to use within the index. The scholar created two additional lists specific to two types of community projects: creation of community gardens/green space and environmental education within schools.

These lists do not indicate actual weighting and reflect the Scholar's perspective on what categories might matter most in an index such as this. Differences in the lists' hierarchy focus are noticeable in the prominence of population density, the rate of household car ownership in particular, and the reception of SNAP benefits. This decision was made due to how the community would engage with the Refuge's neighborhood outreach. Projects such as community gardens require people to access the spaces on their own volition. Activities such as environmental education take place in schools, which already have students in the space

Community Garden	Environmental Education
1. Income	1. Income
1. Age	2. Age
1. Population Density	3. Labor Force Participation
2. Labor Force Participation	4. Rate of Household Car Ownership
3. Receiving Public Assistance	5. Race
4. Receiving SNAP Benefits	6. Receiving Public Assistance
5. Race	7. Receiving SNAP Benefits
6. Female Head of Household	8. Female Head of Household
7. Rate of Household Car Ownership	9. Unemployment by Gender
8. Unemployment by Gender	10. Population Density

Appendix B

Data Category Natural Breaks and Index Assignment

<i>Percentage of people receiving SNAP benefits over the past 12 months</i>	
Data Point	Index Value
0-11.57	1
11.58-25.16	2
25.17-40.0	3
40.01-57.76	4
57.76+	5

Lower numbers indicate fewer people receiving SNAP benefits.

<i>Vehicles per Household</i>	
Data Point	Index Value
0-0.362	5
0.3621-0.549	4
0.5491-0.7088	3
0.7089-0.8523	2
0.8524+	1

Lower numbers indicate more vehicles per household.

<i>Percentage of Population with an Income-to-Poverty Ratio Below 1.5</i>	
Data Point	Index Value
0-18.74	1
18.75-33.84	2
33.85-49.46	3
49.47-66.28	4
66.29+	5

Lower numbers indicate fewer people with an IPR under 1.5.

<i>Labor Force Participation Rate</i>	
Data Point	Index Value
0-36.62	5
63.63-51.3	4
51.31-62.39	3
62.4-74.02	2
74.03+	1

Lower numbers indicate more people working (high labor force participation).

<i>Percentage of Population Under 25 Years Old</i>	
Data Point	Index Value
0-19.97	1
19.98-31.49	2
31.5-42.49	3
42.5-59.66	4
59.67+	5

Lower numbers indicate a lower percentage of youth.

<i>Percentage of Population 65 or Older</i>	
Data Point	Index Value
0-7.01	1
7.02-13.08	2
13.09-20.57	3
20.58-33.19	4
33.2+	5

Lower numbers indicate lower percentage of seniors.

APPENDIX E: JHNWRT ABANDONED BICYCLE POLICY

John Heinz Abandoned Bicycle Policy

The US Fish and Wildlife Service already has regulations governing the forfeiture and disposal of abandoned property on agency lands. This document is to enunciate and clarify the policy for bicycles abandoned at the John Heinz National Wildlife Refuge at Tinicum ("the refuge").

