

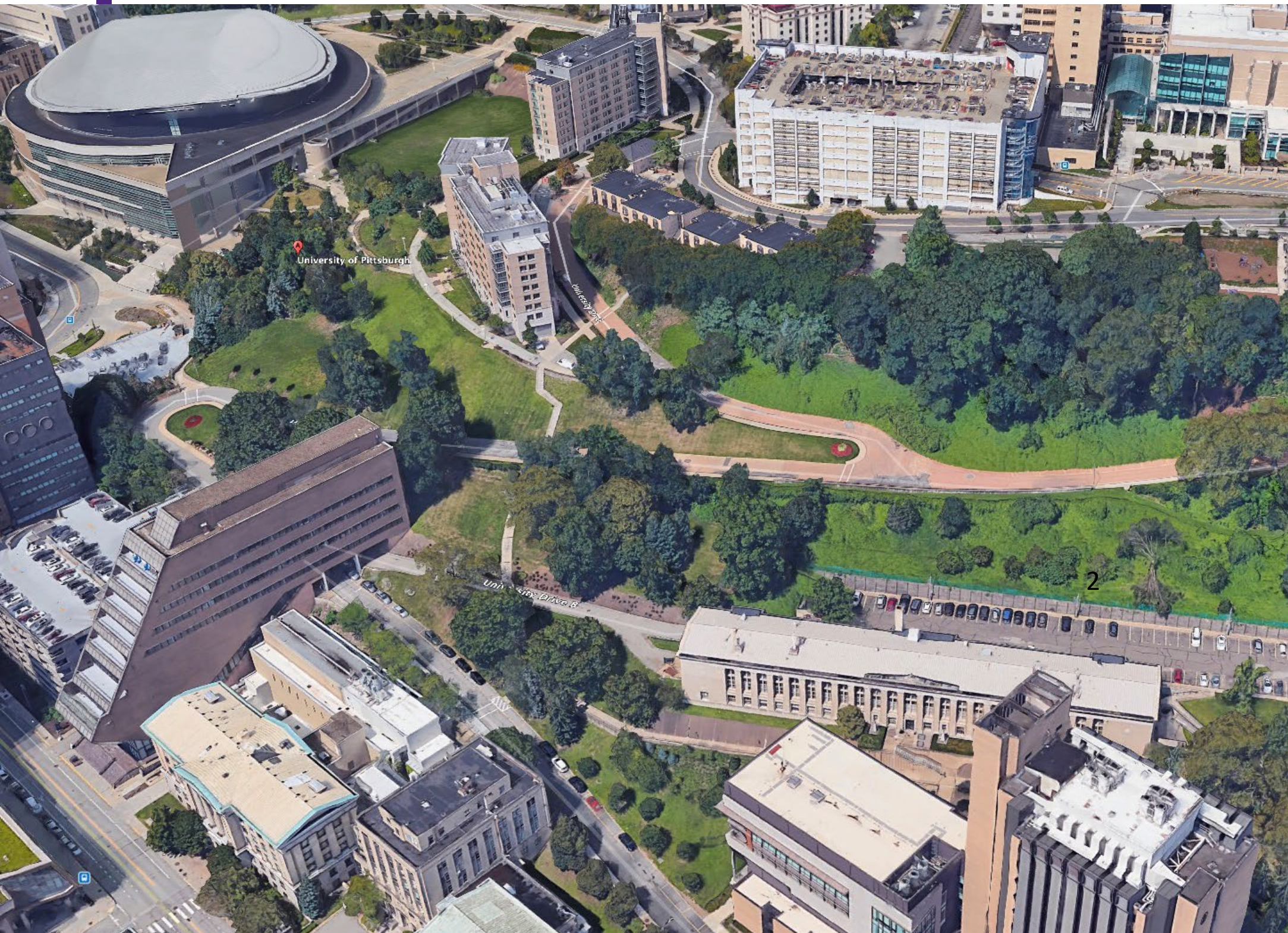
# University of Pittsburgh

## Storm Water Master Plan

### Storm Water Re-Use

Oakland Wide Community Meeting May 25, 2021

# Hillside Today



# Opportunities

Human engagement with the landscape

Expand usable outdoor space

Enhance ADA accessibility

Achieve sustainability goals and economic benefits from active stormwater reuse

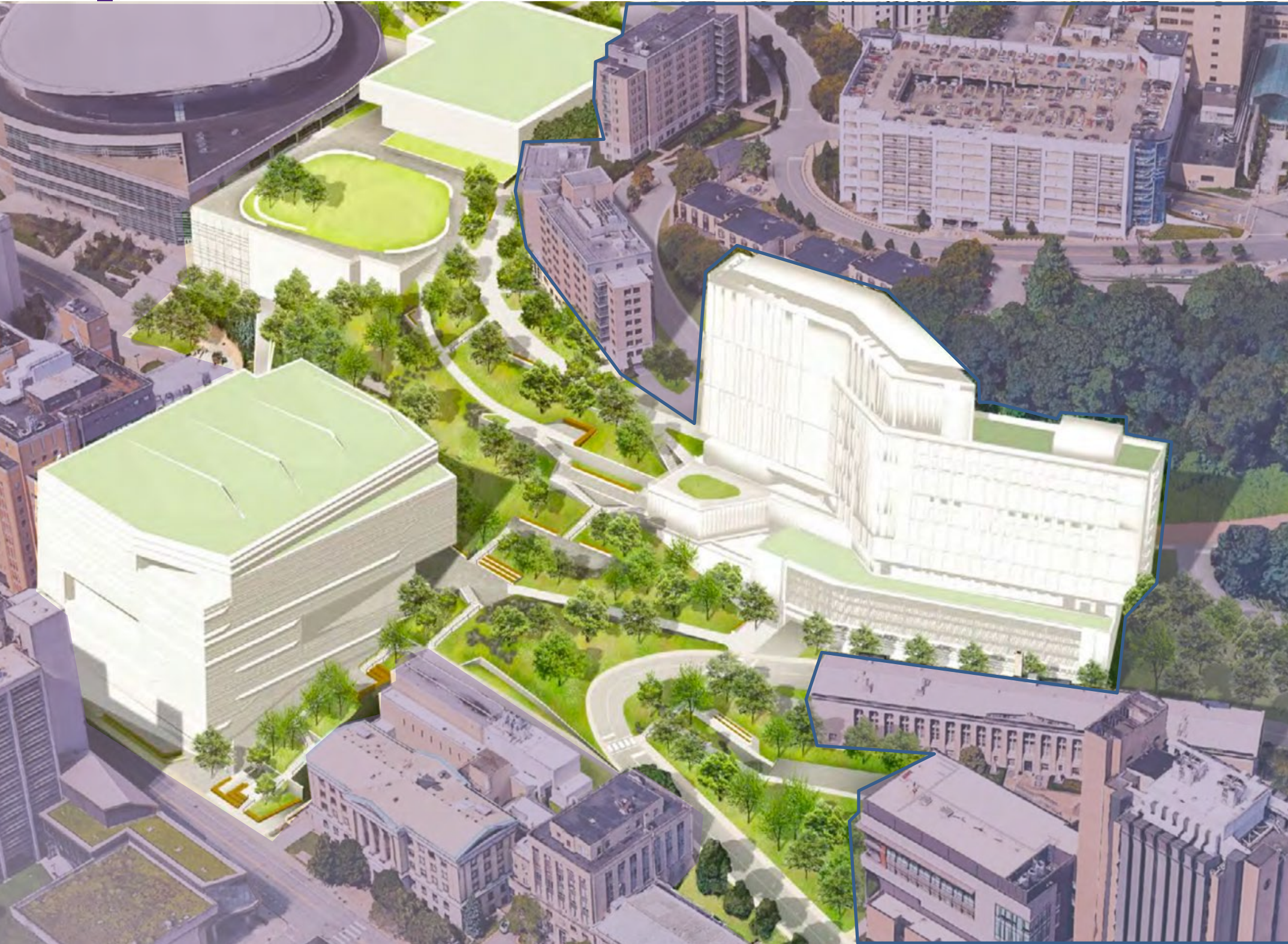
Improve stability of hillside;

