

GREEN STORMWATER IN PARKS: A WIN-WIN FOR URBAN RESILIENCE



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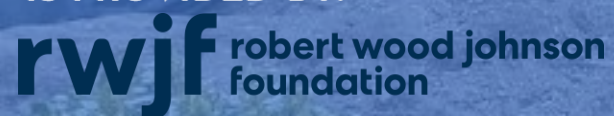


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SUPPORT FOR THIS WEBINAR
IS PROVIDED BY:



ACCREDITATION AVAILABLE FOR:



Landscape Architecture
Continuing Education System™

City Parks Alliance
General CEUs



What is Green Stormwater Infrastructure (GSI)?



Traditional “gray” infrastructure (e.g., gutters, sewers, and tunnels) moves water but can contribute to flooding, pollution & urban heat

Nature-based solutions like GSI use plants, soils & permeable surfaces to manage and store stormwater where it falls naturally

Co-benefits include:

- Boosting urban climate resilience
- Increasing & enhancing green spaces
- Creating green jobs





Why Put Green Stormwater Infrastructure in Parks?



- Need to adapt infrastructure as storms become more intense, unpredictable
- Parks are among the largest publicly controlled green spaces in cities
- Parks can mitigate extreme heat, manage flooding, stormwater runoff
- GSI in parks helps reduce flooding & its financial impacts, enhances biodiversity & ecological health
- Improve public health outcomes by reducing air and water pollution, urban heat & creating new green space, lowers healthcare costs from respiratory and heat-related illnesses





GSI in Parks Can Be Used to Promote Social Equity



- Historically, discriminatory policies have limited park & housing access for minorities, immigrant groups, low-income families
- These communities have less green space & more exposure to flooding, extreme heat, pollution
- GSI projects in existing or new parks in these communities can address environmental justice needs, create jobs, provide opportunities for workforce development, improve public health disparities
- Crucial to pair infrastructure investment with community stabilization & economic development strategies to prevent displacement, secure long-term funding for maintenance



Barriers – and Solutions



Parks are often underused for GSI because of:

- Lack of shared vision and priorities among public agency leaders
- Separate funding sources for parks and water projects
- Silos between parks and stormwater agency planning and operations
- Policies and regulations that are unsupportive of interagency collaboration
- Skepticism about nature-based solutions
- Limited green infrastructure maintenance skills
- Complexity of engaging communities (especially historically disadvantaged ones)

Better collaboration between parks & stormwater agencies on funding, community engagement, planning, capital projects, maintenance, can allow cities to fully tap parks' potential for GSI -- create a win-win for urban resilience, operational efficiencies, fiscal savings



The Parks & GSI Initiative



Partnership with US Water Alliance, Green Infrastructure Leadership Exchange working with cohort of parks & stormwater leaders to inform how to increase collaboration and address historic inequities.

- Atlanta Department of Parks and Recreation
- Atlanta Department of Watershed Management
- Boston Office of Green Infrastructure
- Boston Parks and Recreation Department
- Harris County (TX) Flood Control District
- Houston Department of Public Works
- Houston Parks Board
- Milwaukee Metropolitan Sewerage District



- Pittsburgh Department of City Planning
- Pittsburgh Water and Sewer Authority
- Raleigh Parks, Recreation, and Cultural Resources Department
- Raleigh Stormwater
- Seattle Parks and Recreation
- Seattle Public Utilities
- Tucson Parks and Recreation Department
- Tucson Water
- Willow Waterhole Greenspace Conservancy (Houston, TX)





Resources You Can Use



WHY GREEN STORMWATER IN PARKS IS A WIN-WIN FOR URBAN RESILIENCE

Making the Case for Nature-Based Solutions to City Leaders

Utilizing urban parks and green spaces for the management of stormwater using nature-based (or green) infrastructure has many public benefits. For example, it can:

- » Help protect increasingly vulnerable communities during large-scale weather events.
- » Save cities money by reducing the impacts of flooding.
- » Improve public health by protecting water quality and adding green space that keeps cities cooler and can be used for outdoor activities.
- » Advance environmental justice by benefiting historically underserved communities that lack adequate infrastructure and green space.
- » Provide a prime opportunity for workforce development to fill the gap in green infrastructure maintenance skills.
- » Transform how governmental agencies work together and serve their communities, and access new funding opportunities.
- » Build trust between community stakeholders and government (when its benefits are effectively implemented and communicated) and inspire more support for nature-based solutions at all levels.

What Is Green Stormwater Infrastructure?

Green stormwater infrastructure (GSI) manages stormwater runoff by using natural processes. Traditional "gray" infrastructure—gutters, sewers, and tunnels—moves water away from buildings but can contribute to flooding, pollution, and urban heat. In contrast, nature-based solutions like GSI use plants, soils, and permeable surfaces to manage and store stormwater where it falls naturally. GSI has the potential not only to mitigate flooding and pollution but also to increase green spaces, boost climate resilience, and create green jobs.¹



¹ U.S. Environmental Protection Agency. (2024). Green Jobs in Your Community. <https://www.epa.gov/G3/green-jobs-your-community>



Green stormwater infrastructure manages runoff naturally, reducing flooding and pollution while enhancing urban resilience, creating green spaces, spurring jobs, and improving public health.



Why Put Green Stormwater Infrastructure in Parks?

As storms become more intense and unpredictable, our infrastructure must adapt. Parks, which are among the largest green spaces in cities, have great potential for GSI. In addition to promoting public recreation and social cohesion, parks can mitigate extreme heat, and manage flooding and stormwater runoff. By working with nature, GSI in parks helps reduce flooding and its financial impacts while enhancing biodiversity and protecting ecosystems. It can improve public health outcomes by filtering air and water pollution, reducing urban heat, and creating new green spaces, all of which can also lower healthcare costs related to respiratory and heat-related illnesses.²

Tapping the Potential Benefits

However, parks are often underused for GSI because of a lack of shared vision and priorities among public agency leaders. More structural and technical implementation challenges include separate funding sources for parks and water projects, silos between parks and water agency planning and operations, policies and regulations that are unsupportive of interagency collaboration, skepticism about nature-based solutions, limited green infrastructure maintenance skills, and the complexity of engaging communities, especially those that are historically disadvantaged, in infrastructure projects. By fostering better collaboration

between parks and water agencies on funding, community engagement, planning, capital projects, and maintenance, cities can fully tap into parks' potential for GSI and create a win-win for urban resilience, as well as operational efficiency and fiscal savings.

How Can Green Stormwater Infrastructure in Parks Promote Social Equity?

Historically, discriminatory policies have limited park and housing access for racial and ethnic minorities, immigrant groups, and low-income families, leaving these communities with less green space and greater exposure to flooding, extreme heat, and pollution. GSI projects in existing or new parks in these communities can address environmental justice needs, create jobs, and improve public health disparities. Additionally, GSI in parks can raise nearby property values by reducing the threat of flooding and creating new community amenities, which generates wealth-building opportunities for landowners and boosts local tax revenues.³ However, it is crucial to pair these infrastructure improvements with community stabilization and economic development strategies to prevent displacement as property values rise, as well as secure long-term funding for maintaining this critical infrastructure.

In partnership with the US Water Alliance and the Green Infrastructure Leadership Exchange, City Parks Alliance has been working with a cohort of parks and stormwater agency leaders from eight cities across the U.S. to inform how to increase collaboration between the parks and stormwater management sectors and address historic inequities. Cohort cities include Atlanta, Boston, Houston, Milwaukee, Pittsburgh, Raleigh, Seattle, and Tucson. Learn more about the initiative and discover all our resources at www.cityparksalliance.org/stormwater.

Parks are natural places to put green stormwater infrastructure.



Support is provided by the Robert Wood Johnson Foundation. The views expressed here do not necessarily reflect the views of the Foundation.

² U.S. Environmental Protection Agency. (2024). Environmental Benefits of Green Infrastructure. <https://www.epa.gov/green-infrastructure/environmental-benefits-green-infrastructure>

³ Center for Neighborhood Technology. (2020). Green Stormwater Infrastructure Impact on Property Values. <https://cni.org/publications/green-stormwater-infrastructure-impact-on-property-values>

Learn more at <https://cityparksalliance.org/stormwater>



Resources You Can Use



How to tap the co-benefits of implementing GSI in parks:

- Help protect increasingly vulnerable communities during large-scale weather events
- Save cities money by reducing the impacts of flooding
- Improve public health by protecting water quality and adding green space that keeps cities cooler and can be used for outdoor activities
- Advance environmental justice by benefiting historically underserved communities that lack adequate infrastructure and green space
- Provide a prime opportunity for workforce development to fill the gap in green infrastructure maintenance skills
- Transform how governmental agencies work together, serve their communities, access new funding opportunities
- Build trust between community stakeholders and government and inspire more support for nature-based solutions at all levels

- 17 case studies of example projects and partnerships
- Calls to action for public leaders and issue

Learn more at <https://cityparksalliance/stormwater>



Storm *to* Shade
City of Tucson Green Stormwater
Infrastructure Program

City Parks Alliance

December 17, 2024

Greg Jackson, Deputy Director Parks & Recreation
Blue Baldwin, S2S Program Manager





TUCSON

IT'S ALL ABOUT HEAT

- The Sonoran Desert: heat & drought
- 3rd fastest warming city in the US
- Average 11" of rain per year

