PITTSBURGH WATER AND SEWER AUTHORITY (PWSA) STRATEGIC PLAN FOR STORMWATER

Community Meeting
March 23, 2022

PITTSBURGH WATER AND SEWER AUTHORITY (PWSA) STRATEGIC PLANNING TEAM

PennPraxis + The Water Center at Penn
water systems analysis and planning, policy and partnership design, communication

AKRF Inc.
engineering and technical engagement

Grounded Strategies stakeholder engagement

Heather Sage local policy communication

Moonshot Missions water economics and equity strategies

Andropogon Associates land use planning and design

CMU Center for Engineering & Resilience for Climate Adaptation
local climate change modeling and resilience planning

AGENDA

6:00 - 6:15	Strategic Planning Progress
6:15 - 6:20	People, Performance, and Planet in Places
----------	***Saw Mill Run Visioning*** ----------
6:25 - 7:20	Past Plans + Current Visions
----------	***Saw Mill Run Visioning*** ----------
7:20 - 7:24	Next Steps and Ambassador Kick-off
7:24 - 7:30	PWSA on Context for Strategic Planning

Strategic Planning Update

STORMWATER PLANNING TIMELINE

JANUARY 2008

ALCOSAN enters into consent decree with USEPA and PaDEP

OCTOBER 2008

PWSA Feasibility Study Report

(PWSA going alone - propose regional tunnels)

JULY 2012

Draft ALCOSAN Clean Water Plan for public comment

(Predominantly gray plan tunnels and plant expansion)

JULY 2013

PWSA Wet Weather Feasibility Study

(Predominantly gray plan for conveyance and storage)

PWSA Greening the Wet Weather Plan

(What is needed for green for PWSA?)

AUGUST 2015

ALCOSAN Starting at the Source

(What can green do? Is it more cost effective?)

NOVEMBER 2016

PWSA Green First Plan

(What would an all green strategy look like?)

DECEMBER 2016

Watershed Resilience Accelerator

(Increased focus on flash flooding)

MAY 2017

OnePGH Resilience Strategy

(Increased focus on climate adaptation and equity)

MARCH 2019

PWSA MS4 Permit & Pollutant Reduction Plan

(PaDEP 10% sediment reduction)

DECEMBER 2019

PWSA Saw Mill Run Integrated Watershed Management Plan

(Increased focus on IWM planning for permitting)

SEPTEMBER 2019

ALCOSAN Modified Consent Decree and Clean Water Plan Submitted to EPA/PaDEP

JULY 2020

ALCOSAN Controlling the Source

(Spatial cost effectiveness analysis of GSI)

MAY 2020

ALCOSAN Modified Consent Decree and Clean Water Plan Approved by EPA/PaDEP

JUNE 2021

Begin Strategic Plan for Stormwater

OCTOBER 2021

Updated Stormwater Codes & Ordinances
(Increased focus on private stormwater)

2022-2023

PWSA Stormwater Fee
(Need for dedicated stormwater funding)

Why This Plan Now?

- Green First focused only on green infrastructure planning to improve water quality because the county's stormwater plan (still in development at the time) was going to concentrate on "gray" infrastructure upgrades--on pipes and tunnels.
- The county water authority (called ALCOSAN) has now finalized a plan for the construction of tunnels which will significantly reduce sewage overflow into the rivers when it rains. The plan will be implemented over the next ten years.
- This means the Pittsburgh Water and Sewer Authority (PWSA) can expand its focus to include residents' and businesses' concerns about flooding and basement backups, and consider equity and environmental justice in setting priorities for water investment.

PROJECT TIMELINE

Development of Targeted Action Items

Community Ambassador Program

TOP SIX PRIORITY ACTIONS

1. Analyze Priority Areas of Investment
2. Define Initial Investment Strategy & Illustrate It In a Few Places
3. Leverage Stormwater Fee Impact
4. Establish Guiding Principles to Level of Service & Flooding
5. Develop a Communication Framework to Increase Transparency
6. Develop a Framework for a Joint Task Force on Stormwater

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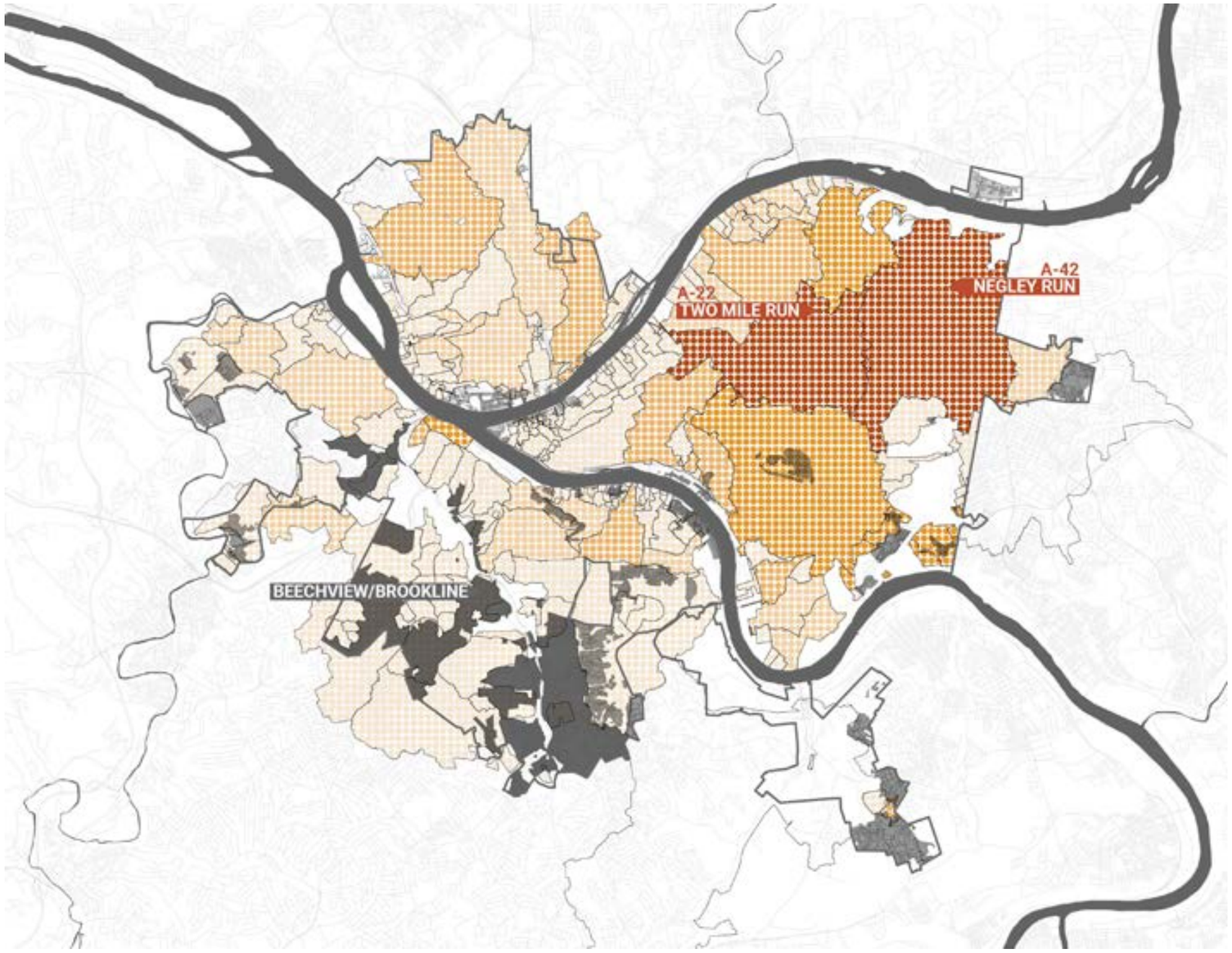
1 Analyze Priority Areas for Investment

We will map many kinds of data to identify areas in the city where investment could have a major impact on local flooding and create community benefits.

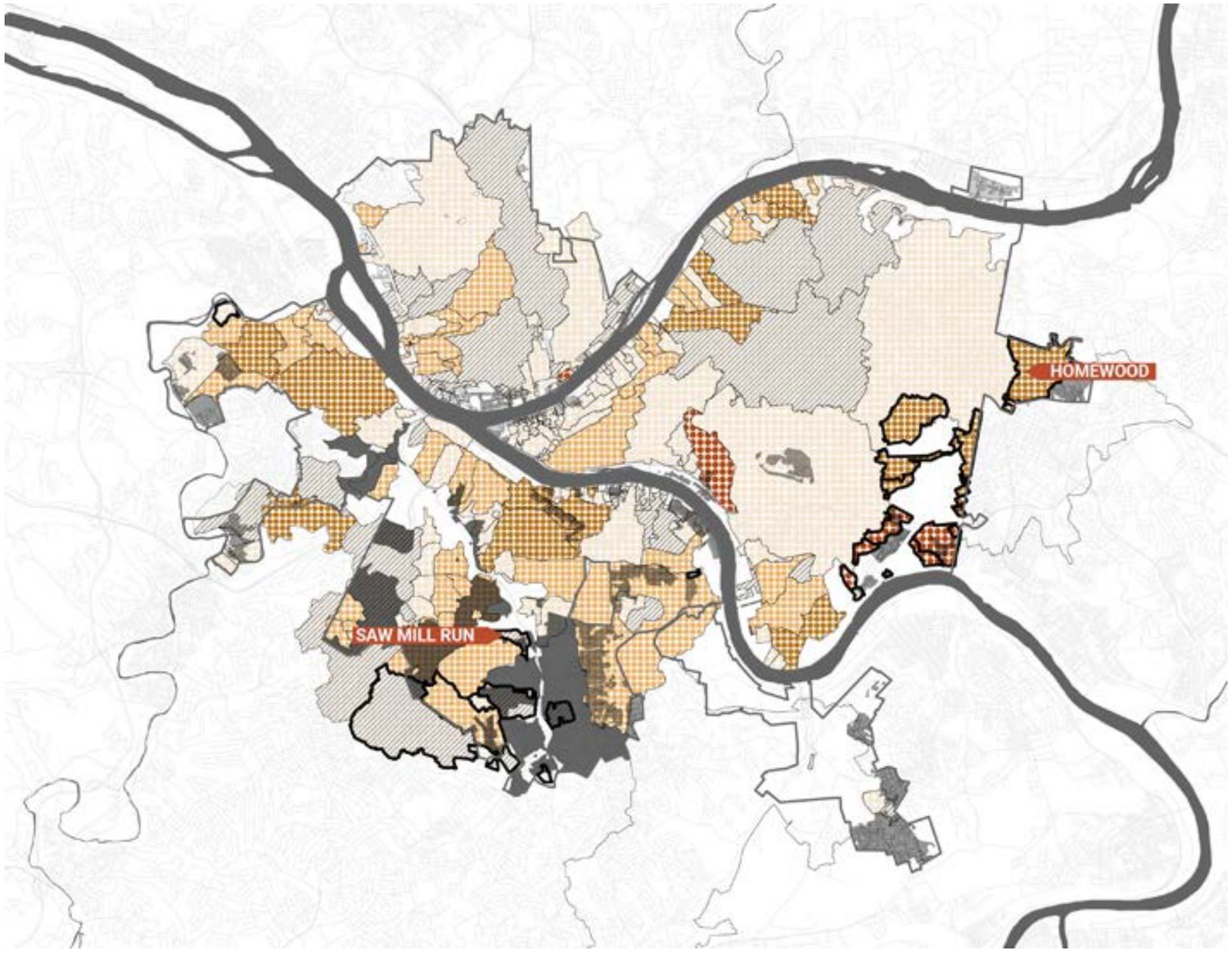
- Prioritize more kinds of water management, not only water quality and sewer overflows
- Map local flooding impacts, basement backups, and environmental justice areas for water investment
- Study geographic priorities with input from PWSA and other stakeholders
- Review good work being done in other cities to prioritize investment to create more kinds of benefit

Water Quality: Current CSO Volumes

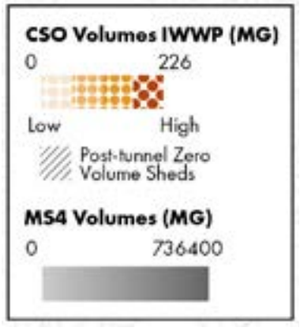


- Ongoing conversations with PWSA have provided updated information on CSO volumes
- Highest volumes are in Negley Run and Two Mile Run
- MS4 outfalls are shown to illustrate opportunities for intervention to meet MS4 compliance

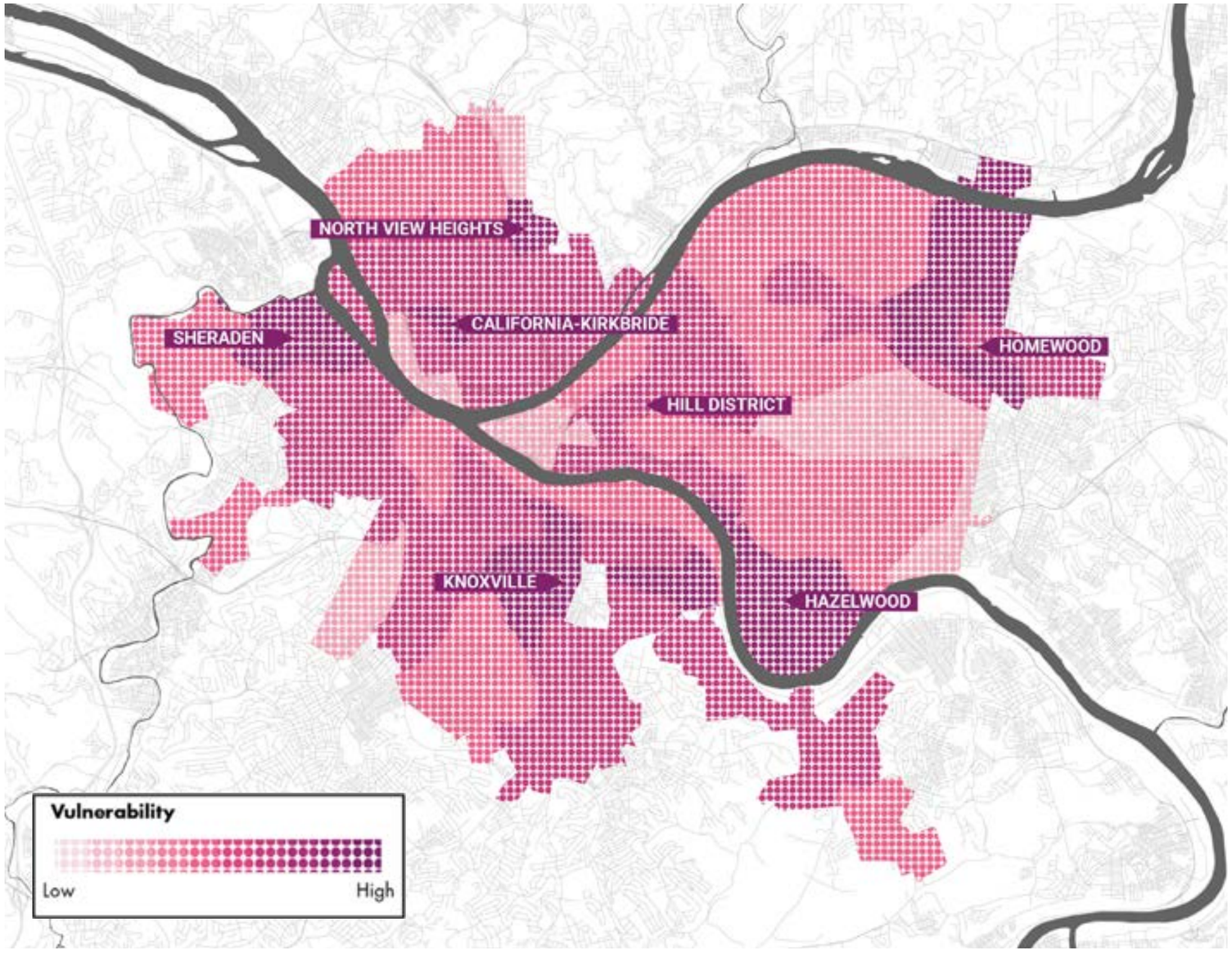
Water Quality: Post ALCOSAN Tunnel CSO Volumes



