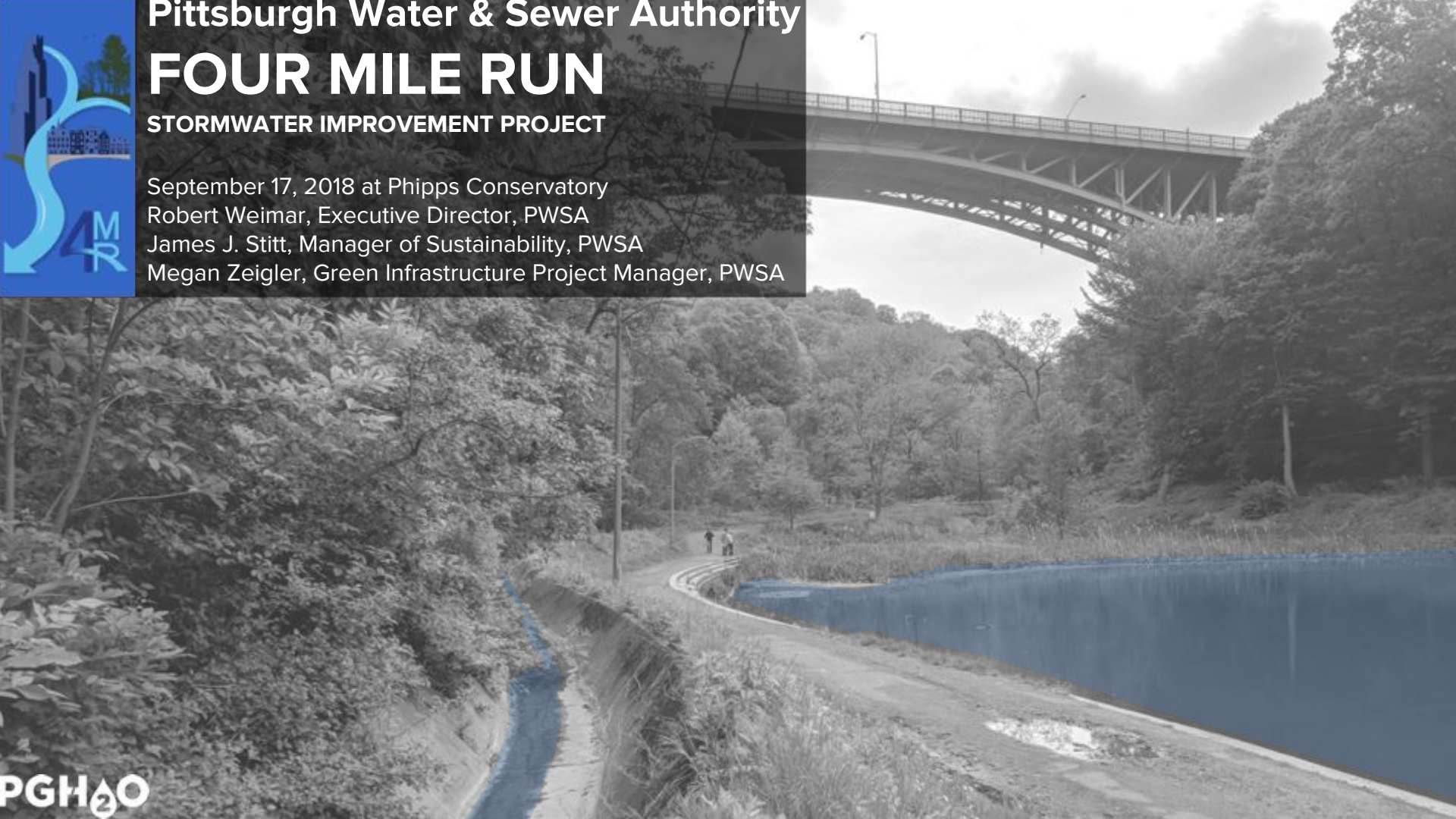
Pittsburgh Water & Sewer Authority

FOUR MILE RUN

STORMWATER IMPROVEMENT PROJECT

September 17, 2018 at Phipps Conservatory
Robert Weimar, Executive Director, PWSA
James J. Stitt, Manager of Sustainability, PWSA
Megan Zeigler, Green Infrastructure Project Manager, PWSA




PITTSBURGH HAS STORMWATER ISSUES
FLOODING
BASEMENT BACKUPS
SEWER OVERFLOWS
EROSION
RUNOFF
Aerial Image: Google Earth

PITTSBURGH HAS STORMWATER ISSUES

THE FOUR MILE RUN PROJECT IS A STRATEGY TO MANAGE THEM

Aerial Image: Google Earth

OUR GOAL:
To improve water quality and create safe, flood-prepared neighborhoods that are healthier places to live.

