

**Northeast Ohio
Regional Sewer District**



NEORS Green Infrastructure Grants Program Pre-proposal Workshop

2023 GI Grants funding round

Watershed Stewardship Center at West Creek
2277 West Ridgewood Drive
Parma, OH, 44134

Housekeeping

- Highly recommend utilizing the chat for comments and questions
- Mute your microphone
- Recording will start

Agenda

- District Overview and GI Grant Program
- Grant Eligibility
- Grant Criteria
- Contract
- Technical Requirement
- First-Year Maintenance
- Document Submittal Process



NEORSD Green Infrastructure Grants Program

Preproposal Workshop for the 2023 GI Grants funding round



NEORSD Overview

Keith McClintock, Manger of Watershed Programs

Who We Are...

- Created in 1972 by Court Order
- Servicing all or part of 62 member communities
- 1 million customers
- 90+ billion gallons wastewater treated each year
- 487 miles of regional streams



...And What We Do

- Wastewater Treatment Plants
- Interceptor Sewer Operation and Maintenance
- Combined Sewer Overflow Control
- Regional Stormwater Management
- Grant Funding Opportunities



Introduction

We define Green Infrastructure as stormwater source control measures that store, filter, infiltrate, harvest, and reuse or evapotranspirate stormwater to increase resiliency of infrastructure by reducing stress on wet-weather drainage and collection systems, which increase co-benefits in support of healthy environments and strong communities.

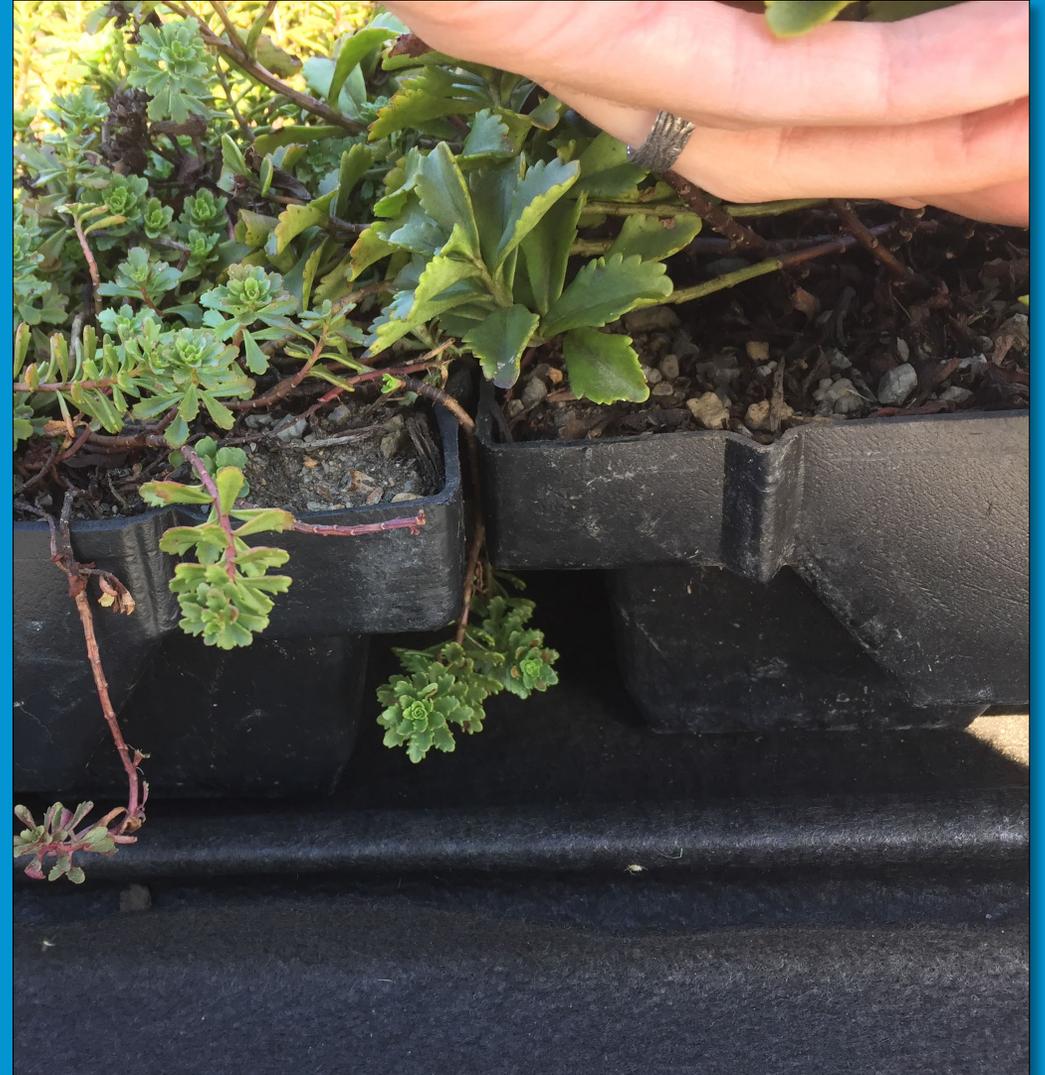
Introduction

The Green Infrastructure Grant Program (GIG) focus is funding GIG implementation and long-term maintenance projects and to remove stormwater runoff from the combined sewer collection system that **protects, preserves, enhance, and restores natural hydrologic functions within the District's combined sewer service area.**

Introduction

GI Grant Options

- Design-Only (concept)
- Design and/or Construction



Introduction

Terms of Funding

- The GI Grant is exclusively a reimbursement grant
- Reimbursement will be made on project specific invoices as related to the awarded project



Green Infrastructure Grant

Funding Round	Award Recommendations Total	Runoff Reduction gallons/year Total
2014 GREEN INFRASTRUCTURE GRANT PROGRAM	\$1,746,274	7,138,890
2016 GREEN INFRASTRUCTURE GRANT PROGRAM	\$1,974,747	9,658,777
2018 GREEN INFRASTRUCTURE GRANT PROGRAM	\$799,130	1,730,688
2019 GREEN INFRASTRUCTURE GRANT PROGRAM	\$1,908,361	4,906,083
2020 GREEN INFRASTRUCTURE GRANT PROGRAM	\$1,907,656	3,888,596
2021 GREEN INFRASTRUCTURE GRANT PROGRAM	\$895,432	2,978,459
2022 GREEN INFRASTRUCTURE GRANT PROGRAM*	\$1,500,000	2,356,946
GRAND TOTAL	\$10,768,652.79	31,683,651

*Includes Design Only Projects and Design & Construction Projects

NEORSD Green Infrastructure Grants Program

Preproposal Workshop for the 2023 GI Grants funding round



NEORSD GI Grant Eligibility

Robert Stoerkel, Community Discharge Permit Program Specialist

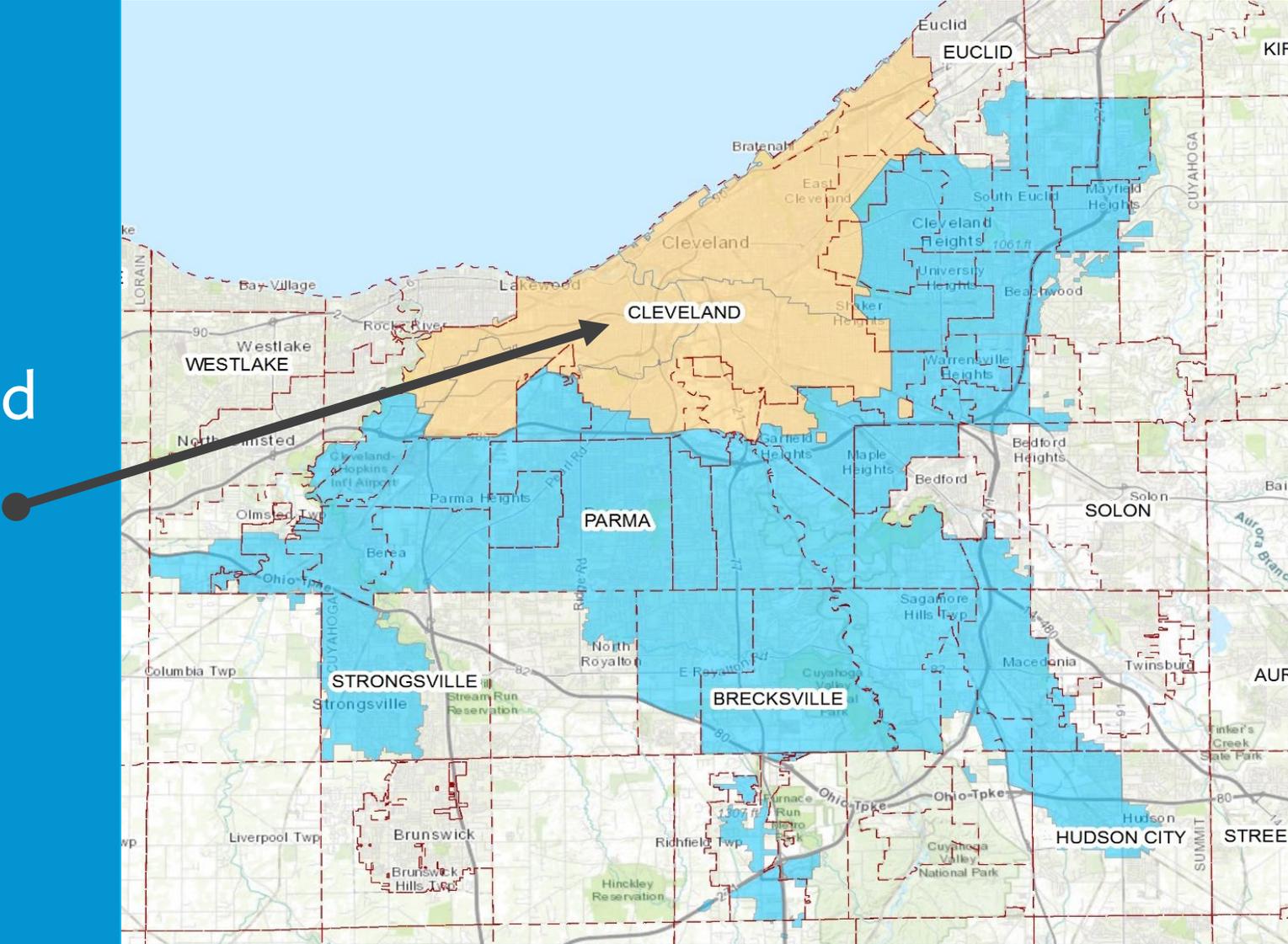
GI Grant Eligibility

The Green Infrastructure Grant Program (GIG) for the Combined Sewer Area Program focus is the **funding of green infrastructure projects to remove stormwater runoff from the combined sewer collection system within the District's combined sewer service area.**

GI Grant Eligibility

Location

Project must be located in the Sewer District's Combined Sewer Area



GI Grant Eligibility

Sewer Types and Function



SEPARATE
SANITARY SEWER



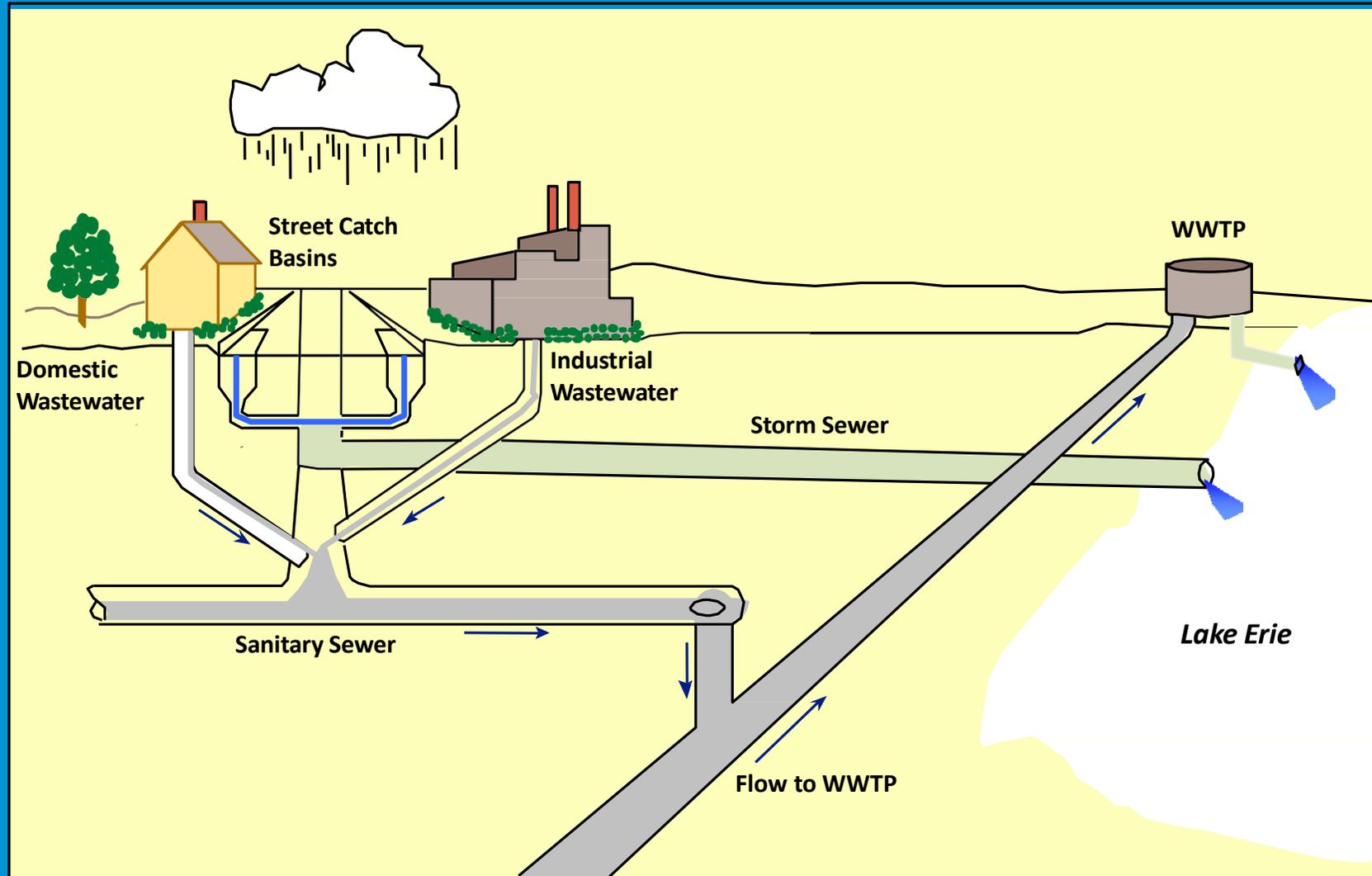
SEPARATE STORM
SEWER



COMBINED
SEWER

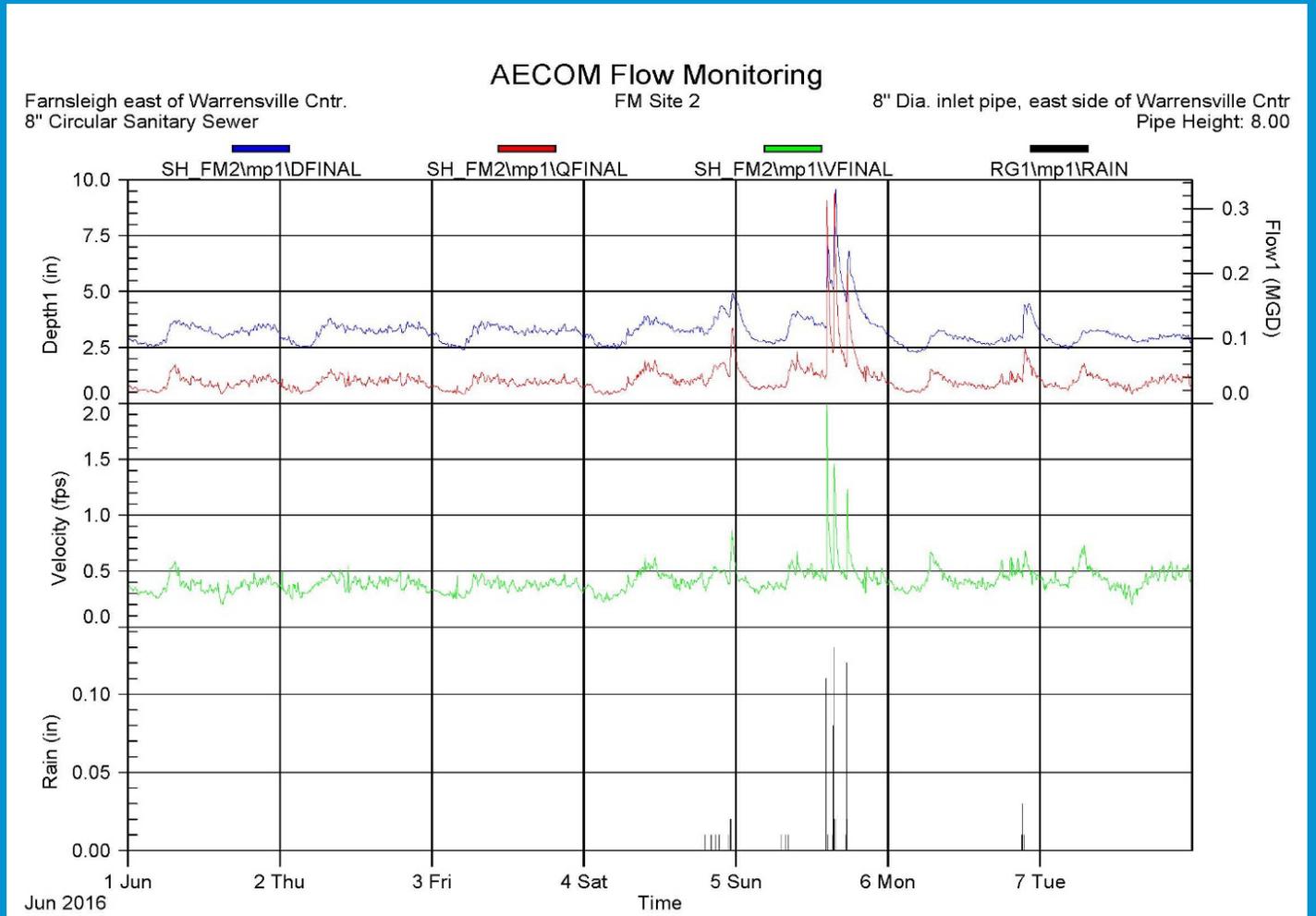
GI Grant Eligibility

Separate Sewer System



GI Grant Eligibility

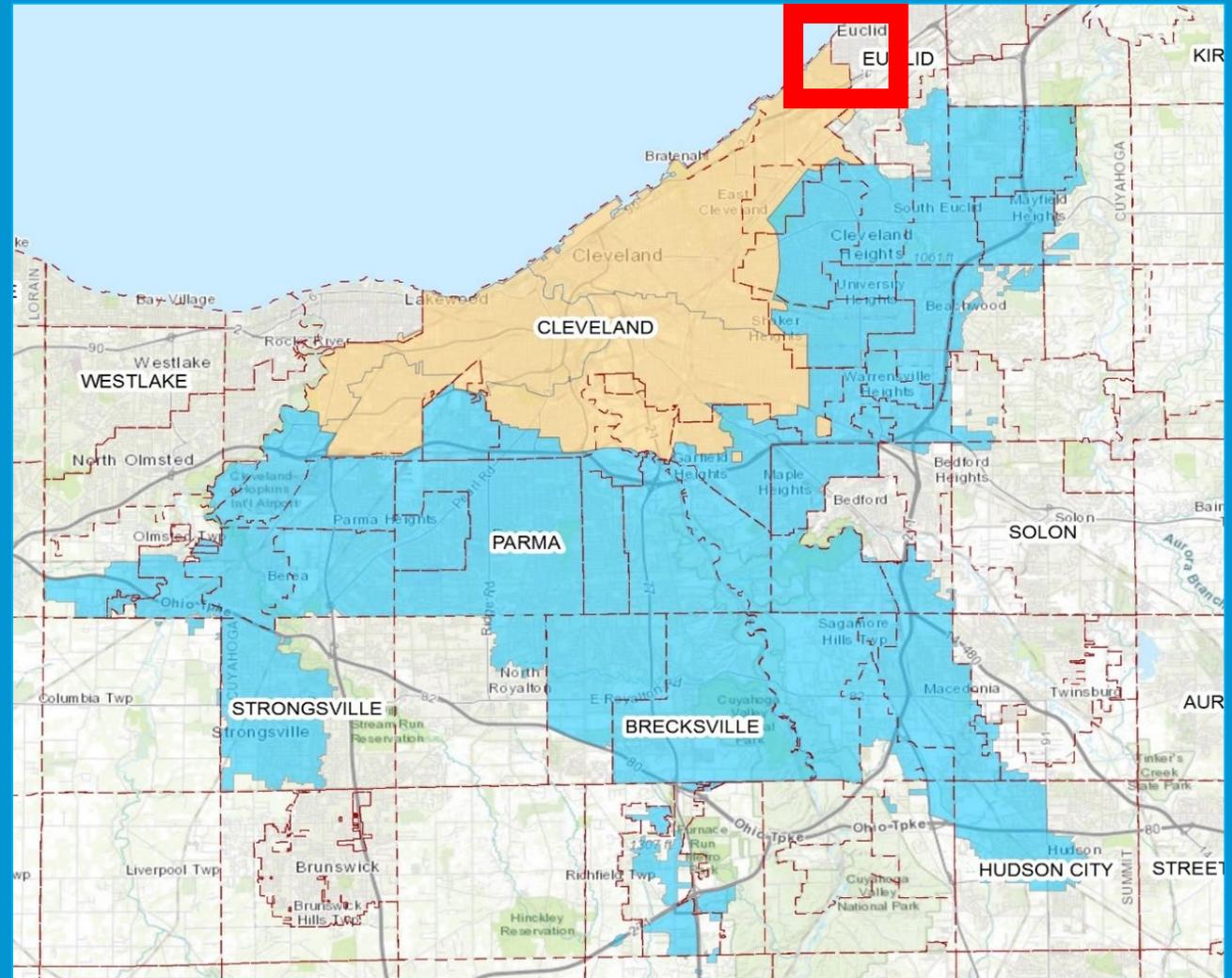
Infiltration and Inflow I&I



GI Grant Eligibility

Location

Example #1: although in combined area, some storm sewers are separated



GI Grant Eligibility

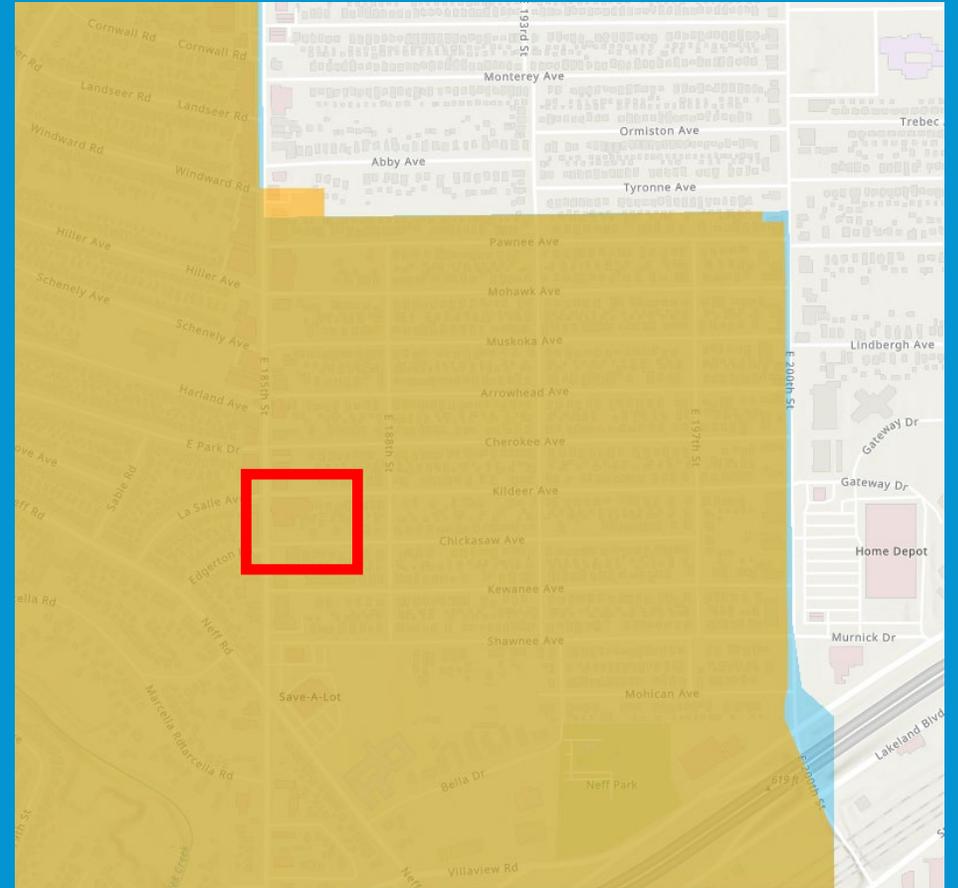
Location

Example #1

Legend

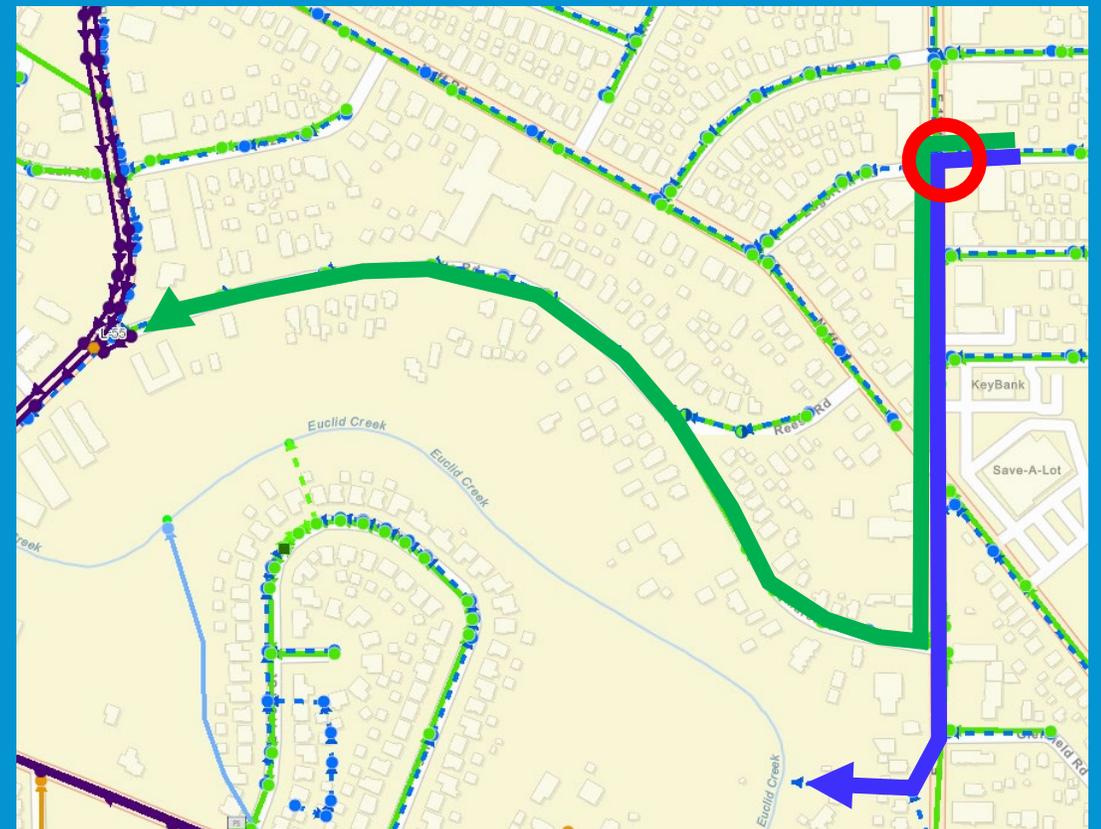
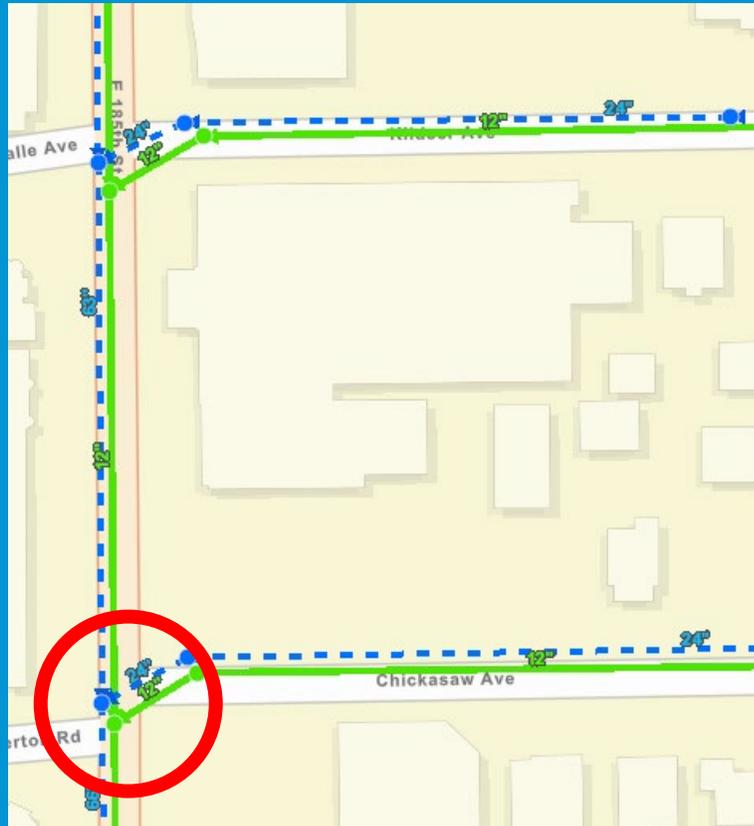
Combined Sewer Area