- Ongoing conversations with PWSA have provided updated information on outfall volume that will remain fully PWSA's responsibility. Those are highlighted here. Others are ongoing negotiation with ALCOSAN.
- The highest volume areas are found in Homewood/East Hills, Point Breeze/Regent Square/Squirrel Hill, and Beechview/Brookline in Saw Mill Run
- While volumes will be significantly reduced post-tunnel, there remain many opportunities for reduction in the near term



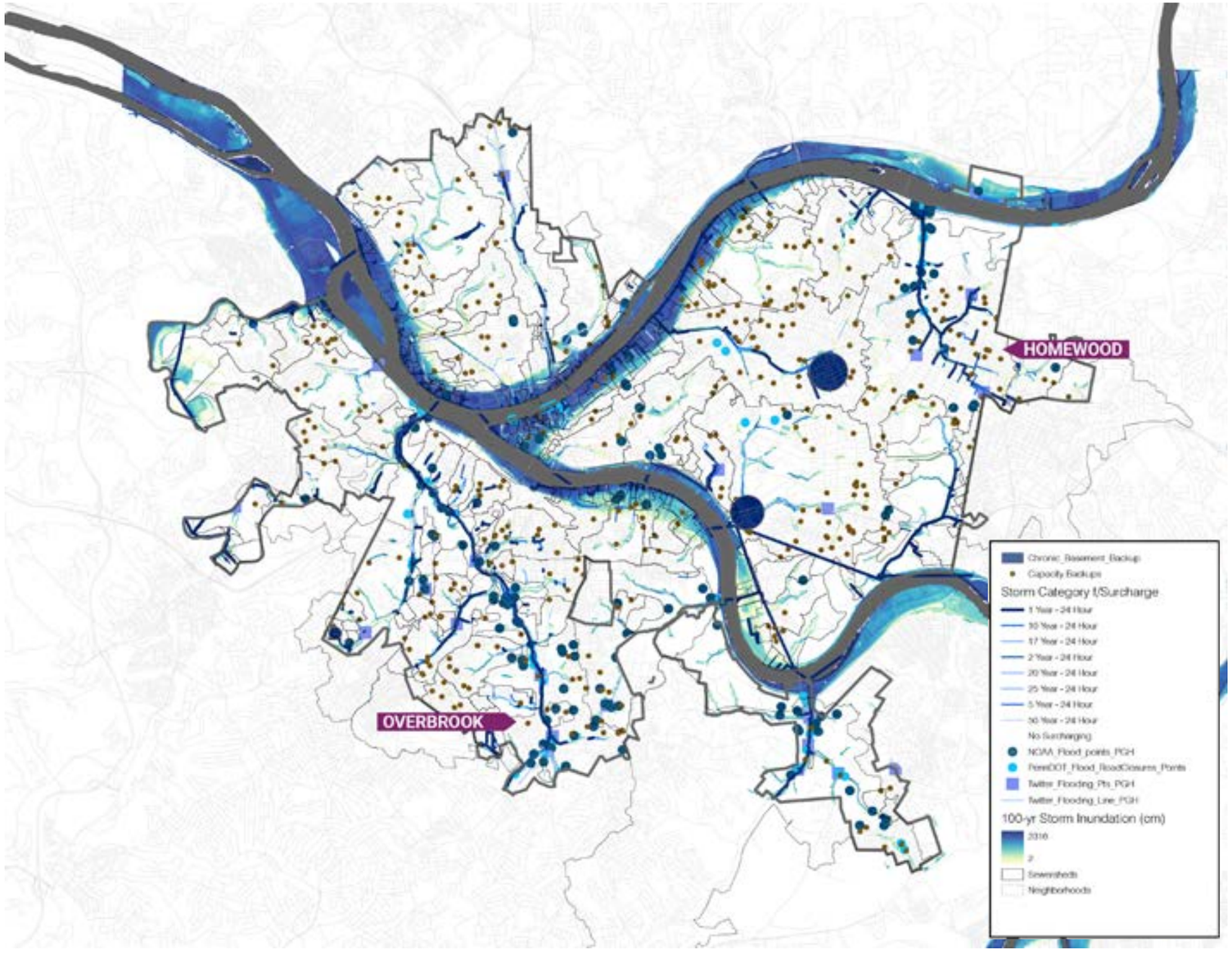
Environmental Justice: Allegheny County



Source: Allegheny County Health Department, 2018.

- Updated to include Allegheny County Environmental Justice Index which includes:
  - *Median Household Income*
  - *Diesel Particulate Matter*
  - *Particulate Matter ≤ 2.5 µm*
  - *Percent Minority*
  - *Proximity to Green Space*
  - *Educational Attainment*
  - *Miles of Railroad Track Coverage*
  - *Housing Vacancy*

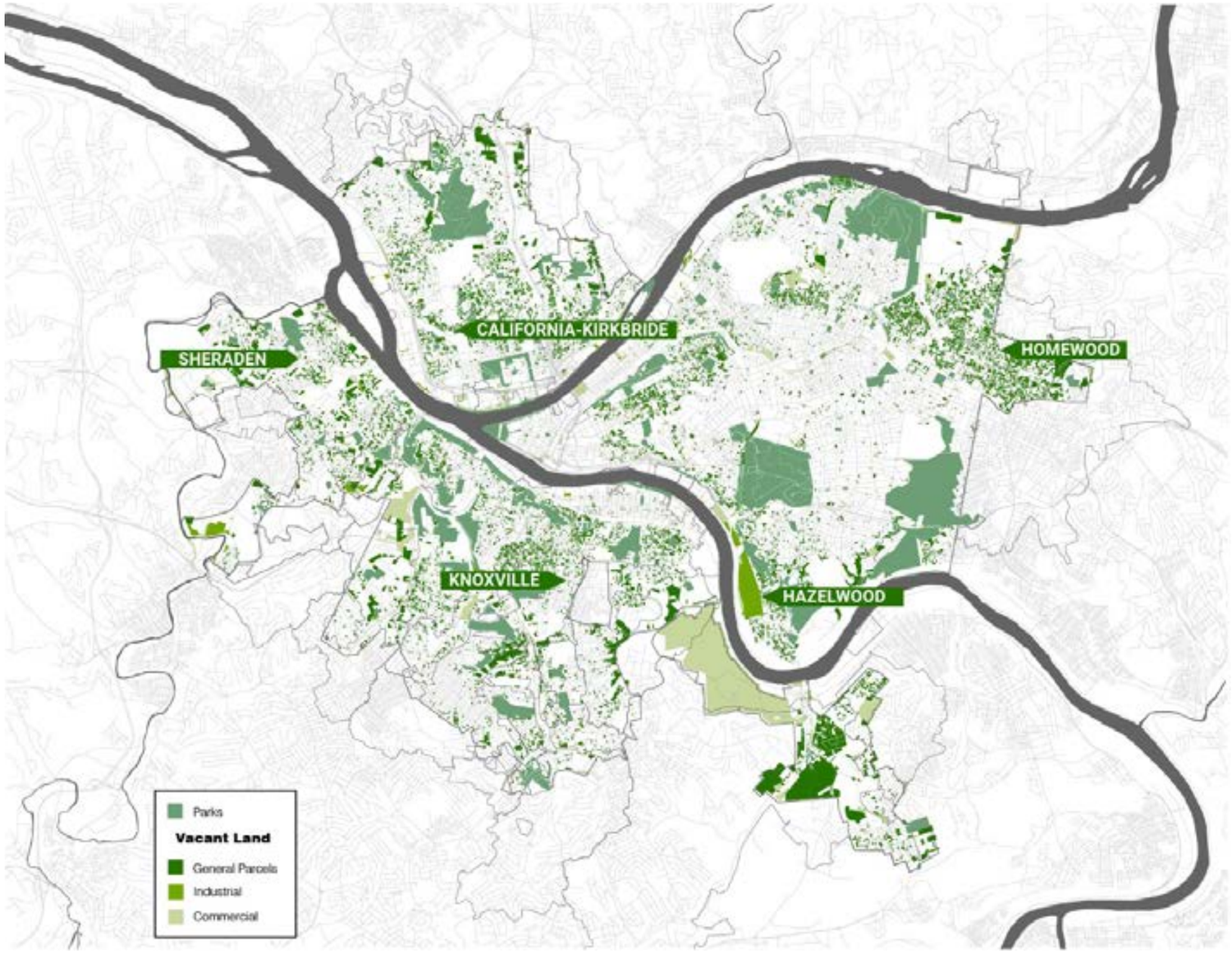
Local Flooding



- Flooding data updated to include First Street Foundation Flood Factor inundation forecast for 1-in-100 year storm event in 2020 climate conditions.
- PWSA investigated and confirmed capacity-related basement backup locations between 2020 and 2021.
- Other data includes:
  - *PennDOT Road Closures*
  - *NOAA Storm Events Flood and Flash Floods*
  - *Allegheny County Twitter Feed*

Source: First Street Foundation National Flood Risk Assessment, 2020.

Green Infrastructure Opportunity

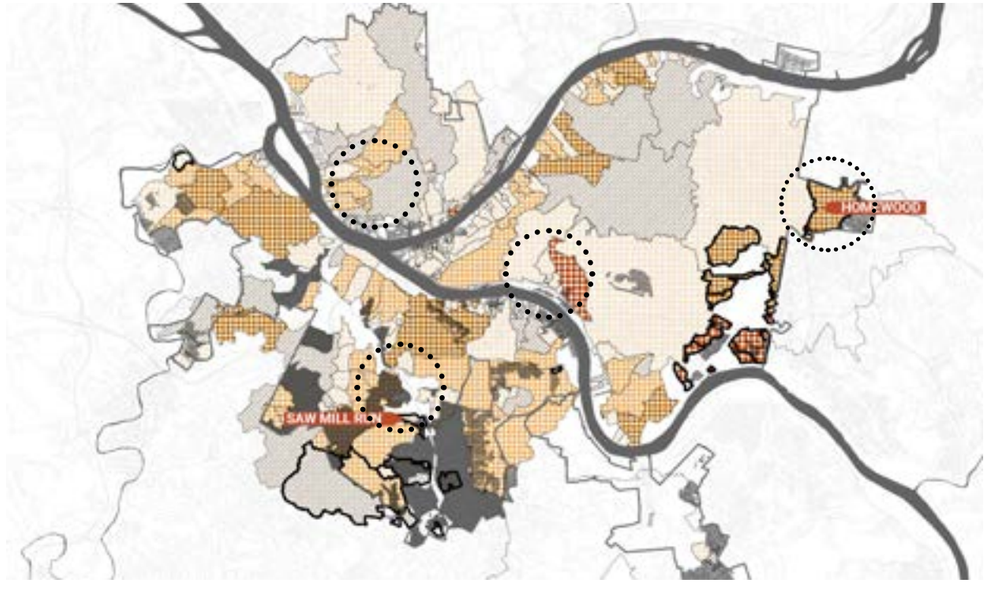


- Opportunities include known Parks + Greenways as of October 2021
- Vacant Parcels (general, industrial, commercial) added as opportunity areas since focus groups
- As of December 2021, six new parks to be transfered from Greenways for Pittsburgh Program to city ownership including: Bigelow, Fairhaven, Hazelwood, Knoxville Incline, Moore and Seldom Seen.

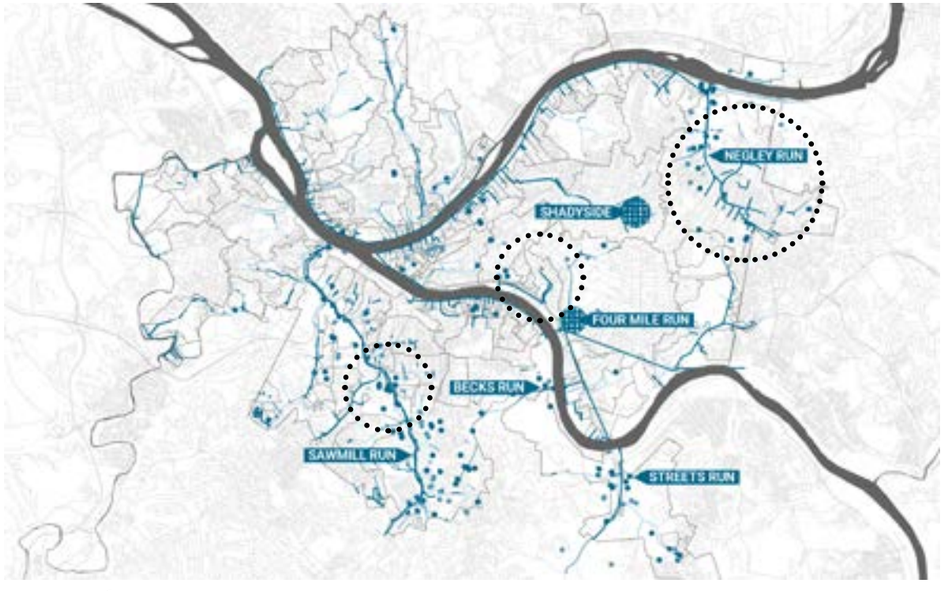
Source: Parcel Scale Cost Effectiveness and Siting Analysis - Micheal Blackhurst, University of Pittsburgh, and ALCOSAN Controlling the Source

