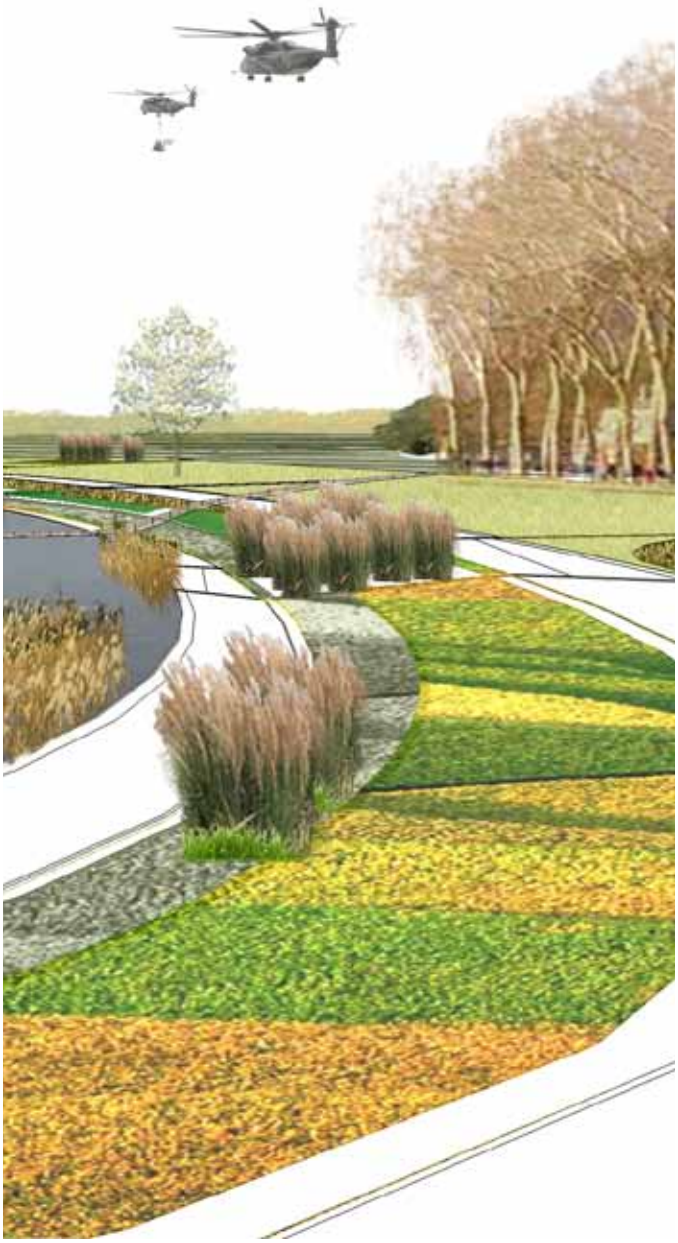
UNIVERSITY AVE., PITTSBURGH NEIGHBORHOOD



INTRODUCTION

The BeltLine Subarea 2 site lies within the South River Watershed, in the upper portion of the Ocmulgee River Basin, draining eventually into the Atlantic Ocean. The McDaniel Branch (also referred to as the North Branch of the South River) has been designated as impaired by the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources.

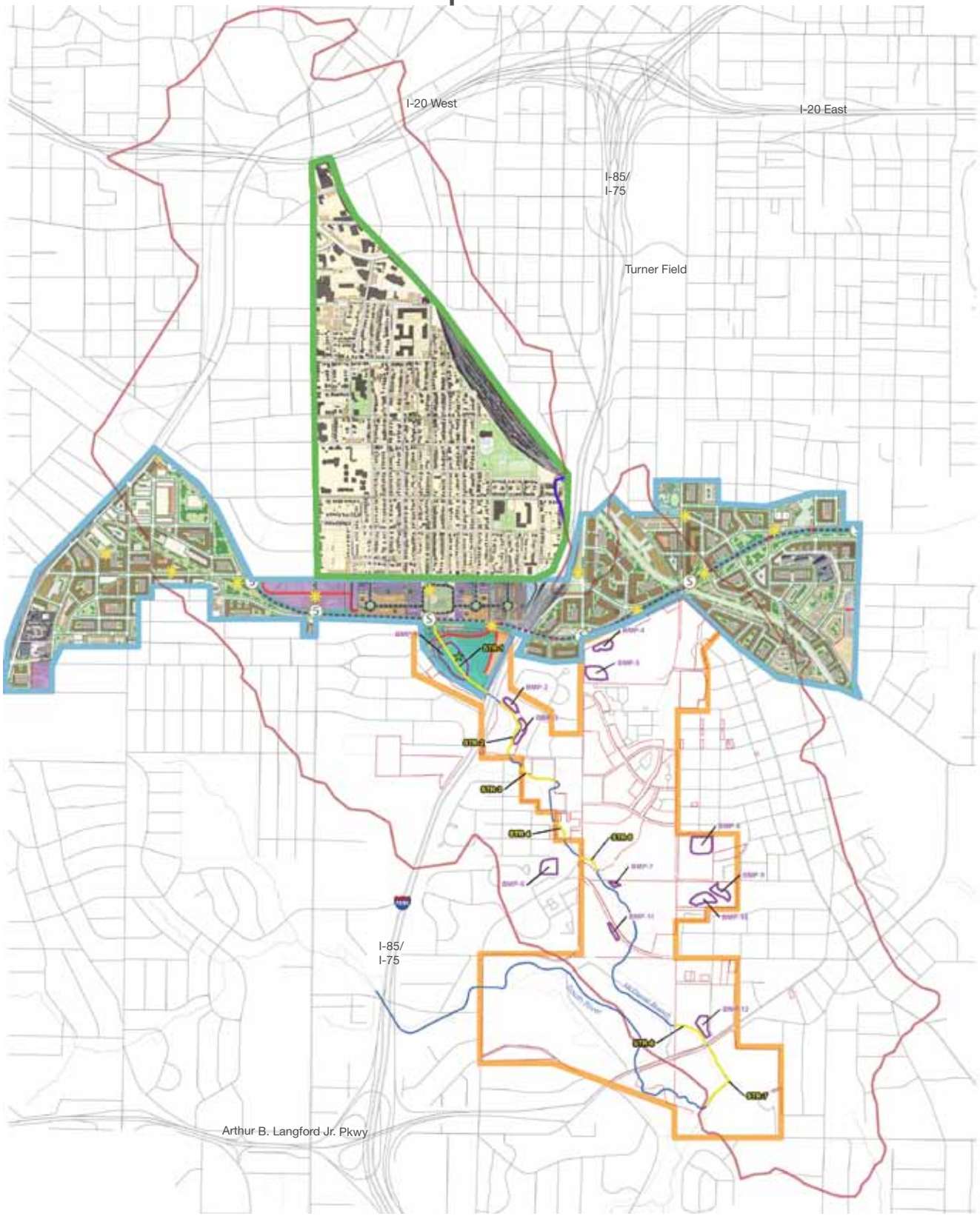
The site is located on University Avenue SW between the Downtown Connector and Metropolitan Parkway SW. The site is located within the Pittsburgh neighborhood, which, despite sitting above the 100-year flood plain, experiences occasional localized flooding due to inadequate and insufficient stormwater infrastructure. The McDaniel Branch was impacted by several stormwater outfalls and past development on the site and in the watershed, resulting in an overly wide channel with vertical eroding banks. While the previous combined sewer overflow in this area was separated, there is not enough capacity for what is required of the pipes.

The Department of Watershed Management completed a Watershed Improvement Plan for the McDaniel Branch in 2008, and implementation of this plan is anticipated to be completed in Spring of 2014. The City of Atlanta has prioritized this watershed improvement project because of its location high in the watershed and because the city owns property on both sides of the stream as part of the green corridor. Other plans for the area include the BeltLine Subarea 2 master plan, which includes both proposed mixed-use development and new park spaces. The Preservation of Pittsburgh Neighborhood Master Plan Report, completed in 2012 aims at creating a diverse, mixed-income neighborhood that is environmentally sound.

