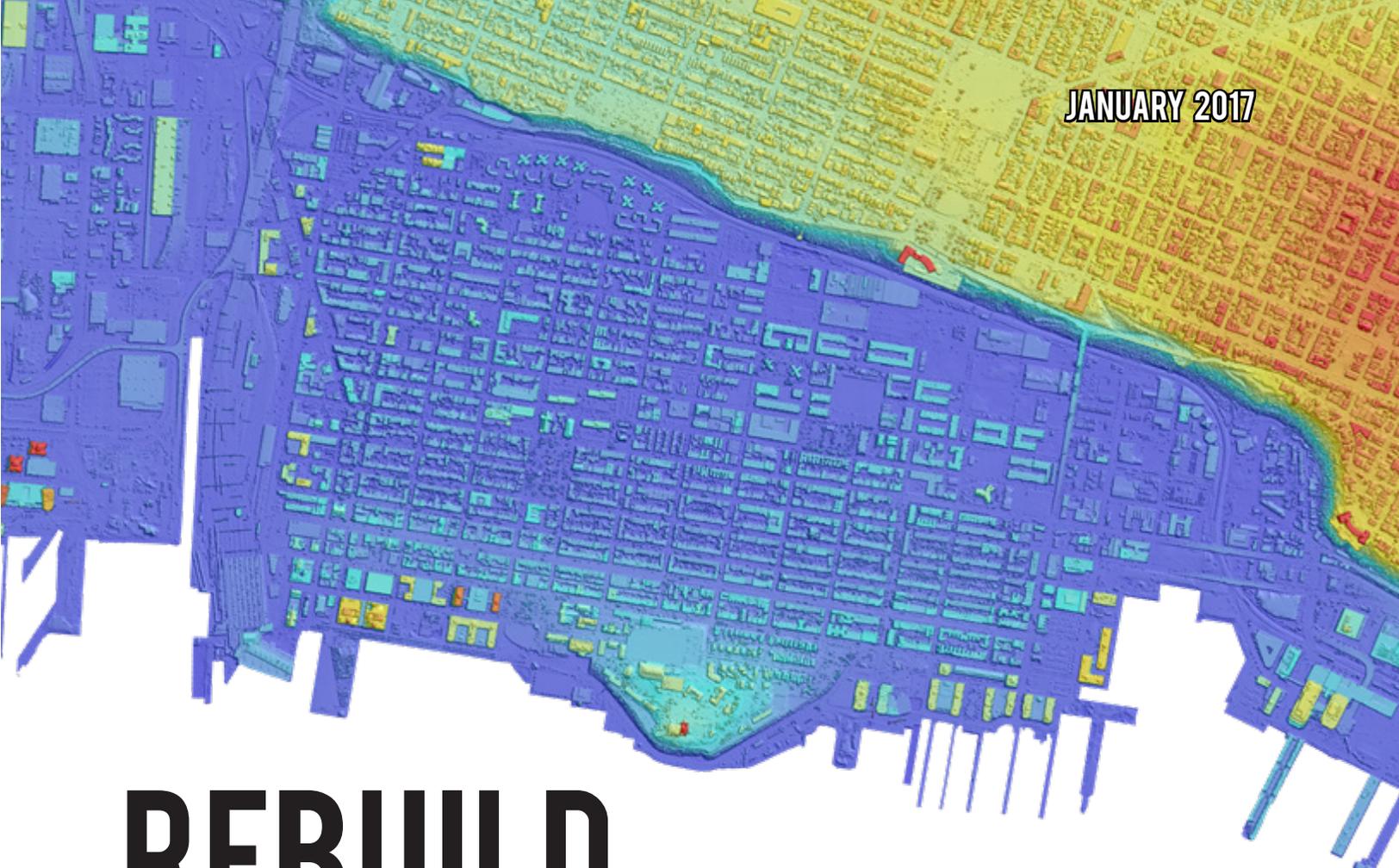


JANUARY 2017



REBUILD BY DESIGN

■ RESIST ■ DELAY ■ STORE ■ DISCHARGE ■

HUDSON RIVER

Hoboken

Weehawken

Jersey City

| New Jersey

SOCIOECONOMIC, LAND USE AND ENVIRONMENTAL JUSTICE
TECHNICAL ENVIRONMENTAL STUDY

Socioeconomic, Land Use and Environmental Justice Technical Environmental Study

Rebuild By Design: Resist, Delay, Store, Discharge Project
Cities of Hoboken, Weehawken, and Jersey City
Hudson County, New Jersey

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EXECUTIVE SUMMARY

In order to address the need for increased resiliency within the Superstorm Sandy-affected region, the United States Department of Housing and Urban Design (HUD) launched the Rebuild by Design (RBD) competition in 2013 inviting communities to craft pioneering resiliency solutions. During the course of this competition, a comprehensive urban water strategy was developed for the Hoboken, Jersey City and Weehawken area that included hard infrastructure and soft landscape for coastal defense (Resist), policy recommendations, guidelines and urban infrastructure to slow storm water runoff (Delay), green and grey infrastructure improvements to allow for greater storage of excess rainwater (Store), and water pumps and alternative routes to support drainage (Discharge). The Hudson River RBD proposal was selected in the first round of RBD grants and HUD has awarded \$230 million to the State of New Jersey for the “Hudson River Project: Resist, Delay, Store, Discharge” (the Project).

This Socioeconomic, Land Use and Environmental Justice (hereby referenced as Socioeconomic) Technical Environmental Study (TES) was conducted to identify and assess potential impacts on socioeconomics and land uses associated with the alternatives under consideration for the Rebuild by Design Hudson River project.

Impacts on minority and low-income populations were evaluated in accordance with the following:

- Executive Order (EO) 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 1994);
- Environmental Justice Guidance under the National Environmental Policy Act (Council on Environmental Quality, December 10, 1997); and
- Guidance from Together North Jersey Plan (TNJ) on Thresholds for Communities of Concern (minority, low-income and other disadvantaged populations).

Executive Order 12898 requires the identification of minority and low-income populations and the evaluation of the potential for disproportionate impacts on such populations from the proposed action. The TNJ plan establishes thresholds for considering communities of concern, including: minorities; Hispanic; the elderly; disabled; low-income; and English as a second language.

The Demographic Analysis Area for this TES extends beyond the RBD Study Area boundary and includes all of Census Tracts 77, 78, 179 and 182, which are located within the Study Area but extend to the north and south of the Study Area (see Figure 10). The Demographic Analysis Area boundary is used for the demographic focused analyses within this TES (those analyses relying on population and Census data). For other analyses, such as Land Use and Zoning, the Study Area boundary is used.

The Project will result in the following effects under all alternatives: (1) major, beneficial impacts on the population and demographics; (2) short-term and long-term minor impacts on land use and zoning; (3) long-term beneficial impacts on open space; (4) long-term beneficial impacts on critical facilities; (5) major, long-term beneficial

economic impacts; (6) long-term beneficial impacts on public health; and (7) long-term beneficial impacts on minority and low-income populations. The Project will not result in disproportionately high and adverse human health or environmental impacts on low-income or minority populations.

1.0 INTRODUCTION

In order to address the need for flood risk reduction within the Superstorm Sandy-affected region, the United States Department of Housing and Urban Development (HUD) launched the Rebuild by Design (RBD) competition in 2013 inviting interdisciplinary design teams to craft pioneering resiliency solutions. During the course of this competition, a comprehensive urban storm water management strategy was developed for the Hoboken, Jersey City and Weehawken area that included hard infrastructure and soft landscape for coastal defense (Resist), policy recommendations, guidelines and urban infrastructure to slow storm water runoff (Delay), green and grey infrastructure improvements to allow for greater storage of excess rainwater (Store), and water pumps and alternative routes to support drainage (Discharge). This proposal was selected as a winner of the RBD competition, and HUD subsequently awarded the State of New Jersey \$230 million for the implementation of the first phase of the "Hudson River Project: Resist, Delay, Store, Discharge" (the Project).

This Socioeconomic, Land Use and Environmental Justice Technical Environmental Study (TES) was prepared by Dewberry Engineers Inc. (Dewberry), on behalf of the New Jersey Department of Environmental Protection (NJDEP), to evaluate the flood reduction improvements proposed for the RBD project. A summary of this TES will be provided in the Environmental Impact Statement (EIS) for the Project.

1.1 Project Location and Topography

The Project's Study Area encompasses the City of Hoboken and includes the southern portion of the Township of Weehawken and the northern portion of Jersey City. The Study Area has the following approximate boundaries: the portion of the Hudson River which encompasses piers within the Study Area to the east; Baldwin Avenue (in Weehawken) to the north; the Palisades to the west; and 18th Street, Washington Boulevard and 14th Street (in Jersey City) to the south. See Figures 1 and 2, Project Location and Study Area. The Study Area includes the entire comprehensive stormwater management approach which consists of the four components—Resist, Store, Delay and Discharge.

The Study Area is located along the banks of the Hudson River, beneath the Palisades, which rise to the west. Formerly an industrial waterfront community, over the past several decades the Study Area has become increasingly developed with multi-family residential and mid- and high-rise commercial development. Unobstructed views of Manhattan across the Hudson River have led much of this development to be located along the waterfront, but areas in the north and central interior portions of the Study Area have also seen an influx in residential development over the past decade.

The upland area within the Study Area is the land area above mean high tide, and is approximately 1,020 acres. The Study Area encompasses approximately 233 acres of the Hudson River. Figure 3 shows the Preliminary Flood Insurance Rate Map (FIRM) for the Study Area. The Base Flood Elevation (BFE) is the computed elevation to which floodwater is anticipated to rise during a one-percent chance annual flood. This area is also known as the 100-year

floodplain. The BFE is the regulatory requirement for the elevation or flood proofing of structures. The relationship between the BFE and a structure's elevation determines the flood insurance premium. Approximately 73 percent, or 16,800 parcels of land, within the Study Area are within the Hudson River's one-percent annual-chance floodplain (Zone AE/VE). The AE and VE zones are both 1% annual-chance floodplains, but the VE zone, which is usually along coastlines and typically does not extend beyond the waterfront (the streets, parks and esplanade directly bordering the Hudson River), is also subject to storm-induced velocity wave actions. About 4% of the land within the Study Area is within the VE zone and has base flood elevations (BFEs) of between 16 and 17 feet North American Vertical Datum (NAVD) 88 (the base flood elevation is the anticipated water level during a flood event). The majority of the Study Area (69%) is within the AE flood zone, with BFEs of between 10 and 12 feet NAVD 88. Within this area, there is a 1 percent probability of flooding in any given year. The area depicted in Figure 3 as having a 0.2 percent annual chance of flooding is also known as the 500-year floodplain. The area depicted in white on Figure 3 has an elevation higher than the estimated 500-year flood level.

Within the Study Area, there are two main entry points of floodwater during coastal storm surge events, such as Superstorm Sandy, the area around Long Slip Canal and Hoboken Terminal, and Weehawken Cove (see Figure 4). Flood waters enter at these points because they are the lowest areas of topography. Following a storm event, low-lying topography prevents water from receding. For reference, Figure 4 also displays the ground surface elevation in 5 foot contour intervals.

The topography of the Study Area is highest along the east-central portion abutting the coastline of the Hudson River at Castle Point. From here, the land slopes gently downward to the north (towards Weehawken Cove), south (towards the Hoboken Terminal and Jersey City) and to the west (towards the foot of the Palisades). This topography reflects the Study Area's history; when originally settled, Castle Point was an island surrounded to the north, south and west by wetlands. These wetlands were gradually filled in as the area grew. Today, these areas - in particular those to the west - are still extremely low-lying, in some places no more than three feet above mean sea level.

1.2 Project Background

The municipalities of Hoboken, Weehawken, and Jersey City were inundated by flood waters during Superstorm Sandy in October 2012. With half of Hoboken flooded for several days, most emergency services were unavailable, many residents were evacuated, and the National Guard was deployed to rescue those who could not evacuate. The magnitude of Superstorm Sandy's devastation, primarily attributed to a record-breaking storm surge during high tide, has overshadowed the fact that little precipitation fell during that storm. Had Superstorm Sandy been accompanied by a more typical heavy rainfall event, the Study Area's past history suggests that flooding levels and property damage could have been even higher.

The Study Area is vulnerable to two interconnected types of flooding: coastal flooding (both from storm surges as well as high tides) and systemic inland flooding (rainfall) which occurs during rainfall events that typically coincide with high tide. These flooding problems are attributed to several factors, including naturally low topography and proximity to waterways; impervious surface coverage and associated runoff; existing, relatively old, sewer

infrastructure with interconnected storm and sanitary sewer lines and insufficient discharge capability particularly during high tide.

As seen with Superstorm Sandy, coastal flooding can devastate widespread areas of the Study Area and cause significant economic damage and safety concerns. In addition, systemic inland flooding associated with rainfall tends to be more localized to inland areas of lower elevation, but happens with much greater frequency than coastal surges. The systemic inland flooding typically occurs when high volumes of water are brought into the combined storm-sewer system from rainfall events which coincide with an approaching high tide and/or storm surge. During a high tide or storm surge, the water level of the Hudson River can rise above the level of the combined storm-sewer outfalls; as a result, the river traps the water inside the combined storm-sewer system. Water then backs up within the system, flooding low-lying elevation inland areas with storm water and at times sanitary sewage.

1.2.1 Coastal Flooding

The coastal communities of Hudson County historically have been vulnerable to coastal flood events. This can be in the form of abnormally high tides that occur roughly twice a month (coinciding with full or new moons), or from storm surges brought on by coastal storms. According to FEMA's Preliminary Flood Insurance Study of Hudson County, New Jersey (FEMA, 2013), the most severe flooding for the coastal communities of Hudson County occurs from coastal storm surges during hurricanes. Coastal storm surge water is brought into the area from the Upper New York Bay, New York Bay and the Kill Van Kull, where it is then driven by winds upriver along the Hackensack, Passaic and Hudson Rivers, eventually overflowing onto the shoreline communities. The duration of coastal surges can be increased if the storm also brings about high amounts of rainfall. For example, in 2011, Hurricane Irene brought a five-foot storm surge to the Hudson River, flooding parts of Jersey City and Hoboken, along with 10 inches of rainfall. After the storm passed, flooding conditions remained because the vast amount of rainfall from the storm was draining through tributaries to the Hudson River, which was already swollen by the storm surge.

The coastal surge can be further exacerbated if it coincides with a high tide. For example, a strong storm surge on the Hackensack River on November 25, 1950 resulted in flood waters of 6.5 feet (nine feet above the low-tide level). If this coastal storm surge had occurred during high tide, flood levels would have reached 12 feet. A situation like this occurred during Superstorm Sandy; the storm surge coincided with a full moon, which caused an abnormally high tide. This factor significantly contributed to Superstorm Sandy's devastating flooding of the Study Area.

Superstorm Sandy exposed the vulnerabilities within the Study Area by flooding the coastal areas of Jersey City, Weehawken and Hoboken, as well as over two thirds of the City of Hoboken's low-lying elevation interior areas. Coastal storm surge waters flooded electric utility substations and transformers; power was not restored to many Jersey City and Hoboken residents for nearly two weeks. In addition, the storm surge flooded critical transportation infrastructure, including the Port Authority Trans Hudson (PATH) line at the Hoboken Terminal. Service on this line was not restored for several months, impacting 10,000-15,000 commuters on a daily basis

Studies conducted by the Stevens Institute of Technology Davidson Laboratory (Davidson Laboratory Technical Report TR-2933, October 2014) found that approximately 466 million gallons of water inundated the interior areas of Hoboken. The water entered at the lowest areas of elevation. Within the Study Area, there were two main entry points: the area around Long Slip Canal and Hoboken Terminal in the south of Hoboken, and Weehawken Cove in the north. In the south, the surface elevation ranges between two and five feet above sea level in and around Warrington Plaza and the Hoboken Terminal. Superstorm Sandy brought approximately 11 feet of coastal storm surge water into Warrington Plaza and Hoboken Terminal, resulting in flood waters of between six to nine feet above ground elevation. In the area around Weehawken Cove, the elevations range between six and seven feet above sea level. When these elevations are compared to the storm surge levels caused by Superstorm Sandy, the degree of flooding becomes apparent.

The southern and northern low-lying elevation areas of the Study Area, along the Hudson River, acted as an inlet for flood waters into western Hoboken (see Figure 4). During Superstorm Sandy, according to the Stevens Study, approximately 232 million gallons of water entered at the southern breach point, to the south of the Hoboken Terminal. Approximately 78 million gallons of this water remained within the NJ TRANSIT rail yard, the balance of the water (154 million gallons) entered the western portion of the Study Area. Of the portion that entered from the south, 98 million gallons flowed across the rail yard before entering Hoboken along Observer Highway at Park and Willow Avenues, and 56 million gallons moved through Long Slip Canal towards Marin Boulevard. Some water passed from southwest Hoboken into Jersey City via Marin Boulevard, Grove Street and Jersey Avenue, which run beneath the Hudson Bergen Light Rail and NJ TRANSIT rail crossings. In addition, 191 million gallons of coastal storm surge water entered through northern Hoboken, in and around Weehawken Cove. This water flowed to the west into Weehawken, and then south, into the H7, H5, and ultimately H1 sewersheds, respectively (for reference of the combined sewer system, please see Figure 5).

The ground elevation in western Hoboken is low-lying; the H1 sewershed (the southwestern area of Hoboken; see Figure 5) in particular is on average about three feet above sea level. Floodwaters were funneled in from the north and south, inundating this portion of Hoboken, as well as the western areas of the H4, H5 and H7 sewersheds. Because the coastal storm surge prevented outflow from the combined storm-sewer system (the surge water elevation was above the outflow level), the surge waters had nowhere to flow and persistent inland flooding resulted. Ultimately, the outflows were underwater and the combined storm-sewer system was unable to discharge. In addition, because the storm surge prevented sewer outflow, domestic sanitary sewage backed up in residences and businesses, posing a public health risk. Overall, Superstorm Sandy caused approximately \$100 million in damages to private property and \$10 million in damages to City-owned property in Hoboken. Notably, Hoboken University Medical Center (the only hospital within the Study Area, located in south-central Hoboken) suffered significant flood damage; the hospital was forced to evacuate all patients the day prior to the storm, and was not able to fully reopen until November 14, over two weeks after the storm hit. In the interim, patients were redirected to other nearby hospitals - many of which were also damaged by Superstorm Sandy.

Sea-level rise and high tides also represent distinct coastal flooding concerns. The National Oceanic and Atmospheric Administration (NOAA) estimates sea levels may rise from between 0.5 to 3.5 feet by the year 2075.

Based on these projections of sea level rise, the associated base flood elevations along the Study Area's coastline will likewise increase, further compounding the risk of flooding. High tides will increasingly overtop the existing bulkheads, particularly during storm surges, thereby inundating the low-lying areas of the community with much greater frequency. Studies have shown that in the mid-1800s, there was a 1 percent annual chance of a bulkhead being overtopped by a storm surge within the New York Harbor area; today there is a 20 to 25 percent annual chance of bulkhead overtopping (Blumberg et al, 2015). Rising sea level also means that the North Hudson Sewerage Authority (NHSA) outfalls and other critical infrastructure will be closer to mean sea level, and will be inundated more frequently during high tides. As the vertical distance between the elevation of the water and the elevation of the outfalls decreases, less intense storm surge (which happen with greater frequency than stronger storms) will have the ability to inundate the outfalls, thereby reducing the ability of the system to properly drain storm waters. This means that over time, coastal flood events are expected to occur with greater frequency, which will increase the urgency for flood risk reduction measures.

1.2.2 Systemic Inland Flooding

The NHSA, which provides storm and sanitary sewer utility service to the Study Area, has a combined sewer system that was built in two periods, during the 1850s, and from the 1920s to the 1940s. The combined sewer system handles both sanitary sewerage and storm water runoff. Hoboken is divided into seven main drainage areas (H1-H7, see Figure 5). Sewerage is conveyed through the system by gravity from its source (e.g., a residence or business) through combined sewer mains beneath street beds to the system's main interceptor pipelines. During dry conditions, a system of pump stations located within the NHSA's service area pumps the sewerage to the NHSA's Adam's Street Wastewater Treatment Plant (WWTP). This WWTP serves Hoboken, Weehawken and Union City. During rainstorms, storm water (i.e., rainfall runoff) flows into the combined sewer mains via street and curb inlets, and combines with the sanitary sewerage. If the combined sewer-flow volume exceeds the treatment volume capacity (between 32 and 36 million gallons per day) of the WWTP, a portion of the combined sewer overflow volume is pumped into the Hudson River through the various outfalls located along Hoboken's waterfront.

Inland flooding occurs when the combined sewer system is unable to outflow excess water into the Hudson River. This typically occurs when high volumes of water are brought into the combined sewer system during a high tide and/or storm surge and the outfalls are closed and are unable to discharge. Rainfall events of greater than two inches, combined with a high tide of four feet or greater, occurred 26 times in Hoboken from 2002 to 2012. This is expected to increase in frequency over time based on projections of sea levels rising. As a result, high tides and storm surges are expected to block or obstruct the outfalls for increasingly longer periods of time.

Potential flooding can be further exacerbated if rainfall occurs during high tide and during the daytime hours, when sanitary flows are highest. During a high tide or storm surge, the water level of the Hudson River can rise above the level of the combined sewer outfalls; as a result, the river traps the water inside the combined sewer system. Raw sewage and storm water then backs up through curb inlets and domestic interior plumbing, and floods streets as well as basements of homes and businesses. After flood waters recede, sewage residue (as well as residues from

diesel, gasoline and other common roadside chemicals and contaminants) coats roadways, sidewalks, homes and businesses, representing a public health risk, and necessitating cleanup subsequent to the storms.

The most significant inland flooding typically occurs in the H1 sewershed (see Figure 5). A sewershed is a division of a drainage area that is managed by a stormwater utility. The H1 sewershed is located in the southwest area of Hoboken and is bounded generally by Observer Highway to the south, Clinton Street to the east, 7th Street to the north and the NJ TRANSIT Hudson-Bergen Light Rail to the west. This sewershed is extremely low-lying, generally less than three feet above sea level. The most frequent flooding in this sewershed occurs typically around Patterson Avenue and 1st Street (in the vicinity of the 2nd Street Light Rail Station) and Jackson Street and 4th Street. This part of the Study Area is also home to several of the Hoboken Housing Authority's communities, including the Andrew Jackson Gardens and the Monroe Gardens senior housing center, whose residents (i.e., low income and/or elderly) are particularly vulnerable to the impacts from flooding.

The NHSA installed a 50-million gallon-per-day (MGD) wet-weather pump for the H1 sewershed in 2012; however, analysis in 2013 by EmNet indicated that flooding still occurs in severe storms. The pump was activated 36 times between December 2012 and August 2013; of these activations, four storm events led to flooding. In addition to the H1 sewershed, the western areas of sewersheds H4 and H5 (just to the north of H1) also experience significant flooding, notably along 9th Street between Monroe Street and Madison Street.

The Study Area's flooding is greatly exacerbated by its high degree of impervious surface coverage: the Study Area is approximately 94 percent impervious, from building footprints or paved areas such as streets, sidewalks and parking lots. This is a product of the area's population density; with a population per square mile of 39,066, Hoboken is the nation's fourth densest municipality. The area's high impervious cover means that almost all the rainfall that reaches the ground is funneled rapidly into the combined sewer system through building downspouts and street-level storm drains, instead of being discharged onto permeable ground for gradual infiltration, as would be the case in areas with lower impervious coverage. This, coupled with the inability of the system to discharge during a high tide or storm surge, results in inundation of the combined sewer system during a rainfall event and backing up of the sewer system. Ultimately, this leads to the flooding events in low-lying areas, resulting in damage to buildings, residences, cars and infrastructure.

These various factors all contribute to the need to develop a comprehensive flood risk reduction strategy to safeguard against damage to people, property and infrastructure.

1.3 Project Authorization and Regulatory Framework

This Project is funded by HUD Community Development Block Grant - Disaster Relief (CDBG-DR) funds and compliance with a full range of federal, state and local environmental laws is required, as provided in FR notice 79 FR 62182, published October 16, 2014 [Docket No. FR-5696-N-11]. The Project's compliance with all applicable environmental laws and authorities as stated in HUD regulations (24 CFR 58.5 and 58.6), will be demonstrated.

In accordance with 24 CFR 58.1(b)(1), the State of New Jersey, acting through the New Jersey Department of Community Affairs (NJCA), has assumed environmental compliance responsibilities for the Superstorm Sandy CDBG-DR programs on behalf of HUD. The NJCA has designated the New Jersey Department of Environmental Protection (NJDEP) to assist with the environmental review. The NJDEP has prepared this DEIS in accordance with HUD's procedures for NEPA found at 24 CFR Part 58, et al. An NOI to prepare the EIS (as defined at 40 CFR 1508.22) was published on September 4, 2015. Simultaneously, the Draft Scoping Document was made available for a 30-day public comment period, and a public meeting was held to discuss scoping on September 24, 2015, followed by drop-in sessions open to the public on September 29 and October 1, 2015. The Final Scoping Document was published on the Project website (<http://www.nj.gov/dep/floodhazard/rbd-hudsonriver.htm>) in November 2015.

This DEIS is being made available to the general public for comment, as well as circulated to stakeholders, organizations and government agencies that have jurisdiction by law or special expertise with respect to the proposed action. Three agencies/organizations have been identified as being cooperating agencies: U.S. Environmental Protection Agency (EPA), NJ TRANSIT and the Port Authority of New York/New Jersey (PANYNJ). Additionally, three agencies/organizations have been identified as participating agencies: Federal Transit Agency (FTA), National Marine Fisheries Service (NMFS) and Amtrak.

A Notice of Availability of this DEIS has been published in the Federal Register and local media outlets in accordance with HUD and the Council on Environmental Quality (CEQ) regulations. After a 45-day public comment period has elapsed, public comments will be addressed in a Final EIS (FEIS). The FEIS will be circulated in the same manner as the DEIS (including the publication of a Notice of Availability) and will have a comment period of 30 days. If, after the completion of the FEIS comment period, no additional significant comments are received, the NJDEP will complete a Record of Decision (ROD). The ROD designates the selected action, and provides the basis for its selection. It identifies environmental impacts as well as any required mitigation measures that were developed during the EIS process.

1.4 Funding

The Disaster Relief Appropriations Act of 2013 (Public Law 113-2, approved January 29, 2013) was enacted to assist New Jersey's and other disaster-impacted states' recovery efforts for disasters that occurred between 2011 and 2013, including Superstorm Sandy. It appropriates monies targeted for disaster recovery to various federal agencies. Among those monies, the federal government appropriated \$16 billion in CDBG-DR funds to be split among states that experienced natural disasters from 2011 to 2013, which the President declared to be Major Disasters. These CDBG-DR funds are administered by HUD and are to be used to address unmet disaster recovery needs, including funding needs not satisfied by other public or private funding sources like Federal Emergency Management Agency (FEMA) Individual Assistance, Small Business Administration Disaster Loans or private insurance. And, as a precondition to receiving CDBG-DR funds, New Jersey was required to submit a comprehensive Action Plan that detailed its unmet needs and described the proposed uses of CDBG-DR funds to address those needs.

