

Urban Green Stormwater Infrastructure

Team 4

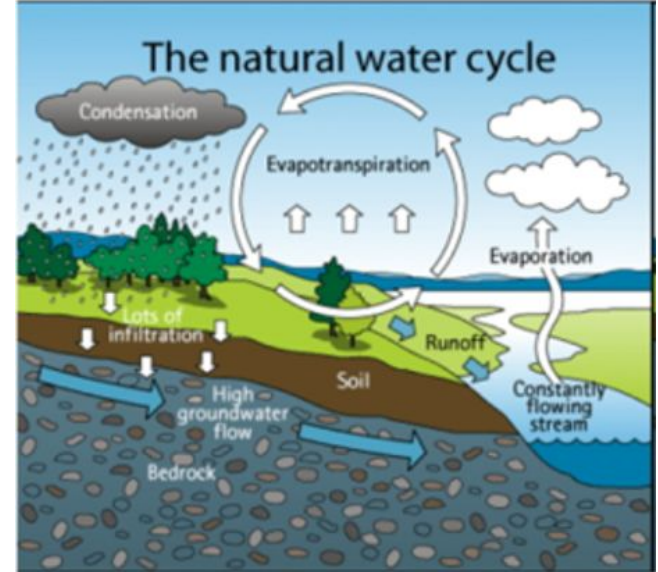
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Overview

Assist users in learning about the importance of green stormwater infrastructure to reduce urban flooding. Users can navigate through education pages, view a map of where these spaces are located, and upload photos of new locations for researchers to use.



Users and Environment

Users

- Primarily targeting a younger audience with a focus on middle to high school students
- Teachers can integrate the app into their curriculum on green space
- Researchers can use the app to store/categorize their new data
- Any individual could be a user of the app

Environment

- Introductory learning experience
- Can be used with desktop/laptops and mobile devices
- Intended to be used in the office/classroom or out in the field
 - Submission auditing for classroom use
- Photo data points contain location, type, and time of collection





Nominal Use Scenario


Joe

- 17 year old male
- High School Student
- Learned about the app after a lesson in class





- Joe first accesses the website and is greeted description of what urban green stormwater infrastructure is. Once Joe scrolls down, he will see a paragraph describing the first type of green stormwater infrastructure, with bulleted points describing which scenarios this type of infrastructure is best suited for. Two to three images are included with each type of infrastructure. The user will see a button on the bottom center of the page that will allow them to go to the next page, showing the next type of infrastructure and flooding risk information.
- Also at the bottom the pages, Joe can also see a small quiz. Here, he can take a short 3 question quiz to test his knowledge, and when complete, selecting the finish quiz will show the correct answers.
- Joe can then navigate to the map using the navigation bar at the top of the pages. Joe can pan around the map to see where the different green infrastructures are located. Joe likes this and wants to upload his own photo, so he selects the “Upload” button, and is moved to the upload page. He is met with a select file button, which will open a file explorer window to select the image. Joe can then manually select the location that the picture was taken if his photo wasn’t geotagged. Joe can also categorize the space with his best guess of what type of infrastructure it is. He is then met with a “Thank you!” popup message, and is taken back to the homepage.



Use Scenario, With User Error

Ali

- 37 year old female
- Researcher
- Identifying areas in her city that need more green infrastructure





- Ali is a researcher who just learned about our app. Ali intends to upload the new locations she discovered using the app. Ali creates a new account describing herself as a researcher. She sees the educational tabs but wants to focus on the map upload feature. Ali is also fascinated by the map and looks at the pictures that people have uploaded.
- When going to the upload page she sees that she has to choose a file from her computer to upload. She chooses his video of wetlands in Michigan and decides to upload. The file type is a .mov. When she uploads the file Ali sees an error that says in red “only image files of size 500MB or less are allowed to be uploaded”. Ali then tries uploading a picture file.
- After uploading a picture of the green infrastructure and selecting “Submit”, she sees the “Thank You!” prompt, and is returned to the home page.

Landing page paper prototype



[Home](#) [About](#) [Map](#) [Saurav Regmi](#) ▾

Learn About Urban Green Infrastructure

UGI is a tool that provides ecological, economic and social benefits through this type of solutions. In other words, UGI provides a network of urban interconnection with nature, semi-natural areas and green spaces, which provide ecosystem services that support human well-being and quality of life.

