



GREEN INFRASTRUCTURE GRANTS PROGRAM PRE-PROPOSAL WORKSHOP



**Northeast Ohio
Regional Sewer District**



@neorsd



NEORS D GIG Program Opening Remarks



WELCOME!

West Creek Watershed Stewardship Center



**Northeast Ohio
Regional Sewer District**



@neorsd

So WHY are we here today?

NEORSD supports the strategic implementation and long-term maintenance of green infrastructure (GI) that **protects, preserves, enhances and restores natural hydrologic function**, including funding GI projects **within the combined sewer area** through the Green Infrastructure Grants (GIG) Program.



Green Infrastructure Grant Program

| Funding Round | Award Recommendations | Runoff Reduction gallons/year |
|--|-----------------------|-------------------------------|
| 2014 GREEN INFRASTRUCTURE GRANTS PROGRAM | | |
| TOTAL | \$1,746,274 | 7,138,890 |
| 2016 GREEN INFRASTRUCTURE GRANTS PROGRAM | | |
| TOTAL | \$1,999,949 | 9,930,368 |
| 2018 GREEN INFRASTRUCTURE GRANTS PROGRAM | | |
| TOTAL | \$1,037,382 | 2,572,676 |
| 2019 GREEN INFRASTRUCTURE GRANTS PROGRAM | | |
| TOTAL | \$1,908,361 | 4,906,083 |
| GRAND TOTAL | \$6,691,966 | 24,548,017 |



2020 NEORS D GIG Process Overview



**Northeast Ohio
Regional Sewer District**



@neorsd

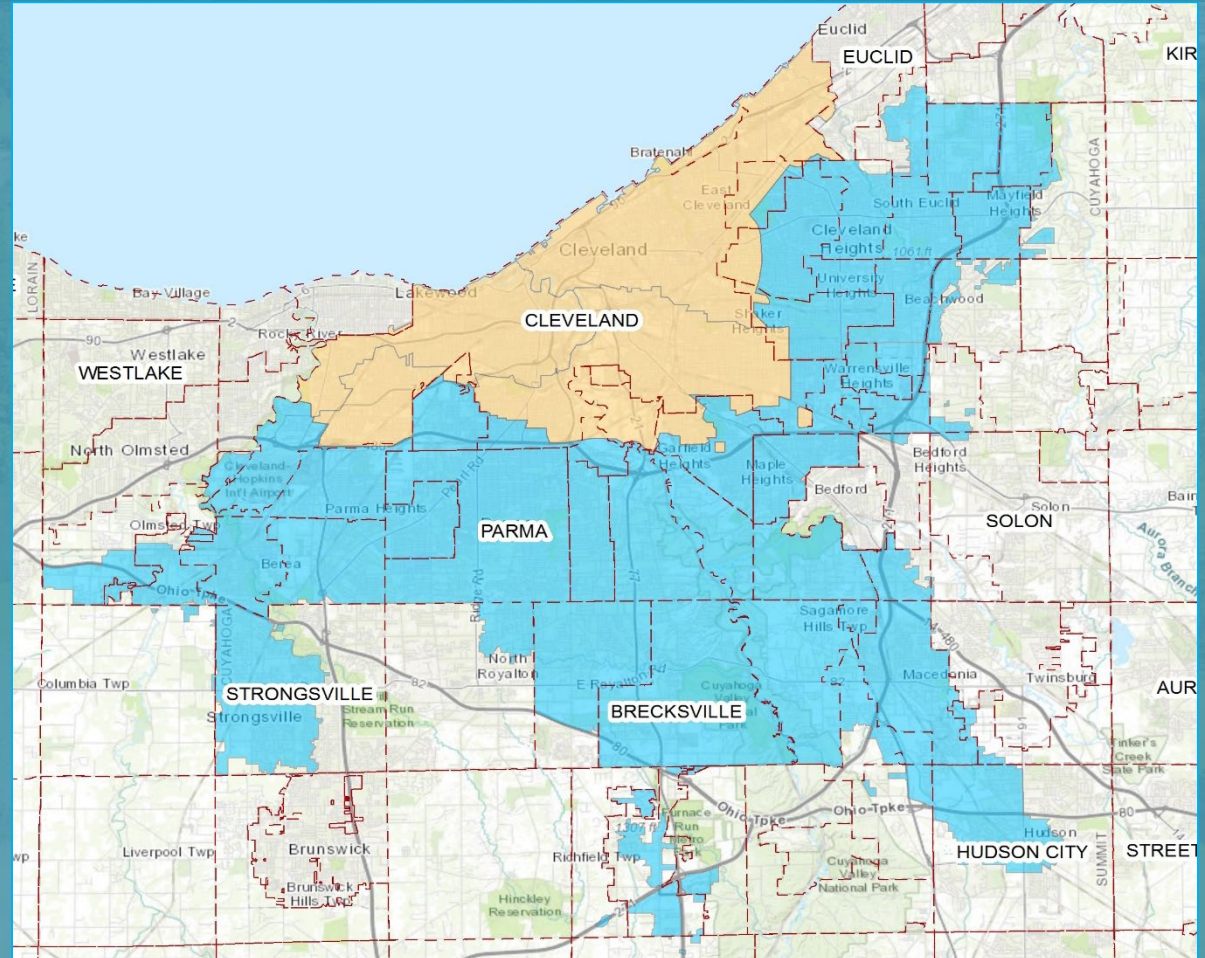


2020 NEORSRD GIG Eligibility

Eligibility

- Project must be located in the Sewer District's combined sewer area

Location



Applicant

Applicant must represent:

- Member community
- Governmental entity
- Non-profit 501(c)(3)
- Business working in partnership with their community

Site Control

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



*Western Reserve Historical Society –
University Circle*

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

Use of Green Infrastructure

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



Arch Park - Slavic Village



*Striebinger Block Living Wall -
Hingetown*

- **Reduce the Stormwater Run-off**
- **Title IV Compliance Requirements**

Contractual Requirement

- Two types of contracts:
 - Governmental Entity
 - Non-Governmental Entity

Agreements are not subject to substantive change.

Terms of Funding

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

Please Sign In

- If you have an account, please log in using your E-mail Address and Password.
- To create an account, please use the "New Applicant" link found below.
- This grant application system uses the following email domain:
mail@grantapplication.com. Please add it to your safe-senders list to be sure you receive all communications.

E-mail

[New Applicant?](#)

Password

[Forgot Password?](#)

Login

Proposals will be submitted on-line using the link found in the 2020 GIG RFP

IMPORTANT

- Review the 2020 GIG RFP Project Evaluation section for details and expectations for each application section.



Evaluation

- Expected Benefits of the Project (30 pts)
- Project Feasibility (25 pts)
 - Green Infrastructure SCM data
 - Project Introduction
 - Project Summary
 - Upload Photos

Evaluation

- Programmatic Capacity of the Applicant to Maintain the Project for Design Life Expectancy (25 pts)
 - Define property ownership/site control
 - Ability to provide long-term maintenance

Evaluation

- Visibility and Additional Community Benefits (20 pts)
 - Visibility and public outreach components

Other Requirements

- Tasks & Deliverables
 - Schedule for the significant benchmarks
 - Project must be completed by **November 30, 2020**
- Letters of Support
 - Minimum requirement is from the applicable councilperson

Provide only the Letters of Support requested



NEORSD GIG Program Reimbursement Process



**Northeast Ohio
Regional Sewer District**



@neorsd

Green Infrastructure Grant Reimbursement Request

- A complete Reimbursement Request submission will include:
- Reimbursement Request – Cover Sheet
- Reimbursement Request Deliverable Expense Worksheet w/supporting documentation
- Progress Report

Green Infrastructure Grant Reimbursement Request



**Northeast Ohio Regional Sewer District
Green Infrastructure Grant Program
Reimbursement Request Form**

Grant Information

Name of Project: _____

Grantee: _____

Amount Requested: _____

Authorized Signature

I certify that the costs outlined in this reimbursement package have been incurred in accordance with the approved project proposal as set forth in the grant agreement document(s). Furthermore, I affirm that the information contained herein is, to the best of my knowledge and belief, accurate and complete.

Name (print or type): _____

Title: _____

Telephone Number: _____

Email Address: _____

Signature: _____

Date: _____

4/2015

Green Infrastructure Grant Reimbursement Request



Green Infrastructure Grant Program Reimbursement Request Form

Instructions:

Record all expenses and attach relevant procurement documentation, such as an itemized bill, receipt, invoice, time card along with proof of payment, such as a credit card receipt, cancelled check, and/or other documentation to substantiate purchase and compensation as deemed acceptable by the District.


All reports should be submitted to:

Linda Mayer, Watershed Funding Administrator, mayerl@neorsd.org

| Invoice # | EXPENSE | Total Invoice Amount | Total Reimbursement Request |
|-----------|---------|----------------------|-----------------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

4/2015

Green Infrastructure Grant Reimbursement Request

 **Northeast Ohio
Regional Sewer District**

*Green Infrastructure Grant Program
Progress Report*

**Green Infrastructure Grant Program
PROGRESS REPORT**

Instructions:
Provide a summary of the accomplishments with respect to objectives, degree of completion based on the Green Infrastructure Grant Project (Project) application, and any problems encountered. Progress Reports must be submitted within 30 days of written request from the District Representative, as an attachment to all Reimbursement Requests, or at quarterly reporting dates prescribed in the Green Infrastructure Grant Agreement. Progress Reports submitted with the Reimbursement Request reflect the accomplishments between Reimbursement Requests.

Project Information

Grantee: _____

Project Title: _____

Authorized Signature
I certify that the information in this Progress Report is accurate and reflects current status of the Project. Furthermore, I affirm that the information contained herein is, to the best of my knowledge and belief, accurate and complete.

Name (print or type): _____

Title: _____

Telephone Number: _____

Email Address: _____

Signature: _____

Date: _____

Rev 1/2017

- Summarize progress and/or accomplishments since the last report
- Difficulties and/or delays encountered during the reporting period
- Describe progress towards Project tasks

Important Dates

Pre-Application Meetings

July 29 – August 2

Submittals Due

September 6, 2019



**Northeast Ohio
Regional Sewer District**



@neorsd



NEORS D GIG Program Contract

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



NEORSD GIG Program Evaluation Criteria

Evaluation Criteria

- Expected Benefits of Project (30 pts.)
 - Anticipated volume of stormwater controlled and/or removed from combined sewer system

Evaluation Criteria

- Project Feasibility
(25 pts.)
 - Constructability and implementation demonstrated through design
 - Anticipated completion date

Evaluation Criteria

- Programmatic Capacity to Maintain Stormwater Controls (25 pts.)
 - Ability to fund maintenance for life expectancy of stormwater control

Evaluation Criteria

- Visibility and Community Benefits
(20 pts)
 - Examples of community benefits:
 - Improving public health or safety
 - Improving urban tree canopy
 - Mitigating urban heat island effect

Evaluation Criteria

Design Completion (10 add'l pts)

- Ten extra points will be added to the overall project score if a complete design is submitted with the services of a professional engineer.
- Design and all supporting calculations must still be submitted and review by the District.





NEORSD GIG Program Technical Requirements

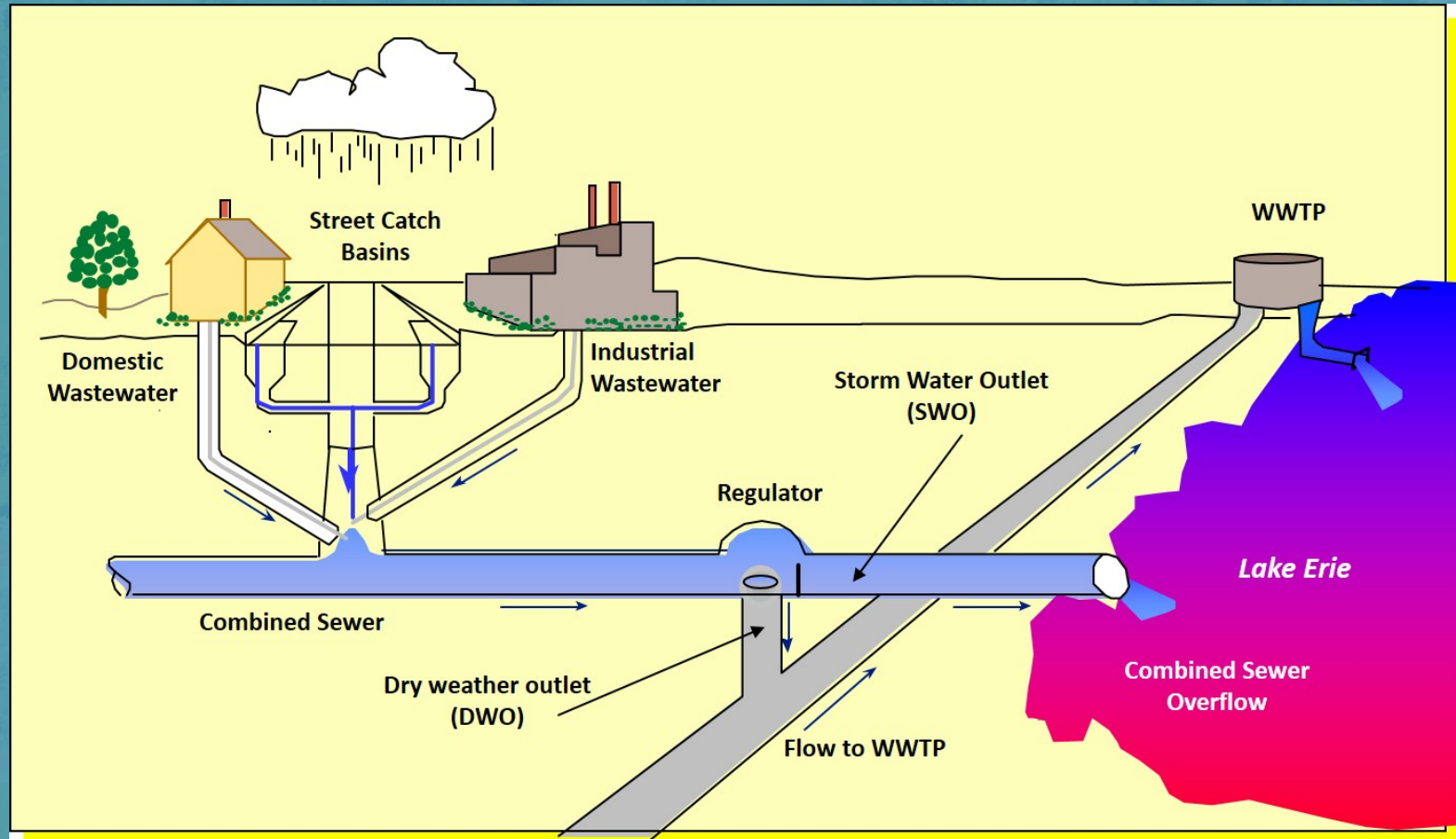
Title IV

Minimum Standards

- 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.*

Title IV

Minimum Standards



Northeast Ohio
Regional Sewer District



@neorsd

Title IV

Minimum Standards

- 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.

Title IV

Minimum Standards

Post-development
peak flows shall not
exceed existing
condition peak
flows.

Title IV

Minimum Standards

Existing condition

The current land use and impervious area on the subject property at the time proposed development plans are submitted to NEORSD.

Title IV

Minimum Standards

Post-
development
peak flows

\leq

Existing
condition
peak flows

Post-development peak flows will not
create increases in flow at CSO locations.

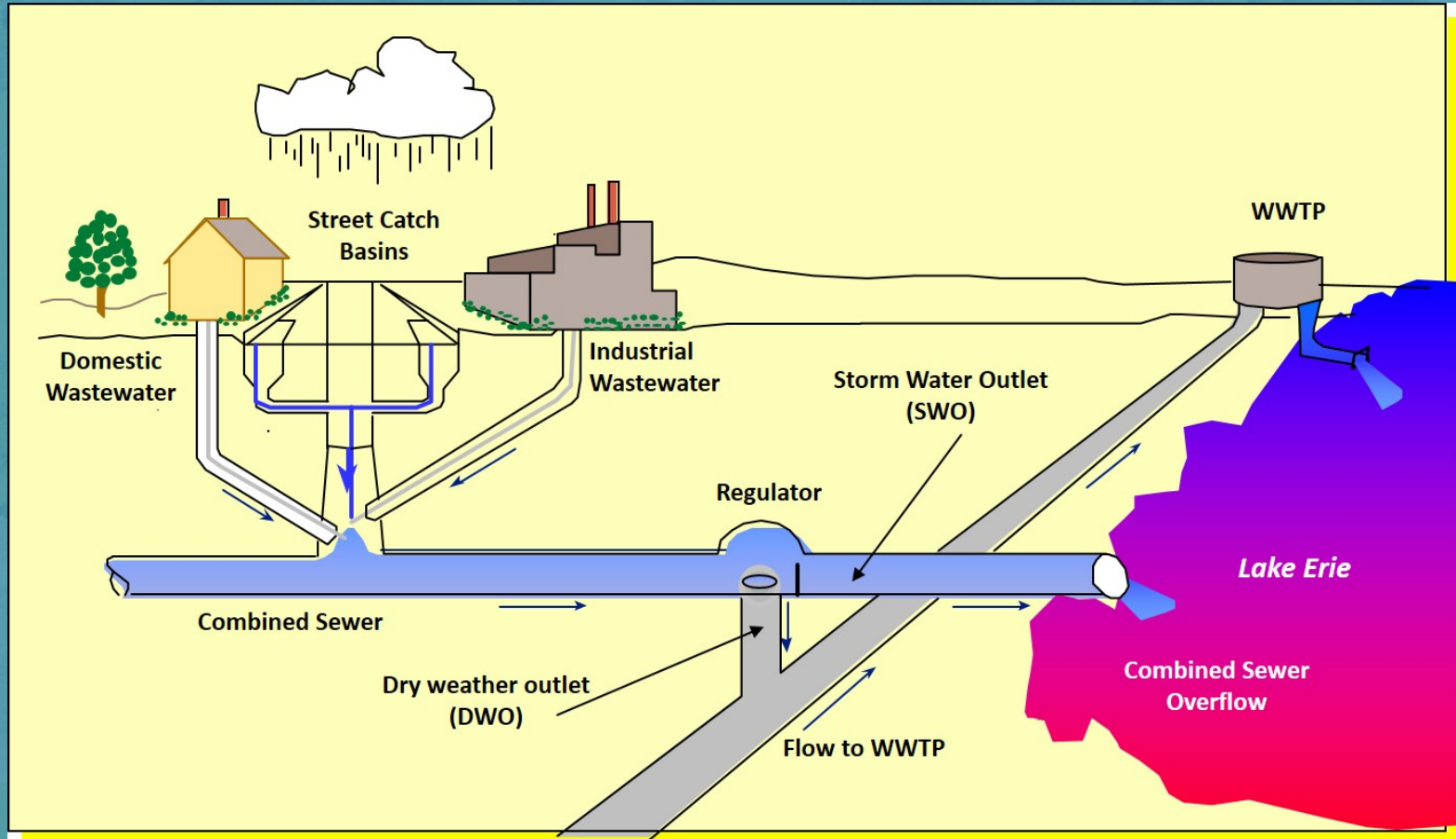
Title IV

Minimum Standards

- For separated storm connections to a CSO pipe or receiving water...
 - stormwater control measures must provide water quality treatment for 100% of the project area (New or Redevelopment).