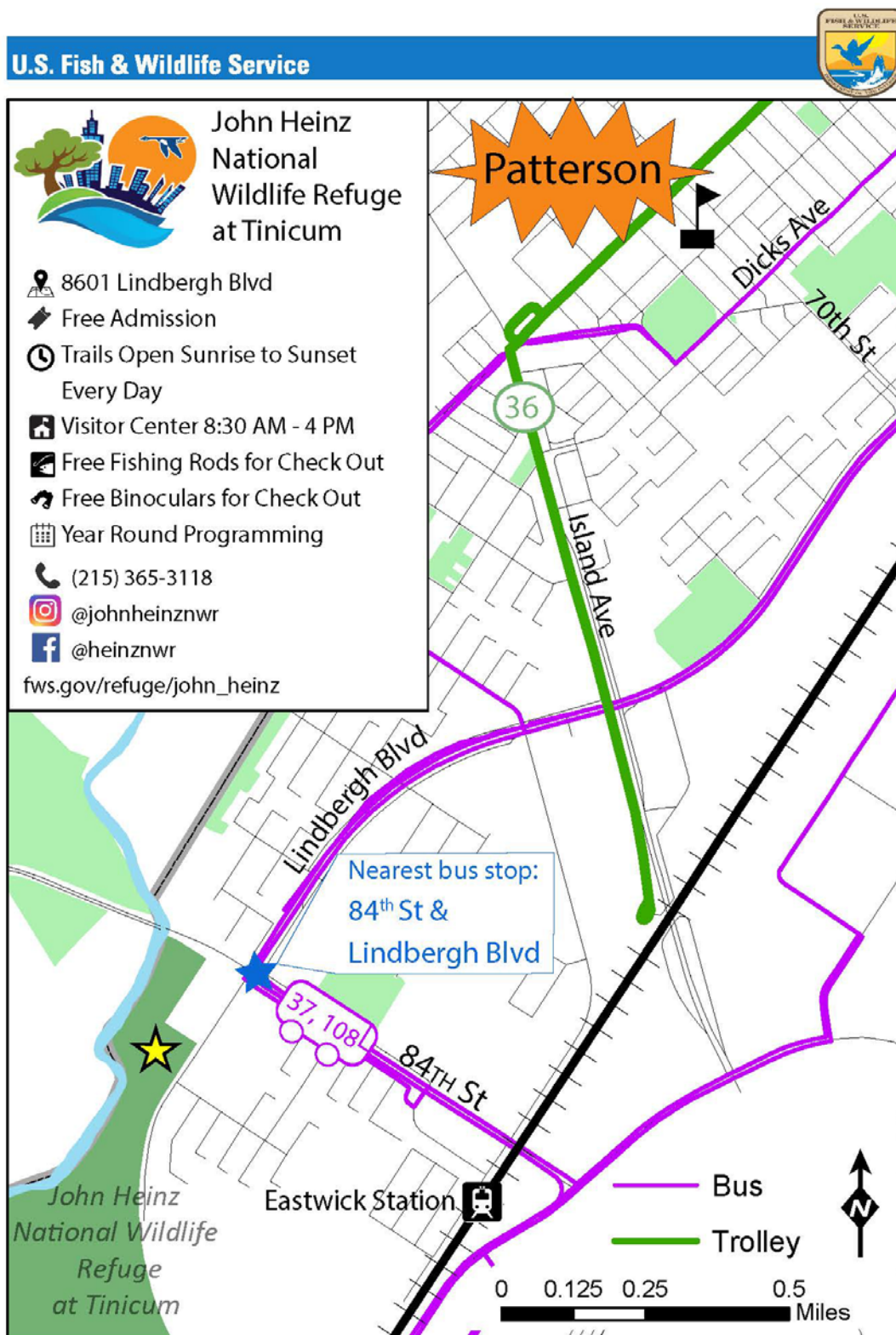
Any bicycle that is locked to any bicycle rack on the refuge for more than 72 hours is subject to removal. After 72 hours the bicycle will be tagged in preparation for removal 24 hours later. After 24 hours have elapsed the bicycle will be removed from the rack. If the removed bicycle is usable, it will be brought to the visitor's center, where it will be held for 10 business days before being subject to agency-wide disposal policies. This includes being photographed and being written up in a report.