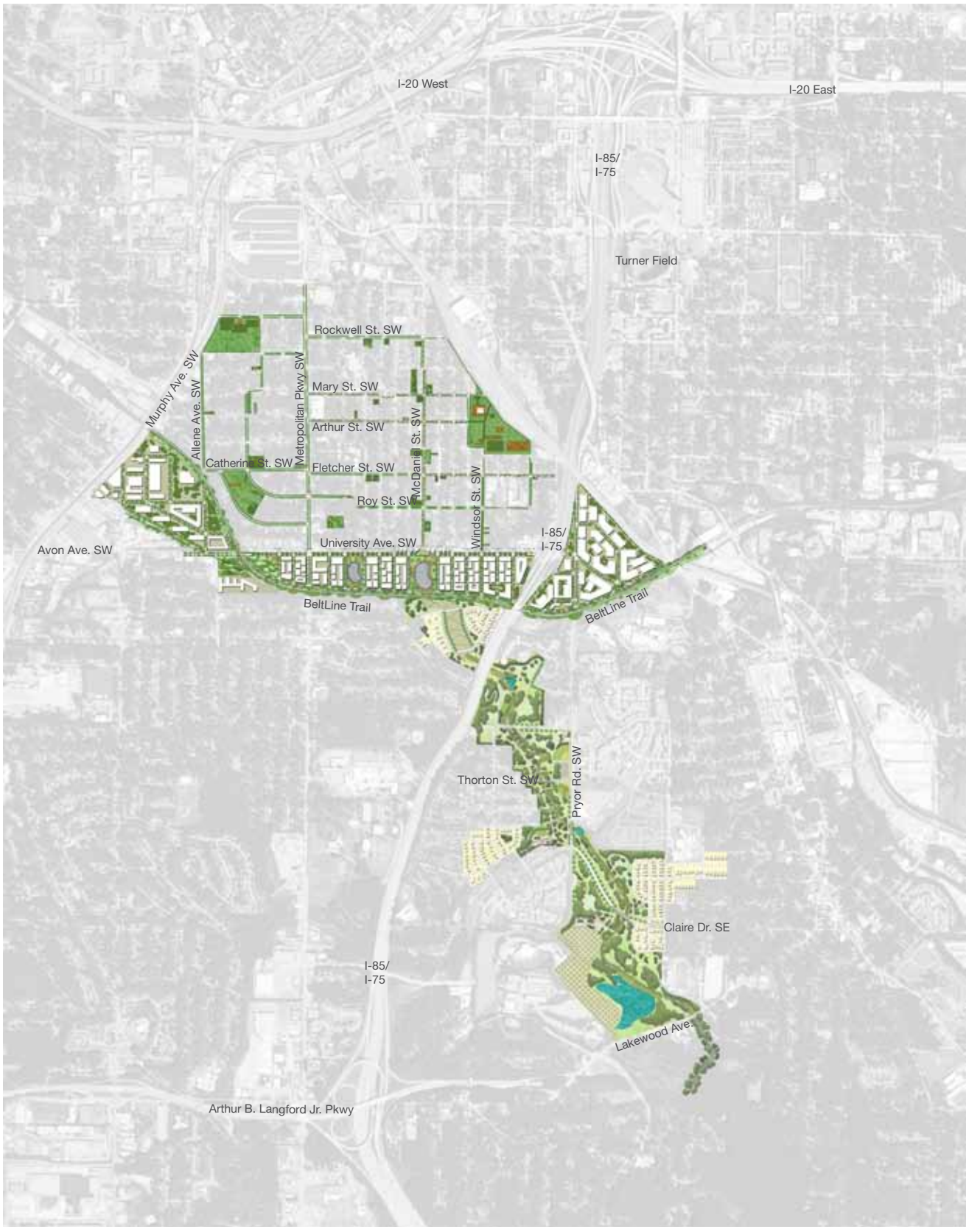
This proposal for BeltLine Subarea 2 begins with an understanding of the site's position in the South River Watershed, the hydrology and its changing characteristics for the next generation, and the relationship of site conditions, stormwater management, and public spaces.

AND THE MCDANIEL CREEK WATERSHED

BeltLine Subarea 2, Pittsburgh Neighborhood Plan, and McDaniel Creek Watershed Improvement Plan



