



# grounded strategies

**Grounded in Green Stormwater Infrastructure (GSI)**

**APA PA Conference - October 19, 2021**

A new understanding and appreciation for “vacant” land,  
one that is not synonymous with emptiness but rather  
filled with community history, intention, and investment.



## Session Overview

- Introductions
- Introduction
- Who is Grounded?
- What Vacant Land Justice Looks Like
- Case Study: Grounded GSI





## MISSION

Grounded works to improve the social, economic, and environmental health of distressed and transitional communities by building capacity to reclaim vacant and underutilized land .





60,000+

Vacant lots exist in Allegheny County.

# Nearly a quarter of Pittsburgh's land is vacant

Much of it is concentrated in communities that have experienced decades of disinvestment and racist land-use policies.









# Research shows that vacancy affects...

## *Health Outcomes*



Increased heart rate near blighted, vacant land

Feelings of hopelessness, depression and lack of community cohesion

# Greening vacant land has been shown to...

## *Promote Physical and Mental Health*



Reduce heart rate between 5 and 15 bpm while encouraging walkability

Decrease feelings of depression by approximately 40% on average and 68% in low-income communities



# Research shows that vacancy affects...

## *Economic Outcomes*



Decrease surrounding property values by 6% on average across all submarkets

In Pittsburgh this results in more than \$2M per year on code enforcement, fire, and police services at vacant properties

# Greening vacant land has been shown to...

## *Generate Community Wealth*



Increase surrounding property values by up to 5.9% per greened lot within a ¼ mile

Increased household wealth by up to 23.6%

Prevent needless spending of scarce public and emergency response resources

# Research shows that vacancy affects...

## *Public Safety*



Increased incidence of violent and petty crime, gun violence, and environmental pollutants

# Greening vacant land has been shown to...

## *Activate Positive Community Externalities*



Reduce area incidences of gun violence by 5% and promote community feelings of safety

Curb the occurrence of storm and wastewater overflows when green infrastructure solutions like rain gardens are deployed



BEFORE AND AFTER







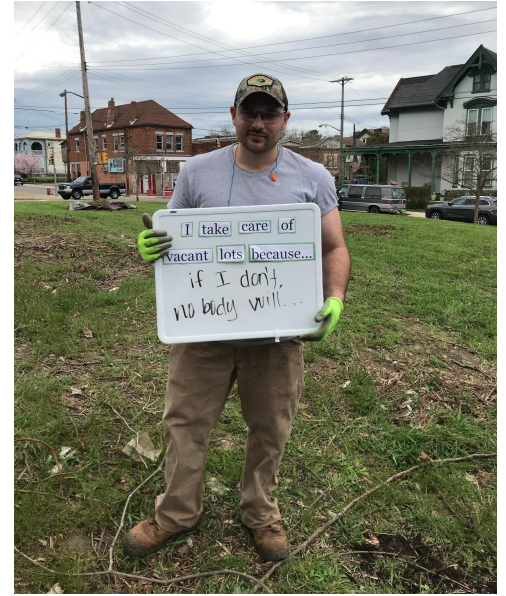


BEFORE

AFTER









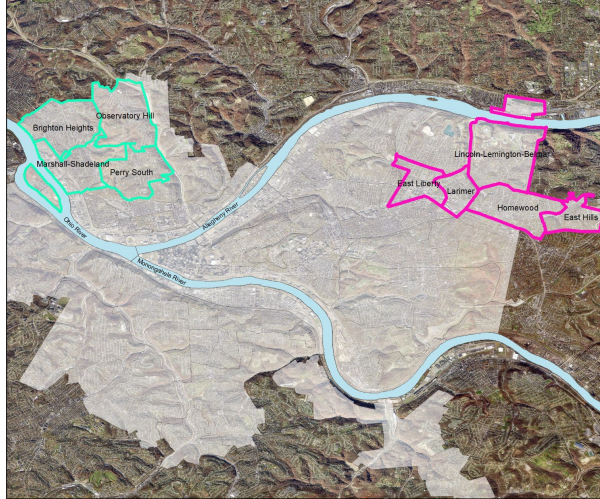




# Grounded GSI

**Green** Stormwater Infrastructure

# 1



## Legend

- A42 Neighborhoods
- O27 Neighborhoods
- PGH Neighborhoods
- Rivers

1 inch = 8,539 feet  
1 inch = 1.62 miles



# The Project

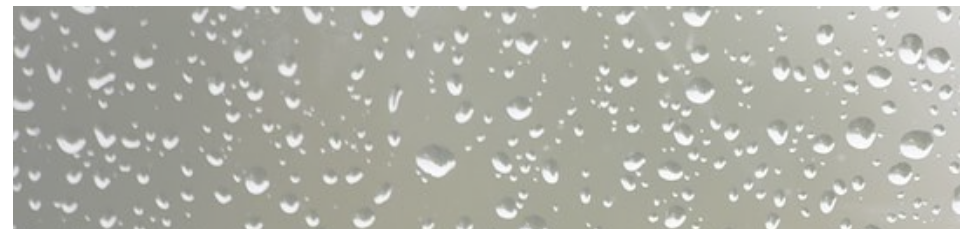
Grounded GSI Explained







## GTECH **GSI** Green Stormwater Infrastructure



### What

Using **green solutions** to address pressing stormwater issues and community needs.