If a bicycle is unusable, upon removal from the rack it will be subject to photographs and then immediate disposal. An unusable bicycle must consist of at least three of the following attributes:

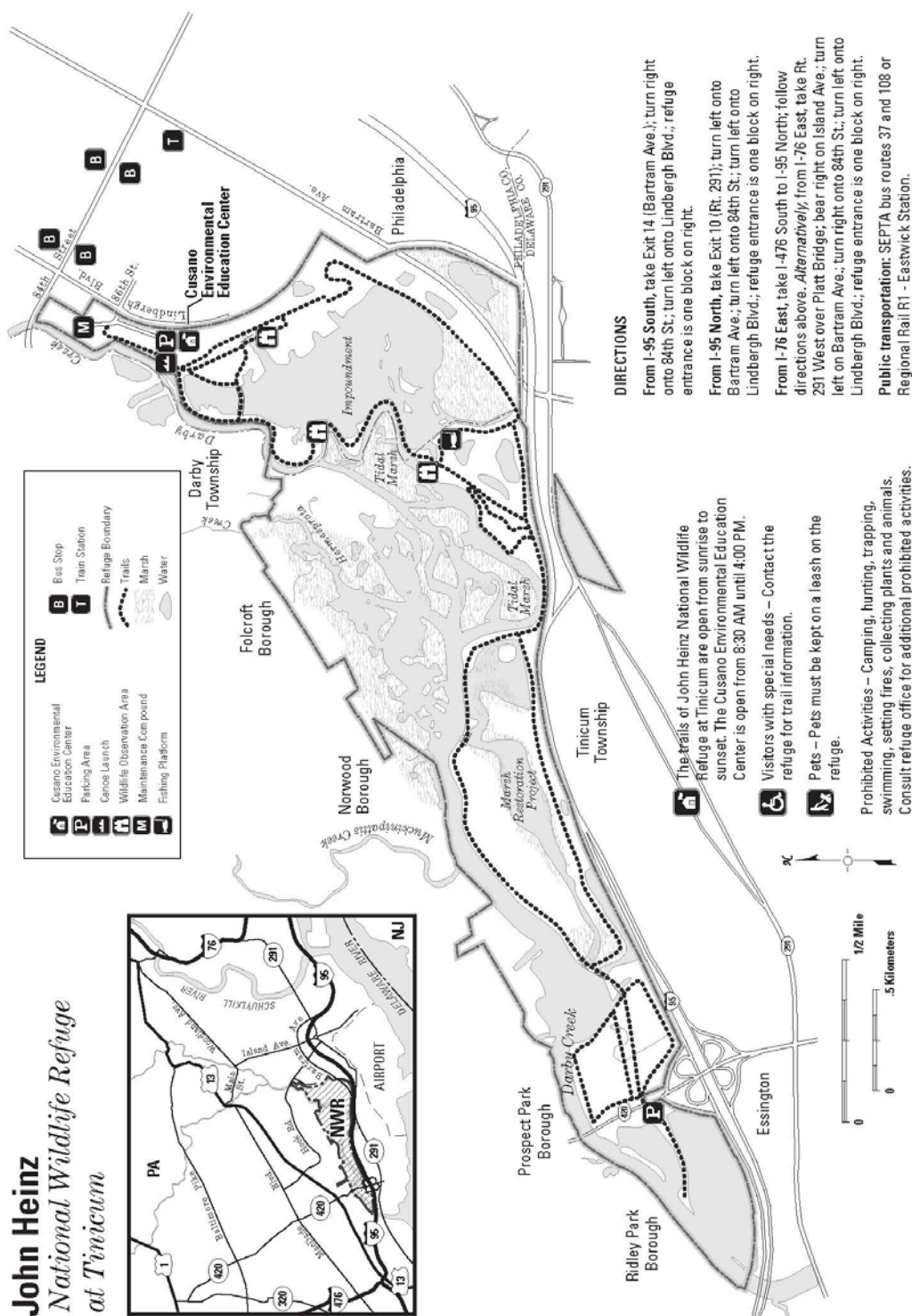
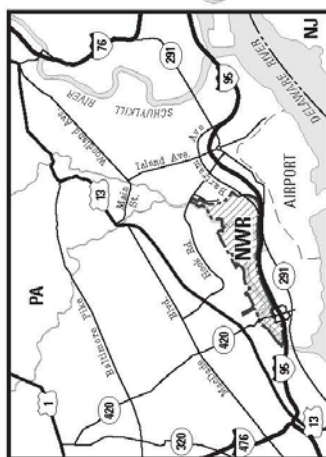
- 75% or more rusted frame and/or a completely rusted chain that cannot reasonably operate.
- The bike appears crushed or unusable.
- The tires are flat or missing, or the rims/spokes are rusted and/or bent.
- The frame is bent.
- The seat and/or seat-post is missing or in an unusable (ripped, moldy, etc.) condition.
- The handlebars or pedals are missing or severely damaged
- The brake cables are missing or cut