Soft Infrastructure Master Plan



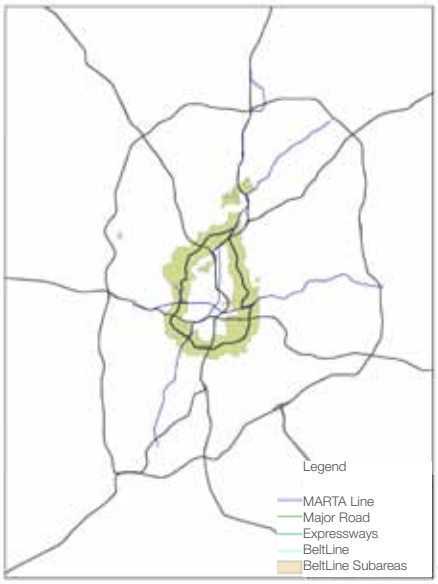
Existing Site Conditions

Topography

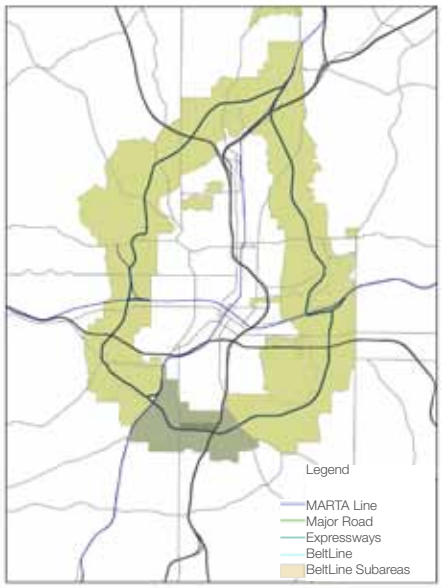
100 year floodplain

Impervious surfaces

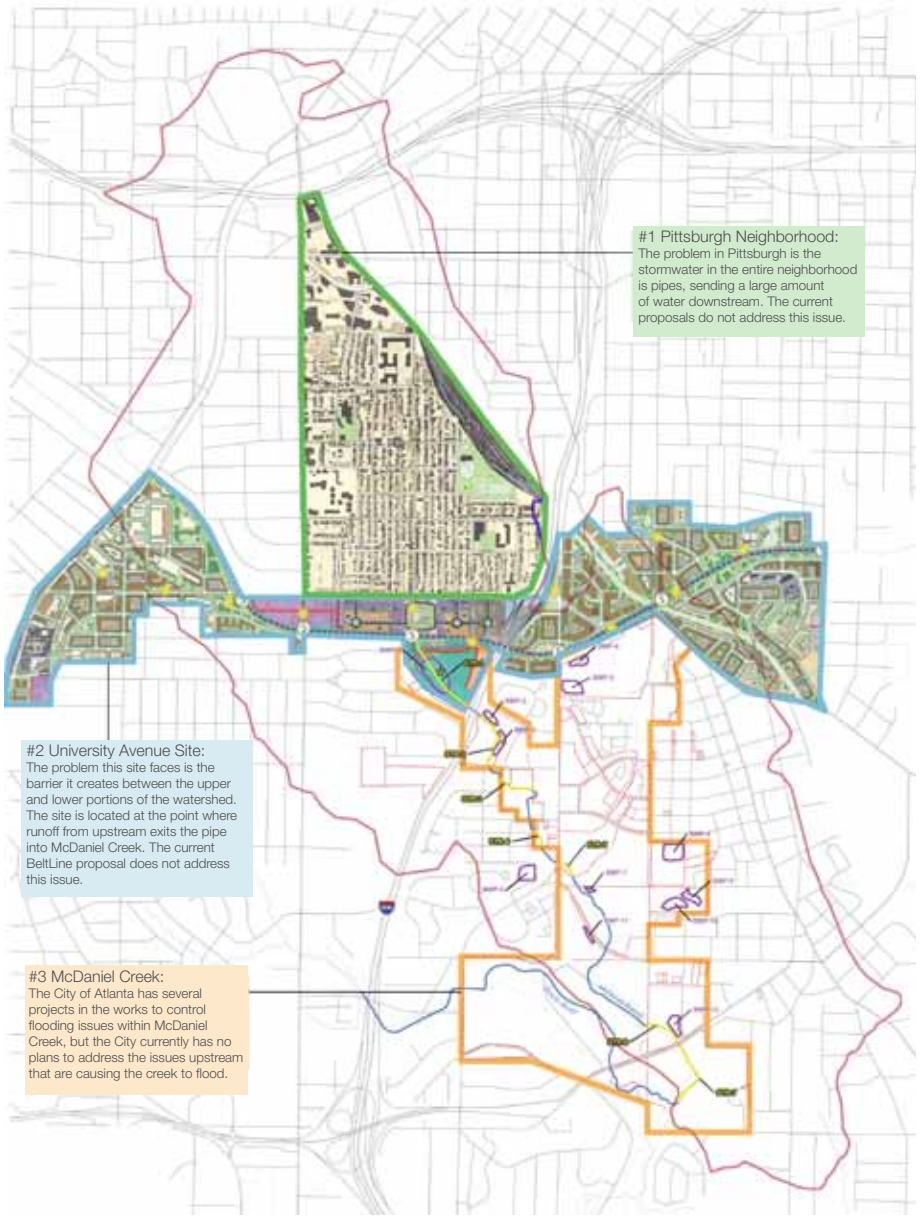
Existing Project Site Conditions



Within the Region

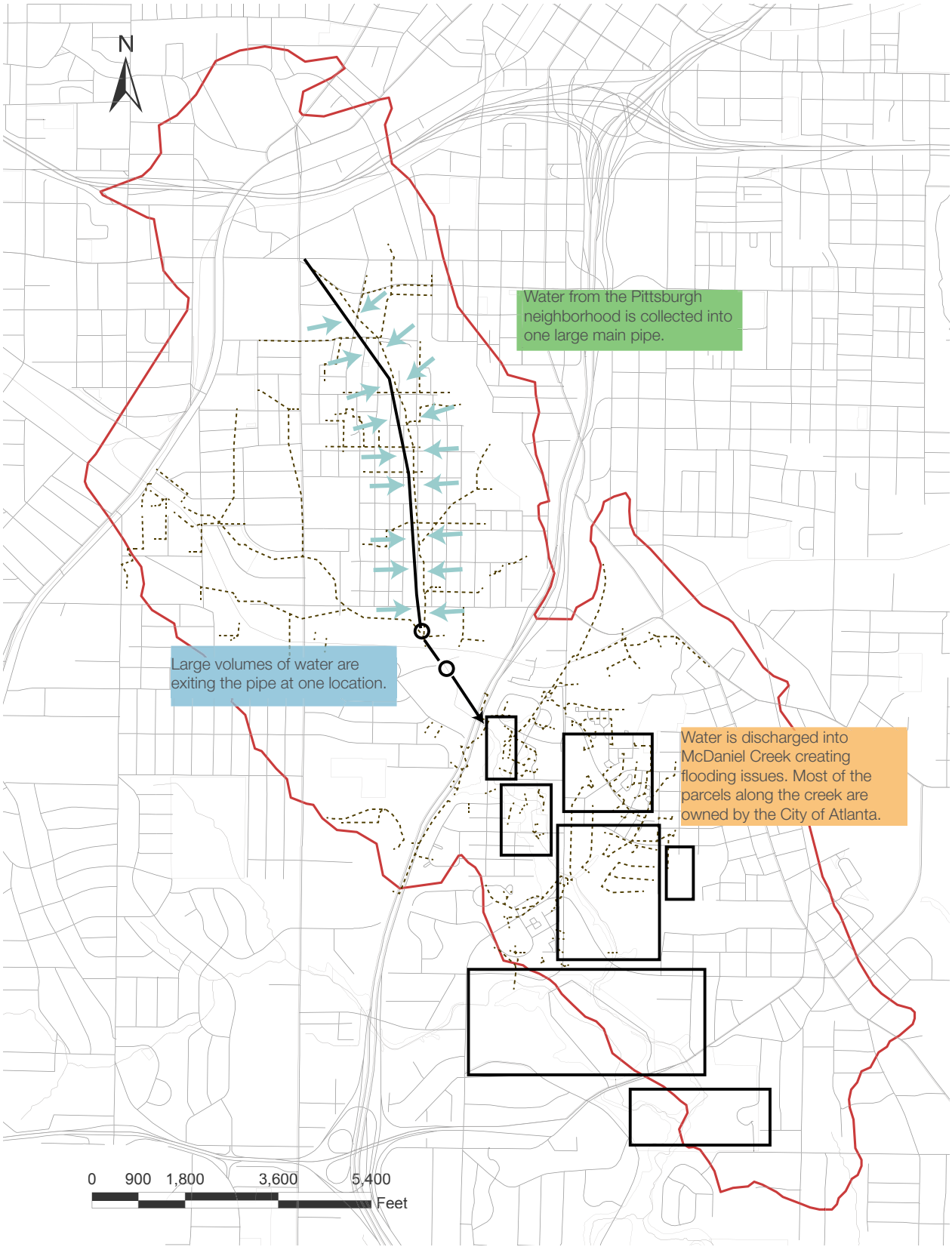


Within the BeltLine

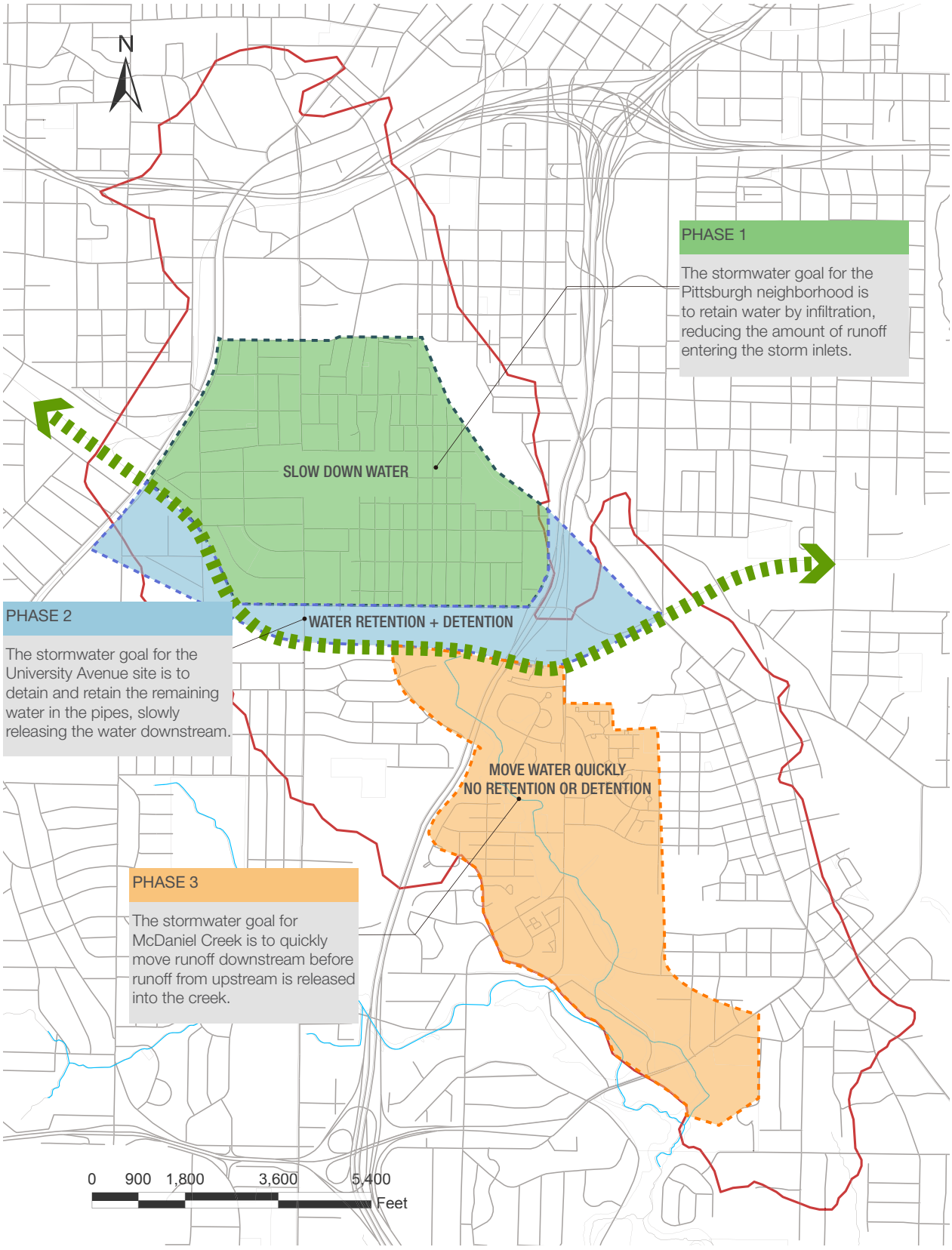


Current Plans

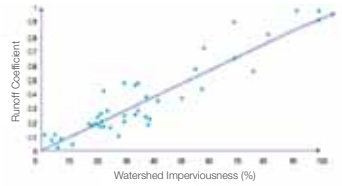
Existing Stormwater Conditions



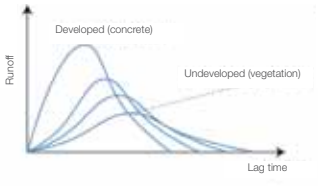
Proposed Stormwater Strategies



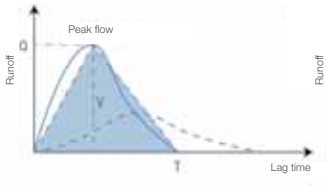
Pittsburgh Neighborhood Soft Infrastructure Strategy



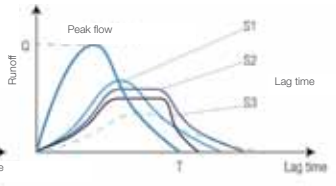
The coefficient relationship between runoff and imperviousness. We know that the runoff coefficient goes up when imperviousness increases. According to peak flow calculation, the higher the imperviousness, the higher the peak flow rate. When imperviousness is greater than 10%, water quality will decrease. This watershed is approximately 46% impervious.



The volumes of runoff for different impervious conditions within the watershed. The goal is to decrease the amount of impervious surfaces to minimize the runoff into McDaniel Creek.



By increasing the lag time, the peak flow is reduced and the volume of water generated during a storm reduces. Currently, the site generates 60 acre feet in a 100 year storm event, 34 acre feet in a 5 year storm event, and 12 acre feet during a 2 year storm event.



Strategy 1: Increase infiltration of water to decrease runoff by 40%

Strategy 2: Retain water in ponds and parks to reduce runoff by 30%

Strategy 3: Move water out of the lower portion of the watershed before the water reaches McDaniel Creek.