The CDBG-DR Action Plan was developed by the NJDCA and approved on April 29, 2013. The Action Plan proposes a range of programs to provide relief following the extensive devastation caused by the storm to the affected residential/business communities and infrastructure. The Action Plan is updated periodically, and Amendment 12 "Substantial Amendment for the Third Allocation of CDBG-DR Funds" was approved on April 20, 2015. Amendment 12 was prepared pursuant to FR-5696-N-11, in order to access the third round of CDBG-DR funds allocated for the New Jersey RBD projects. Amendment 12 provides details on funding, timeline and citizen participation with regard to the Project. Another amendment to the Action Plan will be required to finalize the allocation of funding towards the Preferred Alternative that will be identified through this NEPA process.

In the Federal Register notice announcing award of this funding (79 Federal Register 62182), HUD provided the following direction, "CDBG-DR funds are provided to assist in the implementation of the first phase ("Phase 1") of the proposal titled "Resist, Delay, Store, Discharge." Page 14 of the April 2014 Resist, Delay, Store, Discharge final proposal states that Phase 1 includes: (1) a master plan for the entire strategy, (2) studies and pilot projects on various aspects of the overall strategy and (3) the following catalytic projects: coastal defense at Hoboken Station and surroundings, coastal defense at Weehawken Cove, pump station and greenbelt CSO wetland pilot project. Therefore, the current HUD funding will be provided for the implementation of Phase 1 elements only. This includes the environmental impact analysis of the overall comprehensive master plan of the entire project (including Resist and Delay, Store, Discharge), and the construction of the Resist components. The Delay, Store, Discharge (DSD) elements would be implemented separately by the City of Hoboken or other partners as funding becomes available.

2.0 PURPOSE AND NEED

The purpose and need statement for the Project was developed through a comprehensive process that began with the development of the original Rebuild by Design proposal submitted to HUD for funding, continued through the public scoping process and concept and alternative development for the EIS. Key stakeholders, including elected officials, agencies with regulatory authority, community leaders and the general public were involved at each stage.

2.1 Purpose

The Study Area, comprising the entire City of Hoboken, and adjacent areas of Weehawken and Jersey City (see Section 1.1), is vulnerable to flooding from both coastal storm surge and inland rainfall events. The purpose of the Project is to reduce the flood risk to flooding areas within the Study Area. The Project intends to minimize the impacts from surge and rainfall flood events on the community, including adverse impacts to public health, while providing benefits that will enhance the urban condition, recognizing the unique challenges that exist within a highly developed urban area.

2.2 Need

The historic flooding, and the high likelihood of future flood events from both rainfall and coastal surge flooding, has a tremendous impact on the lives of Study Area residents from a health and safety and economic perspective. When critical infrastructure, including fire stations, hospitals, and a waste water treatment plant (Figure 6) is impacted, it affects the welfare of the entire community. The economic livelihood of the community is diminished by the business disruptions caused by flooding and continual costs to repair and restore homes and businesses, with costs often exceeding the average National Flood Insurance claim award. The future potential for flooding is significant based on Hoboken's topography and the need for a project that minimizes flooding is critical to the health and safety and economic vitality of Hoboken and its affected neighbors in Weehawken and Jersey City.

The Study Area is a very dense urban area of Hudson County that is situated along the Hudson River directly west of Manhattan, New York. The Study Area is vulnerable to two interconnected types of flooding: coastal flooding from storm surge and high tide, as well as systemic inland (rainfall) flooding from medium (generally a 5-year, 24-hour) to high (generally over 10-year, 24 hour) rainfall events.

- Coastal flooding happens with much less frequency than rainfall flooding events, but can devastate widespread areas of the Study Area and cause significant economic damage and safety concerns.
- Rainfall-induced flooding occurs with significantly greater frequency than coastal flooding, but causes less severe economic damage and safety concerns.

The flooding problems for both coastal flooding and rainfall-induced flooding can be attributed to several factors, including naturally low topography and proximity to waterways; significant areas impervious ground coverage which

causes surface runoff; existing combined storm sewer infrastructure which cannot handle the volume of water during significant rainfall events and insufficient storm sewer discharge capability, particularly during high tide.

The topography of the Study Area is highest along the east-central portion abutting the coastline of the Hudson River at Castle Point. From here, the land slopes gently downward to the north (towards Weehawken Cove), south (towards the Hoboken Terminal and Jersey City) and to the west (towards the foot of the Palisades). This topography reflects the Study Area's history; when originally settled, Castle Point was an island surrounded to the north, south and west by wetlands. These wetlands were gradually filled in as the area was developed. Today, these areas - in particular those to the west - are still extremely low-lying, in some places no more than three feet above sea level.

The City of Hoboken's exposure to flood hazard risks is evident by the number of properties included in the FEMA National Flood Insurance Program (NFIP). The NFIP is intended to reduce the financial and recurring impact of flooding on private and public structures by providing affordable insurance to property owners and encouraging adoption of floodplain management regulations. Mortgage lenders for properties within the Special Flood Hazard Area (SFHA) (areas with a 1 percent annual chance of flooding, also referred to as the base floodplain or the 100-year floodplain) require owners to obtain flood insurance from the NFIP. In addition, property owners receiving awards following presidentially-declared disasters (such as Superstorm Sandy) are also often required to obtain NFIP insurance. According to NFIP statistics (<https://www.fema.gov/policy-claim-statistics-flood-insurance>), as of August 31, 2016, the City of Hoboken had 9,446 NFIP policies in place (the highest in Hudson County), with premiums totaling \$7,213,754 (the highest in Hudson County and fifth highest in New Jersey). In addition, the overall liability to the NFIP from property owners in Hoboken was over \$2 billion (third highest in New Jersey) with an average claim amount of \$26,733.

The need for the Project that minimizes the impacts from coastal and rainfall flooding is necessary and essential to protect public health and safety, and the economic vitality of the community of Hoboken and its neighbors in Weehawken and Jersey City.

2.3 Goals and Objectives

A Project is intended to create a resilient community that is able to resist and rapidly recover from disasters or other shocks with minimal outside assistance. The Project is a comprehensive urban water strategy whose overall purpose is to reduce flood hazard risks, and which seeks to leverage resiliency investment to enhance the urban condition. The ability to meet this purpose will be measured in terms of Goals and Objectives. Goals (in italics below) are overarching principles that guide decision-making. Goals are measured in terms of Objectives, which are measurable steps to meet the Goal. The Goals and Objectives for the Project are:

- Goal: *Contribute to Community Resiliency:*
- Objective: The Project will seek to integrate flood hazard risk reduction strategies with emergency, civic, and cultural assets. The Project will reduce flood risks within the Study Area, leading to improved resiliency and the protection of accessibility and on-going operations of services (including protecting physical

infrastructure such as hospitals, fire stations and police department buildings as well as roadways and transit resources). This would allow these key assets to support emergency preparedness and community resiliency during and after flood events.

- Goal: Reduce Risks to Public Health:
- Objective: In addition to providing protection to critical healthcare infrastructure (such as local hospitals and emergency preparedness services), the Project will aim to reduce the adverse health impacts that result from combined sewage backups onto streets, and within businesses and residences, through a reduction in storm water infiltration into the existing combined sewer collection system.
- Goal: Contribute to On-going Community Efforts to Reduce FEMA Flood Insurance Rates:
- Objective: The City of Hoboken's exposure to flood risks has resulted in some of the highest insurance premiums in the state. The City has long had a goal of reducing those rates through a number of comprehensive flood risk reduction programs, such as those identified in the City's Green Infrastructure Plan. The NFIP's Community Rating System (CRS) allows municipalities to reduce their flood insurance rates through implementation of comprehensive floodplain management. The Project will propose concepts and alternatives that are consistent with Hoboken's overall effort of reducing FEMA Flood Insurance Rates.
- Goal: Delivery of Co-Benefits:
- Objective: Where possible, the Project will seek to integrate the flood hazard risk reduction strategy with civic, cultural and recreational values. The Project will look to incorporate active and passive recreational uses, multi-use facilities, and other design elements that integrate the Project into the fabric of the community. In this way, the Project will complement local strategies for future growth.
- Goal: Connectivity to the Waterfront:
- Objective: The Study Area's waterfront is currently the location of a vast length of interconnected parks and public walkways which contribute to the vibrancy of the community. The Project will aim to incorporate features that do not restrict access to the waterfront. Where feasible, the Project will build upon, and enhance, existing waterfront access points while providing flood risk reduction.
- Goal: Activation of Public Space:
- Objective: The Project will develop concepts that reduce risks to private and public property from flood impacts while also incorporating design elements that activate public and recreational spaces, thereby enhancing quality of life for the community.
- Goal: Consider Impacts from Climate Change:
- Objective: The Project will take into account the projected impacts from climate change, particularly as it relates to sea-level rise and its impacts on the frequency and degree of flooding.

3.0 BUILD ALTERNATIVES

NEPA documents must evaluate all reasonable alternatives (40 CFR 1502.14). The alternatives to be considered in any NEPA document are driven by the purpose and need for the action. The purpose and need for the Project is to reduce the potential for and magnitude of flooding impacts arising from both coastal storm surge and rainfall events (see Chapter 2.0 Purpose and Need). The success of constructing a reliable and permanent comprehensive flood risk reduction system relies upon designing Project approaches that consider existing infrastructure and environmental constraints, while also designing a flood risk reduction system in accordance with the regulatory standards (such as FEMA flood elevation standards, the NJDEP Flood Hazard Area Control Act, and local floodplain ordinances).

The following three Build Alternatives were developed through a year-long concept development process that considered engineering and environmental constraints while meeting the project's stated purpose and need. The project team met with stakeholders - public and private - as well as the community at-large to develop these project concepts. Concepts were eliminated from further consideration if they were determined to be infeasible, either due to engineering constraints or due to excessive time required to obtain permits. The concepts that were not eliminated were further refined into the following three Build Alternatives. The EIS will evaluate these as well as a No Action Alternative.

All resist structure heights described in this section are approximate. Structure heights will be finalized as part of the project's final design process.

3.1 Alternative 1

Resist Alignment

Alternative 1 (which was developed from the earlier Concept B and components of the southern alignment of Concept E) provides coastal flood risk reduction to approximately 98 percent of the population within the Study Area 100-year floodplain.

Alternative 1 provides the greatest level of flood risk reduction by locating the resist structures primarily along the waterfront. This alternative's resist structure generally follows the waterfront from the Lincoln Tunnel in Weehawken south to Weehawken Cove where it is envisioned that a boathouse will be incorporated into the structure. The resist structure at Lincoln Harbor ranges from 7.5 to 15.5 feet above ground level (note that all references to resist infrastructure height are in relation to height above ground level) and nine feet along the Cove. Urban placemaking amenities under consideration in this area include a new Lincoln Harbor ferry stop (see Photograph 1) and an improved park space along the north of Weehawken Cove (in the area of the existing park adjacent to Harbor Boulevard). In addition, a bermed and terraced Cove Park will be incorporated into the southwest corner of Weehawken Cove. This would include existing undeveloped land as well as the currently-developed Cove Park (adjacent to Harborside Lofts at 1500 Garden Street). Potential amenities at this park may include playgrounds, lawn areas, game courts, and a viewing deck overlooking Weehawken Cove (see Photograph 2).



Photograph 1: Lincoln Harbor Ferry Stop



Photograph 2: Cove Park

The alignment continues around the waterside of the Tea Building, at a height of between nine and 12.5 feet, and heads south in front of Maxwell Place at about nine feet in height. The resist structure continues south along the waterfront to the intersection of Sinatra Drive North and Frank Sinatra Drive, just south of Maxwell Place Park where the ground elevation begins to rise, and the wall tapers down to meet it at height of one foot. There will be a series of gates along the waterfront to allow access onto piers and across road intersections during non-flood conditions. Possible designs for the resist structure in this area include an elevated promenade north of the Tea Building, raised terraced parks adjacent to Shipyard Park, and bermed/terraced park areas at the location of the existing Maxwell Place Park (see Photograph 3).



Photograph 3: Maxwell Place Park

The resist structure also has a component along Sinatra Drive from 4th Street to 1st Street, in South Hoboken, where the design may consist of an elevated walkway and park space (between 2.5 feet and one foot in height along Sinatra Drive) that ties into a deployable system running east/west on 1st Street (up to 7.5 feet high). In the southern portion of the Study Area, two options will be analyzed: Option 1 features an alignment south of Observer Highway, within the rail yard (south of the proposed Hoboken Yard Redevelopment Area) at approximately five to 11 feet in height. Option 2 includes an alignment along Observer Highway from Washington Street to Marin Boulevard, on an alignment that runs behind NJ TRANSIT offices at a height of about 11 feet. The alignment includes gates for access at various locations including the Marin Boulevard, Grove Street and Newark Avenue underpasses beneath the rail lines, as well as protection where HBLR tracks pass below the NJ TRANSIT overpass in the southwest corner of the Study Area. Urban amenities in these areas include lighting, murals, seating, plantings and wayfinding/signage. Steel sheeting will also be installed along the NJ TRANSIT railroad embankment.

Delay, Store, Discharge

The DSD elements of the Project consist of three large stormwater detention facilities and approximately 61 small tanks (ROW sites) that will include new and/or improved stormwater management techniques designed to complement other efforts by the City of Hoboken as part of the Green Infrastructure Strategic Plan and multiple redevelopment plans (discussed further under Land Use). Details on individual sites and specific plans have been developed as part of the feasibility design. The text below describes the major components that comprise this element of the Project. The location of the proposed facilities are based on studies of the existing flooding "hotspots" in Hoboken. Additionally, two new outfalls are proposed associated with the DSD sites.

BASF Site

The northwest corner of Hoboken south from the NHA Treatment Plant is a natural topographical low point and catchment area where collection and delay/storage of stormwater can be enhanced by the development of the Northwest Park (BASF Property). The 4.3-acre property was acquired by the City of Hoboken and includes the property at Block 107, Lot 1. The City has recently conducted an Environmental Assessment for the acquisition of this property. The site, which is currently paved and impermeable, is planned for conversion to green park space with an underground stormwater storage/holding tank. A new pump and outfall would be linked to this facility to provide a discharge from the overall catchment area. Amenities under consideration for this park follow three themes: destination, recreational and ecological. A destination park provides for trails and urban landscape features, a recreational park provides for developed recreational uses such as ball fields and skateboard areas and an ecological park provides an opportunity for the public to engage with native vegetation and wildlife.

NJ TRANSIT Site

The area surrounded by the Hoboken Housing Authority (HHA) at Jackson and Harrison Streets from 2nd Street to 6th Street also serves as a natural low-lying catchment area. A high level storm sewer collection system will be added in this 17-acre development to support the discharge component of the Site and direct the stormwater overflow towards the west. On the west side of this neighborhood, a stormwater tank will be incorporated along the light rail line to provide storage of the water drained from the HHA area. A pump station would be incorporated to discharge overflows from the stormwater tank into the existing ditch located at the west side of the NJ TRANSIT Light Rail. NJ TRANSIT ditch currently conveys runoff from the Light Rail property and the Palisades Hill slope to an existing discharge at the Hudson River. Urban amenities under consideration include active and passive recreational options, such as playgrounds, green space and planted areas.

Block 10 Site

The site is located in the southwestern corner of Hoboken adjacent to Academy Bus facility and south of Paterson Avenue. Portions of this currently-paved parcel will be converted to a permeable park space allowing water to infiltrate into the ground. A high level storm sewer collection system will be added to this 8.0 acre watershed, stormwater runoff will be conveyed to a proposed underground detention facility where peak flows will be controlled and delayed before discharging into the existing NHA combined sewer. Urban amenities under consideration include active and passive recreational options such as playgrounds, green space and game courts. The City of

Hoboken intends to proceed with acquisition of this property after the Record of Decision (ROD) is issued for the Project.

Pump Stations

Three pump stations will be required as part of the discharge component. One pump station is proposed to discharge the overflow from the proposed NJ TRANSIT site detention facility, a force main from the pump station will cross under the HBLR and discharge to the existing ditch located at the west side of the HBLR tracks. A second pump station is required to discharge overflows from the BASF site detention tank. A 2,700 foot long force main will convey the runoff to a new discharge proposed at Weehawken Cove; and a third pump is proposed to the north of Clinton Street (north end of the existing NJ TRANSIT ditch) in the vicinity of the NHTSA treatment plant. The purpose of the Clinton Street pump station is to release flows from the ditch to compensate the additional flow discharged from the NJ TRANSIT site, and to prevent surcharge of the existing ditch during backflow conditions. A 720-foot long force main will convey the runoff to a new discharge proposed at Weehawken Cove.

Two new outfall pipes in northern Weehawken Cove are proposed as the discharge component of the Project. One outfall would drain the flow of the existing ditch running along the western side of the HBLR line. This outfall is proposed to be located in the northern part of the Cove near Lincoln Harbor. The second outfall is proposed to be located north of Cove Park to drain the BASF site's catchment area via force main discharge.

Construction and Implementation

Construction for resist infrastructure of this alternative would last approximately 44 months and need to be completed by September 2022. The construction would occur concurrently for the northern and southern resist features. Equipment required for this project includes: dump trucks, back hoes, pile drivers, concrete trucks and other assorted delivery trucks. Some street closures will be required, in particular for gate construction. Pile driving will be required over a 10 month period. A total of 8-9,000 crew days will be required to complete this construction.

Recognizing funding limitations, the DSD portion under Alternative 1 is anticipated to be constructed over the next 15 to 20 years. DSD represent the framework for a future storm water strategy that will need to be implemented by the City of Hoboken and other partners, and can be integrated into the city's existing plans.

Due to the project being in the early stages of planning and design, there are many unknown variables. Modifications to design may arise from obtaining more accurate existing information or other unforeseen deviations from the feasibility study brought about by outside sources (such as more accurate information regarding location of utilities). As a result, the contingency is approximately 25% of the construction and engineering cost.

The construction and final design costs of Resist and DSD are estimated as follows.

Table 3-1 - Alternative 1 Construction Costs

ESTIMATED COST (MILLIONS)	
Estimated Resist Cost	\$433.1 to \$485.5 million
Estimated Resist Contingency Cost	\$98.4 to \$111.6 million
Estimated Total Resist Cost	\$531.5 to \$597.1 million
Estimated DSD Cost	\$126.4 and \$148 million

Source: Dewberry 2015-2017

These amounts are estimates of the cost to construct Resist and DSD, as well as estimated cost factors for construction and engineering project contingencies.

3.2 Alternative 2

Resist Alignment

Alternative 2 was developed from the earlier Concept E with two modifications. First, the northern Hoboken portion of the alignment along the Tea Building waterfront walkway was moved to 15th Street (south of the Tea Building) to maintain a distinction from Alternative 1. Second, because of the length and height of structure required along Hudson Street or Shipyard Lane, as well as the significant number of gates required for each, the alignment was moved to Washington Street. Washington Street was chosen due to the width of the street to accommodate the necessary structure and potential to blend structural amenities into the commercial nature of the area. This alternative provides coastal flood risk reduction to approximately 86 percent of the population residing within the Study Area 100-year floodplain.

This alternative's resist structure begins near the HBLR Lincoln Harbor station at Waterfront Terrace at an initial height of about 6.5 feet, traveling south towards Harbor Boulevard at a height of between 9.5 to 11.5 feet. Opportunities for urban enhancement in the northern portion of the Study Area under Alternative 2 are limited due to siting conditions and include lighting, murals and seating. The resist features then run south along Weehawken Cove at nine feet where it is envisioned that a boathouse will be incorporated into the structure. In addition, a bermed and terraced Cove Park will be incorporated into the southwest corner of the Weehawken Cove. This would include existing undeveloped land as well as the currently-developed Cove Park (adjacent to Harborside Lofts at 1500 Garden Street). Potential amenities at this park may include playgrounds, lawn areas, game courts, and a viewing deck overlooking Weehawken Cove (see Photograph 2).

The structure continues to 15th Street, and travels east along 15th Street from the northern end of Garden to Washington Streets where it will be about seven to eight feet high. Urban amenities in this area may include a bermed park long 15th Street in front of the Tea Building. The resist feature then continues south along Washington Street, tapering to grade level at 13th Street. Street crossings will feature gates to allow for access during non-flood conditions. Consideration will be given to adapting the use of structures in a way to provide urban amenities and

landscape enhancements, including elevated walkways and pocket parks, plantings and/or seating areas along Washington Street (see Photograph 4).



Photograph 4: Washington Street from 15th Street, facing south

There will then be two options in the south, along the Hoboken Terminal rail yard: Option 1 will feature an alignment south of Observer Highway, within the rail yard (south of the proposed Hoboken Yard Redevelopment Area) at approximately five to 11 feet in height. Option 2 will include an alignment along Observer Highway from Washington Street directly to Marin Boulevard. The alignment includes gates for access at various locations including the Marin Boulevard, Grove Street and Newark Avenue underpasses beneath the rail lines, as well as protection where HBLR tracks pass below the NJ TRANSIT overpass in the southwest corner of the Study Area. Urban amenities in these areas include lighting, murals, seating, plantings and wayfinding/signage. Steel sheeting will also be installed along the NJ TRANSIT railroad embankment.

During a coastal storm surge event, water from the Hudson River is expected to inundate unprotected areas of the Hoboken waterfront. If the river water overtops the waterfront bulkhead during a storm event, water can enter into the storm sewer system through existing inlets and unsealed manhole covers. While Alternative 1 would prevent a storm surge from entering the city streets, Alternative 2 leaves portions of the city streets and sewer system unprotected. To prevent water intrusion into the existing sewers under Alternative 2, a separation of the sanitary/storm water collection system is proposed by the construction of a “High Level” storm sewer collection system. In addition to the installation of this new storm sewer system, the existing NHSA combined sewer inlets and manholes would be sealed and lined. This proposed drainage would be designed to prevent additional sewer

backflow that could cause major flooding issues within the Alternative 2 protected areas during a storm surge event. Storm water collected in this “High Level” storm sewer system would gravity flow into the Hudson River.

Delay, Store, Discharge

See above description under Alternative 1.

Construction and Implementation

Construction for resist infrastructure under this alternative would last approximately 44 months and need to be completed by September 2022. The construction would occur concurrently for the northern and southern resist features. Equipment required for this project includes: dump trucks, back hoes, pile drivers, concrete trucks and other assorted delivery trucks. Some street closures will be required, in particular for gate construction. Pile driving will be required over 12 months. A total of 6-7,000 crew days will be required to complete this construction.

Recognizing funding limitations, the DSD portion under Alternative 2 is anticipated to be constructed over the next 15 to 20 years. DSD represent the framework for a future storm water strategy that will need to be implemented by the City of Hoboken and other partners, and can be integrated into the city’s existing plans.

Due to the project being in the early stages of planning and design, there are many unknown variables. Modifications to design may arise from obtaining more accurate existing information or other unforeseen deviations from the feasibility study brought about by outside sources (such as more accurate information regarding location of utilities). As a result, the contingency is approximately 25% of the construction and engineering cost.

The construction and final design costs of Resist and DSD are estimated as follows.

Table 3-2: Alternative 2 Construction Costs

ESTIMATED COST (MILLIONS)	
Estimated Resist Cost	\$193.8 to \$224.7 million
Estimated Resist Contingency Cost	\$44.4 to \$52.2 million
Estimated Total Resist Cost	\$238.2 and \$276.9 million
Estimated DSD Cost	\$126.4 and \$148 million

Source: Dewberry, 2015-2017

These amounts are estimates of the cost to construct Resist and DSD, as well as estimated cost factors for construction and engineering project contingencies.

3.3 Alternative 3

Resist Alignment

Alternative 3 was developed from the earlier Concept A, which was revised to relocate portions of the resist alignment to areas that would minimize impacts on the community. The alternative utilizes a private alleyway that parallels 14th Street to extend to Washington Street to meet the same flood resist goals. Washington Street was again chosen due to the width of the street to accommodate the necessary structure and potential to blend structural amenities into the commercial nature of the area. This alternative provides coastal flood risk reduction to approximately 85 percent of the population residing within the Study Area 100-year floodplain.

This alternative's resist structure begins at 6.5 feet in height near the HBLR Lincoln Harbor station at Waterfront Terrace, traveling south along HBLR rising to about 11 feet in height, and then continuing south along Weehawken Cove towards Garden Street at nine feet in height. Opportunities for urban enhancement in the northern portion of the Study Area under Alternative 3 are limited due to siting conditions and include lighting, murals and seating. It is envisioned that a boathouse will be incorporated into the structure. In addition, a bermed and terraced Cove Park will be incorporated into the southwest corner of the Weehawken Cove. This would include existing undeveloped land as well as the currently-developed Cove Park (adjacent to Harborside Lofts at 1500 Garden Street). Potential amenities at this park may include playgrounds, lawn areas, game courts, and a viewing deck overlooking Weehawken Cove (see Photograph 2).

A structure would then down the east side of Garden Street adjacent to the west of the Hudson Tea Parking Garage, starting at eight feet in height and tapering down to five feet in height. The structure along Garden Street may consist of an elevated planter with seating. The structure would then continue down the alleyway midway between 15th and 14th Streets from Garden to Washington Streets at four feet in height. Urban amenities within the alleyway could include planters (see Photograph 5). The structure would then travel south along Washington Street at 3.5 feet in height, tapering down to grade level at 13th Street. Street crossings will feature gates to allow for access during non-flood conditions. Consideration will be given to adapting the use of structures in a way to provide urban amenities such as seating and landscape enhancements.



Photograph 5: Resist Feature along the West Alleyway

There will then be two options: Option 1 will include an alignment south of Observer Highway, within the rail yard (south of the proposed Hoboken Yard Redevelopment Area) at approximately five to 11 feet in height. Option 2 will feature an alignment along Observer Highway from Washington Street directly to Marin Boulevard. The alignment includes gates for access at various locations including at the Marin Boulevard, Grove Street and Newark Avenue underpasses beneath the rail lines, as well as protection where HBLR tracks pass below the NJ TRANSIT overpass in the southwest corner of the Study Area. Urban amenities in these areas include lighting, murals, seating, plantings and wayfinding/signage. Steel sheeting will also be installed along the NJ TRANSIT railroad embankment.

During a coastal storm surge event, water from the Hudson River is expected to inundate unprotected areas of the Hoboken waterfront. If the river water overtops the waterfront bulkhead during a storm event, water can enter into the storm sewer system through existing inlets and unsealed manhole covers. While Alternative 1 would prevent a storm surge from entering the city streets, Alternative 3 leaves portions of the city streets and sewer system unprotected. To prevent water intrusion into the existing sewers under Alternative 3, a separation of the sanitary/storm water collection system is proposed by the construction of a “High Level” storm sewer collection system. In addition to the installation of this new storm sewer system, the existing NHSA combined sewer inlets and manholes would be sealed and lined. This proposed drainage would be designed to prevent additional sewer backflow that could cause major flooding issues within the Alternative 3 protected areas during a storm surge event. Storm water collected in this “High Level” storm sewer system would gravity flow into the Hudson River.

Delay, Store, Discharge

See above description under Alternative 1.

