Red Hook Planning Committee Meeting #11

Potential CDBG-DR Priority Projects

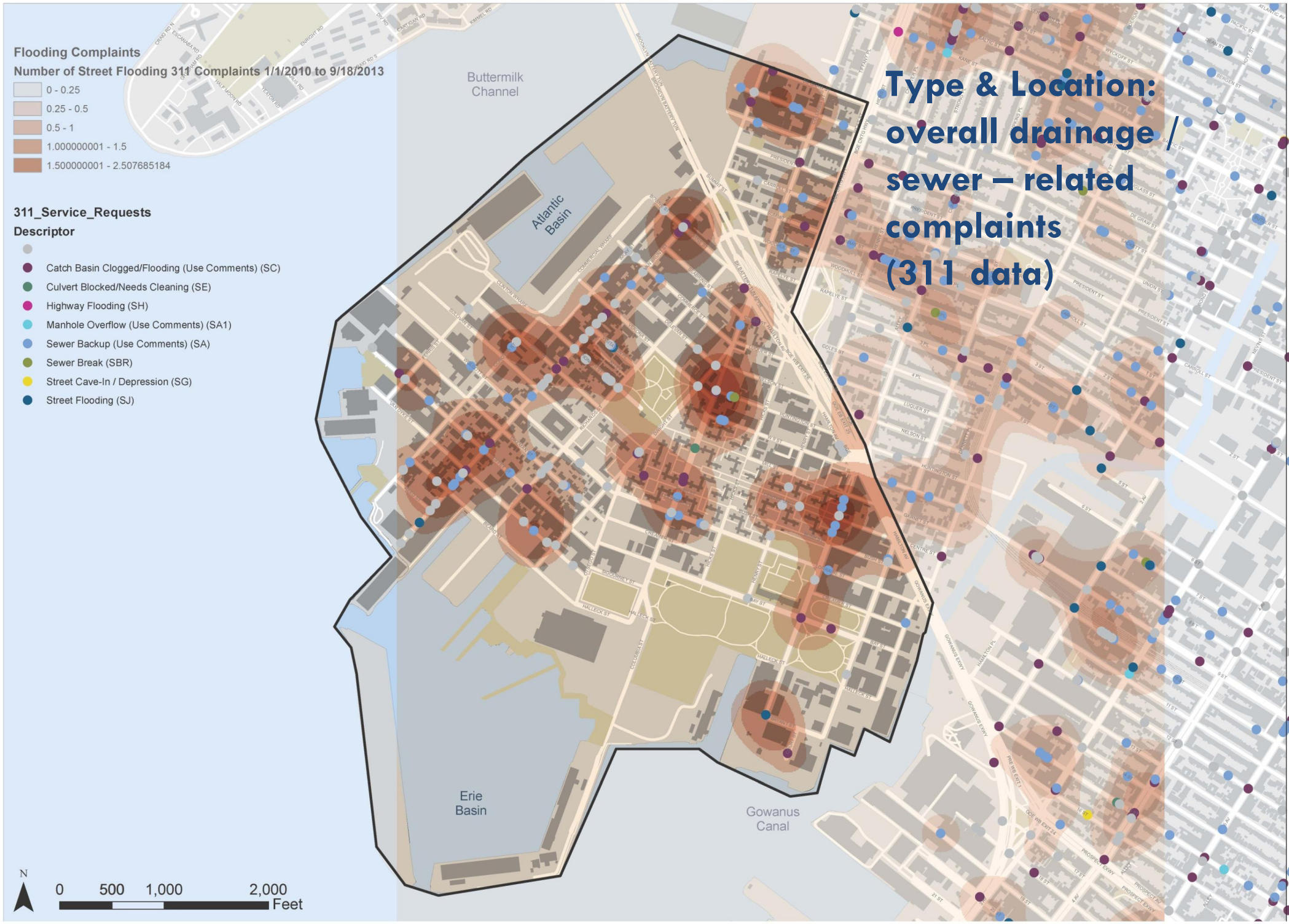
February 10, 2014

Drainage / Sewer Improvements

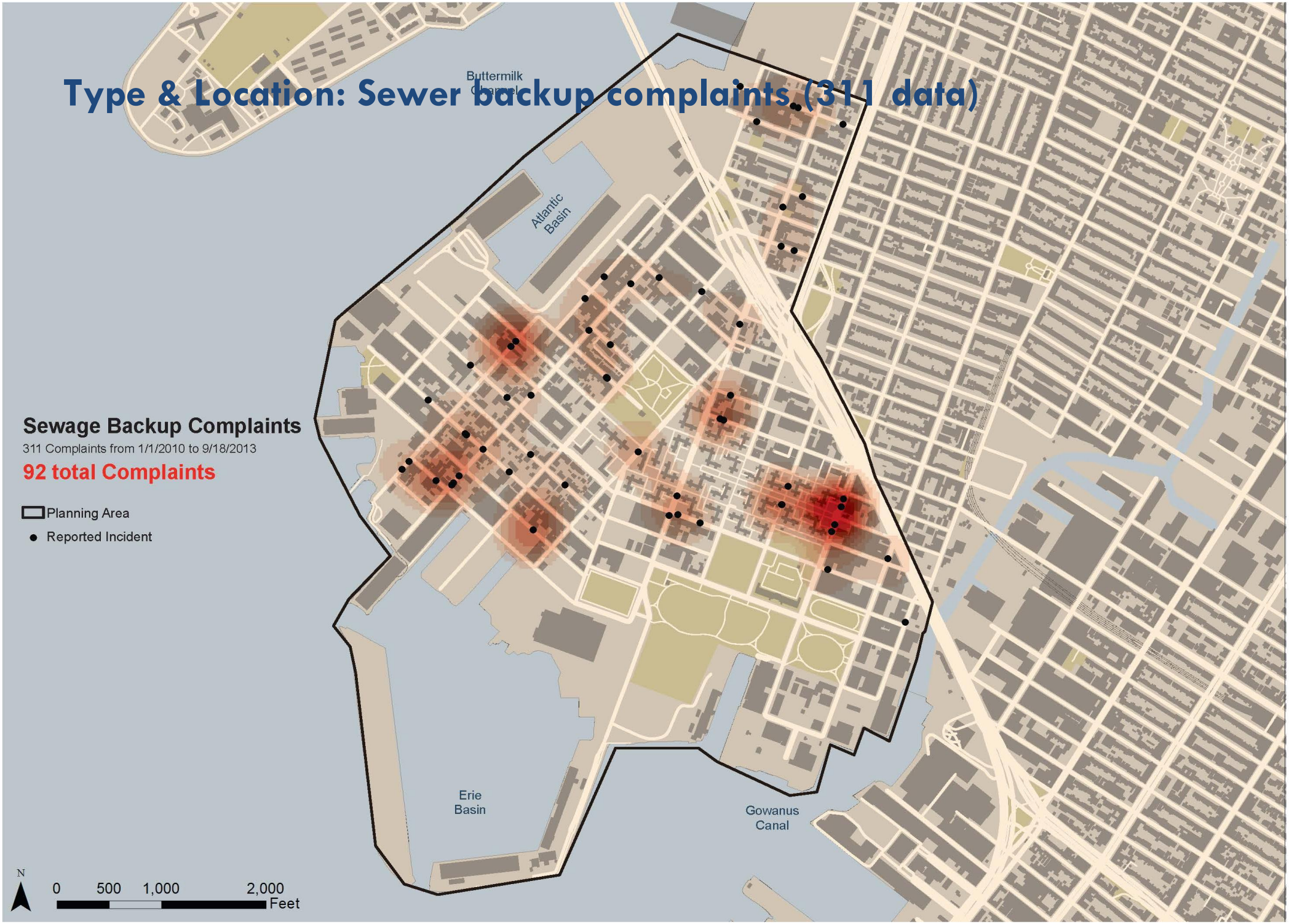
Project: Drainage/Sewer Improvements

Key Questions: To Discuss / Decide Today

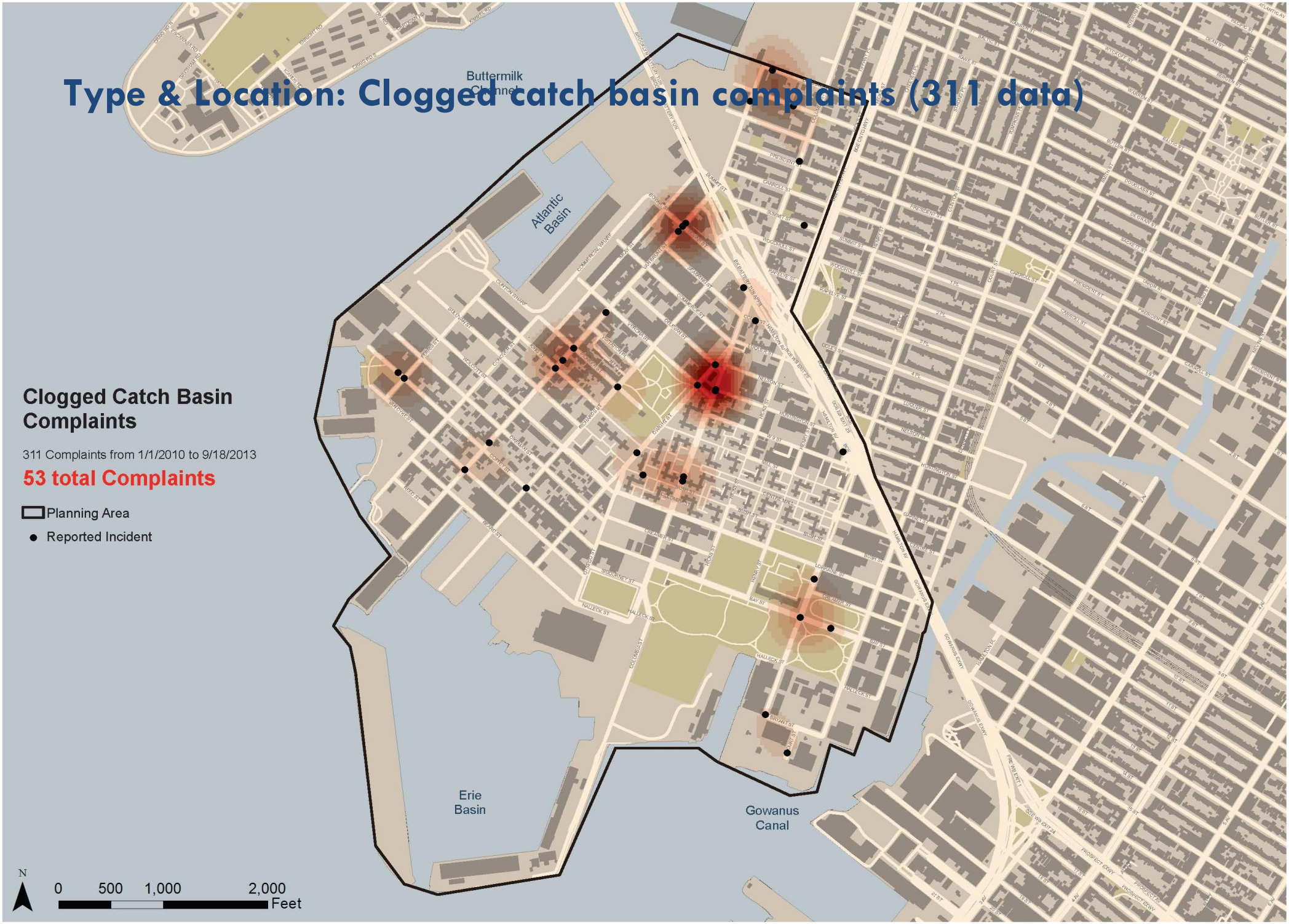
- What are the specific **type** and **location** of most critical drainage / sewer problems?
- What are the most **critical** concerns and issues?
- What do we hope to achieve through a NY Rising project?
- What is our priority project
  - A study?
  - A specific drainage improvement project?
  - Cleaning of one area of the system?
- If a study … **what kind of study**? (what do we want to know? What will we use it for?)
  - A study to understand causes of street flooding?
  - A study to understand causes of basement flooding?
  - A study to support the planning / design of drainage improvement / stormwater management component of another project (a project which the city or other entity would need to implement)
    - Brooklyn Greenway
    - Integrated Flood Protection
    - Both
- If a project … where is that project?
- If cleaning … what are our priority / problem areas?