Street Type

Vacancy

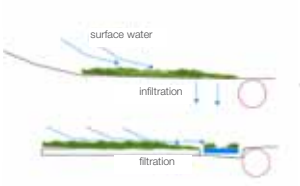
System

Inlets Pipes

Street Retrofits

Vacant Lots Reuse

Slowing down surface water before it enters the pipe



Parks

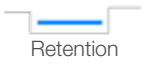
Trees

Vegetation

Pervious Paving

Daylighting Pipes in Streets

Slowing down water without pipes



Retention

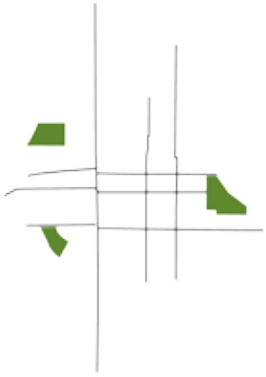
Inlets disuse

Swales

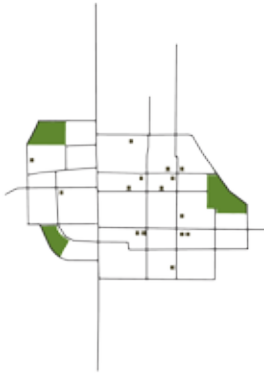
Rain Garden

An outer system collecting water

An inner system collecting water



A grid that connects the systems

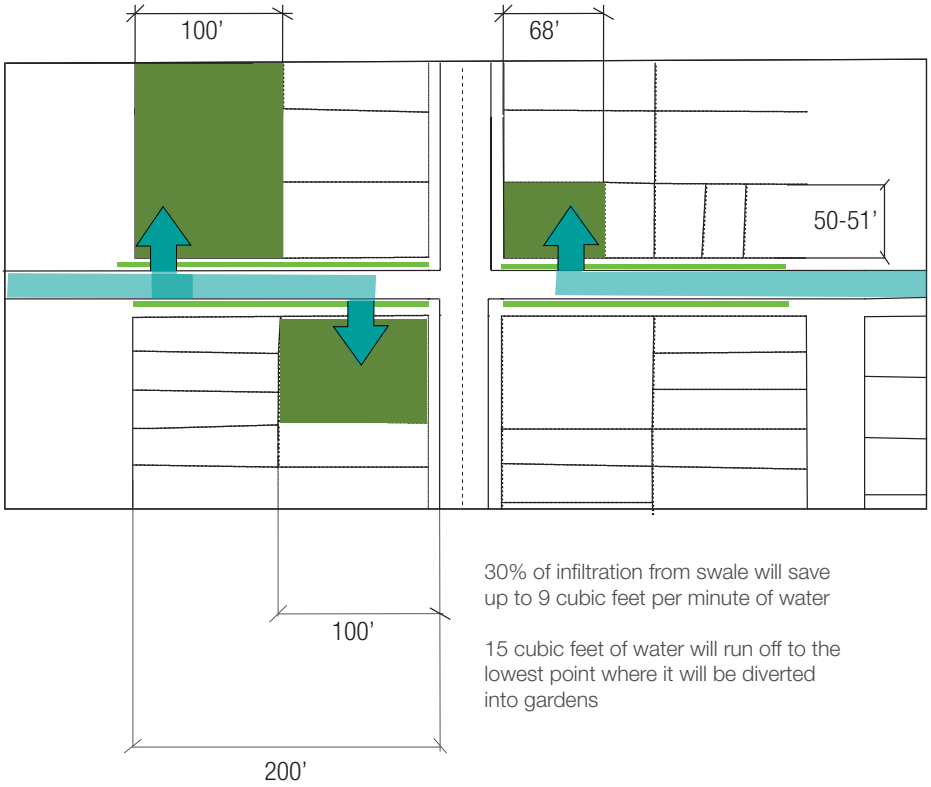


Vacant lots become stormwater mini parks along the grid

Pittsburgh Neighborhood Soft Infrastructure Strategy

Conversion of vacant lot to stormwater mini park

Strategy for water retention within one block
Mary and McDaniel Street



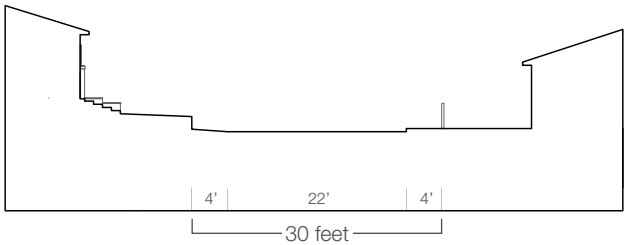
30% of infiltration from swale will save up to 9 cubic feet per minute of water

15 cubic feet of water will run off to the lowest point where it will be diverted into gardens

