

Jersey City Environmental Resources

2015

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Finally, we would like to acknowledge Peter Basso who originally suggested this project.

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Table of Contents

Map	Page
1 Hydrology	3
2 Geology	5
3 Soils and Fill	7
4 Land Use	9
5 Habitat	11
6 Historic Highlights	13
7 Historic Districts and Sites	15
8 Green Infrastructure	17
9 Population Tables and Graphs	19
10 Neighborhood	21
11 Diversity	23
12 Parks and Open Space	25
13 Street tree Density	27
14 The Arts	29
15 Public Transportation	31
16 Schools	33
17 Combined Sewer Overflow Sites	35
18 Landmarks and Paths	37
19 Communications	38
20 Critical Facilities	39
21 Landfills	40
22 Potential pollution sources	41

Jersey City is in New Jersey's Watershed Management Area 5 and within four sub watersheds:

Hackensack River,

Hudson River,

New York Bay, and

Newark Bay.

This map shows many petroleum cleanup sites located around the water's edge as well, as previously talked about how many sites along this area were contaminated.

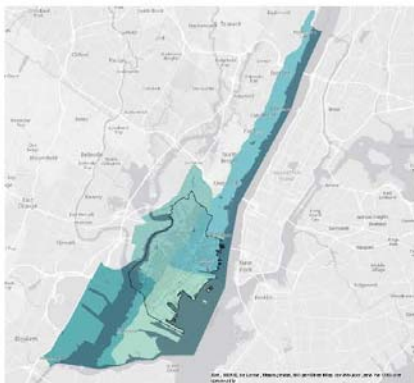
By understanding the hydrology, alternatives to reduce the impacts of Combined Sewer Overflows.

JERSEY CITY ENVIRONMENTAL RESOURCE INVENTORY

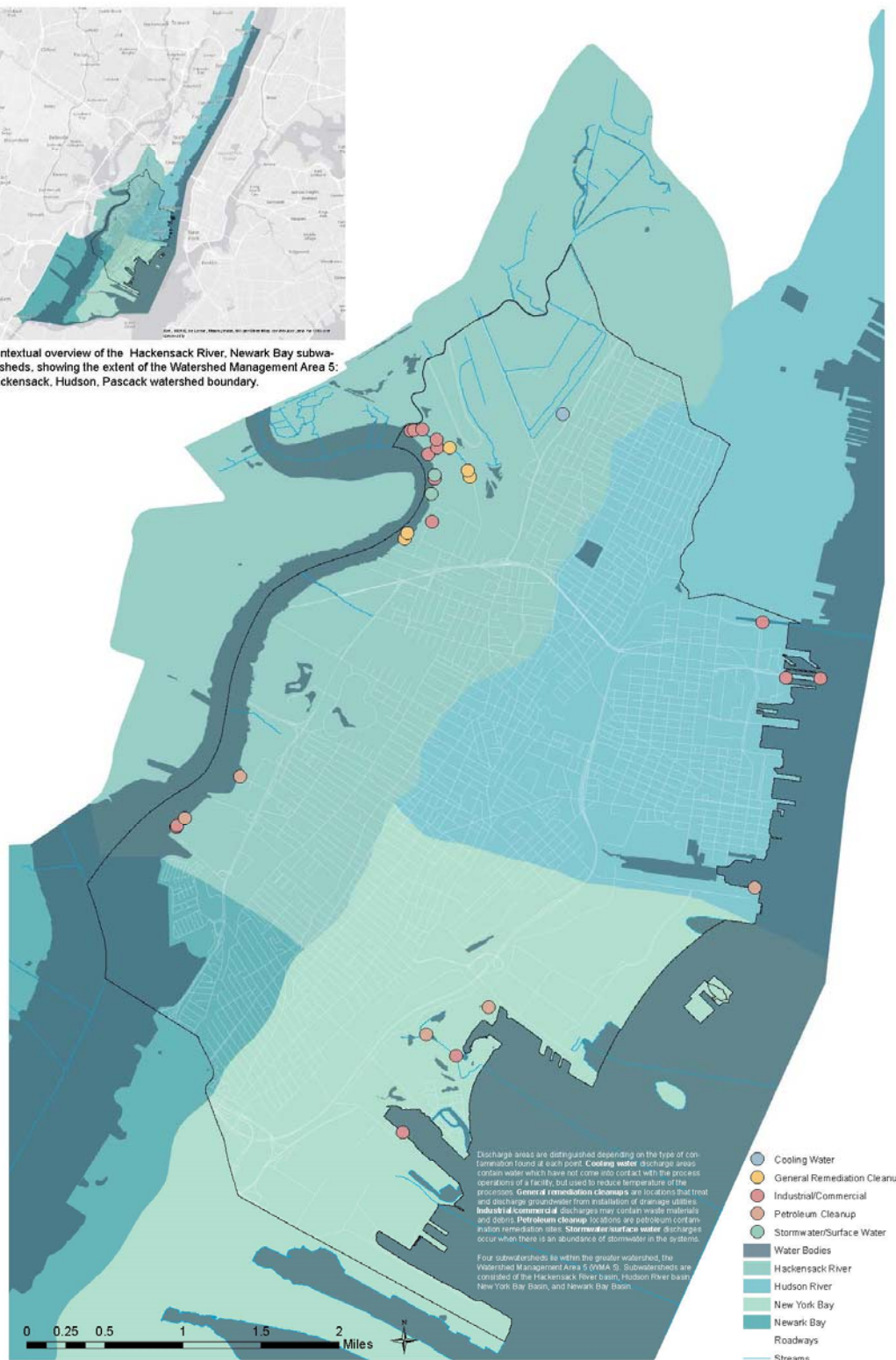
NATURAL CONTEXT HYDROLOGY

Alexis Schenker / Christie Saliba / Karina Livshits

October 2014



Contextual overview of the Hackensack River, Newark Bay subwatersheds, showing the extent of the Watershed Management Area 5: Hackensack, Hudson, Pascack watershed boundary.

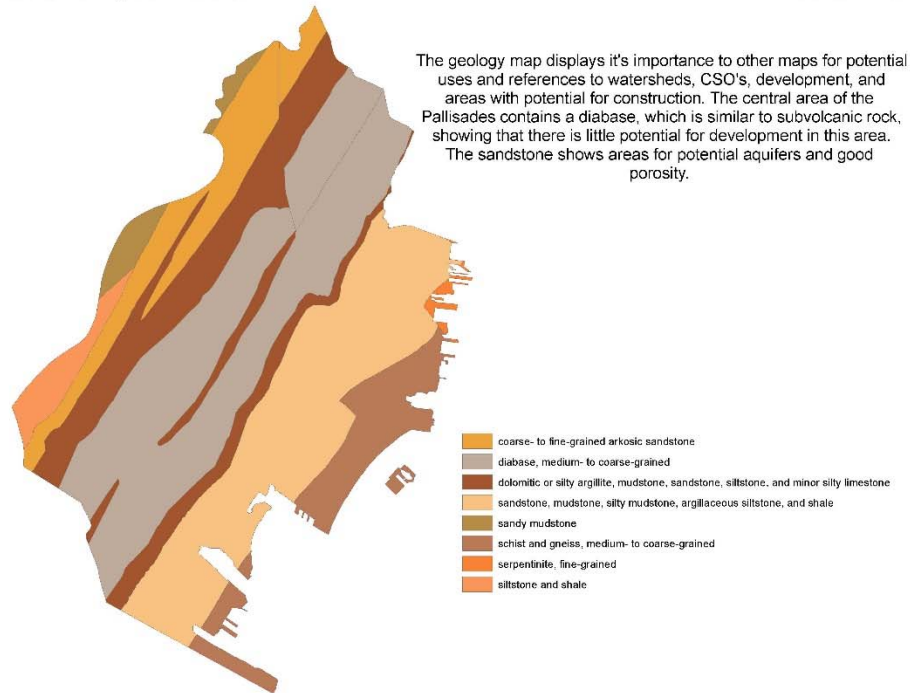


<Hydrology> provided by <NUDEP>
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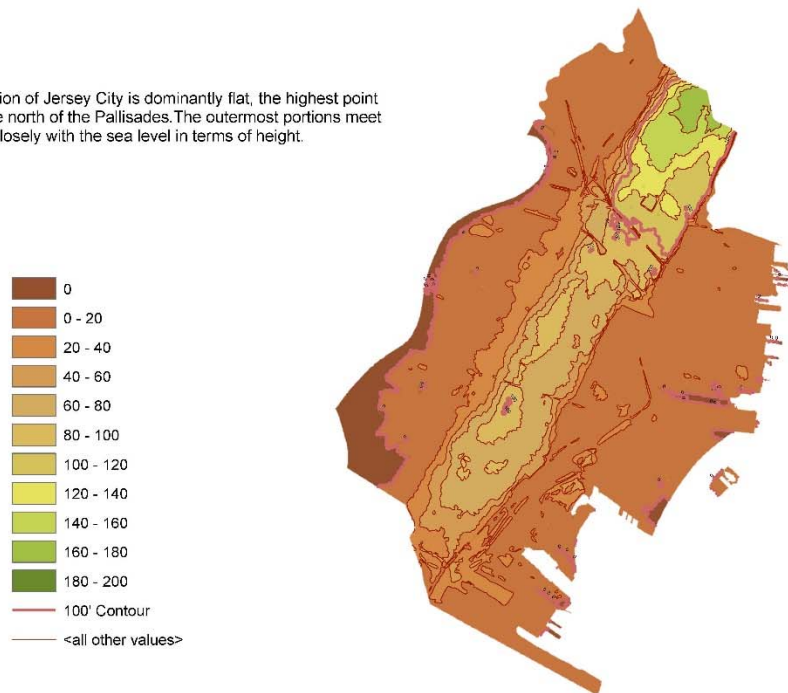
Geology is very important to the physical form of Jersey City.

The diabase that runs through the center which is similar to sub volcanic rock, which composes what we call The Palisades Sill. This area is difficult to build upon because of the very hard character of the bedrock, which is very close to the surface.

The elevation map shows that much of Jersey City is quite flat. Notice how the shape of the gray and dark brown areas, on the geology map, resemble the shape of the highest topography. This is the southern tip of the Palisades - a line of steep cliffs along the west side of the lower Hudson River. It includes the highest point in the city, at about 200 feet.



The elevation of Jersey City is dominantly flat, the highest point being in the north of the Palisades. The outermost portions meet closely with the sea level in terms of height.



0 0.5 1 2 3 4 Miles



<Elevation map> provided by < R:/331_RegionalStudio/Z_BaseData/Elevation.gdb>

<Geology data> provided by < NJDEP >

The significance of the geology information is reinforced by these maps.

The red areas, in the map in the upper left hand corner, show where there has been significant fill added and reminds us that much of Jersey City was wetlands until the industrial age. When we compare the patterns seen in the geology and fill maps, with the soil map, similarities persist.

The soils map is critical in locating wet sub-soils and areas where soils have very low permeability because of high clay content. Some of the areas and soil types with these characteristics are indicated with the red arrows. They are quite common.