Flooding Complaints
Number of Street Flooding 311 Complaints 1/1/2010 to 9/18/2013
0 - 0.25
0.25 - 0.5
0.5 - 1
1.000000001 - 1.5
1.500000001 - 2.507685184
311_Service_Requests
Descriptor
Catch Basin Clogged/Flooding (Use Comments) (SC)
Culvert Blocked/Needs Cleaning (SE)
Highway Flooding (SH)
Manhole Overflow (Use Comments) (SA1)
Sewer Backup (Use Comments) (SA)
Sewer Break (SBR)
Street Cave-In / Depression (SG)
Street Flooding (SJ)
Buttermilk Channel
Atlantic Basin
Erie Basin
Gowanus Canal
Type & Location: overall drainage / sewer – related complaints (311 data)
N
0
500
1,000
2,000
Feet

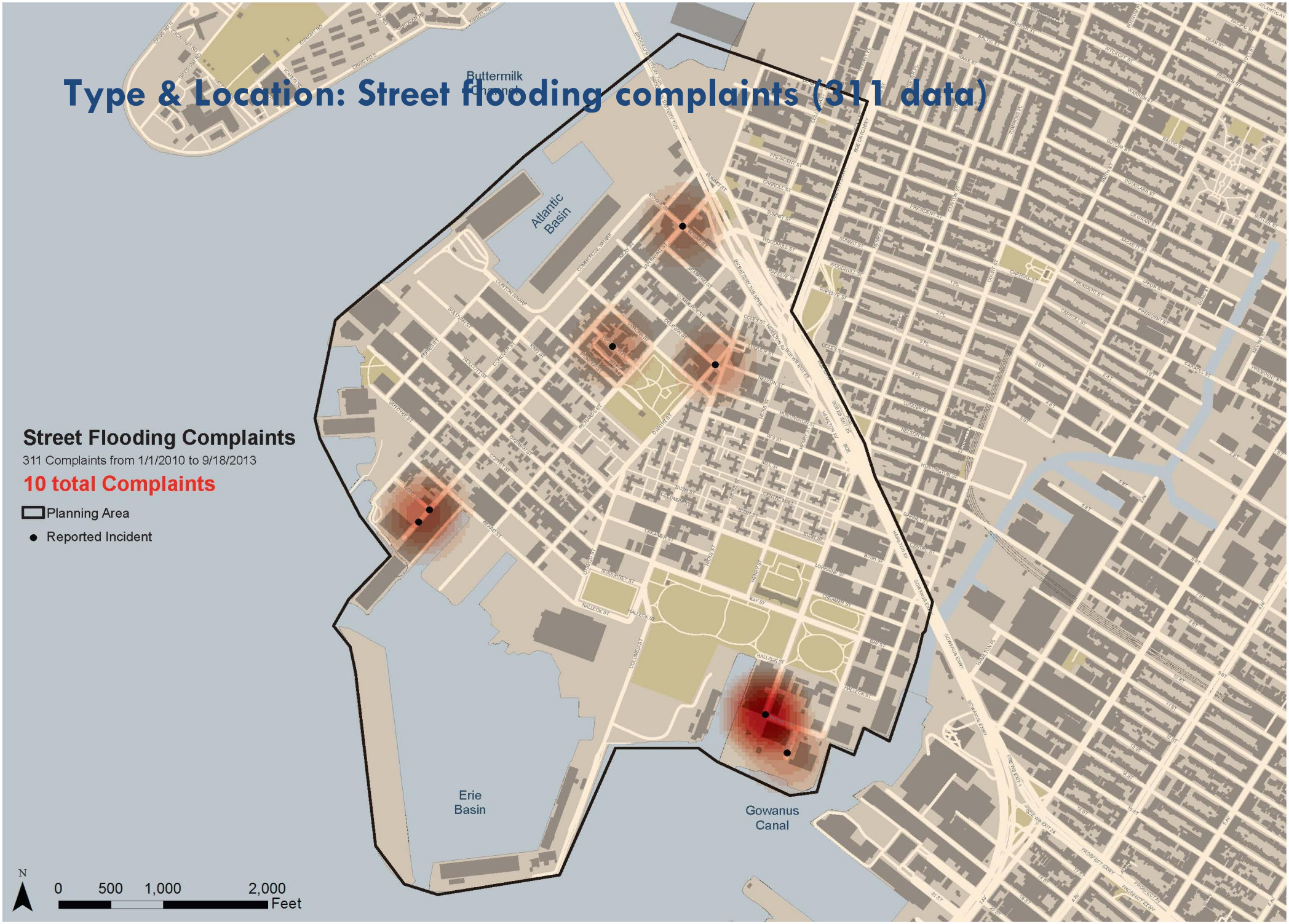
Type & Location: Sewer backup complaints (311 data)



Type & Location: Clogged catch basin complaints (311 data)



Type & Location: Street flooding complaints (311 data)



What is 311 Missing? You Tell Us!

Identify your reoccurring flooding and drainage concerns!

The objective of this map-based questionnaire is to identify the type and location of the various drainage-related problems you have described as occurring throughout the neighborhood. Your feedback will help us:

1. Better understand the type and extent of the drainage issues
2. Identify likely cause(s) of these problems
3. Suggest potential location-specific solutions
4. Identify where addition information or study may be needed

Using the dots and the map provided, please indicate where you experience the following types of flooding following a storm or rain event:

Flooding in your home or business:

- **S** Sewer Backup in Building (through Toilet, Sink Drain, Bathtub Drain)
- **G** Water Entering Basement / Below-Grade (through Foundation and/or Walls)
- **W** Water Entering Basement / Below-Grade (through Window Wells)

Flooding in street / yards / parks:

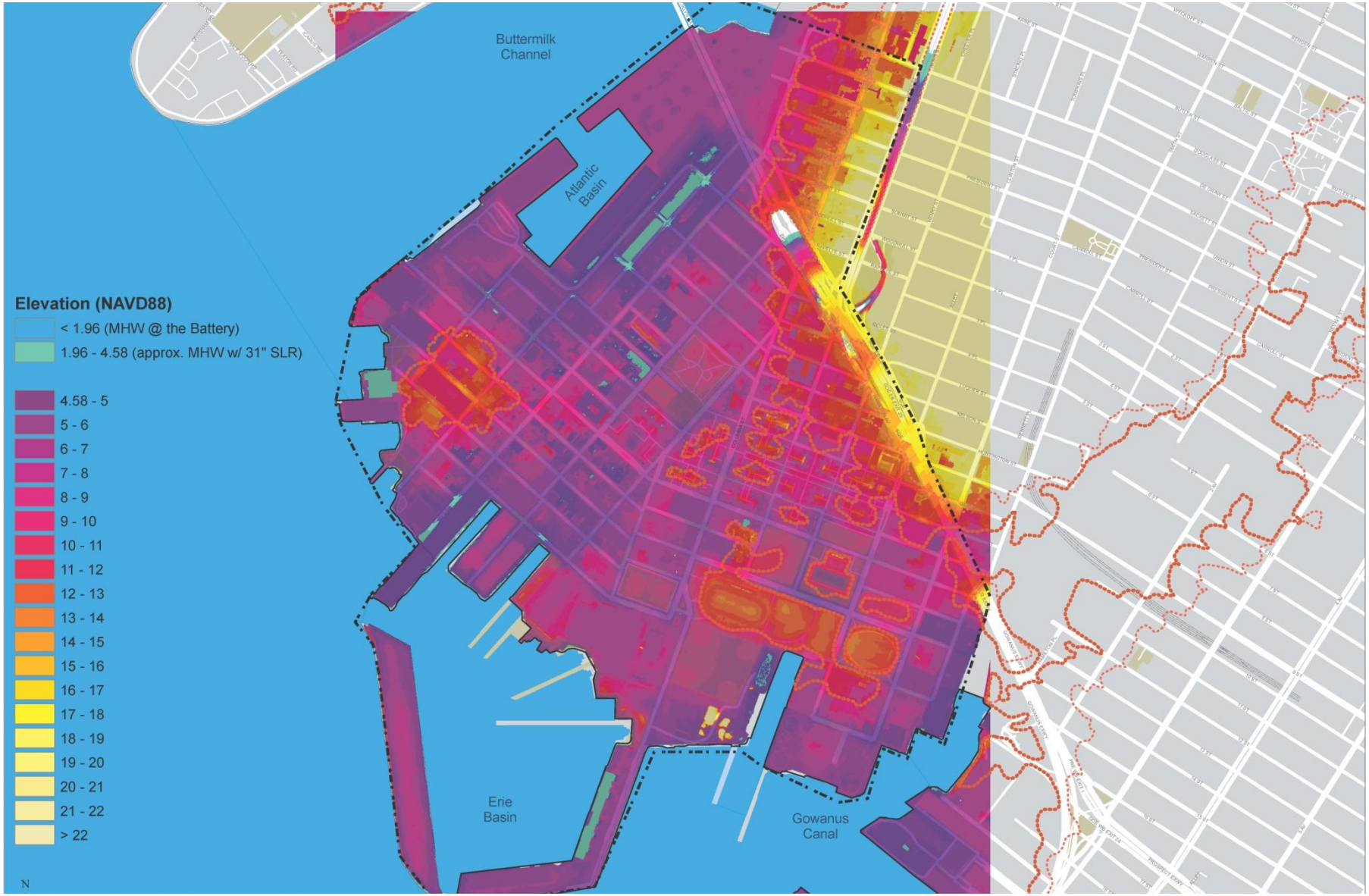
- **CB** Ponding in Streets/Yards - Clogged/Flooded Catch Basin
- **U** Ponding in Streets/Yards - no catch basin present

Known Sources of flooding:

- **W** Ponding in Streets/Yards - water coming from overflowing manhole
- **T** Ponding in Streets/Yards - water coming from nearby waterbody / waterway

Project: Drainage/Sewer Improvements

Considerations: Low-lying areas are highly subject to flooding and flooding issues are difficult to address



