

Learning Places Fall 2017

SITE REPORT #2

Gowanus Walking Tour



The image is a collage of three images which were taken at the esplanade near the whole food market.

The image signifies one of the major requirements of the green buildings which is the privately owned public property.

Rumana Hassin Syed

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INTRODUCTION AND PRE-VISIT REFLECTIONS

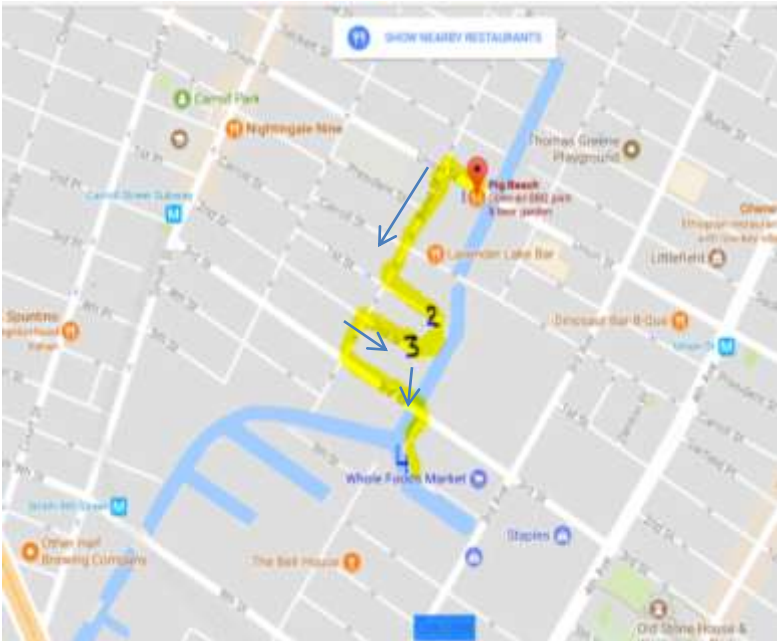
This is our second visit to the Gowanus Canal. In the first visit we mainly focused on the architectural aspect of the area. We discussed Gowanus as a space and talked to an old timer there. During the regular class we learnt about zoning and. But this time we were having a guided tour by the education coordinator of the Gowanus Canal Conservancy, Ms. Christine Petro. Since she is from the Gowanus Canal Conservancy, I expect to learn more about the environmental concerns of the place. Although I

am very sure some of the historical facts that we already know from Joseph Alexiou’s presentation will be repeated. But I looked forward to know more about the ecological aspects of the area.

SITE DOCUMENTATION:



The Highlighted area shows the the case study of this class: The Gowanus



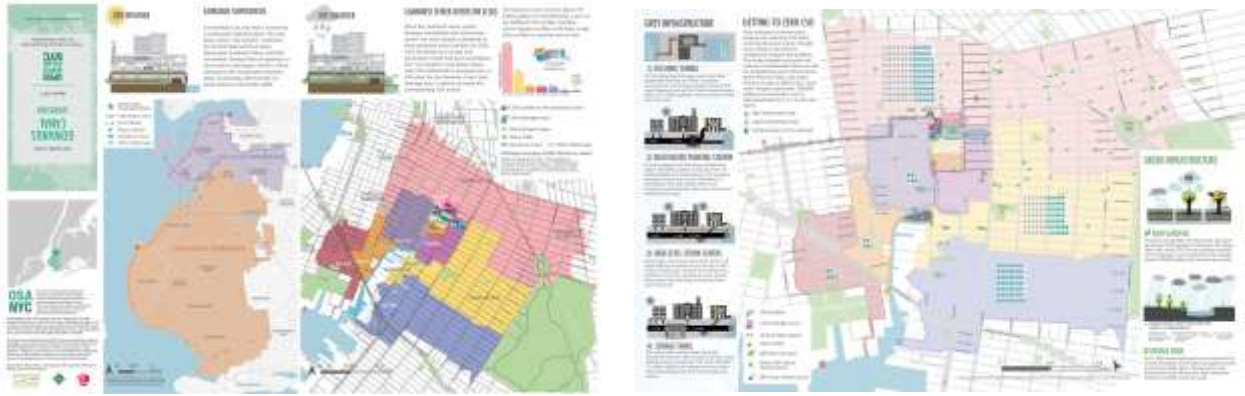
The highlighted area shows the tour route.