sustainable re-forestation 3

Improve safety with dedicated pedestrian and vehicle pathways

Improve campus appearance

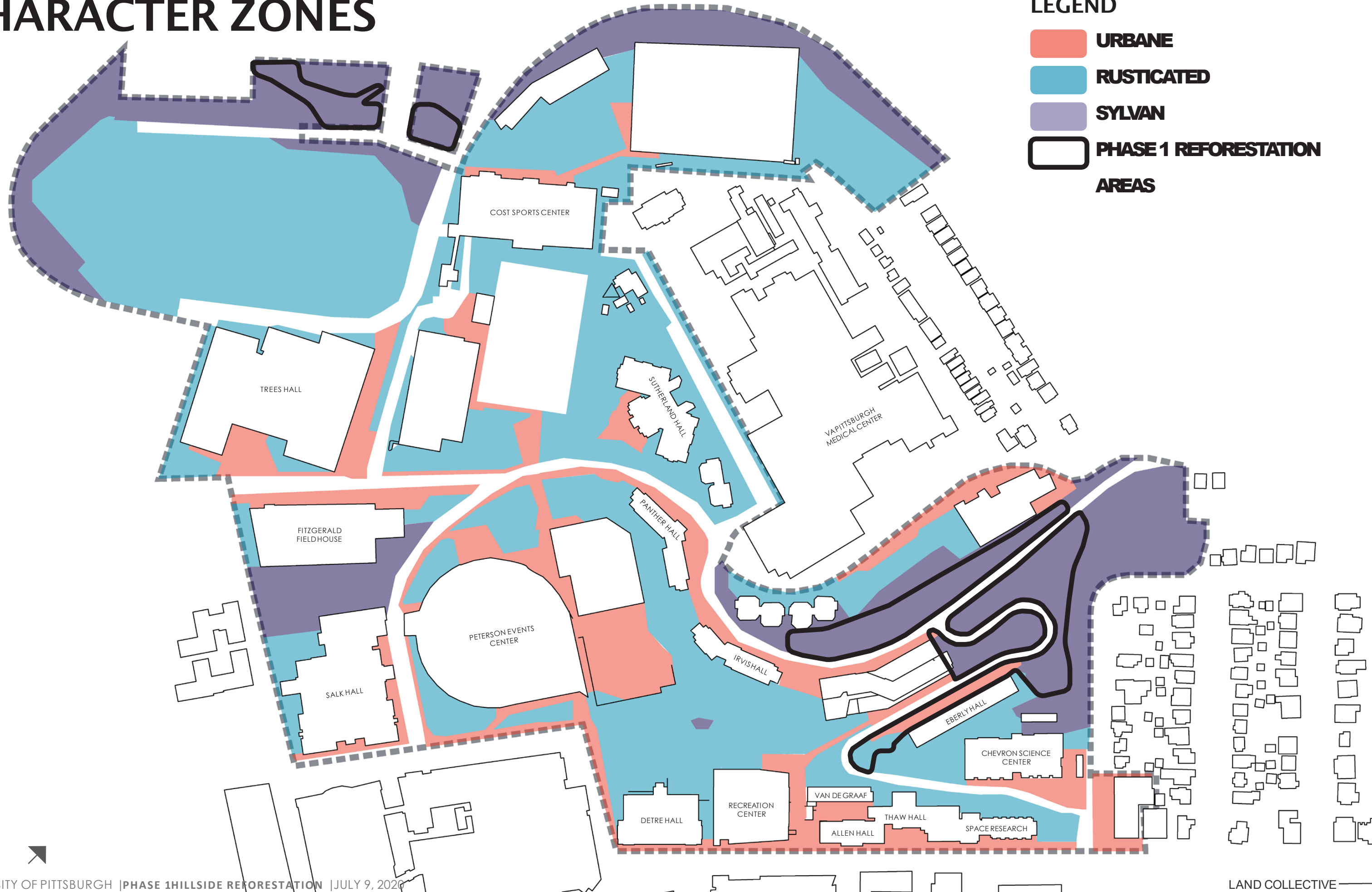
# Hillside Transformed



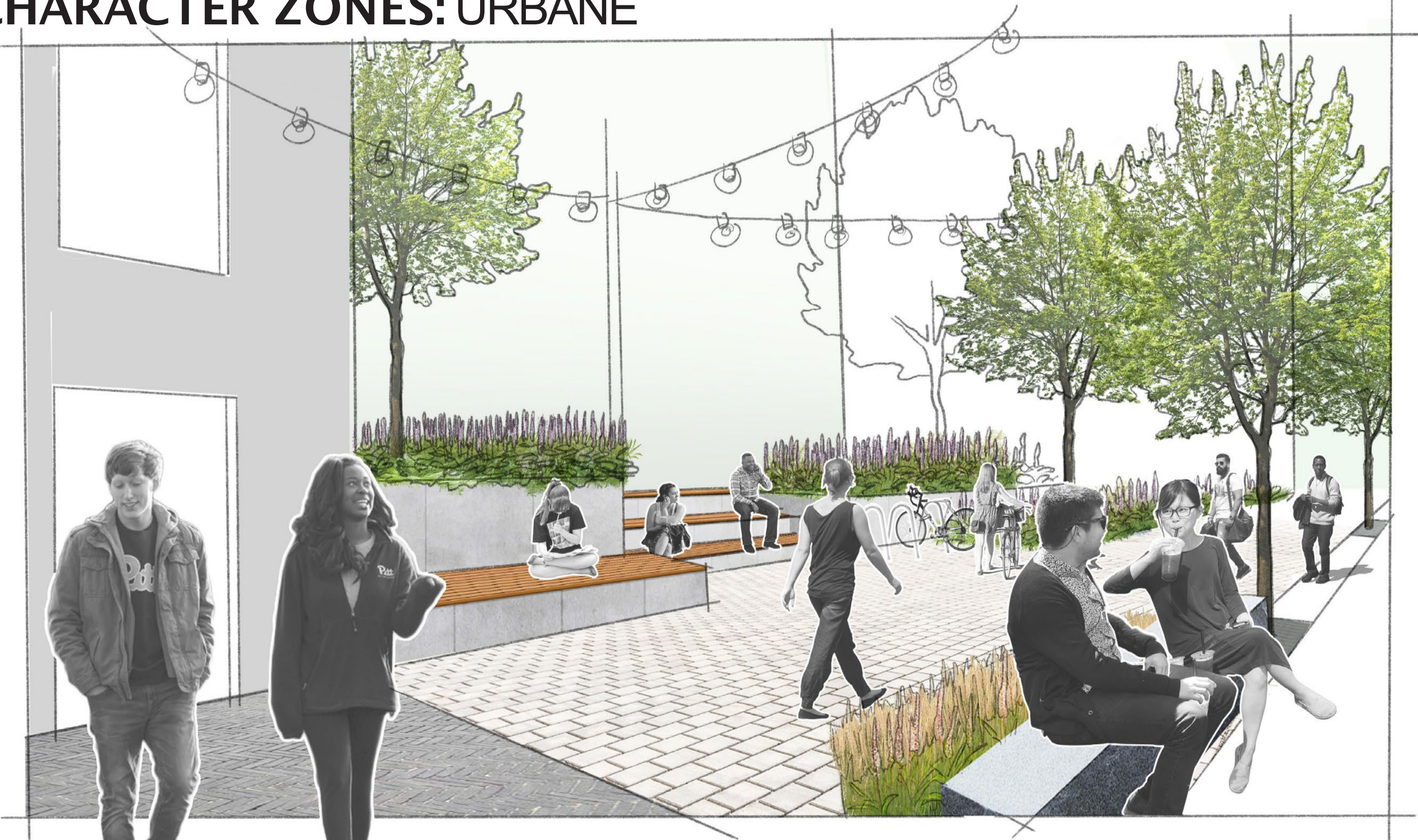
# CHARACTER ZONES

## LEGEND

-  **URBANE**
-  **RUSTICATED**
-  **SYLVAN**
-  **PHASE 1 REFORESTATION AREAS**



# CHARACTER ZONES: URBANE



# CHARACTER ZONES: RUSTICATED

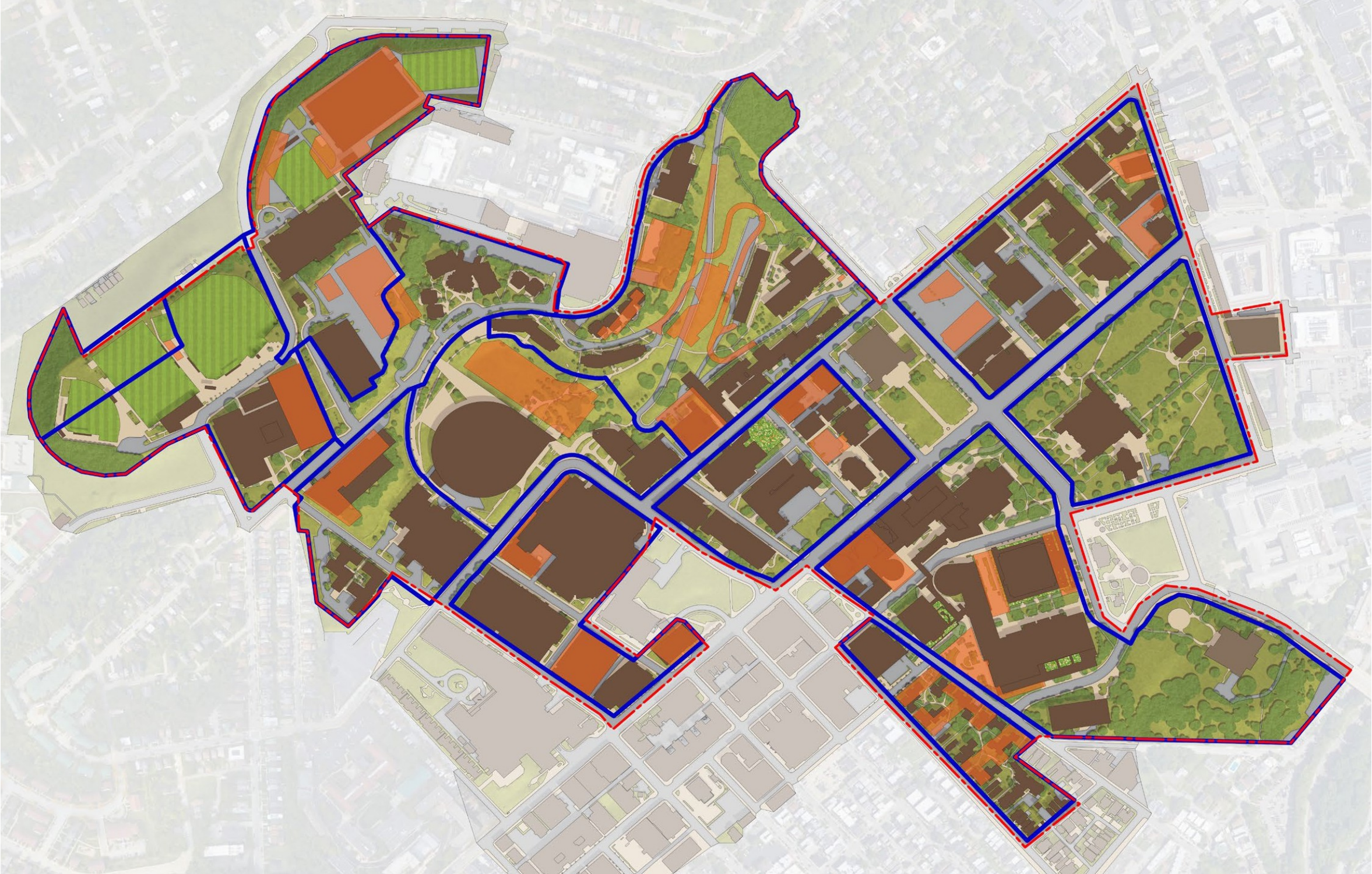