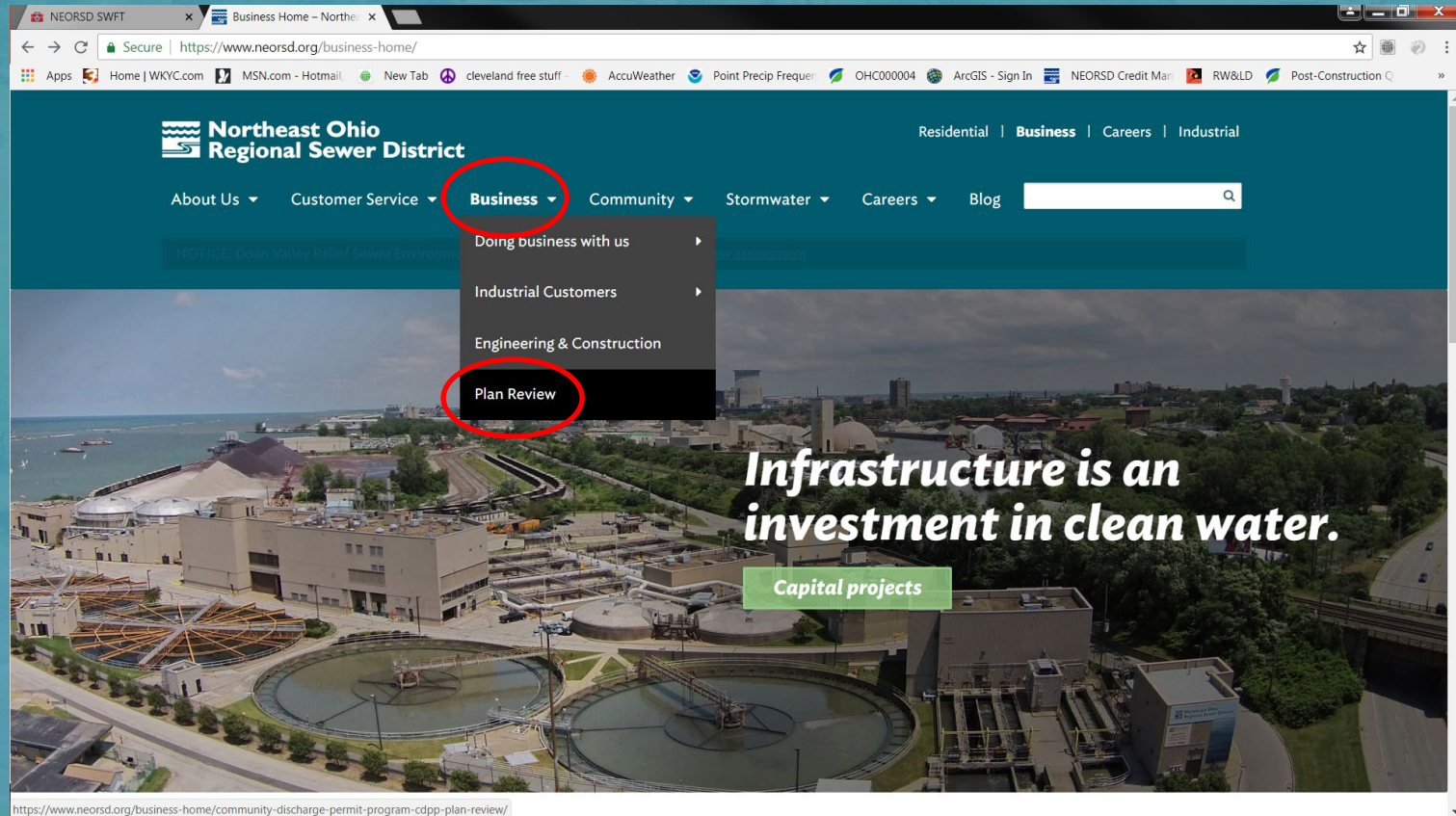
Title IV

Minimum Standards

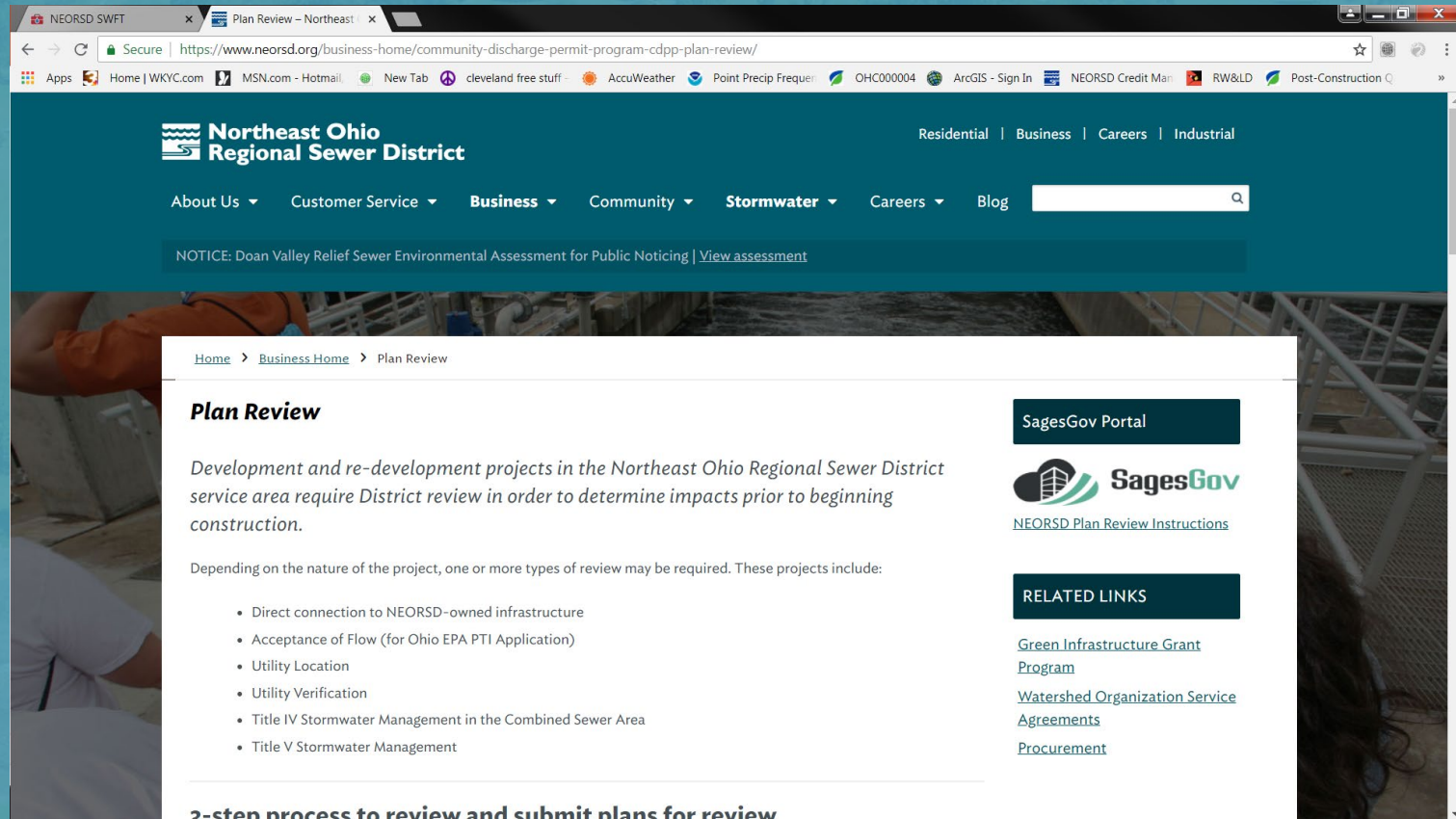


Title IV

Minimum Standards



Title IV Minimum Standards



The screenshot shows a web browser window with the URL <https://www.neorsd.org/business-home/community-discharge-permit-program-cdpp-plan-review/>. The page header features the NEORS logo and navigation links: Residential | Business | Careers | Industrial. Below the header is a menu with links: About Us, Customer Service, Business, Community, Stormwater, Careers, and a search bar. A notice banner reads: "NOTICE: Doan Valley Relief Sewer Environmental Assessment for Public Noticing | [View assessment](#)". The main content area is titled "Plan Review" and includes the following text: "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." It then states: "Depending on the nature of the project, one or more types of review may be required. These projects include:" followed by a bulleted list: "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", and "Title V Stormwater Management". To the right of the main content is a "SagesGov Portal" section with the SagesGov logo and a link to "NEORS Plan Review Instructions". Below that is a "RELATED LINKS" section with links to "Green Infrastructure Grant Program", "Watershed Organization Service Agreements", and "Procurement". At the bottom of the page, a section titled "3-step process to review and submit plans for review" is partially visible.

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

Title IV Minimum Standards

NEORS SWFT x Plan Review - Northeast x

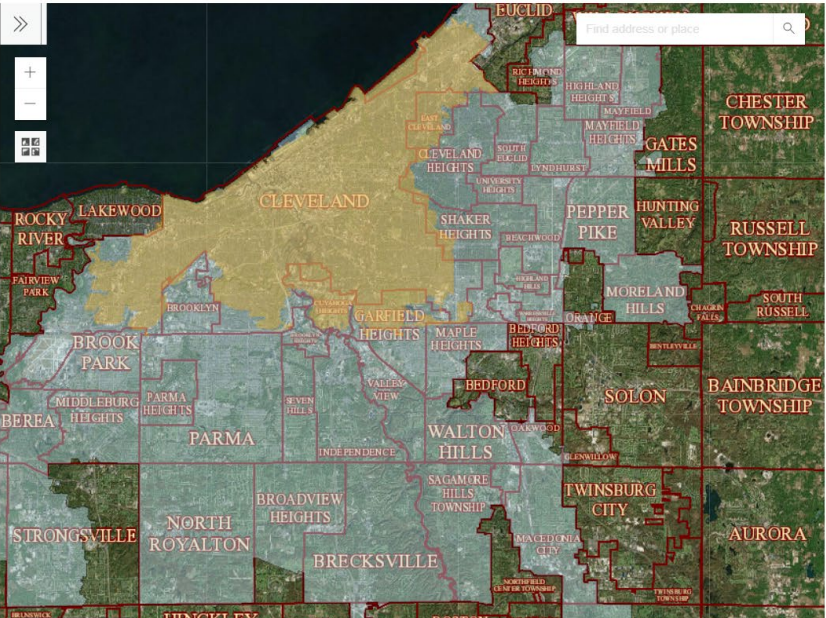
Secure | <https://www.neorsd.org/business-home/community-discharge-permit-program-cdpp-plan-review/>

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..

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.

First address or place



SagesGov Portal

 **SagesGov**

[NEORS Plan Review Instructions](#)

RELATED LINKS

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



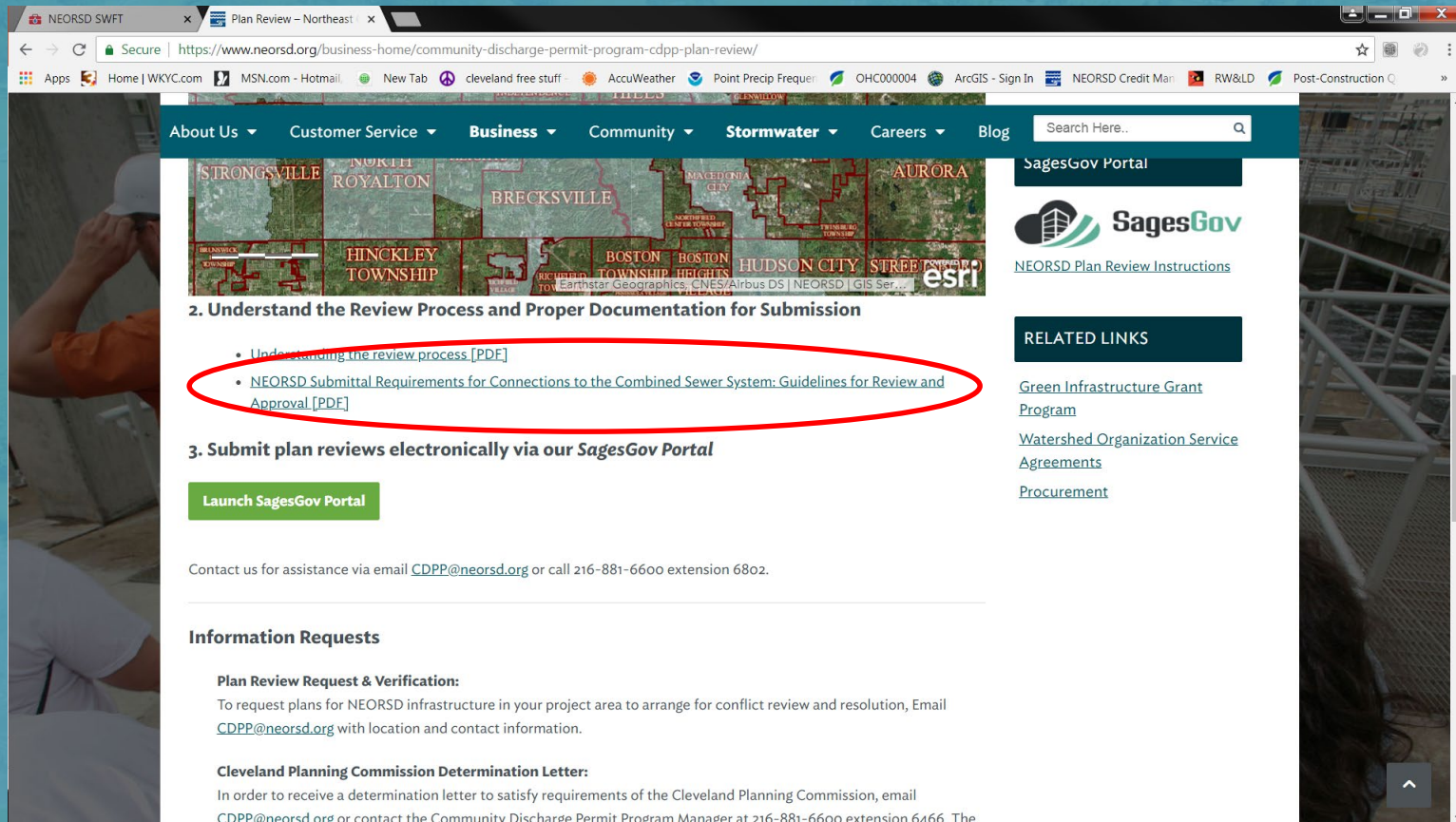
**Northeast Ohio
Regional Sewer District**



@neorsd

Title IV

Minimum Standards



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 Frequency | OHC000004 | ArcGIS - Sign In | NEORS Credit Man | RW&LD | Post-Construction Q

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

Search Here..

STRONGSVILLE | NORTH ROYALTON | BRECKSVILLE | MAJESTIC CITY | AURORA | HINCKLEY TOWNSHIP | BOSTON TOWNSHIP | BOSTON TOWNSHIP HEIGHTS | HUDSON CITY | STREETSVILLE | 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

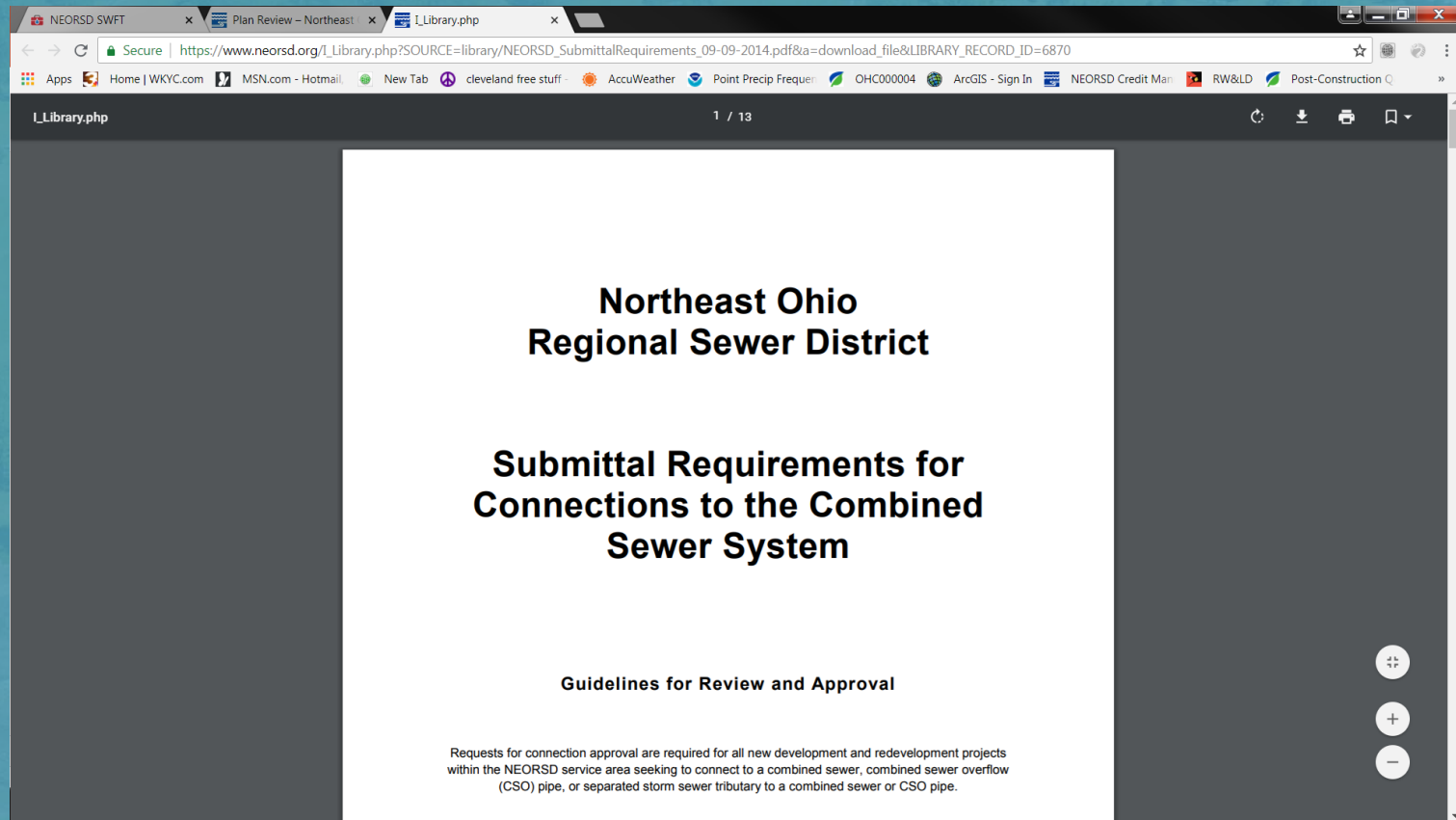
NEORS Plan Review Instructions

RELATED LINKS

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

Title IV

Minimum Standards



**Northeast Ohio
Regional Sewer District**



@neorsd

Title IV

Above & Beyond

- Green Infrastructure Grants Program
- Exceeding the minimum standard by reducing the total volume of runoff being conveyed to the combined sewer system
 - Soak it in
 - Harvest and reuse it
 - Disconnection

EPA National Stormwater Calculator

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

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



The map displays North America, including Canada, the United States, and Mexico. A red square indicates the location of the calculator site in the central United States. Surrounding bodies of water include the Beaufort Sea, Chukchi Sea, Bering Sea, Gulf of Alaska, Hudson Bay, Labrador Sea, Gulf of Mexico, Caribbean Sea, and Atlantic Ocean. Countries shown include Canada, Mexico, USA, Greenland (DEN), Iceland, Ireland, Portugal, Morocco, Mauritania, Guinea, Venezuela, Guyana, Suriname, Colombia, Ecuador, Peru, Bolivia, Paraguay, Chile, and Uruguay. A scale bar indicates 500 miles and 1000 km. The Bing logo is visible in the bottom left corner of the map area.