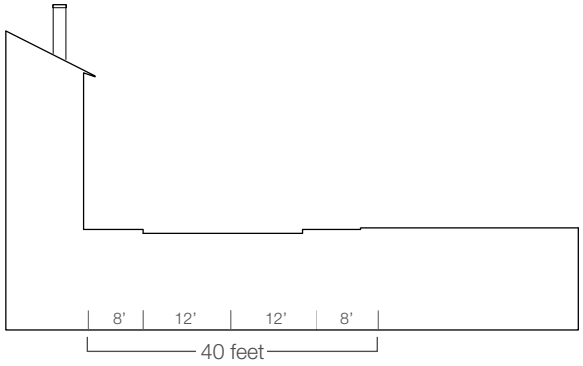
Mary and McDaniel Street

EXISTING STREET DIMENSIONS

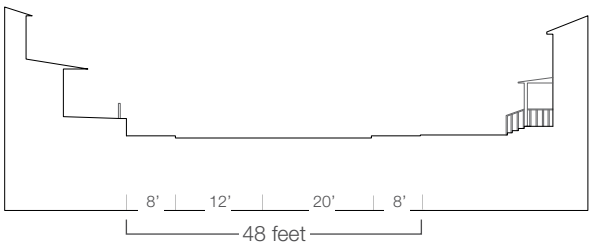
Hubbart Street



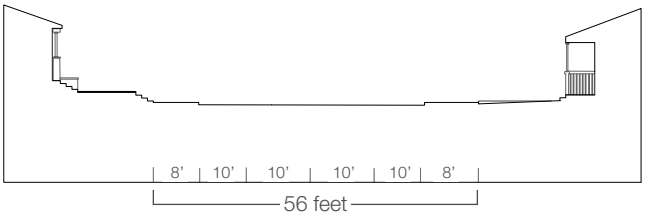
Mary Street



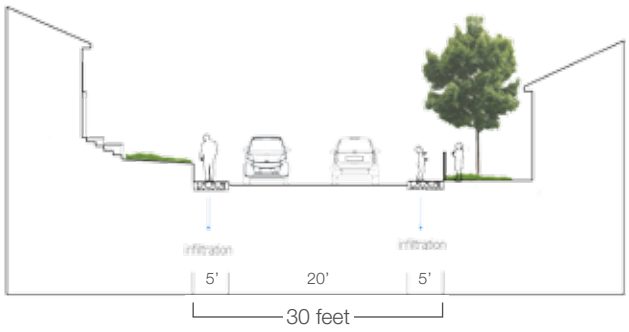
McDaniel Street

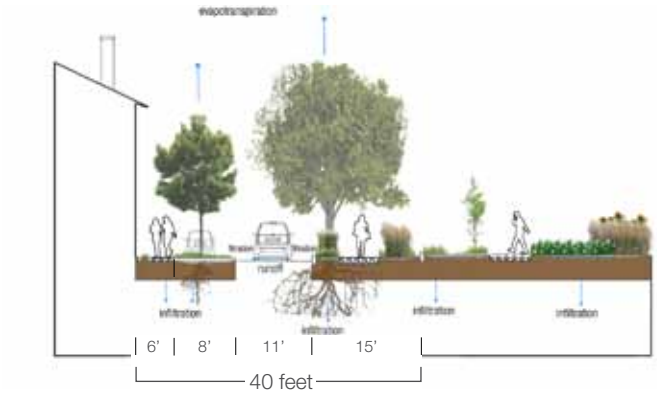


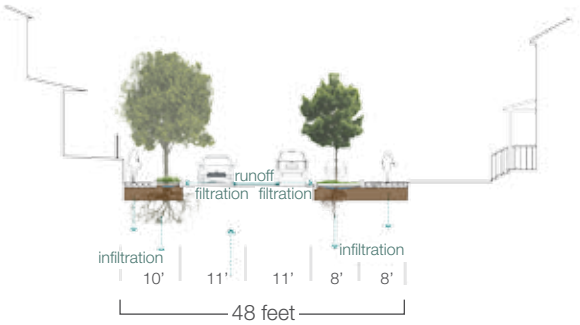
Metropolitan Parkway

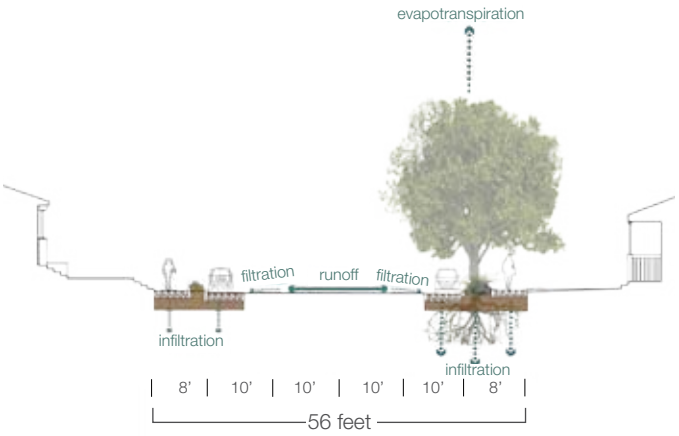


PROPOSED STREET DIMENSIONS

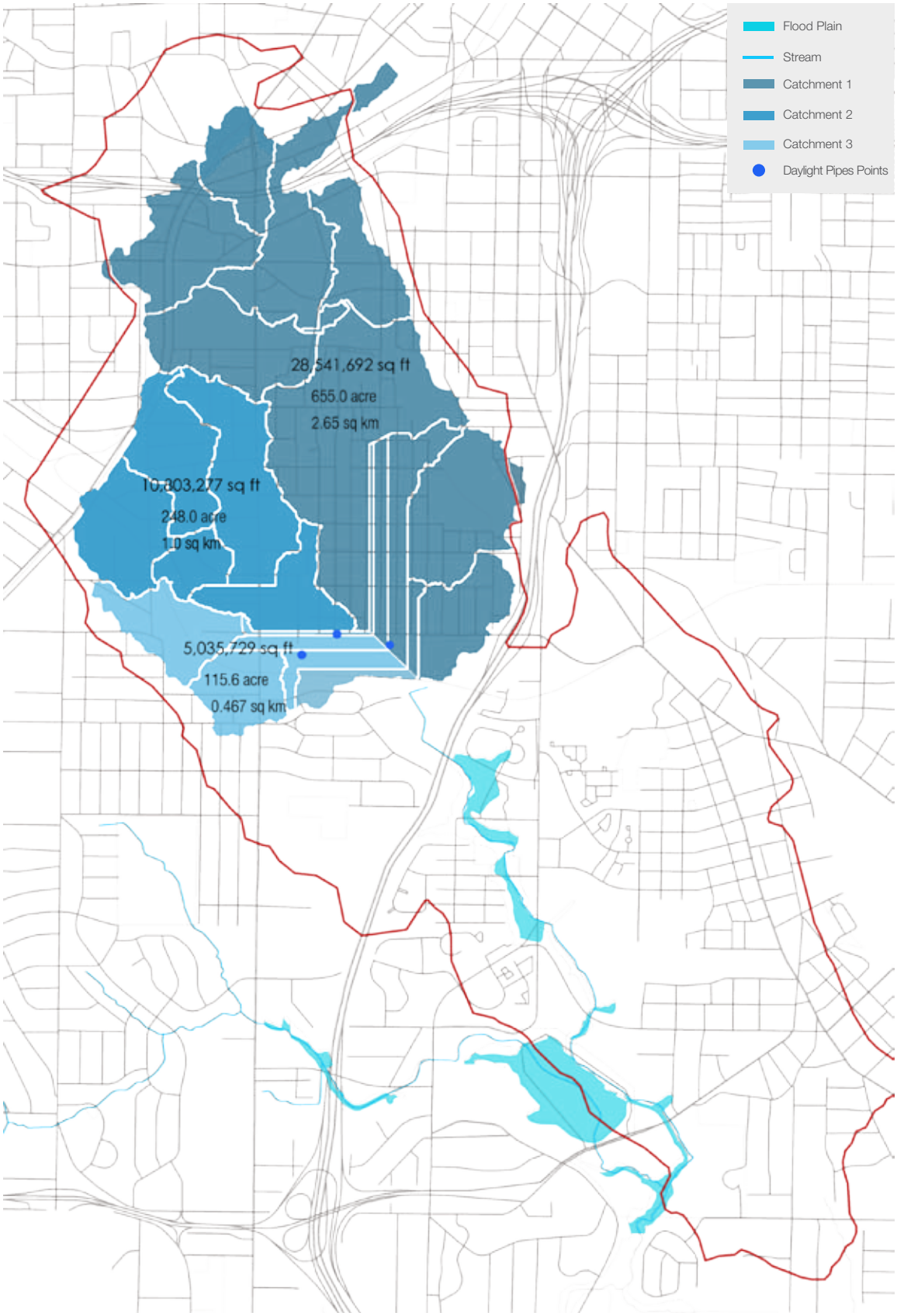


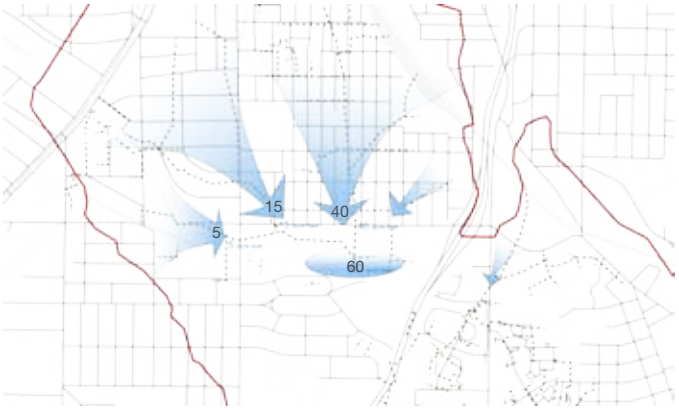






Upper McDaniel Creek Catchment Areas





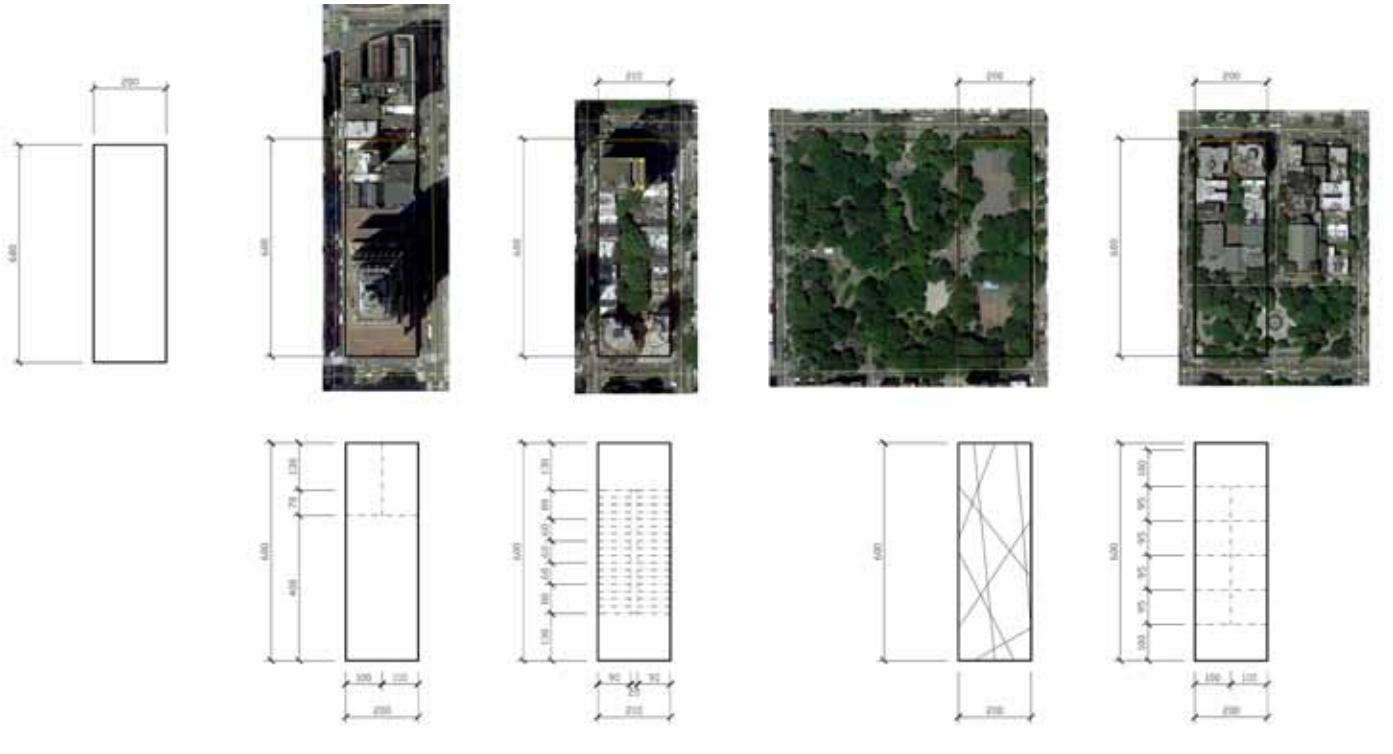
Water Flow and Volume (in acre feet)