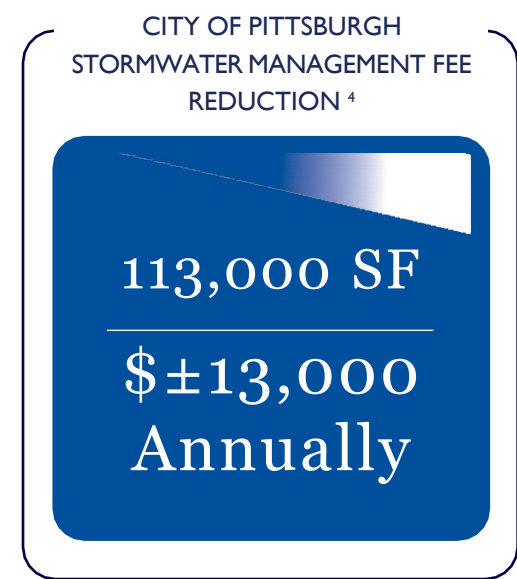
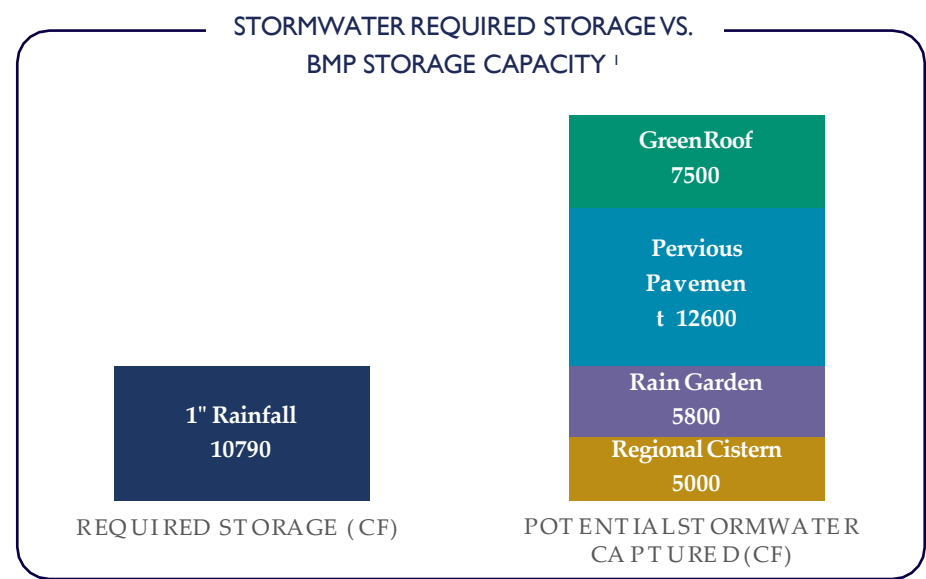
# CHARACTER ZONES: SYLVAN



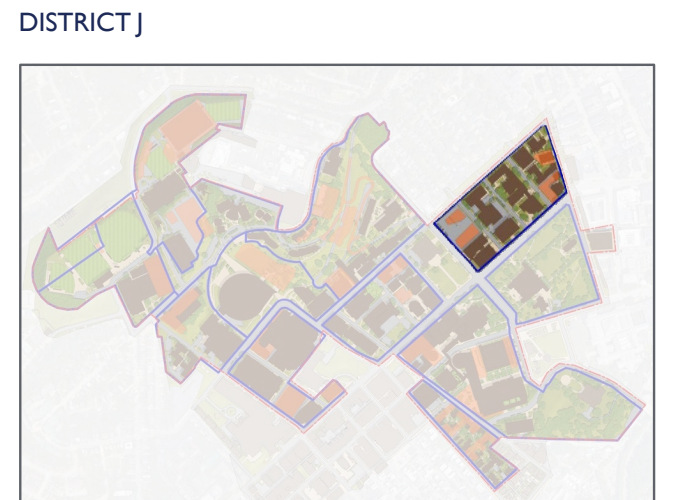


# Stormwater Master Plan





PROJECT IDENTIFIER	PROJECT DESCRIPTION
2A	INFORMATION SCIENCES REDEVELOPMENT
2B	RA LOT SITE
9A	ONE BIGELOW



<sup>1</sup>Based on coverage condition only. Square feet area and individual BMPs are not necessarily cumulative.  
<sup>2</sup>Underground stormwater detention is shown for space allocation purposes only.  
<sup>3</sup>Street trees only provide credit towards NPDES BMP credits.  
<sup>4</sup>Based on anticipated code revision per City of Philadelphia Stormwater Ordinance

# LOCAL COMMUNITY ASSET



Integrated into existing neighborhood



Research, learning, and education



*Proposed Improvements on Bigelow Boulevard  
Image Source: University of Pittsburgh, Campus Master Plan 2019*