Wastewater Service Area
District Wastewater Service Area

GI Grant Eligibility

Location
Example #1



GI Grant Eligibility

Location

Example #1:

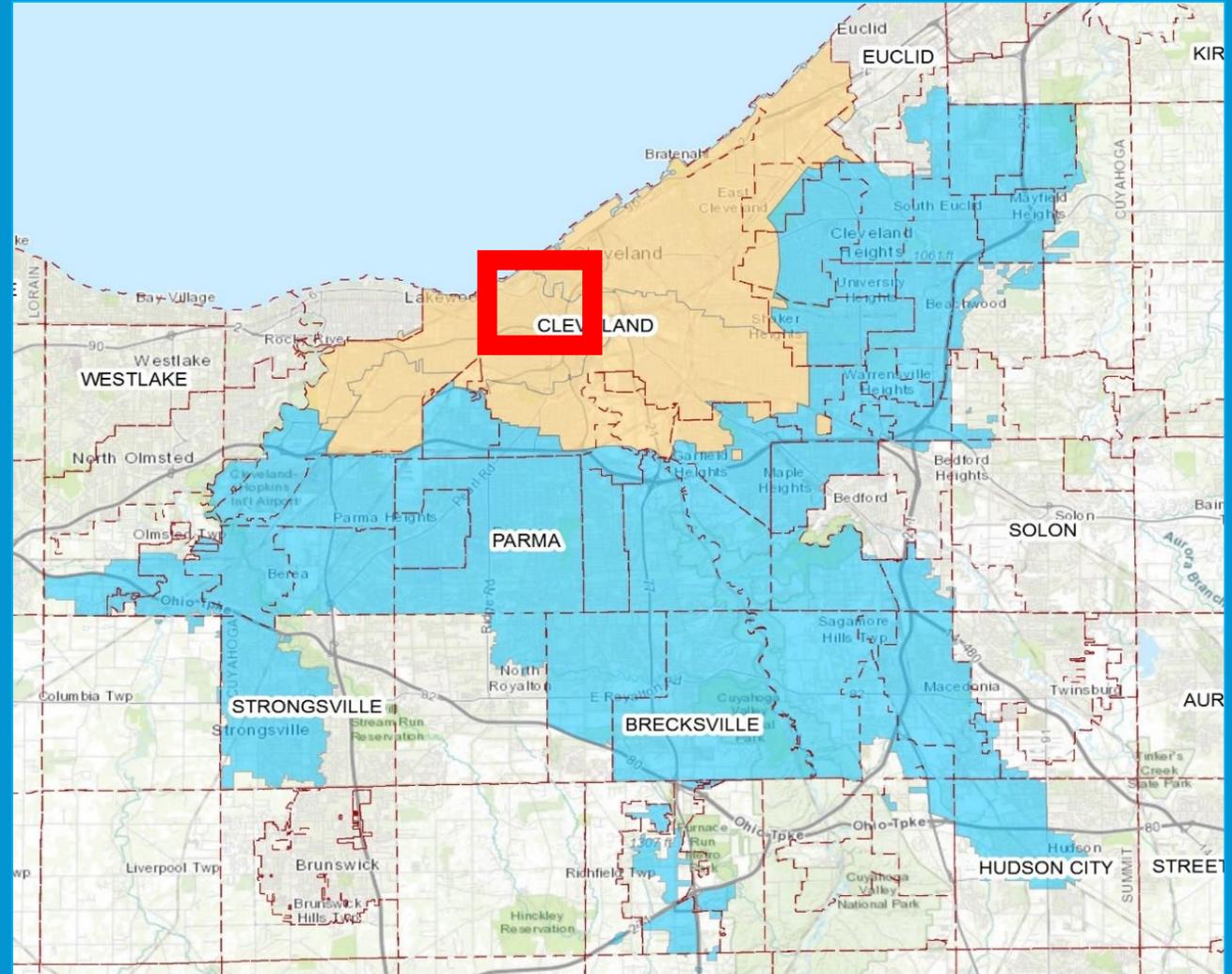
Storm sewers are separate from the combined sewers and discharge to the environment. Project still received a GI Grant because it was able to prove a significant reduction of inflow and infiltration (I & I) into the sanitary system, which is tributary to the combined sewer (e.g., leaky storm and sanitary sewers were adjacent to each other...removing the source of stormwater decreased I&I).



GI Grant Eligibility

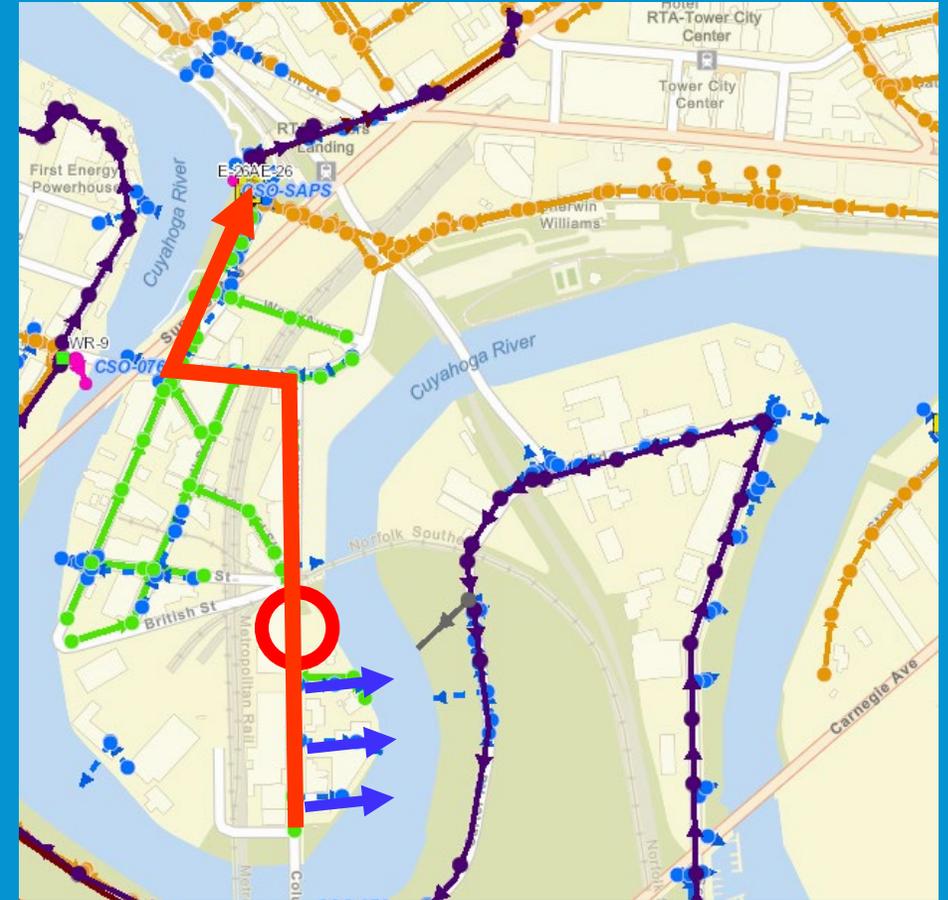
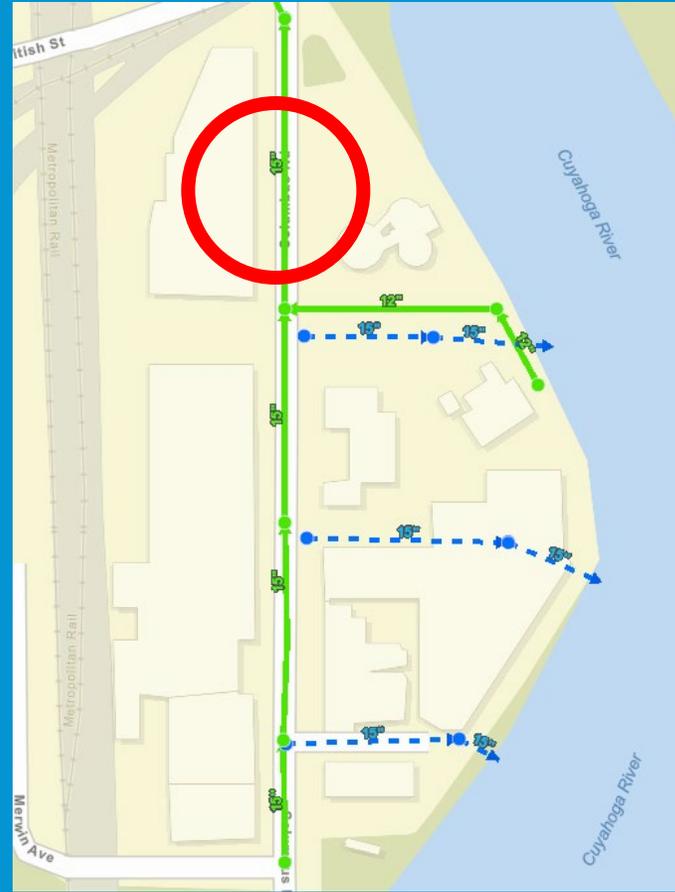
Location

Example #2: although in combined area, storm sewers are separated and directly connected to a watercourse



GI Grant Eligibility

Location
Example #2



GI Grant Eligibility

Location

Example #2: Storm sewers are separate from the combined sewers and discharge directly to the river. Project was not eligible for a GI Grant because it was NOT able to prove a significant reduction of inflow and infiltration (I & I) into the sanitary system (tributary to the combined sewer).

GI Grant Eligibility

Project

Must quantifiably reduce the stormwater runoff volume to the combined sewer system

GI Grant Eligibility

Sewer District Bills

Applicant and the property associated with the proposed project must be current and in good standing with all Sewer District bills

NEORSD Green Infrastructure Grants Program

Preproposal Workshop for the 2023 GI Grants funding round



NEORSD GI Grant Applicant

Jessica S. Cotton, Grant Programs Administrator

GI Grant Program Applicants

Applicant must represent

- Member Community
- Governmental Entity
- Non-Profit 501(c)(3)
- Business working in partnership with their community



Contractual Requirements is located on NEORSD website :
(<https://www.neorsd.org/stormwater-2/green-infrastructure-grant-program>)

GI Grant Program Applicants

Site Control

Applicant must be able to demonstrate permanent control of the project site



GI Grant Program Applicants

Use of Green Infrastructure

Project must demonstrate on-site stormwater control measures using green infrastructure



Striebinger Block Living Wall - Hingetown

GI Grant Program Applicants

Signage

- Sign design
- Signage post

Annual Inspection

- Individual Awarded Project
- NEORSD



Providence House - West

NEORSD Green Infrastructure Grants Program

Preproposal Workshop for the 2023 GI Grants funding round



NEORSD GI Grant Contract

Katie Waag, Assistant General Counsel

GI Grant Contract

GI Project Grant Agreement

- Contracting Process
- Key Contract Provisions
- Legal Review by Attorney Prior to submitting Grant Application



(<https://www.neorsd.org/stormwater-2/green-infrastructure-grant-program>)

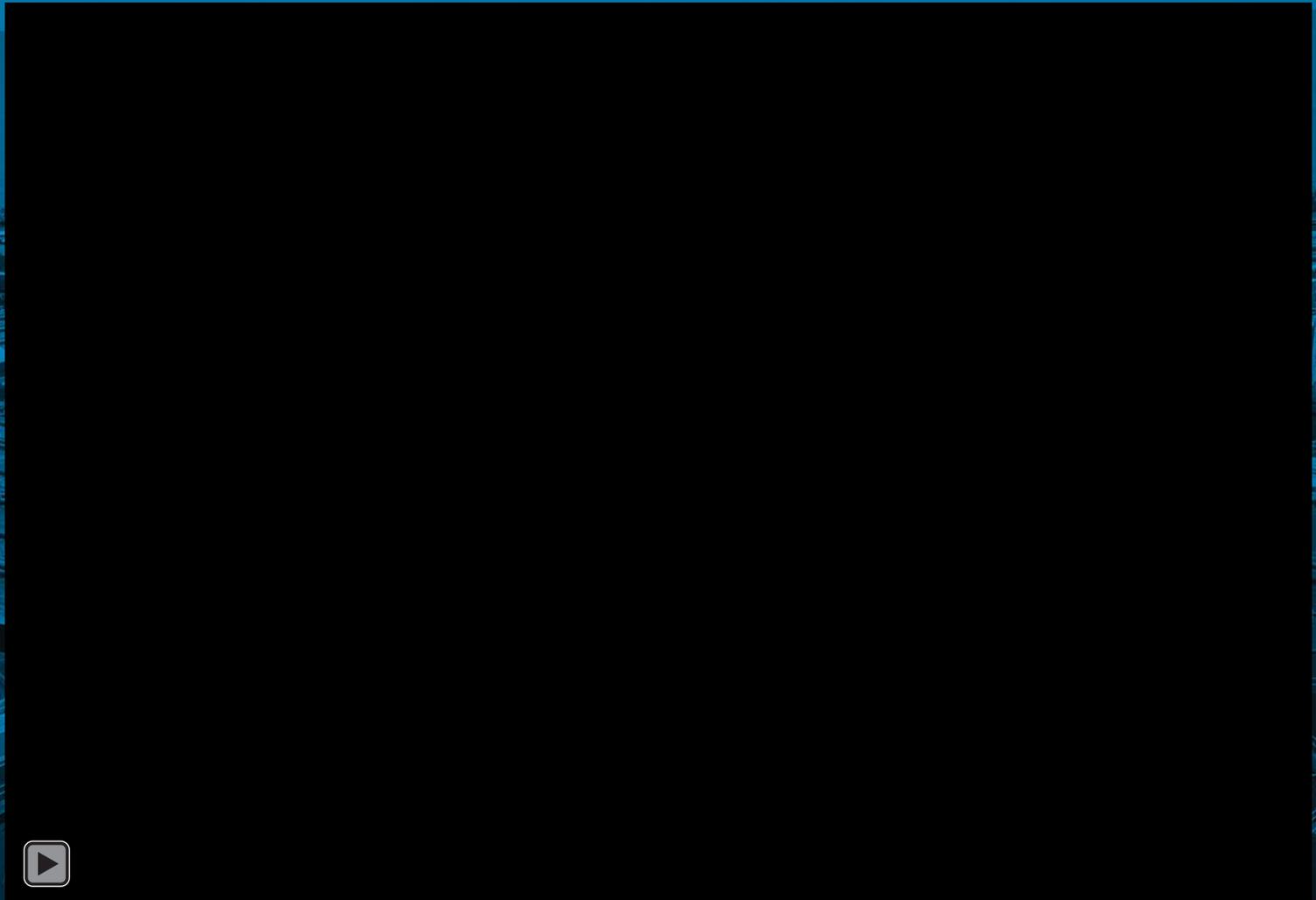
GI Grant Questions?

Raise your hand or use the chat

- Overview
- Eligibility
- Applicants
- Contract

NEORSD Green Infrastructure Grants Program

Preproposal Workshop for the 2023 GI Grants funding round



NEORSD Green Infrastructure Grants Program

Preproposal Workshop for the 2023 GI Grants funding round

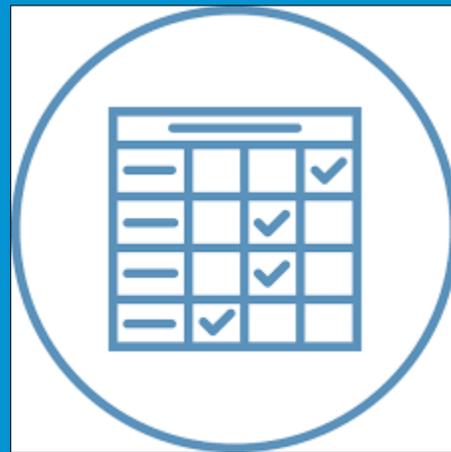


NEORSD GI Grant Evaluation Criteria and Technical Requirements

Chris Hartman, Stormwater Technical Specialist

GI Grant Evaluation Criteria

Application Scoring Rubric



GI Grant Evaluation Criteria

Expected Benefits of the Project

30 points

Anticipated volume of stormwater runoff controlled and/or removed from combined sewer system

GI Grant Evaluation Criteria

Project Feasibility

25 points

Constructability and implementation demonstrated by concept design, design plans, maps, and/or stormwater calculations

Anticipated completion date

GI Grant Evaluation Criteria

Programmatic Capacity of the Applicant to Maintain the Project for Design Life Expectancy

25 points

Ability to fund maintenance through the design life expectancy of the GI components

GI Grant Evaluation Criteria

Visibility and Additional Community Benefits

20 points

Project furthers public understanding of the value of GI to treat or remove stormwater runoff from the combined sewer system

Design Completed

10 extra points

Note: Previously funded design-only awards must submit approved plans

GI Grant Program Technical Requirements

GI Grant Program Technical Requirements

NEORSD GI Grant Program

- Title IV
- Stormwater Calculator



GI Grant Program Technical Requirements

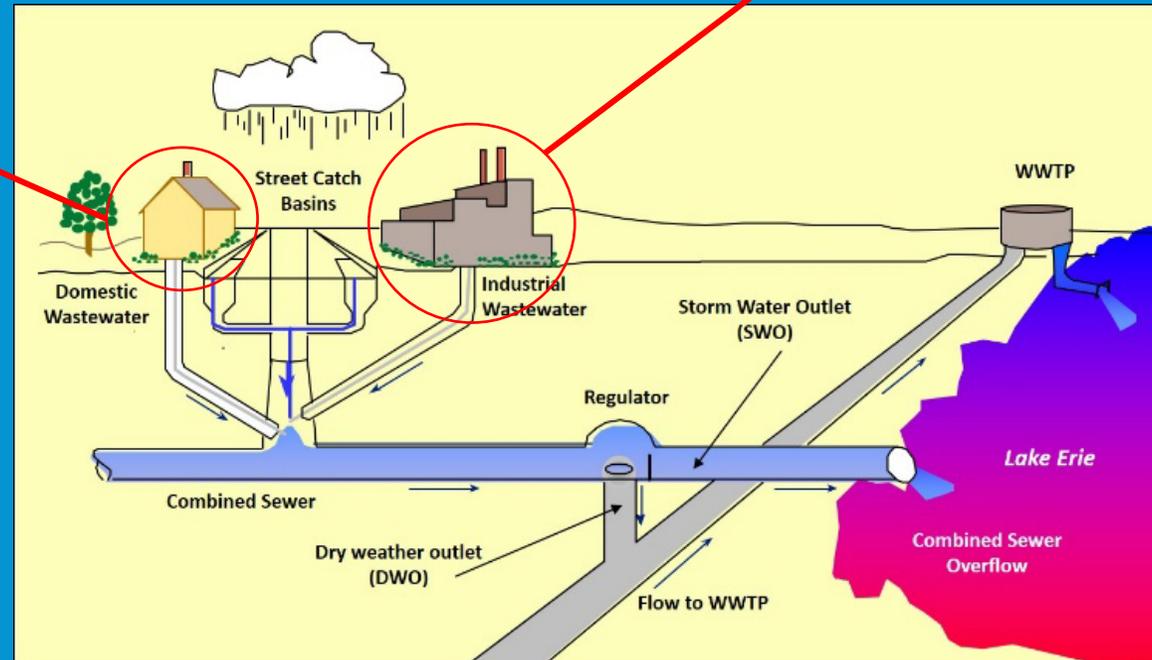
Above and Beyond Title IV

Applicants are subject to the requirements of Title IV of the Sewer District's Code of Regulations

Refer to ***Submittal Requirements for Connections to the Combined Sewer System.***

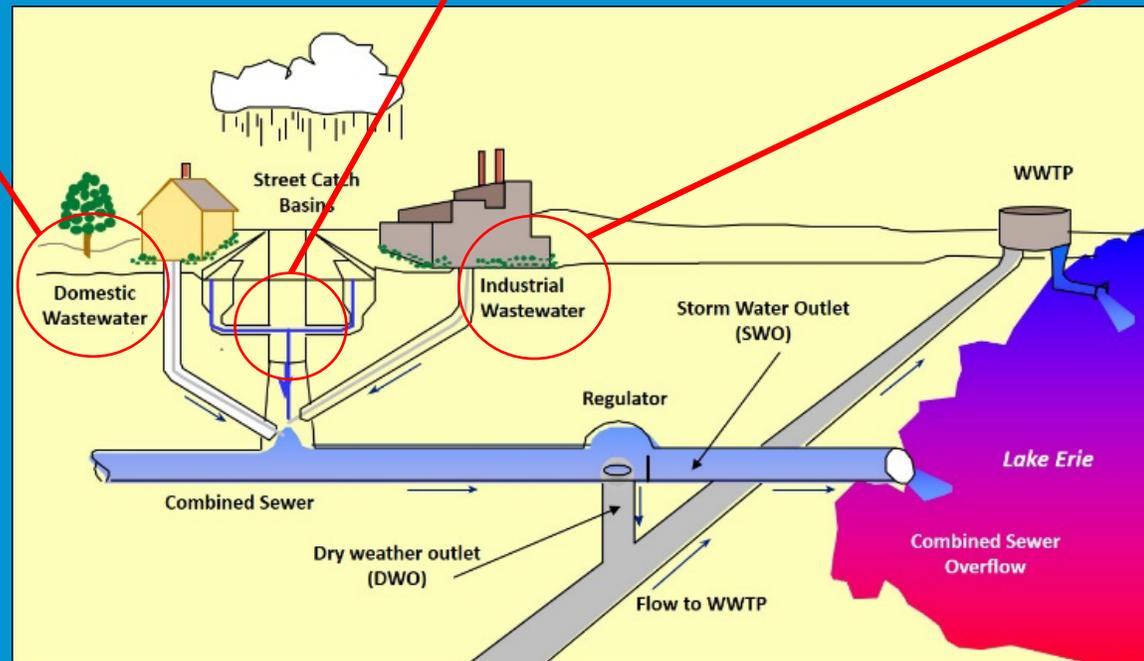
GI Grant Program Technical Requirements

What is the make up of the combined sewer system landscape



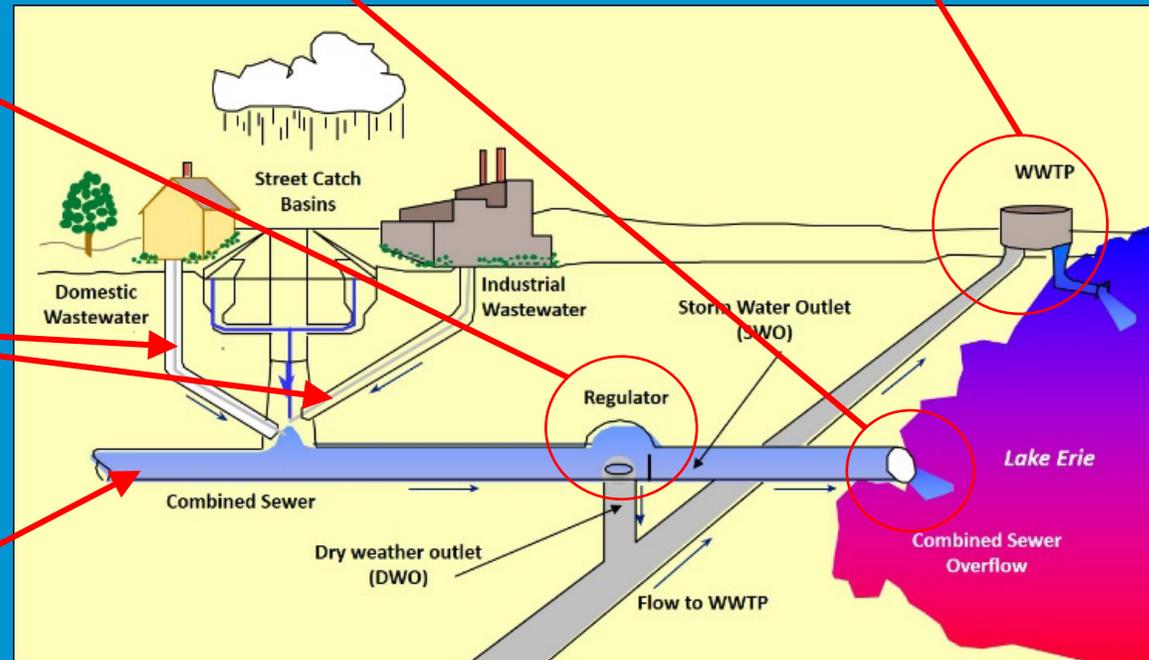
GI Grant Program Technical Requirements

What contributes to the combined sewer system?