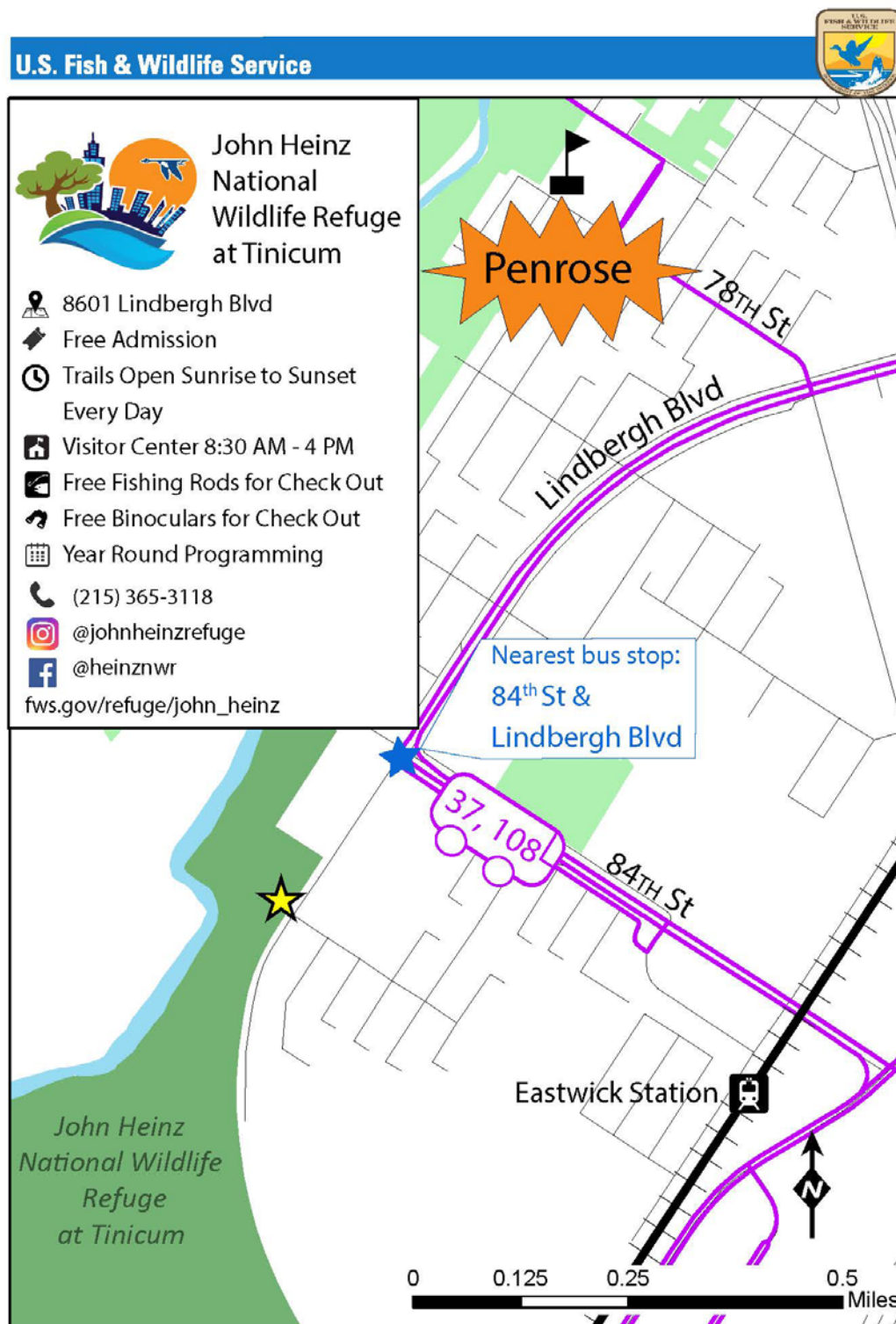
Any bicycle that is improperly or illegally locked to any object on the refuge is subject to immediate removal, and will then be subject to the appropriate guidelines above.