Improved stormwater management at campus-wide level

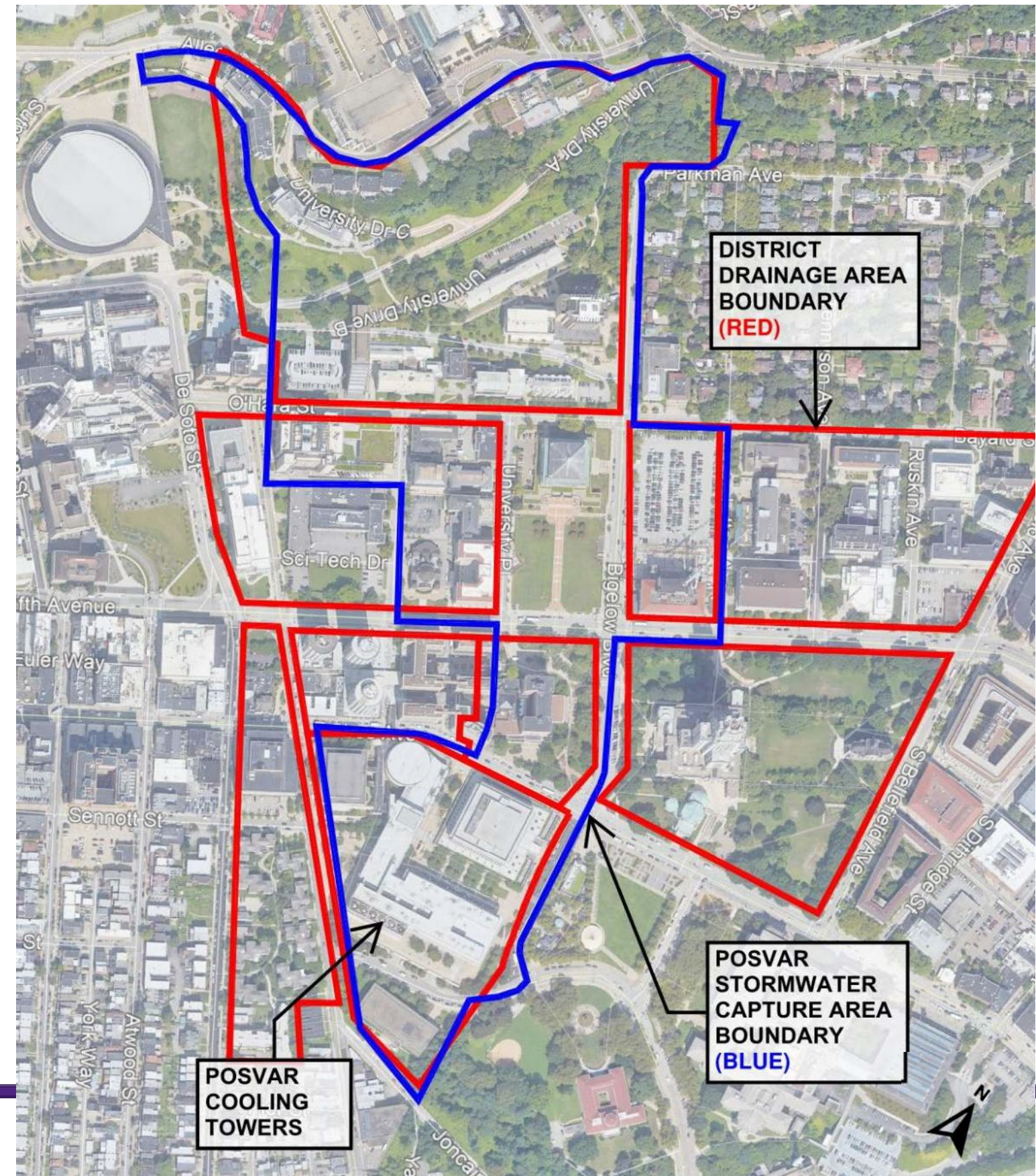
# POSVAR STORMWATER REUSE PROJECT

- **OBJECTIVE**

Provide volume control and obtain stormwater credit by stormwater collection and reuse at the Posvar Cooling Towers.

- **APPROACH**

1. Identify areas that can be captured
2. Estimate Runoff Volume
3. Conceptual Collection and Conveyance
4. Posvar Storage Site