Construction and Implementation

Construction for resist infrastructure in Alternative 3 would last approximately 44 months and need to be completed by September 2022. The construction would occur concurrently for the northern and southern resist features. Equipment required for this project includes: dump trucks, back hoes, pile drivers, concrete trucks and other assorted delivery trucks. Some street closures will be required, in particular for gate construction. Pile driving will be required over nine months. A total of 6,000 crew days will be required to complete this construction.

Recognizing funding limitations, the DSD portion under Alternative 3 is anticipated to be constructed over the next 15 to 20 years. DSD represent the framework for a future storm water strategy that will need to be implemented by the City of Hoboken and other partners, and can be integrated into the city's existing plans.

Due to the project being in the early stages of planning and design, there are many unknown variables. Modifications to design may arise from obtaining more accurate existing information or other unforeseen deviations from the feasibility study brought about by outside sources (such as more accurate information regarding location of utilities). As a result, the contingency is approximately 25% of the construction and engineering cost.

The construction and final design costs of Resist and DSD are estimated as follows.

Table 3-3: Alternative 3 Construction Costs

ESTIMATED COST (MILLIONS)	
Estimated Resist Cost	\$185.4 to \$220.6 million
Estimated Resist Contingency Cost	\$39.1 to \$47.9 million
Estimated Total Resist Cost	\$224.5 and \$268.5 million
Estimated DSD Cost	\$126.4 and \$148 million

Source: Dewberry, 2015-2017

These amounts are estimates of the cost to construct Resist and DSD, as well as estimated cost factors for construction and engineering project contingencies.

3.4 No Action Alternative

The No Action Alternative provides a baseline condition that allows a comparison between proposed actions and the act of doing nothing. Under this alternative, no Resist structure would be constructed. While the City of Hoboken may continue with plans to develop the BASF and Block 10 sites, a comprehensive DSD system would not be built. The No Action Alternative also includes other ongoing or planned projects in the Study Area that are proposed to be completed by 2022. This included the following projects:

1. Long Slip Fill and Rail Enhancement Project (NJ TRANSIT)
2. Property Development between Long Slip Canal and 14th Street, Jersey City (Newport Associates)
3. H1 and H5 Wet Weather Pump Stations (NHSA)
4. Southwest Resiliency Park (City of Hoboken)
5. City Hall Green Infrastructure Improvements (City of Hoboken)
6. Washington Street Rain Gardens (City of Hoboken)

4.0 METHODOLOGY

The Study Area is shown on Figure 2 and includes the City of Hoboken and portions of the City of Weehawken and the City of Jersey City. The Demographic Analysis Area includes the RBD Study Area, but also extends farther to the north and south to include the entirety of census tracts located within the RBD Study Area. The Demographic Analysis Area was also extended along the western portion of the Study Area to encompass Census Tract 78 in the City of Jersey City and Census Tract 179 in the Township of Weehawken (see Figure 10).

President Clinton signed Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations on February 11, 1994. EO 12898 requires federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. The goal of Executive Order 12898 is as follows: “Each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.” The purpose of the environmental justice review is to determine whether a disproportionate share of the proposed project’s adverse impacts may be borne by a minority and/or low-income population (households below the poverty level).

The methodology to identify Communities of Concern follows the guidance established by TNJ, developed for its Regional Fair Housing and Equity Assessment portion of its Regional Plan for Sustainable Development. TNJ has developed a regional threshold, or average, to assess whether each census area meets or exceeds this average. If a census area meets or exceeds these thresholds, it is considered a Community of Concern. TNJ includes thresholds for Minority, Hispanic or Latino, Households below the poverty level, Families with related children under the age of 18 below the poverty level and Population Age 75 and over as follows:

- Minority Population: 42.6%
- Hispanic or Latino: 19.5%
- Households Below the Poverty Level: 8.9%
- Families with Related Children under the Age of 18 below the Poverty Level: 5%
- Population Age 75 and Over: 6.6%

To identify and assess potential impacts on the socioeconomic environment, land use, zoning and minority and low-income populations, a two-phase analysis was conducted. The first phase consisted of documenting the existing character and significant features of the Demographic Analysis Area by reviewing pertinent planning and zoning documents, and identifying redevelopment proposals within the Demographic Analysis Area. A combination of secondary sources and field surveys were used to determine land uses, development patterns and zoning within the Demographic Analysis Area. For the socioeconomic analysis and analysis of minority and low-income populations, data sources included the 2010 Census data and the 2010-2014 American Community Survey (ACS).

The 2010 Census data provides demographic information such as population and race. It should be noted that the full Census is conducted every 10 years. As a result, development that has occurred since April, 2010 is not reflected in the census data. The ACS data is an estimate compiled from data collected over a five-year period. ACS data was used to compile income and poverty data. This is the best data available, and meets the standards for conducting a socioeconomic analysis.

The US Census Bureau compiles data based on three statistical areas. The largest area is the census tract, which is a statistical subdivision of a county. Census tracts are then divided into census block groups (the second largest census area) which are then broken down to the block level (the smallest census area). Data on race, Hispanic origin and age were analyzed at the block group level as per the guidance from TNJ. To determine the demographic profile (the racial composition and income level) of the Demographic Analysis Area, census tract and block groups were identified and then baseline demographic data was compiled.

Each census block or block group was evaluated to identify the presence of five population categories (minority, Hispanic or Latino, Households below the poverty level, families with related children under 18 below the poverty level, and population age 75 and over) and the potential impacts that the proposed improvements may have on these population groups.

As part of the analysis, census blocks and census block groups with populations above the TNJ regional thresholds were studied to determine whether they contained the proposed improvements, and if so, to identify the location of the proposed improvements in relation to the existing populations.

Appendices A through C, and Figures 11-25, summarize population information for census block groups and census blocks in which the proposed build alternatives are located. Each census block, or block group, was evaluated to identify the presence of five population categories (minority, Hispanic or Latino, Households below the poverty level, families with related children under 18 below the poverty level, and population age 75 and over) and the potential impacts that the proposed improvements may have on any of these population groups.

To determine the existing land use and zoning conditions for the Demographic Analysis Area, the municipal master plans and zoning maps for the City of Hoboken, City of Jersey City and Township of Weehawken were reviewed. Information on the location of parks, open space and recreational facilities within the Demographic Analysis Area was obtained by reviewing the Recreational and Open Space Inventory (ROSI) GIS database provided by the NJDEP, as well as land use data. The ROSI database provides a list of municipal, county and nonprofit parkland that is encumbered by the NJDEP's Green Acres program. The locations of open space and recreational facilities within the Demographic Analysis Area were verified in the field on September 8, 2016. To confirm the number and type of businesses in the vicinity of the build alternatives, a land use survey was conducted for all areas within 50 feet of the limits of disturbance for all of the three build alternatives. The land use survey was conducted on October 28 and November 1, 2016. Businesses observed were categorized as retail (e.g., restaurants, stores, banks, hotels, gyms, parking), offices (e.g., law offices, public relations firms, publishing), or industrial (e.g., bus garages, shipping, construction, metal works, warehouse).

The second phase of analysis included a comparison of data, which identified the specific impacts from the three build alternatives and the No Action Alternative. The land use impact analysis considered the project's consistency with local and regional plans, its effects on current development proposals within the Study Area, its consistency with the Study Area's existing land use pattern, and potential changes to development opportunities within the Study Area.

5.0 EXISTING CONDITIONS

This section presents an overview of existing conditions within the Demographic Analysis Area, which includes a summary of the demographic character, existing land use and zoning, open space and recreational facilities within the City of Hoboken and portions of the City of Jersey City and the Township of Weehawken as shown on Figures 11-25. The demographic characteristics are presented at the county, municipal and Demographic Analysis Area level. The county and municipal data provide a community profile with which to compare and contrast the Demographic Analysis Area's characteristics.

5.1 Population and Demographics

As shown on Figure 10, the Demographic Analysis Area includes 18 census tracts and 37 block groups. The western boundary of the Study Area follows the HBLR Line to the west and the Hudson River to the east. The northern and southern boundaries for the socioeconomic analysis extend beyond the Study Area boundary to include Census Tracts 77 and 78 in Jersey City and Census Tracts 179 and 182 in Weehawken. In Hoboken, the Census Tracts include 183.01, 183.02, 184, 185, 186, 187.01, 187.02, 188, 189, 190, 191, 192, 193, and 194.

According to the 2010 Census, 66,722 people lived in the Demographic Analysis Area; 50,005 people lived in the City of Hoboken, 10,978 lived in the City of Jersey City, and 5,739 lived in the Town of Weehawken. The per capita income in Hoboken is \$70,477, which includes all adults and children. The median household income is \$108,998. According to Sperling's Best Places website, the unemployment rate in Hoboken is 3.00%, with job growth of 1.04%. Future job growth over the next ten years is predicted to be 39.10%.

Appendices A through C provide an overview of the demographic information for the Census Block Groups located in the Demographic Analysis Area, broken down by municipality. The tables include total population counts for the block groups as well as percentages based on racial background, income level and age (over 75 years). A summary of the Population Characteristics of the Demographic Analysis Area can be found in Table 5-1.

The U.S. Census Bureau defines minority populations to include persons who identify themselves as African American, American Indian and Alaska Native, Asian alone, Native Hawaiian and Other Pacific Islander, Some Other Race alone or two or more races. People who identify themselves as Hispanic may be of any race.

Table 5-1: Population Characteristics in the Demographic Analysis Area

	TOTAL PROJECT AREA	%	HUDSON CNTY	%	HOBOKEN	%	JERSEY CITY	%	WEEHAWKEN	%
TOTAL POPULATION IN THE ANALYSIS AREA	66,722	100	634,266	100	50,005	100	10,978	100	5,739	100
WHITE ALONE	46,474	65	342,792	55	41124	82	2,675	24	4,187	73
BLACK OR AFRICAN AMERICAN ALONE	3,187	4	83,925	13	1767	4	710	7	263	5
AMERICAN INDIAN AND ALASKA NATIVE ALONE	135	0	4,081	1	73	0	31	0	11	0
ASIAN ALONE	17,576	24	84,924	13	3558	7	7,009	64	582	10
NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE	17	0	344	0	15	0	1	0	0	0
SOME OTHER RACE ALONE	2,738	4	90,373	14	2144	4	297	3	498	9
TWO OR MORE RACES	1,834	3	27,827	4	1324	3	255	2	198	3
HISPANIC (MAY BE OF ANY RACE)	10,025	14	267,853	42	7,602	15	782	7	1641	29

Source: U.S. Census Bureau, 2010 Census, STF1

5.1.1 Minority Population – City of Hoboken

Within the City of Hoboken, the 2010 Census data indicated that 8,526 or 18% of the population identified themselves as minority. An analysis of the 38 Census Block Groups located within the Demographic Analysis Area located in Hoboken (see Figure 10), indicates that one block group had a minority population above the threshold of 42.6% as determined by the TNJ guidance. This Block Group was therefore classified as a Community of Concern. As shown in Appendix A, this block group, Block Group 4, Census Tract 190, had a minority percentage of 70.6% (see Figures 11-13).

As shown in Appendix A and on Figures 14-16, of the 38 Census Block Groups in the City of Hoboken, ten had a Hispanic or Latino population above the TNJ threshold of 19.5%.

5.1.2 Minority Population - Township of Weehawken

In 2010, 612 residents living within the Block Groups located in the Weehawken portion of the Demographic Analysis Area considered themselves minority. This figure represents 28% of the total population living within these block groups. None of the three block group exceeded the TNJ threshold of 42.6%. As shown in Appendix C and on Figures 14-16, of the three Census Block Groups within the Demographic Analysis Area in the Township of Weehawken, two had a Hispanic or Latino population above the NJT threshold of 19.5%.

5.1.3 Minority Population - City of Jersey City

Within the Census Block Groups located within the City of Jersey City portion of the Demographic Analysis Area, 3,324 people classified themselves as minority. This figure represents 70% of the total population living within these block groups. Both Census Block Groups within the Demographic Analysis Area within Jersey City exceed the TNJ threshold for minority populations of 42.6%. As shown in Appendix B and on Figures 14-16, of the two Census Block Groups within the Demographic Analysis Area in the City of Jersey City, one had a Hispanic or Latino population above the NJT threshold of 19.5%.

5.1.4 Income Level

In 2010-2014, seven Census Tracts within the Hoboken portion of the Demographic Analysis Area, both Census Tracts within the Jersey City portion, and neither of the two Census Tracts within the Weehawken portion exceeded the TNJ threshold of 8.9% for households below the poverty line. As per the TNJ guidance, another indicator of poverty is the percentage of families with related children under 18. Four census tracts in Hoboken, one census tract in the Jersey City portion of the Demographic Analysis Area, and neither of the Census Tracts in the Weehawken portion of the Demographic Analysis Area exceeded this TNJ threshold of 5%.

5.1.5 Population Age 75 and Over

TNJ uses age 75 and above as the basis for identifying communities with senior citizens that may be of special concern. TNJ's threshold is 6.6% of the population within a given area being 75 years of age or older. For the Census Block Groups within the Demographic Analysis Area, within Hoboken five Block Groups are above this threshold; one Block Group within Jersey City is above this threshold (Block Group 1, Census Tract 78); and within Weehawken no block groups are above this threshold.

5.2 Land Use and Zoning

5.2.1 City of Hoboken

5.2.1.1 Land Use

Land use refers to the activity that is occurring on land and within the structures that occupy it and can include categories such as commercial, residential, open space, etc. Zoning controls use, density, and bulk of development. The purpose of a zoning ordinance is to regulate the location, extent, and intensity of land use. Land use within the Study Area is illustrated on Figure 26, and zoning is illustrated on Figure 27.

Hoboken was originally incorporated as a city in 1855. It was based on a grid system designed by Colonel John Stevens. The grid system features east/west numbered streets and north/south named streets that run roughly parallel to the Hudson River. Currently, the city contains a mix of land uses including residential, commercial, industrial, public and institutional uses. The municipality is largely fully developed. As per the Farmland Protection Policy Act of 1981 requirements, the Study Area was reviewed and no prime or unique farmland was identified within the Study Area.

At the southern end of the city is the NJ TRANSIT Hoboken Terminal, a major transportation hub that includes connections to the PATH system, the HBLR, and ferries operated by NY Waterway. The terminal is also a hub for bus, taxi and bicycle use. Adjacent to the Terminal and along First Street is a mix of commercial and mixed-use properties. As described in Section 5.2.1.3 below, the area surrounding the terminal has been the subject of several redevelopment plans, both completed as well as planned.

Washington Street is Hoboken's major commercial corridor, extending 16 blocks from Observer Highway to 15th Street. The southern portion of the corridor, south of 7th Street is largely commercial on the ground floor with residential units on the upper floors. North of 7th Street, Washington Avenue is largely residential, interspersed with commercial uses on the ground floor. Other commercial and mixed-use areas include First Street, 14th Street

from Sinatra Drive North to Willow Avenue, and the blocks surrounding the intersection of Hudson Street and Hudson Place

Along the Hudson River are several parks including Warrington Plaza and Clock Tower, Pier A and Pier C (see Section 5.3 for a discussion of Open Space). Located overlooking the Hudson River at 8th Street and Hudson Street is the Stevens Institute of Technology, a four-year, private research university that is located at Castle Point, the highest point in Hoboken. Also in the northeast section along the waterfront of the city are the Maxwell House, Shipyard and Hudson Tea Building apartment buildings.

5.2.1.2 Zoning

The City of Hoboken's current zoning ordinance was adopted in 2002. The city has three residential districts, two industrial districts and an industrial waterfront sub-district. It also has two review districts and numerous redevelopment areas. These districts are shown on Figures 27 and 28.

Residential Districts

The City has three residential districts: R-1, R-2 and R-3. Within R-1, there are three subdistricts including the education subdistrict - R-1(E), the Court Street subdistrict - R-1(CS), and the Castle Point Historic subdistrict - R-1(H)(CPT).

The purpose of the residential zones is to “conserve the architecture, scale and grain of the residential blocks and street blocks”, according to the City of Hoboken Zoning Code. Residential buildings and retail businesses and services are permitted principle uses in all three residential zones. Additional permitted uses include schools and restaurants which are permitted as an accessory or conditional use.

The three overlay sub-districts, also referred to as an overlay zone, include additional development regulations that regulate the historic district, Castle Point and Court Street areas. The R1-E Sub-district acknowledges the building requirements of the Stevens Institute of Technology in relation to adjacent residential districts.

Industrial Districts

The I-1 Zone covers most of the northwest corner of Hoboken. Permitted uses include industrial uses, office buildings, research laboratories, warehouses and related office buildings, accessory uses and other conditionally permitted uses.

The I-1 zoning includes an I-1(W) waterfront sub-district. This district includes the entire northeast waterfront area of Hoboken. This zone permits manufacturing, office buildings, and research laboratories. It also permits planned unit developments, which may include a mix of residential, commercial, industrial, public, or quasi-public uses.

The I-2 Zone is located along southern border of Hoboken, adjacent to the NJ TRANSIT Hoboken Terminal. Permitted uses in the I-2 Zone include food processing and related storage and distribution, manufacturing, retail businesses and services, and public buildings with other conditionally permitted land uses.

Review Districts

The City's two review districts include the Central Business District (CBD) Zone and the Waterfront Zone. The CBD Zone includes the boundaries of Hoboken's central business district and generally covers the area south of Fourth Street to River Street and the west side of Washington Street. Two sub-districts of the CBD Zone are the CBD (H) Sub-district, which covers the southern and western areas of the zone, and the CBD (H)(CS) Sub-district, which encompasses the southern stretch of Court Street. A wide variety of commercial and residential uses are permitted in the CBD Zone and the two sub-districts.

The second Review District, the Waterfront District, includes three subdistricts: W(RDV), W(H) and W(N). The W (H) subdistrict includes the Hoboken Terminal. The W(N) subdistrict covers the area on the east side of Sinatra Drive below Castle Point. The W(RDV) subdistrict covers the South Waterfront Redevelopment Area. Development in the W(RDV) subdistrict is regulated by the South Waterfront Redevelopment Plan.

5.2.1.3 Redevelopment and Rehabilitation Areas

The New Jersey Local Redevelopment and Housing Law (NJSA 40A:12A) provides the opportunity for municipalities to designate areas in need of redevelopment and rehabilitation.. The regulation provides requirements for the identification of redevelopment and rehabilitation areas as well as for the adoption of redevelopment plans. A redevelopment plan takes the place of the applicable zoning or master plan provisions for the area within its boundary. Hoboken has seven designated redevelopment areas and four designated rehabilitation areas. Three redevelopment plans have been adopted and completed and five redevelopment plans have been adopted. An additional three redevelopment plans are under preparation. The active redevelopment and rehabilitation areas are identified on Figure 28 and are described below:

Northwest Redevelopment Area

The 2-acre Northwest Redevelopment Area includes all or part of 22 tax blocks located west of Clinton Street between 7th and 14th Streets. This redevelopment area borders the BASF site on the north, east, and south sides.

Western Edge Redevelopment Area

The Western Edge Redevelopment Area includes the area surrounding the Ninth Street light rail station. It borders the Palisades and the HBLR right-of-way to the west, 9th Street to the south, Monroe, Madison and Jefferson Streets to the east and 14 Street and the 14 Street viaduct to the north and is 11.15 acres in size. This redevelopment area requires the provision for affordable housing, with a variety of unit sizes including three-bedroom units and large commercial and/or office use components. Other permitted uses include retail and business services, offices, restaurants and cafes, banking and financial institutions, and health clubs open to the public.

Hoboken Yards Redevelopment Area

The New Jersey Transit/Hoboken Yards area was declared an Area in Need of Redevelopment in February 2007. In 2011, the City of Hoboken prepared a redevelopment plan for this 64-acre area. The plan was completed in September 2012, just before Superstorm Sandy hit. As a result of the extensive flooding at the terminal, additional measures were incorporated into the plan to address flood damage prevention. These flood mitigation measures include the separation of the sanitary sewer and storm sewer, sewer pumps to serve the property, compliance with the City's Flood Damage Prevention ordinance, and encouraging the construction of storm surge protection at Warrington Plaza. The Redevelopment Plan was amended and adopted in December 2014.

Neumann Leathers Rehabilitation Area

The 2015 Neumann Leathers Redevelopment Plan covers an 11.59-acre area that includes the Observer Highway right-of-way from Jefferson Street to Hudson Street, and includes the block bounded by Observer Highway, Newark Street and Willow Avenue. This block includes 11 industrial buildings that formerly housed R. Neumann and Co, which produced fine leather and leather goods. The buildings are currently occupied, primarily by small businesses and art galleries. The redevelopment plan proposes to preserve both the historic industrial architecture as well as the current art and artisan-oriented uses of the buildings, while promoting the addition of public open space.

Southwest Rehabilitation Area

The Southwest Rehabilitation Area (Southwest) is located north of Newark Street and extends along Paterson Avenue totaling 23 acres. The Hoboken City Council adopted the Southwest as an Area in Need of Rehabilitation on June 20, 2012. A redevelopment plan for this area is currently being prepared. This area includes the proposed Southwest Park, as discussed in Section 5.3.1.1 below.

North End Rehabilitation Area

The North End Redevelopment Area is located in the northwestern corner of Hoboken adjacent to Union City and Weehawken. The redevelopment area consists of approximately 30.17 acres and is bounded, roughly, by 14th Street to the south, Union City to the west, Weehawken to the north and Park Avenue to the east. In December 2013 the City Council declared the North End Area as an Area in Need of Rehabilitation. A redevelopment plan for this area is currently being prepared.

The Post Office Rehabilitation Area

The Hoboken City Council designated the Post Office as an Area in Need of Rehabilitation in October 2012. The proposed redevelopment would move the post office and construct a hotel in the parking lot behind the post office. The original Post office building would be preserved. However, according to the re-examination report, no discussions with the United States Postal Service have occurred to determine if a move is feasible. The acreage of this proposed redevelopment area is not known. A redevelopment plan for this area is currently being prepared.

Public Works Garage Site Redevelopment Area

In 2006, the City of Hoboken determined that the Public Works Garage should be relocated and the site should be sold and redeveloped under a redevelopment plan. On May 3, 2006, the City Council adopted a redevelopment plan for the 1.14-acre site. The plan is valid for 40 years. However, a new location for the Public Works Garage was not found and the city continues to search for a new location to store the Department of Public Works vehicles.

5.2.1.4 Hoboken Master Plan

The City of Hoboken prepared and adopted its most recent master plan in 2004. A re-examination of the master plan was prepared in 2010. The 2004 Master Plan is a comprehensive document containing background information on development patterns, physical features, socioeconomic indices, housing, and utility services.

The Master Plan Re-examination's overall goal is to guide future development in a manner designed to promote the health, safety, and quality of life for the present and future residents of the City. The 2010 Re-examination Plan cites a growing concern in the community regarding environmental issues related to climate change. The re-examination plan noted that "These climate issues have particularly ominous implications for Hoboken, a riverfront community that is built primarily on marshes and has the bulk of its boundaries within the 100-year flood plain." Furthermore, "The City has struggled to address the interrelated issues of flooding, aging infrastructure, and a combined stormwater and sewer system, not to mention their exacerbation with increasing storm frequency, storm surges and rising sea levels."

5.2.1.5 Hoboken Green Infrastructure Strategic Plan

This 2013 plan is a place-based approach to green infrastructure which seeks to maximize the potential for future stormwater management investments across the community. The plan provides a conceptual framework which considers both existing sewersheds and hydrogeology of the city in relation to stormwater storage.

5.2.2 Township of Weehawken

5.2.2.1 Land Use

The Township of Weehawken within the Study Area contains a mix of land uses including: industrial, residential, commercial and public. As shown on Figure 26, land uses in Weehawken along the northwestern edge of the Study Area, including the area along 16th Street and Kennedy Boulevard, are largely residential. Land uses along the east side of Hackensack Plank Road and along Harbor Boulevard are primarily commercial/office and residential (multi-family). The three piers located off of Harbor Boulevard are also included in the Study Area. The northern pier is primarily used for parking for the Chart House Restaurant, which is located at the eastern end of the pier. The middle pier is commercial and houses the Lincoln Harbor Yacht Club marina. The southern pier contains the Riva Point residential development.

5.2.2.2 Zoning

The Study Area includes the portion of the Township of Weehawken that extends between Harbor Boulevard and the HBLR south towards Weehawken Cove (see Figure 27). The area adjacent to the north of the Hoboken/Weehawken border is designated as a Planned Development. It is zoned SW, for special waterfront development. The area west of Willow Avenue is zoned R-3 residential.

5.2.2.3 Redevelopment Zones and Districts

Located within the Study Area is the Lincoln Harbor redevelopment district. It is 60 acres in size and extends generally from JFK Boulevard east to the waterfront. Also located in the district is Weehawken Cove and Lincoln Harbor Park.

5.2.2.4 Master Plan

The Township of Weehawken Master Plan was adopted in 1976, followed by the Master Plan Amendment for Weehawken Waterfront, The Land Use Element was adopted in 1984. Subsequent master plan documents include a re-examination report adopted in 1991 and the Land Use Plan Element, for Upper Weehawken, that was adopted in 1998.

5.2.3 City of Jersey City

5.2.3.1 Land Use

The boundary between Jersey City and Hoboken roughly follows the HBLR. As illustrated on Figure 1, the NJ TRANSIT HBLR extends from the Jersey City/Weehawken/Union City border south along the Jersey City and Hoboken border to the New Jersey Transit Rail Station. The primary land use within the portion of the Study Area within Jersey City is railroad right-of-way, which also includes the HBLR railroad tracks near the 2nd Street stop. A portion of the NJ TRANSIT Hoboken Rail yard as well as the NJ TRANSIT Long Slip Canal are also located in the Jersey City portion of the Study Area. Other land uses within the portion of the Study Area within Jersey City include industrial, commercial, and open space.

5.2.3.2 Zoning

Most of the Study Area located in Jersey City is within one of four designated Redevelopment Areas. The permitted uses within these Redevelopment Areas varies, but generally include multi-family and high rise residential, community commercial, mixed use, open space, and transit/railroad. Additionally, the section of the Study Area in Jersey City west of the light rail is zoned R-3 residential.

5.2.3.3 Redevelopment Areas

Four redevelopment areas are located in portions of the Study Area within Jersey City, just south of the Hoboken border (see Figure 27). The redevelopment areas are The Newport Redevelopment Area, the Jersey Avenue Light Rail Redevelopment the Jersey Avenue Park Redevelopment Area, and the Hoboken Avenue Redevelopment Area. All four Redevelopment Areas have specific zoning as described in their respective Redevelopment Plans. In general, the goal of all of all four Redevelopment Areas is to encourage a transformation of this section of Jersey City from largely industrial uses and vacant land to a dense mix of uses that takes advantage of the proximity to transit. Within the project area or within a few blocks of the project area 387 residential units and 37,670 square feet of retail space has recently been constructed and 2,664 residential units and 67,235 sf of retail are either under construction or have been approved for construction , A discussion of these areas is provided below.

