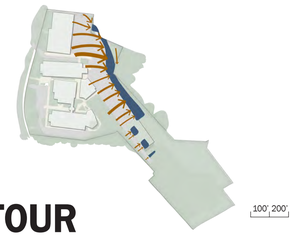
EDGE OF VICTORY

UNIVERSITY OF CINCINNATI - VICTORY PARKWAY CAMPUS

Victory Parkway campus at the University of Cincinnati sits at the top of an incline with an immense number of impervious surfaces and a lack of stormwater intervention to decrease the site runoff. Like 772 other cities in the United States, Cincinnati uses a combined sewer overflow (CSO) for most of its stormwater. Because of this, 11 billion gallons of CSO's enter the local waterways, polluting the Ohio River and connected streams. This places Cincinnati in the top 5 cities in the country for CSO's. In 2011, Cincinnati entered a consent decree with the EPA and Federal Government to reduce this pollution. The city has since begun constructing green infrastructure (GI) projects throughout its watersheds. These projects will reduce the CSO's by 1.78 billion gallons each year, but there is still work to be done.

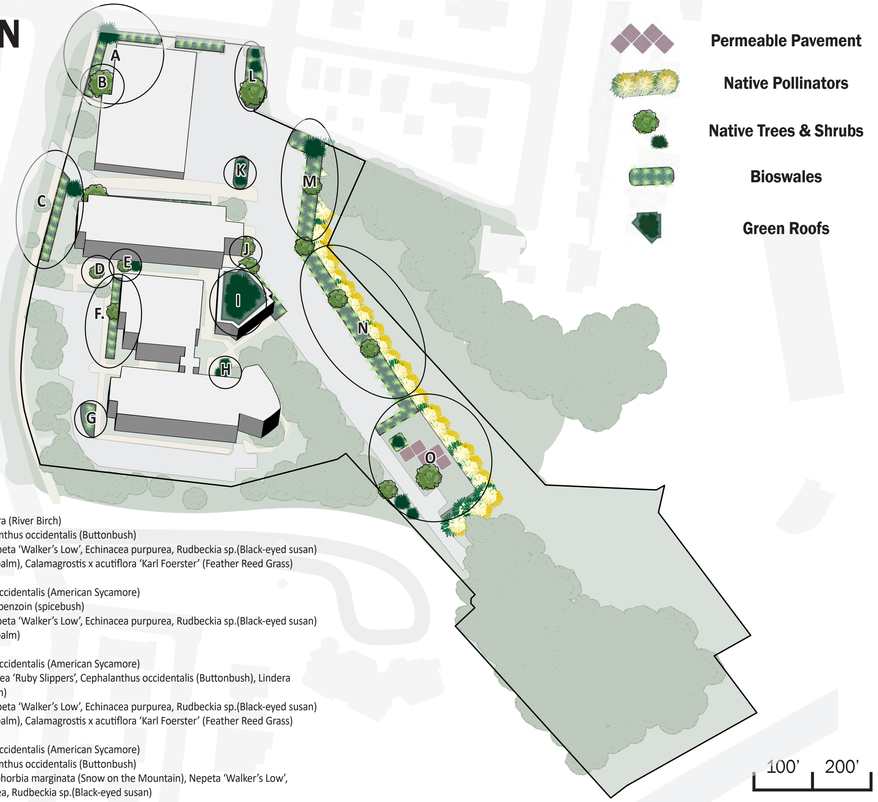
In collaboration with the University of Cincinnati Facilities Department and the Cincinnati Municipal Sewer District, our team took a holistic approach to mitigating the Victory Parkway campus's contribution to CSO's while focusing on reducing heat stress, stabilizing the hillside, increasing educational opportunities, and providing multifunctional benefits. Our plan includes bioswales, rain gardens, green roofs, vertical gardens, tree canopies, rainwater catchment, and invasive species replacement. These interventions will reduce stormwater runoff by 417,604 gallons per year, minimize the site's contribution to CSO's, and mitigate heat stress on the site. The proposed solutions can be utilized as a precedent for the other 771 cities in the country facing the challenge of reducing the CSO's.