SHADE is a **hot** commodity



TUCSON – IT'S ALL ABOUT HEAT

Tucson Parks and Recreation

- 134 Parks
- 3,363 acres of parkland

Heat Mitigation in Parks

- 10 splashpads complete; 9 more funded
- 83 shaded playgrounds
- Shade standards for playgrounds



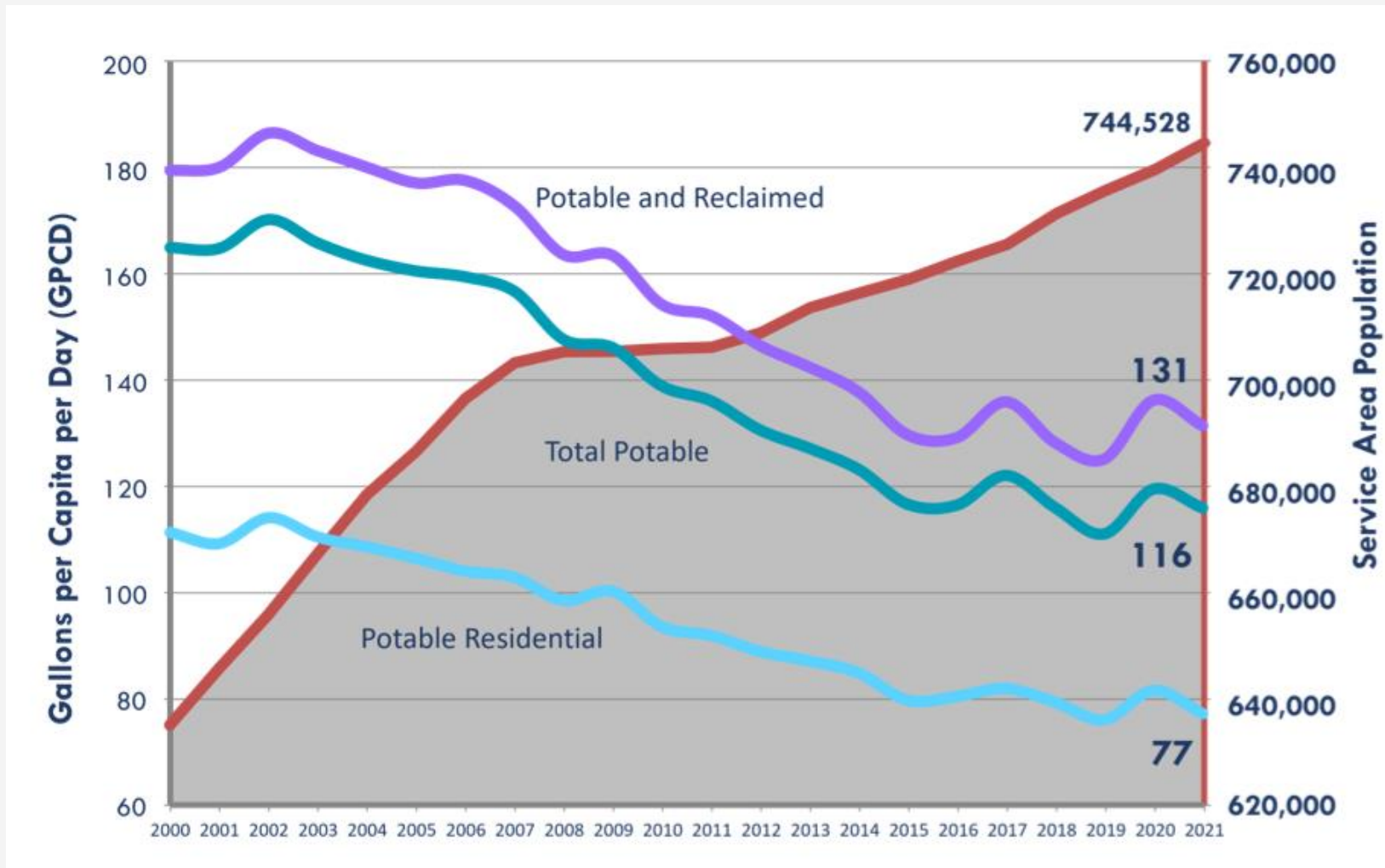
TUCSON – IT'S ALL ABOUT HEAT

Tucson Water

- Serves ~ 745,000 customers
- Conservation Program
 - **Rebates**
 - appliances, gray water systems, rainwater harvesting
 - **Educational programming**
 - **Water Smart landscaping classes**
- Coming soon: Ornamental turf reduction/replacement rebates



CONSERVATION IMPACT *(it's mega)*



TUCSON CLIMATE ACTION AND ADAPTION PLAN



Climate Action Hub

Resilient Together

Tucson Million Trees

Electric Vehicles

Storm to Shade

More ▾

- Climate Emergency declared in 2020
- Climate Action Plan adopted March 7, 2023

- Climate Initiatives

- *Electric Vehicle Roadmap*
- *Urban Forestry Program & Tucson Million Trees*
- *Green Stormwater Infrastructure Program*

EQUITY

Tucson Million Trees





Storm to Shade

- 2020 Mayor & Council approve GSI pilot program
- Dedicated funding source -- fee on Utility Statement
 - .13 cents per ccf of water consumed
 - Residential & commercial utility customers
 - Average monthly cost ~ \$0.91 cents/mo
- Pilot sunsets & funding made permanent June '23
- Non-regulatory driven
 - Voluntary; beneficial re-use; co-benefits
 - One Water philosophy



CITY OF
TUCSON



TUCSON
WATER



Storm to Shade



- ✓ Build new GSI
- ✓ Maintain new & existing GSI
- ✓ Prioritize *equity* & vulnerable communities

Program Driver: Co-benefits of GSI



Storm to Shade

City of Tucson
Green Stormwater
Infrastructure Program

What is GSI?

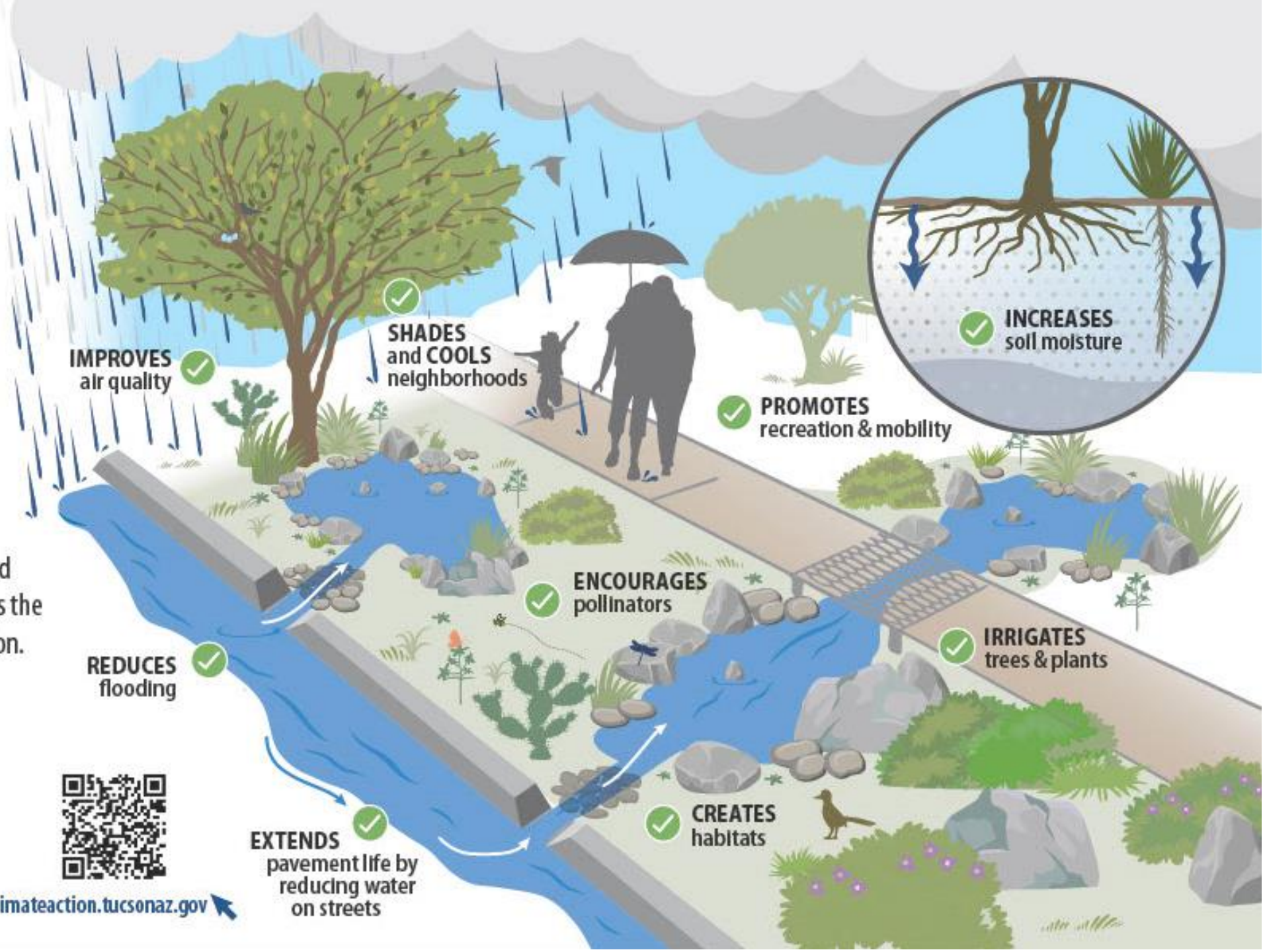
Green Stormwater Infrastructure (GSI) directs stormwater runoff from streets, parking lots, and rooftops into landscaped areas where it infiltrates the soil to support vegetation.