© 2018 HERE. © 2018 Microsoft Corporation. Terms

EPA National Stormwater Calculator

The screenshot shows the EPA National Stormwater Calculator web application in a Google Chrome browser. The address bar displays the URL <https://swcweb.epa.gov/location>. The page features a teal header with the EPA logo and the text "National Stormwater Calculator". Navigation links include NEW, SAVE, OPEN, RESOURCES, and CONTACT. A sidebar on the left contains icons for various map features: location pin, street view, elevation, terrain, weather, a selected "Location" icon, a polygon tool, a tree, a sewer pipe, a dollar sign, and a bar chart. The main area is a map of the United States with a green location pin in the central region. A "Location" panel is overlaid on the left side of the map, containing a "Directions" section with instructions, a "Search by address or zip code:" field with a search icon and a placeholder "Enter an address or zip code", and an "Enter number of acres for your site:" field with a value of "0". The map includes labels for Canada, Mexico, and various US states and cities. A scale bar at the bottom right indicates 250 miles and 500 km. Copyright text at the bottom right reads "© 2018 HERE, © 2018 Microsoft Corporation Terms".

EPA National Stormwater Calculator Low Impact Development (LID) Controls



**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator

LID Controls

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 H [Re-Development](#)
☐ Project H [New Development](#)

☒ Site Suitability [Poor](#)
☐ Site Suitability [Moderate](#)
☐ Site Suitability [Excellent](#)

Cost Region [NATIONAL \(NA\) 1](#)

Regional Multiplier [1](#)

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

EPA National Stormwater Calculator

LID Controls - Disconnection

LID Design

Disconnection



Disconnection refers to the practice of directing runoff from impervious areas, such as roofs or parking lots, on to pervious areas such as lawns or vegetative strips, instead of directly into storm drains. This gives the runoff an opportunity to infiltrate into the soil before leaving the site.

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

[Learn more ...](#)

% Capture Ratio: 100

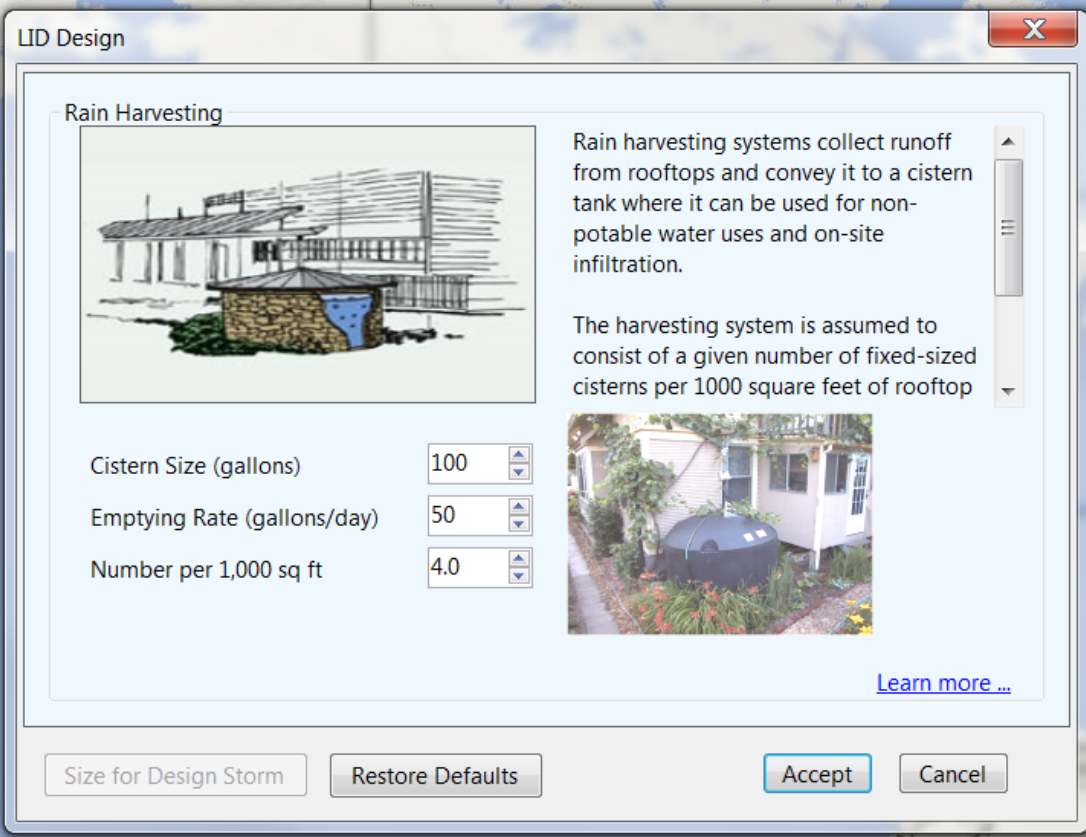
Size for Design Storm | Restore Defaults | Accept | Cancel

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%.

EPA National Stormwater Calculator


LID Controls – Rain Harvesting



The screenshot shows the 'LID Design' window with the 'Rain Harvesting' tab selected. It includes an illustration of a rainwater harvesting system, a descriptive text block, and three input fields for cistern specifications. A photograph of a real-world installation is also present, along with a 'Learn more ...' link. At the bottom are buttons for 'Size for Design Storm', 'Restore Defaults', 'Accept', and 'Cancel'.

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)

Emptying Rate (gallons/day)

Number per 1,000 sq ft



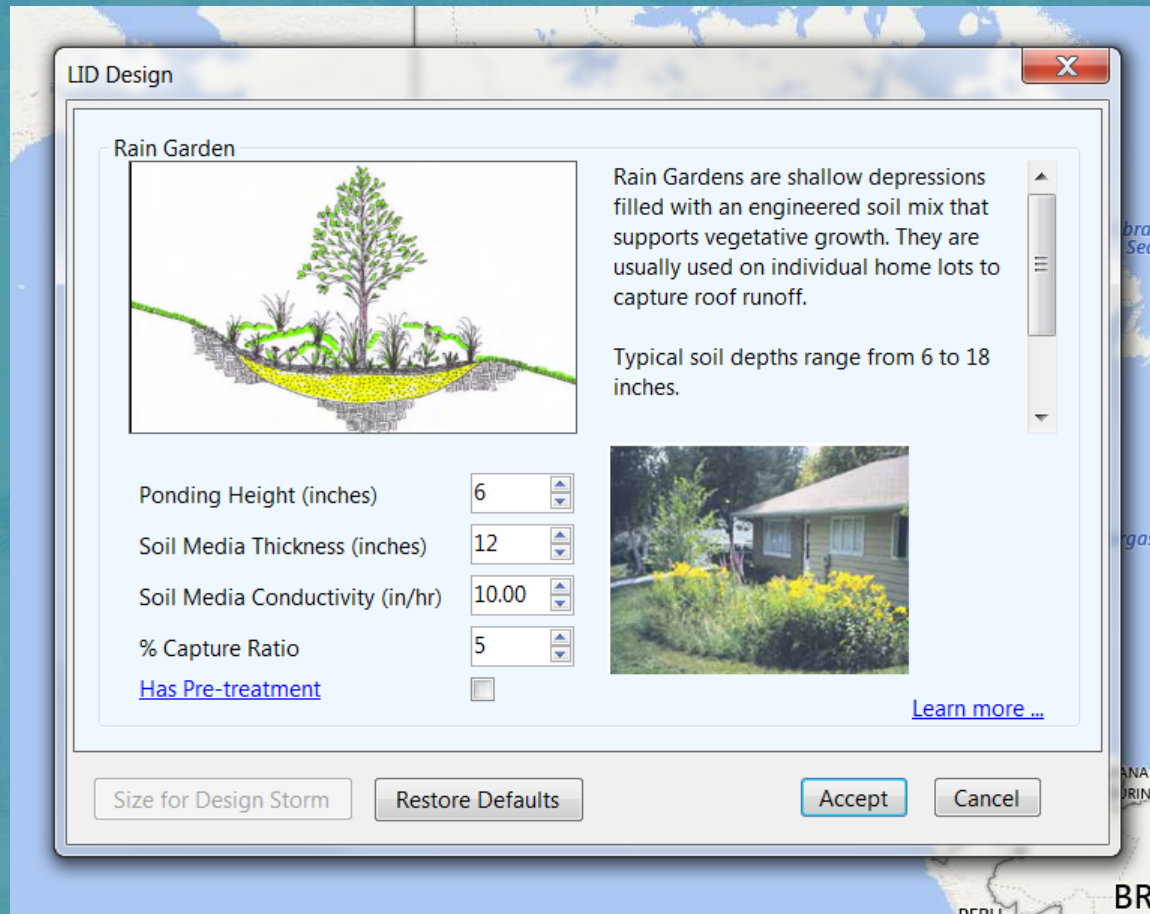
[Learn more ...](#)

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

EPA National Stormwater Calculator

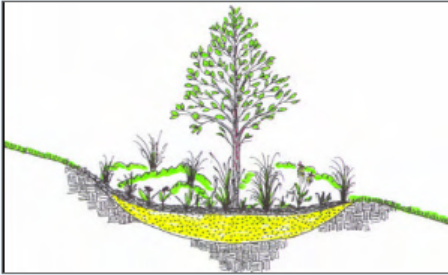
LID Controls – Rain Garden



The screenshot shows the 'LID Design' window for 'Rain Garden'. It includes a diagram of a rain garden cross-section, a description of rain gardens, typical soil depths, and input fields for design parameters. The inputs are: Ponding Height (6 inches), Soil Media Thickness (12 inches), Soil Media Conductivity (10.00 in/hr), and % Capture Ratio (5). There is a checkbox for 'Has Pre-treatment' and a 'Learn more ...' link. At the bottom are buttons for 'Size for Design Storm', 'Restore Defaults', 'Accept', and 'Cancel'.


LID Design

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.



[Learn more ...](#)

Ponding Height (inches)

Soil Media Thickness (inches)

Soil Media Conductivity (in/hr)

% Capture Ratio

[Has Pre-treatment](#) ☐

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%.

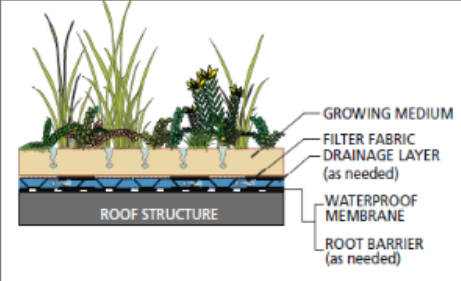
EPA National Stormwater Calculator

LID Controls – Green Roof


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

LID Design

Green Roof



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.



[Learn more ...](#)

Soil Media Thickness (inches)

Soil Media Conductivity (in/hr)

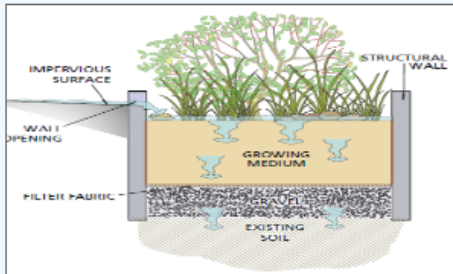
Size for Design Storm Restore Defaults Accept Cancel

EPA National Stormwater Calculator

LID Controls – 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



[Learn more ...](#)

| | |
|---------------------------------|-------|
| Ponding Height (inches) | 6 |
| Soil Media Thickness (inches) | 18 |
| Soil Media Conductivity (in/hr) | 10.00 |
| Gravel Bed Thickness (inches) | 12 |
| % Capture Ratio | 6 |

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.

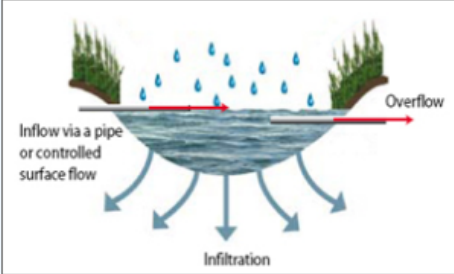
The planter's Capture Ratio is the ratio of its area to the impervious area whose runoff it captures.

EPA National Stormwater Calculator

LID Controls – Infiltration Basin

LID Design

Infiltration Basin




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%.

EPA National Stormwater Calculator

LID Controls – Permeable Pavement

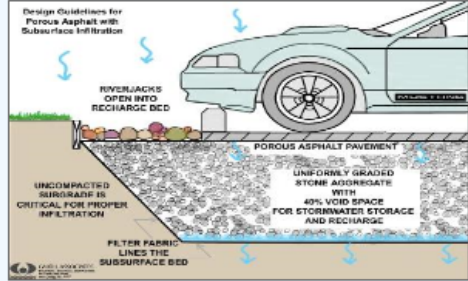
Normally all rainfall will immediately pass through the pavement into the gravel storage layer below it where it can infiltrate at natural rates into the site's native soil.

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.

LID Design


Permeable Pavement



Design Guidelines for Porous Asphalt with Subsurface Infiltration

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.



[Learn more ...](#)

Pavement Thickness (inches)

Gravel Layer Thickness (inches)

% Capture Ratio

[Has Pre-treatment](#) ☐

EPA National Stormwater Calculator Modules



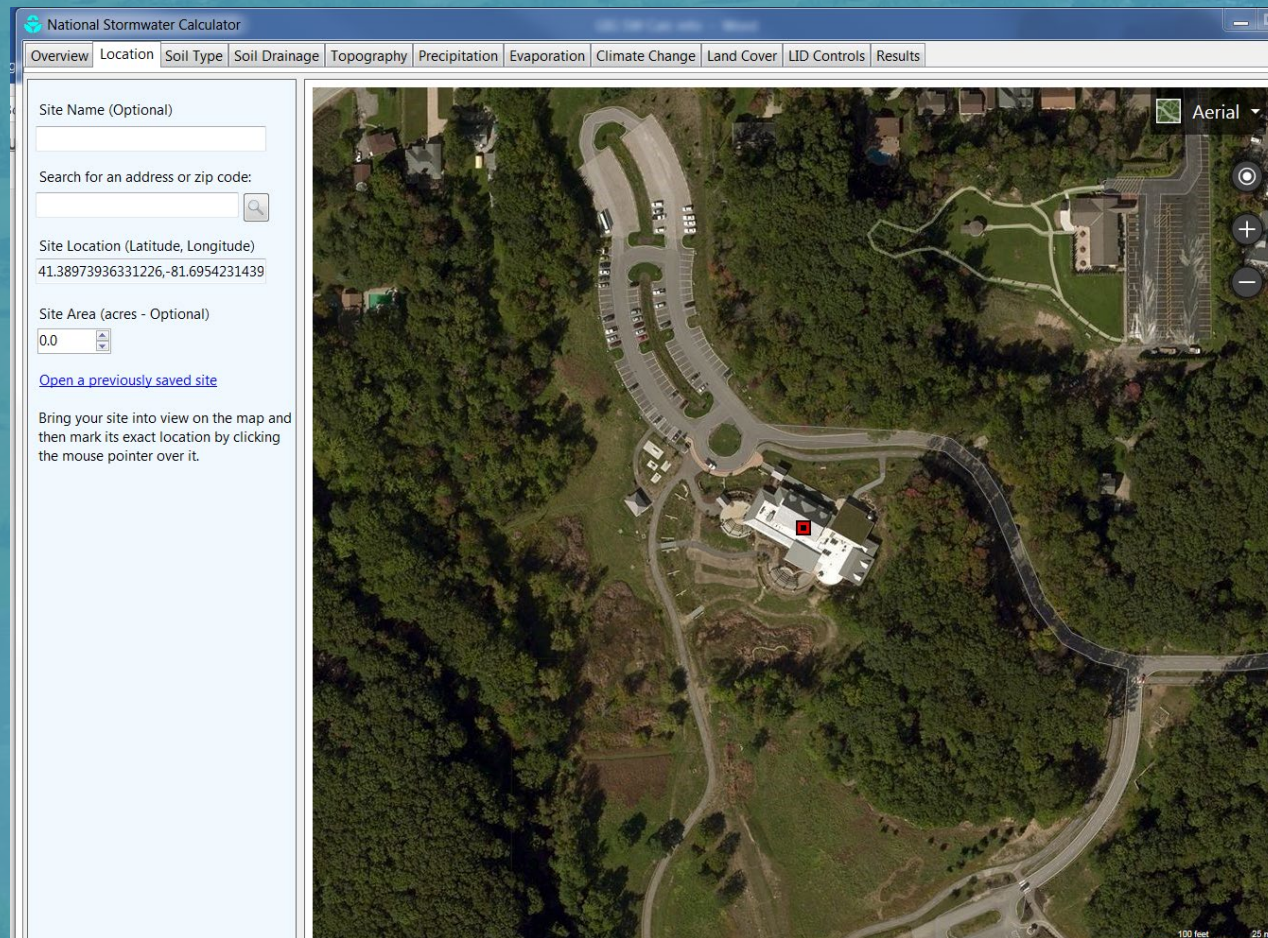
**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator

Modules - Location



The screenshot shows the 'Location' module of the EPA National Stormwater Calculator. The interface includes a sidebar on the left with input fields and a main map area on the right.