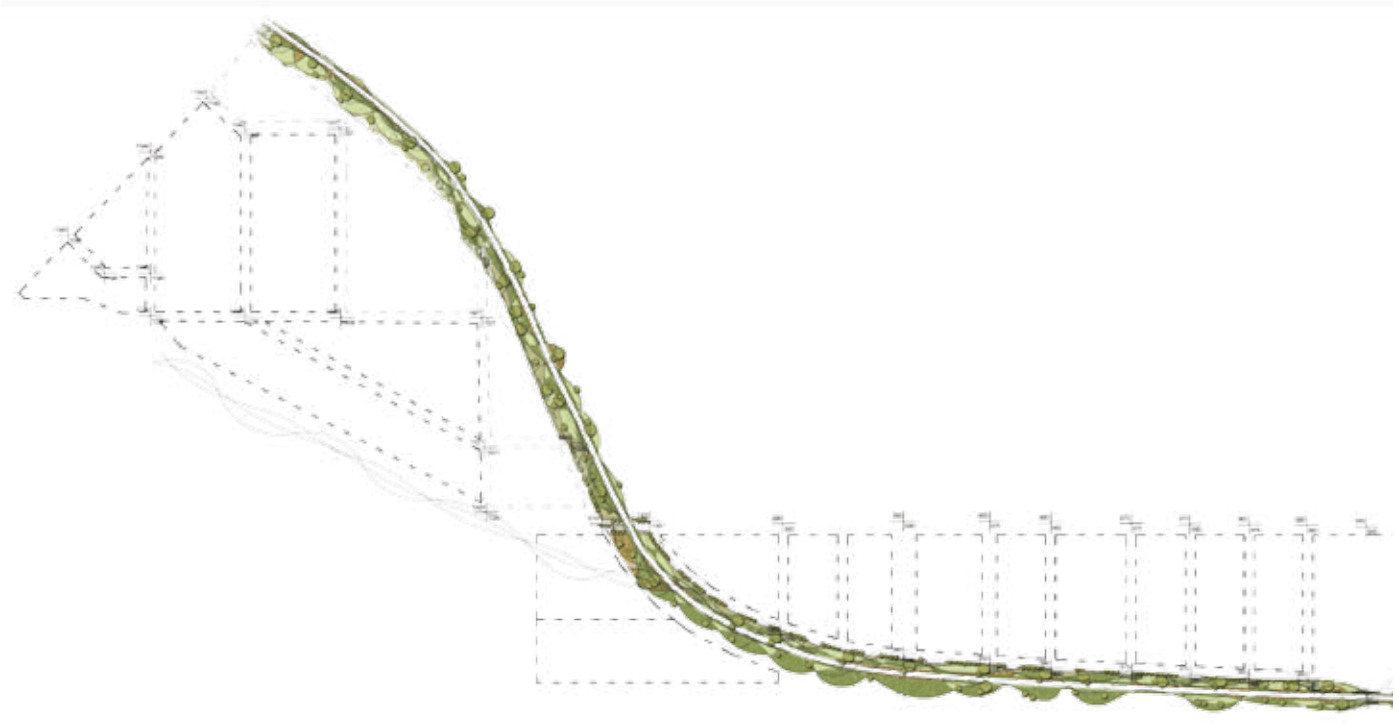
Stormwater Pipes

Existing University Avenue Site

Existing University Avenue Site at Intersection of University Avenue and McDaniel Street

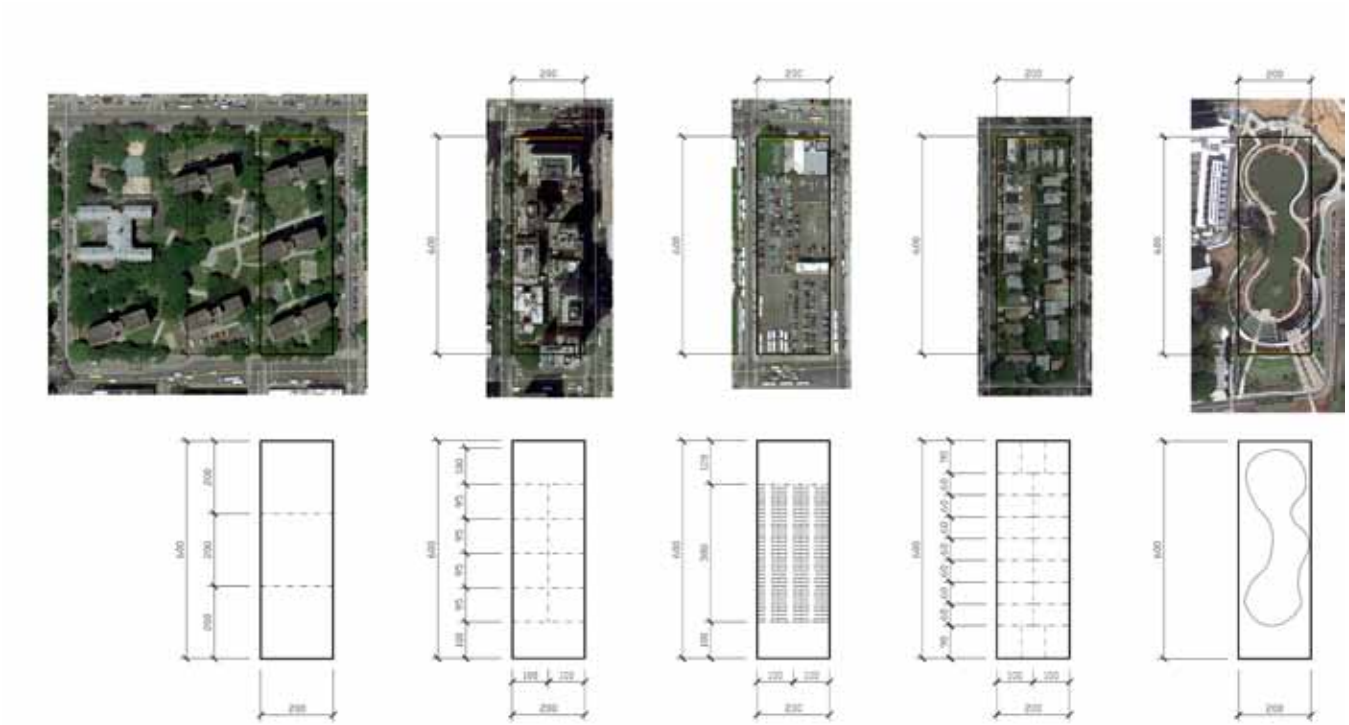
Subdivision Using Manhattan Street Block Dimensions