RAINWATER+ PLAN



CONTOUR PLAN

CAMPUS SITE PLAN



A. SHRUBS: Hydrangea 'Ruby Slippers', Cephalanthus occidentalis (Buttonbush), Lindera benzoin (spicebush)
PERENNIALS: Nepeta 'Walker's Low', Echinacea purpurea, Rudbeckia sp.(Black-eyed susan) Monarda sp.(Beebalm), Calamagrostis x acutiflora 'Karl Foerster' (Feather Reed Grass)

B. TREE: Magnolia grandiflora (Southern Magnolia)

C. PERENNIALS: Nepeta 'Walker's Low', Echinacea purpurea, Rudbeckia sp.(Black-eyed susan) Monarda sp.(Beebalm), Calamagrostis x acutiflora 'Karl Foerster' (Feather Reed Grass)

D. TREE: Magnolia grandiflora (Southern Magnolia)

E. TREE: Liriodendron tulipifera (Tulip Tree), Liquidambar styraciflua (Sweetgum)
SHRUB: Aesculus parviflora (Bottlebrush Buckeye)

F. TREE: Magnolia grandiflora (Southern Magnolia)
PERENNIALS: Nepeta 'Walker's Low', Echinacea purpurea, Rudbeckia sp.(Black-eyed susan) Monarda sp.(Beebalm), Calamagrostis x acutiflora 'Karl Foerster' (Feather Reed Grass)

G. PERENNIALS: Calamagrostis x acutiflora 'Karl Foerster' (Feather Reed GRASS)

H. SHRUBS: Aesculus parviflora (Bottlebrush buckeye)

I. TREES: Betula nigra (River Birch),
SHRUBS: Aesculus parviflora (Bottlebrush buckeye)
GROUNDCOVER: Hosta sp.

J. SHRUBS: Aesculus parviflora (Bottlebrush Buckeye)
PERENNIALS: Brunnera 'Jack Frost', Allium 'Millenium',

K. TREES: Cercis canadensis (Eastern Redbud)
SHRUBS: Lindera benzoin (spicebush)

L. TREES: Betula nigra (River Birch)
SHRUBS: Cephalanthus occidentalis (Buttonbush)
PERENNIALS: Nepeta 'Walker's Low', Echinacea purpurea, Rudbeckia sp.(Black-eyed susan) Monarda sp.(Beebalm), Calamagrostis x acutiflora 'Karl Foerster' (Feather Reed Grass)

M. TREES: Platanus occidentalis (American Sycamore)
SHRUBS: Lindera benzoin (spicebush)
PERENNIALS: Nepeta 'Walker's Low', Echinacea purpurea, Rudbeckia sp.(Black-eyed susan) Monarda sp.(Beebalm)

N. TREES: Platanus occidentalis (American Sycamore)
SHRUBS: Hydrangea 'Ruby Slippers', Cephalanthus occidentalis (Buttonbush), Lindera benzoin (spicebush)
PERENNIALS: Nepeta 'Walker's Low', Echinacea purpurea, Rudbeckia sp.(Black-eyed susan) Monarda sp.(Beebalm), Calamagrostis x acutiflora 'Karl Foerster' (Feather Reed Grass)

O. TREES: Platanus occidentalis (American Sycamore)
SHRUBS: Cephalanthus occidentalis (Buttonbush)
PERENNIALS: Euphorbia marginata (Snow on the Mountain), Nepeta 'Walker's Low', Echinacea purpurea, Rudbeckia sp.(Black-eyed susan)

BIOSWALES

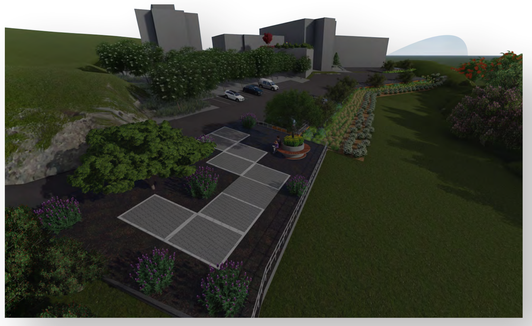
Given their ability to provide both stormwater treatment and retention, bioswales were chosen as a primary mitigation strategy to deal with the high runoff volume within the parking lot.

2020 EPA Rainworks Competition

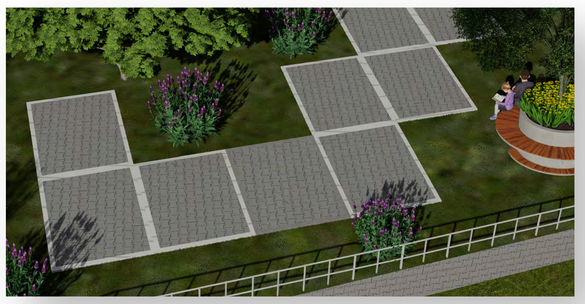
GREEN ROOFS

This green roof will provide savings in energy costs, assist in the mitigation of the city-wide Urban Heat Island Effect, and serve as a precedent for the rest of the Victory Parkway campus.

PERMEABLE PAVERS



Pervious pavement tiles assist the drains in rainwater dispersal because of the low cost and little maintenance feature that will freshen up the neglected outlook.



NATIVE PLANTS

Native plant varieties have been chosen to fill the bioswales, including Feather Reed Grass, Beebalm, Echinacea varieties, and Spice bushes.

TEAM M43