# WHY STORMWATER REUSE?



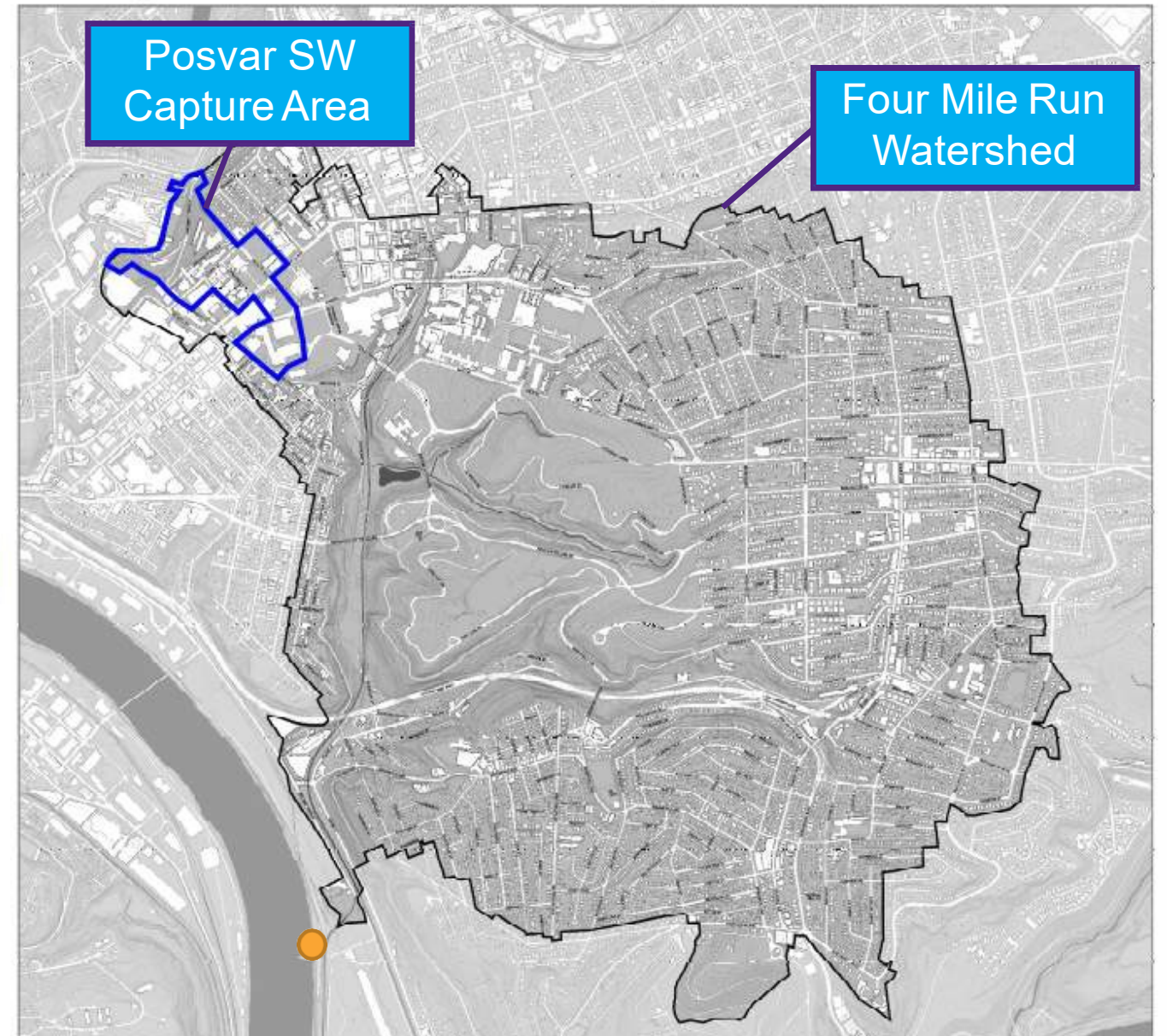
## Water Conservation

*Reduces water use and SW Runoff by at least 6.9 million gallons per year\**

Four Mile Run Stormwater Improvement Project

PGH<sub>2</sub>O Pittsburgh Water & Sewer Authority

4 Impervious Surfaces Roads, Buildings, and Parking Lots



