GREEN SCAN REPORT
HOMESTEAD BOROUGH • 2014

Prepared for Homestead Borough

by WESTERN PENNSYLVANIA CONSERVANCY

ACKNOWLEDGEMENTS

This project was financed in part by a grant from the Community Conservation Partnerships Program, Environmental Stewardship Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation.

This report also benefited from the energetic support from the following groups who were represented on the study committee and who hosted public meetings during the project:

- Homestead Mayor and Borough Council
- Steel Valley School District
- Steel Valley Council of Governments
- Allegheny Together Committee

GREEN SCAN REPORT • HOMESTEAD BOROUGH • 2014

Prepared for Homestead Borough
by Western Pennsylvania Conservancy

TABLE OF CONTENTS

SECTION ONE: INTRODUCTION

THE VALUE OF GREEN

Research, data and technology are all pointing toward "green" as a crucial strategy for local, national and global prosperity and security. Green buildings, energy-saving technologies and sources of new energy production are important components. Just as important, however, are the very landscapes of our cities, towns, and all the spaces in between.

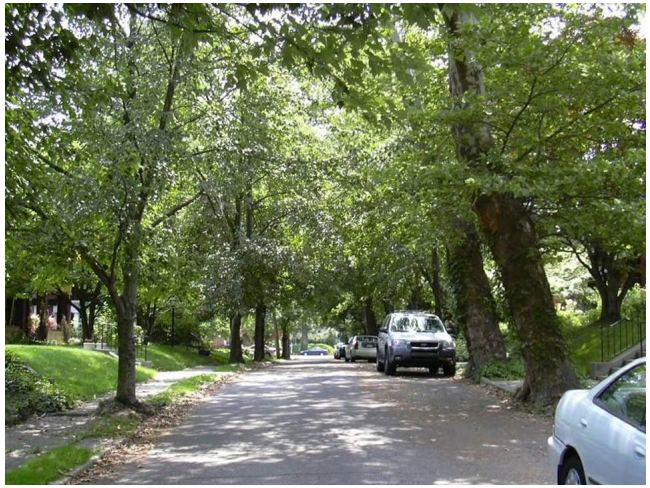
North Shore Heritage Trail, Pittsburgh, PA.
Photo: WPC.

Mounting evidence underscores the tremendous value of greenery—whether street trees, parks, open spaces and even civic landscapes such as the grounds surrounding public schools, libraries, hospitals and other such institutions. We are learning that softening or even replacing hard surfaces, whether paving, fencing, parking lots or roofs, with living plants can make a tremendous difference in such diverse factors as ambient temperatures, energy consumption for heating and cooling, air quality, mental health and mood, asthma rates, rate of healing for hospital patients and attention spans of children. Furthermore, there is evidence that greener landscapes actually strengthen social interactions, building cohesion, stability and civility within communities.

A well-treed main street in Greenville, SC.
Photo: Eric Fleischauer, Decatur Daily News.

Green resources almost always provide multiple benefits—health, economic, aesthetic, social and environmental. Few investments by communities offer so many dimensions of value.

Green has the power to transform spaces, communities and people.



A well-shaded residential street, Pittsburgh, PA.
Photo: WPC.

Green can work on a small scale or large, and best of all, the parts can be assembled to create an ever larger and more coherent green system that offers benefits across many dimensions of community life.

Chicago green roof, atop City Hall.
Photo: Water Environment Research Foundation.

Greening can take myriad forms: a tree planted in front of a home; a row of street trees arching across a busy thoroughfare; a large park with ball fields and exercise trails; stream-side or hill-side walking paths; hanging baskets or window boxes on Main Street; a "welcome" garden at a community's entrance; a butterfly garden at an elementary school; a community garden producing veggies, herbs and flowers to share with neighbors and family; green hedges camouflaging unattractive chain link; plantings to cool overheated asphalt parking areas; large nature preserves; tiny pocket parks with a bench under a tree for respite and contemplation; rain gardens reducing runoff and storm water overflows that pollute rivers and streams; green walls and roofs transforming standard surfaces to create energy savings and even new habitat; temporary "clean and green" grass and trees or shrubs to stabilize vacant land until desirable development is feasible; specially engineered greenspaces that are designed to absorb storm water from streets, roofs, parking lots and other hard surfaces; to reduce pots of flowers on a high-rise balcony; magnificent maples on the courthouse lawn; bike trails edged by native flowers, grasses and trees. Each and every one of these types of greening has an impact. All are valuable. But how do you know what are your best choices? And which approaches are your best investments?

Neighbors pose after planting a tree in the Hill District, Pittsburgh. Photo: WPC.

Sprout market and community gardens, Melbourne, Australia. Photo: Sustainable Melbourne.

Looking to models provided by a few U.S. cities and numerous other communities around the world, the best greening is that which is well-integrated into a community's practices and supported by personal and public commitments. Each component of community life can be surveyed for ways to soften and enhance daily experience with green. It is the cumulative impact over time that will produce the greatest benefit to a community. Building your green infrastructure piece by piece can help your community develop a sustainable, thriving, greener environment that enhances all elements of a community's character.

More and more information is being assembled to document the ways that green can improve our communities. From mental health and physical benefits, to actual financial payback, greenery can add value to your efforts to enhance your community's livability. Surprisingly, many green strategies offer cumulative and compounding benefits. The decision to green a roof for instance, or add tree cover to a streetscape, can offer not only benefits in energy use and temperature comfort but also significant reduction in storm water runoff and related pollution or erosion.

SPECIFIC BENEFITS

Once hard to quantify, the benefits of greenspace are increasingly well documented. Some highlights of five primary benefits are presented here, with references to help you explore even more in depth information on those areas that seem most valuable to your community.

Hanging baskets along East Ohio Street, Pittsburgh PA. Photo: WPC.

Health and Mental Health

Information is accumulating about the importance of a green environment to human health. Ranging from the role of green plants to mitigate +pollution harmful to humans, to the healing effects of beautiful green spaces and natural shapes and textures to the evidence that exposure to greenspace directly relates to concentration and cognitive development, these studies and observations are changing the way people understand the built environment and the importance of keeping "nature" fully integrated in our lives. Here are some specific examples of information about the benefits of green to human health:

- Plants cleanse the air of pollutants, absorb carbon dioxide and generate oxygen.
- Children in neighborhoods with more trees have lower rates of asthma. (Lovasi, et al., Journal of Epidemiology & Community Health, May 2008)
- Observing greenery appears to reduce heart rate and blood pressure, reduce stress and even illness-related absenteeism (Stuttgart study, www.livingroofs.org)
- Patients with a view of greenery tend to heal faster with reduced use of pain medication (Texas study, www.livingroofs.org)
- Plants cleanse particulates from rainwater and the ground by absorbing ground-level ozone, carbon monoxide, sulfur dioxide and other GHG, reducing pollution reaching rivers and streams (Capital Regional District, http://www.crd.bc.ca/watersheds/lid/walls.htm)
- 30 minutes in green natural surroundings has been shown to be an effective treatment for children with Attention Deficit Disorder (Louv, Last Child in the Woods. pp. 98-111)
- Community flower gardens have been reported to reduce road rage (WPC survey, 2005, unpublished)
- Working with plants and flowers can create serenity and calm even in difficult environments (Kuo and Sullivan. Environment and Behavior, Aggression and Violence in the Inner City. Vol. 33 No. 4, July 2001 543-571).

Children at Crescent Early Learning Center explore their newly implemented greenspace. Photo: WPC.

Treed business area in Biddy Mason Park, Los Angeles. Photo: Georgia Silvera Seamans | localecology.org.

Community Cohesion

Research indicates a positive correlation between human interaction and the condition of the local environment. Numerous programs across the country have documented the attraction of community greening projects—from vegetable gardens to tree planting to beautification efforts—to many types of people. Greening a neighborhood offers an effective way to bring people together, learn cooperative skills and generate a new attention to the community's quality. Community cohesion then translates into better care-taking, more watchfulness and deterrence of crime or anti-social behavior and energy for more ambitious efforts to improve community facilities and conditions. Here are a few specific examples of the impact of green on community cohesion:

- People in housing projects with more trees know more of their neighbors and interact more frequently and positively with their neighbors (Kuo, University of Illinois at Champagne Urbana)
- People who volunteer in community gardens tend to be more connected to their communities, volunteer for other causes and have a strong affinity with their neighbors (WPC survey, 2005, unpublished)
- Community gardens, pocket parks, shared courtyards, well-tended open space all are strategies which have been documented to support development of safe, crime-free neighborhoods. (Local Government Commission Center for Livable Communities, "Focus on Livable Communities: Land Use Planning for Safe, Crime-free Neighborhoods," Sacramento, CA www.lgc.org)
- Buildings with high levels of greenery had 52% fewer property and violent crimes than those with little vegetation. (University of Chicago Public Housing)

Wilkinsburg community vegetable garden. Photo: WPC.

Neighbors finish up a garden cleanup, Clairton, PA. Photo: WPC.

Water

Management of storm water has emerged as one of the most costly needs of many communities under orders to separate storm drains from sewer systems to reduce overflow of untreated sewage into rivers and streams. As more land is paved, more rain or snowmelt runs off the landscape rather than soaking into the groundwater system. The runoff tends to cause erosion, increase pollution from sediments and destabilize slopes or fragile lands. The runoff often winds up in storm drains that overtax the existing sewer system and lead to pollution of rivers and streams by sewage contaminated storm water.

Greenery is a key strategy for capturing rainwater and holding it for slow release through the groundwater system. Some cities, such as Philadelphia and Chicago, are embarking on aggressive and systemic strategies for adding greenery for this purpose, and they anticipate enormous savings by reducing the required changes to their sewage and storm water infrastructure. Here are a few specific examples of how greenspace can assist with water management:

- In addition to cleansing rainwater of pollutants, plants hold water. Green roofs can reduce runoff by 70-80% in summer and 25-40% in winter. (Germany study, www.livingroofs.org)
- Large trees can intercept upwards of 2,000 gallons of rainfall annually. (Midwest Community Tree Guide)
- Toronto estimated the potential impact of green roofs as saving millions of dollars in infrastructure construction, tens of millions in erosion control, millions in pollution control, and nearly a million in added beach availability due to lower storm water flows. (City of Toronto Green Roofs Study www.toronto.ca/greenroofs/findings)

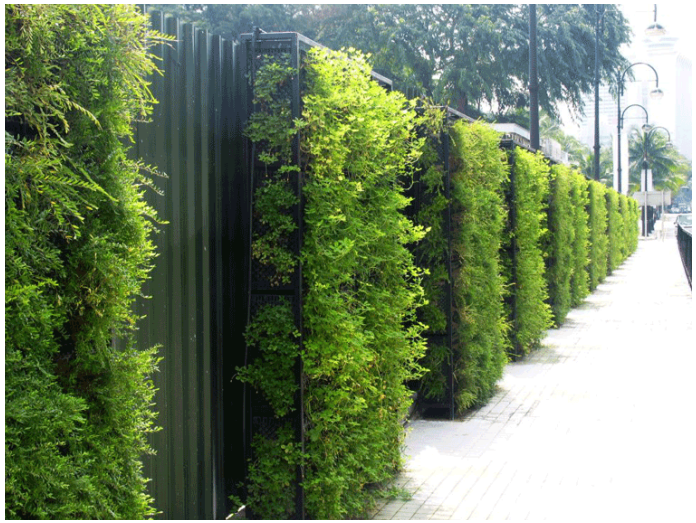
Bioswale implemented in 2013 along Hawthorn Road in Millvale.
Photo: WPC.

Gardens on green roof of Allegheny County Building.
Photo: Eisler Nurseries.

Energy

For decades we have known that it is possible to reduce energy consumption by planting trees that shade from hot sun in the summer, let in sun during the winter, or shelter a structure from prevailing winds. Now more and more techniques for using greenery to achieve energy savings are being devised. From rooftops to walls, from sheltering trees that cool asphalt parking lots or streets to green fencing that serves both an environmental and a boundary purpose, opportunities to take advantage of the cooling or protective character of green plants abound. Here are a few examples of impacts on temperature and therefore energy consumption:

- Plants provide insulation during winter. Winter temperatures that were 32°F under a standard roof are 40°F under a green roof (Trent University study, www.livingroofs.org)
- Turf grass can be upwards of 30°F cooler than paving on hot days (University of Arkansas study).
- 25% to 50% tree cover lowers ambient temp by 4°-8° F (in hot climates); 2-4 degrees estimated for Chicago
- Green roofs can reduce temperature beneath a roof from 90°F to 63°F in the summer. Chicago estimated it could save $100,000,000 each year if all its roof surfaces were greened. (DC Nottingham Trent University study www.livingroofs.org)
- Shaded cars lose less fuel in evaporation from gas tanks, reducing volatile organic compounds by more than a pound a day (Final Parking Lot Shading Study, April, 2001, Chicago)



Green wall panels separating busy road from office park/ construction. Photo: uncredited.

Farmers Market in Market Square, Downtown Pittsburgh. Photo: WPC.

Economic Benefits

It is becoming possible to put a price tag on the economic benefit of greening. From property values near parks, to rises in value when vacant lots are greened, to the return on investing in management and maintenance of greenspaces, to the influence on consumer spending, evidence is being accumulated. Here is a sample of information on the economic benefits:

- Homes in Indiana sold for higher prices if located near greenways (Center for Urban Policy & the Environment, 2003.)
- In Dallas, homes facing parks were found to be worth 22 percent more than homes half-a-mile or more away from such amenities. (Miller, Andrew. "Valuing Open Space: Land Economics and Neighborhood Parks" thesis. MIT Real Estate Development 2001.)
- The availability of green spaces has been shown to be one of the strongest factors predicting residential satisfaction. (Fried, M. "Residential attachment: sources of residential and community satisfaction." Journal of Social Issues 38, 1982. pp. 107-120.)
- The Wharton School, University of Penn., found that a $1 million investment of tree plantings in a stressed community translated to a $4 million gain in property values. (Wachter, S. "The Determinants of Neighborhood Transformation in Philadelphia, The New Kensington Pilot Study." 2005)
- A citywide study in Philadelphia showed that derelict land decreased the value of neighboring homes by 20 percent while green and well-maintained formerly vacant land recaptured the initial loss and added another 17 percent in value, for a total gain of 37 percent. (Wachter, S., Gillen, K.C. "Public Investment Strategies: How They Matter for Neighborhoods in Philadelphia—Identification and Analysis." 2006)
- $750,000 = the increase in tax revenue over a 20-year period following the creation of a community garden. (Been & Voicu, "The Effect of Community Gardens on Neighboring Property Values," New York University, 2006)
- People will travel farther to visit "forested" urban shopping districts and pay 9 to 12% more for parking and goods and services. (Kathleen Wolf, Journal of Forestry, "Business District Streetscapes, Trees and Consumer Response," December 2005.)

Recently implemented gateway plantings in transitional community, Larimer Avenue, Pittsburgh, PA. Photo: WPC.

GREEN SCAN PROCESS

The Green Scan process includes a number of steps to help the community discover its best options for using greening to support community revitalization.

Step One: *Create a community committee.* In Homestead, WPC worked directly with the Borough Manager and a preexisting Allegheny Together committee facilitated by Center Town Associates to guide and support the Green Scan process. The committee consists of residents engaged with the local civic, business and government endeavors. The Borough Council President was consistently involved and the Mayor was kept informed on the project. In addition, WPC staff solicited information from Steel Valley Council of Governments, Steel Valley School District, and the Borough's engineer to help guide the process. The key contact between WPC and Homestead was the Borough's manager.

Early spring tree pit planting in Bloomfield neighborhood, Pittsburgh. Photo: WPC.

The Community Committee included the following individuals:

- Ian McMeans, Borough Manager
- Lloyd Cunningham, President, Borough Council
- Dave Gilliland, Borough Engineer, Glenn Engineering
- Maura Dowdy, Downtown Program Director, Town Center Associates
- Jack Manning, Municipal Program Services, Town Center Associates
- David Lewis, Allegheny Together Committee
- An Lewis, Executive Director, Steel Valley Council of Governments
- George Lambrinos, Community Redevelopment Administrator, Steel Valley Council of Governments
- Eddie Weher, Superintendent, Steel Valley School District

Welcome garden, Indiana, PA. Photo: WPC.

Step Two: *Background Analysis of Homestead*. WPC staff developed background analysis of Homestead to guide discussion. Specific data sets that were reviewed and in most cases mapped, include:

- Population demographics (age, income and race)
- Population distribution
- Existing parks, trails, greenspace and recreational facilities

- Open land and vacant parcels
- Parcel ownership
- Home ownership
- Income
- Cultural, historical or geological assets of note
- Steep slopes, flood plains and other geographic features as needed
- Transportation routes and traffic patterns.

Step Three: *Convene Several Meetings of Community Committee.* To make sure the Green Scan had broad community support, WPC made efforts to provide as many opportunities for input as possible. This included 12 meetings with members of the community committee, including a final public meeting where the final report was presented at a Borough Council meeting. Community Committee meetings were held to introduce the Green Scan process, discuss the benefits of community greening and green infrastructure, get community feedback on maps and information collected, identify key assets, assess practicality of ideas, obtain missing information and set priorities. As needed the WPC staff and community committee interviewed key leaders, made numerous site visits and completed additional GIS analyses in preparation for meetings.

Open green lawn, Western Pennsylvania Conservancy main office. Photo: WPC.

Playground parklet in Mt. Oliver, PA. Photo: WPC.

Step Four: *Complete Final Report.* This final report and action plan summarizes background and findings; best opportunities; related cost estimates and suggestions for implementation strategies.

The overall purpose of the Green Scan is to provide Homestead with an action plan that outlines effective options for utilizing green infrastructure throughout the Borough. The scan identifies best options, proposes prioritization of options, offers estimates of costs and suggests potential partners and sources of funding.

DEFINITION OF TERMS

To avoid confusion, we will define a few terms at the outset to clarify meanings. ***Green Infrastructure*** includes systems and practices that use or mimic natural processes to infiltrate, temporarily store, reuse or return water to the atmosphere through evaporation or transpiration. Examples include green roofs, street trees, rain gardens, bioswales, pocket parks, wetlands, and permeable pavement. The direct result of these approaches is to reduce the amount of runoff discharging to surface waters and to reduce storm water flowing into sewer systems to avoid combined sewer overflows into surface waters. Additional environmental and economic benefits include cleaner air, reduction of the urban "heat island" effect and increased energy efficiency. Green Infrastructure can be supplemented or augmented by such structures as cisterns or engineered tree pits that include water storage and engineered soils.

Ghost Town trail in Ebensburg, PA, a rails-to-trail project that runs 36 miles in Indiana and Cambria County. Photo: WPC.

There is sometimes some confusion about the meaning of the term "greenspace" as opposed to open space. For the purposes of this report, ***greenspace*** is defined as any space intentionally used for formal or informal outdoor recreation or enjoyment including parks, parklets, ball fields, trails, paths, woods, river edges, public event or gathering spaces. Open space is land that may be green or natural, tended or untended, but not built upon. Some open spaces are vacant land, some are just unused.

Active greenspace includes formal playgrounds with play equipment, ball fields, hiking and bicycling trails, and the like. ***Passive*** greenspace includes parks and parklets that support sitting, walking, informal gatherings, views, bird watching and other less physical outdoor activities.

SECTION TWO: HOMESTEAD COMMUNITY PROFILE

HISTORY AND BACKGROUND

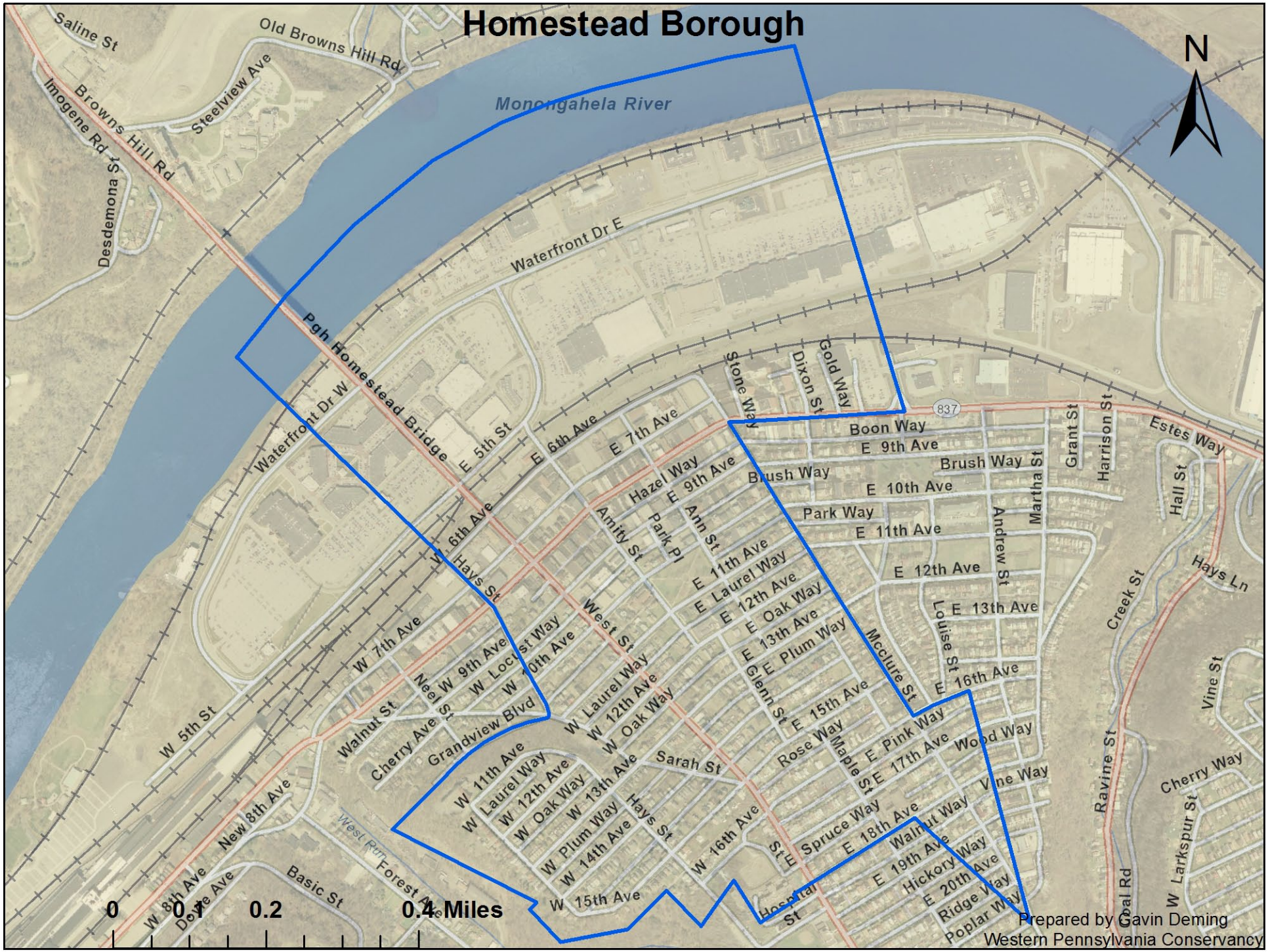
Because of its location, Homestead proved an ideal place for the steel industry to take root – the Monongahela river not only provided easy access to ample coal and ore deposits, but it also made shipping the final product easy and convenient.

Postcard of 8th Avenue, Downtown Homestead circa 1926.

The first white settlers came to the area along the Monongahela River now known as the boroughs of West Homestead, Homestead and West Munhall in the 1770s. As late as 1870 the area that is now Homestead was farmland. It was incorporated as a borough in 1880. The level space along the Monongahela River, just miles from Downtown Pittsburgh, made Homestead a prime spot for industrial development. The town's industrial history began in 1879 with a glass works factory, railroad and its first iron mill. In 1883 the Carnegie, Phipps Company bought out the local steel mill, adding to a vast monopoly of the steel and coke industries. Andrew Carnegie had recently acquired a controlling interest in Henry Clay Frick's local coke works on the Monongahela, which set the stage for one of the most notorious labor clashes in United States history.

Image depicting train tracks, train cars, and buildings along McClure Street in Homestead, PA., October 2 1908. Pittsburgh & Lake Erie Railroad Company Photographs, 1886-1972 Archives Service Center, University of Pittsburgh. Identifier 8223.683.RR

When Henry Clay Frick, manager for Andrew Carnegie, owner of the local Homestead Steel Works, announced in the spring of 1892 that skilled workers would receive a reduction in wages, the advisory committee of the Amalgamated Association of Iron and Steel Workers refused to sign a new contract. Carnegie's management locked the workforce out, declaring that the union would no longer be recognized at the steel works. To break the strike and secure the


Homestead Borough
N
Monongahela River
Saline St
Old Browns Hill Rd
Steelview Ave
Browns Hill Rd
Imogene Rd
Desdemona St
Waterfront Dr E
Waterfront Dr W
Pgh Homestead Bridge
E 5th St
E 6th Ave
E 7th Ave
Stone Way
Dixon St
Gold Way
837
Boon Way
E 9th Ave
Brush Way
E 10th Ave
Park Way
E 11th Ave
E 12th Ave
E 13th Ave
E 16th Ave
Estes Way
Grant St
Harrison St
Hall St
Martha St
Andrew St
Louise St
Mcclure St
Creek St
Hays Ln
Vine St
Ravine St
Cherry Way
W Larkspur St
Coal Rd
Hazel Way
E 9th Ave
Amity St
Park Pl
Ann St
E 11th Ave
E Laurel Way
E 12th Ave
E Oak Way
E 13th Ave
E Plum Way
E 15th Ave
Rose Way
E Pink Way
E 17th Ave
Wood Way
Maple St
Glenn St
Spruce Way
E 18th Ave
Walnut Way
E 19th Ave
Hickory Way
E 20th Ave
Ridge Way
Poplar Way
Hospital St
W 6th Ave
W Hays St
West St
W 7th Ave
W 9th Ave
W Locust Way
W 10th Ave
Grandview Blvd
Walnut St
Neel St
Cherry Ave
W 5th St
W Laurel Way
W 12th Ave
W Oak Way
Sarah St
W 11th Ave
W Laurel Way
W 12th Ave
W Oak Way
W 13th Ave
W Plum Way
W 14th Ave
W 15th Ave
W 16th Ave
Hays St
St E
West Run
New 8th Ave
W 8th Ave
Dove Ave
Basic St
Forest Ave
0
0.1
0.2
0.4 Miles
Prepared by Gavin Deming
Western Pennsylvania Conservancy

mill from the disgruntled workers, Frick hired hundreds of armed men from the Pinkerton National Detective Agency. When barges carrying the Pinkertons arrived at the mill on July 6, workers and townspeople met them at the riverbanks. A day-long armed battle ensued which resulted in eleven deaths and dozens of injuries. The governor of Pennsylvania eventually called on the National Guard to restore order to Homestead and take control of the mill.

Frick's tactics successfully destroyed the union in Homestead which essentially led to the fall of unions in most of his other steel mills throughout the country. The "Battle of Homestead" represented an enormous setback for unionization in the steel industry, and It also set the stage for the future steel strike of 1919 in which Homestead played an important role.

US Steel Homestead Works Memorial, 8th Avenue & West Avenue. Photo: WPC.

By the turn of the 20th century Homestead became one of the largest and most important plants of the Carnegie Steel Company and later the United States Steel Corporation. Initially populated by people of Western European backgrounds, the area soon became a destination for immigrants from many different homelands to fulfill the need for mill laborers. The population grew rapidly; in 1900 there were 12,554 residents, 4,600 more than there had been a decade earlier. The population peaked at 20,452 in 1920.

The mills eventually encompassed the entire riverfront area stretching into the boroughs of West Homestead and Munhall; as many as 12,000 people were employed there at one point. The town's main street, Eighth Avenue, was the central shopping area for the three boroughs and the outlying areas. The four to five blocks in Homestead were once brimming with retail stores, bars, movie houses, and shoppers. Early on there was housing in the area around the mill but as the mill grew houses were built along the hillsides

Overlooking Homestead Grays Bridge and the Borough at dawn. Photo: WPC.

and the ravines on the hills above the mill. Much of the housing was built as "company housing", or small, closely set frame structures.
In 1940, 19,041 people lived in Homestead. During the early 1940s half the population was displaced as the United States government's Defense Plant Corporation added on to the steel mills to increase national capacity for armor plating for ships and tanks (preparing for World War II). After the end of the war, a decline in the steel-making industry of the United States began.

By 1980, it had become difficult to obtain employment at the Homestead Works, which was not producing much steel anymore. In 1986, the mill closed and the Homestead Works was demolished. As a direct result of the loss of mill employment, the number of people living in Homestead dwindled to the lowest point in borough history. The Borough did begin to recover financially in recent years as it has enlarged its retail tax base, but population has continued to decline.

Homestead has many historic markers and buildings including this "Mother" Jones marker standing in front of the old Borough building, originally erected in 1904 . Photo: WPC.

GOVERNMENT AND CIVIC INSTITUTIONS

Homestead Borough operates under the Pennsylvania Borough Code with a Council-Manager form of government. Borough Council is comprised of seven independently elected residents. Each member of Council is elected for a four year term. The offices

Homestead Borough building. Photo: WPC.