Newport Redevelopment Area

The Newport Redevelopment Area is located in the northeastern corner of Jersey City, situated along the Hudson River. It is a 26-acre planned development that began in 1980. Land uses include residential apartment towers, office buildings, hotels, a marina, schools, retail stores and parks. The purpose of the Newport Redevelopment Area is to take advantage of “The unique and dramatic location along the Hudson River waterfront across from Lower Manhattan, New York City.” The area which is south of the Hoboken Rail yards, includes additional open space located north of 14th Street. It also includes additional commercial space. Also located within this area is The Ellipse, a 376-unit apartment building currently under construction, and additional commercial space.

Jersey Avenue Light Rail Redevelopment Area

Located to the south of the Hoboken/Jersey City border is the 140-acre Jersey Avenue Light Rail Redevelopment Area. This district is bounded to the north by the Jersey City/Hoboken border, to the west by Jersey Avenue, to the south by Fourteenth Street and to the east by Marin Boulevard. The purpose of the redevelopment project is to encourage the development of emerging residential and commercial areas, as well as to improve the function and physical layout and the vehicular and pedestrian flow. This redevelopment area is zoned for High Rise, Commercial Strip and Neighborhood District.

Land uses in the area include: residential, commercial, and transportation (it includes a portion of the NJ TRANSIT Hoboken Rail Yards and the HBLR).

Hoboken Avenue Redevelopment Area

This development area is generally bound by the NJ TRANSIT Morris and Essex Rail line, New York Avenue and the City of Hoboken boundary line on the north and northeast, Hoboken Avenue on the south and southeast, and Monmouth Street on the west. The principal permitted uses for the 28-acre Hoboken Avenue Redevelopment Area are multi-family residential and transit/open space. The objectives of the Redevelopment Area include creating transit-oriented residential with ground floor commercial and to provide for new open space and recreation opportunities both within the redevelopment area and in immediately adjacent areas.

Jersey Avenue Park Redevelopment Area

The 60-acre Jersey Avenue Park Redevelopment Area is bordered by Hoboken Avenue to the north and west, Jersey Avenue to the east, and Twelfth Street to the south. Among the objectives of this redevelopment area is the creation of major new employment and housing opportunities for the residents of Jersey City, development of public open space, and encouragement of preservation and adaptive use of existing structures. The Redevelopment Plan contains three distinct areas: a medium rise district, a mixed use district, and a commercial strip district. Part of the open space designated in the redevelopment plan is within the study area boundary.

5.2.3.4 City of Jersey City Master Plan

The City of Jersey City adopted its master plan in 2000. After the adoption of the master plan, the zoning ordinance was revised and adopted in 2001. Since the adoption of the master plan, several re-examination reports were prepared with the most recent re-examination prepared in 2015.

In addition to its master plan and redevelopment plans, the City of Jersey City prepared a Sandy Recovery Strategic Planning Report in August 2014. This report places an emphasis on increasing resilience against future disasters. Jersey City is currently working on a number of resiliency planning documents, including a Resilience Master Plan, as recommended in the Sandy Recovery Strategic Planning Report. These documents are expected to be completed in spring 2017.

5.2.4 Public and Affordable Housing

The Hoboken Housing Authority (HHA) is located between 2nd and 8th Streets. The HHA manages 1,353 units of public housing throughout the city for low-income households. The HHA includes the Andrew Jackson Complex, with 598 units, Harrison Gardens with 208 units, and Christopher Columbus, with 97 family units. The 200-unit Fox Hill Gardens and 125-unit Adams and Monroe complex, which are also managed by HHA, are limited to senior housing. The HHA also manages 326 affordable rental units through leased housing contracts which is also known as Housing Assistance. Within the demographic analysis area of the City of Jersey City is the 189-unit Holland Gardens complex. Holland Gardens is owned and operated by the Jersey City Housing Authority. There is no public housing in the Weehawken portion of the Study Area.

The City of Hoboken continues to expand affordable housing options. Inclusionary standards for affordable housing are included in the city's Administrative Code. The code includes definitions for very low, low and moderate income households. New residential redevelopment projects are required to set aside ten percent of all units as affordable housing. The following are public and affordable housing complexes located within Hoboken:

- Adams St Apartments,
- The Adams Street Apartments
- The Andrew Jackson Gardens

- Christopher Columbus Gardens
- Church Square South
- Clock Tower Apartment Colombian Arms
- Colombian Towers,
- East View Apartments
- Elysian estates
- Fox Hill Gardens
- Grogan Marine View Plaza
- Harrison Gardens
- James Monroe Gardens
- Marian Towers
- North Vale 4
- Project Uplift
- Westview Apartments, and
- The YMCA-Hoboken Single room occupancy.

Jersey City established an Affordable Housing Trust Fund that leverages funds raised through tax abatements to construct affordable housing city-wide. The Affordable Housing Trust fund also funds housing projects where 20 percent of the units are set aside for affordable housing. The Jersey City Housing Authority operates 21 properties, of which the Holland Gardens housing complex is located within the demographic analysis area. An additional 39 low-income housing complexes are located within Jersey City, but none are located within the Jersey City portion of the demographic analysis area.

The Weehawken Housing Authority operates 167 units of affordable senior and disabled housing and manages an additional 350 units of Section 8 housing throughout the township. No affordable housing complexes are located within the Weehawken portion of the demographic analysis area.

5.2.5 Together North Jersey Plan

TNJ Plan was developed by a planning consortium established in part by the North Jersey Transportation Planning Authority (NJTPA). The TNJ Plan was completed in 2015 and seeks to enhance the resiliency of the region's communities and infrastructure. It also seeks to identify the region's vulnerability to extreme weather and climate change.

5.2.6 Hudson County 2008 Re-examination of the Master Plan

The County of Hudson completed its master plan 2002. It then prepared a re-examination of the 2002 plan in 2008. Included in the county's 2002 master plan was an evaluation of stormwater pollution and open space, recreation

and historic preservation. As part of the re-examination, these elements were also re-evaluated. Each of the elements in the 2002 master plan, as well as the Hudson County Stormwater Pollution Prevention Plan, the Hudson County Storm Water Pollution Prevention Plan and the Hudson County Open Space Recreation and Historic Preservation Plan were evaluated. These plans supplement, update and amend the Hudson County Master Plan. Within the Hudson County Master Plan's 2008 re-examination, Hoboken's 2004 Master Plan was also evaluated for its consistency with the county plan. The County found that the "Hoboken Master Plan appears to be in agreement with all the goals of the Hudson County Master Plan with the possible exception of encouraging manufacturing, as the plan focuses on residential and commercial uses and proposes re-zoning some industrial land to other uses."

5.3 Open Space

5.3.1 City of Hoboken Public Parks

The City of Hoboken contained just 0.78 acres of park for every 1,000 residents, according to the 2004 master plan. This ratio is considered an open space deficit when compared to nearby urban areas, such as New York City, which has a standard of 2.5 acres per 1,000 residents. Additional parks were added in recent years such that by the date of the 2010 Re-examination Report, the total acreage of parkland had increased from approximately 30 acres to 50.53 acres. Despite this increase, the City is still short of its 2004 land development objective to increase park acreage to 60 acres.

The State of New Jersey Green Acres Program assists municipalities and counties in the acquisition of open space for recreation and conservation purposes, as well as for the development of outdoor recreation facilities. Program funding is provided from the Garden State Preservation Trust, and is supplemented by awards from federal programs such as the Land and Water Conservation Fund.

The City of Hoboken accepts Green Acres funding for parks and open space. These facilities are listed on the NJDEP's Recreation and Open Space Inventory (ROSI). Communities that accept Green Acres funding are subject to Green Acres deed restrictions on all municipally-owned parks, and are subject to Green Acres restrictions at N.J.A.C. 7:36:4.1(d). All municipally owned parkland facilities, Green Acres funded or non-Green Acres funded, are required to be listed on the City of Hoboken's ROSI.

A compilation of city-owned parks and significant publicly-owned recreational facilities within the Hoboken portion of the Study Area is listed below and is shown on Figure 29. Locations of parks and their facilities were confirmed in the field on September 8, 2016.

- Castle Point Skate Park

Castle Point Skate Park, located on the east side of Sinatra Drive near 8th street, under Castle Point, is 1.5 acres in size. The park is owned by the City, per a lease with the Stevens Institute of Technology. The park contains skateboarding facilities.

- Church Square Park

Church Square Park, located between 4th, 5th, and Garden Streets and Willow Avenue, is 3.2 acres in size. The park includes basketball courts, a dog run, a playground, and passive space.

- Community Garden

The Community Garden, located at 3rd and Jackson Streets, is 0.17 acres in size. A playground is located at the park.

- Columbus Park

Columbus Park, located on the west side of Clinton Street between 9th and 10th Streets, is 3.2 acres in size. The park is owned by Hudson County. The park includes basketball and tennis courts, a playground and passive space.

- Elysian Park

Elysian Park, located on the east side of Hudson Street between 10th and 11th Streets, is 2.69 acres in size. The park provides basketball courts, a dog run, a playground and passive space.

- Erie-Lackawanna Plaza (a.k.a. Pocket Park)

Erie-Lackawanna Plaza, located at the foot of Hudson Place, at Newark Street and Jackson Street, is 1.20 acres in size. This open space is owned by NJ TRANSIT. Views of Manhattan are available from this park.

- Jackson Street Park

Jackson Street Park, located at 116-118 Jackson Street, between 1st and 2nd Streets, is 0.12 acres in size. The park includes a jungle gym and play equipment.

- Jefferson Park

Jefferson Park is located on Jefferson Street, between 1st and 2nd Streets. The park includes a paved toddler play area and is used by the adjacent Hola School.

- JFK Stadium

JFK Stadium is located at 10th and Jefferson Streets, adjacent to Columbus Park. It is 4.0 acres in size and owned by the Board of Education. The park consists of a football field and bleachers.

- Legion Park

Legion Park, located at 1221 Willow Avenue near 13th Street, is 0.11 acres in size. The park provides a youth play area.

- Madison Street Park

Madison Street Park, located at 3rd and Madison Streets (300 Madison Avenue), is 0.17 acres in size. The park includes a playground with swings and a jungle gym.

- Maxwell Place Waterfront Park

Maxwell Place Waterfront Park, located on a peninsula, platform and pier at Sinatra Drive North and 11th Street, is 4.1 acres in size. The park includes a beach area, passive space and waterfront walkway.

- Pier A Park

Pier A Park, located at the Hudson River and 1st Street (100 Sinatra Drive), is 4.8 acres in size. The park includes fishing, a great lawn and a gazebo.

- Pier C Park

Pier C Park, located along the Hudson River at 4th Street and Sinatra Drive, is 5.1 acres in size. The park includes a fishing pier, play area, water play area, rookery, and promenade.

- Housing Authority

The Housing Authority is located on 4th and Jackson Streets, and is 1.7 acres in size. The property is owned by the Housing Authority. The park contains a ball field that is available to the public.

- Multi-Service Center Park

The Multi-Service Center Park, located on Adams Street between 1st and 2nd Streets, is 0.46 acres in size. The park includes basketball courts and a roller rink.

- Sinatra Park

Sinatra Park, located on the east side of Sinatra Drive between 4th and 6th Streets, is 3.6 acres in size. The park includes a kayak launch, outdoor amphitheater and soccer field.

- Stevens Park

Stevens Park, located between 4th, 5th, and Hudson Streets and Sinatra Drive, is 2.99 acres in size. The park includes baseball fields and open space.

- 1600 Park

1600 Park is park located at Willow Avenue at 16th Street. The park provides a multi-use field, dog run, and viewing mound/slide hill.

- Hoboken Cove Park (a.k.a. Harborside Park)

Hoboken Cove Park, located on 15th Street from Park Avenue to Garden Street, is 1.0 acre in size. The park includes active park space and a playground.

- Waterfront Walkway

The Hudson River Walkway is a 30-foot wide walkway along the Hudson River and currently extends from Bayonne to Fort Lee. The walkway is included in the NJDEP Green Acres Program Open Space Database. In Hoboken, the walkway begins at the Hoboken Terminal and extends north to 12th and Hudson Streets where there is a detour around the Union Drydock. The walkway continues to the Hoboken/Weehawken border and is 4.5 acres in size.

5.3.1.1 Proposed Public Parks

Additional recreational facilities are currently in the late planning stages and may be complete by the project's build year (2022). Of note, the City of Hoboken is currently constructing Southwest Park. This park is located north of Observer Highway, between Harrison Street and Jackson Street. The park is designed to hold over 200,000 gallons of stormwater runoff and has been designed to include green space, event space, and a playground. This park had been proposed prior to this Project.

In addition, the proposed 7th Street and Jackson Street Park and Plaza is in the last stages of planning. This park is part of the Northwest Redevelopment Area, and would add two acres of public parks and open space, including a municipal gymnasium, and mixed-use residential and retail along the western edge of the City, adjacent to the HBLR. This park would also incorporate stormwater retention.

The City of Hoboken has acquired the BASF property, a 4.3-acre property in northwest Hoboken that includes the property at Block 107, Lot 1. The park will have a mix of active and passive recreational space with green infrastructure and an underground detention system to hold at least one million gallons of stormwater to help reduce localized flooding. Design of the resiliency park will be completed through a public process. The BASF site is bounded by Madison Street, Adams Street, 12th Street, and 13th Street.

5.3.2 City of Jersey City Public Parks

Within the portion of the Study Area located in the City of Jersey City, there are three open space/park areas. The first is the Newport Green Park which is located within the Newport Redevelopment Area. It is a four-acre landscaped waterfront park with a merry-go-round, grassy field, picnic tables, bathrooms, spray park, swings, jungle gyms, waterfront seating, and an artificial beach. It is not listed on the NJ-DEP Green Acres Program Open Space Database. The second area is the Hudson River Walkway which also passes through Jersey City, and is included in the Green Acres program, as mentioned above. The third area is open space located on NJ TRANSIT property. This area includes a bicycle path which connects Jersey City to Hoboken, and provides for other passive recreational uses.

5.3.3 Township of Weehawken Public Parks

One publicly-owned recreational park was identified within the portion of the Study Area in the Township of Weehawken. The park at West 18th Street and Grand Avenue, known as the Waterfront Park and Recreation Center, is included on the DEP Green Acres Program Open Space database. The Hudson River Walkway also passes through Weehawken, from the Weehawken/Hoboken border, through to Lincoln Harbor north to the study area boundary. It is included in the Green Acres program, as mentioned above.

5.4 Critical Facilities

In accordance with the executive order on floodplain management (Executive Order 11988), FEMA has identified critical facilities where even the slight risk of flooding is too great (see Figure 6). These critical facilities include: hospitals, police stations, EMT facilities, fire stations, emergency shelters, and facilities which store critical records. Within the project area, these facilities include: The Hoboken Police Headquarters, four fire stations, Hoboken City Hall, the Hoboken University Medical Center, and the Wallace School, which serves as the emergency shelter. Hoboken has also identified the North Hudson Sewage Treatment Plant as a critical facility. It is noted that the Hoboken City Hall and Hoboken Police Headquarters are not located within the 100-year floodplain.

There are no critical facilities located within the Jersey City or Weehawken portions of the Study Area.

5.5 Economic Conditions

Due to the proximity to New York City, and the multimodal regional transit hub, the Study Area has a very strong economic base. The total assessed net valuation of taxable properties in Hoboken in 2014 was approximately \$11 billion. In the 10 years ending in 2014, the value of real estate in Hoboken increased by more than 200 percent. During this same period, real estate values increased by approximately 40 percent in Weehawken and by less than 5 percent in Jersey City. According to the 2010-2012 American Community Survey, the residential vacancy rate in the local housing market was seven percent. Seventy five percent of the population reported that they lived at the same address in Hoboken for at least one year, which is an indicator of a strong real estate market.

In 2010, there were approximately 4,900 businesses registered in Hoboken with retail sales exceeding \$312 million. According to US Census data from 2012, there were 5,946 businesses in Hoboken, 1,246 of which had paid employees that numbered 20,421. In 2007, there were 4,894 businesses in Hoboken, 1,158 of which had paid employees that numbered 28,990. During this five-year period, the number of businesses in Hoboken increased by 18%, while the number of paid employees decreased by almost 20%.

Major employers currently within the Study Area include Marsh USA Inc., a 1,500-employee financial company; Thomas Reuters, a 450-employee data analysis company; Wiley and Sons, Inc., a 1,519-employee publisher; and Pearson, a 900-employee educational testing firm. EY (formerly Ernst and Young), signed a lease in August 2016 and will be adding another 1,000 employees. Employment numbers were gathered from websites including www.northjersey.com, www.njbiz.com and www.law360.com.

According to the NJ Division of Taxation, in 2016, the average home prices in Weehawken and Hoboken were the first and second most expensive, respectively, out of all the municipalities in Hudson County. Table 6.1 contains the average home sales price from 2012 and 2016. As is shown in the table, the average home price has been increasing since 2012 (the year Superstorm Sandy occurred) for all three municipalities. Please note, these prices represent average sales prices for the entire municipalities of Hoboken, Weehawken and Jersey City, even though only portions of Jersey City and Weehawken are included in the demographic analysis area.

Table 6-1: Average Sales Price for a Home

MUNICIPALITY	2012	2013	2014	2015	2016
Hoboken	\$547,704	\$593,475	\$613,213	\$668,412	\$733,747
Jersey City	\$260,340	\$297,756	\$324,748	\$329,493	\$388,976
Weehawken	\$637,193	\$619,606	\$685,237	\$761,703	\$882,120

Source: State of New Jersey, Dept. of the Treasury, Division of Taxation, 2012-2015, Average Resident Sales Price

Between 2012 and 2016, the average sales price for a home increased as follows:

- Hoboken: \$186,043 (an increase of 34 percent)
- Jersey City: \$128,636 (an increase of 49 percent)
- Weehawken: \$244,927 (an increase of 38 percent)

Based on this information, the housing market within the demographic analysis area has been experiencing an upward trend since Superstorm Sandy.

5.6 Public Health

Epidemiological evidence suggests that flooding and flood disasters can cause health impacts. The Centers for Disease Control and Prevention (CDC) has identified health risks from flood waters. These risks include infectious disease, injuries and even death. Though many of these health effects result from major flooding disasters, negative health effects have also been associated with more routine flooding events. For example, the CDC points to the risks associated with children playing and/or swallowing contaminated flood waters, or even just playing with toys that have been in contact with contaminated flood waters.

Due to variability in the intensity and severity of flood events, from routine to catastrophic, potential health-related risks of flooding must be evaluated on an event-by-event basis. Such an approach would take into account contamination sources and the uses of areas inundated with flood waters. However, in general, the CDC has recommended the public “avoid standing water, areas saturated with floodwater, and areas with visible debris” since these areas create the most risk for injury and microbial exposure.

Standing water can pose many health risks, including exposure to microbial pathogens. This is particularly true in combined sewer overflow (CSO) situations, when rainfall amounts exceed the capacity of sewer collection systems

and/or treatment facilities, and the sewer system overflows or backups discharging a combination of untreated sewage and stormwater. These CSO overflows and back-ups occur several times a year in low-lying areas in Hoboken. The pathogens which are often found in CSO back-ups and overflows may cause a number of health conditions and symptoms, including: rashes, respiratory issues such as asthma, eye irritation, gastrointestinal conditions such as vomiting and abdominal pain, muscle aches, and headaches. Exposure to pathogens occurs through all human orifices, including: eyes, ears, nose, mouth and open cuts/abrasions.

The populations most at risk from exposure to pollutants are the elderly, children, and pregnant women. The elderly are at risk as a result of a weakened immune system that comes with age. Children and infants have immature immune systems and are also likely to participate in activities that raise exposure risk. For example, playing in contaminated water puts children at risk for ingesting contaminated flood water. Women who are pregnant may or may not experience illness after contracting a virus but regardless may transmit illness to their fetus, during birth or shortly thereafter. Other individuals with compromised immune systems are also at higher risk. These populations are most likely to suffer from diarrhea resulting from waterborne or foodborne illness.

Repeated flooding that enters buildings resulting in saturation of carpets, insulation and sheetrock can lead to mold growth. People with asthma, allergies or other respiratory conditions may be more sensitive to mold. People with weakened immune systems or with chronic lung diseases can develop mold infections in their lungs.

There is considerable evidence that flooding causes mental health impacts. Severe flooding events, in particular, have been widely studied and have been found to cause an array of mental health issues, including but not limited to: stress, depression, anxiety disorders and sleeplessness.

Among the Hoboken residents that completed a Health Impact Assessment community-wide survey, the most frequently cited impact of flooding was sewer back-ups near residents' homes. Sixty percent of survey respondents listed sewer back-ups as a problem when it floods. As a consequence of coming in contact with contaminated flood waters or sewer back-ups, nearly one third of survey respondents (28 percent) reported experiencing one or more of the following symptoms: headaches; vomiting; abdominal cramping, nausea, or diarrhea; muscle aches; eye irritation/infection; asthma or other respiratory condition; or skin rash. Fifteen percent of respondents reported seeking medical attention as a result of experiencing one or more of these symptoms. Only a small percentage of Hoboken residents reported experiencing an injury requiring medical attention as a result of flooding (three percent) and a similarly small percentage (two percent) reported seeking counseling or other mental health services to help them cope with periodic flooding.

5.7 Public Transit

Traffic and Circulation is discussed in greater detail in the Traffic and Circulation TES. Regarding Environmental Justice populations - particularly those that are low-income - are particularly dependent upon public transportation. Many mass transit options are available to residents living within the Study Area. NJ TRANSIT's Hoboken Terminal is located in the Study Area and serves as a transportation hub for a variety of transportation modes. NJ TRANSIT

rail lines that originate in Hoboken include the Main Line with service to Suffern and Port Jervis, the Bergen County Line, the Pascack Valley and Port Jervis Line, the Spring Valley Line, the Montclair and Boonton Line, the Morris and Essex Line, and the North Jersey Coast Line. The HBLR system also runs along the western edge of the Study Area. It connects residential Bayonne and western Jersey City with Jersey City's Exchange Place, Newport Center, and Hoboken Terminal.

Within the Study Area, the New York Waterway ferry service operates the Lincoln Harbor Terminal in Weehawken, and the 14th Street and NJ TRANSIT Terminal in Hoboken. These provide connections to Midtown, Pier 11 /Wall Street and the Manhattan World Financial Center in Manhattan. The PATH train line (operated by the Port Authority) runs between Hoboken, Newark, and New York City, with stops in Jersey City and Harrison. Bus service also operates between Hoboken and New York City as well as throughout Hudson County. The City of Hoboken has also established bike lanes which includes shared lanes and marked bike only lanes. A bike share program is also available to Hoboken residents along with Zipcar, a car share service.

As a result of the transportation options available to residents in the Study Area, mass transit use is high. According to the US Census 2010 American Community Survey, the average number of commuters using mass transit is approximately 50% of the Study Area's workforce population (compared to about 5% nationwide, based on 2015 ACS 5-year estimates). This percentage represents the entire population including Environmental Justice populations and is also evidence of the many individuals that choose to live in Hoboken, Jersey City and Weehawken because of their urban and transit-friendly nature, regardless of whether they own a vehicle or not.

6.0 DISCUSSION/IMPACT ANALYSIS

This section presents the potential changes to the socioeconomic environment due to implementation of the three build alternatives and the No Action Alternative. The baseline condition of the affected environment (or existing conditions) serves as the basis for analysis of effects and comparison of each alternative. The current conditions and any known trends are described to provide a basis for assessing the consequences of the alternatives. Effects are quantified where possible, and qualitative discussions are also included.

The following terminology is used throughout the impact analysis section of this document to describe the nature of impacts arising from the three build alternatives and the No Action Alternative.

- Short-term or long-term. These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term effects are those that would occur only with respect to a particular activity or for a finite period or only during the time required for construction activities. Long-term effects are those that are more likely to be persistent and chronic.
- Direct or indirect. A direct effect is caused by and occurs contemporaneously at or near the location of the action. An indirect effect is caused by a proposed action and might occur later in time or be farther removed in distance, but still be a reasonably foreseeable outcome of the action. For example, a direct effect of a proposed easement through a portion of a parcel used by a business might be to render the parcel unfit for its current use. An indirect effect may occur if construction of a resist barrier in the vicinity of a business changed pedestrian traffic patterns resulting in a reduced number of customers.
- Negligible, minor, moderate, or major. These relative terms are used to characterize the magnitude or intensity of an impact. Negligible effects are generally those that might be perceptible but are at the lower level of detection. Impacts are considered minor if project-related impacts would occur, but resources would retain existing character and overall baseline conditions. Impacts are considered moderate if project-related impacts would occur, and resources would partially retain existing character. Some baseline conditions would remain unchanged. Finally, project-related impacts considered as major would create a high degree of change within the existing resource character and overall condition of resources.
- Adverse or beneficial. An adverse effect is one having unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial effect is one having positive outcomes on the man-made or natural environment. A single act might result in adverse effects on one environmental resource and beneficial effects on another resource.
- Significance. Significant effects are those that, in their context and due to their intensity (severity), meet the thresholds for significance set forth in CEQ regulations (40 CFR Part 1508.27).

- **Context.** The context of an effect can be localized or more widespread (e.g., regional).
- **Intensity.** The intensity of an effect is determined through consideration of several factors, including whether an alternative might have an adverse impact on the unique characteristics of an area (e.g., historical resources or ecologically critical areas), public health or safety, or endangered or threatened species or designated critical habitat. Effects are also considered in terms of their potential for violation of federal, state, or local environmental law; their controversial nature; the degree of uncertainty or unknown effects, or unique or unknown risks; if there are precedent-setting effects; and their cumulative effects.

6.1 Population and Demographics Impacts

6.1.1 Alternative 1

Alternative 1 will result in minor to moderate short-term impacts on the Study Area population as a result of construction activities and major, beneficial impacts on the Study Area population associated with decreased flooding frequency and magnitude.

The construction impacts will include impacts on vehicular and pedestrian traffic patterns in construction areas, noise and vibration impacts during construction activities and increased levels of construction-generated dust. These impacts are characterized in detail in the Traffic and Circulation TES, Noise and Vibration TES and the Air Quality TES and are not characterized in this TES.

The major beneficial, direct impact on the existing population will result from reducing the frequency and magnitude of future coastal flooding impacts for 98 percent of the persons who reside within the preliminary FEMA 100-year floodplain within the Study Area. These residents may see an indirect impact in the reduction of their federal flood insurance rates over the long term. The magnitude of this rate reduction cannot be determined at this time. Based on 2010 census data, major beneficial impacts are also expected for the 7,870 persons whose residences will no longer be flooded during a rain storm equal to or less than a five-year rainfall event (4.23 inches during a 24-hour period). For another 6,290 persons, the depth of flood water during a storm equal to or less than a five-year rainfall event, will be reduced by at least several inches.

6.1.2 Alternative 2

The minor to moderate short-term impacts on the Study Area population as a result of construction activities and the major, beneficial impacts on the Study Area population associated with decreased flooding frequency and magnitude will be similar to those described under Alternative 1, except that coastal flood risk reduction benefits will be provided to 86 percent of the persons who reside within the FEMA preliminary 100-year floodplain.

6.1.3 Alternative 3

The minor to moderate short-term impacts on the Study Area population as a result of construction activities and the major, beneficial impacts on the Study Area population associated with decreased flooding frequency and magnitude will be similar to those described under Alternative 1, except that coastal flood risk reduction benefits will be provided to 85 percent of the persons who reside within the FEMA preliminary 100-year floodplain.