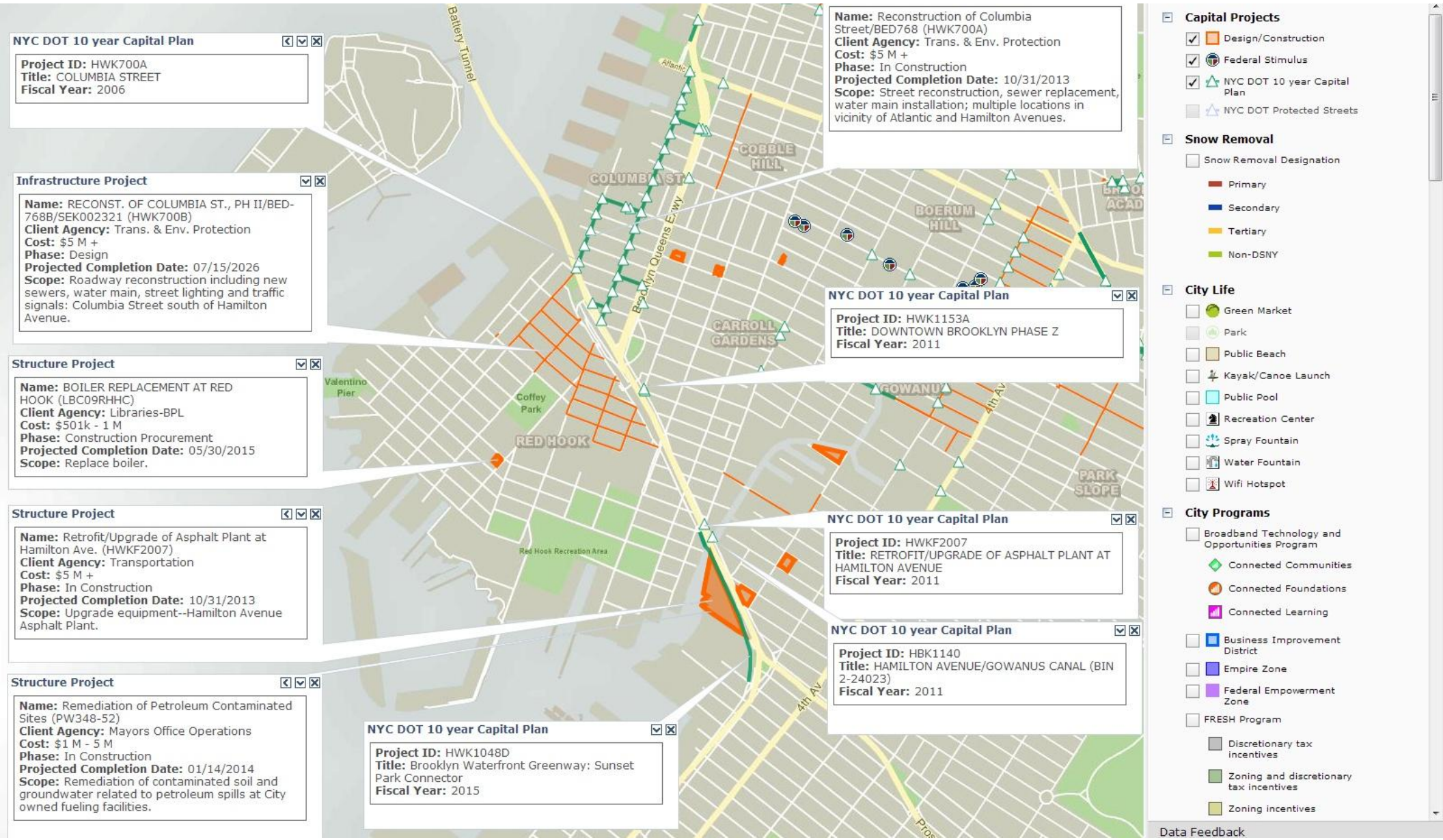
Project: Drainage/Sewer Improvements

Considerations: Protected Streets

Source: NYC Map DOITT
(November, 2013)

Project: Drainage/Sewer Improvements

Considerations: Existing Capital Projects



Source: NYC Map DOITT (November, 2013)

Project: Drainage/Sewer Improvements

Why are we asking you this? What will we do with this info?

- To better understand the **issues** & **priorities** in order to:
  - Identify where and what type of further study is needed
  - craft the right project(s) at the right location(s) for your priority issues and goals
  - Gather the right information and craft the right message to follow-up with DEP

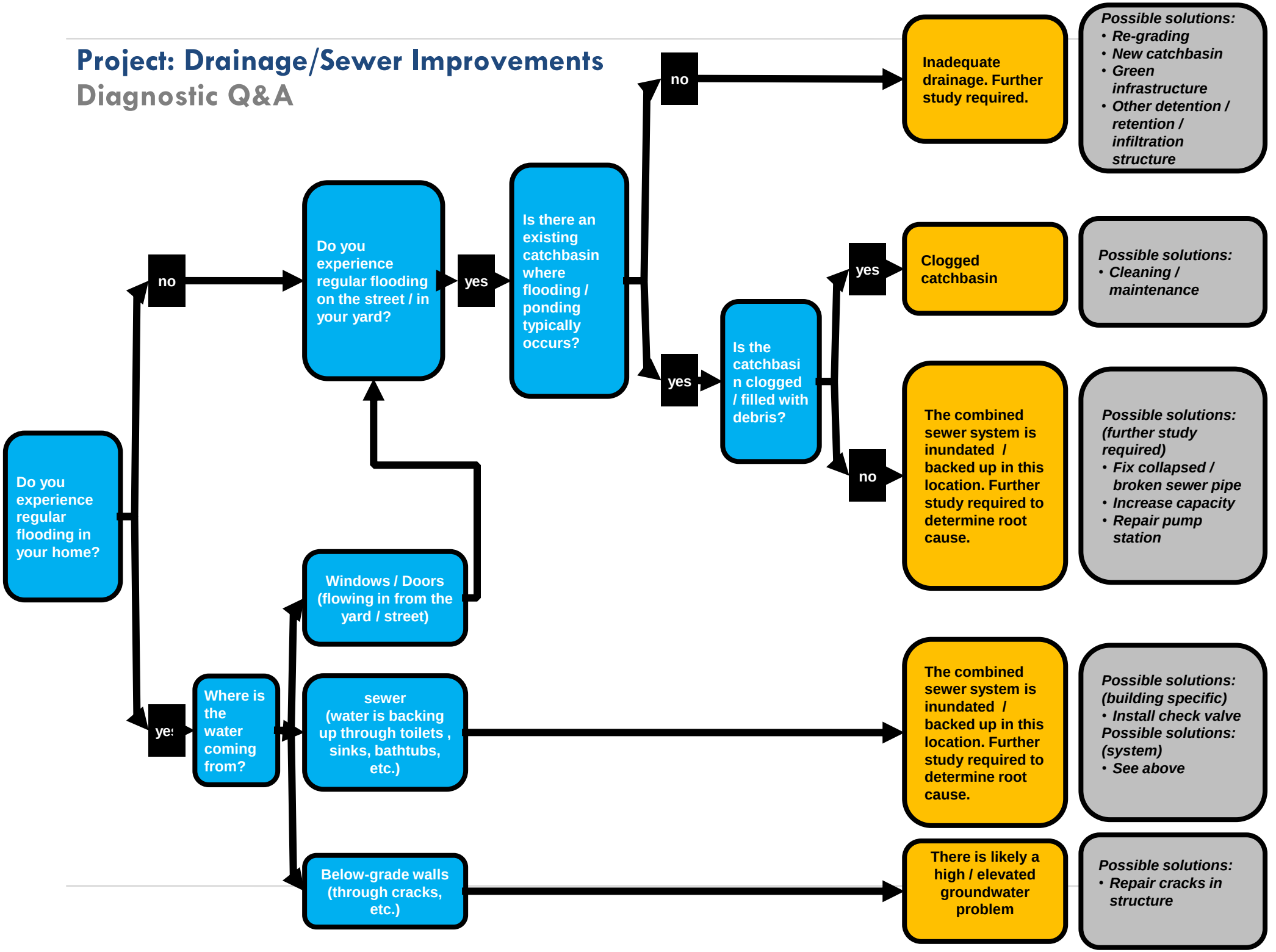
Project: Drainage/Sewer Improvements

Drainage Issues, Likely Causes, and Potential Solutions

The Issue	Likely causes *note: site specific investigation and additional study is required to identify actual cause*	Potential Solutions *note: these are only potential solutions, site specific investigation and additional study is required to identify correct solution for each condition*
 Sewer backup. During rain events, this location experiences backup of water into the building through the building's plumbing (toilets, sinks, and bathtubs).	Reoccurring sewer backup in Red Hook is likely the result of the local sewer system becoming overwhelmed by stormwater and floodwaters, causing a backflow of sewer water into the pipes of private homeowners.	Install Check Valve
 **Water enters home / building through below-grade walls.** During heavy rain events water enters this location through the basement level (below-grade). Water is seeping through the floor or walls of the basement.	This is likely due to the presence of a high groundwater table or elevated groundwater due to the storm event. A higher than normal water table is common in areas where the soil is not well drained, and during and after heavy rain events, subsurface water rises, entering below-grade structure and sometimes rises to the surface..	Repair cracks in basement Waterproofing (likely not feasible for attached buildings)
 **Water enters home through at/below grade windows and doors.** During heavy rain events water enters the building through at or below-grade windows and doors due to ponding of water in the surrounding yard or street	One cause of this is water ponding in the street or yard during and after heavy rains, which may then flow into nearby below grade/basement windows of residents and businesses. Both streets and yards are susceptible to ponding if they have uneven grades or if the soil (of yards only) drains poorly.	Waterproof at-grade windows and doors Raise / re-grade yard
Water ponds in street / yard but there is no catch basin is present. This location experiences frequent flooding during heavy rainfall events. During and after rain, water collects on the streets and/or in yards.	It appears there is nowhere for the water to drain. While further study would be needed to understand the underground conditions causing this problem in order to propose the best solution for this location	Install new catch basin Install green infrastructure Re-grade street
 **Water ponds in the street / yard due to clogged / flooded catchbasin.** During and after rain, water collects on the street or in yards even though a catch basin is present.	Catch basins may be clogged by trash or fallen leaves sitting on top of the grate or accumulated in the basin below. However, if the catch basin is not clogged, this may be due to a variety of causes including clogged or damaged/collapsed sewer pipes, or a system that has become overwhelmed by stormwaters.	clean catchbasin *if the catchbasin is not clogged, further investigation is required, but potential solutions might include:* Repair / reset catchbasin Repair sewer pipes
Water ponds in street / yard - water coming from nearby waterbody / waterway. Some streets and yards in this location flood with water coming from nearby waterways.	Lowlying areas adjacent to waterways can be susceptible to flooding during some high tide events as well as storms.	Raise / re-grade street Provide coastal protection Repair tide gate
Water ponds in street / yard - water coming from an overflowing manhole. Some streets and yards in this location flood with water coming from overflowing manholes during and after heavy rain falls.	Heavy rains may overwhelm the existing capacity of the sewer system.	