Steel Valley Council of Governments Human Service Center building. Photo: WPC.

of Mayor and Tax Collector are also elected to four year terms. Council appoints a Borough Manager to oversee the day-to-day operations of the borough.

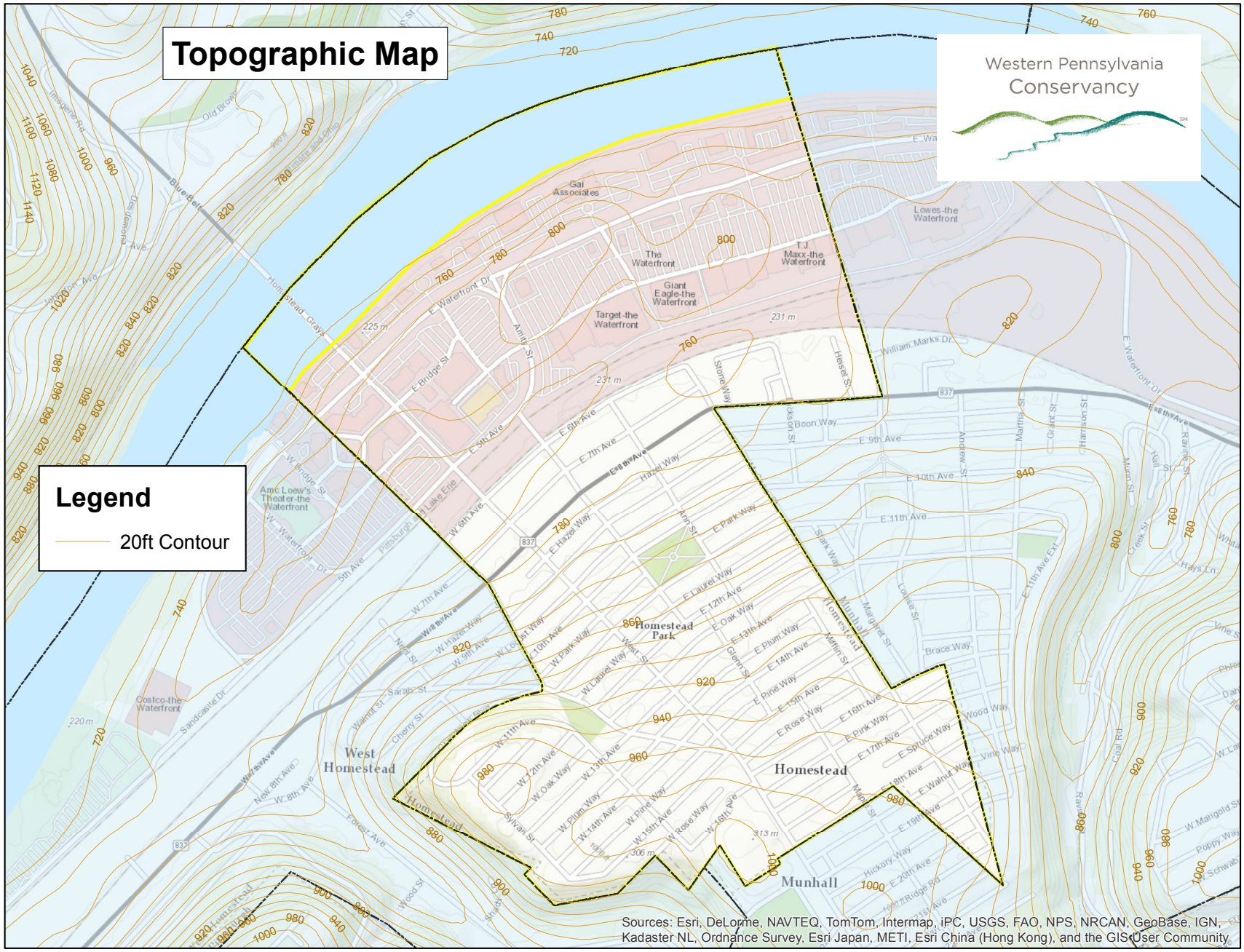
As part of the Steel Valley, Homestead Borough participates in the Steel Valley Council of Governments (COG). This voluntary association provides cooperative planning, coordination and technical assistance on matters of mutual concern to eight communities in the Mon Valley.

GEOGRAPHY AND TOPOGRAPHY

Homestead Borough encompasses 0.6 square miles. Approximately 0.1 square mile, or 11% of the borough, is part of the Monongahela River. The Pittsburgh neighborhood of Squirrel Hill lies to the north across the Monongahela River and is connected by the Homestead Grays Bridge, originally built in 1936, and reconstructed in 1979 and again in 2006. West Homestead borders the borough to the west and south, and Munhall borders Homestead to the east and south.

A majority of the commercial and industrial portion of the Borough is located on the flat area along the river, while much of the residential portion of the Borough is located on a steep hillside in terraced cross roads. McClure Street, Hays Street and West Street all run up the hill while numbered streets and streets named after trees run parallel to the River. The commercial districts run seamlessly together, as do portions of the residential areas up the hill. There is a steep hillside on the back of the properties along Sylvan Avenue and W. 15th Avenue in the southwest corner of the Borough down to Forest Avenue in West Homestead.

The view looking south up Ann Street from the corner at E. 9th Avenue. Much of the residential area of Homestead is built up the hill away from the river. Photo: WPC.

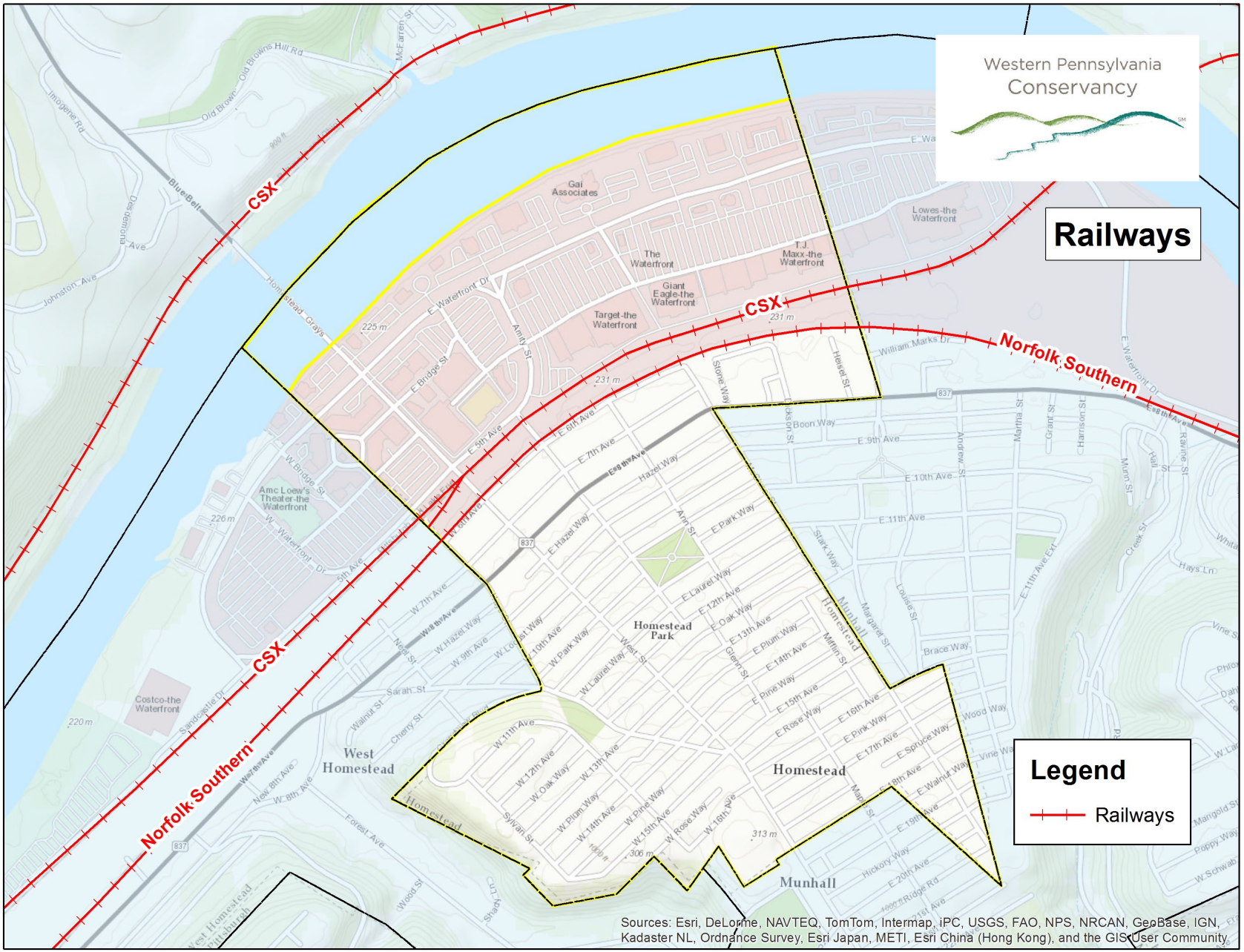

Topographic Map
Western Pennsylvania Conservancy
Legend
20ft Contour
Homestead Park
West Homestead
Homestead
Munhall
Gai Associates
The Waterfront
T.J. Maxx-the Waterfront
Giant Eagle-the Waterfront
Target-the Waterfront
Lowes-the Waterfront
Costco-the Waterfront
Amc Loew's Theater-the Waterfront
E Waterfront Dr
William Marks Dr
E Bridge St
E 6th Ave
E 7th Ave
E 8th Ave
E 9th Ave
E 10th Ave
E 11th Ave
E Hazel Way
E Park Way
E Laurel Way
E 12th Ave
E Oak Way
E 13th Ave
E Plum Way
E 14th Ave
E Pine Way
E 15th Ave
E Rose Way
E 16th Ave
E Pink Way
E 17th Ave
E Spruce Way
E 18th Ave
E Walnut Way
E 19th Ave
E 20th Ave
W 6th Ave
W 7th Ave
W 8th Ave
W 9th Ave
W 10th Ave
W 11th Ave
W 12th Ave
W 13th Ave
W 14th Ave
W 15th Ave
W 16th Ave
W Hazel Way
W Park Way
W Laurel Way
W Oak Way
W Plum Way
W Pine Way
W Rose Way
Sandcastle Dr
Blue Belt
Old Brown Rd
Homestead-Grays Bridge
Amity St
Heisel St
Store Way
Boon Way
Andrew St
Martha St
Grant St
Harrison St
Munn St
Creek St
Hays Ln
Brace Way
Wood Way
Vine Way
Coal Rd
Hickory Way
Poppy Way
W Mangold St
W Schwab
Louise St
Margaret St
Mifflin St
Glenn St
Park Way
Sylvan St
Cherry St
Walnut St
Sarah St
Wood St
Forest Ave
New 8th Ave
Pittsburgh
Lake Erie
837
220 m
225 m
231 m
306 m
313 m
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

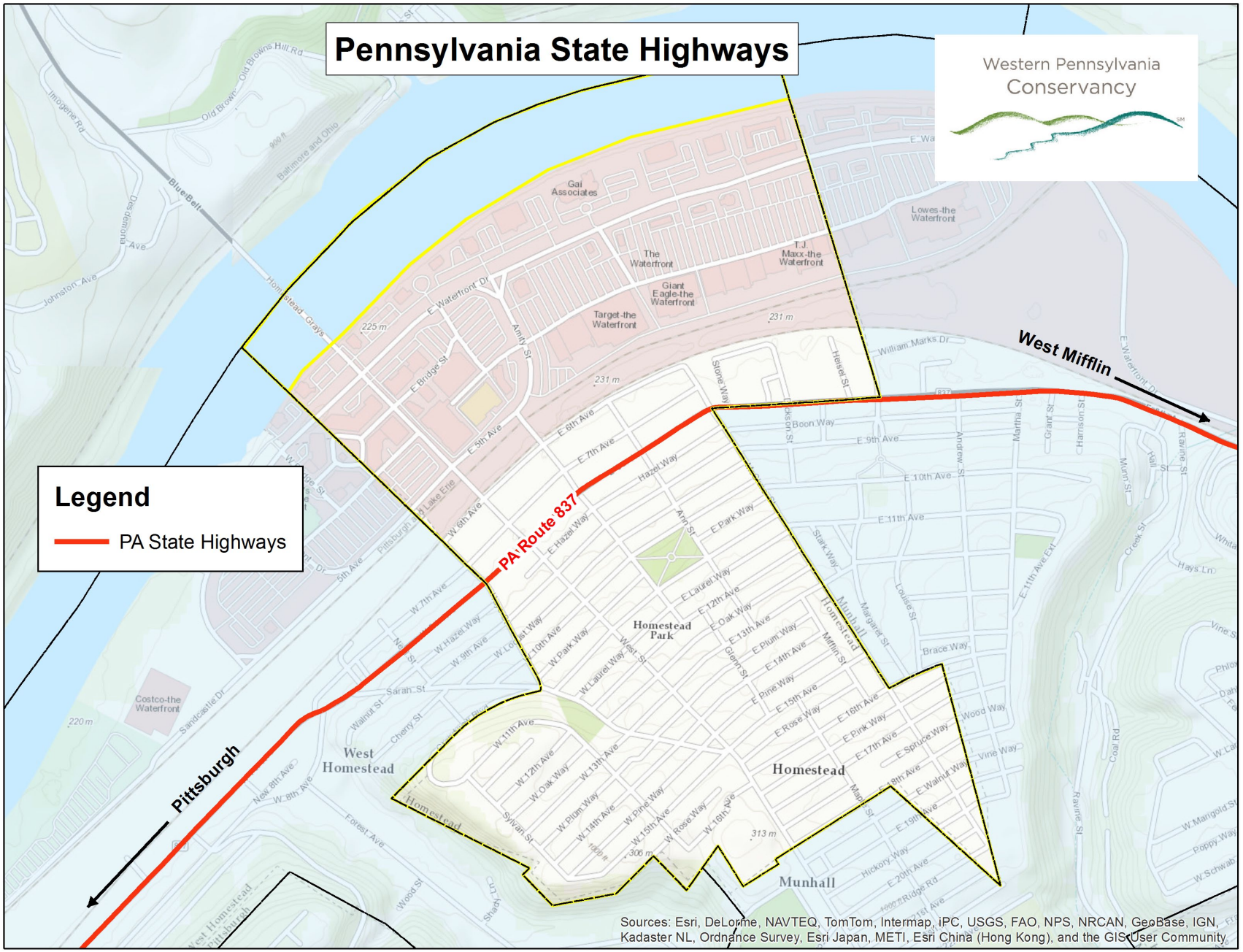
TRANSPORTATION FEATURES

Pennsylvania Route 837 runs through Homestead as 8th Avenue, connecting communities along the Monongahela River from the West End of Pittsburgh at Pennsylvania Route 51 south to Charleroi when it meets up with Pennsylvania Route 88 Interstate 376 is only a few miles away from Homestead. For public transit, the Port Authority of Allegheny County has several bus routes running through Homestead that go inbound to downtown Pittsburgh and reach outbound all the way to McKeesport. Allegheny County's public transportation, The Port Authority, offers eight different bus routes that touch Homestead. Two railroads, the Norfolk Southern and CSX Transportation still run through Homestead. Union Railroad used to have a large operation in the Borough as well; but with the mill closings, only WHEMCO, just outside the Borough in West Homestead, is still served by the railroads. The Union Railroad had a large line serving Homestead Works when it was still in operation; this is now Waterfront Drive and the Great Allegheny Passage.

8th Avenue/Route 837, Downtown Homestead. Photo: WPC.

Railroad tracks that cut through Homestead, separating The Waterfront from the rest of the Borough. Photo: WPC.


Western Pennsylvania Conservancy
Railways
CSX
Norfolk Southern
Legend
Railways
Homestead
West Homestead
Munhall
Homestead Park
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community


Pennsylvania State Highways
Western Pennsylvania Conservancy
Legend
PA State Highways
PA Route 837
West Mifflin
Pittsburgh
West Homestead
Homestead
Homestead Park
Munhall
Gai Associates
The Waterfront
T.J. Maxx-the Waterfront
Giant Eagle-the Waterfront
Target-the Waterfront
Lowes-the Waterfront
Costco-the Waterfront
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

DOWNTOWN HOMESTEAD, THE WATERFRONT AND NEARBY NOTABLE ATTRACTIONS

The Waterfront shopping center. Photo: Joe Wojcik.

During the steel era boom, Homestead Borough became the meeting and gathering place for the Steel Valley. Eighth Avenue and the surrounding blocks were where people came to shop, eat, socialize, and keep up with local events.

Homestead, like so many other industrial river towns, was hard-hit economically when the mills began to close or move after World War II. Even so, in spite of a significant amount of building vacancy (36%, or 36 buildings), there are still many small operating businesses that line Eighth Avenue and the streets off of this main street. There are 99 total units in the Downtown area and 16 undeveloped parcels, as well as seven parking lots.

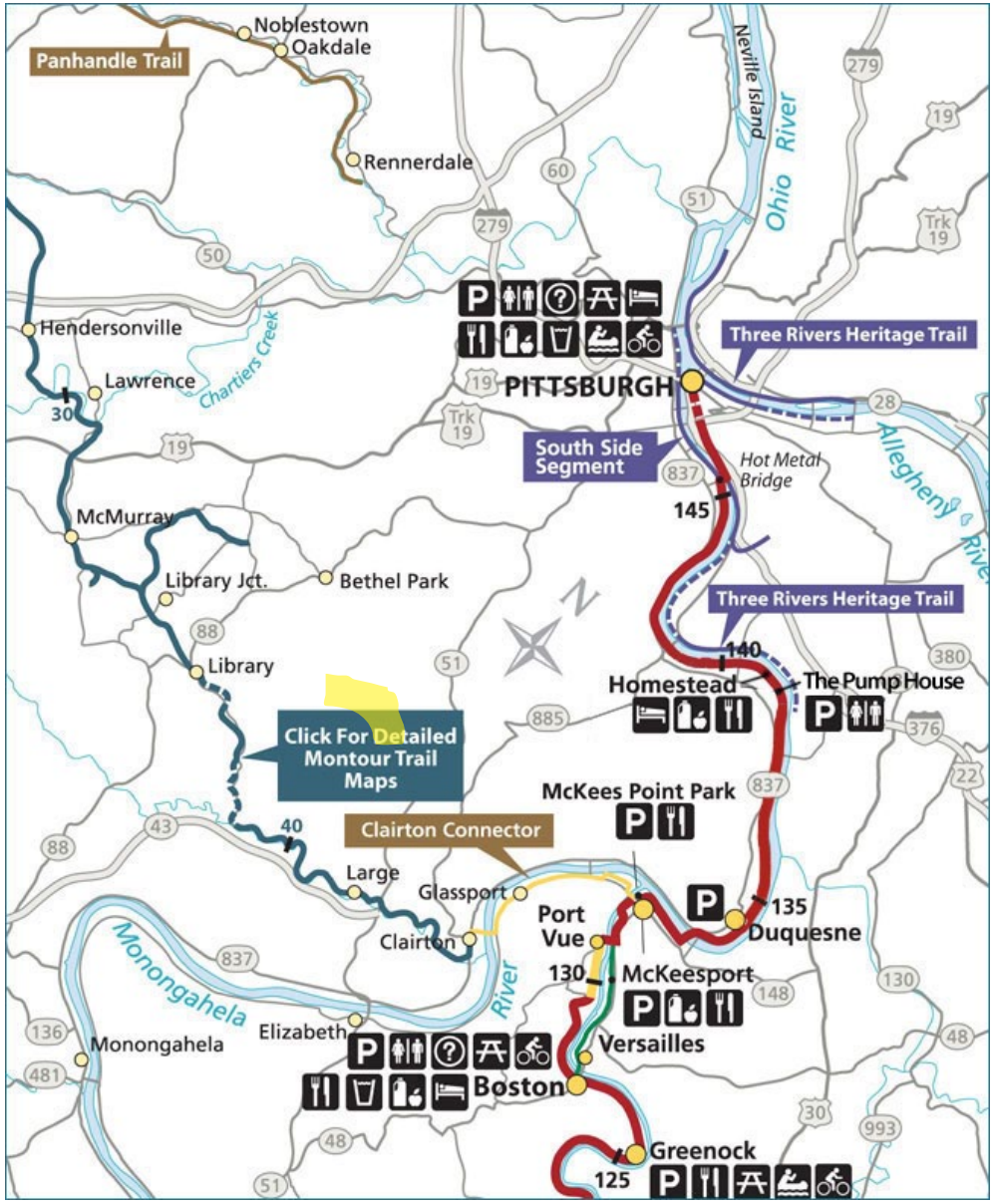
Many of the buildings of Homestead, and the West Homestead and Munhall communities have been listed on the National Register of Historic Places as the Homestead Historic District, since 1990. Many churches, commercial buildings, and homes date to the late 19th century or early 20th century and are of architectural and historic interest and built in Italianate, Romanesque, Gothic and other architectural types. There were initially 520 buildings included in the historic district, though 62 of them were considered are non-contributing, or buildings that do not contribute to the historic nature of the district. Eighth Avenue/Route 837 is the main drive of this district though the district veers irregularly through the three boroughs.

Included as part of the historic district is the Carnegie Library of Homestead. It opened to the public in 1898. This historic building, located in neighboring borough of Munhall, also houses a music hall and an athletic club open to the public. The library is one of only three that Andrew Carnegie provided with an endowment, perhaps

Kennywood, with the Phantom's Revenge ride in the background.
Photo: Seton Hill University.

Waterfront section of the Great Allegheny Passage that shares the road just to the west of Homestead. Photo: WPC.

The historic Pump House in the Waterfront section of the Great Allegheny Passage just to the west of Homestead. Photo: WPC.



Map from Great Allegheny Passage web page, available at www.atatrail.org/tmi/maps.chm

Carnegie Library of Homestead in Munhall.
Photo: Carnegie Library of Homestead.

Homestead United Presbyterian Church in the foreground and St. Nicholas Orthodox Carpatho-Russian Church at Ann Street and E. 9th Street. Photo: WPC.

as a peace offering in the aftermath of the steel strike of 1892, though the library was built outside the boundaries of Homestead. The library was built before Munhall Borough was incorporated (1901).

The Waterfront shopping plaza, blocks from the main streets of Homestead and separated from the community by railroad tracks, runs along the Monongahela River. Officially opening in 1999 in place of the defunct Carnegie Steel Works, the open air mega-shopping center has over 70 stores, restaurants, hotels and retailers as well as a movie theater. As the second largest shopping center in the region, The Waterfront is owned by M&J Wilkow and BIG USA Shopping Centers. This immense complex spans from West Homestead, through Homestead and into Munhall. Still standing in the Waterfront development are some of the brick smoke stacks from the Homestead Steel Works.

The Great Allegheny Passage Trail, the Pennsylvania portion of the rails-to-trails 334.5 mile bike and pedestrian trail that connects Pittsburgh to Washington, D.C., runs along the Monongahela River through the Waterfront for the Homestead portion. This section is a little less than one mile. In addition, near the river is a former mill structure known as the Pump House which was restored by the developer.

Also not in Homestead proper, but located just west of the Borough, is the popular Sandcastle water park adjacent to the Monongahela River; its sister location, Kennywood, the historic amusement park, is located four miles east of Homestead in West Mifflin Borough.

POPULATION

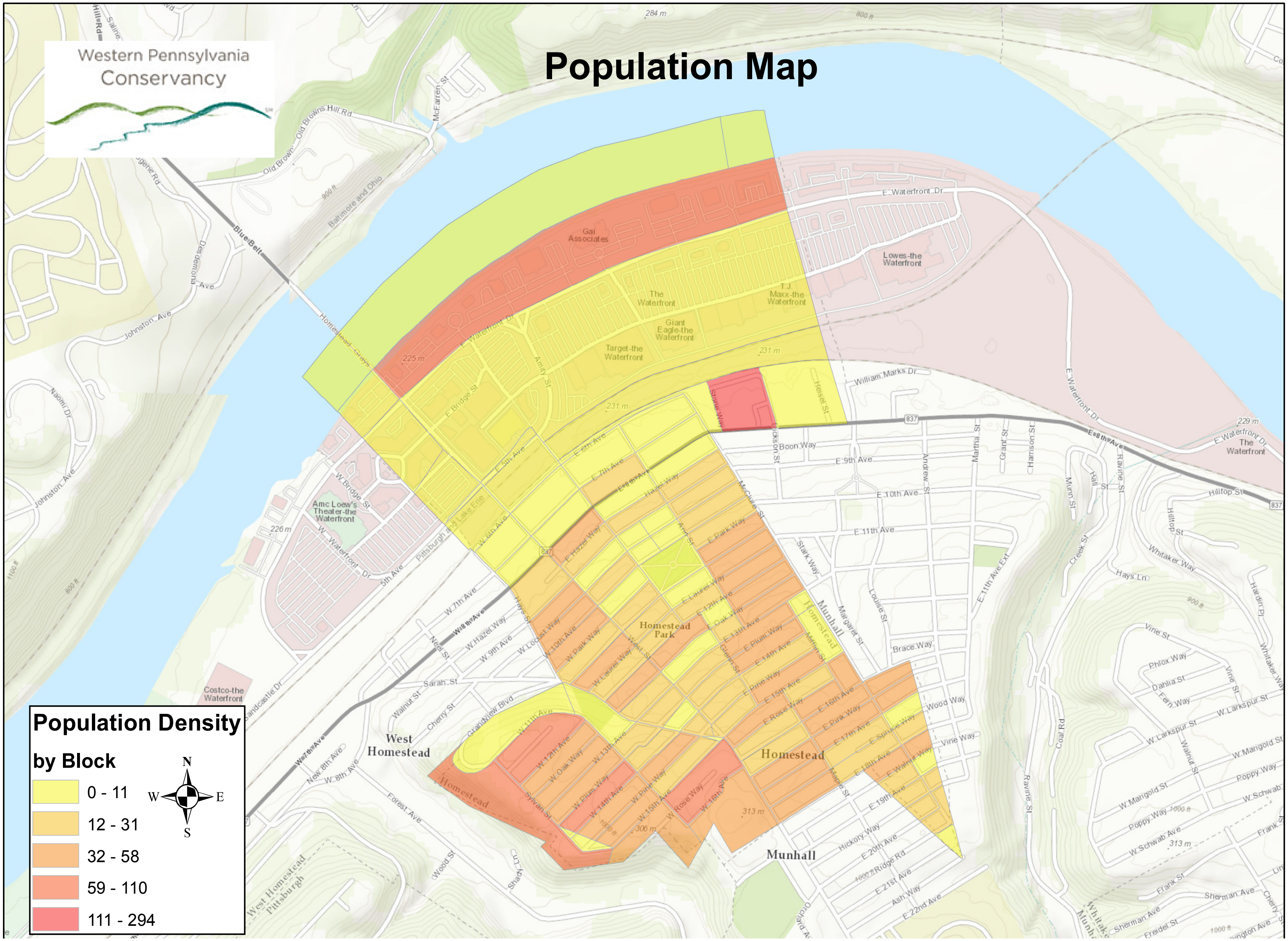
The population of Homestead, like many surrounding boroughs and the city of Pittsburgh itself, has fallen as the result of changes in employment, suburbanization, and other economic trends. Since 2000, Homestead has lost about 11.3% of

	Population				Population Change			Area	Density
	Pop. 2010	Pop. 2000	Pop. 1920 (peak)	Pop. 1960 (50 years ago)	Pop. Change % since 2000	Pop. Change % since 1920	Pop. Change % since 1960	Land Area (sq. miles)	People / sq. mile (2010)
Homestead	3,165	3,569	20,141	7,502	-11.3%	-84.8%	-57.8%	0.6	5,275
Allegheny County	1,223,348	1,281,666	1,185,808	1,628,587	-4.6%	+3.2%	-24.9%	730.1	1,675.8

its population, more than twice the proportion in Allegheny County as a whole (-4.6%). The population of the Borough is only 15% of what it had been at its peak in the 1920s, though it should be remembered that the population halved in the 1940s as homes were razed by the United States government to make room for additional steel mills to make plating for tanks and ships in World War II. After the war, and with a continual decline in mill production, Homestead never recovered. Even so, Homestead remains a relatively densely populated borough compared to the county as a whole. In 2010 the Borough had over 5,275 people per square mile of land compared to a ratio of 1,676 people per square mile of land for the County.

The proportion of people in each age category is similar to the county's distribution of ages, though the number of persons under 20 years of age is 4% higher in Homestead comparatively, and the age group 35-59 is also nearly 4% higher than the county averages. It is also worth noting that the African American population in Homestead is far higher than the county average and that of most municipalities. More than 59% of Homestead's population identifies as African American, up from 51% in 2000.