Find GSI at

- ✓ Parks
- ✓ Greenways
- ✓ Neighborhood streets
- ✓ Bike boulevards
- ✓ Public parking lots
- ✓ Traffic circles



climateaction.tucsonaz.gov



Tucson Tree Equity Scores



Tree Equity Scores for Tucson neighborhoods

This dashboard was developed using American Forests' Tree Equity Score methodology. The scores are a metric that informs the city on how well we are delivering equitable tree cover to all our residents. The score combines "measures of tree canopy cover need and priority for trees in urban neighborhoods. It is derived from tree canopy cover, climate, demographic and socioeconomic data." (American Forests, 2020)

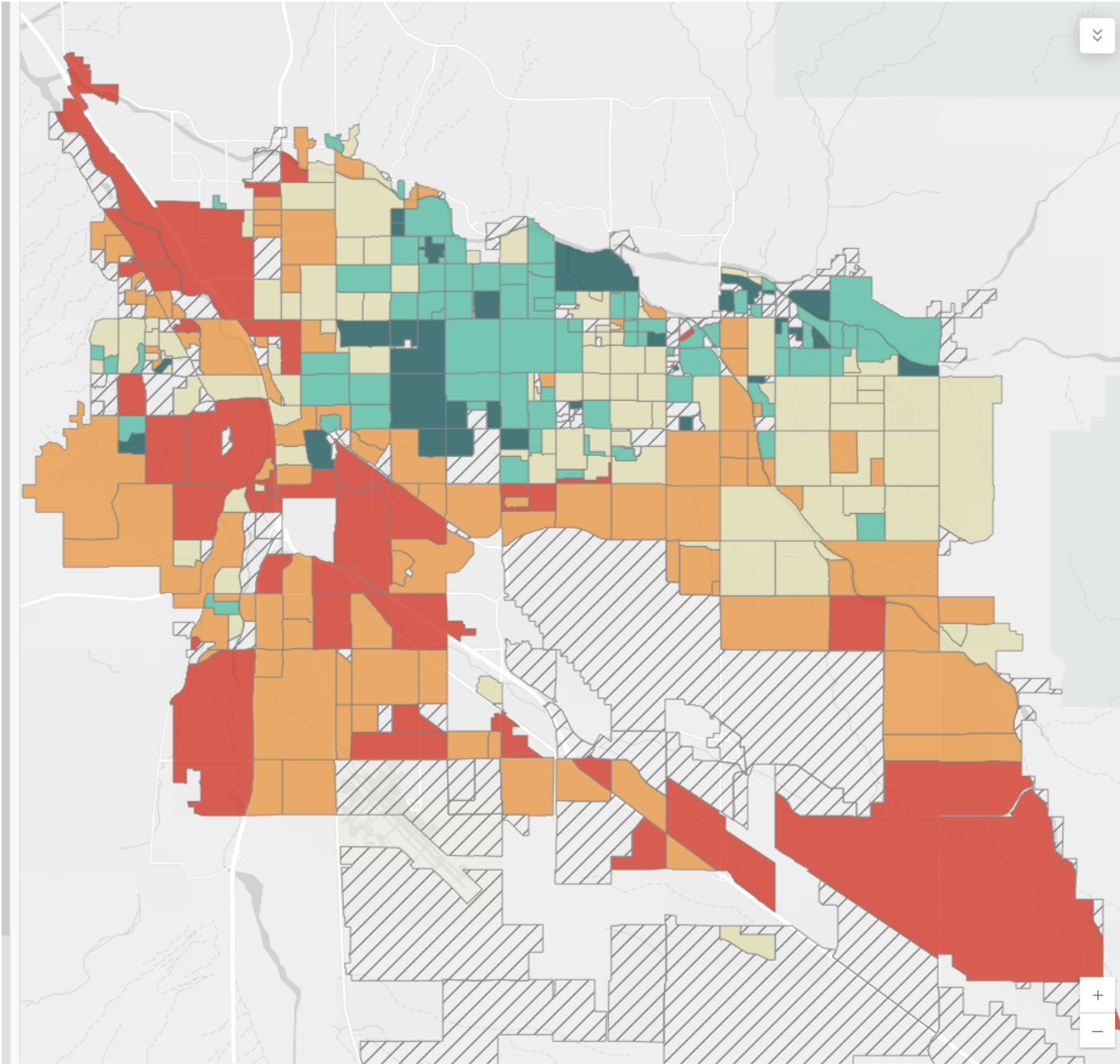
Definitions:

Tree Equity Score (0-100): A score of 100 means tree equity has been achieved in this neighborhood. Lower scores indicate neighborhoods in greatest need of improved canopy. This metric is only calculated in populated neighborhoods*.

Priority Index (0-1): Higher scores indicate higher vulnerability. Includes 5 equally weighted variables:

- **Income:** Percentage of population below 200% of poverty
- **Employment:** Unemployment rate
- **Race:** Percentage of people who are not white non-Hispanic
- **Age:** Ratio of seniors and children to working-age adults
- **Climate:** Urban Heat Island severity

Heat Severity (0.43-9.26): Indicates the deviance from mean surface temperatures in urbanized areas. i.e., heat severity 9 indicates the neighborhood is, on average, 9°F hotter than the mean surface

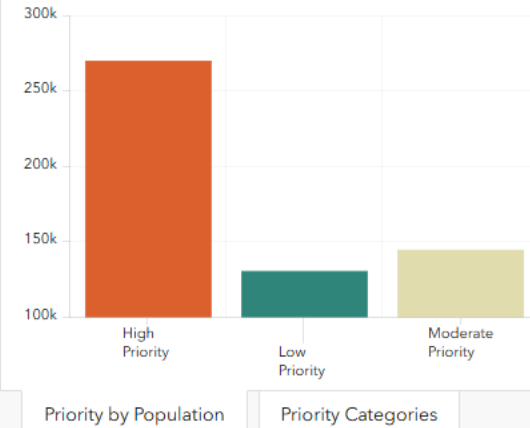


CONANP, Esri, TomTom, Garmin, Foursquare, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS | Publish... Powered by Esri