Left Sidebar:

- Site Name (Optional):** A text input field.
- Search for an address or zip code:** A text input field with a magnifying glass icon.
- Site Location (Latitude, Longitude):** A text input field containing the coordinates 41.38973936331226,-81.6954231439.
- Site Area (acres - Optional):** A text input field with a value of 0.0 and a small up/down arrow icon.
- [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.

Main Map Area:

- The map displays an aerial view of a residential area with a large parking lot, a building, and surrounding greenery.
- A red square marker is placed on the building.
- Map controls in the top right corner include a 'Aerial' dropdown, a zoom in (+) button, a zoom out (-) button, and a reset/locate button.
- A scale bar at the bottom right indicates 100 feet and 25 meters.



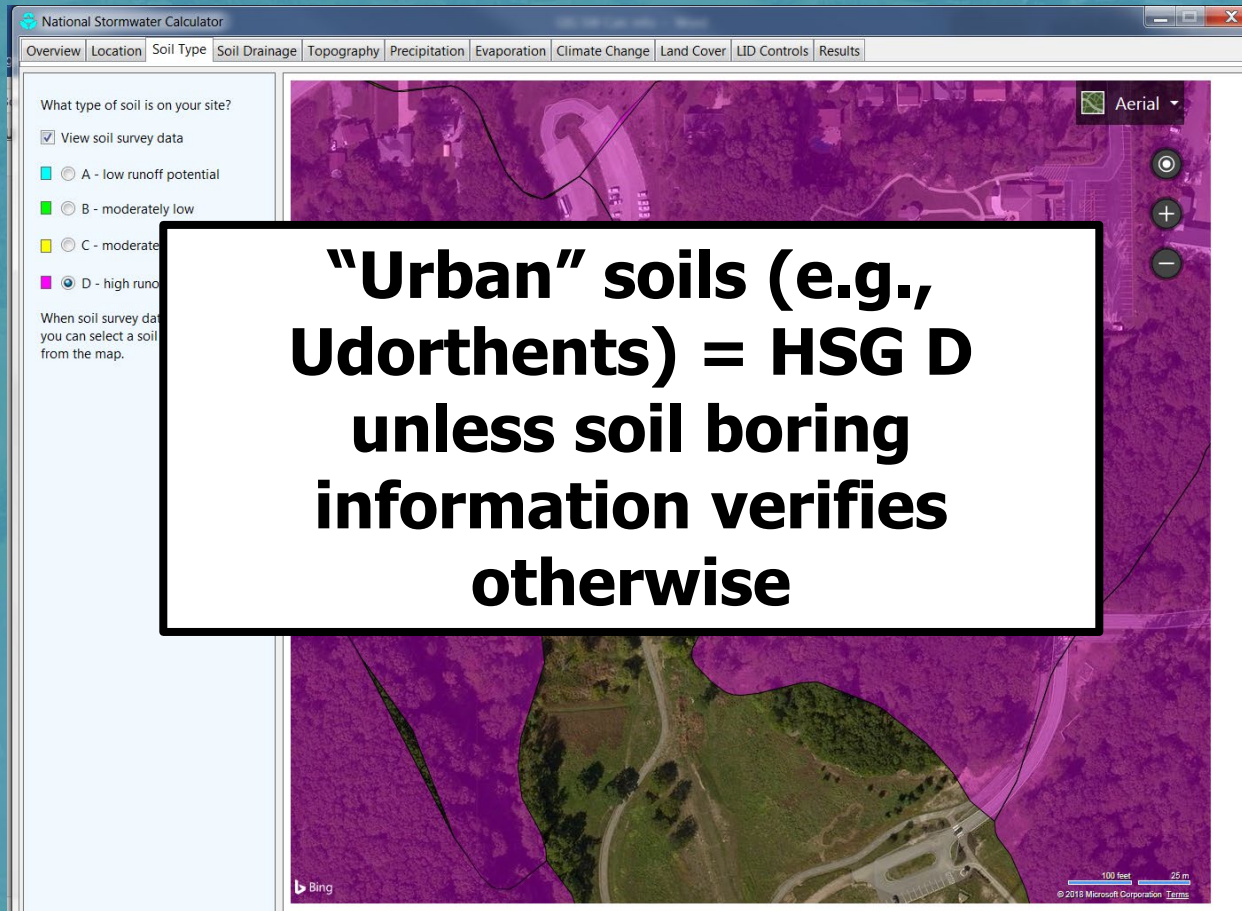
**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator

Modules - Soil Type



EPA National Stormwater Calculator

Modules - Soil Type

Web Soil Survey - Google Chrome

Secure | <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Apps | Home | WKYC.com | MSN.com - Hotmail | New Tab | cleveland free stuff | AccuWeather | Point Precip Frequer | OH000004 | ArcGIS - Sign In | NEORS Credit Man | RW&LD | Post-Construction C

Frost-Free Days

Hydrologic Soil Group

[View Description](#) [View Rating](#)

View Options


Map ☒
Table ☒
Description of Rating ☒
Rating Options ☒
☐ Detailed Description

Advanced Options

Aggregation Method: Dominant Condition
Component Percent Cutoff:
Tie-break Rule: ☐ Lower ☒ Higher

[View Description](#) [View Rating](#)

Map Unit Name
Parent Material Name
Representative Slope
Soil Slippage Potential
Unified Soil Classification (Surface)
Water Features



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

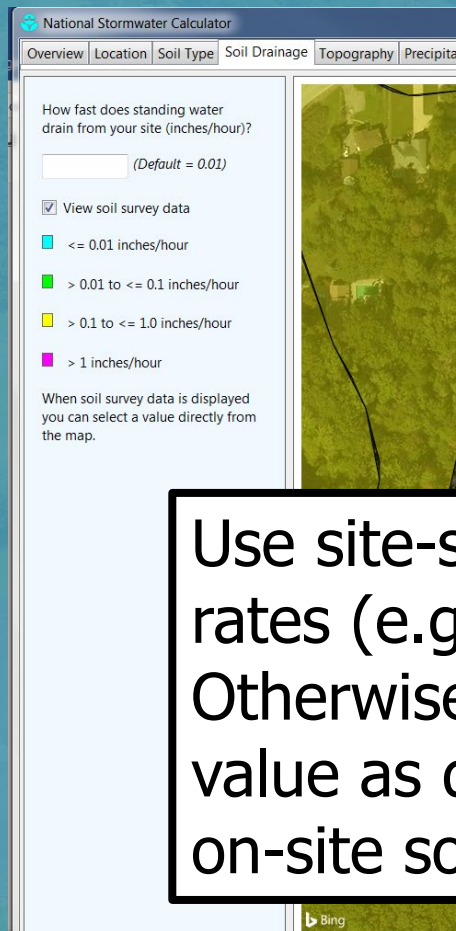
Summary by Map Unit — Cuyahoga County, Ohio (OH035)

| 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% |

Description — Hydrologic Soil Group

EPA National Stormwater Calculator

Modules - Soil Drainage



The screenshot shows the 'National Stormwater Calculator' window with the 'Soil Drainage' tab selected. The interface includes a sidebar with a question 'How fast does standing water drain from your site (inches/hour)?' and a text input field with a default value of 0.01. Below this is a checkbox for 'View soil survey data' which is checked. A legend lists four categories with corresponding color swatches: light blue 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 area shows a map with a green overlay indicating the selected soil drainage rate.

Hydrologic Soil Group Default Values (inches/hr):

A – 1.00

B – 0.40

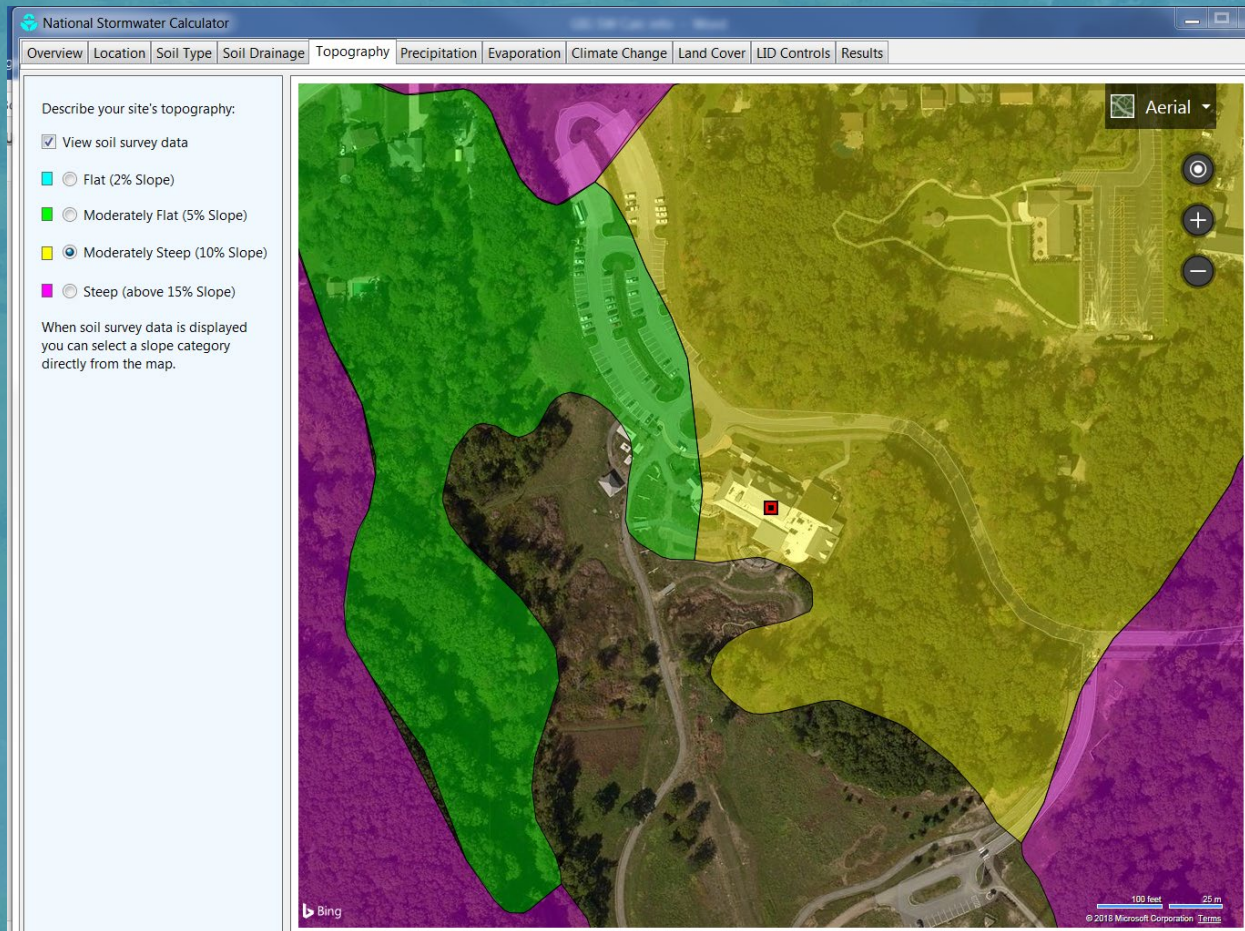
C – 0.04

D – 0.01

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

EPA National Stormwater Calculator

Modules - Topography



**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator

Modules - Topography

| Tables — Hydrologic Soil Group — Summary By Map Unit | | | | |
|--|--|--------|--------------|----------------|
| Summary by Map Unit — Cuyahoga County, Ohio (OH035) | | | | |
| 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% |