Project: Drainage/Sewer Improvements

Diagnostic Q&A

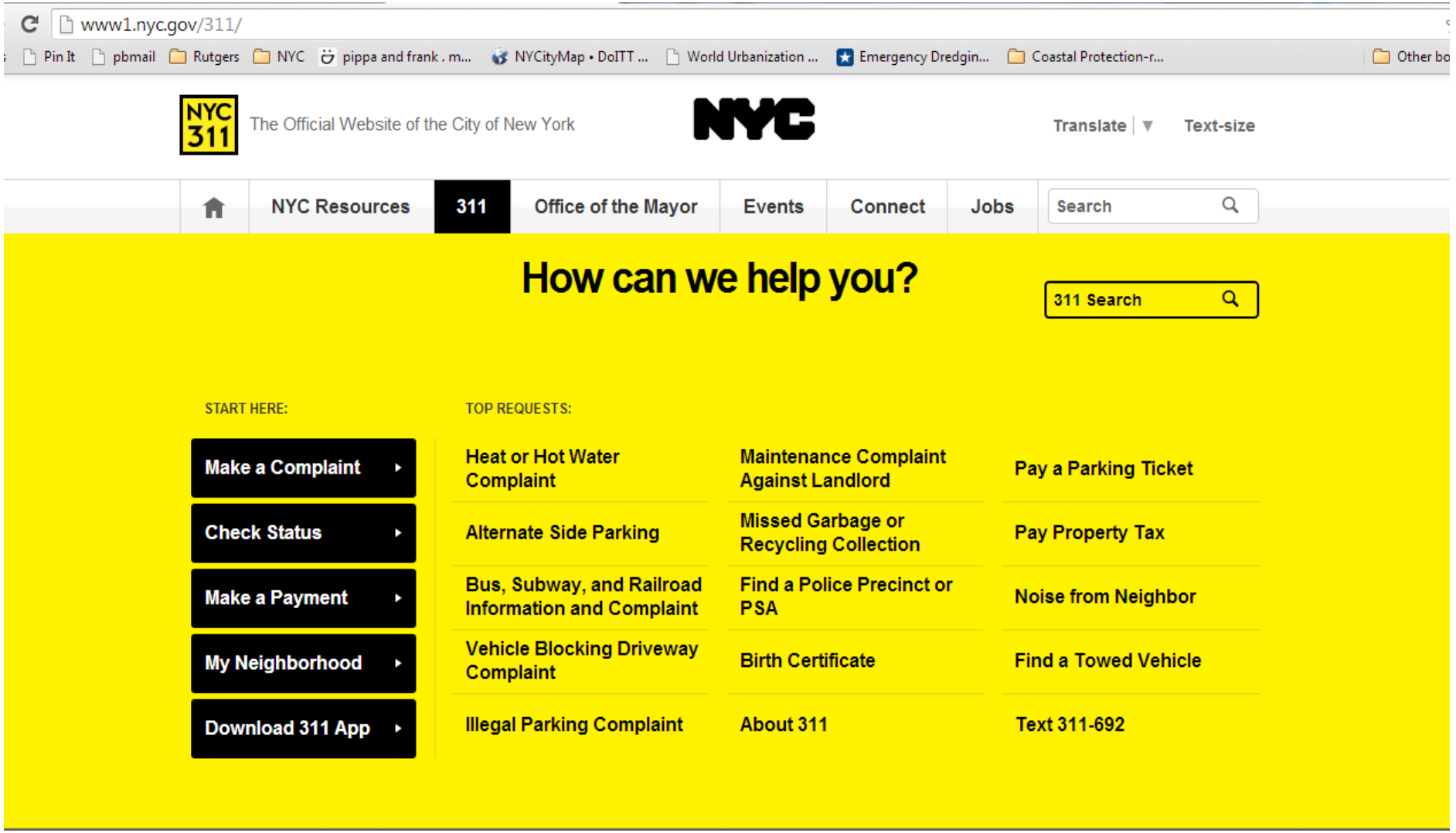


Project: Drainage/Sewer Improvements

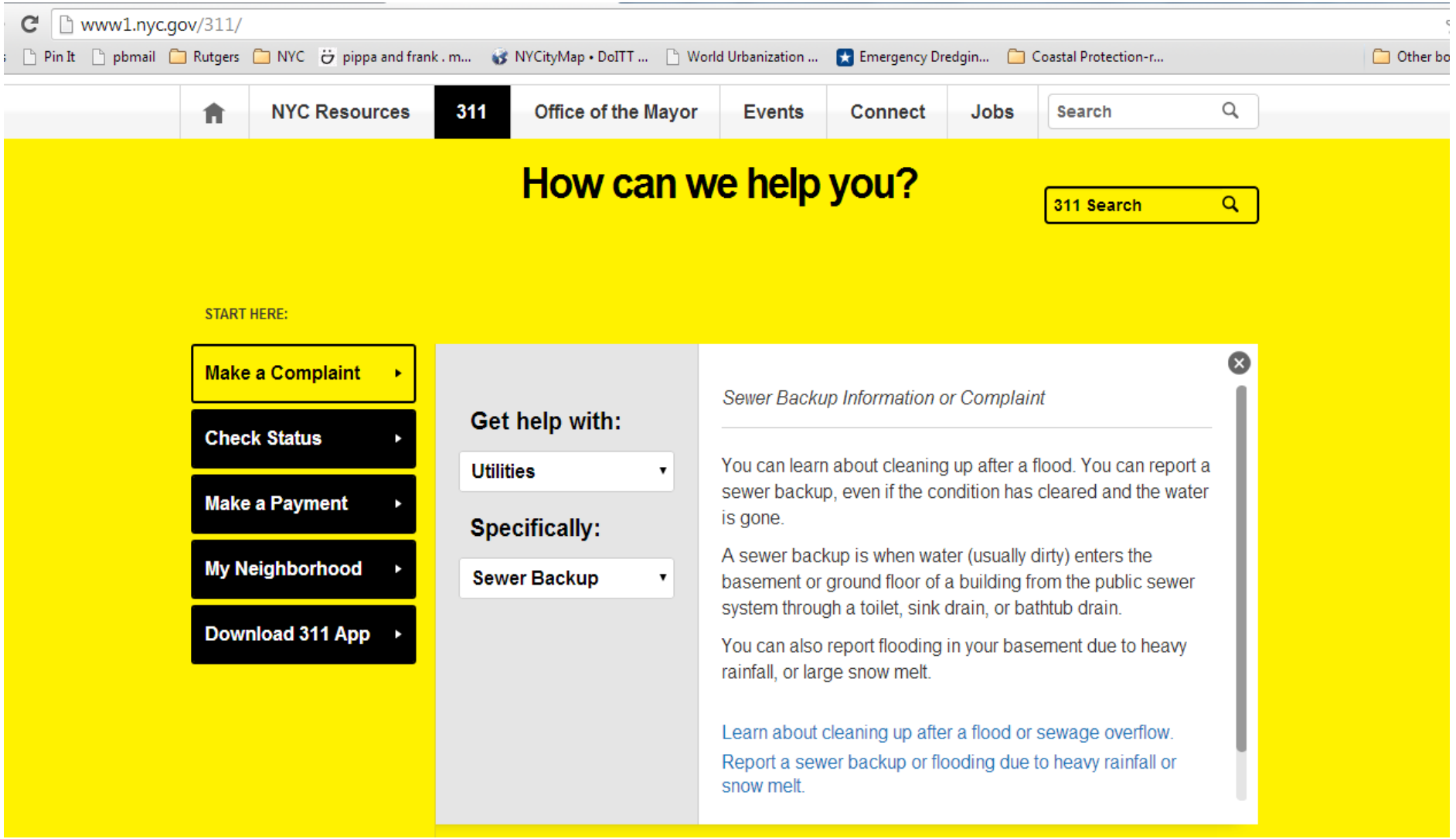
What can you start to do right now?

- Increase / improve use of 311
  - This is the data the city is looking at
  - DEP is in many ways a “complaint driven agency”
  - Everyone has access to the data: it can be used to map and help diagnose the type, frequency and extent of issues
- Circulate the (hard copy) questionnaire
  - Collect information from others in Red Hook before and leading up to the public meeting
  - Outreach to gather information from a broad cross section of the community
  - Target constituencies who may not use 311