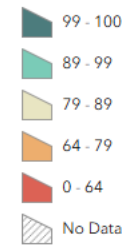
Tree Equity Achieved in

30

of 466 neighborhoods



Tree Equity Scores by Neighborhood





CITY OF

TUCSON City of Tucson | GSI Capital Projects

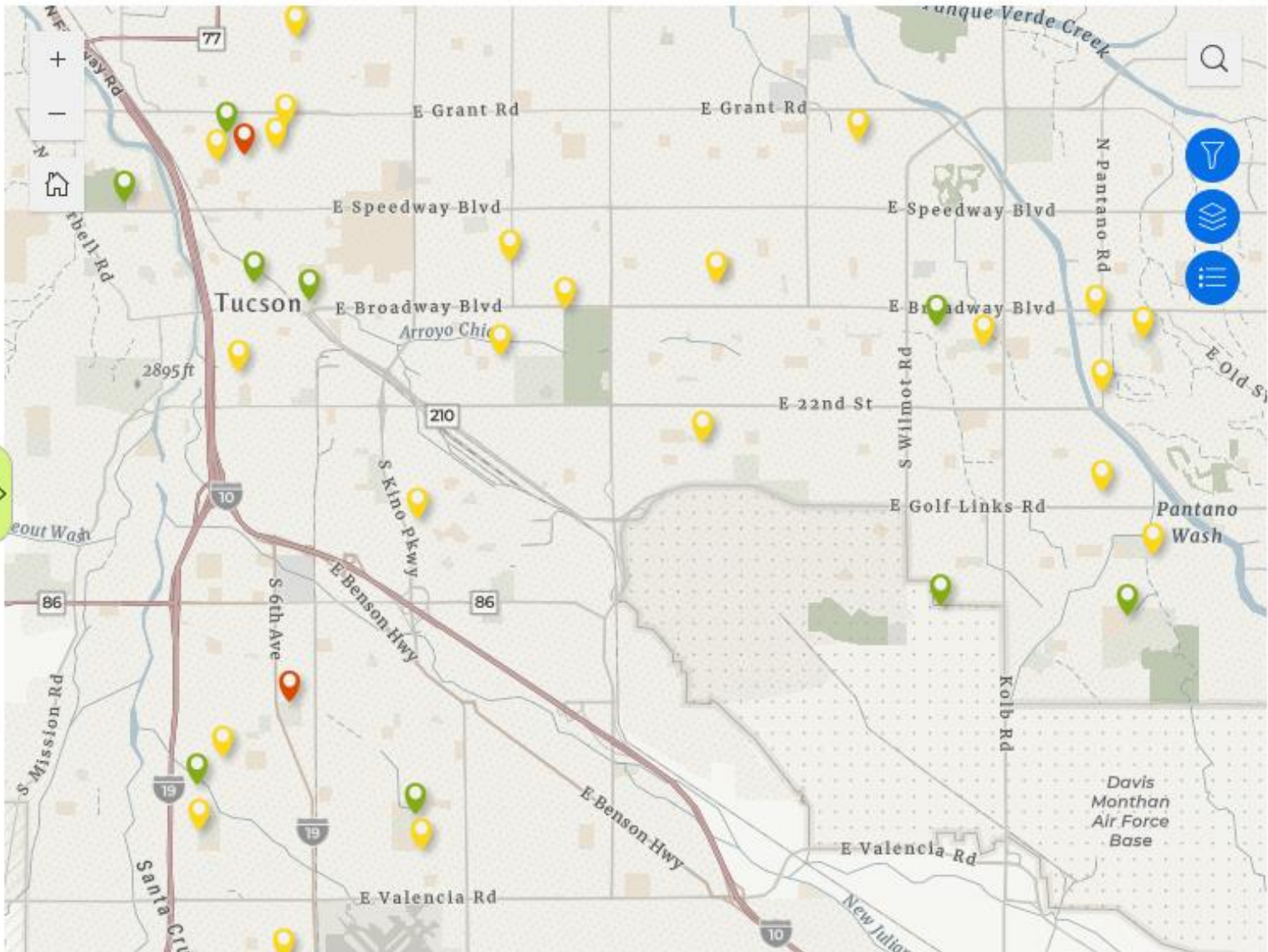
All Projects

Complete

In Construction

In Design

Identified



33 GSI Project(s)

Scroll down and click on each to learn more.



In Design

18th St. & Main Ave.

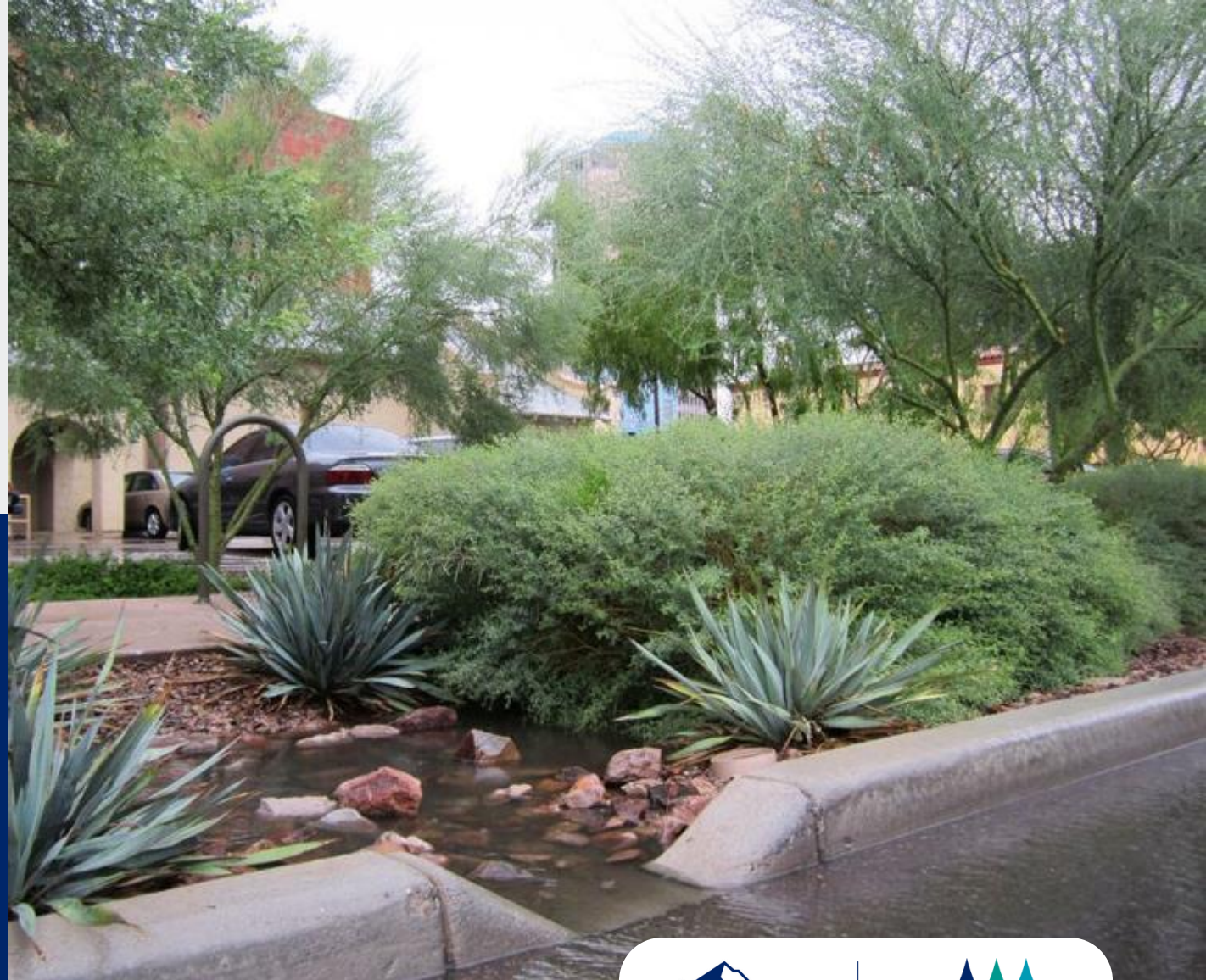
Storm to Shade is funding the design and construction of two in-street traffic-calming green stormwater infrastructure (GSI) features along the 18th St. Bicycle Boulevard. This project is in collaboration with a voter-approved, bond-funded bicycle boulevard. The two in-street GSI features will serve to slow down traffic and narrow the width of the street from curb to curb, making crossing the

[Learn More](#)

CAPITAL PROCESS & PROJECT PRIORITIZATION

- Leveraging funds with existing COT improvement projects
 - Prop 407
Tucson Delivers Better Parks & Connections
- Ward Office input

- *EQUITY*



TREE PLANTING COST

Three Scenarios



IN STREET

\$2250-\$3750 per tree
= 267-444 trees

BEHIND CURB

\$375-\$625 per tree
=1600-2667 trees



IN A PARK

\$200- \$360 per tree
=2,778-5K trees

PARK PLANNING INITIATIVES

- Early incorporation of GSI into designs
- Reduce turf & increase tree canopy
- Reduce use of potable water/add reclaimed
- Functional/non-functional turf
- Long term policy & planning



GSI AT GUNNY BARRERAS PARK

- Project origin
 - Prop. 407
 - Low TES = high priority area
- GSI Features
 - Vegetated basins, sidewalk scuppers
- GSI size
 - ~30,000 sq.ft.

