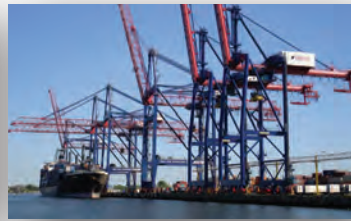


# North Shore of Staten Island

---

# ENVIRONMENTAL PROFILE



September 2012

This North Shore Environmental Profile was created by [Skeo Solutions](#), an independent consulting firm, for the [North Shore Community Coalition for Environmental Justice](#) (NSCCEJ) and the entire North Shore community. Skeo was funded through the U.S. Environmental Protection Agency's (EPA's) [Technical Assistance Services for Communities](#) (TASC) program and received technical support from [EPA Region 2](#).

The profile's contents do not necessarily reflect the policies, actions, or positions of EPA. The report uses public information gathered from several sources. EPA disclaims any liability for any errors that may be contained in this document.

Profile maps were created using ArcGIS® software by Esri®. ArcGIS® and ArcMap™ are the intellectual property of Esri® and are used herein under license. Copyright © Esri. All rights reserved. For more information about Esri® software, please visit [www.esri.com](http://www.esri.com).



## Overview

- I. Introduction
- II. About the North Shore
  - Land Use and Zoning
  - Income and Employment
  - Public Health Concerns
- III. Recreation, Habitat and Open Space
  - Park Facilities and Residential Access
  - Publicly Accessible Waterfront
  - Natural Land Uses
- IV. Locally Undesirable Land Uses
  - Community Concerns
  - Vacant Land and Brownfields
  - State and Federal Cleanups
  - Lead Contamination
  - Solid Waste
  - Noise
- V. Air
  - Regulation of Air Pollution
  - Traffic and Air Pollutants
  - Permits and Monitoring
  - Air Quality Concerns
- VI. Water
  - Sources of Water Pollution
  - Water Quality
  - Flooding
- VII. Summary
- VII. Endnotes
- VIII. Appendix A

## Introduction

A healthy environment is central to quality of life and good health. The environment embraces all of the places where we live, work, play and learn. The environment includes nature as well as buildings, roads and other infrastructure. It also includes the social, economic, cultural and political systems that affect our lives. This environmental profile will help all stakeholders understand environmental conditions on the North Shore. It provides information about the quality of the air, water and land. It also looks at important economic, social and health issues in the community.

The North Shore has a strong industrial and maritime past with close connections to the waterfront, rivers and the ocean. For more than a century and a half, the North Shore has hosted large industrial facilities. Today, the maritime industry employs thousands of people and generates close to \$1 billion each year. However, the North Shore's industrial past has also created a legacy of environmental pollution and ill-suited land uses. Many residential neighborhoods are located side-by-side with heavy industrial and port facilities. Many of these neighborhoods are also communities of color with residents of modest incomes. Roads with high volumes of trucking and other traffic crisscross other neighborhoods.

Many factors affect our health. These include environmental factors such as air and water quality, lifestyle factors such as smoking, exercise and stress, and social factors such as access to health care, recreational amenities and healthy foods. If these factors are positive, they can lead to good health. Negative factors, however, can contribute to a host of health problems, including elevated rates of asthma, chronic respiratory and heart diseases, lead poisoning and cancer. Scientific research can have a difficult time measuring the way these multiple factors interact with each other. Experiencing many risk factors at once can greatly increase the likelihood of poor health outcomes. This increased risk is known as "cumulative impact."

Residents are working together to improve the North Shore's future by embracing the principles of environmental justice, equitable development and sustainable development. The U.S. Environmental Protection Agency (EPA) defines **environmental justice** as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."<sup>1</sup> The 1994 Presidential Executive Order 12898 requires all federal agencies to consider environmental justice issues in their



*The Staten Island Moravian Community garden grows organic produce for Project Hospitality's soup kitchen and food pantry.*

policies and actions. In 2003, New York State (NYS) addressed environmental justice concerns through a policy implemented by the NYS Department of Environmental Conservation, called DEC EJ Policy CP-29. While this policy does not have the full effect of law, it requires stronger public participation and community engagement in the state's environmental permit review process used for siting new industrial facilities or changing operations at existing facilities.

These federal and state policies affirm that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or land use decisions. All people should have the opportunity to participate in decisions that affect their environment and their health. Appendix A of this profile provides a set of maps that highlight environmental factors affecting different racial and income groups in the North Shore.

While environmental justice principles look to prevent harm, the principle of **equitable development** affirms that people should enjoy the social,

environmental and economic benefits resulting from economic development and land use decisions. This means that overall investments and resources are spent fairly and benefit everyone.

Residents are also working together to create a **sustainable community** that balances social well-being, economic opportunity and environmental quality. Building a better future for the North Shore community will mean tackling pollution, poverty, health concerns, land use and zoning, and quality of life issues at the same time.

The North Shore is a place of resiliency, resourcefulness and creativity. Knowledge is an important foundation for improving the quality of life on the North Shore community. This environmental profile provides you with information about environmental and public health issues so that you can learn more and get involved in the decisions that affect your life.

NYS Department of Environmental Conservation [Environmental Justice Resources](#)

**Principles of Sustainable Development**

Sustainable development is the integration of the three E's – environment, economy and equity. Sustainable development has five basic principles:

- Think about the future, understand that what is done now will have an effect upon future generations.
- Find solutions that expand economic opportunity, improve environmental quality and increase social well-being all at the same time, never sacrificing one for another.
- Value the input of stakeholders and community members who will be affected by decisions.
- Promote equity among different groups in society and between generations. Equity means reducing disparities in harmful impacts as well as increasing access to benefits.
- Be proactive by preventing environmental and social problems from occurring in the first place.

*Source: Adapted from the President's Council on Sustainable Development. Towards a Sustainable America: Advancing Prosperity, Opportunity, and a Healthy Environment for the 21st Century. May 1999.*

The table below highlights environmental concerns affecting the North Shore. The Profile covers each of these topics in more detail.

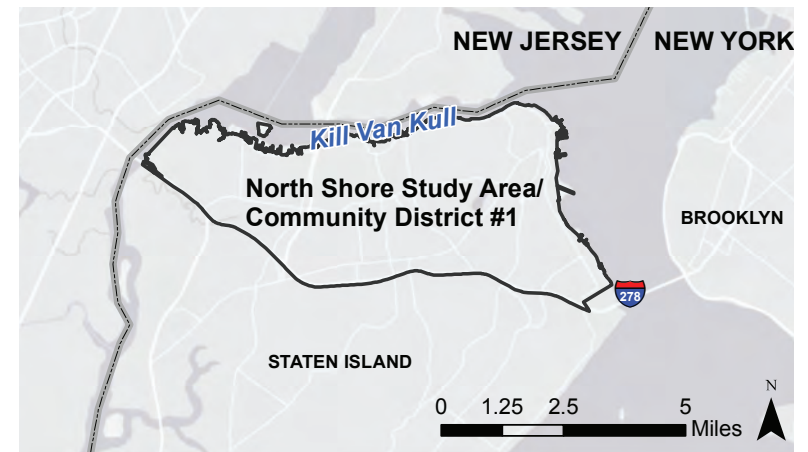
Environment	Major Conclusion	What Can You Do?
Recreation, Habitat and Open Space Page 7	<ul style="list-style-type: none"> <li>• <b>Amenities:</b> The North Shore has wildlife habitat and open space amenities as well as a variety of parks.</li> <li>• <b>Public Access:</b> Not all residential areas have walkable access to these amenities. Park access in particular may be lower than the city-wide average.</li> </ul>	For more information on how to get involved with preserving and expanding the North Shore's recreation, habitat and open space areas, see p. 11.
Locally Undesirable Land Uses (LULUs) Page 12	<ul style="list-style-type: none"> <li>• <b>Contamination:</b> The North Shore's industrial heritage has left a legacy of environmental contamination and contributes to noise pollution and other quality of life issues.</li> <li>• <b>Vacant Lands:</b> Vacant lands, while often a short-term blight, can present longer-term opportunities for new land uses and revitalization addressing community priorities.</li> </ul>	For more information on how you can get involved to protect your health and improve your neighborhood's quality of life, see p. 19.
Air Page 20	<ul style="list-style-type: none"> <li>• <b>Air Permits:</b> As of June 2012, facilities with air permits on the North Shore were not in violation or under enforcement action.</li> <li>• <b>Air Monitors:</b> Air monitors on Staten Island measure a limited number of pollutants and do not provide data specific to the North Shore.</li> <li>• <b>Ozone Levels:</b> Ozone levels in Staten Island sometimes exceed EPA's ozone standard. Residents can take proactive steps to protect their health during these times.</li> </ul>	For more information on how you can get involved to protect your health and help improve air quality, see p. 24.
Water Page 25	<ul style="list-style-type: none"> <li>• <b>Drinking Water:</b> Drinking water meets water quality standards. However, lead can be picked up from pipes in homes, so residents may want to test water at the faucet.</li> <li>• <b>Waterbodies:</b> Water quality impairments on the North Shore's major water bodies are the result of point and nonpoint source pollution. These impairments impact ecological health and can result in recreation and fish consumption restrictions.</li> </ul>	For more information on how you can get involved to improve and raise awareness of water quality on the North Shore, see p. 29.



## About the North Shore

Staten Island’s North Shore stretches along five miles of the Kill Van Kull River’s waterfront to the north. Highway 278 is its southern boundary. Also known as Staten Island Community Board #1, all references to the North Shore in the Profile refer to this area. The North Shore includes the neighborhoods of Mariners Harbor, Arlington, Elm Park, Port Richmond, West Brighton, New Brighton and St. George (Map 1). Home to 172,000 people, the area is richly diverse. Fifty-six (56) percent of the residents are white, 26 percent are Hispanic, 23 percent are African American and 8 percent are Asian. The North Shore also includes immigrant communities from Mexico, Sri Lanka, Albania, Trinidad, Liberia and the Philippines.<sup>2</sup>

Map 1. The North Shore Area









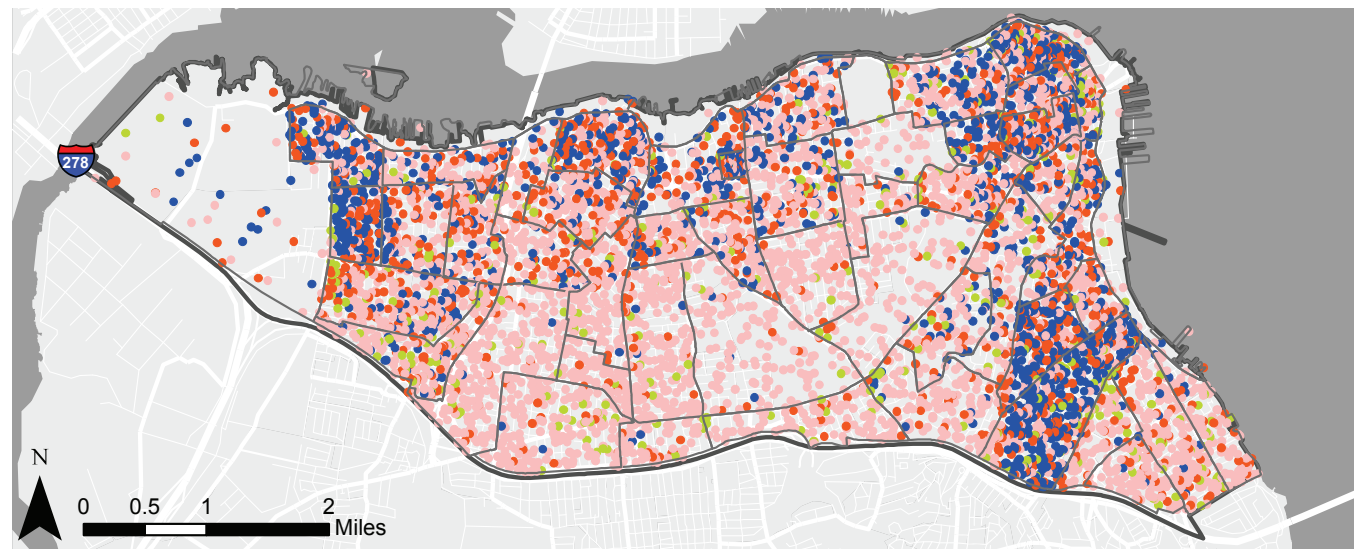
**The boundary of the North Shore is the same as the boundary of Staten Island Community Board #1.**

Data Source: Staten Island Community Board #1 boundary from the 12A release of the New York City Department of City Planning’s Geosupport System, available at <http://www.nyc.gov/html/dcp/html/bytes/dwndistricts.shtml>. Data date: April 2012.

Map 2. Racial/Ethnic Distribution of the North Shore’s Population

### Legend

-  1 Dot = 25 people (aggregated at the census tract level)
-  WHITE
-  BLACK
-  ASIAN
-  HISPANIC
-  North Shore study area



**The North Shore is racially and ethnically diverse. It also has segregated neighborhoods.**

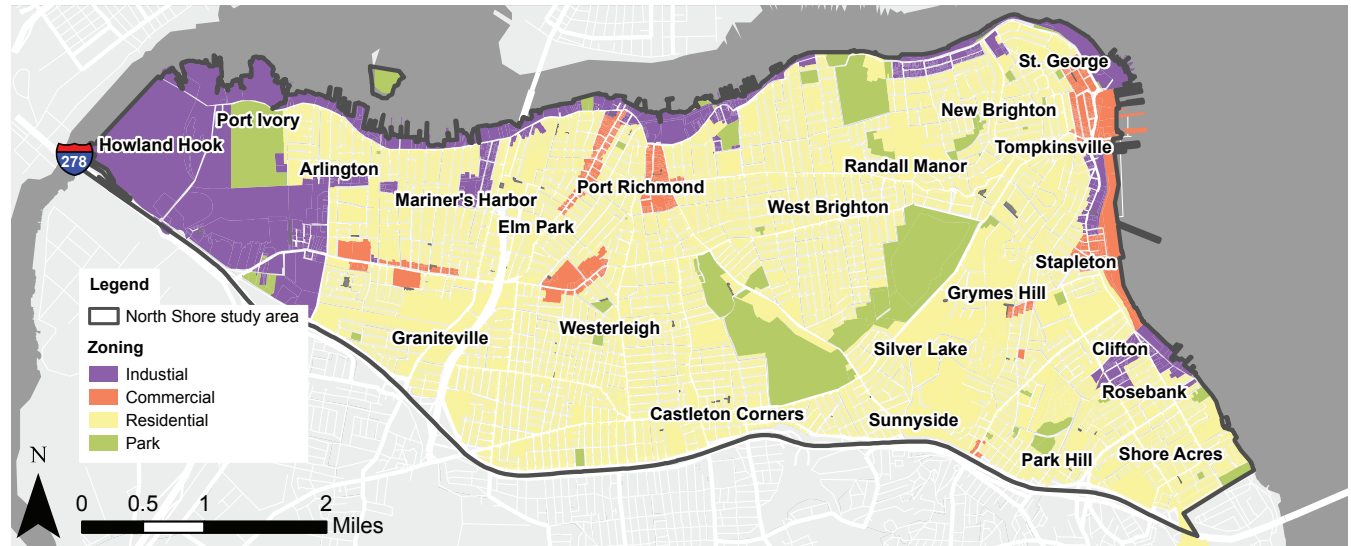
Data Source: USA Census Tract Boundaries shapefile, produced by Esri®, TomTom, the U.S. Department of Commerce, and the U.S. Census Bureau. Data date: 2010.

## Land Use and Zoning

Land use patterns and zoning regulations impact quality of life for North Shore residents. Map 3 shows that the waterfront of the North Shore is zoned for industry. Residential zoning can be found adjacent to both industry and commercial areas.