[Learn >](#)

Help Our Research

We want to know if some places are at risk of flooding by mapping the green infrastructure. If you want to help our research you can upload pictures of Urban Green infrastructure to our Map

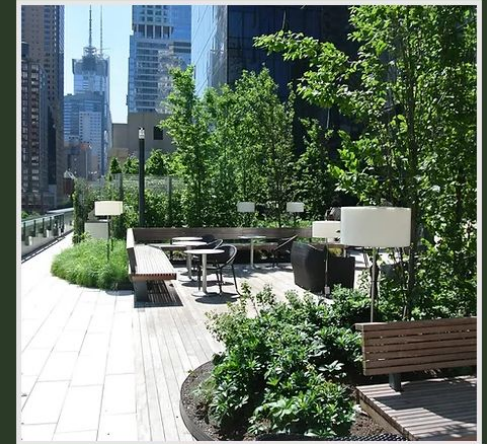
[Upload Pictures >](#)

[Map >](#)

Contact Us

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[Facebook](#) [Twitter](#) [LinkedIn](#)



- About
- What you can do
- Upload
- Map

The Full Story

Urban Green Infrastructure



Rain gardens

Rain gardens, also called bioretention facilities, are one of a variety of practices designed to increase rain runoff reabsorption by the soil. They can also be used to treat polluted stormwater runoff. Rain gardens are designed landscape sites that reduce the flow rate, total quantity, and pollutant load of runoff from impervious urban areas like roofs, driveways, walkways, parking lots, and compacted



Quiz 2

Permeable Pavement can help to filter ____.

- lava
- oil
- pollutants
- coffee

Green rooftops helps to improve both water and air quality.

- True
- False

Which of the following is not a Green Water Infrastructure?

- Storm Drains
- Rain Barrels
- Bioretention Gardens
- Permeable Pavement

Submit

Quick Edit

Search...