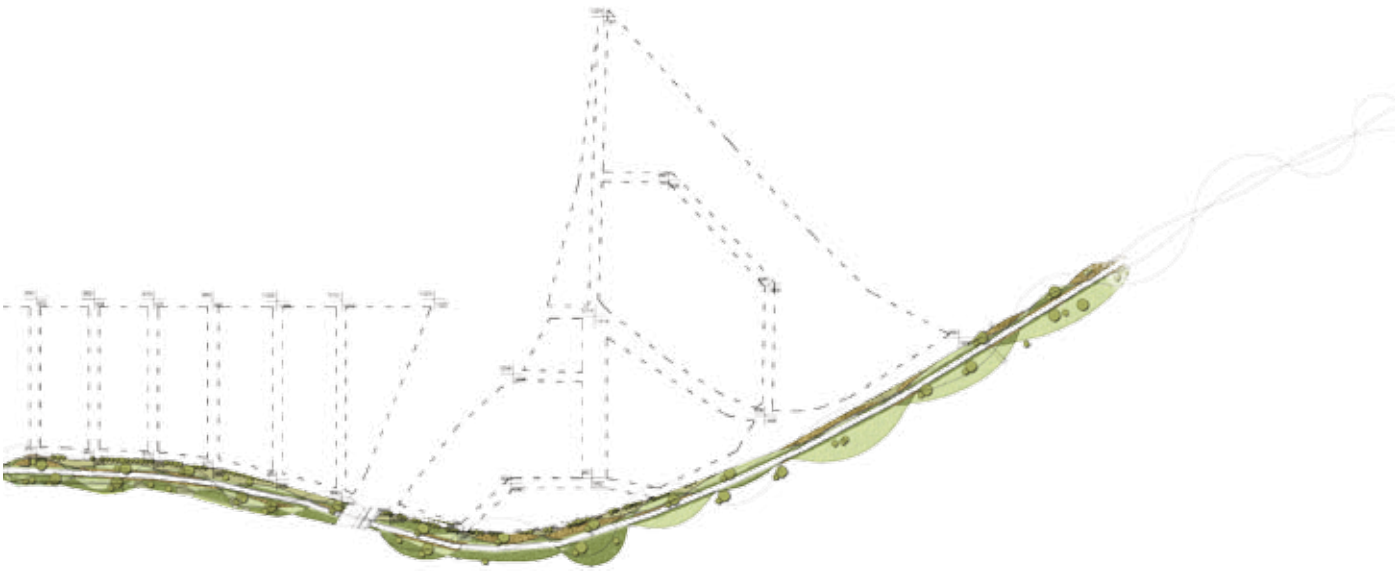




Subdivision Diagram of University Avenue Site

Demonstrating Density and Land Use Flexibility

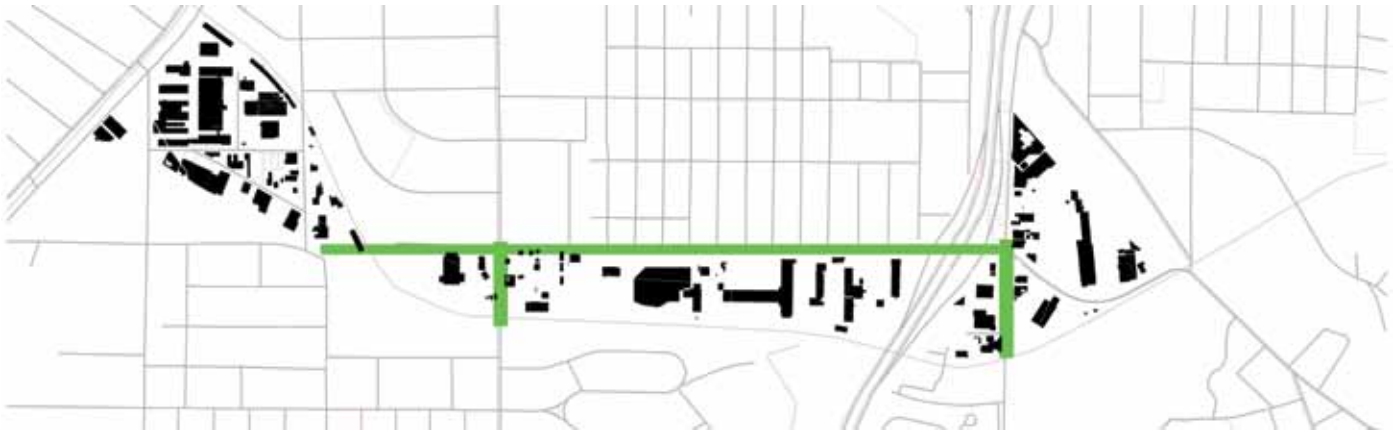




Strategies for University Avenue Site

Daylight Existing Stormwater Pipes

Build Green Streets

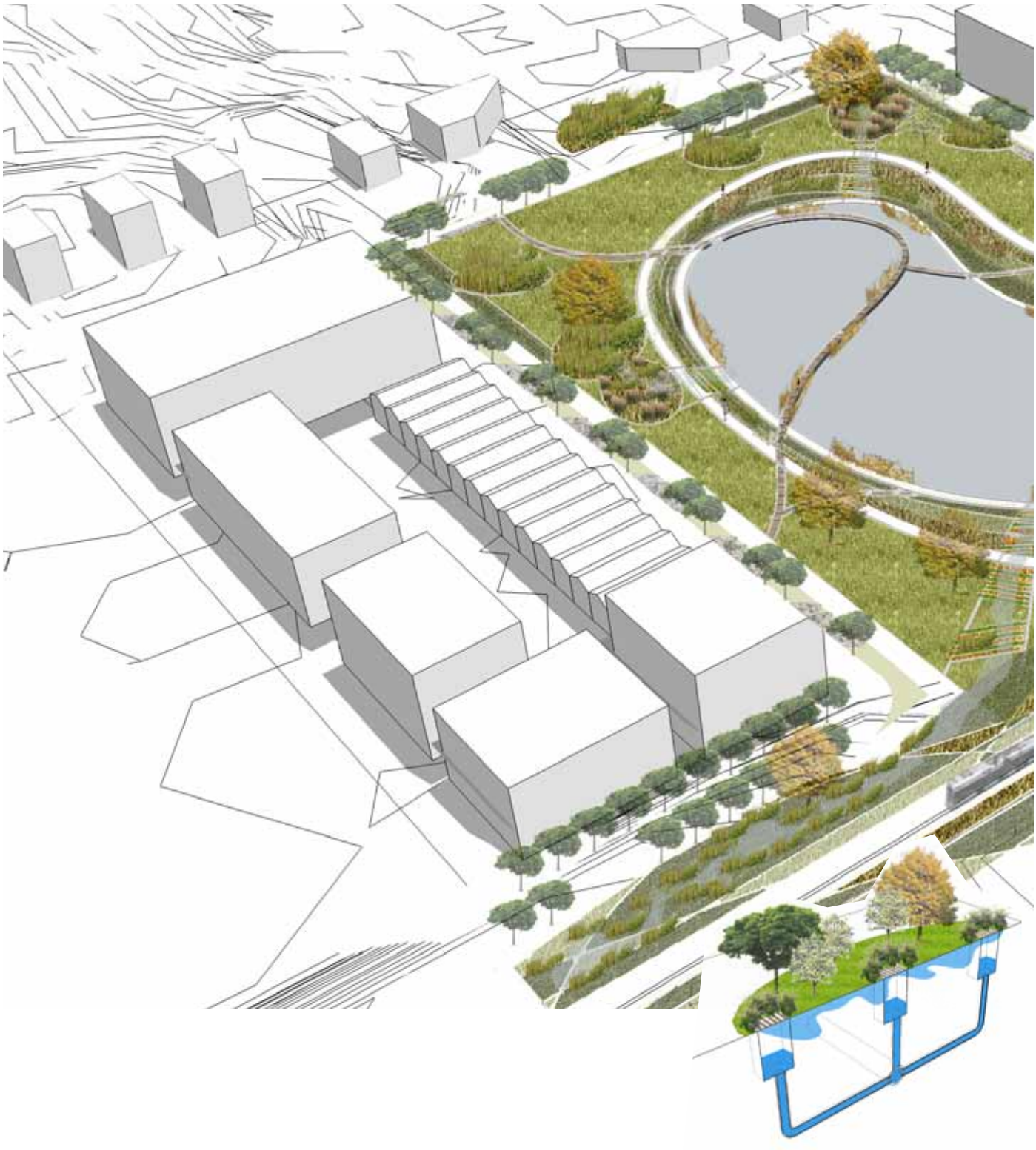


Terrace the BeltLine for Stormwater Infrastructure

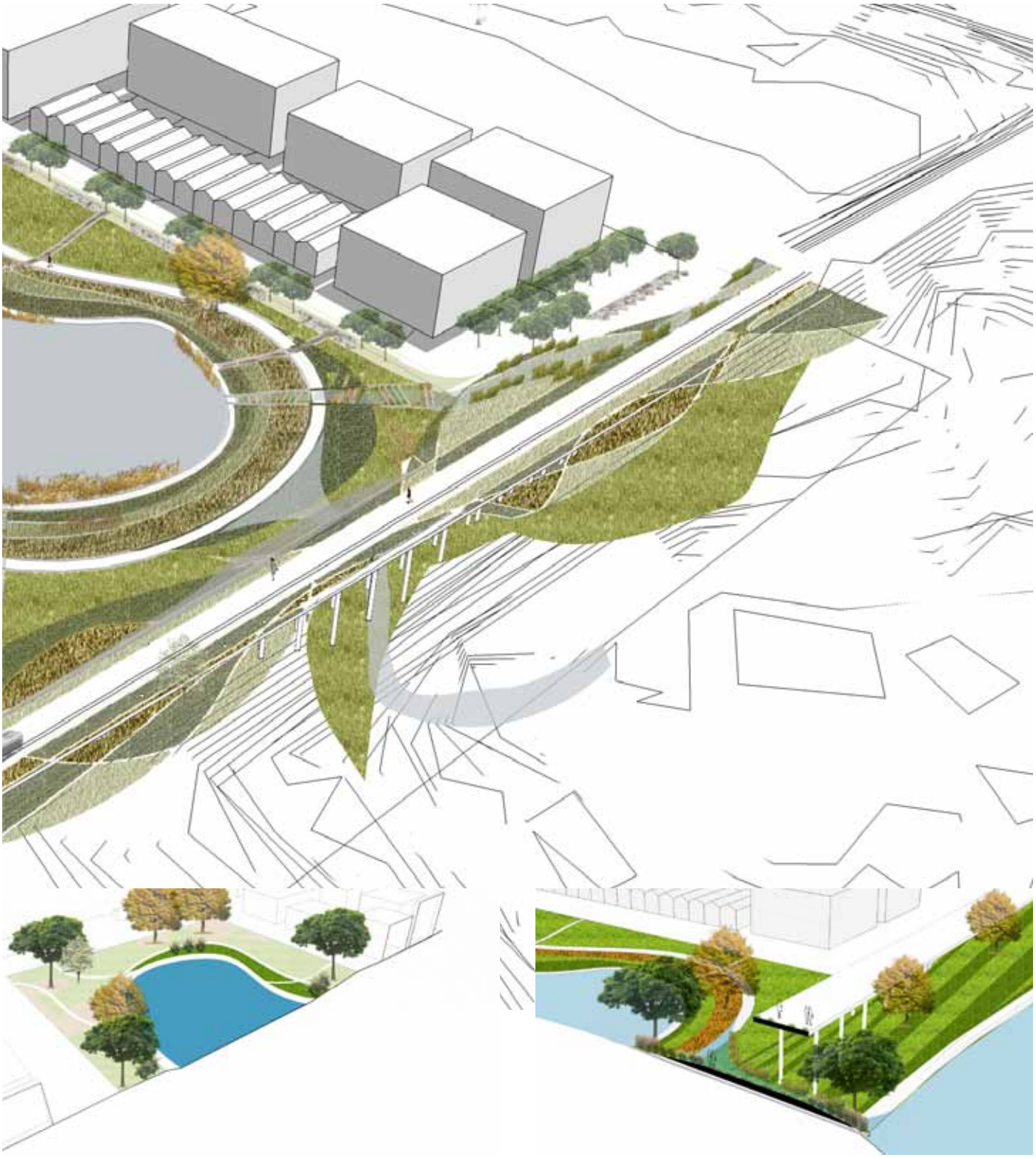
Create Retention and Detention Ponds

Create New Parks

University Avenue Master Plan



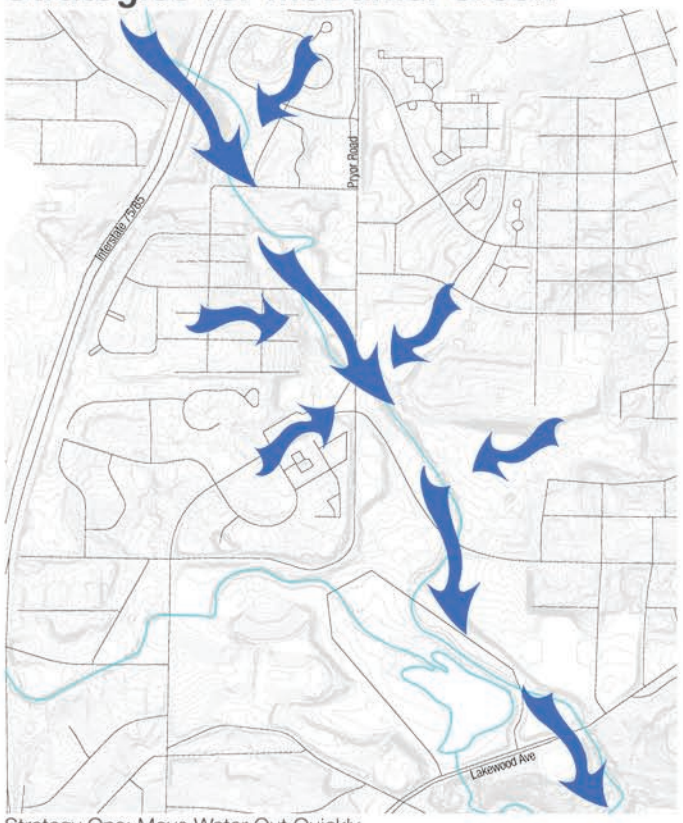
Daylight Pipes
This strategy is aimed at blocking and daylighting the pipes underground, forcing the stormwater to flow through the infiltration surfaces, like parks, green streets, and detention ponds. Divide the main pipe into several smaller pipes to help disperse the large amount of water, which will force the runoff to infiltrate into the ground.