Four Lenses

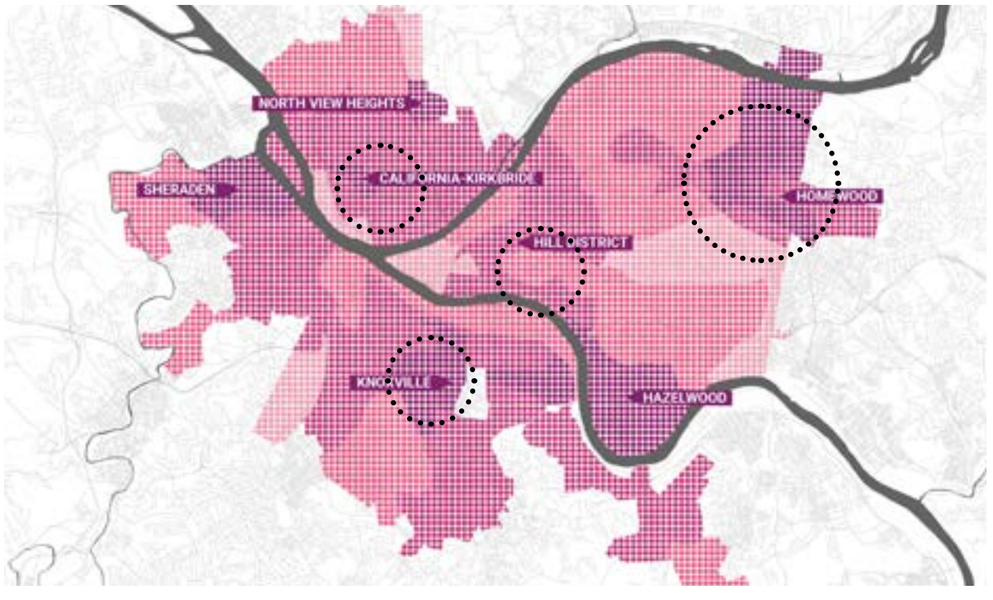
Water Quality



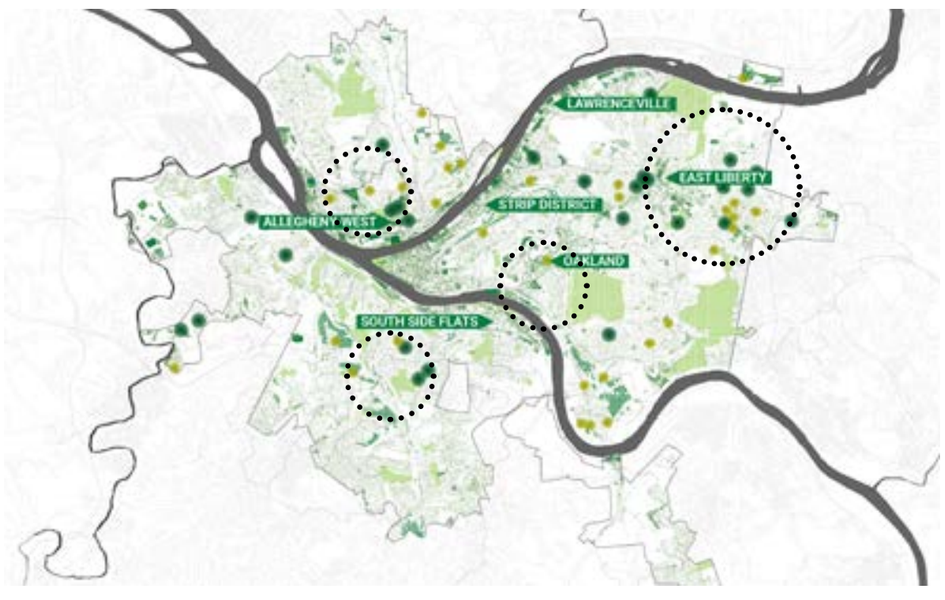
Localized Flooding



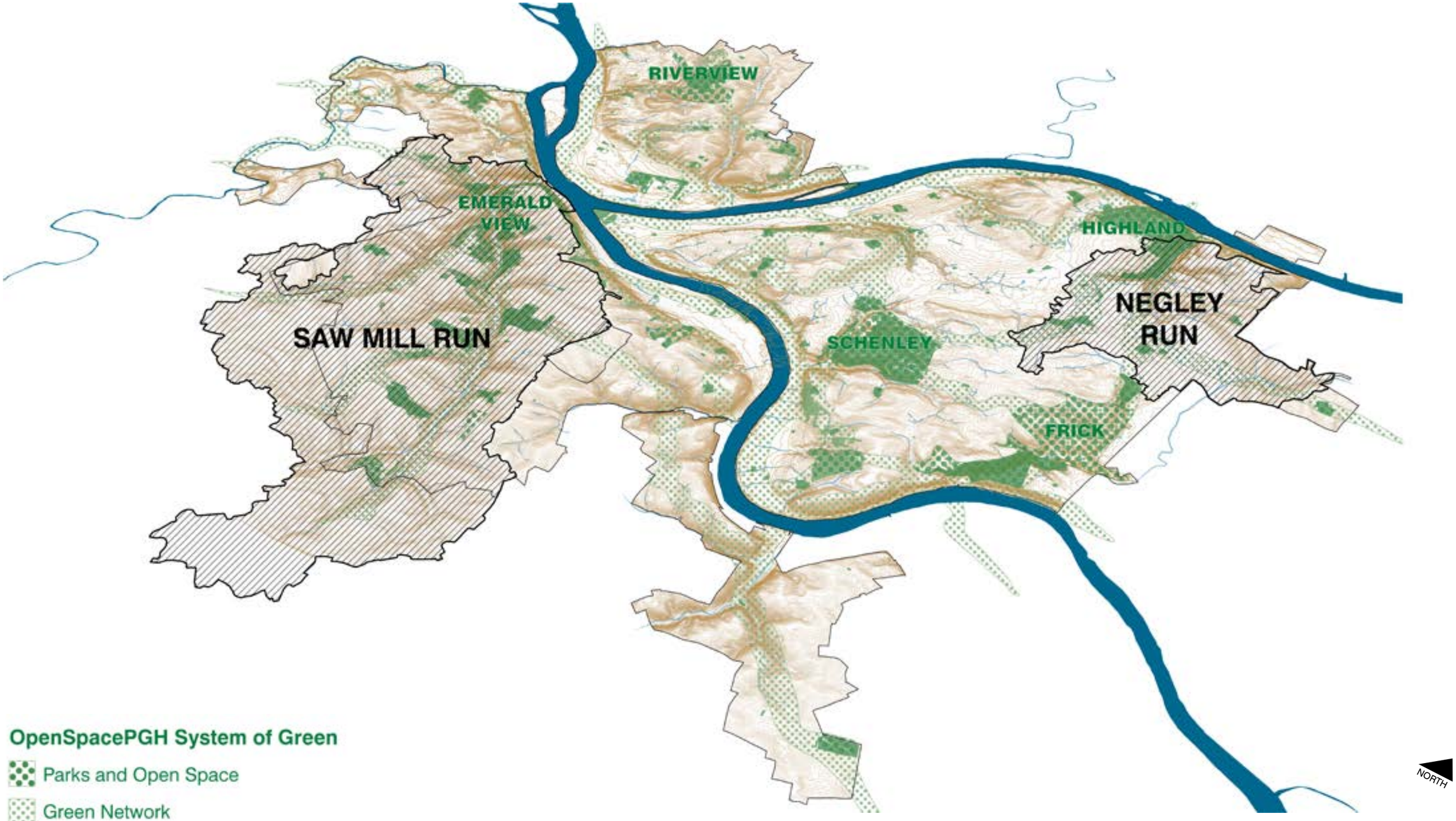
Socio-Economic & Environmental Justice



Areas of Opportunity

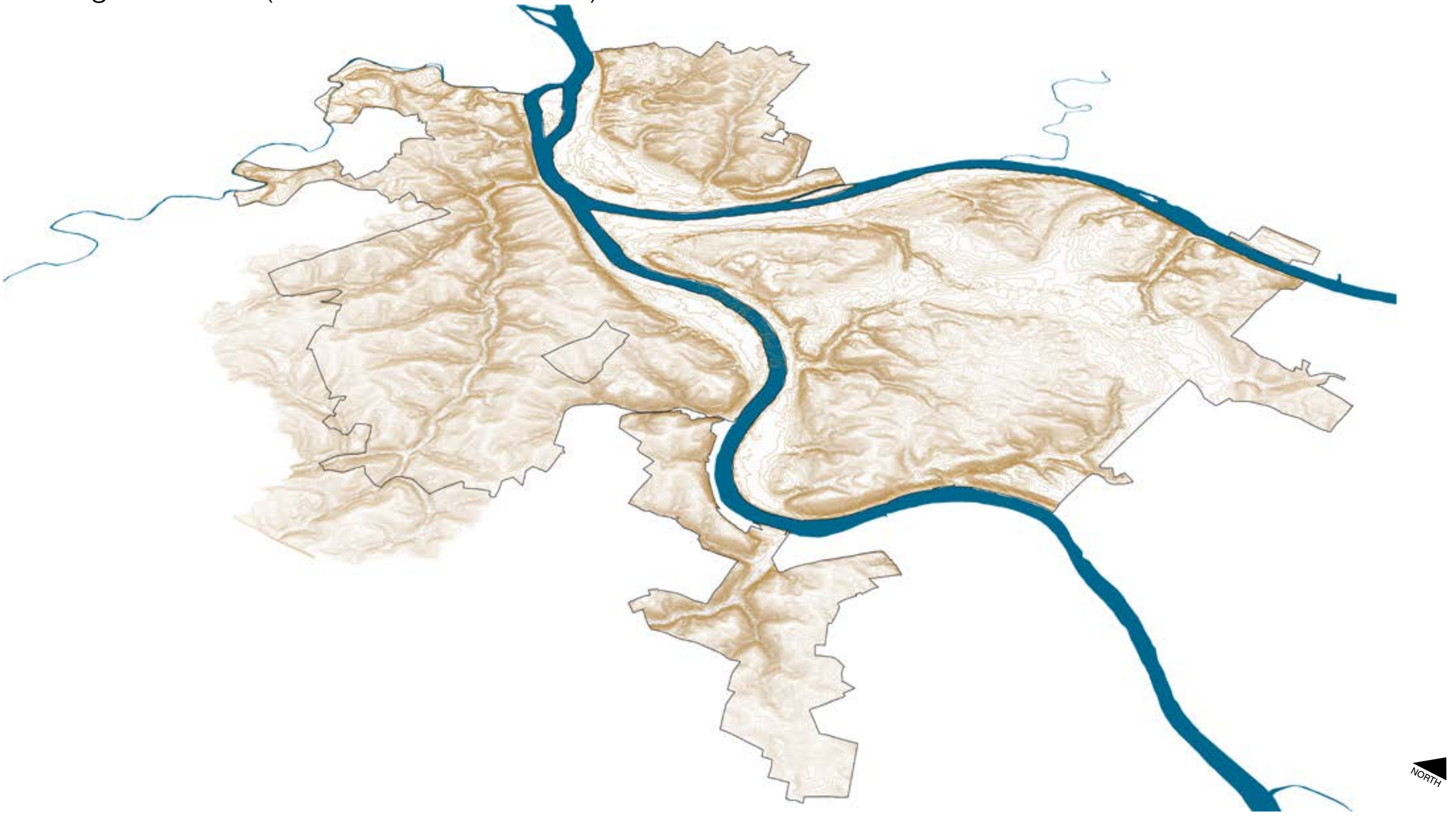


Priority Areas for Investment



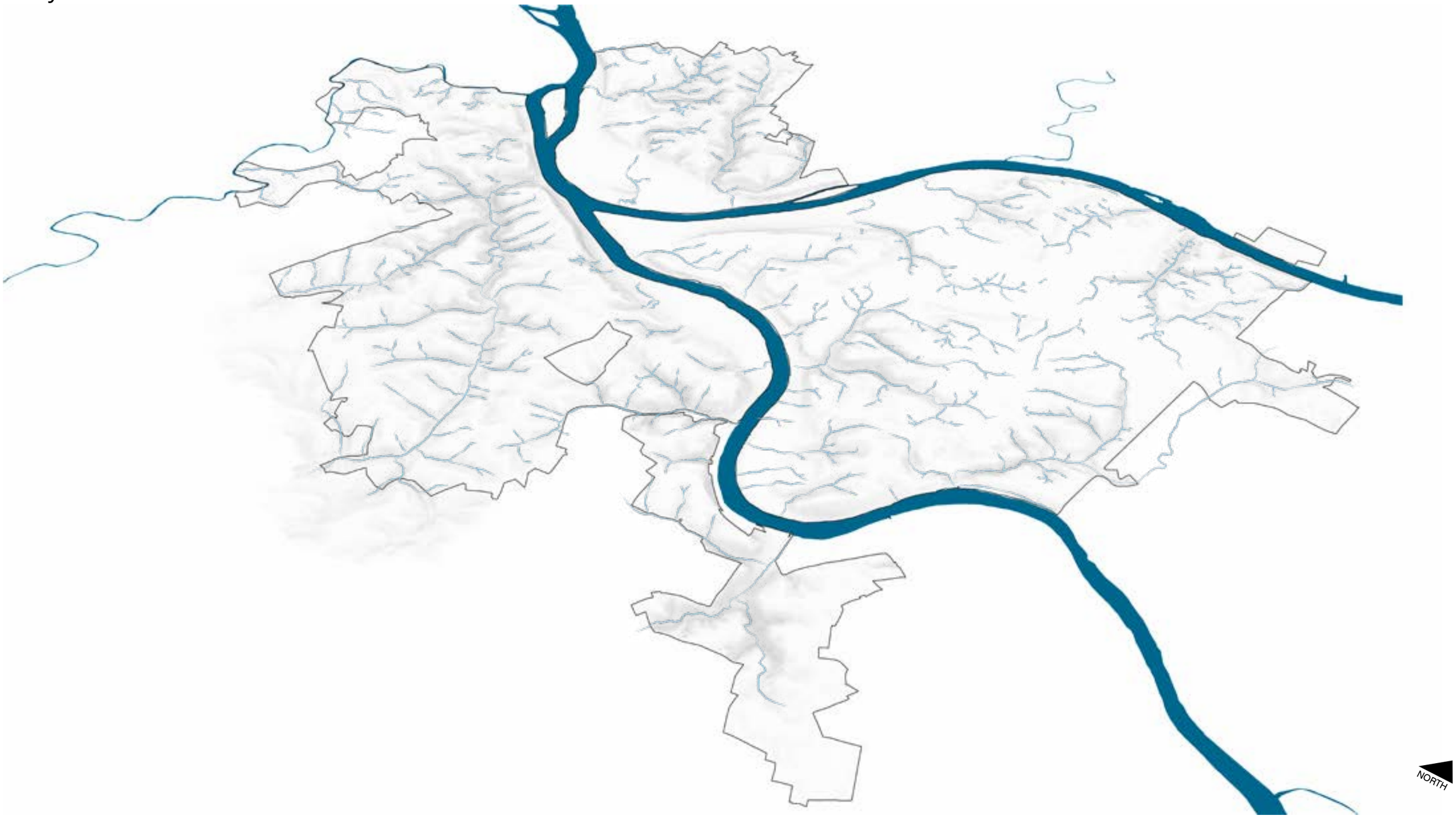
Citywide Terrain

Pittsburgh has hills! (shown in 10 ft contours)