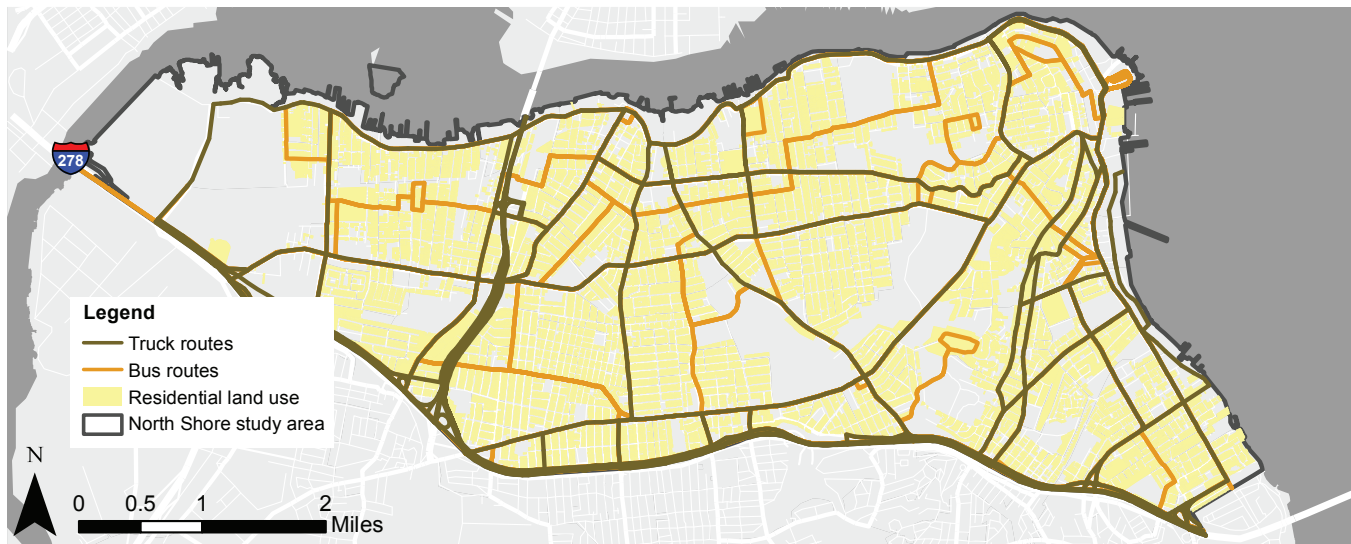
- The area includes diverse land uses, such as the New York Container Terminal to the west, the 107-acre Mariner's Marsh Park and residential neighborhoods. The North Shore also contains some of New York City's oldest historic homes and churches.
- Some residential neighborhoods, schools and commercial areas are located next to areas zoned for heavy manufacturing and other industrial businesses. Many North Shore residents live in single-family housing located next to industrial and maritime facilities.
- Truck routes serving industrial businesses and bus routes crisscross the North Shore, running through residential neighborhoods and past schools. Map 4 shows these truck and bus routes.
- There are few opportunities for public access along the mainly industrial waterfront. Reestablishing connections with the waterfront is an important priority for the community.
- EPA has designated the former Jewett White lead smelter a Superfund removal site.

**Map 3. North Shore Zoning**



Data Sources: New York City parcel data were obtained from MapPLUTOTM, a product of the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml>. Data date: May 2011 - March 2012. Zoning data were obtained from the ZoneDist1 field, and the residential, commercial, and industrial zoning codes were consolidated to simplify the map presentation. Neighborhood names were obtained from the NHoodNames shapefile produced by the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml>. Data date: December 2009. Zoning is a tool used to guide development. Actual land use may differ from the zoning on particular parcels depending on a variety of factors including, grandfathered properties and zoning variances.

**Map 4. North Shore Truck and Bus Routes**



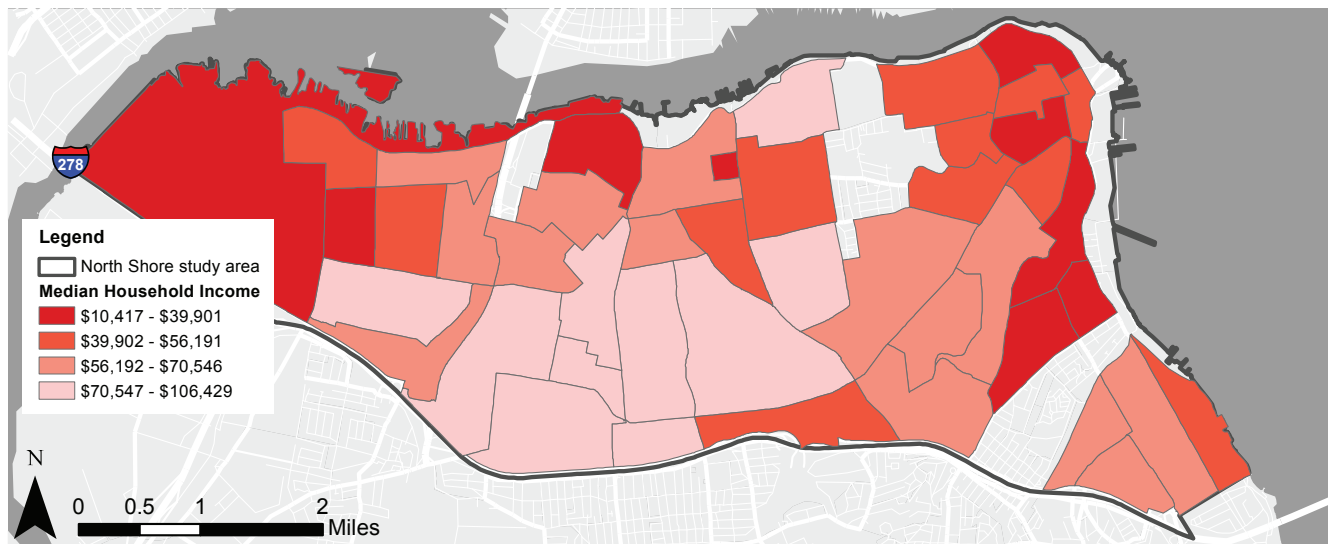
Data Sources: New York City Department of Transportation NYC Truck Routes data set, created from LION, the City's base map of streets, available at <http://a841-dotweb01.nyc.gov/datafeeds/#TruckRoutes>. Data date: September 2009. New York City parcel data were obtained from MapPLUTOTM, a product of the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml>. Data date: May 2011 - March 2012.

## Income and Employment

The economic status of North Shore residents ranges widely. While the economic statistics for the North Shore community as a whole are in many ways comparable to other communities in New York City, there are wide economic differences within the study area.

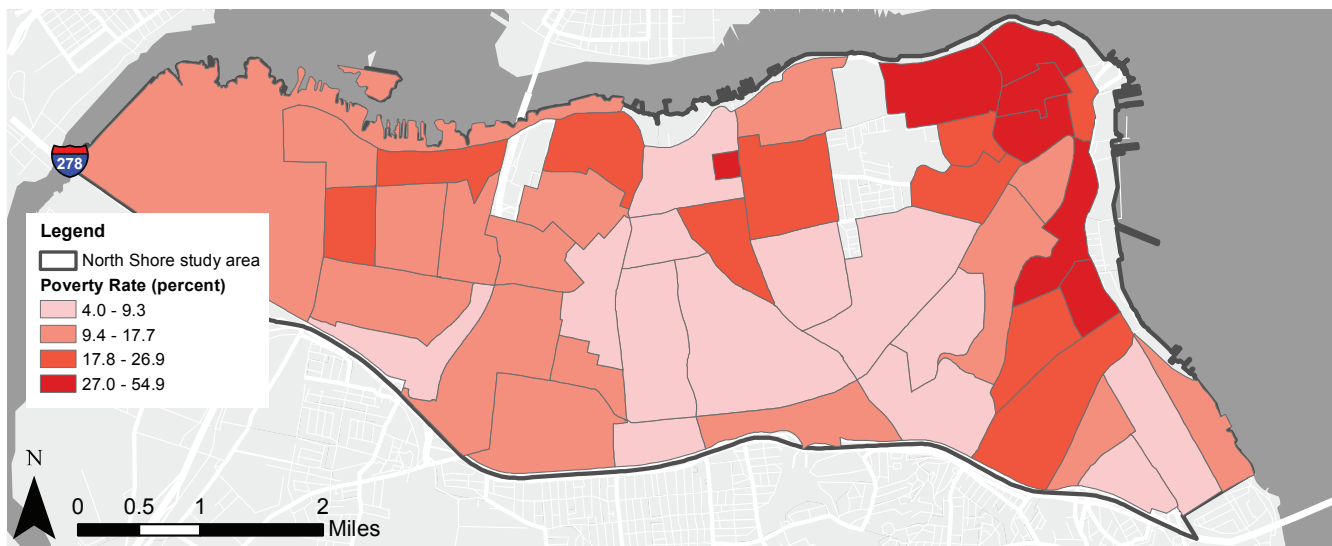
- Disadvantaged areas with lower incomes, higher unemployment and lower rates of home ownership are found near industrial land uses on the North Shore. These areas are predominantly home to people of color.
- On the North Shore in 2010, the median income per person was 16 percent lower and the unemployment rate was 13 percent higher than in the rest of Staten Island.<sup>3</sup>
- Fifteen percent of North Shore families lived below the poverty level in 2010. This rate is 58 percent higher than the rate in the rest of Staten Island.<sup>4</sup>

**Map 5. North Shore Median Household Income (2010)**



Data Source: USA Census Tract Boundaries shapefile, produced by Esri®, TomTom, the U.S. Department of Commerce, and the U.S. Census Bureau. Census tract data date: 2010. Median income data, American Community Survey, 2010 1-year estimates.

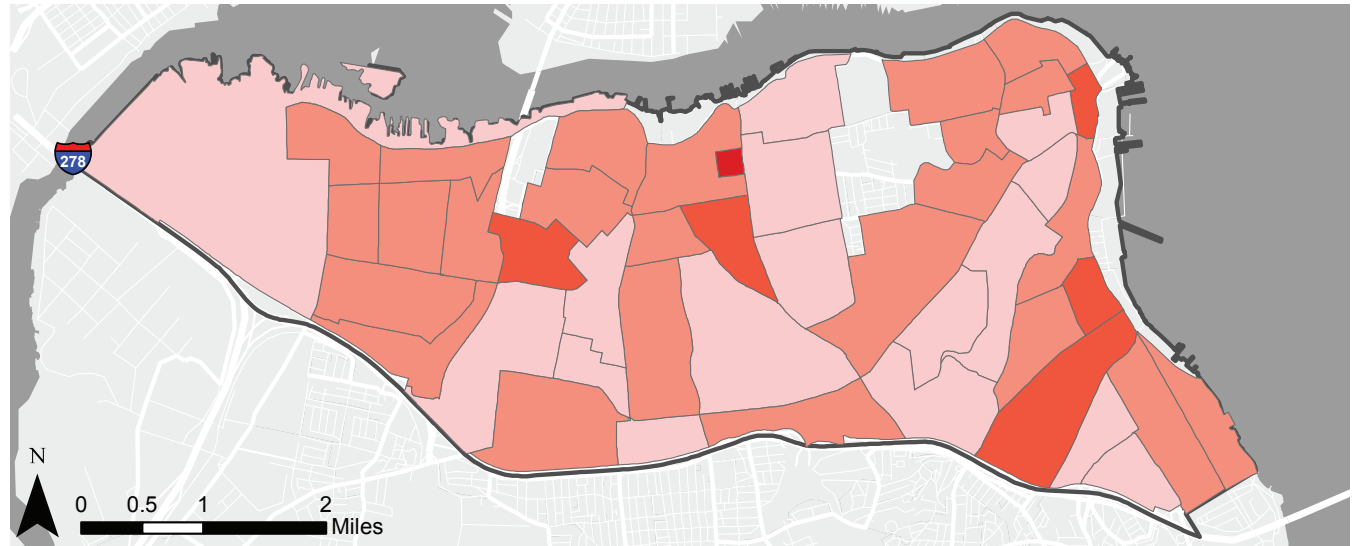
**Map 6. North Shore Poverty Rate (2010)**



Data Source: USA Census Tract Boundaries shapefile, produced by Esri®, TomTom, the U.S. Department of Commerce, and the U.S. Census Bureau. Census tract data date: 2010. Poverty rate data, American Community Survey, 2010 1-year estimates.



Map 7. North Shore Unemployment Rate (2010)



Data Source: USA Census Tract Boundaries shapefile, produced by Esri®, TomTom, the U.S. Department of Commerce, and the U.S. Census Bureau. Census tract data date: 2010. Unemployment rate data, American Community Survey, 2010 1-year estimates.

### Public Health Concerns<sup>6</sup>

The community experiences several public health challenges, including high asthma rates and blood lead levels in children. While some areas are improving, not all of the improvements in physical health are shared by all parts of the community. Some neighborhoods have greater environmental, lifestyle and social risks than others.

- **Blood lead levels:** The number of children with elevated blood levels on the western side of the North Shore is 15 percent higher than the city-wide rate.<sup>7</sup>
- **Asthma rates:** One in 15 adults on the western side of the North Shore reports suffering from asthma.<sup>8</sup> This rate is higher than elsewhere in Staten Island, but lower than the citywide asthma rate of five percent.
- **Heart disease and cancer:** Heart disease and cancer are the leading causes of death on the western side of the North Shore, and these rates are higher than the average of other New York City neighborhoods.<sup>9</sup>
- **Infant mortality:** The infant mortality rate on the North Shore is double that found elsewhere in Staten Island, while lower than New York City's overall mortality rate.<sup>10</sup>

### North Shore Information Resources

- [NYC Neighborhood Census Data](#): economic and demographic data
- [NYC Community District #1 Planning Information](#): reports and plans for community development
- [Staten Island North Shore - Land Use & Transportation Study](#): background on the North Shore and information on land use
- [Vision 2020: NYC Comprehensive Waterfront Plan](#): plans for waterfront development
- [NYC Community Health Profiles](#): community health information



## Recreation, Habitat and Open Space

Recreation areas, habitat and open spaces are essential assets that support public health and well-being in urban environments. They help strengthen social ties by providing space for group activities, team sporting events and family celebrations. These areas are also an important part of the city's green infrastructure – the natural systems that support clean air, clean water and habitat – by helping to absorb and filter stormwater, increase the urban tree canopy that helps clean our air, and preserve natural areas. Finally, access to parks and green space can be related to increased property values.<sup>11</sup>

North Shore assets include public parks, waterfront access areas, cultural resources such as Snug Harbor, and natural resources such as special ecological communities and the Goethal's Pond Complex.

### Park Facilities and Residential Access

There is a range of park facilities on the North Shore, although they are not equally accessible to all North Shore residents.

- Map 8 shows the location and type of parks on the North Shore. The parks include open space, pools, sports facilities, playgrounds and golf courses.