In terms of green space needs, it is important to have a range of green spaces that cater to each age group—safe play spaces for small children, passive or low-exertion spaces for older residents and plenty of green places that support active enjoyment of the outdoors for the over 19 but under 75 age groups. Outdoor play is crucial for healthy development of youth, and with more than a quarter of Homestead's population under 20, it is imperative that the Borough offers safe access to green, recreational areas. It is also important to note that more than 65% of Homestead's


Population Map
Western Pennsylvania Conservancy
Population Density by Block
0 - 11
12 - 31
32 - 58
59 - 110
111 - 294
N
S
E
W
Homestead Park
West Homestead
Homestead
Munhall
The Waterfront
Lowes-the Waterfront
T.J Maxx-the Waterfront
Giant Eagle-the Waterfront
Target-the Waterfront
Gai Associates
Amc Loew's Theater-the Waterfront
Costco-the Waterfront
E Waterfront Dr
William Marks Dr
E 8th Ave
E 9th Ave
E 10th Ave
E 11th Ave
Johnston Ave
McClure St
Hays St

	Race %			Age %				
	African American	White	Other Affiliated	Under 20	20-34	35-59	60-74	75+
Homestead	59.1%	32.8%	8.1%	26.6%	18.4%	30.7%	15.6%	8.5%
Allegheny County	13.2%	81.5%	5.3%	22.6%	20.1%	34.4%	13.8%	9.0%

residents live in rental properties. This usually means that they do not have much access to private green space. This makes the need for public green space all the more important for a healthy community.

	Income		Housing			
	Median Household Income	Est. % Under Poverty Level	% Occupied	% Vacant	% Owner Occupied	% Renter Occupied
Homestead	$42,351	23.9%	78.4%	21.6%	34.8%	65.2%
Allegheny County	$49,805	12.4%	90.6%	9.4%	64.7%	35.3%

ECONOMIC FACTORS

The proportion of Homestead residents below the poverty level is considerably higher than Allegheny County as a whole. Lower levels of income tend to reduce options for access to outdoor recreation or enjoyment, and limit travel to more distant green resources. These factors make local assets all the more important. The income levels of Homestead's population also likely directly correlate to the high percentage of renters and the lower level of owner-occupied units of housing. Overall vacancy rates for buildings in the Borough are also more than double the county percentage, sometimes a precursor to vacant land management issues as buildings must be razed and land lies unused.

ENVIRONMENTAL FACTORS

Homestead must take into account a variety of environmental factors in its quest for revitalization. Some factors are human-caused such as the brownfield pollution left along the railroad tracks on the northern border of the community. Some significant features are a result of the natural topography of the region. For example, the residential area of Homestead has a rise of 235 feet from the Borough building up McClure Avenue to its southernmost point at Ridge Avenue. This presents an issue for storm water flow. It is worth providing some background on this issue as context for recommendations provided later in this report.

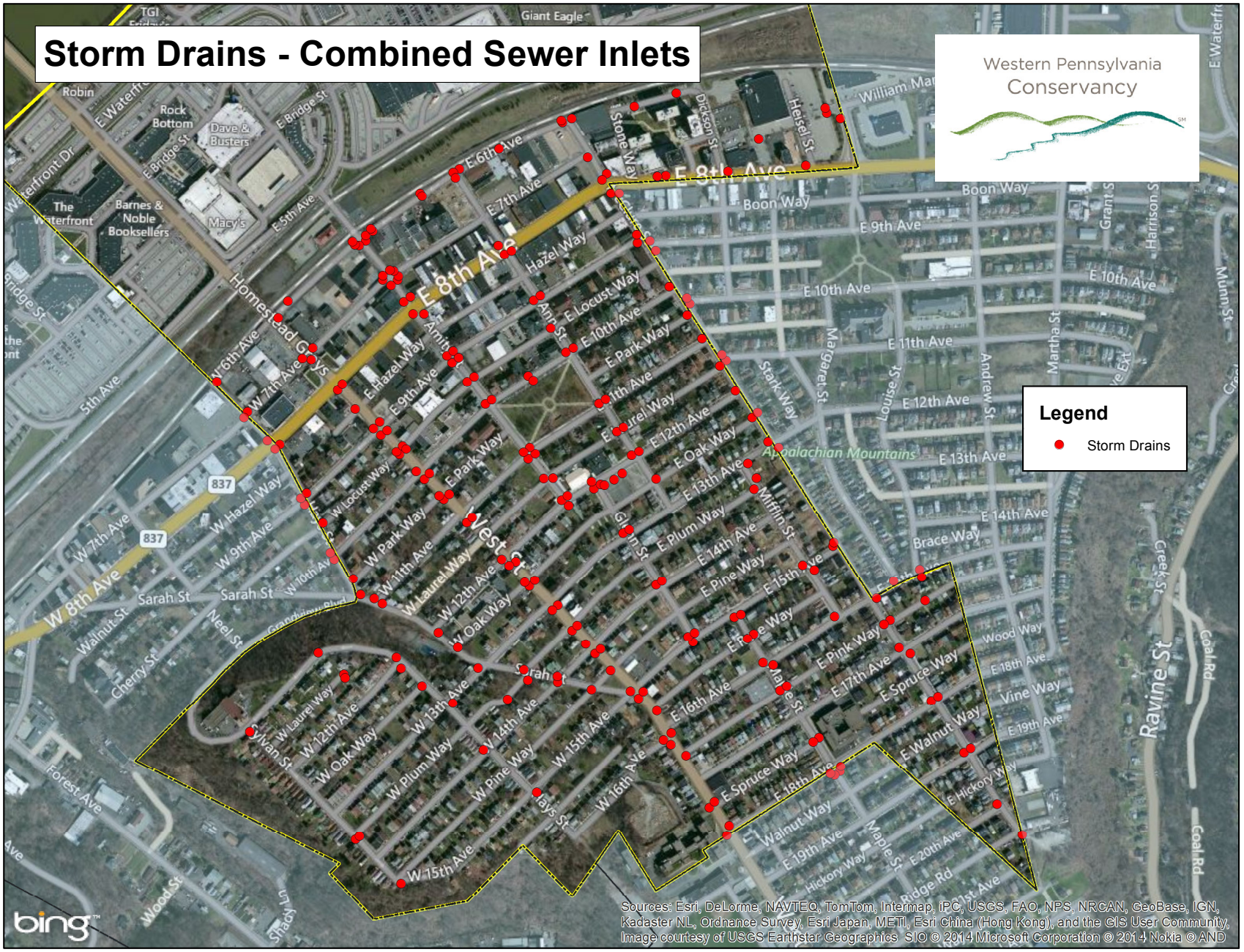
Wet Weather Issues and ALCOSAN

Homestead is within the ALCOSAN service area. The ALCOSAN system is a complex network of 83 municipal sewage collection systems all flowing to a single treatment plant. The collection system's 4,100 miles of underground pipes collect and transport sewage from each home or business to ALCOSAN for treatment and subsequent release back into the rivers. Two types of sewage collection systems exist in the ALCOSAN service area—the combined sewer system and the separate sanitary system. A majority of Homestead is served by a combined sewer, with the Waterfront development being the only area served by separate sanitary sewer. Combined sewer systems were designed to carry both wastewater and storm water in the same pipes. These systems are prevalent in older communities with collection systems built before the 1940s.

Throughout the ALCOSAN service area, 317 overflow structures were designed and constructed to deliberately release excess storm water and wastewater from the collection system when the flow exceeds the pipes' capacity. Of these structures, 265 are within combined sewer systems and 52 within separate sanitary sewer systems. In a combined sewer system, overflows are called combined sewer overflows (CSOs). A majority of the outfall from CSO events in Homestead is released into the Monongahela at Outfall M-45, which is located below the Homestead Grays Bridge.

Because combined sewer systems are intended to carry storm water and wastewater, they were designed with structures to deliberately release excess flow when the system becomes overloaded during wet weather. A CSO event occurs when storm water and sewage, carried in a single pipe, overload the sewer system and flow untreated into rivers and streams, carrying a variety of pollutants with it. While overflow structures in combined sewer systems are legal, municipalities must acquire a permit for each structure. Due to a federal consent decree that will be discussed next, ALCOSAN and its municipalities will very soon need to dramatically decrease the volume and frequency of CSOs that occur annually.

Correcting the sewage overflow problem is a priority for ALCOSAN and the 83 municipalities it serves. Under the US Environmental Protection Agency's (EPA) Combined Sewer Overflow Policy, combined sewer overflows as well as the pollutants discharged, must be controlled. In 2008, a binding consent decree was approved by federal court in which ALCOSAN, under the mandate of EPA, the PA Department of Environmental Protection (DEP), and the Allegheny County Health Department, agreed to a comprehensive plan to greatly reduce annual discharge of untreated sewage into area waterways by 2026.


Storm Drains - Combined Sewer Inlets
Western Pennsylvania Conservancy
Legend
Storm Drains
E 8th Ave
W 8th Ave
West St
Appalachian Mountains
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community, Image courtesy of USGS Earthstar Geographics SIO © 2014 Microsoft Corporation © 2014 Nokia © AND
bing

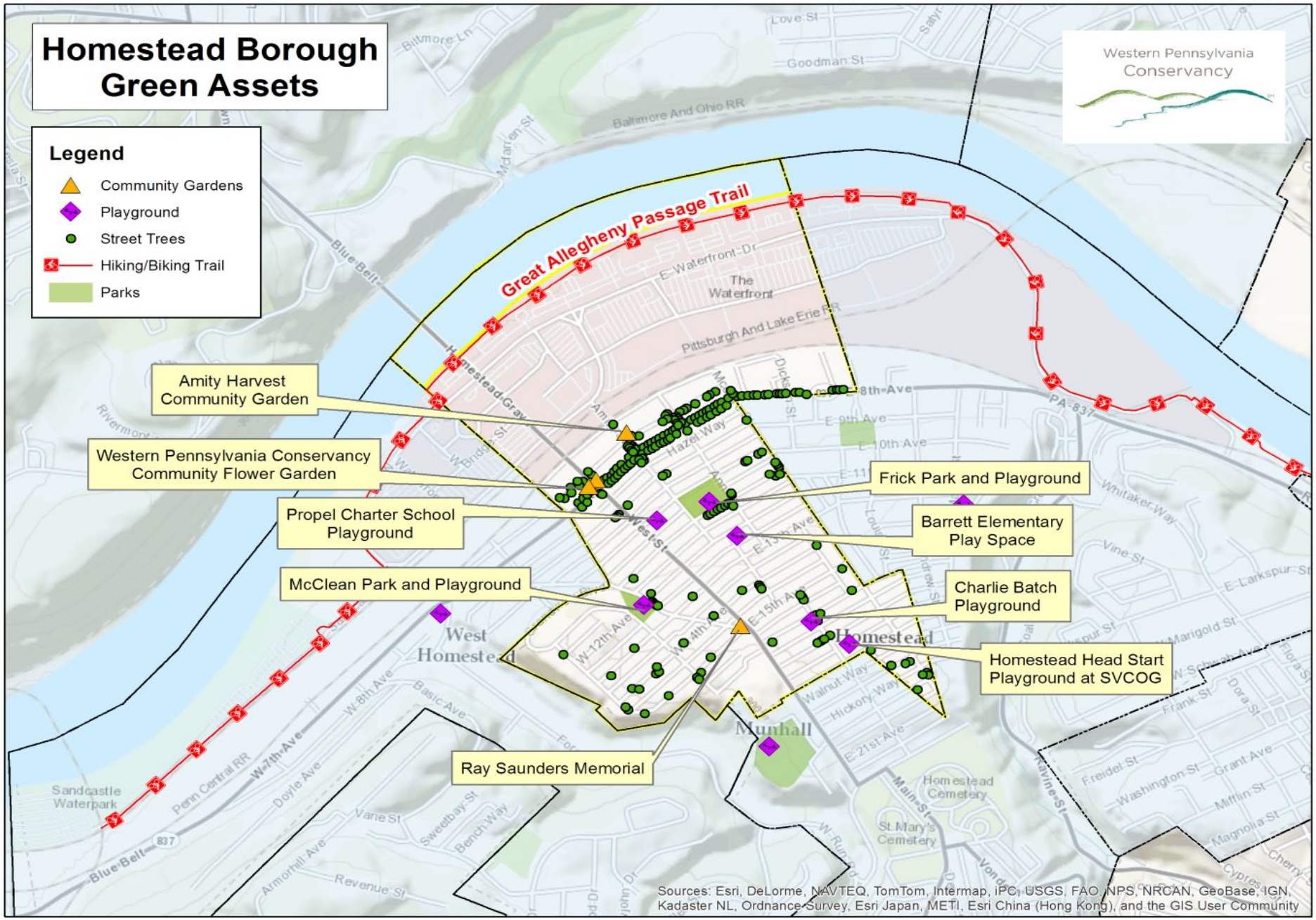
Economic Argument for Investing in Green Infrastructure - Source Reduction Strategies

Given the extraordinarily costly remedies for this issue using conventional grey (pipe and sewer) construction it is worth considering the possibility of removing the first ¼ to ½ inch of storm water from the system before it heads downhill and into the major storm drain that empties into the Monongahela river on the banks of Homestead. This Green Scan provides a variety of options for the Borough to consider for storm water management.

There are now many examples from across the country demonstrating how cities have invested in green infrastructure strategies to reduce the overall costs of compliance with local, state and federal clean water laws (see Appendix for literature). Investing in cost-effective green infrastructure placed strategically to intercept stormwater before it enters the system could result in significant avoided capital costs for gray infrastructure "downstream" from Homestead. Because of Homestead's position within the overall ALCOSAN network, reducing the amount of stormwater entering the combined sewer system in Homestead and surrounding boroughs may contribute significantly to reducing the storage capacity that will be needed to reduce CSOs to comply with the consent decree.

Sources used to compile this profile:

Homestead Borough web page: http://www.homesteadborough.com/
Steel Valley COG web page: http://www.svcog.org/Homestd.html
Wikipedia page on Homestead: http://en.wikipedia.org/wiki/Homestead,_Pennsylvania
United States Census Bureau: http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml
Town Center Associates http://www.towncenter.info/downtown/homestead/downtown_profile_hs.aspx
Burns, Daniel J. Homestead and the Steel Valley. Charleston, SC : Arcadia Pub., 2007.


Homestead Borough Green Assets
Western Pennsylvania Conservancy
Legend
Community Gardens
Playground
Street Trees
Hiking/Biking Trail
Parks
Great Allegheny Passage Trail
Amity Harvest Community Garden
Western Pennsylvania Conservancy Community Flower Garden
Propel Charter School Playground
McClean Park and Playground
Ray Saunders Memorial
Frick Park and Playground
Barrett Elementary Play Space
Charlie Batch Playground
Homestead Head Start Playground at SVCOG
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

SECTION THREE: EXISTING GREEN ASSETS

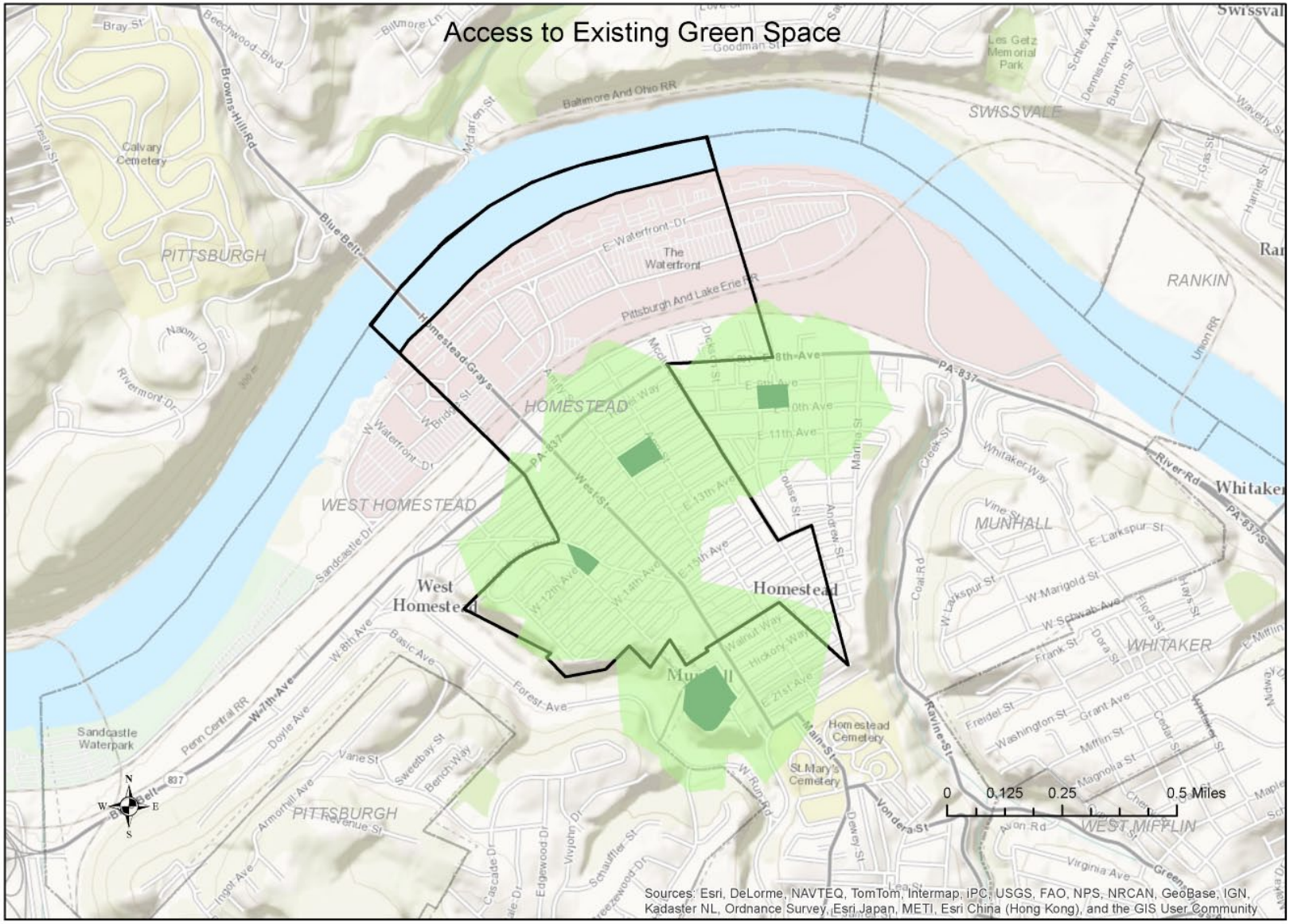
As a starting point for identifying the best opportunities to invest in greening in the Borough of Homestead, this Green Scan includes a review of Homestead's existing green assets, including parks and open spaces, streetscapes, the urban forest, and community gardens. This section includes a review of the condition of the existing green assets, an assessment of how well these assets meet the community's needs and goals, and a review of the location of existing green assets to determine which areas are not currently well served.

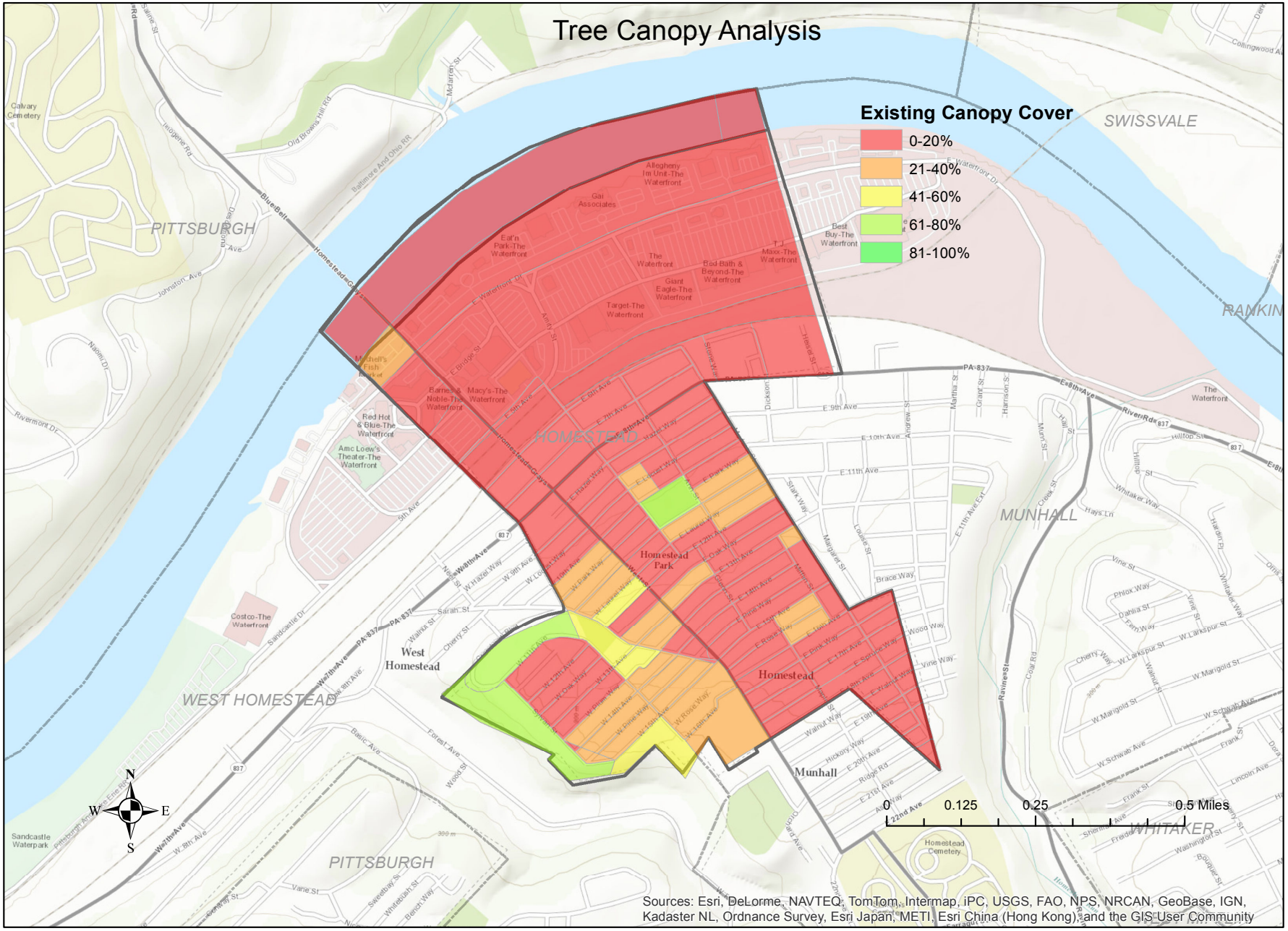
PARKS AND PUBLIC GREEN SPACES

This Green Scan included an analysis of how well Homestead's existing parks and public green spaces serve the entire Homestead community. The applicable goal for providing adequate greenspace for a community is to provide between .25 and 1 acre of small park space per 1,000 people within ¼ mile radius (10 minute walk) of populated areas. Approximately 650 people in Homestead or 21% do not live within a 10 minute walk of a public park.

Small parks will typically offer seating, views, greenery, gathering space or contemplative green space for all ages, but particularly for those people who are less likely to use intensive sports facilities such as ball parks (small children or older citizens). In addition it is desirable to have neighborhood or community parks on the order of 1 to 2 acres per thousand people to offer a greater variety of recreational resources—play equipment, facilities for field games, skating, picnicking, wading pools, and the like. For its population of 3,150 people the Borough would ideally provide up to 3 acres of small parks and up to 6 acres of larger parks. Currently Homestead has one large park (about 3 acres) and one small multi-purpose playground plus several smaller playground spaces (about 2.2 acres total). Larger parks nearby include both Kennedy Park (in front of Carnegie Museum of Homestead) and Munhall Recreation Park are located in Munhall. This document will focus only on the parks directly inside the boundaries of Homestead Borough.

Analysis of access to parks in relation to density of population indicates several locations in the northeast corner of the Borough and the southeast and far southwest edge where there are fairly dense populations with limited greenspace access. The northeast location is related to a dense elderly high rise and other areas are residential streets. As Homestead reviews its priorities for greenspace, these are areas to consider for small new greenspace opportunities.


Access to Existing Green Space
Bray St
Beechwood Blvd
Browns Hill Rd
Calvary Cemetery
Tesla St
Baltimore And Ohio RR
Goodman St
Les Getz Memorial Park
Schiller Ave
Dennison Ave
Burton St
Wavelly St
SWISSVALE
Harriet St
Gas St
PITTSBURGH
Blue Belt
McFarren St
E Waterfront Dr
The Waterfront
Pittsburgh And Lake Erie RR
RANKIN
Union RR
Naomi Dr
Rivermont Dr
Homestead Grays
HOMESTEAD
E 8th Ave
E 9th Ave
E 10th Ave
E 11th Ave
PA 837
Whitaker Way
River Rd
Whitaker
PA 837 S
W Waterfront Dr
Wood St
West St
E 13th Ave
Louise St
Martha St
Andrew St
Creek St
WEST HOMESTEAD
MUNHALL
E Larkspur St
W Larkspur St
W Marigold St
W Schwab Ave
Hays St
Flora St
Sandcastle Dr
West Homestead
E 12th Ave
W 14th Ave
E 15th Ave
Homestead
Coal Rd
Frank St
Dora St
WHITAKER
E Mifflin
W 8th Ave
Basic Ave
Walnut Way
Hickory Way
E 21st Ave
Forest Ave
Penn Central RR
W 7th Ave
Doyle Ave
Sandcastle Waterpark
Freidel St
Washington St
Grant Ave
Mifflin St
Cedar St
Whitney St
Ravine St
Homestead Cemetery
St Mary's Cemetery
Main St
W Run Rd
Magnolia St
Maple St
Vondera St
Varie St
Sweetbay St
Bench Way
Armorhill Ave
PITTSBURGH
Revenue St
Avon Rd
WEST MIFFLIN
Virginia Ave
Ingot Ave
Cascade Dr
Edgewood Dr
Vivyjohn Dr
Schauffler St
Brentwood Dr
Lea St
Owen St
N
W
E
S
0
0.125
0.25
0.5 Miles
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community


Tree Canopy Analysis
Existing Canopy Cover
0-20%
21-40%
41-60%
61-80%
81-100%
SWISSVALE
PITTSBURGH
HOMESTEAD
WEST HOMESTEAD
MUNHALL
RANKIN
WHITAKER
West Homestead
Homestead Park
Homestead
Munhall
0
0.125
0.25
0.5 Miles
N
S
E
W
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

Frick Park: This important green space is embedded in the heart of the residential hillside in the center of the Borough. Although only three acres large, this handsome park provides plenty of shade under tall mature London Plane trees and offers a pleasing space for people to stroll through or rest on park benches situated throughout the space.

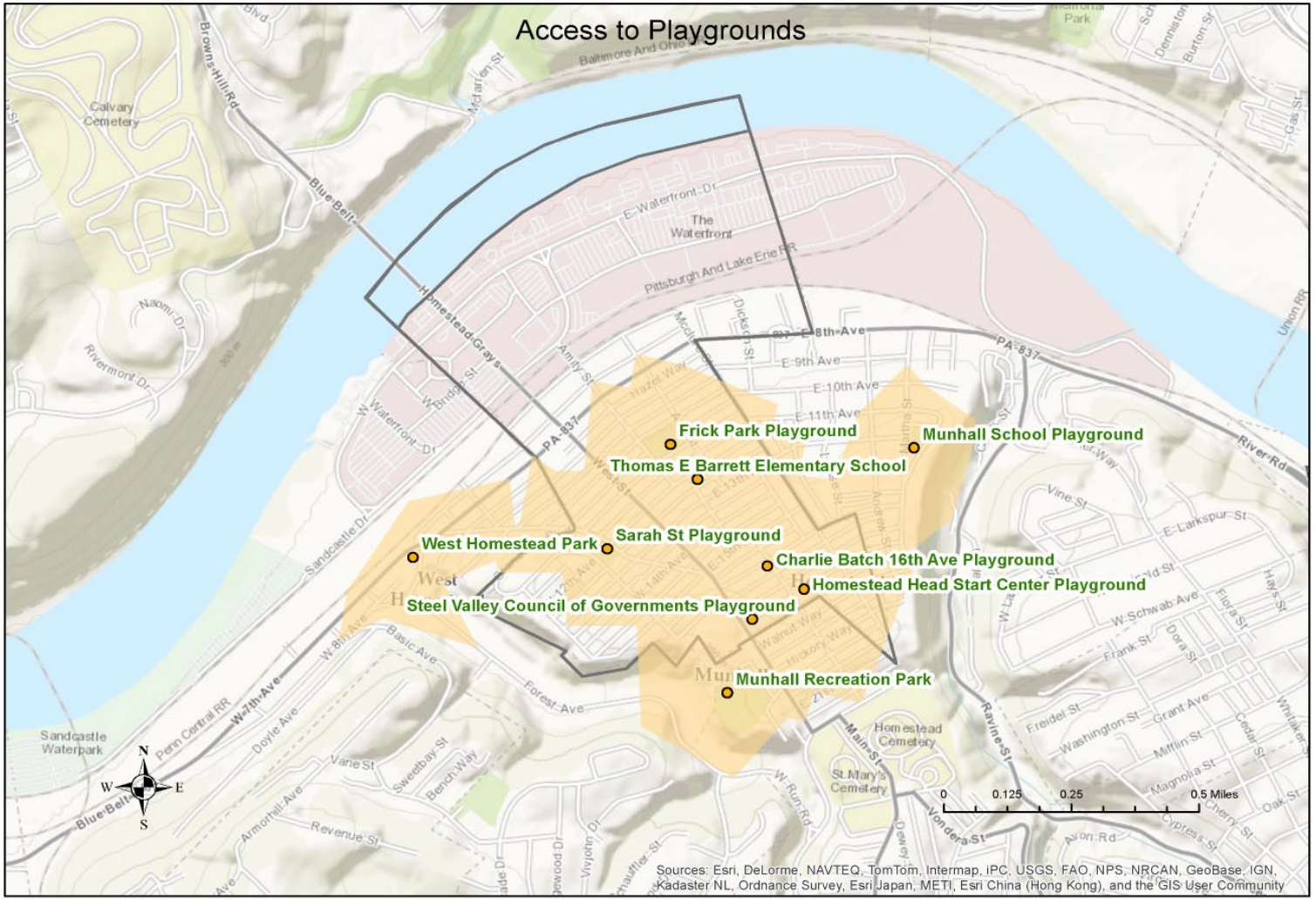
Frick Park entrance and sign from the southwest entrance. Photo: WPC.