- 1: Meeting Point
- 2: & 3: Stops during the tour
- 4: End Point of the tour

→ The arrow shows the direction of the tour



The meeting point was decided to be on the union street beach near the pig beach restaurant. The picture shows that point. We met the class, Professors and Ms. Christine Petro and two other interns of the Gowanus Canal Conservancy here. At



At the meeting Point Ms. Petro handed us with this map shown in the two images above

From the association of the Gowanus Canal Conservancy and the Open Sewer Atlas, this sewer shed map of the Gowanus was created. It details the green and grey infrastructure planned or implemented in the sewer shed.



This picture was taken at the first stop where Ms. Christine Petro introduced us the history of the Gowanus and the founding of Gowanus Canal Conservancy

Ms. Petro informed us of the mission and vision of the Gowanus Canal Conservancy.

Mission: The Gowanus Canal Conservancy is a community-based non-profit organization that serves as the environmental steward for the Gowanus Canal Watershed.

Vision: GCC envisions the evolution of an Open, Clean and Alive Gowanus Canal and Watershed with accessible, connective open space; clean water, soil and air; and vibrant ecological, business and cultural activity.



Besides environment as a character of the Gowanus, I felt our guide, Ms. Petro (shown in the image on the left) brought so much life to the tour that she along with the GCC came out as dominant characters of the Gowanus.

ANALYSIS

Just like last time I did a pre tour myself after I got off from the R train on the Union Street Station. In our last visit I had taken the F train to the Bergen Street Station, Just to get a different view I purposely took the different train and got off on Union Street instead where I met Ms. Lisa, an astute classmate of mine. I was delighted to see her because, now I could take pictures of the area and focus on how can I put those pictures on the site report and not really worry about how to get to the meeting point on time, since Lisa seemed pretty conversant with the place.



This is one of the first things I saw after I came out of the subway station. Seeing the header: “Work in progress: commercial” seemed very appropriate to me as I thought from all our class discussion that the entire Gowanus area was under construction and “work in progress” site.

As I walked towards the Union Street Bridge I saw the South Brooklyn Casket Company. Not that I was excited to see that, but I thought it was worth mentioning!



In our last visit Professor Nora mentioned the Gowanus Souvenir Shop multiple times. But I didn't have the chance to see it last time. Nevertheless I saw it this time.

After we started the guided tour with Ms. Petro I felt fascinated. It was a lot of information coming at the same time. She started with the history of the Gowanus canal and later continued with the canal getting polluted and the steps being taken to clean it up. She often referred to Joseph and Natalie Loney's TEDx video. We came to know more about the EPA (Environmental Protection Agency) and Superfund. As a federal entity, the US Environmental Protection Agency (EPA) administers the Superfund program in cooperation with states and Tribal governments. The Superfund has evolved over time, creating a regulatory framework to protect human health and the environment from the dangers of hazardous waste.

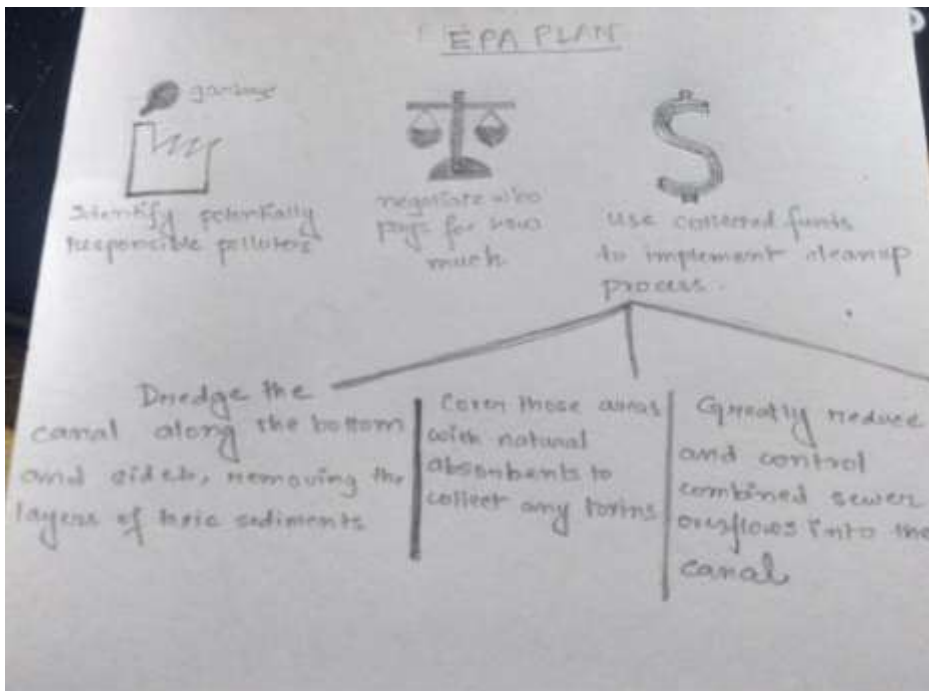
She said, Gowanus has a rich history. Originally a large, marshy wetland, the area is the site of early Dutch settlement, important Revolutionary War battles, and commercial industrial activity stretching back over 100 years. Now an EPA Superfund site, planners and real estate developers envision the area to be a locus of large residential development—a controversial proposal in light of the area's overburdened infrastructure and highly-contaminated environment. The 1.8 mile long Gowanus Canal was created in the mid-late 1800s on the site of a former saltmarsh and creek and has seen its fair share of environmental issues. For years, it has captured raw sewage waste from adjacent residential neighborhoods, industrial waste products from the businesses located along its banks, and polluted surface run off. At the same time, the canal is dotted with structures and bridges that celebrate its important industrial history and is home to egrets, cormorants, and other forms of wildlife. Currently, the area is filled with small industries, businesses, homes and artists' studios and is slated for rezoning by the City. In 2010 it was granted Superfund status.