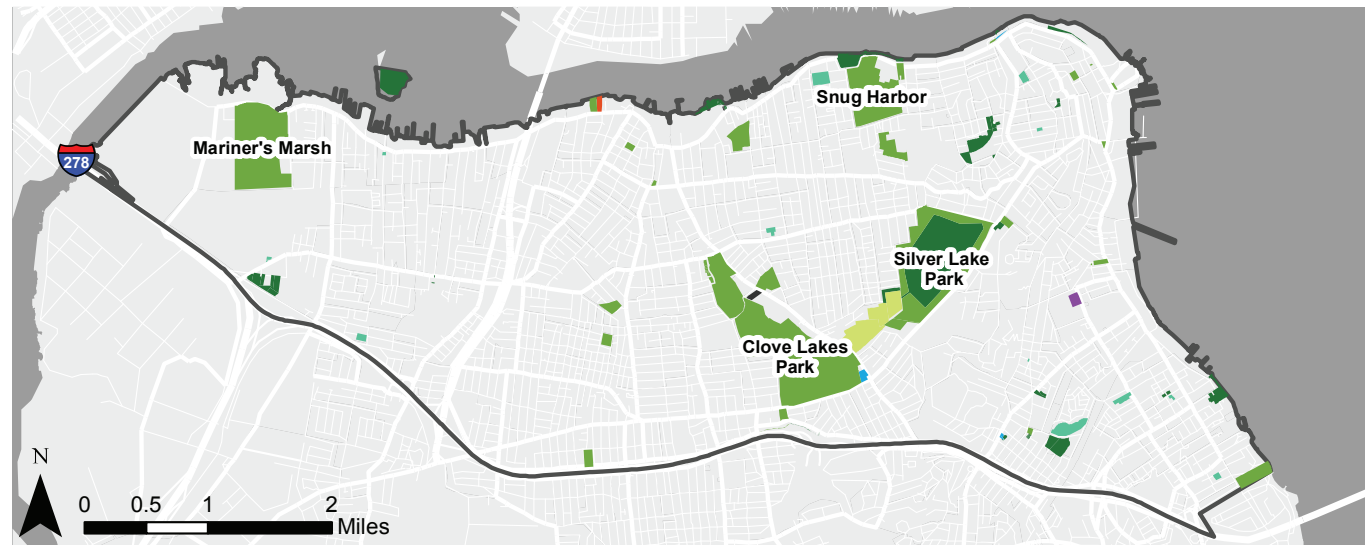
#### Legend

North Shore study area

#### Park Types

- Open Space
- Parks
- Playgrounds
- Golf Courses
- Outdoor Pools
- Stadium, Race Tracks, Baseball Fields
- Miscellaneous
- Parking

**Map 8. Park Facilities on the North Shore**

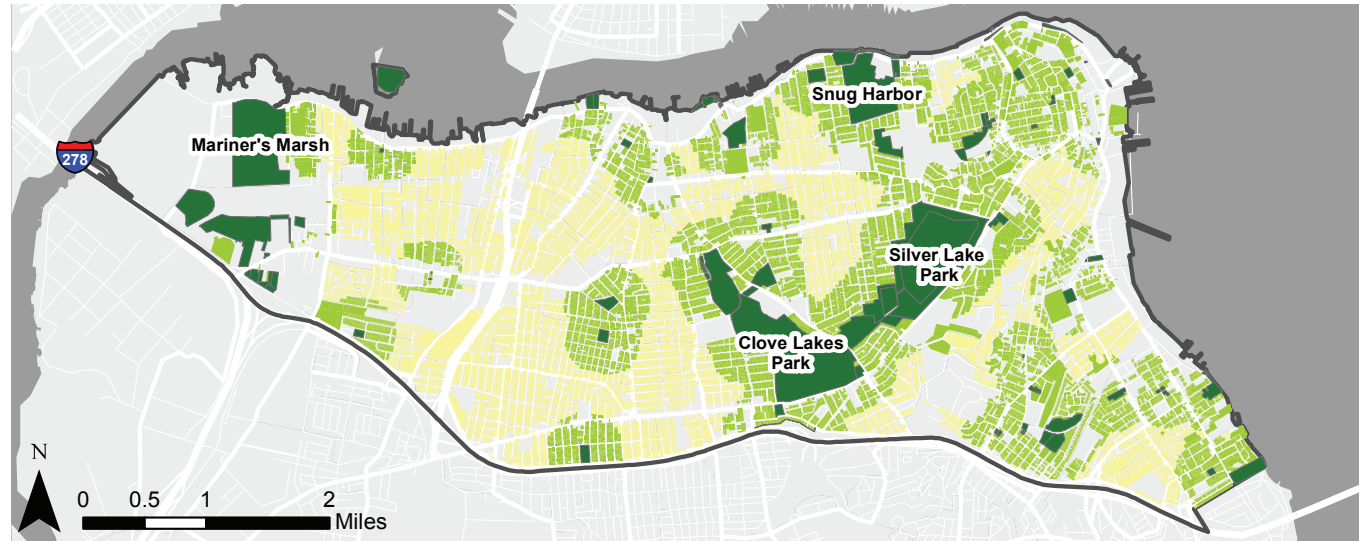


**Parks on the North Shore include a variety of recreational facilities.**

Data Source: New York City parcel data were obtained from MapPLUTOTM, a product of the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml>. Park type data were obtained from the FacType field. Data date: May 2011 - March 2012. In this instance, designation of Mariner's Marsh was changed to "Parks" to reflect the community's understanding of the facility and the findings of this website: <http://gis.nyc.gov/doitt/nycitymap/template?applicationName=ZOLA>. Data date: September 2012.

- Children living on the North Shore may have less access to park space than most children in New York City. Ninety-one percent of children in New York City live within a quarter mile of a park.<sup>12</sup> Map 9 shows that 48 percent of the North Shore's residential land uses are located more than a quarter mile from a park.

**Map 9. Gaps in Residential Walkable Access to Parks**



**Legend**

- Parks
- Residential land use
- Residential land use within .25 miles of parks
- North Shore study area

Data Source: New York City parcel data were obtained from MapPLUTOTM, a product of the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml>. Data date: May 2011 - March 2012.

**Pedestrian Access to Parks**

For a community to gain full health, social and environmental benefit from a parks system, parks must be accessible. In a city such as New York, where open space and parking is at a premium, pedestrian access to amenities is essential. A quarter mile, or a five-minute walk, is generally accepted as the standard for pedestrian access.





## Publicly Accessible Waterfront

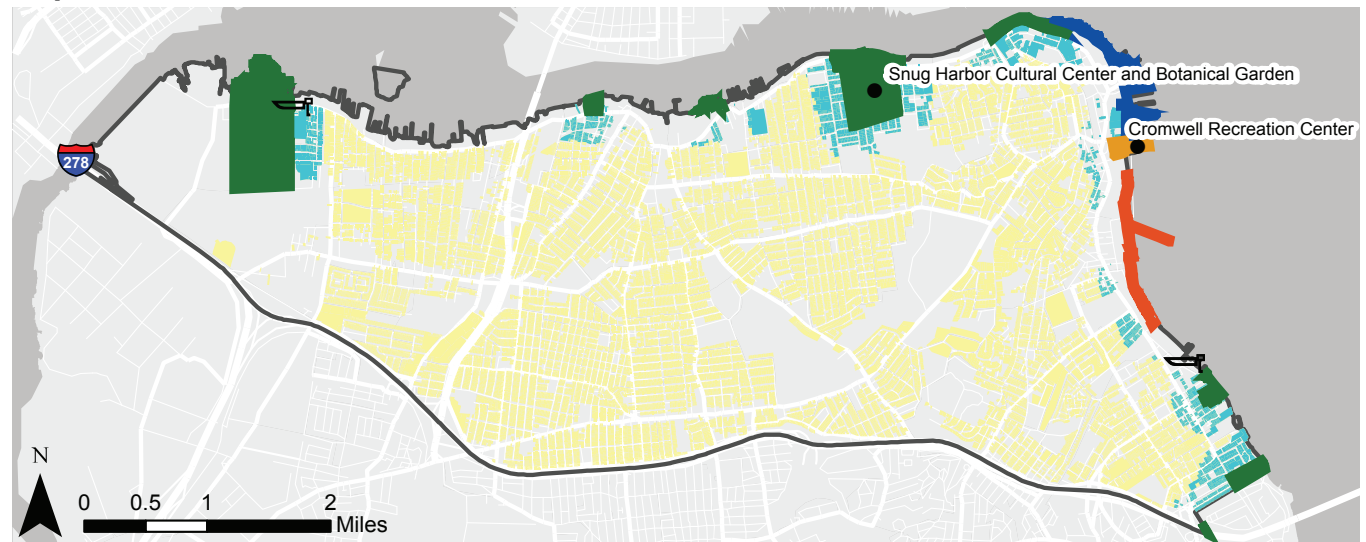
Publicly accessible waterfront is an important recreational asset for North Shore residents. Industrial areas take up much of the waterfront space, limiting public access to the water.

- **Public parks with waterfront access:** These spaces (shown in green and light orange on Map 3) are spread across the northern and eastern waterfronts.
- **Publicly accessible waterfront spaces:** These spaces (shown in dark blue) may be publicly or privately owned. Some of these locations are already open to the public; others may be under development or approved (shown in dark orange).

Following completion of planned private waterfront developments, residences on the eastern side of the North Shore are more likely to have waterfront access than residences on the northern side.

- **Recreation Centers:** [The Snug Harbor Cultural Center and Botanical Garden](#), a Smithsonian Affiliate and regional arts center with waterfront access, is located on the northern side of the North Shore. The Cromwell Recreation Center, a former public recreation facility with waterfront access, is closed.<sup>13</sup>

**Map 10. Waterfront Access**



**Public parks and publicly accessible waterfront areas provide waterfront access in the North Shore.**

Data Source: NYC Waterfront Parks and Publicly Accessible Waterfront Spaces data sets, available online from the New York City Department of Planning at <http://www.nyc.gov/html/dcp/html/bytes/dwnwaterfront.shtml>. Data date: October 2010. Boat access data obtained from Metropolitan Waterfront Alliance & NY/NJ Baykeeper, available through the NYC Oasis map viewer at <http://www.oasisnyc.net/map.aspx>. Data accessed: July 6, 2012. Note: Sites that are identified on Map 10 as 'in progress/remediation' have environmental contamination that is currently being addressed and are in the environmental cleanup and/or redevelopment process.<sup>14</sup> Local North Shore residents report that boat access points reported by the City are not currently open to the public.

### Legend

☛ Boat Access Point

### Waterfront public parks

■ Constructed/Completed

■ In Progress/Remediation

### Publicly accessible waterfront

■ Constructed/Completed

■ In Progress/Remediation

■ Residential land use

■ Residential land use within .25 miles of publicly accessible waterfront

□ North Shore study area

### Types of Waterfront Access

New York City provides public waterfront access through public parks and publicly accessible waterfront spaces.

- **Public parks** may be under the jurisdiction of the NYC Department of Parks and Recreation, the New York State Office of Parks, Recreation & Historic Preservation, or the National Park Service.
- **Publicly accessible waterfront spaces** may be publicly or privately owned. Development of private waterfront parcels may trigger requirements in New York City's Waterfront Access Plans that require owners to build and maintain public access areas.

### Additional Waterfront Resources

[Waterfront zoning and Waterfront Access Plans \(New York Zoning Resolution\)](#)

[The Vision 2020: New York City Comprehensive Waterfront Plan \(March 2011\)](#)

[Waterfront Plan for Reach 22 \(Kill Van Kull\)](#)

[Waterfront Plan for Reach 18 \(Staten Island North Shore\)](#)

## Natural Land Resources

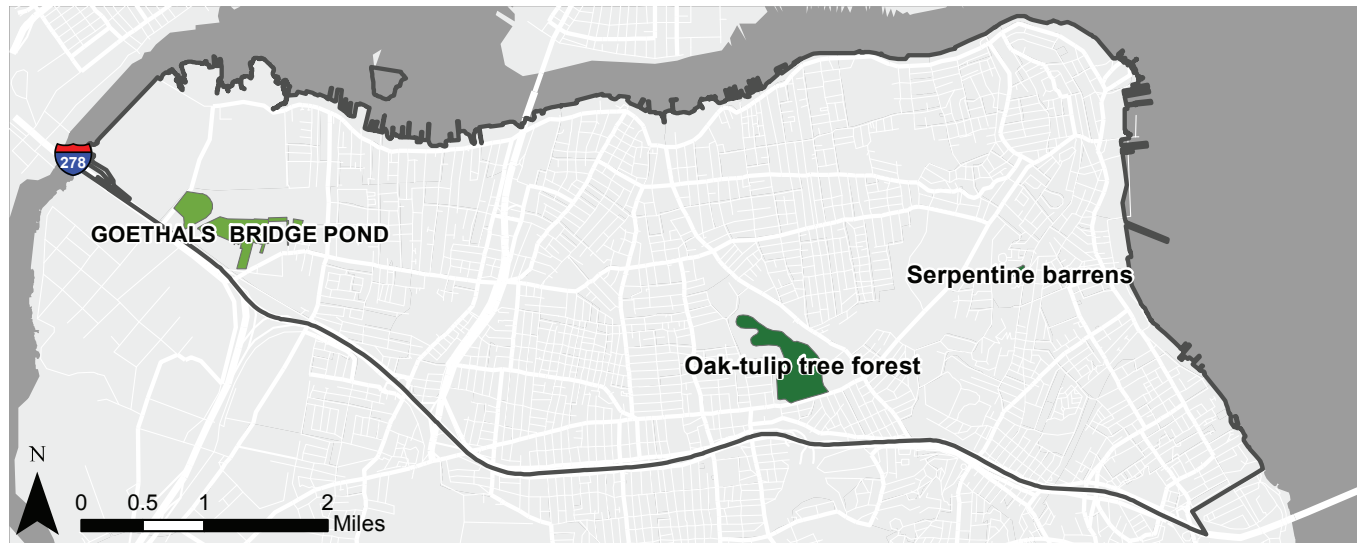
Natural areas provide opportunities to enjoy the outdoors and preserving special natural resources. Map 11 highlights three natural resource gems on the North Shore. The Serpentine Barrens and Oak-Tulip Tree Forest have been identified by the New York Natural Heritage Program (NY NHP) as ecological communities with natural heritage significance. Goethal's Bridge Pond is a valued community asset with significant natural assets.

### Ecological Communities with Natural Heritage Significance

The New York Natural Heritage Program at the New York State Department of Environmental Conservation (NYS DEC) tracks locations of ecological communities that have special characteristics and significance for the state's natural heritage.

- *Serpentine Barrens* occur in a few locations in the United States. This ecosystem supports rare plant and animal species such as yellow Indiangrass and little bluestem grass.<sup>15, 16</sup> It is particularly special to find the ecosystem in an urban environment like the North Shore.
- Acreage of *Oak-Tulip Tree Forests* is declining across New York due to logging, agriculture and development.<sup>17</sup> In these special ecosystems, the Oak-Tulip Tree can grow to heights of 60 to 150 feet. Historically, Native Americans used these trees to make dugout canoes.

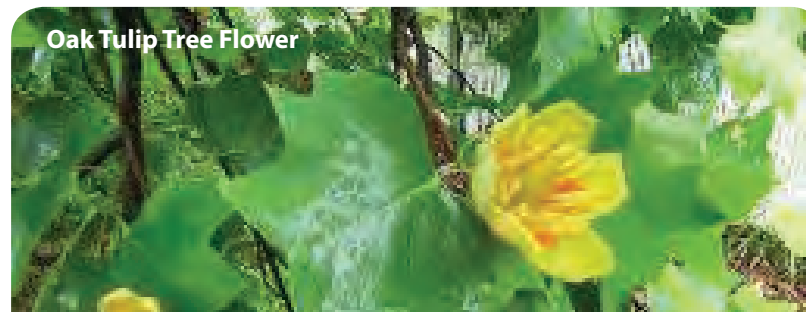
Map 11. Natural Land Resources



Data Source: Areas of Natural Heritage Significance and NYS DEC Managed Lands data sets obtained from the New York State Department of Environmental Conservation, available at <http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1241> and <http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1114>, respectively. Data dates: 2009 and 2008, respectively.

#### Legend

- Areas of Natural Heritage Significance
- NY DEC Managed Lands
- North Shore study area



#### What Is an Ecological Community?

Groups of two or more plant or animal species that live in the same location and interact with each other.



## Goethals Bridge Pond

- [Goethals Pond Complex](#) is a popular area for bird watching, photography and fishing.
- This *outdoor recreation facility* is an important open space and recreation asset for the North Shore and includes a 50-acre freshwater pond, wetland vegetation and forested wetland areas.

### What Is Passive Recreation?

Passive recreation emphasizes recreational activities, such as observation areas, that are compatible with open space and natural areas.



### What You Can Do

Ways you can get involved with preserving and expanding the North Shore's recreation, habitat and open space areas include:

- *Learn more about your park system:* For more information on park activities or to learn how to get involved at your local park, visit the City of New York's [Parks and Recreation website](#).
- *Ask for expanded park facilities and consider vacant lands:* When requesting additional park facilities, vacant lands can be an important community asset. For department contact information, please visit the City of New York's [Parks and Recreation website](#).

In particular, vacant lands near underserved residential areas can provide appropriate reuse locations for new parks, gardens or community spaces. See page 14 for more information on vacant properties on the North Shore.

- *Help the state identify special ecological communities:* NY NHP has an [online form](#) that allows community members to share the location of a rare or high-quality ecological community. You can help NY NHP identify additional natural resources with natural heritage significance.