Slopes

No letter – 0%

A: >0% up to 2%

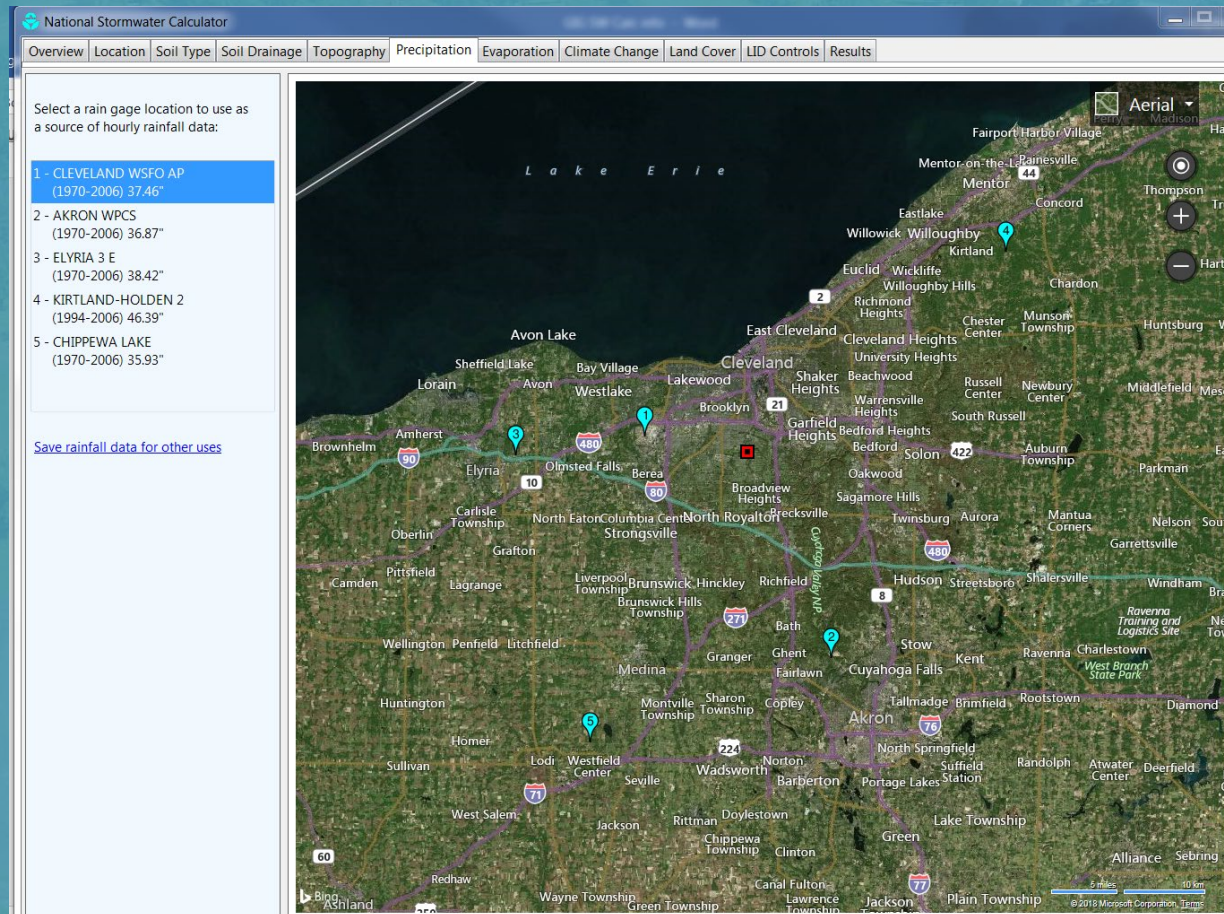
B: >2% up to 6%

C: >6% up to 12%

D: >12% up to 18%

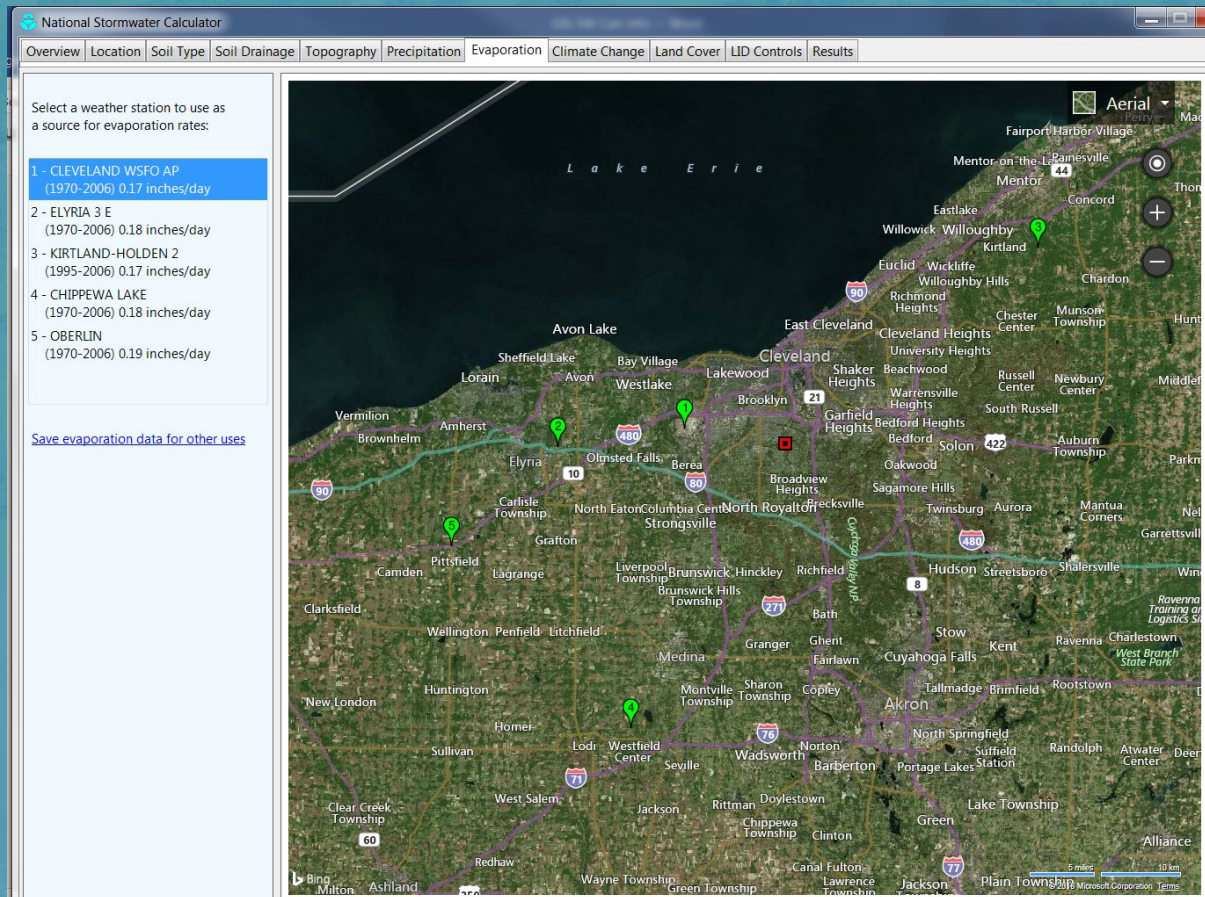
EPA National Stormwater Calculator

Modules - Precipitation



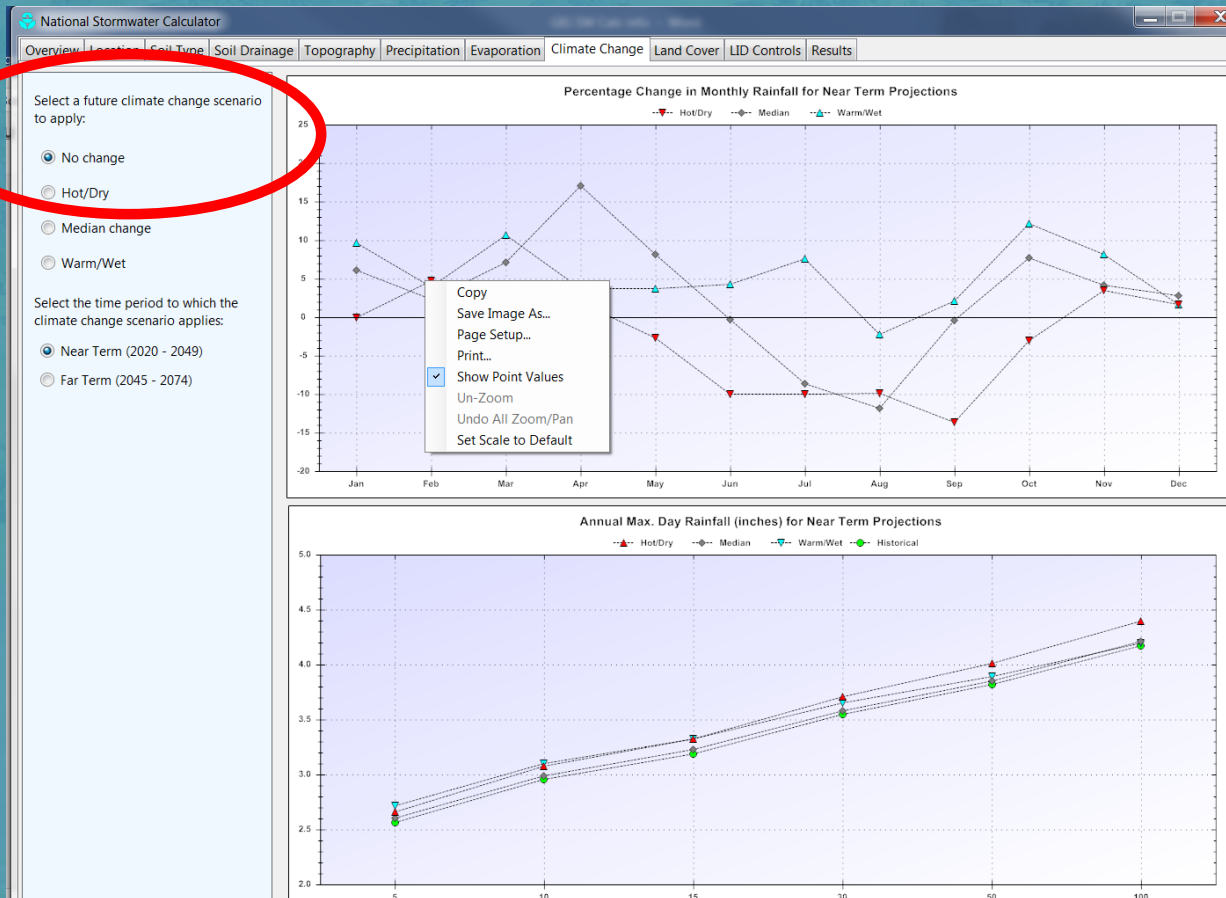
EPA National Stormwater Calculator

Modules - Evaporation



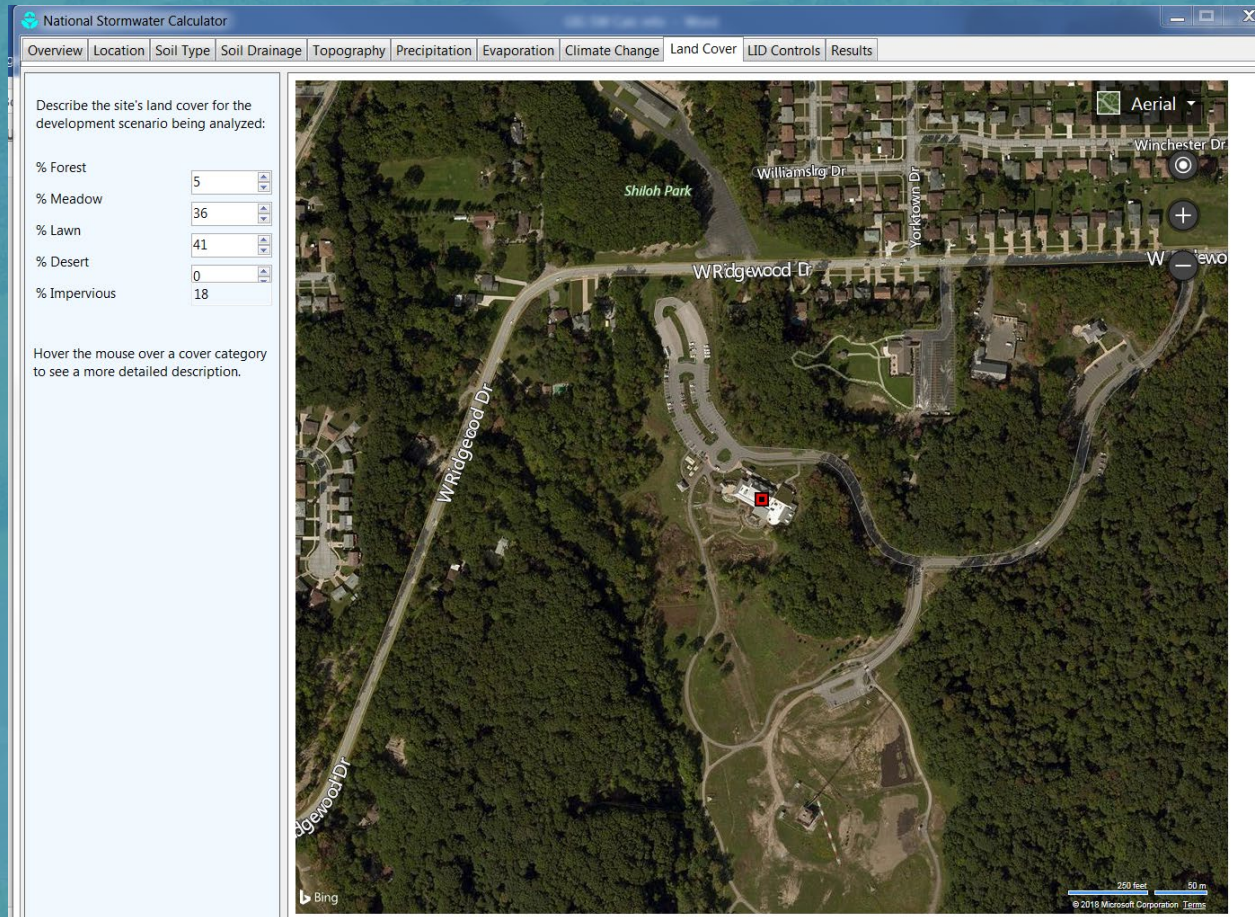
EPA National Stormwater Calculator

Modules - Climate Change



EPA National Stormwater Calculator

Modules - Land Cover



EPA National Stormwater Calculator

Modules - LID Controls

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 | <input type="text" value="0"/> |
| Rain Harvesting | <input type="text" value="0"/> |
| Rain Gardens | <input type="text" value="0"/> |
| Green Roofs | <input type="text" value="0"/> |
| Street Planters | <input type="text" value="0"/> |
| Infiltration Basins | <input type="text" value="0"/> |
| Permeable Pavement | <input type="text" value="0"/> |

Design Storm for Sizing (inches) (see Help)

Click on the map to select a design point.

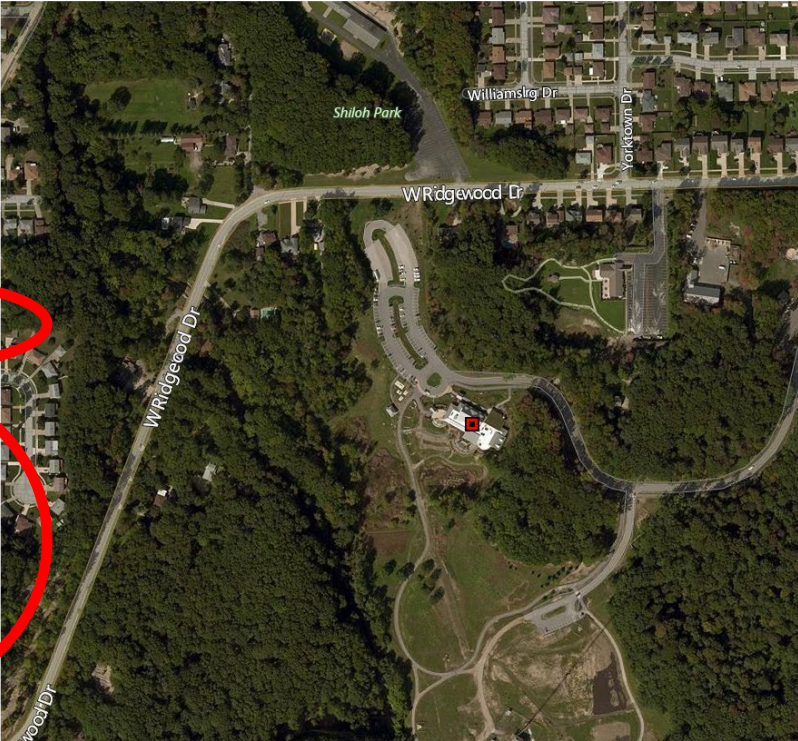
Verify cost-estimation variables below

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

☒ Site Suitability [Poor](#)
☐ Site Suitability [Moderate](#)
☐ Site Suitability [Excellent](#)

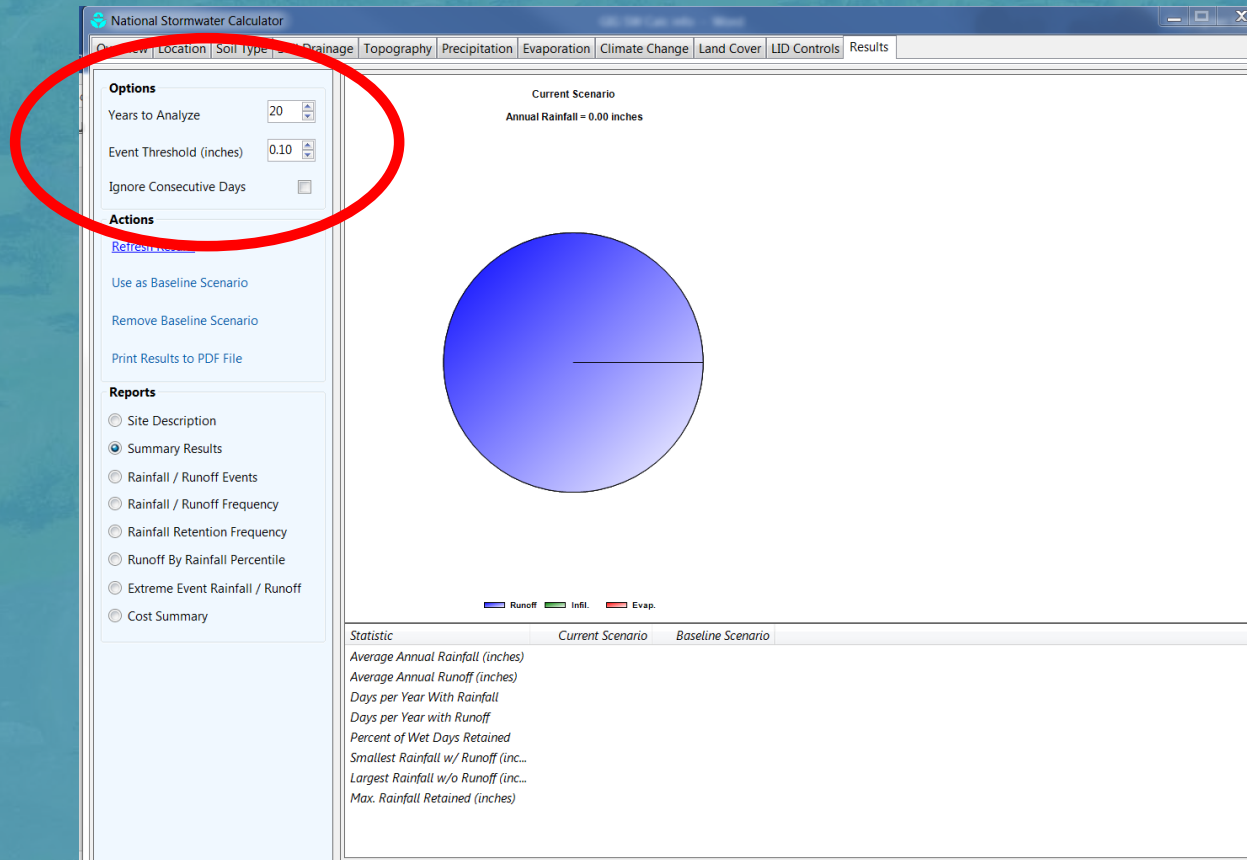
[Cost Region](#) Detroit (95 miles) 1.02 ▾

Regional Multiplier



EPA National Stormwater Calculator

Modules - Results



EPA National Stormwater Calculator - Existing Conditions

National Stormwater Calculator

Overview

Location

Soil 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](#)



**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator - Existing Conditions

National Stormwater Calculator

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

What type of soil is on your site?

☒ View soil survey data

☐ A - low runoff potential

☐ B - moderately low

☐ C - moderately high

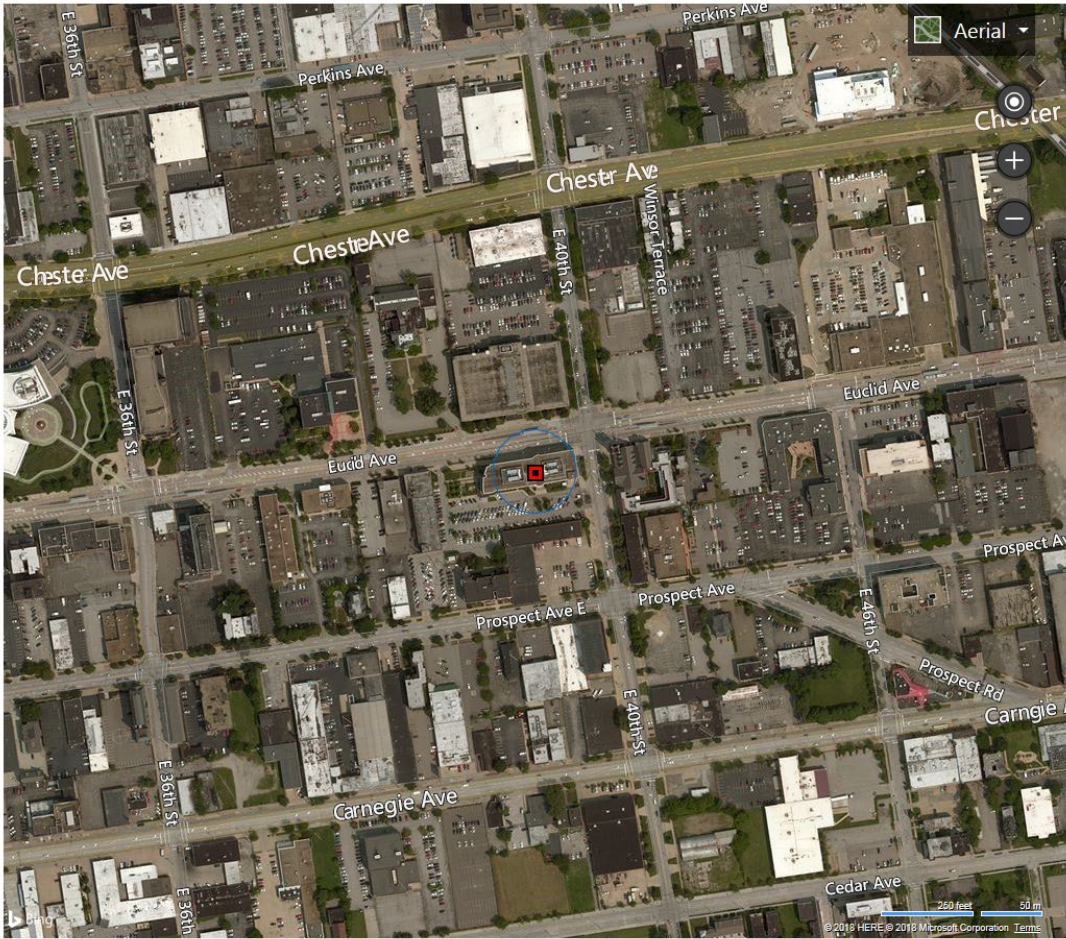
☒ D - high runoff potential

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

[Help](#)

Select a soil type for the site.

Analyze a New Site | Save Current Site | Exit



**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator - Existing Conditions

National Stormwater Calculator

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

How fast does standing water drain from your site (inches/hour)?

.01 (Default = 0.01)

☐ View soil survey data

- ≤ 0.01 inches/hour
- > 0.01 to ≤ 0.1 inches/hour
- > 0.1 to ≤ 1.0 inches/hour
- > 1 inches/hour

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

© 2015 HERE © 2015 Microsoft Corporation Terms

[Help](#)

Enter the soil's drainage rate.