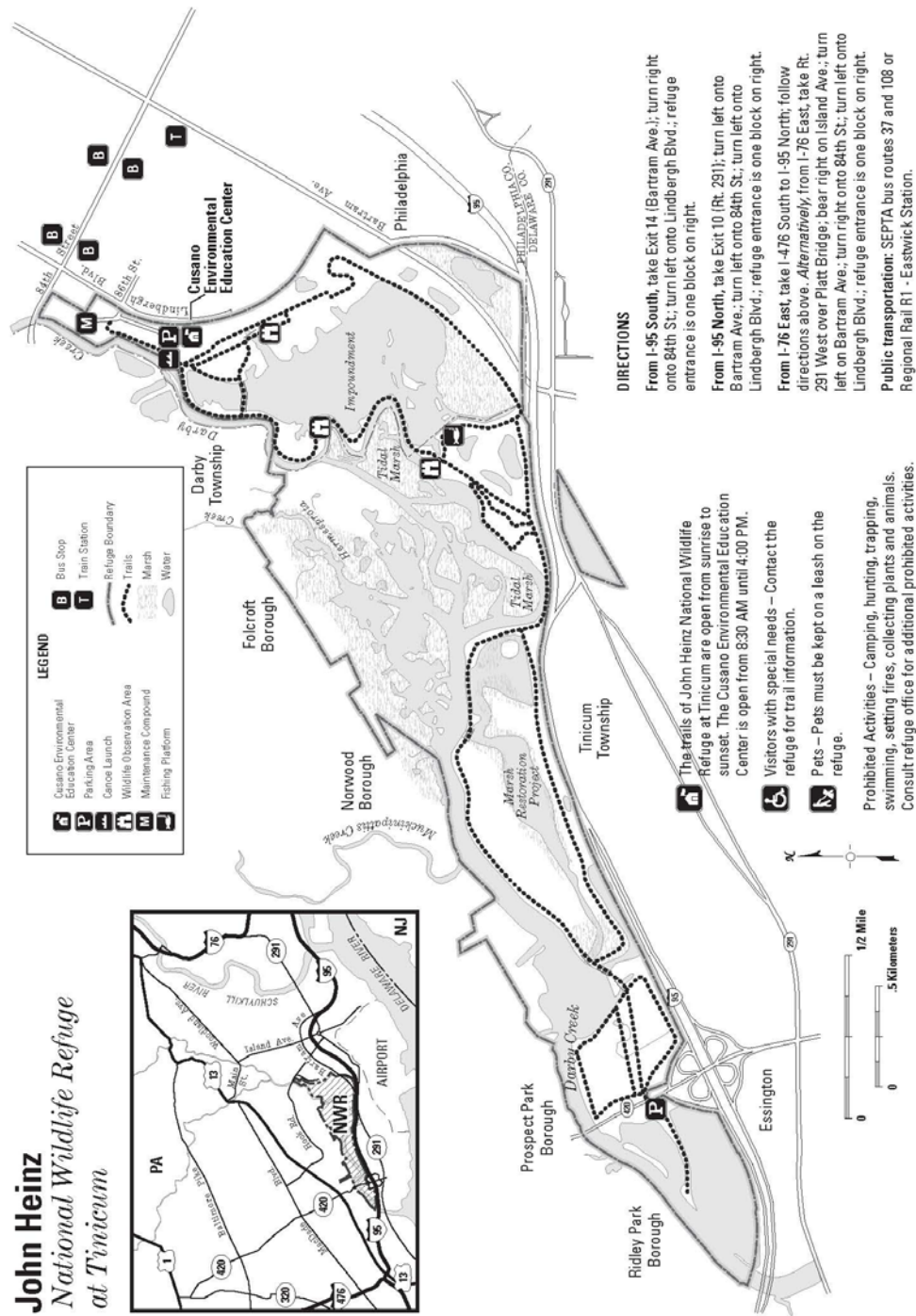
A bicycle which is on refuge property, but not locked is subject to these guidelines as well. If a refuge employee makes an effort to find the owner of an unlocked bicycle it will be transported to the visitor center, where it will then be subject to the above guidelines.