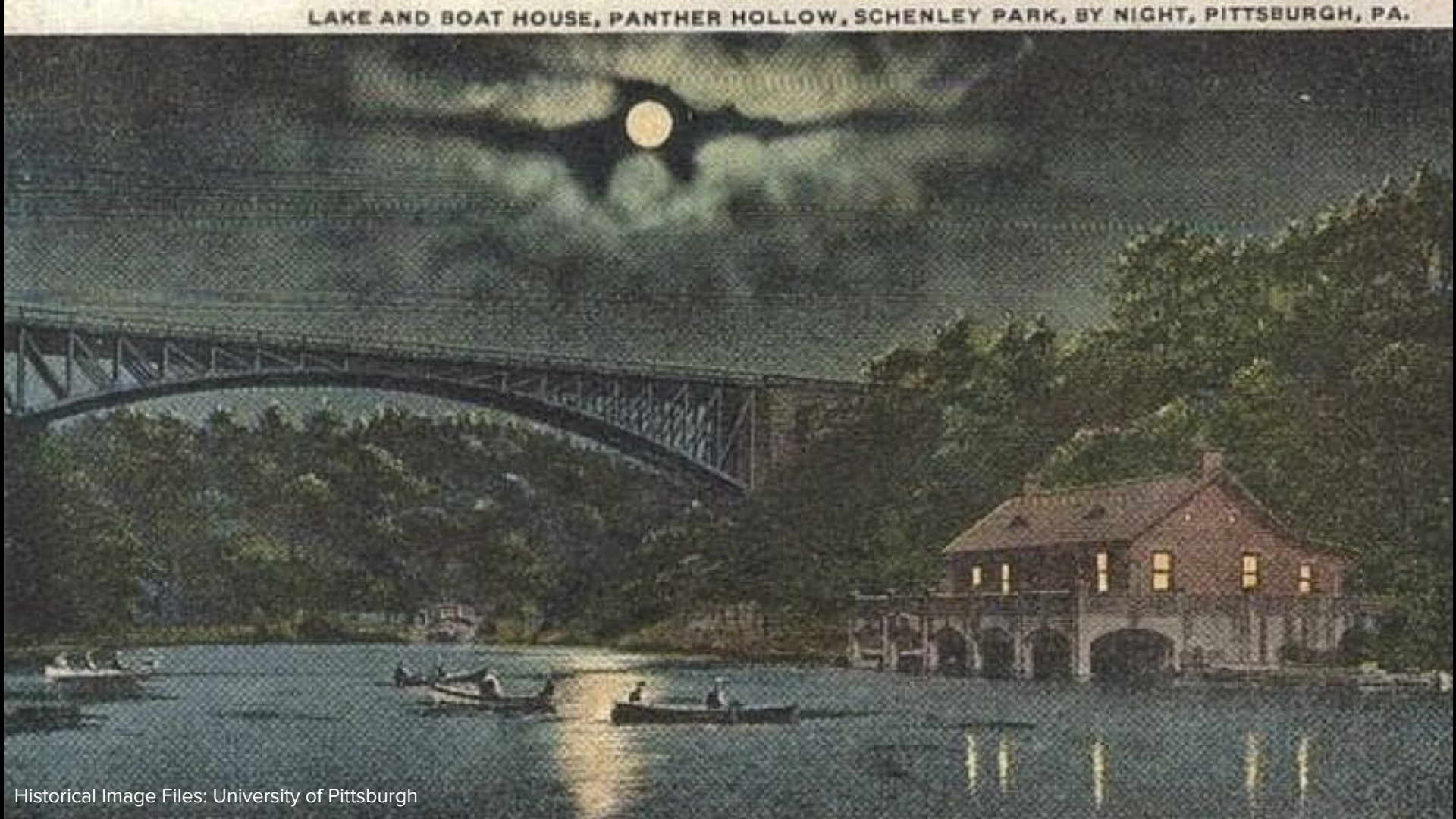
Aerial Image: Google Earth


OAKLAND
SCHENLEY PARK
SQUIRREL HILL
SOUTH OAKLAND
THE RUN
GREENFIELD
HAZELWOOD
WHAT DO THESE NEIGHBORHOODS HAVE IN COMMON?
Aerial Image: Google Earth


OAKLAND
SCHENLEY PARK
SQUIRREL HILL
SOUTH OAKLAND
THE RUN
M29
GREENFIELD
HAZELWOOD
WHAT DO THESE NEIGHBORHOODS HAVE IN COMMON?
THEY ALL DRAIN TO CSO M29
Aerial Image: Google Earth

BELLEFIELD
OAKLAND
GROVE
14
22
30
30
31
Copper Works Sta.
Linden Sta.
Laughlins Sta.
Elba Sta.
Schenley
379 a.
Four Mile Run
PITTSBURGH JUNCTION R.R.
Forbes
Fifth Ave.
Wilkins Ave.
Hutchinson
Murdoch
Murray
Brown
Parkinson
Halter
Taylor
Cannon
McCord
Welfer
Dunbar
Bidwell
Greenfield Ave.
Nixon St.
Palermo St.
Peoples Inv. Co.
PITTSBURGH


MONONGAHELA
ELIZA FURNACES
Laughlin &c
PENNSYLVANIA & OHIO R.R.
FRAZIER
CATO
BATES
JULIET
HARDIE
WARD
WILMOT
BOQUET
SEMPLE
SULEMA
CRAFT
BLAINE
GRIFFITH
CHILDS
OLIVER
SYLVAN
FORWARD
JUNO
ADRIAN
AVE
ST
J. P. Arthur
H. Brown
Chas. E. Speer
R. Burgwin
J. S. Thompsons Plan
A. Jacobs Plan
Explanations
Brick or Stone Buildings
Frame Buildings
Fire Plugs
Scale 100 feet to the inch.
100 50 0 100 200 300 400 500
VOL 4 17
VOL 4 15
20



SHARED HISTORY

Stream Junction Hollow

Historical Image Flles.
University of Pittsburgh

SHARED HISTORY

Panther Hollow Run

Historical Image FIles.
University of Pittsburgh

SHARED HISTORY

Mouth of Little Panther Hollow

Historical Image FIles.
University of Pittsburgh

SHARED HISTORY

Pipe Under Junction Hollow

Historical Image FIles.
University of Pittsburgh

SHARED HISTORY

Backfilled Trench

Historical Image FIles.
University of Pittsburgh

2000s-2010s — PWSA enters into Consent Order and Agreement with the state Department of Environmental Protection and the county Health Department to comply with Clean Water Act regarding CSOs.

CONSENT DECREE

2010-2014 — Early green stormwater infrastructure projects implemented in Schenley Park.

EARLY GREEN STORMWATER PROJECTS

2013 — PWSA completes its Wet Weather Feasiblity Study identifying Green stormwater infrastructure as a solution to CSOs.

2016 — PWSA publishes its Green First Plan which sets a strategy for a network of green conveyance and detention sites throughout combined sewer areas.

GREEN FIRST PLAN

2016-2017 — Pittsburgh Parks Conservancy works with PWSA and surrounding communities to develop a stream restoration concept for Four Mile Run.

PPC VISION

Early 2018 — PWSA begins preliminary engineering and design for Four Mile Run with a team of stream restoration, urban design, and green infrastructure consultants.

17 September 2018 — PWSA and PPC lead a Public Meeting about the Four Mile Run project.

November 2018 — PWSA and PPC lead a second Public Meeting about the Four Mile Run project.

Early 2019 — PWSA to begin final engineering and design for Four Mile Run. Two more public meetings will be held during this phase.

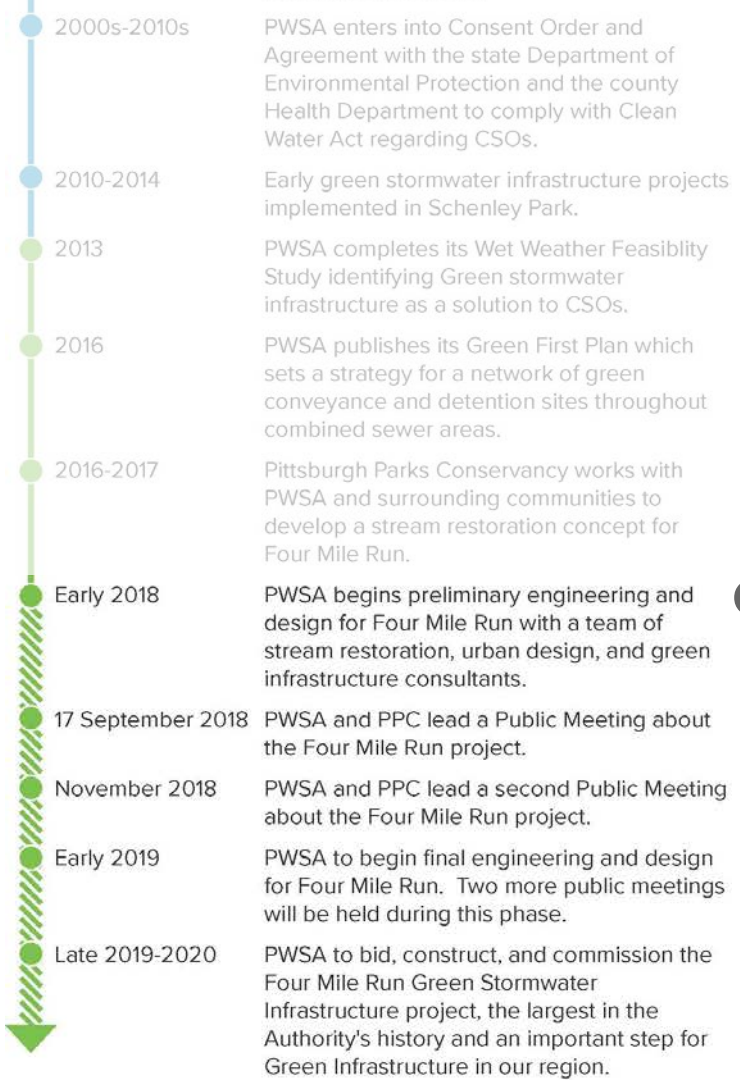
Late 2019-2020 — PWSA to bid, construct, and commission the Four Mile Run Green Stormwater Infrastructure project, the largest in the Authority's history and an important step for Green Infrastructure in our region.