Frick Park entrance and sign from the northwest entrance. Photo: WPC.

Southeast corner of Frick Park. Former fountain in the foreground with war memorial behind it on the left. A conventional children's playground on the right. Photo: WPC.

PLAYGROUNDS

Homestead provides four playgrounds for its residents, three public and one associated with a charter school that is accessible to the public. Approximately 550 people, or 17% of the population of Homestead, do not currently have access to playgrounds within a 10 minute walk.



Sullivan Playground: Located at Ninth Avenue and Amity Streets offers a basketball court and a small playground with slide and climbing structure. This space measures a little more than a quarter acre, or 12,000 feet. There is a strip of greenspace separating the courts from the play area, and there are several trees that offer some measure of shading for the spaces.

Sullivan Playground. Photo: WPC.

Charlie Batch Playground: Situated at Sixteenth Avenue and Maple Street, this fenced playground offers two basketball courts and a small area of play equipment for young children. In addition there is an area with picnic benches and tables and some sitting benches; however, this space is paved, rather than green. There is very little shade around the court areas. The total size of this space is approximately 0.37 acres or 16,000 square feet.

Charlie Batch 16th Avenue Playground. Photos: WPC.

McLean Playground: On Sarah Street at West 12th Avenue, this space is one of the larger play areas in the borough at 1.4 acres or 60,500 square feet. The space includes play equipment, with slide and climbing structure. There is also a small covered area. However, much of the space is under utilized. Asphalt courts appear not to be used and there is a significant space that is becoming overgrown and appears abandoned.

McLean Playground. Photos: WPC.

PROPEL Playground: On East 10th Avenue across from the PROPEL School a sloped space has been outfitted with KABOOM-installed play structures. There is no shade cover for the space or for the parking lot above it. This active space measures about 5,000 square feet and some 7,800 square feet in total including the adjacent hillside.

Propel Playground. Photos: WPC.

All together, then, Homestead Borough provides about 3 acres of larger park space and about 2.25 acres of small park/playground spaces for residents. This is somewhat lower than the ideal amount of formal greenspace for this size of population, but within baseline goals. A more crucial measure is how accessible the designated Greenspace is to residents. A Geographical Information Systems (GIS) analysis was conducted to determine what portion of the current population of Homestead lives within a ten minute walk, following existing streets, of the existing parks. The analysis shown on the map below of existing park space indicates that nearly 79% of Homestead residents have adequate access to any existing parks, that is, within a one-quarter mile or ten minute walk of an existing park. Meanwhile, existing playgrounds serve approximately 83% of the population of the Borough.

GATEWAY, MEMORIAL AND VEGETABLE GARDENS

Homestead Grays Bridge: Western Pennsylvania Conservancy has many gateway and community flower gardens throughout Allegheny County. One of the best recognized of these gardens resides at the base of Homestead Grays Bridge along 8th Avenue on either side of the bridge. This site was initially installed by Western Pennsylvania Conservancy in 1997. The Conservancy raises the money to provide the materials essential for the garden's planting and care, and it seeks the help of local neighbors and organizations to serve as stewards to tend to the gardens throughout the growing season. This garden serves to welcome drivers who enter into Homestead from the Homestead Grays Bridge, highlights the entry to the bridge going back north into Squirrel Hill across the river, and has steel worker monuments on the site.

WPC community flower garden at the Homestead Grays Bridge and 8th Avenue.. Photos: WPC.

Ray Saunders Memorial: Ray Saunders was a long-time minister to the greater Homestead area youth, working for the Young Life organization for more than 30 years. He passed away far too early in 2009. One of the passions that he shared with the students in YoungLife was gardening and one of the sites he tended to was the WPC Homestead Grays Bridge. In recent years, a memorial was enacted to keep his memory and love for his community alive. The space, located at the corner of West Avenue, W. 15th Avenue and Sarah Street, contains a small flower bed around a memorial with a colorful mural and, in the triangle island across the road, there is a sitting bench with plantings and landscaping stone.

Saunders Memorial. Photos: WPC.

Amity Harvest Community Garden: In 2013, Homestead worked with Allegheny County Department of Economic Development, Grow Pittsburgh, and the Western Pennsylvania Conservancy through the Allegheny Grows program to implement a community vegetable garden, located at Amity Street and E. 7th Avenue. Local volunteers manage the garden and help with produce distribution for neighbors, friends, and the local food pantry. The garden boasts raised beds, flower gardens, herb gardens, and fruit trees.

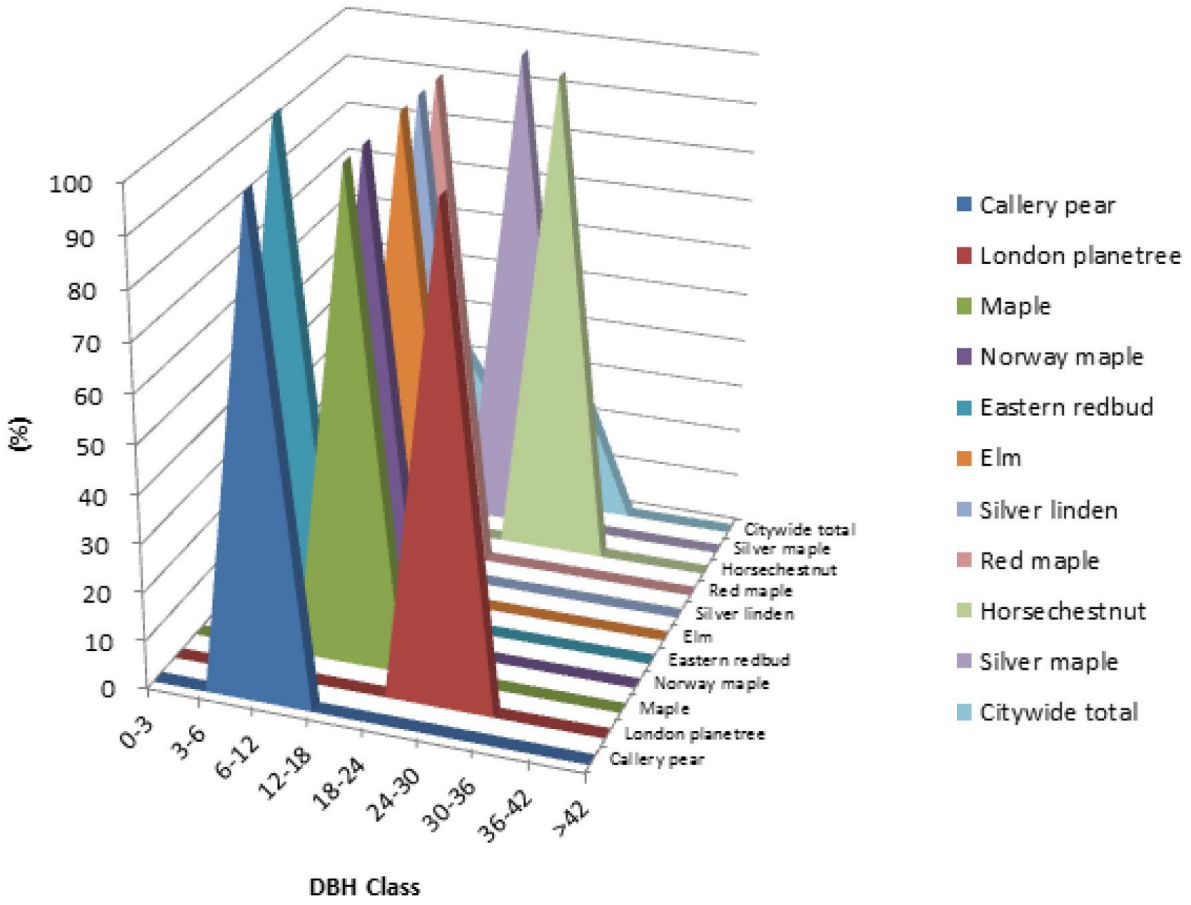
Amity Harvest Community Garden. Photos: WPC.

TREE ANALYSIS

The tree population in Homestead can be classified into two categories, public and private. The following analysis will focus largely on the tree population in the public right-of-way with minimal reference to trees on private property. Trees in the public domain include street, park and certain residential trees that fall in the public right of way. Trees growing in yards, the Waterfront development or away from the street on vacant lots are not included in this analysis.

Public Trees

The public street tree population of Homestead consists of 216 trees of 15 different species. The top six tree species are Callery pear, London planetree, Maple, Norway maple, eastern redbud and elm that constitute 86% of the population. Callery pear, an invasive species, is 43% of the total population and London planetree is 24% of the total population. Norway maple, another invasive tree is 5.2% of the total population. Considering that nearly half of all trees in the public right of way are invasive, tree replacement strategies should account for the eventual removal of invasive trees and the planting of a diverse mix of non-invasive trees. Aside from the London plane trees in Frick Park, the population is on the young side, with the majority of trees falling in the 12-18-inch diameter class and few trees in diameter classes over 30 inches. The following graph represents the relative age distribution of the top 10 public tree species (%).

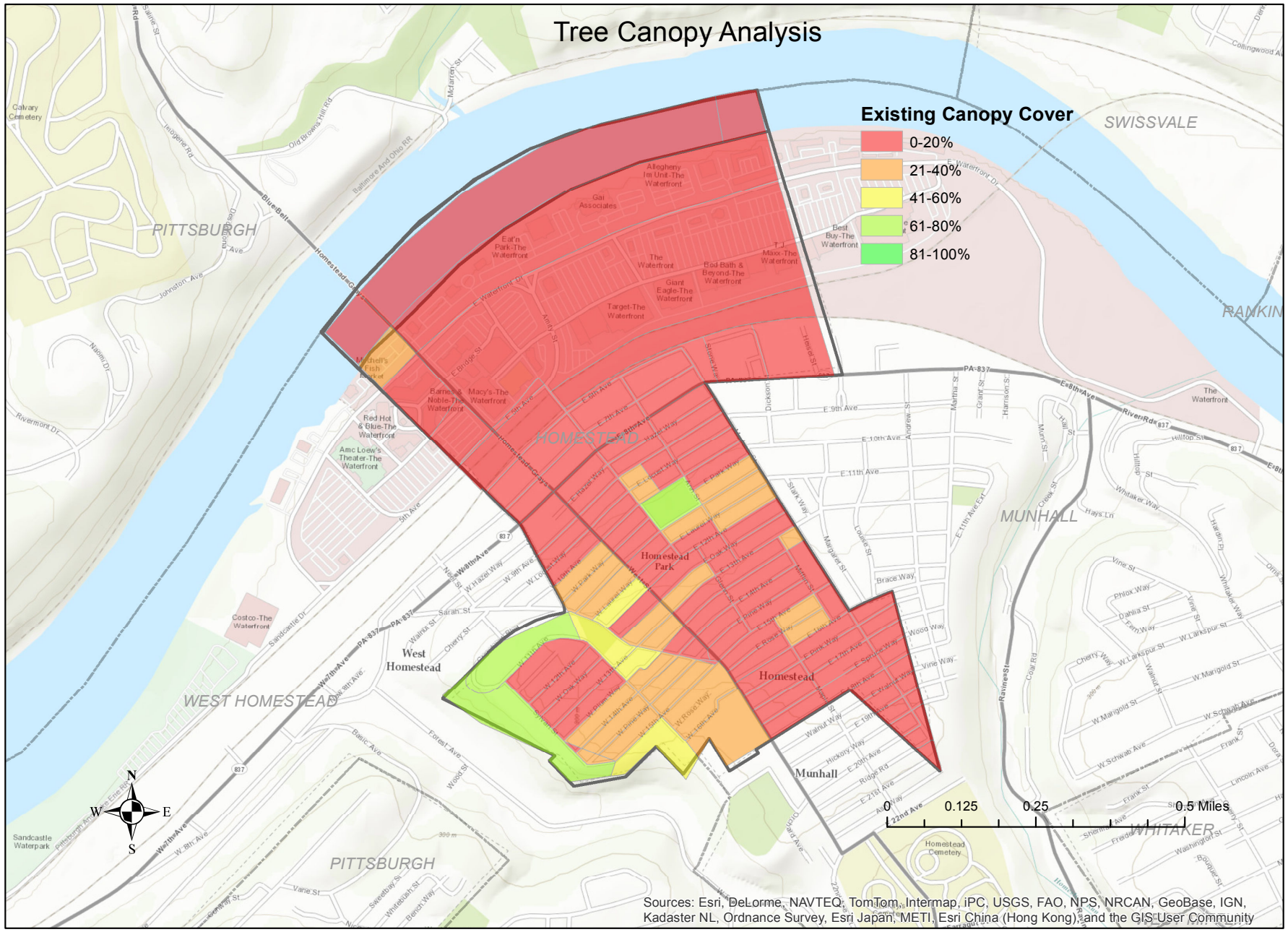


Supplementing the i-Tree report, site reconnaissance during this study found that there is a tremendous opportunity for expanding Homestead's urban forest with additional tree plantings. Helping to inform future tree planting efforts, the i-Tree inventory in conjunction with the Canopy Cover Analysis discussed in the next section provide a platform to assist urban forestry decision making. Examples of this include improved species diversity, tree distribution across neighborhoods, targeting areas of lowest canopy, and priorities important to Homestead Borough.

Canopy Cover Analysis

Interpreting the Urban Tree Canopy Assessment conducted by Allegheny County and including both public and private tree cover, it becomes apparent where existing tree canopy is deficient. Analysis of the tree canopy cover by census block can assist the municipality in prioritizing targeted tree plantings and focusing on areas of greatest need. Referring to the canopy map below, the census blocks in red have 0-20% canopy and are the areas of greatest tree need.

There are few street trees in any of the residential area of Homestead south of 8th Avenue. Photo: WPC (left) and Google images (right).


Tree Canopy Analysis
Existing Canopy Cover
0-20%
21-40%
41-60%
61-80%
81-100%
HOMESTEAD
West Homestead
Homestead
Homestead Park
Munhall
WEST HOMESTEAD
MUNHALL
PITTSBURGH
SWISSVALE
RANKIN
WHITAKER
N
S
E
W
0
0.125
0.25
0.5 Miles
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

The national average for street trees in comparable cities is one street tree for every five persons. Pittsburgh's street tree population is one street tree for every eleven people. Homestead has approximately one public tree for every 15 people.

Environmental and Economic Benefits of Existing Trees

The environmental and economic benefits of Homestead's public trees were calculated using the i-Tree Streets program. Benefit inputs help to define the dollar value of tree-related environmental and economic services associated with trees. Default values based on the specific climatic zone are included for Homestead Borough. The inputs used to determine the environmental and economic benefits include:

- $/Kwh—dollar value of energy savings of electricity
- $/Therm—dollar value of energy savings from reduction of heating needs
- $/lb of CO2—dollar value of carbon dioxide (CO2) removed from the atmosphere
- $/lb of PM10—dollar value of particulate matter (PM10) with diameter 10 micrometers or less removed from the atmosphere
- $/lb of NO2—dollar value of nitrogen dioxide (NO2) sequestered from the atmosphere
- $/lb of SO2—dollar value of sulfur dioxide (SO2) sequestered from the atmosphere
- $/lb of VOC—dollar value of volatile organic compound (VOC) sequestered from the atmosphere
- $/gallon of storm water interception—dollar value of water intercepted, through fall and stem flow
- average home resale value—dollar value that trees add to the sales price of a home

Homestead's public trees provide $33,543 per year in environmental and economic benefits. Quantifying the annual benefits of trees can assist the borough in making the case for more trees and better management of the existing tree resource. It is important to point out that as trees get bigger the annual value of their benefits increase.

Energy	CO2	Air Quality	Storm Water	Aesthetic/Other	Total*
$12,606	$327	$2,236	$2,963	$15,410	$33,543

*Note-the value of benefits will increase as trees grow.

SECTION FOUR: POTENTIAL GREEN ASSETS

PUBLIC GREEN SPACES AND RECREATIONAL OPPORTUNITIES

Based on the GIS analysis of current community access to existing parks and green spaces, most of Homestead Borough is within acceptable walking distance of existing Borough parks. However, the Borough could benefit from cleanup and rehabilitation of existing parks, some re-design of existing park amenities, adding new types of park amenities, and long-term maintenance planning. Given the size of the Borough, its budget and other priorities, as well as available land, it is unlikely that the Borough would want to add any larger size parks in the foreseeable future. However, there are a number of cost effective ways to improve quality and add amenities to existing parks and playgrounds. In addition, as a strategy for repurposing vacant land is developed the Borough can watch for opportunities to fulfill needs in two key locations by utilizing vacant land for needed greenspace.

Sample park improvement plan adding trees, greening parking lots and including trails and walking paths.

Several improvements to existing Borough parks could be made in the short term. In addition, it could be beneficial to create a Borough Parks Master Plan. Such a plan could detail the needs and specific opportunities that the Borough wishes to pursue over the next 5 years. Specific goals such as more shade, less pavement, additional storm water capture and assets that fill unmet needs, such as benches and quiet sitting spaces for older citizens or natural play spaces for smaller children, can be set.

It may be a cost-effective option to add simple green play spaces using natural materials that are readily available even through ordinary Borough maintenance practices. By repurposing materials, such as tree trunks, vines, stones and boulders, some innovative and readily replaceable play elements can be added to existing green spaces.

Children play in child-sized bird nest at Crescent Early Childhood Center, Homewood (left). Photo: WPC.

Natural Playground. Photo: Unknown.

STREETSCAPES

Baskets and Planters

Currently, the Borough has a variety of streetscapes. Along 7th Avenue there are some sections with very attractive tree pits and sidewalk configurations that add interest and allow trees to grow more successfully. In general, significant additions or changes to the streetscape such as street planters or hanging baskets do not appear to be an effective strategy for the Borough at this time. At this time the cost of hanging baskets ($100 to $200 each per season) or street planters ($250 to $300 per year without initial cost of planter) appears to be prohibitive.

However, in the future, should the borough decide to undertake a full-scale reset of its main east-west streets, particularly through the business district, it would be to the Borough's advantage to adopt best practices, add striking design and include storm water capture. Several more general options are described below and one specific recommendation is presented In Section 5.

Hanging basket display in Market Square, Downtown Pittsburgh. Photo: WPC.

Planter Costs

Set up cost	35" to 45" wide	Annual Plant costs Summer only // Year Round	Annual caretaking (watering, feeding, trimming) contracted	Weekly volunteer caretaking per 4 blocks
Plastic	$400 - $600 each	$40 to $100 // $150-$400	$150 to $200	Up to 2 hours per visit for a four block area.
Concrete	$400 - $800 each	$40 to $100 // $150-$400	$150 to $200	Planters need to be watered every other day

Hanging Basket Costs

Set up cost	Annual Plant costs	Annual caretaking costs (could be contracted)
$150 - $200 per basket, including bracket, basket and any signage.	$65 per basket	$125 to $200 per basket per season

Planted or Storm Water Tree Pits

The Borough's attractive tree pits along 7th Avenue are a good example of how street and sidewalk design can add interest and pleasing patterns and plantings to a key road. In future there may be an issue with how closely together the trees were planted, but in general the plantings are an asset. A huge variety of available tree pit designs offer a number of additional benefits—perennial plantings for color and texture, curb cuts or inlets to capture storm water, underground storage for storm water, and so on. With some additional design and construction elements tree pits can capture even more water and begin to make a significant contribution to reducing storm water before it reaches the combined sewer overflows. Examples of these options include:

New stormwater capture grates in Etna.
Photo: Larry Roberts, Post-Gazette.

Enhanced Storm Water Tree Pits: Runoff from the street is diverted by curb cut and routed into this enhanced tree pit, where specially engineered soils and native plant species are used to absorb water and filter associated pollutants. In some enhanced tree pits, storage chambers hold additional runoff, available for plant uptake or groundwater recharge.

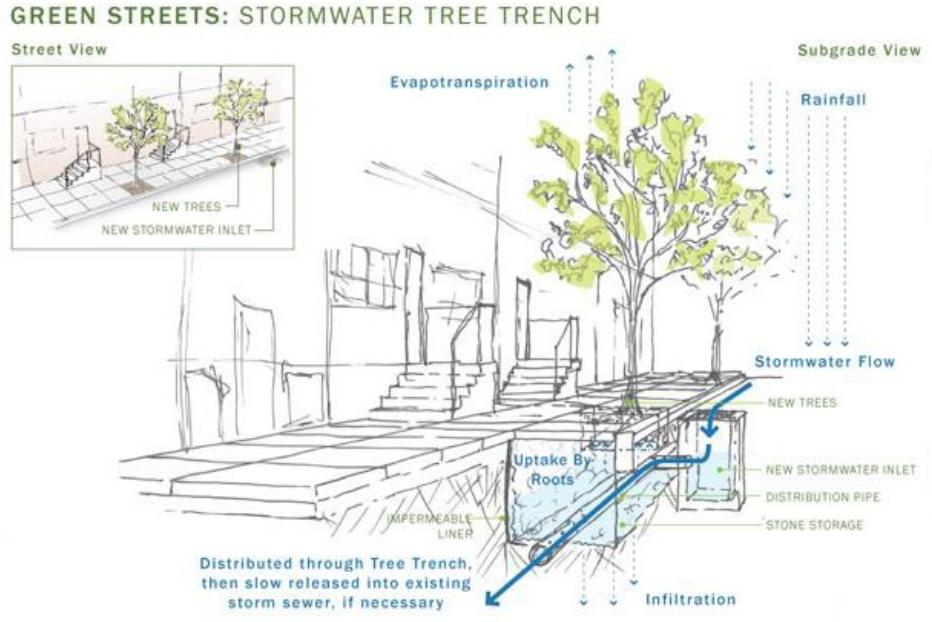
Tree Trenches: A storm water tree trench is a system of trees that are connected by an underground infiltration structure. On the surface, a storm water tree trench can just look like a series of tree pits. But, under the sidewalk, there is an engineered system to manage the incoming runoff. These systems are composed of a trench dug along the sidewalk, lined with a permeable geotextile fabric, filled with stone or gravel, and topped off with soil and trees. Storm water runoff flows through a special inlet (storm drain) leading to the storm water tree trench. The runoff is stored in the empty

Tree pits along 7th Avenue. Photo: WPC.

spaces between the stones, watering the trees and slowly infiltrating through the bottom. If the capacity of this system is exceeded, storm water runoff can bypass it entirely and flow into an existing street inlet.

Bump-outs with Bio-retention: Streets and sidewalks can be configured to slow water, direct traffic and capture water through planted areas. Bump-outs provide sidewalks extensions that can serve as planting or tree pit areas.

Tree pits with curb cuts, New York City. Photo: unknown.

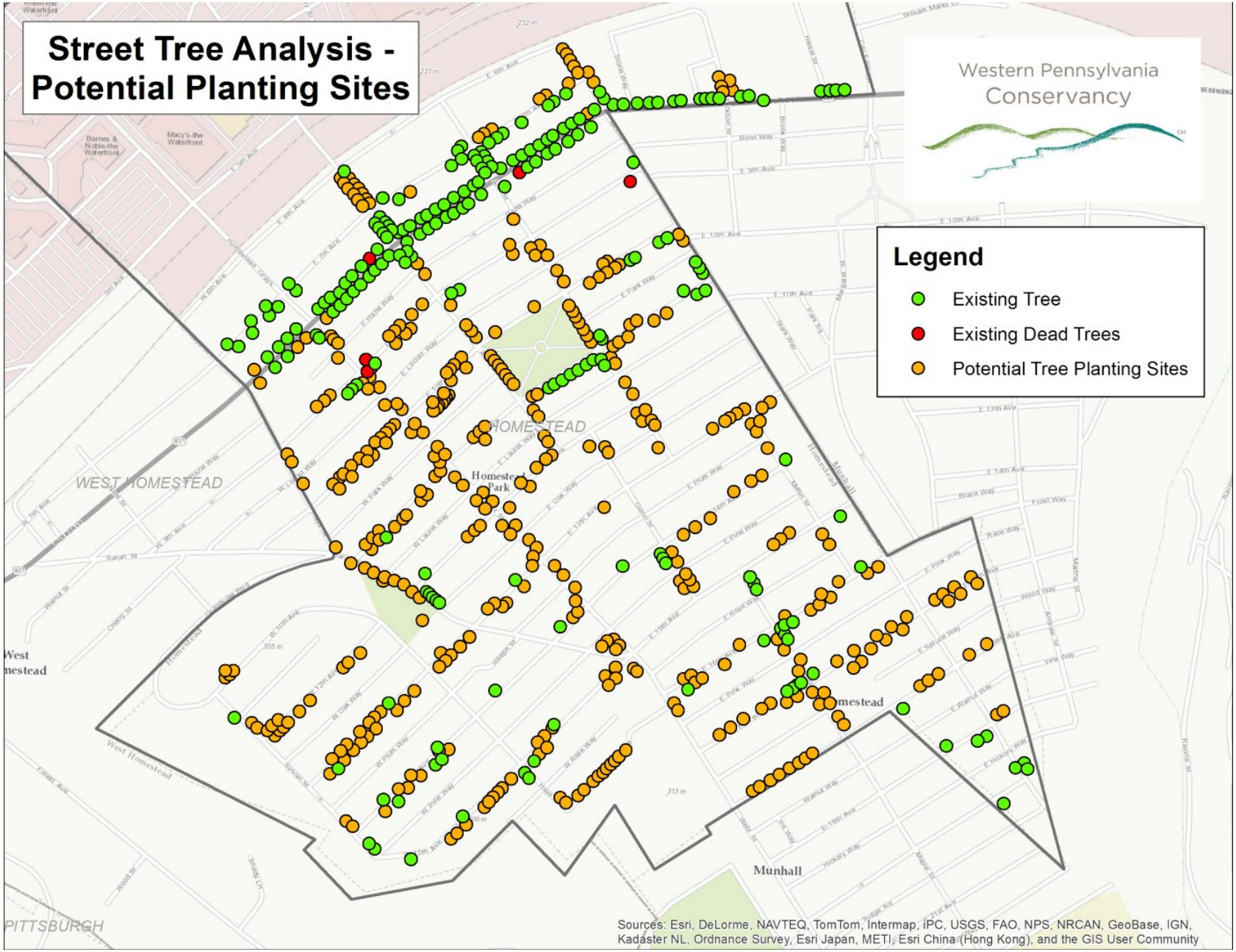


Tree pits with guards and plantings outside Penn Station, 34th Street and 7th Avenue, New York City. Photo: unknown.

TREE CANOPY

There is considerable room for adding tree cover to the Borough, particularly along its key streets and especially the north-south axis of the community. A forester's assessment identified potential locations for more than 200 additional street trees in the Borough. Most of these are along the main north-south roads of the Borough or along key east-west residential streets. Many of the streets with tree names, unfortunately, are too narrow to have trees added. Many other locations would be ideal. Depending on the specific location, slope, arrangement of storm drains and other factors, some of these locations could be suitable for the types of enhanced or engineered tree pits described above. However, tree canopy in general can be improved using conventional planting techniques in sidewalks, open spaces, parks and institutional spaces such as a school.

There are only 86 street trees, in varying degrees of health and age, in the residential area of Homestead. There are a total of 213 total street trees in the Borough. Photo: WPC.