**Preparing residents to participate in the regional stormwater conversation** with education, outreach, and engagement.

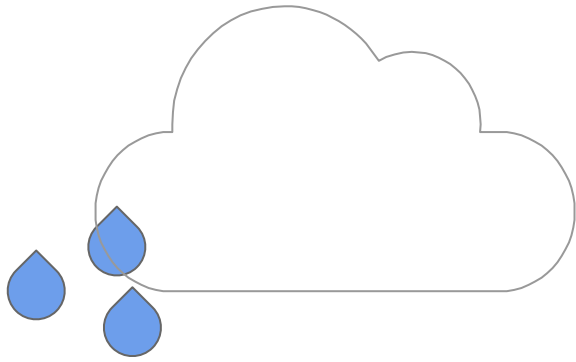
### Why

GSI contributes to **reductions in combined sewer overflows (cso) and flooding**, while improving **environmental, economic, and community health**.

### Where

**9** communities throughout the O-27 (**Northside**) and A-42 (**East End**) Sewersheds.





# THE GOAL

To show how green stormwater features can be used to create creative and vibrant community spaces.



Community  
Identified Needs &  
Community  
Design Process

Stormwater  
Management  
Priority Areas

Analysis of  
Property/Project  
Feasibility

Projects which meet  
community needs, capture  
relatively high amounts of  
stormwater, and are  
financially feasible.

# FRAMEWORK

# 2

## The Process



A Breakdown of Project Activities

**A**



**Investigate**

**B**



**Connect**

**C**



**Gather Input**

**D**



**Share  
Knowledge**

**E**



**Demonstrate**





## Grounded GSI - Process

### Investigate



- Connect with community organizations
- Gather and review stormwater data
- Summarize existing related planning efforts

### Connect



- Hire one neighborhood ambassadors
- Train ambassadors on GSI and effective stormwater advocacy
- Ambassador outreach to ensure maximum connection to community networks



## GTECH GSI - Process

### Gather Input



- Use surveys to identify where and what types of GSI are preferred
- Identify what community needs can be coupled with GSI features

### Share Knowledge



- Outreach and education to equip residents for participation in regional stormwater discussion
- Share survey findings with residents, community partners, policy makers, and public authorities



## GTECH GSI - Process

### Demonstrate



- Implement demonstration projects in each neighborhood that manage stormwater and meet additional community-identified greenspace needs