GI Grant Program Technical Requirements

What is the infrastructure of the combined sewer system?







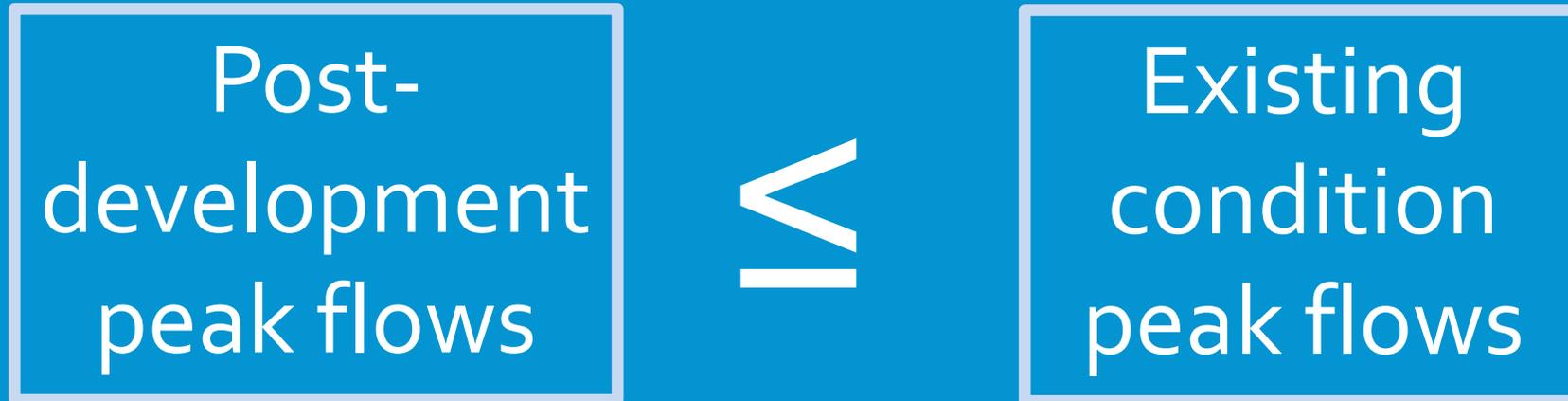
GI Grant Program Technical Requirements

Above and Beyond Title IV

- NEORSD has the authority to:
 - control combined sewer overflows (CSOs) from the combined sewer system
 - control peak flows from local combined sewer systems
- ...at the point of connection into sewers owned by NEORSD or a member community.
- Applicable to any development activity in the combined sewer area, which includes separated sewer areas tributary to the combined system.

GI Grant Program Technical Requirements

Minimum Standards



Post-development peak flows to a regulator must not create increases in flow at CSO locations.

GI Grant Program Technical Requirements

Above and Beyond Title IV

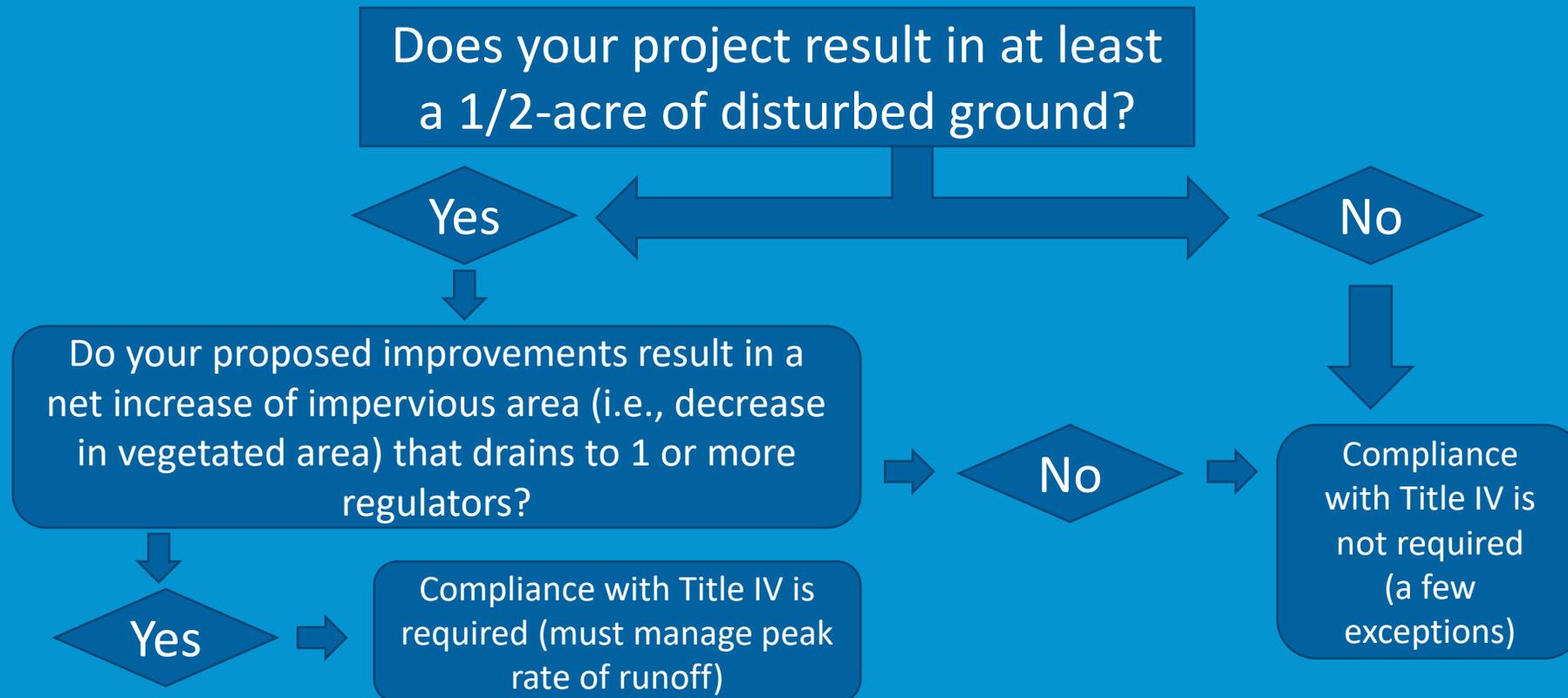
- Existing condition
 - The current land use and impervious area on the subject property at the time of submission to NEORSD.



GI Grant Program Technical Requirements

Above and Beyond Title IV

- When does Title IV come into play?



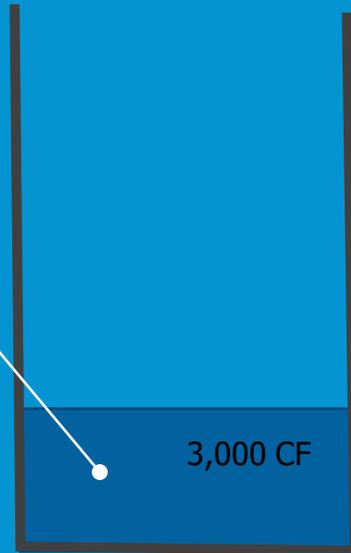
GI Grant Program Technical Requirements

Above and Beyond Title IV

- How to Manage Peak Flow (1-acre site)

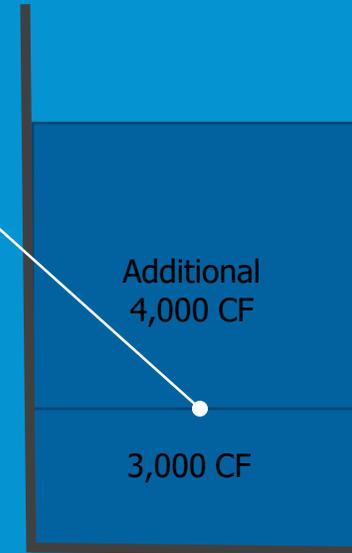
Existing Conditions (Pre)

- Undeveloped (grass)
- 1-year, 24-hr storm = 1.95"
- Resulting 3,000 cubic feet of runoff drains in 12 hrs (0.07 cfs)



Proposed Conditions (Post)

- Developed (100% impervious)
- 1-year, 24-hr storm = 1.95"
- Resulting 7,000 cubic feet of runoff must be discharged no faster than 0.07 cfs (takes 28 hours!!!)...post- peak rate discharge \leq pre-peak rate discharge



Total volume discharged = 7,000 CF

GI Grant Program Technical Requirements

Do you need to Comply with Title IV?



Adding 1.25-acre asphalt parking lot

Do you need to comply with Title IV?

YES – increased parking lot area (decreased vegetative cover)



GI Grant Program Technical Requirements

Do you need to Comply with Title IV?

1.75 acres undeveloped



1.50 acres developed

Adding 1.25-acre permeable paver parking lot



Do you need to comply with Title IV?

YES – increased parking lot area (decreased vegetative cover)

GI Grant Program Technical Requirements

Do you need to Comply with Title IV?



Do you need to comply with Title IV?

NO – did not increase impervious area

Converting 0.75-acre parking lot into permeable pavers



GI Grant Program Technical Requirements

Above and Beyond Title IV

- When does Title IV come into play?
 - Sometimes 2 regulators are involved

GI Grant Program Technical Requirements

Above and Beyond Title IV

Existing condition – 75% of site drains to the combined sewer on north side...peak rate discharge calculated @ 2.0 cfs

Existing condition – 25% of site drains to the combined sewer on south side...peak rate discharge calculated @ 0.5 cfs

Total combined peak rate discharge of 2.50 cfs

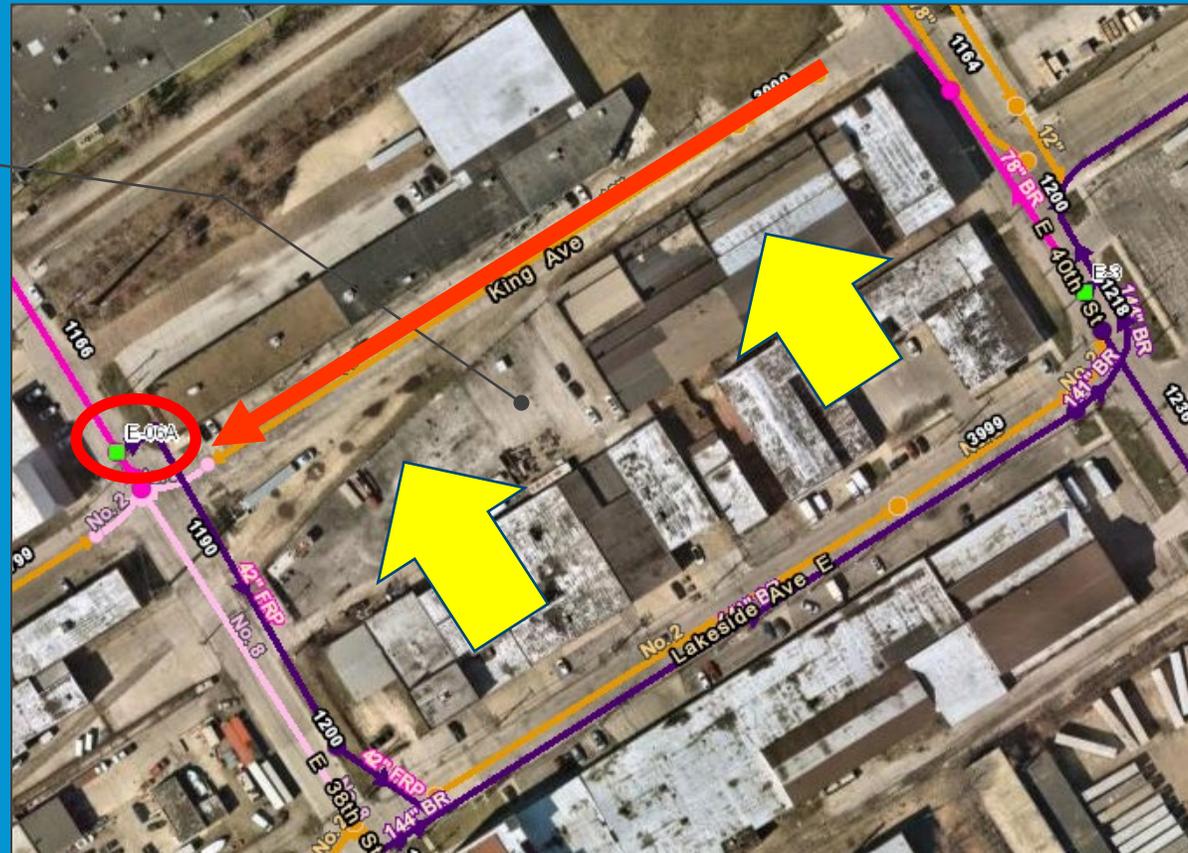


GI Grant Program Technical Requirements

Above and Beyond Title IV

Proposed condition –
entire site drains to
north combined
sewer.

Developed peak rate
discharge for entire
site cannot exceed
existing conditions
peak rate to north
combined sewer...2.0
cfs.



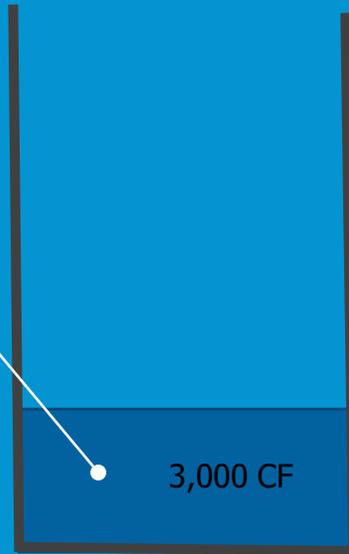
GI Grant Program Technical Requirements

Above and Beyond Title IV

- What does Green Infrastructure Accomplish? Volume Reduction (1-acre site)

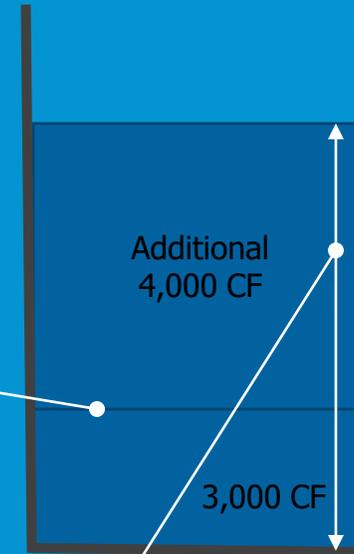
Existing Conditions (Pre)

- Undeveloped (grass)
- 1-year, 24-hr storm = 1.95"
- Resulting 3,000 cubic feet of runoff drains in 12 hrs (0.07 cfs)



Proposed Conditions (Post)

- Developed (100% impervious)
- 1-year, 24-hr storm = 1.95"
- Resulting 7,000 cubic feet of runoff



Total volume discharged < 7,000 CF

Goal: $\leq 3,000$ CF

GI Grant Program Technical Requirements

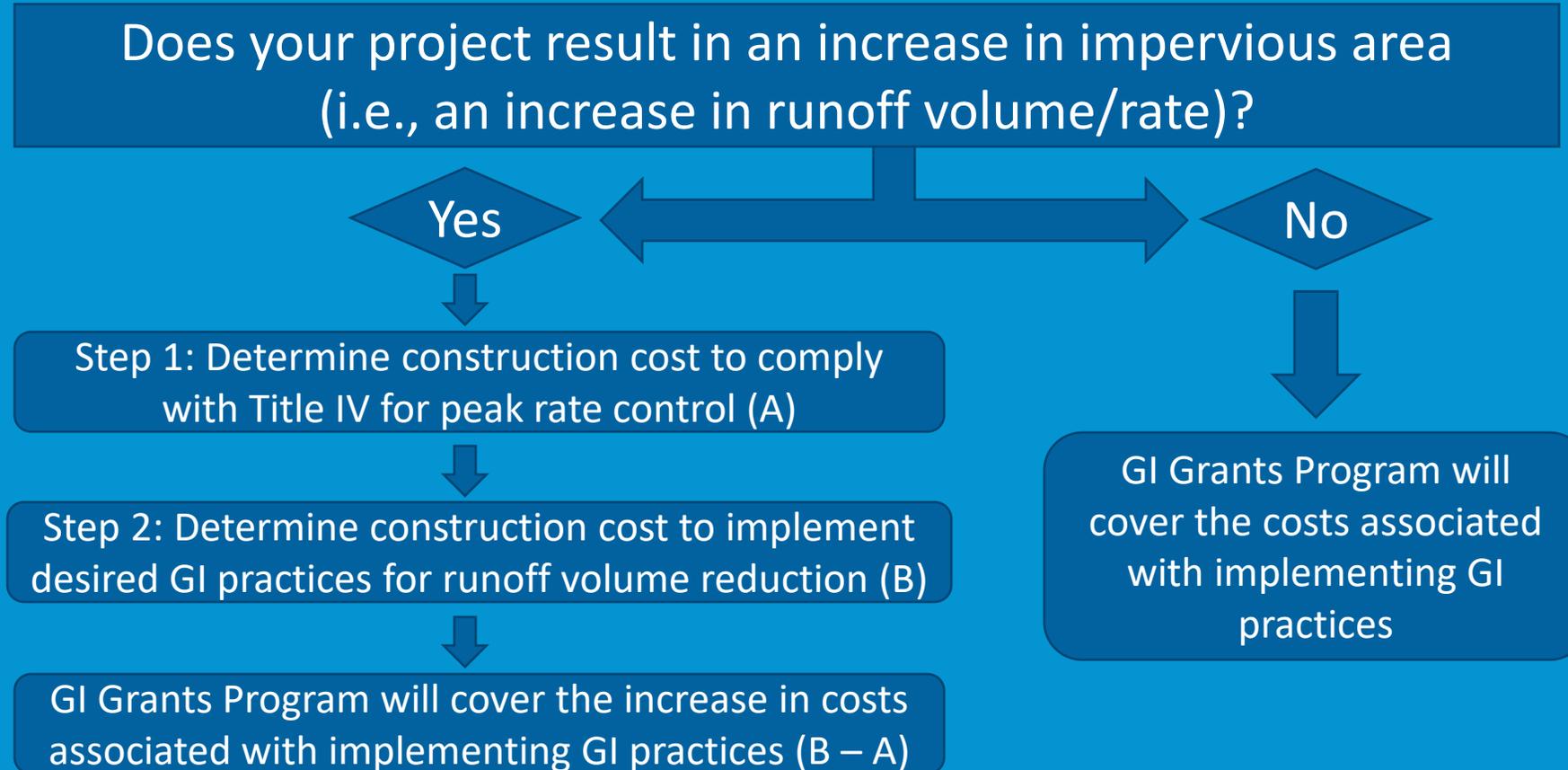
Above and Beyond Title IV

Stormwater Management Method	Pre-development Runoff Volume Discharged	Post-development Runoff Volume Generated	Post-development Runoff Volume Discharged
Peak Rate (Title IV)	3000 Cubic Feet	7000 Cubic Feet	7000 Cubic Feet
Green Infrastructure	3000 Cubic Feet	7000 Cubic Feet	≤ 3000 Cubic Feet

GI Grant Program Technical Requirements

Above and Beyond Title IV

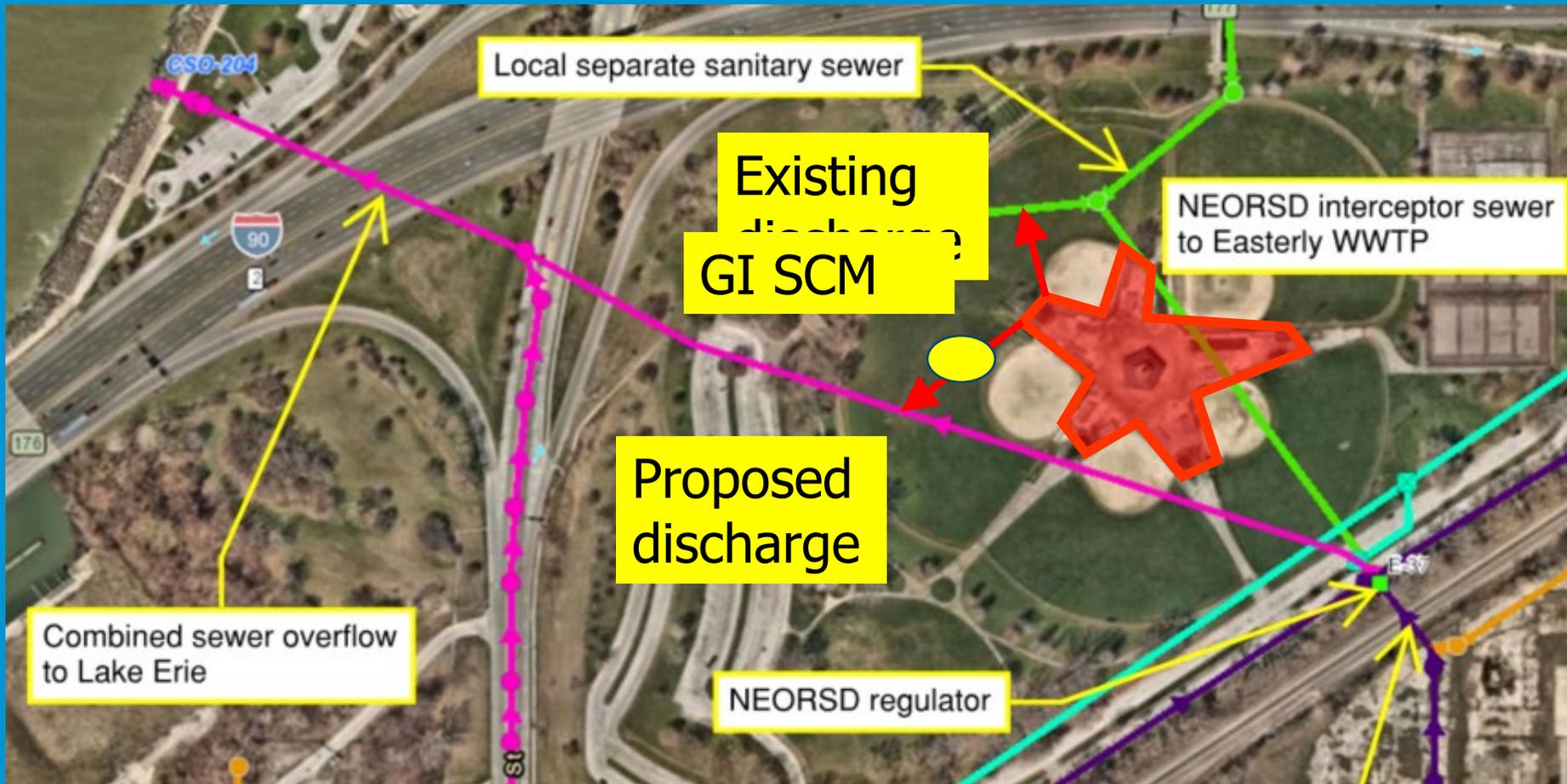
- What Project Costs will the Grant Cover?