Analyze a New Site Save Current Site Exit

EPA National Stormwater Calculator - Existing Conditions

National Stormwater Calculator

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

Describe your site's topography:

☒ View soil survey data

☒ Flat (2% Slope)

☐ Moderately Flat (5% Slope)

☐ Moderately Steep (10% Slope)

☐ Steep (above 15% Slope)

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

[Help](#)

250 feet 50 m

© 2018 HERE © 2018 Microsoft Corporation Terms

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



**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator - 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](#)



**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator - Existing Conditions

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](#)

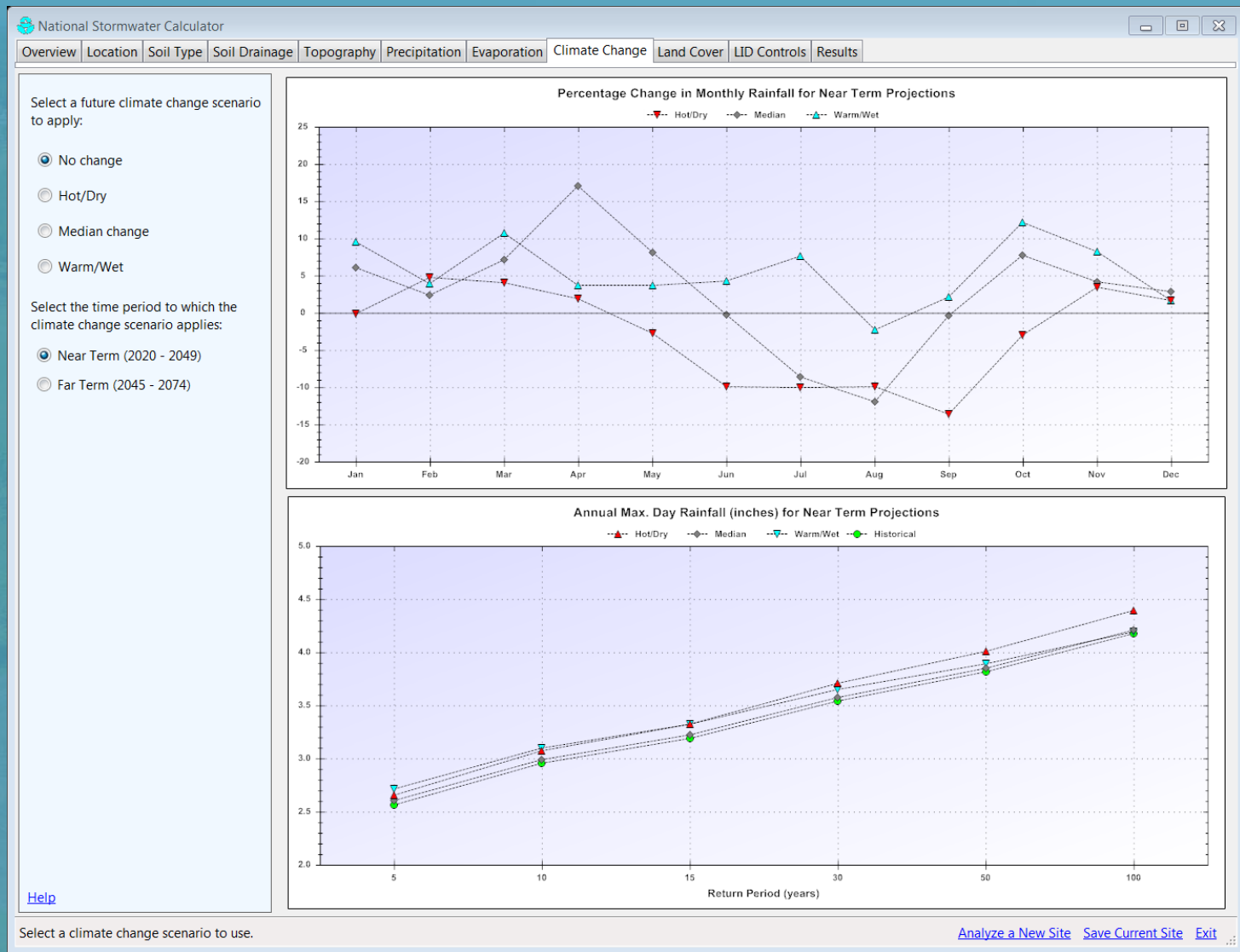


**Northeast Ohio
Regional Sewer District**



@neorsd

EPA National Stormwater Calculator - Existing Conditions



EPA National Stormwater Calculator - Existing Conditions

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 | <input type="text" value="40"/> |
| % Meadow | <input type="text" value="20"/> |
| % Lawn | <input type="text" value="25"/> |
| % Desert | <input type="text" value="0"/> |
| % Impervious | <input type="text" value="15"/> |

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

[Help](#)

Describe the site's land cover.

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



**Northeast Ohio
Regional Sewer District**



@neorsd

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 | <input type="text" value="0"/> |
| Rain Harvesting | <input type="text" value="0"/> |
| Rain Gardens | <input type="text" value="0"/> |
| Green Roofs | <input type="text" value="0"/> |
| Street Planters | <input type="text" value="0"/> |
| Infiltration Basins | <input type="text" value="0"/> |
| Permeable Pavement | <input type="text" value="0"/> |

Design Storm for Sizing (inches) (see Help)

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 ▼

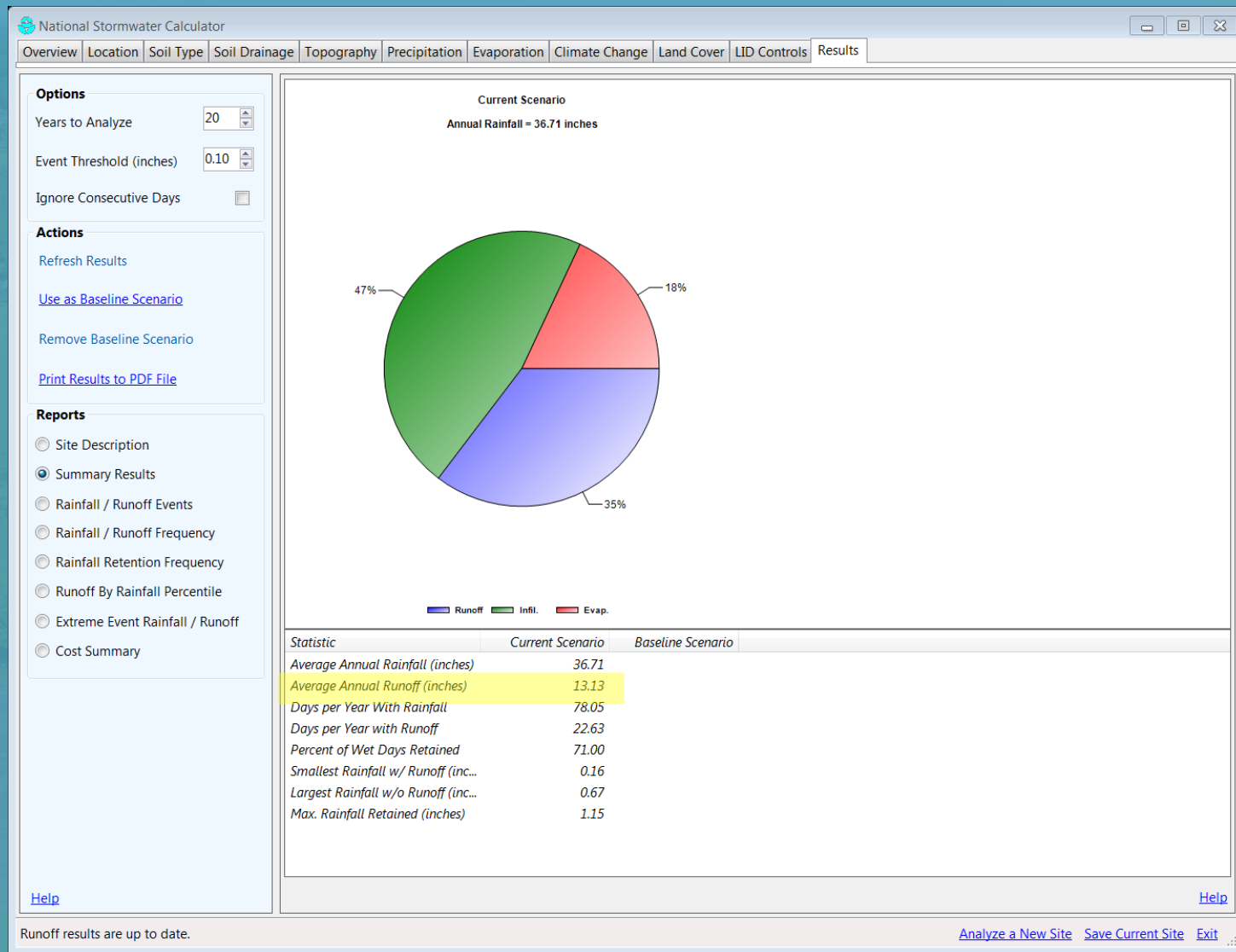
Regional Multiplier

[Help](#)

Bing

© 2018 HERE © 2018 Microsoft Corporation

EPA National Stormwater Calculator - Existing Conditions



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

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

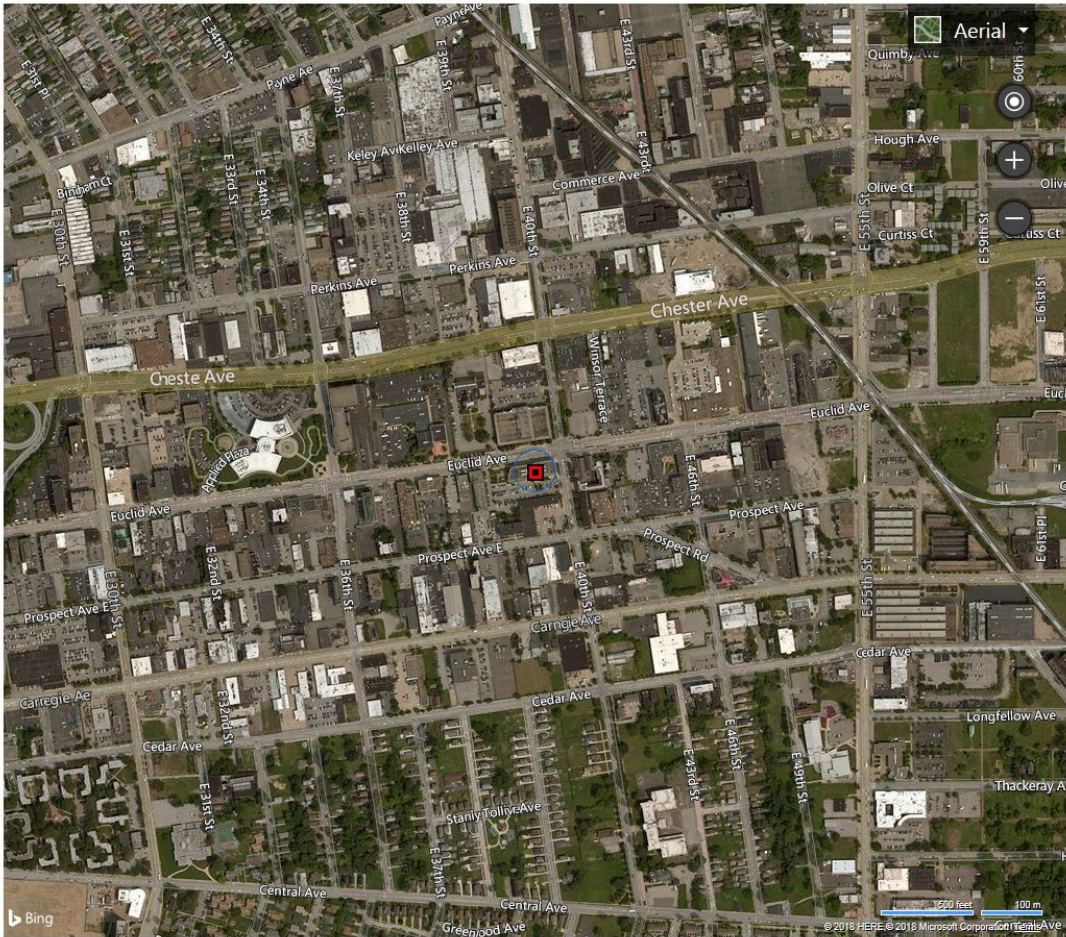
| | |
|--------------|----|
| % Forest | 0 |
| % Meadow | 0 |
| % Lawn | 10 |
| % Desert | 0 |
| % Impervious | 90 |

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

[Help](#)

Describe the site's land cover.

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



**Northeast Ohio
Regional Sewer District**



@neorsd

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 | <input type="text" value="0"/> |
| Rain Harvesting | <input type="text" value="0"/> |
| Rain Gardens | <input type="text" value="0"/> |
| Green Roofs | <input type="text" value="0"/> |
| Street Planters | <input type="text" value="0"/> |
| Infiltration Basins | <input type="text" value="0"/> |
| Permeable Pavement | <input type="text" value="0"/> |

Design Storm for Sizing (inches) (see Help)

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 ▼

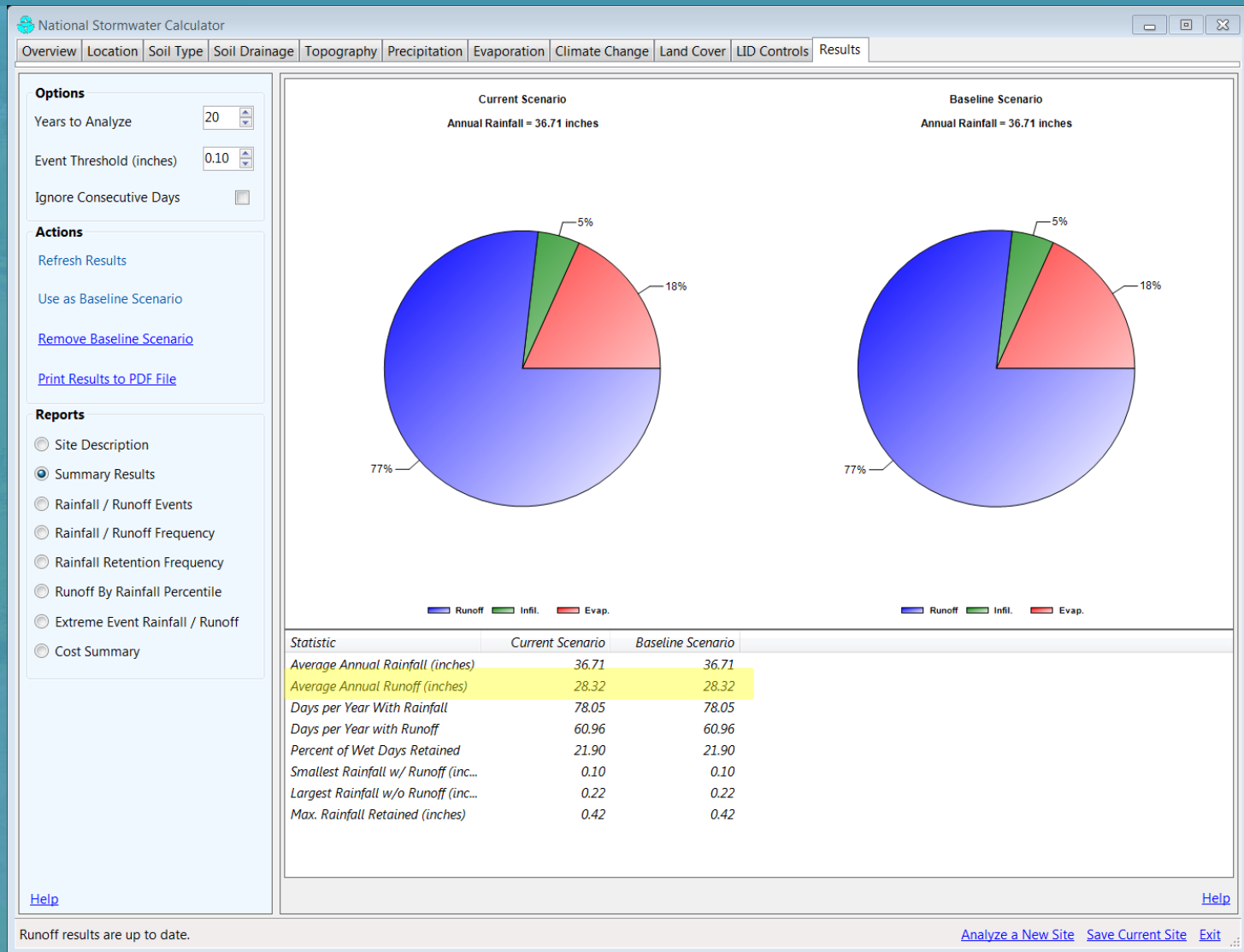
Regional Multiplier

[Help](#)

Bing

© 2016 HERE © 2016 Microsoft Corporation Terms & Conditions

EPA National Stormwater Calculator – Baseline Scenario (Meeting Minimum Title IV 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 in the development scenario being analyzed.

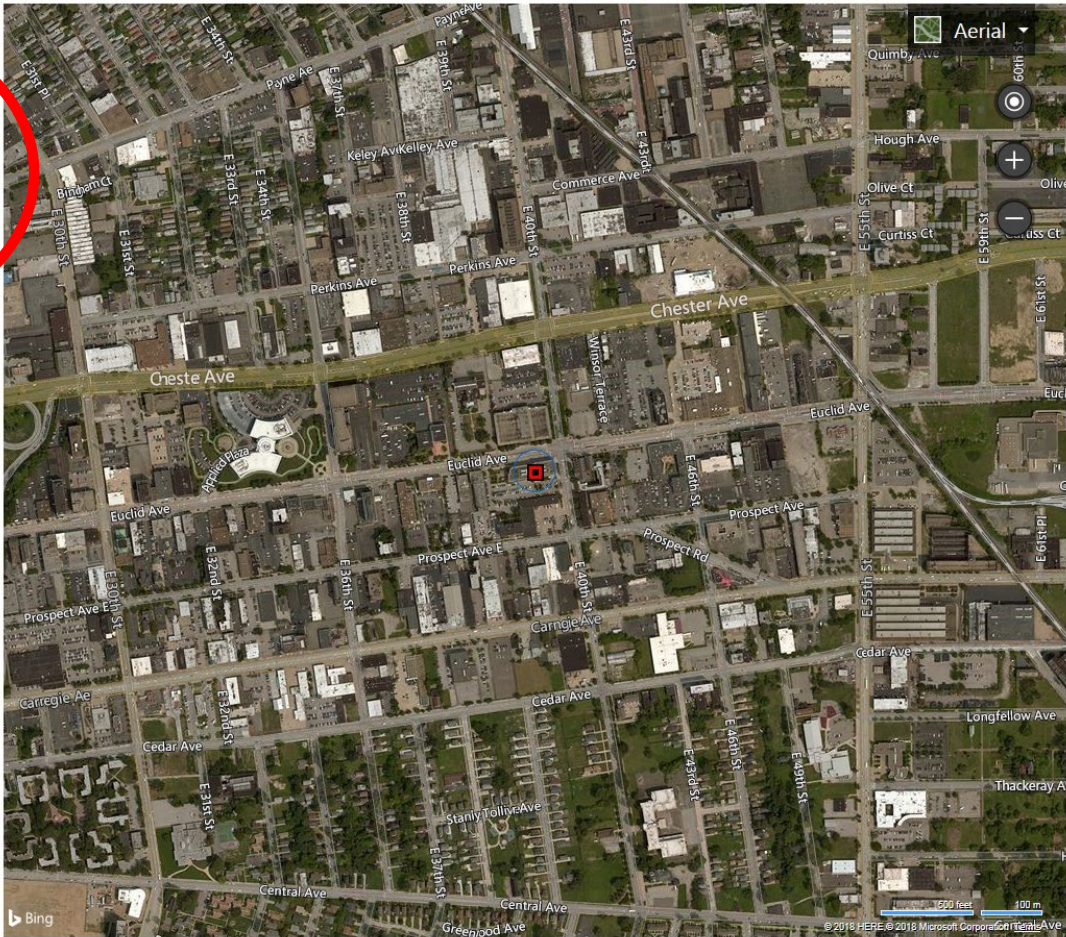
| | |
|--------------|----|
| % Forest | 0 |
| % Meadow | 0 |
| % Lawn | 10 |
| % Desert | 0 |
| % Impervious | 90 |

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

[Help](#)

Describe the site's land cover.