3

# Grounded GSI In Action







## A-42 Neighborhood Liaisons

East Hills

East Liberty

Larimer

Lincoln-Lemington Belmar

Homewood



August '17 – May '18

\$225/month

15 hrs/month

Surveying & Outreach  
Volunteer Recruitment  
Demo. Implementation



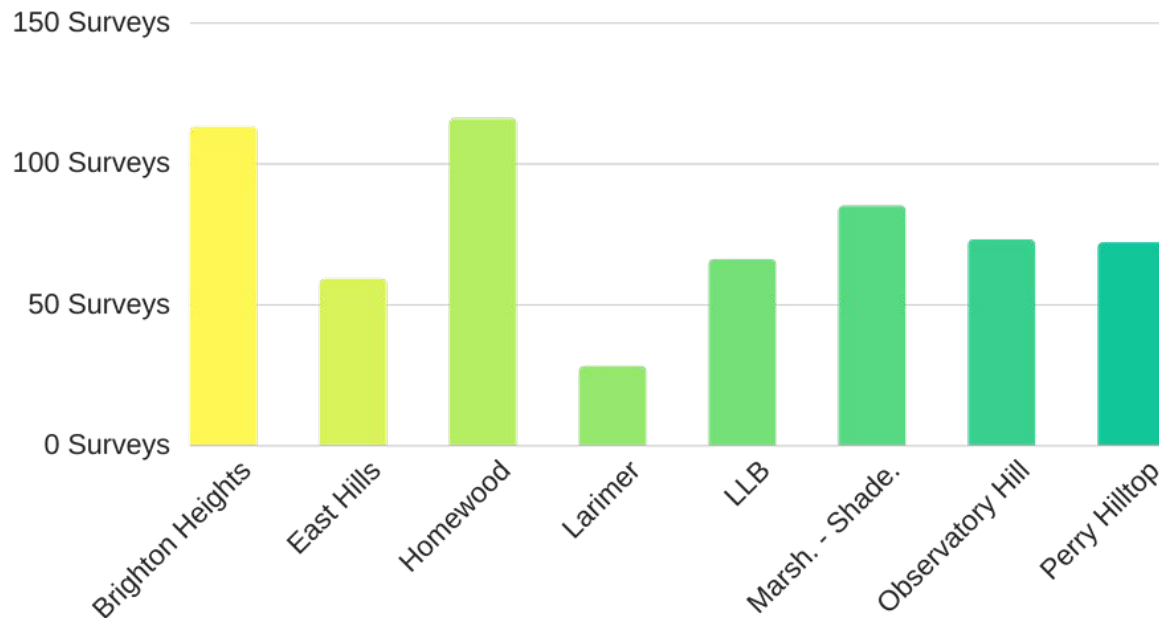
## Grounded GSI Survey



- Where in your neighborhood have you noticed stormwater issues?
- Choose images to show what kinds of GSI you'd most like to see in your neighborhood.
- Where would you like to see these types of GSI in your neighborhood?
- What other kinds of outdoor spaces could your neighborhood benefit from?

# Grounded GSI Community Survey

705 Surveys Total



## O27 Sewershed Community Survey

### STORMWATER SURVEY: MARSHALL-SHADELAND

gtech

Street stormwater infrastructure can capture and filter stormwater before it becomes a problem. Below are some photos of examples. Circle no more than two images below to show what kinds of green stormwater infrastructure you'd most like to see in your neighborhood.



Where would you like to see green infrastructure in your neighborhood? Please write the place name, street address, or intersection.

What other kinds of outdoor spaces could your neighborhood benefit from? Check your top two choices.

- ☐ Open space for kids to play
- ☐ Open gardens
- ☐ Open parks
- ☐ Open area to display art
- ☐ Neighborhood gateway or welcome sign
- ☐ Discard lots could be cleaned up
- ☐ Other \_\_\_\_\_

Optional: If you are interested in staying informed about this project, please leave your contact info here.

Name \_\_\_\_\_

Email \_\_\_\_\_

Phone \_\_\_\_\_

Comments or questions? \_\_\_\_\_

### STORMWATER SURVEY: MARSHALL-SHADELAND

gtech

Which neighborhood do you live in?  
 O'Brien Heights Marshall-Shadeland Observatory Hill Perry Hills Other \_\_\_\_\_

Where in your neighborhood have you noticed stormwater issues like flooding, flooding in basements, and erosion? Circle or star the areas on the map where there are stormwater issues and write a brief explanation in the notes written below.



Notes: \_\_\_\_\_

## A42 Sewershed Community Survey

### GTECH Green Stormwater Infrastructure Community Survey - East Hills



Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Street: \_\_\_\_\_ Interested in volunteering? ☐ Y ☐ N

1) Where is your favorite outdoor space in your neighborhood? Why?

2) What type of outdoor spaces and amenities are needed in your neighborhood?

(Check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Playspaces for Children | <input type="checkbox"/> Storage                          |
| <input type="checkbox"/> Flower gardens          | <input type="checkbox"/> Public Places/Performance Spaces |
| <input type="checkbox"/> Small Parks             | <input type="checkbox"/> Exercise/Recreational Activities |
| <input type="checkbox"/> Public Art              | <input type="checkbox"/> Other _____                      |

3) When it rains, do you experience any problems on your property or street?

(Check all that apply)

- |   |  |
|---|--|
| <input type="checkbox"/> Wet basement           | <input type="checkbox"/> Springs/streams |
| <input type="checkbox"/> Sewer/basement backups | <input type="checkbox"/> Flooding        |
| <input type="checkbox"/> Ponding/pooling water  | <input type="checkbox"/> Other _____     |

4) Have a great idea or specific issue? Tell us!