6.1.4 No Action Alternative

The No Action Alternative is not anticipated to have a direct effect on population or demographics within the Study Area in the short-term. However, there is continued risk of significant coastal storm impacts to the entire population in the FEMA preliminary 100-year floodplain. These risks include coastal storm flooding and chronic flooding; loss of power lasting from several days to several weeks in duration; loss of local transportation networks, including public transportation; and loss of a full range of emergency services. No reduction in flood insurance rates would be expected under this alternative. In addition, due to climate change and sea level rise (as discussed in Section 1), the frequency and magnitude of coastal surge and rainfall flooding events would be expected to increase in the future. The No Action Alternative would therefore have long-term impacts by leaving the community exposed to increasingly severe flooding events.

6.1.5 Mitigation Measures and BMPS Included in Alternatives 1, 2, and 3

There are no mitigation measures or BMPs related to population and demographics.

6.2 Land Use and Zoning Impacts

6.2.1 Alternative 1

No changes to zoning or land use are proposed with Alternative 1's Resist component. Easements (both temporary and permanent) will be required for construction and implementation of the Resist structure, but these will not constitute changes to land use, and no zoning changes will be required. Temporary easements will be necessary up to approximately 3.5-years, which represents the construction duration of the Resist component. To facilitate this construction, one temporary easement is required. Permanent easements are required for the construction of above ground infrastructure. Seventeen permanent easements on private property are required for the Alternative 1 Resist infrastructure. A total of 0.1 acres are required for temporary easements and a total of 4.4 acres are required for permanent easements.

Under Alternative 1, Resist structures would be located along Weehawken Cove and Sinatra Drive. Within Hoboken, eight easements would be required along Sinatra Drive. In Weehawken, along Weehawken Cove, seven easements

would be required. No land use changes would occur, and no changes to zoning are anticipated for the Study Area. Alternative 1 is consistent with all applicable county and regional land use plans.

As discussed in Section 3.1, Option 1 features an alignment south of Observer Highway within the NJ TRANSIT Yard while the Option 2 alignment runs along Observer Highway from Washington Street to Marin Boulevard. The land between these two options has been proposed for redevelopment under the Hoboken Yard Redevelopment Plan. The more southerly Option 1 would provide flood risk reduction benefits for this proposed redevelopment site. However, in order for this redevelopment plan to proceed, existing railroad tracks in this area must be relocated. If these tracks cannot be relocated to meet the construction deadlines established for this Project, then Option 2 would be implemented. Option 2 could pose challenges to the future construction of the Hoboken Yard Redevelopment Plan, as it would potentially impact accessibility to this area (both during construction of the redevelopment area and after completion) and it would not provide flood risk reduction benefits to the redevelopment area.

The proposed DSD improvements represent the framework and provide recommendations for a future storm water strategy that will need to be implemented by the City of Hoboken as funding becomes available, and can be integrated into the city's existing plans. No changes to zoning are proposed under the DSD strategy. Long-term land use changes under DSD would include the approximately 4.3 acres associated with the BASF site, which is currently vacant land. Under the DSD strategy, the land use would change to recreation. In addition, the Block 10 DSD site is currently a parking lot; this property would change to recreational uses under the DSD strategy. No easements would be required under DSD. The City of Hoboken has acquired the BASF site and intends on pursuing purchasing of the Block 10 site after the issuance of the project's ROD.

6.2.2 Alternative 2

No changes to zoning or land use are proposed with Alternative 2's Resist component. Easements (both temporary and permanent) will be required for construction and implementation of the Resist structure, but these will not constitute changes to land use, and no zoning changes will be required. Temporary easements will be necessary up to approximately 3.5 years, which represents the construction duration for the Resist component. To facilitate this construction, one temporary easement is required. Six permanent easements on private property are required for Resist infrastructure construction under Alternative 2. A total of 0.1 acres are required for temporary easements and a total of 1.2 acres are required for permanent easements.

The proposed resist structure would require easements on two parcels in Hoboken, one of which is currently open space/parkland. Four parcels in Weehawken would also require easements. While land uses would change, no changes to zoning are anticipated for the Study Area. Alternative 2 is consistent with all applicable county and regional land use plans.

Impacts on land use arising under Options 1 and 2 are as described under Alternative 1.

The proposed DSD improvements represent the framework and provide recommendations for a future storm water strategy that will need to be implemented by the City of Hoboken as funding becomes available, and can be integrated into the city's existing plans. No changes to zoning are proposed under the DSD strategy. Long-term land use changes under DSD would include the approximately 4.3 acres associated with the BASF site, which is currently vacant land. Under the DSD strategy, the land use would change to recreation. In addition, the Block 10 DSD site is currently a parking lot; this property would change to recreational uses under the DSD strategy. No easements would be required under DSD. The City of Hoboken has acquired the BASF site and intends on pursuing purchasing of the Block 10 site after the issuance of the project's ROD.

6.2.3 Alternative 3

No changes to zoning or land use are proposed with Alternative 2's Resist component. Easements (both temporary and permanent) will be required for construction and implementation of the Resist structure, but these will not constitute changes to land use, and no zoning changes will be required. Temporary easements will be necessary for up to approximately 3.5 years, which represents the construction duration for the Resist component. To facilitate this construction, one temporary easement is required. Eight permanent easements on private property are required for Resist infrastructure construction under Alternative 3. A total of 0.1 acres are required for temporary easements and a total of 0.7 acres are required for permanent easements.

Under Alternative 3, four parcels in Hoboken, three parcels in Weehawken and one parcel in Jersey City is required to construct the resist structure. In Hoboken the land required includes the alleyway between Garden Street, and Washington Street, north of 14th Street. In Weehawken, the parcels are located along Waterfront Terrace, north to Clinton Street. In Hoboken. While land uses would change, no changes to zoning are anticipated for the Study Area. Alternative 3 is consistent with all applicable county and regional land use plans.

Impacts on land use arising under Options 1 and 2 are as described under Alternative 1.

The proposed DSD improvements represent the framework and provide recommendations for a future storm water strategy that will need to be implemented by the City of Hoboken as funding becomes available, and can be integrated into the city's existing plans. No changes to zoning are proposed under the DSD strategy. Long-term land use changes under DSD would include the approximately 4.3 acres associated with the BASF site, which is currently vacant land. Under the DSD strategy, the land use would change to recreation. In addition, the Block 10 DSD site is currently a parking lot; this property would change to recreational uses under the DSD strategy. No easements would be required under DSD. The City of Hoboken has acquired the BASF site and intends on pursuing purchasing of the Block 10 site after the issuance of the project's ROD.

6.2.4 No Action Alternative

The No Action Alternative would result in no change to land use or zoning.

6.2.5 Mitigation Measures and BMPS Included in Alternatives 1, 2, and 3

The following measures will be implemented in order to minimize Project impacts on land use and zoning:

- Construction staging areas will be located on publicly-owned and/or currently vacant land to the extent practicable.
- All easements acquired, whether temporary or permanent, will be the minimum size possible to meet project purposes.

6.3 Impacts to Open Space

6.3.1 Alternative 1

Under Alternative 1, there would be a direct, long-term, beneficial impact on open space which would be moderate in magnitude. While no new open space would be acquired under Alternative 1, Alternative 1 would provide for enhancements to 12.91 acres of open space or parks (including 6.91 acres associated with Resist and 6 acres associated with DSD). In some cases, there are currently no improvement to these undeveloped park lands. The enhancements would be located at 10 different locations. Seven park areas would be enhanced along the waterfront as part of the resist infrastructure: Weehawken Cove Park (Hoboken), Sinatra Drive South near Pier A (Hoboken), Maxwell Place Amphitheater (Hoboken), Pier 13 amenities (Hoboken), Hudson Tea Building waterfront (Hoboken), elevated landscape along Harbor Boulevard (Weehawken) and kiosk near Lincoln Harbor Ferry Terminal (Weehawken). Three park areas in Hoboken would be enhanced as elements of the DSD infrastructure: Block 10, NJ TRANSIT site and BASF property. Improvements at existing parks may include installation of developed recreation facilities such as playgrounds and picnic areas, trails and interpretive/educational signage, viewing decks, and gathering spaces. There will be a minor short term impact to public use at these park areas during construction of these enhancements.

One of the more important park enhancements along the waterfront would be at the existing Cove Park which is located adjacent to the west of 1500 Garden Street. This park is currently Green Acres-encumbered by the State of New Jersey, and is deed-restricted to active/passive recreation use. Improvements proposed under Alternative 1 would be in accordance with this deed restriction. Potential enhancements to Cove Park include: playgrounds, lawn areas, game courts, and a viewing deck overlooking Weehawken Cove.

Another important Green Acres-encumbered open space area in the Study Area is the 30-foot wide Hudson River Walkway. Under Alternative 1, the resist barrier in the northern and southern portions of the Study Area would be located along with waterfront. The Hudson River Walkway would need to be elevated up to 12 feet along 7,950 linear feet of Hudson River shoreline to accommodate installation of the resist barrier along the riverfront. Access to the riverfront would be accommodated via stairwells and ramps which would reduce access to the walkway compared to the existing at-grade access along most of the walkway length. The elevated Hudson River Walkway

in Alternative 1 would provide access to enhanced park space at Maxwell Place Park (located along the waterfront at Sinatra Drive North from 12th Street to Frank Sinatra Drive) and at Shipyard Park. These modifications to the Hudson River Walkway would be coordinated with the State of New Jersey to ensure compliance with any deed restrictions. No impacts to any other Green Acres-encumbered property would occur.

The most substantial enhancements to open space under DSD would be to the 4.3-acre BASF property located on Adams Street. This site, which is currently paved and impermeable, would be converted to green park space with an underground stormwater storage/holding tank. Amenities under consideration for this park follow three themes: destination, recreational and ecological. A destination park provides for trails and urban landscape features, a recreational park provides for developed recreational uses such as ball fields and skateboard areas and an ecological park provides an opportunity for the public to engage with native vegetation and wildlife.

The open space located within Jersey City on NJ TRANSIT property would be physically and visually closed off by a proposed resist barrier located north of this open space. The existing bicycle path and walkway will be relocated to minimize any impacts on any current public use in this area.

There would be no impacts to open space or parks in Weehawken.

6.3.2 Alternative 2

Under Alternative 2, there would be a direct, long-term, beneficial impact on open space which would be moderate in magnitude. While no new open space would be acquired under Alternative 2, Alternative 2 would provide for enhancements to 9.53 acres of open space or parks (including 3.53 acres associated with Resist and 6 acres associated with DSD). In some cases, there are currently no improvement to these undeveloped park lands. The enhancements would be located at six different locations in Hoboken. Three park areas would be enhanced as part of the resist infrastructure: Weehawken Cove Park, Washington Street and Hudson Tea Park. Three park areas would be enhanced as elements of the DSD infrastructure: Block 10, NJ TRANSIT site and BASF property. Improvements at existing parks may include installation of developed recreation facilities such as playgrounds and picnic areas, trails and interpretive/educational signage, viewing decks, and gathering spaces. There will be a minor short term impact to public use at these park areas during construction of these enhancements.

One of the more important park enhancements along the waterfront would be at the existing Cove Park which is located adjacent to the west of 1500 Garden Street. This park is currently Green Acres-encumbered by the State of New Jersey, and is deed-restricted to active/passive recreation use. Improvements proposed under Alternative 2 would be in accordance with this deed restriction. Potential enhancements to Cove Park include: playgrounds, lawn areas, game courts, and a viewing deck overlooking Weehawken Cove.

Another important Green Acres-encumbered open space area in the Study Area is the 30-foot wide Hudson River Walkway. Under Alternative 2, the resist barrier is not primarily located along the waterfront and therefore any

impacts to the Hudson River Walkway will be minimal. Any modifications to the Hudson River Walkway would be coordinated with the State of New Jersey to ensure compliance with any deed restrictions. No impacts to any other Green Acres-encumbered property would occur.

The most substantial enhancements to open space under DSD would be to the 4.3-acre BASF property located on Adams Street. This site, which is currently paved and impermeable, would be converted to green park space with an underground stormwater storage/holding tank. Amenities under consideration for this park follow three themes: destination, recreational and ecological. A destination park provides for trails and urban landscape features, a recreational park provides for developed recreational uses such as ball fields and skateboard areas and an ecological park provides an opportunity for the public to engage with native vegetation and wildlife.

The open space located within Jersey City on NJ TRANSIT property would be physically and visually closed off by a proposed resist barrier located north of this open space. The existing bicycle path and walkway will be relocated to minimize any impacts on any current public use in this area.

There would be no impacts to open space or parks in Weehawken.

6.3.3 Alternative 3

Under Alternative 3, there would be a direct, long-term, beneficial impact on open space which would be moderate in magnitude. While no new open space would be acquired under Alternative 3, Alternative 3 would provide for enhancements to 8.55 acres of open space or parks (including 2.55 acres associated with Resist and 6 acres associated with DSD). In some cases, there are currently no improvement to these undeveloped park lands. The enhancements would be located at seven different locations in Hoboken. Four park areas would be enhanced as part of the resist infrastructure: Weehawken Cove Park, Garden Street along the parking deck, the alleyway between Garden and Bloomfield Streets and the alley between Bloomfield and Washington Streets. Three park areas would be enhanced as elements of the DSD infrastructure: Block 10, NJ TRANSIT site and BASF property. Improvements at existing parks may include installation of developed recreation facilities such as playgrounds and picnic areas, trails and interpretive/educational signage, viewing decks, and gathering spaces. There will be a minor short term impact to public use at these park areas during construction of these enhancements.

One of the more important park enhancements along the waterfront would be at the existing Cove Park which is located adjacent to the west of 1500 Garden Street. This park is currently Green Acres-encumbered by the State of New Jersey, and is deed-restricted to active/passive recreation use. Improvements proposed under Alternative 3 would be in accordance with this deed restriction. Potential enhancements to Cove Park include: playgrounds, lawn areas, game courts, and a viewing deck overlooking Weehawken Cove.

Another important Green Acres-encumbered open space area in the Study Area is the 30-foot wide Hudson River Walkway. Under Alternative 3, the resist barrier is not primarily located along the waterfront and therefore any

impacts to the Hudson River Walkway will be minimal. Any modifications to the Hudson River Walkway would be coordinated with the State of New Jersey to ensure compliance with any deed restrictions. No impacts to any other Green Acres-encumbered property would occur.

The most substantial enhancements to open space under DSD would be to the 4.3-acre BASF property located on Adams Street. This site, which is currently paved and impermeable, would be converted to green park space with an underground stormwater storage/holding tank. Amenities under consideration for this park follow three themes: destination, recreational and ecological. A destination park provides for trails and urban landscape features, a recreational park provides for developed recreational uses such as ball fields and skateboard areas and an ecological park provides an opportunity for the public to engage with native vegetation and wildlife.

The open space located within Jersey City on NJ TRANSIT property would be physically and visually closed off by a proposed resist barrier located north of this open space. The existing bicycle path and walkway will be relocated to minimize any impacts on any current public use in this area.

There would be no impacts to open space or parks in Weehawken.

6.3.4 No Action Alternative

Under the No Action Alternative, there would be no improvements to open space within the Study Area as it relates to the Resist. The City of Hoboken is in the process of acquiring the BASF property and intends to purchase the Block 10 property, which are included in the DSD strategy, and may pursue construction of park space and amenities on these parcels under the No Action Alternative.

6.3.5 Mitigation Measures and BMPs Included in Alternatives 1, 2, and 3

The following measures will be implemented in order to minimize Project impacts on open space:

- All improvements for parkland will be planned and designed in close coordination with the public and local jurisdictions to best meet the outstanding unmet recreational needs of residents.
- The design team will work with the Jersey City to reduce negative impacts to parkland/open space located on NJ TRANSIT property (e.g. through elevation of open space. improvements to open space, and/or through use of green walls, seating spaces, murals, etc.).

6.4 Impacts to Critical Facilities

6.4.1 Alternative 1

Alternative 1 will provide major, beneficial, long-term, direct impacts on critical facilities by reducing the frequency and magnitude of future flooding arising from both coastal storm surge and rainfall events for all critical facilities within the Study Area. The Project would improve emergency services for all residences within the Study Area during future flooding events because the critical facilities themselves would not be incapacitated, and the communication and transportation routes relied upon by the facilities would not be compromised.

Indirect long-term benefits will also occur under this alternative. With a reduction in overall need for critical services that can be expected with a reduction in flooding, the critical facilities would be less strained. In addition, indirect beneficial impacts would be realized for certain critical facilities outside of the Study Area. These facilities adjacent to the Study Area are burdened when the local facilities are unable or insufficiently able to serve the Study Area community. For example, police and fire departments from neighboring communities would not be called upon for support during future flood events.

6.4.2 Alternative 2

Alternative 2 will provide major, beneficial, long-term, direct impacts on critical facilities by reducing the frequency and magnitude of future flooding arising from both coastal storm surge and rainfall events for all critical facilities within the Study Area except the fire station located at 1313 Washington Street, which is located on the river side of the resist structure. The Project would improve emergency services for all residences within the Study Area during future flooding events because the critical facilities themselves would not be incapacitated, and the communication and transportation routes relied upon by the facilities would not be compromised.

Indirect long-term benefits will also occur under this alternative. With a reduction in overall need for critical services that can be expected with a reduction in flooding, the critical facilities would be less strained. In addition, indirect beneficial impacts would be realized for certain critical facilities outside of the Study Area. These facilities adjacent to the Study Area are burdened when the local facilities are unable or insufficiently able to serve the Study Area community. For example, police and fire departments from neighboring communities would not be called upon for support during future flood events.

6.4.3 Alternative 3

The impact of Alternative 3 on critical facilities is the same as for Alternative 2.

6.4.4 No Action Alternative

The No Action Alternative will leave critical facilities exposed to the current level of flood risk from both coastal and rainfall flood events. During major flood events, access to these critical facilities by emergency personnel and residents is expected to be limited from a period of days to weeks, thereby likely resulting in large-scale evacuations, similar to those that occurred during Superstorm Sandy. Due to climate change and sea level rise, future storm events will represent increasing strains on critical facilities and emergency personnel.

6.4.5 Mitigation Measures and BMPs Included in Alternatives 1, 2, and 3

There are no mitigation measures or BMPs proposed for critical facilities.

6.5 Impacts on Economic Conditions

6.5.1 Alternative 1

6.5.1.1 Long-Term Impacts

Based on calculations in accordance with FEMA's Hazard Mitigation Grant Program guidance, Alternative 1 would result in a long-term, major, beneficial economic impact of \$1.675 billion to the Study Area over the life of the project. These benefits accrue from avoided property damage, avoided damage of property contents, and avoided homeowner displacement costs. Future development patterns would continue based on market conditions, however, the Project would enhance economic stability through the minimization of costly damages from coastal storms and rainfall events. Thereby, the Project would have a beneficial impact on existing and future development.

However, there would be long-term adverse impacts to certain retail businesses and local residents at Lincoln Harbor and first floor businesses along Sinatra Drive North and Sinatra Drive South. There would be a loss of waterfront views from these businesses, which would be minor to moderate at dining establishments. Permanent easements would be required on 17 parcels of private property for construction of resist infrastructure. Given the limited number and size of easements required for this infrastructure, long-term impacts on property tax revenues are expected to be minor.

The three municipalities have experienced an upward trend in housing prices since Superstorm Sandy. This trend has occurred even though no large-scale flood risk reduction measures have been implemented since Superstorm Sandy. Therefore, it is expected that this upward trend will likely continue into the near future.. The real estate market in Hoboken, Jersey City and Weehawken is diverse and includes a mix of market rate, public and affordable housing. Development trends will continue to expand the housing market independently of the project.

6.5.1.2 Short-Term Impacts

The total construction costs, including contingencies, for Alternative 1 are estimated to be \$663 to \$750 million. There would be a direct benefit to low-income residents within the local community through employment of construction workers. As required under Section 3 of the Housing and Urban Development Act of 1968, recipients of HUD funding direct new employment and contracting opportunities to low-income residents within the local community. In addition, the 8-9,000 crew days which will be required to complete the resist portion of the Project are expected to result in increased business for local retail stores and restaurants in the Study Area. The production rates for the crew days was developed using RS Means constructing estimating standards. The major areas of work were calculated based on the linear feet of wall and types of walls and structure (concrete, steel, excavation, etc.). This was also used to calculate the number of trucks and equipment necessary to do the work. Additionally, the construction progression was considered so that it accounted for the order of operations, warm months vs. cold months, and the physical constraints of the site so that there is a level of logic in how the various trades perform their work and what is feasible with regards to how many crews can work in the same zone without interfering with each other. There would also be short-term social benefits in terms of reduced stress and anxiety for the local population.

However, there would be short-term adverse impacts to certain retail businesses and local residents at Lincoln Harbor and first floor businesses along Sinatra Drive North and Sinatra Drive South. A total of 291 businesses (154 retail, 124 office and 13 industrial) that are located within 50 feet of proposed improvements for Alternative 1 would be impacted (see Appendix D and Table 6-1, below). The impacts would mainly be during the construction of the resist barrier, which may change pedestrian access to these businesses. Retail establishments are anticipated to be impacted more than office and industrial businesses due to their dependence on consumer traffic and access. Since construction will proceed in a linear fashion, these impacts would be short-term, lasting only a few days or weeks at any particular business.

Table 6-1: Summary of Short Term Businesses Impacted by Build Alternatives

TYPE OF BUSINESS	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Retail	154	109	108
Office	124	118	117
Industrial	13	11	10
Total	291	238	235

Source: Dewberry, 2015-2017

6.5.2 Alternative 2

6.5.2.1 Long-Term Impacts

Based on calculations in accordance with FEMA’s Hazard Mitigation Grant Program guidance, Alternative 2 would result in a long-term, major, beneficial economic impact of \$1.648 billion to the Study Area over the life of the project. These benefits accrue from avoided property damage, avoided damage of property contents, and avoided homeowner displacement costs. Future development patterns would continue based on market conditions, however, the Project would enhance economic stability through the minimization of costly damages from coastal storms and rainfall events. Thereby, the Project would have a beneficial impact on existing and future development.

However, there will be minor to moderate long-term adverse impacts to certain retail businesses and local residents along 15th Street and Washington Street from 15th to 13th Streets due to the placement of the adjoining Resist structure, although this impact would be partially mitigated through incorporation of urban amenities (such as seating, planters, etc). . Permanent easements would be required on 6 parcels of private property for construction of resist infrastructure. Given the limited number and size of easements required for this infrastructure, long-term impacts on property tax revenues are expected to be minor.

Impacts to the housing market will be as described in Alternative 1.

6.5.2.2 Short-Term Impacts

The total construction costs, including contingencies, for Alternative 2 are estimated to be \$369 to \$430 million. There would be a direct benefit to low-income residents within the local community through employment of construction workers. As required under Section 3 of the Housing and Urban Development Act of 1968, recipients of HUD funding direct new employment and contracting opportunities to low-income residents within the local community. In addition, the 6-7,000 crew days which will be required to complete the resist portion of the Project are expected to result in increased business for local retail stores and restaurants in the Study Area. There would also be short-term social benefits in terms of reduced stress and anxiety for local residents.

However, there will be short-term adverse impacts to certain retail businesses and local residents along Washington Street from 15th to 13th Streets. A total of 238 businesses (109 retail, 118 office and 11 industrial) that are located within 50 feet of proposed improvements for Alternative 2 would be impacted (see Appendix D and Table 6-1, above). The impacts would mainly be during the construction of the resist barrier, which may change pedestrian access to these businesses. Retail establishments are anticipated to be impacted more than office and industrial businesses due to their dependence on consumer traffic and access. Since construction will proceed in a linear fashion, these impacts will be short-term, lasting only a few days or weeks at any particular business.

6.5.3 Alternative 3

6.5.3.1 Long-Term Impacts

Based on calculations in accordance with FEMA's Hazard Mitigation Grant Program guidance, Alternative 3 would result in a long-term, major, beneficial economic impact of \$1.648 billion to the Study Area over the life of the project. These benefits accrue from avoided property damage, avoided damage of property contents, and avoided homeowner displacement costs. Future development patterns would continue based on market conditions, however, the Project would enhance economic stability through the minimization of costly damages from coastal storms and rainfall events. Thereby, the Project would have a beneficial impact on existing and future development.

However, there will be long-term adverse impacts to certain retail businesses and local residents along Washington Street from the alleyway (just north of the intersection with 14th Street) to 13th Street. Long term impacts would be minor and would be partially mitigated through the incorporation of urban amenities (such as seating, planters, etc.). Permanent easements would be required on 8 parcels of private property for construction of resist infrastructure. Given the limited number and size of easements required for this infrastructure, long-term impacts on property tax revenues are expected to be minor.

Impacts to the housing market will be as described in Alternative 1.

6.5.3.2 Short-Term Impacts

The total construction costs, including contingencies, for Alternative 3 are estimated to be \$356 to \$422 million. There would be a direct benefit to low-income residents within the local community through employment of construction workers. As required under Section 3 of the Housing and Urban Development Act of 1968, recipients of HUD funding direct new employment and contracting opportunities to low-income residents within the local community. In addition, the 6-7,000 crew days which will be required to complete the resist portion of the Project are expected to result in increased business for local retail stores and restaurants in the Study Area. There would also be short-term social benefits in terms of reduced stress and anxiety to the local population.

However, there will be short-term adverse impacts to certain retail businesses and local residents along Washington Street from the alleyway (just north of the intersection with 14th Street) to 13th Street. A total of 235 businesses (108

retail, 117 office and 10 industrial) that are located within 50 feet of proposed improvements for Alternative 3 would be impacted (see Appendix D and Table 6-1, above). The impacts would mainly be during the construction of the Resist barrier, which may change pedestrian access to these businesses. Retail establishments are anticipated to be impacted more than office and industrial businesses due to their dependence on consumer traffic and access. Since construction will proceed in a linear fashion, these impacts will be short-term, lasting only a few days or weeks at any particular business.

6.5.4 No Action Alternative

Under the No Action Alternative, the significant long-term economic benefits of providing flood protection to persons and businesses within the Study Area would not be realized. Instead, significant business and residential displacements would continue to occur during coastal storm surge events likely increasing in frequency and severity over time due to climate change and sea level rise. In addition, business and resident displacements would occur during periodic rainfall events because roads would be inaccessible due to flooding. There would be no change to the real estate tax base as a result of land acquisition. Property values within the Study Area have escalated significantly over the past few years in the absence of flood risk reduction measures; therefore, evidence of loss of economic stability under the No Action Alternative is not evident in the short term. In the long term, however, an increased frequency and intensity of coastal storm surges and rainfall flood events due to sea level rise could pose an impact to property values. In addition, under the No Action Alternative, there would be no change to flood insurance rates in the short term.

6.5.5 Mitigation Measures and BMPs included in Alternatives 1, 2 and 3

- Impacts to businesses during construction would be minimized by signage and provision of temporary access pathways

6.6 Impacts on Public Health

6.6.1 Alternative 1

Under Alternative 1, public health benefits would be provided to 98 percent of people within the Study Area who reside within the preliminary FEMA 100-year floodplain during future coastal storm surge events, and to the 7,870 persons (based on 2010 Census data) whose residences will no longer be flooded during a rain storm equal to or less than a five-year rainfall event (4.23 inches during a 24-hour period).