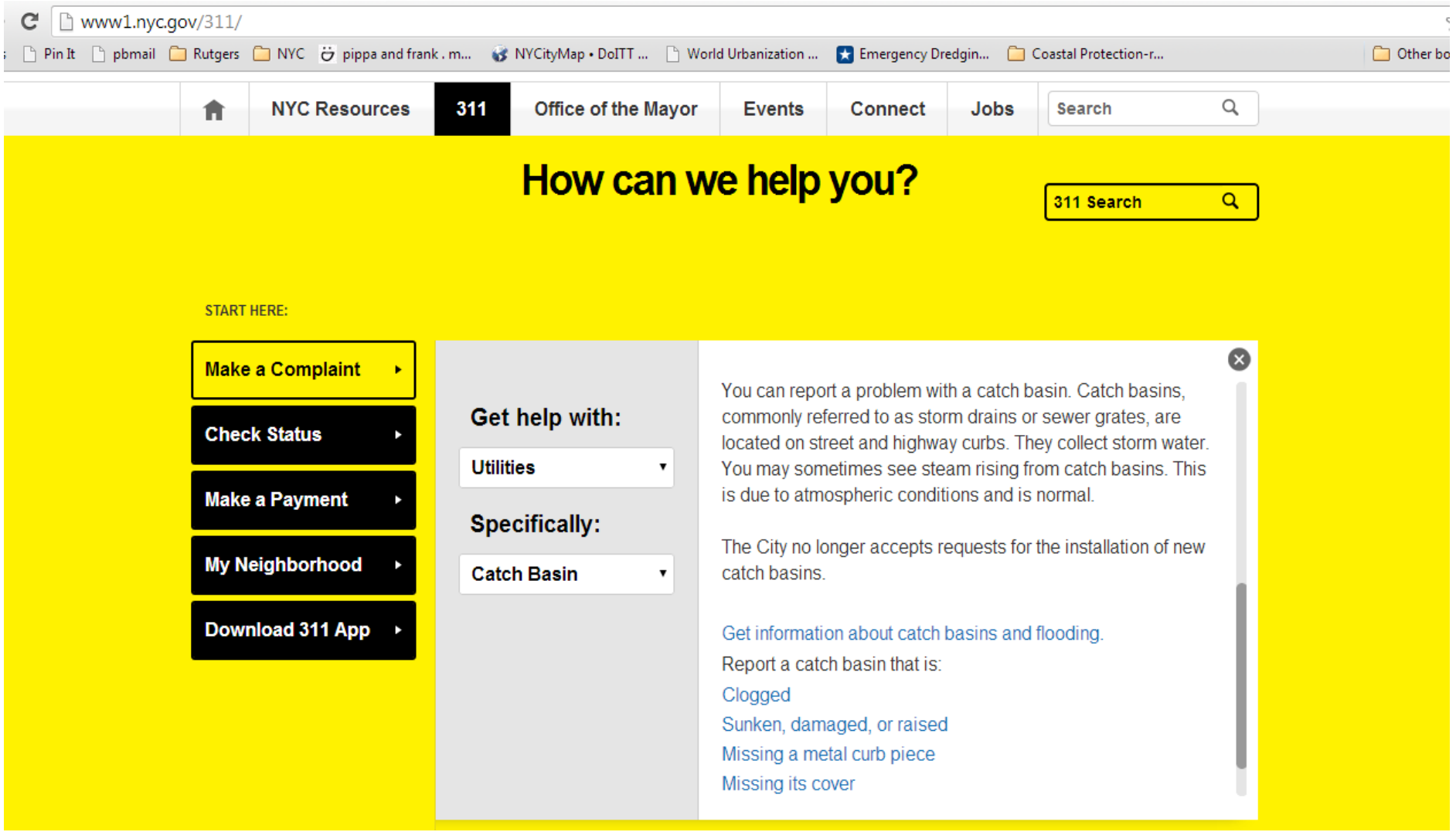
Project: Drainage/Sewer Improvements



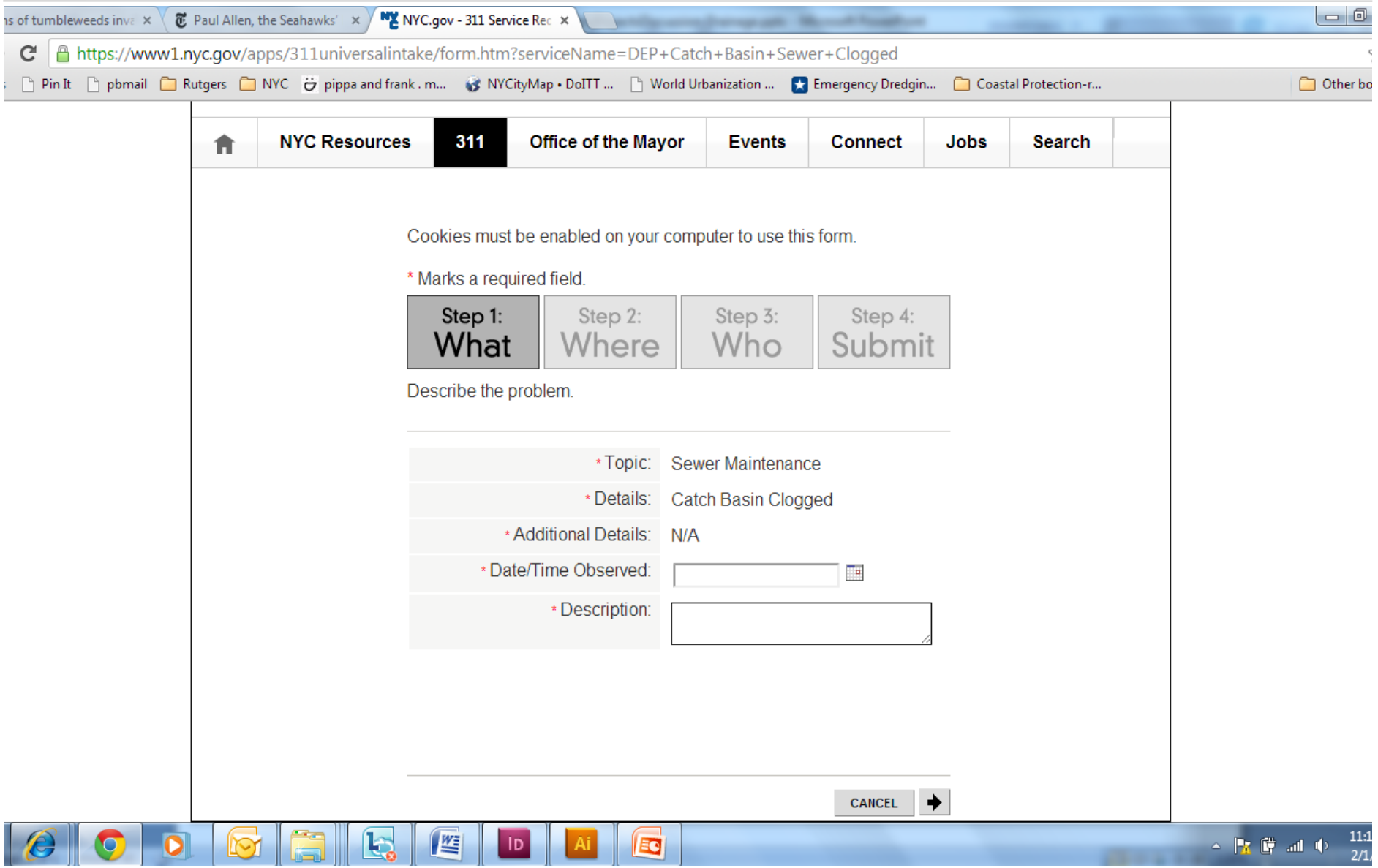
Project: Drainage/Sewer Improvements



Project: Drainage/Sewer Improvements



Project: Drainage/Sewer Improvements



Project: Drainage/Sewer Improvements

Key Questions: To Discuss / Decide Today

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- If a project … where is that project?
- If cleaning … what are our priority / problem areas?

Ferry Service Enhancements

Project: Ferry Service Enhancements

Overview

- **Commuter Ferry Service**
  - For Red Hook residents & employees
- **Financially Sustainable Service** with either:
  - No subsidy;
  - A subsidy for start-up, but where no operating subsidy is needed after two years (i.e., CDBG-DR eligibility); or
  - An identified funding source for ongoing operating subsidy

- **To Discuss / decide today:**
  - Preferred service option
  - Preferred stop location
  - Acceptable fare

Project: Ferry Service Enhancements

Things to Discuss/Decide Today: Key Questions

- **What is the preferred service option?**
  - Expand existing service at IKEA
  - Add a new route to Red Hook
  - Add a stop in Red Hook to an existing or planned route
- **Where should the ferry stop?**
  - IKEA
  - Fairway
  - Atlantic Basin
  - Valentino Pier
- **What is an acceptable fare?**

- How much of the $3 million CDBG-DR allocation should be prioritized for ferry enhancements?
- What can $3 million accomplish?
- Is this a priority or featured project?

Project: Ferry Service Enhancements

Service Options & Considerations

1. **Expand existing service at IKEA**
   - Add morning commuter times to existing ferry schedule
   - Would use existing landing at IKEA
   - Would likely require some operating subsidy
   - Would likely require agreement with IKEA & NY Water Taxi
2. **Add a new route to Red Hook**
   - Would likely require significant operating subsidy
   - Would likely entail new (or improved) landing
3. **Add a stop in Red Hook to an existing or planned route**
   - May require some operating subsidy
   - May require a new (or improved) ferry landing
   - May be able to stop at existing landing at IKEA, but would need docking rights
   - Could potentially capitalize on extended service to the Rockaways

Project: Ferry Service Enhancements

Service Option 1 – Expand Existing Ferry Service at IKEA

Pros

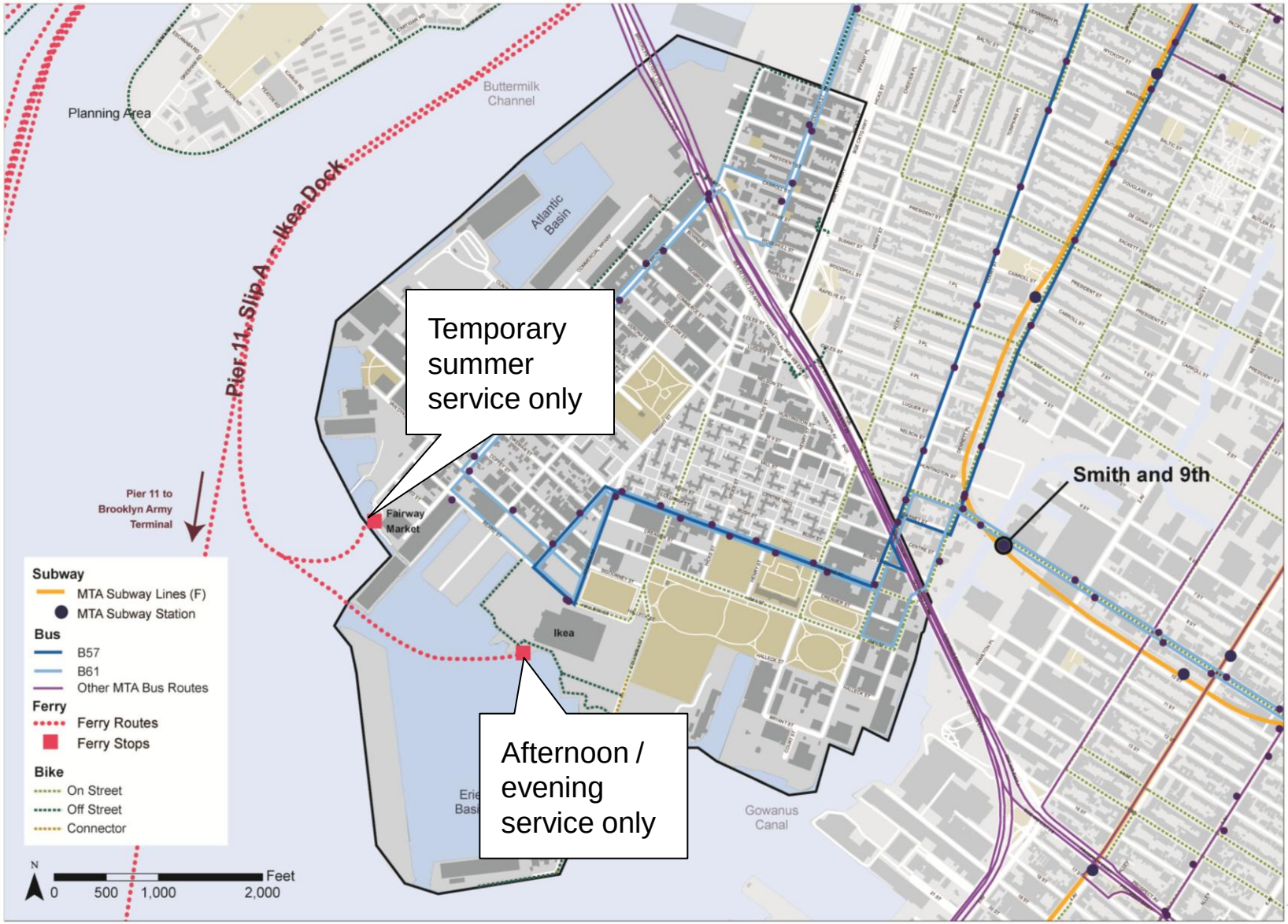
- Minimum capital investment because ferry landing already exists at IKEA
- Minimum additional service needs because afternoon/evening peak ferry service is already provided (at 40 minute headways) between Lower Manhattan and Red Hook
- Identification of ferry operator could be streamlined because NY Water Taxi already provides service to the IKEA landing

Cons

- Would likely require some operating subsidy, but perhaps less than other options
- Likelihood of comparatively high per passenger weekday fares
  - Existing IKEA Ferry: $5/trip (deduction for IKEA customers)
  - East River Ferry: $4/trip
  - Rockaway Ferry (temporary): $3.50/ trip (up from $2/trip before February 2013)
  - Staten Island Ferry: Free
- The provision of additional service would be at the discretion of IKEA and NY Water Taxi

Project: Ferry Service Enhancements

Existing Ferry Service



Project: Ferry Service Enhancements

Existing Ferry Service: IKEA Express Shuttle, IKEA-Pier 11

Service Provided by NY Water Taxi

- Weekdays 2pm – 8pm
  - $5 Fare (Deductions for IKEA Customers)
- Weekends 11:20am – 9:20pm
  - Free
- 40-Minute Headways

Weekdays

Pier 11, Slip A	Ikea Dock
Departs	Departs
2:00 PM	2:20 PM
2:40 PM	3:00 PM
3:20 PM	3:40 PM
4:00 pm	4:20 pm
4:40 PM	5:00 PM
5:20 PM	5:40 PM
6:00 pm	6:20 PM
6:40 PM	7:00 pm
7:20 PM	7:40 PM
8:00 PM ✖	---

✖ Last Stop

Weekends

Pier 11, Slip A	Ikea Dock
Departs	Departs
11:20 AM	11:40 AM
12:00 PM	12:20 PM
12:40 PM	1:00 PM
1:20 PM	1:40 PM
2:00 PM	2:20 PM
2:40 PM	3:00 PM
3:20 PM	3:40 PM
4:00 pm	4:20 pm
4:40 PM	5:00 PM
5:20 PM	5:40 PM
6:00 pm	6:20 PM
6:40 PM	7:00 pm
7:20 PM	7:40 PM
8:00 PM	8:20 PM
8:40 PM	9:00 PM
9:20 PM ✖	

✖ Last Stop

Photo Source: http://www.brooklynpaper.com/stories/32/29/32_29_mm_ikea_to_charge_for_ferry.html

Timetable Source: http://www.nywatertaxi.com/tours/ikea

Project: Ferry Service Enhancements

Other Ferry Service / Infrastructure: Red Hook Summer Ferry (Temporary, Summer 2013), IKEA-Fairway-Pier 11

- Additional Landing at Fairway (Van Brunt Street Landing)
- Temporary service
  - Operated Weekends Between May 25th & September 2nd, 2013
  - Service from 10am – 9pm
  - Free
  - 25-Minute Headways (vs. 40-Minute Headways for regular IKEA Express Shuttle)
- Operated as Partnership Between:
  - New York Water Taxi
  - Billybey Ferry Company (operates East River Ferry)
  - Fairway Market
  - IKEA
  - O'Connell Organization (owns the pier)