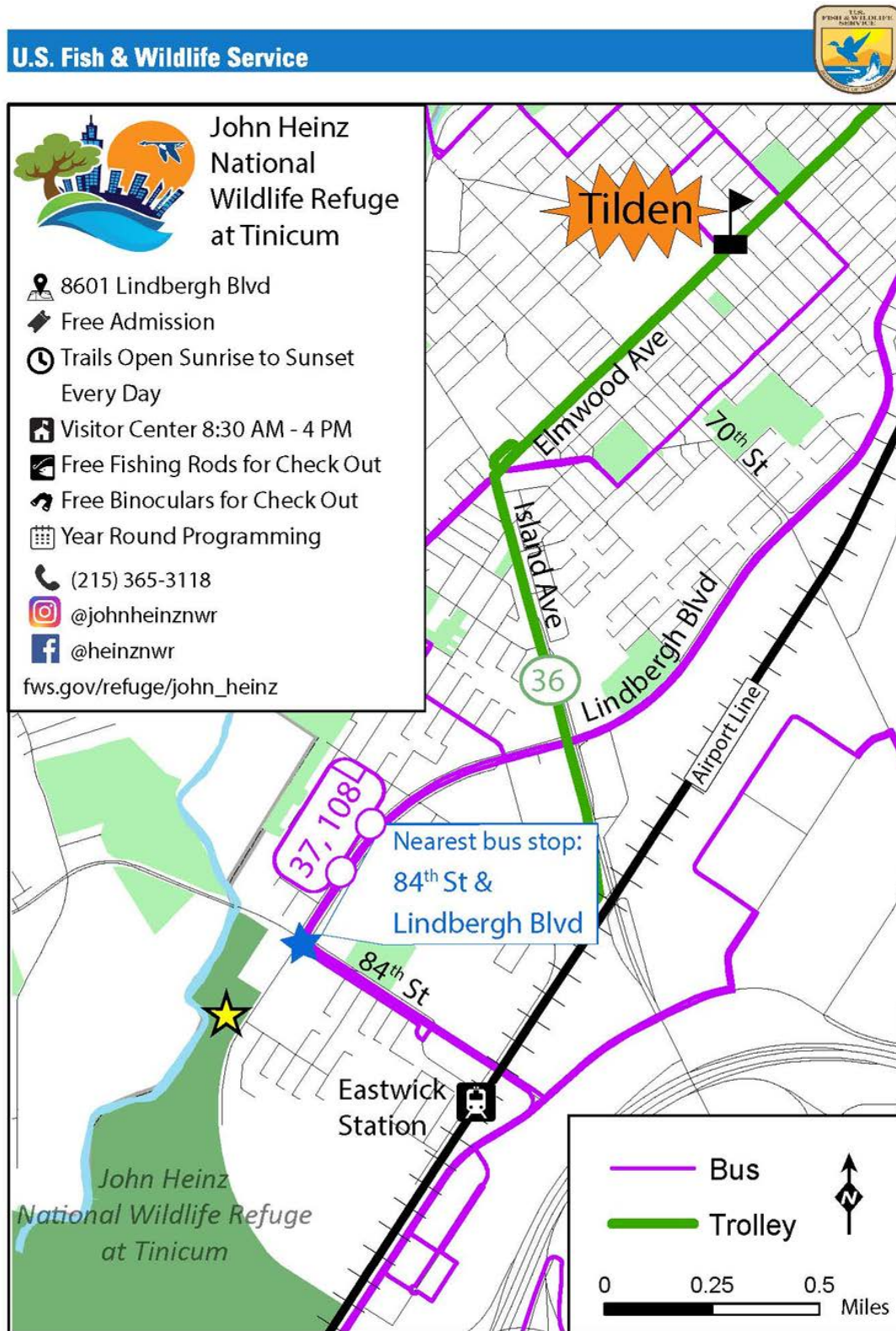
APPENDIX F: PATTERSON MIDDLE SCHOOL ACCESS MAP

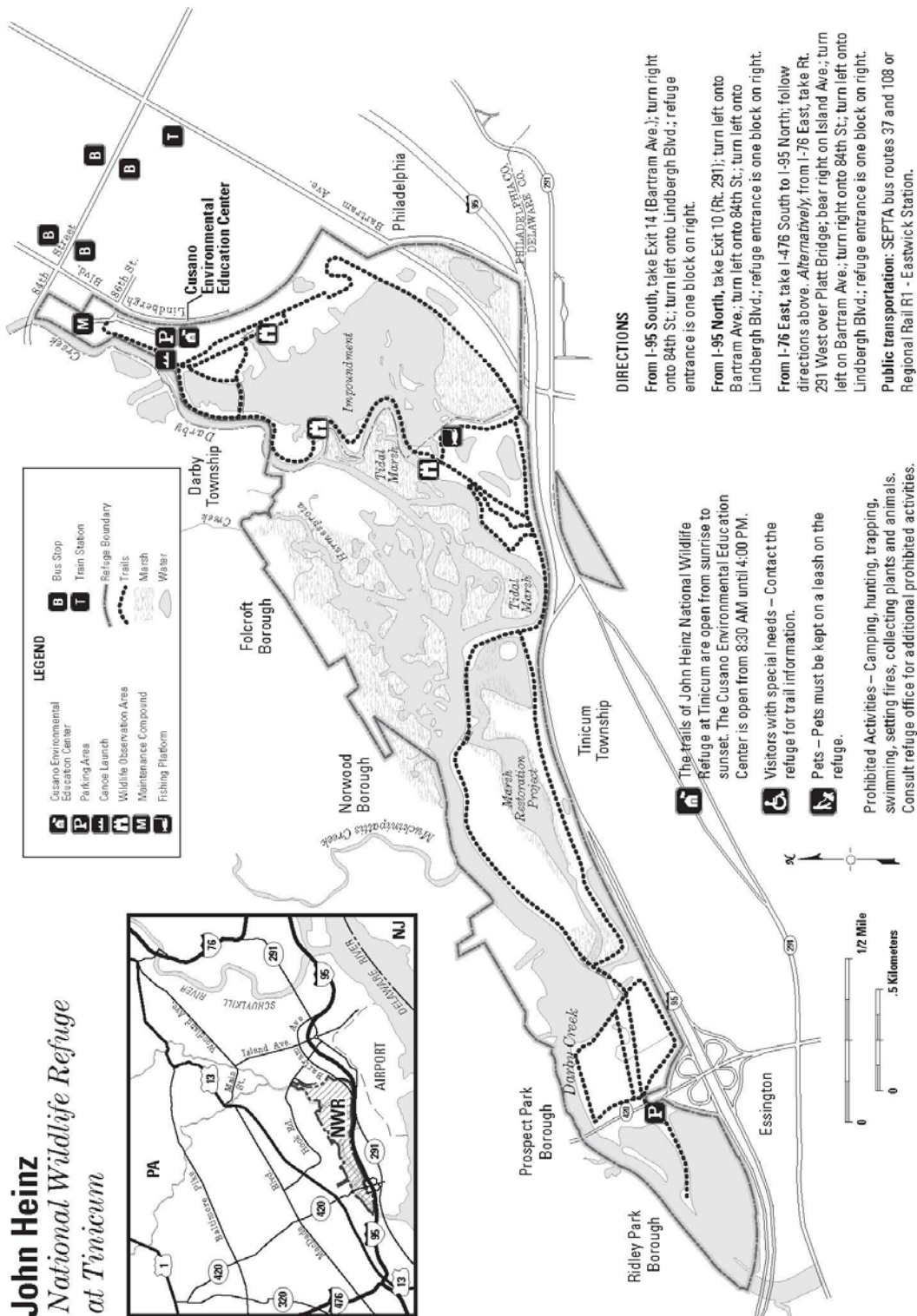
John Heinz
National Wildlife Refuge
at Trincum