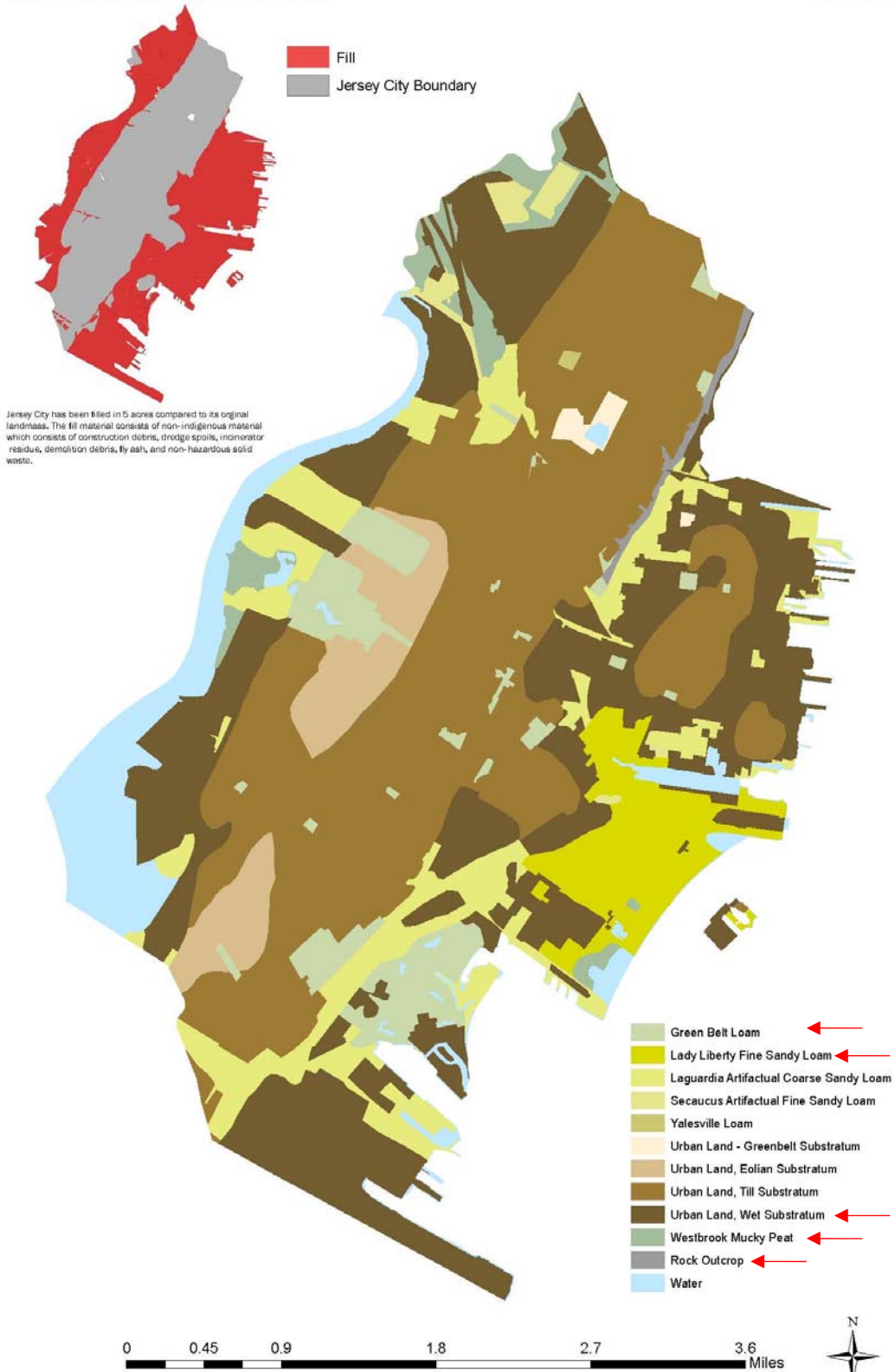
Both of these characteristics can exacerbate stormwater run-off rates that lead to CSO contamination because they indicate surfaces that are not able to absorb rain.

JERSEY CITY ENVIRONMENTAL RESOURCE INVENTORY

NATURAL CONTEXT SOILS AND FILL

Alexis Schenker / Christie Saliba / Karina Livshits

October 2014



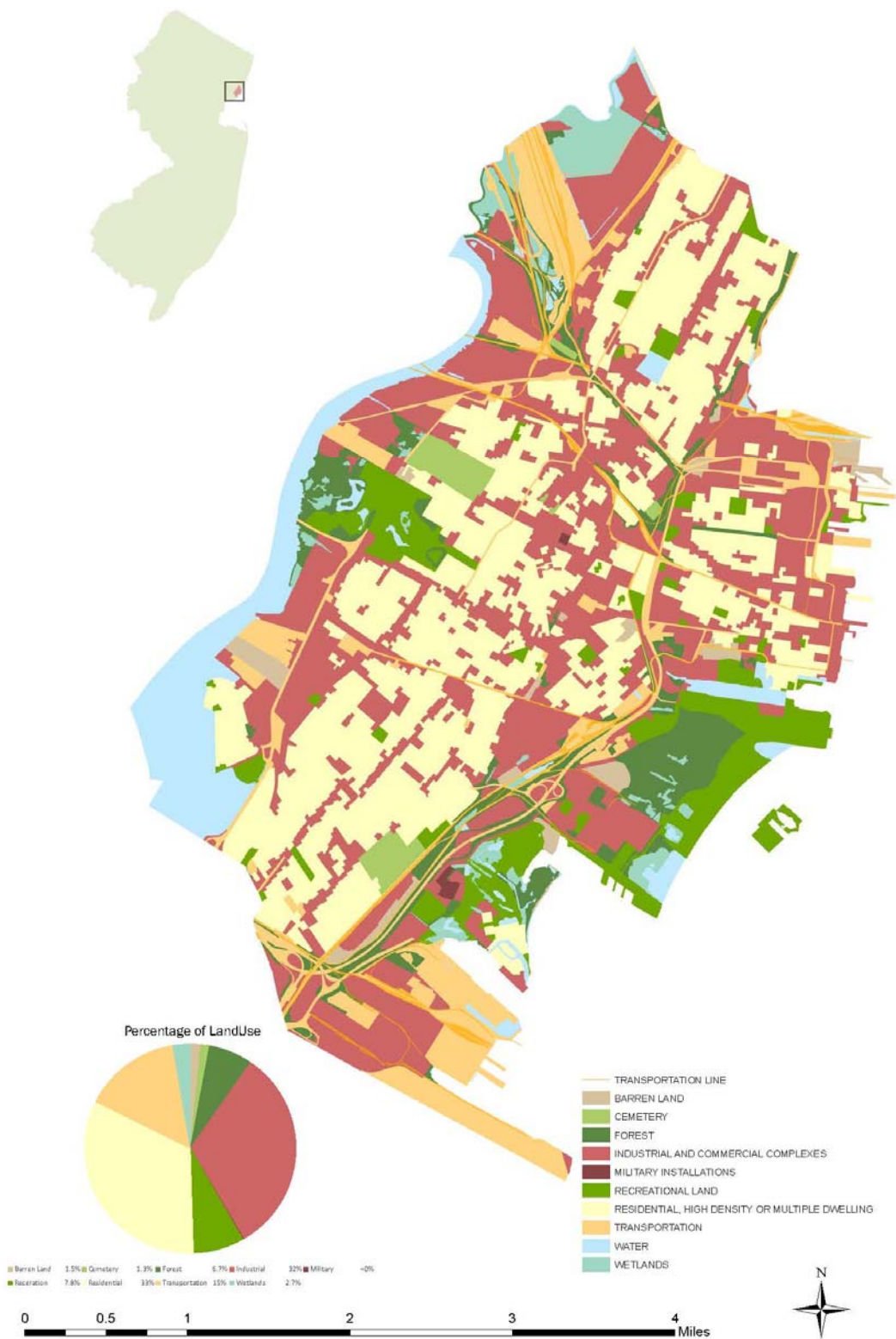
<Soils> provided by <Web Soil Survey>
<Fill> provided by <NJDEP Historic Fill>

This map presents the broad land cover categories, such as forest or residential.

The graph and the map both reflect the fact that residential land use is as common as industrial and commercial land use.

It also shows that land use for transportation covers nearly as much of the city as the combined categories of recreation, forests, and cemeteries.

This is one of several ways of representing the fact that Jersey City is densely built and includes relatively little permeable surface.



This map portrays the birds and fish species found along the waterfront. Some of the species are categorized as endangered. Because the area along the Morris Canal can provide habitat for the endangered species, they are shown in red.

The areas that are wetlands or forested or adjacent to open water tend to be the areas that are likely to support these species, because of habitat quality.

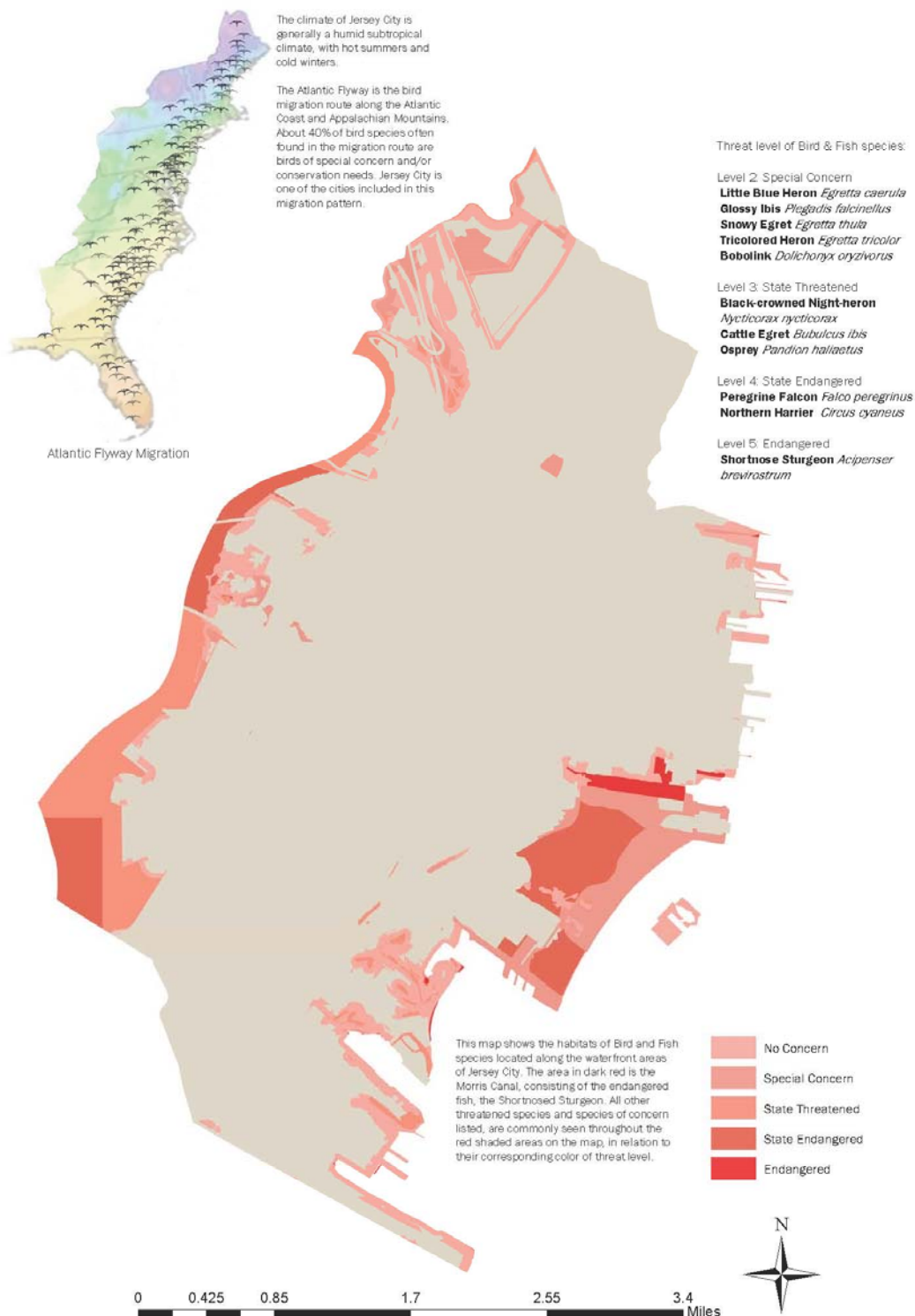
In addition, Jersey City is located along the route for the Atlantic Flyway Migration, showing potential for developing more wetland areas as habitats for these threatened species.

JERSEY CITY ENVIRONMENTAL RESOURCE INVENTORY

NATURAL CONTEXT HABITAT AND CLIMATE

Alexis Schenker / Christie Saliba / Karina Livshits

October 2014



<Atlantic Flyway Migration pattern> provided by <<http://www.ducks.org/conservation/where-we-work/flyways/du-projects-atlantic-flyway>>
 <Atlantic Flyway description> provided by <<http://conservation.audubon.org/atlantic-flyway>>
 <Northeast Region Climate map> provided by <<http://planthardiness.ars.usda.gov/PHZMWeb/#>>
 <Habitat> provided by <NJDEP>

As part of the inventory process, we compiled lists of the sites, monuments, buildings and neighborhoods that have historic significance.