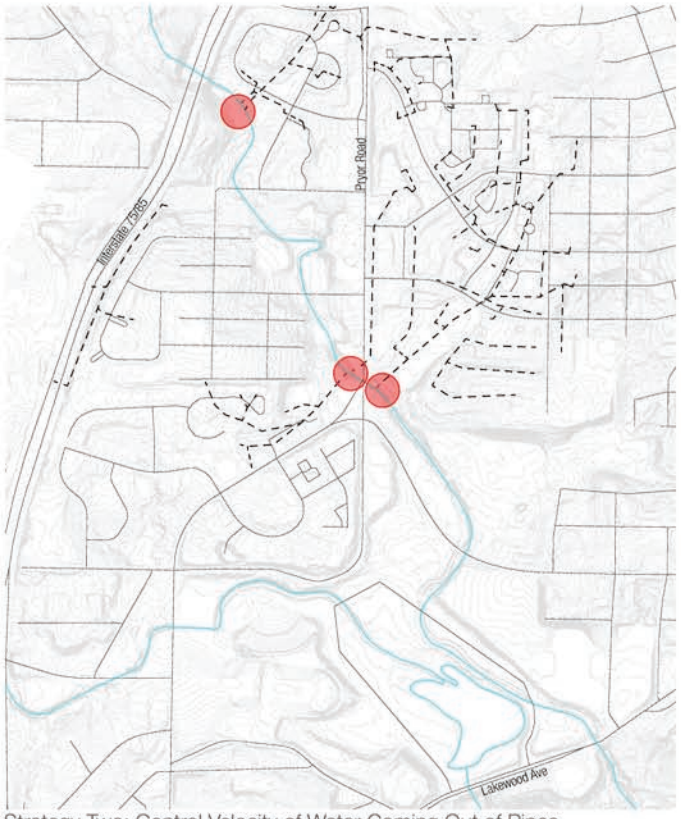
Detention and Retention Ponds
Holding water in detention ponds is the primary goal for this phase. The pond is 10 feet at the deepest point, which holds 40 acre feet of water. The pond will require a 2 foot permanent water depth to prevent erosion. The topography of the pond will be shaped to all the water levels to change.

Terraces
In order to allow the water to rise and drop, use terraces to handle different volumes of water. Along the terraces, water tolerant plants will be planted to help with erosion.

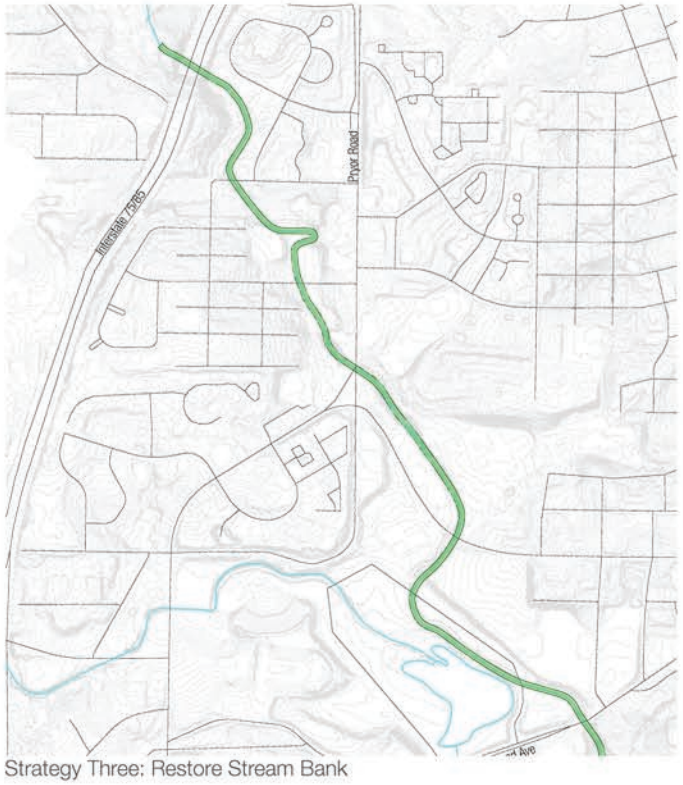
Strategies for McDaniel Creek



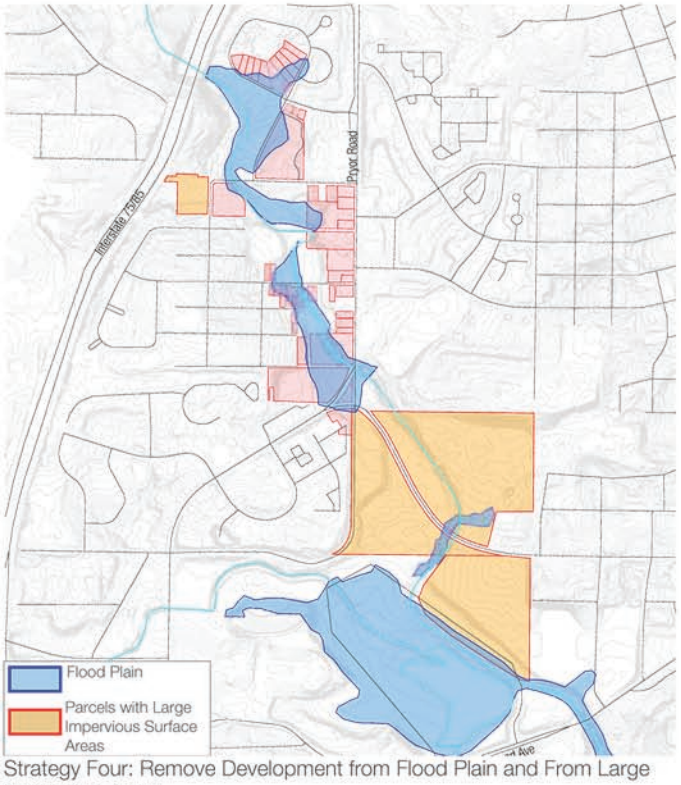
Strategy One: Move Water Out Quickly



Strategy Two: Control Velocity of Water Coming Out of Pipes (over 6 cubic feet per second)



Strategy Three: Restore Stream Bank



Strategy Four: Remove Development from Flood Plain and From Large Impervious Areas