Street Tree Analysis -
Potential Planting Sites
Western Pennsylvania
Conservancy
Legend
Existing Tree
Existing Dead Trees
Potential Tree Planting Sites
HOMESTEAD
WEST HOMESTEAD
Munhall
PITTSBURGH
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

PUBLIC AND PRIVATE VACANT LAND

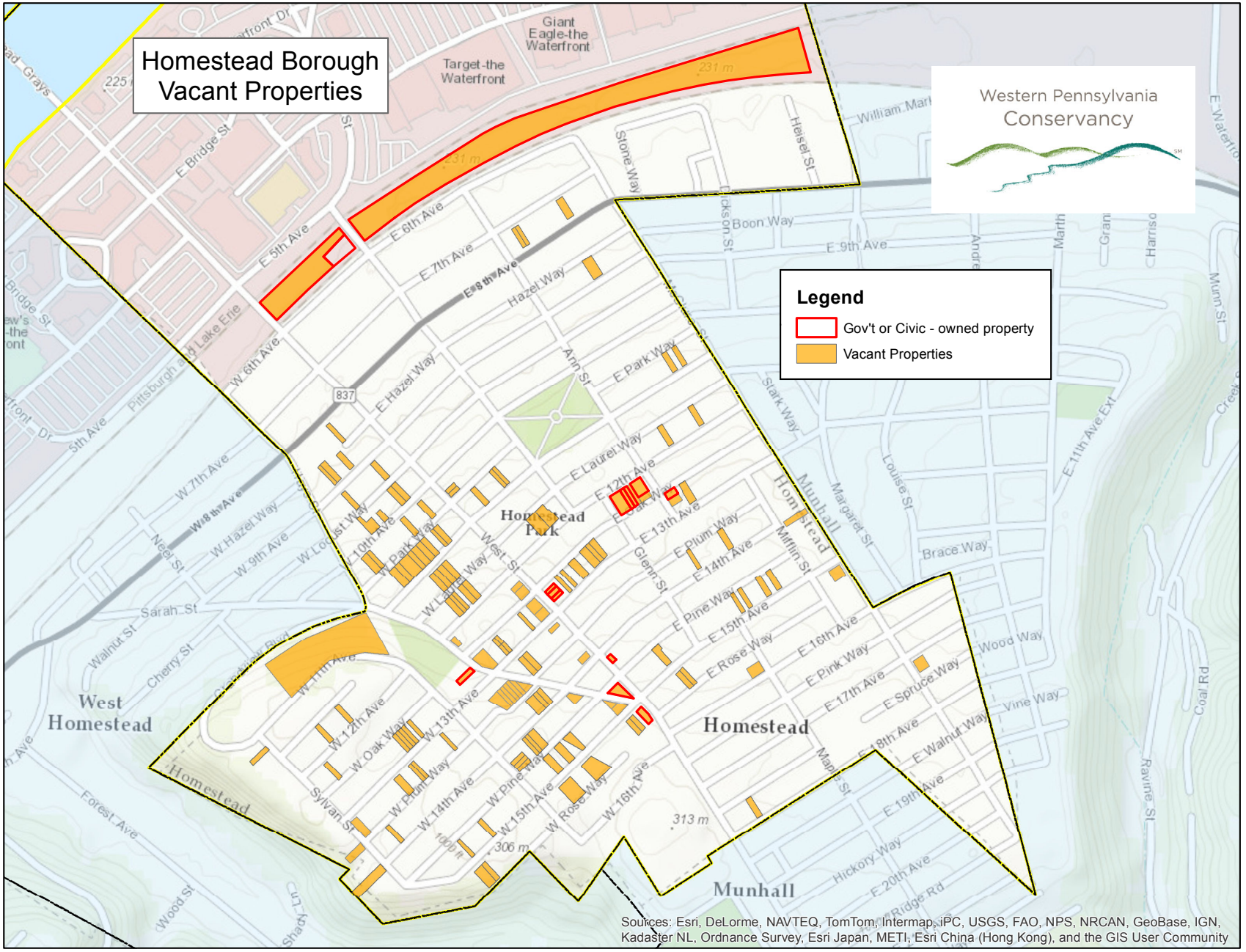
With the current number of vacant lots owned by the Borough (15) and by private owners (159) a significant amount of the Borough's land is held as vacant open space. Clearly this underutilized land has an impact on the Borough financially, in terms of perception, and in terms of environmental quality.

There are three potential approaches to take to the vacant land in order to help the Borough use its land more productively both in the short term and the long term. First, before any actions are taken, the Borough needs to sort the types of space in this vacant category. There may be "unbuildable" sites, too steep or too small or constrained by some other factor that will preclude redevelopment in the future. There will be other sites that by their location or size will be suitable for a particular type of use. For instance, vacant lots adjacent to housing might be ideal for a larger yard, or for a new unit of housing to maintain continuity. Lots in the business district will need to be designated for new commercial space, or uses such as a pocket park for shoppers or an innovative use such as pop-up stalls, food vendors or farmers markets that can enliven and support commercial activity along the main streets. Finally, there will be some special sites that due to their size, location or special need of the Borough and its residents and businesses, will need to be used for some special purposes. Does the Borough need a new pay parking lot? Does it need an event space? A new public facility? These types of needs will likely be expensive and connected to long term planning and funding efforts.

The Steel Valley Council of Governments (COG) has undertaken the first steps of developing a sorting mechanism for different types of space. Their efforts have focused to date on the business districts of their participating communities and on the residential sectors as well. A new grant has been secured to address vacant land. This work will be an excellent starting point for Homestead which has been a pilot location for the COG's research and data collection efforts to date. One important focus of this effort is to establish baseline data to help measure economic effects of blight management. This benchmarking will be very valuable to decision-making about future investments in upgrading vacant properties and land.

Simple "Clean & Green" vacant lot strategy in Philadelphia.
Photo: Pennsylvania Horticultural Society.

Once the vacant land is sorted, there are various options to consider. For the short term, vacant lots that are clearly not going to be redeveloped for any particular purpose in


Homestead Borough
Vacant Properties
Western Pennsylvania
Conservancy
Legend
Gov't or Civic - owned property
Vacant Properties
Giant Eagle-the Waterfront
Target-the Waterfront
E Bridge St
E 5th Ave
E 6th Ave
E 7th Ave
E 8th Ave
W 6th Ave
Hazel Way
E Hazel Way
Stone Way
Hazel St
Boon Way
E 9th Ave
Ann St
E Park Way
E Laurel Way
E 12th Ave
E 13th Ave
E 14th Ave
E Plum Way
E Pine Way
E 15th Ave
E Rose Way
E 16th Ave
E Pink Way
E 17th Ave
E Spruce Way
E 18th Ave
E Walnut Way
E 19th Ave
E 20th Ave
Wood Way
Vine Way
Brace Way
Stark Way
Louise St
Margaret St
Munhall
Homestead Park
Homestead
West Homestead
Munhall
Mifflin St
Glenn St
West St
Sylvan St
Maple St
Hickory Way
Ravine St
Coal Rd
E 11th Ave Ext
Munn St
837
231 m
313 m
306 m
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

the foreseeable future can simply be tended in a minimal but visibly improved way—routine mowing, perhaps a simple wooden fence, occasional trash pick-up. For lots that are unbuildable due to slope or other physical factor such as small size, the Borough could undertake a "reforestation" project, adding small trees to slopes so that eventually these areas will be handsome wooded spaces requiring little care other than the occasional pruning and disease inspection over a 25 year period.

For a certain subset of lots in the "unlikely to be developed soon" category, it would be worth an additional sorting for potential storm water capture. An assessment of best potential sites could be cost effective here given the steep slope of much of the Borough, and the resulting potential to capture runoff that would otherwise wind up in the ALCOSAN storm drain system that drains directly into the river below. The implementation of water capture could be as simple as land contours or bioswales designed to slow and capture some water until it can soak in to the ground, or as complex as an underground holding tank in certain locations to reduce flows into the storm water system. The low-tech approach could be cost effective for even fairly short periods of time; the more complex systems should only be used on sites that either have very significant water capture potential or a longer period of use.

For the "possible to build" sites, a more complex process will be needed to assign potential projects to sponsors and funding sources. The Borough will be in a key leadership for such an effort over a period of 5 to 10 years.

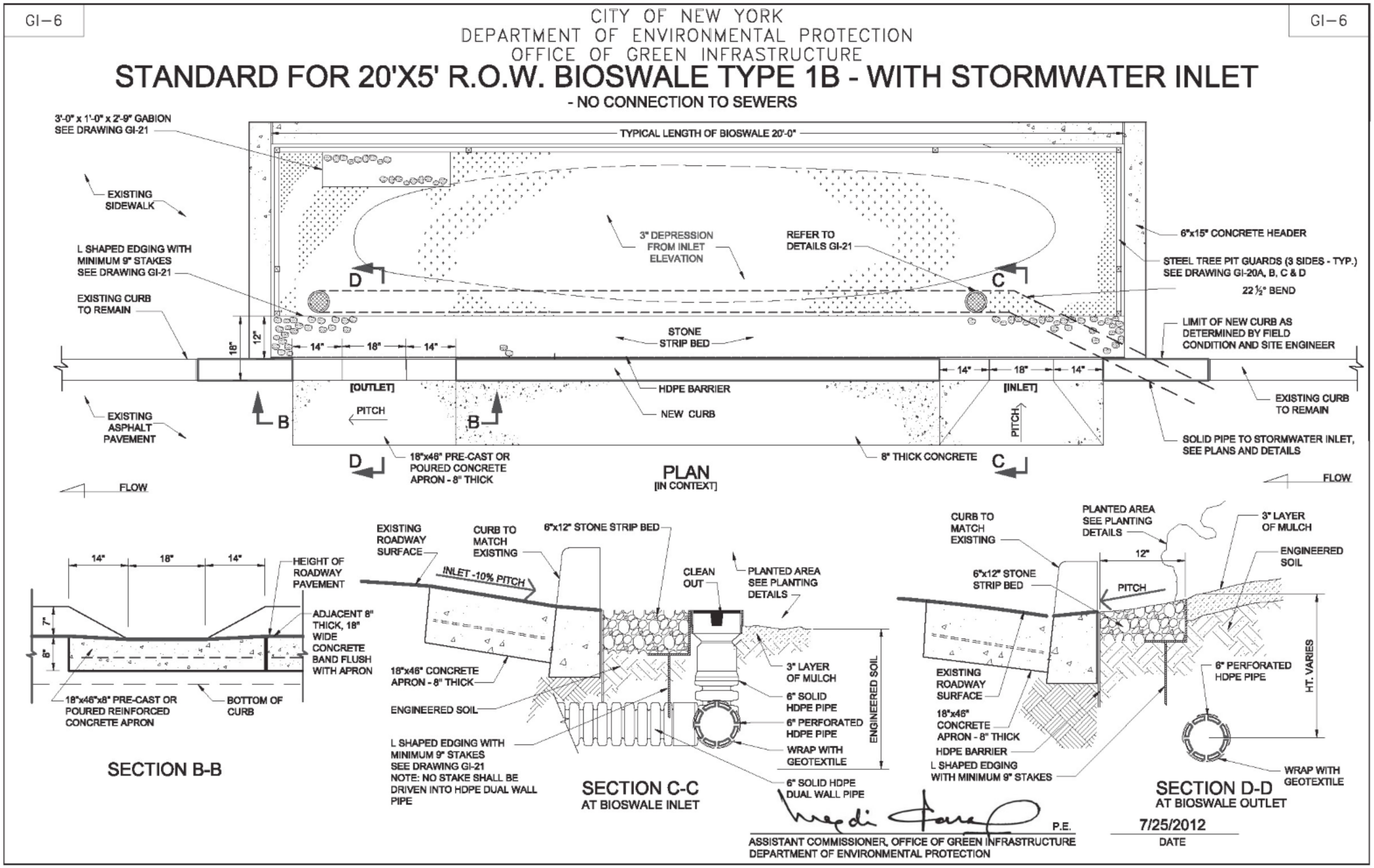
There are a variety of ways to enhance existing vacant land:

Tree planting: Adding trees to existing open spaces, such as parks, playgrounds, and vacant land that will not be re-developed is easy, attractive, and provides many natural benefits. A single mature tree with a 30 foot crown can intercept over 700 gallons of rainfall annually. Public open spaces are often high value places to plant trees because multiple benefits are gained.

It is wise to target tree planting to public spaces that will stay open to maximize the benefit/cost ratio. On vacant land trees are best placed at edges on adjacent sidewalks.

"Clean and green": Simple "clean and green" strategies can make a dramatic difference for unkempt lots using

TreeVitalize volunteer planting on vacant land in Wilkinsburg, 2012. Photo: WPC.


GI-6
CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 20'X5' R.O.W. BIOSWALE TYPE 1B - WITH STORMWATER INLET
- NO CONNECTION TO SEWERS
3'-0" x 1'-0" x 2'-9" GABION SEE DRAWING GI-21
TYPICAL LENGTH OF BIOSWALE 20'-0"
EXISTING SIDEWALK
3" DEPRESSION FROM INLET ELEVATION
REFER TO DETAILS GI-21
6"x15" CONCRETE HEADER
STEEL TREE PIT GUARDS (3 SIDES - TYP.) SEE DRAWING GI-20A, B, C & D
22 ½" BEND
L SHAPED EDGING WITH MINIMUM 9" STAKES SEE DRAWING GI-21
EXISTING CURB TO REMAIN
STONE STRIP BED
LIMIT OF NEW CURB AS DETERMINED BY FIELD CONDITION AND SITE ENGINEER
[OUTLET]
[INLET]
HDPE BARRIER
NEW CURB
PITCH
EXISTING ASPHALT PAVEMENT
EXISTING CURB TO REMAIN
SOLID PIPE TO STORMWATER INLET, SEE PLANS AND DETAILS
18"x46" PRE-CAST OR POURED CONCRETE APRON - 8" THICK
8" THICK CONCRETE
PLAN
[IN CONTEXT]
FLOW
HEIGHT OF ROADWAY PAVEMENT
ADJACENT 8" THICK, 18" WIDE CONCRETE BAND FLUSH WITH APRON
18"x46"x8" PRE-CAST OR POURED REINFORCED CONCRETE APRON
BOTTOM OF CURB
SECTION B-B
EXISTING ROADWAY SURFACE
CURB TO MATCH EXISTING
6"x12" STONE STRIP BED
INLET -10% PITCH
CLEAN OUT
PLANTED AREA SEE PLANTING DETAILS
18"x46" CONCRETE APRON - 8" THICK
ENGINEERED SOIL
3" LAYER OF MULCH
6" SOLID HDPE PIPE
6" PERFORATED HDPE PIPE
WRAP WITH GEOTEXTILE
L SHAPED EDGING WITH MINIMUM 9" STAKES SEE DRAWING GI-21 NOTE: NO STAKE SHALL BE DRIVEN INTO HDPE DUAL WALL PIPE
6" SOLID HDPE DUAL WALL PIPE
SECTION C-C
AT BIOSWALE INLET
CURB TO MATCH EXISTING
PLANTED AREA SEE PLANTING DETAILS
3" LAYER OF MULCH
ENGINEERED SOIL
6"x12" STONE STRIP BED
EXISTING ROADWAY SURFACE
18"x46" CONCRETE APRON - 8" THICK
HDPE BARRIER
L SHAPED EDGING WITH MINIMUM 9" STAKES
6" PERFORATED HDPE PIPE
HT. VARIES
WRAP WITH GEOTEXTILE
SECTION D-D
AT BIOSWALE OUTLET
P.E.
7/25/2012
DATE
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

basic mowing and occasional planting. More elaborate strategies can include temporary fencing and even simple bioswales.

Vegetated swales: Swales are gently sloping depressions planted with dense vegetation or grass that can capture, store, and infiltrate storm water runoff from rooftops, streets, parking lots, and other impermeable surfaces. As the runoff flows along the length of the swale, vegetation slows and filters it and allows it to infiltrate into the ground, thereby avoiding runoff into underground sewerage infrastructure. There are a range of options for designing and planting swales depending on the conditions at the site location and on the desired size of the investment. Swales can be planted with a variety of trees, shrubs, grasses, and ground covers. Swales do require regular maintenance, including regular inspection, especially after storm events. Often this involves removing trash and excess sediment.

Simple bioswale design, Chicago. Photo: Marina R. Post

Rain Gardens: Rain gardens are areas contoured to hold water for short periods of time and planted with a variety of plants that can tolerate both times of excess and scarce water. Rain gardens, if properly maintained, can add color, texture and ecological richness to a location to which water can be directed perhaps from a downspout, roof gutter or curb cut. They are general smaller and more decoratively planted than bioswales.

These various treatments should be sited carefully. It should be noted that tree planting is preferred on public land that is intended for mid to long term green space use. The value of trees increases each year in terms of the environmental services provided; longevity increases the return on investment

Newly implemented rain garden and simple landscaping on vacant lot in Larimer neighborhood, Pittsburgh. Photo: WPC.

for planting trees. Simple bioswales could offer some useful water retention at a low cost even if the duration of use is fairly short. Rain gardens, by virtue of their more decorative and designed character, are best located where they will receive care and provide mid to long term benefits. Both public and private vacant land can be used in these ways, but the Borough may have to provide public education and encouragement to invite private landowners to utilize these techniques.

Overall caretaking of open and vacant land along the "clean and green" model is an investment that can provide multiple benefits. Sometimes adding green enhancements mentioned above such as these can enlist public and private caretaking. While the costs of caretaking can be a concern to municipal budgets, there are also significant benefits to keeping grass cut and performing other minimal care on vacant sites. In some other communities, a simple fence has served to delineate cared-for public spaces and proves to reduce litter and trash simply by indicating that the site is being monitored.

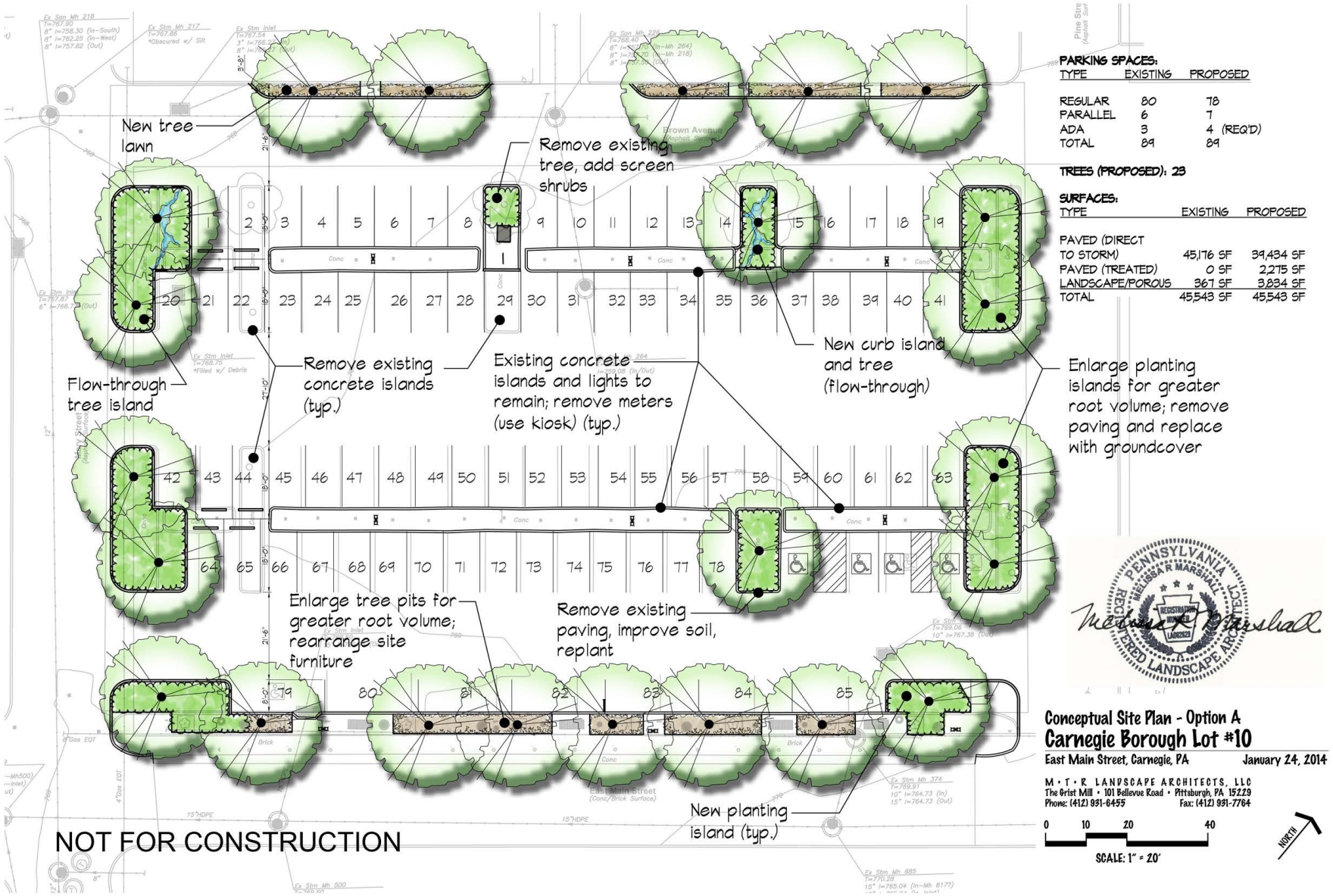
PARKING LOTS

The Borough of Homestead currently owns six parking lots. These lots comprise 1.9 acres of impervious surface in addition to the commercial lots affiliated with local businesses and the adjacent Waterfront Development along the river. Paved surfaces such as these send rain water directly into storm water systems. Adding greenery of various types, from simple plantings around a perimeter to full scale bioswales or engineered water retention systems, can greatly reduce the runoff from such sites.

Greening the Borough's surface parking lots can add a polished look to the streetscapes and improve nearby property values as well as helping demarcate parking areas. The additional benefits of greening the lots, such as cooling and increasing water capture, accrue both to property owners and users of the lot.

Permeable paving is an additional possibility for parking lots, but is often not visibly "green" and frequently is more costly to install and to care for. However, in certain locations this can be a beneficial investment.

Homestead-owned lot at West Street and E. 9th Avenue. Photo: WPC.



Plan for greening a sample parking lot in Carnegie, PA. WPC, 2014.

MUNICIPAL AND CIVIC PROPERTIES AND BUILDINGS

As part of a comprehensive greening and storm water capture effort, communities can selectively institute downspout disconnection and runoff capture. Such a program can allow water from roof downspouts to reach open green space where it can soak in, help water existing plants and grass and generally ease the load on storm water systems. However, it is crucial to be sure that such a project is carefully planned to assure that redirected runoff does not wind up in basements or other troublesome locations. Some techniques that can be employed on municipal properties include the following:

- Rain barrels
- Water harvest
- Rain gardens
- Soakage trenches.

A more elaborate way to add both green and storm water capture is to install green roofs in selected locations. Green roofs can double the life of conventional roof coverings, and if properly designed require very little caretaking over time. Green roofs can be costly in the initial installation, but often quickly pay for themselves in related benefits such as reduce cooling and heating costs due to their insulating effects.

Many of these same techniques can be used for privately-owned properties and buildings, although the Borough would have to enlist partners to provide the information, technical assistance and persuasion needed to create a successful effort.

Homestead Borough municipal building, April 2014. Photo: WPC.

REGIONAL TRAIL SYSTEMS

A 2009 study sponsored by the Progress Fund and the Laurel Highlands Visitors Bureau surveyed 117 businesses in towns along the Great Allegheny Passage and found several factors showing positive impacts on business revenues that were attributed to proximity to the trail. Respondents estimated that on average one-quarter (25.5%) of the business they received in 2007 through 2009 could be attributed to the existence of the area's biking/hiking trail. Two-thirds of respondents reported that they experienced at least some increase in gross revenue because of proximity to the trail. Approximately one third of respondents mentioned that they had or planned to expand their business operations and/ or services because of the impact they felt from the trail. The most popular expansions and additions were to increase staffing, provide more bike parking and accommodations, increase advertising, and offer shuttle services to and from the trail.

Wayfinding tail totem in The Waterfront along Waterfront Drive. Photo: Great Allegheny Passage.


Great Allegheny Passage along Waterfront Drive in Munhall heading toward the Waterfront and Homestead Borough. Photo: WPC.

Homestead actually contains a length of the Great Allegheny Passage (GAP), which passes though The Waterfront and is maintained by its management between Costco in West Homestead to the east edge of the apartment complex in Munhall. However there is a significant distance between the Borough's business district and the Trail. Intriguing options exist to make a strong connection directly to downtown Homestead. Steel Valley COG is completing phase I of an EPA brownfields analysis of key properties. Their findings could lay the groundwork for a significant new spur extension to the trail.

SECTION FIVE: BEST OPPORTUNITIES AND RECOMMENDATIONS

ACTION OPTIONS SUMMARY

The Green Scan has identified a number of ways that the Borough of Homestead could initiate greening projects that will offer creative and effective ways to address issues of environmental quality that affect overall quality of life in Homestead. The Scan summarizes possible actions, ranked by cost, difficulty and time that it may take to launch the various types of project. This ranking will be helpful to the Borough as it chooses among options, both short and long-term, and adopts a plan of action for implementation of its preferred choices for action.

The various types of projects include:

- Expanding and improving public green spaces
- Increasing the urban tree canopy
- Implementing vacant lot management strategies
- Adding green stormwater management projects

The various potential project locations include:

- Frick Park
- McLean Playground
- Sidewalks and streetscapes, both business district and residential
- Vacant lots
- Barrett Elementary school grounds
- The Saunders Memorial at Sarah Street and West Street
- Borough parking lots

Each project will be annotated with symbols that summarize cost  , effort  , good potential partners  , possible funding sources  , and what will be needed for sustainability  . These factors will help Homestead residents and officials determine what projects may be most do-able and effective to undertake.

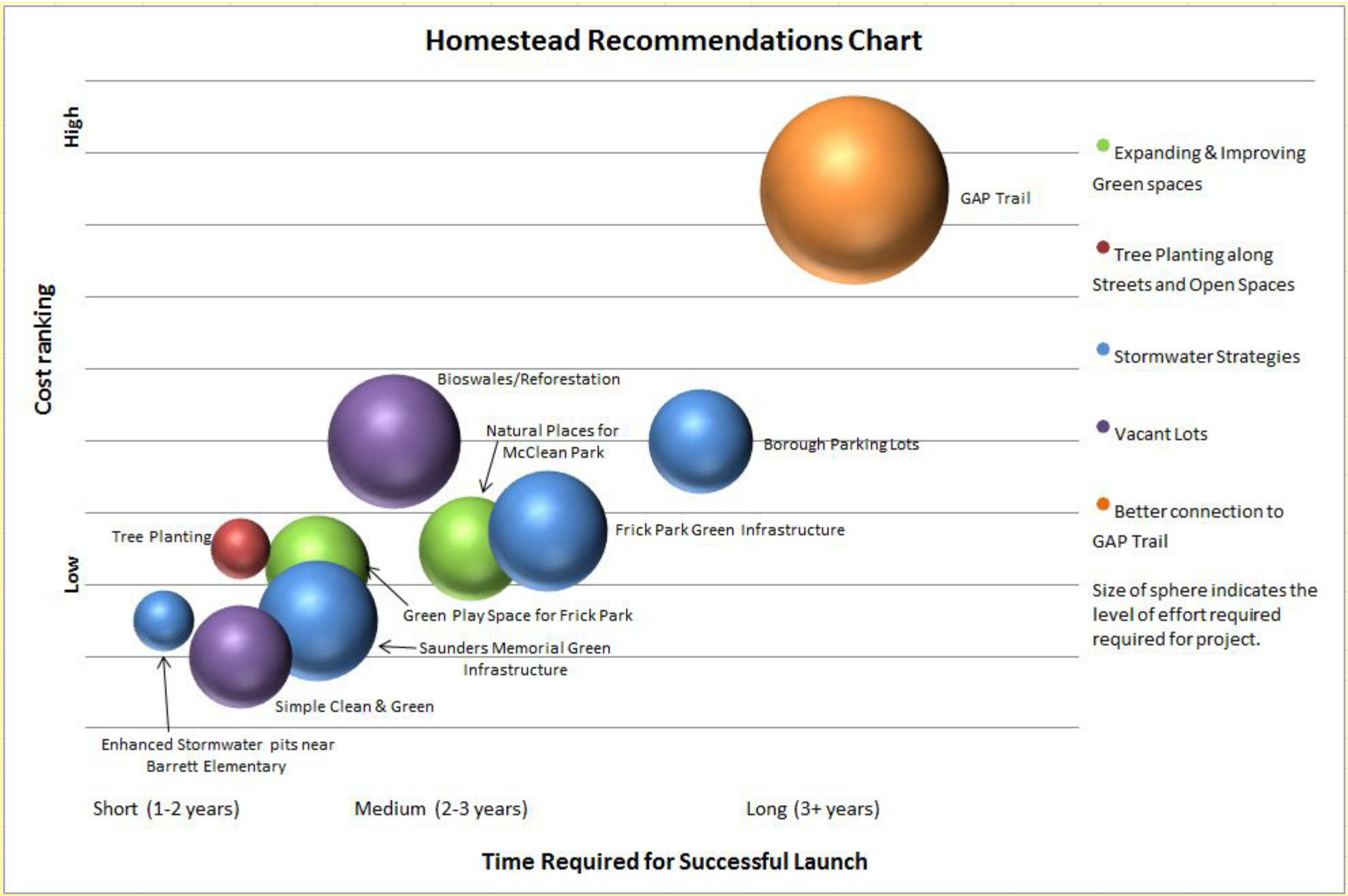
A note on compliance with 1990 Americans with Disabilities Act (ADA): Many projects, especially those funded by public funding sources or that are on public property, will require compliance with the 1990 Americans with Disabilities Act (ADA) and the 2010 ADA Standards for Accessible Design. It is important that any design or engineering drawings and all cost estimates factor in design components to ensure ADA compliance. This Green Scan provides some basic information and rough cost estimates for design components that may be required for each green enhancement to ensure ADA compliance. Project managers, engineers, and landscape architects working on project implementation should refer to the 2010 ADA Standards for Accessible Design (http://www.ada.gov/2010ADAstandards_index.htm) to ensure compliance.