This resource is exceptionally rich and reflect long term and ongoing efforts.

JERSEY CITY ENVIRONMENTAL RESOURCE INVENTORY

HISTORY HIGHLIGHTS OF JERSEY CITY

Amber Betances / Breanna Robles / Michelle Lim

November, 2014



ARMBRUSTERS GREENVILLE SCHUETZEN PARK ca.1875

Jersey City is full of wonderful historical elements. Whether they are houses, methods of transportation, buildings, or areas of land, all of these historical monuments add character. Some of the key, uncommon historical models are shown.

ARMBUSTERS SCHUETZEN PARK

Previously a thriving amusement park, Armbrusters Schuetzen Park is now occupied by a Walgreens and was previously the site for Republic Container. Purchased in 1875, the park was noted for its social and athletic events and outings. The park was located along Kennedy Boulevard, between Gates and Seaview Avenues.



PAULUS HOOK FROM HARSIMUS FROM IN 1890

CAR AND PASSENGER ELEVATOR

Car and passenger elevators were well used during the late 1800s. They were used to carry both cars and their drivers up or down from varying steep heights where roads were practically impossible to drive on.

JOURNAL SQUARE

Before it became a commercial district, Journal square was the site of many farmhouses and manors. The square was created in 1923 when the newspaper company *Jersey Journal* established itself in the area. Currently Jersey City is undergoing much redevelopment.



4th REGIMENT OF NATIONAL GUARD ca.1869

PAULUS HOOK

Paulus Hook is currently one of the most desirable neighborhoods in Jersey City. It was colonized in 1633 and was a prime location during the American Revolution.

FOURTH REGIMENT ARMORY

Located at 678 Montgomery Street near McGinley Square, the Fourth Regiment Armory burned down in 1927. It was replaced by the Jersey City Armory ten years later, and is now a military training and mustering facility.



LOYAL ORDER OF THE MOOSE CLUBHOUSE

JERSEY CITY MEDICAL CENTER

Renamed in 1885 as the Jersey City Hospital, it has expanded and has been renovated. In 1988 it was declared bankrupt and became a private, non-profit organization.

LOYAL ORDER OF MOOSE

Founded in 1888, the Loyal Order of Moose is a fraternal and service organization, with Lodge 266 found in Jersey City.

PATERSON PLANK ROAD

A road that runs through Passaic, Bergen, and Hudson Counties, Paterson Plank Road connects Paterson and the Hudson River waterfront, which still exists. It has largely been superseded by Route 3.



ST. DOMINIC'S ACADEMY ca.1878

ST. DOMINIC ACADEMY

St. Dominic Academy is a private college-preparatory for girls. The school was founded in 1878 with the objective to educate children of immigrants, primarily German.



CAR AND PASSENGER ELEVATOR ca. 1873



JOURNAL SQ. ca. 1940



JERSEY CITY MEDICAL CENTER ca. 1932



PATERSON PLANK RD. ca. 1908

PHOTOS AND INFORMATION PROVIDED BY: JERSEY CITY LIBRARY NEW JERSEY ROOM
PHOTOS AND INFORMATION PROVIDED BY: SPECIAL COLLECTIONS AND UNIVERSITY ARCHIVES, RUTGERS UNIVERSITY LIBRARY

We can see a relationship to historic settlement patterns and landfilling to geology and early topography in the distribution of historic neighborhoods, parks, and landmarks.

In many ways, Jersey City retains a rich record of their history

their landmarks represent culture and industry
the positions and local patterns of residential districts indicate distinct periods of growth
their places of worship catalogue the cultures of their immigrants

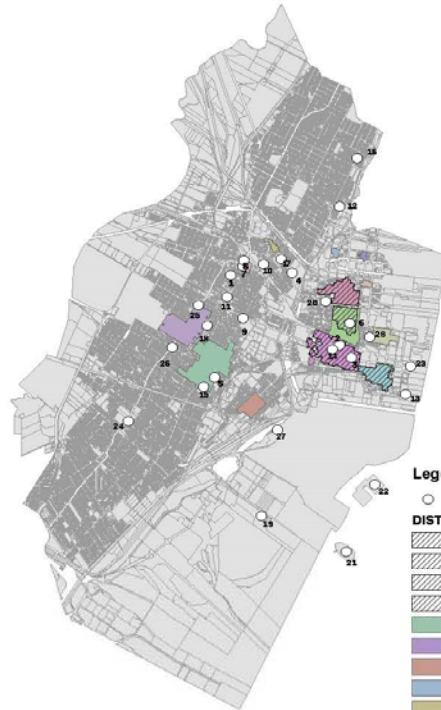
This is a very valuable element among their environmental resources. Efforts to protect and energize this resources must continue and grow, in order to retain the rich diversity and character of the city.

JERSEY CITY ENVIRONMENTAL RESOURCE INVENTORY

HISTORY DISTRICTS AND SITES

AMBER BETANCES / BREANNA ROBLES / MICHELLE LIM

October 2014



Legend

○ Historic Landmarks

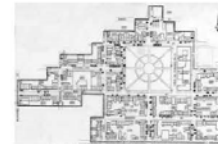
DISTRICT

- Hamilton Park Historic District
- Harsimus Cove Historic District
- Paulus Hook Historic District
- Van Vorst Park Historic District
- Bergen Hill
- Colgate
- Communipaw Lafayette
- Continental Can
- Five Corners
- Hamilton Park
- Harsimus Cove
- Journal Square
- Lembeck Betz Brewery
- Paulus Hook
- St. Lucy's
- Van Vorst Park
- Warehouse Historic Dist
- West Bergen
- Parcels of Land



0 0.5 1 2 Miles

CURRENT HISTORIC DISTRICTS



Hamilton Park - Jan. 25, 1979

Located in the Downtown area, Hamilton Park is centered around a park of the same name. It is located around 6th, 7th, 8th, and 9th streets at Hamilton Park. It was added to the National Register of Historical Places in 1979.



Harsimus Cove - Dec. 9, 1987

A neighborhood within Downtown, Harsimus Cove includes portions of Jersey Ave., Bay, Cole, Erie, First, Second, Third, Fourth, and Fifth streets, as well as Manila Drive. This area was greatly transformed by the



Paulus Hook - June 21, 1982

This waterfront community consists of portions of York, Grand, Sussex, Morris, Essex, Greene, Washington, Warren, and Van Vorst streets or avenues. This area played an important part in the American Revolution in 1776.



Van Vorst Park - March 5, 1980

This historic area is roughly bounded by Mercer, Wayne, Montgomery, Grove, Bright, Varick, and Morris streets, with a boundary increase in 1984. The neighborhood consists of nineteenth century rowhouses and brownstones. Many streets have the names of American Revolution military figures.

EXISTING HISTORICAL SITES



1. **APPLE TREE HOUSE**
298 ACADEMY STREET
1688



2. **DR. WILLIAM BARROW/MANSON**
83 WAYNE STREET
1860 - 1862



3. **JERSEY CITY CITY HALL**
280 GROVE STREET
1896



4. **WILLIAM L. DICKINSON HIGH SCHOOL**
2 PALSADE AVE
1906



5. **FICKEN'S WAREHOUSE**
765 GRAND STREET
1910



6. **GRACE VAN VORST CHURCH**
39 ERIE STREET
1853



7. **LABOR BANK BUILDING**
26 JOURNAL SQUARE
1928



8. **LOEWS JERSEY THEATRE**
54 JOURNAL SQUARE
1929



9. **JERSEY CITY MEDICAL CENTER**
50 BALDWIN AVE.
1882



10. **NEWKIRK HOUSE**
530 SUMMIT AVE
1690



11. **OLD BERGEN REFORMED CHURCH**
797 BERGEN AVE
1841



12. **POHLMAN'S HALL**
154 OODEN AVE
1884



13. **PROSPECT HALL**
END OF ESSEX STREET
1807



14. **JERSEY CITY PUBLIC LIBRARY**
472 JERSEY AVE
1891



15. **ST. PATRICK'S CHURCH**
492 BRAMHALL AVE
1891



16. **VAN VORST HOUSE**
531 PALSADE AVE
1740



17. **WILLIAM F. BRENNAN COURTHOUSE**
578 NEWARK AVE
1910



18. **Y.M.C.A.**
654 BERGEN AVE
1925



19. **LIBERTY STATE PARK**
200 MORRIS PESIN DRIVE



20. **ST. ANTHONY OF PADUA R.C. CHURCH**
457 MONMOUTH STREET



21. **STATUE OF LIBERTY**
UPPER NEW YORK BAY
1886



22. **ELLIS ISLAND**
UPPER NEW YORK BAY
Main Building - 1900



23. **EXCHANGE PLACE**
FOOT OF MONTGOMERY STREET



24. **NEW JERSEY CITY UNIVERSITY**
2039 JFK BLVD
1929



25. **FAIRMOUNT HOTEL**
2595 JFK BLVD
1909 - 1912



26. **STANLEY THEATER**
2392 JFK BLVD
1928



27. **LIBERTY SCIENCE CENTER**
222 JERSEY CITY BLVD
1993



28. **GREAT ATLANTIC AND PACIFIC TEA COMPANY WAREHOUSE**
150 BAY STREET
1900

Historical site photographs provided by <http://www.jclandmarks.com/>
Historical district photographs provided by <http://www.cityofjerseycity.org/docu/neighborhoods.shtml>
GIS Map of districts and sites provided by NJDEP

The Jersey City Green Map

(<http://www.greenmap.org/greenhouse/user/1825> & <http://sustainablejc.org/wordpress/jc-green-map/>)

provides a very broad record of open space, markets that sell local products, bike paths, and places that are implementing or developing new sources of energy.













This map used the Jersey City Green Map and resources such as news articles, to document the growing “greenness” of Jersey City.

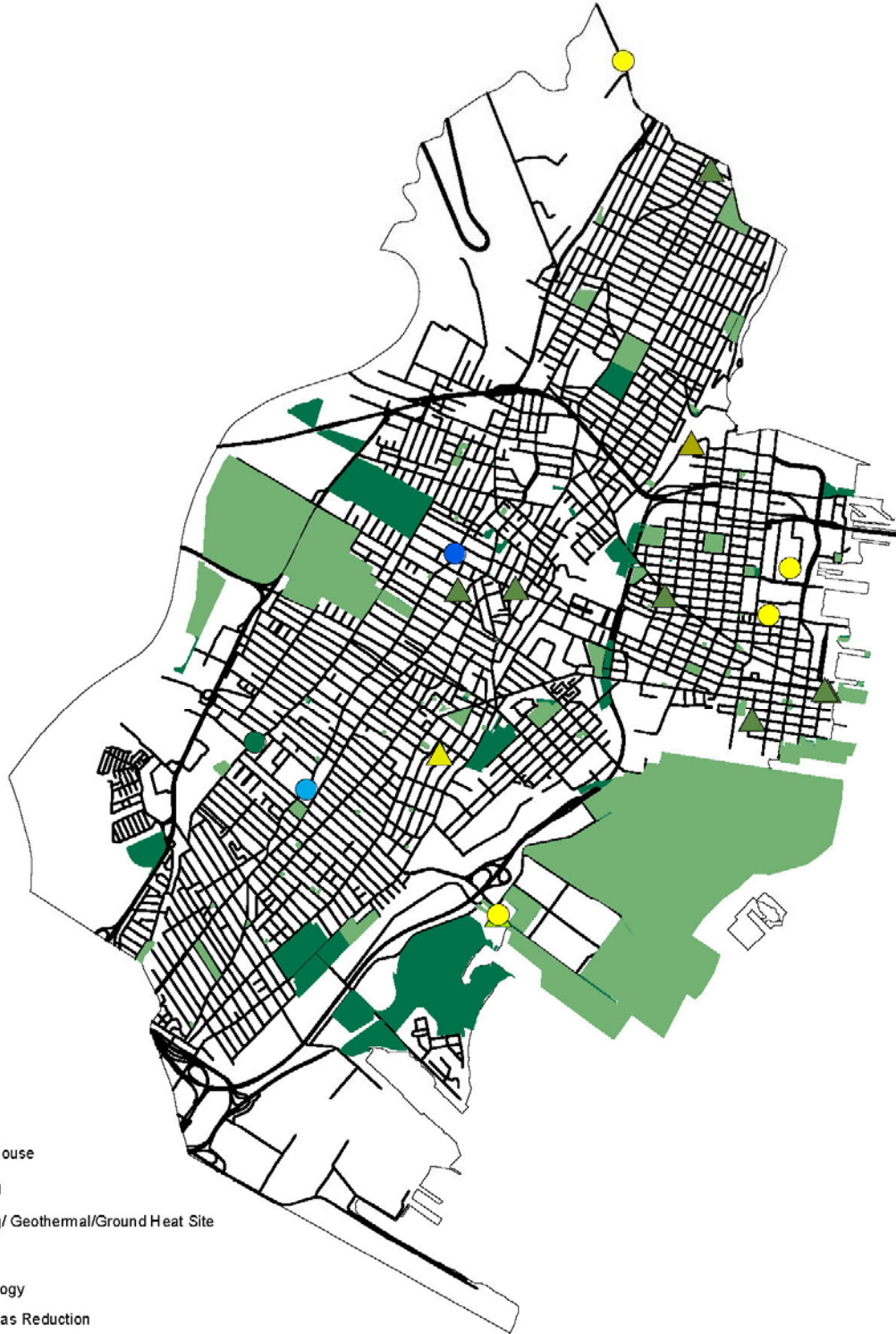
We did not find a record of rich storm water management best practices such as bioswales, rain gardens, treatment wetlands, that would be important to the overall green infrastructure of Jersey City. We propose this as an important area for improvement.