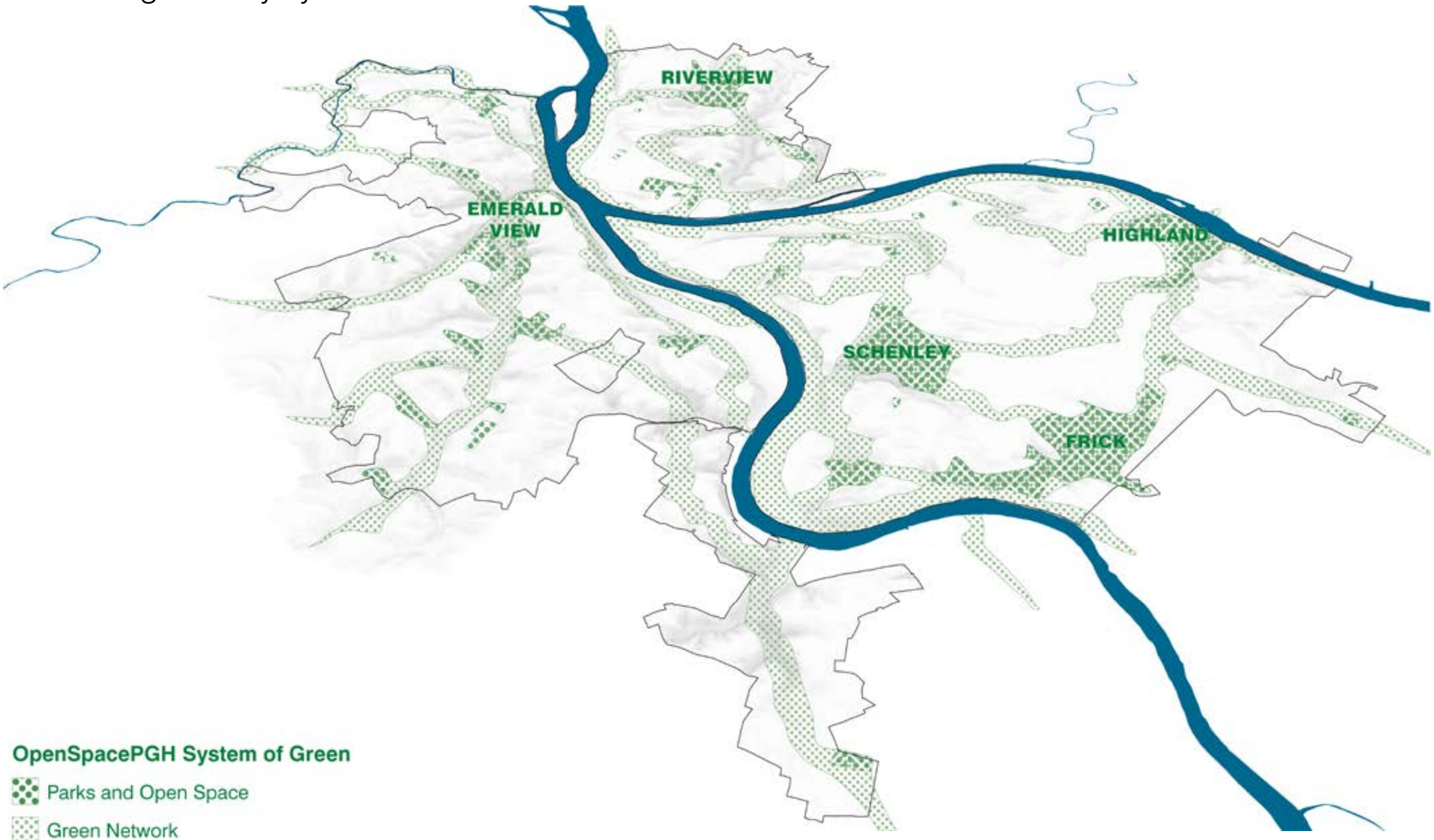
Citywide Networks

Many historical streams were buried



Citywide Networks

Thickened greenway system



2 Define Initial Investment Strategy and Illustrate It

We will define the options and a clear investment strategy, and then illustrate that strategy and communicate how money will be spent in exemplary places.

- Evaluate the current 5-Year Capital Plan
- Explore creative investment strategies that are in line with limited available funds and the city's bonding capacity
- Multiply the kinds of benefit each project generates for People, Place, Planet + Performance

Places

Places in the context of the "Four Ps"

People

- leverage the basic investments PWSA and other agencies are making in water to produce bigger, more comprehensive benefits for more people
- lift up community plans wherever possible
- create a place at the table for community members throughout the process
- increase collaboration of public and private partners to achieve the goals
- strengthen two-way communication and transparency of long-term process of change

Places in the context of the "Four Ps"

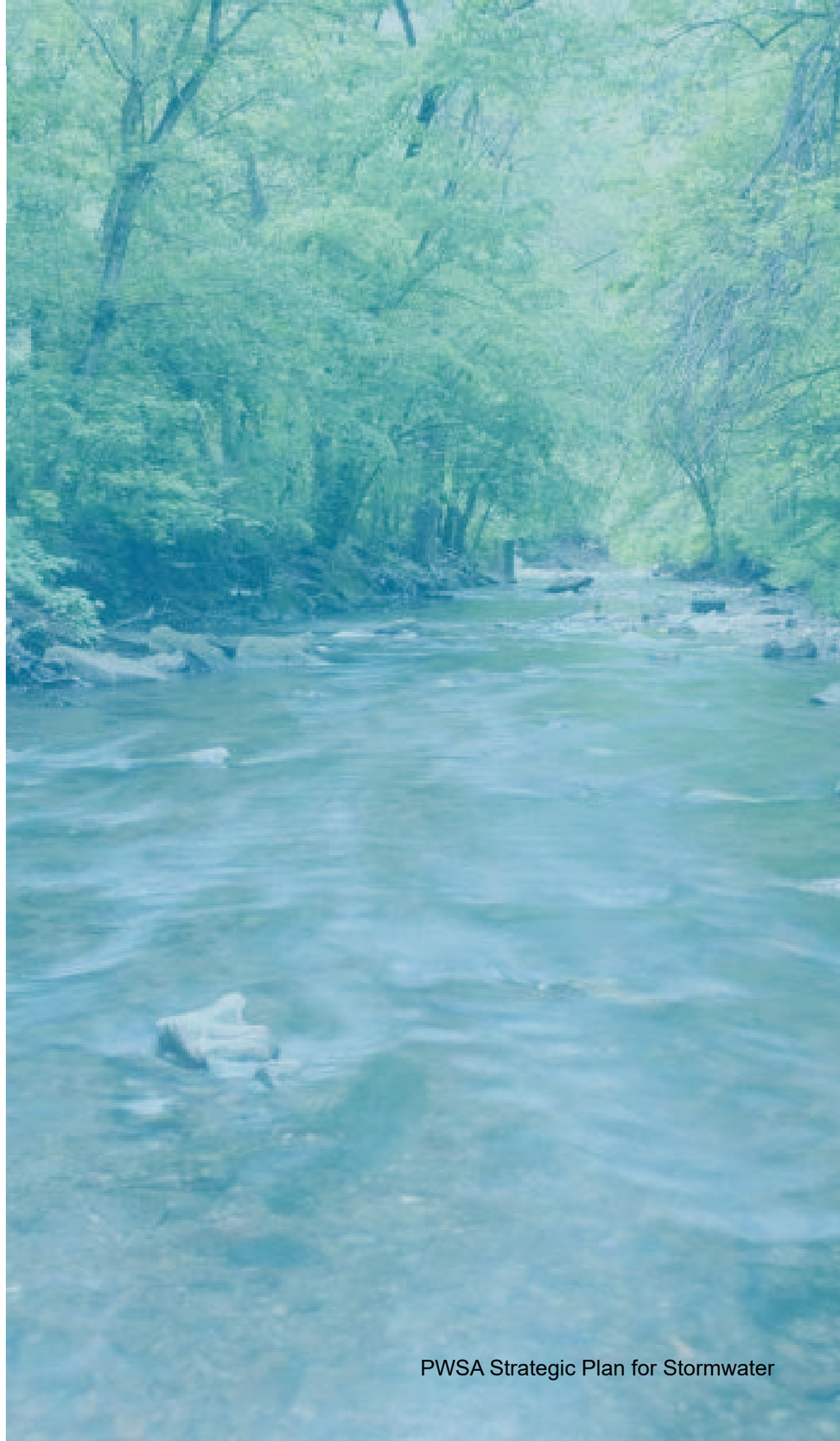
Perfomance

- incorporate more kinds of benefit into definition of performance
- layer or cluster projects to achieve bigger outcomes
- collect and analyze data for sound technical and policy thinking about delivery
- deliver more impact for the money (and more clarity about what impact fees and investments will produce)
- increase coordination and implementation speed and quality

Places in the context of the "Four Ps"

Planet

- manage flooding
- anticipate climate change
- treat water as a resource, not waste
- promote biodiversity and health of natural systems through contributions to water quality
- increase the use of green infrastructure wherever possible



Places in the context of the "Four Ps"

Place

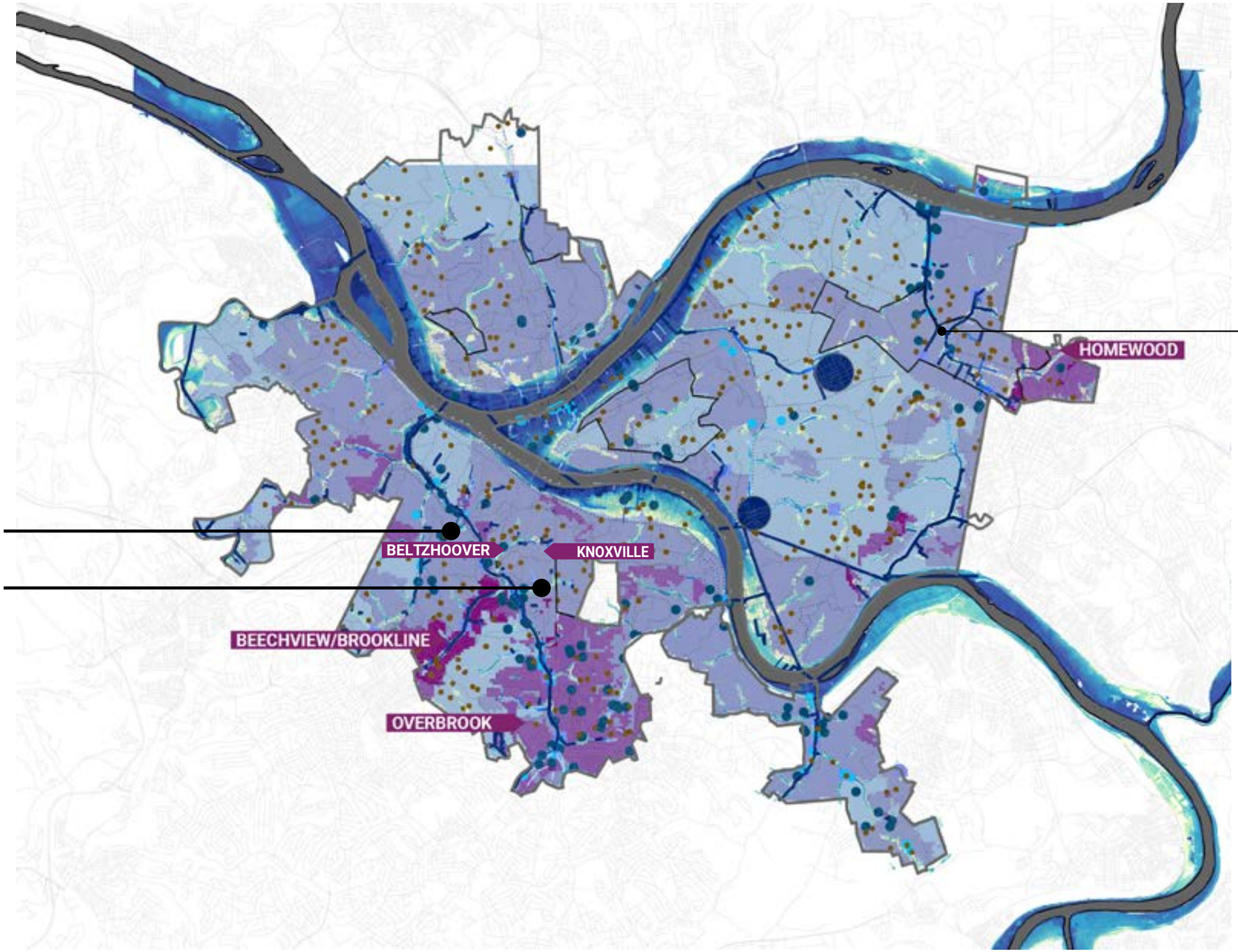
- show what people, performance and planet can add up to in some exemplary places
- develop examples of catalytic projects centered on quality of life and place that resonate with people
- make water planning human and lift up local vision in a citywide plan

Saw Mill Run

Selection Criteria for Catalytic Sites

- ✓ Strong intersection of **flooding, water quality, equity** and **green space potential** (4 lenses)
- ✓ **Alignment with plans and advocacy** of community organizations, watershed taskforces, the Parks Conservancy, City agencies and other stakeholders and partners—we are building on the work of others and inviting collaboration
- ✓ High probability of achieving **measurable gains in performance** with modest investment (and no fatal flaw or high level feasibility issues)
- ✓ Site conditions and community goals allow for exciting examples of People, Place, Planet and Performance that **communicate vision and value proposition**.
- ✓ Visualization of wider potential in the same priority water/sewersheds can **catalyze future investment** and multiply the performance impact

3 Lenses: Flooding, Water Quality + Environmental Justice



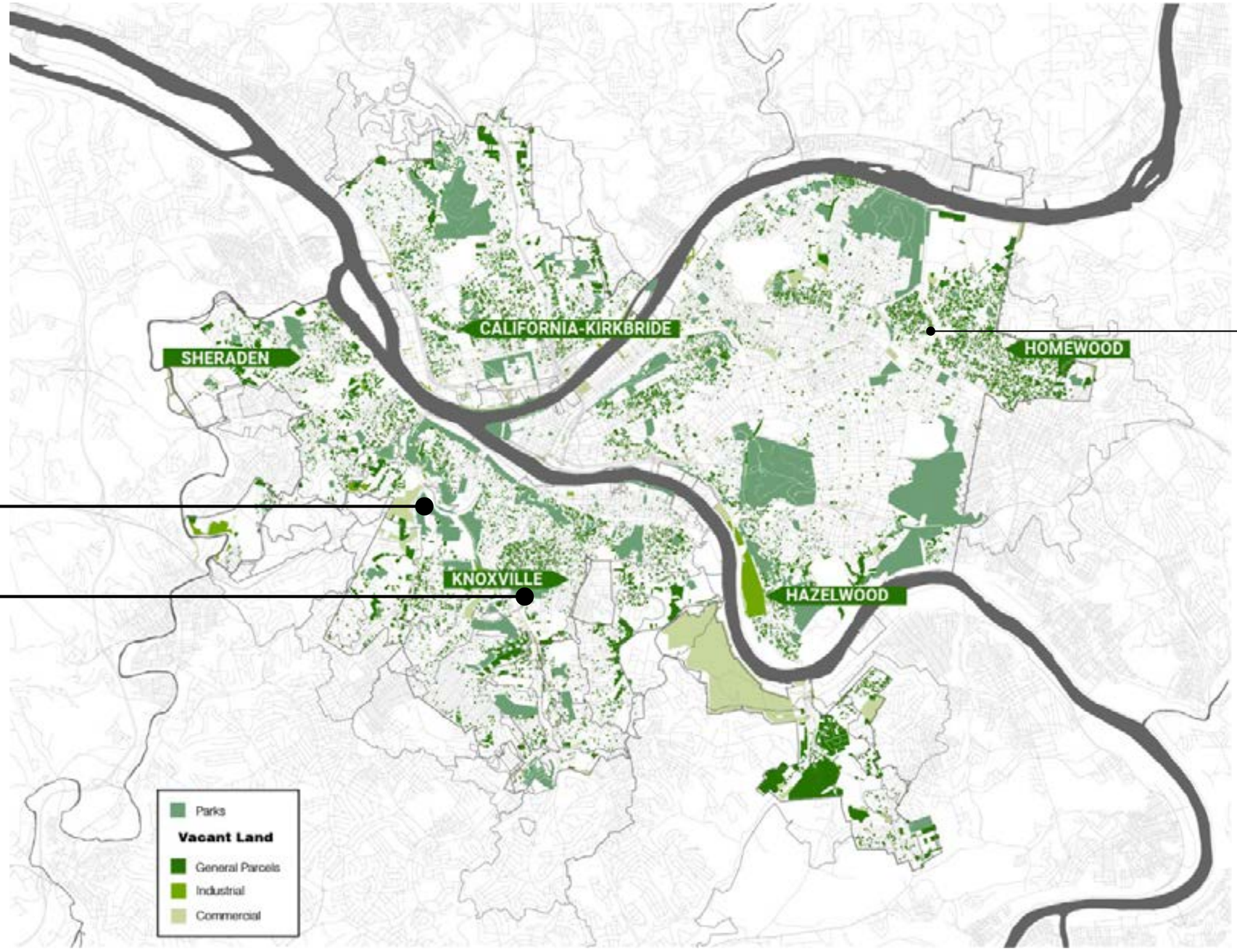
Silver Lake/ Homewood/ Larimer

Seldom Seen Greenway

McKinley Park

Note: Flooding data will remain as individual vector data to guide priority selection rather than being combined in to a composite.