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



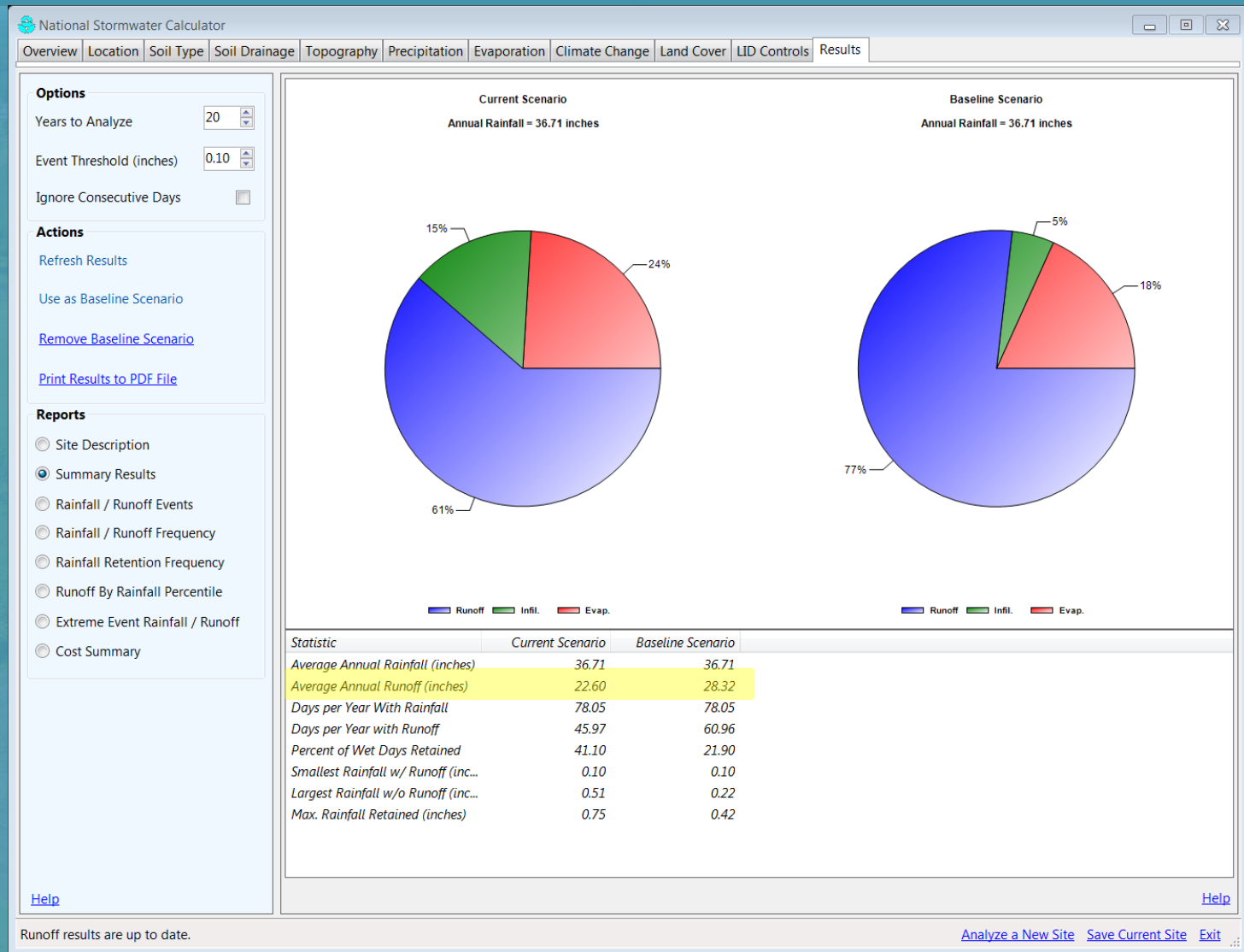
**Northeast Ohio
Regional Sewer District**



@neorsd

[illegible]

EPA National Stormwater Calculator – with Green Infrastructure (75% of Impervious Area to Street Planters)



EPA National Stormwater Calculator – with Green Infrastructure (Multiple LID Controls)

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 | 25 |
| Rain Gardens | 0 |
| Green Roofs | 25 |
| Street Planters | 50 |
| 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](#)

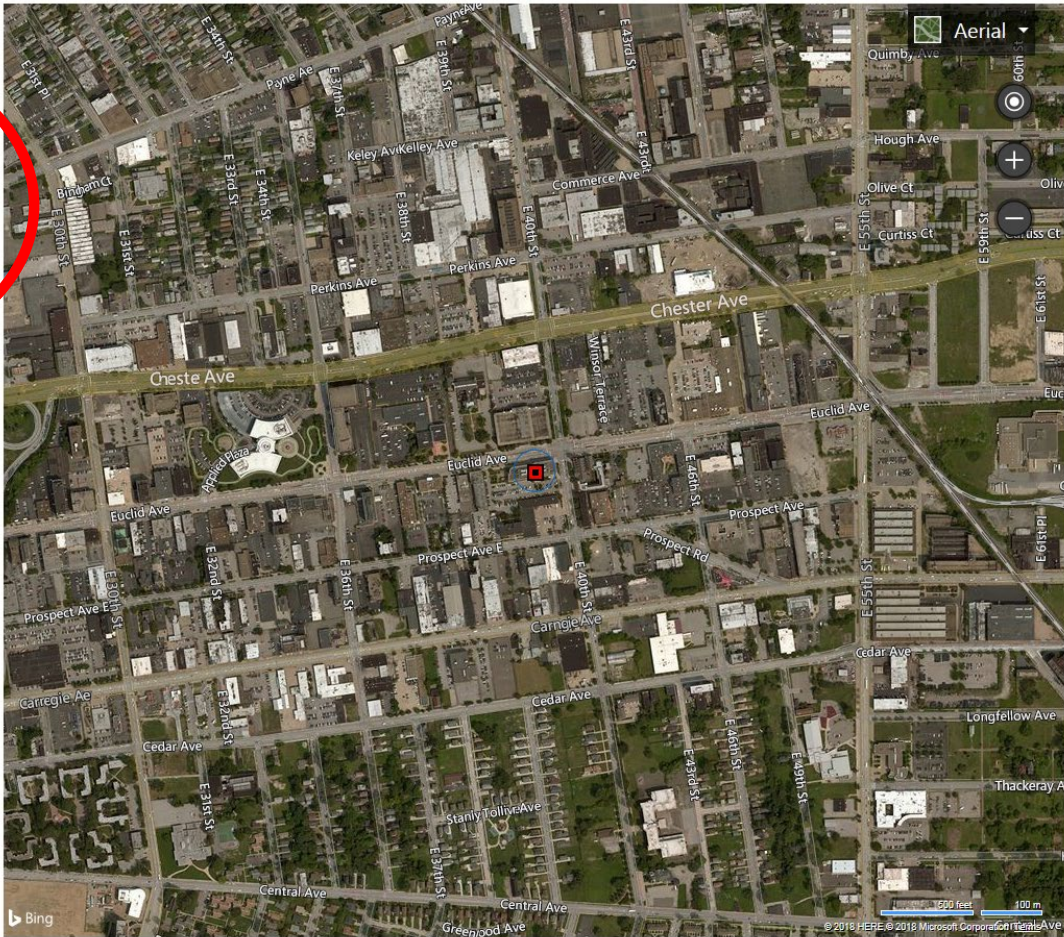
[Cost Region](#) Detroit (91 miles) 1.02

Regional Multiplier 1.02

[Help](#)

Assign LID practices to capture runoff from impervious areas.

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

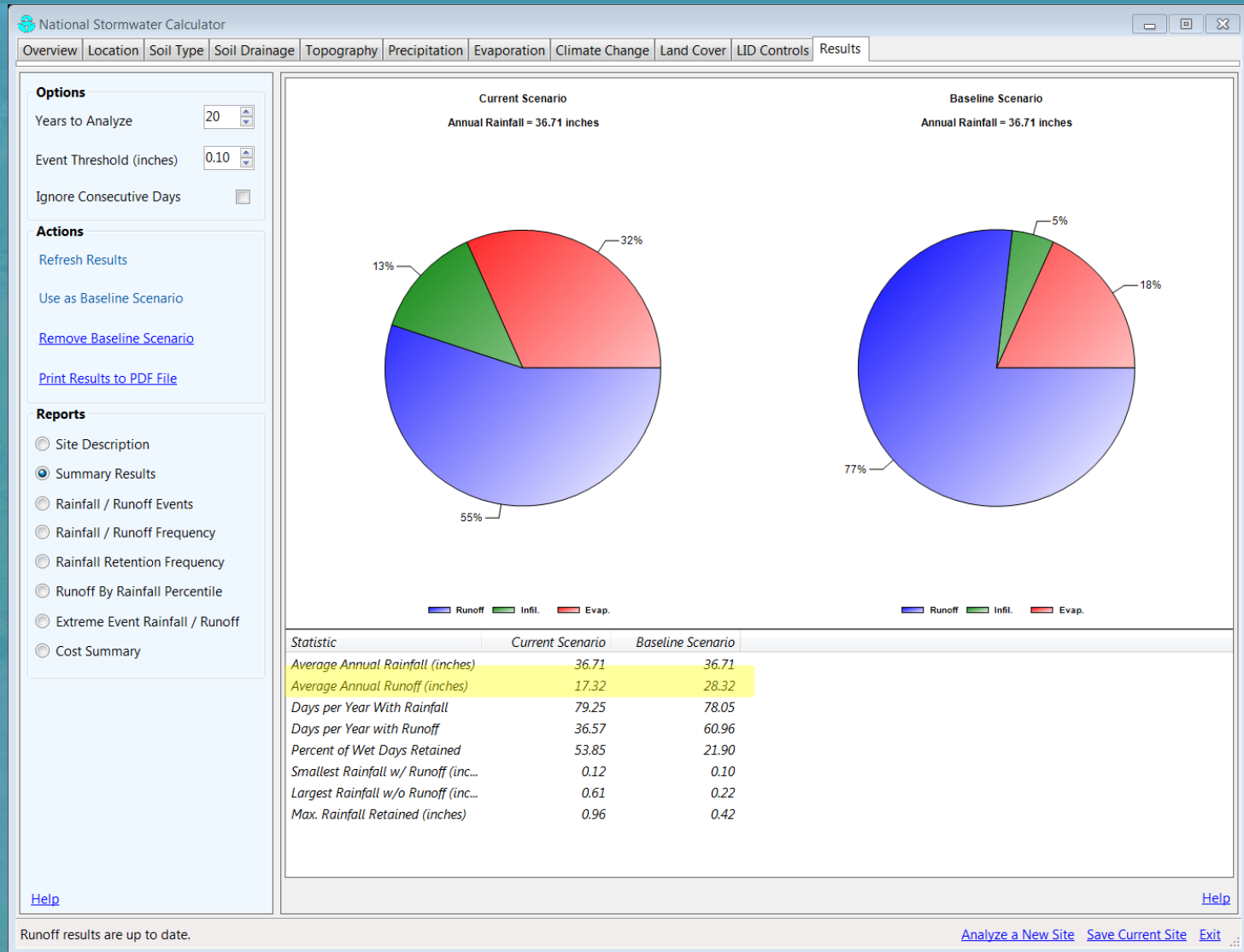


Northeast Ohio
Regional Sewer District



@neorsd

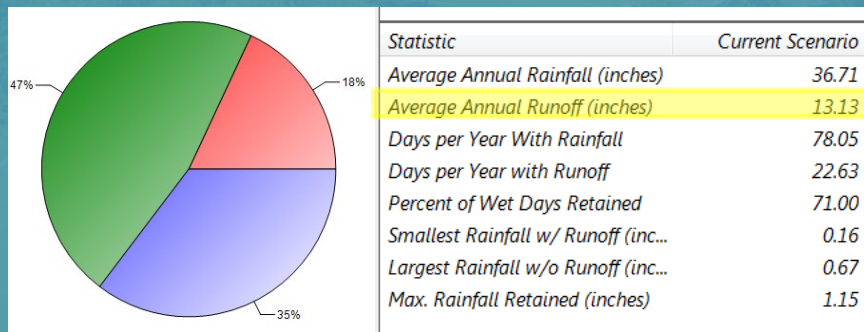
EPA National Stormwater Calculator – with Green Infrastructure (Multiple LID Controls)



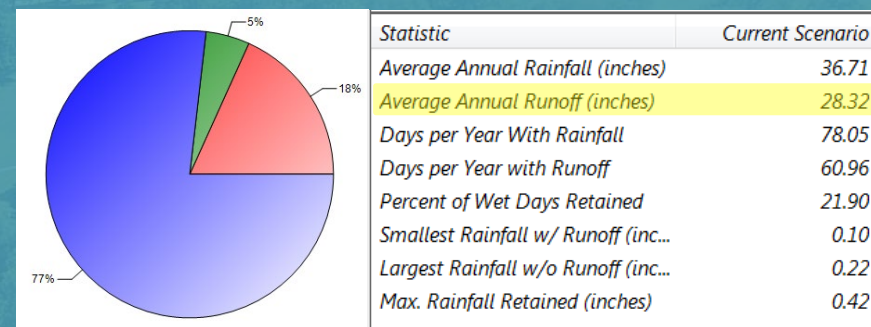
EPA National Stormwater Calculator

Runoff Infil. Evap.

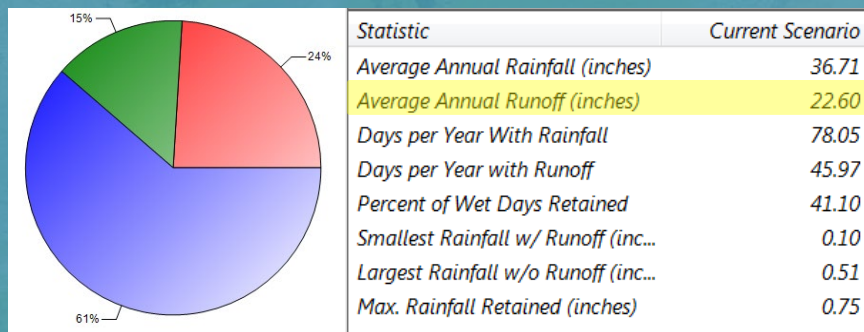
Existing Conditions



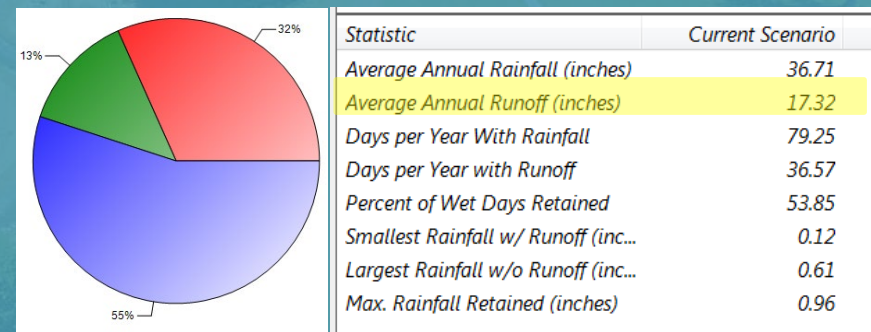
Minimum Title IV Requirements (Baseline Scenario)



75% of Impervious Area to Street Planters



Multiple Lid Controls

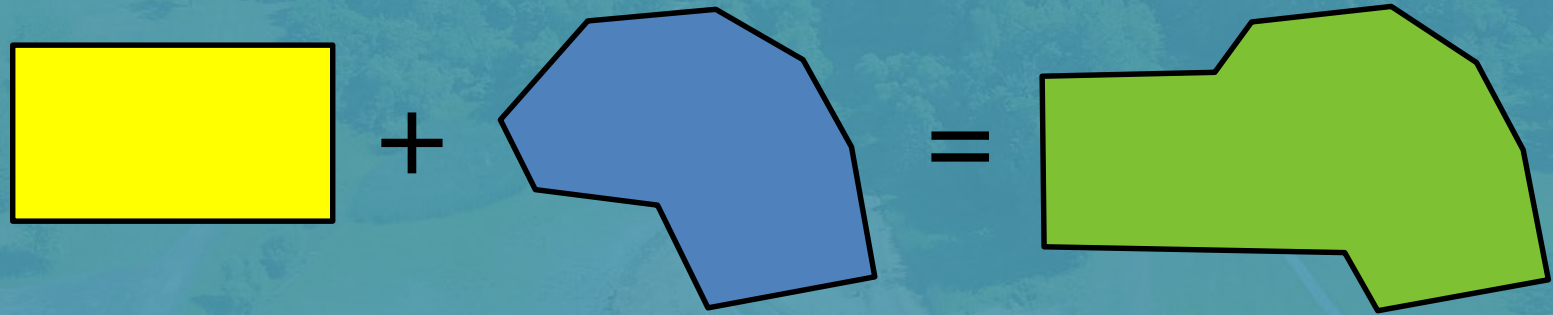


EPA National Stormwater Calculator

Helpful Hints

Project Limits

- The outermost boundary that results when you overlay your parcel boundary with the boundary of the drainage areas to proposed LID Controls.



- Project limits should be the same for all model runs (i.e., existing conditions, baseline & results scenarios)...some exceptions.

EPA National Stormwater Calculator

Helpful Hints

Baseline Scenario

- If only retrofitting, model your existing conditions (pre-development)
- If re-developing, model your developed conditions that meet Title IV requirements

EPA National Stormwater Calculator

Helpful Hints

Treatment Trains

- The SWC doesn't model treatment trains...beyond the SWC's capabilities
- Use Stormwater Management Model (SWMM).
- Be creative...justify your assumptions

EPA National Stormwater Calculator

Helpful Hints

Treatment Train Example

- 20,000 SF roof to “Disconnection”, then to “Permeable Pavement”
- Disconnection results in 23% runoff reduction
- Then model 15,400 SF (77%) of roof to Permeable Pavement, which results in an additional 35% runoff reduction
- Total of 58% runoff reduction

EPA National Stormwater Calculator

Helpful Hints

Multiple LID Controls

- Two step process:
 - 1) Run each LID Control separately and then add the runoff reduction results to arrive at a total runoff reduction value.
 - 2) Run the model once and account for all the LID Controls at the same time.
- Use most favorable outcome.