Source: http://www.nycedc.com/blog-entry/expanded-free-red-hook-summer-ferry-launch-memorial-day-weekend
Photo Source: http://jschumacher.typepad.com/joe/2006/06/

Project: Ferry Service Enhancements

Service Option 2 – Add a New Ferry Route to Red Hook

Pros

- Would enable the Red Hook community to define a locally preferred route/stop for new ferry service

Cons

- Would likely require significant capital investment to construct a new (or improved) ferry landing
- Would likely require significant operating subsidy (refer to findings from 2013 Comprehensive Citywide Ferry Study)
- Would need to identify operator for the route

Project: Ferry Service Enhancements

2013 Comprehensive Citywide Ferry Study: Red Hook Findings

- Consideration of New / Improved Ferry Stops in Red Hook:
  - Valentino Pier
  - Van Brunt Street
- First Modeling Phase: Screening Process for New / Improved Ferry Stops:
  - Ridership Potential
  - Proximity to Competing Existing Transit Service
  - Physical Limitations
  - Limited Potential for Network Connectivity
- Six Routes Identified for Second Phase of Modeling:
  - Van Brunt Street Included in Route 1 / Route 1b
  - Valentino Pier Not Advanced

Project: Ferry Service Enhancements

2013 Comprehensive Citywide Ferry Study: Red Hook Findings

Table 3.1: Existing New York City Ferry Services

Route	Weekday One-Way Fare	Headway (Peak)	2011 Weekday Ridership	2012 Weekday Ridership	2013 Weekday Ridership	2006-2011 Annual Growth	2011-2012 Annual Growth
IKEA - Pier 11	$5.00	40	475	375	387	NA	-20.9%

$2.75 for Route 1
$2.50 for Route 1b

2018 Forecasted Ridership

Route	Stops	Headway (minutes)	Daily JTW potential (passenger trips)	Capture rate	Daily passenger trips	Capture rate	Daily passenger trips
				$5.00 Fares		Revenue Maximizing Fares	
1	Bay Ridge, Red Hook, Pier 6 - Brooklyn Bridge Park, Pier 11- Wall St	20	6,717	9%	388	14%	939
1b	Red Hook, Pier 6 - Brooklyn Bridge Park, Pier 11 - Wall St	35	5,430	3%	112	6%	325

Project: Ferry Service Enhancements

2013 Comprehensive Citywide Ferry Study: Red Hook Findings

Figure 7.1: Summary Financial Outcomes by Route: 2018 Weekday Revenue and Required Operating Subsidy Levels at Revenue Maximizing Fare

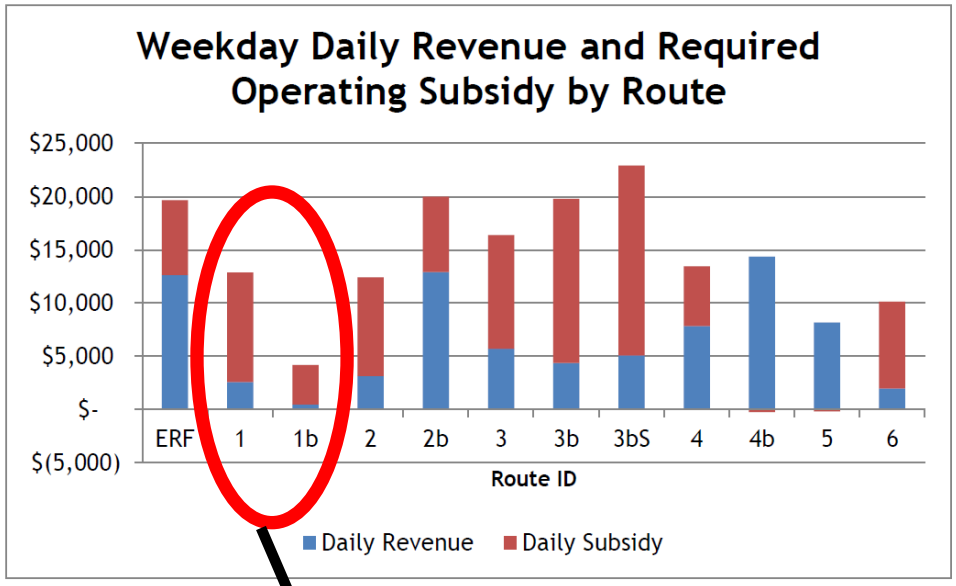
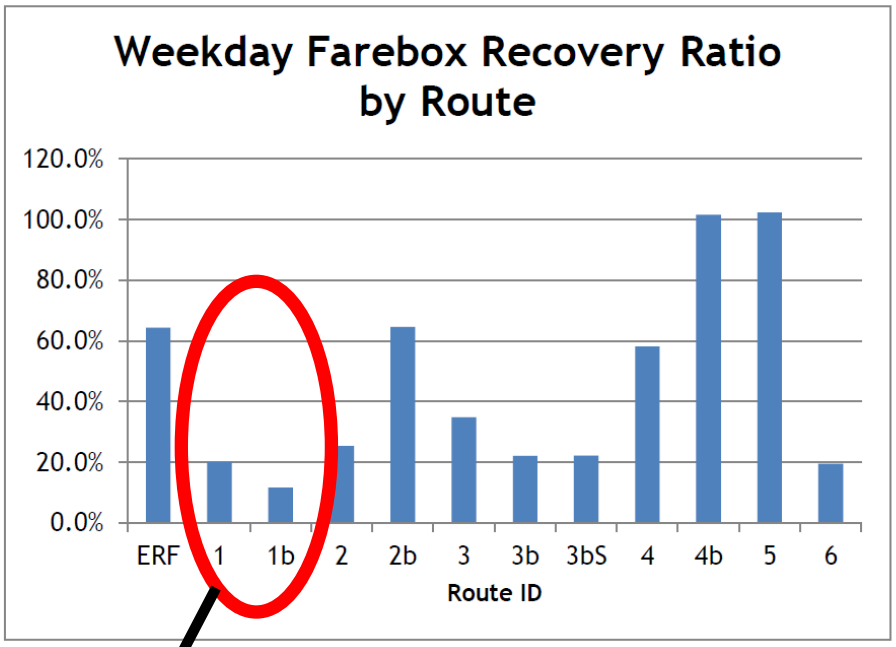


Figure 7.2: Summary Financial Outcomes by Route: 2018 Weekday Farebox Recovery at Revenue Maximizing Fare



Note: Route outcome based on revenue maximizing fares except East River Ferry which reflects current daily revenues and subsidies

Routes 1 and 1b would both require considerable per passenger subsidy levels (i.e., nearly $11 and $19, respectively, based on revenue maximizing fares), and were not recommended for further consideration.

Project: Ferry Service Enhancements

Service Option 3 – Add a stop in Red Hook to an existing/planned route

Pros

- Operating subsidy would likely be dictated by the subsidy required for the existing or planned route; the required additional subsidy to enable a stop in Red Hook would likely be nominal / much less than that for a new route
- Could potentially capitalize on the Rockaways ferry (temporary), which already includes a stop at the Brooklyn Army Terminal

Cons

- Would likely require significant capital investment to construct a new (or improved) ferry landing, unless able to stop at existing landing at IKEA, which would require access to docking rights

Project: Ferry Service Enhancements

Other Nearby Ferry Routes: The Rockaway Ferry

- Weekday service by Seastreak from Rockaways (Beach 108th Street & Beach Channel Drive) to Pier 11/Wall Street, launched in the aftermath of Sandy (November 2012); free transfer to East 34th St.
- Brooklyn Army Terminal (58th Street in Sunset Park) added as a stop in November 2013 due to ongoing disruptions to R train service.
- Service extended in January 2013 until May (or August); one-way fares increase from $2.00 to $3.50.
- NYCEDC to issue RFP to determine viability of long-term service and identify operator

Mayor de Blasio Extends Rockaway Ferry Service

January 21, 2014

Rockaway Departures	BAT Arrivals	BAT Departures	Pier 11/Wall St. Arrivals	East 34th St./FDR Arrivals
5:40 AM**	6:15 AM	6:20 AM**	6:35 AM FT	7:00 AM
6:30 AM	7:05 AM	7:10 AM	7:25 AM FT	8:00 AM
7:40 AM**	8:15 AM	8:20 AM**	8:35 AM FT	9:00 AM
8:15 AM	8:50 AM	8:55 AM	9:10 AM	9:30 AM
9:25 AM**	10:00 AM	10:05 AM**	10:20 AM	10:30 AM
4:35 PM	-----	-----	5:30 PM	-----
5:50 PM	-----	-----	6:45 PM	-----
6:50 PM	-----	-----	7:45 PM	-----

FT - Ferry transfer at Pier 11 to East 34th Street

East 34th St./FDR Departures	Pier 11/Wall St. Departures	BAT Arrivals	Rockaway Arrivals
-----	6:35 AM	-----	7:30 AM
-----	7:25 AM	-----	8:10 AM
-----	8:35 AM	-----	9:20 AM
2:45 PM	3:05 PM FT**	3:15 PM	4:00 PM
4:20 PM	4:45 PM	4:55 PM	5:40 PM
5:10 PM	5:35 PM FT**	5:45 PM	6:30 PM
6:30 PM	6:50 PM FT	7:00 PM	7:45 PM
7:30 PM	7:50 PM FT**	8:00 PM	8:45 PM

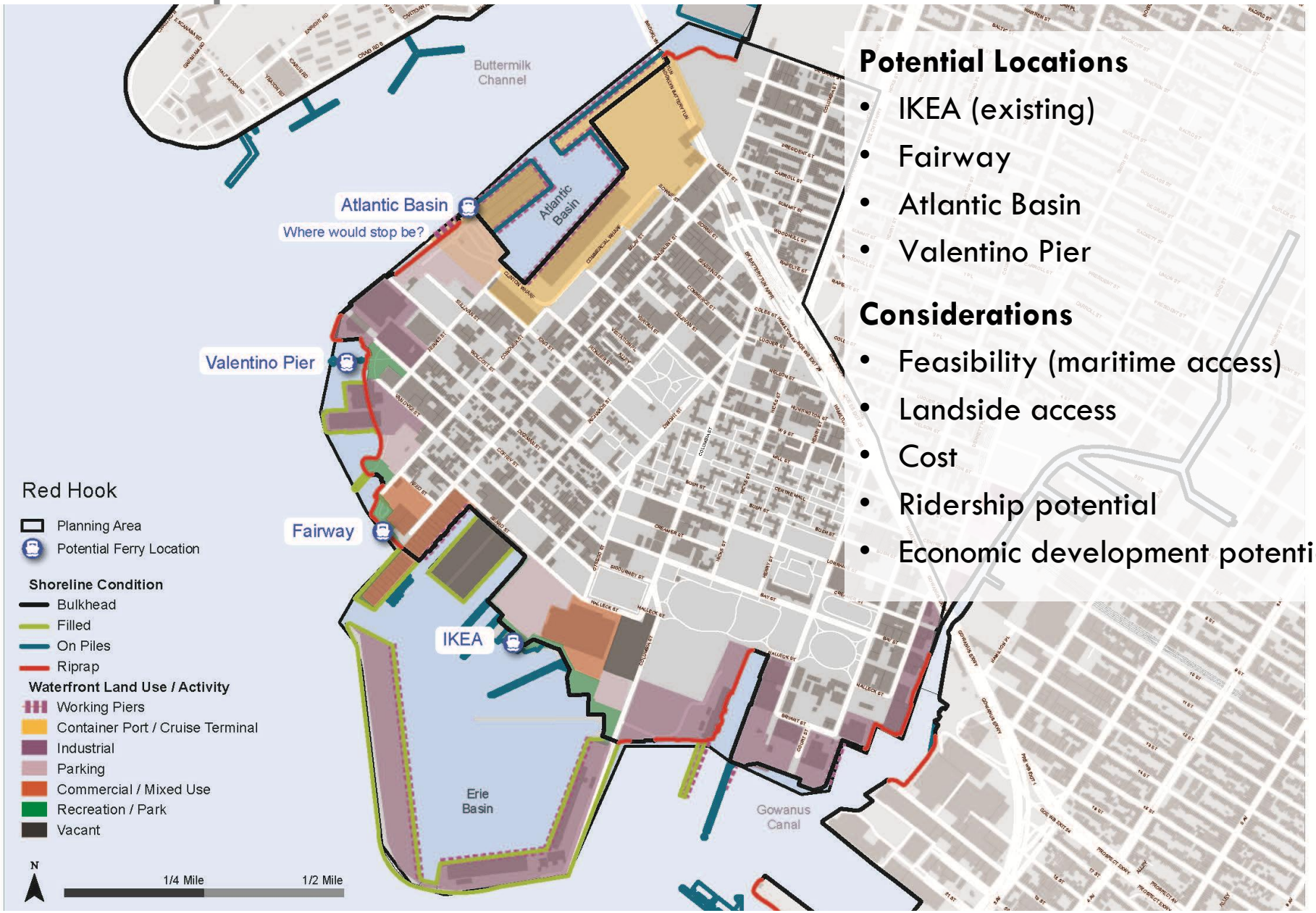
FT - Ferry transfer at Pier 11 to BAT / Rockaway

Indicates departure with increased passenger capacity.