GI Grant Program Technical Requirements

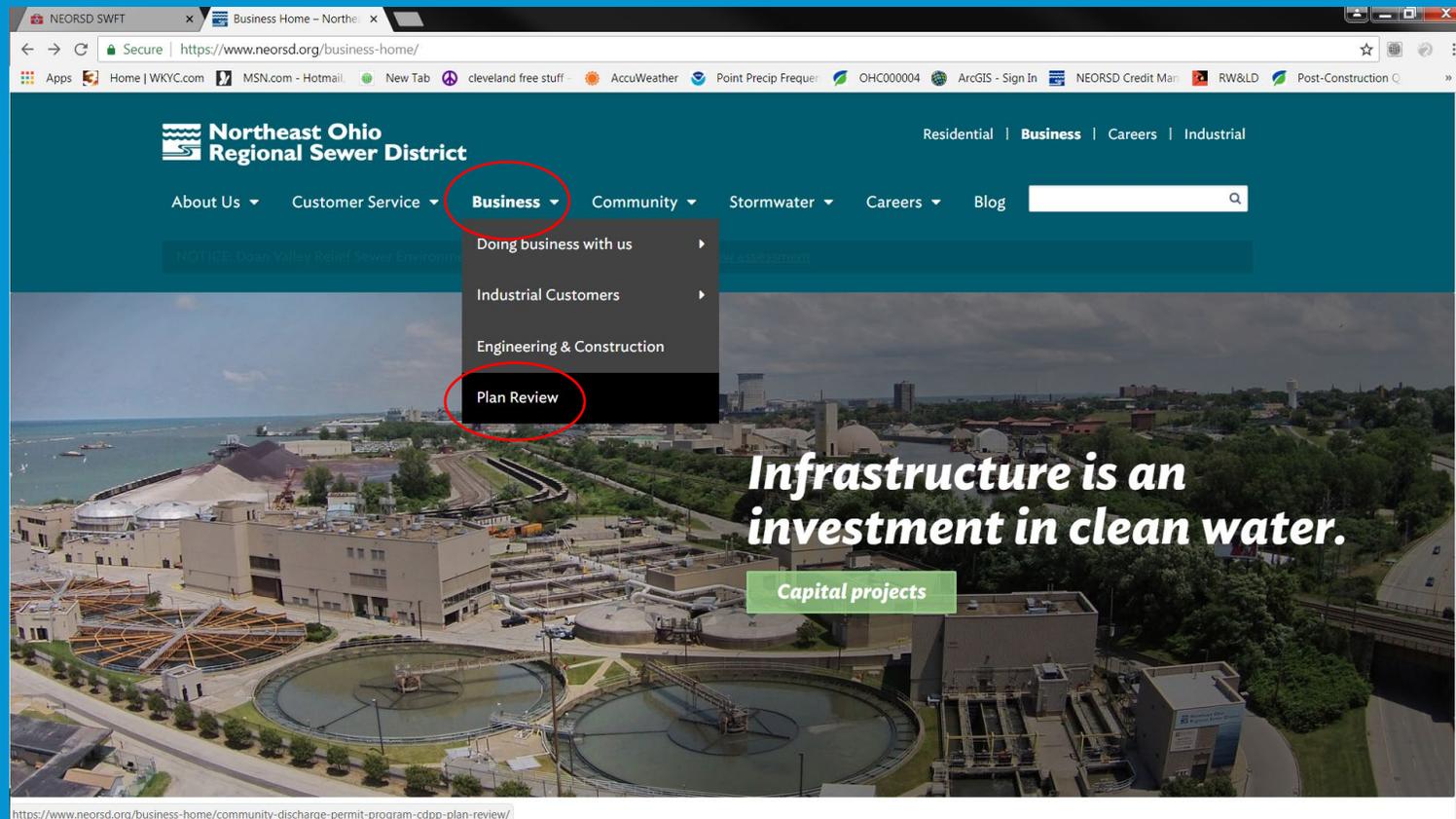
Above and Beyond Title IV

- If you propose to disconnect stormwater runoff from the combined sewer system and instead connect it to the environment or a CSO pipe (downstream of a regulator)...
 - Title IV will no longer require stormwater control measures (SCM) that provide treatment for 100% of the water quality volume (WQv) associated with the drainage area being disconnected from the combined sewer system.
 - Still must meet applicable local and state requirements
 - GIG Program will cover the cost of SCMs required by others, provided they meet the definition of green infrastructure



GI Grant Program Technical Requirements

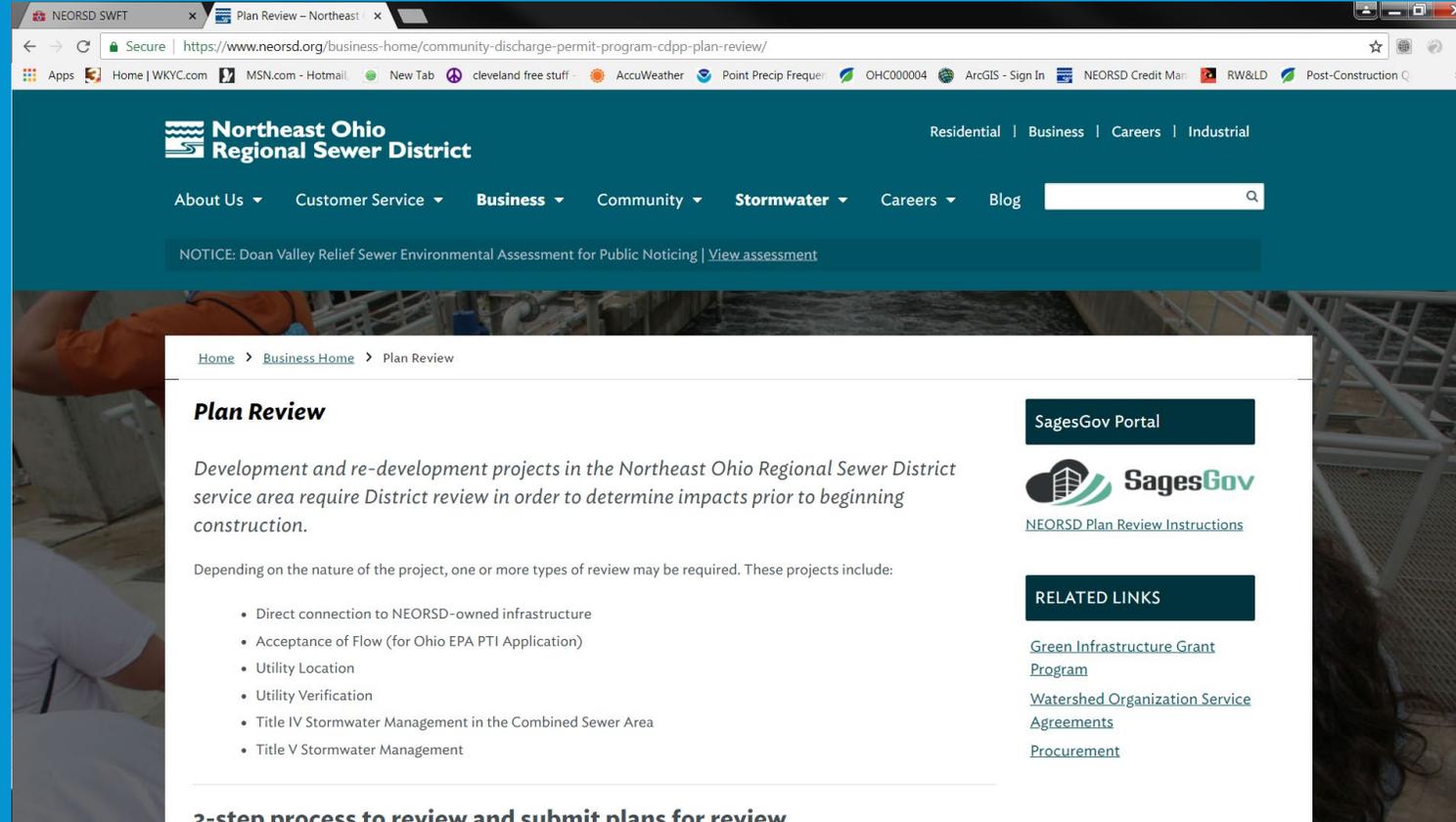
Above and Beyond Title IV



<https://www.neorsd.org/business-home/community-discharge-permit-program-cdpp-plan-review/>

GI Grant Program Technical Requirements

Above and Beyond Title IV



The screenshot shows a web browser window displaying the Northeast Ohio Regional Sewer District (NEORS) website. The page is titled "Plan Review - Northeast" and is part of the "Business Home" section. The main content area is titled "Plan Review" and includes a sub-header "Development and re-development projects in the Northeast Ohio Regional Sewer District service area require District review in order to determine impacts prior to beginning construction." Below this, a list of project types requiring review is provided, including direct connections to infrastructure, flow acceptance, utility location, and stormwater management. A "SagesGov Portal" link is also visible, along with a "RELATED LINKS" section containing links to the Green Infrastructure Grant Program, Watershed Organization Service Agreements, and Procurement.

NEORS SWFT | Plan Review - Northeast

Secure | <https://www.neorsd.org/business-home/community-discharge-permit-program-cdpp-plan-review/>

Apps | Home | WKYC.com | MSN.com - Hotmail | New Tab | cleveland free stuff | AccuWeather | Point Precip Frequen | OHC000004 | ArcGIS - Sign In | NEORS Credit Man | RW&LD | Post-Construction C

Northeast Ohio Regional Sewer District | Residential | Business | Careers | Industrial

About Us | Customer Service | **Business** | Community | Stormwater | Careers | Blog

NOTICE: Doan Valley Relief Sewer Environmental Assessment for Public Noticing | [View assessment](#)

Home > Business Home > Plan Review

Plan Review

Development and re-development projects in the Northeast Ohio Regional Sewer District service area require District review in order to determine impacts prior to beginning construction.

Depending on the nature of the project, one or more types of review may be required. These projects include:

- Direct connection to NEORS-owned infrastructure
- Acceptance of Flow (for Ohio EPA PTI Application)
- Utility Location
- Utility Verification
- Title IV Stormwater Management in the Combined Sewer Area
- Title V Stormwater Management

SagesGov Portal

 **SagesGov**
[NEORS Plan Review Instructions](#)

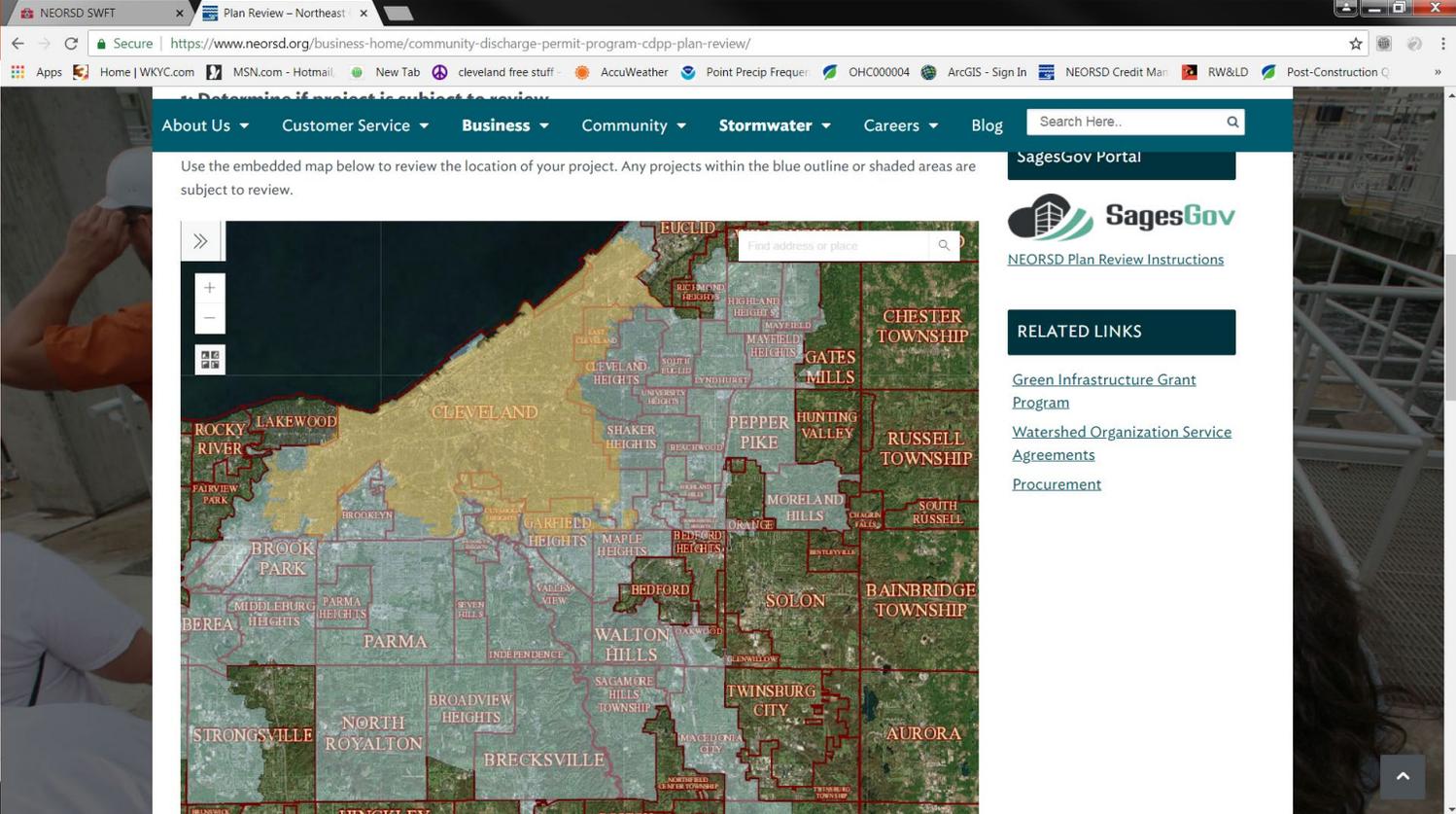
RELATED LINKS

- [Green Infrastructure Grant Program](#)
- [Watershed Organization Service Agreements](#)
- [Procurement](#)

3-step process to review and submit plans for review

GI Grant Program Technical Requirements

Above and Beyond Title IV



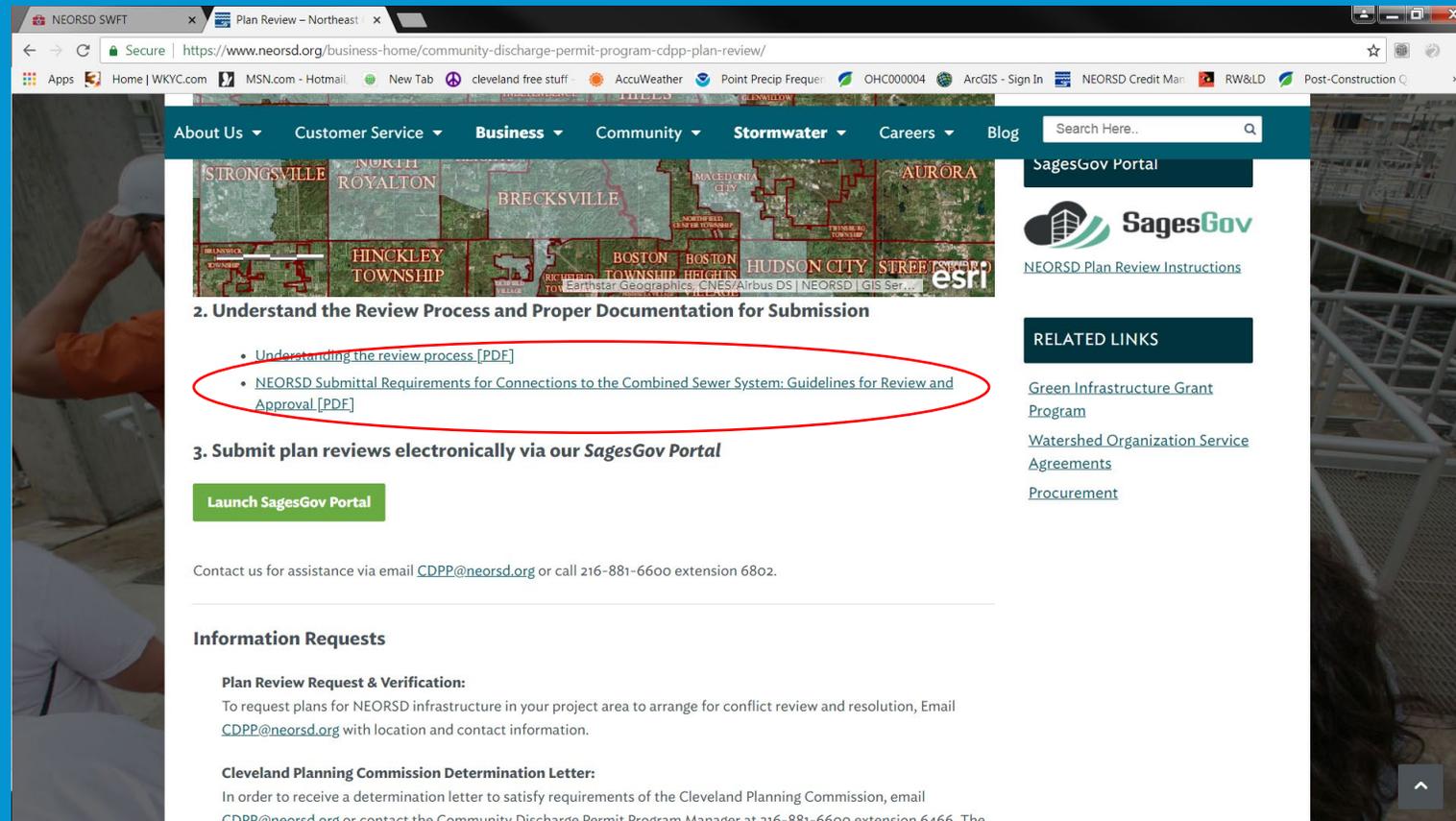
The screenshot displays the NEORS Plan Review website. The browser address bar shows the URL: <https://www.neors.org/business-home/community-discharge-permit-program-cdpp-plan-review/>. The page features a navigation menu with options: About Us, Customer Service, Business, Community, Stormwater, Careers, and Blog. A search bar is located on the right side of the menu.

Below the navigation menu, there is a text block: "Use the embedded map below to review the location of your project. Any projects within the blue outline or shaded areas are subject to review." This text is positioned above a map of the Cleveland area. The map shows various neighborhoods and townships, with a blue outline highlighting the review area. The map includes a search bar and navigation controls (zoom in, zoom out, and full screen).

On the right side of the page, there is a "SagesGov Portal" section with the SagesGov logo and the text "NEORS Plan Review Instructions". Below this, there is a "RELATED LINKS" section with the following links: [Green Infrastructure Grant Program](#), [Watershed Organization Service Agreements](#), and [Procurement](#).

GI Grant Program Technical Requirements

Above and Beyond Title IV



The screenshot shows a web browser window displaying the NEORS SWFT website. The page is titled "Plan Review - Northeast" and contains a navigation menu with options like "About Us", "Customer Service", "Business", "Community", "Stormwater", "Careers", and "Blog". A search bar is located in the top right corner. The main content area features a map of the region with various municipalities labeled, including Strongsville, North Royalton, Brecksville, Macedonia City, Aurora, Hinckley Township, Boston, and Hudson City. Below the map, the heading "2. Understand the Review Process and Proper Documentation for Submission" is followed by a list of links: "Understanding the review process [PDF]" and "NEORS Submittal Requirements for Connections to the Combined Sewer System: Guidelines for Review and Approval [PDF]". The second link is circled in red. Below this list is the heading "3. Submit plan reviews electronically via our SagesGov Portal" and a green button labeled "Launch SagesGov Portal". To the right of the main content, there is a "SagesGov Portal" section with the SagesGov logo and links for "NEORS Plan Review Instructions" and "RELATED LINKS" including "Green Infrastructure Grant Program", "Watershed Organization Service Agreements", and "Procurement". At the bottom of the page, there is an "Information Requests" section with sub-sections for "Plan Review Request & Verification" and "Cleveland Planning Commission Determination Letter".

NEORS SWFT

Plan Review - Northeast

Secure | <https://www.neorsd.org/business-home/community-discharge-permit-program-cdpp-plan-review/>

Apps Home | WKYC.com MSN.com - Hotmail New Tab cleveland free stuff AccuWeather Point Precip Freque OHC000004 ArcGIS - Sign In NEORS Credit Man RW&LD Post-Construction C

About Us Customer Service Business Community Stormwater Careers Blog Search Here..

STRONGSVILLE NORTH ROYALTON BRECKSVILLE MACEDONIA CITY AURORA
HINCKLEY TOWNSHIP BOSTON BOSTON HIGHLANDS HUDSON CITY STREET esri

2. Understand the Review Process and Proper Documentation for Submission

- Understanding the review process [PDF]
- NEORS Submittal Requirements for Connections to the Combined Sewer System: Guidelines for Review and Approval [PDF]

3. Submit plan reviews electronically via our SagesGov Portal

[Launch SagesGov Portal](#)

Contact us for assistance via email CDPP@neorsd.org or call 216-881-6600 extension 6802.

Information Requests

Plan Review Request & Verification:
To request plans for NEORS infrastructure in your project area to arrange for conflict review and resolution, Email CDPP@neorsd.org with location and contact information.

Cleveland Planning Commission Determination Letter:
In order to receive a determination letter to satisfy requirements of the Cleveland Planning Commission, email CDPP@neorsd.org or contact the Community Discharge Permit Program Manager at 216-881-6600 extension 6466. The

SagesGov Portal

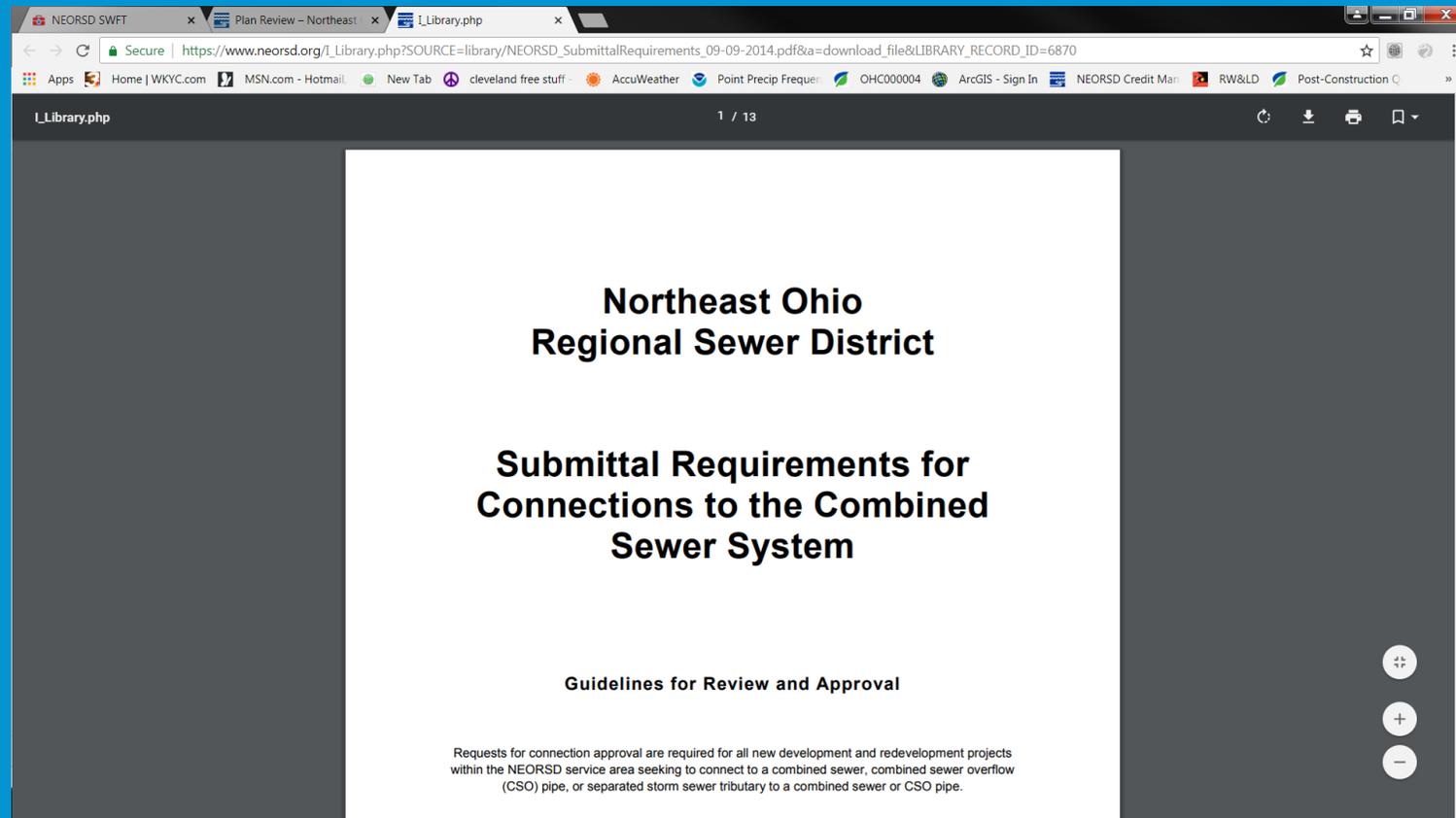
SagesGov
NEORS Plan Review Instructions

RELATED LINKS

[Green Infrastructure Grant Program](#)
[Watershed Organization Service Agreements](#)
[Procurement](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator



GI Grant Program Technical Requirements

EPA National Stormwater Calculator

Welcome to the EPA National Stormwater Calculator

This calculator estimates the amount of stormwater runoff generated from a land parcel under different development and control scenarios over a long-term period of historical rainfall.

The analysis takes into account local soil conditions, topography, land cover and meteorology. Different types of low impact development (LID) practices can be employed to help capture and retain rainfall on-site. Localized climate change scenarios can also be analyzed.

Site information is provided to the calculator using the tabbed pages listed above. The Results page is where the site's runoff is computed and displayed.

This program was produced by the U.S. Environmental Protection Agency and was subject to both internal and external technical review. Please check with local authorities about whether and how it can be used to support local stormwater management goals and requirements.

Release 1.2.0.1

© 2015 HERE. © 2015 Microsoft Corporation. [Terms](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator

The screenshot displays the EPA National Stormwater Calculator interface in a Google Chrome browser. The address bar shows the URL <https://swcweb.epa.gov/location>. The page features a green header with the EPA logo and the text "National Stormwater Calculator", along with navigation links for "NEW", "SAVE", "OPEN", "RESOURCES", and "CONTACT".

The main content area is a map of the United States with a green location pin placed in the central region, specifically over the state of Illinois. A sidebar titled "Location" is overlaid on the left side of the map. This sidebar contains the following elements:

- Directions:** A section with a right-pointing arrow and the text: "Bring your site into view on the map and then mark its exact location by clicking the mouse pointer over it or entering your address or zip code below. Press the **Directions** button to view the map location."
- Polygon Drawing Tool:** A section with a pentagon icon and the text: "Use this polygon drawing tool to draw your project area on the map."
- Search by address or zip code:** A search input field with a magnifying glass icon and a right-pointing arrow. The placeholder text is "Enter an address or zip code".
- Enter number of acres for your site:** A text input field with the number "0" entered.