Green Infrastructure

Legend

Category

-  Eco-Friendly House
-  Green Building
-  Green Building/ Geothermal/Ground Heat Site
-  Green Roof
-  Green Technology
-  Greenhouse Gas Reduction
-  Paper Reduction Site
-  Solar Technology
-  Park
-  Open Space
-  Roads
-  Jersey City



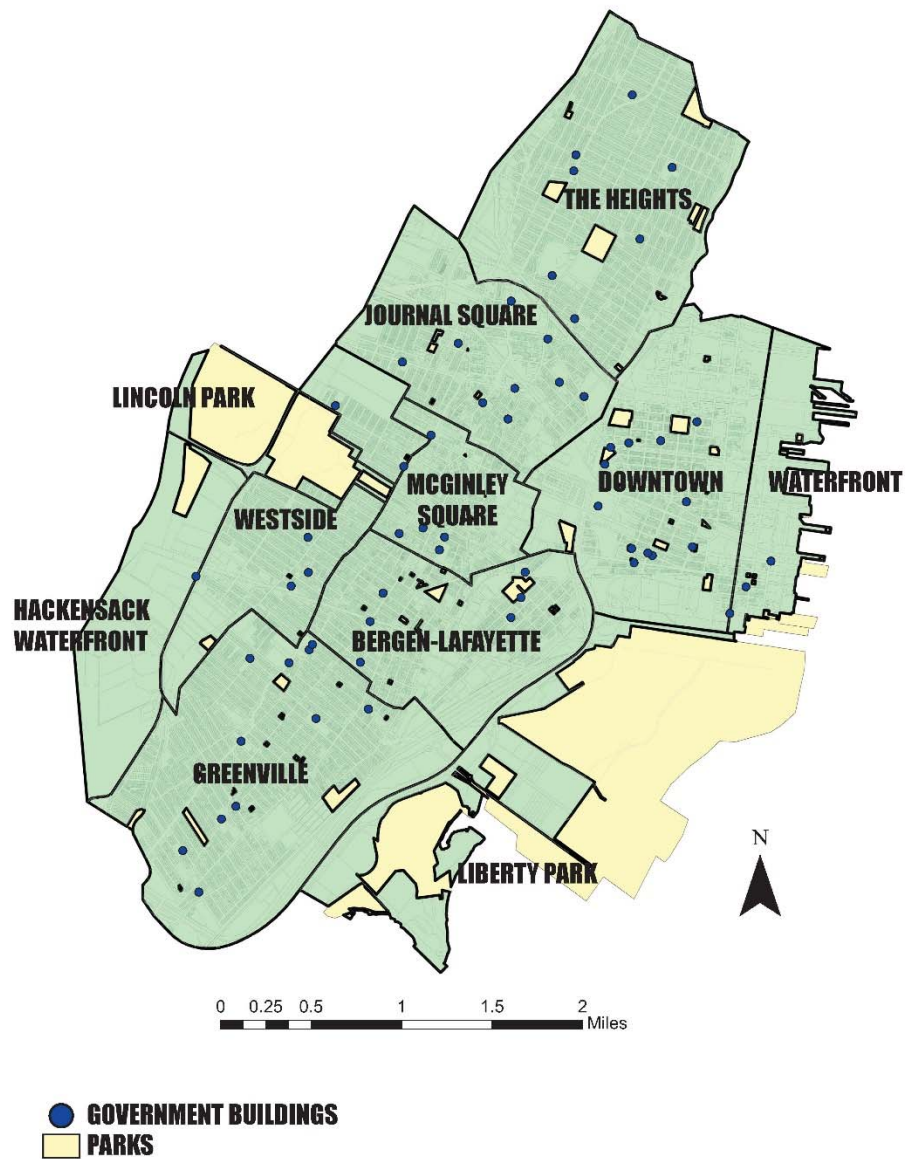
0 0.3250.65 1.3 1.95 2.6 Miles



The environment of a place includes the humans that populate it. Using 2010 census data, we looked at Jersey City by neighborhoods.

We found a number of neighborhood descriptions and boundaries. We chose to use this one because we could associate census data specific to these neighborhoods.

You may notice that major open spaces are shown in yellow. We removed major open spaces when we calculated population densities.



Parcels provided by Jersey City
Roads provided by NJDOT
Neighborhoods provided by Administration and Demographics Team
Buildings provided by Administration and Demographics Team

These graphs summarize information about the population of Jersey City by neighborhood. Each neighborhood is assigned a distinct color, as show at the top of the page.

The first four graphs are common descriptors of population:

- Number
- PerCent of Households where English is spoken
- Median Income and
- Median Age of Head of Household

Remember that a median is the value at which one half of the population is above and one half is below. (It is different than average – an average kind hide poverty if there are a few extremely rich households.)

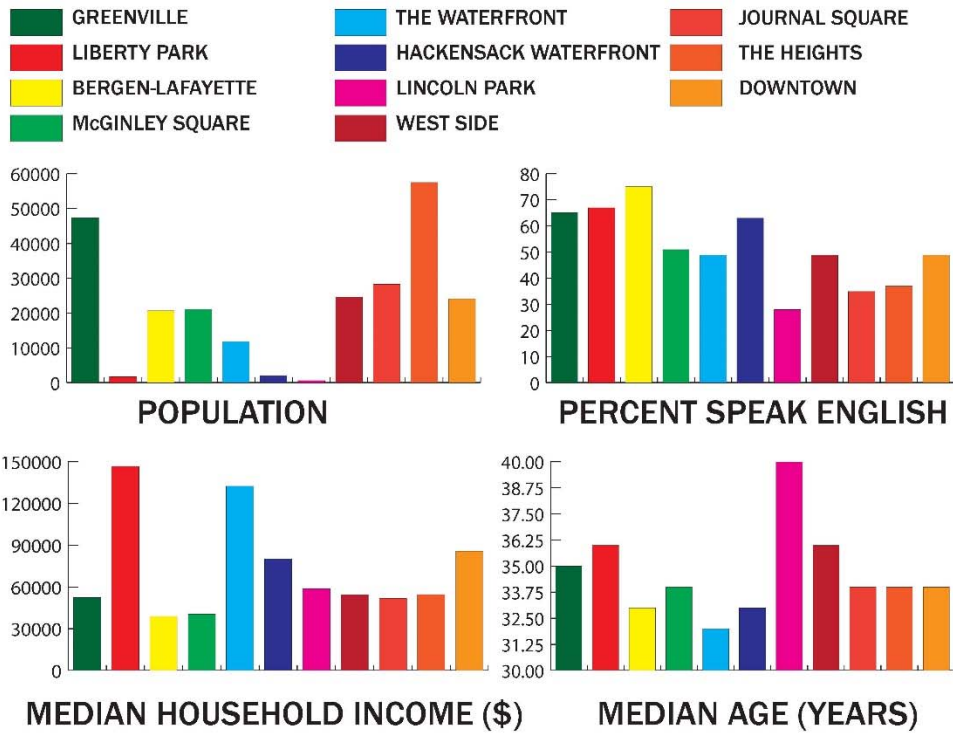
The pie or circle graphs show race information.
(Caucasian is another term for white.)