TODAY
PUBLIC MEETING

NOVEMBER 2018
PUBLIC MEETING

EARLY 2019
FINAL ENGINEERING & DESIGN
TWO PUBLIC MEETINGS

LATE 2019-2020
BID, CONSTRUCTION & COMMISSION



OUR PROJECT

TECHNICAL TEAM

Civil & Environmental Consultants, Inc.

MOTT MACDONALD

evolve environment :: architecture

awk CONSULTING ENGINEERS, INC.

SciTek Consultants, Inc.

ethos collaborative

eDESIGN DYNAMICS

DJ Group Incorporated

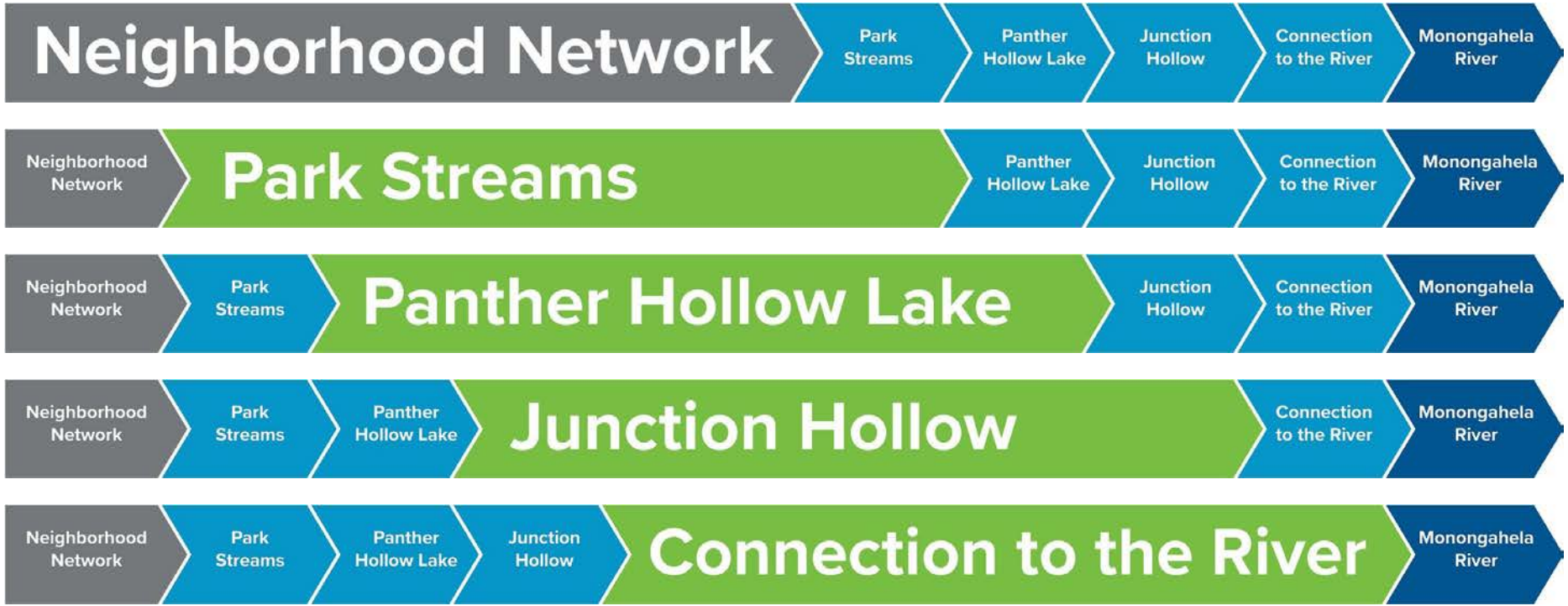
TERRA TESTING

advantus ENGINEERS

COMMUNITY ENGAGEMENT

evolve environment :: architecture

Pittsburgh Parks Conservancy


Neighborhood Network
Park Streams
Panther Hollow Lake
Junction Hollow
Connection to the River
Monongahela River
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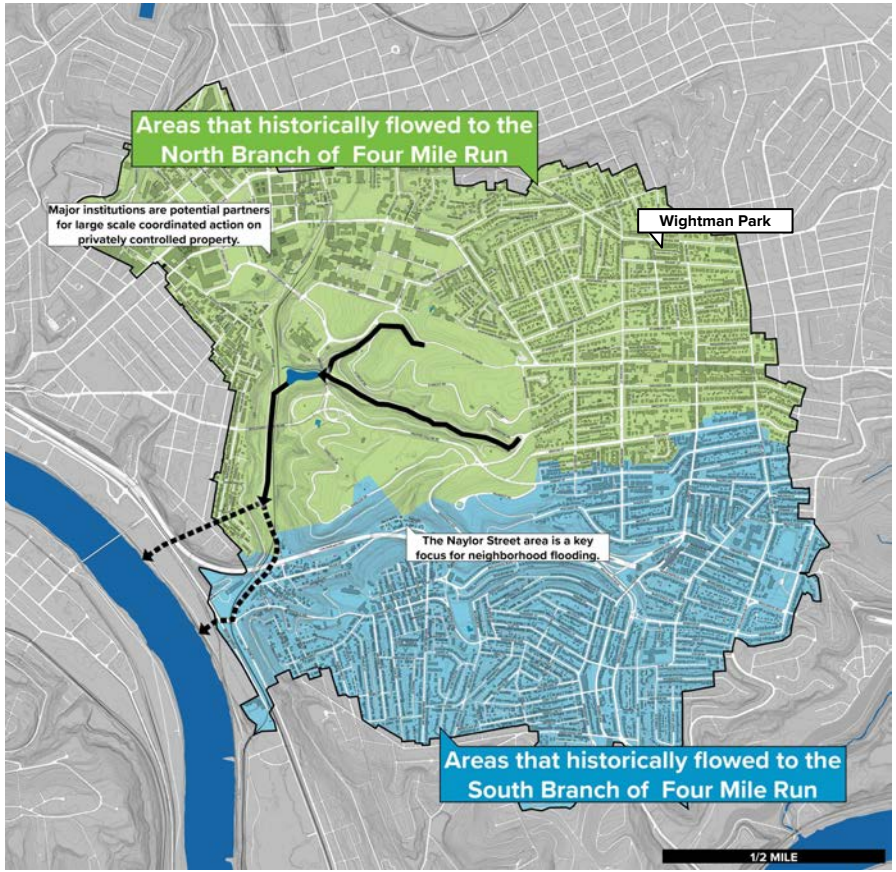
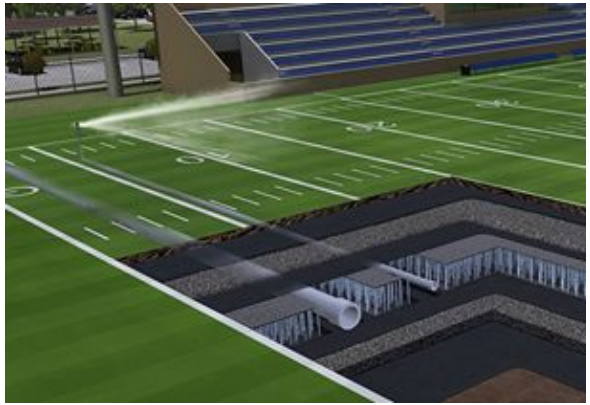
Neighborhood Network