Public health benefits would include a reduction in infectious disease, injuries and death; a reduction in exposure to microbial pathogens from combined sewer overflow (CSO) situations; decreased mold growth and associated aggravation of respiratory conditions and lung infections; and a reduction in flood-induced mental health issues including stress, depression, anxiety disorders and sleeplessness.

6.6.2 Alternative 2

Under Alternative 2, public health benefits would be provided to 86 percent of people within the Study Area who reside within the preliminary FEMA 100-year floodplain during future coastal storm surge events, and to the 7,870 persons (based on 2010 Census data) whose residences will no longer be flooded during a rain storm equal to or less than a five-year rainfall event (4.23 inches during a 24-hour period).

Public health benefits would include a reduction in infectious disease, injuries and death; a reduction in exposure to microbial pathogens from combined sewer overflow (CSO) situations; decreased mold growth and associated aggravation of respiratory conditions and lung infections; and a reduction in flood-induced mental health issues including stress, depression, anxiety disorders and sleeplessness.

6.6.3 Alternative 3

Under Alternative 3, public health benefits would be provided to 85 percent of people within the Study Area who reside within the preliminary FEMA 100-year floodplain during future coastal storm surge events, and to the 7,870 persons (based on 2010 Census data) whose residences will no longer be flooded during a rain storm equal to or less than a five-year rainfall event (4.23 inches during a 24-hour period).

Public health benefits would include a reduction in infectious disease, injuries and death; a reduction in exposure to microbial pathogens from combined sewer overflow (CSO) situations; decreased mold growth and associated aggravation of respiratory conditions and lung infections; and a reduction in flood-induced mental health issues including stress, depression, anxiety disorders and sleeplessness.

6.6.4 No Action Alternative

There will be no public health benefits under the No Action Alternative. Health risks due to flooding will remain unchanged from current conditions. Continued flooding events would cause infectious disease, injuries and death; exposure to microbial pathogens from combined sewer overflow (CSO) situations; mold growth and associated aggravation of respiratory conditions and lung infections; and mental health issues including stress, depression, anxiety disorders and sleeplessness.

6.6.5 Mitigation Measures and BMPs included in Alternatives 1, 2 and 3

There are no mitigation measures or BMPs associated with public health.

6.7 Impacts to Minority and Low-Income Populations

6.7.1 Alternative 1

Under Alternative 1, direct impacts to minority and low-income populations would be both short-term and long-term. The short-term impacts are associated with construction activities and the long-term impacts are beneficial impacts arising from flood risk reduction associated with both future coastal storm surge flooding and rainfall induced flooding. Since the long-term impacts are beneficial for minority and low-income populations, the provisions of Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations do not apply. However, provisions of this executive order do apply to the short-term construction impacts associated with the Project.

Short-term construction impacts which are relevant to the provisions of Executive Order 12898 for this Project are related to the quality of life, and include: dust, noise, and disruption of vehicular and pedestrian traffic patterns during construction. As discussed in Section 5.1, many of the Study Area's minority, Hispanic, low-income, and persons over age 75 populations reside in the western side of the Demographic Analysis Area, which includes Census Tracts 184, 190 (which includes the Hoboken Housing Authority's Andrew Jackson Gardens community), and 191. The DSD infrastructure will be concentrated in this portion of the Study Area (see Figures 7-9). By contrast, the Resist infrastructure will be constructed in portions of the Study Area where minority and low-income populations are generally not found. Therefore, to determine whether construction impacts are disproportionate on minority and low-income populations, the scope of construction between DSD and Resist must be compared. To undertake this comparison, an assumption has been made that construction activities will be similar for Resist and DSD construction. This is generally a true statement, except that Resist construction will involve pile driving, which is not the case for DSD construction activities. Due to the noise and vibration impacts associated with pile driving, construction impacts for Resist infrastructure is actually greater than for DSD-related construction. Under Alternative 1, the period of construction is expected to last three years. By comparison, for DSD infrastructure construction, the period of construction is expected to last 2 ½ years. Based on this comparison, Project construction will not result in a disproportionately high and adverse human health or environmental impact on minority populations within the Study Area.

Beneficial, long-term impacts to minority and low-income populations are expected as a result of Alternative 1. Enhancements to 11.25 acres of open space or parks are proposed at 10 different locations, including along the waterfront, as well as in the western side of the Demographic Analysis Area at Block 10, the NJ TRANSIT site and the BASF property. These enhanced open spaces will increase the parkland per capita and decrease the walking distance for many minority and low income populations who will now live in close proximity to the enhanced parks.

Minority and low-income populations are expected to see a reduction in federal flood insurance rates over the long term. In addition, emergency service response times and ability to remain open will improve due to the protection of critical facilities.

Public health benefits expected for minority and low-income populations would include a reduction in infectious disease, injuries and death; a reduction in exposure to microbial pathogens from combined sewer overflow (CSO) situations; decreased mold growth and associated aggravation of respiratory conditions and lung infections; and a reduction in flood-induced mental health issues including stress, depression, anxiety disorders and sleeplessness.

These benefits are expected for 3,400 persons characterized as minority, 2,720 Hispanic persons, 370 persons over age 75 and 1,330 households in poverty. Beneficial, long-term impacts due to reduced coastal storm surge flooding are expected for 7,970 persons characterized as minority, 6,520 Hispanic persons, 1,340 persons over age 75 and 2,400 households in poverty.

Provisions exist in all three municipalities for affordable housing, and the project is not anticipated to change the current mix of housing.

6.7.2 Alternative 2

Impacts on minority and low-income populations under Alternative 2 are the same as under Alternative 1, except that beneficial, long-term impacts due to reduced coastal storm surge flooding would be slightly less due to the location of the Resist barrier. Beneficial, long-term impacts are expected for 7,280 persons characterized as minority, 6,200 Hispanic persons, 1,280 persons over age 75 and 1,990 households in poverty. Enhancements to 7.87 acres of open space or parks are proposed at 6 different locations. Provisions exist in all three municipalities for affordable housing, and the project is not anticipated to change the current mix of housing.

6.7.3 Alternative 3

The impacts of Alternative 3 on minority and low-income populations would be the same as under Alternative 2, except that enhancements to 6.89 acres of open space or parks are proposed at 7 different locations.. Provisions exist in all three municipalities for affordable housing, and the project is not anticipated to change the current mix of housing.

6.7.4 No Action Alternative

Impacts to minority and low-income populations would remain unchanged under the No Action Alternative. There would be no potential short-term construction impacts and no beneficial, long-term impacts due to flood reduction. Minority and low-income populations would remain at high risk of impact during both coastal storm surge and rainfall flooding events. The risk of coastal storm surge flooding is expected to increase with rising sea levels over time.

6.7.5 Mitigation Measures and BMPS Included in Alternatives 1, 2, and 3

- Construction managers will work with representatives of minority and low-income communities to ensure that construction activities will have the least possible impact on pedestrian and vehicle traffic patterns and that construction noise and dust associated with construction are reduced to the extent practicable.
- Environmental Justice populations are particularly reliant on public transportation for accessibility, although the densely developed nature of the community

6.8 Impacts to Access to Public Transit

Impacts to traffic and circulation, including impacts to the Study Area's mass transit systems, are described in detail in the Traffic and Circulation TES. Impacts to the accessibility of public transit is summarized below.

The location of the resist flood barriers and gates are, for the most part, relatively adjacent to buildings and streets. These areas principally are sidewalks and the edges of streets. The construction of these barriers and gates will result in inconvenience for residents and business owners with regard to pedestrian and vehicular access. The intervening streets, which are the cause and need for gates, break up the construction work into segments which may serve to contain the effort, and localize the effects of closures and accessibility to mass transit.

During construction of a resist structure within a sidewalk area, one or more lanes occupied by traffic will likely have to be closed off, and for the duration of construction, all adjacent parking, sidewalks, and bicycle lanes will also have to be closed off.

6.8.1 Alternative 1

Alternative 1 would have short term, moderate adverse impacts to accessibility to mass transit within the Study Area during construction of project components. Closure of sidewalks and streets would require detours for pedestrians and vehicles to and from transit stops. During operational conditions (leading up to a coastal storm surge event), gates associated with the Resist features would need to be closed. Under Alternative 1, there are more gates than any other alternative (29 gates in Option 1 and 31 gates in Option 2), and the length of the resist barrier is longer than under any other alternative, although in northern Hoboken and Weehawken, the majority of these gates are located along the waterfront. The closure of gates will impact accessibility to transit stops as well as impact the ability of transit facilities to operate, particularly in locations where gate crossings are required over rail lines, such as along the HBLR at Lincoln Harbor. It is important to note, however, that at the time of gate closures, transit facilities would be operating under emergency conditions and would be in the process of shutting down service in order to locate vehicles in areas that are safe from flooding, in accordance with their emergency operation plans. Therefore, while accessibility to transit would be impacted by the project, the actual impact of the project on mass transit is considered negligible because these facilities would not be operational at that time.

6.8.2 Alternative 2

Alternative 2 would have short term, moderate adverse impacts to accessibility to mass transit within the Study Area during construction of project components. Closure of sidewalks and streets would require detours for pedestrians and vehicles to and from transit stops. During operational conditions (leading up to a coastal storm surge event), gates associated with the Resist structure will need to be closed. Under Alternative 2, there are 21 gates in Option 1 and 25 gates in Option 2), and the length of the resist barrier is substantially shorter than under Alternative 1. The closure of gates would impact accessibility to transit stops as well as impact the ability of transit facilities to operate, particularly in locations where gate crossings are required over rail lines, such as along the HBLR at Lincoln Harbor. It is important to note, however, that at the time of gate closures, transit facilities will be operating under emergency conditions and would be in the process of shutting down service in order to locate vehicles in areas that are safe from flooding, in accordance with their emergency operation plans. Therefore, while accessibility to transit would be impacted by the project, the actual impact of the project on mass transit is considered negligible because these facilities would not be operational at that time.

6.8.3 Alternative 3

Alternative 3 would have short term, moderate adverse impacts to accessibility to mass transit within the Study Area. Alternative 3 has the least number of gates of any alternative (19 gates in Option 1 and 23 gates in Option 2), and the length of the resist barrier is shortest among all alternatives. The closure of gates would impact accessibility to transit stops as well as impact the ability of transit facilities to operate, particularly in locations where gate crossings are required over rail lines, such as along the HBLR at Lincoln Harbor. It is important to note, however, that at the time of gate closures, transit facilities would be operating under emergency conditions and would be in the process of shutting down service in order to locate vehicles in areas that are safe from flooding, in accordance with their emergency operation plans. Therefore, while accessibility to transit would be impacted by the project, the actual impact of the project on mass transit is considered negligible because these facilities would not be operational at that time.

6.8.4 No Action Alternative

Under the No Action Alternative, there will be no impacts to accessibility to mass transit during most conditions. However, in the event of a coastal storm surge or severe rainfall flood event, accessibility to transit stations will be impacted by flood waters on streets, sidewalks and on railway tracks. In particular, during coastal surge flooding, transit systems will need to cease operations prior to flooding to ensure that equipment and personnel are safely away from flood waters.

6.8.5 Mitigation Measures and BMPs included in Alternatives 1, 2 and 3

- Traffic closures for gate installation will be minimized and performed during off-peak hours
- All closures for traffic and pedestrians, including temporary detour routes, will be coordinated well in advance with local jurisdictions
- Gate testing and maintenance activities following installation will be performed during non-peak traffic hours to the extent practicable and will be coordinated with transit providers to reduce disruption to transit systems.
- Gate closures due to storm surges will be coordinated with transit systems and the local community to ensure that individuals are informed of when transit systems will cease operations

7.0 CONCLUSION

The Project will result in the following effects under all alternatives: (1) major, beneficial impacts on the population and demographics; (2) long-term beneficial impacts through the creation or enhancement of open space and increased recreational opportunities in the DSD sites; (3) long-term beneficial impacts on critical facilities through minimization of flood risk from future coastal and major flooding events; (4) major, long-term beneficial economic impacts by enhancing economic stability; (5) long-term, beneficial impacts on the public's physical and mental health resulting from reduced flooding; and (6) long-term beneficial health impacts and economic impacts from enhanced economic stability providing additional employment opportunities within the Study Area to minority and low-income populations. The Project will not result in disproportionately high and adverse human health or environmental impact on minority populations. Overall, the project will provide significant socioeconomic benefits to the residents of the Study Area.

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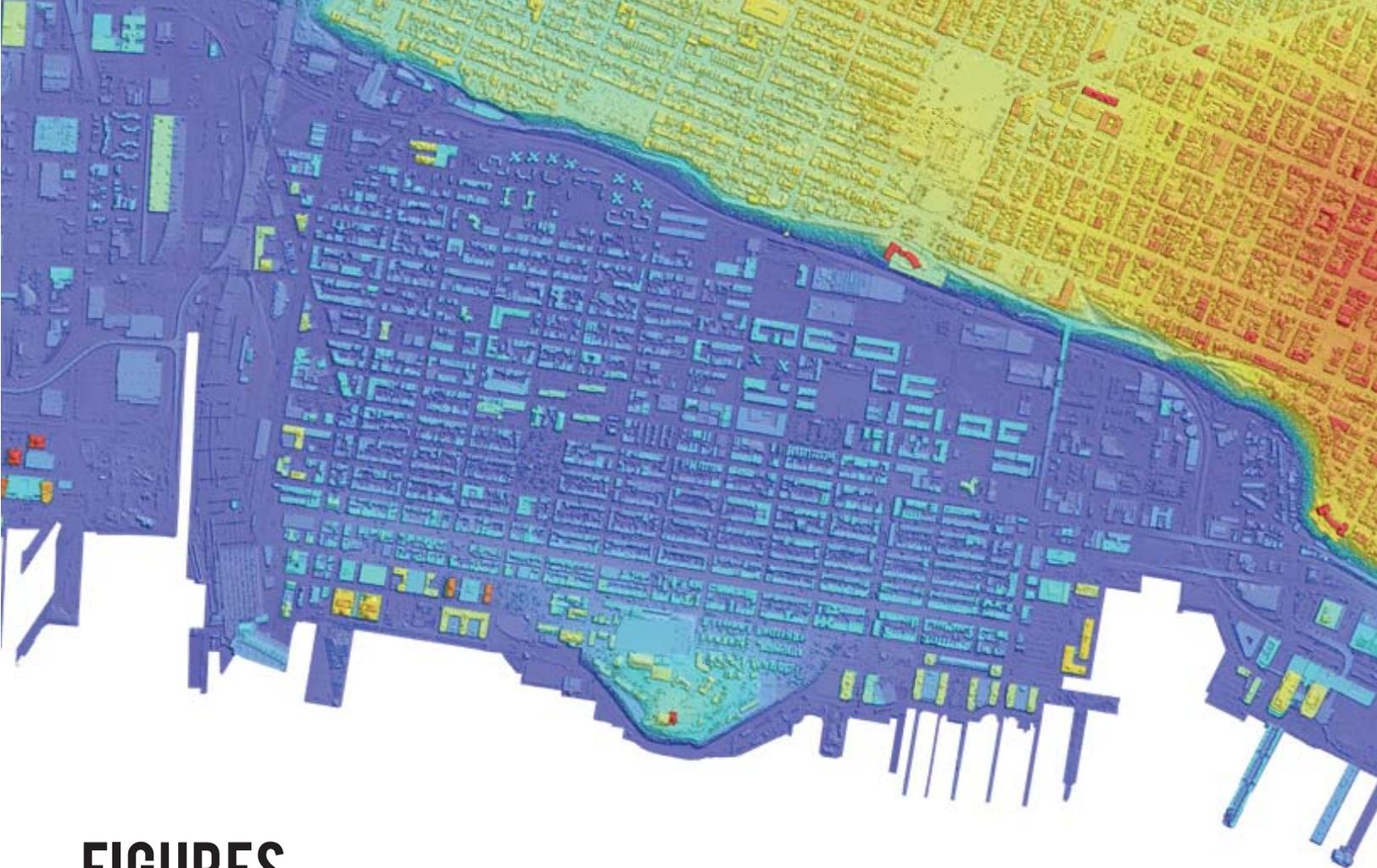
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FIGURES





LEGEND

-  Study Area
-  Municipal Boundary

Source: See Map Data Page

REBUILD BY DESIGN HUDSON RIVER ■ RESIST ■ DELAY ■ STORE ■ DISCHARGE

Dewberry Former New Jersey DEPARTMENT OF ENVIRONMENTAL PROTECTION

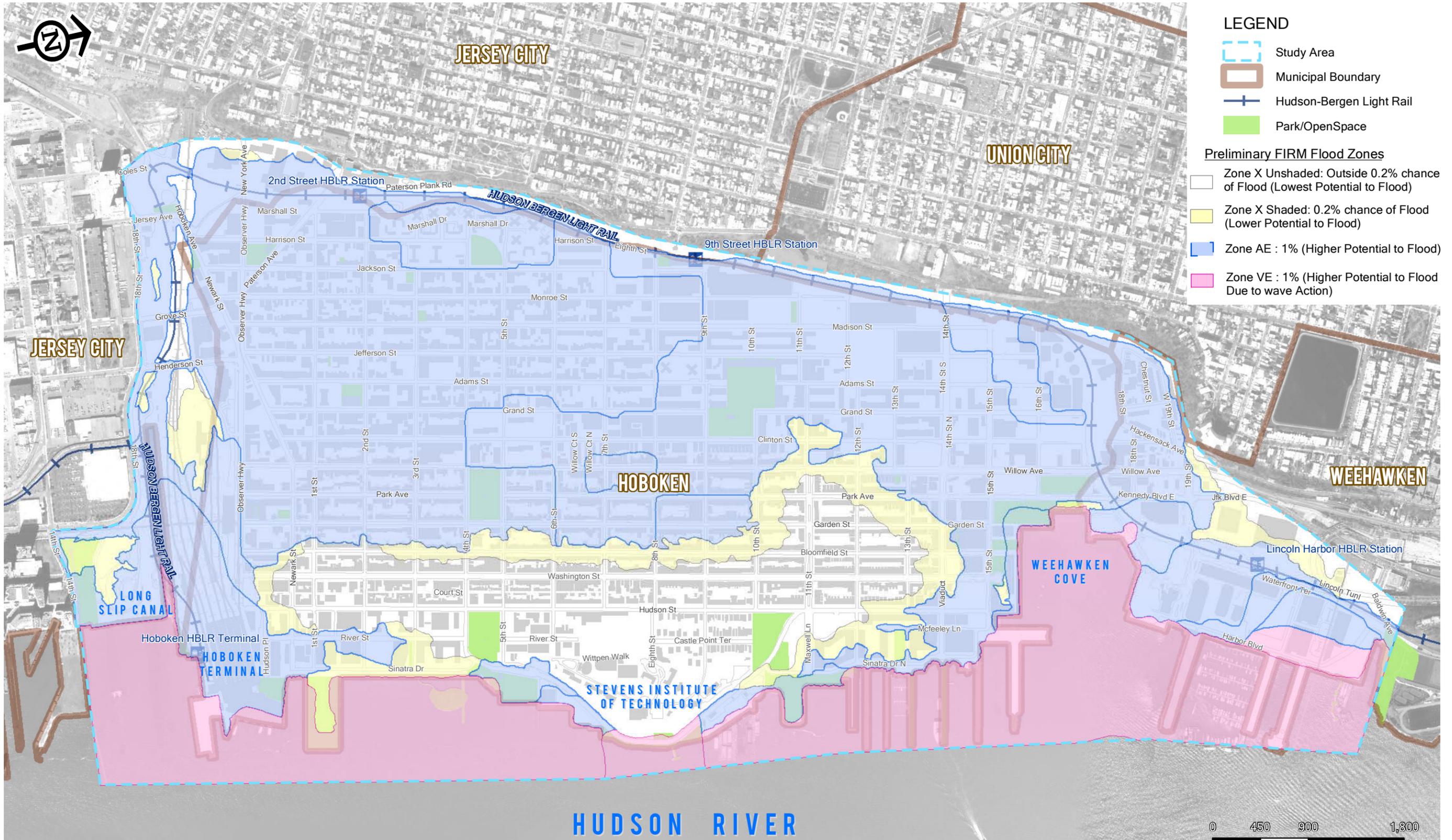
Project Location Map

January 2017
FIGURE 1



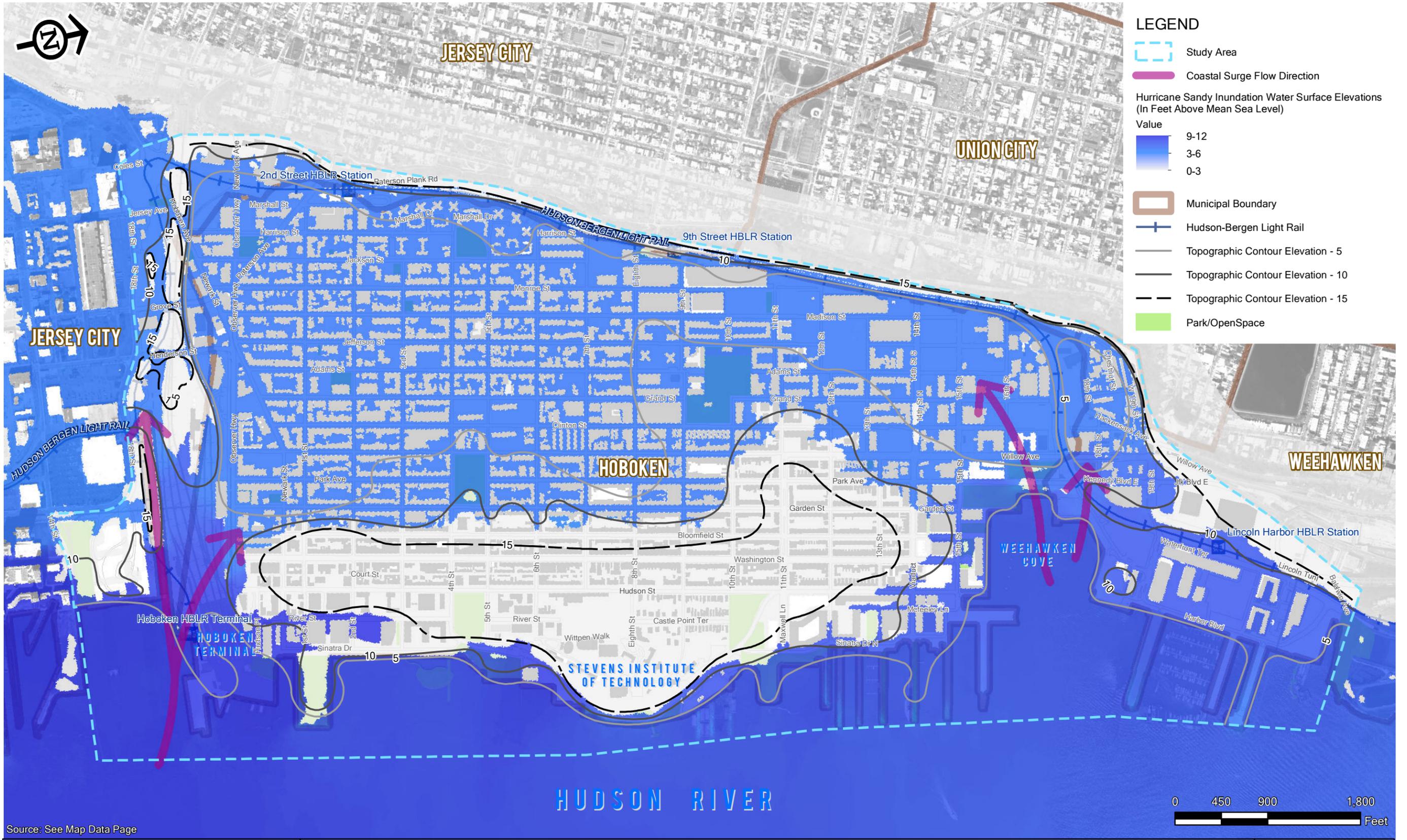
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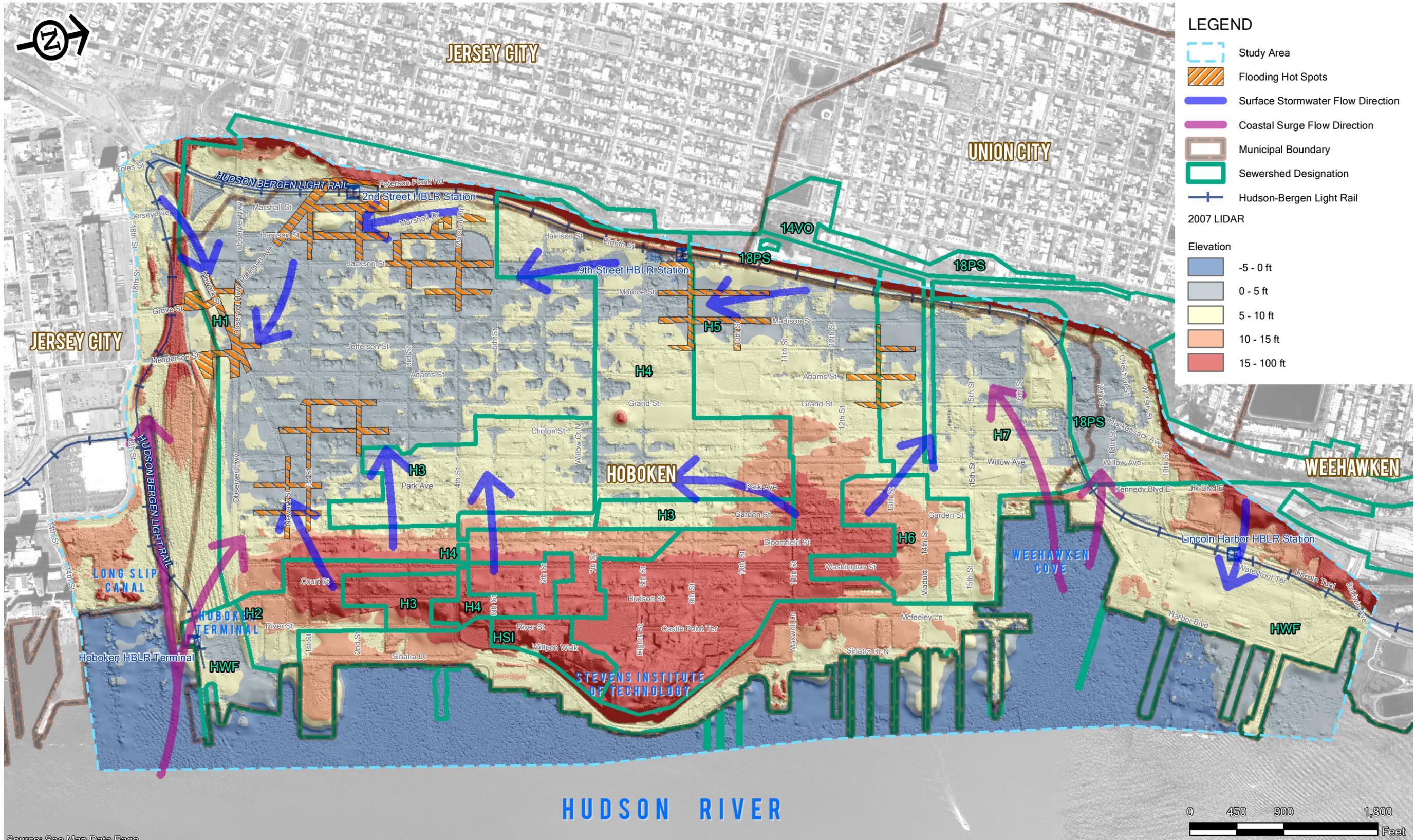
Study Area Map