### Legend

- Priority Areas
- Targets for Expansion
- Low Priority
- 1. Current Stormwater Infrastructure
- 2. Current Stormwater Infrastructure
- 3. Current Stormwater Infrastructure
- 4. Current Stormwater Infrastructure



See Below Map  
 Check the map for more information  
 Add to Community Map  
 Home

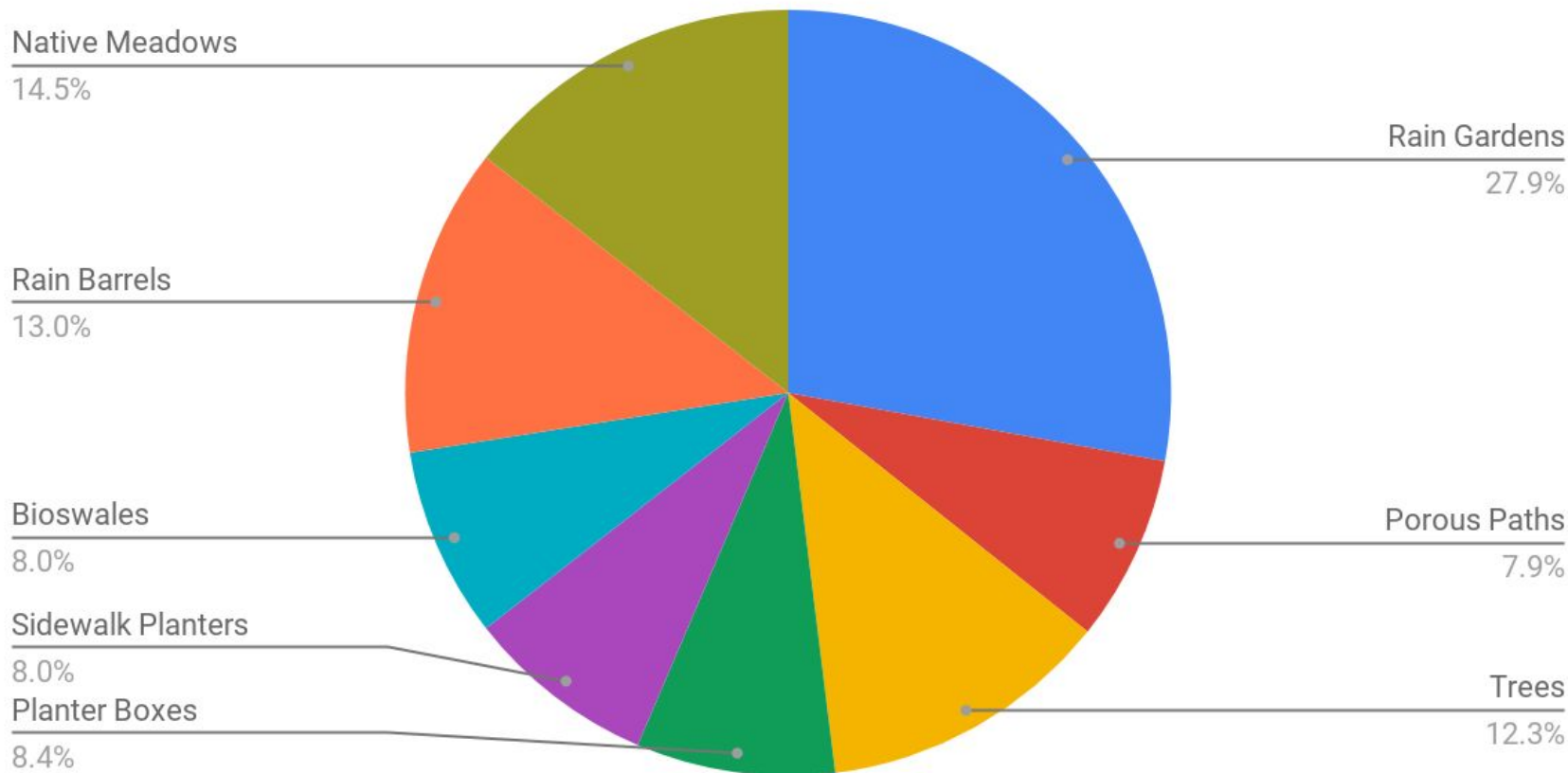