A note on contingency costs: When estimating the cost for a project, there is always uncertainty as to the precise content of the materials in the estimate, how the work will be performed, or existing conditions that may be hidden from plain view. To compensate for these potential unknowns, it is important to factor a cost contingency into any major project budget to ensure that adequate resources are available to cover the unexpected. Some examples of unknown factors that may add to project costs are unknown subsurface utility issues, scheduling delays, lack of bidding competition or unanticipated market conditions. To be safe, it is recommended that between a contingency cost of between 10% and 25% be added to any project budget. More complicated project or projects that are in early conceptual phases should be assigned a higher contingency cost.

Community members plant a gateway garden in Oil City. Photo: WPC.

Penn Hills residents build raised beds for a community vegetable garden. Photo: WPC.

Students add greenery to their school at Pittsburgh SciTech. Photo: WPC.


Homestead Recommendations Chart
High
Low
Cost ranking
GAP Trail
Bioswales/Reforestation
Natural Places for McClean Park
Borough Parking Lots
Tree Planting
Frick Park Green Infrastructure
Green Play Space for Frick Park
Saunders Memorial Green Infrastructure
Simple Clean & Green
Enhanced Stormwater pits near Barrett Elementary
Short (1-2 years)
Medium (2-3 years)
Long (3+ years)
Time Required for Successful Launch
Expanding & Improving Green spaces
Tree Planting along Streets and Open Spaces
Stormwater Strategies
Vacant Lots
Better connection to GAP Trail
Size of sphere indicates the level of effort required required for project.

Homestead Greening Recommendations

	Cost	Level of Effort	Time Required for Successful Launch
		1 = Low 2= Medium 3= Med. High 4 = High	Years
EXPANDING & IMPROVING GREEN SPACES			
Adding Natural Places for McLean Park	$15K - $40K	2	1 to 3
Add green play space to Frick Park	$15K - $40K	2	1 to 3
TREE PLANTING ALONG STREETS & OPEN SPACES			
	$50 - $200K	1	1
STORMWATER STRATEGIES			
Enhanced Stormwater tree pits	$30K	1	1
Frick Park Green Infrastructure	$200K	2 to 3	3
Ray Saunders Memorial Green Infrastructure	$30K - $100K	2 to 3	3
Borough Parking Lots	$12K - $420K	3	2 to 3
VACANT LOTS			
Simple "Clean & Green" Strategies	$500 per site	2 to 3	2 to 3
Bioswales/Reforestation	$3,000 per site	3	
BETTER CONNECTION TO GAP TRAIL			
	at least $1.5M	4	3+

EXPANDING AND IMPROVING PUBLIC GREEN SPACES

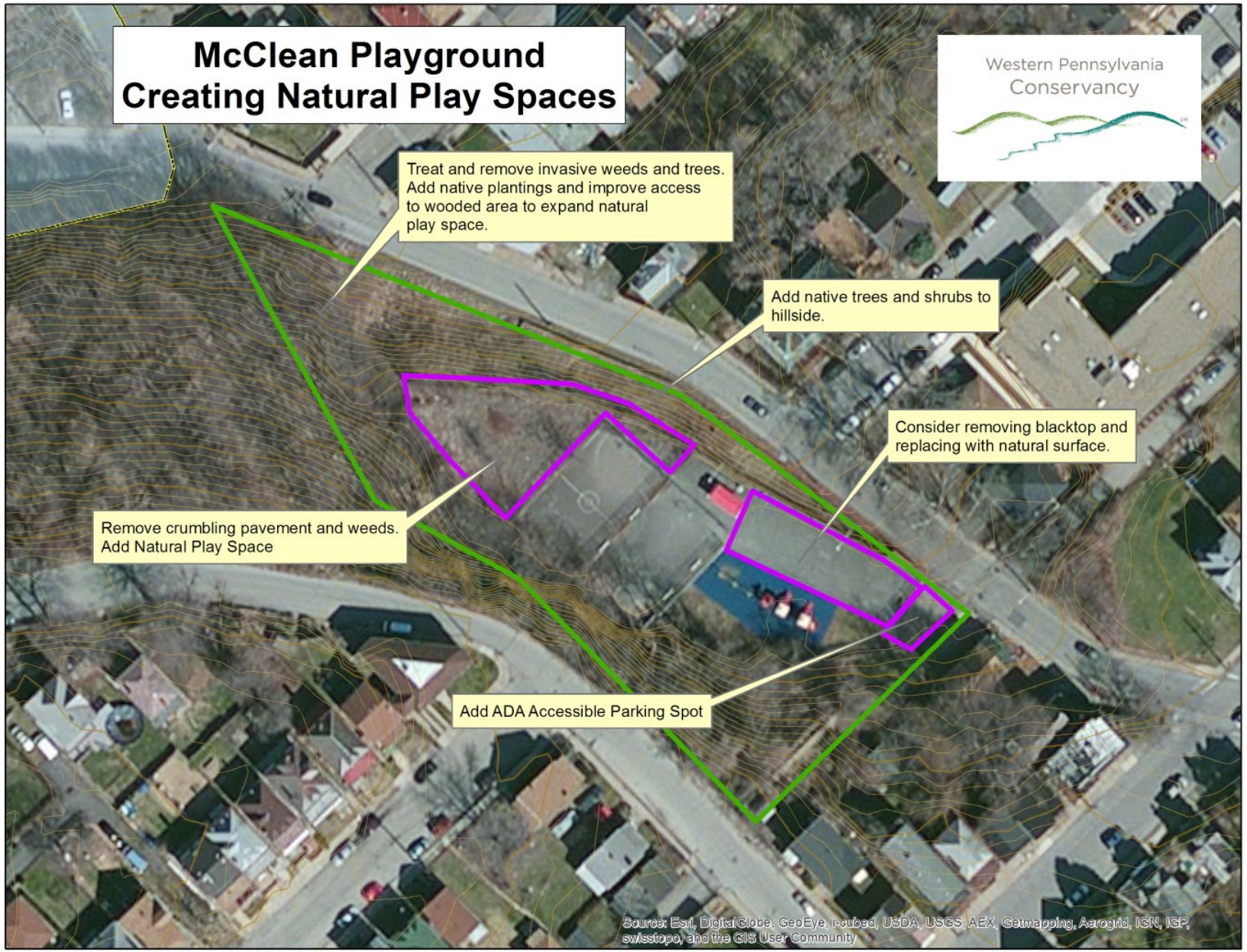
Action 1: Adding Natural Playspaces to McLean Playground

Homestead's McLean Playground consists of existing play equipment as well as significant under utilized space in the front and rear of the park area. This park is important to the Borough's capacity to serve its families and youth and as currently configured it is lacking some elements that could help reach its potential and make it a considerably more valuable asset to the community. The front edge of the property could be planted with smaller trees to add greenery and shade; the space to the front of the existing play equipment could be converted into a natural surface area that would better absorb rain water and cool the park; and the area once a ball court to the side and rear of the property could become an attractive natural play space with an adjacent passive park space.

As a whole the park could allow siting of a dozen additional trees, some perennial plantings, and additional natural play elements (logs, boulders, stepping stones, etc.) that the Borough could maintain and replenish over time at minimal cost. Removal of some invasive plants and trees will be a good cost-saving measure to reduce future need to control these plants and reduce maintenance.

It will be important to address state requirements for accessible parking to assure that the Borough can be eligible for a variety of funding sources.

McLean Playground entrance. Photo: Google Streetview (left) and WPC (right).


McClean Playground
Creating Natural Play Spaces
Western Pennsylvania Conservancy
Treat and remove invasive weeds and trees. Add native plantings and improve access to wooded area to expand natural play space.
Add native trees and shrubs to hillside.
Consider removing blacktop and replacing with natural surface.
Remove crumbling pavement and weeds. Add Natural Play Space
Add ADA Accessible Parking Spot
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Costs: The potential cost of this project depends on the specific design and types of added play elements desired. Given the square footage of this park, approximately 60,000 sq. ft., or 1.4 acres, a good estimate will be $155,000, exclusive of fencing or repaving of parking area.

Effort: This project will require the Borough to apply for funding from government and private foundation sources; to participate in and lead a public involvement design process; and contribute as it is able to construction through its public works department.

Good Partners:

- Homestead Borough – This project would take place on Borough-owned public land, which makes the Borough the key partner for this project. The Borough would likely be the applicant for any public dollars that are available for the project. The project will require the support of Borough council, close collaboration among the Borough council president, Borough manager, Borough solicitor, and the project managers.
- Western Pennsylvania Conservancy – The Conservancy is available to participate as a project manager or partner. This role could include managing applications for public grant or loan funds on behalf of the Borough of Homestead, assisting the Borough with identifying and securing private donor funds if available, grant and contract administration, design development, construction oversight, development of a maintenance plan and assistance with maintenance, and organizing the work of community volunteers.
- Community volunteers—This project would benefit greatly from a group of committed volunteers willing to support the Borough staff in general caretaking and monitoring of the space.

Currently underused spaces in McLean Playground. Photo: WPC.

Design:	$20,000
Natural play space:	$30,000
Green maze space:	$15,000
Perimeter Plantings:	$10,000
ADA parking space:	$50,000
Open space play area at back:	$25,000
Metal Benches:	$1,000 to $1,400 each
Stone Benches:	$200 each

Possible Funding Sources:

- DCNR Community Conservation Partnership Program (C2P2) Grants: Because this project is in a public park, Homestead Borough would be eligible to apply for grant funding from Pennsylvania Department of Conservation and Natural Resources (DCNR) through their Community Conservation Partnership Program (C2P2).

This program requires a 1:1 match from other funding sources. In-kind goods and services, such as volunteers and Borough public works resources, can be included as match. Up to 15% of the awarded funds can be used for engineering and landscape design. Grants are made on a reimbursement basis, where the applicant is reimbursed for project expenses after certain phases of work have been completed. DCNR retains 10% of the total awarded amount until the project is closed and the grantee is reimbursed up to 50% of the total accrued project costs, including cash and in-kind match.

McLean Playground - great opportunity for natural playspace. Photos: WPC.

Applications for this funding are due in April 2015, with awards being announced in late 2015 to early 2016. If awarded, grant funds could begin to be spent in spring 2016 at the earliest.

It could be advantageous for Homestead Borough to apply for funding through DCNR for this project in conjunction with other public park improvements recommended in this Green Scan, including the Frick Park Green Infrastructure Project.

- Private Foundations or Donors: Private foundations or donors interested in establishing natural play areas in public green spaces could be good sources for funding elements of the new space, or for cash match to supplement other grant funds and in-kind goods and services.

Sustainability: This project would require a long-term investment by the Borough in general oversight and maintenance of the space. However, if well-designed, the space would require minimal time (2-4 hours on a weekly schedule) and no additional equipment or skills. Community partners using the space could take an important role in caretaking if union rules allow.

Hillside that borders McLean Playground along Sarah Street. Photo: WPC.

Action # 2: Add Green Playspace to Frick Park

In the handsome space of Frick Park it would be possible to add a green playspace in one of several locations. Such a playspace would diversify the age groups that the park appeals to, and would enhance the existing greenspace with additional natural features that would appeal to children and their parents for creative and nature play. One advantage of green playspace is that its elements, including certain plants, logs, stumps, rocks and stepping stones, can easily be replaced by the Borough over time at less cost than manufactured play equipment.

Natural play space: $15,000-40,000

Metal Benches: $1,000 to $1,400 each

Stone Benches: $200 each

Costs: The potential cost of this project depends on the specific size, design and types of added play elements desired. A generous play space would be at least 2,200 square feet. A good estimate will be $25,000.

Effort: This project will require the Borough to apply for funding from government and/or private foundation sources; to participate in and lead a public involvement design process; and contribute as it is able to construction through its public works department. The community may also need to rally to support the improvements and even lend a hand with caretaking.

Good Partners:

- Homestead Borough – This project would take place on Borough-owned public land, which makes the Borough the key partner for this project. The Borough would likely be the applicant for any public dollars that are available for the project. The project will require the support of Borough council, close collaboration among the Borough council president, Borough manager, Borough solicitor, and the project managers.

Playground using natural materials in Prospect Park, Brooklyn, New York City. Photo: WPC.

- Western Pennsylvania Conservancy – The Conservancy is available to provide project management or technical assistance. This role could include managing applications for public grant or loan funds on behalf of the Borough of Homestead, assisting the Borough with identifying and securing private donor funds if available, grant and contract administration, design development, construction oversight, development of a maintenance plan and assistance with maintenance and organizing the work of community volunteers.
- Community volunteers—This project would benefit greatly from a group of committed volunteers willing to support the Borough staff in general caretaking and monitoring of the space.

Possible Funding Sources:

- DCNR Community Conservation Partnership Program (C2P2) Grants: Because it is in a public park, Homestead Borough would be eligible to apply for grant funding from Pennsylvania Department of Conservation and Natural Resources (DCNR) through their Community Conservation Partnership Program (C2P2).

This program requires a 1:1 match from other funding sources. In-kind goods and services, such as volunteers and Borough public works resources, can be included as match. Up to 15% of the awarded funds can be used for engineering and landscape design. Grants are made on a reimbursement basis, where the applicant is reimbursed for project expenses after certain phases of work have been completed. DCNR retains 10% of the total awarded amount until the project is closed and the grantee is reimbursed up to 50% of the total accrued project costs, including cash and in-kind match.

Applications for this funding are due in April 2015, with awards being announced in late 2015 to early 2016. If awarded, grant funds could begin to be spent in spring 2016 at the earliest.

Students reading in their outdoor quiet space at Pittsburgh Morrow Elementary. Photo: WPC.

It could be advantageous for Homestead Borough to apply for funding through for this project in conjunction with other public park improvements recommended in this Green Scan, including the Frick Park Green Infrastructure Project.

- Private Foundations or Donors: Private foundations or donors interested in establishing natural play areas in public green spaces could be good sources for funding elements of the new space, or for cash match to supplement other grant funds and in-kind goods and services. Grable Foundation or the Community Design Center could be good partners.

Sustainability: This project would require a long-term investment by the Borough in general oversight and maintenance of the space. However, if well-designed, the space would require minimal time (a few hours on a weekly schedule) and no additional equipment or skills. Community partners using the space could take an important role in caretaking.

Children play on natural table at the natural play space installed by WPC. Photo: WPC.

PLANTING TREES ALONG STREETS AND IN OPEN SPACES

There is considerable potential for adding greenery to the streets of Homestead's residential neighborhoods. A street by street inventory completed by the Western Pennsylvania Conservancy helped identify the best locations and highest need locations for specific trees. Upon review of this analysis, the project forester believes that more than 400 new trees could potentially be sited along Homestead's streets and in open spaces. Both residential and business district streets have potential, but the most significant opportunities lie in residential areas.

Costs: $200 per tree, $475 per tree pit in a sidewalk (contracted costs), $105 per tree for 3 years of maintenance. For long-term care, a cost of $35 per tree per year is a good estimate of annual maintenance costs per tree. It is important that these costs can be spread over years as Homestead works to increase the urban forest in the most beneficial and high-impact areas. A good cyclical tree care plan will also spread out the costs of short and long-term tree care for the Borough.

Trees:	$200 to $500 each
Up to 400 Trees:	$180,000
Long-term maintenance:	$14,000
Total:	$194,000

Effort: The Borough will need to take the lead for this strategy in cooperation with Borough residents because trees will be in the public right of way but remain the responsibility of the property owner. The Borough will need to organize volunteers to help plant and care for trees as well as anticipate the effort of caring for trees for the long term. The Borough would have to be the applicant for the TreeVitalize program, and for alternative sources of funding. The Borough has already taken steps to set up a shade tree commission and to add appropriate new ordinances. The major effort will be coordinating volunteer care for the first few years and explaining the important value of trees to Borough residents and property owners in terms of benefits--economic, environmental and health. Best care will include annual mulching, minor pruning to shape trees over the first three years and annual inspection for disease or pests. Eventually additional pruning will be needed to maintain the health of the trees (on average every 5 years).

Good Partners: WPC, Tree Pittsburgh for tree tender training, DCNR, Homestead/West Homestead Shade Tree Commission

Possible Funding Sources:

- The sites identified during this Green Scan can be submitted to the TreeVitalize program via the Western Pennsylvania Conservancy to be considered for future TreeVitalize plantings. A forester will conduct official tree site assessments to determine the suitability for trees at a given site. If a site is determined suitable for a tree, the forester will select a tree species. The suitable sites will be forwarded to Homestead Borough for final approval. Upon final approval, tree site preparation will commence and volunteers will be organized for planting the trees.
- Private foundation sources could also be interested in investing in shade tree cover for Borough streets in various locations.
- A PennVest grant/loan might be appropriate for a significant amount of tree planting in the Borough.
- Private donors or local businesses might wish to support wider tree planting.

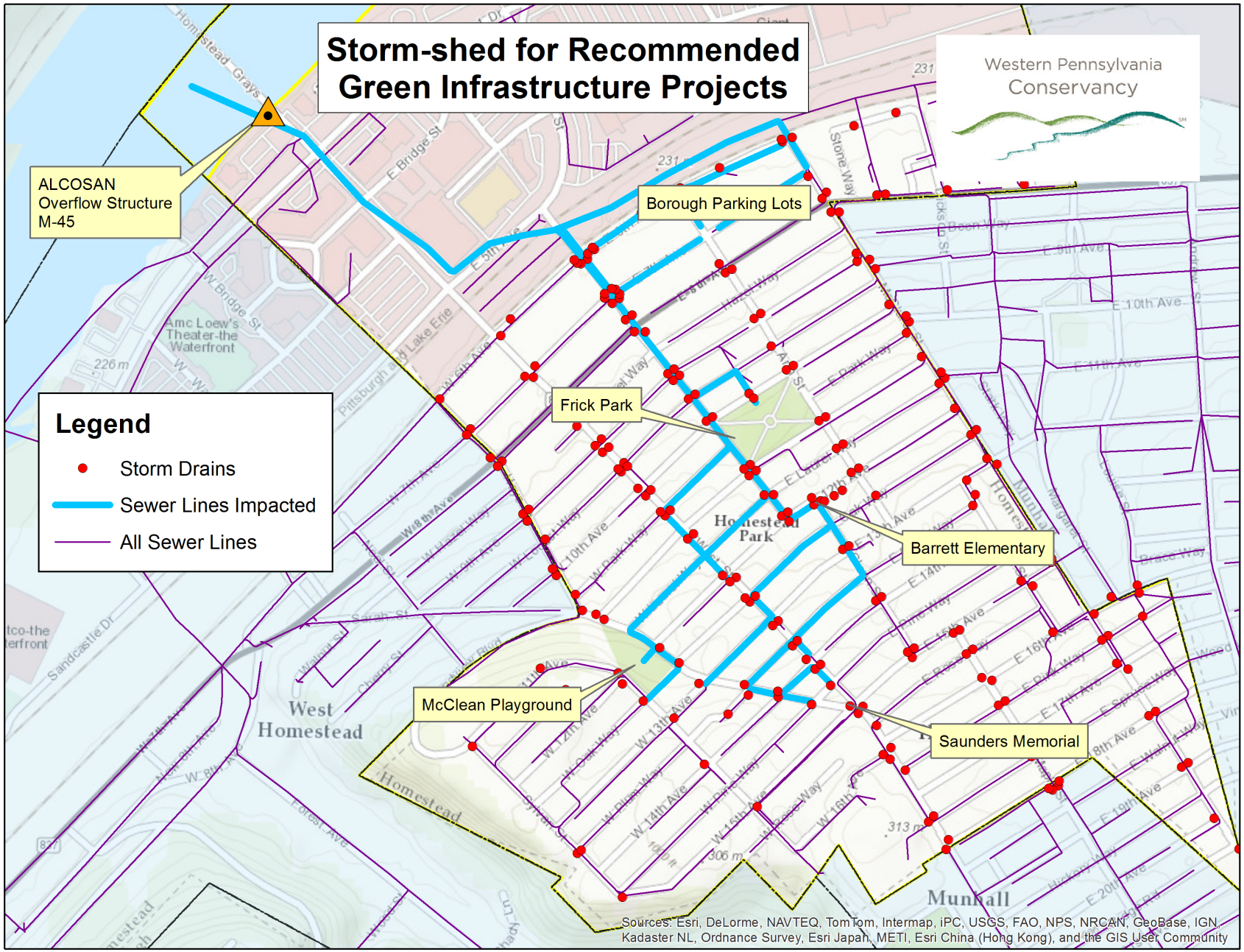
Sustainability: Maintenance is a crucial element to the successful establishment and long-term survival of trees. Initially, a 3 year maintenance plan includes watering (25 gallons per week through the growing season), mulching, minor pruning at year two to train the tree into the best shape for its location, and weeding the tree pits. These tasks are crucial for the trees to become well established. After year three, the trees should be better able to survive on their own and will require less maintenance. The key need will be for occasional watering in times of heavy drought, and routine maintenance pruning. In addition, there are events that can't be controlled and trees might need to be replaced. Examples of this include branches being torn by people, trees being struck by vehicles, accidental over-salting, insect or disease damage. As trees are replaced it is important to remember the three year maintenance period. The cost of this routine tree care (about $35 per year per tree) needs to be factored into the Borough's plans for the long term.

Carnegie volunteers plant trees with TreeVitalize program. Photo: WPC.

GREEN STORMWATER MANAGEMENT STRATEGIES

The Homestead Green Scan included a thorough exploration of the most feasible and highest-impact opportunities to use green infrastructure to reduce storm water runoff into the combined sewer system. Green Scan staff held meetings and site visits with the Borough manager, Borough engineer, and ALCOSAN staff to prioritize the best sites for source reduction. These storm water management projects would all require professional engineering and project management as well as a commitment to regular maintenance. Below is a map of the storm drains and sewer lines that will be impacted if the recommendations below are implemented. The map indicates the potential for reducing storm water into the marked inlets, thereby reducing the overall load entering the storm drains and possibly causing overflow into the river. Specific project ideas are outline below.

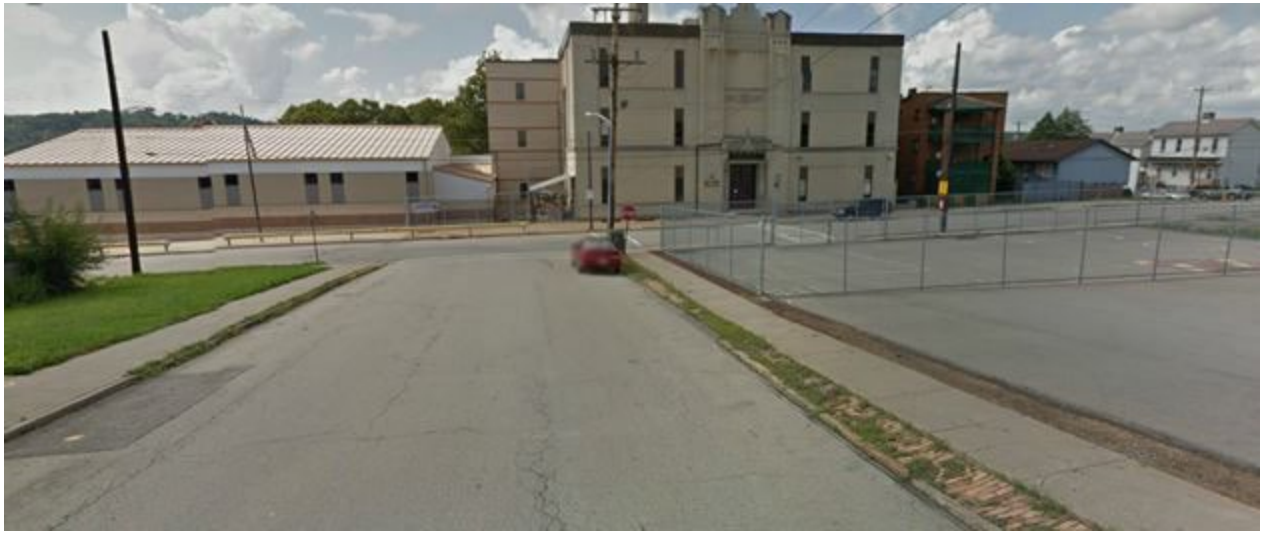
Stormwater Runoff examples from the Green Street Project in Portland, OR. Photos: Kevin Robert Perry.


Storm-shed for Recommended Green Infrastructure Projects
Western Pennsylvania Conservancy
ALCOSAN Overflow Structure M-45
Borough Parking Lots
Frick Park
Barrett Elementary
McClean Playground
Saunders Memorial
Legend
Storm Drains
Sewer Lines Impacted
All Sewer Lines
West Homestead
Homestead
Munhall
Homestead Park
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

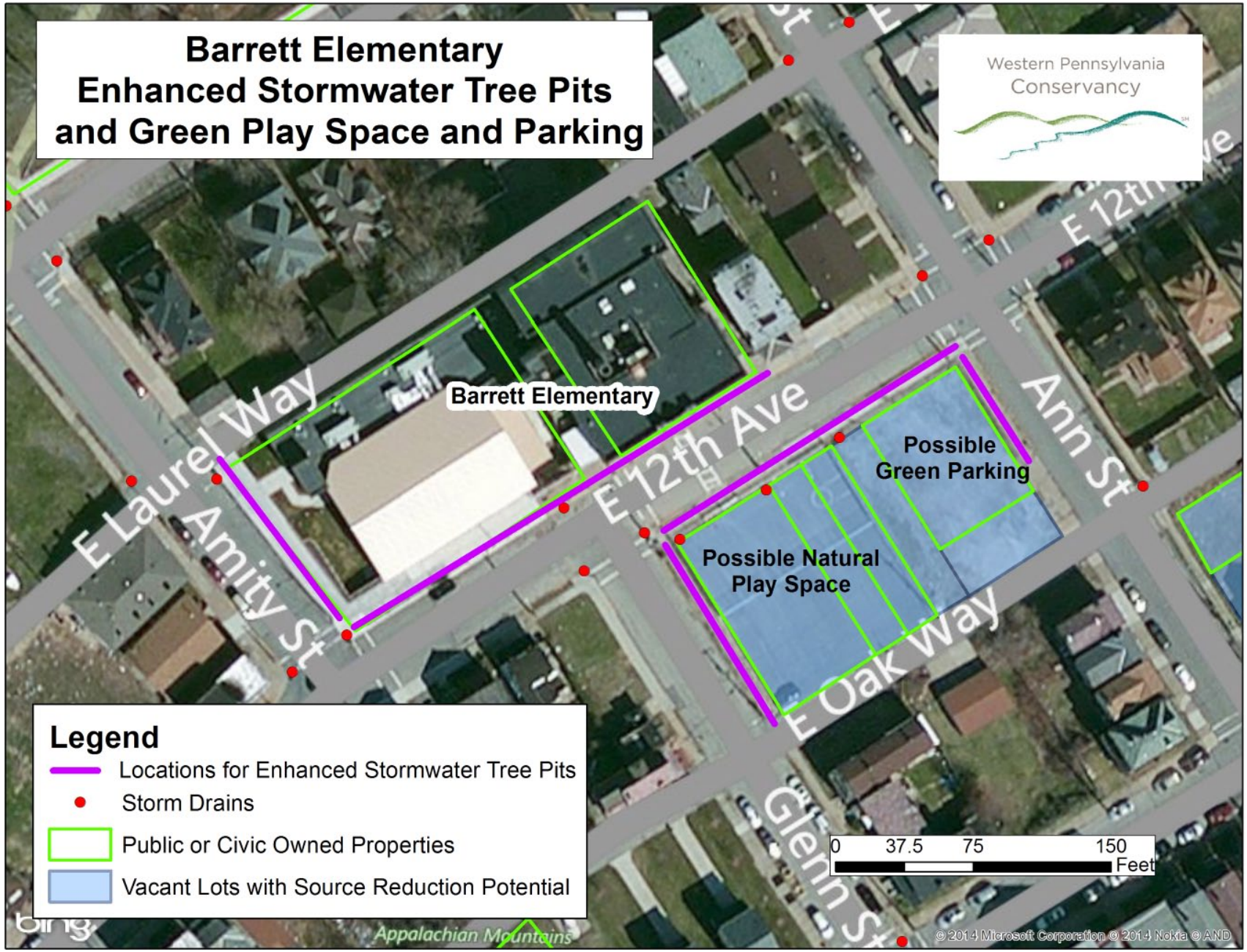
Action 1: Add Enhanced Storm Water Tree Pits at Barrett Elementary School or Other Suitable Site

A number of locations around the Borough could be used to demonstrate the function of special storm water tree pits. One such site is the Borough's elementary school. The street frontage around Barrett Elementary School, including its play space and parking lot, could accommodate up to 11 enhanced storm water tree pits. These tree pits would provide bio-retention to reduce storm water runoff from streets, rooftops and other impermeable surfaces into nearby storm drains. Controlling runoff into storm drains in this area would reduce volumes of water that contribute to Combined Sewer Overflows (or CSOs) at ALCOSAN overflow structure M-45. In addition, over time the trees could add shade to the existing play space and to the school parking lot on the south side of 12th Avenue.