She asked us what we thought were the reasons of the pollution. We almost instantly replied Coal Tar. She also listed the following as the sources of pollution in the canal:

1. **Industrial Pollution from Factories** that lined the canal in the late 1800s to mid-1900s dumped their waste in its waters and on nearby land. The industrial waste dumped onto the land not only contaminates the land but is also continually leeching into the canal waters. Pollutants that settled out of canal waters poisoned the sediments throughout the length of the canal.
2. **Combined Sewer Overflows (CSOs)**: The Gowanus Watershed is the area of land surrounding the Gowanus Canal and which drains into the canal. The watershed extends well uphill from the canal into Park Slope, Carroll Gardens, Boerum Hill, and Cobble Hill. The sewer system throughout New York City is a combined system: the sewer pipes leading from our toilets, bathtubs, sinks, etc. are connected to the pipes that drain rainwater from the street. When weather conditions are dry, the raw sewage is allowed to travel to the sewage treatment plant. But during a typical rainstorm, the rainwater in this combined system which falls within the Gowanus Watershed (i.e., the areas in the surrounding neighborhoods that drain into the canal) throws off the proper functioning of the sewer system: the excess rainwater is mixed with raw sewage and released into the Gowanus Canal.
3. **Surface Runoff**: There are contaminants on the streets that are also carried into the canal when it rains.

As mentioned earlier, in 2010, the EPA placed the Gowanus Canal on its list of Superfund sites in New York State. In the years since, the agency has reached out to the Brooklyn community to inform and engage its citizens on what the cleanup effort will look like. She mentioned, as the EPA's Community Involvement Coordinator for the Gowanus Canal Superfund, Natalie Loney, has been at the forefront of this effort.

She talked about the Potentially Responsible Parties (PRPs). Potentially Responsible Parties are individuals, companies, or any other parties that are potentially liable for payment of Superfund cleanup costs. EPA attempts to identify PRPs early to achieve a PRP-lead cleanup. At point I thought she said that due to the knowledge of the PRPs it is very little that the public actually pays. I thought that was a little weird. Because from class discussion I thought one of the most important responsible party for the Gowanus canal cleanup is the city itself. So if the city has to pay the lion's share I assumed it is the tax payers' money that is going in. That is why I felt eccentric. However, before I could formulate the question we moved onto a different topic.