## Locally Undesirable Land Uses (LULUs)

Locally undesirable land uses (LULUs) are land uses considered detrimental by their immediate neighbors. These land uses include industrial facilities such as sanitary landfills or manufacturing plants and infrastructure perceived as visually and physically intrusive, such as wireless communication towers, high-voltage transmission lines, sewage treatment plants and high-traffic highways and roads.<sup>18</sup> These land uses also include vacant and contaminated lands that may be signs of neighborhood disinvestment or cause concerns regarding public health and environmental risks.

The North Shore has an extensive industrial legacy. As the land use map in the Introduction demonstrates, residential land uses are often located adjacent to LULUs on the North Shore. Vacant properties are located across the community, as demonstrated by the Vacant Lands and Brownfields map (p. 14). In some instances, there may be concerns that former land uses contaminated soil or ground water. However, once cleaned up, these properties may also have potential for attracting new investment and development to the North Shore.

This section of the report will address several types of LULUs, including:

- Sites of community concern
- Vacant land and brownfields
- State and federal cleanup sites
- Lead-contaminated lands
- Waste sites
- Noise related to LULUs



Located on Richmond Terrace and designated as a landmark site, the John De Groot House is an example of historic architecture located close to industrial uses.



### Industry Legacy Case Study: Procter & Gamble Facility

The North Shore has many sites that have been used and reused for a variety of industrial purposes over the years. The Procter & Gamble site is a prime example. The site has been in active industrial use for decades. However, it has also been vacant for years at a time. Environmental contamination has complicated its reuse and caused concern in the community. Portions of the site are also enrolled in the state's Voluntary Cleanup Program to address environmental contamination (see p. 15). This site has not been designated a brownfield by the State.

#### Industrial History

From the early 1900s until 1991, Procter & Gamble owned and operated a plant on the 124-acre property. Plant buildings housed employees, equipment and consumer products manufactured on site for nearly 90 years. Production ceased in 1991; the Port Authority of New York and New Jersey purchased the site in 2000.

Under the stewardship of the Port Authority, the site is transitioning into an intermodal facility and container terminal for transporting shipping cargo. An intermodal facility provides a location for switching cargo from one mode of transportation to another. Most of the buildings on the site are to be demolished. The site is now known as the Howland Hook Marine Terminal – Port Ivory Facility.

#### Environmental Contamination

Soil and ground water contamination remains from byproducts from manufacturing activities on site. On July 13, 2004, the Port Authority agreed to participate in the Voluntary Cleanup Program for three specific areas of the site - Port Ivory Site 1, Port Ivory Site 2 and Port Ivory Site 3.

Information for this case study came from the following source:  
 NYS DEC Environmental Site Remediation Database. Site Name: "Port Ivory Site (Former P & G) Sites 1, 2, 3". Access June 25, 2012.

### Brownfields

Brownfields are properties where redevelopment is complicated by real or perceived contamination. New York State defines a brownfield as "real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant."

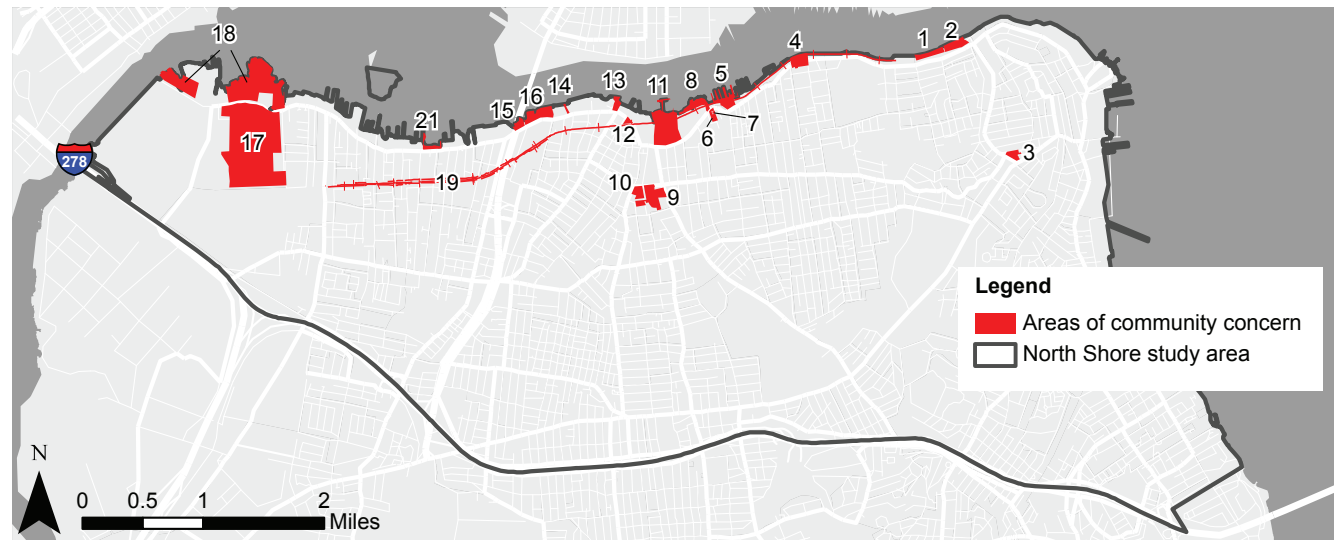
Cleanup and development of these properties can bring reinvestment to a community while simultaneously improving local environmental conditions and reducing development pressures on previously undeveloped lands.

## Community Concerns

In 2006, NYS DEC partnered with the [North Shore Waterfront Conservancy of Staten Island, Inc.](#) (NSWC) to identify manufacturing sites along the North Shore that had negative environmental impacts on surrounding communities.<sup>19</sup> The project's goal was to support the development of sustainable urban planning for those areas. Following local research, NSWC released the report, "Staten Island's Gold Coast: 5.2 miles from St. George to Arlington."<sup>20</sup> NSWC also released a [video documentary](#), part of which can be viewed on YouTube.

- **Sites:** The project identified 21 sites of concern to the community, which are mapped at right. Most of the sites are currently or were formerly used for industrial purposes.
- **State and federal cleanup designations:** None of the sites are State Remediation Sites at present. EPA is active at four of the sites through the Superfund Removal program. For more information on removal sites, see p. 15.
  - Sedutto's Ice Cream Factory (#12) aligns with the Jewett White Lead Superfund removal site.
  - The Truscanti Boat Company and Archer Daniel Midlands Company/State Island's Manhattan Project (#15 and #16) align with the Richmond Terrace Radiological Superfund removal site.
  - Mariner's Marsh (#17) is a Superfund removal site.

**Map 12. Sites of Concern for Community Members**



Data Source: Sites of concern were reported in NSWC's 2008 report "Staten Island's Gold Coast: 5.2 miles from St. George to Arlington." Approximate shapefiles were created by EPA Region 2. EPA makes no representation as to the accuracy of the information or its suitability for any purposes. EPA disclaim any liability for errors that may be contained herein. The 21 sites were identified in 2006 and some sites may no longer be of concern to community members. Additionally, NSCCEJ has stated concerns regarding the historic fill and tax incentivized industrial development along the entire waterfront of the North Shore.

### Sites of Concern for Community Members

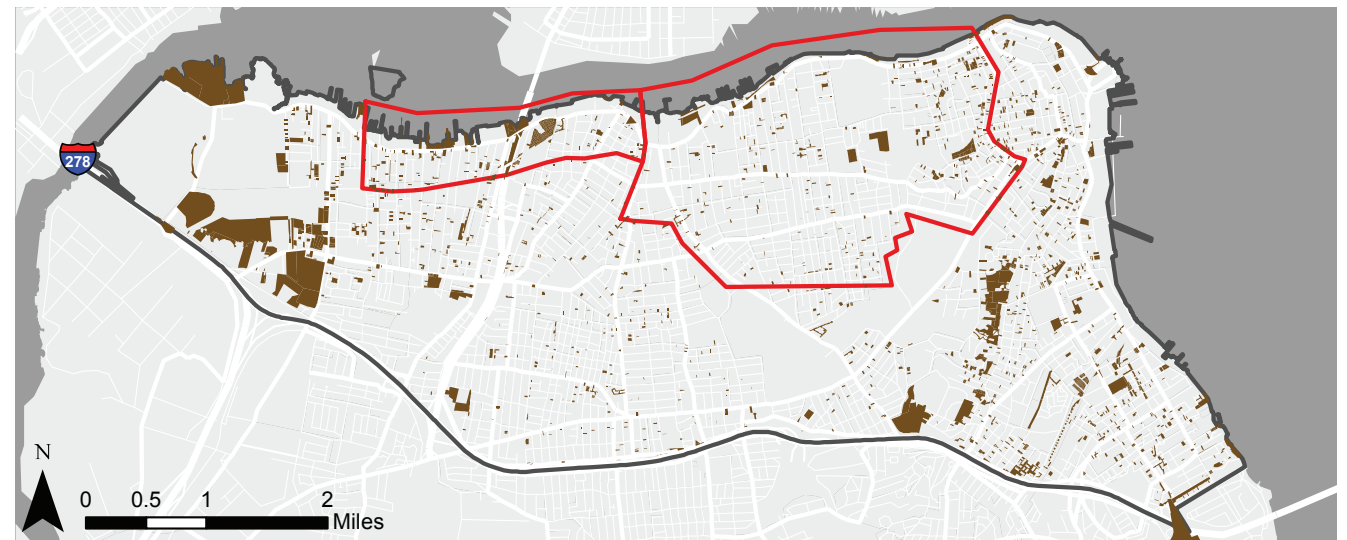
1.	<b>The Gypsum Plant, New Brighton</b> (561 Richmond Terrace)
2.	<b>Atlantic Salt Company, Inc.</b> (561 Richmond Terrace)
3.	<b>Jersey Street Dept of Sanitation Garage</b> (539 Jersey Street)
4.	<b>Con Edison Plant</b> (1 Davis Avenue)
5.	<b>Caddell Dry Dock</b> (Intersection of Richmond Terrace and Broadway)
6.	<b>Van Street and Thompkins Court</b> (Van Street/Thompkins Court)
7.	<b>Thompkins Court</b> (14 Van Street)
8.	<b>The Blissenback Boat Marina/West Brighton Park and Boat Marina</b> (1595 Richmond Terrace)
9.	<b>The NYC DEP Garage</b> (288 Clove Rd)
10.	<b>NYCTA Metropolitan Transit Authority Depot</b> (1390 Castleton Ave)
11.	<b>NYCDEP Sewer Treatment Plant</b> (1801 Richmond Terrace)
12.	<b>Sedutto's Ice Cream Factory</b> (2000 Richmond Terrace)
13.	<b>Flag Container Company</b> (2037 Richmond Terrace)
14.	<b>Edkins' Auto Sales Inc. and Salvage Yard</b> (2239 Richmond Terrace)
15.	<b>Truscanti Boat Company</b> (Richmond Terrace and Newark Ave)
16.	<b>Archer Daniel Midlands Company/Staten Island's Manhattan Project</b> (2393 Richmond Terrace)
17.	<b>Mariner's Marsh</b> (South of Richmond Terrace and West of Holland Avenue)
18.	<b>Arlington Marsh</b> (North of Richmond Terrace and West of Holland Avenue)
19.	<b>The North Shore Rail Line</b> (South of Richmond Terrace from South Avenue to St. George)
20.	<b>The Army Corps of Engineers' Seven-Year Blasting and Dredging Project in the Kill Van Kull</b> (1999-2006)
21.	<b>Shoreline of Van Name and Van Pelt</b> (Van Name Avenue/Van Pelt Avenue along Richmond Terrace)

## Vacant Lands and Brownfields

Many urban communities suffer from vacancy and disinvestment. While vacant lands can contribute to the image of blight in the near term, they also present a longer-term opportunity for bringing new and desired uses to the North Shore.

- The map at right shows the spatial distribution and zoning classification of vacant lands across the North Shore. The North Shore has approximately 625 acres of vacant land, according to New York City's land use data.
- The map also shows the location of a New York City-designated Brownfield Opportunity Area (BOA). The New York State Department of State (DSNY) provides financial and technical assistance to municipalities and community-based organizations seeking to reinvest in brownfield sites in these areas. The textbox at right lists relevant resources.

Map 13. Vacant Lands and Brownfields Opportunity Areas



Data Source: New York City parcel data were obtained from MapPLUTOTM, a product of the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml>. Vacant land identified by LandUse code 11. Data date: May 2011 - March 2012. NYS Brownfield Opportunity Areas identified in the NYC Office of Environmental Remediation Searchable Property Environmental E-Database, available at <https://gis.nyc.gov/moer/speed/login.jsp>. Date data accessed: June 15, 2012.

### Legend

- Vacant land
- NYS Brownfield Opportunity Areas
- North Shore study area

### Brownfields and Property Resources

- NYS DEC [Brownfield Opportunity Areas Program](#)
- NYS DEC [Technical Advice and Assistance](#) for Brownfields
- New York City [Brownfield Cleanup Program](#)
- PlaNYC [Brownfield Web page](#)
- PlaNYC 2011 [Chapter on Brownfields](#)
- NYC [Searchable Property Environmental E-Database \(SPEED\)](#)
- Port Richmond [Brownfield Opportunity Areas](#)
- NYC Office of Environmental Remediation [Brownfield Cleanup Programs Document Repository](#)
- NYS DEC [Environmental Justice and Permitting Policy](#)



## State and Federal Cleanups

Both EPA and NYS DEC have oversight responsibility for the cleanup of contaminated sites on the North Shore. EPA is responsible for the cleanup of three Superfund removal sites. NYS DEC is responsible for the cleanup of eight sites through several different programs.

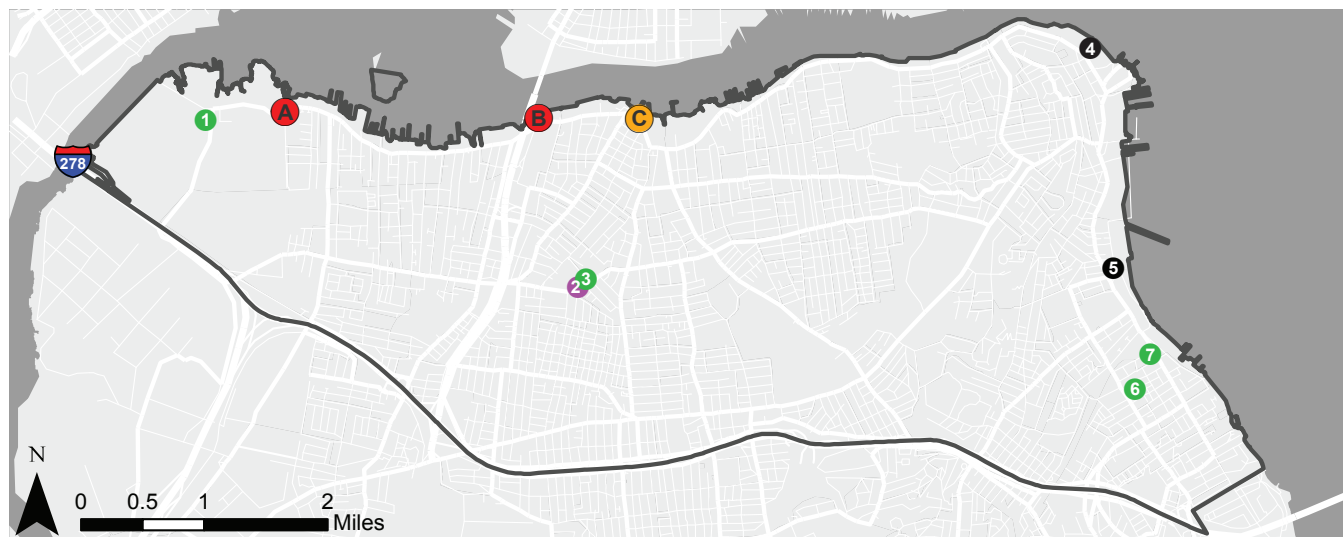
### Superfund Removal Sites

EPA conducts [removal responses](#) on contaminated properties designated as Superfund sites. A hazard ranking system identifies sites where “contamination poses an immediate threat to human health and the environment.”<sup>21</sup>

### North Shore Superfund Sites

- [Jewett White Lead Company](#): The site is a former lead manufacturing facility and lead smelter. Parts of the site property will undergo a removal action beginning in 2012 to excavate and remove lead-contaminated soils.<sup>22</sup>
- [Mariner’s Marsh](#): This site is currently a public park. Soil and coal tar contamination from former industrial activities resulted in the classification of parts of the park as a public health hazard in 2006.<sup>23</sup> A removal action began in 2011 to address contamination.<sup>24,25</sup>

Map 14. State and Federal Cleanup Sites



#### EPA Superfund Removal Sites

- **A** Mariners Marsh
- **B** Richmond Terrace Radiological Site
- **C** Jewett White Lead Co.