JERSEY CITY ENVIRONMENTAL RESOURCE INVENTORY

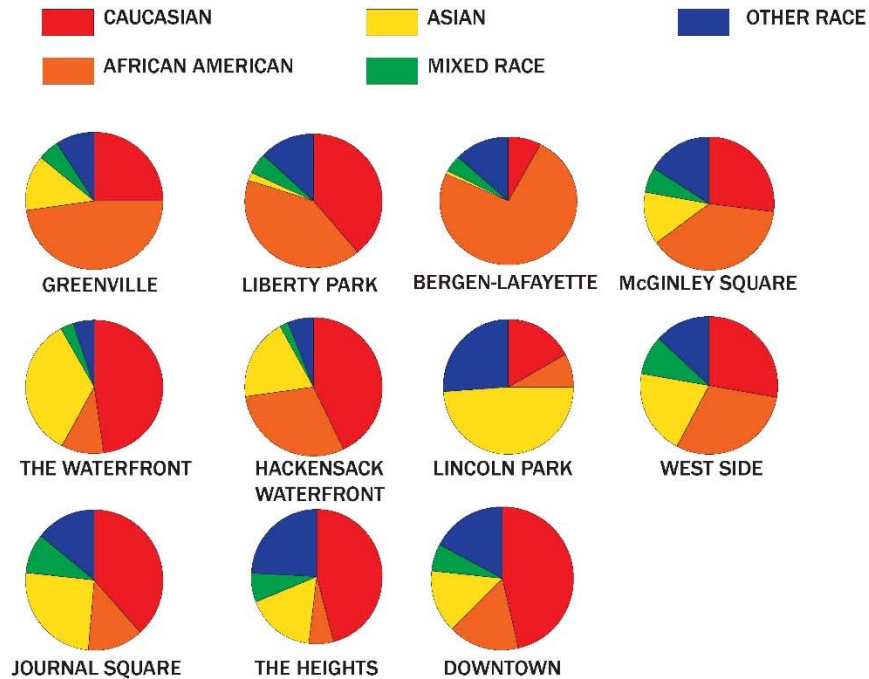
AMINISTRATION AND DEMOGRAPHICS TABLES AND GRAPHS

Matt Bowman / Laura Lindsay / Alex Thesing

November 2014



NEIGHBORHOOD DIVERSITY



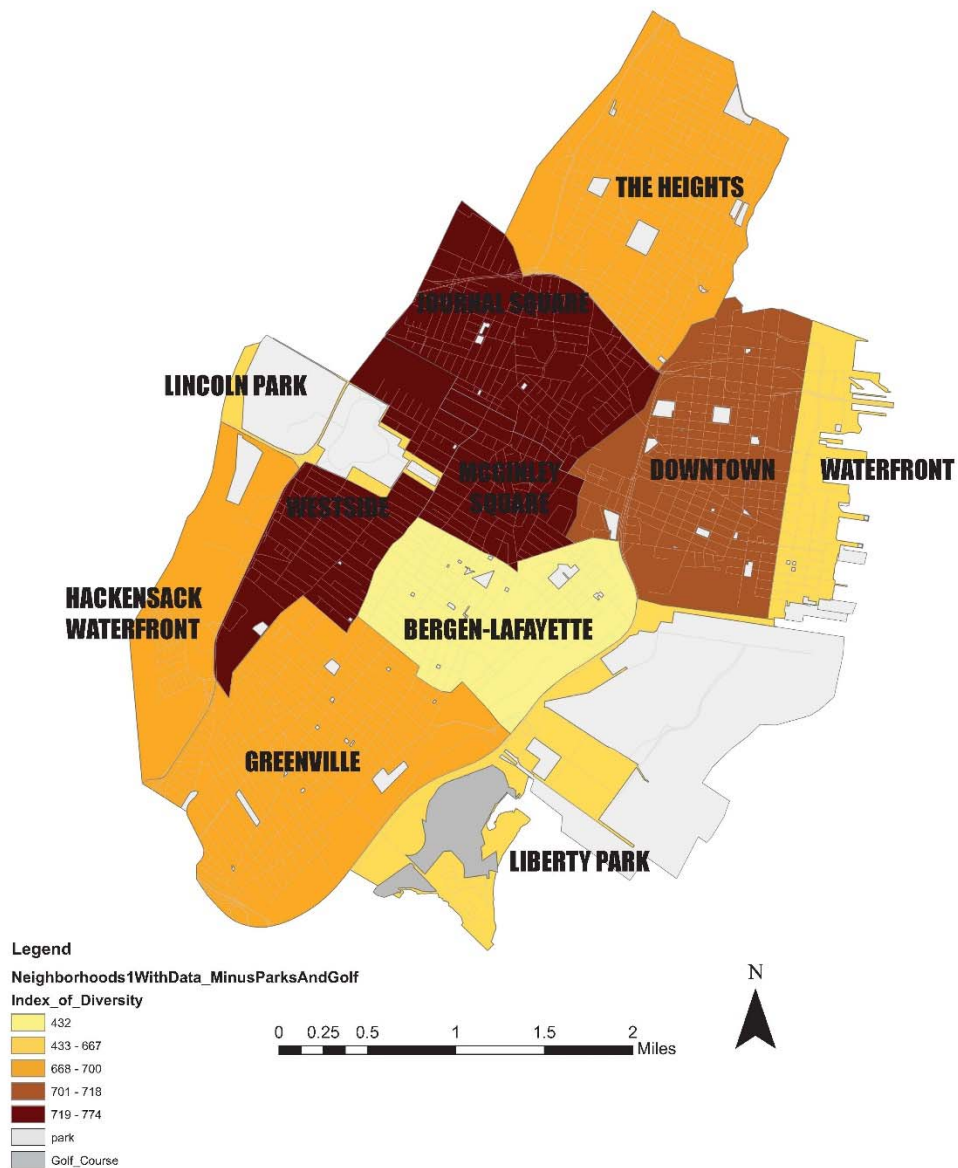
Data provided by US Census
Charts and Graphs provided by Administration and Demographics Group

The proportion of races within a neighborhood is often used as a way of indicating diversity.

We borrowed an information index that is used in ecology to better summarize the diversity data. The index is the Simpson's Index of Diversity. In this case it can be defined as:

a measure of diversity which takes into account the number of races present, as well as the relative abundance of each race. As the number of races and evenness in their proportions increase, so diversity increases.

In this map, the communities that are shown in dark brown have the highest diversity. The neighborhoods with light yellows are strongly dominated by a single race.

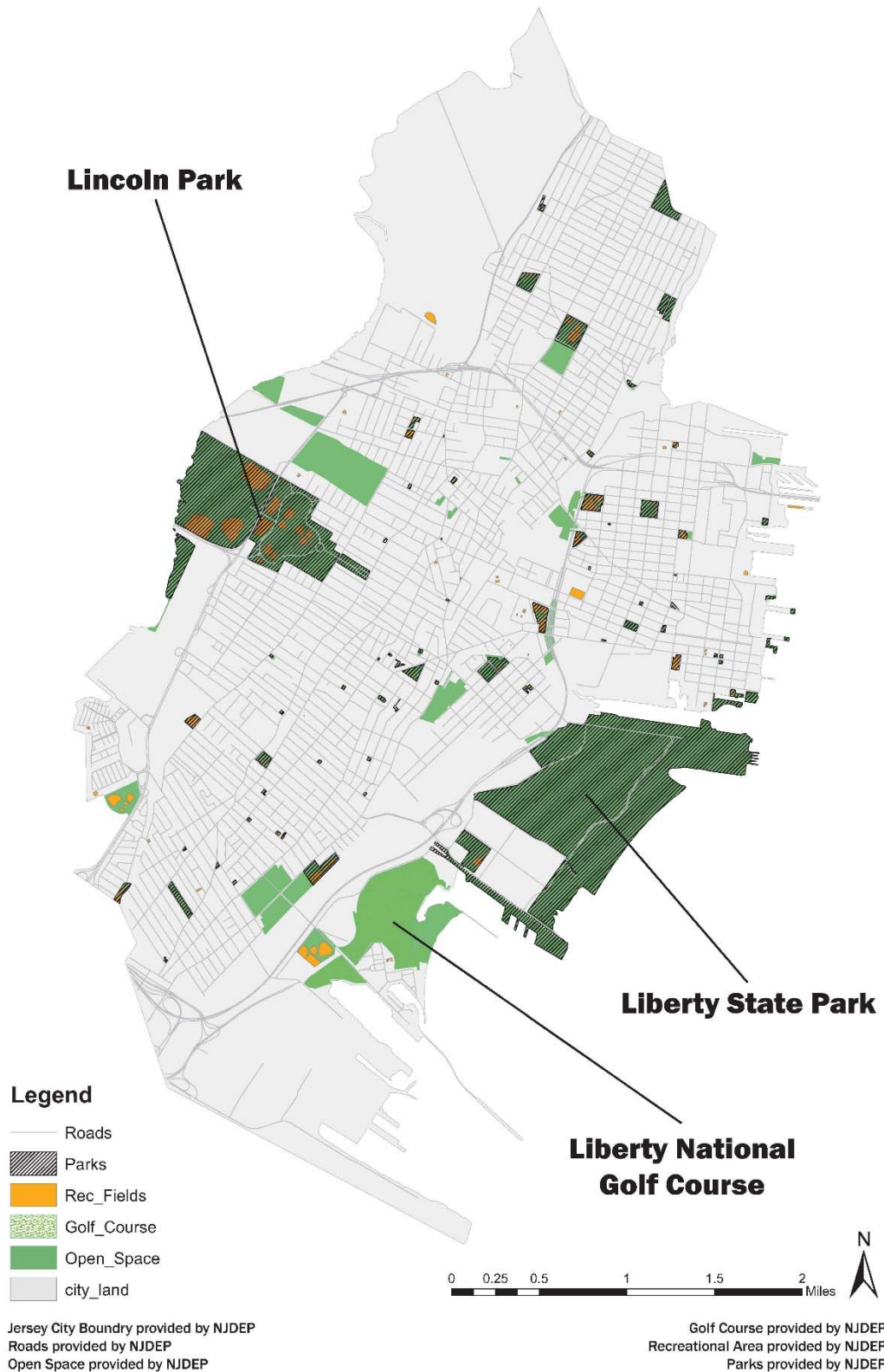


Roads provided by NJDOT
Neighborhoods provided by Administration and Demographics Team
Diversity provided by Simpsons Diversity Index

Parks and open space are often correlated with community health. The presence of large parks like Liberty State Park and Lincoln Park bring over all ratios between population size and acres of park into a good range. That is, in 2011 the Trust for Public Land City Park Inventory found a population:park space ratio showed an average of 2756 people per acre of park. Our current data shows that Jersey City has an above average ratio of about 1600 people per acre of park.

However, neighborhood park space is not readily available to large numbers of residents. Because of the way recreation activities are organized and distributed, we recommend further analysis that includes recreation facilities and neighborhood by neighborhood analysis.

We further encourage Jersey City to re-invigorate its efforts to follow up on the 2008 Parks and Recreation Master Plan or to update the Master Plan to reflect new additions and redevelopment plans.



Street trees are very important in creating the fabric of the urban forest.

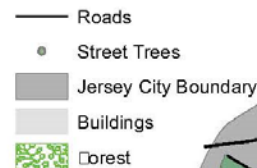
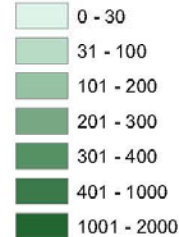
The current work on street trees and tree cover in Jersey City will help identify measureable goals for improvement.

For now, we show density of street trees in Jersey City with this map. Note how the enlargements of map sections on the right show uneven to even distribution of street trees in areas with low to high street tree density.

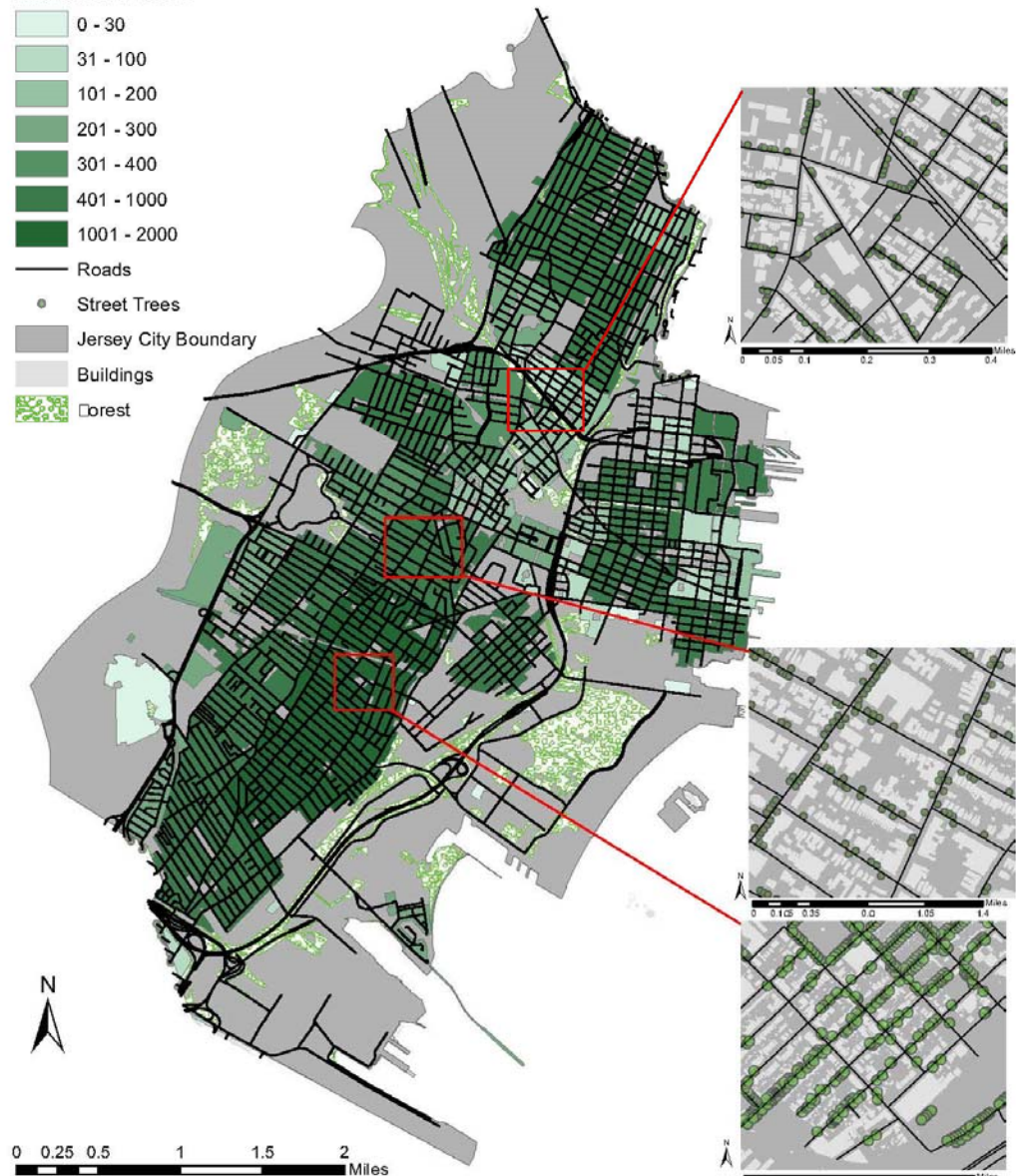
Legend

Street Tree Density

Number of Trees



STREET TREE INVENTORY



Tree Pit

Carpinus caroliniana American hornbeam
Celtis occidentalis Hackberry
Nyssa sylvatica Black tupelo
(Quercus sp. require large tree pits - 5 ft. x 10 ft.)
Quercus alba White oak
Quercus bicolor Swamp white oak

Tree lawn

Quercus coccinea Scarlet oak
Quercus palustris Pin oak
Quercus phellos Willow oak
Quercus prinus Chestnut oak
Quercus rubra Northern red oak
Quercus velutina Black oak
Tilia americana (needs shade) American linden
Basswood
Acer rubrum (Staten Island only) Red maple
Acer saccharum Sugar maple
Amelanchier arborea Serviceberry
Carpinus caroliniana American hornbeam
Celtis occidentalis Hackberry
Liquidambar styraciflua Sweetgum
Liriodendron tulipifera Tulip tree
Nyssa sylvatica Black tupelo
Ostrya virginiana American
Quercus alba White oak

The street tree analysis shown here depicts the density among neighborhoods shown in categories, high to low. High density refers to trees ranging from 1500 trees or more in a given acre, while neighborhoods with low density may only have as many as 15. These areas seemed to stick to only a certain amount of tree species overall such as the Heights, which featured mainly London Plane Trees. In addition to The Heights, there was a lack of trees in certain areas. This analysis can certainly advocate for more trees or better maintenance of the existing tree population in Jersey City.