APPENDIX G: PENROSE ELEMENTARY SCHOOL ACCESS MAP



APPENDIX H: TILDEN MIDDLE SCHOOL ACCESS MAP



APPENDIX I: PATUXENT RESEARCH REFUGE VEHICULAR WAYFINDING MAPS AND CHARTS

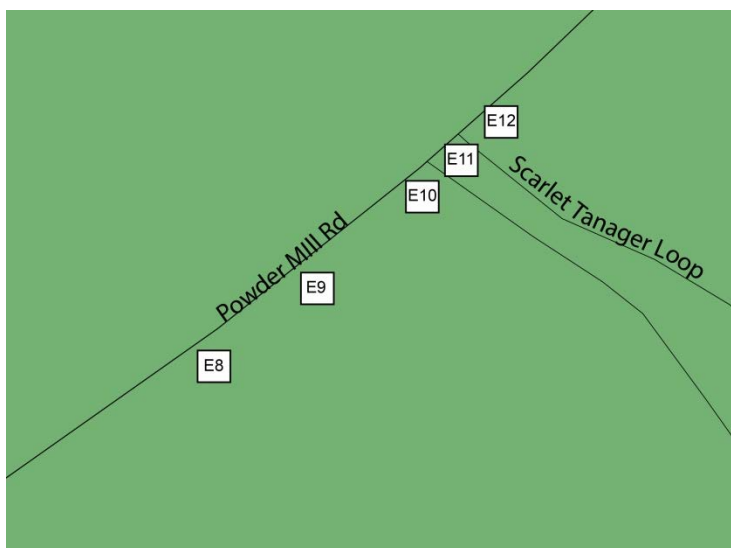
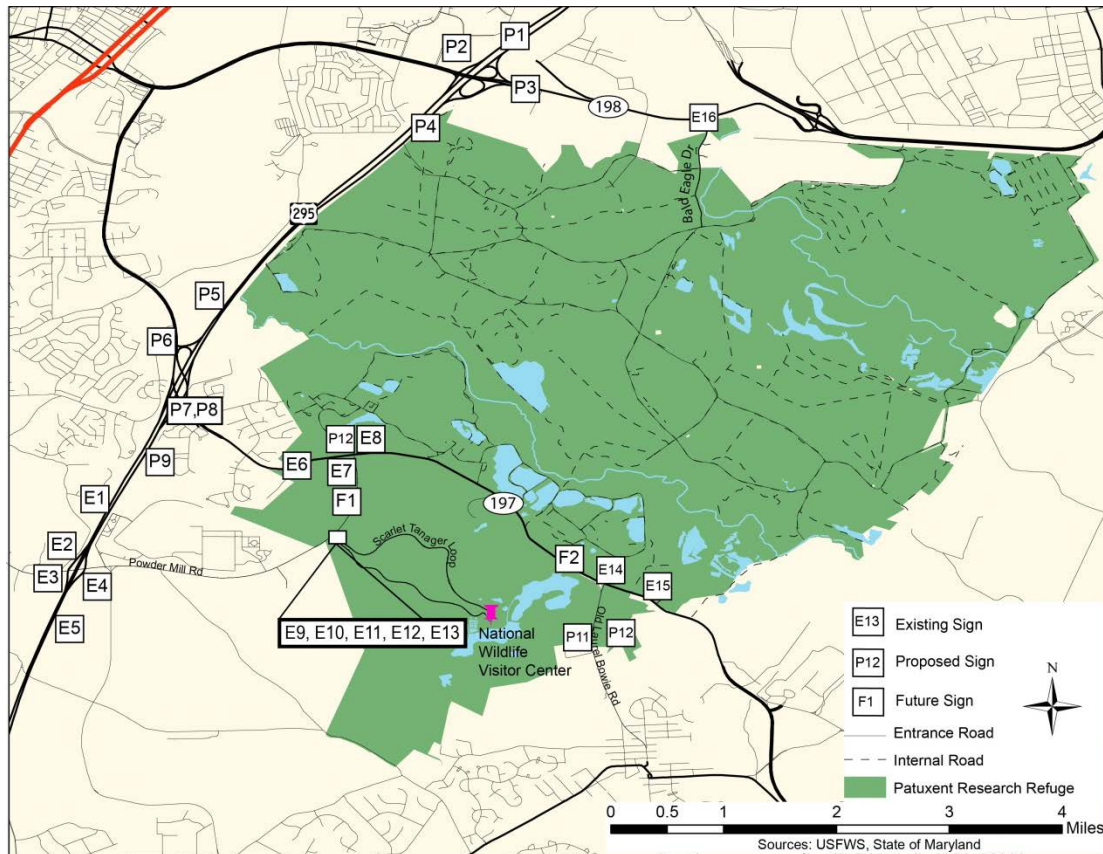


Table I-1: Current signs and their message

Location	Message
Powder Mill Road	Visitor Center Entrance
Visitor Center	National Wildlife Visitor Center
Patuxent Research Refuge NWVC Entrance	Patuxent Research Refuge
Patuxent Research Refuge Bald Eagle Dr	Patuxent Research Refuge: North Tract
Patuxent Research Refuge	Patuxent Research Refuge: Daniel M. Ashe Division
Baltimore Washington Parkway SB Exit Ramp	Patuxent Research Center
Patuxent Wildlife Research Center	Patuxent Wildlife Research Center

Proposed Signs

Number	Location	Proposed Message	Sign Type	Notes
1	295 SB at 198 Exit	Patuxent Research Refuge	Highway Advance Notice Guide Sign	Use FWS shield, directional arrow
2	295 SB at 198 Exit, off-ramp	Patuxent Research Refuge	Advance Notice Directional Guide Sign	Use FWS shield, directional arrow
3	295 NB at 198 Exit, off-ramp	Patuxent Research Refuge	Advance Notice Directional Guide Sign	Use FWS shield, directional arrow
4	295 NB at 198 Exit	Patuxent Research Refuge	Highway Advance Notice Guide Sign	Use FWS shield, directional arrow
5	295 SB, 197 Exit	Patuxent Research Refuge	Highway Advance Notice Guide Sign	Use FWS shield, directional arrow
6	295 SB at 197 Exit, off-ramp	Patuxent Research Refuge	Advance Notice Directional Guide Sign	Use FWS shield, directional arrow
7	295 NB at 197 Exit, off-ramp #1	Patuxent Research Refuge	Advance Notice Directional Guide Sign	Use FWS shield, directional arrow
8	295 NB at 197 Exit, off ramp #2	Patuxent Research Refuge	Advance Notice Directional Guide Sign	Use FWS shield, directional arrow
9	295 NB at 197 Exit	Patuxent Research Refuge	Highway Advance Notice Guide Sign	Use FWS shield, directional arrow
10	Old Laurel Bowie Rd SB	Thank You for Visiting Patuxent Research Refuge	General Guide Sign	Not explicitly discussed in manual
11	Old Laurel Bowie Rd NB	Welcome to Patuxent Research Refuge	Secondary Entrance Sign	According to manual, it should be 2' x 4' and is identical to Entrance Signs
12	Entrance to Patuxent Wildlife Research Center	Patuxent Wildlife Research Center	General Guide Sign	Use Shield. Could be Secondary Entrance Sign