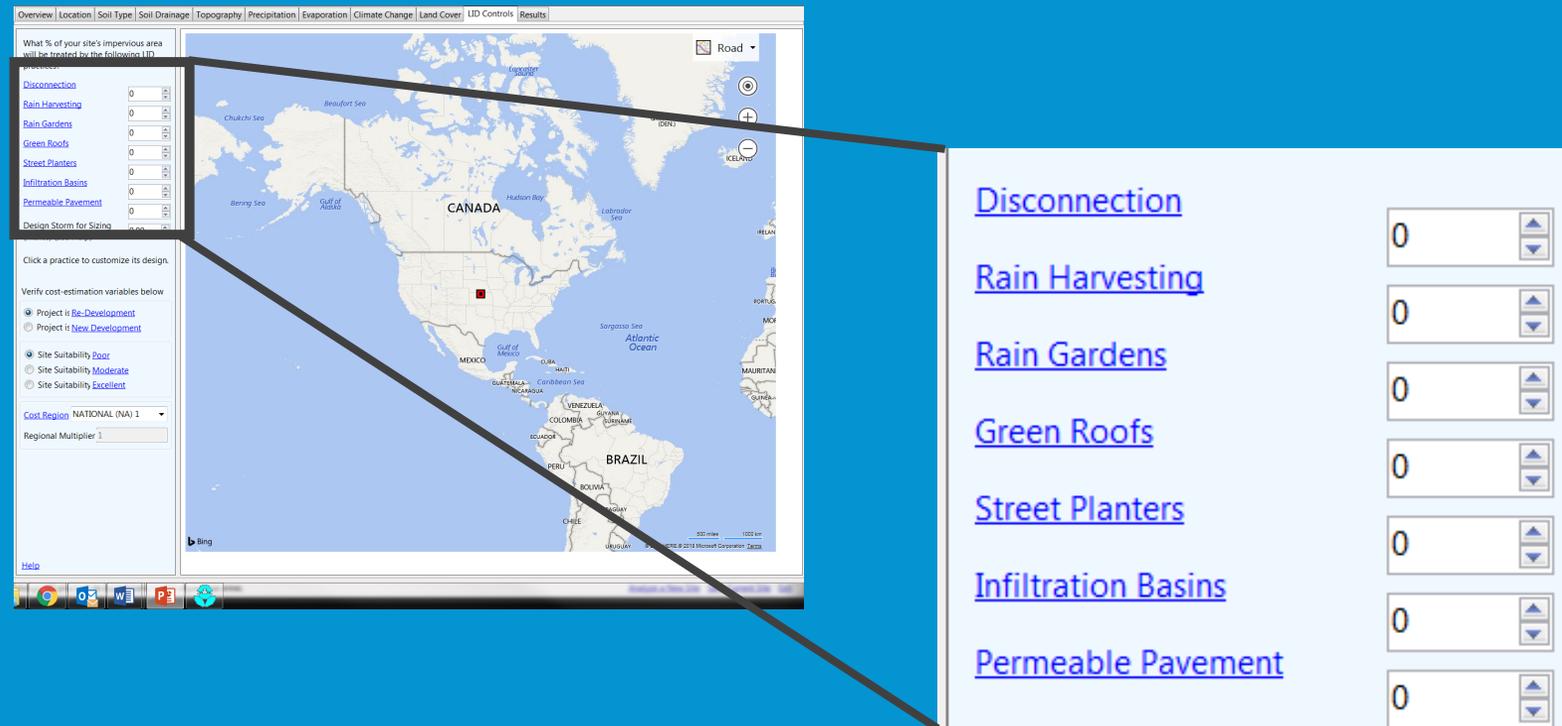
The map includes various geographical labels such as "CANADA", "UNITED STATES", "MEXICO", and "HAWAII". It also shows major bodies of water like the "Gulf of Alaska", "Gulf of Mexico", "Atlantic Ocean", and "Caribbean Sea". A scale bar at the bottom right indicates distances of 250 miles and 500 km. The copyright notice at the bottom right reads "© 2018 HERE, © 2018 Microsoft Corporation. Terms".

GI Grant Program Technical Requirements

**EPA National Stormwater Calculator
Low Impact Development (LID) Control**

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Low Impact Development (LID) Control

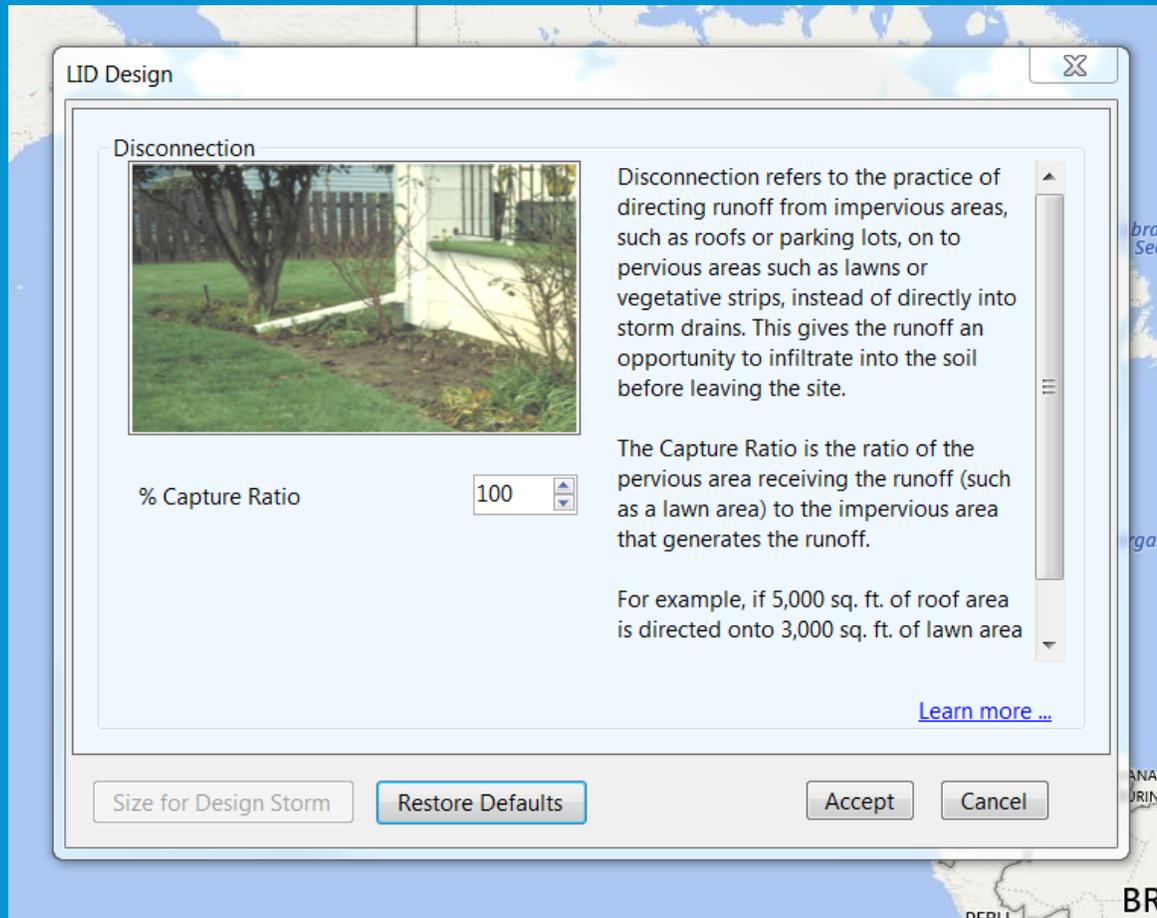


The image shows a screenshot of the EPA National Stormwater Calculator software interface. The main window displays a map of North America with a red square indicating the project location in the United States. On the left side, there is a sidebar with various tabs and settings. The 'LID Controls' tab is selected, showing a list of LID practices with their respective values set to 0. A callout box on the right side of the image provides a larger view of these LID control settings.

LID Control	Value
Disconnection	0
Rain Harvesting	0
Rain Gardens	0
Green Roofs	0
Street Planters	0
Infiltration Basins	0
Permeable Pavement	0

GI Grant Program Technical Requirements

EPA National Stormwater Calculator LID Control - Disconnection



The Capture Ratio is the ratio of the pervious area receiving the runoff (such as a lawn area) to the impervious area that generates the runoff.

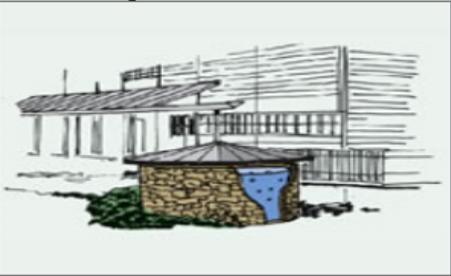
For example, if 5,000 sq. ft. of roof area is directed onto 3,000 sq. ft. of lawn area then the Capture Ratio would be $3,000 / 5,000$ or 60%.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator LID Control – Rain Harvesting

LID Design

Rain Harvesting



Rain harvesting systems collect runoff from rooftops and convey it to a cistern tank where it can be used for non-potable water uses and on-site infiltration.

The harvesting system is assumed to consist of a given number of fixed-sized cisterns per 1000 square feet of rooftop

Cistern Size (gallons) 100

Emptying Rate (gallons/day) 50

Number per 1,000 sq ft 4.0



[Learn more ...](#)

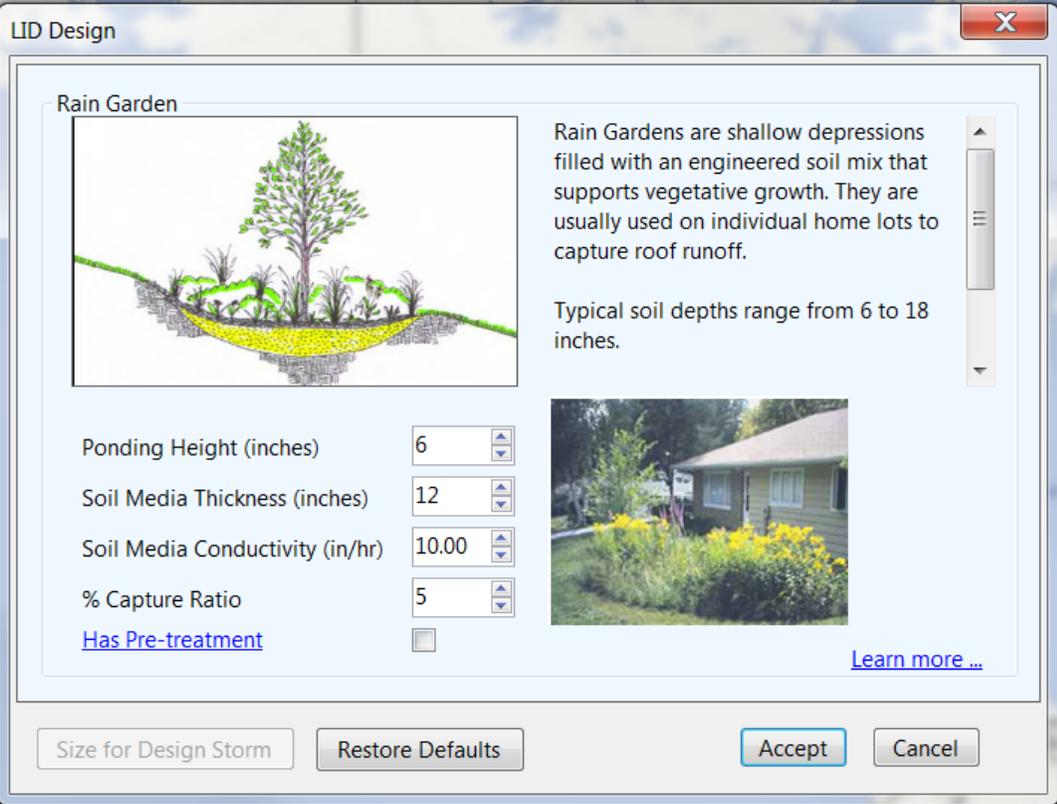
Size for Design Storm Restore Defaults Accept Cancel

The harvesting system is assumed to consist of a given number of fixed-sized cisterns per 1,000 square feet of rooftop area captured.

The water from each cistern is withdrawn at a constant rate and is assumed to be consumed or infiltrated entirely on-site.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator LID Control – Rain Garden



The screenshot shows a software dialog box titled "LID Design" with a close button (X) in the top right corner. The dialog is for configuring a "Rain Garden". On the left, there is a cross-sectional diagram of a rain garden showing a tree, plants, and a layer of soil media. Below the diagram are four input fields: "Ponding Height (inches)" set to 6, "Soil Media Thickness (inches)" set to 12, "Soil Media Conductivity (in/hr)" set to 10.00, and "% Capture Ratio" set to 5. There is also a checkbox for "Has Pre-treatment" which is currently unchecked. To the right of the diagram is a text description: "Rain Gardens are shallow depressions filled with an engineered soil mix that supports vegetative growth. They are usually used on individual home lots to capture roof runoff. Typical soil depths range from 6 to 18 inches." Below this text is a photograph of a rain garden installed in a residential yard next to a house. At the bottom of the dialog are four buttons: "Size for Design Storm", "Restore Defaults", "Accept", and "Cancel". A "Learn more..." link is located at the bottom right of the configuration area.

Rain Garden

Rain Gardens are shallow depressions filled with an engineered soil mix that supports vegetative growth. They are usually used on individual home lots to capture roof runoff. Typical soil depths range from 6 to 18 inches.

Ponding Height (inches) 6

Soil Media Thickness (inches) 12

Soil Media Conductivity (in/hr) 10.00

% Capture Ratio 5

[Has Pre-treatment](#)

[Learn more...](#)

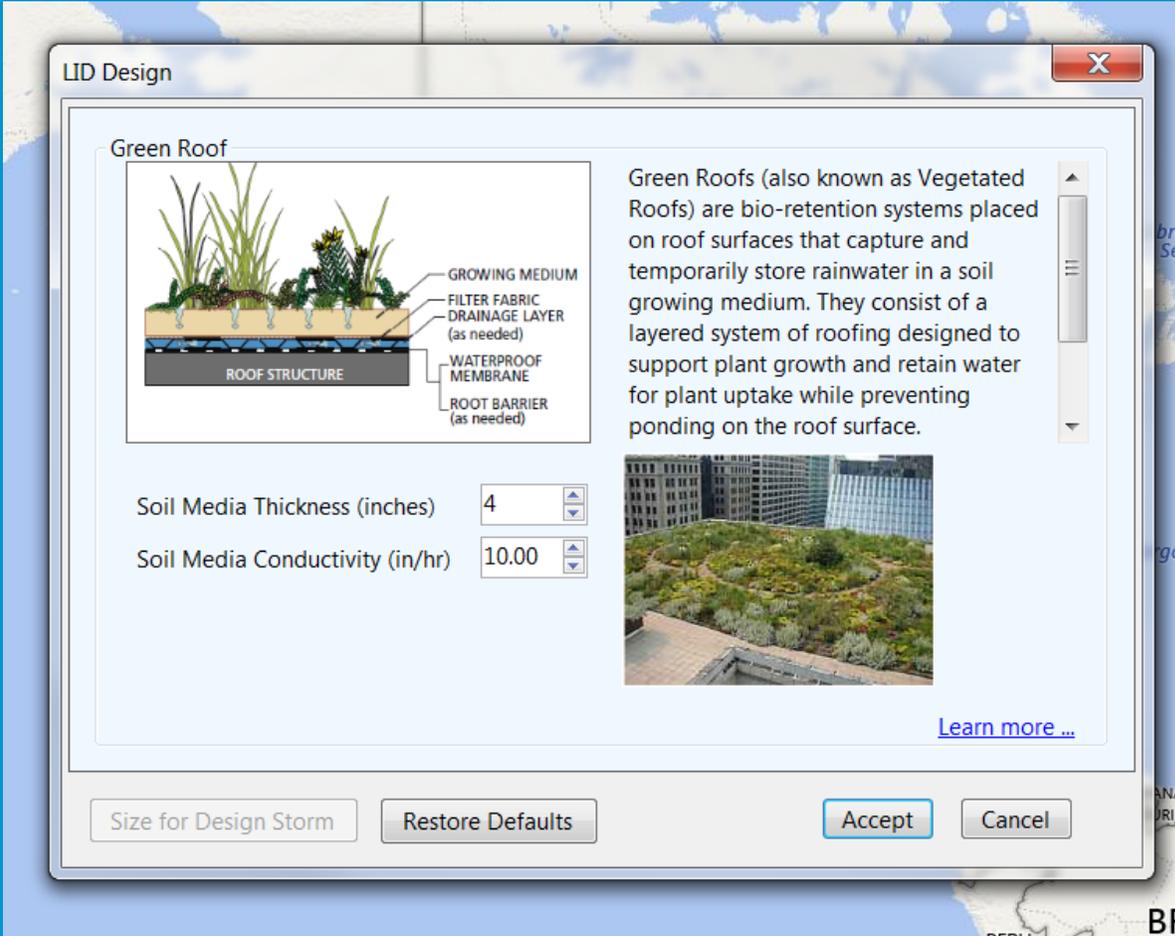
Size for Design Storm Restore Defaults Accept Cancel

The Capture Ratio is the ratio of the rain garden's area to the impervious area that drains onto it.

For example, if 1,000 sq. ft. of roof area is directed onto 300 sq. ft. of rain garden area then the Capture Ratio would be $300 / 1,000$ or 30%.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator LID Control – Green Roof



The screenshot shows a software dialog box titled "LID Design" with a close button (X) in the top right corner. The dialog is set to "Green Roof" and contains the following elements:

- Diagram:** A cross-sectional diagram of a green roof assembly. From top to bottom, the layers are: GROWING MEDIUM (with plants), FILTER FABRIC DRAINAGE LAYER (as needed), WATERPROOF MEMBRANE, and ROOT BARRIER (as needed). The ROOF STRUCTURE is shown at the base.
- Description:** A text block explaining that Green Roofs (also known as Vegetated Roofs) are bio-retention systems placed on roof surfaces that capture and temporarily store rainwater in a soil growing medium. They consist of a layered system of roofing designed to support plant growth and retain water for plant uptake while preventing ponding on the roof surface.
- Input Fields:** Two spinners for configuration:
 - Soil Media Thickness (inches): Set to 4.
 - Soil Media Conductivity (in/hr): Set to 10.00.
- Image:** A photograph of a modern building with a lush green roof.
- Buttons:** "Size for Design Storm", "Restore Defaults", "Accept", and "Cancel".
- Link:** A "Learn more ..." link at the bottom right of the text area.

The thickness used for the growing medium typically ranges from 3 to 6 inches.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator LID Control – Street Planter

LID Design

Street Planter

Street Planters consist of concrete boxes filled with an engineered soil that supports vegetative growth. Beneath the soil is a gravel bed that provides additional storage.

The walls of a planter extend 3 to 12 inches above the soil bed to allow for ponding within the unit. The thickness

Ponding Height (inches) 6

Soil Media Thickness (inches) 18

Soil Media Conductivity (in/hr) 10.00

Gravel Bed Thickness (inches) 12

% Capture Ratio 6

[Learn more ...](#)

Size for Design Storm Restore Defaults Accept Cancel

The walls of a planter extend 3 to 12 inches above the soil bed to allow for ponding within the unit. The thickness of the soil growing medium ranges from 6 to 24 inches while gravel beds are 6 to 18 inches in depth.

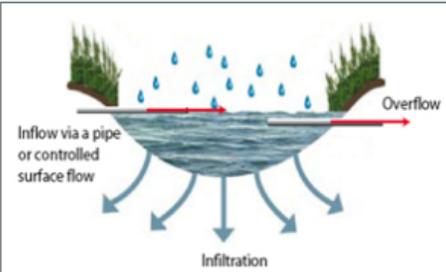
The planter's Capture Ratio is the ratio of its area to the impervious area whose runoff it captures.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator LID Control – Infiltration Basin

LID Design

Infiltration Basin



Inflow via a pipe or controlled surface flow

Overflow

Infiltration

Infiltration basins are shallow depressions filled with grass or other natural vegetation that capture runoff from adjoining areas and allow it to infiltrate into the soil.

The calculator assumes that the infiltration rate from the basin is the same as for site's native soil.

Basin Depth (inches)

% Capture Ratio

[Has Pre-treatment](#)



[Learn more ...](#)

Size for Design Storm Restore Defaults Accept Cancel

The basin's Capture Ratio is the area of the basin relative to the impervious area whose runoff it captures.

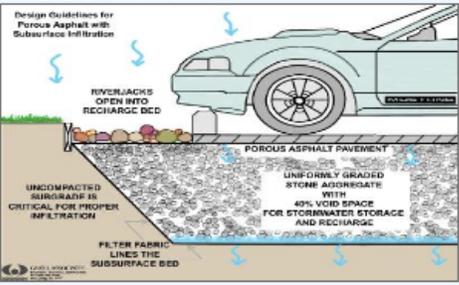
For example, if 50,000 sq. ft. of roof area is directed into 5,000 sq. ft. of infiltration basin area then the Capture Ratio would be $5,000 / 50,000$ or 10%.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator LID Control – Permeable Pavement

LID Design

Permeable Pavement



Design Guidelines for Porous Asphalt with Subsurface Infiltration

RIVERJACKS OPEN INTO RECHARGE BED

POROUS ASPHALT PAVEMENT

UNCOMPACTED SUBGRADE IS CRITICAL FOR PROPER INFILTRATION

FILTER FABRIC LINES THE SUBSURFACE BED

UNIFORMLY GRADED STONE AGGREGATE WITH 40% VOID SPACE FOR STORMWATER STORAGE AND RECHARGE

Continuous Permeable Pavement systems are excavated areas filled with gravel and paved over with a porous concrete or asphalt mix.

Modular Block systems are similar except that permeable block pavers are used instead.

Pavement Thickness (inches)

Gravel Layer Thickness (inches)

% Capture Ratio

[Has Pre-treatment](#)



[Learn more ...](#)

Size for Design Storm Restore Defaults Accept Cancel

Normally all rainfall will immediately pass through the pavement into the gravel storage layer below it where it can infiltrate at natural rates into the site's native soil.

Pavement layers are usually 4 to 6 inches in height while the gravel storage layer is typically 6 to 18 inches high.

The Capture Ratio is the percent of the treated area (street or parking lot) that is replaced with permeable pavement.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules

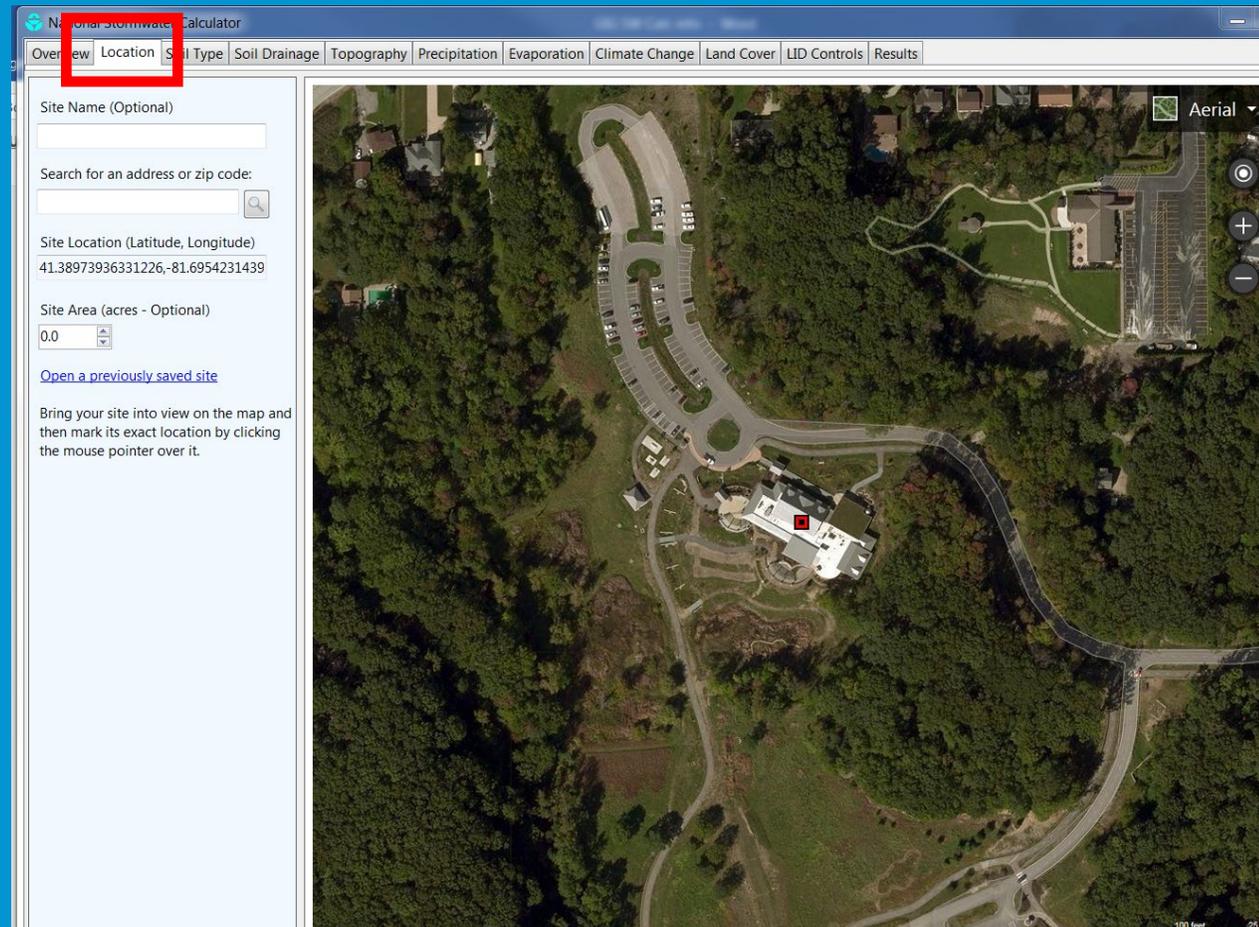
GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Location

The screenshot displays the 'Location' module of the EPA National Stormwater Calculator. The interface includes a navigation menu at the top with tabs for Overview, Location, Site Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, LID Controls, and Results. The 'Location' tab is selected and highlighted with a red box. On the left side, there are input fields for 'Site Name (Optional)', 'Search for an address or zip code:', 'Site Location (Latitude, Longitude)' (with the value '40,-98.5'), and 'Site Area (acres - Optional)' (with the value '0.0'). Below these fields is a link to 'Open a previously saved site' and a brief instruction: 'Bring your site into view on the map and then mark its exact location by clicking the mouse pointer over it.' The main area is a map of North America, showing the United States, Canada, and parts of Mexico and Central America. A red square marker is placed on the map in the central United States. The map includes various geographical labels such as 'Beaufort Sea', 'Chukchi Sea', 'Bering Sea', 'Gulf of Alaska', 'Hudson Bay', 'Labrador Sea', 'Sargasso Sea', 'Atlantic Ocean', 'Caribbean Sea', and 'Gulf of Mexico'. It also shows country names like CANADA, MEXICO, BRAZIL, and others. A scale bar at the bottom right indicates 500 miles and 1000 km. The Bing logo is visible in the bottom left corner.