Photo Source: http://www1.nyc.gov/office-of-the-mayor/news/031-14/mayor-de-blasio-extends-rockaway-ferry-service/#/0
Timetable Source: http://www.seastreakusa.com/viewpage.aspx?page=Brooklyn

Project: Ferry Service Enhancements

Potential Stop Locations



Potential Locations

- IKEA (existing)
- Fairway
- Atlantic Basin
- Valentino Pier

Considerations

- Feasibility (maritime access)
- Landside access
- Cost
- Ridership potential
- Economic development potential

Project: Ferry Service Enhancements

Ferry Stop Location Considerations: Cost

From the 2013 Comprehensive Citywide Ferry Study:

- Improved/Permanent Ferry Stop at Van Brunt Street: Capital Cost of $5.6 Million
  - Single- vs. Two-Slip Barge?
  - Upland Infrastructure Improvements:
    - Shelters
    - Benches
    - Bike Racks
    - Ticketing Machines

Photo Source: http://brooklyn.ny1.com/content/news/182727/red-hook-ferry-a-welcome-connection--residents-say?ap=1&MP4

Project: Ferry Service Enhancements

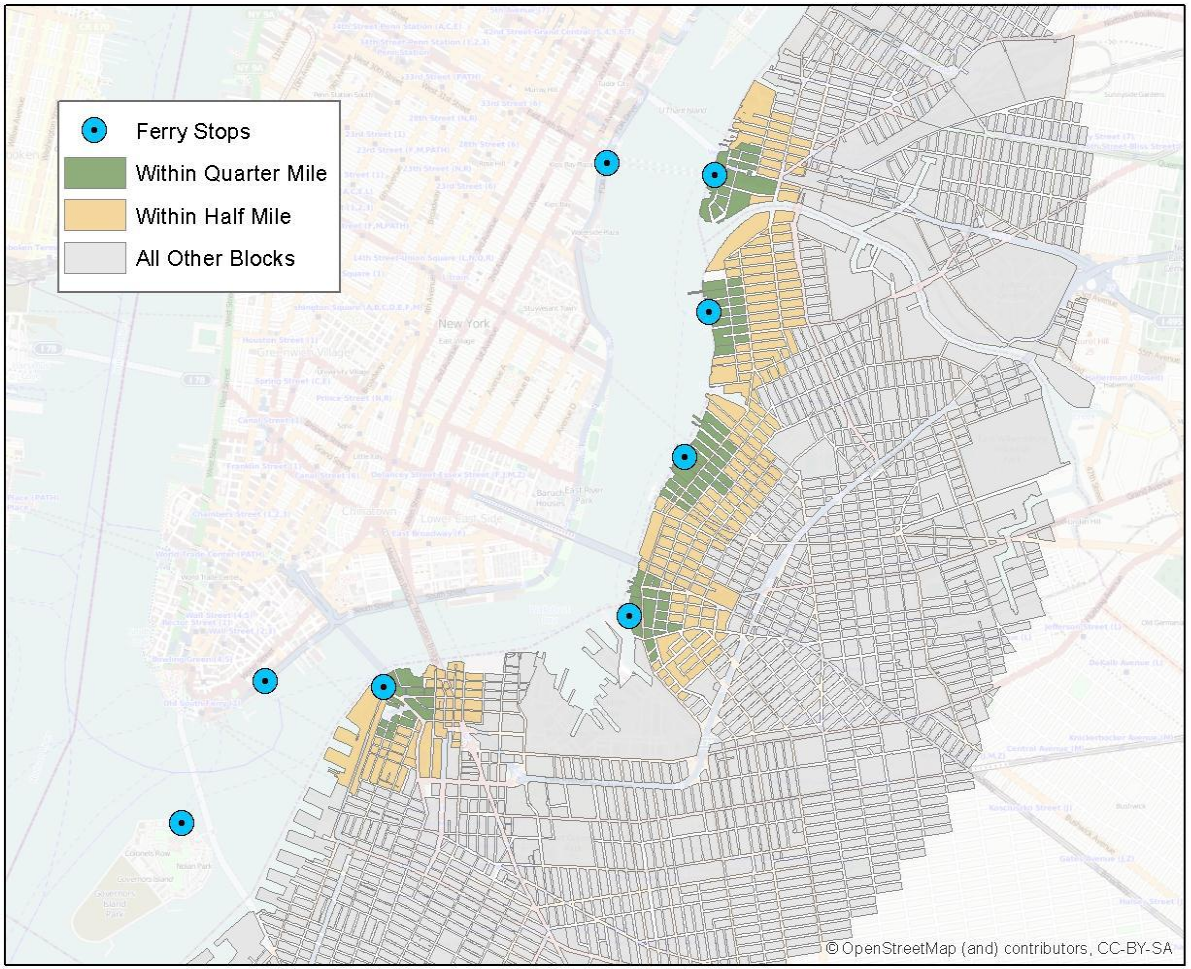
Ferry Stop Location Considerations: Economic Development Potential

The East River Ferry induced measurable economic development in Brooklyn and Queens.

The **East River Ferry** catalyzed real estate growth in Brooklyn and Queens within ¼ mile of ferry stops:

Residential growth: 7.2%
Retail growth: 4.2%
(Increase in real estate SF in the 3 years after ferry service began, 2010-2012.)

Housing values in Brooklyn and Queens within 1/8 mile of ferry stops grew by **8%**.



Source: 2013 Comprehensive Citywide Ferry Study

Project: Ferry Service Enhancements

CDBG-DR Eligibility Considerations

- Subsidies for operations and maintenance **may not be eligible** for CDBG-DR funding
- To be eligible, need to at least need to prove that the service can be **self sufficient within two years**
- Need to articulate benefits for resiliency / how the ferry meets an "urgent community need"

Project: Ferry Service Enhancements

Things to Discuss/Decide Today: Key Questions

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- **Where should the ferry stop?**
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- **What is an acceptable fare?**

- How much of the $3 million CDBG-DR allocation should be prioritized for ferry enhancements?
- What can $3 million accomplish?
- Is this a priority or featured project?

Waterfront Activation / Revitalization Project

Project: Waterfront Activation / Revitalization

Things to Discuss/Decide Today: Key Questions

- **What type of project?**
  - A study
    - What are the goals of the study?
    - is a study the right use of NY Rising funds?
  - Individual pilot "activation" project
    - What is the fundable capital project?
- **What other plans, projects, and places should it engage?**
  - Brooklyn Greenway Route
  - Existing Maritime uses & active piers
  - Planned Integrated flood protection
- **Should there be a focus on particular locations?**
  - Atlantic Basin
  - Valentino Pier
  - Fairway
  - New development / Potential development sites

Project: Waterfront Activation / Revitalization

Type of project: Waterfront Activation & Investment Study

Considerations

- Goals & purpose of the study: what will we get out of it?
- Geographic focus of the study
- Actual ost will be dependent on the scope of the study

Pros

- Less expansive
- can work in partnership with other initiatives, both NY Rising and other
- Plans and principles could

Cons

- may be perceived as "just another study"
- Red Hook has been "studied" a great deal
- Is not currently a clear implementer
- May be difficult to justify for NY Rising funding – lacks direct connection to resiliency

Project: Waterfront Activation / Revitalization

Type of project: Pilot "Activation" Project

Considerations

- Goals of the project
- Program / Activities
- Location
  - Atlantic Basin
  - Velentino Pier
  - Fairway

Pros

- Would "put a project on the ground"
- capital project may be more easily fundable than a study

Cons

- Need access & permission to potential sites
- Capital investment could be quite costly
- Temporary / programmatic only interventions might not be eligible
- May be difficult to justify for NY Rising funding – lacks direct connection to resiliency

Project: Waterfront Activation / Revitalization

Complementary Initiatives: Brooklyn Waterfront Greenway

2.3.3 RED HOOK RECOMMENDED ROUTE

Red Hook Waterfront Recommendation Summary/Discrete Capital Projects

(11) **Columbia Street Greenway Upgrade**

Columbia Street between Atlantic Avenue and Degraw Street – Class 1 – Landscape existing sidewalk path

Degraw Street between Columbia Street and Van Brunt Street – Class 1 – Widen, landscape and extend existing path to Van Brunt Street

(12) **Atlantic Basin Connector**

Van Brunt Street between Degraw Street and Hamilton Avenue – Class 1 – New two-way shared-use path

Summit Street between Van Brunt Street and Imlay Street – Class 1 – New two-way shared-use path

Imlay Street between Hamilton Avenue and Bowne Street – Class 1 – New two-way shared-use path

(13) **Atlantic Basin**

Bowne Street from Imlay Street to Commerical Wharf – Class 3 – Designated bicycle route with shared lane markings, or
Alternative: Imlay Street between Bowne Street and Verona Street – Class 1 – New two-way multi-use path

Commercial Wharf from Bowne Street to Pioneer Street – Class 1 – New two-way shared-use side path

(14) **Valentino Pier Connector**

Conover Street between Pioneer Street and Beard Street – Class 3 – Designated bicycle route with shared lane markings, or
Alternative: Ferris Street between Pioneer Street and Valentino Pier– Class 3 – Designated bicycle route with shared lane markings

Beard Street between Conover Street and Dwight Street – Class 3 – Designated bicycle route with shared lane markings

(14a) ***Future Enhancement Project: Buttermilk Channel Waterfront and Fairway Erie Basin Waterfront***

(15) **Erie Basin Park Greenway Upgrade**

Erie Basin Park (Continuous Park Property) between Dwight Street and Gowanus Industrial Park – Class 1 - Upgrade of existing facilities

(16) **Columbia Street Extension (Next to Ikea)**

Columbia Street between Ikea Path and Halleck Street – Class 1 – New two-way shared-use side path with landscape

(17) **Red Hook Recreation Area**

Halleck Street between Columbia Street and Court Street – Class 1 – Upgrade existing and create new off-street two-way shared-use paths

(18) **Smith Street Connector**

Halleck Street between Court Street and Smith Street – Class 1 – New two-way shared-use side path

Smith Street between Halleck Street & Gowanus Expressway – Class 1 – New two-way shared-use side path