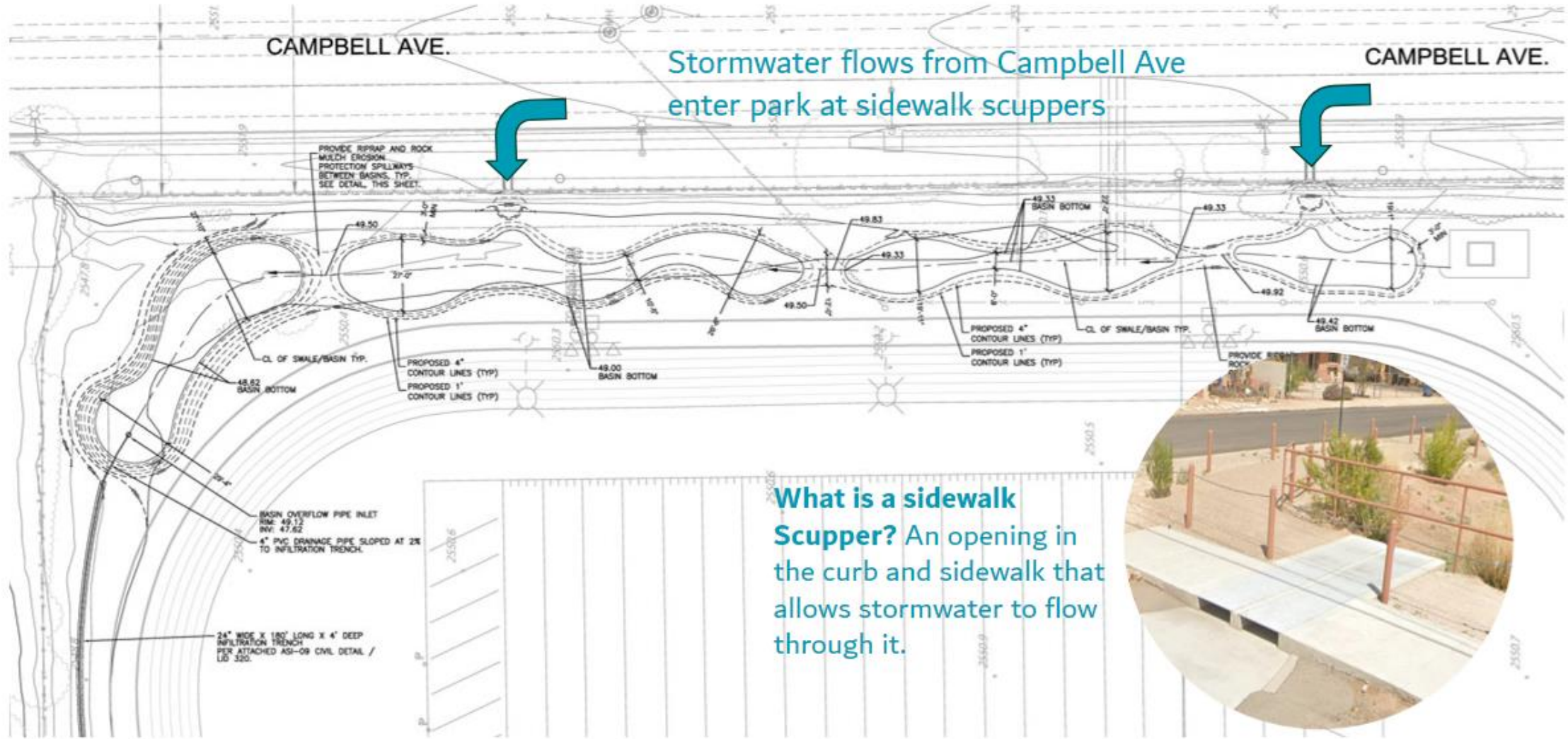


GSI AT GUNNY BARRERAS PARK



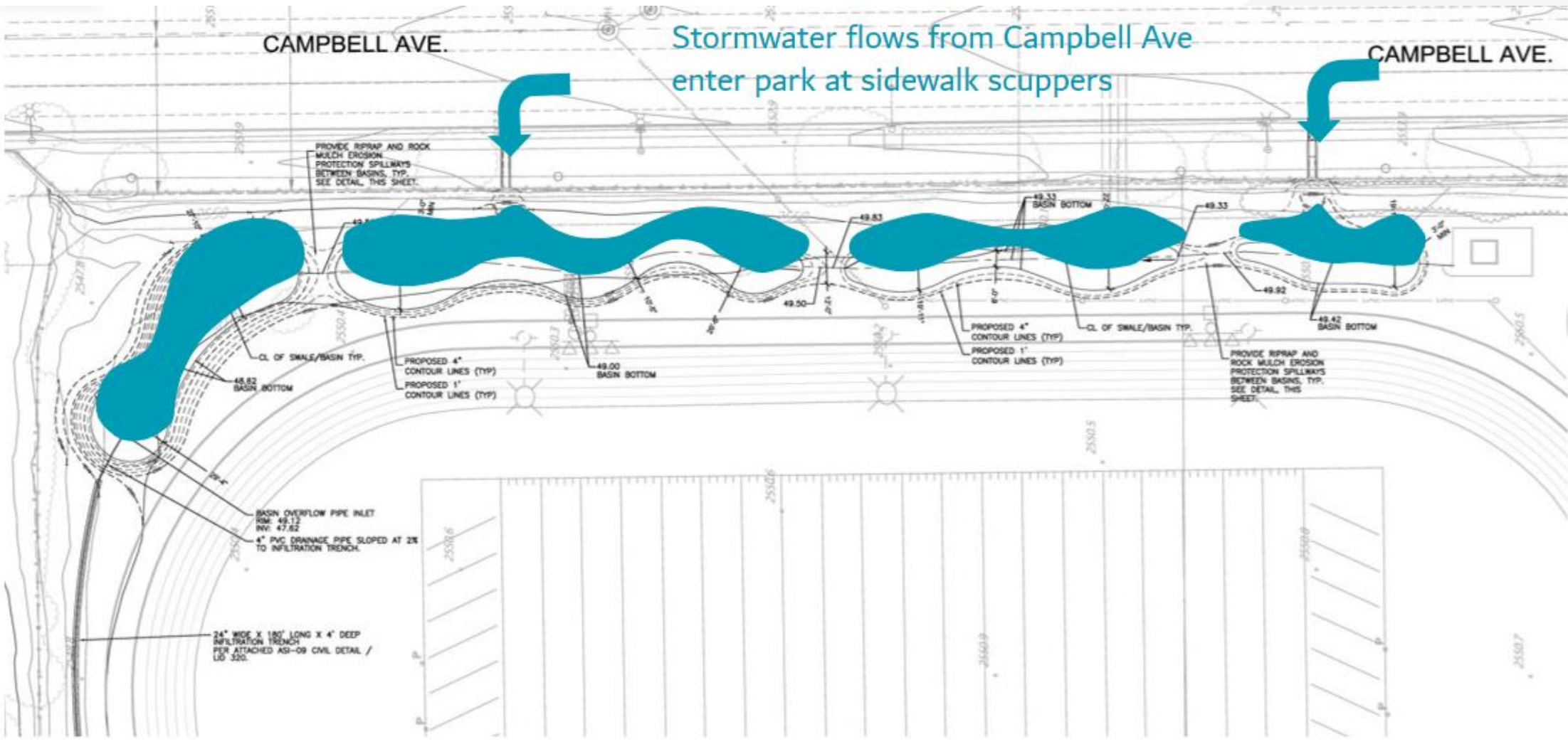
*Additional small GSI features throughout the park

HOW IT WORKS : HARVESTING STORMWATER FROM ADJACENT STREET

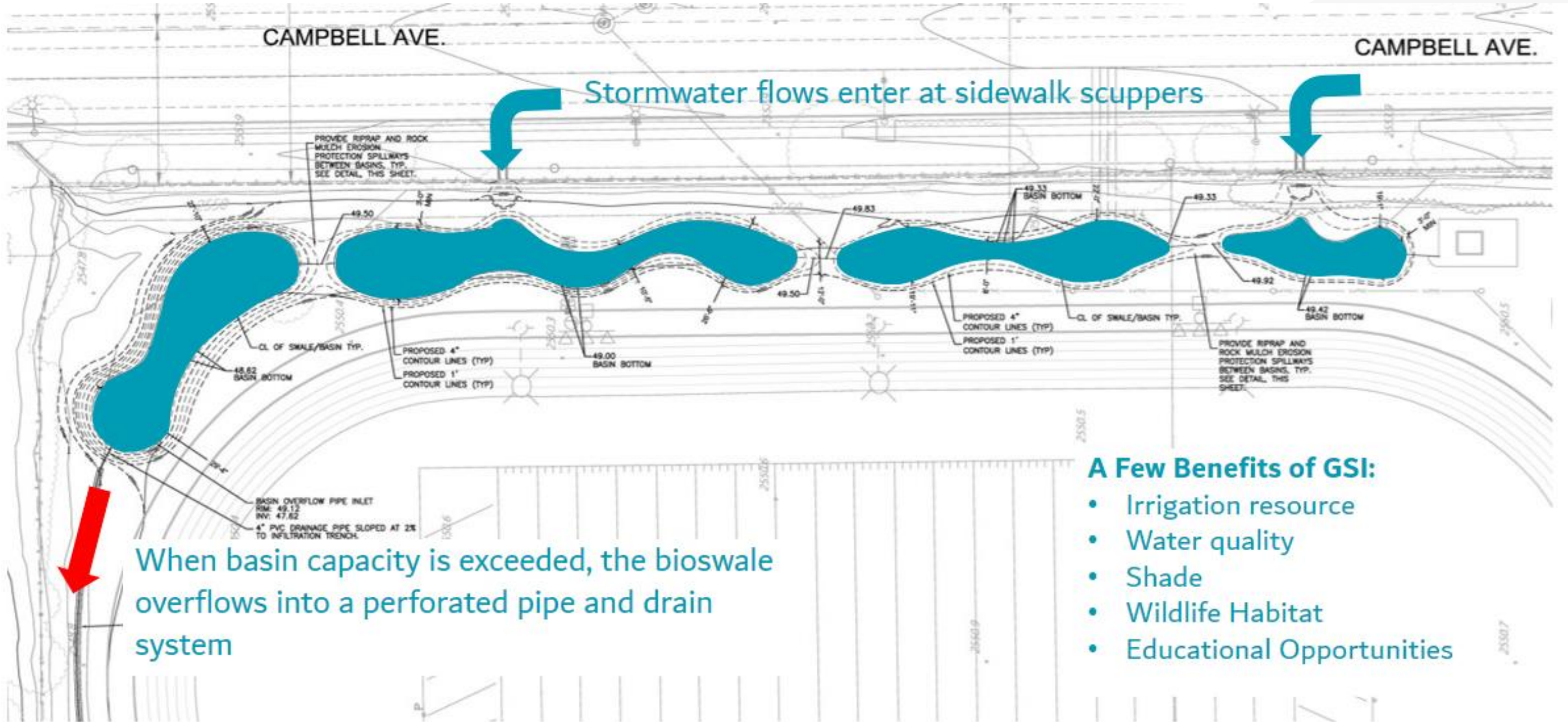


What is a sidewalk Scupper? An opening in the curb and sidewalk that allows stormwater to flow through it.