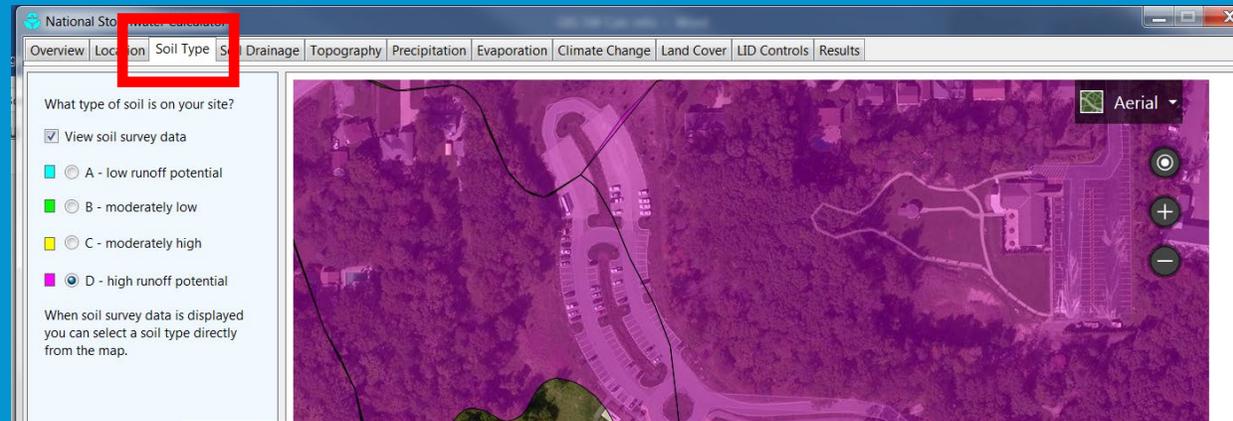
GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Location



GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Soil Type



Hydrologic Soil Group Default Values for Runoff Potential

- A – Sand** (low runoff/high infiltration)
- B – Sandy Loam** (moderately low runoff)
- C – Clay Loam** (moderately high runoff)
- D – Clay** (high runoff/low infiltration)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Soil Type

The screenshot shows the Web Soil Survey interface in Google Chrome. The browser address bar displays <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. The left sidebar contains various options for viewing soil data, including 'Frost-Free Days', 'Hydrologic Soil Group', 'View Options', 'Advanced Options', and 'Map Unit Name'. The main map area shows an aerial view of a site with a red-shaded area representing the Area of Interest (AOI). A warning message is displayed below the map: 'Warning: Soil Ratings Map may not be valid at this scale. You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:15,800. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.'

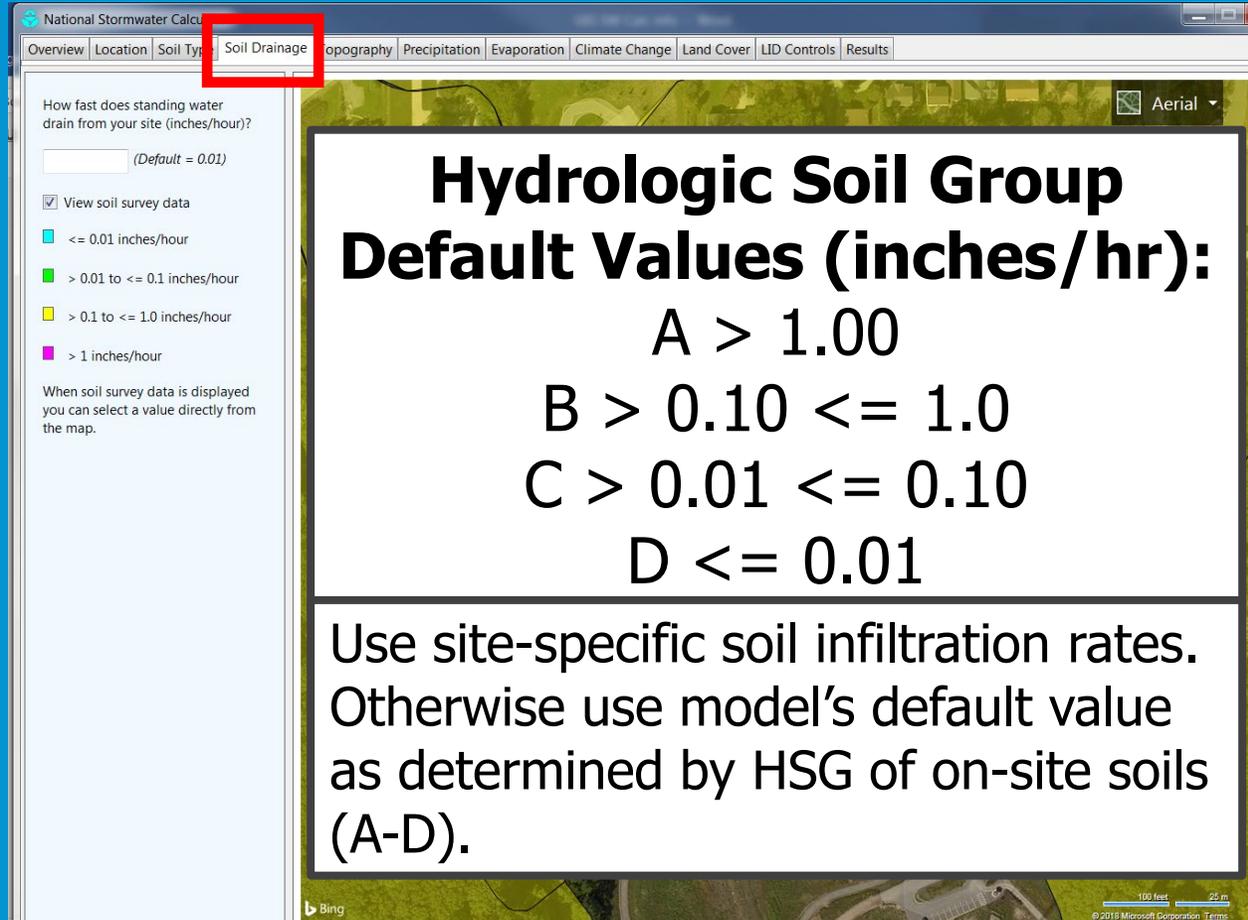
Tables – Hydrologic Soil Group – Summary By Map Unit

Summary by Map Unit – Cuyahoga County, Ohio (OH035)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HrB	Hornell silt loam, 2 to 6 percent slopes	D	0.7	26.7%
HrD	Hornell silt loam, 12 to 18 percent slopes	D	0.7	25.0%
Ua	Udorthents, loamy		1.3	48.3%
Totals for Area of Interest			2.7	100.0%

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Soil Drainage



The screenshot shows the 'National Stormwater Calculator' web application. The 'Soil Drainage' tab is highlighted with a red box. The interface includes a sidebar with a text input field for 'How fast does standing water drain from your site (inches/hour)?' with a default value of 0.01. Below this is a checkbox for 'View soil survey data' and a legend for soil drainage rates: cyan for ≤ 0.01 inches/hour, green for > 0.01 to ≤ 0.1 inches/hour, yellow for > 0.1 to ≤ 1.0 inches/hour, and purple for > 1 inches/hour. A note states: 'When soil survey data is displayed you can select a value directly from the map.' The main content area features an aerial map background with a white text box containing the following information:

**Hydrologic Soil Group
Default Values (inches/hr):**

A > 1.00

B $> 0.10 \leq 1.0$

C $> 0.01 \leq 0.10$

D ≤ 0.01

Use site-specific soil infiltration rates. Otherwise use model's default value as determined by HSG of on-site soils (A-D).

GI Grant Program Technical Requirements

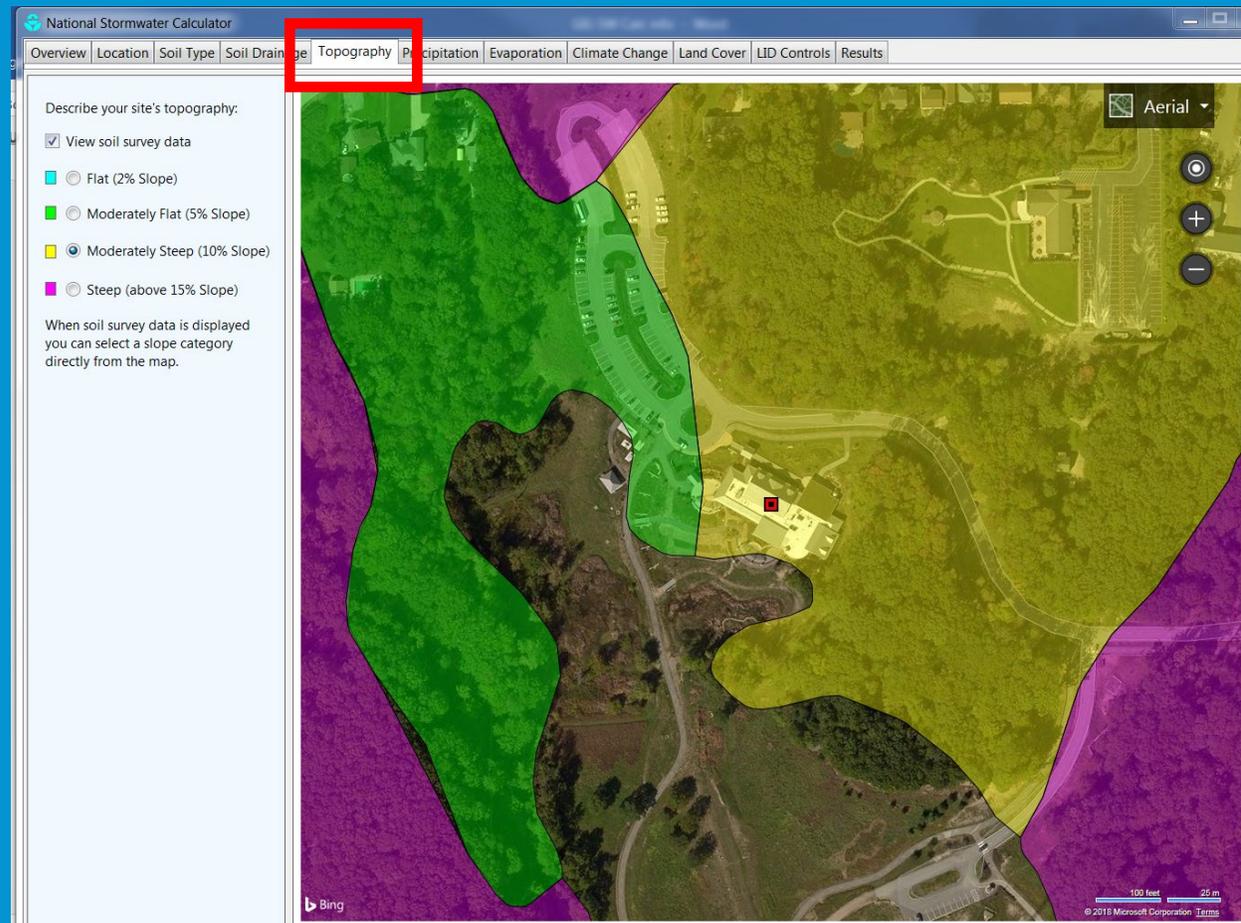
EPA National Stormwater Calculator Modules – Infiltration Testing

Use site-specific soil infiltration rates. Otherwise use model's default value as determined by HSG of on-site soils (A-D).

- ENSURE INFILTRATING SCMS PROPOSED TO MEET AND/OR EXCEED TITLE IV REQUIREMENTS ARE DESIGNED PER THE RESULTS OF ON-SITE SUBGRADE INFILTRATION TESTING USING APPROVED METHODS FROM THE FOLLOWING SOURCES:
 - Ohio Rainwater and Land Development Manual
 - Other state stormwater management manuals as recognized by the District
 - The District can consider designs that deviate from current standards on a case-by-case basis.

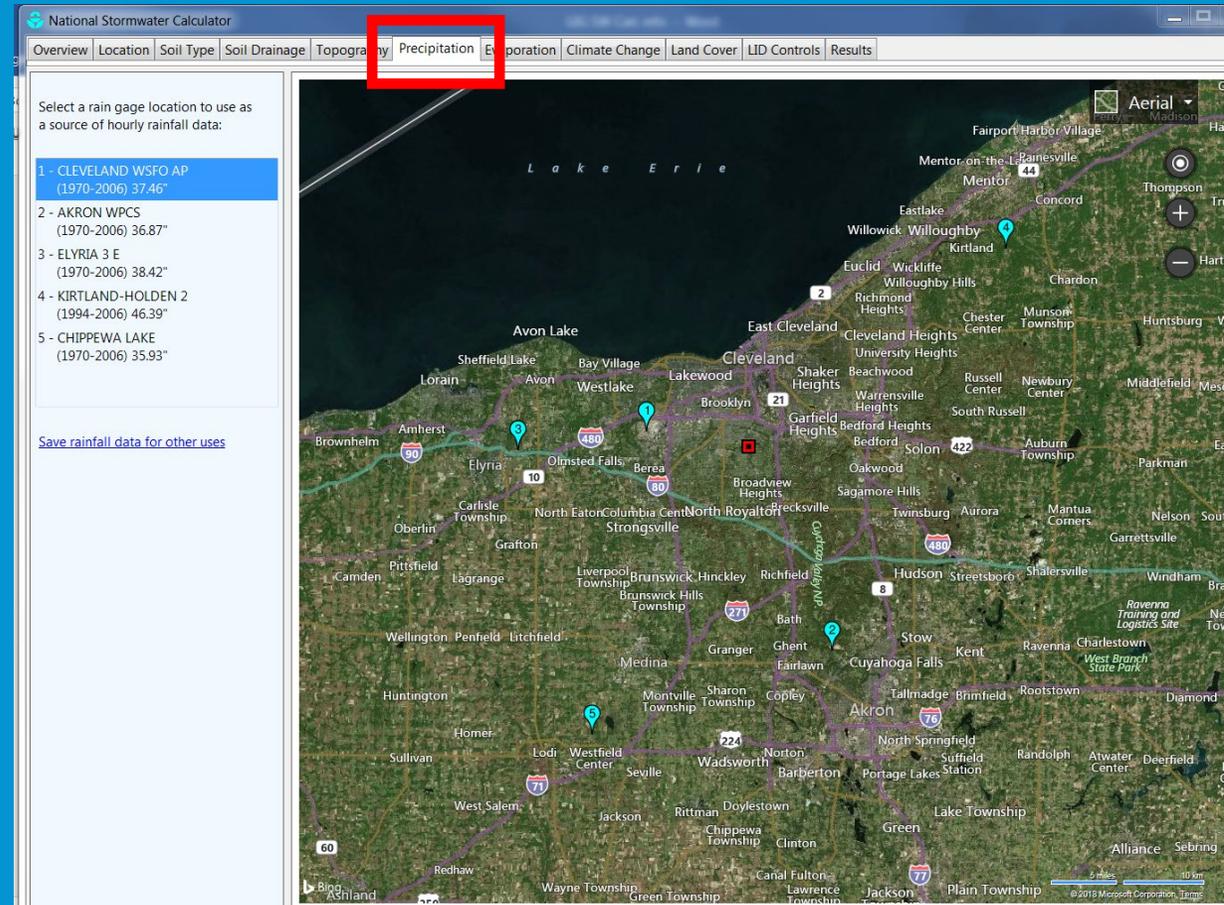
GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Topography



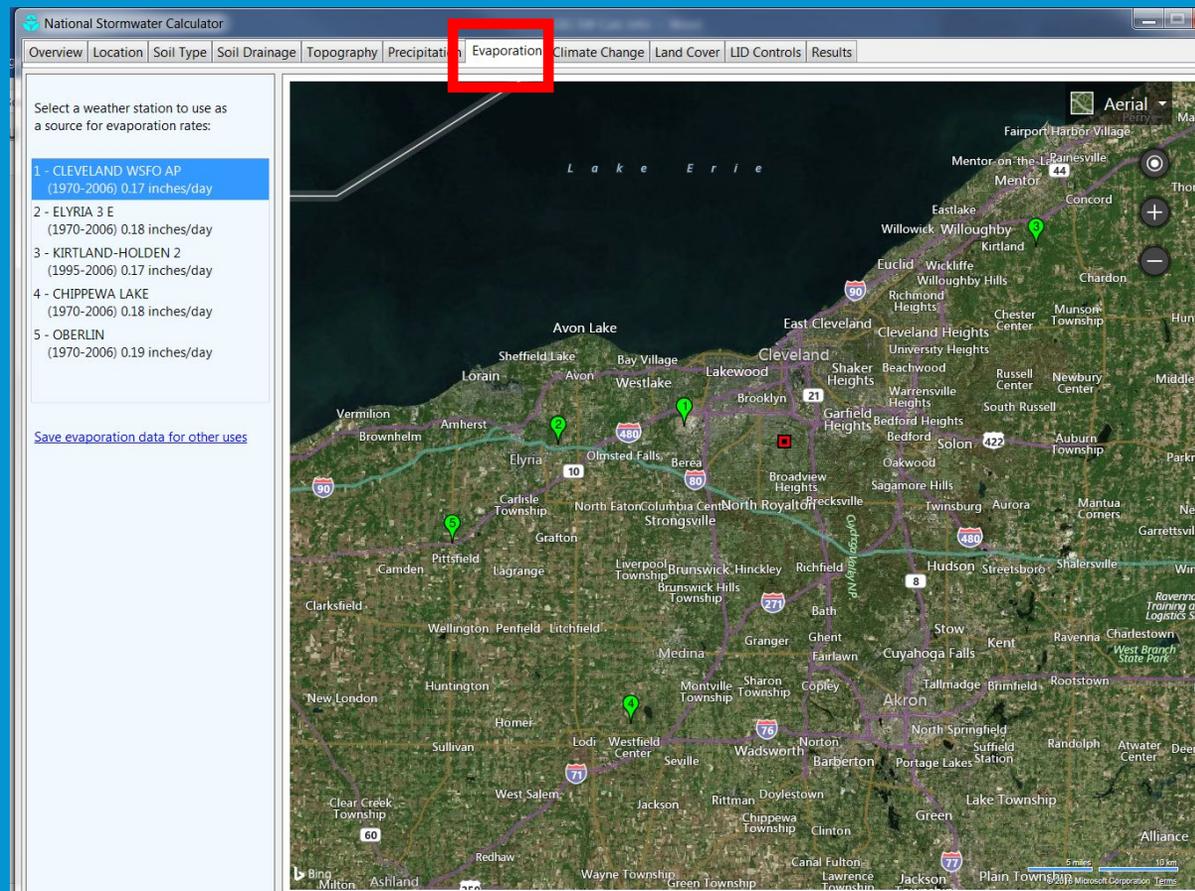
GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Precipitation



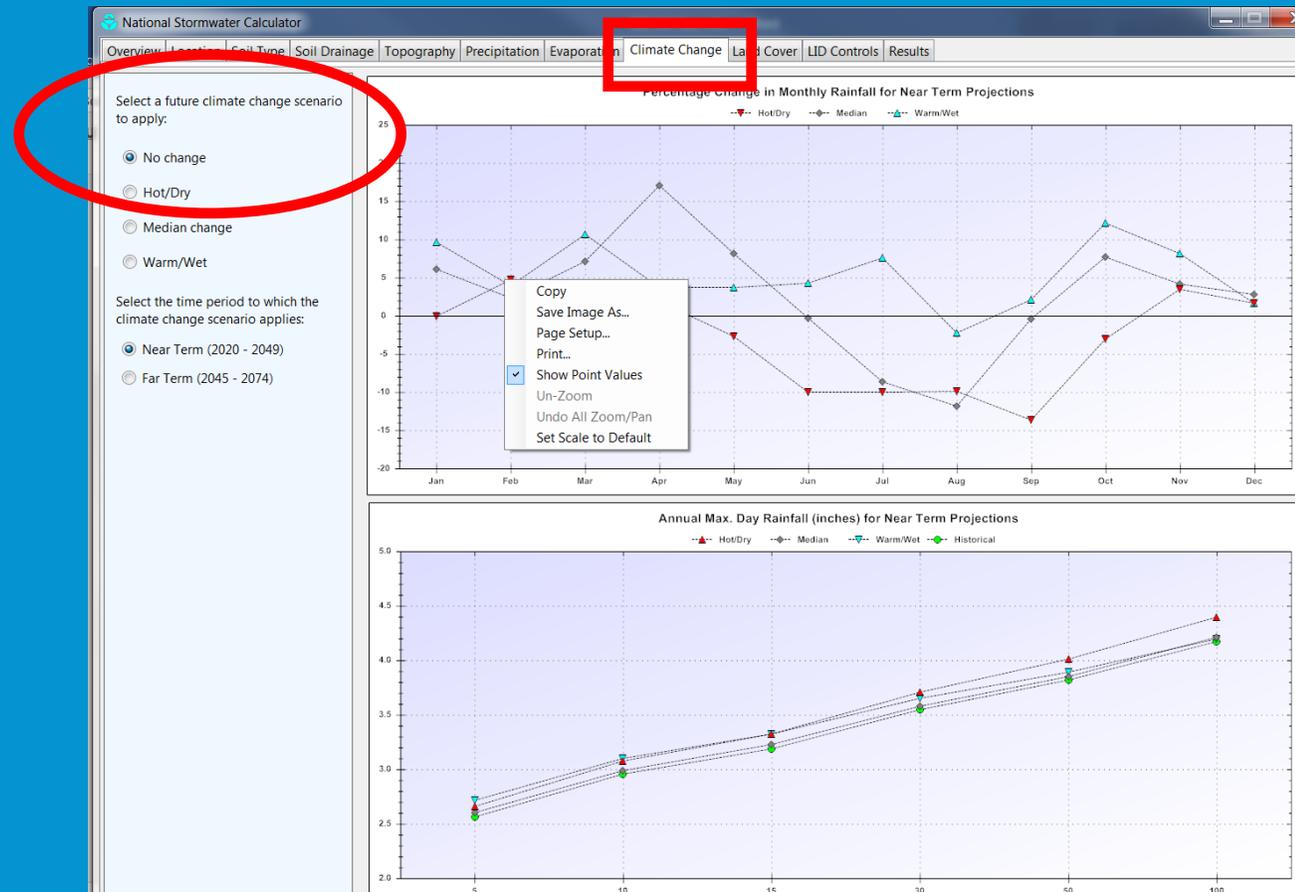
GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Evaporation



GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Climate Change



GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Land Cover

The screenshot displays the National Stormwater Calculator software interface. The 'Land Cover' tab is selected and highlighted with a red box. The interface includes a sidebar on the left for land cover configuration and a main map area showing an aerial view of a residential area with a red pin marking a specific site.

Land Cover Configuration:

Category	Percentage
% Forest	5
% Meadow	36
% Lawn	41
% Desert	0
% Impervious	18

Map Labels: Shiloh Park, W Ridgewood Dr, Yorktown Dr, Winchester Dr, Williams St Dr, W Ridgewood Dr, W Newwood Dr.

Map Features: Aerial view, zoom controls (+, -), scale bar (250 feet, 50 m), Bing logo, © 2018 Microsoft Corporation Terms.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – LID Controls

The screenshot displays the National Stormwater Calculator software interface. The 'LID Controls' tab is selected and highlighted with a red box. The interface includes a sidebar with various LID practices and their associated values, a design storm input, and cost-estimation variables. The main area shows an aerial map of a residential area with a red square indicating the site location.

LID Controls Module Settings:

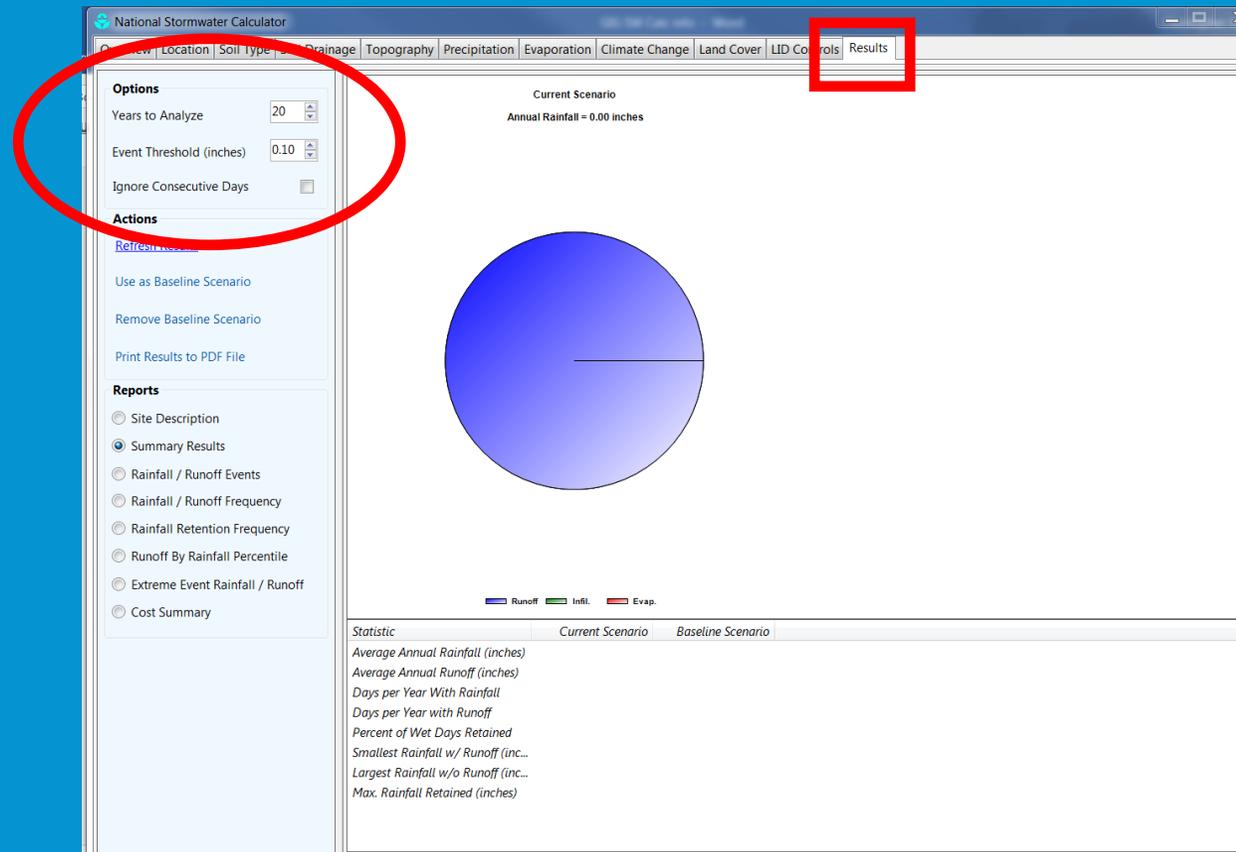
- Disconnection: 0
- Rain Harvesting: 0
- Rain Gardens: 0
- Green Roofs: 0
- Street Planters: 0
- Infiltration Basins: 0
- Permeable Paving: 0
- Design Storm for Sizing (inches) (see Help): 0.00

Cost-estimation Variables:

- Project is: Re-Development
- Site Suitability: Poor
- Cost Region: Detroit (95 miles) 1.02
- Regional Multiplier: 1.02

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Results



GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions

National Stormwater Calculator

Overview | **Location** | Site Type | Soil Drainage | Topography | Precipitation | Evaporation | Climate Change | Land Cover | LID Controls | Results

Site Name (Optional)
Test - GJM

Search for an address or zip code:

Site Location (Latitude, Longitude)
41.503254543263, -81.658545427322

Site Area (acres - Optional)
1.0

[Open a previously saved site](#)

Bring your site into view on the map and then mark its exact location by clicking the mouse pointer over it.