Tree pits designed to catch and hold storm water come in many different designs as described in Section 4. This location would be an ideal one to demonstrate a replicable design that could be used by many other Boroughs and communities concerned with holding and slowing down storm water before it reaches the storm drains and then our rivers. Trees in this location would also serve multiple purposes by shading the parking lot (and thereby reducing emissions from evaporating gas from cars and prolonging the life of the parking lot surface), improving the appearance of the area surrounding the school, and reducing air pollution from particulates. This is a good location because it is public property, it is relatively flat, and there are several storm drains in the vicinity from which water could be redirected. This site could also be used to demonstrate a green playspace and a green parking space.



Barrett Elementary from Glenn Street. Photo: Google Streetview.

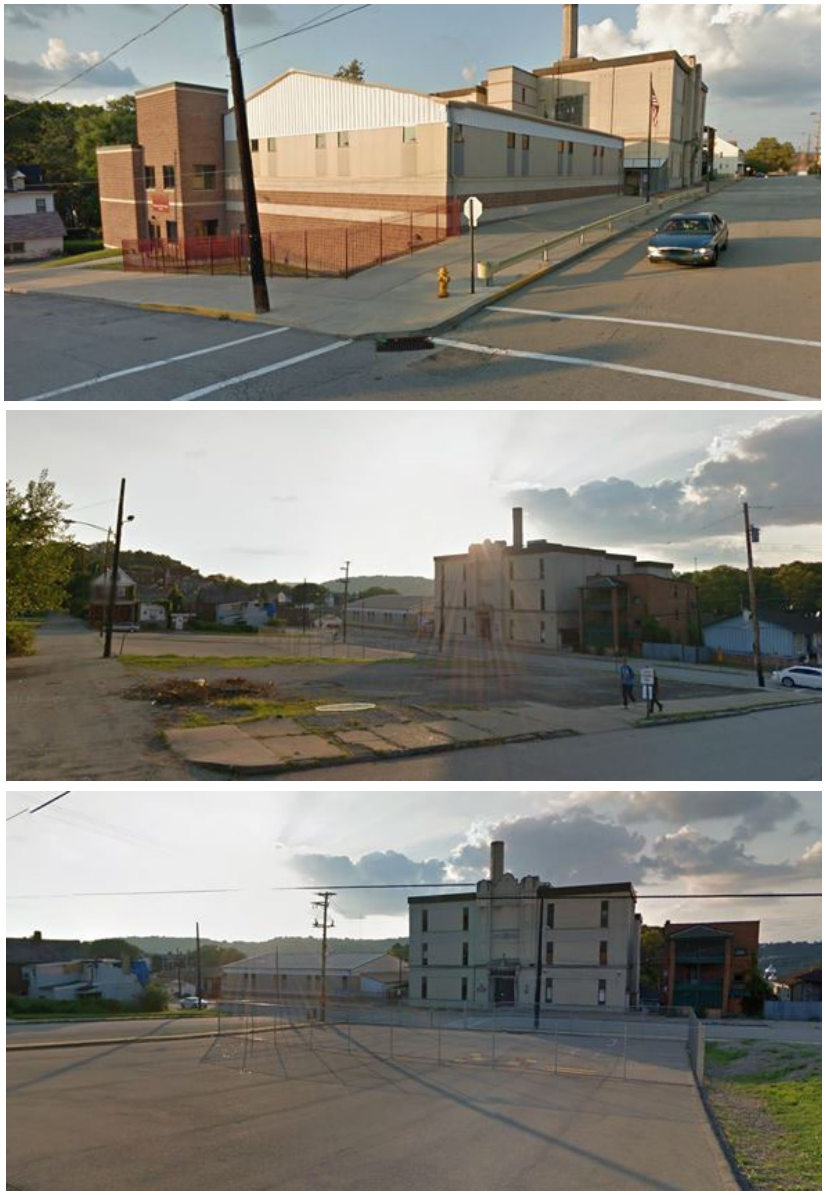

Barrett Elementary
Enhanced Stormwater Tree Pits
and Green Play Space and Parking
Western Pennsylvania Conservancy
Barrett Elementary
E Laurel Way
Amity St
E 12th Ave
Possible Green Parking
Possible Natural Play Space
Ann St
E Oak Way
Glenn St
Legend
Locations for Enhanced Stormwater Tree Pits
Storm Drains
Public or Civic Owned Properties
Vacant Lots with Source Reduction Potential
0 37.5 75 150
Feet
Appalachian Mountains
© 2014 Microsoft Corporation © 2014 Nokia © AND

Costs: Engineering: $6,000. Construction: approximately $5,000 per tree pit.

Effort: Regardless of scope, this project would require professional engineering and project management; however Borough public works resources and volunteers could also be used to offset additional costs. Excavation of enhanced tree pits should begin as early as possible in the spring so that trees and other vegetation can be planted in the early spring. This project could be split into phases to coincide with planting seasons and available funding.

Good Partners:

- Western Pennsylvania Conservancy – The Conservancy is available to participate as a project manager and partner. **WPC has been awarded a small grant that will cover the engineering as well as the installation of the first few tree pits.** WPC's role could include managing applications for additional public grant or loan funds on behalf of the Borough of Homestead; assisting with identifying and securing private donor funds if available; grant and contract administration; construction oversight; development of a maintenance plan and assistance with maintenance; and organizing the work of community volunteers.
- Steel Valley School District – The project could take place on streets and sidewalks that abut the Barrett Elementary buildings and the play space and parking lots across 12th Avenue from the school that are also owned by the School District. The project would require approval and support of the School District. In addition, it would be important for the School District grounds and maintenance crews to work collaboratively



Streetview photos of Barrett Elementary where stormwater capture can occur, from top: E. 12th Ave. & Amity St.; E. Oak Way & Ann St. looking toward the school across the vacant lot; looking across the parking lot toward the school from E. Oak Way. Photo: Google Streetview.

with Homestead Borough to ensure property and consistent ongoing care and maintenance for the tree pits.

- Homestead Borough – The enhanced storm water tree pits would be installed on Homestead Borough rights-of- way, which would require authorization by appropriate Borough authorities. The Borough would likely be the applicant for any public dollars that are available for the project. The project will require the support of Borough council and close collaboration among the Borough council president, Borough manager, Borough solicitor, and the project managers. In addition, it would be important for the Borough to work collaboratively with the Barrett Elementary grounds and maintenance crews to ensure proper and consistent care and maintenance for the tree pits.
- ALCOSAN – ALCOSAN staff would be invited to participate in the concept development and design and will be regularly updated on implementation and performance in relation to source reduction.

Possible Funding Sources:

- PNC Charitable Foundation: Western Pennsylvania Conservancy has secured a grant that is available to design and install a set of enhanced storm water tree pits. The Barrett Elementary site could be a great location for an immediate first phase of installing several enhanced storm water tree pits through this grant.

The Conservancy has begun working with project engineers, the Borough engineer and the Borough manager to develop general design specifications, scout potential locations, and develop construction drawings. The Conservancy will administer the grant funds. Funds are available for construction to begin in the early spring of 2015.

- PennVest Grant or Loan: Additional tree pits and other stormwater management components, including additional enhanced stormwater tree pits and green parking lot, could be part of an application for PennVest grants or loans.

PennVest grants and loans are awarded five times per year, with applications due approximately two months before the award date. If the project is selected, the PennVest board offers a grant, a low-interest loan (1%), or a combination of grants and loans. Grants are made on a reimbursement basis, where the applicant is reimbursed for project expenses after certain phases of work have been completed. The Borough is not required to accept an offer from PennVest.

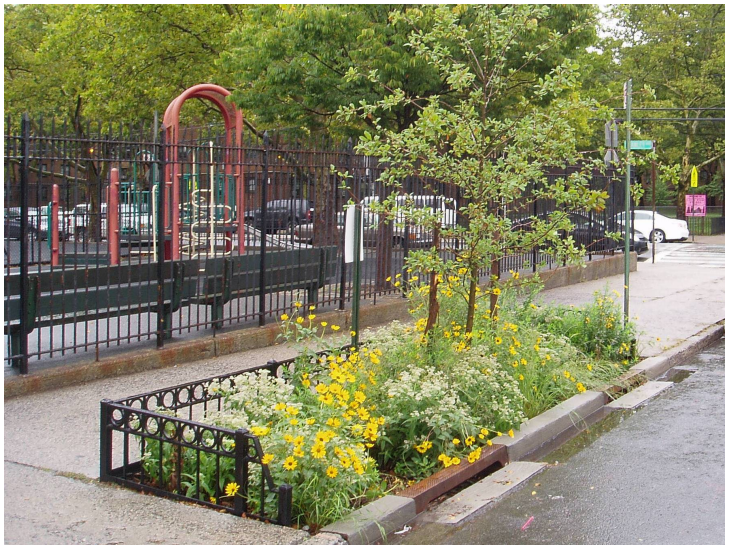
Applications must include construction drawings, any applicable permits, full cost estimates, the Borough's audited financial

12th Avenue between Barrett Elementary and its parking lot/playspace.
Photo: Google Streetview.

statements for the past several years, resolution of Borough Council, and other applicable approvals.

If the Borough accepts the PennVest board's financing offer, a settlement process takes place during which the grant and/or loan agreement is finalized and executed, the project scope is finalized, and contracts are bid and approved. This can take to six months or more from the time the grant and/or loan is offered. After settlement is complete, notice would be given to proceed with implementation.

WPC is available to develop an application with the Borough and its engineers, manage the contract under contract with the Borough, track and manage finances on a reimbursable basis, managing bidding, construction and implementation of a project.



Tree pit with stormwater inlet and outlet outside of playground in New York City. Photo: Unknown.

- Allegheny County Conservation District (ACCD): Link to the Application Package: http://www.accdpa.org/wp-content/uploads/2014/08/ACCD-Grant-Application.pdf

Homestead Borough, other government entities, or 501(c)(3)s are eligible to apply for ACCD Grant Program funds. ACCD funds projects that focus on abatement of pollution in rivers, streams, and other waters of the Commonwealth, including green infrastructure approaches to storm water management.

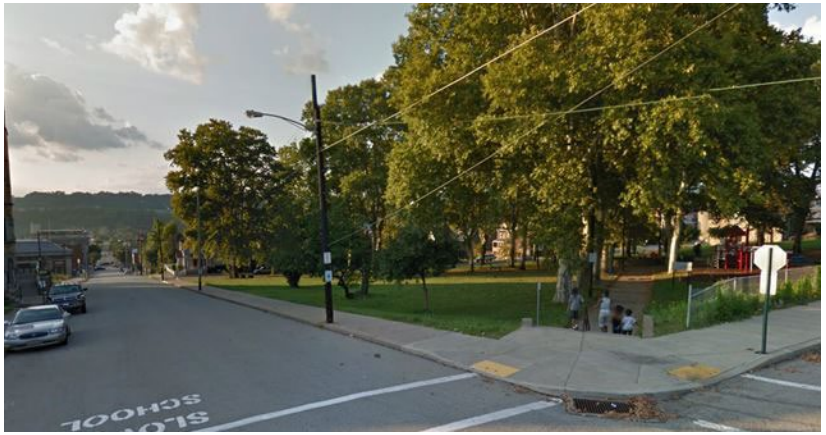
The ACCD hopes to provide 10 grants per year at a level of approximately $10,000 per grant. A 20% match is required, but can be cash, in-kind goods or services and salaries.

- Private Foundations or Donors: Private foundations or donors interested in green infrastructure projects or in improving school grounds and parks could be good sources for implementation funds or cash match to supplement other grant funds and in-kind goods and services.

Sustainability: With regular maintenance and cleanout of the pits and proper care for the trees, the tree pits could be functional for decades, if not longer. Development of a long-term maintenance plan should be included in the scope of the project. Much of the regular maintenance could be accomplished with Borough public works or school district oversight. It is estimated that each pit will take 2 visits per year for 20 to 30 minutes. Pruning of trees will be needed from the ground over the first 3 years to shape the tree correctly, then professional pruning is likely to be needed during years 5 to 7 or 7 to 10. Cost per tree is likely to be $30 per year.

Action 2: Frick Park Green Infrastructure Project.

The areas of Frick Park that front on Amity and Ann Streets offer excellent opportunities to install storm water bio-retention on Borough-owned land. A combination of components, including traffic bump-outs with bio-retention and large rain gardens or bioswales could provide considerable capacity to capture and infiltrate storm water, reducing runoff from Amity and Ann streets into nearby storm drains. In addition, the location in a park is ideal for interpretive signage to educate park users about green infrastructure.



Frick Park corner entrances at Amity St. & E. 10th Ave. looking southeast (left) and Amity St. & E. 11th Ave. looking northeast (right). Photo: Google Streetview.

Costs: Engineering and landscape design: $30,000; bump-out construction: $10,000 each; rain garden construction: $40,000 to $60,000 per rain garden or bioswale. Approximate total cost: $200,000

Effort: This project would require professional engineering, landscape design, and project management. However, Borough public works and volunteer resources could also be used to offset additional costs and to serve as in-kind match for grant funds.

Simple Bioswale:

$10 to $20/ sq. ft.

Engineered Bioswale:

$20 to $30/ sq. ft.

Good Partners:

- Homestead Borough – This project would take place on Borough-owned public land, which makes the Borough the key partner for this project. The Borough would likely be the applicant for any public dollars that are available for the project. The project will require the support of Borough council, close collaboration among the Borough council president, Borough manager, Borough solicitor, and the project managers.
- Western Pennsylvania Conservancy – The Conservancy is available to participate as a project manager and partner. This role could include managing applications for public grant or loan funds on behalf of the Borough of Homestead, assisting the Borough with identifying and securing private donor funds if available, grant and contract administration, design development, bid management, construction oversight, development of a maintenance plan and assistance with maintenance, and organizing the work of community volunteers.
- ALCOSAN – ALCOSAN staff would be invited to participate in the concept development and design and will be regularly updated on implementation and performance in relation to source reduction.
- Community volunteer groups could take an important role in long-term care of these sites to support the Borough's public works staff as union rules allow.

Possible Funding Sources:

- DCNR Community Conservation Partnership Program (C2P2) Grants: Because this project is in a public park, Homestead Borough would be eligible to apply for grant funding from Pennsylvania Department of Conservation and Natural Resources (DCNR) through their Community Conservation Partnership Program (C2P2).

This program requires a 1:1 match from other funding sources. In-kind good and services, such as volunteers and Borough public works resources can be included as match. Up to 15% of the awarded funds can be used for engineering and landscape design. Grants are made on a reimbursement basis, where the applicant is reimbursed for project expenses after certain phases of work have been completed. DCNR retains 10% of the total awarded amount until the project is closed and the grantee is reimbursed up to 50% of the total accrued project costs, including cash and in-kind match.

Frick Park corner entrances at Ann St. & E. 11th Ave. looking northwest.
Photo: Google Streetview.

Applications for this funding are due in April 2015, with awards being announced in late 2015 to early 2016. If awarded, grant funds could begin to be spent in spring 2016 at the earliest.

It could be advantageous for Homestead Borough to apply for funding through for this project in conjunction with other public park improvements recommended in this Green Scan, including natural play spaces in Frick Park and McLean Playground and possibly establishing a hiking-biking trail connector from Amity Street to the Great Allegheny Passage.

- PennVest Grant or Loan: These improvements could also be included in an application for PennVest funding and/or loans in conjunction with other projects recommended in this Green Scan.

PennVest grants and loans are awarded five times per year, with applications due approximately two months before the award date. If the project is selected, the PennVest board offers a grant, a low-interest loan, or a combination of grants and loans. Grants are made on a reimbursement basis, where the applicant is reimbursed for project expenses after certain phases of work have been completed. The Borough is not required to accept PennVest's offer.

Applications must include construction drawings, any applicable permits, full cost estimates, the Borough's audited financial statements for the past several years, resolution of Borough Council, and other applicable approvals.

If the Borough accepts the PennVest board's financing offer, settlement process takes place during which the grant and/or loan agreement is finalized and executed, the project scope is finalized, and contracts are bid and approved. This can take to six months or more from the time the grant and/or loan is offered. After settlement is complete, notice would be given to proceed with implementation.

Heavily engineered bioswale implemented in Millvale by WPC in 2013. Photo: WPC.

- Allegheny County Conservation District (ACCD): Homestead Borough, other government entities, or 501(c)(3)s are eligible to apply for ACCD Grant Program funds. ACCD funds projects that focus on abatement of pollution in rivers, streams, and other waters of the Commonwealth, including green infrastructure approaches to storm water management.
The ACCD hopes to provide 10 grants per year at a level of approximately

$10,000 per grant. A 20% match is required, but can be cash, in kind goods or services and salaries.
Link to the Application Package: http://www.accdpa.org/wp-content/uploads/2014/08/ACCD-Grant-Application.pdf

- Private Foundations or Donors: Private foundations or donors interested in green infrastructure projects or in improving public green spaces may be a good source for design and implementation funds or any necessary cash match that could be required for the C2P2 or ACCD grants.

Sustainability: This project would benefit greatly from a volunteer corps of community members interested in helping with occasional maintenance and caretaking of the new bioswales, rain gardens or special tree pits. All caretaking can be readily handled by public works staff or trained volunteers, although time and training will need to be allocated. The green infrastructure will require care about 2 to 3 times per year for several hours each time. Borough staff or volunteers can readily be trained to identify which plants to save or pull. Minor mulching may be needed once a year. This site will offer a great location to teach passersby and park users about storm water capture and may encourage residents to get involved in caretaking.

Examples of vegetated bioswales. Photos: Jennifer English, Defiance (OH) Storm Water Conservation District (left), Iowa Association of Municipalities (center), and Nebraska Statewide Arboretum (right).

Action 3: Saunders Memorial Green Infrastructure Project

The community has undertaken the beautification of a location at Sarah and West streets in honor of a beloved community leader who passed away not long ago. Upon analysis, this location is adjacent to several other vacant parcels that could be included in a comprehensive storm water reduction design for that intersection. The memorial site itself could be configured to capture significant water, and if three adjacent lots were included, the capture and diversion from storm drains could be even more high impact. Relatively modest technology could be employed to hold down costs and maintenance .

Lot where Saunders Memorial currently stand prior to its implementation. Photo: Google Streetview.

Costs: $30,000 to $100,000 depending on configuration of sites included.

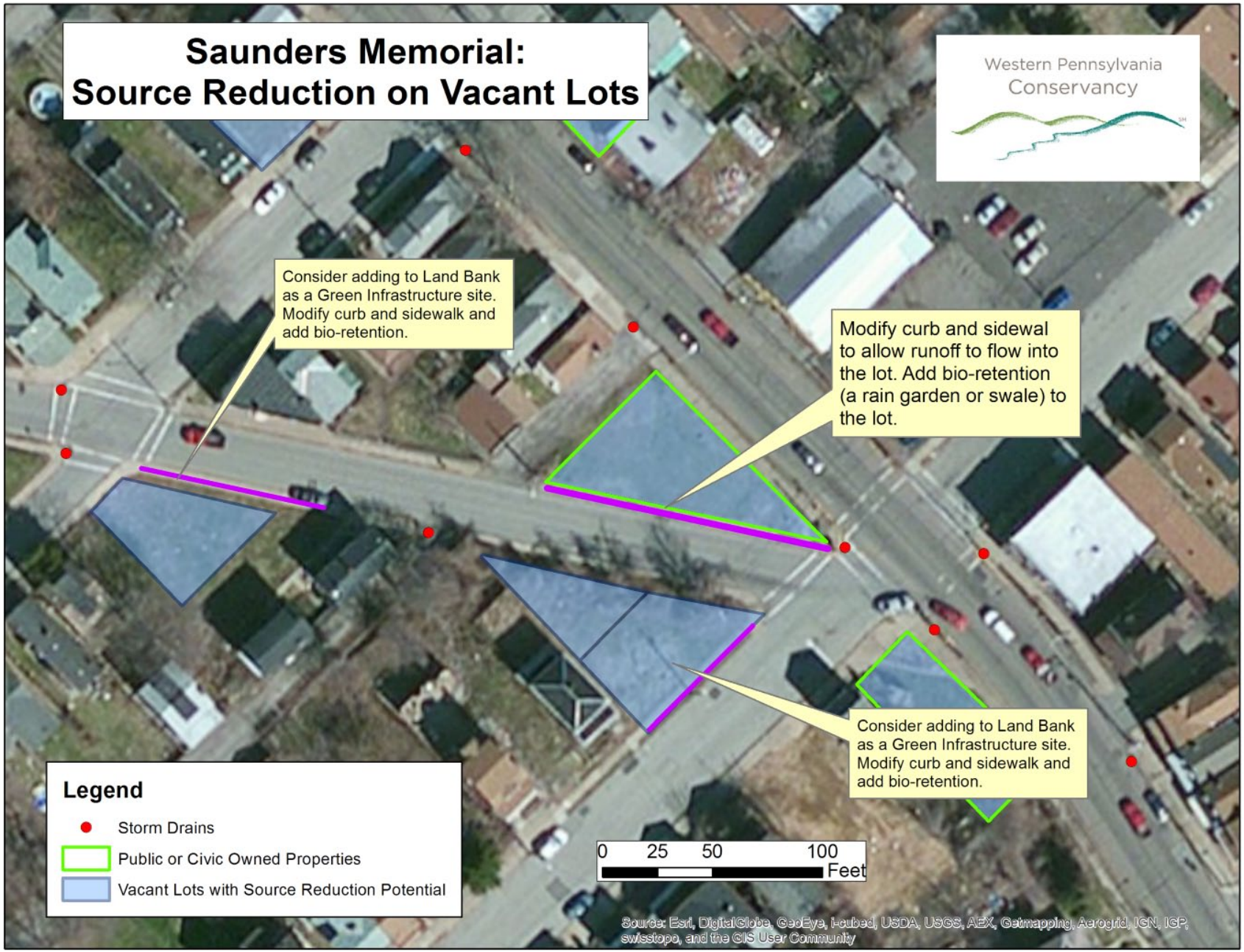
Effort: The major effort for this project will include developing applications for funding sources, guiding design, acquiring parcels not yet in city ownership via the pending land bank or other mechanism, and assuring that the nearby neighbors are engaged and on board with the project. Borough employees and volunteers will need to be engaged for planting and caretaking.


Saunders Memorial - garden bed and mural, at the southwest corner of West Street & W. 15th Street, summer 2014. Photo: WPC.

Good Partners:

- Homestead Borough - Components of the project would be installed on Homestead Borough rights-of- way, which would require authorization by appropriate Borough authorities. Also, because several of the properties that could be included in the project area are vacant and may be tax delinquent or abandoned, the Borough's support and resources would be needed to ensure that the rain gardens and other project components are authorized to be installed on these properties. The Borough would likely be the


Sarah Street and West Street:
Source Reduction on Vacant Lots
Western Pennsylvania Conservancy
Legend
Combined Sewer lines
Storm Drains
Public or Civic Owned Properties
Vacant Lots with Source Reduction Potential
0 125 250 500 Feet
bing
Image courtesy of USGS Earthstar Geographics SIO © 2014 Microsoft Corporation © 2014 Nokia © AND


Saunders Memorial:
Source Reduction on Vacant Lots
Western Pennsylvania Conservancy
Consider adding to Land Bank as a Green Infrastructure site. Modify curb and sidewalk and add bio-retention.
Modify curb and sidewal to allow runoff to flow into the lot. Add bio-retention (a rain garden or swale) to the lot.
Consider adding to Land Bank as a Green Infrastructure site. Modify curb and sidewalk and add bio-retention.
Legend
Storm Drains
Public or Civic Owned Properties
Vacant Lots with Source Reduction Potential
0 25 50 100
Feet
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

applicant for any public dollars that are available for the project. The project will require the support of Borough council and close collaboration among the Borough council president, Borough manager, Borough solicitor, and the project managers. In addition, it would be important for Borough public works crews to ensure proper and consistent care and maintenance.

- Western Pennsylvania Conservancy – The Conservancy is available to participate as a project manager. This role would include managing applications for public grant or loan funds on behalf of the Borough of Homestead, assisting the Borough with identifying and securing private donor funds if available, grant and contract administration, construction oversight, development of a maintenance plan and assistance with maintenance, and organizing the work of community volunteers.
- ALCOSAN – ALCOSAN staff would be invited to participate in the concept development and design and will be regularly updated on implementation and performance in relation to source reduction.
- 3 Rivers Wet Weather –Monitoring equipment could be available from #RWW to track the impact of the new green sites.

Vacant lot along W. 15th Ave. to the west of Saunders Memorial. Photo: Google Streetview.

Possible Funding Sources:

- PennVest Grant or Loan: These improvements could also be included in an application for PennVest funding and/or loans in conjunction with other projects recommended in this Green Scan.

PennVest grants and loans are awarded five times per year, with applications due approximately two months before the award date. If the project is selected, the PennVest board offers a grant, a low-interest loan, or a combination of grants and loans. Grants are made on a reimbursement basis, where the applicant is reimbursed for project expenses after certain phases of work have been completed. The Borough is not required to accept an offer from PennVest.

Applications must include construction drawings, any applicable permits, full cost estimates, the Borough's audited financial statements for the past several years, resolution of Borough Council, and other applicable approvals.

If the Borough accepts the PennVest board's financing offer, settlement process takes place where the grant and/or loan agreement is finalized and executed, the project scope is finalized, and contracts are bid and approved. This can take to six months or more from the time the grant and/or loan is offered. After settlement is complete, notice would be given to proceed with implementation.

- Allegheny County Conservation District (ACCD): Link to the Application Package: http://www.accdpa.org/wp-content/uploads/2014/08/ACCD-Grant-Application.pdf
Homestead Borough, other government entities, or 501(c)(3)organizations are eligible to apply for ACCD Grant Program funds. ACCD funds projects that focus on abatement of pollution in rivers, streams, and other waters of the Commonwealth, including green infrastructure approaches to storm water management.

The ACCD hopes to provide 10 grants per year at a level of approximately $10,000 per grant. A 20% match is required, but can be cash, in kind goods or services and salaries.

- Private Foundations or Donors

Private foundations or donors interested green infrastructure projects or in improving public green spaces could be good sources for implementation funds or any necessary cash match that could be required for other grants.

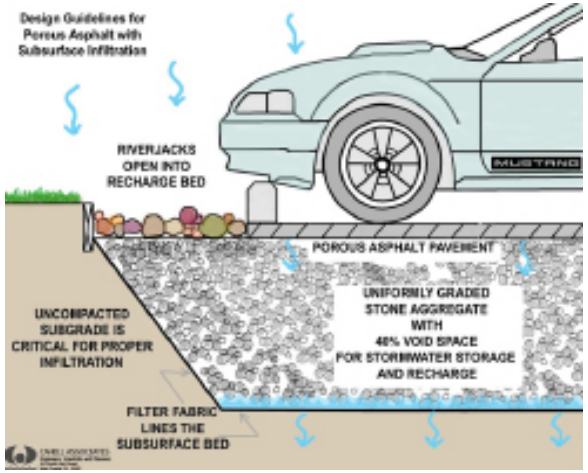
Saunders Memorial at junction of W. 15th Ave, Sarah St. and West St. facing northwest. Photo: WPC.

Sustainability: The technology applied to this project is likely to be of modest complexity making the ongoing caretaking manageable for Borough staff. The project should include a detailed maintenance protocol so that it is easy to include care of these sites in routine Borough public works schedules. Given the strong community interest in the memorial site that would be the heart of this project, it is possible that some community residents could also be involved in long term care especially for the simple tasks of weeding or watering of new plants and trees, as union rules allow.