#### NYS DEC Remediation Sites

- **1** Port Ivory Site (Former P&G) Sites 1, 2, and 3
- **2** Former Paul Miller Dry Cleaners
- **3** Charlton Cleaners
- **4** Ballpark at St. George Station
- **5** Parcel P15 - Front Street
- **6** Sun Chemical Corporation
- **7** K - Clifton MGP - Staten Island

Data Sources: EPA Superfund site data sets available at <http://cumulis.epa.gov/supercpad/cursites/srchsites.cfm>. Date data accessed: June 15, 2012. New York State Department of Environmental Conservation environmental remediation site data set available at <http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1097>. Data date: 2010.

#### Program

- Voluntary Cleanup Program
- State Superfund Program
- State Superfund & Voluntary Cleanup Program
- Voluntary Cleanup Program
- State Superfund Program
- Brownfield Cleanup Program
- State Superfund Program

#### Legend

##### EPA NPL Sites

- Referred to Removal
- Removal Only Site

##### NYS DEC Remediation Sites

- Action Required
- Active
- Remediation Complete
- North Shore study area

- [Richmond Terrace Radiological Site](#): Radiological contamination occurred when uranium used to create the first atomic bomb was stored on site.<sup>26</sup> Testing in 1992 identified dangerous levels of radiation at the site.<sup>27</sup> The U.S. Army Corps of Engineers is currently assessing the extent of contamination; a removal action may follow.<sup>28</sup>

### Superfund Sites

A Superfund site is an area characterized as an “uncontrolled hazardous waste site” by EPA. Cleanup of these sites is funded by the federal government or potentially responsible parties (PRPs), as established by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). Superfund is the common name for CERCLA and is often used as an adjective for hazardous waste sites and the investigation and cleanup process directed by EPA.

### State Remediation Sites

New York State is cleaning up nine sites on the North Shore through the following cleanup programs.

**State Superfund Program** (Inactive Hazardous Waste Disposal Site Program): This program identifies, investigates and cleans up sites that may contain large amounts of waste that could be hazardous to human health. In instances where a party responsible for the contamination is known, the potentially responsible party pays for the cleanup; otherwise, the cleanup is paid for using EPA cleanup funds.<sup>29</sup>

**Brownfield Cleanup Program:** Sites defined by the State as brownfields are eligible for participation in this program. Site owners enter into a Brownfield Cleanup Agreement with the state. Once remediation is complete, the site receives a Certificate of Completion. Once the state issues the certificate, the site owner is no longer liable to the state for contamination at the site and is eligible for tax credits.<sup>30</sup>

**Voluntary Cleanup Program:** This program was created to encourage cleanup of contaminated sites using private sector funds; the site purchaser pays for cleanup costs and is released from future liability at the site by the state. The program is no longer accepting applications. However, the Brownfield Cleanup Program was modeled on the Voluntary Cleanup Program in 2003.<sup>31</sup>

The chart and Map 14 on the previous page provide additional information on each of the nine sites.

### Lead Contamination

Lead (Pb) is a toxic metal that can be found in the air, water or soil.<sup>32</sup> Lead is also known to be toxic when ingested by humans, and causes neuro-toxic impacts and developmental delays in children. For additional information on lead in drinking water, see p. 27.

- Common sources of lead include lead-based paint, waste released from lead-processing facilities, lead pipes and some imported products such as childrens toys, jewelry and other consumer products.
- Consumption of lead can result in elevated blood-lead levels (lead poisoning). Risks include:<sup>33</sup>
  - Learning and behavior problems in children
  - High blood pressure during pregnancy
  - Miscarriage
  - Babies born too soon or too small

### Blood-Lead Levels on the North Shore

The New York City Lead Poisoning Prevention Program's *Lead Poisoning in New York City: 2009 Annual Data Report* includes the following figures for North Shore neighborhoods:<sup>34</sup>

- 4.6 percent of children in the UHF Port Richmond neighborhood had elevated blood levels of greater than 10 micrograms per deciliter (µg/dL). This rate is 15 percent higher than the average rate of 4.0 percent in New York City children.
- In the Stapleton-St. George neighborhood, 3.1 percent of children had elevated blood lead levels.



#### Veterans Park

- *Description:* Veterans Park is a 1.32-acre public park on the North Shore. The facility includes shade trees, a walking path, benches and water fountains.
- *Lead and arsenic levels:* In 2010, EPA found elevated lead levels in park soil. Follow-up testing by New York City's Department of Parks & Recreation found that the lead in the soil met safety levels. However, testing also found arsenic levels that exceeded safety limits.
- *Response:* Following testing, the Department capped the lawn and garden bed areas of the park with clean soil. A sign informs park users of the presence of lead and arsenic in the soil and offers safety tips.

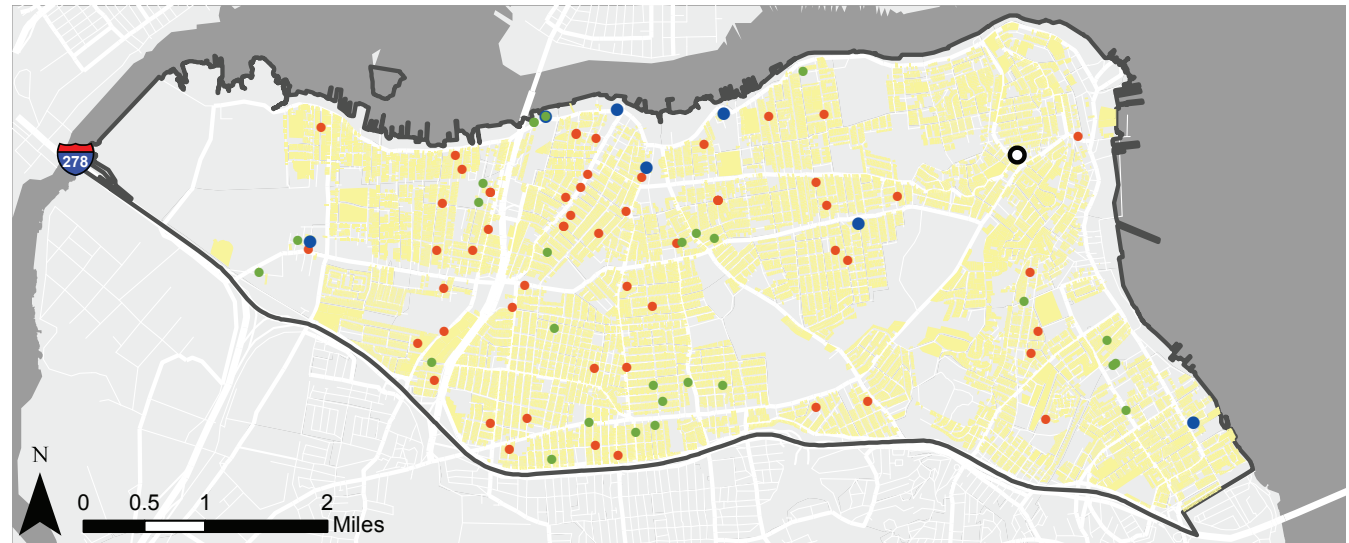
## Solid Waste

Solid waste disposal results in the potential for a number of LULUs, including waste transfer stations, waste-to-energy plants and mass-burn incinerators, landfills, and related truck traffic. In New York City, solid waste is handled by the New York City Department of Sanitation (DSNY), multi-national waste management firms and smaller disposal companies called private carters smaller waste disposal companies called private carters, which accept commercial waste. After solid waste is collected, garbage trucks typically take it to a transfer station for disposal in solid waste landfills in nearby states.

### Commercial Waste:

- *Volume:* Commercial waste accounts for 75 percent of the waste generated in New York City.<sup>35</sup>
- Private companies handle waste generated at commercial sites. These companies are regulated by the [Business Integrity Commission](#).
  - *Licensed Carters:* There are seven licensed carting companies on the North Shore. They are authorized to collect and remove all types of trade waste. Waste transfer activities may occur at some of these locations.
  - *Self-haulers:* There are 56 registered self-haulers (Class 1) on the North Shore. They are authorized to remove, collect or dispose of trade waste generated during their business operations.
  - *Construction and Demolition Carters:* There are 27 registered construction and demolition private carters (Class 2) on the North Shore. They are authorized to collect and remove only waste materials resulting from building demolition, construction, alteration and excavation.

**Map 15. Proximity of Residential Land Use to Waste Disposal-Related Sites**



Data Sources: Private carter locations were obtained from the NYC Business Integrity Commission, available at [http://www.nyc.gov/html/bic/html/trade\\_waste/trade\\_waste.shtml](http://www.nyc.gov/html/bic/html/trade_waste/trade_waste.shtml). Data date: June 2012. New York City parcel data were obtained from MapPLUTOTM, a product of the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/applbyts.shtml>.

### Legend

- New York Department of Sanitation Garage Facility
- Licensed Private Carter
- Construction and Demolition
- Registered Self-Hauler
- Residential land use
- North Shore study area

### Non-Commercial Waste:

- *New York City Department of Sanitation:* DSNY handles non-commercially generated waste, including waste from residences, nonprofits and government buildings.
- *North Shore DSNY Facilities:* Within the North Shore, there is one [garage facility](#), located at 539 Jersey Street, which houses DSNY trucks. The facility is located adjacent to a residential area and a church. Residents are concerned about the level of truck traffic at the facility as well as waste falling off of the trucks.
- *Additional Staten Island Facilities:* The waste transfer station for Staten Island is located south of the study area in Community District #2. Solid waste is collected here for transfer to a solid waste management facility for processing.





Left to right - archival photo of landfill at its operational peak, last barge arriving at landfill, artist's rendition of future Freshkills Park.

### Freshkills Landfill

The Freshkills Landfill is located in western Staten Island, south of the North Shore study area. It opened in 1947 as a municipal waste landfill and closed in 2001. At one time, it was the world's largest landfill. Following the September 11th attacks, the landfill served as a sorting ground for materials from the World Trade Center site. Monitoring of landfill materials and air, soil and water quality is ongoing. The property is now being transformed into the 2,200-acre Freshkills Park, a redevelopment process that is expected to take 30 years.

## Noise

Noise pollution can be an undesirable result of LULUs such as industrial sites, construction work, garbage pickup and processing, and truck traffic. In 2011, the U.S. Army Corps of Engineers conducted a study of noise on the North Shore. The study placed microphones in five locations along the shoreline and monitored noise levels for one week. The study concluded that:

"regional sound levels are typical of a densely developed urban area with a mix of heavy industry, commercial, marine, water transit, and single and multi-family residential land use types with a mix of parks, schools, playgrounds, and municipal buildings. Typical regional noise generators include water traffic (plus onsite area noise from the Staten Island Ferry), aircraft, local construction, local vehicular traffic (Richmond Terrace is dominant), pedestrian and neighborhood activities, and home maintenance."<sup>36</sup>

New York City's Department of Environmental Protection (NYC DEP) and the New York City Police Department share noise enforcement duties based on the type of noise complaint.<sup>37</sup> The textbox at right provides examples of noise restriction statutes.

### Sample Noise Ordinances in New York City<sup>38</sup>

#### Garbage Pickups:

"§ 24-225 (b) It shall be unlawful to operate or cause to be operated a refuse collection vehicle, including such a vehicle equipped with a compacter, within 50 feet of any residential receiving property at or after 11:00 p.m. and before 7:00 a.m."

#### Construction Work:

"Monday-Friday, 7 a.m. to 6 p.m. Variances may be granted under extraordinary circumstances. Note: under Local Law 18/1993, projects involving one- and two-family homes, rectories and convents are allowed to work on Saturday and Sunday, between the hours of 10 a.m. and 4 p.m. – provided the project is not within 300 feet of any house of worship."





## What You Can Do

Ways you can get involved to protect public health and improve your neighborhood's quality of life include:

- *Get tested for blood lead levels:* If you are concerned about blood lead levels for yourself or a minor, call 311 for help finding a doctor or a clinic that can offer a blood lead test and follow-up treatment. Medicaid-eligible children ages six and under can be tested for free at local and federal health departments.
- *Report noise violations:* Call 311 to report any illegal industrial operations in your area. Additionally, you can forward your complaint number to the North Shore Community Coalition for Environmental Justice at [info@nscej.org](mailto:info@nscej.org) and they will follow-up on your complaint.
- *Report concerns about cleanup sites:* Contact EPA or NYS DEC if you have concerns about a particular site.
- *Help plan Freshkills Park:* The city is currently conducting an environmental and land use review of park plans and there are opportunities for public comment. To find out how to get involved, visit the Freshkills Park website.
- *Find opportunities to reuse vacant lots and buildings:* Left alone, these areas can reduce nearby property values, encourage illegal activities and create a perception of blight. However, planning for the reuse of these properties can also create opportunities for economic revitalization and ecological restoration. Identifying sites that can support desired land uses and assessing the accuracy of vacancy data can lead to insights that help prioritize new investments in North Shore communities.



## Tips for Protecting Your Family from Lead Poisoning

New York City's Lead Poisoning Prevention Program (NYC LPPP) provides the following tips for preventing lead poisoning. For more information, visit NYC LPPP's website.

- Use cold tap water for making baby formula or baby cereal, and for drinking or cooking. Lead can get into water through old plumbing. Hot tap water dissolves lead faster and is likely to contain higher levels of lead if present.
- Keep children away from peeling paint and home repairs.
- Report peeling or damaged paint to your landlord. Your landlord must safely fix peeling paint – it's the law! If this does not happen, call 311 for help.
- Wash floors and windowsills often. Wash children's hands and toys too.
- Remove shoes before entering your home.
- Wash work clothes separately from the family laundry if someone in your household works with lead.

## Air

Air pollution can damage the environment and our health. The amount of pollutants released into the air and air patterns determine local pollution levels.

Air quality on the North Shore is affected by mobile sources such as street traffic as well as stationary sources such as factories. Wind patterns mean that pollutant sources outside the study area, such as industrial areas in New Jersey, also affect air quality on the North Shore.

### Regulation of Air Pollution

EPA and NYS DEC regulate air quality through standards set by the federal Clean Air Act (CAA). The CAA provides guidance on ways to reduce air pollutants and sets air pollutant limits for both criteria pollutants and hazardous air pollutants.

- *Criteria pollutants* are the six common air pollutants known to have serious effects on human health and the environment. Allowable levels for these pollutants are set using criteria based on known human health or environmental effects.<sup>39</sup>
- *Hazardous air pollutants (HAPs)* are pollutants that may affect human health and the environment. These pollutants do not have regulated limits based on risks to human health. Instead, limits are regulated based on the best available technology for reducing releases.<sup>40</sup>

### Stationary Sources

Stationary sources of air pollution include industrial facilities such as power plants, chemical plants, oil refineries and manufacturing facilities.<sup>41</sup>

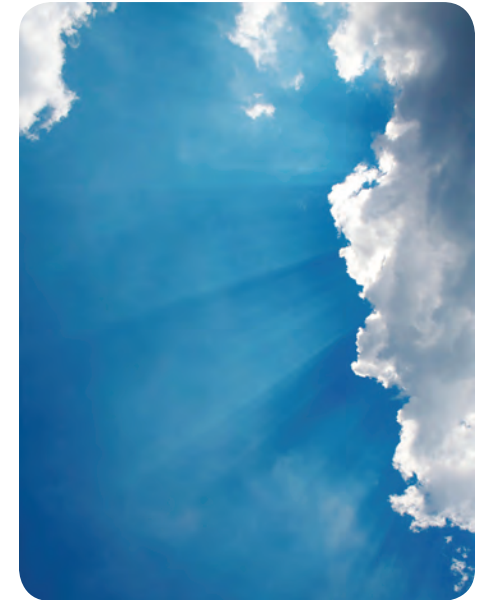
EPA and the state issue permits to regulate stationary sources. Large stationary sources require full air pollution permits. Smaller sources such as dry cleaners must register with the NYS DEC Air Source Registration Program. Release of air pollutants above a facility's permitted level is a violation and the facility could be subject to enforcement actions by the State or EPA. Visit NYS DEC's [Web page for more information](#).