Park Streams | Panther Hollow Lake | Junction Hollow | Connection to the River | Monongahela River



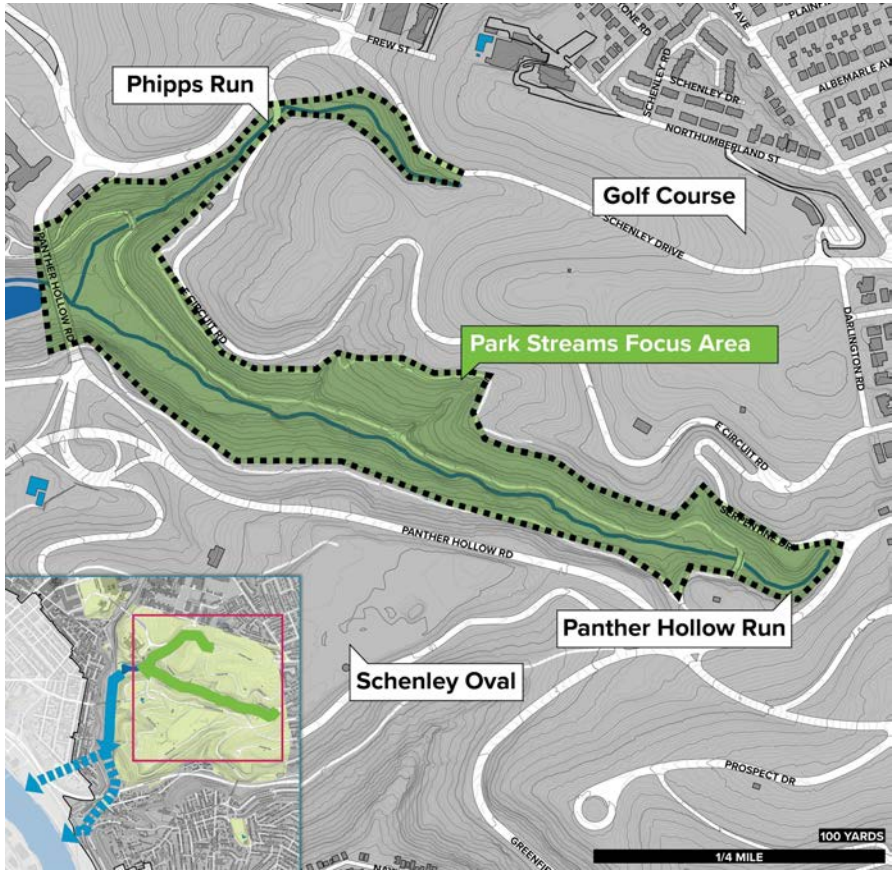


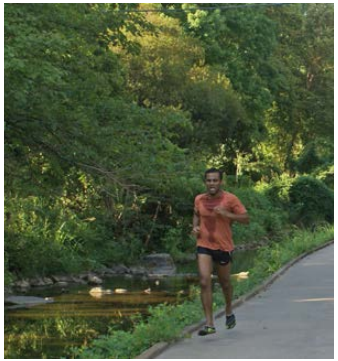
Neighborhood Network

Park Streams | Panther Hollow Lake | Junction Hollow | Connection to the River | Monongahela River

Issues for Four Mile Run:

- Area is built-out
- Limited space to store and retain stormwater
- Connecting to the valley
- Cost & Performance

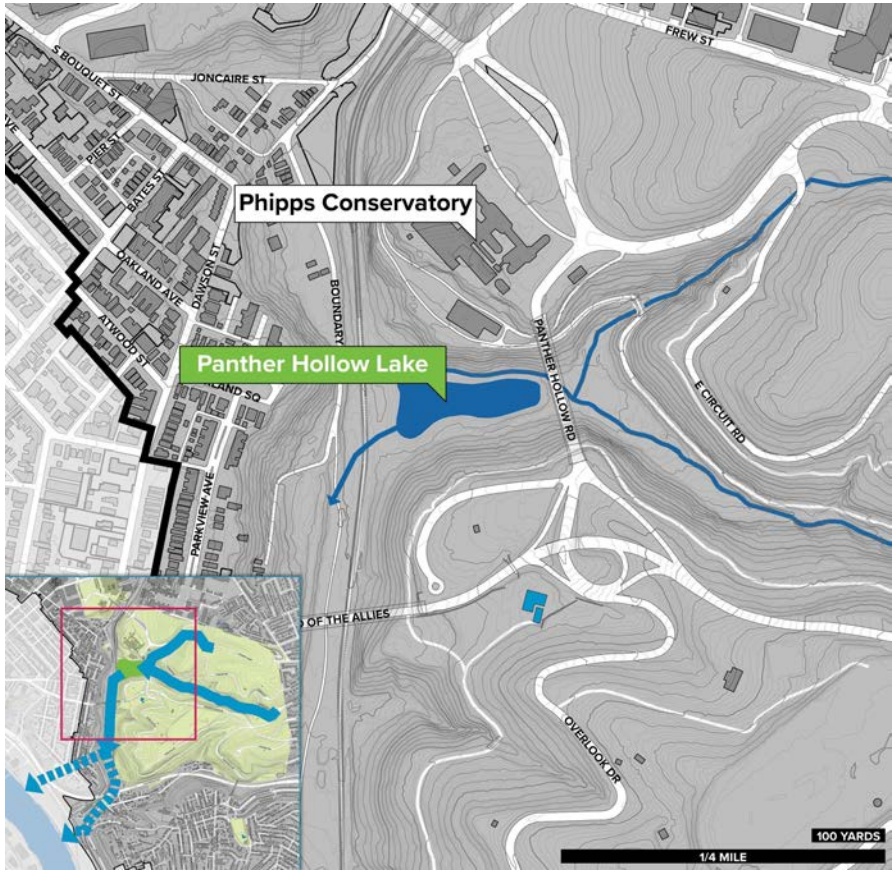

Phipps Run
Golf Course
Park Streams Focus Area
Panther Hollow Run
Schenley Oval
FREW ST
SCHENLEY DR.
NORTHUMBERLAND ST
SCHENLEY DRIVE
DARLINGTON RD
E CIRCUIT RD
PANTHER HOLLOW RD
PROSPECT DR
100 YARDS
1/4 MILE