Action 4: Green Borough Parking Lots

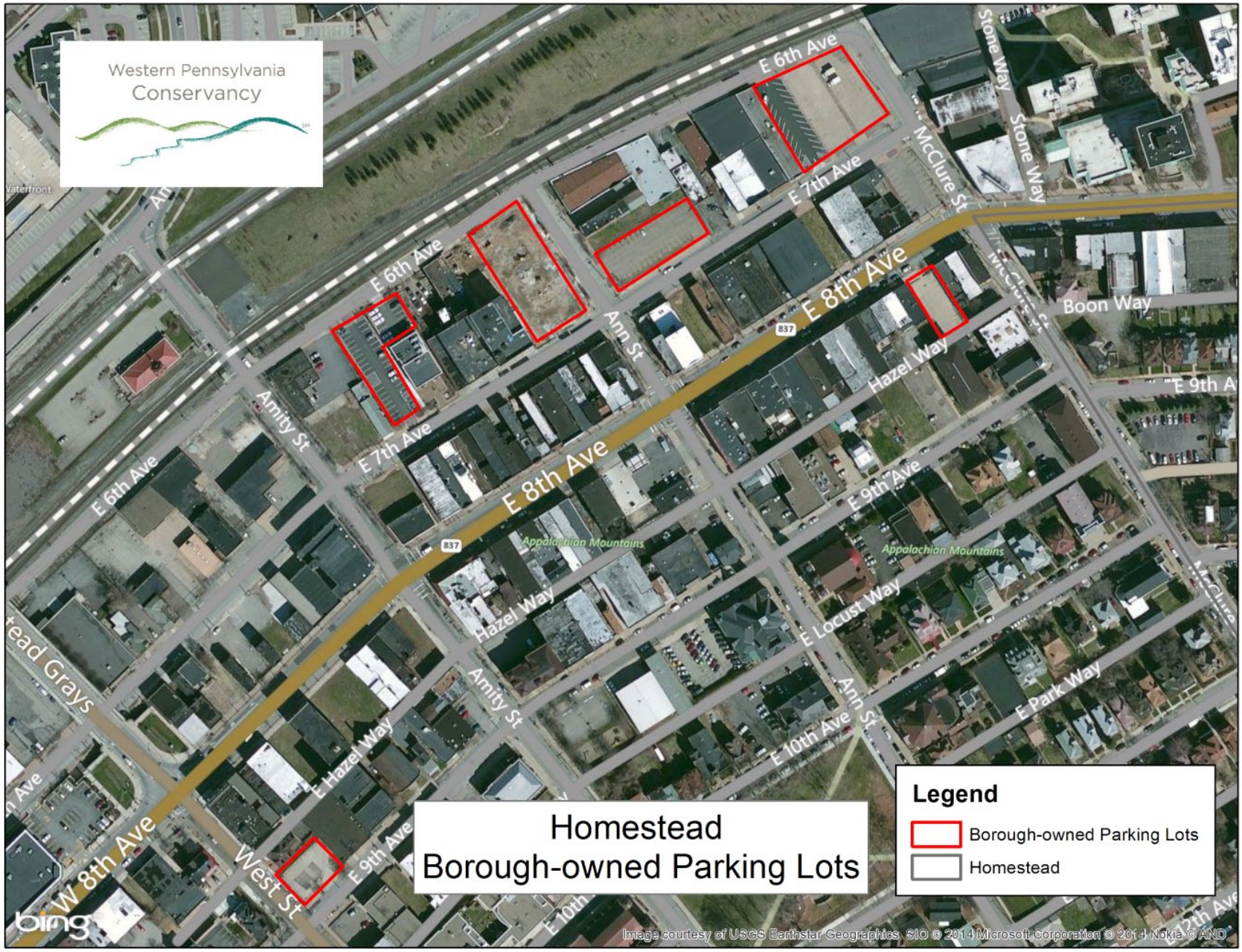
The Borough owns a number of parking lots that are largely devoid of trees. There are six public lots for a total of 1.9 acres. The pavement largely sheds water directly into the storm drains. These areas offer a significant opportunity to add greenery that will lower temperatures, soak up water and improve the visual appeal of the spaces. Several of these lots are at the low end of the steep slopes of West Street, Ann Street and Amity Street that comprise the landscape of Homestead, making them an ideal location for capturing and slowing storm water arriving at the low points along 6th and 7th Avenues. One of these lots at the corner of 6th and McClure street receives one of the heaviest loads of storm water in the whole Borough. Greening these lots could provide water capture at a significant level, while also adding to the appeal and value of these lots for public parking. Shade, air quality and reduced wear on pavement all provide valuable benefits. Design strategies applied to these sites could include bioswales, center islands, special tree pits, and underground storage. Designs could range from trees only around the perimeter to full-scale bioswale and underground structures.

Homestead Borough-owned parking lot at the corner of Seventh Ave. & McClure St. Photo: WPC.



Model of permeable pavement for a parking lot.

Computer generated picture of shade cover with perimeter tree plantings.


Western Pennsylvania Conservancy
Homestead
Borough-owned Parking Lots
Legend
Borough-owned Parking Lots
Homestead
E 6th Ave
E 7th Ave
E 8th Ave
E 9th Ave
E 10th Ave
Stone Way
McClure St
Ann St
Amity St
Hazel Way
Boon Way
E Locust Way
E Park Way
E Hazel Way
West St
W 8th Ave
837
Appalachian Mountains
Image courtesy of USGS Earthstar Geographics, SIO © 2014 Microsoft Corporation © 2014 Nokia © AND

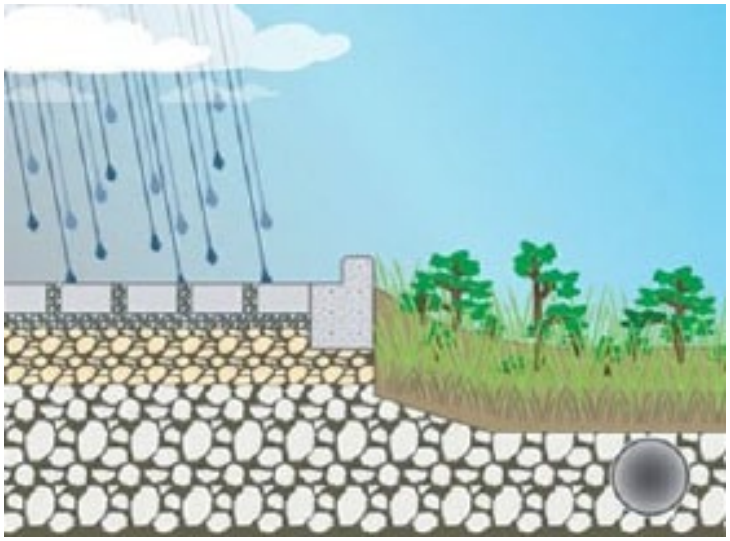
Costs: Costs will vary depending on specific designs and features. For a lot 34,000 sq. ft. designs could range from trees only around the perimeter, trees in tree pits, additional bioswale areas, and even permeable paving.

Trees Only:	**$12,480**
Add Tree Pits:	**$8,950 to $12,800**
Reconfigure:	**$32,000 to $55,000**
Add Permeable Paving:	**$17,000 -340,000**
Total:	**$12,480 to $420,000**

Effort: Greening these parking lots would take a medium level of effort as these sites are owned and operated by the Borough already. However, the Borough would need to be ready to seek the funding needed, undertake the engineering and construction required or contract these services out. The Borough would also have to manage the disruption of parking in the interim of construction.

Good Partners:

- Homestead Borough – This project would take place on Borough-owned public land and Borough rights-of-way, which makes the Borough the key partner for this project. The Borough would likely be the applicant for any public dollars that are available for the project. The project will require the support of Borough council, close collaboration among the Borough council president, Borough manager, Borough solicitor, and the project managers.
- Western Pennsylvania Conservancy – The Conservancy is available to participate as a project manager and partner. This role would include managing applications for public grant or loan funds on behalf of the Borough of Homestead, assisting the Borough with identifying and securing private donor funds if available, grant and contract administration, construction oversight as appropriate, development of a maintenance plan and assistance with maintenance, and organizing the work of community volunteers.
- ALCOSAN – ALCOSAN staff would be invited to participate in the concept development and design and will be regularly updated on implementation and performance in relation to source reduction.



Detail of porous pavement and bioswale design example.

Possible Funding Sources:

- PennVest Grant or Loan: These improvements could also be included in an application for PennVest funding and/or loans in conjunction with other projects recommended in this Green Scan.

PennVest grants and loans are awarded five times per year, with applications due approximately two months before the award date. If the project is selected, the PennVest board offers a grant, a low-interest loan, or a combination of grants and loans. Grants are made on a reimbursement basis, where the applicant is reimbursed for project expenses after certain phases of work have been completed. The Borough is not required to accept PennVest's offer.

Homestead Borough-owned parking lot at the corner of E. 7th Ave. & Ann St. Photo: Google Streetview.

Applications must include construction drawings, any applicable permits, full cost estimates, the Borough's audited financial statements for the past several years, resolution of Borough Council, and other applicable approvals.

If the Borough accepts the PennVest board's financing offer, a settlement process takes place during which the grant and/or loan agreement is finalized and executed, the project scope is finalized, and contracts are bid and approved. This can take to six months or more from the time the grant and/or loan is offered. After settlement is complete, notice would be given to proceed with implementation.

- Allegheny County Conservation District (ACCD): Link to the Application Package: http://www.accdpa.org/wp-content/uploads/2014/08/ACCD-Grant-Application.pdf

Example of open cell porous paving. Photo: Unknown.

Homestead Borough, other government entities, or 501(c)(3) organizations are eligible to apply for ACCD Grant Program funds. ACCD funds projects that focus on abatement of pollution in rivers, streams, and other waters of the Commonwealth, including green infrastructure approaches to storm water management.

The ACCD hopes to provide 10 grants per year at a level of approximately $10,000 per grant. A 20% match is required, but can be cash, in-kind goods or services and salaries.

Sustainability: Depending on the specific design elements, this project would need to have routine and periodic maintenance attention by the Borough public works department. These tasks might include annual mulching, routine once a year pruning of plant material, minor weeding two to three times a year, watering of new plants and trees for the first three years after planting, and annual cleaning out of drains, filters or other structures.

Examples of porous paver parking spaces along asphalt road. Photos: Unknown.

GREEN VACANT LOTS

Greening existing vacant lots can contribute to both storm water mitigation and a revitalization strategy for the Borough. Once it has a thorough inventory of its vacant lots, including Borough-owned, tax-delinquent and privately owned, the Borough could seek resources for low-cost minimal caretaking of vacant properties, for low-tech storm water capture, and for more intensive storm water systems on selected sites. Ideally it would be possible to tie projects to youth development to introduce young people to some of the new concepts, information technology and physical systems that can help solve both vacant land and storm water issues for the Borough. With some additional effort, this venture could also at least temporarily address locations in the Borough where there is less access to greenspace.

Action 1: Complete current research and development of a sorting process for existing vacant lots with leadership from the Steel Valley COG.

Costs: Current funding in place; raise additional funding for design and organizing efforts ($30,000)

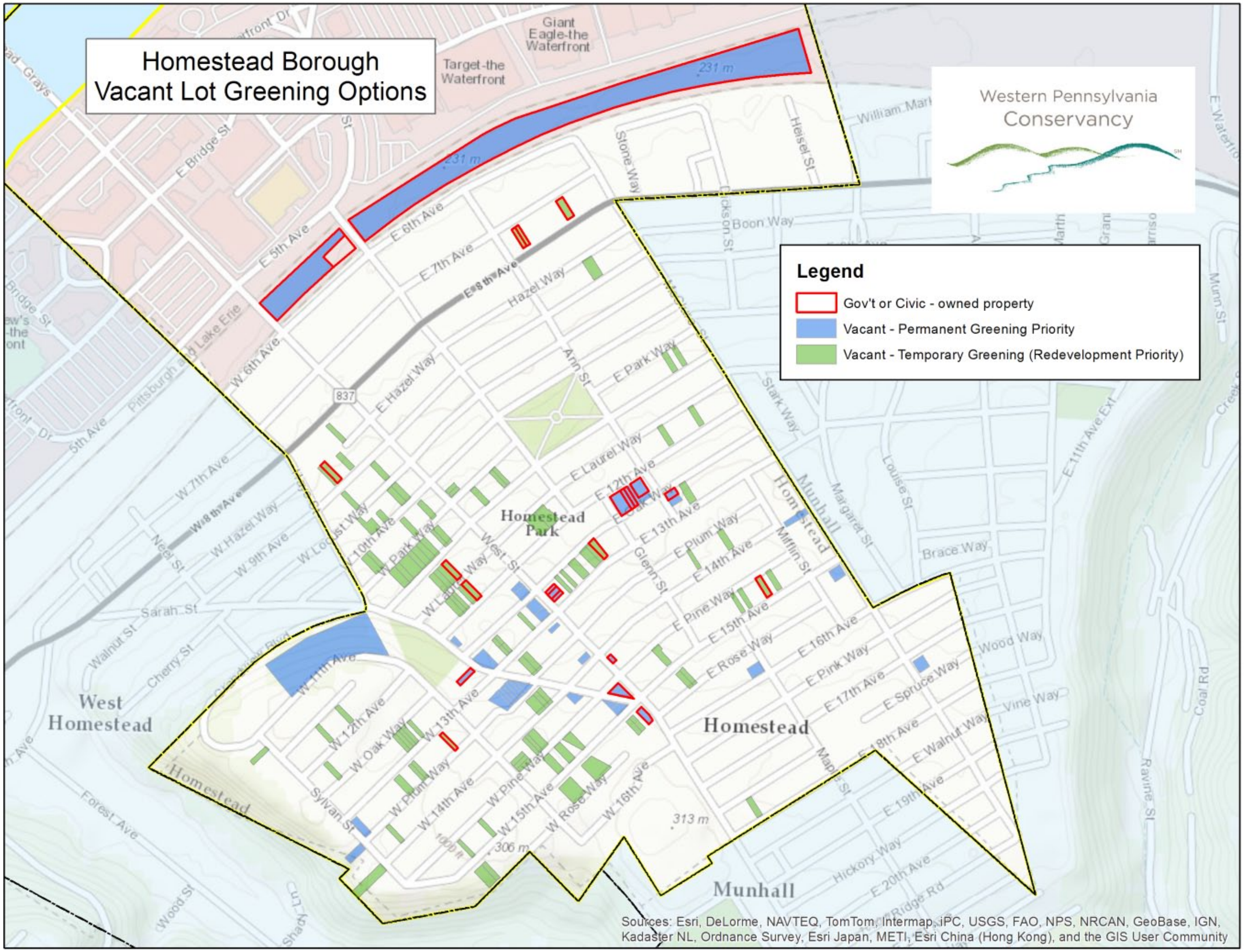
Effort: Modest

Partners: SVCOG, Western PA Conservancy, Borough

Funding: Funding has been secured to add vacant land to the ongoing work at SVCOG to develop tools for assessing different types of blighted land.

Sustainability: NA

An example of Clean and Green treatment of a vacant lot in Philadelphia, including mowing, fencing, and tree plantings. Photo: Pennsylvania Horticultural Society.


Homestead Borough
Vacant Lot Greening Options
Western Pennsylvania Conservancy
Legend
Gov't or Civic - owned property
Vacant - Permanent Greening Priority
Vacant - Temporary Greening (Redevelopment Priority)
Homestead Park
Homestead
West Homestead
Munhall
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

Action 2: Carry out additional analysis to identify lots best suited for significant water capture in the Borough.

Costs: $40,000

Effort: The main effort will be fundraising for analytical work to identify lots with high water capture potential.

Partners: SVCOG, Western PA Conservancy, Borough

Funding: Local foundations, possibly ALCOSAN.

Sustainability: NA

Vacant lot planted with sunflowers in Millvale. Photo: GTECH Strategies.

Action 3: Begin a simple Clean and Green program with youth involvement to add simple fences, begin mowing and recruit volunteer mowers to support Borough efforts.

Cost: $45,000 for start-up; $10,000 per year for 5 years

Effort: This project would take a determined effort by partners to raise funds, educate the public, identify best youth partners and monitor progress.

Partners: Borough, SVCOG, Western Pennsylvania Conservancy, local youth organizations.

Funding: Foundations, United Way, Allegheny County Economic Development

Sustainability: The first three years of this work should be a pilot program to test concept and track impact for evaluation of value and efficacy. If the first three years prove to yield benefits, then additional effort could be put into sustaining this effort through Borough staff, volunteers and potentially local partners with additional outside funding.

Action 4: Add simple bioswales to greened lots in suitable locations (near inlets, appropriate downspout locations, etc.).

Cost: Around $1,500 per bioswale

Effort: This project will require facilitation by the Borough to identify best lots, manage low-level construction and track progress.

Partners: Borough, SVCOG, WPC, youth groups, local volunteer contractors.

Bioswale with planted vegetation in parking lot median in North Hills. Photo: WPC.

Funding: Local foundations

Sustainability: Simple bioswales will need mowing 3 to 4 times per growing season at a cost of about $50 per site. Once established this effort will be sustainable with Borough staff, volunteers (perhaps organized as an Adopt-a-Lot) or service groups

Action 5: Add more complex installations in several additional sites as water capture potential warrants.

Cost: Depending on site, costs could be between $5,000 and $50,000.

Effort: Initial selection and analysis of greening options for existing vacant lots was conducted as part of this Green Scan – summary map above. Additional lot-by-lot field analysis should be conducted to inventory site conditions and identify appropriate greening strategies. This work could be conducted by interns in conjunction with broader initiatives happening within the Borough and surrounding municipalities to plan for reuse of vacant and blighted properties. Ultimately, the information generated through this analysis could be used by the Borough or a future land bank as an action plan for implementing appropriate reuse strategies for vacant and blighted properties.

Engineered bioswale in Millvale. Photo: Matthew Little.

Good Partners:

- Steel Valley Council of Governments (SVCOG)
- Homestead Borough and/or future land bank
- Western Pennsylvania Conservancy

Possible Funding Sources: Local foundations, potentially ALCOSAN, PennVest

Sustainability: Each site will need at least a small amount of caretaking depending on the size and complexity of design. Caretaking will require a few hours several times a year, but minimal training or equipment.

Volunteers help with regular maintenance at Hawthorne Bioswale in Millvale. Photo: WPC.

CONNECT TO THE GREAT ALLEGHENY PASSAGE TRAIL

The Great Allegheny Passage traverses the riverfront of Homestead Borough but remains distant from the downtown of the community. The Steel Valley Council of Governments (SVCOG) owns a key parcel along with Junior Achievement of Western Pennsylvania that could create a dynamic link between the Pump House facility at the riverfront and the Borough's downtown area.

Action 1: Complete brownfields assessment of potential trail link

Costs: Study underway

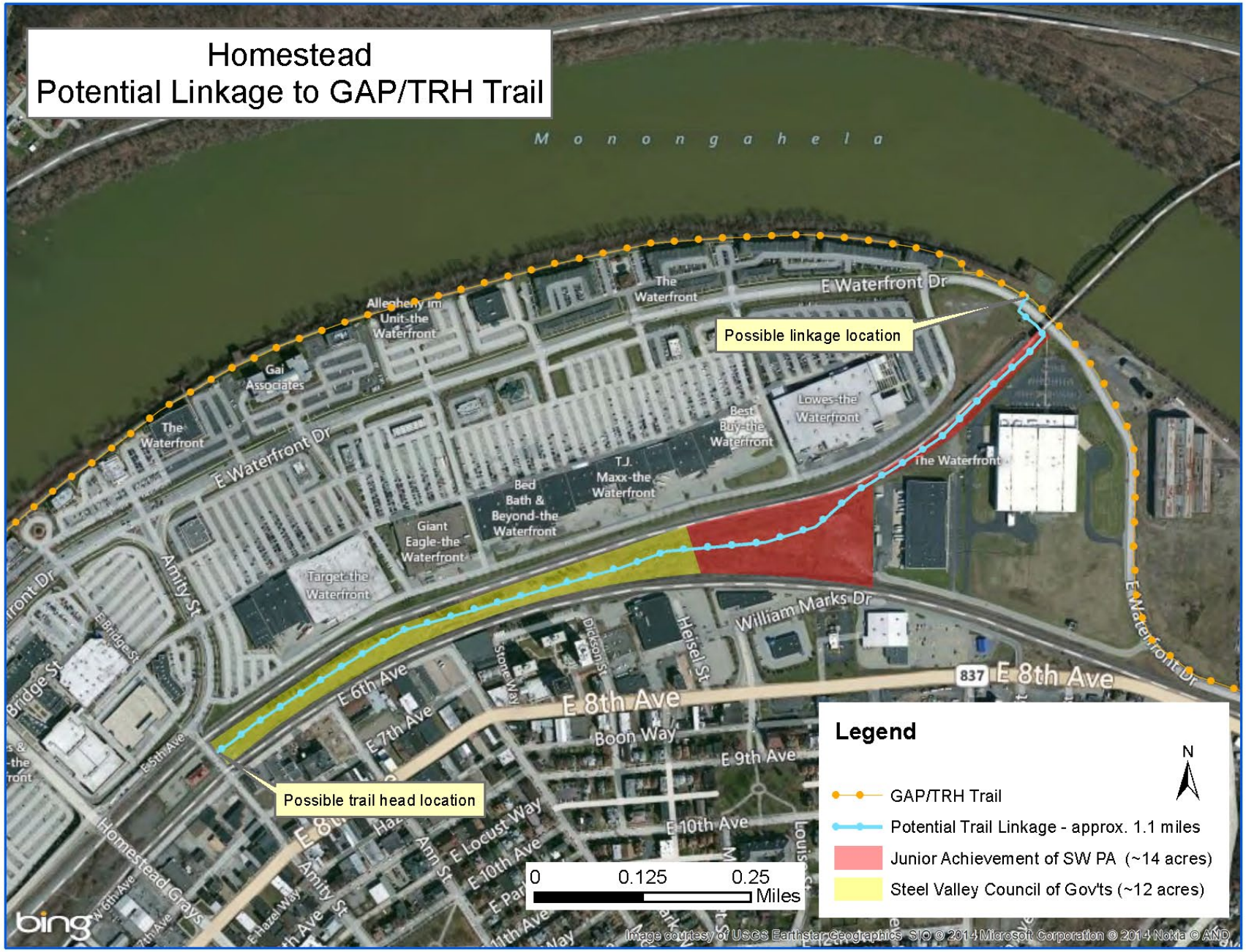
Effort: Underway through Steel Valley COG

Partners: Steel Valley COG and Homestead Borough

Action 2: Coordinate all parties with an interest in ownership of the key parcels currently owned by SVCOG, Junior Achievement - include Munhall Borough.

This conversation needs to address long-term ownership, caretaking, development costs and the relationship with the Waterfront development. Issues of property ownership dues, land management and access all need to be addressed jointly.

Identified site for potential connection between the Great Allegheny Passage into Homestead Borough Photo: WPC.


Homestead
Potential Linkage to GAP/TRH Trail
M o n o n g a h e l a
Possible linkage location
Possible trail head location
E Waterfront Dr
The Waterfront
Allegheny Im Unit-the Waterfront
Gai Associates
Lowes-the Waterfront
Best Buy-the Waterfront
T.J. Maxx-the Waterfront
Bed Bath & Beyond-the Waterfront
Giant Eagle-the Waterfront
Target-the Waterfront
Amity St
Bridge St
E Bridge St
E 6th Ave
E 7th Ave
E 8th Ave
Boon Way
E 9th Ave
E 10th Ave
William Marks Dr
Heisel St
Dickson St
Stone Way
837
E Locust Way
Ann St
Homestead Grays
0
0.125
0.25
Miles
Legend
N
GAP/TRH Trail
Potential Trail Linkage - approx. 1.1 miles
Junior Achievement of SW PA (~14 acres)
Steel Valley Council of Gov'ts (~12 acres)
bing
Image courtesy of USGS Earthstar Geographics SIO © 2014 Microsoft Corporation © 2014 Nokia © AND

Action 3: Proceed with fundraising and design if implementation feasibility is confirmed.

Costs: Design will be about 10% of the total construction costs, or at least $150,000. Trail installation costs depend on the type of surface that will be used. The approximate installation cost per mile, including grading and building a base for each surface type:

- Asphalt: $200K - $300K
- Concrete: $300K - $500K
- Crushed/granular stone: $80K - $120K
- Soil cement: $60K - $100K
- Resin-based stabilized material: varies
- Boardwalk: $1.5 mil – $2 mil

Because the site is between railways with heavy train traffic, safety measures, such as fencing, should be built in to the budget for the project.

A rough estimate for establishing a trail on the site is in the range of $175,000 to $225,000. Installing trail heads, parking, benches, and interpretive signs would add additional costs. A more detailed estimate should be developed soon to be used for funding proposals.

The Hiawatha Trail that runs along the Hiawatha Light Rail Line from Downtown Minneapolis to the Mall of America for an 11-mile stretch. Photo: rails-WITH-trails.

Effort: SVCOG could apply for a C2P2 grant and manage the project. Other property owners could provide SVCOG with a necessary lease. right-of-way agreement, or other permits to build the trail on the their portion of the site. In-kind goods and services could be provided by Homestead and borough public works crews.

Good Partners:

- SVCOG – Since SVCOG owns the portion of the project site within Homestead Borough, they will be a key project

partner by providing authorization for the trail to be installed on their property. COGs are eligible for planning and implementation grants through DCNR's C2P2 program. SVCOG would be the most appropriate applicant for C2P2 funds because their service area covers both Homestead and Munhall Borough.

- Junior Achievement and Munhall Borough--as current owner and potential owner of this key parcel, this non-profit and Borough will be central players in any re-use of the land. The owner, whichever entity, would need to provide appropriate authorization to SVCOG and a project manager to implement the project on their site. The Borough would be invited to participate in the concept develop and design of the trail and other components. Another important role for Borough partners would be to provide in-kind goods and services through their public works department or through involvement of community volunteers.
- Homestead Borough - Homestead would be invited to participate in the concept develop and design of the trail and other components.
- Potentially Allegheny Trail Alliance
- Potentially WPC

Possible Funding Sources:

- DCNR Community Conservation Partnership Program (C2P2) Grants: This project would be eligible for grant funding from Pennsylvania Department of Conservation and Natural Resources (DCNR) through the C2P2 grant program. DCNR grant advisors have suggested that Steel Valley COG would be the best project applicant, with Homestead potentially and Munhall Boroughs being key project partners.

This program requires a 1:1 match from other funding sources. In kind good and services, such as volunteers and Borough public works resources can be included as match. Up to 15% of the awarded funds can be used for engineering and landscape design. Grants are made on a reimbursement basis, where the applicant is reimbursed for project expenses after certain phases of work have been completed. DCNR retains 10% of the total awarded amount until the project is closed and the grantee is reimbursed up to 50% of the total accrued project costs, including cash and in-kind match.

Applications for this funding are due in April 2015, with awards being announced in late 2015 to early 2016. If awarded, grant funds could begin to be spent in spring 2016 at the earliest.

Bicyclists ride along Pittsburgh's South Side Monongahela River portion of the GAP Trail. Photo: Friends of the Riverfront.

- Private Foundation or Donors: Foundations such as the McKenna Foundation which has been instrumental in the construction of the overall GAP trail may find this additional spur of great interest. Western PA Conservancy can make an introduction to the Foundation for discussion purposes.

Sustainability: Any trail extension will need ongoing caretaking. Current trail care and advocacy groups will be able to help spell out the needs of the site. Some agreement with the Waterfront Development, which currently counts at least one of the parcels as "common space" will need to be developed to be sure caretaking happens as part of the larger development or as a supplement to the existing site.

The portion of the Great Allegheny Passage between Frostburg and Cumberland, MD runs along Western Maryland Scenic Railroad.
Photo: http://hirsch-lawyer.tk/.

FINAL WORDS

Phasing

Remember that by phasing selected actions, the costs and pressure of completing a greening strategy can be eased. Many of the recommendations of this green scan are in the lower tier of cost and the short to medium time frame. For instance, while the Borough can use hundreds of trees in its residential areas, they do not all have to be planted at once, and planting a number of trees each year will allow the Borough time to organize residents, build support and prepare for the eventual caretaking of new trees.

Layers

Remember that some opportunities have many layers. For instance, Frick Park could be enhanced first with storm-water capturing street bumpouts, then with bioswales for additional water capture and aesthetic beautification, then with a children's playspace. It might take some years to put all these components in place, but by breaking the enhancements into segments, it will be easier to identify the most popular or most needed elements, and do the planning and fund raising for the projects that will complete the whole vision.

Models

Remember that sometimes an example can convince people to do more in the future. One transformed parking lot that vividly shows people how much more attractive and functional such a space can be may provide a convincing model that enlists more investment from new partners. Greening can be a "contagious" approach to community improvement that gains momentum with each new element that is implemented.

Costs

Remember that while there will be a significant cost for some types of greening, these investments will provide multiple types of benefits. Moreover, community greening has long been an area where local

Green parking lot, Cultural District, Downtown Pittsburgh. Photo: WPC.

community investment in the form of volunteers and donations has created highly successful projects. Even in tough economic times, it is possible to scale green improvements to fit available volunteer capability and modest government investment. As times improve, communities that value their green assets can build such elements into new development.

The Power of Green

Homestead Borough is in a great position to use the power of green to enhance its immediate present and support its future. With the engagement and leadership of the Borough, it has many of the elements that are necessary for successful greening projects. Greening has the potential to be a rallying point for community improvement that can involve citizens from school children to seniors, from business owners to cultural institutions, from novices to skilled members of the community. The power of green is found in the multifaceted benefits and the profoundly satisfying experience of improving the living landscape of the community. Homestead has the elements in place to begin to harness this power for all its citizens.

Community members who helped plant the flower gardens at Homestead Grays Bridge and 8th Avenue. Photo: WPC.

APPENDICES & REFERENCES

The Economic Benefits of Green Infrastructure: A Case Study of Lancaster, PA (2014). US Environmental Protection Agency. http://water.epa.gov/infrastructure/greeninfrastructure/upload/CNT-Lancaster-Report-508.pdf

Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs (2013). US Environmental Protection Agency. http://water.epa.gov/polwaste/green/upload/lid-gi-programs_report_8-6-13_combined.pdf

Banking on Green: A Look at How Green Infrastructure Can Save Municipalities Money and Provide Economic Benefits Community-wide (2012). American Rivers, American Society of Landscape Architects, ECONorthwest, Water Environment Federation. http://www.asla.org/uploadedFiles/CMS/Government_Affairs/Federal_Government_Affairs/Banking%20on%20Green%20HighRes.pdf

The Value of Green Infrastructure: A Guide to Recognizing Its Economic, Environmental, and Social Benefits (2010). Center for Neighborhood Technology, American Rivers. http://www.cnt.org/repository/gi-values-guide.pdf