4th lens: Green Infrastructure Opportunity



Silver Lake/ Homewood/ Larimer

Seldom Seen Greenway

McKinley Park

McKinley Park + Linkage to Seldom Seen Greenway Criteria

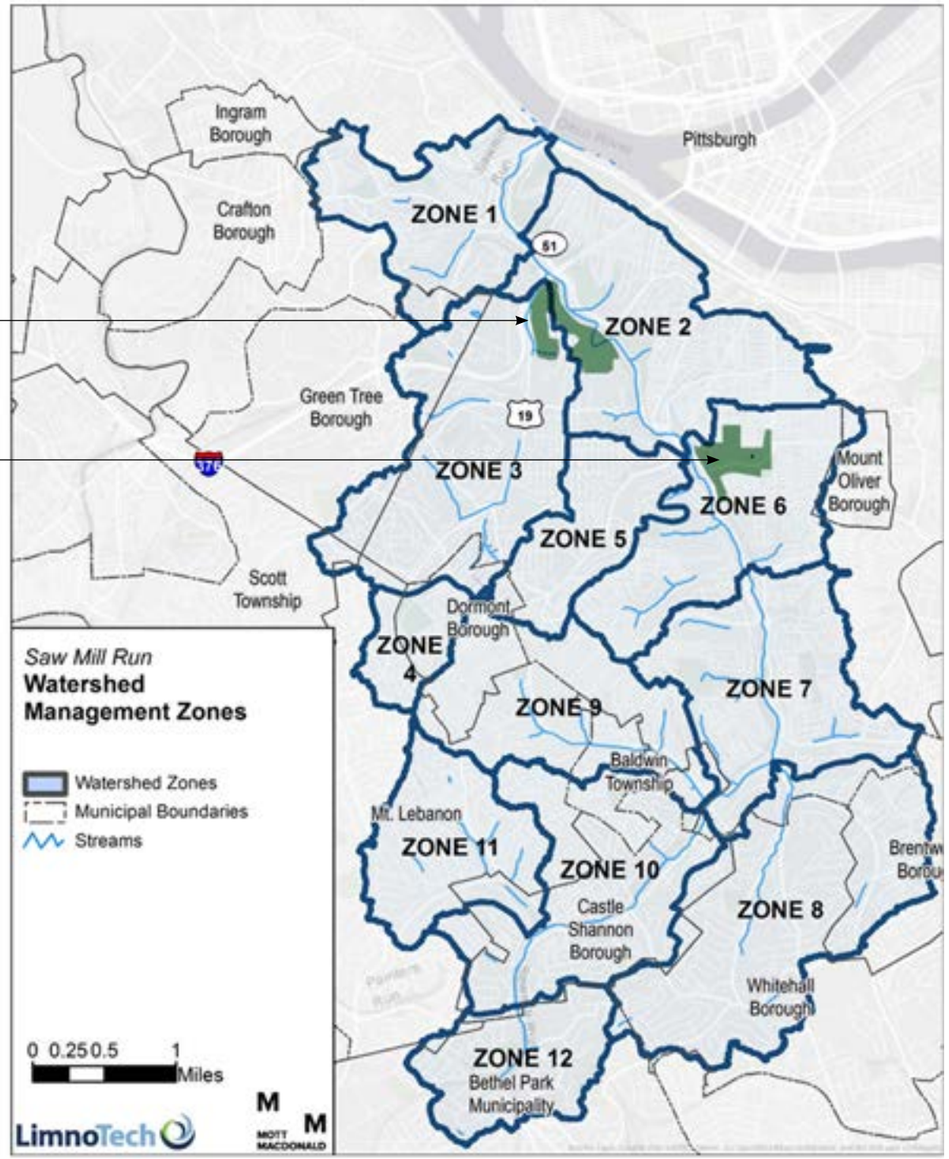
✓ **Strong intersection of 4 lenses**	*Saw Mill Run nexus with highly visible flooding adjacent to Beltzhoover, Knoxville and Beechview; ranked highest among park investments based on environmental justice*
✓ **Measurable performance with modest investment**	*Large water volumes managed within public lands*
✓ **Alignment with plans and advocacy**	*Alignment with Watersheds of South Pittsburgh / Saw Mill Run plans, Parks Conservancy plans and City Parks acquisition of Seldom Seen*
✓ **Value proposition of People, Place, Planet and Performance.**	*Example of large-scale ecological corridor restoration with Seldom Seen as a charismatic gem*
✓ **Future investment catalyst/ multiplying impact**	*Visualization of upstream / downstream cooperation + integration of transit and greenways can stimulate wider action.*

Watersheds of South Pittsburgh/ Saw Mill Run IWMP

Seldom Seen
130 acres

McKinley Park
79 acres

Figure 9.1: SMR watershed management zones map



High priority zones for increased detention storage in implementation plan

Table 9.1: SMR watershed management zones

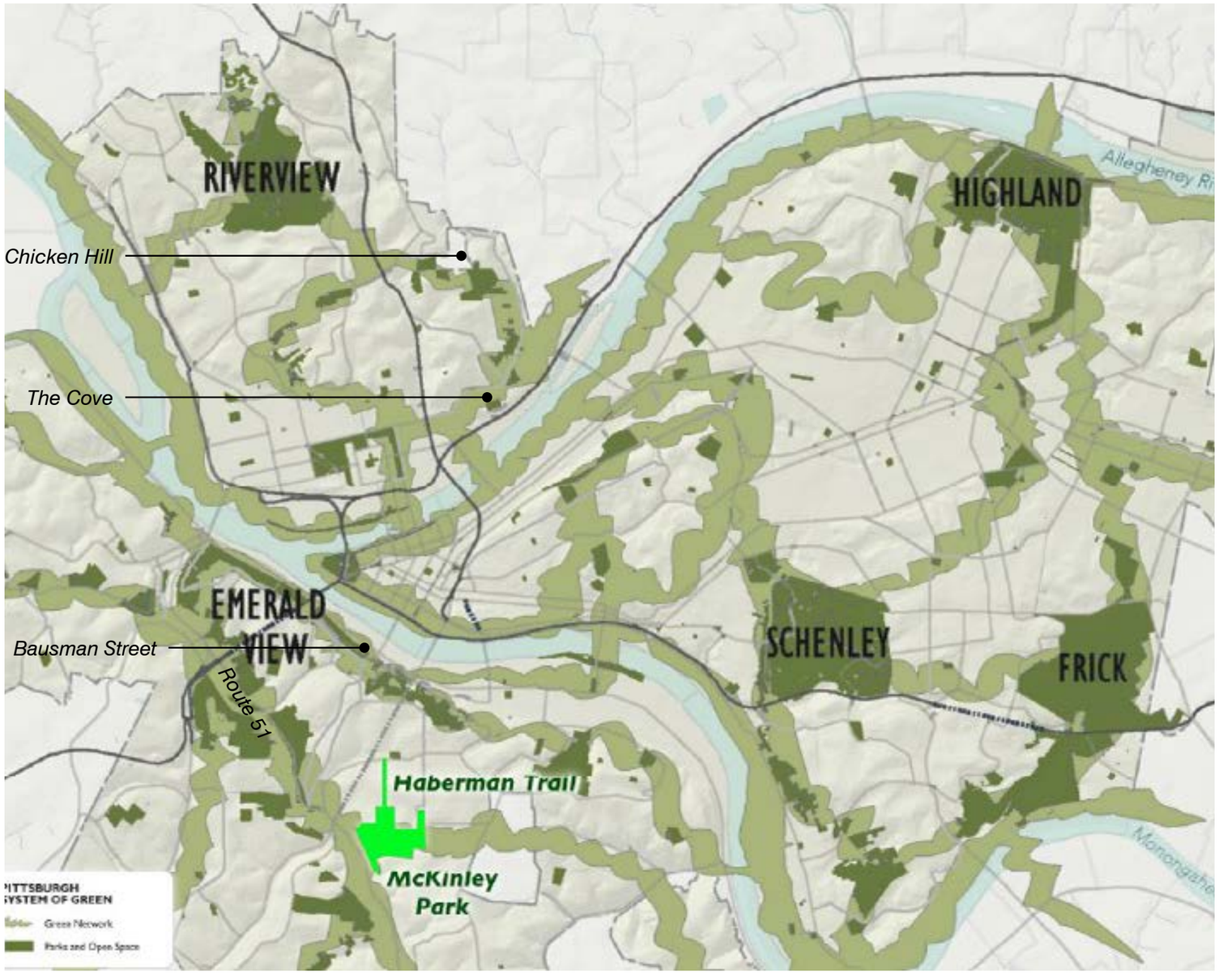
Watershed management zone	Description	Area (ac)	Percent of watershed area
1	West End/watershed outlet at the Ohio River	909	7%
2	Mt. Washington/Duquesne Heights	1,408	11%
3	Little SMR/Banksville Road	1,520	12%
4	Upper Banksville Road	295	2%
5	Plumbers Run/Liberty Avenue	609	5%
6	Brookline/Bon Air	1,109	9%
7	Overbrook/Carrick	1,190	10%
8	Weyman's Run	1,718	14%
9	McNeilly Run	1,066	9%
10	Castle Shannon SMR main stem	1,226	10%
11	Mt. Lebanon/Castle Shannon culvert tributary	787	6%
12	SMR headwaters	647	5%

Table 9.3: Target detention storage volumes in SMR watershed management zones

Zone	Total storage required upstream of zone outlet– 10-year storm peak flow limited to existing 5-Year peak flow (acre-feet) [Million Gallons]	Detention required within zone – 10-year storm (acre-feet) [Million Gallons]
1	131 [42.7]	0 [0]
2	142 [46.2]	18 [6]
3	14 [4.7]	10 [3.2]
4	5 [1.6]	5 [1.6]
5	11 [3.6]	11 [3.6]
6	98 [31.9]	14 [4.6]
7	84 [27.2]	23 [7.5]
8	23 [7.6]	23 [7.6]
9	7 [2.1]	7 [2.1]
10	31 [10]	7 [2.3]
11	12 [4]	12 [4]
12	12 [3.8]	12 [3.8]
Total		**142 [46.2]**

Source: Saw Mill Run - Integrated Watershed Management Plan Report. March 31, 2020.

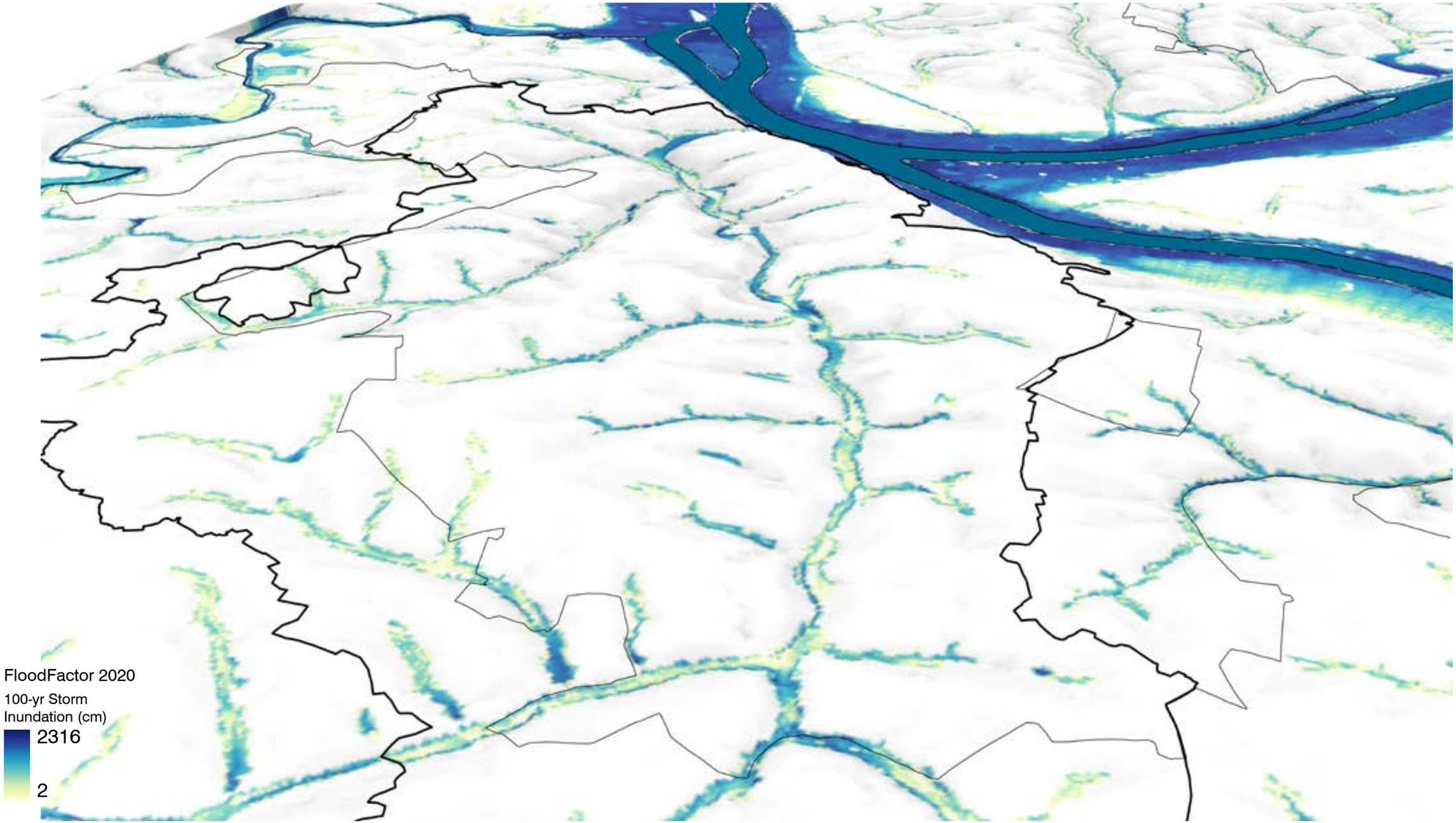
City's Greenways Plan (2017)



Opportunities from City's Greenways plan (2017):