# 0-27

## Sewershed Survey Results

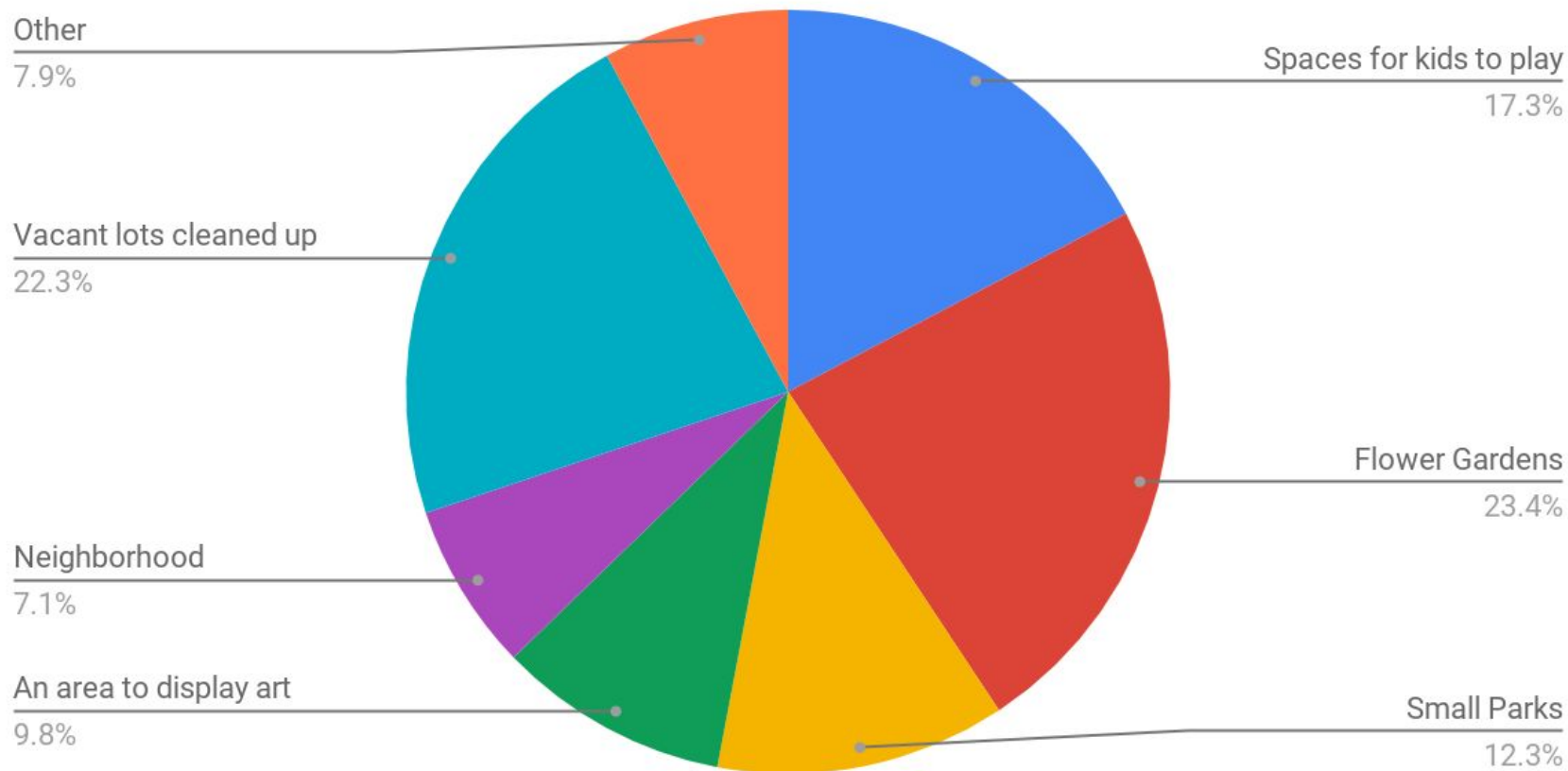
Brighton Heights, Marshall Shadeland, Observatory Hill, Perry Hilltop



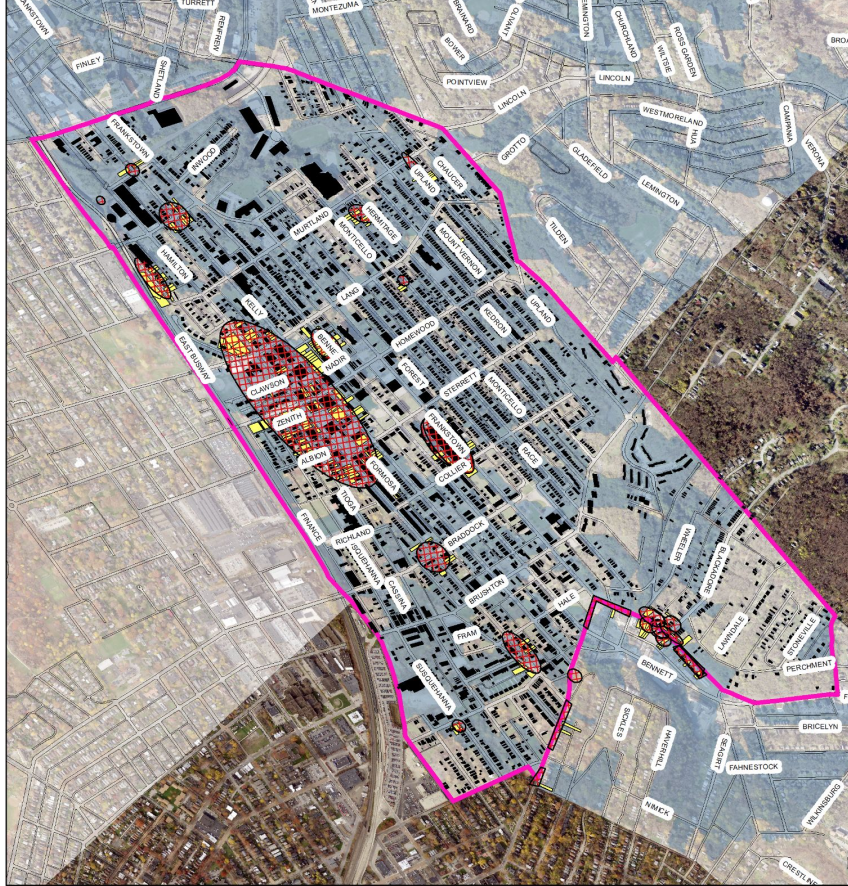
Choose no more than two images below to show what kinds of green stormwater infrastructure you'd most like to see in your