NYC DEP maintains a tracking system for boiler registrations and renewals. Visit the NYC DEP's [Web page for more information](#). Facilities with air permits in the study area are not currently in violation or under enforcement actions.<sup>42</sup> To locate

facilities and check their compliance and enforcement status, visit EPA's [ECHO database](#).

### Mobile Sources

Mobile sources of air pollution include vehicles, engines and equipment used for construction, agriculture, transportation and recreation.<sup>43</sup>



### Criteria Pollutants

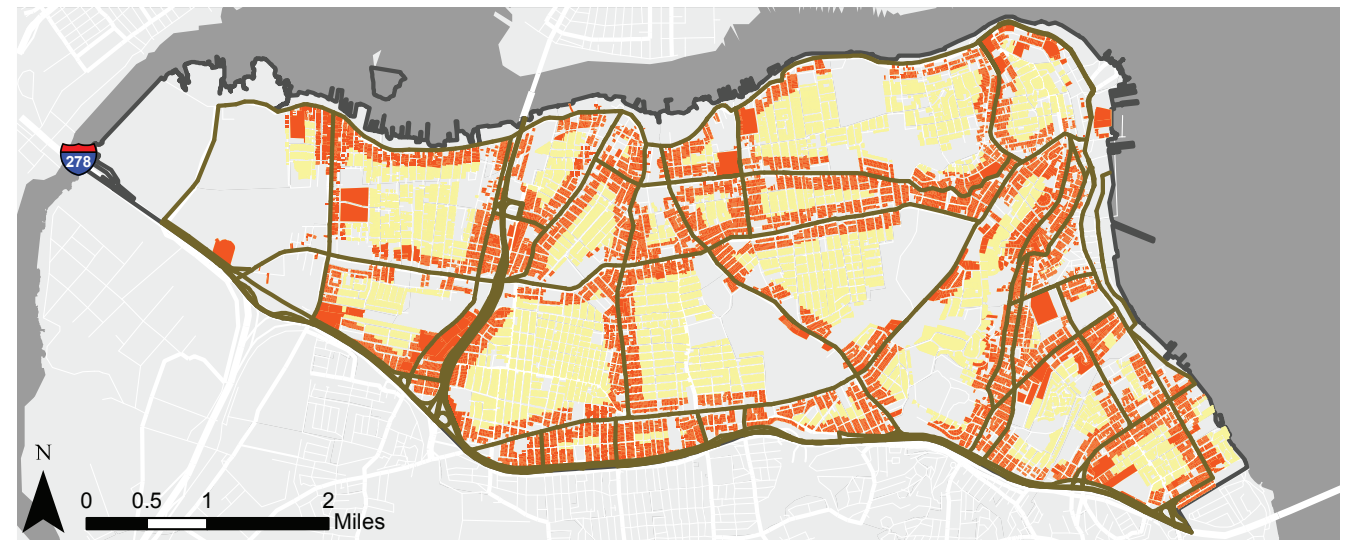
- [Carbon monoxide](#) (CO) is a colorless, odorless gas produced from the incomplete burning of fuel.
- [Lead](#) (Pb) is a metal that may be present in air, soil or water. Airborne lead comes from burning coal, oil and waste and from lead smelting.
- [Nitrogen oxides](#) (NOx) are highly reactive gasses that form during the burning of coal, oil or gas and are key component of ground-level ozone.
- [Ozone](#) (O3) forms from the chemical reaction of sunlight with air containing certain pollutants from vehicle exhaust, industrial emissions and gasoline vapors. Ozone is a major environmental challenge for the Northeast region as a whole.
- [Particulate Matter](#) (PM 2.5 and PM10) is made up of very small particles from road dust, vehicle exhaust, including diesel exhaust, and industrial and power plant emissions that get carried through the air.
- [Sulfur dioxide](#) (SO2) is a colorless gas that contributes to the formation of acid rain.

## Traffic and Air Pollutants

According to EPA, motor vehicles are responsible for up to 50 percent of all pollutants released into the air in the United States.<sup>44</sup> Emissions from various motor vehicles, including trucks, busses and other street traffic, impact the North Shore. Local residents are concerned about traffic volume in their neighborhoods as well as diesel emissions.

- **Truck Traffic:** The port functions as a major distribution center that draws high levels of truck traffic. These trucks are routed through residential areas. Many residential areas on the North Shore are located within 500 feet of a truck route (see Map 1). Truck route locations appear to be spread relatively evenly across residential areas on the North Shore (see Map 2).
- In 2005, the California Air Resources Board recommended siting sensitive land uses such as residences, schools, daycares, playgrounds and medical facilities further than 500 feet from freeways and high-traffic roads to reduce exposure to air pollution.<sup>45</sup>
- **Diesel Emissions:** Diesel particulates are airborne liquid and solid particles that are released into the air from combustion in the form of diesel exhaust. People can experience adverse health impacts from the diesel particulates as the particles lodge in their lungs and may aggravate asthma or other respiratory conditions. Diesel exhaust is emitted by both on-road and off-road diesel engines, including those in trucks, busses, cars, trains, marine vessels and heavy-duty equipment. For more information on diesel particulate, visit EPA Region 2's Web page on [Diesel Particulate Matter](#).

**Map 16. Proximity of Residential Areas to Truck Routes**



Data Source: New York City Department of Transportation NYC Truck Routes data set, created from LION, the City's base map of streets, available at <http://a841-dotweb01.nyc.gov/datafeeds/#TruckRoutes>. Data date: September 2009. New York City parcel data were obtained from MapPLUTOTM, a product of the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/applbyte.shtml>. Data date: May 2011 - March 2012.

### Legend

- Truck routes
- Residential land use
- Residential land use within 500 feet of a truck route
- North Shore study area

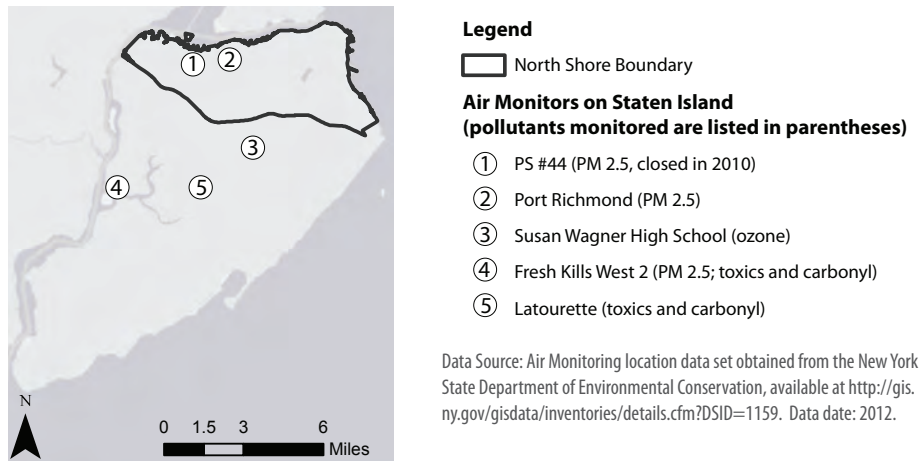


## Permits and Monitoring

Air monitoring stations help track the combined effects of the various sources of air pollution impacting the North Shore. New York's [Ambient Air Quality Monitoring](#) program measures air quality at over 80 monitoring sites across the state and reports the results of these measurements.

- The map below shows the locations of air monitors in and around the North Shore. There are four stations currently operating on Staten Island; one station has been closed (PS #44). Each monitor measures specific pollutants. The legend at right provides additional details.
- Because each station provides data on a limited number of pollutants in a specific geographic area, there are limitations to interpreting the air quality data. Air quality data tends to be reported at a regional level and may not completely reflect air quality at a neighborhood level.

**Map 17. Air Monitor Locations in Staten Island**



### Air Quality Index

The Air Quality Index (AQI) measures overall air quality by considering all of the criteria pollutants measured in a geographic area. AQI includes all available data. However, four of the six criteria pollutants are not measured by air monitoring stations in Staten Island. Future monitoring for lead, carbon monoxide, nitrogen oxides, and sulfur dioxide could provide an additional level of certainty regarding air pollution levels and risks on the North Shore.

## Air Quality Concerns

According to the Air Quality Index, air quality in Staten Island was determined to be unhealthy for sensitive groups for 10 days in 2011.<sup>46</sup> Sensitive groups include people who are at greater risk from exposure to ozone (older adults, children and people with lung or respiratory disease) and people who are at greater risk from the presence of particles in the air (older adults, children, people with lung, respiratory and heart disease). Additional information on ozone and particulate matter readings follows.

In addition to posing health risks for the sensitive populations mentioned above, air quality, particularly particulate pollution, is known to be one type of trigger for asthma attacks. Additional information about the occurrence of asthma on the North Shore can be found on the following page.

### Ozone

- *Richmond County's results:* Ozone in Staten Island is monitored at the Susan E. Wagner High School air monitor, which is located south of the North Shore study area.<sup>47</sup> In 2011, ozone pollution measured in Staten Island sometimes exceeded EPA's ozone standard of 0.075 parts per million (ppm). The fourth highest ozone day of the year in 2011 had a value of 0.087 ppm, which is 13 percent higher than the EPA ozone standard.<sup>48</sup> This level is considered "moderate" and people who are more sensitive to ozone should avoid long periods of outdoor activity when ozone reaches this level.<sup>49</sup>

**What Is Ozone?**

Ozone is a criteria pollutant which forms from the chemical reaction of sunlight with air containing certain pollutants in vehicle exhaust, industrial emissions and gasoline vapors. Ozone is a major environmental challenge for the Northeast as a whole.<sup>51</sup>

- *Response:* State and federal agencies control emissions from smokestacks and vehicle exhaust to reduce the release of pollutants that can form ozone when released into the air. Personal choices, such as use of low-volatility fuels, low-emission vehicles and water-based paints as well as careful home storage of gasoline and other solvents can also reduce emissions.
- *Health effects:* Increased levels of ozone have been linked to heart attacks, asthma attacks and premature death.<sup>50</sup> Children, seniors, people who are active outdoors and people with respiratory health issues such as asthma are

more susceptible to negative effects of higher ozone levels.<sup>52</sup> Everyone reacts differently to ozone levels; some people can have negative reactions even when ozone levels are below current standards.<sup>53</sup>

- *Ozone forecasting:* Ozone levels change constantly. To check current ozone levels as well as general air quality on Staten Island, go to the [AIRNow.gov](http://AIRNow.gov) map. This map classifies conditions into six categories ranging from “good” to “hazardous.” NYS DEC also forecasts ozone levels and posts [warnings](#) on its website if dangerous levels are expected. Warnings are also available on the Ozone Hotline (800-535-1345). For additional information on how to protect your health, see What You Can Do or visit NYS DEC’s [Ozone Web page](#).

### Particulate Matter (PM2.5)

- *Richmond County’s results:* In 2011, particulate matter measured in Richmond County fell below the EPA air quality standard.<sup>54</sup> This means particulate matter did not pose a health risk at the county-wide level. Data for specific localities within Richmond County was not available.
- *Health effects:* Respiratory problems such as bronchitis and asthma can be triggered or worsened by high levels of particulate matter in the air.<sup>55</sup>

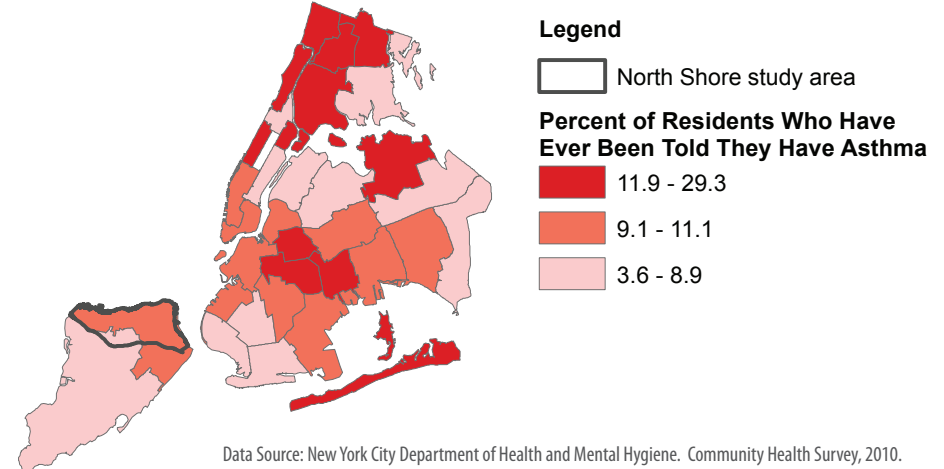
#### What Is Particulate Matter?

Very small particles that originate from road dust, vehicle exhausts, and industrial and power plant emissions that get carried through the air.<sup>57</sup>

### Asthma

- *Occurrence of asthma on the North Shore:* The asthma rate in northern Staten Island (9.3 percent), which includes the North Shore, is higher than the rate for southern Staten Island (6.2 percent). However, the rate in northern Staten Island is still lower than the average rate of asthma across New York City (10.8 percent).<sup>56</sup> The map at right shows the rates of asthma occurrence across New York City.
- *Relation to air quality:* Pollutants in the air are one of the most significant types of [asthma triggers](#).

Map 18. Incidences of Asthma in New York City



### Asthma Free School Zone (AFSZ) Training

Asthma is a disease that makes it hard to breathe. Asthma attacks can happen when your lungs are exposed to something that causes swelling, restricting your airways. This can cause your chest to feel tight and may result in coughing, wheezing and shortness of breath. A severe asthma attack can be fatal.<sup>58</sup>

With funding from EPA’s TASC program, four public schools on the North Shore received asthma free school zone training in April 2012 from the Real World Foundation, a nonprofit based in New York City. NSCCEJ identified the need for the AFSZ training in Staten Island, as well as the training provider. The training helped participants address important questions such as “how do we prevent or reduce asthma in my school?” Participants also worked on practical actions to reduce asthma triggers and identify educational opportunities for students, parents and staff.



## What You Can Do

There are many things you can do to get involved, protect your health or help improve air quality.

- *Influence the permitting process:* Submitting comments during the public comment period for a local facility permitting process (e.g., a new permit, a permit modification, or permit renewal) can help strengthen pollution regulation on the North Shore.
- *Care for your health:*
  - Check ozone levels regularly. NYS DEC forecasts ozone levels and posts [warnings](#) on its website if dangerous levels are expected. Warnings are also available on the Ozone Hotline (800-535-1345).
  - Limit outdoor activity when ozone levels are high. In general, ozone levels are highest during the afternoon and early evening hours. It is best to schedule outdoor activities, such as vigorous exercise and children's activities, during morning hours.
  - NYS DEC recommends that people with asthma or other respiratory problems spend time in cool areas where air is filtered. If you experience respiratory symptoms, you may wish to consult a doctor.
- *Reduce emissions:*
  - Drive low-emission vehicles, limit car trips and be careful to avoid spills while refueling your vehicle.
  - Use water-based paints for home improvement projects and take steps to prevent spills when storing or handling gasoline and other solvents.



### Additional Resources

- [Plain English Guide to the Clean Air Act](#)
- [EPA – about permits and enforcement](#)
- [EPA Activities to Promote Environmental Justice in the Permit Application Process \(draft guidance\)](#)
- [NYS DEC air permits and enforcement](#)
- [NYC Asthma Initiative](#)
- [EPA Asthma Web page](#)
- [Air quality data](#)
- [Air emissions data](#)



## Water

Good water quality is integral to the health of our environment and communities. Poor water quality can also impact water-based recreational opportunities. Threats to water quality include pollutants released directly into a water source as well as runoff that picks up pollutants from the ground and carries them into the water.