2.3.4 RED HOOK INLAND CONNECTORS

Inland Connectors ←- - - - - - →

Kane & Congress Streets: Existing bicycle lanes; Connects to Cobble Hill and Carroll Gardens neighborhoods/retail

Van Brunt Street: Vibrant commercial street and pedestrian crossing ; Connects to Red Hook neighborhood/retail

Court & Smith Streets: Existing shared lane markings; Connects to Red Hook Recreational Area

RED HOOK RECOMMENDED ROUTE MAP

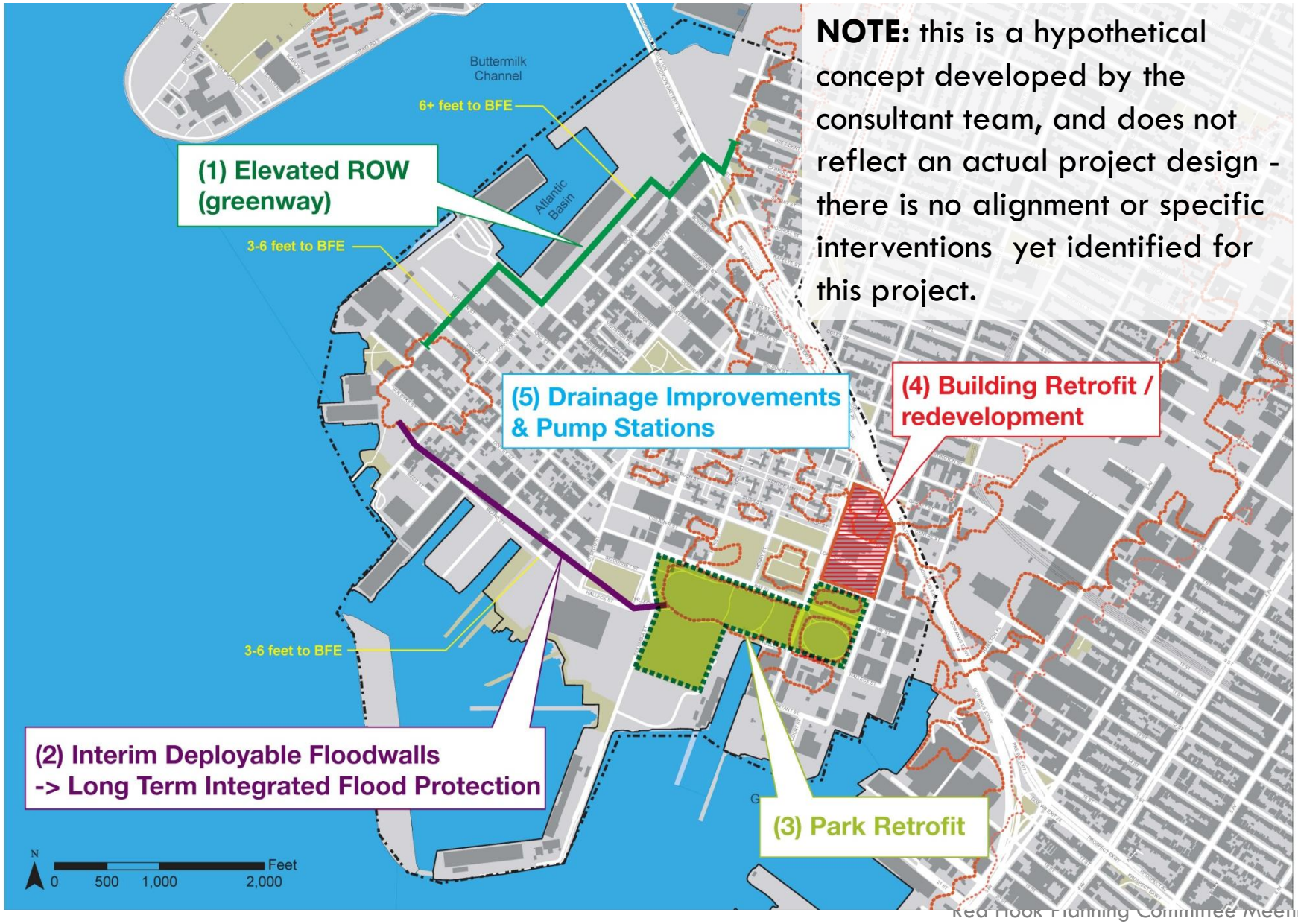
Project: Waterfront Activation / Revitalization

Complementary Initiatives: Brooklyn Waterfront Greenway

- As Greenway gets built-out, what activities might help activate the spaces?
  - Recreational resources
  - Educational information / resources
  - Information about the neighborhood and waterfront / maritime activity
- Key Questions
  - How does this tie to resiliency?

Project: Waterfront Activation / Revitalization

Complementary Initiatives: Integrated Flood Protection



NOTE: this is a hypothetical concept developed by the consultant team, and does not reflect an actual project design - there is no alignment or specific interventions yet identified for this project.

Project: Waterfront Activation / Revitalization

Complementary Initiatives: Integrated Flood Protection

- As Integrated flood protection is planned, designed and built-out, how might different programs / design activate the space?
  - Pilot integrated flood protection projects
  - Combine new development with flood protection
  - Waterfront access / destination points
  - Emergency gathering places / evacuation routes

- Tied to resiliency through physical relationship with integrated flood protection

SOUTHWEST BROOKLYN WATERFRONT STUDY

THE PORT AUTHORITY OF NY & NJ

DREDGED MATERIALS & CLIMATE CHANGE PILOT PROJECT: Technology, Applications and Demonstration Project - Phase 1

November 2013

Introduction:
The Port Authority of New York & New Jersey (PANYNJ) is exploring the beneficial reuse of dredged materials in ways that are not only environmentally sustainable but also proactive about climate change through the Dredged Materials & Climate Change Pilot Project. During the first phase, the pilot is aimed at 1) analyzing state-of-the-art technologies for the reuse of dredged materials, 2) evaluating a range of possible applications that could help address climate change, and 3) proposing a future demonstration project on SW Brooklyn's waterfront.

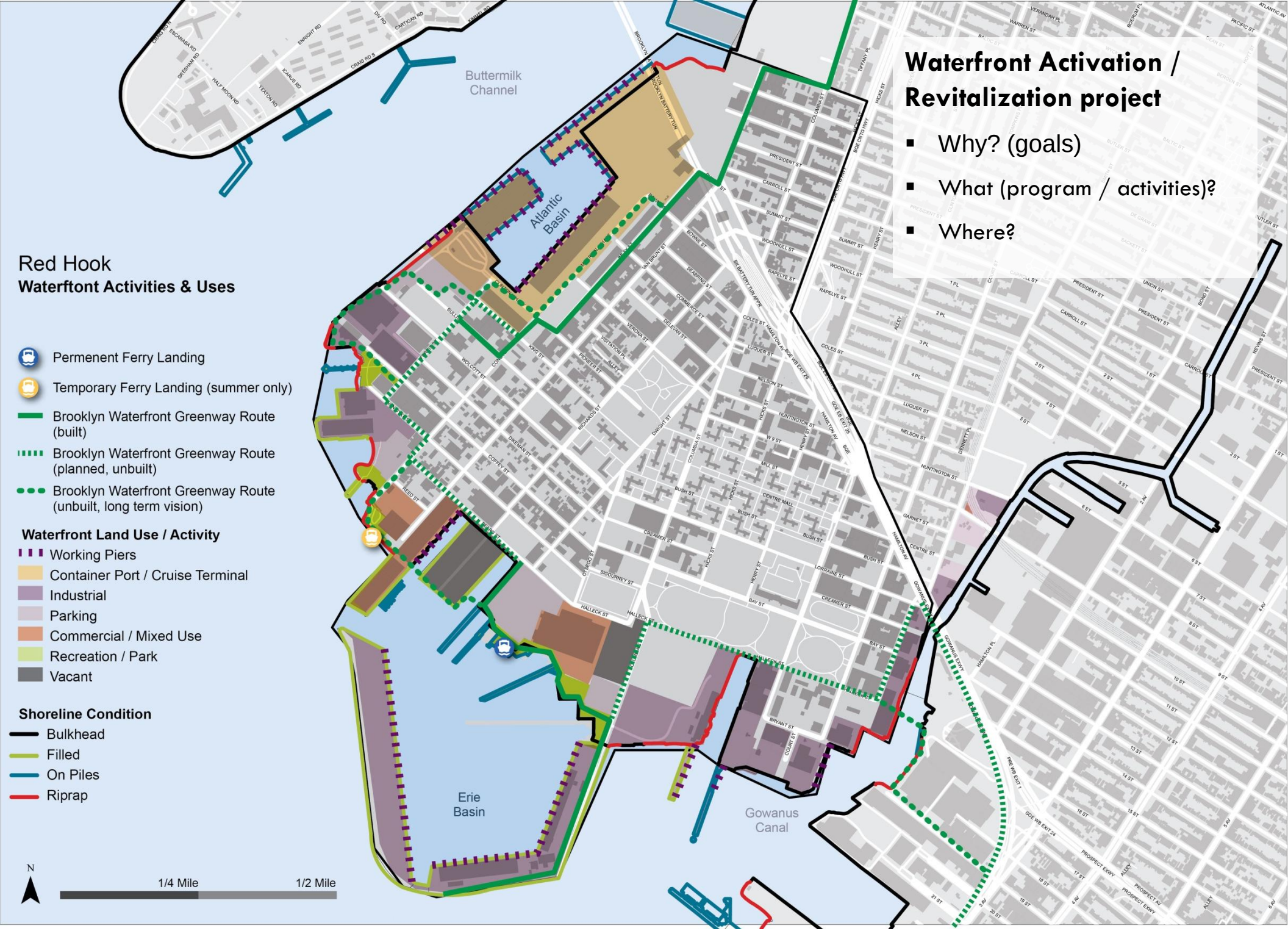
Background:
Both active and inactive port areas are facing increased risks from climate change in terms of rising sea levels, more frequent and severe storms, and increasing water/air temperatures. Given their proximity to shipping channels, former port areas are a logical place to target for the handling and reuse of dredged materials.

The PANYNJ is now playing a significant role by bringing together the visionary thinking found at *Rising Currents*, an exciting MoMA exhibit that envisioned creative responses to climate change around New York City's Upper Bay, with regional knowledge about dredging and disposal of dredged materials. The opportunity is to apply the resulting innovations in ways that will make a realistic and feasible contribution to our evolving understanding of how to address the threats from climate change on our waterfronts.

Area inundation and surge heights
Source: FEMA MOTF 11/6, A Stronger, More Resilient New York, PlaNYC, 2013

Harbor Zones, Upper Bay, New York and New Jersey
Source: On the Water/Palisade Bay, by Nordenson, Seavitt, Yarinsky, 2010

Dredge boats in New York Harbor
Source: PANYNJ


Waterfront Activation / Revitalization project
Why? (goals)
What (program / activities)?
Where?
Red Hook
Waterftont Activities & Uses
Permenent Ferry Landing
Temporary Ferry Landing (summer only)
Brooklyn Waterfront Greenway Route (built)
Brooklyn Waterfront Greenway Route (planned, unbuilt)
Brooklyn Waterfront Greenway Route (unbuilt, long term vision)
Waterfront Land Use / Activity
Working Piers
Container Port / Cruise Terminal
Industrial
Parking
Commercial / Mixed Use
Recreation / Park
Vacant
Shoreline Condition
Bulkhead
Filled
On Piles
Riprap
Buttermilk Channel
Atlantic Basin
Erie Basin
Gowanus Canal
N
1/4 Mile
1/2 Mile