What other kinds of outdoor spaces could your neighborhood benefit from? Choose no more than 2.



# Homewood Survey Results



## Legend

-  Resident Stormwater Issues (Homewood)
-  Vacant Lots in PWSA Priority Area/Resident Stormwater Issue Area (Homewood)
-  A42 Neighborhoods
-  PWSA Priority Capture Area (A42)
-  PGH Neighborhoods

1 inch = 1,250 feet  
1 inch = .24 miles





# Grounded GSI

Demonstration Project Portfolio



## Funders & Partners



### Funders

- Richard King Mellon Foundation
- FedEx Ground
- Winchester Thurston

### Partners

- Landforce
- Stormworks
- Pennsylvania Resources Council



# Grounded GSI Demonstration Projects

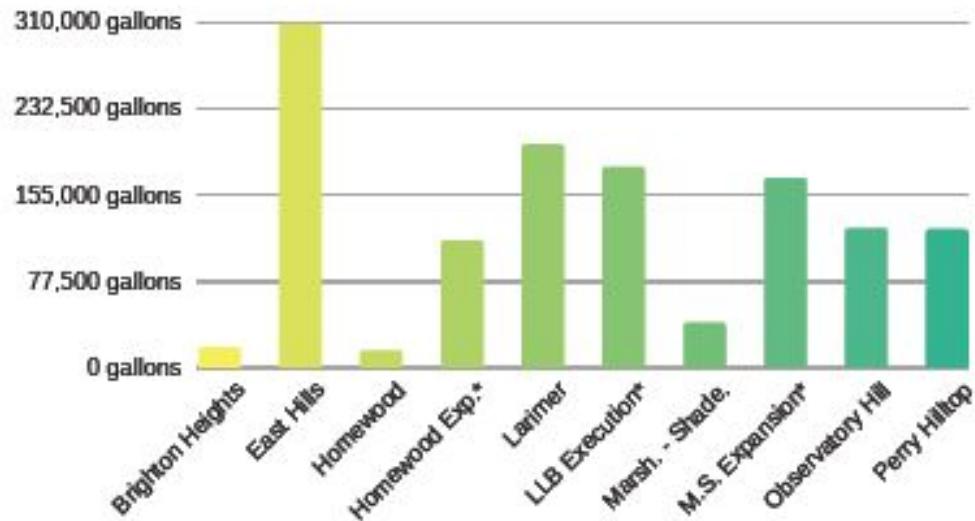
Gallons of Stormwater Captured Annually:

**840,118 Gallons**

Annual Design Capture\*:

**1,223,415 Gallons**

Project Hard Costs  
\$4k – \$25k



\*Represents the total potential capture of GSI features if all sites are fully brought on-line. Additional funding and utility oversight from PWSA anticipated.