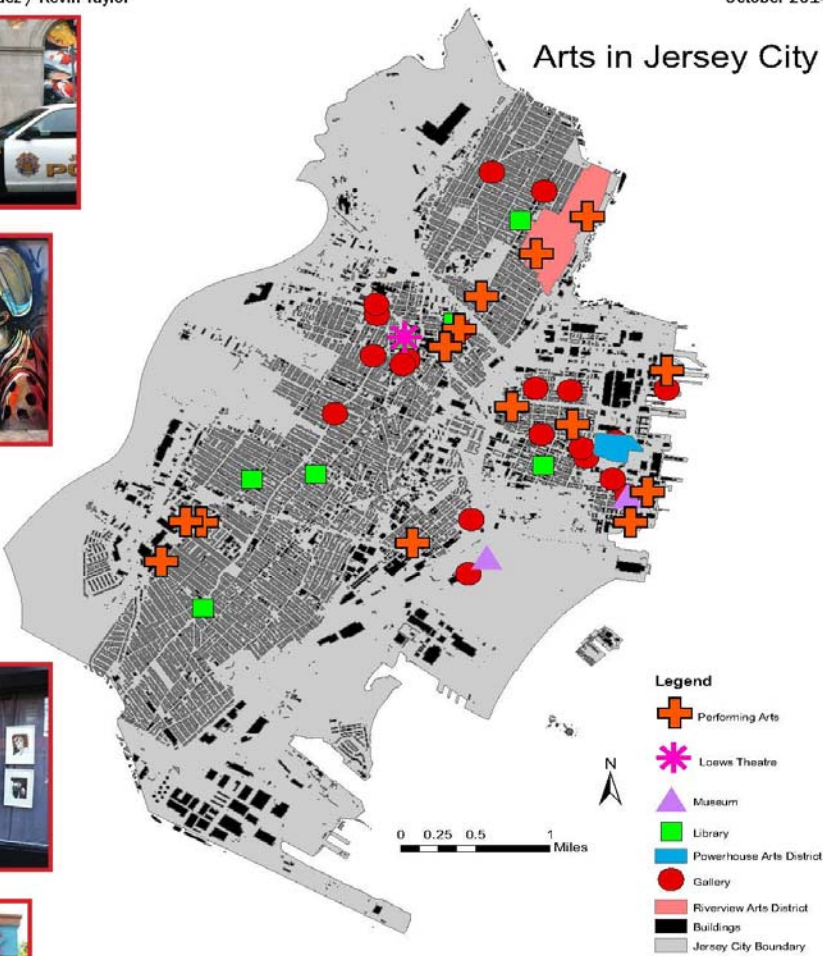
<Neighborhood Data Set> provided by <Jersey City Planning Board>
<Roads Data Set> provided by <Jersey City Planning Board>
<Street Trees Data Set> provided by <Jersey City Planning Board>
<Jersey City Boundary Line> provided by <Jersey City Planning Board>
<Jersey City Tree List> provided by <Native Species Planting Guide for NYC and Vicinity>

Both the history and location of Jersey City make it a good place for a thriving Arts Community.

Our inventory begins to show this, but better documentation and mapping could help grow this community.

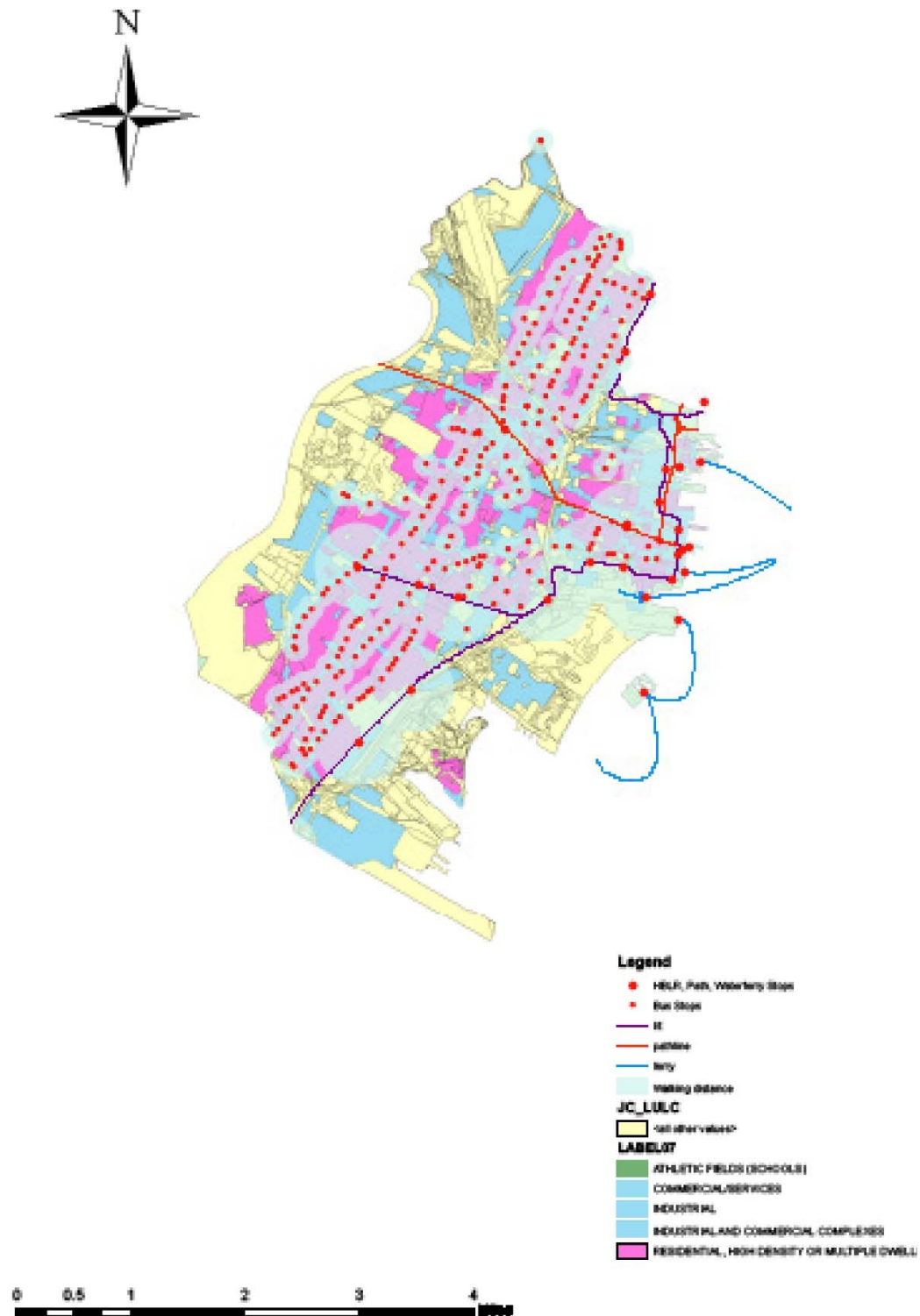
Austin Scott / Josh Rodriguez / Kevin Taylor

October 2014



<Street Art Photograph> provided by <<http://theriverviewnewscast/2010/11/web-site-information-about-art-arts-museum-arts-by-the-city-of-jersey-city/>>
<Library Data Set> provided by <City of Jersey City>
<Museum Data Set> provided by <City of Jersey City>
<Gallery Data Set> provided by <City of Jersey City>
<Building Data Set> provided by <Jersey City Planning Board>
<Boundary Data Set> provided by <Jersey City Planning Board>
<Art Districts Data Set> provided by <Jersey City Planning Board>

Public transportation is essential to city function. There are ways that this has been recognized by Jersey City, but there is room for improvement that must accompany each re-development plan.



<Land Use> provided by <Jersey City Planning Division>
<Transportation> provided by <NJDOT>

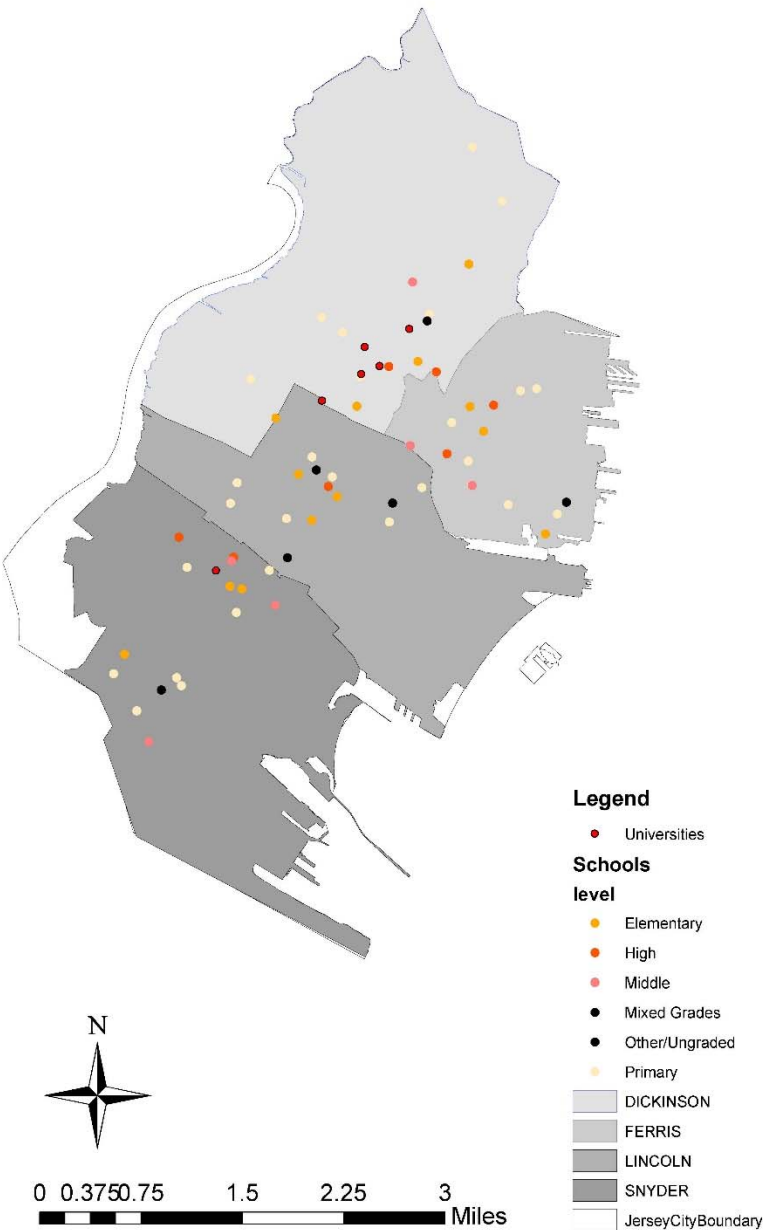
Schools are located in most areas of Jersey City. This map is organized by School District and education level.