Source: See Map Data Page

Preliminary FIRM Flood Zone Map



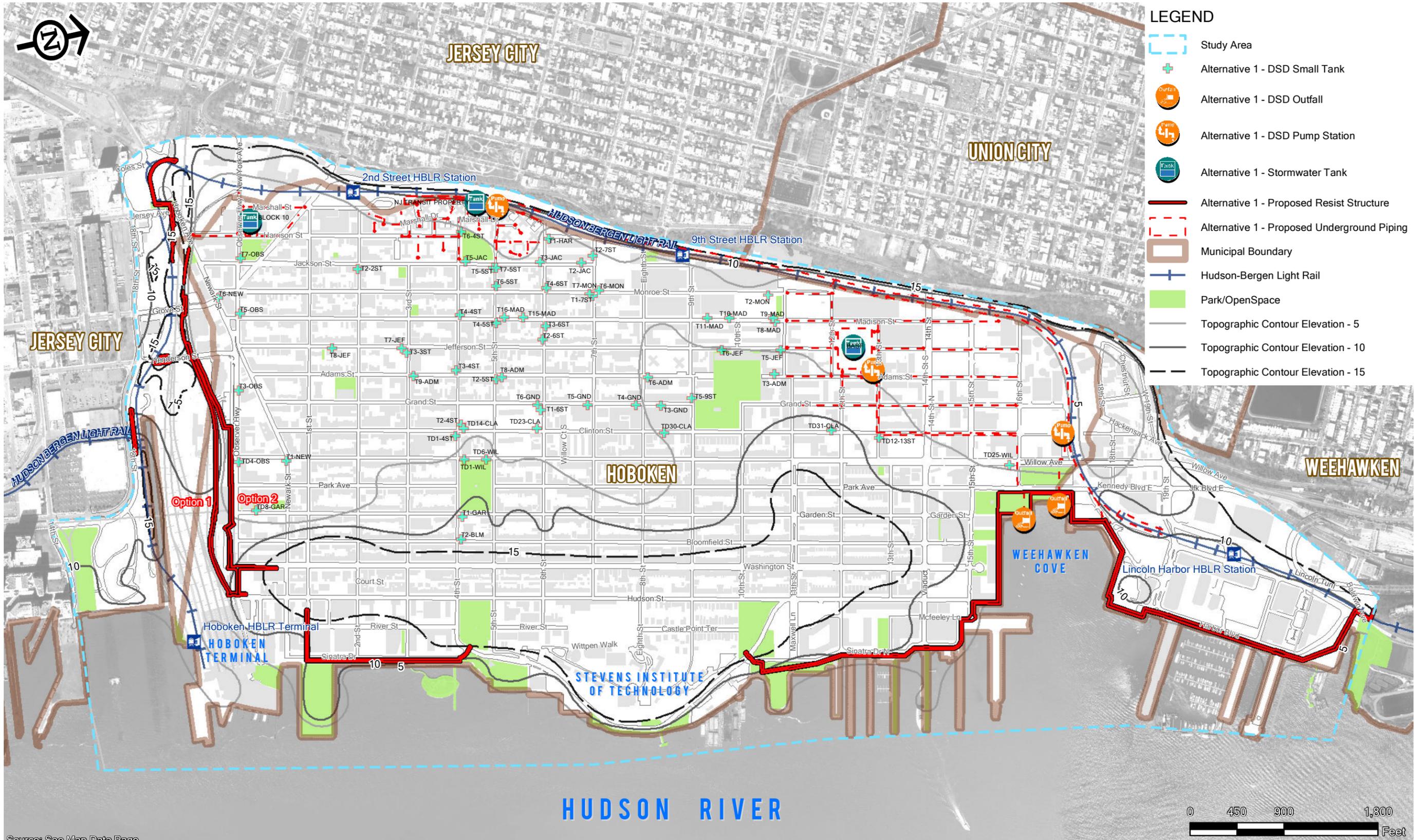


Source: See Map Data Page



Source: See Map Data Page

Critical Infrastructure Map



- LEGEND**
- Study Area
 - + Alternative 1 - DSD Small Tank
 - Alternative 1 - DSD Outfall
 - Alternative 1 - DSD Pump Station
 - Alternative 1 - Stormwater Tank
 - Alternative 1 - Proposed Resist Structure
 - Alternative 1 - Proposed Underground Piping
 - Municipal Boundary
 - + Hudson-Bergen Light Rail
 - Park/OpenSpace
 - Topographic Contour Elevation - 5
 - Topographic Contour Elevation - 10
 - Topographic Contour Elevation - 15

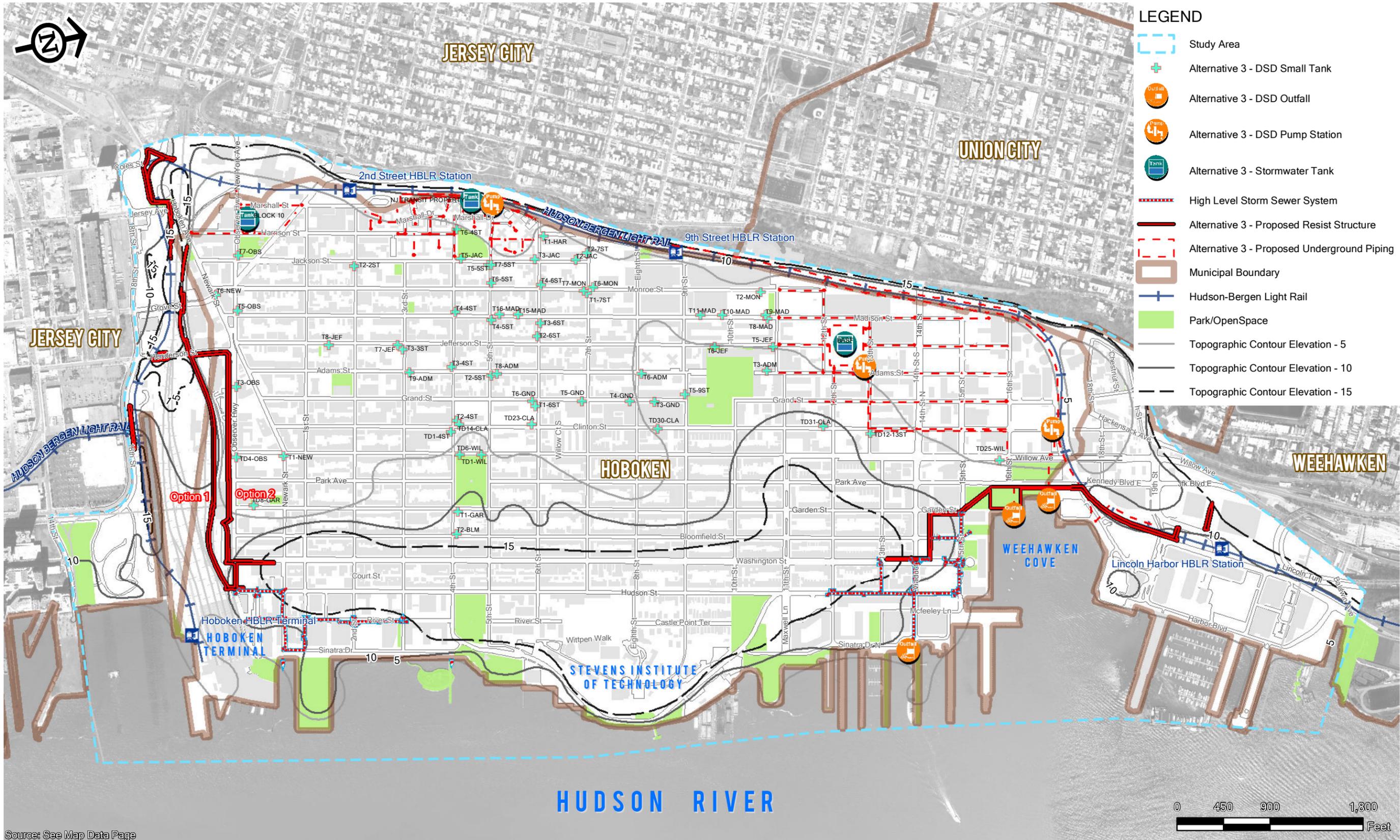
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Alternative 1



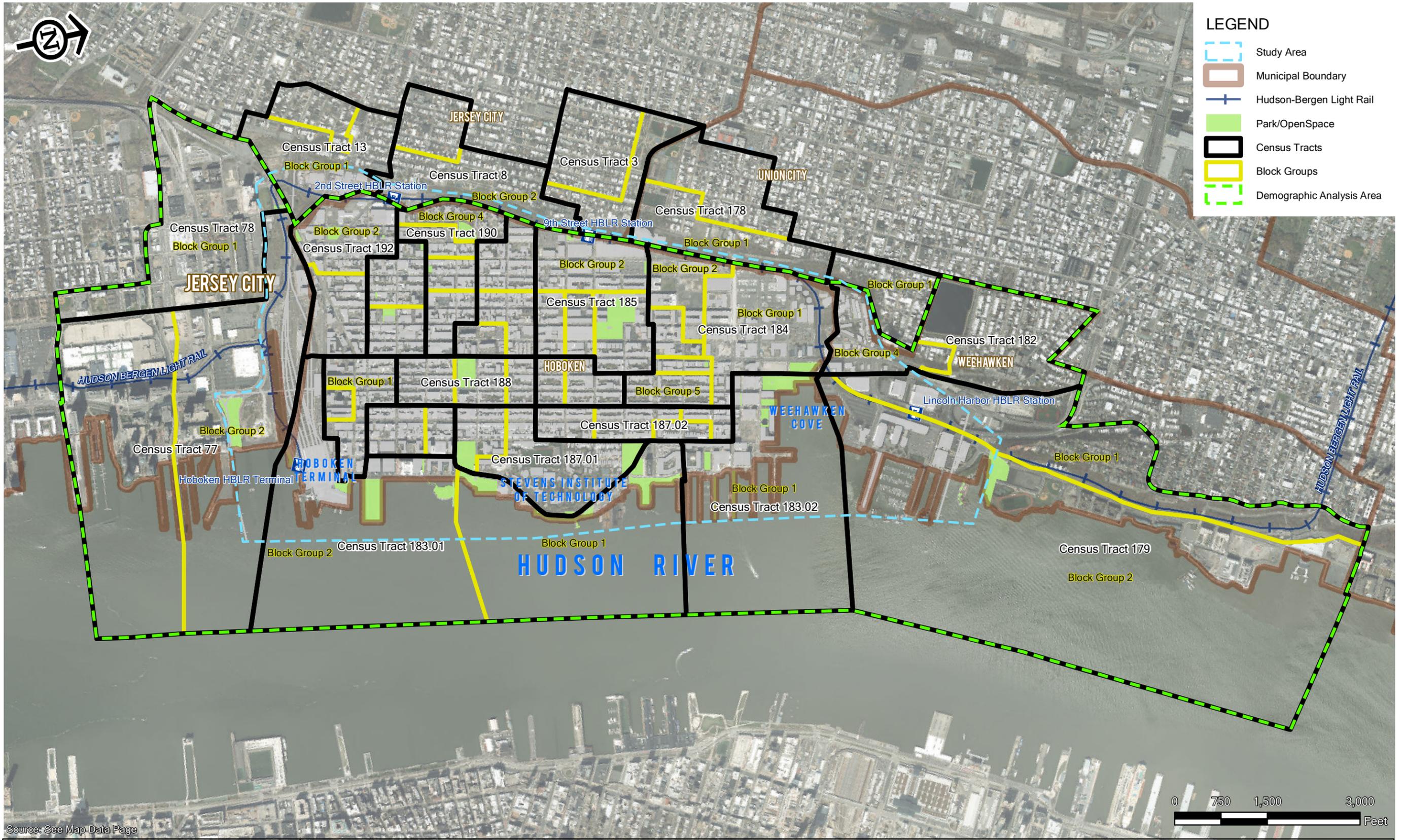
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Alternative 2