# Providence Connections

*Marshall Shadeland*







# Riverview Manor

*Brighton Heights*







# Riverview Manor

*Brighton Heights*







# Rain Barrel Workshop

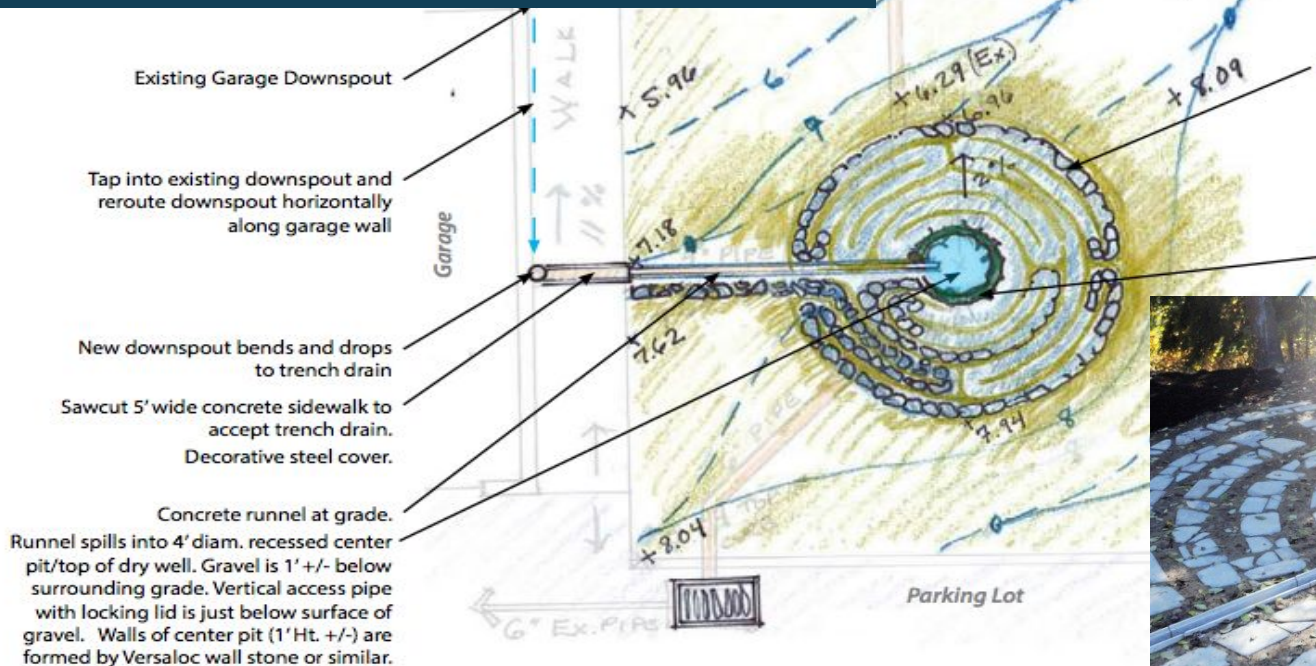
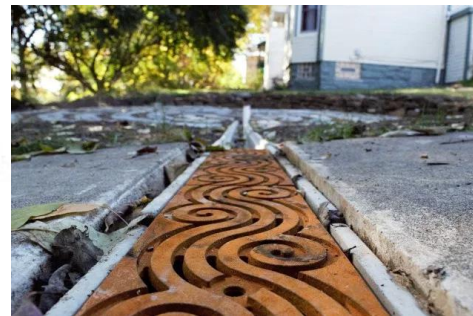
*Perry Hilltop*







# Riverview United Presbyterian Observatory Hill



## Labyrinth Pattern in Lawn

- 22' Diameter outer ring
- Fieldstone path, max. 9" width
- Stone laid on sand base
- Lawn area requires gentle regrading to flatten labyrinth area (2% slope)

Planting ring surrounds center pit



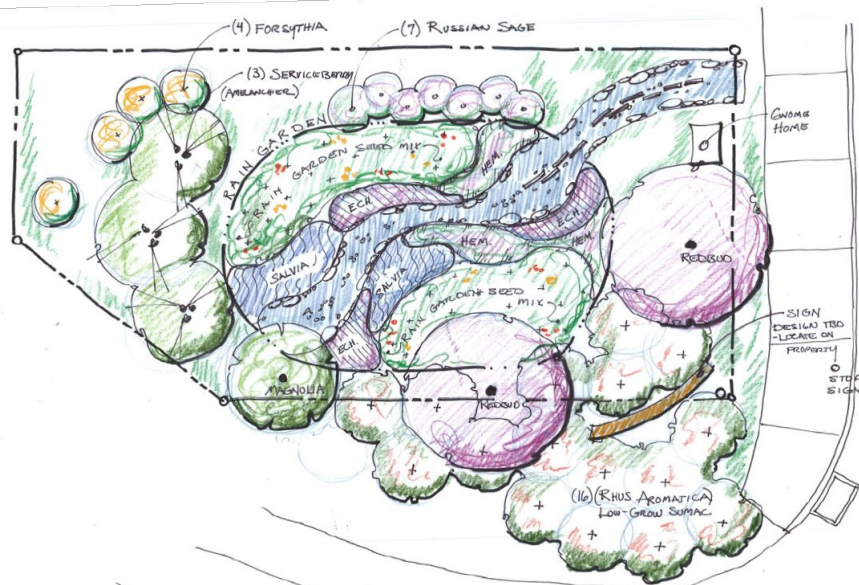
**Labyrinth Surface Plan with Garage Drainage**