## Stormwater Runoff Reduction

Image Source: <http://4mr.org/background/map-room/>

\*Based on 0.7" typical rain event at 50 times / yr

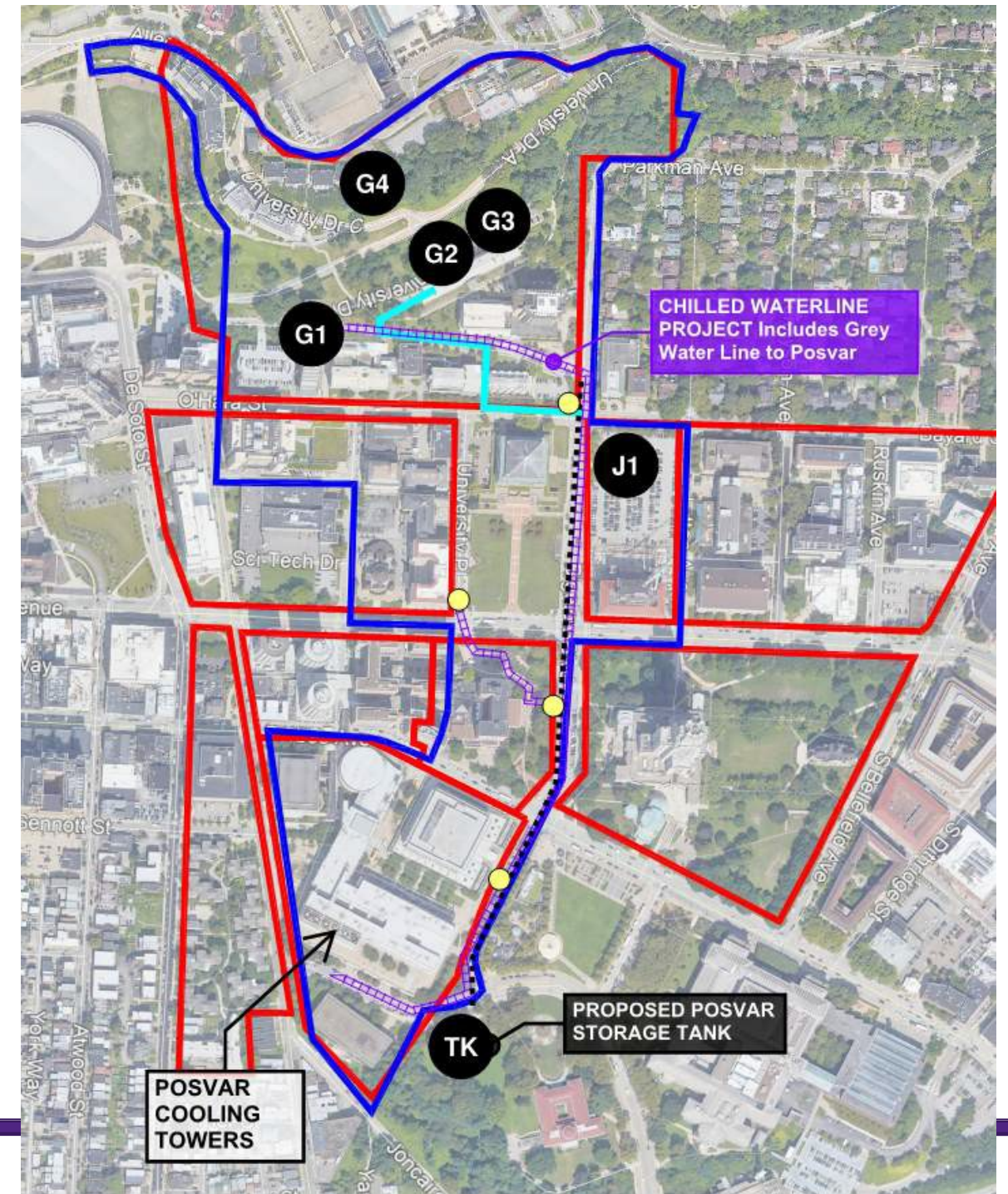
# PRECIPITATION EVENTS

Precipitation Event	Inches	# occurrences/ year
Avg Precipitation per Event	0.7	50
1" Storm (Meets Code Requirement)	1.0	8