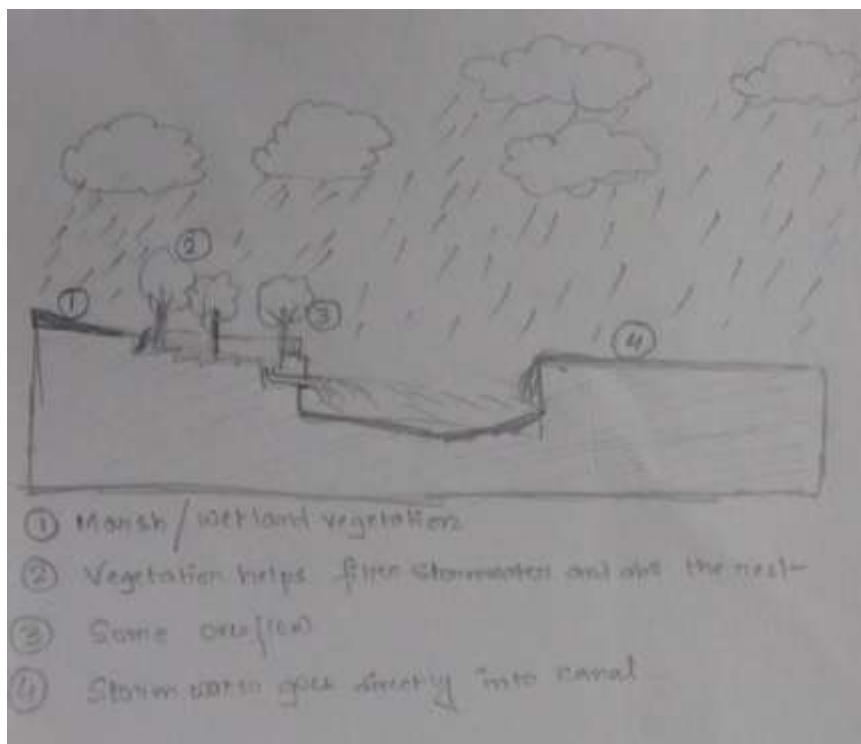
From Ms. Petro's description, what I understood how EPA works is depicted in the sketch above

Coming off the "money matter" thing, let's talk about the most fascinating thing I learnt during this trip: The difference between the grey and the green infrastructure.

Green infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle. Green infrastructure is effective, economical, and enhances community safety and

quality of life. It means planting trees and restoring wetlands, rather than building a costly new water treatment plant. Green infrastructure includes rain gardens, Sponge Park among others. Rain gardens are also known as bioswales. They can soak up about 2500 gallons of rainwater that flows down the street. There are about seventy rain gardens in the Gowanus Canal watershed. These will help in managing about 133,000 gallons of rainwater per storm. DLANDstudio initiated and designed a new kind of public open space called Sponge Park™.

The Sponge Park™ design grants equal value to the aesthetic, programmatic, and productive importance of treating contaminated water entering the Gowanus Canal. The Gowanus receives many millions of gallons of combined sewage every year. The park is designed as a working landscape that improves the health of the canal over time. This innovative plan proposes strategies to divert storm water run-off for use in the public park along the canal, reducing the input of storm water into the sewer system. The Sponge Park™ Pilot, completed in 2016, manages nearly 2,000,000 gallons of storm water per annum.



The sketch above shows the use of rain garden as a part of green infrastructure

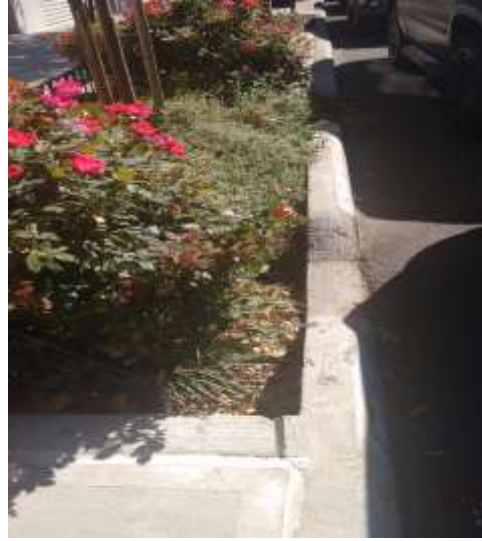
While green infrastructure refers to projects that draw from nature to achieve desired results, grey infrastructure includes the pipes, pumps, ditches, and detention ponds engineered by people to manage storm water. Some of the grey infrastructure in the Gowanus include: Flushing tunnel, wastewater pumping station, high level storm sewers and sewage tanks.

Flushing Tunnel brings water from the Buttermilk Channel to flush sediment downstream and increase oxygen levels in the most stagnant part of the canal. Initially it was there to flush water out, but it actually brings water in to keep the movement. Recent repairs allow 215 million gallons a day of cleaner water into the canal. While a recent upgrade to the wastewater pumping station allows thirty million gallons a day of wastewater to be pumped through a force main to the Columbia St. Interceptor. This will help reduce the CSO event frequency and intensity, and screen trash from entering the Canal. Also the sewage pipes are being replaced to divert rain water falling on streets to go directly to the canal, reducing the amount of material that overflows from the combined sewer system. This project claims to help to alleviate some street flooding. Besides these there is a plan to site two large sewage tanks along the Gowanus Canal to hold sewage and rain water during storms. Combined, the tanks will hold 12 million gallons of sewage and rain water from discharging into the canal during rain storms.