1" = 10'



# Rosedale Rain Garden

## Homewood

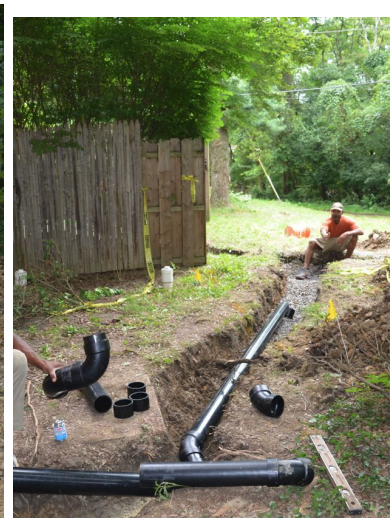






# Downspout Disconnection

## *East Hills*

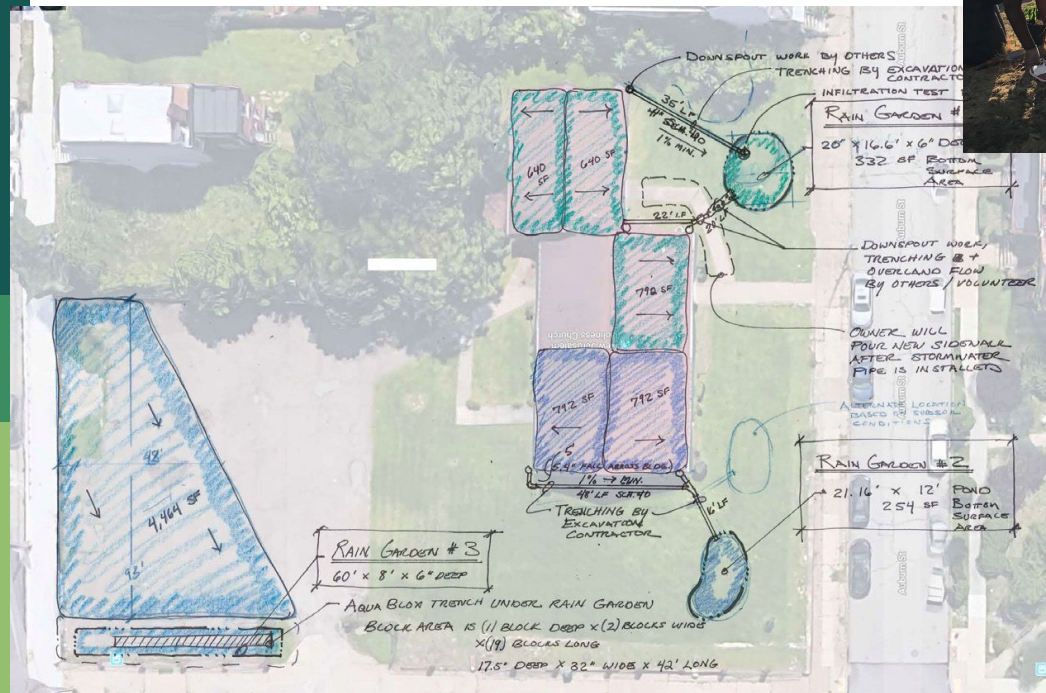






# Downspout Disconnection

## East Hills





## Points to Remember - Ariam Ford

- Community GSI projects, timelines should allow a considerable amount of time plus a healthy contingency for final site selection, logistics planning, relationship building, and project completion.
- Limitations to community scale GSI include the absence of curb cuts, the difficulty of altering internal building systems, and coordinating with adjacent property owners on to fully build out GSI features.
- Sustainable, multi-year maintenance planning is the keystone to successfully executing community scale GSI projects

## Points to Remember - Ariam Ford

- Powerful stories provide a conversation starter for deeper **knowledge sharing**, allow residents to find empathy with one another, and combined make up a **holistic and human-centric** understanding of regional stormwater issues.
- Must **balance data collection needs with** the challenge of assembling a resident cohort with **deep community roots**, and possibly without strong tech skills.
- Unified policy on GSI siting, installation, and maintenance enforcement is key

## Grounded GSI Now

### PWSA Stormwater Master Plan Ambassador Project



[groundedpgh.org/projects/pwsa-ambassador](https://groundedpgh.org/projects/pwsa-ambassador)



**Thank you!**

Ariam Ford, Executive Director

she/her

[ariam@groundedpgh.org](mailto:ariam@groundedpgh.org)

Socials – [@GroundedPGH](https://www.instagram.com/groundedPGH)

Web – [groundedpgh.org/gsi](https://groundedpgh.org/gsi)