Locate the site on the map.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions

The screenshot displays the National Stormwater Calculator software interface. The 'Soil Type' tab is selected and highlighted with a red box. The interface includes a navigation menu at the top with tabs for Overview, Location, Soil Type, Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, LID Controls, and Results. The main content area is divided into a left sidebar and a central map. The sidebar contains the following text:

What type of soil is on your site?

View soil survey data

- A - low runoff potential
- B - moderately low
- C - moderately high
- D - high runoff potential

When soil survey data is displayed you can select a soil type directly from the map.

Help

Select a soil type for the site.

The central map shows an aerial view of an urban area with streets labeled: Perkins Ave, Chestr Ave, Euclid Ave, Prospect Ave, Carnegie Ave, and Cedar Ave. A red square on the map indicates the selected site location. The map also features a scale bar (250 feet / 50 m) and a copyright notice: © 2016 HERE. All rights reserved. Microsoft Corporation. Terms.

At the bottom of the interface, there are three links: [Analyze a New Site](#), [Save Current Site](#), and [Exit](#).

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions

The screenshot displays the National Stormwater Calculator software interface. The 'Topography' tab is selected and highlighted with a red box. The interface includes a navigation menu on the left with tabs for Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, LID Controls, and Results. The 'Topography' section on the left contains the following options:

- Describe your site's topography:
- View soil survey data
- Flat (2% Slope)
- Moderately Flat (5% Slope)
- Moderately Steep (10% Slope)
- Steep (above 15% Slope)

Below these options, a note states: "When soil survey data is displayed you can select a slope category directly from the map." A 'Help' link is located at the bottom left of the panel.

The main map area shows an aerial view of a city street grid. A red square on the map indicates the selected site location. The map includes street names such as Perkins Ave, Chester Ave, Euclid Ave, Prospect Ave, Carnegie Ave, and Cedar Ave. A scale bar at the bottom right of the map shows 250 feet and 50 meters. The copyright notice at the bottom of the map reads: "© 2018 HERE © 2018 Microsoft Corporation Terms".

At the bottom of the software window, there are three links: [Analyze a New Site](#), [Save Current Site](#), and [Exit](#).

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions

National Stormwater Calculator

Overview | Location | Soil Type | Soil Drainage | Topography | **Precipitation** | Evaporation | Climate Change | Land Cover | LID Controls | Results

Select a rain gage location to use as a source of hourly rainfall data:

- 1 - CLEVELAND WSFO AP (1970-2006) 37.46"
- 2 - KIRTLAND-HOLDEN 2 (1994-2006) 46.39"
- 3 - ELYRIA 3 E (1970-2006) 38.42"
- 4 - AKRON WPCS (1970-2006) 36.87"
- 5 - PAINESVILLE 4 NW (1970-2006) 37.81"

[Save rainfall data for other uses](#)

[Help](#)

Select a source of long-term hourly rainfall data.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions

The screenshot displays the National Stormwater Calculator application window. The 'Evaporation' tab is selected and highlighted with a red box. The interface includes a sidebar on the left with a list of weather stations and their corresponding evaporation rates. The main area shows a map of the Cleveland area with several green location pins. The bottom of the window contains navigation links and a status bar.

National Stormwater Calculator

Overview | Location | Soil Type | Soil Drainage | Topography | Precipitation | **Evaporation** | Climate Change | Land Cover | LID Controls | Results

Select a weather station to use as a source for evaporation rates:

- 1 - CLEVELAND WSFO AP (1970-2006) 0.17 inches/day
- 2 - KIRTLAND-HOLDEN 2 (1995-2006) 0.17 inches/day
- 3 - ELYRIA 3 E (1970-2006) 0.18 inches/day
- 4 - PAINESVILLE 4 NW (1970-2005) 0.18 inches/day
- 5 - CHARDON (1970-2006) 0.16 inches/day

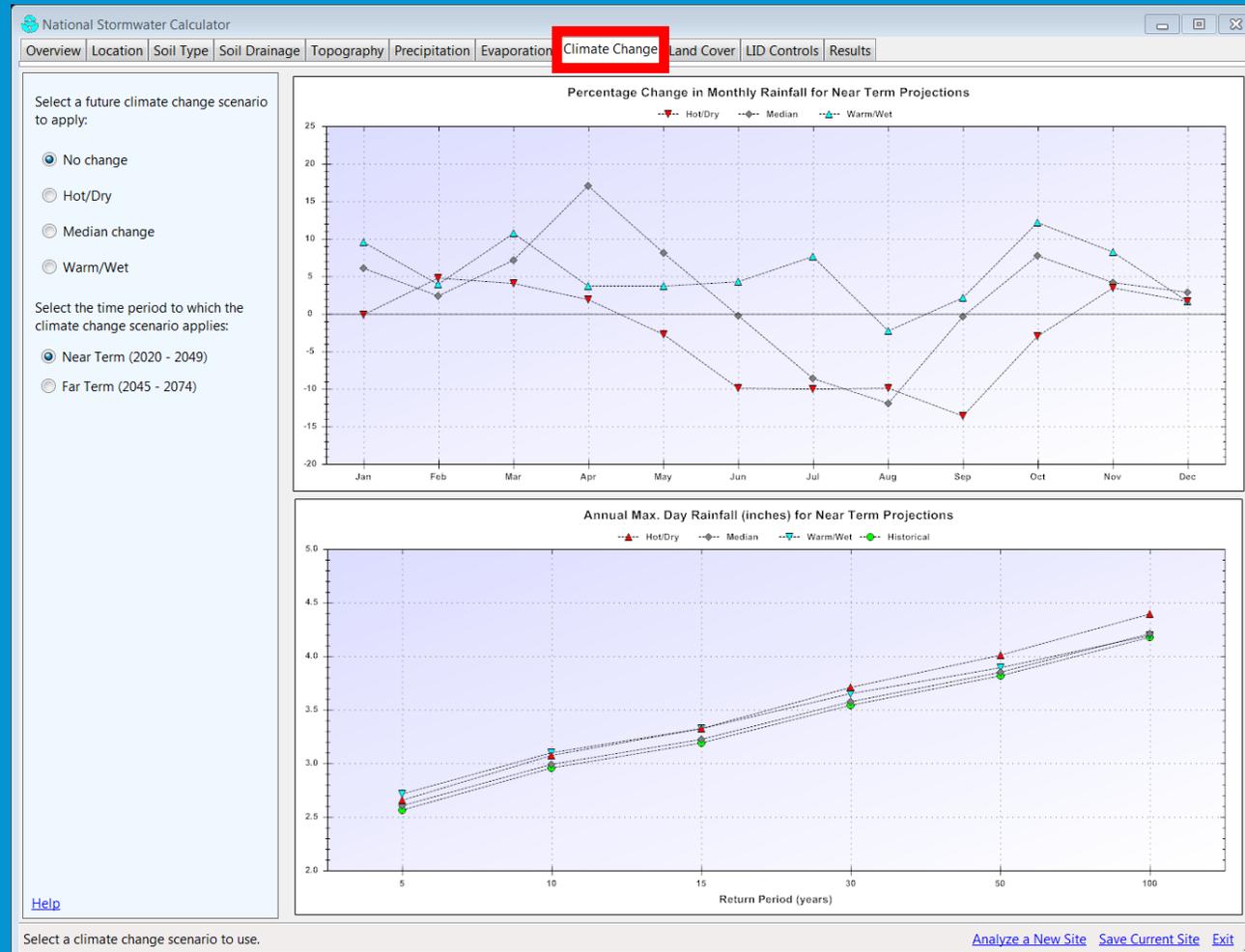
[Save evaporation data for other uses](#)

[Help](#)

Select a source of monthly average evaporation rates. [Analyze a New Site](#) [Save Current Site](#) [Exit](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions



GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions

National Stormwater Calculator

Overview | Location | Soil Type | Soil Drainage | Topography | Precipitation | Evaporation | Climate Change | **Land Cover** | ID Controls | Results

Describe the site's land cover for the development scenario being analyzed:

% Forest	40
% Meadow	20
% Lawn	25
% Desert	0
% Impervious	15

Hover the mouse over a cover category to see a more detailed description.

Help

Analyze a New Site | Save Current Site | Exit

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions

The screenshot displays the National Stormwater Calculator application window. The 'LID Controls' tab is selected and highlighted with a red box. The interface includes a navigation menu at the top with tabs for Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, LID Controls, and Results. The main content area is split into a left-hand configuration panel and a right-hand map view.

Configuration Panel (Left):

- Question: "What % of your site's impervious area will be treated by the following LID practices?"
- Practices and their values (all set to 0):
 - Disconnection
 - Rain Harvesting
 - Rain Gardens
 - Green Roofs
 - Street Planters
 - Infiltration Basins
 - Permeable Pavement
- Design Storm for Sizing (inches) (see Help): 0.00
- Click a practice to customize its design.
- Verify cost-estimation variables below:
 - Project is **Re-Development** (selected)
 - Project is New Development
 - Site Suitability **Poor** (selected)
 - Site Suitability Moderate
 - Site Suitability Excellent
- Cost Region: Detroit (91 miles) 1.02
- Regional Multiplier: 1.02
- Help link

Map View (Right):

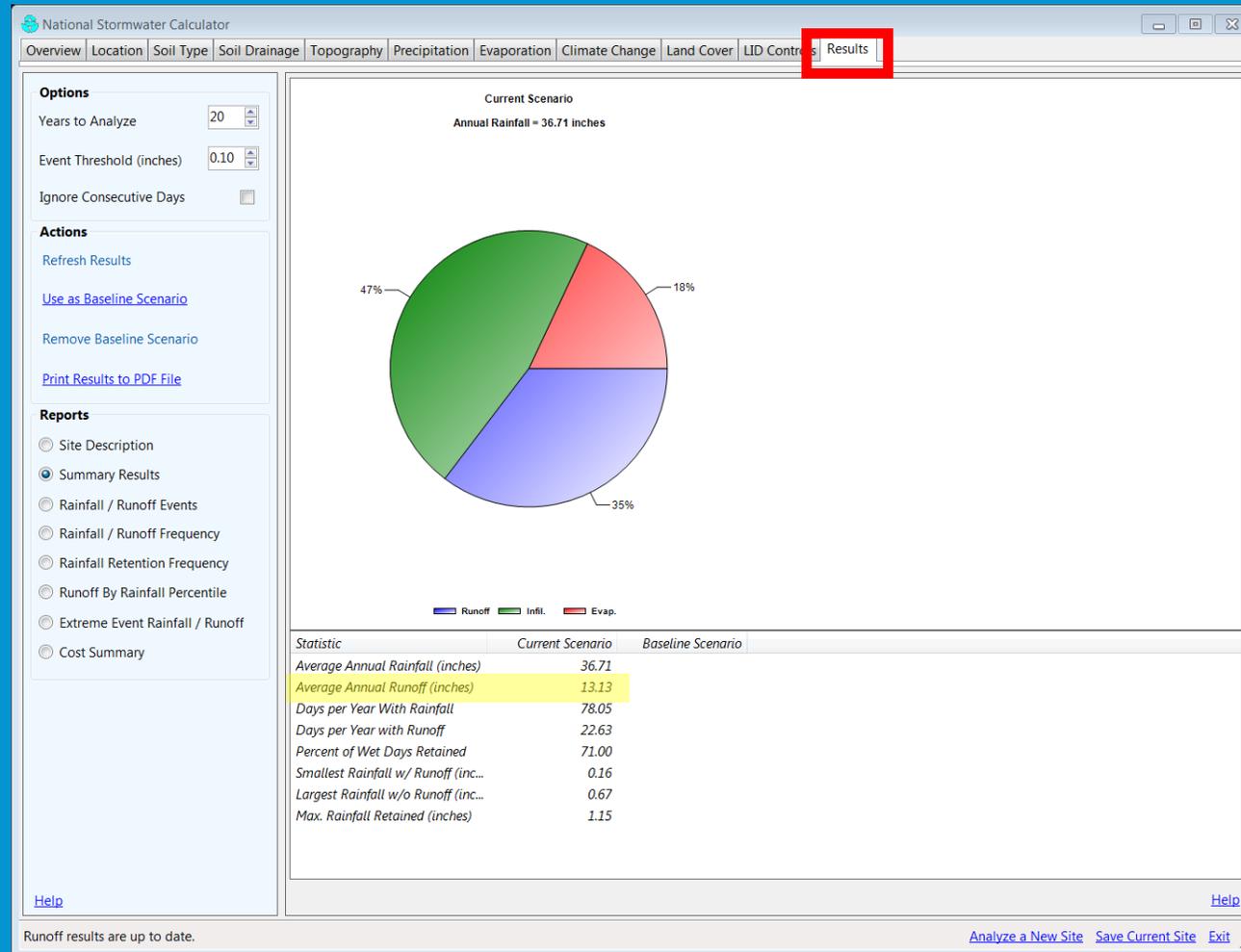
- Aerial satellite view of a city street grid.
- Streets labeled include: Chester Ave, Euclid Ave, Prospect Ave, Central Ave, and others.
- A red square on the map indicates the selected site location.
- Map controls: Aerial view selector, zoom in (+) and zoom out (-) buttons, and a scale bar (100 m).

Footer:

- Assign LID practices to capture runoff from impervious areas.
- Buttons: Analyze a New Site, Save Current Site, Exit

GI Grant Program Technical Requirements

EPA National Stormwater Calculator Modules – Existing Conditions



GI Grant Program Technical Requirements

EPA National Stormwater Calculator - Baseline Scenario

Meeting Minimum Title IV Requirements

National Stormwater Calculator

Overview | Location | Soil Type | Soil Drainage | Topography | Precipitation | Evaporation | Climate Change | **Land Cover** | ID Controls | Results

Describe the site's land cover for the development scenario being analyzed:

% Forest	0
% Meadow	0
% Lawn	10
% Desert	0
% Impervious	90

Hover the mouse over a cover category to see a more detailed description.

Existing Conditions

% Forest	40
% Meadow	20
% Lawn	25
% Desert	0
% Impervious	15

Describe the site's land cover.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator - Baseline Scenario

Meeting Minimum Title IV Requirements

National Stormwater Calculator

Overview Location Soil Type Soil Drainage Topography Precipitation Evaporation Climate Change Land Cover **LID Controls** Results

What % of your site's impervious area will be treated by the following LID practices?

- [Disconnection](#) 0
- [Rain Harvesting](#) 0
- [Rain Gardens](#) 0
- [Green Roofs](#) 0
- [Street Planters](#) 0
- [Infiltration Basins](#) 0
- [Permeable Pavement](#) 0

Design Storm for Sizing (inches) (see Help) 0.00

Click a practice to customize its design.

Verify cost-estimation variables below

- Project is [Re-Development](#)
- Project is [New Development](#)

- Site Suitability [Poor](#)
- Site Suitability [Moderate](#)
- Site Suitability [Excellent](#)

[Cost Region](#) Detroit (91 miles) 1.02

Regional Multiplier 1.02

[Help](#)

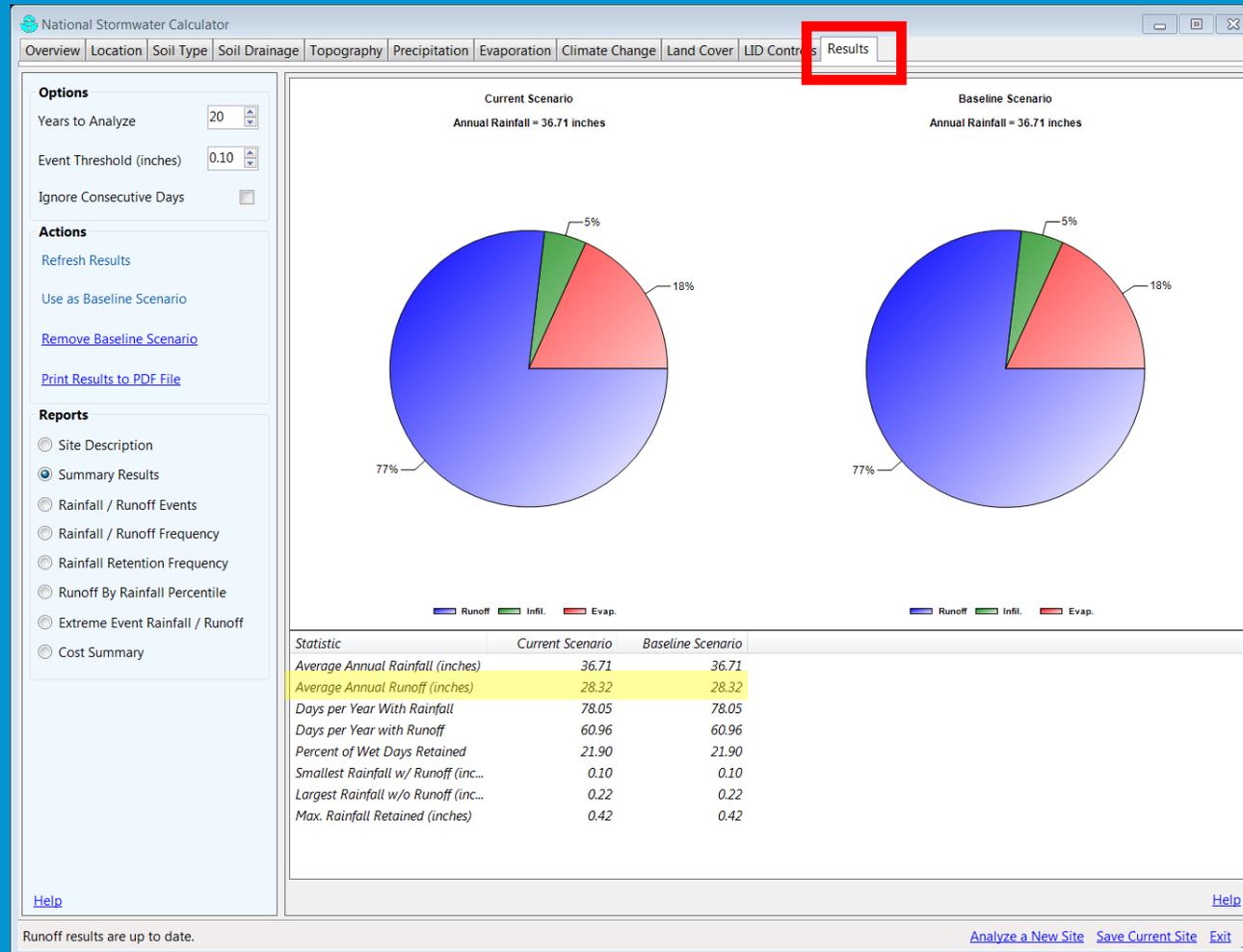
Assign LID practices to capture runoff from impervious areas.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator - Baseline Scenario

Meeting Minimum Title IV Requirements



GI Grant Program Technical Requirements

EPA National Stormwater Calculator – with Green Infrastructure

National Stormwater Calculator

Overview Location Soil Type Soil Drainage Topography Precipitation Evaporation Climate Change **Land Cover** LID Controls Results

Describe the site's land cover for the development scenario being analyzed.

% Forest	0
% Meadow	0
% Lawn	10
% Desert	0
% Impervious	90

Hover the mouse over a cover category to see a more detailed description.

Describe the site's land cover.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator – with Green Infrastructure

The screenshot displays the EPA National Stormwater Calculator interface. The 'LID Controls' tab is highlighted in the top navigation bar. On the left, a list of LID practices is shown with their respective percentages. 'Street Planters' is circled in red, with a value of 75. Other practices include Disconnection (0), Rain Harvesting (0), Rain Gardens (0), Green Roofs (0), Infiltration Basins (0), and Permeable Pavement (0). The 'Design Storm for Sizing' is set to 0.00 inches. Below this, the 'Verify cost-estimation variables below' section shows 'Project is Re-Development' selected, 'Site Suitability Poor' selected, and 'Cost Region' set to Detroit (91 miles) with a 'Regional Multiplier' of 1.02. The main area features an aerial map of a city grid with a red square indicating the site location. At the bottom, there are links for 'Analyze a New Site', 'Save Current Site', and 'Exit'.

National Stormwater Calculator

Overview Location Soil Type Soil Drainage Topography Precipitation Evaporation Climate Change Land Cover **LID Controls** Results

What % of your site's impervious area will be treated by the following LID practices?

- [Disconnection](#) 0
- [Rain Harvesting](#) 0
- [Rain Gardens](#) 0
- [Green Roofs](#) 0
- [Street Planters](#) 75
- [Infiltration Basins](#) 0
- [Permeable Pavement](#) 0

Design Storm for Sizing (inches) (see Help) 0.00

Click a practice to customize its design.

Verify cost-estimation variables below

- Project is [Re-Development](#)
- Project is [New Development](#)
- Site Suitability [Poor](#)
- Site Suitability [Moderate](#)
- Site Suitability [Excellent](#)

[Cost Region](#) Detroit (91 miles) 1.02

Regional Multiplier 1.02

[Help](#)

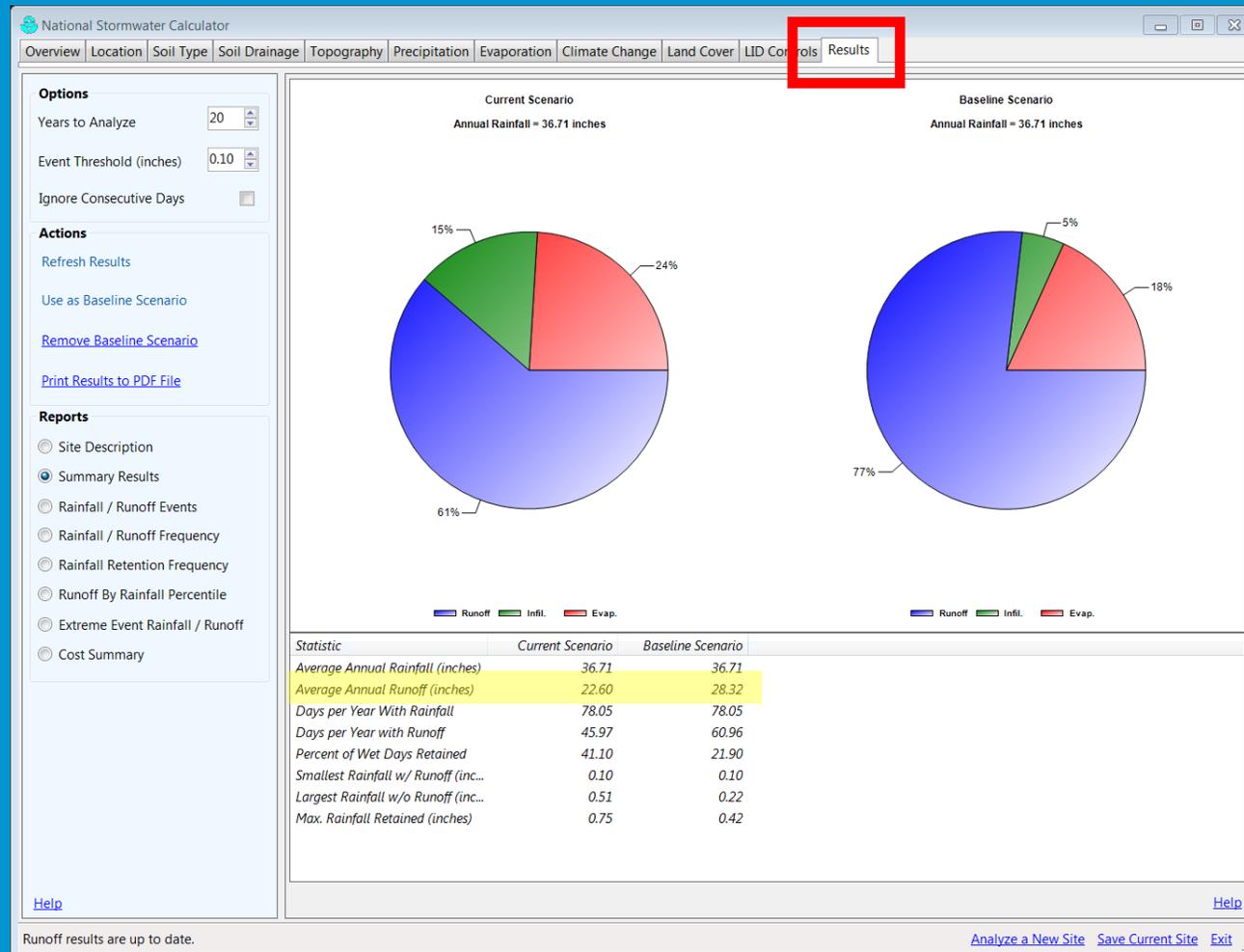
Assign LID practices to capture runoff from impervious areas.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

GI Grant Program Technical Requirements

EPA National Stormwater Calculator – with Green Infrastructure

75% of Impervious Area to Street Planters



GI Grant Program Technical Requirements

EPA National Stormwater Calculator – with Green Infrastructure

Multiple LID Controls

The screenshot displays the EPA National Stormwater Calculator interface. The 'LID Controls' tab is selected and highlighted with a red box. The left sidebar contains a list of LID practices with their respective percentages, which are also circled in red:

- Disconnection: 0
- Rain Harvesting: 25
- Rain Gardens: 0
- Green Roofs: 25
- Street Planters: 50
- Infiltration Basins: 0
- Permeable Pavement: 0

Other settings in the sidebar include:

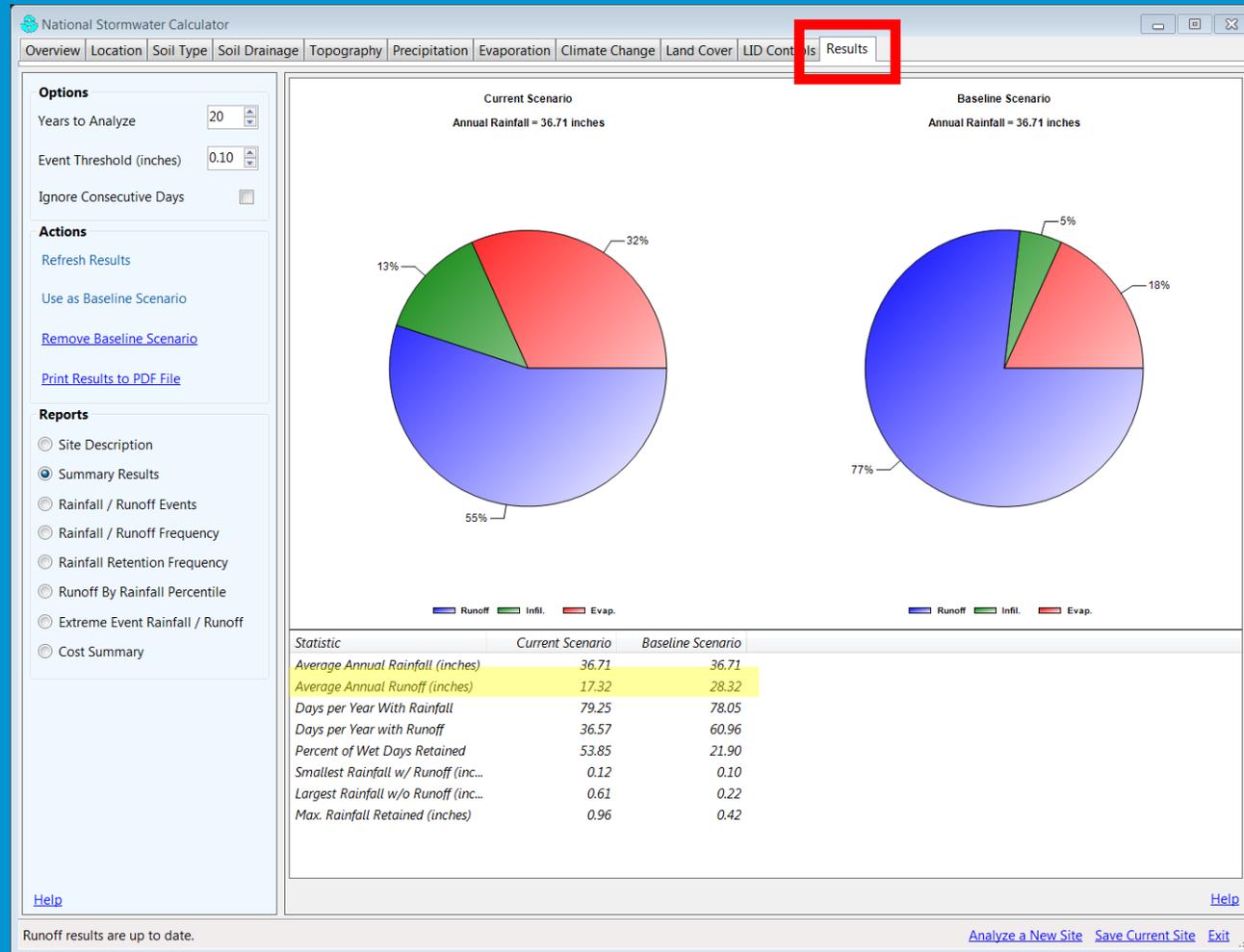
- Design Storm for Sizing (inches): 0.00
- Project is **Re-Development** (selected)
- Site Suitability **Poor** (selected)
- Cost Region: Detroit (91 miles) 1.02
- Regional Multiplier: 1.02

The main area shows an aerial map of a city street grid with a red square indicating the site location. The bottom of the interface includes a footer with the text 'Assign LID practices to capture runoff from impervious areas.' and navigation links: 'Analyze a New Site', 'Save Current Site', and 'Exit'.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator – with Green Infrastructure

Multiple LID Controls

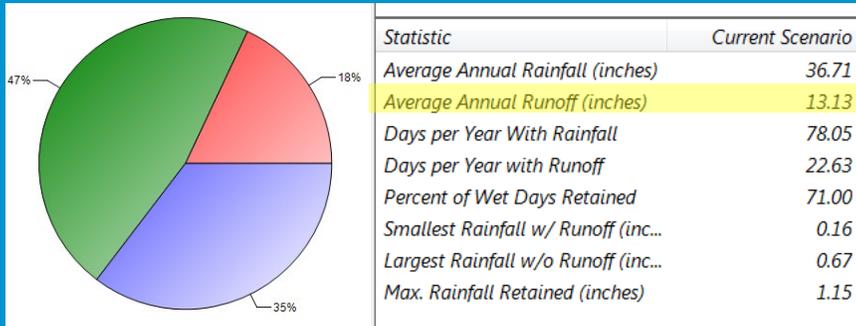


GI Grant Program Technical Requirements

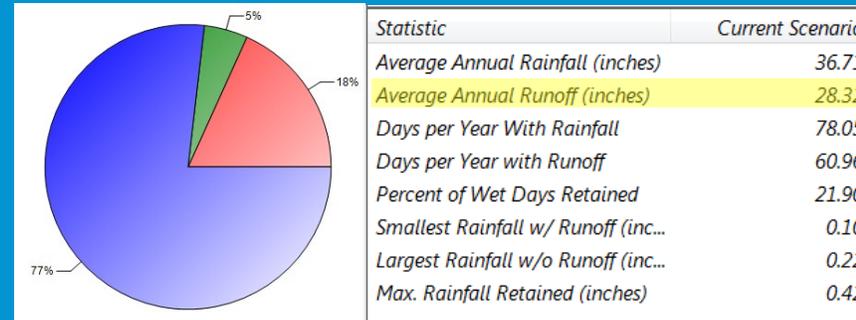
EPA National Stormwater Calculator

■ **Runoff**
■ **Infil.**
■ **Evap.**

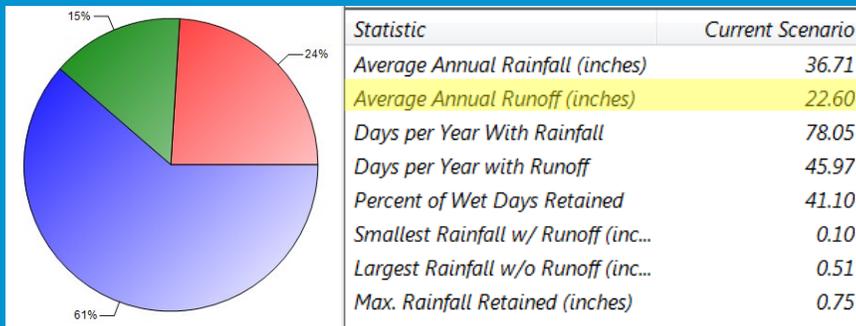
Existing Conditions



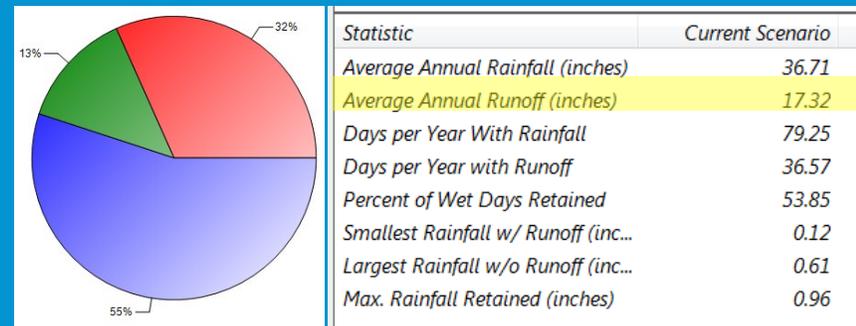
Minimum Title IV Requirements (Baseline Scenario)



75% of Impervious Area to Street Planters



Multiple LID Controls



GI Grant Program Technical Requirements

EPA National Stormwater Calculator – Helpful Hints

Baseline Scenario

- Use existing conditions (pre-development) when impervious area does not increase
- Use proposed conditions that meet the minimum NEORSD Title IV requirements when impervious area increases

GI Grant Program Technical Requirements

EPA National Stormwater Calculator – Helpful Hints

Treatment Trains

- The SWC does not model treatment trains...beyond its capabilities
- Use Stormwater Management Model (SWMM); or...
- Be creative...justify your assumptions

GI Grant Program Technical Requirements

EPA National Stormwater Calculator – Helpful Hints

Treatment Trains

- A 15,000 sq.ft. Green Roof (GR) discharges to Permeable Pavement (PP)
- **Step 1:** Run the model for just the GR and its drainage area. Results in 45% capture; so assume 8,250 sq.ft. of the GR (55% of 15,000 sq.ft.) continues to behave as impermeable and goes to the PP.
- **Step 2:** Run the model for just the PP and its drainage area, but also take into account the additional 8,250 sq.ft. of impervious area from the GR.
- The results from the PP model run should be used as your final result.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator – Helpful Hints

Underdrains

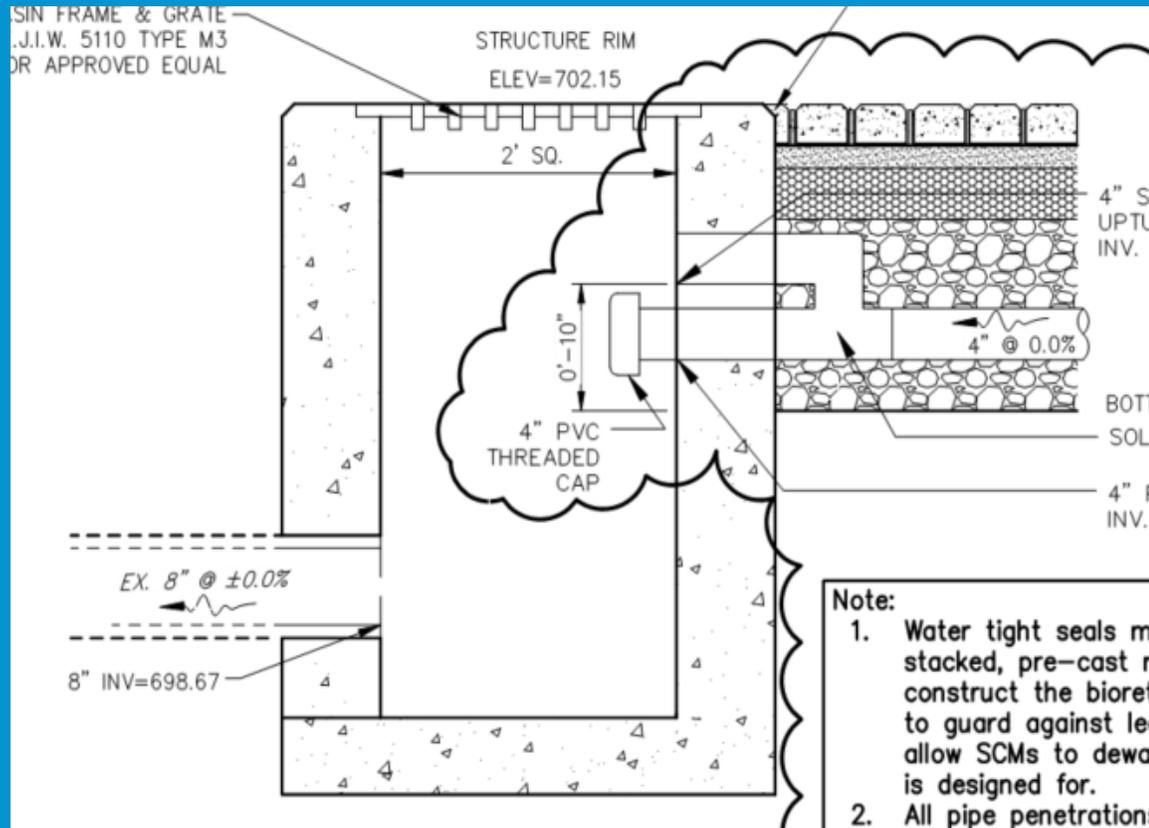
- Unless ideal soil conditions exist, underdrains are a necessary design feature for street planters and permeable pavement.
- Proposed standard underdrains will not negatively affect your grant application.
- Encouraged to alter the design of your underdrains to maximize infiltration potential (e.g., adding an upturned elbow).



GI Grant Program Technical Requirements

EPA National Stormwater Calculator – Helpful Hints

Upturned Elbow



GI Grant Program Technical Requirements

EPA National Stormwater Calculator – Helpful Hints

Unique Control Practices

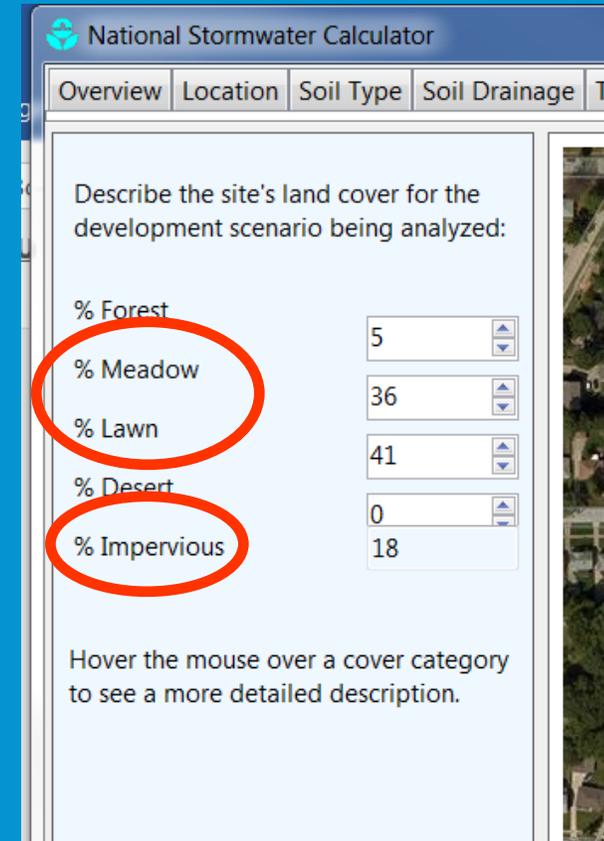
- If a proposed practice does not fit the mold of any of the calculator's options, use best professional judgement to select one or more of the seven LID Controls, and provide a brief narrative to justify selection.

GI Grant Program Technical Requirements

EPA National Stormwater Calculator – Helpful Hints

Land Cover Module

- Account for footprints of rain gardens, street planters and infiltration basins as Meadow or Lawn.
- Account for footprints of permeable pavement and green roofs as Impervious



The screenshot shows the 'National Stormwater Calculator' interface, specifically the 'Land Cover Module'. The window title is 'National Stormwater Calculator'. The navigation tabs are 'Overview', 'Location', 'Soil Type', 'Soil Drainage', and 'T'. The main content area is titled 'Describe the site's land cover for the development scenario being analyzed:'. Below this, there is a list of land cover categories with corresponding percentage values in input fields. The categories and their values are: % Forest (5), % Meadow (36), % Lawn (41), % Desert (0), and % Impervious (18). The labels '% Meadow' and '% Impervious' are circled in red. At the bottom, there is a note: 'Hover the mouse over a cover category to see a more detailed description.'

Land Cover Category	Percentage
% Forest	5
% Meadow	36
% Lawn	41
% Desert	0
% Impervious	18

GI Grant Program Technical Requirements

EPA National Stormwater Calculator – Helpful Hints

LID Controls Module

- Bioretention cells & infiltration trenches = Street Planters
- Footprints of rain gardens, street planters and infiltration basins = Meadow or Lawn
- Footprints of permeable pavement and green roofs = Impervious

Overview | Location | Soil Type | Soil Drainage

What % of your site's impervious area will be treated by the following LID practices?

Disconnection	0
Rain Harvesting	0
Rain Gardens	0
Green Roofs	0
Street Planters	0
Infiltration Basins	0
Permeable Pavement	0
Design Storm for Sizing (inches) (see Help)	0.00

GI Grant Program Technical Requirements

First-Year Maintenance

Your request must account for the first 12 months maintenance

- Why?
 - Good knowledge of “how” to maintain, but underestimating “how much” it costs to maintain.
 - First year is most critical (especially with plants)
 - A reality check on what it takes!
- We will be there along the way

GI Grant Program Technical Requirements

First-Year Maintenance

- Grant request must account for expenses to maintain your project
- Must include detailed cost-estimate for first 12-months of maintenance
- Account for labor, materials, landscaping, equipment rental, contracts, etc.
- DIY or utilize contracts
- Reimbursement process works the same

GI Grant Program Technical Requirements

First-Year Maintenance

- GI SCMs with landscaping (plants)
 - Weeding, watering, mulching, trash removal, pre-treatment device cleaning, etc.
- Porous Pavement
 - Professional sweeping 2-4x for first year, replenish stone (pavers), etc.

GI Grant Program Technical Requirements

First-Year Maintenance

- Rainwater Harvesting
 - Inspection, cleaning, testing equipment, winterizing, etc.
- Infiltrating SCMs
 - Pre-treatment device cleaning, trash removal, etc.

GI Grant Program Technical Requirements

First-Year Maintenance

- For more technical information...go to FAQ
- [USEPA Stormwater Calculator FAQs \(for NEORSD GIG Application purposes\)](#)

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NEORSD Green Infrastructure Grants Program

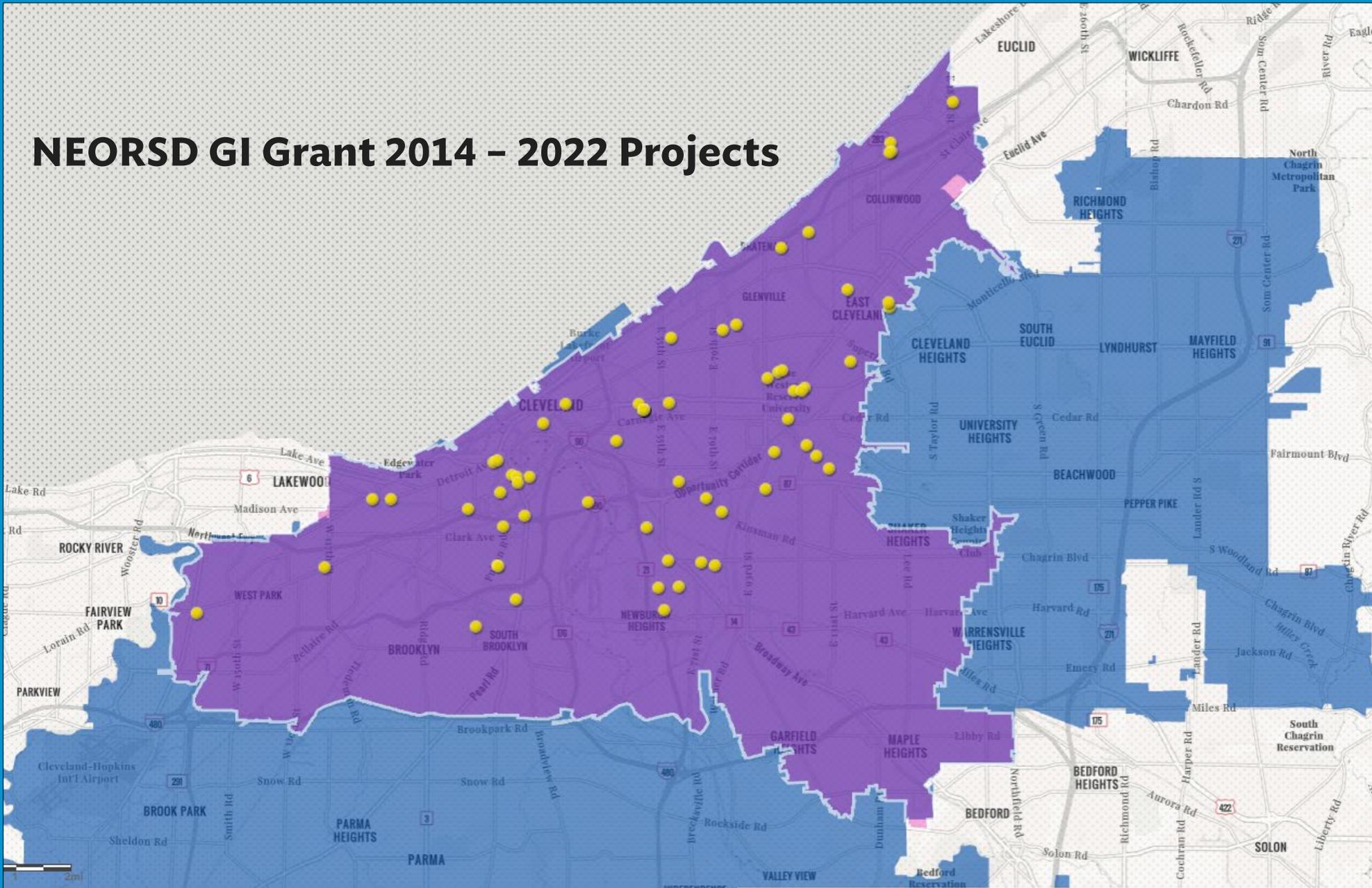
Preproposal Workshop for the 2023 GI Grants funding round



NEORSD GI Grant Document Submittal Process

Jessica S. Cotton, Grant Programs Administrator

NEORSD GI Grant 2014 - 2022 Projects



GI Grant Program Document Submittal Process

The Green Infrastructure Grant Program Project document submittal process is required – 3 options

OPTION 1

Click Here to Submit
GIG Reimbursement Request

OPTION 2

Click Here to Submit
GIG Quarterly Progress Report

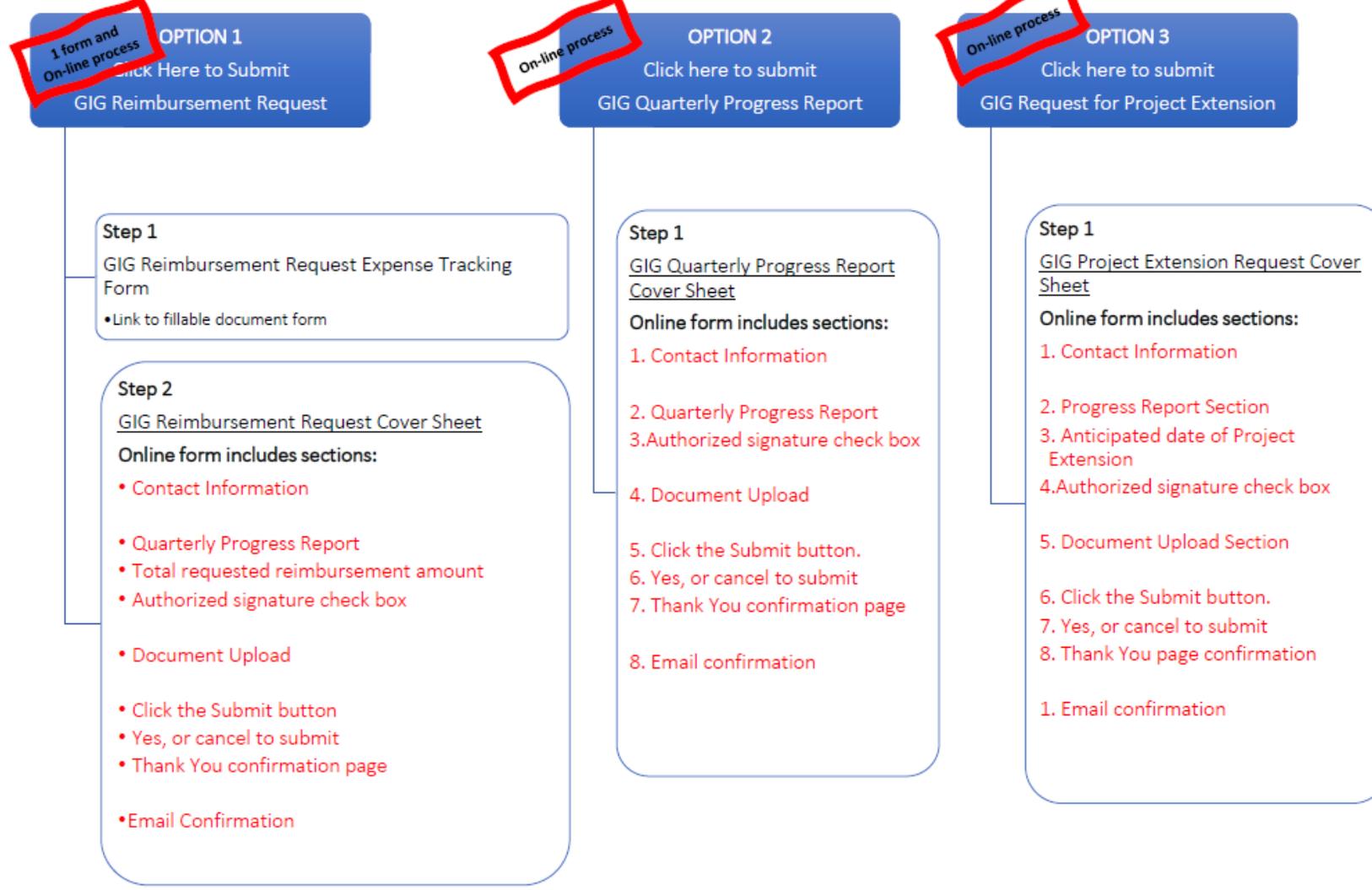
OPTION 3

Click Here to Submit
GIG Project Extension Request



GI Grant Program Document Submittal Process

GI Grant Document Submittal Process (Reference Only)



GI Grant Program Document Submittal Process

Let's take a look at the
NEORSD GI Grant Website

GI Grant Program Important Dates

- **RFP 2023 GI Grant Funding Round**

- Week of June 27th (next week)

- **Pre-application Meetings (HIGHLY RECOMMENDED)**

- July/August
- An opportunity to meet with applicants to discuss projects prior to submission

- **Application Submission Deadline**

- September 12, 2022
- GI Grant Application Portal
- <https://www.grantrequest.com/Login.aspx?ReturnUrl=%2fapplication.aspx%3fSA%3dSNA%26FID%3d35014%26sid%3d5833&SA=SNA&FID=35014&sid=5833>

- **Project Reviewing Period /Notifications to Applicants**

- October and November

Questions?



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- **Katie Waag, Assistant General Counsel**
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- **Robert Stoerkel, Community Discharge Permit Program Specialist**
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NEORSD Green Infrastructure website