So, it can be concluded that together the grey and the green infrastructure projects are reducing the CSO from entering the Gowanus Canal, although a lot more still needs to be done to completely remediate the problem.

KEYWORDS/ VOCABULARY

1. Bioswales: These are landscape elements designed to concentrate or remove silt and pollution from surface runoff water. They consist of a swaled drainage course with gently sloped sides (less than 6%) and filled with vegetation, compost and/or riprap.



The images above show the bioswales in the gowanus area

2. Sponge Park: The Gowanus area has an 1800 square foot of sponge park. This 1800 square feet of park on the dead end of 2nd St integrates storm water management with waterfront public space. Planted as areas and bio retention cells absorb and filter rainwater before it overflows into the canal.

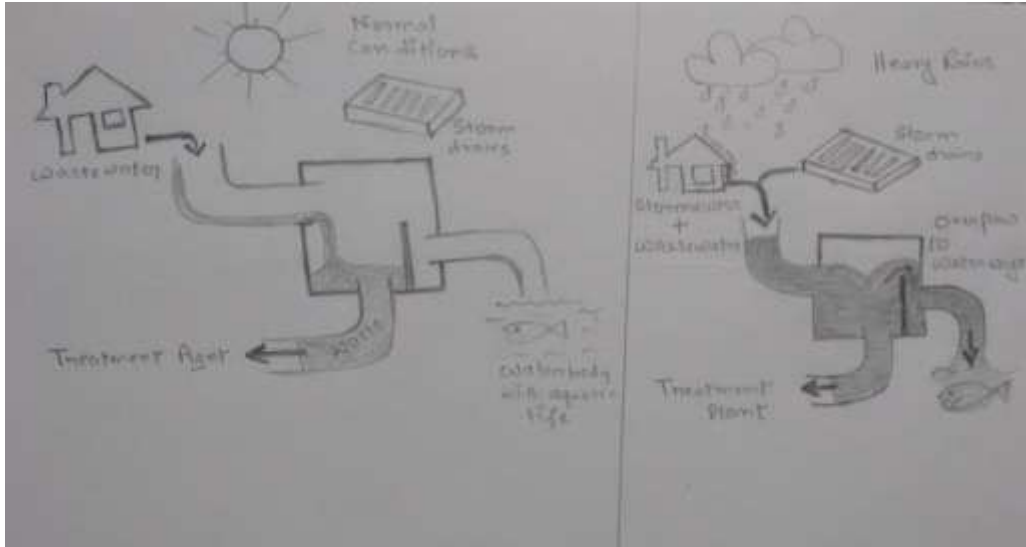


The image shows a sponge park in the area



Although the EPA has installed sponge parks and rain gardens in the area, but maintaining them hasn't been easy. The images on the left depict such neglect. I assume the reason behind the distorted condition of the sponge park is improper distribution of funds.

3. CSO: The full form of CSO is Combined Sewer Overflow. When the combined sewer system becomes inundated with storm water runoff, the sewer system is designed to have combined sewer overflow. CSOs discharge raw sewage and storm water runoff into local water bodies. The Gowanus Canal receives about 377 million gallons of CSO discharge a year via ten different CSO outfalls. Overflow events happen as often as forty times a year, after as little as a quarter inch of rain.



The sketch above shows how the combined sewer system works

4. Sewershed: It is an area that is serviced by a wastewater treatment plant. Sewage flows via gravity to a forced main or interceptor, where it will be conveyed to the wastewater treatment plant, occasionally with the help of a pump station to move flow uphill.
5. Brownfield Site: It is any real property where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance adopted by DEC that are applicable based on the reasonably anticipated use of the property, in accordance with applicable regulations.
6. Salt marshes: are coastal wetlands that are flooded and drained by **salt** water brought in by the tides. They are marshy because the soil may be composed of deep mud and peat. Peat is made of decomposing plant matter that is often several feet thick. Peat is waterlogged, root-filled, and very spongy.

QUESTIONS for FURTHER RESEARCH:

1. If all the manufacturing industries in the Gowanus area are put down, how do you think that will affect the job market?

2. Suggest how the green infrastructure should be maintained?
3. How much do you think will the businesses be affected due to the cleanup process? And how will that be compensated?