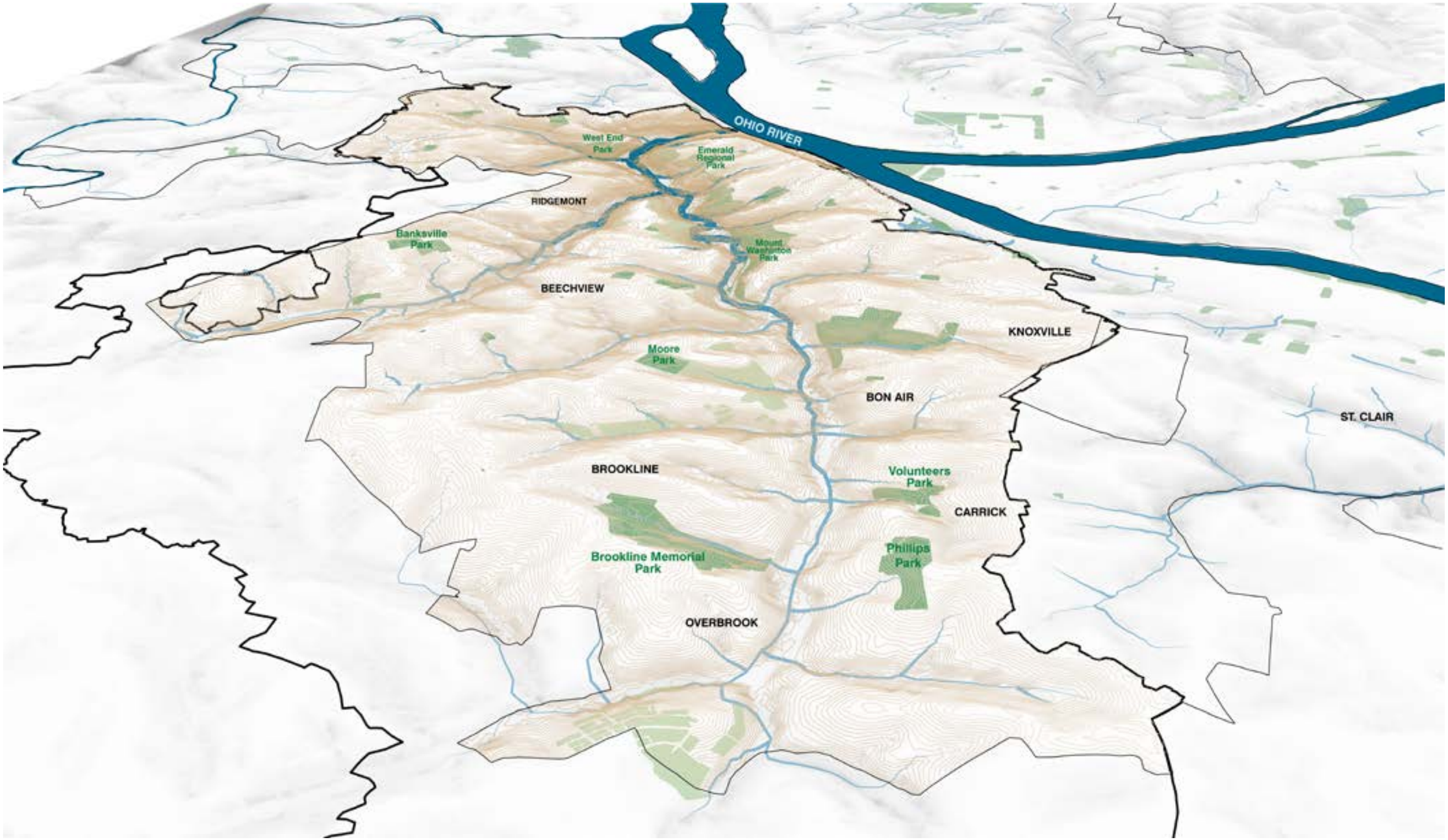
- Adjacent vacant hillsides, such as in Ridgemont, could be designated as part of Seldom Seen Greenway.
- A multi-modal mobility corridor through Seldom Seen could connect the greenway to regional trails and utilize a former railroad right-of-way to the West End.
- Stormwater management through watershed planning (with PWSA).

Saw Mill Run Watershed



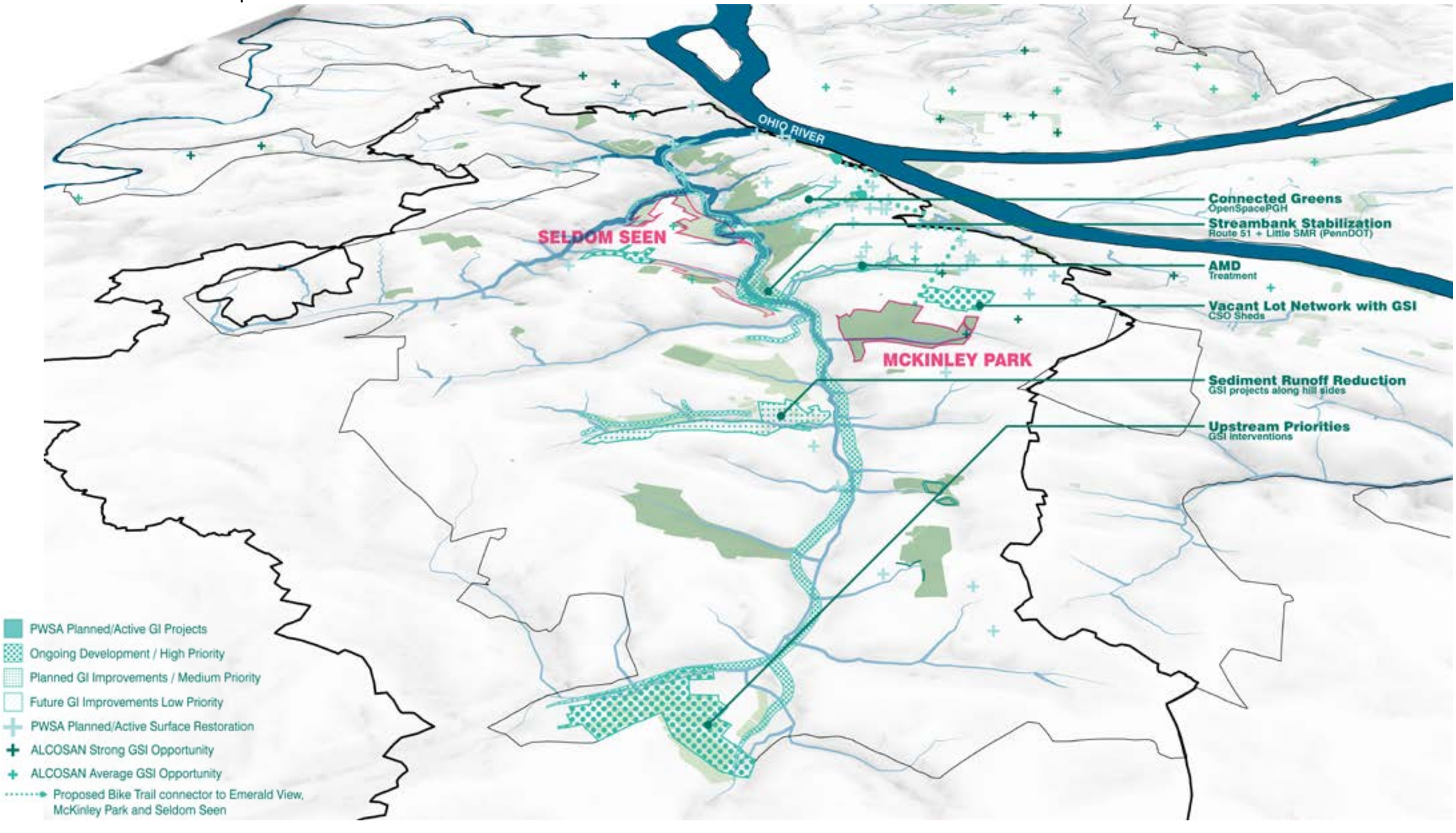
Saw Mill Run Watershed

10ft Contours + Parks + Historic/Buried Streams



Saw Mill Run Watershed

Watershed/GI Improvements



McKinley Park

McKinley Park Master Plan

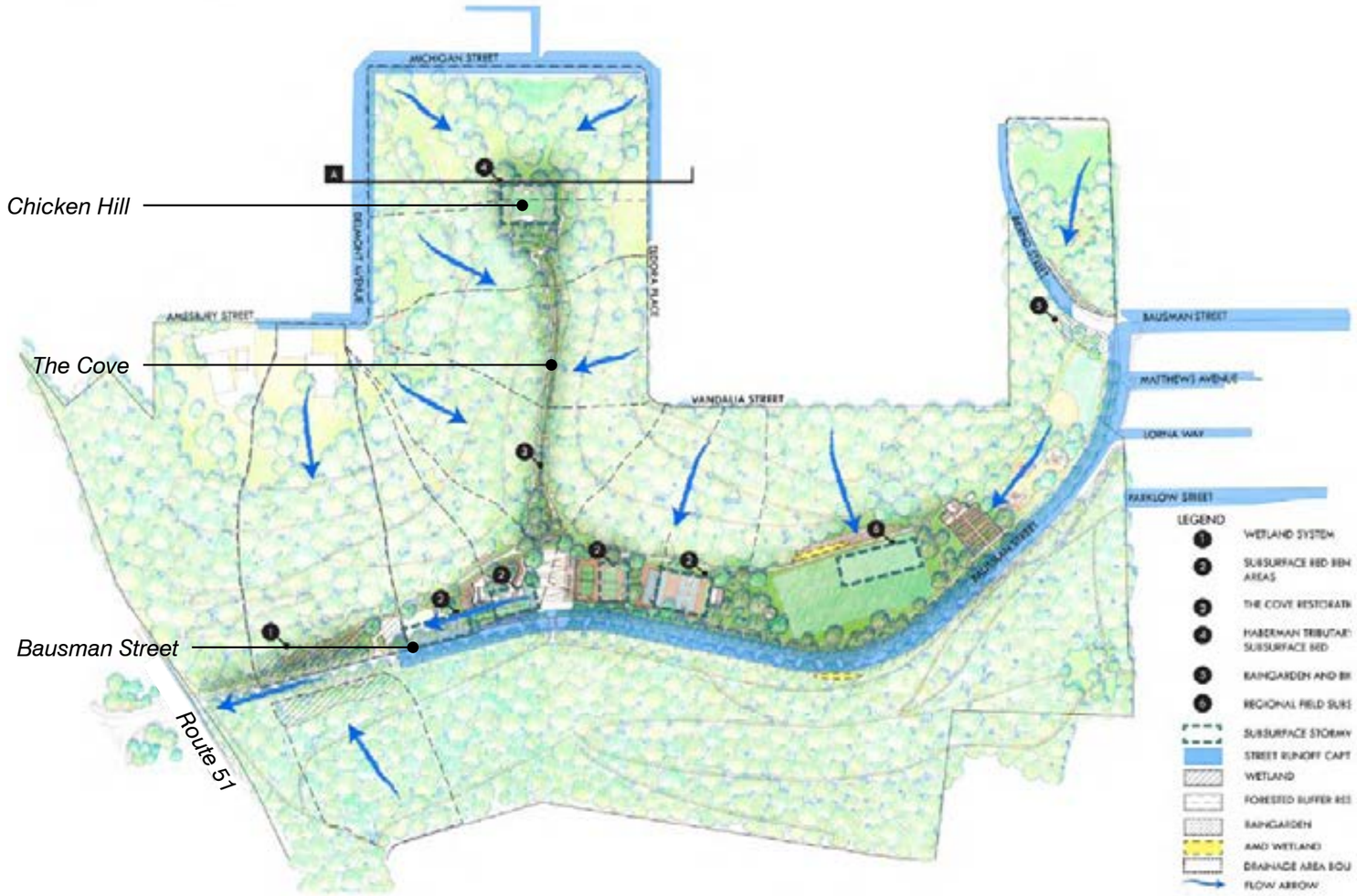
Goals:

- Improving connections to and within McKinley Park
- Using stormwater management as a catalyst to benefit the community and water quality in the Saw Mill Run watershed
- Improving recreation opportunities
- Improving neighborhood safety
- Spurring community and residential revitalization
- Remediating acid mine drainage

Master Plan Stormwater Calculations

Stormwater Management Practice	Drainage Area #	Total Drainage Area (ft^2)	Total Drainage Area (ac)	Percent Impervious %	SMP Footprint (ft^2)	Capture Volume (ft^3)	Capture Volume (gallons)
Sawmill Gateway Wetland System (A)	DA-1	271,907	6.2	5%	20,000	23,867	177,027
Sawmill Gateway Wetland System (B)	DA-2	130,796	3.0	0%	15,000	10,500	78,540
Proposed Parking Lot	DA-3	105,344	2.4	9%	9,000	8,640	64,627
Skate Park Expansion	DA-4	60,568	1.4	12%	3,500	4,900	36,652
Cove (3)	DA-5	177,413	4.1	3%	14,000	14,280	106,814
The Cove (2)	DA-6	164,617	3.8	4%	6,200	6,820	51,014
The Cove (1)	DA-7	142,654	3.3	0%	4,100	3,690	27,601
Haberman Ampitheater Subsurface Bed	DA-8	324,785	7.5	25%	21,500	25,800	192,984
Proposed Sport Courts	DA-9	107,164	2.5	7%	6,500	8,580	64,178
Proposed Basketball Courts	DA-10	89,549	2.1	14%	12,500	7,500	56,100
Bernd Street Park	DA-11	113,167	2.6	12%	6,000	8,400	62,832
Multipurpose Field Subsurface Bed	DA-12	110,286	2.5	100%	14,000	8,960	67,021
Bausman Green Street	DA-13	76,927	1.8	100%	8,000	6,400	47,872

McKinley Park Master Plan Stormwater Recommendations

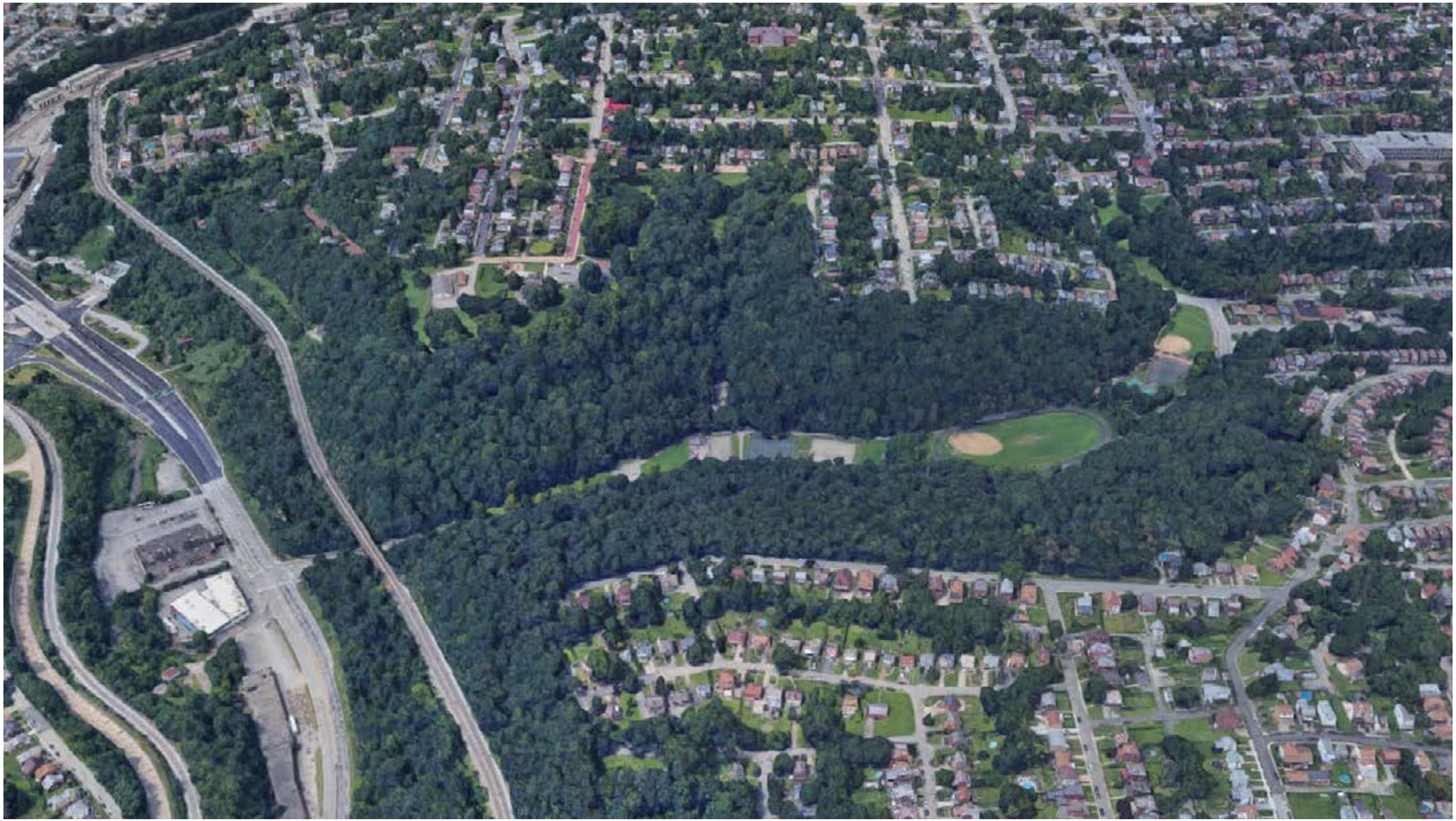


- Park maintenance and community clean-ups
- Erosion and sediment control measures
- Bioswales and raingardens
- Subsurface storage beds under new Chicken Hill Amphitheater and sports fields
- Retaining wall and acid mine drainage
- Greening Bausman Street
- Wetland system at intersection of Bausman Street and Route 51
- Slow-release step-pool system conveying water down the Cove toward Bausman Street