Data Source: NOAA Climate Data Dailies, STAUSW00014762  
Pittsburgh Allegheny Co Airport, 2014-2019

# CONCEPTUAL COLLECTION AND CONVEYANCE

- Collect and Store of 1" Runoff volume at District G and J Projects
- Collect and convey from remaining districts
- Gravity flow through new "grey" waterline to proposed Posvar Storage Site
- Buried Detention System sized for Maximum Average Daily Demand (210,000 gallon)
- Inlet debris at collection sites
- Divert flows greater than the 1" rainfall event to storm or combined sewer lines



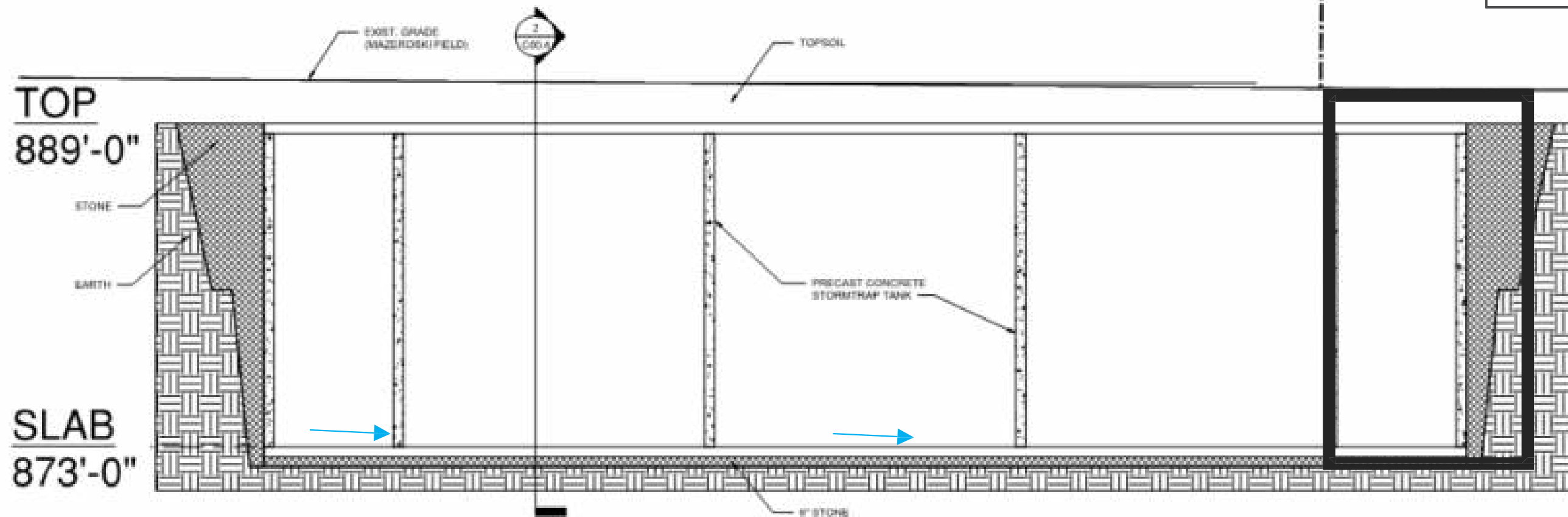
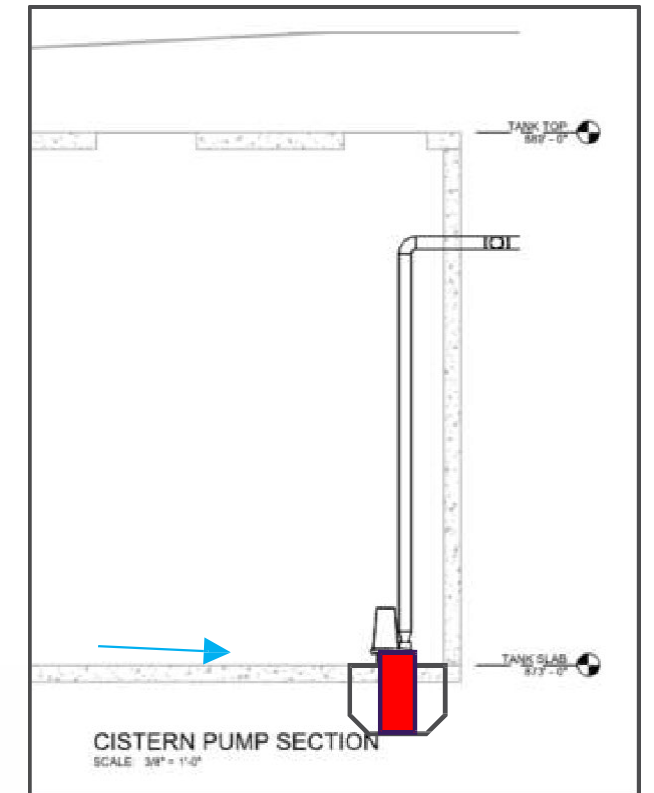
# POSVAR STORAGE TANK CONCEPT, 210,000 Gallons





# POSVAR STORAGE SECTION

- Foundation Design Considerations
- Provide tank draining controls via pump
- Tank underdrain



TANK SECTION-1  
SCALE: 1/4" = 1'-0"

# University of Pittsburgh

## Questions About Stormwater