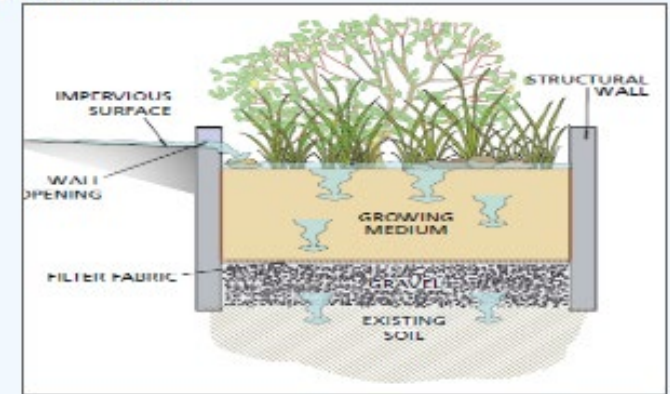
EPA National Stormwater Calculator

Helpful Hints

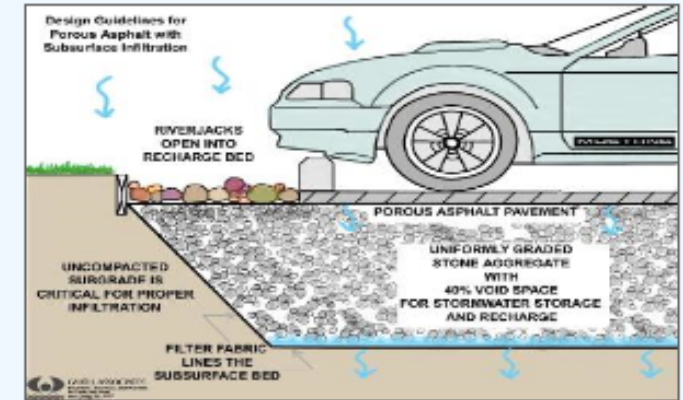
Underdrains

- 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).

Street Planter



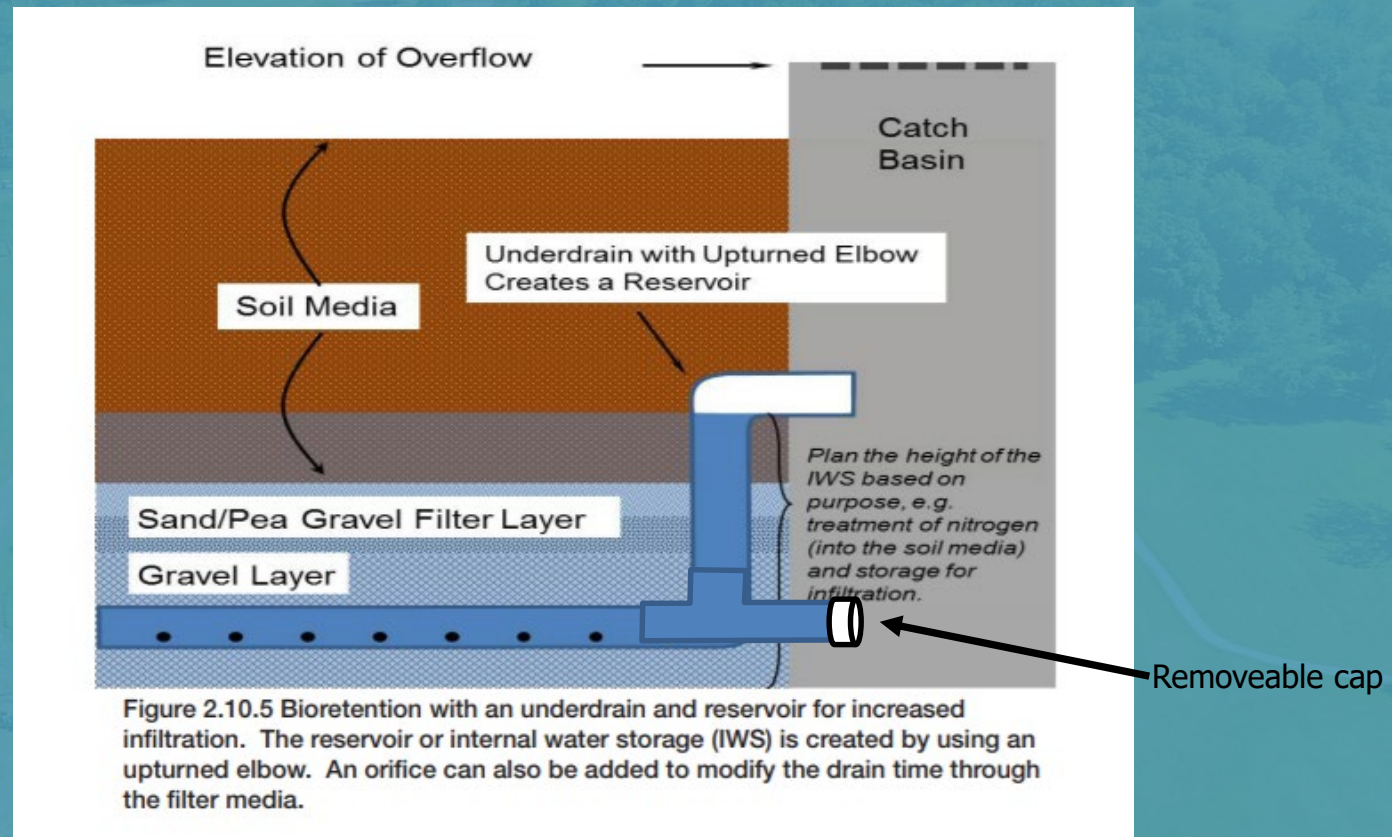
Permeable Pavement



EPA National Stormwater Calculator

Helpful Hints

Upturned Elbow



EPA National Stormwater Calculator

Helpful Hints

Runoff Rate Control Practices

- There is no way to account for runoff rate control practices in the stormwater calculator (e.g., detention facilities), so they should not be considered in your calculations related to runoff reduction.

EPA National Stormwater Calculator

Helpful Hints

Unique Control Practices

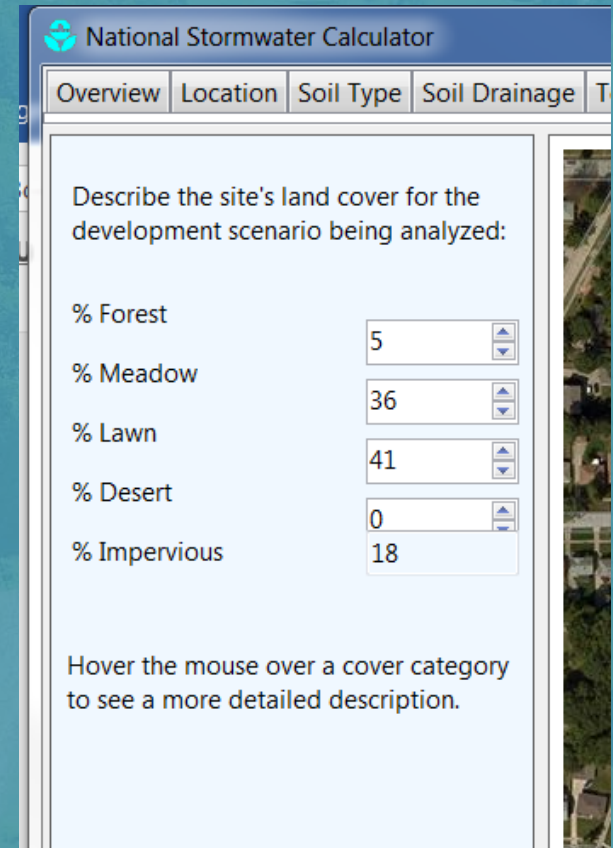
- If a proposed practice does not fit the mold of any of the calculator's options, use best professional judgement to select one or more of the seven LID Controls, and provide a brief narrative to justify selection.

EPA National Stormwater Calculator

Helpful Hints

Land Cover Module

- Footprints of permeable pavement and green roofs = **Impervious**
- Footprints of rain gardens, street planters and infiltration basins = **Meadow or Lawn.**



The screenshot shows the 'National Stormwater Calculator' window with the 'Land Cover' tab selected. The interface includes a title bar, a tabbed menu (Overview, Location, Soil Type, Soil Drainage, T), and a main content area. The content area has a heading 'Describe the site's land cover for the development scenario being analyzed:' followed by a list of land cover categories with percentage input fields. The categories and their values are: % Forest (5), % Meadow (36), % Lawn (41), % Desert (0), and % Impervious (18). A note at the bottom states: 'Hover the mouse over a cover category to see a more detailed description.' An aerial photograph of a residential area is visible on the right side of the window.

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

EPA National Stormwater Calculator

Helpful Hints

LID Controls Module

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

| Overview | Location | Soil Type | Soil Drainag |
|---|----------|-----------------------------------|--------------|
| What % of your site's impervious area will be treated by the following LID practices? | | | |
| Disconnection | | <input type="text" value="0"/> | |
| Rain Harvesting | | <input type="text" value="0"/> | |
| Rain Gardens | | <input type="text" value="0"/> | |
| Green Roofs | | <input type="text" value="0"/> | |
| Street Planters | | <input type="text" value="0"/> | |
| Infiltration Basins | | <input type="text" value="0"/> | |
| Permeable Pavement | | <input type="text" value="0"/> | |
| Design Storm for Sizing (inches) (see Help) | | <input type="text" value="0.00"/> | |

NEORSD GIG Program

Helpful Hints

Infiltration Practices

- Grant recipients must provide supporting documentation of actual on-site infiltration rates (soil borings, infiltration test results, etc.)

NEORSD GIG Program

Helpful Hints

Permeable Pavement

- Grant recipients cannot exceed Ohio's maximum impervious-to-pervious drainage ratio (currently 2:1)

NEORSD GIG Program

Helpful Hints

Vegetated Practices

- Landscaping plans: the simpler they are the easier it will be to maintain long-term

NEORSD GIG Program

Helpful Hints

Construction Inspection

- Grant recipients...NEORSD will perform inspections of SCMs as they are constructed at pre-determined key milestones



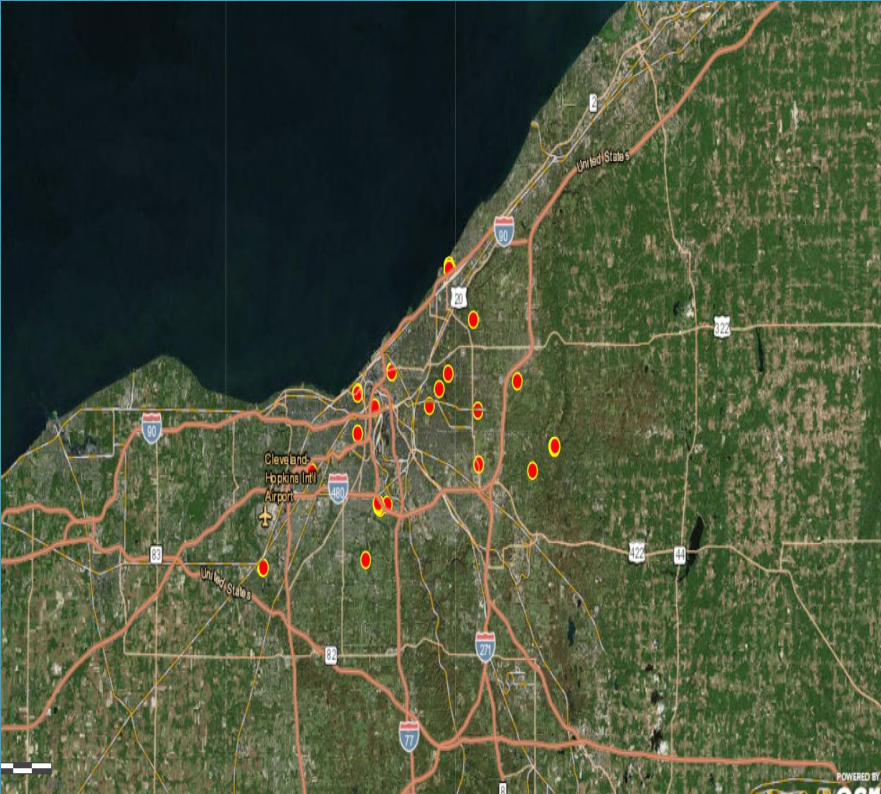
Operations and Maintenance Common Errors

Operations & Maintenance

- Maintenance will always be present with Green Infrastructure.
- To ensure the practice functions as originally intended.
- Check to make sure the intended drainage is getting to the practice during a rain event
- Document inspections and other important aspects during construction, design, and other key checkpoints.
- See the

Operations & Maintenance

- Survey 123 form created and implemented



41°30'N 81°39'W ± 2023 m

Inspector

Date and time observed

Date Time

Notes:

▼ **Bioretention**

Is there debris present?

☐ Yes

☐ No

Operations & Maintenance

Examples of Common Errors



**Northeast Ohio
Regional Sewer District**



@neorsd

Construction

- Preventative maintenance can save time and money! Ensure that you visit the site during construction.



Site Specific

- Understand the site you select.
- Understand the drainage area and if any utilities are present.



**Northeast Ohio
Regional Sewer District**



@neorsd

Drainage

- Ensure that water is getting to the practice.



**Northeast Ohio
Regional Sewer District**

@neorsd

Operations & Maintenance

- Green Infrastructure practices need to have a detailed Long-Term Maintenance Plan.
- Maintenance needs to be done at a certain frequency to ensure the proper functionality.
- In my opinion, the Maintenance/Inspection that matters most, is conducted during an impromptu visit.
- This visit is usually done following a significant rain event. Similar to the several we had last week.



NEORSd GIG Program Examples of Funded Projects



Seeing Green Infrastructure through a Storymap

Green Infrastructure is a way to view the land around us to see how it best contributes to our needs for water, ecological soundness, scenic environments, and healthy surroundings.

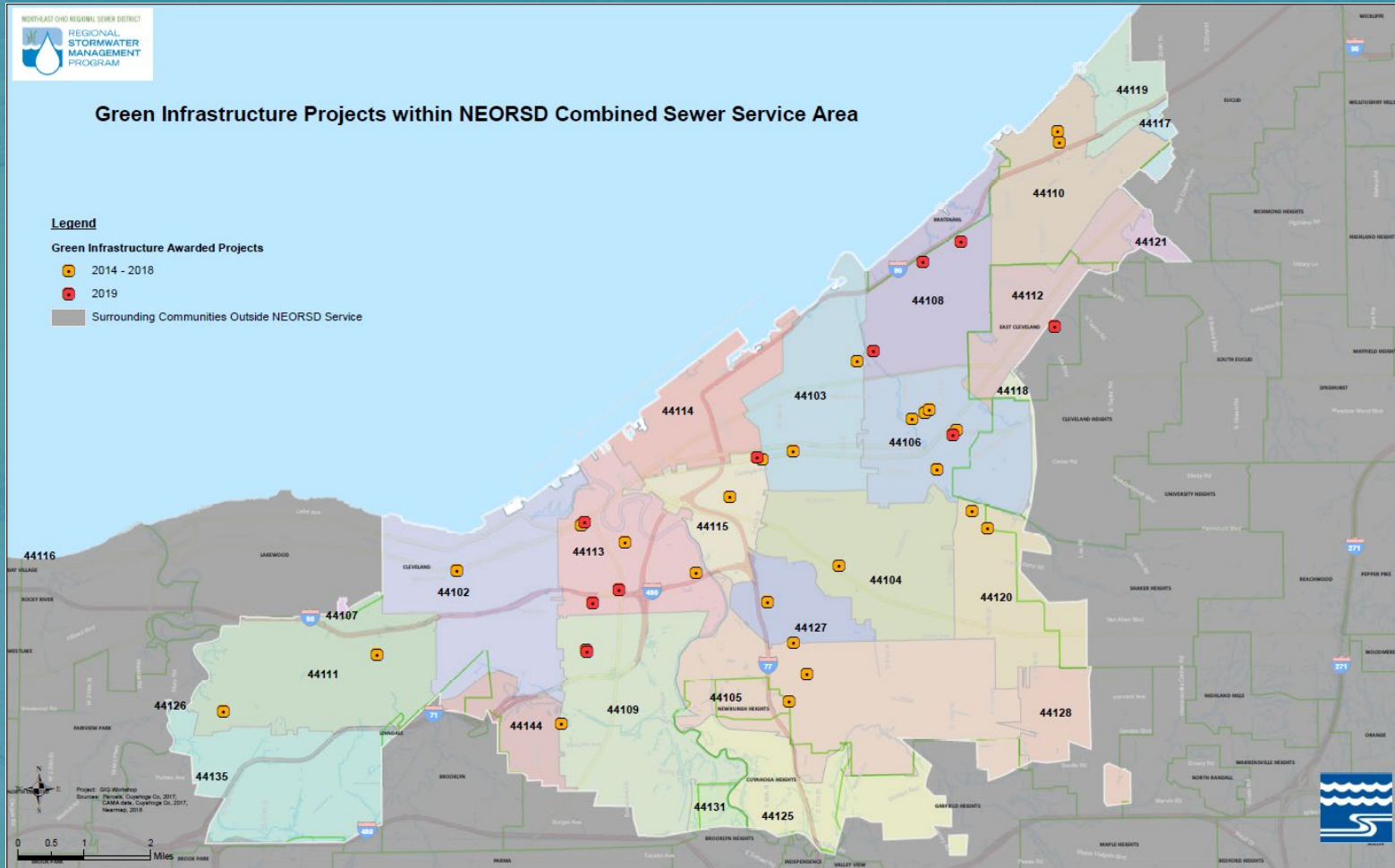


**Northeast Ohio
Regional Sewer District**



@neorsd

Mapped Projects



**Northeast Ohio
Regional Sewer District**



@neorsd

<https://www.neorsd.org>

NOTICE: Trustees to hold public Finance and Audit Committee meetings March 14, 2019

Funding opportunities ▸

[Plan Review](#)

Green Infrastructure Policy

[Green Infrastructure
Grant Program](#)

Regional Stormwater
Management
Program

[Watershed Partner
Service Agreements](#)

Stormwater Fee Finder

Apply for a Stormwater Fee
Credit

Understanding Watersheds

Rainfall Dashboard: Precipitation
reports

ate 50 years of progress
ng.

n?





Questions
Thank you for coming!