Where we had addresses, private schools were included.

Additional study of the relationships between:

- population characteristics and school locations
- public transportation stops and school locations
- school curricula and school locations

might provide the Jersey City School Board with important insights.

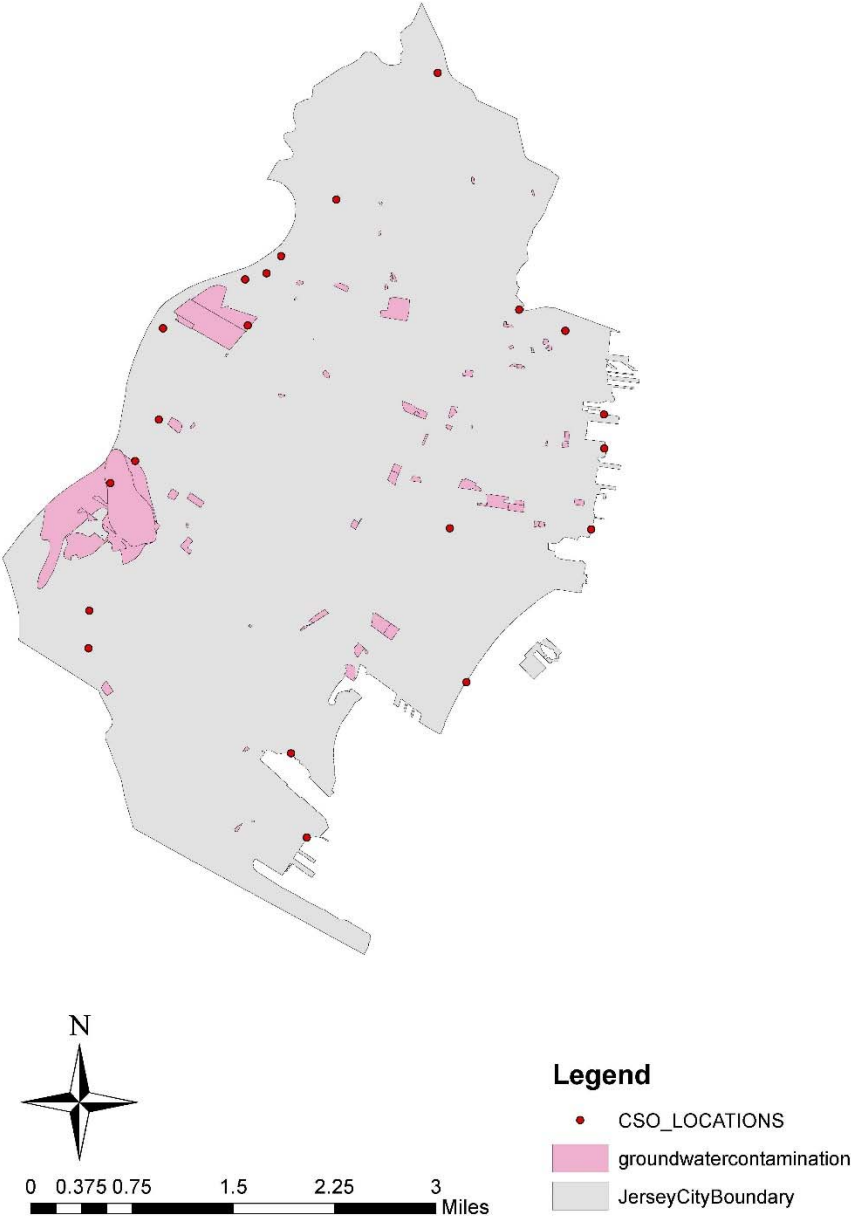


There are 21 sites where combined sewer overflow outlets occur in Jersey City.

When storm water pipes flow into sanitary sewer pipes the two water flows can combine and overload, then bypass the water treatment facility. As a result, in many but the shortest rainfalls, sanitary sewer flows into the Hudson and Hackensack Rivers from Jersey City.

The Jersey City Municipal Utility Authority must develop programs to decrease, and eventually eliminate, these outfalls. Several kinds of solutions can be integrated in to development, redevelopment, and street repair programs. The first thing that needs to be done is to document when these outfalls occur and how much water is being discharged, for how long, without treatment.

Developing green infrastructure demonstrations can help the City decide how they want to manage storm water in the future.



<CSO data and Ground contamination> provided by
<State of New Jersey Department of Environmental Protection CSM report for Jersey City, NJ.>

The following maps include a variety of resource information. Each deserves better documentation and further study of their importance and consequences.

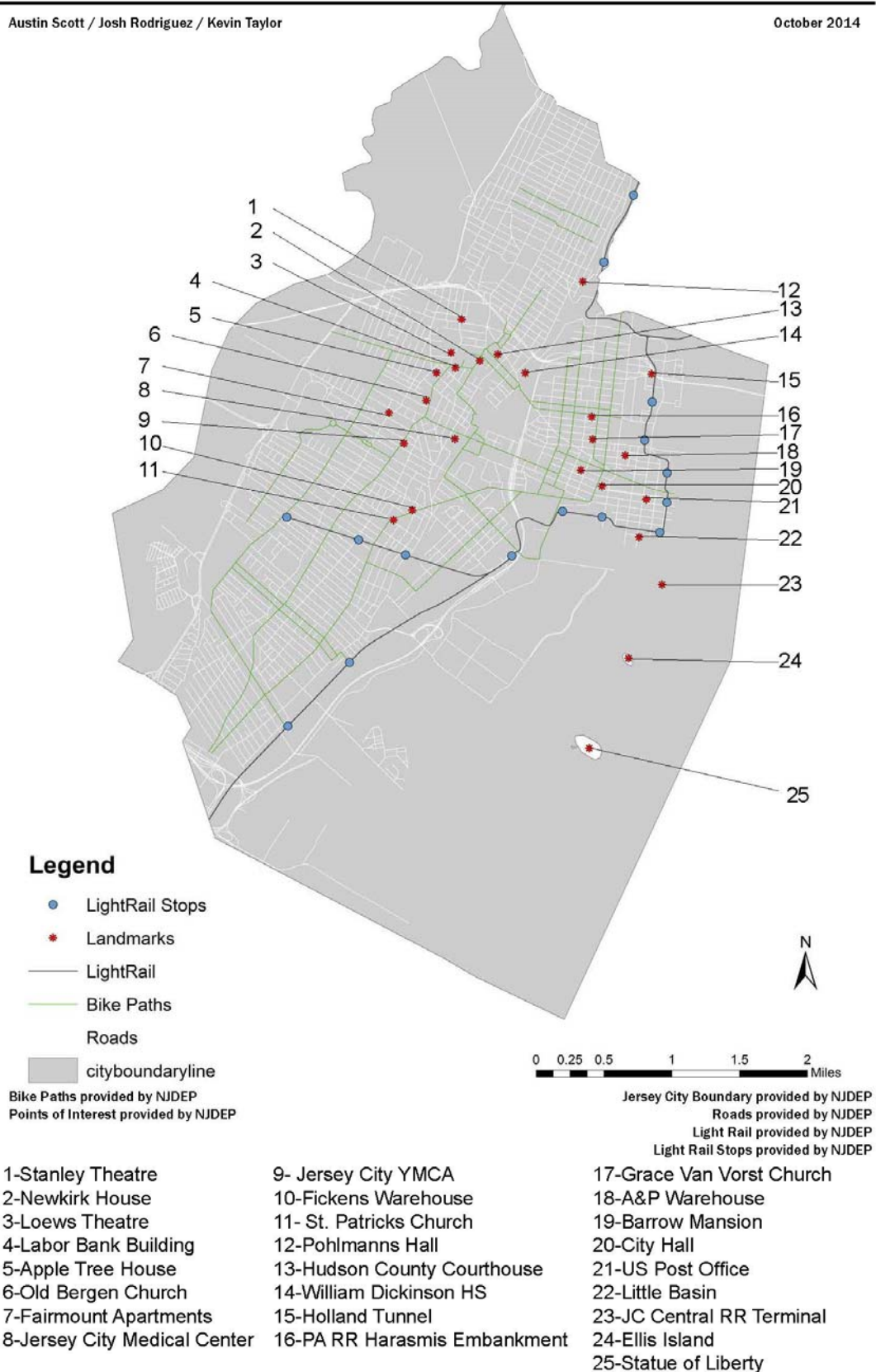
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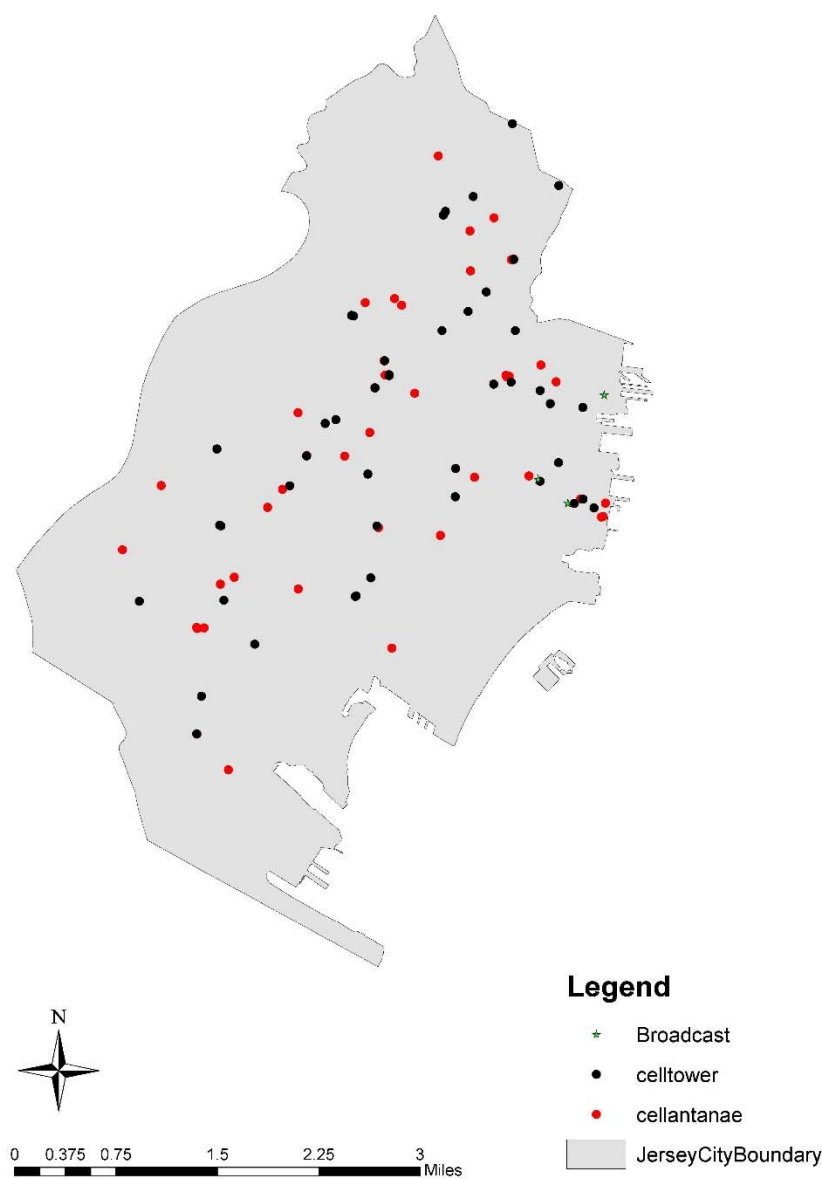
JERSEY CITY ENVIRONMENTAL RESOURCE INVENTORY