Issues for Park Streams:

- Restoration has to begin with source control
- Fast-moving streams are more likely to flood
- Erosion on paths
- Erosion of hillsides
- Sediment clogs the lake and stream

Panther Hollow Lake

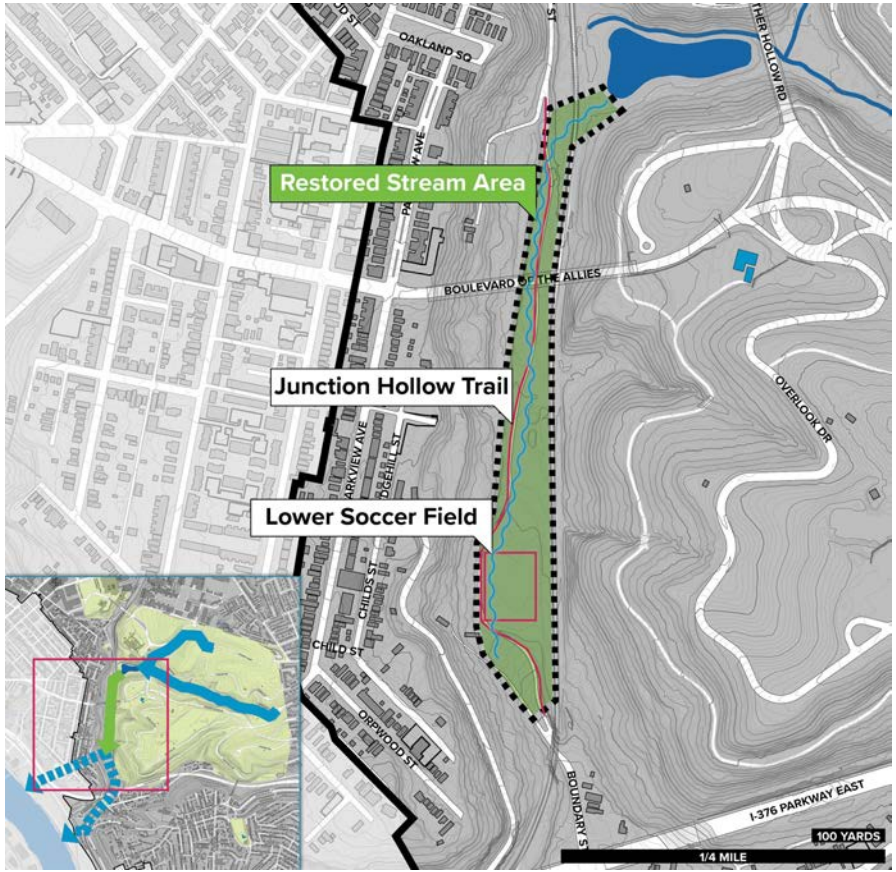


Issues for the Lake:

- Lake drains directly into sewer
- Lake is filled with sediment
- Lack of crossing at the railroad for people and water
- Retrofit allows for more stormwater storage
- Leverage coordination and funding with partner agencies

Neighborhood Network | Park Streams | Panther Hollow Lake | Connection to the River | Monongahela River