McKinley Park

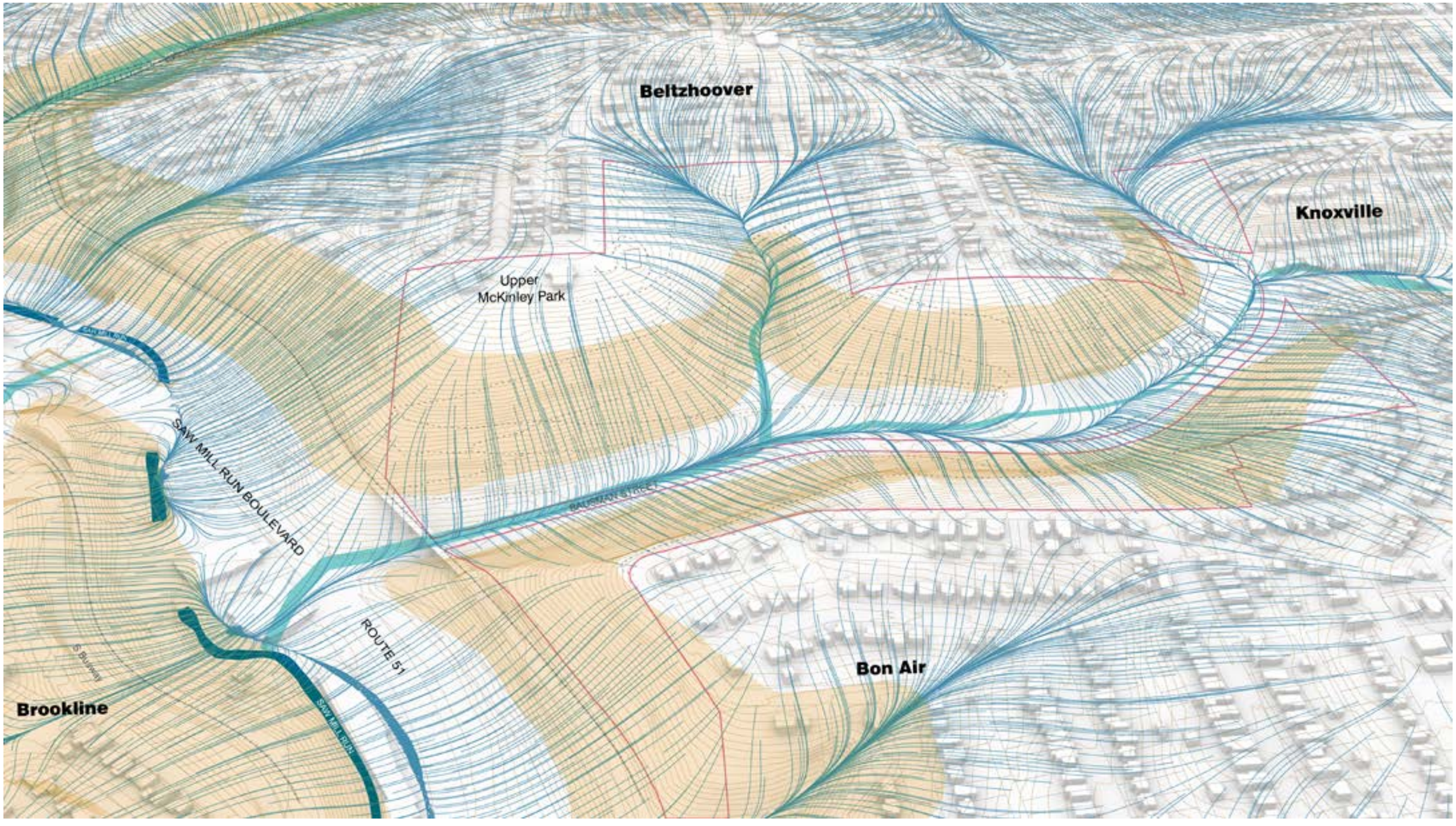
McKinley Park

Satellite View



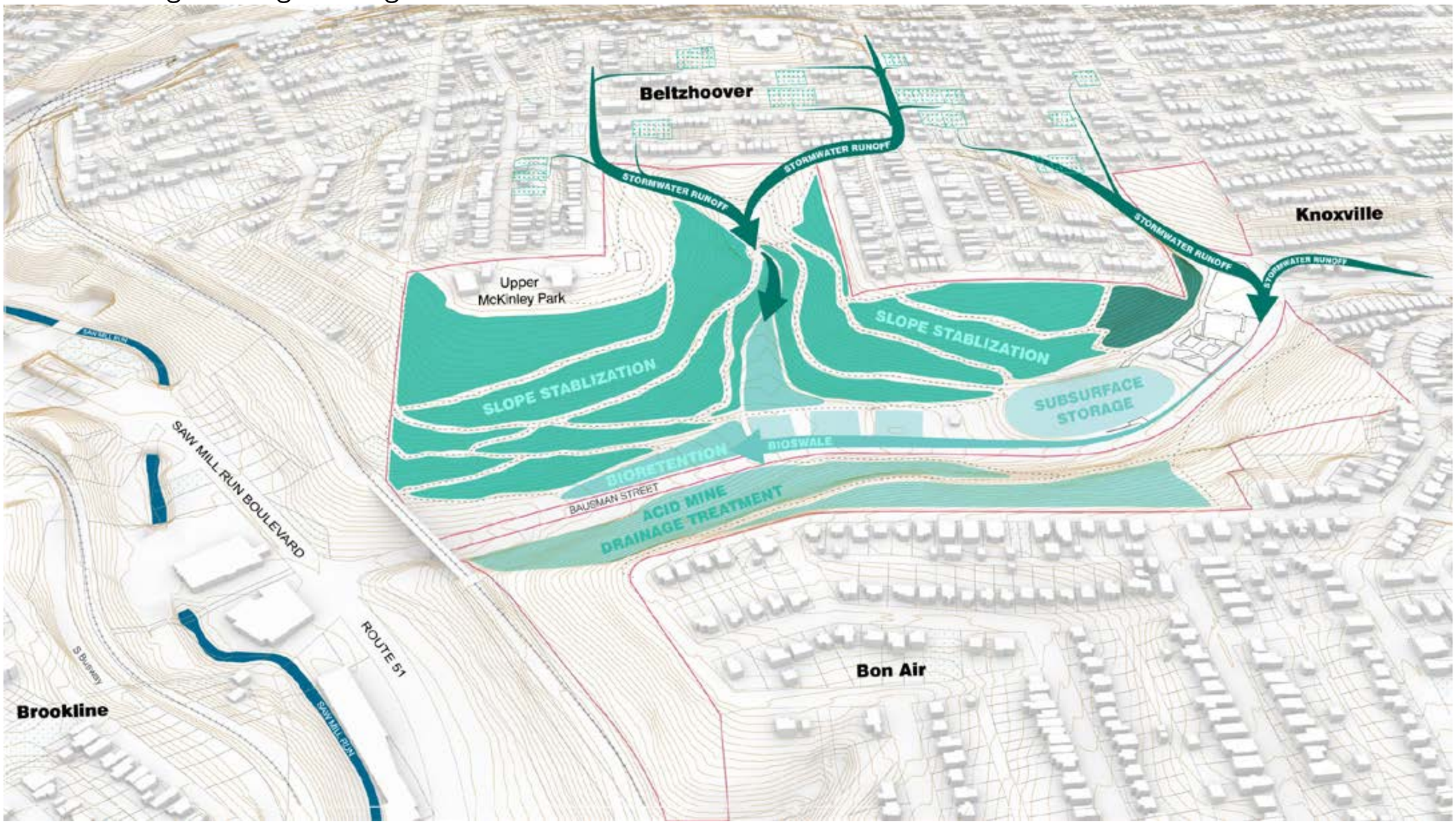
McKinley Park

Site Conditions: Buried Streams + Landslide Prone Areas + Stormwater Runoff



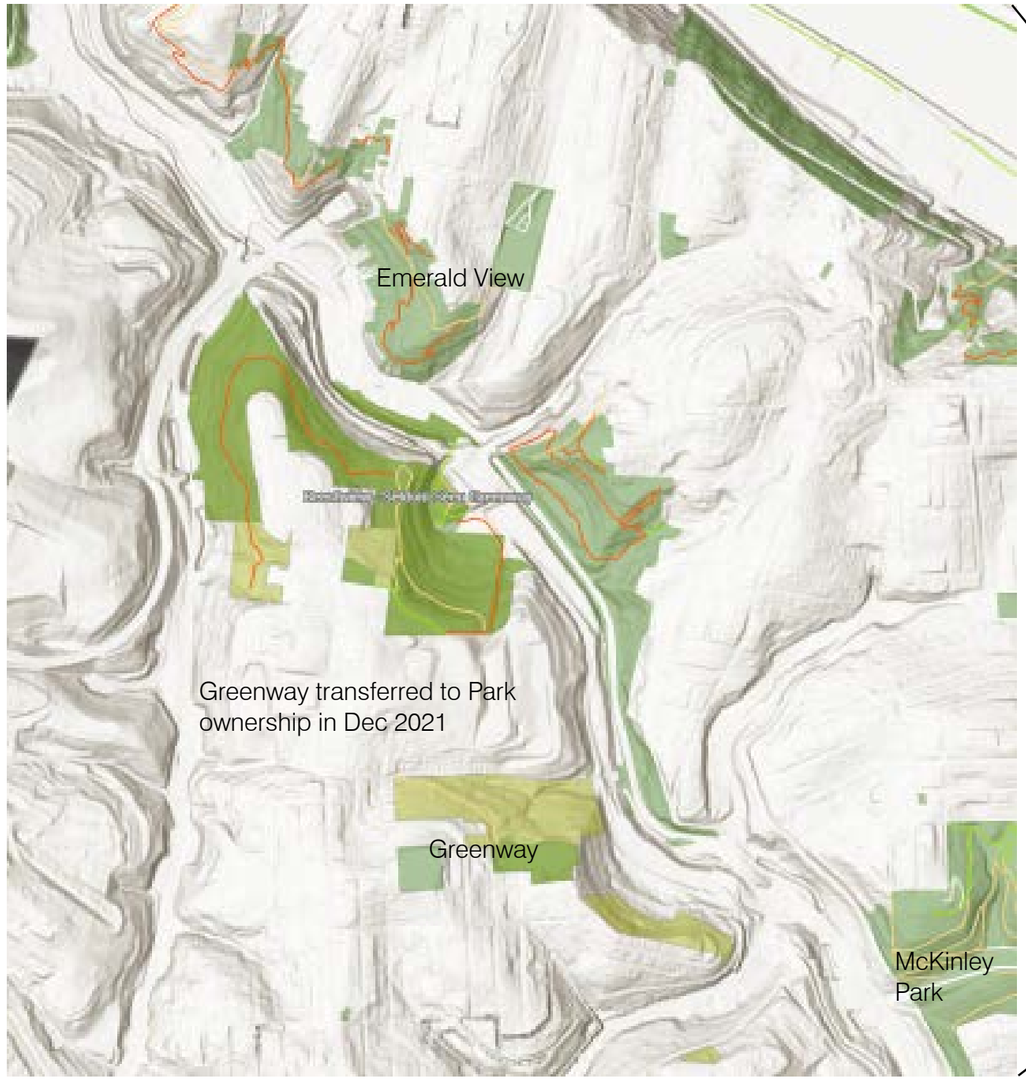
McKinley Park

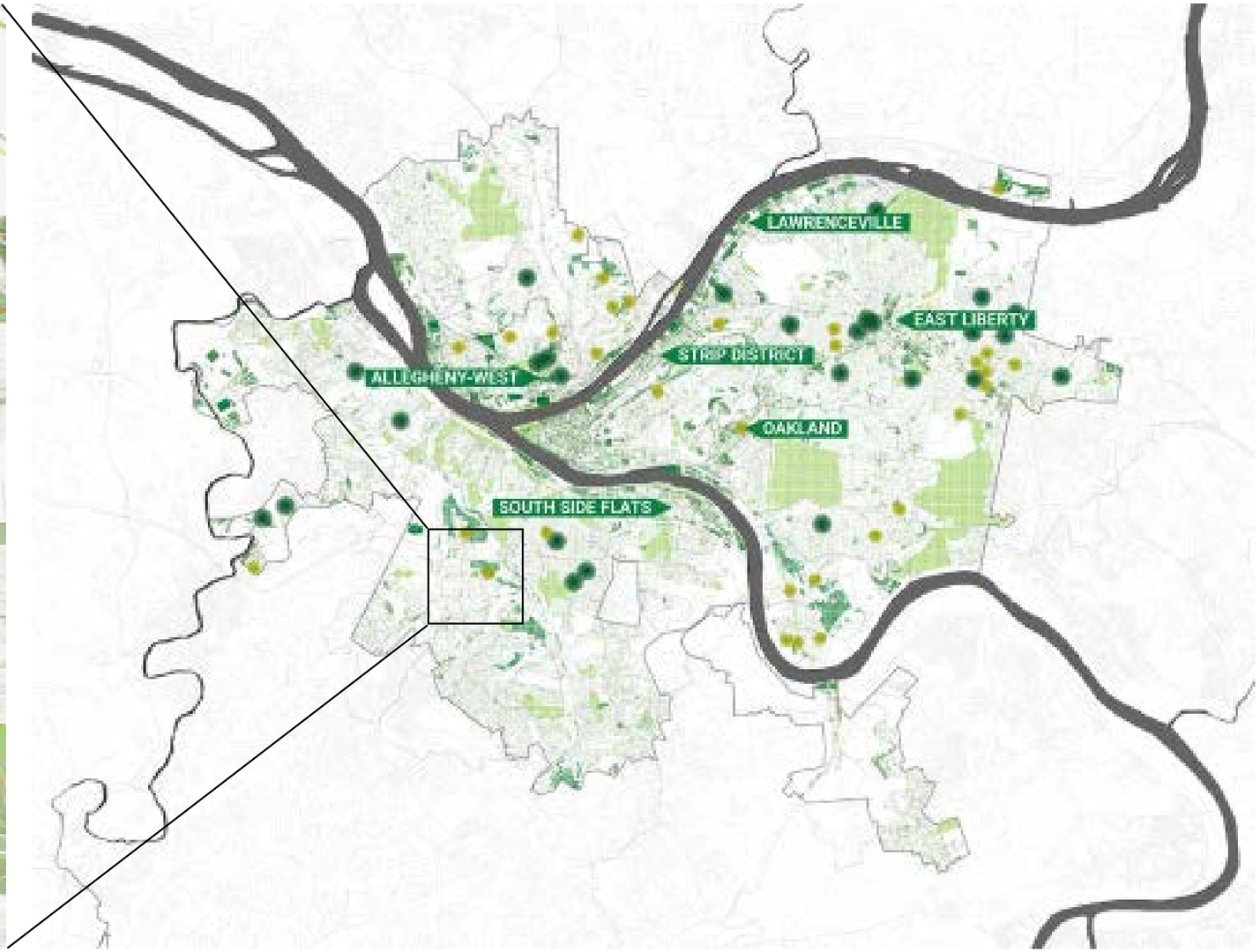
Potential Engineering Strategies



Seldom Seen Park

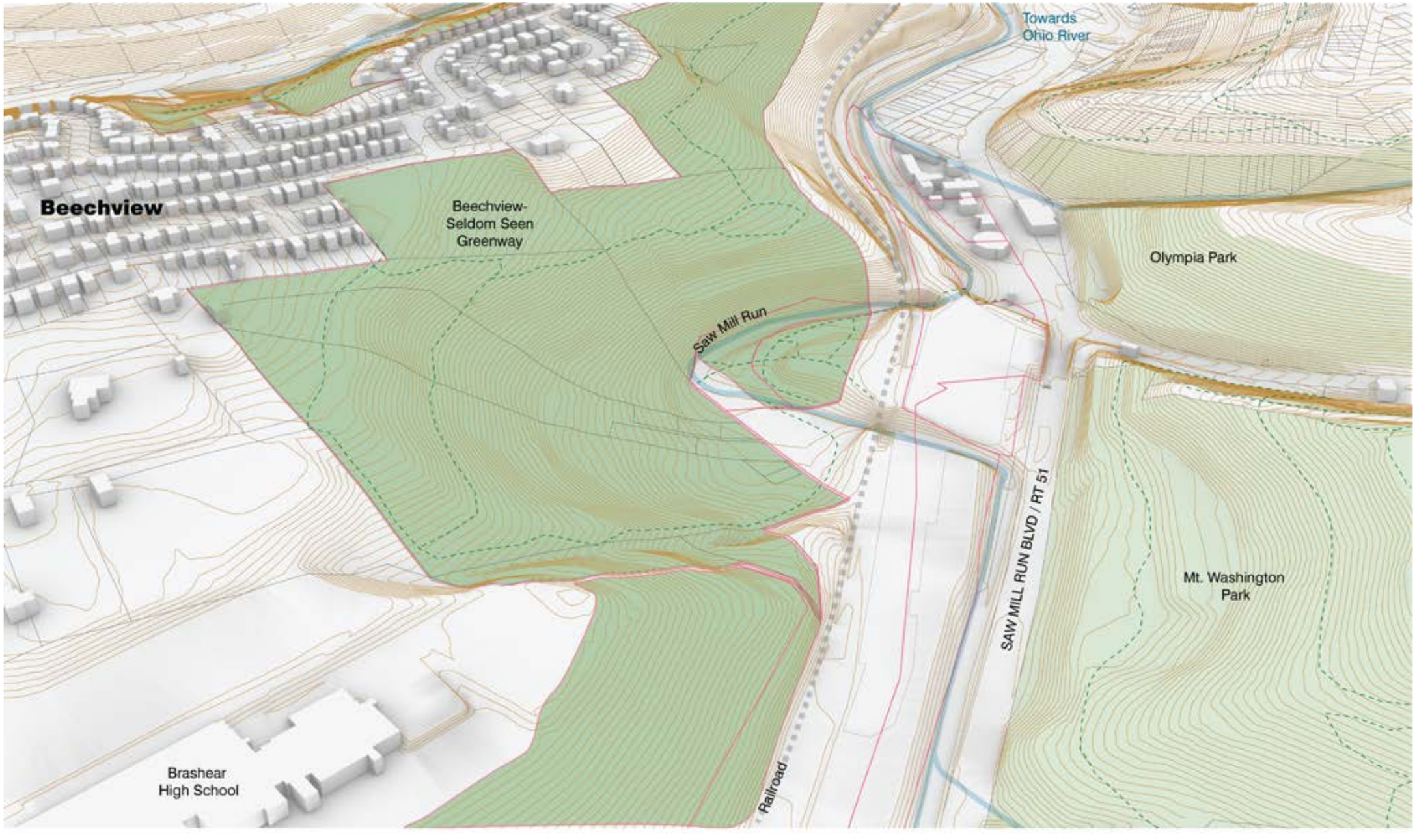
McKinley Park + Linkage to Seldom Seen Greenway (now Park)





- Increasing floodplain storage, slope stabilization and treatment in these parks to reduce downstream flooding
- Potential for vacant lot assemblage and scaled GSI interventions in Knoxville and Beltzhoover
- Opportunities for coordinated GSI along upgraded transportation corridors

Seldom Seen

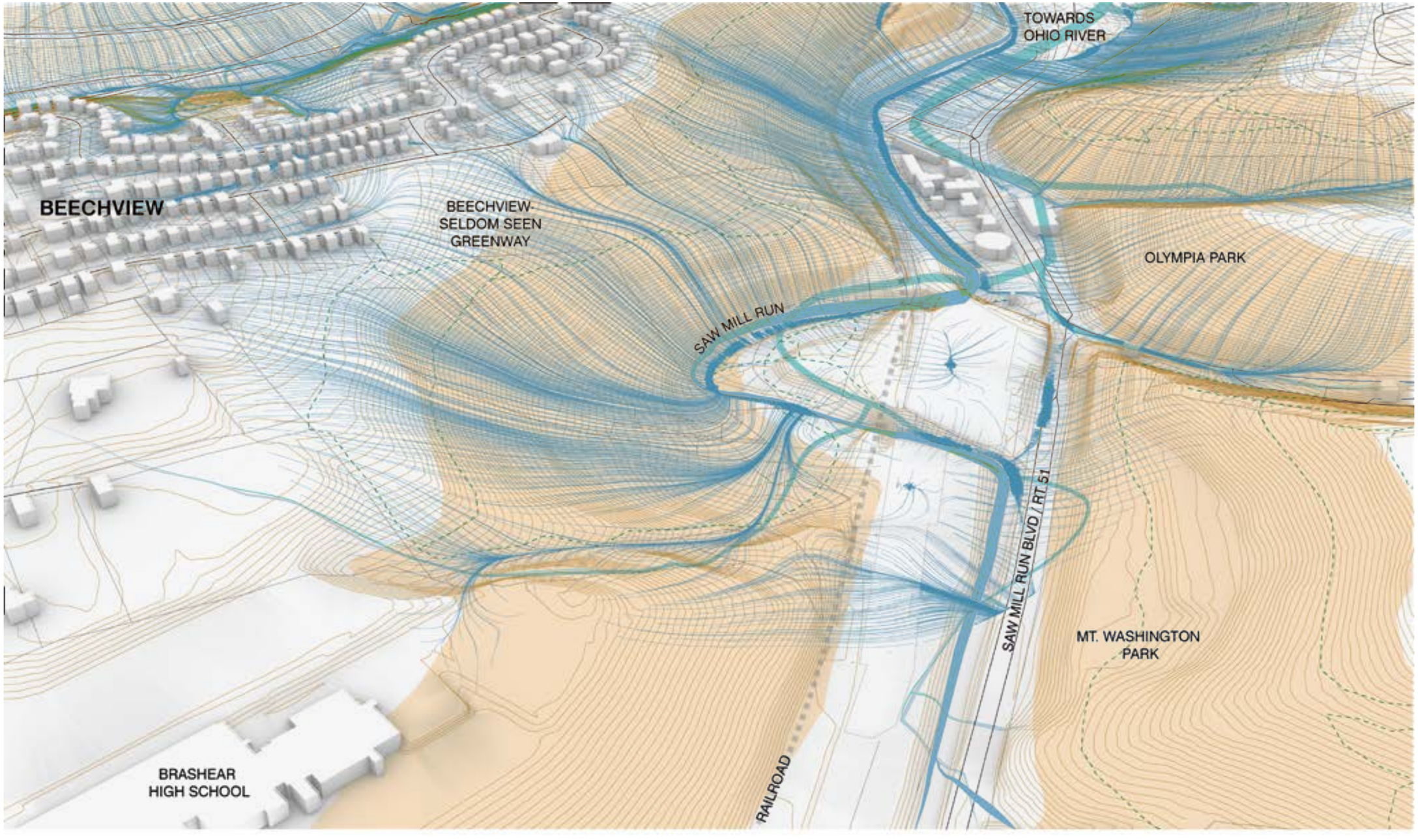

Towards
Ohio River
Beechview
Beechview-
Seldom Seen
Greenway
Saw Mill Run