AESTHETICS AND RECREATION LANDMARKS AND PATHS

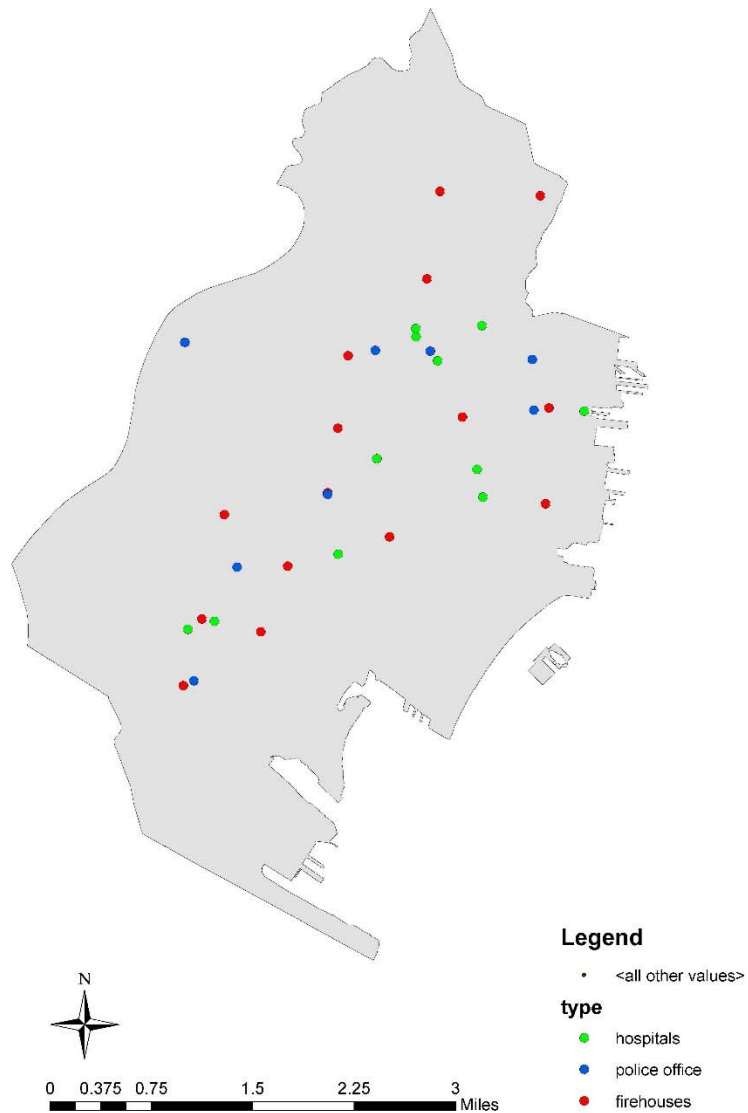
Austin Scott / Josh Rodriguez / Kevin Taylor

October 2014

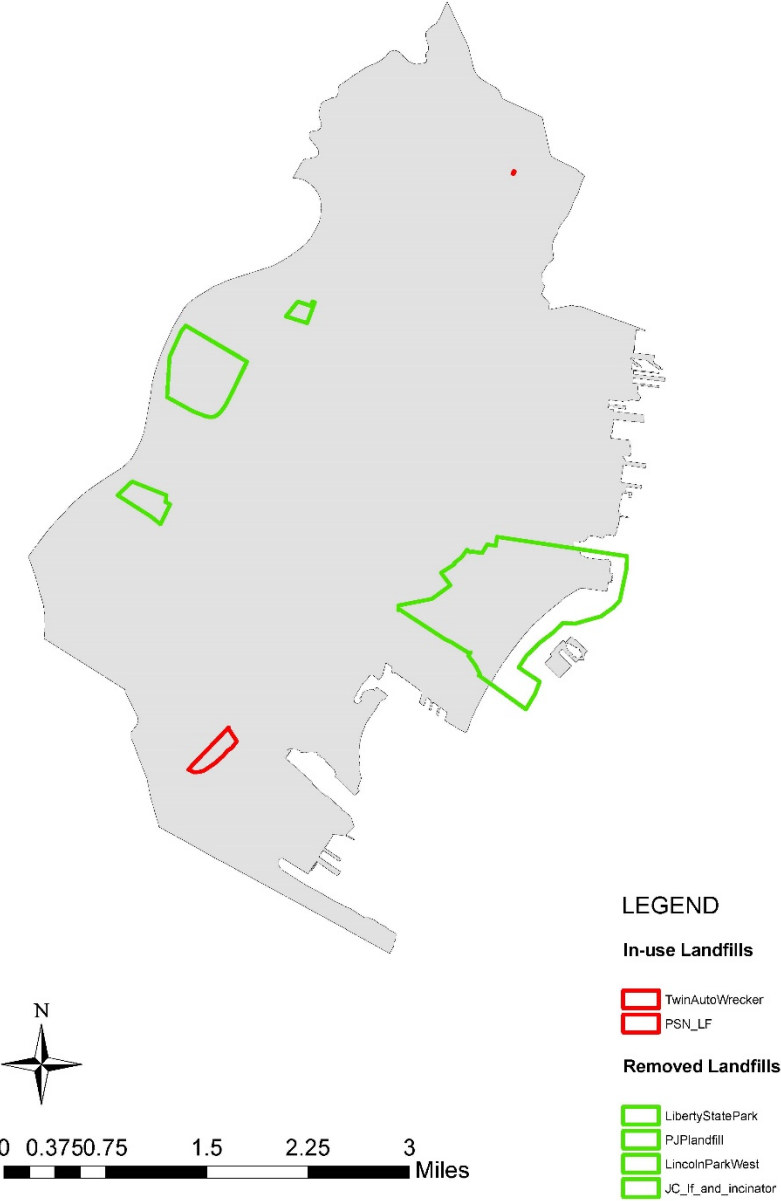




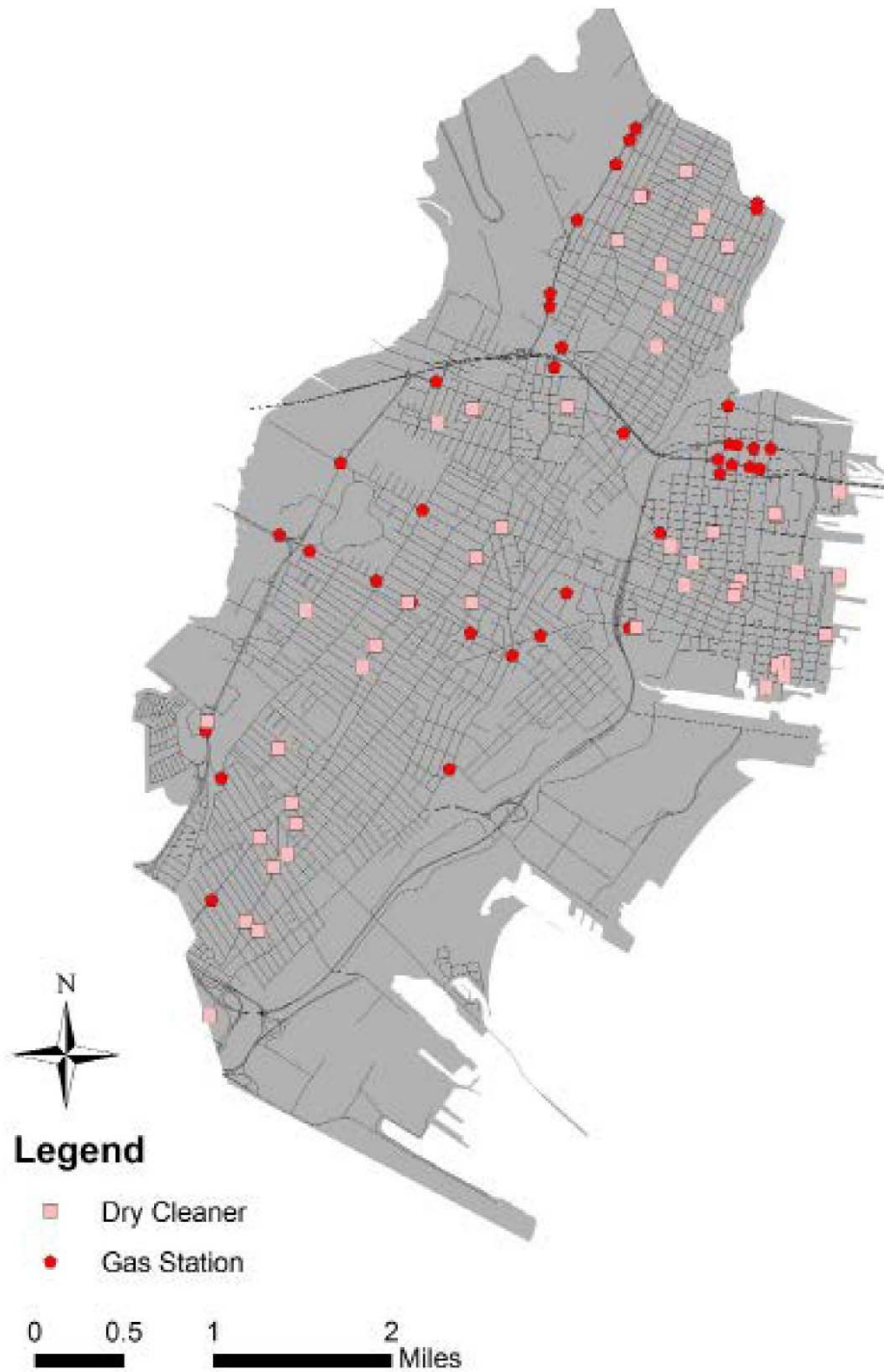
<Braodcast, cell towers, antanae> provided by <Jersey City Planning Division>



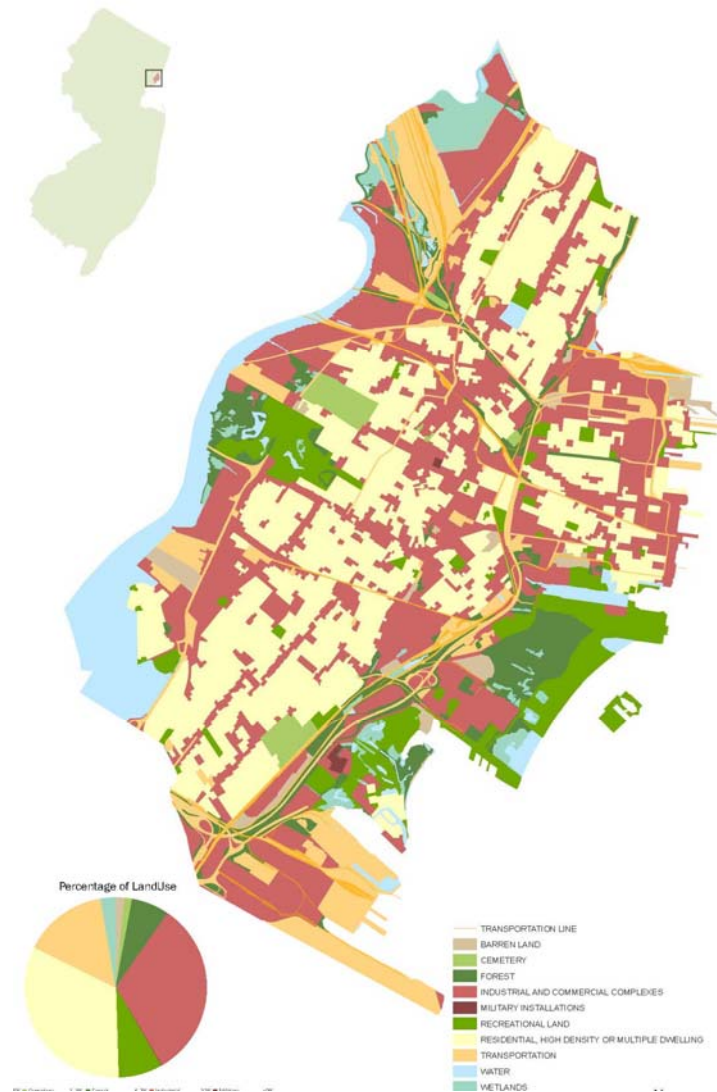
<Police Officers and hospitals> provided by <Google Map>
<Firehouse> provided by <NJDOT>



<All landfill informations > provided by<Google Map>
<State of NJ Dept. of Env. Protection>
<State of NJ Dept. of Health>



Dry Cleaner Location provided by Google Maps
Gas Station Location provided by Google Maps
Jersey City Road Data provided by File Geodatabase Feature Class



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