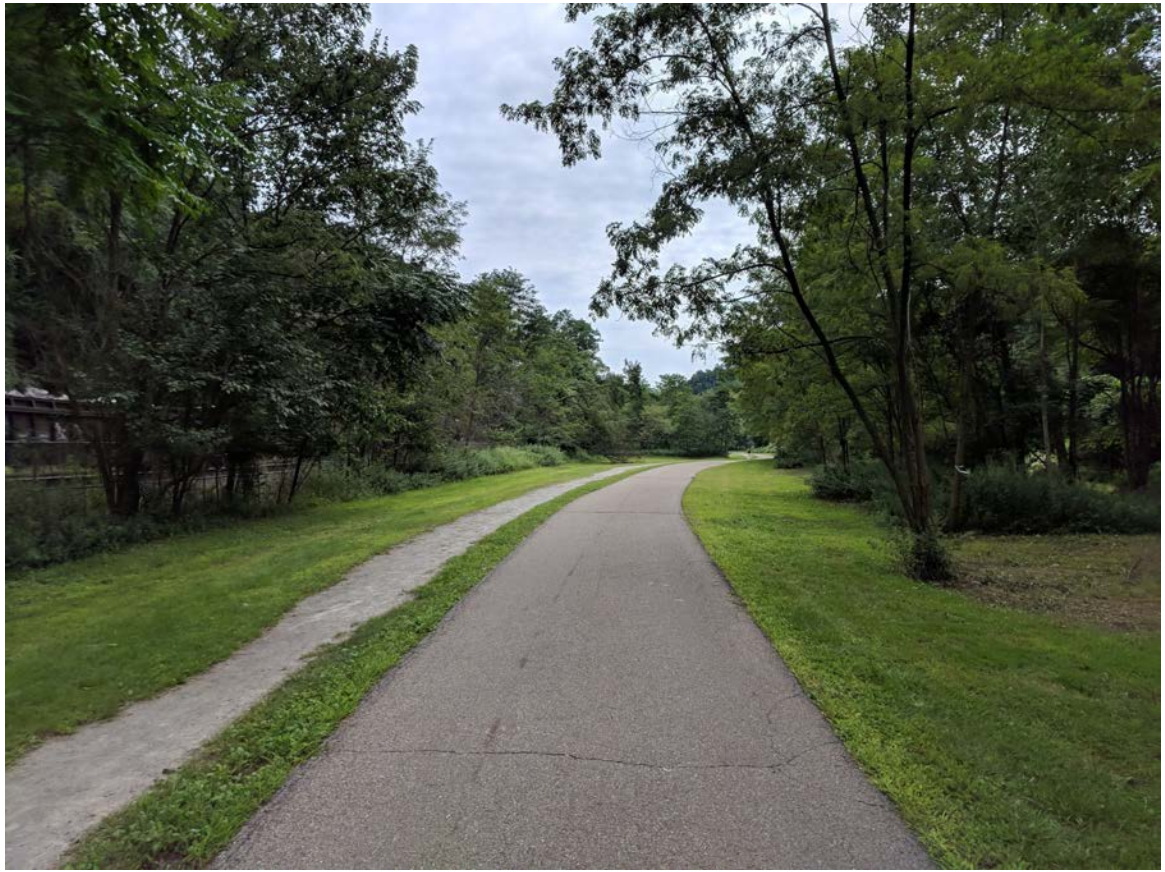
Junction Hollow



Junction Hollow

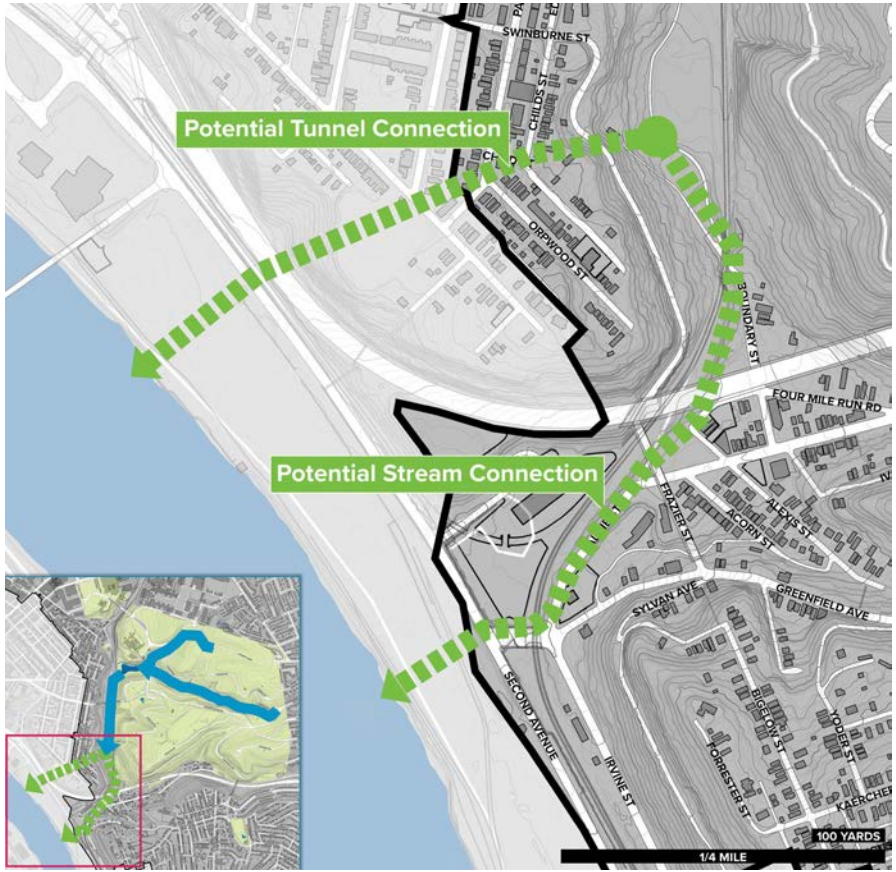
Issues for the Junction Hollow:

- Topography has been altered significantly since a stream was last here
- Some major existing utilities: sewer mains and water mains, electrical conduit
- Existing public amenities include the Junction Hollow Trail and Schenley Park Lower Soccer Field



Neighborhood Network | Park Streams | Panther Hollow Lake | Junction Hollow | Monongahela River

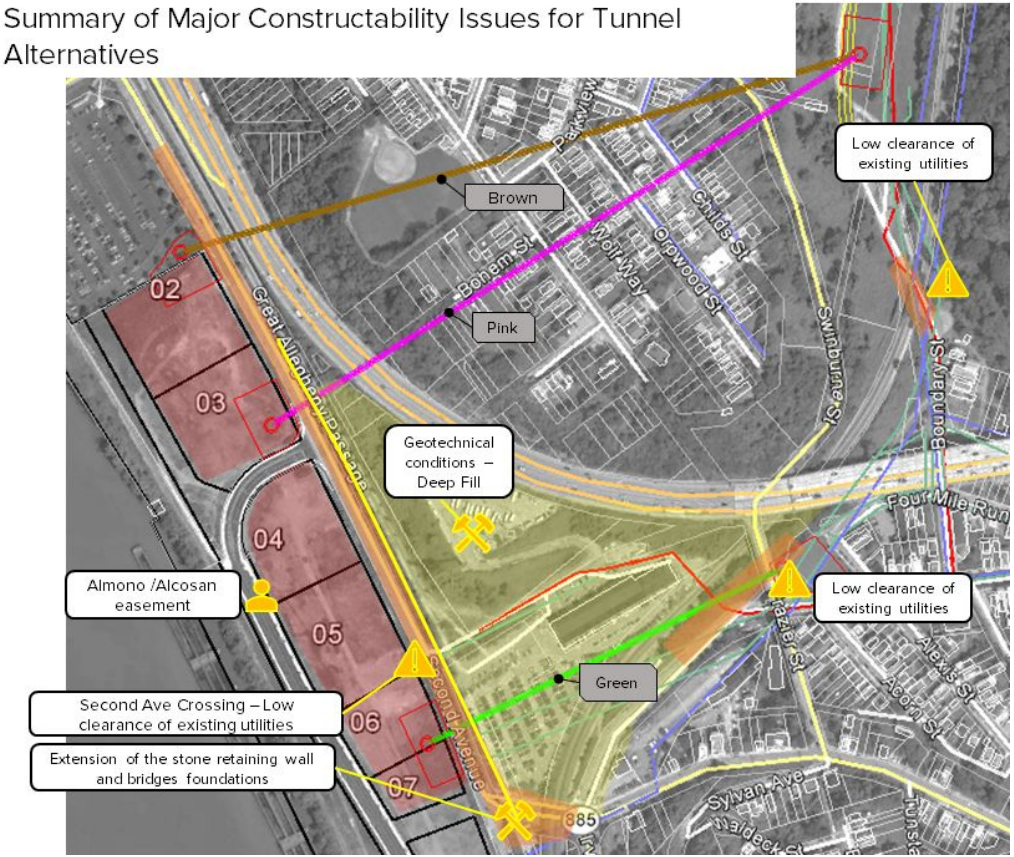
Connection to the River



Issues for the Connection to the River:

- Tunnel location to be determined
- Potential for utility conflicts along Saline Street
- Potential easement through privately controlled property near the river
- Elevation changes from Four Mile Run to the Monongahela River