HOW IT WORKS : BASINS FILL WITH STORMWATER



HOW IT WORKS : PLANNED OVERFLOW



CHERRY AVENUE PARK



IRON HORSE PARK



PROJECTS – GENE C. REID PARK





Improperly installed sediment trap



LESSONS LEARNED

- **Early involvement in project planning saves time and resources**
- **Project costs**
 - Significantly higher than anticipated
 - Vary greatly by project type: in-street, behind the curb, in parks, on parcels
- **Contractor Challenges**
 - Timelines
 - Experience & expertise
 - Drawings/details – construction disconnect
- Plant pallet
- Irrigation vs. hand watering



MAINTENANCE

- No prior GSI Mx program; reactive action
- GSI assets are "owned" across various City departments
- Depts. use different asset management systems that don't communicate w/one another
- Competing interests
 - TW well sites
 - unsheltered population
- Mx Contractors & COT Mx staff



Published by the City of Tucson
Storm to Shade Program

Green Stormwater Infrastructure (GSI) Maintenance

First Edition: August 2022

A Pocket Guide



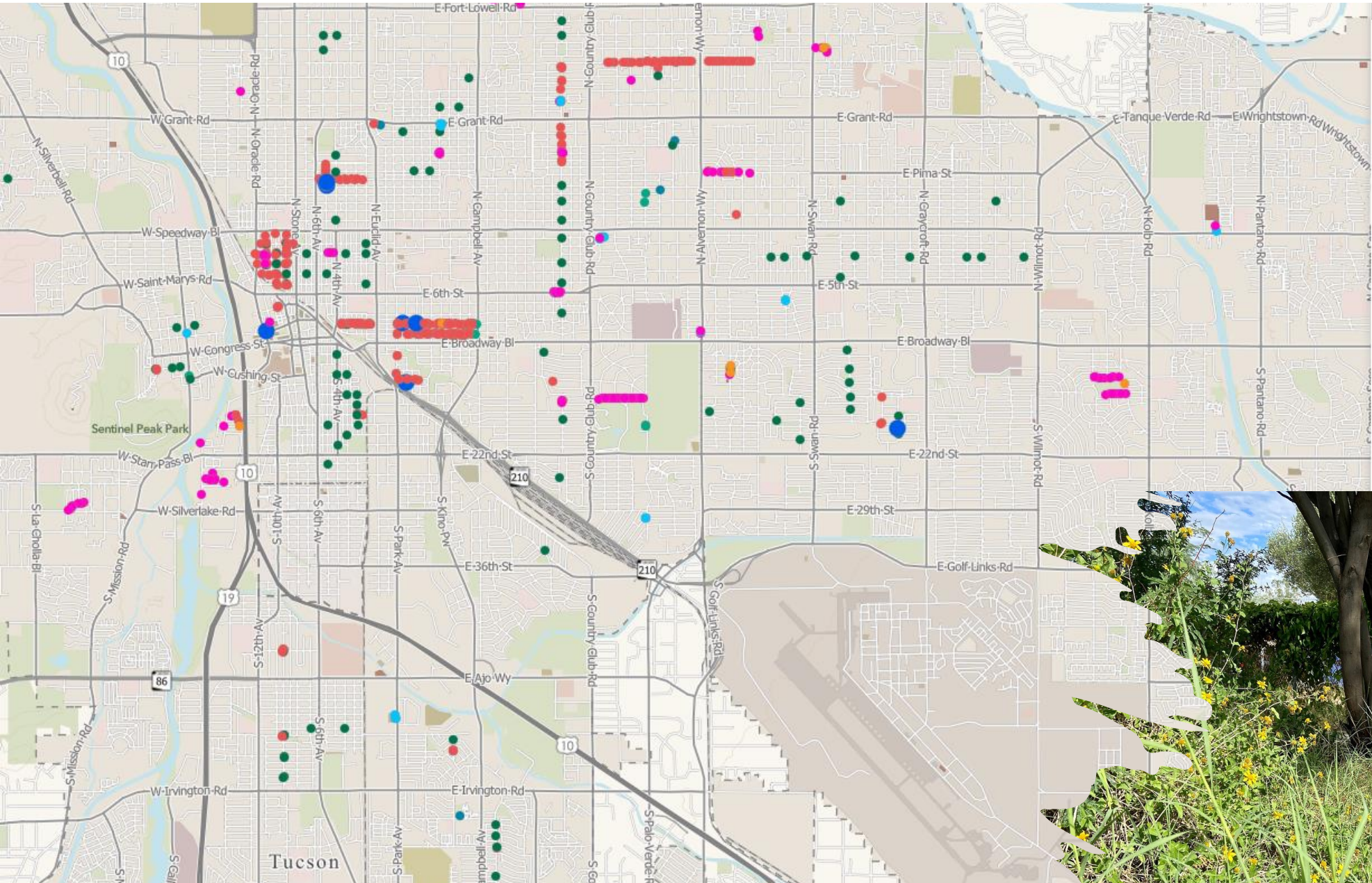
RESOLVING Mx CHALLENGES

- GSI maintenance protocol adopted by the City of Tucson
- Trainings
- Mx Manual
- Agreements w/City depts
- Enterprise Asset Management System

GSI Asset Inventory

City-built GSI assets ~ 750

Tree Inventory ~ 850



The screenshot shows a GIS application interface. On the right side, there is a 'Layers' panel with a search icon and a list of layers. The first layer is 'GSI ASSET TREE INVENTORY' with an unchecked checkbox. The second layer is 'GSI Asset Inventory' with a checked checkbox. Below the layers panel is a legend for the 'GSI Asset Inventory' layer, listing various asset types with corresponding colored circles: Chicane/Curb Extension (red), Right of Way Basin (pink), Traffic Circle (green), Rain Garden (light blue), Vegetated Swale (orange), Traffic Median (dark green), Stormwater Harvesting Basin (teal), and Other (blue). At the bottom of the legend, there are additional layer names: 'GSI_Asset_Inventory - devside_AKONDEH1.devside_AKONDEH1_GSI_A' and 'SSET_MAINTENANCE_WORK_Checklist'.



PARTNERSHIPS

- Interdepartmental @ COT
 - Transportation
 - Water
 - Planning and Development Services
 - Housing and Community Development
- County Regional Flood Control District
- University of Arizona





Green Infrastructure in Boston

Kate England, Director
City of Boston Office of Green Infrastructure
December 17, 2024





Director of Green Infrastructure

Nubian Square (Streets | Roxbury)

Office of Green Infrastructure

- Policy Example: GI Right-of-Way Policy
- Green Infrastructure Maintenance
- Supporting Other Departments



Franklin Field (BHA | Dorchester)



GI Right-of-Way Policy



Union St

Lyne Rd

Winship St

Chestnut Hill Ave

Lyne Rd

Chestnut Hill Ave

Priscilla Rd

Chestnut Hill Ave (Brighton)

60

62

4

2

6

68

10

14

20

22

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12

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73 A

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15



*New England Avenue
Dorchester | Pre-Construction*



*New England Avenue
Dorchester | Post-Striping*



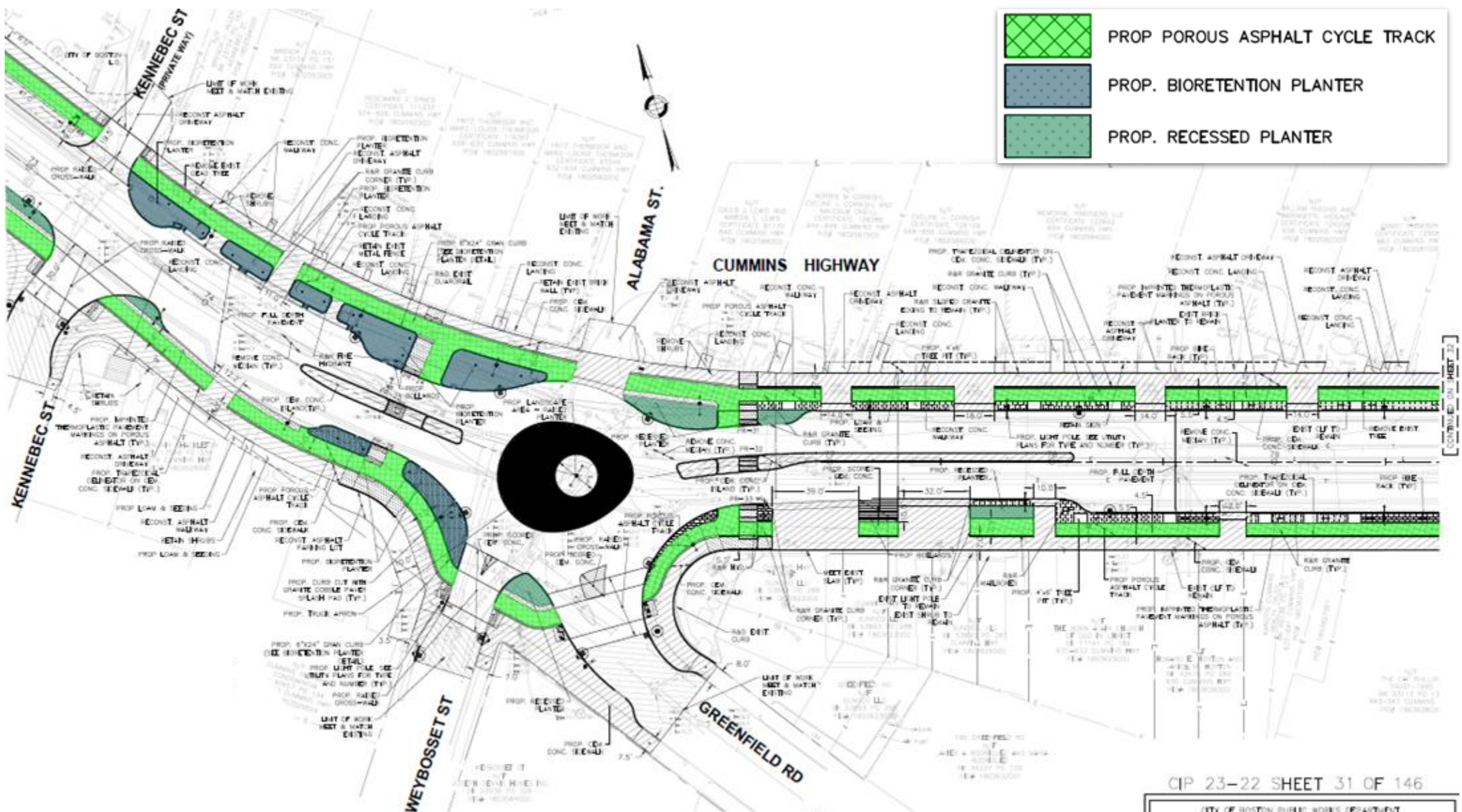
*New England Avenue
Dorchester | Post-Construction*