Map

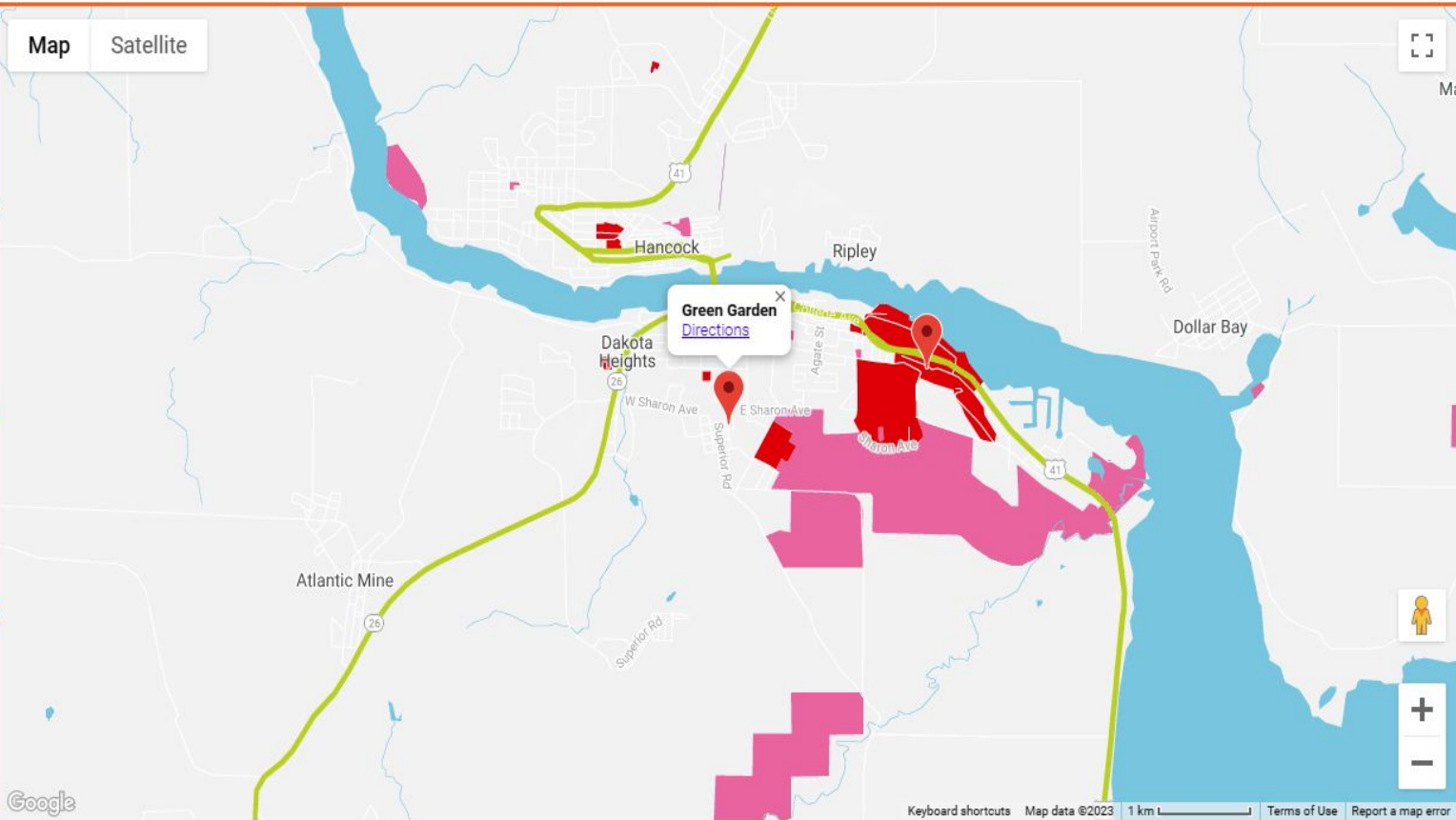
Satellite

HOME

Education and Background

Upload

Help/About



Google

Location Photo Upload

Find a location that isn't on the map? You can upload it here!
Just select the "Select file" button, and use the file explorer
to find the photo you want to upload.

Upload photo

Please select the "add location" button, and select where the
photo was taken on the map!







Add Location

What kind of green infrastructure is this?

Add Category

Submit!

Pending Submissions

File Name	Location	Type	Accept	Reject
image1.jpeg	Latitude: -21.42723, Longitude: 38.99046	Rain Garden		
image2.png	Latitude: 46.99112, Longitude: 62.39419	Rain Barrel		
image 3.jpeg	Latitude: -68.29403, Longitude: 172.9356	Green Roof		

Accepted Submissions

File Name	Location	Type
image4.png	Latitude: 56.81460, Longitude: 121.66199	Permeable Pavement
image5.jpeg	Latitude: -40.84048, Longitude: -56.91908	Bioretention Garden

How to Use

Green Space Education

Learn about the importance of having green spaces in urban environments. This page allows you to view types of water absorbing spaces that help reduce flooding! You can navigate through a number of pages that highlight the importance of these features, and take a short quiz at the end to test your knowledge

[Click here!](#)

Green Spaces Map

Find green infrastructure near you! The map page shows areas that researchers have identified as green infrastructure. If you click on the location, a box will appear that shows you what type of green space it is. User uploaded locations will also appear here, and includes a picture of what it looks like!

[Click here!](#)

Green Space Picture Upload

Want to help a researcher? If you find an urban green space you can upload a photo of the space so researchers can add it to their map! Pictures of flooded urban areas are also helpful for researchers to identify where more green space is needed in the future. Just snap a photo with your camera, select the upload photo button on your device, and navigate to where the photo is stored. Then just press upload!

[Click here!](#)



Usability Goals and Concerns

Usability Goals

- Users will easily be able to learn about urban green spaces.
- Users will be able to upload pictures of green spaces to the website.
- User will be able to use the map to find green spaces.



Concerns

- Image licencing
 - For education section, researchers provided some images that need to be audited
- Location Data
 - Not all photos contain location data
- User permissions
 - User will need a prompt to access device features, varies by platform
- Implementation of the interactive map
 - Users have high expectations for map navigation functionality (Apple, Google, etc.)



Stretch Goals

- Location Metadata
- User accounts
 - Initially meant for scientists and admins
 - User accounts allow for additional features
 - Records number of location uploads the user has made
 - Locations can show who uploaded the location
- Location dimensions estimate
 - User estimates the size of the location



Thank you for listening!