Olympia Park
SAW MILL RUN BLVD / RT 51
Mt. Washington
Park
Railroad
Brashear
High School

Seldom Seen

Satellite View

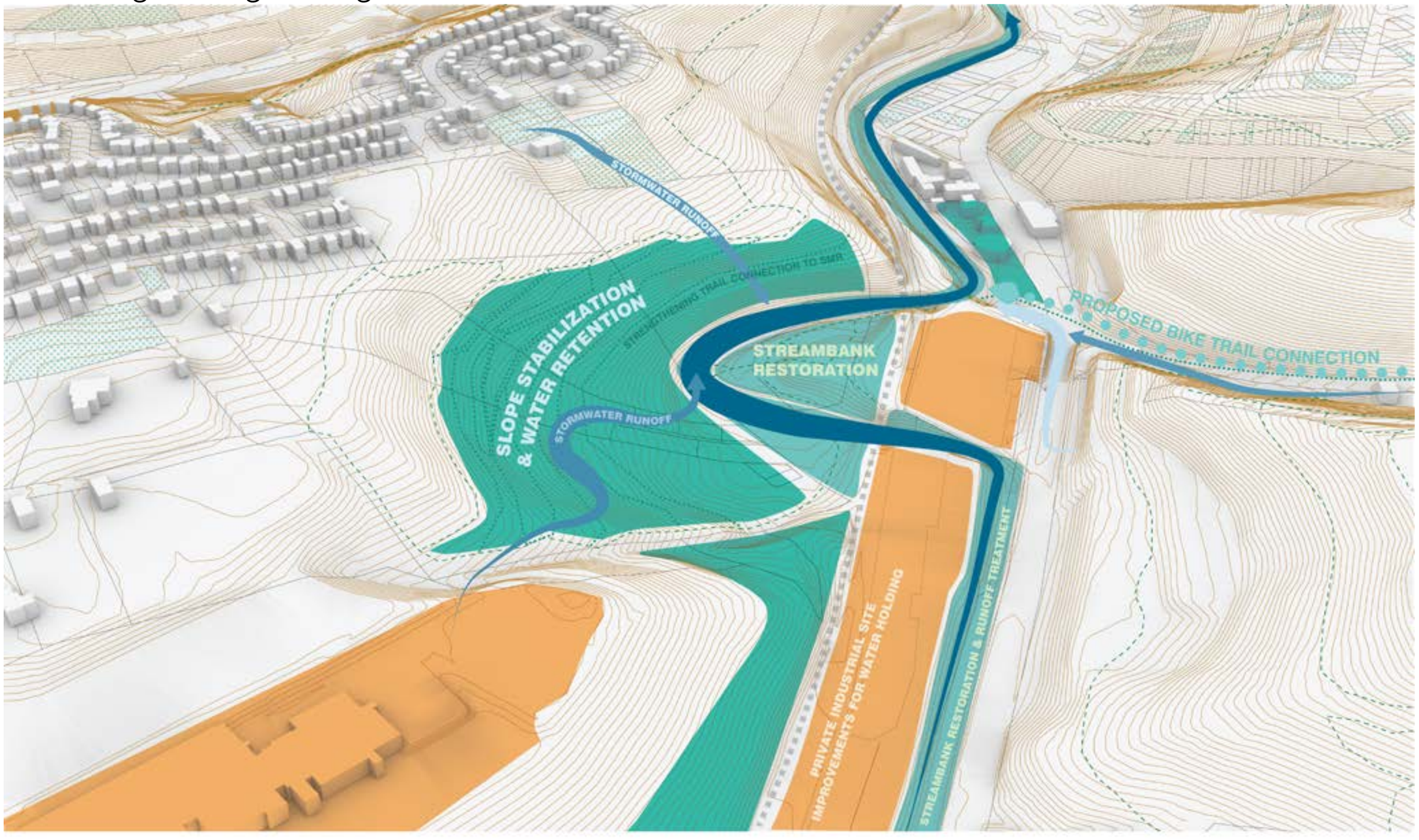
Seldom Seen

Site Conditions: Buried Streams + Landslide Prone Areas + Stormwater Runoff



Seldom Seen

Potential Engineering Strategies



What would you like to see happen at McKinley Park and Seldom Seen?

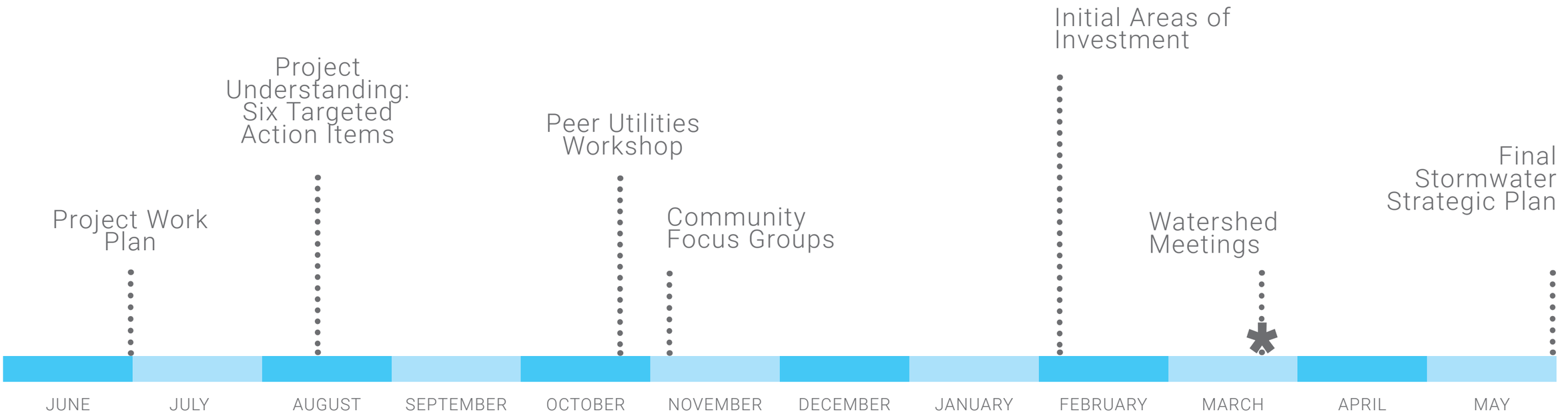
What should we know about past plans or current community visions for these places?

Do you think these are good places to create catalytic projects that integrate environmental justice, flood management, and green infrastructure to achieve performance and quality of life for people?

If not, are there other places and projects in Sawmill you want to tell us about?

Next Steps

PROJECT TIMELINE



Development of Targeted Action Items

Community Ambassador Program

PWSA Next Steps