GI ROW Policy | Overview

Starting in October 2022, Streets Cabinet designs that alter curb lines must include 1 of 5 Design Alternatives:

1. ROW Bioretention
 2. Infiltrating Tree Pit/Tree Trench
 3. Porous Paving
 4. Subsurface Infiltration Area
 5. One-time Seeding
- Two (2) Maintenance Contracts
 - Landscape Maintenance
 - Regenerative Air Vacuum Sweeping
 - Green Infrastructure Volunteer Program
 - Piloted October 2023 - February 2023
 - Launched Citywide April 2024 (Earth Day!)





CIP 23-22 SHEET 31 OF 146

CITY OF BOSTON PUBLIC WORKS DEPARTMENT
 ENGINEERING DIVISION
**CUMMINS HIGHWAY
 RECONSTRUCTION
 CONSTRUCTION PLAN**
 MATTAPAN
 WOOD AVENUE/HARVARD STREET TO FARRAY STREET
 SCALE: 1" = 20'
 DISTRICT: 7/8
 AREA: 2/3
 DATE: SEPTEMBER, 2023
 CITY ENGINEER

SURVEY BY:	MITCH
DRAWN BY:	J. LORIANA / D. BORDO
CHECKED BY:	J. SASTRINE
APPROVED BY:	S. FARR



NOTES:
 1. REFER TO SHEET 30 FOR LEGEND, GENERAL NOTES, AND APPROPRIATIONS.
 2. ALL DEPOSITIONS SHALL BE PLACED AND UTILITIES PLANS FOR ALL DEPOSITIONS RELATED TO EXISTING AND UTILITIES AND DRAINAGE STRUCTURES.
 3. 2 SETS OF BURIED RAILROAD TRACKS THROUGH OUT THE CORRIDOR THAT FACTOR SHALL REMOVE AND REPOSE INCLUDING RIES AND CORRIESTONE RAILROAD TRACKS ARE NOT SHOWN IN THE PLANS FOR CLARITY.

REVIEWED FOR GENERAL DESIGN AND CONFORMITY TO CITY STANDARDS

BOSTON PUBLIC WORKS DEPARTMENT

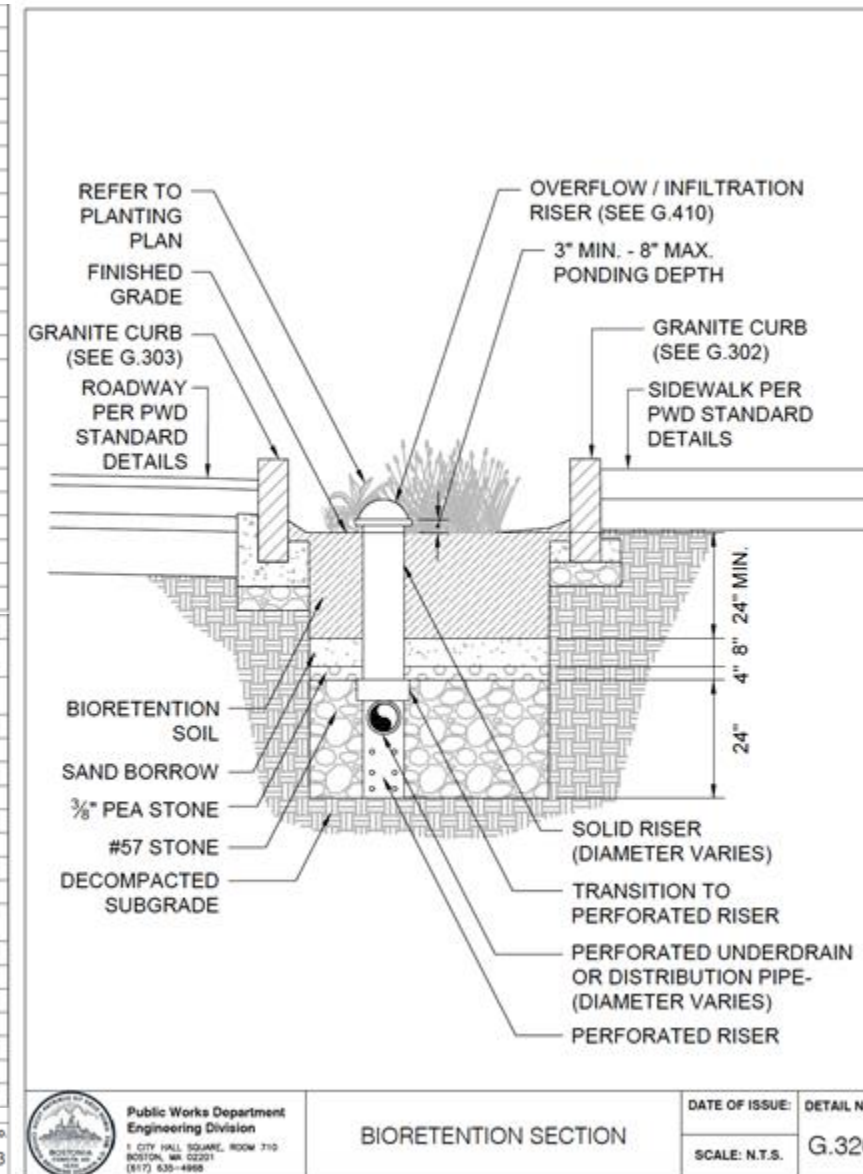
Cummins Highway
 Mattapan

Supporting Resources | Details & Specifications

Details and materials were selected based on current best practice, feedback from the *Details & Specifications Subgroup* of the Green Infrastructure Working Group & discussions with relevant departments, e.g.:

- Disabilities Commission
- Public Works Department
- Transportation Department
- Parks & Recreation Department
- Boston Public Schools
- Boston Water & Sewer Commission

Detail	Title	Date of Issue
STORMWATER CAPTURE		
G.101	CURB CUT INLET	XXX 2023
G.102	GRANITE COBBLE PAVER SPLASH PAD	XXX 2023
G.103	WASHED RIVER STONE SPLASH PAD	XXX 2023
G.104	STORMWATER CAPTURE WITH DROP INLET	XXX 2023
G.105	PREFABRICATED TRENCH DRAIN WITH GRATE	XXX 2023
G.106	CAST-IN-PLACE TRENCH DRAIN WITH GRATE	XXX 2023
G.107	PRECAST CONCRETE END SECTION FOR TRENCH DRAIN	XXX 2023
G.108	CURB CASTING FOR TRENCH DRAIN	XXX 2023
G.120	GENERAL NOTES FOR POROUS PAVEMENT SYSTEMS	XXX 2023
G.121	TYPICAL POROUS ASPHALT SECTION	XXX 2023
G.122	TYPICAL POROUS CONCRETE SECTION	XXX 2023
G.123	TYPICAL POROUS PAVER SECTION	XXX 2023
G.124	PERMEABLE RUBBER PAVING	XXX 2023
G.125	RESIN BOUND AGGREGATE OR PERMEABLE RUBBER PAVING AT TREES	XXX 2023
G.126	WATERSTOP	XXX 2023
PRETREATMENT MEASURES		
G.201	PVC AREA DRAIN	XXX 2023
G.202	DRAIN CLEANOUT	XXX 2023
G.220	STONE FOR PIPE ENDS	XXX 2023
G.221	SEDIMENT FOREBAY AT PIPE INLET	XXX 2023
G.222	MINI-FOREBAY WITH WEIR AT CURB INLET	XXX 2023
G.223	MINI-FOREBAY WITH CHECK DAM AT CURB INLET	XXX 2023
G.224	STONE DIAPHRAGM	XXX 2023
DETENTION / INFILTRATION / EXFILTRATION		
G.301	GRANITE CURB FOR GREEN INFRASTRUCTURE NEAR SIDEWALK	XXX 2023
G.302	GRANITE CURB FOR GREEN INFRASTRUCTURE NEAR ROADWAY	XXX 2023
G.303	LOW METAL FENCE AT GREEN INFRASTRUCTURE	XXX 2023
G.304	SPECIAL LIGHT POLE FOUNDATION	XXX 2023
G.320	BIORETENTION SECTION	XXX 2023
G.321	BIOSWALE SECTION	XXX 2023
G.322	VEGETATED SWALE SECTION	XXX 2023
G.330	STONE INFILTRATION TRENCH	XXX 2023
G.331	SAND BASED STRUCTURAL SOIL INFILTRATION TRENCH	XXX 2023
G.360	SEEDED BIORETENTION AREA	XXX 2023
G.361	SHRUB, ORNAMENTAL GRASS, PERENNIAL, AND GROUND COVER PLANTING	XXX 2023
G.362	TREE PLANTING	XXX 2023
G.363	TREE PIT WITH AERATION / WATERING LOOP	XXX 2023
STORMWATER RELEASE AND OVERFLOW		
G.401	PILED STONE CHECK DAM	XXX 2023
G.402	GRANITE OR CONCRETE WEIR	XXX 2023
G.403	METAL WEIR	XXX 2023
G.410	DOMED FRAME AND GRATE OVERFLOW STRUCTURE	XXX 2023