Summary of Major Constructability Issues for Tunnel Alternatives



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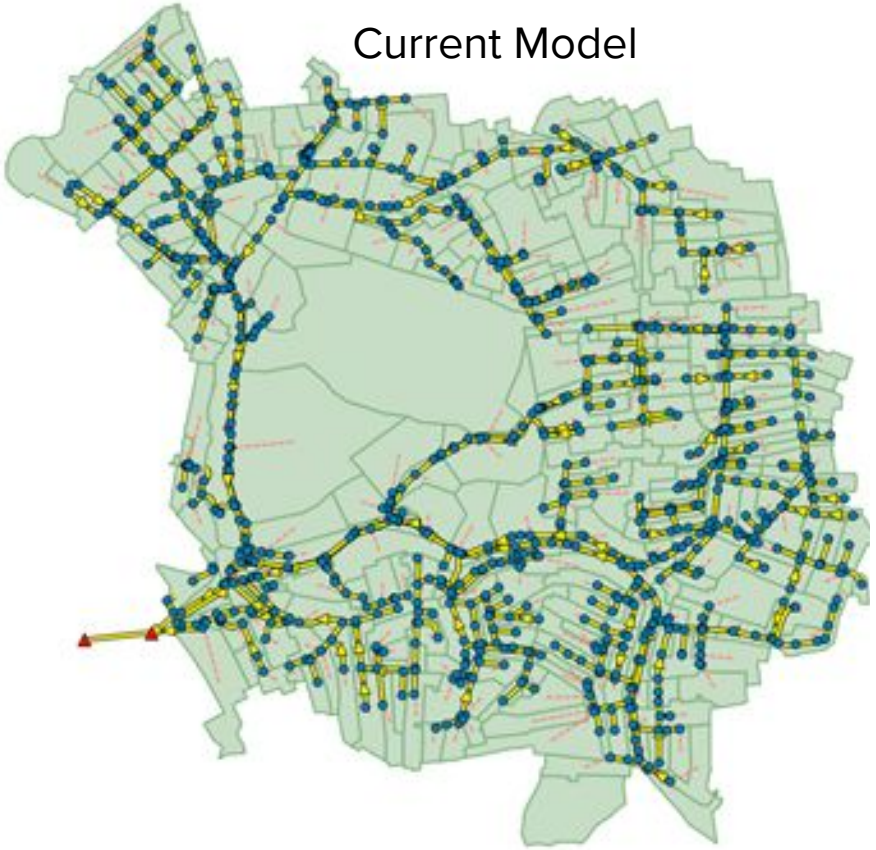
Aerial Image: Google Earth