Existing Signs

Number	Location	Message	Sign Type	Notes
1	295 SB at Powder Mill Rd Exit	National Wildlife Visitor Center	Highway Advance Notice Guide Sign	Uses FWS shield, arrow
2	295 SB at Powder Mill Rd exit, off-ramp	Patuxent Research Center	Advance Notice Directional Guide Sign	Arrow, on left side of off-ramp
3	295 SB at Powder Mill Rd exit, across Powder Mill Rd from off-ramp	National Wildlife Visitor Center	Advance Notice Directional Guide Sign	With arrow. Under sign for N.A.S.A. Goddard Visitor Center
4	295 NB at Powder Mill Rd exit, off-ramp	National Wildlife Visitor Center	Advance Notice Directional Guide Sign	Uses FWS shield, arrow
5	295 NB at Powder Mill Rd exit	Patuxent Research Center	Highway Advance Notice Guide Sign	Arrow, on right side of off-ramp
6				
7	MD-197 SB	Patuxent Wildlife Research Center / National Wildlife Visitor Center	Directional General Guide Sign	Arrows follow each entry
8	MD-197 NB	Patuxent Wildlife Research Center / National Wildlife Visitor Center	Directional General Guide Sign	Arrows follow each entry
9	Powder Mill Rd EB	Visitor Center Entrance 500 ft Ahead	Advance Notice Guide Sign	Potential addition of "Dan Ashe Unit" footer
10	Powder Mill Rd EB	Patuxent Research Refuge	Entrance Sign	Eastbound footer says "Welcome" Westbound footer says "Come Again"
11	Powder Mill Rd WB	Patuxent Research Refuge	Entrance Sign	Potential addition of "Dan Ashe Unit" footer
12	Powder Mill Rd EB	Patuxent Research Refuge	Entrance Sign	Potential addition of "Dan Ashe Unit" footer
13	Entrance Wall at Scarlet Tanager Loop	Patuxent National Wildlife Visitor Center	Stone Wall	Partially blocked on EB side by poles
14	MD-197 NB at Old Laurel Bowie Rd	National Wildlife Visitor Center 3 Miles	Destination Distance General Guide Sign	
15	MD-197 NB	Patuxent Research Refuge	Entrance Sign	Eastbound footer says "Welcome" Westbound footer says "Come Again"
16	MD 32 at Bald Eagle Dr	Patuxent Research Refuge	Entrance Sign	Footer says "North Tract"

Future Signs

Number	Location	Message	Sign Type	Notes
F1	Powder Mill Rd, west of Entrance	Patuxent Research Refuge	Entrance Sign	Will have Daniel M. Ashe footer
F2	Cash Lake along MD-197		Entrance Sign	

APPENDIX J: PRR VEHICULAR WAYFINDING PROGRAM RESULTS

The program noted the following:

- External signage for Patuxent Research Refuge is incomplete and inconsistent.
- Current signage problems include:
 - Different signage message
 - National Wildlife Visitor Center
 - Visitor Center
 - Patuxent Wildlife Research Center
 - Patuxent Research Refuge
 - Patuxent Research Refuge: North Tract
 - Patuxent Research Refuge: Daniel M. Ashe Division
 - It is recommended that all signs reinforce the name *Patuxent Research Refuge*
 - Incomplete coverage of approach areas
 - Not all entrances alert motorists that they are entering Patuxent Research Refuge
 - Old Laurel Bowie Road does not have signs.
 - Along Powder Mill Road, unless someone had approached from the highway, motorists wouldn't know they entered refuge land until reaching the visitor center
 - Along MD-197 motorists are only alerted about being on Refuge property at the intersection with Powder Mill Road.
- Due to the lack of infrastructure for pedestrians and bicyclists, it is currently only necessary to guide motorists.
- In addition to guidance, signage can reinforce the presence of the refuge. Although over signing can be an issue, signs that alert people to the presence and ownership of the Refuge increases the knowledge and awareness about the site
- The National Park Service is currently undergoing a paving project and sign assessment for the Powder Mill Road and MD-197 exits along the Baltimore Washington Parkway. This is a good time to initiate changes of Refuge signage for the Parkway. Eric Harris is the Maintenance Division Supervisor and Vice President of the Sign Committee for the Parkway and the main point of contact
- Install an entrance, or secondary entrance, sign at Patuxent National Wildlife Research Center. Currently there is only directional guidance to turn in and a stone wall indicating the presence of an institution. There is nothing proclaiming the existence of the National Wildlife Research Center.