Supporting Resources | Guidelines & Plant Palette

Vegetated Surface Feature - Vegetated Swale:

Vegetated swales are small linear planted features with simple planting palettes, also sometimes referred to as "green strips." As the name implies, these features are swale-shaped and accept runoff from adjacent sidewalks and cycle tracks (pavement roadways). Vegetated swales are typically used at the back of curb, between the roadway and sidewalk or between walking paths and cycle tracks.



Siting:

- Small linear areas - less than 3' wide x any length (approximate - can be used in larger areas)
- Can be located: between the roadway and a paved pathway; between two paved pathways, or; at the "back" of a paved pathway

Design:

- Swale-shaped (level bottom 6" - 2" wide)
- Maximum slope is 1:3
- Ponding depth of 2" - 4", max 6"
- Swale edge should be at grade or recessed approx. 1" below adjacent paved areas to allow runoff to sheet flow into the feature
- Minimum 6" wide level area (stone/planted) adjacent to any paved pathways
- Minimum soil depth of 12" (approx. 12" - 24")

Materials:

- Only biosoil, planting soil or amended native soils may be used - NO LOAM
 - Soil may be amended with sand for increased permeability
 - 3:1 ratio of soil (75%)/sand (25%)
 - Native soils may be amended with sand and compost
 - 3:1:1 ratio of soil (60%)/compost (20%)/sand (20%)
- Simple planting palettes should be used
 - Less than 3 plant species - grasses/herbaceous
- If seeded, an Office of Green Infrastructure approved seed mix must be used (use tools like Google Earth, ShadowMap and other apps to determine light levels):
 - Groundcover - herbaceous
 - Wildflower - Sun or Shade Mix
 - Miscellaneous mix from the [approved list](#)
- Trees may be planted in these features (with appropriate soil material volume/depth and if sightlines permit)

Additional Information:

- Areas that meet the size "requirements" for a Bioswale or Bioretention feature, but would not receive roadway runoff due to grading constraints should (at a minimum) be vegetated swales that accept runoff from the adjacent sidewalk/cycle track
- Tree fence or curb (granite/concrete) may be used around the perimeter of the feature, if desired, but are not required

CoB ROW GI - Plant Palettes .XLSX

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J26 | fx

	A	B	C	D	E	F	G
		Fern	Scientific Name	Light		Wetland Edge Seed Mix: Wet	
		Lady Fern	Athyrium filix-femina	P*/Sh		Common	Scientific Name
		Sensitive Fern	Onclea sensibilis	F/P*/Sh		Bluestar	Amsonia 'Blue Ice'
		Cinnamon Fern	Osmunda cinnamomea	F/P/Sh*		Dwarf Joe Pye Weed	Eupatorium dubium 'Little Joe'
						Short Toothed Mountain Mint	Pycnanthemum muticum
						Culver's Root	Veronicastrum virginicum 'Lavender Towers'
		Grasses	Scientific Name	Light			
		Creek Sedge	Carex amphibola	P/Sh*			
		Fringed Sedge	Carex crinita	P/Sh		Wetland Edge Seed Mix: Wet/Dry	
		Pennsylvania Sedge	Carex pennsylvanica	P/Sh*		Common	Scientific Name
		Tussock Sedge	Carex stricta	P/Sh		Swamp Milkweed	Asclepias incarnata
		Soft Rush	Juncus effusus	F/P		Showy Milkweed	Asclepias speciosa
		Switchgrass	Panicum virgatum	F		Common Milkweed	Asclepias syriaca
		Little Bluestem	Schizachyrium scoparium	F*/P		Purple Milkweed	Asclepias purpurascens
		Soft Stem Bullrush	Scirpus validus	F*/P		White Wood Aster	Aster divaricatus
		Perennials	Scientific Name	Light		General "Wet" Seed Mix	
		Yarrow	Achillea millefolium	F*/P		Common	Scientific Name
		Swamp Milkweed	Asclepias incarnata	F*/P		Joe Pye Weed	Eutrochium dubium
		Butterfly Milkweed	Asclepias tuberosa	F		Little Bluestem	Schizachyrium scoparium
		False Blue Indigo	Baptisia australis	F		New England Aster	Symphotrichum novae-angliae
		Marsh Marigold	Caltha palustris	F/P		Swamp Milkweed	Asclepias incarnata
		Turtlehead	Chelone glabra	F/P		Broom Sedge	Carex scoparia
		Purple Coneflower	Echinacea purpurea (L.) Moench	F		Tussock Sedge	Carex stricta
		Trout Lily	Erythronium americanum	F/P		Boneset	Eupatorium perfoliatum
		Spotted Joe Pye Weed	Eupatorium maculatum	F*/P		Jewelweed	Impatiens capensis
		Boneset	Eupatorium perfoliatum	F/P		Blue Flag Iris	Iris versicolor

+ ≡ Seeded Areas ▾ Vegetated Swale ▾ Bioswale/Bioretention ▾

GI ROW Policy | Expansion

Starting 2025, most projects in the ROW must include green infrastructure:

- Policy now captures:
 - Public and private projects
 - All Public Improvement Commission Specific Repairs projects
 - Projects replacing 250 linear feet or more of contiguous sidewalk
 - Projects proposing pavement restoration in Streets Cabinet parking lots and maintenance yards
- Any/all GI in the MA Stormwater Handbook
- Stronger requirements for “new” ROWs and parking lots (100-year, 24-hour storm)





Green Infrastructure Maintenance

New England Avenue (Streets | Dorchester)

Remove maintenance “barrier”

- Two (2) maintenance contracts:
 - Landscape Maintenance Contract
 - Porous Paving Maintenance Contract
- Maintaining GI from all departments
 - BPL, BPRD, BPS, BTD, BWSC, PWD
- Procured contracts via “creative contracting”
 - RFP, rather than standard “low bid”
 - City Certified Businesses (three (3) quotes, \$250k)



Maintenance | Contracts



- Procuring contracts using methods other than standard “low bid”
- Request for Proposal
- City Certified Businesses (three (3) quotes, \$250k)

Maintenance | Thursdays with PowerCorps



Peabody Square (Streets & Parks | Dorchester)

“PowerCorpsBOS is a 10-month Green Industry Workforce Development Program.

An “earn and learn” program, PowerCorpsBOS pays members to participate in hands-on training that prepares them for living-wage careers.”

- 18-30 year old Boston residents
- High school diploma or HiSET/GED
- \$550 weekly stipend & monthly T-pass
- Career services/job placement assistance

Participants remove weeds, leaf litter and debris, as well as install vegetation, prune, etc.



Harambee Park (Parks | Dorchester)

Maintenance | Green Infrastructure Volunteer Program (GIVP)

“The GI Volunteer Program (GIVP) is a City-sponsored program, with City-branded gear, tools and supplies.”

Volunteers receive GI maintenance training and resources from the City’s Office of Green Infrastructure so that they can perform cleanup and beautification tasks on their own schedule



Mary Ellen Welch Greenway (BPRD | East Boston)

A photograph of a park area. In the background, there is a multi-story brick building with many windows, partially obscured by large, leafy green trees. In the foreground, a stone path leads through a grassy area with some taller green plants. The overall scene is bright and sunny.

Supporting All Departments

Cassidy Playground (BPRD | Brighton)



We're all in this together!

- GI Working Groups
 - Bi-monthly overall group
 - Three (3) subgroups: Coordination & Maintenance, Details & Specifications, Policy
- Capital requests for other departments' GI
 - e.g. \$5 mil for Cummins Highway GI (Public Works)
- Construct GI with other departments
 - BPL, BPRD, BPS, PWD



East Boston Early Education Center

Boston Public Schools



Early Education Center (BPS | East Boston)



Early Education Center (BPS | East Boston)



SuccessLink

Boston Housing Authority

BHA SuccessLink

- Youth from BHA's Franklin Field
- 6 weeks of programming
- Lessons/activities about stormwater and GI planning, design, construction, and maintenance
- Culminating in rain garden construction



Franklin Field (BHA | Dorchester)



Franklin Field (BHA | Dorchester)

Thank You!

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Central Square (Streets | East Boston)



QUESTIONS

Type your questions into the “questions” box and click “send.” Please note that the chat has been disabled for this webinar.