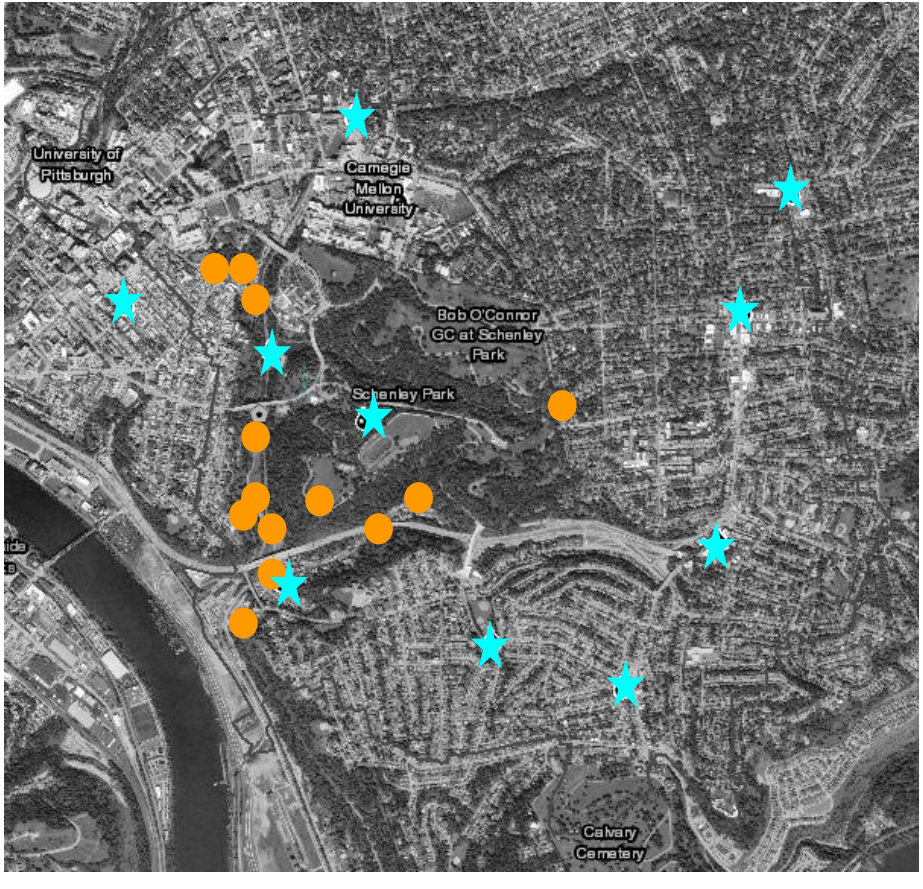
MODEL BUILDOUT

Base Model

Current Model



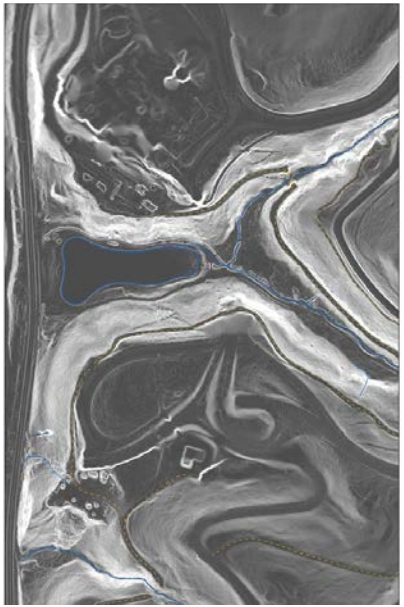
MODEL VERIFICATION



Monitor

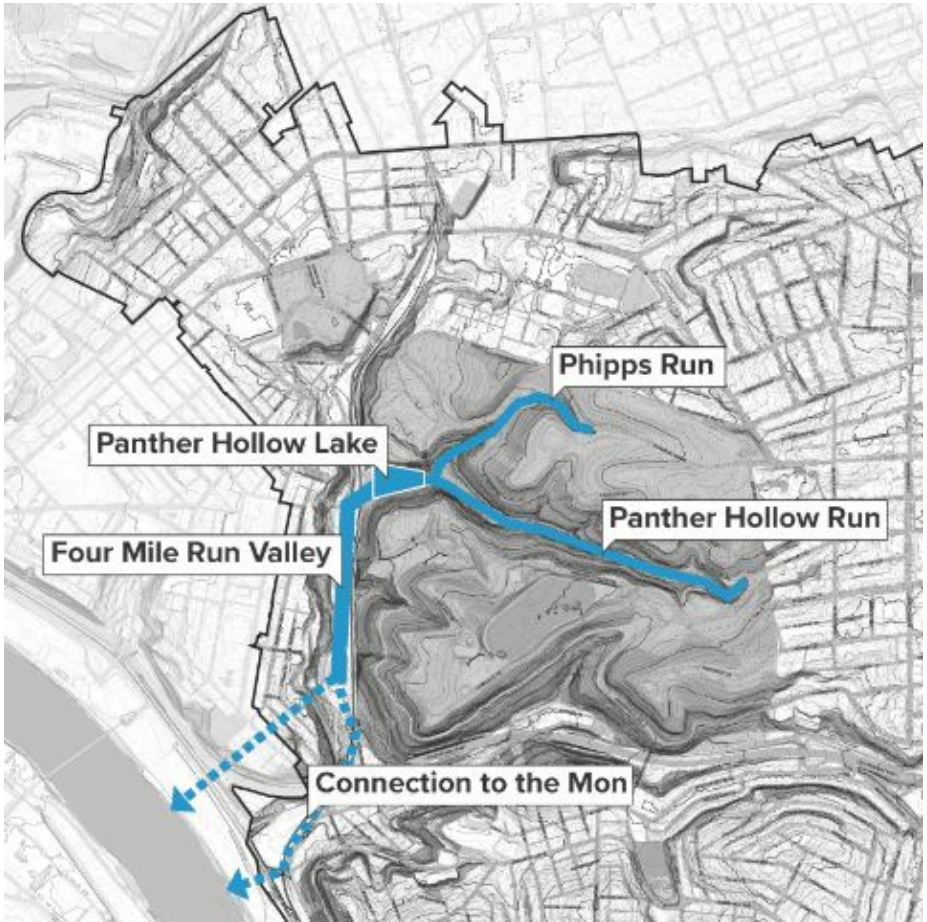
Rain Gauge

LiDAR DATA COLLECTION

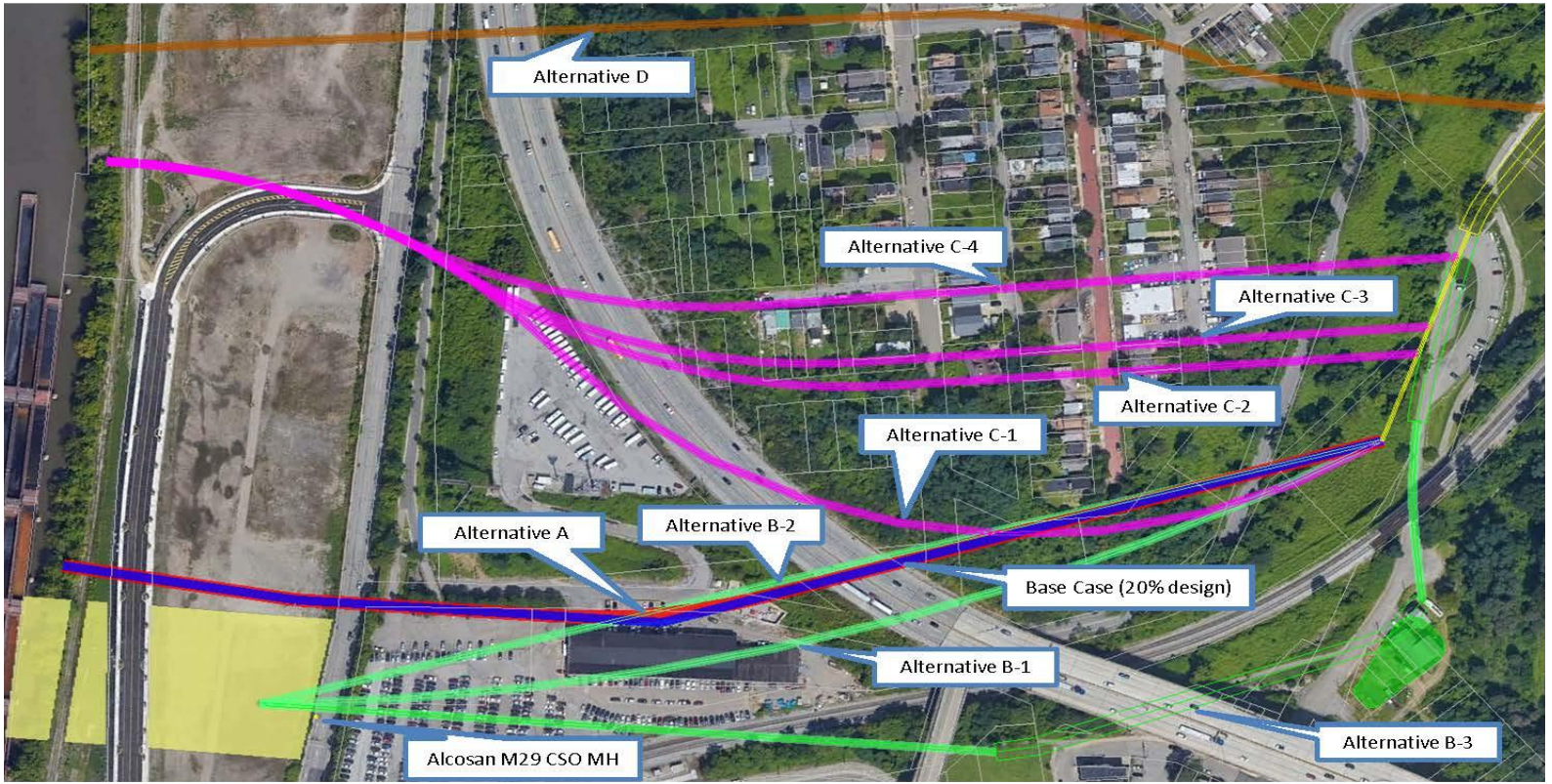


STREAM AND WETLAND DELINEATION

WATERSHED EXPANSION ANALYSIS



TUNNEL ALTERNATIVES ANALYSIS

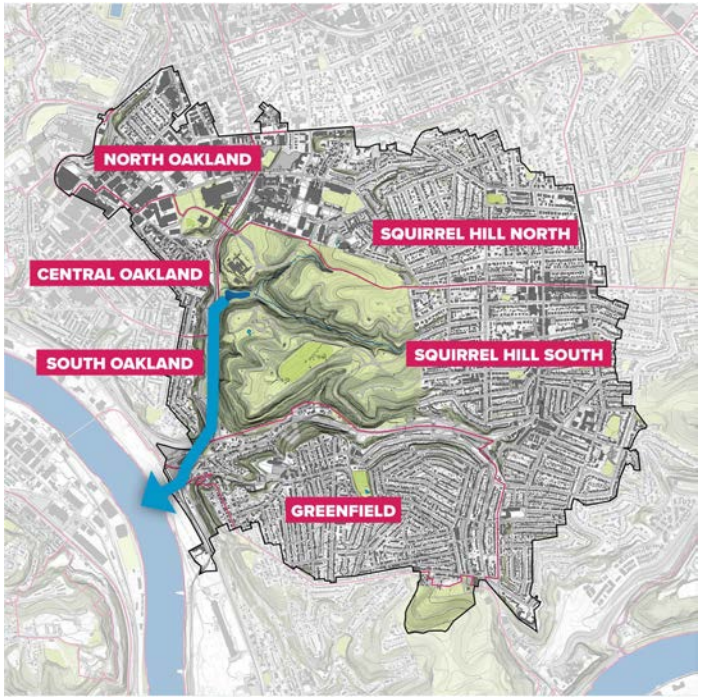


NEXT STEPS

NOVEMBER 15, 2018
PUBLIC MEETING, TBD

EARLY 2019
FINAL ENGINEERING & DESIGN
TWO PUBLIC MEETINGS

LATE 2019-2020
BID, CONSTRUCTION & COMMISSION



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