NYS DEC and EPA regulate water quality. NYS DEC's [Water Quality Standards and Classifications program](#) sets state water quality standards for surface and ground water. The program also classifies surface waters and their best-intended uses.

Overseen by EPA, the program conforms with the federal [Clean Water Act](#) (CWA).<sup>59</sup> The CWA addresses pollution and its effect on surface waters and has enabled programs to protect the nation's water bodies from point source and nonpoint source pollution.

- *Point source pollutants* originate from direct and identifiable sources such as pipes, manmade ditches or sewer system outfalls.
- *Nonpoint source pollutants* come from many diffuse sources, caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away pollutants that end up in waterways.<sup>60</sup>

Both types of pollutants are addressed by the National Pollutant Discharge Elimination System (NPDES), which was established by the CWA.



### Sources of Water Pollution on the North Shore

Significant point sources on the North Shore include:

#### Combined Sewer Overflows (CSOs)

There are 35 combined sewer outfall locations on the North Shore (see the [NYC Oasis website](#) map).<sup>61</sup> Overflows at these outfalls may contain substances such as suspended solids, toxic chemicals and floating materials that raise pollutant levels above state water quality standards.<sup>62</sup> These pollutants can pose risks

for human and aquatic health. They can also cause beach closures.<sup>63</sup> NYS DEC regulates and permits outfalls through the [State Pollutant Discharge Elimination System](#) program.<sup>64</sup>

#### What Are CSOs?

Combined sewers are designed to overflow their contents, including raw sewage and human waste, into nearby waterbodies when they reach capacity. CSOs occur when sewers that collect storm water, sewage and industrial wastewater overflow. This typically happens during heavy rains when the volume of storm water is too large for a sewer system to handle. Overflow water discharges directly into water bodies such as streams and rivers at designated overflow locations, called outfalls.

#### The Port Richmond Wastewater Treatment Plant

The Port Richmond facility is a wastewater treatment plant serving the North Shore. It processes residential, commercial and industrial wastewater and stormwater from the North Shore's combined sewer system. After the facility removes pollutants and fecal matter, the water is treated and released into the Kill Van Kull River. Wastewater treatment plants can be sources of odor and ambient air pollution. Recent upgrades at the Port Richmond facility expanded its ability to capture excess wastewater and stormwater during severe weather. These upgrades help improve the water quality of the Kill Van Kull by reducing CSOs.<sup>65</sup> The facility is permitted through the NPDES program.

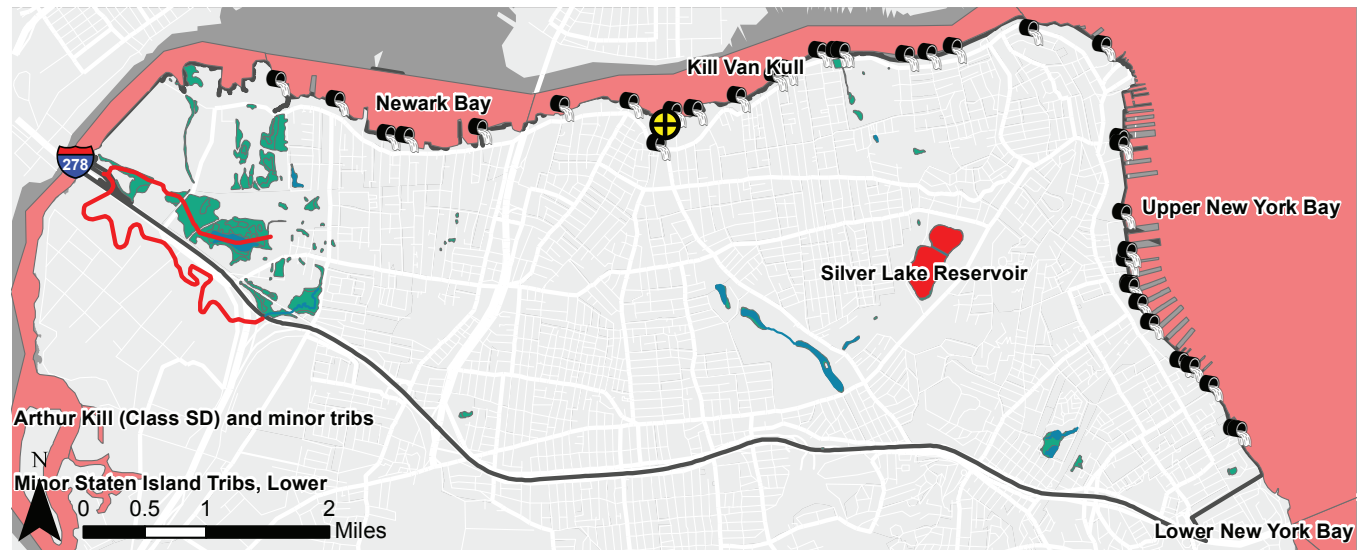
Like most urban communities, waters on the North Shore are also impacted by non-point source pollution. Pollutants in runoff can include sediment, oil, grease and chemicals from vehicles, lawn pesticides and fertilizers, viruses and bacteria from animal waste and failing septic systems, chemicals from road treatments, and heavy metals from roof shingles, vehicles and other sources.<sup>66</sup>

## Water Quality

Point and nonpoint source pollution affects the quality of water in your community. NYS DEC works with EPA to monitor and report on the impairments of waters from various types of pollutants.

- As illustrated on the map, several major water bodies on the North Shore are considered impaired for one or more reasons. These kinds of impairments are common in urban areas. The chart at right contains further information on the types of impairments experienced by each water body.
- One of New York City's largest remaining wetland areas is located on the northwest side of Staten Island; the area includes part of the North Shore.<sup>67</sup> It is important to protect these natural resource areas from degradation and development because of their significant ecological functions.

**Map 19. Water Quality Impairments and Combined Sewer Overflow Outfalls**



Data Sources: Combined sewer outfall data set provided by the NYC Department of Environmental Protection, can be viewed through the NYC Oasis map viewer at <http://www.oasisnyc.net/map.aspx>. Date data accessed: July 7, 2012. Impaired waters data set, "Water Inventory/Priority Waterbodies List," obtained from NYS Department of Environmental Conservation, Division of Water, Bureau of Water Assessment and Management, available at <http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1117>. Data date: 2007. Wetlands data set obtained from the U.S. Fish & Wildlife Service National Wetlands Inventory, available at <http://www.fws.gov/wetlands/Data/Data-Download.html>. Data date: 2012. New York State Hydrography data set obtained from the New York State Office of Cyber Security, available at <http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=928>. Data date: 2008. Port Richmond WPCP data location provided by the NYC Department of Environmental Protection, can be viewed through the NYC Oasis map viewer at <http://www.oasisnyc.net/map.aspx>. Date data accessed: September 10, 2012.

**Legend**

- Port Richmond Water Pollution Control Plant
- CSO outfall
- Impaired stream
- Impaired lake
- Impaired estuary
- Stream
- Lake
- Wetlands
- North Shore study area

### North Shore Water Quality Impairments

The State of New York uses four classifications for water body impairments. These definitions are listed from most to least severe below.<sup>68</sup> The chart that follows indicates the type of impairments affecting major water bodies on the North Shore; classifications are based on the water body's ability to support a range of uses.

- Precluded:** All aspects of a specific water body's use are prevented.
- Impaired:** Specific water body uses may be periodically prevented, limited or restricted, discouraged, or require additional/advanced measures or treatment to be feasible.
- Stressed:** Specific uses of the water body are periodically discouraged.
- Threatened:** Specific uses of the water body are currently supported. However, factors such as nearby land use, detection of increasing pollution levels, or susceptibility to water quality threats may indicate the potential for future restrictions.

### Status of North Shore Water Bodies

Water Body	Type	Aquatic Life	Fish Consumption	Recreation	Aesthetics
Silver Lake Reservoir	Lake	Threatened	-	-	-
Minor Staten Island Tribs, Upper	Stream	Impaired	-	Stressed	Stressed
Newark Bay	Estuary	Stressed	Impaired	Impaired	Stressed
Kill Van Kull	Estuary	Stressed	Impaired	Impaired	Stressed
Upper New York Bay	Estuary	-	Impaired	Impaired	Stressed



## Wetlands

[Wetlands](#) are lands saturated with water during all or parts of the year. NYS DEC studies, conserves and restores tidal and freshwater wetland areas.

Wetlands have many important [ecological functions](#), including:

- Flood and stormwater control
- Ground water discharge and recharge sites
- Natural improvement of water quality by absorption of pollutants
- Erosion control
- Nutrient cycling
- Fish and wildlife habitat
- Education and research areas

## Drinking Water Quality

New York City's drinking water comes from upstate reservoirs. NYC DEP evaluates its safety through monthly testing of over 1,200 water samples from across the city.

Annual [water quality reports](#) are available online. In 2011, testing results indicated only one exceedance of water quality standards. At some testing stations, pH levels were found to be above EPA standards. However, the average pH in New York City drinking water was below the EPA standard. This indicates the violations were localized.



## Lead in Drinking Water

Although New York City's water supply is virtually lead-free, drinking water can pick up lead when traveling through piping systems in some homes. In 2011, drinking water tested at city sampling sites averaged a non-detect reading for lead. However, sampling at some residential water taps did exceed recommended levels.

Additional NYC DEP resources include:

- [Lead in Drinking Water from Household Plumbing](#)
- [Tips on Reducing Exposure to Lead in Drinking Water](#)

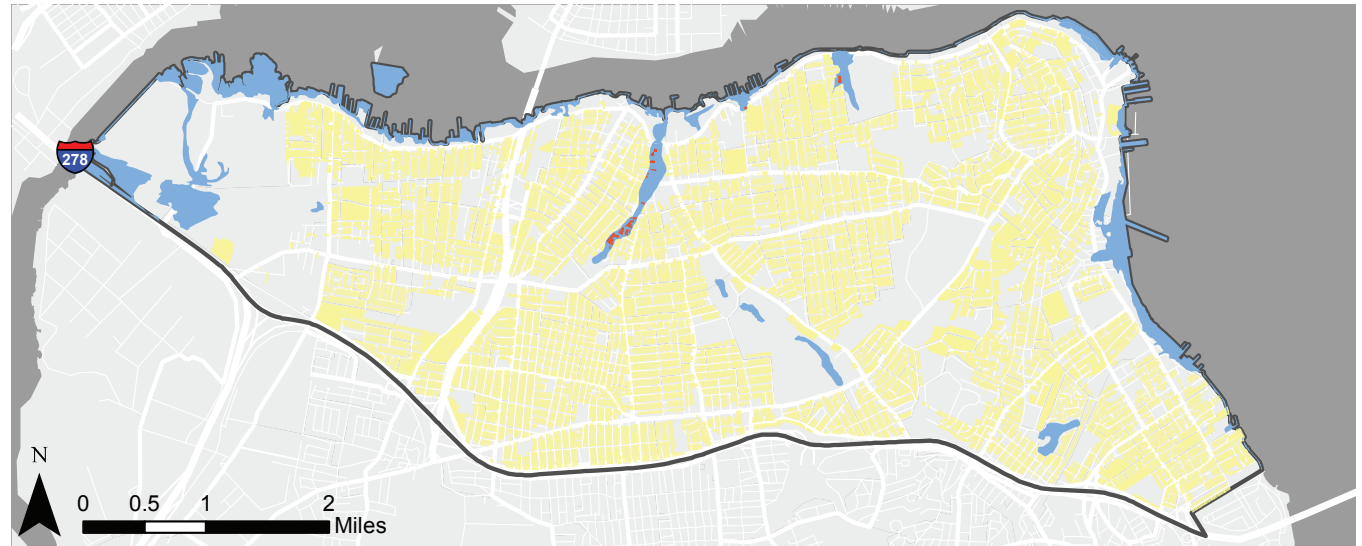


## Flooding

The map at right shows areas of the North Shore that are susceptible to 100-year floods, which are floods so severe that they have only a one percent chance of happening each year. Flooding is an important concern of residents living on the North Shore, particularly as it pertains to storm surge and climate-related sea-level rise. Currently there is a dialogue underway in New York City and with EPA on the particular vulnerabilities of low-lying waterfront communities to storm surge and sea level rise. The North Shore community is one of those areas of concern within New York City.

- Few neighborhoods on the North Shore are located within the 100-year flood zone, much of which exists along the shoreline. However, residences are located next to the zone and flood water levels can be unpredictable.
- Wetlands are an important natural resource that can help absorb, store and slow down the movement of water.<sup>69</sup> For more information on wetlands, see the text box on the previous page.

**Map 20. Proximity of Residential Areas to the 100-Year Flood Zone**



Data Sources: Federal Emergency Management Agency 100-year flood zone data set available at <http://www.fema.gov/hazard/map/index.shtm>. Data date: 2007. New York City parcel data were obtained from MapPLUTOTM, a product of the NYC Department of City Planning, available at <http://www.nyc.gov/html/dcp/html/bytes/ap-pbyte.shtml>. Data date: May 2011 - March 2012.

### Legend

- 100-year flood zone
- Residential land use
- Residential land use within 100-year flood zone
- North Shore study area

### Water-Based Recreation

Water-based recreation includes swimming, fishing, boating and nature observation.

- *Swimming:* There are no public beaches on the North Shore study area. However, there are beaches on the east coast of Staten Island. The New York Department of Health and Mental Hygiene monitors water quality at New York's beaches and issues [advisories](#), which are available online or by calling 311. Public pools also provide recreational water access. The map on p. 7 shows park facilities on the North Shore, including public pools. For more information, visit [New York City's Department of Parks & Recreation website](#).
- *Fishing:* In some cases, consumption of fish from polluted waters can cause harm to human health. For a listing of fish consumption advisories, see the chart on p. 26.
- *Boating:* Some public waterfront access points offer boating access facilities. Boating access points can be found on the [Waterfront Access map](#) in the Recreation, Habitat and Open Space section of this document.
- *Waterfront access:* Public waterfront access is discussed further in the Recreation, Habitat and Open Space section of the Profile.



## What You Can Do

Ways you can get involved with improving and raising awareness of water quality on the North Shore include:

- *Prevent water pollution from household activities:* New York City provides [recommendations](#) on how to help improve water quality through greener household practices. For a sample, see the text box below.
- *Reduce the possibility of lead contamination in tap water:* New York City provides [recommendations](#) for how to reduce the likelihood of lead consumption from tap water and also provides free [lead test kits](#), which can be ordered online or by dialing 311.
- *Reduce exposure to water pollution:* Check water quality [advisories](#) and fish consumption [advisories](#) before going swimming or fishing.

## NPDES Permitting Resources

For information on specific facilities with NPDES permits, you can visit EPA's [Envirofacts Warehouse](#).

How to search:

- To identify facilities in your area with wastewater discharge permits, click on "Water" and enter your zip code.
- To view an NPDES facilities map, click on "Maps" and choose "EnviroMapper."
- To conduct an advanced search, click on "Queries" and select "PCS."

## Preventing Water Pollution

New York City recommends the following ways to prevent water pollution:

- Connect your laundry water discharge to a sanitary sewer, where available. It is the law!
- Check your car for leaks. Take used motor oil and antifreeze to local gas stations for recycling. It is illegal to dump these waste products into storm drains.
- Direct downspouts away from paved surfaces.
- Use biodegradable detergents when washing your car. Wash it in a location where you can minimize the flow of detergents into storm drains.
- Clean up after your pets. It's the law! Pet waste contains harmful nutrients and pathogens that can contaminate surface water.
- Dispose of yard waste properly; don't dump it in marshes or vacant lots. The NYC Department of Sanitation collects yard waste for composting.
- Follow directions closely when using fertilizers and pesticides to avoid polluting runoff.

New York City. *The Staten Island Bluebelt Website:* [http://www.nyc.gov/html/dep/html/dep\\_projects/bluebelt.shtml](http://www.nyc.gov/html/dep/html/dep_projects/bluebelt.shtml). Access June 6, 2012.

## Summary

The North Shore of Staten Island possesses many valuable assets to build on, including a rich architectural heritage, vibrant urban and natural spaces, miles of waterfront, and committed, talented residents coming together to make a difference.

The North Shore faces many challenges as well – sources of pollution, contaminated land, vacant properties, and land use, zoning and transportation corridors that affect our daily quality of life.

This Environmental Profile is designed to inform our residents, policy-makers, decision makers and regulators about the need to balance land use, zoning and economic development goals with the desire to create and sustain, healthy, whole and vibrant communities. This profile can help better inform decision-making about a range of concerns including: brownfields cleanup and revitalization, creating more accessible waterfront resources, preserving natural assets, and empowering residents to help guide land use and zoning decisions that will impact their neighborhoods.

Each individual, each household, each block and each neighborhood can contribute to improving our community. By becoming more informed, by becoming more engaged in community building and revitalization efforts, each person on the North Shore can make a powerful difference. Coming together and working together is the key to creating a future of opportunity and possibility for the people, families, businesses and organizations who call the North Shore their home.

For more information on the North Shore Community Coalition for Environmental Justice, please visit the Coalition's [website](#).

To learn more about the North Shore Environmental Justice Showcase Community Pilot, please visit U.S. EPA Region 2's [website](#).



*An iconic view: the Staten Island Ferry.*



## Endnotes

1. U.S. EPA. Environmental Justice Web page. Available at <http://www.epa.gov/environmentaljustice>. Access July 6, 2012.
2. NORTH SHORE 2030: Improving and Reconnecting the North Shore's Unique and Historic Assets.
3. American Community Survey. 2010 One-year Estimates.
4. Ibid.
5. U.S. Census Bureau. (2009 ACS 3-year estimates). Selected Economic Characteristics: 2007-2009, Staten Island borough, Richmond County, New York. Available from: [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_09\\_3YR\\_DP3YR3&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_09_3YR_DP3YR3&prodType=table). Access July 5, 2012.
6. It is not possible to map health concerns for the North Shore specifically, because this information is not collected by NYC using the North Shore boundary. For this reason, the assessment can point out some potential health concerns within the North Shore, but cannot talk about health concerns on the North Shore as a whole.
7. Lead Poisoning in New York City: 2009 Annual Data Report. NYC Department of Health and Mental Hygiene (DOHMH). December 2010. Available online at: <http://www.nyc.gov/html/doh/downloads/pdf/lead/lead-2009report.pdf>.
8. Community Health Profile: Port Richmond. New York City Department of Health and Mental Hygiene. Second Edition – 2006. Available online at: <http://www.nyc.gov/html/doh/downloads/pdf/data/2006chp-501.pdf>.
9. Bureau of Vital Statistics, NYC DOHMH, 2003 - 2004; U.S. Census 2000/NYC Department of City Planning; analyzed by the Bureau of Epidemiology Services. Available online at: <http://www.nyc.gov/html/doh/html/stats/stats-mortality.shtml>.
10. Infant Mortality Rate by Community District: Infant Deaths in New York City, 2001-2009. Bureau of Vital Statistics data compiled by NYC DOHMH Bureau of Maternal, Infant and Reproductive Health, August 2011. Available online at: <http://www.nyc.gov/html/doh/downloads/pdf/ms/bimt-infant-mortality-by-community-district.pdf>.
11. Diamond, Douglas B., "The Relationship between Amenities and Urban Land Prices." Land Economics. 56:21–32 (1980). Conway, Delores, Kahle, Chris, and Wolch, Jennifer. "Pricing the Green City: An Hedonic Analysis of Residential Property Values and Urban Landscape Features Using GIS." Working Paper. Los Angeles: University of Southern California, Lusk Center for Real Estate (2002).
12. Trust for Public Land. 2004. No Place to Play: A Comparative Analysis of Park Access in Seven Major Cities. Available online at: <http://www.8-80cities.org/Articles/Trust%20for%20Public%20Land%20No%20Place%20To%20Play.pdf>. Access July 6, 2012.
13. Yates, Maura. May 27, 2010. Sea claims part of Staten Island recreation center as Cromwell collapses; no one hurt. SiLive Website: [http://www.silive.com/northshore/index.ssf/2010/05/sea\\_claims\\_part\\_of\\_rec\\_center.html](http://www.silive.com/northshore/index.ssf/2010/05/sea_claims_part_of_rec_center.html). Access July 6, 2012.
14. NYC Office of Environmental Remediation. n.d. About OER. Nyc.gov. Available from: <http://www.nyc.gov/html/oer/html/about/about.shtml>. Access July 5, 2012.
15. Anderson, Roger C., et. al., Savannas, Barrens, and Rock Outcrop Plant Communities of North America, Ch. 19, Cambridge University Press, 1999.
16. New York Natural Heritage Program. 2011. Online Conservation Guide for Serpentine Barrens. Available from: <http://www.acris.nynhp.org/guide.php?id=9950>. Accessed July 6th, 2012.
17. New York Natural Heritage Program. 2011. Online Conservation Guide for Oak-Tulip Tree Forest. Available from: <http://www.acris.nynhp.org/guide.php?id=9985>. Accessed May 11th, 2012.
18. Cocino County. Land Use Webpage: <http://www.coconino.az.gov/commdevelopment/ComprehensivePlan/landuse.asp>. Access June 6, 2012.
19. U.S. EPA Region 2. 2010. North Shore Staten Island, An Environmental Justice Showcase Community Pilot Project: (working copy) Implementation Plan.
20. North Shore Waterfront Conservancy of Staten Island, Inc. 2008. Staten Island's Gold Coast: 5.2 miles from St. George to Arlington. To receive a hard copy of the NSWC EJ booklet, please contact, email: [nswcsi@nswcsi.org](mailto:nswcsi@nswcsi.org), website: [www.nswcsi.org](http://www.nswcsi.org).
21. U.S. EPA. Removal Responses Website: <http://www.epa.gov/superfund/policy/remedy/sfremedy/overview/removal.htm>. Access June 23, 2012.
22. U.S. EPA. Jewett White Lead Company Website: <http://www.epa.gov/region02/superfund/removal/jewettwhitelead>. Access June 23, 2012.
23. U.S. Department of Health and Human Services. 2006. Health Consultation: Area of Concern – Mariner's Marsh Park. Online: [http://www.atsdr.cdc.gov/hac/pha/MarinersMarshPark/MarinersMarsh\\_HC\\_09130.pdf](http://www.atsdr.cdc.gov/hac/pha/MarinersMarshPark/MarinersMarsh_HC_09130.pdf). Access July 5, 2012.

24. U.S. EPA. Mariner's Marsh Action Website: <http://cfpub2.epa.gov/supercpad/cursites/cactinfo.cfm?id=0205900>. Access June 23, 2012.
25. U.S. Department of Health and Human Services. 2006. Health Consultation: Area of Concern – Mariner's Marsh Park. Online: [http://www.atsdr.cdc.gov/hac/pha/MarinersMarshPark/MarinersMarsh\\_HC\\_09130.pdf](http://www.atsdr.cdc.gov/hac/pha/MarinersMarshPark/MarinersMarsh_HC_09130.pdf). Access July 5, 2012.
26. U.S. DOE. FUSRAP Considered Sites: Staten Island Warehouse, NY: [http://www.lm.doe.gov/Considered\\_Sites/Staten\\_Island\\_Warehouse\\_-\\_NY\\_22.aspx](http://www.lm.doe.gov/Considered_Sites/Staten_Island_Warehouse_-_NY_22.aspx). Access July 5, 2012.
27. U.S. EPA. Staten Island Warehouse Site (AKA Richmond Terrace Radiological Site): [http://www.epaosc.org/site/site\\_profile.aspx?site\\_id=3814](http://www.epaosc.org/site/site_profile.aspx?site_id=3814). Access July 5, 2012.
28. U.S. EPA. Staten Island Warehouse Site (AKA Richmond Terrace Radiological Site): [http://www.epaosc.org/site/site\\_profile.aspx?site\\_id=3814](http://www.epaosc.org/site/site_profile.aspx?site_id=3814). Access July 5, 2012.
29. New York State Department of Environmental Cleanup. State Superfund Sites Website: <http://www.dec.ny.gov/chemical/8439.html>. Access June 23, 2012.
30. New York State Department of Environmental Cleanup. Brownfield Cleanup Program Summary Website: <http://www.dec.ny.gov/chemical/8648.html>. Access June 23, 2012.
31. New York State Department of Environmental Cleanup. Voluntary Cleanup Program Summary Website: <http://www.dec.ny.gov/chemical/8442.html>. Access June 23, 2012.
32. New York Department of Environmental Conservation. Lead Webpage: <http://www.dec.ny.gov/education/55257.html>. Access June 23, 2012.
33. New York City Department of Health and Mental Hygiene. Lead Poisoning Prevention Program Web page: <http://www.nyc.gov/html/doh/html/lead/lead-children.shtml>. Access June 6, 2012.
34. Other LPPP publications can be found at <http://www.nyc.gov/html/doh/html/lead/everyone.shtml>.
35. New York City Department of Sanitation. September 2006. Comprehensive Solid Waste Management Plan, Chapter 4. Online: <http://www.nyc.gov/html/dsny/downloads/pdf/swmp/swmp/swmp-4oct/chapter4.pdf>. Access June 6, 2012.
36. U.S. ACE New York District. 2011. Noise Monitoring Report for the Eastern Shore. Online: <http://www.nan.usace.army.mil/harbor/kvk/report/EFT071011.pdf>. Access July 5, 2012.
37. A Guide to New York City's Noise Code: [http://www.nyc.gov/html/dep/pdf/noise\\_code\\_guide.pdf](http://www.nyc.gov/html/dep/pdf/noise_code_guide.pdf). Access June 25, 2012.
38. New York City. 2005. Local Laws of the City of New York. Online: <http://www.nyc.gov/html/dep/pdf/law05113.pdf>. Access July 2, 2012.
39. U.S. EPA Office of Air and Radiation. What are the Six Common Air Pollutants? <http://www.epa.gov/air/urbanair>. Access June 19, 2012.
40. Scorecard. Hazardous Air Pollutants (Clean Air Act): [http://scorecard.goodguide.com/chemical-groups/one-list.tcl?short\\_list\\_name=hap](http://scorecard.goodguide.com/chemical-groups/one-list.tcl?short_list_name=hap). Access June 1, 2012.
41. U.S. EPA. Air Pollution Control Orientation Website: <http://www.epa.gov/apti/course422/ap3b.html>. Access June 1, 2012.
42. A query of EPA's Enforcement and Compliance History Online (ECHO) tool in May 2012 did not identify current violations or enforcement actions within the study area. This tool is available online at <http://www.epa-echo.gov/echo/#>.
43. U.S. EPA. Air Pollution Control Orientation Website: <http://www.epa.gov/apti/course422/ap3a.html>. Access June 1, 2012.
44. U.S. EPA. Air Pollution Control Orientation Website: <http://www.epa.gov/apti/course422/ap3a.html>. Access June 1, 2012.
45. California EPA and the California Air Resources Board. April 2005. Air Quality and Land Use Handbook: A Community Health Perspective. Online: <http://www.arb.ca.gov/ch/landuse.htm>. Access, June 12, 2012.
46. U.S. EPA. Air Quality Index Report for New York Counties gathered from <http://www.epa.gov/airdata>. Access May 30, 2012.
47. U.S. EPA. 2011 Air Quality Statistics Report. AirData Report from AQS Data Mart Website: [http://www.epa.gov/airdata/ad\\_rep\\_con.html](http://www.epa.gov/airdata/ad_rep_con.html). Access May 30, 2012.
48. U.S. EPA. Air Quality Data gathered from <http://www.epa.gov/airdata>. Access May 30, 2012.
49. AirNow. Smog - Who Does it Hurt? Website: <http://airnow.gov/index.cfm?action=smog.page1#chart>. Access May 30, 2012.
50. U.S. EPA. Ground-level Ozone Standards Designation Website: <http://www.epa.gov/ozonedesignations>. Access July 5, 2012.
51. NYS DEC. About Ozone: <http://www.dec.ny.gov/chemical/8400.html>. Access June 1, 2012.
52. U.S. EPA. Ground-level Ozone Health Effects Website: <http://www.epa.gov/groundlevelozone/health.html>. Access July 5, 2012.
53. U.S. EPA. Health Effects of Ozone in the General Population Website.: <http://www.epa.gov/apti/ozonhealth/population.html>. Access July 5, 2012.

54. 2011 Air Quality Statistics Report. AirData Report. AQS Data Mart. United States Environmental Protection Agency: [http://www.epa.gov/airdata/ad\\_rep\\_con.html](http://www.epa.gov/airdata/ad_rep_con.html). Access May 30, 2012.
55. NYS DEC. PM2.5 Monitoring: <http://www.dec.ny.gov/chemical/8539.html>. Access June 1, 2012.
56. "Asthma ever, 2010 (Age-adjusted)". Survey. EpiQuery. New York City Department of Health and Mental Hygiene: <https://a816-healthpsi.nyc.gov/SASStoredProcess/guest?PROGRAM=%2FEpiQuery%2FCHS%2Fchs2&year=2010&strat1=none&strat2=none&qtype=univar&var=asthev2&crude=no>. Access June, 1, 2012.
57. New York State Department of Environmental Conservation. PM2.5 Monitoring Website: <http://www.dec.ny.gov/chemical/8539.html>. June 1, 2012.
58. NYC Department of Health and Mental Hygiene. Asthma Initiative Webpage: <http://www.nyc.gov/html/doh/html/asthma/asthma-facts.shtml>. Access June 1, 2012.
59. NYS DEC Water Quality Standards and Classifications Website: <http://www.dec.ny.gov/chemical/23853.html>. Access June 26, 2012.
60. EPA Polluted Runoff (Nonpoint Source Pollution) Website: [http://www.epa.gov/owow\\_keep/nps](http://www.epa.gov/owow_keep/nps). Access June 26, 2012.
61. NYC Oasis. Oasis Map Website: <http://www.oasisnyc.net/map.aspx?zoom=1&x=1000500&y=217666.67&etabs=0&categories=CLEANUP&mainlayers=CSO%2C%20Cache%20Transit&labellayers=&satellite=BaseCache>. Access June 6, 2012.
62. New York Department of Environmental Conservation. Combined Sewer Overflow Website: <http://www.dec.ny.gov/chemical/48595.html>. Access June 6, 2012.
63. Ibid.
64. Ibid.
65. New York City Department of Environmental Protection. DEP Completes Project to Improve Water Quality in the Kill Van Kull [Press Release]: [http://www.nyc.gov/html/dep/html/press\\_releases/10-51pr.shtml](http://www.nyc.gov/html/dep/html/press_releases/10-51pr.shtml). Access June 6, 2012.
66. U.S. EPA. Polluted Runoff Website: [http://www.epa.gov/owow\\_keep/NPS/urban.html](http://www.epa.gov/owow_keep/NPS/urban.html). Access June 6, 2012.
67. New York City. May 2012. Wetlands Strategy. Online: [http://www.nyc.gov/html/planyc2030/downloads/pdf/nyc\\_wetlands\\_strategy.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/nyc_wetlands_strategy.pdf).
68. New York State. Department of Environmental Conservation. Consolidated Assessment and Listing Methodology. March 2008. Online: [http://www.dec.ny.gov/docs/water\\_pdf/asmtmeth08.pdf](http://www.dec.ny.gov/docs/water_pdf/asmtmeth08.pdf). Access June 26, 2012.
69. New York State Department of Environmental Conservation. Fresh Water Wetlands Program Website: <http://www.dec.ny.gov/lands/4937.html>. Access June 6, 2012.



## Appendix A

Appendix A includes a set of maps that evaluates environmental factors in relation to race and income for the study area.

Low-income neighborhoods are highlighted in tan. The themes provided below can be toggled on and off by clicking on the radial button (+).

Low-Income Neighborhoods in  
Relation to Race - Black

Low-Income Neighborhoods in  
Relation to Race - White

Low-Income Neighborhoods in  
Relation to Industrial Land Use

Low-Income Neighborhoods in  
Relation to Truck Routes

Low-Income Neighborhoods in  
Relation to Vacant Properties

Low-Income Neighborhoods in  
Relation to Parks

 Low-Income Neighborhoods

**North Shore of Staten Island Environmental Profile, September 2012**

---

**Produced by the Technical Assistance Services for Communities (TASC) Program**