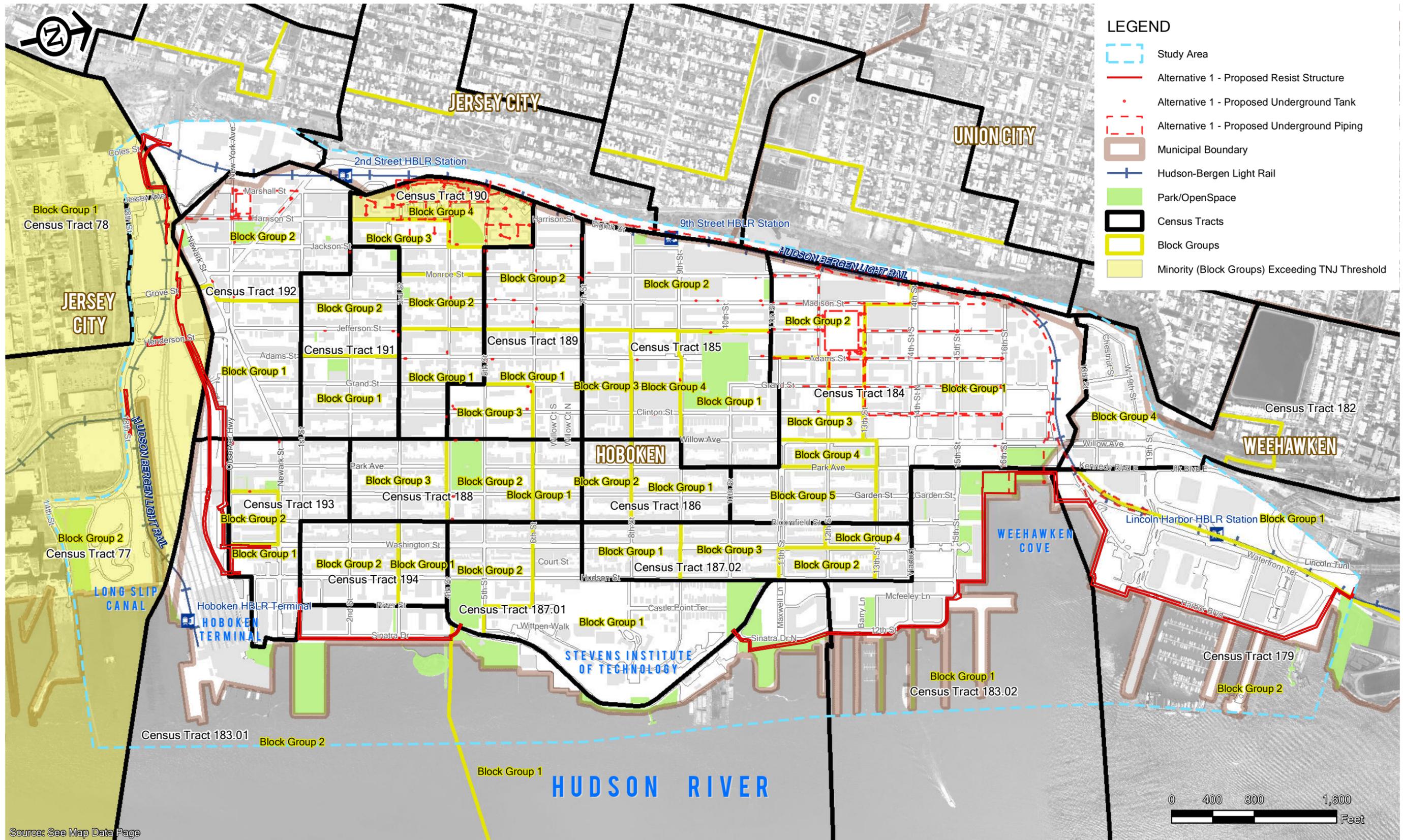
Source: See Map Data Page

Alternative 3



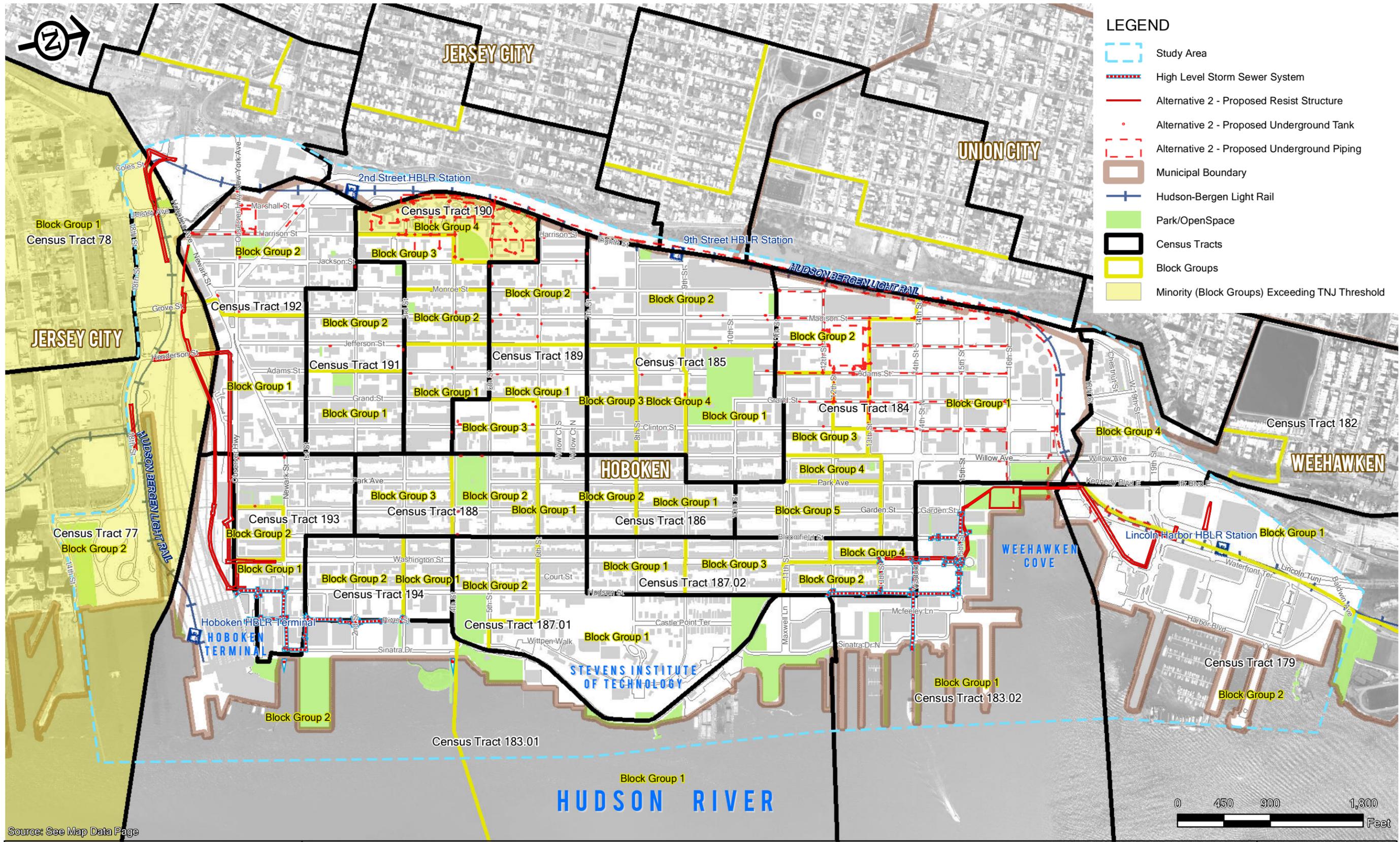
Source: See Map Data Page

Demographic Analysis Area



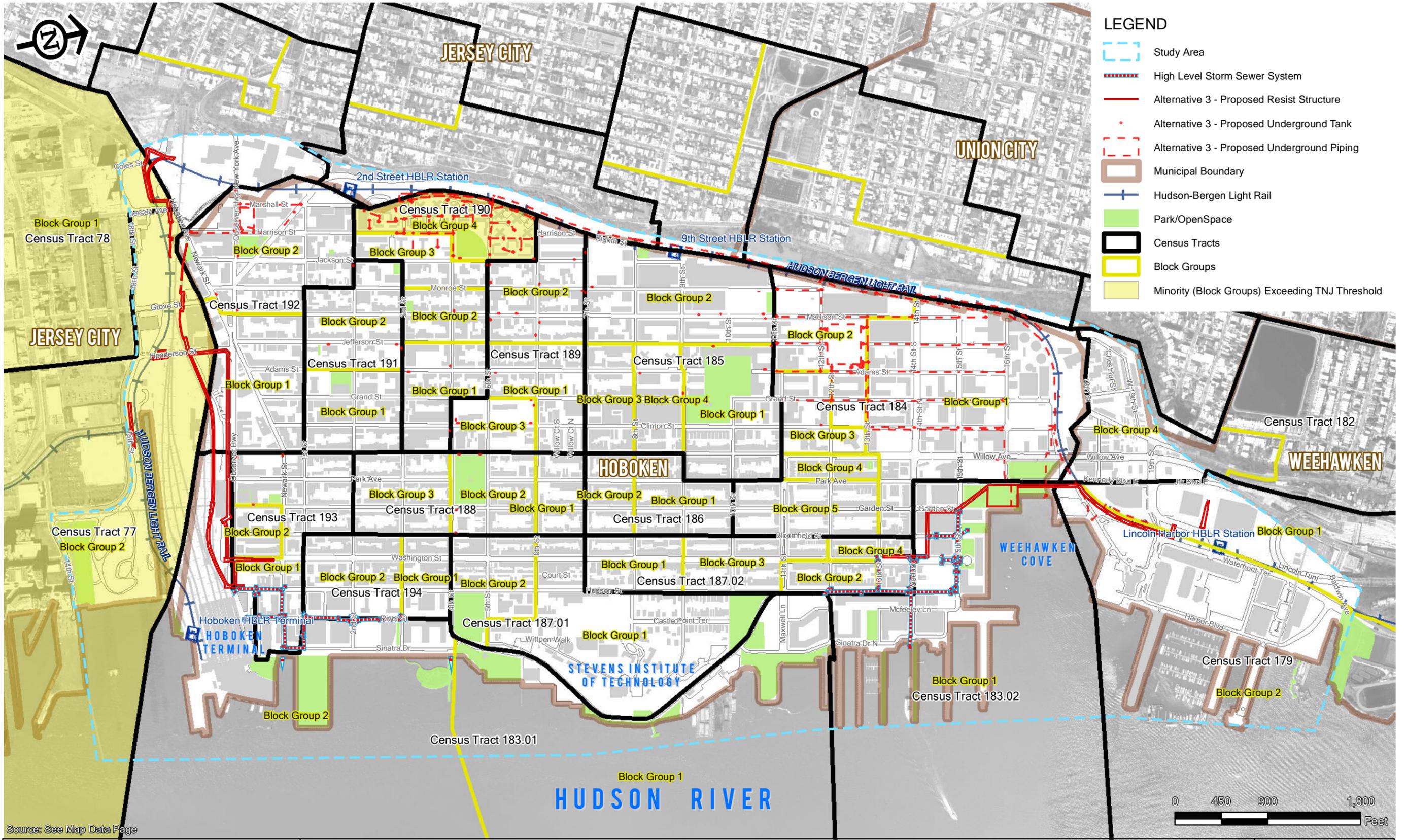
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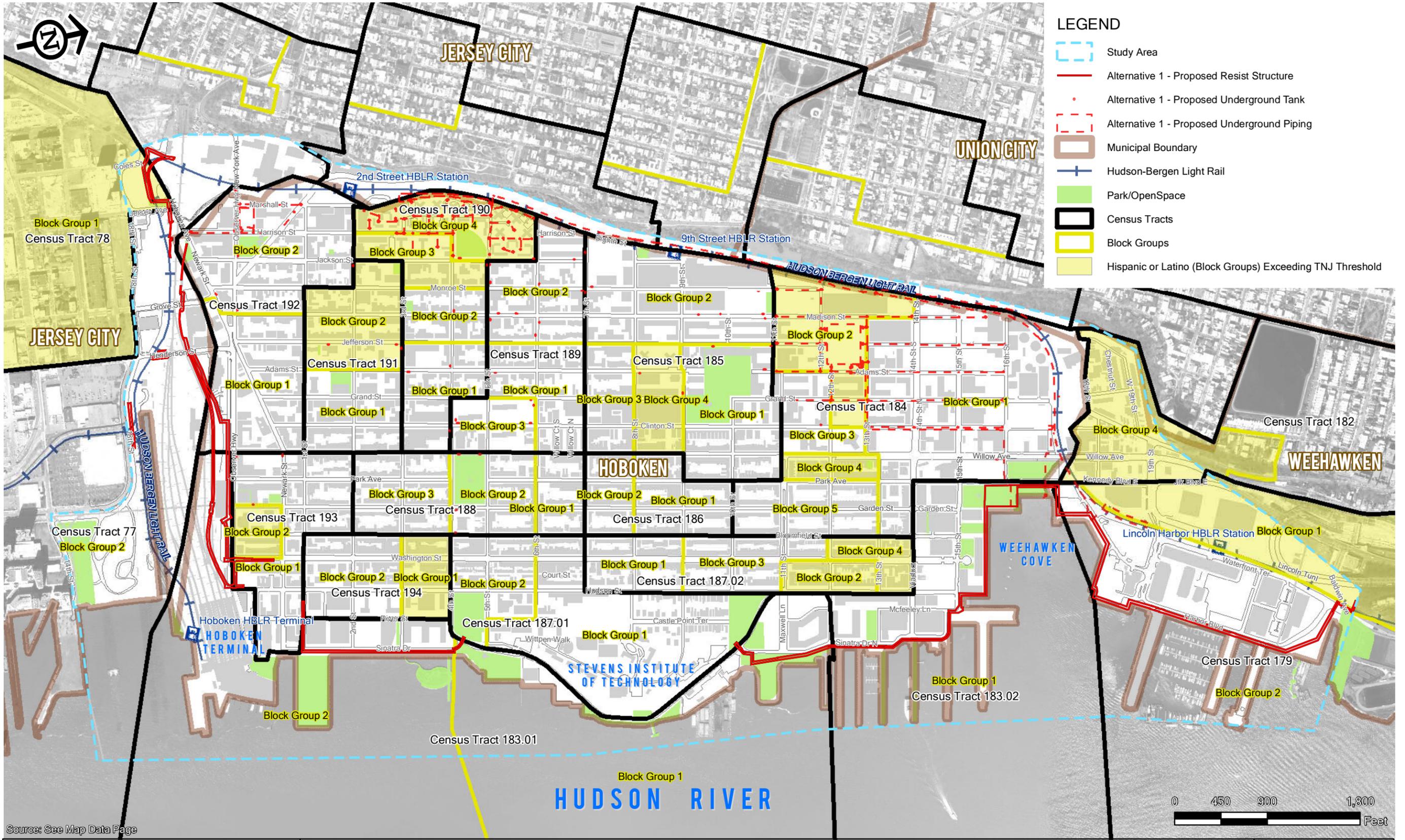
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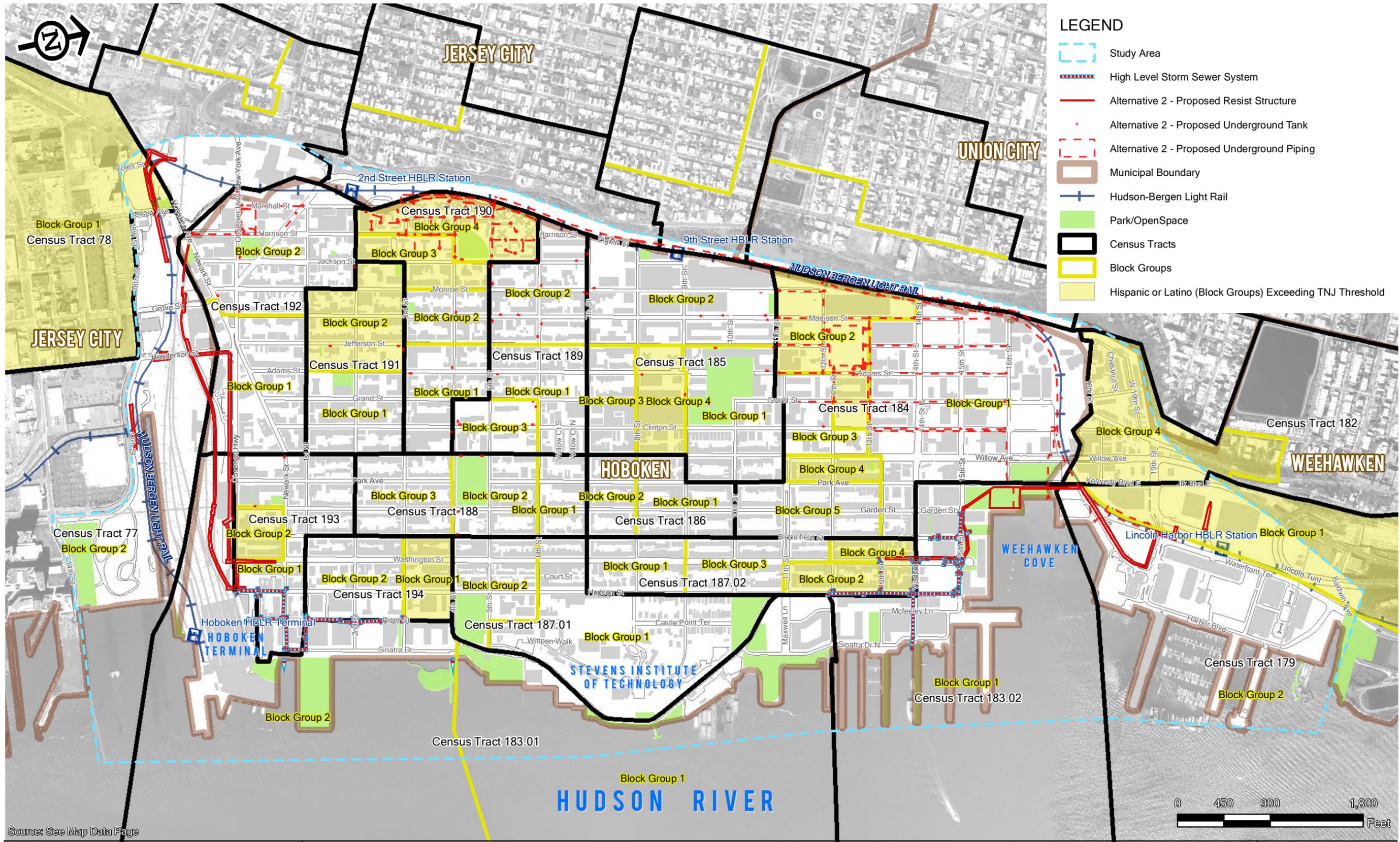
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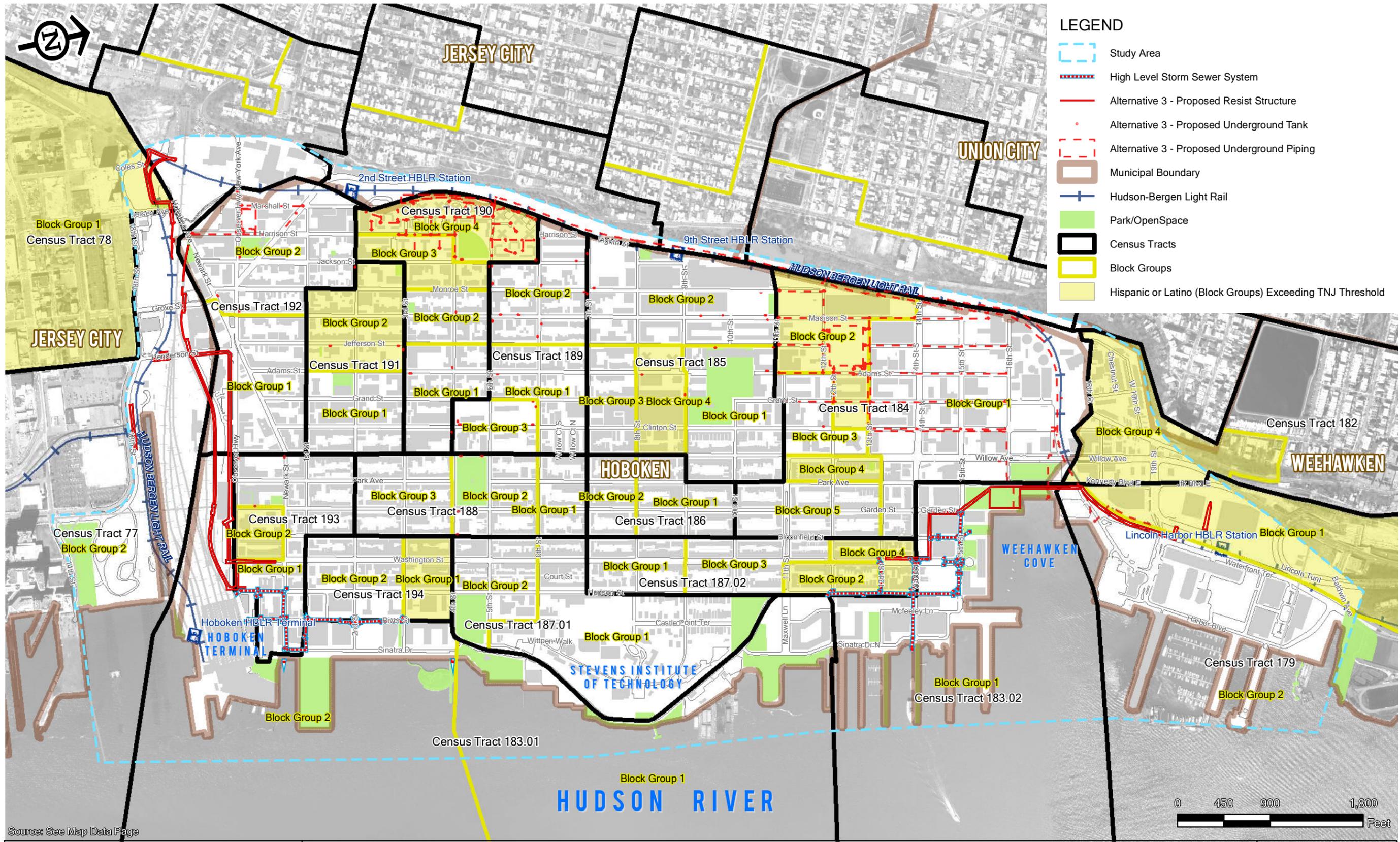
Minority (Block Groups) - Alternative 3

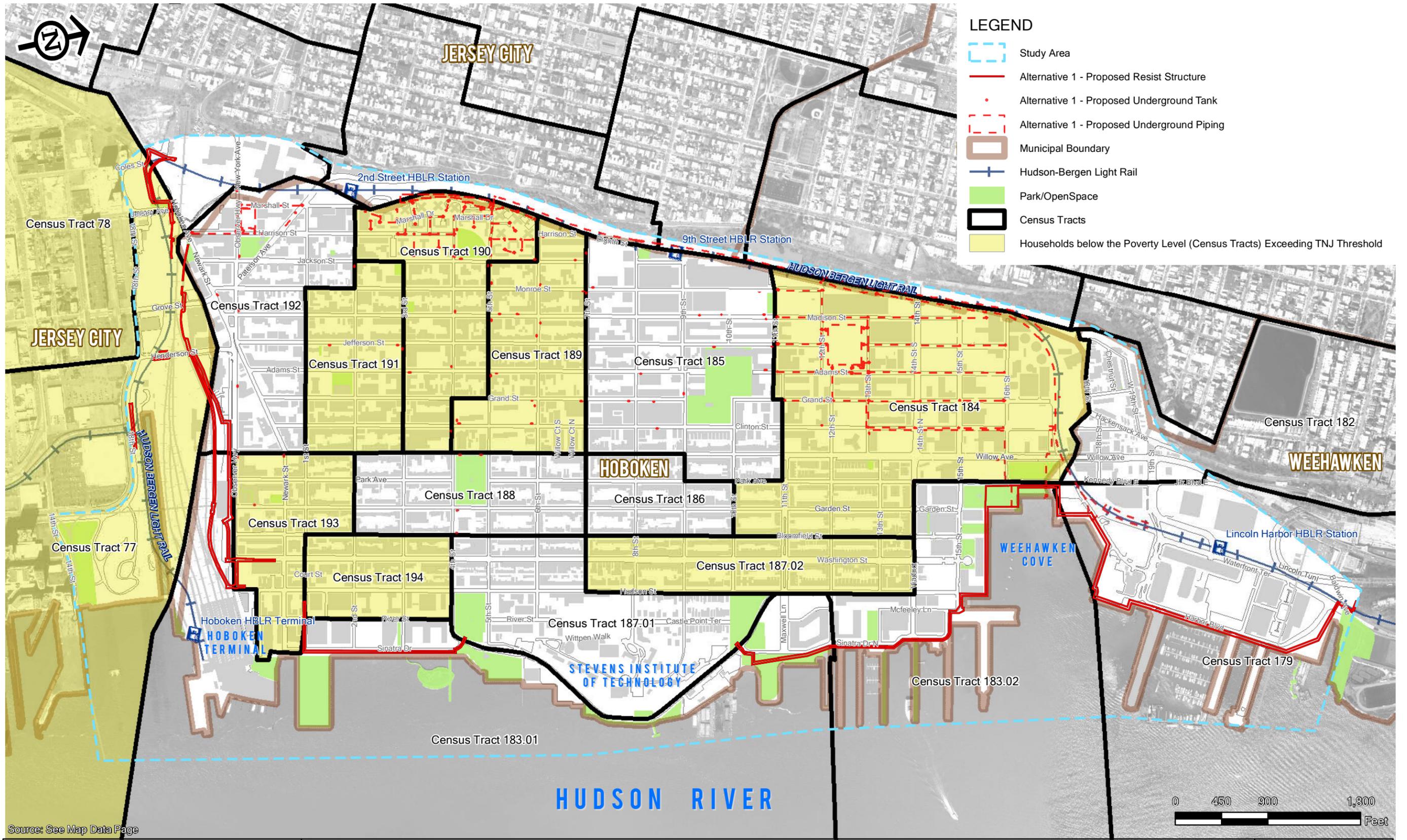


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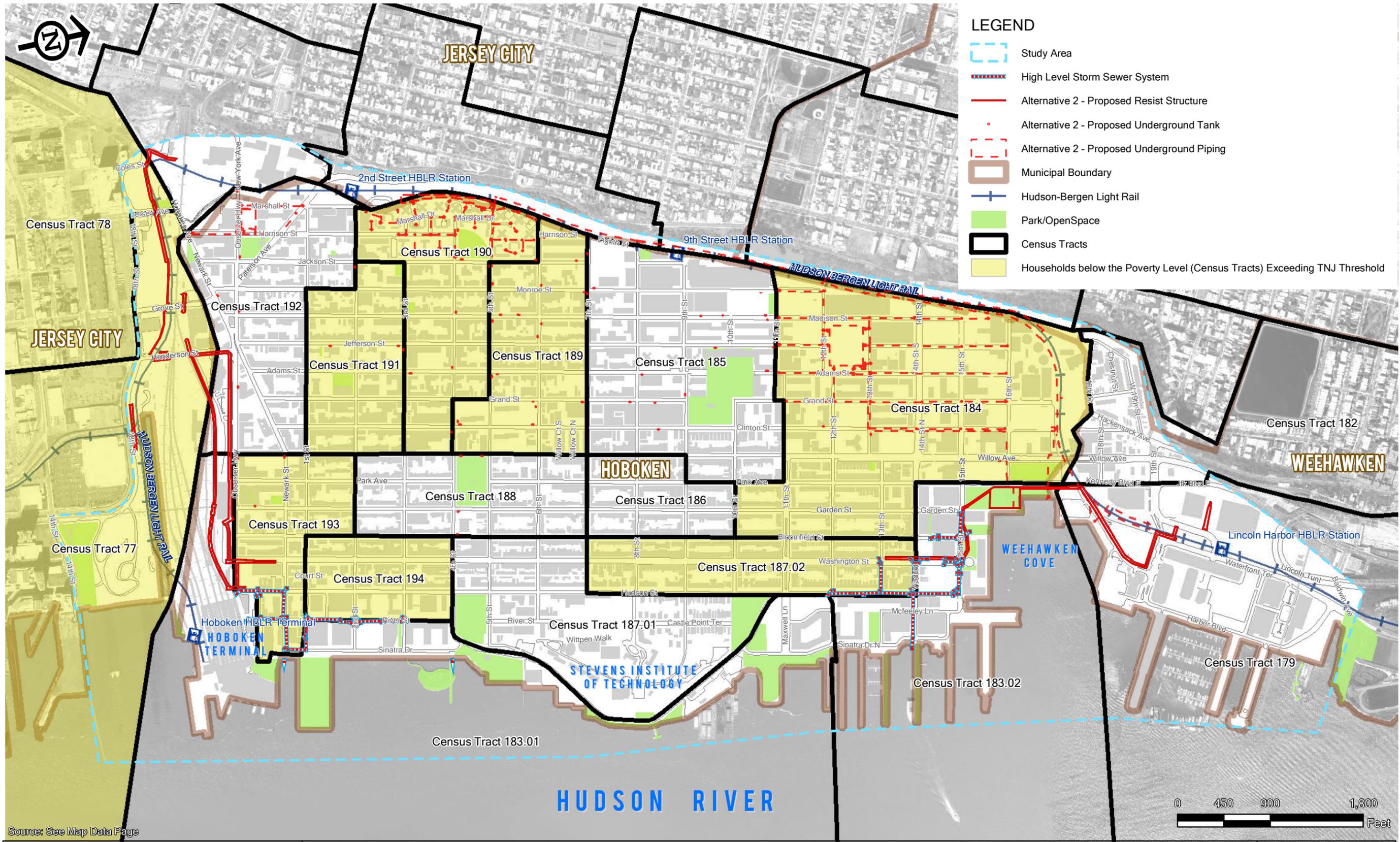
Hispanic or Latino (Block Groups) - Alternative 1





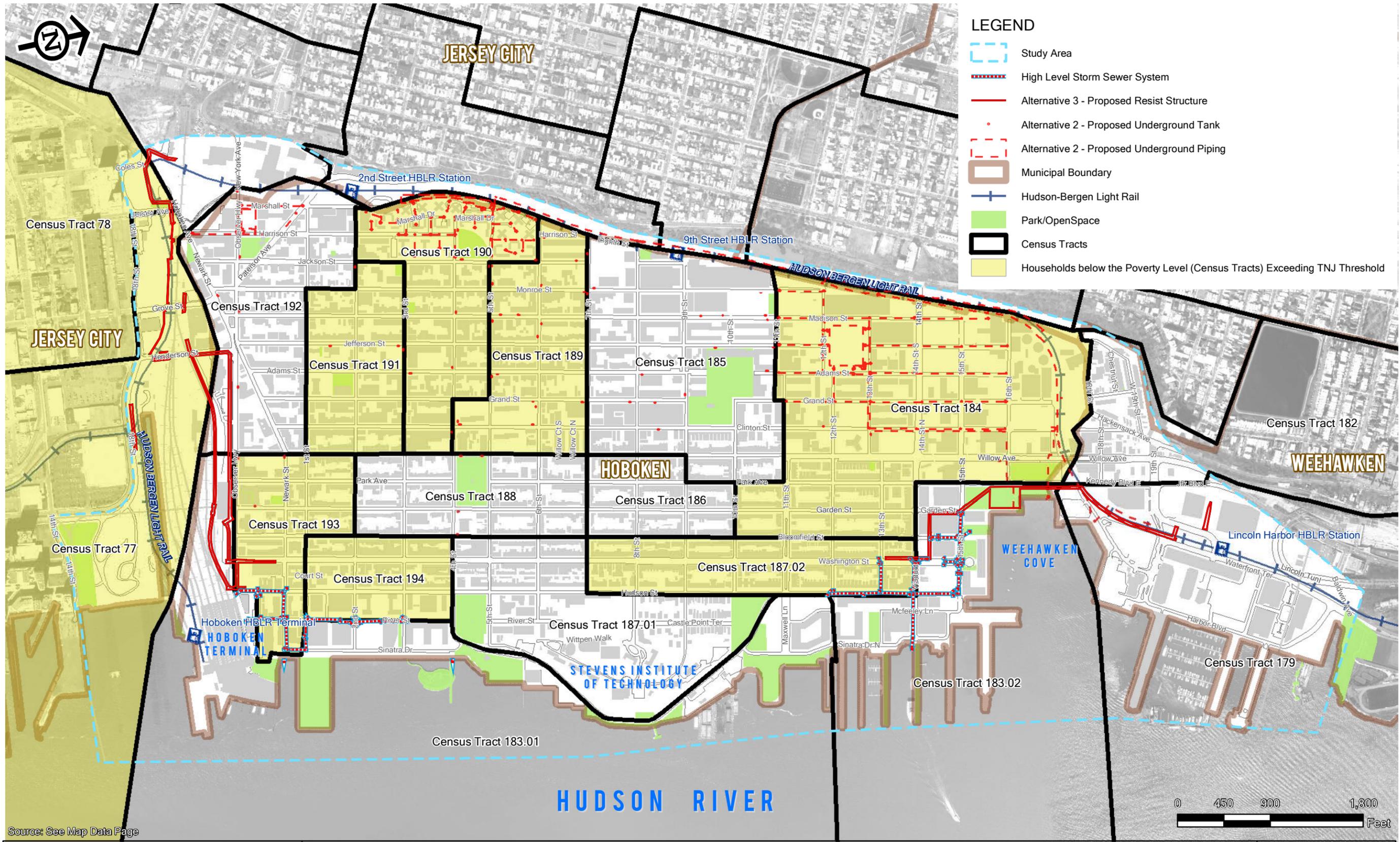


Households below the Poverty Level (Census Tracts) - Alternative 1

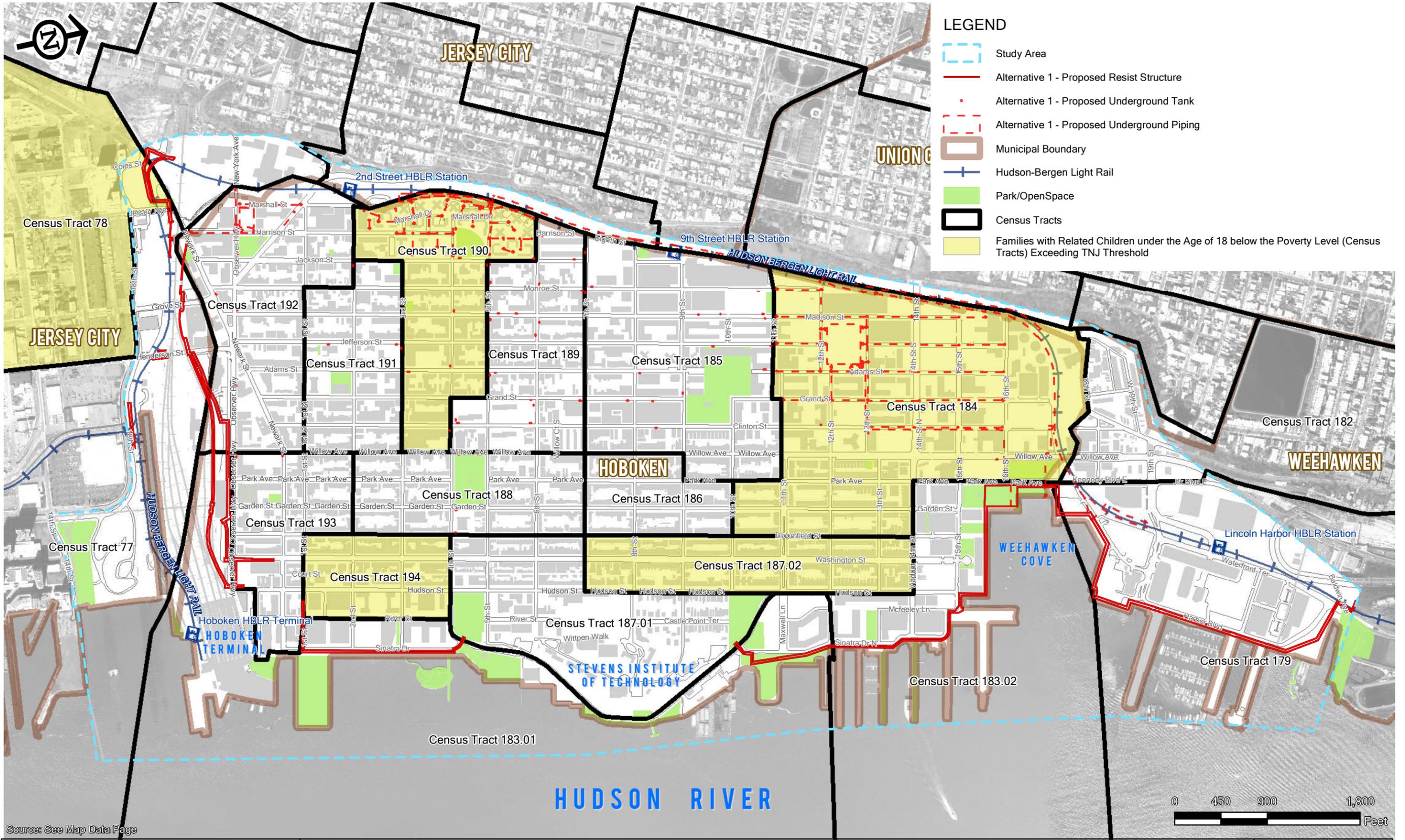


Source: See Map Data Page

Households below the Poverty Level (Census Tracts) - Alternative 2

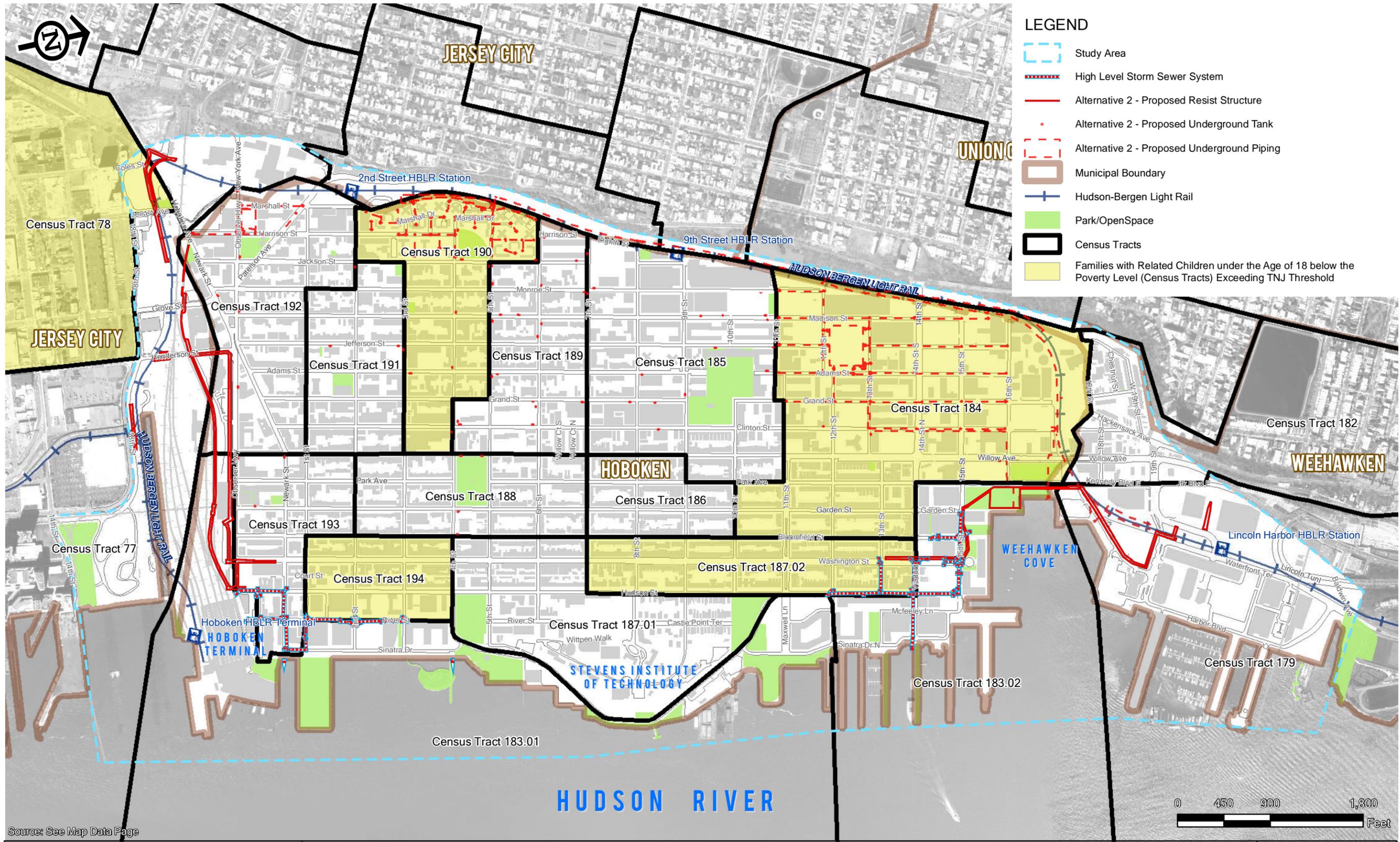


Households below the Poverty Level (Census Tracts) - Alternative 3

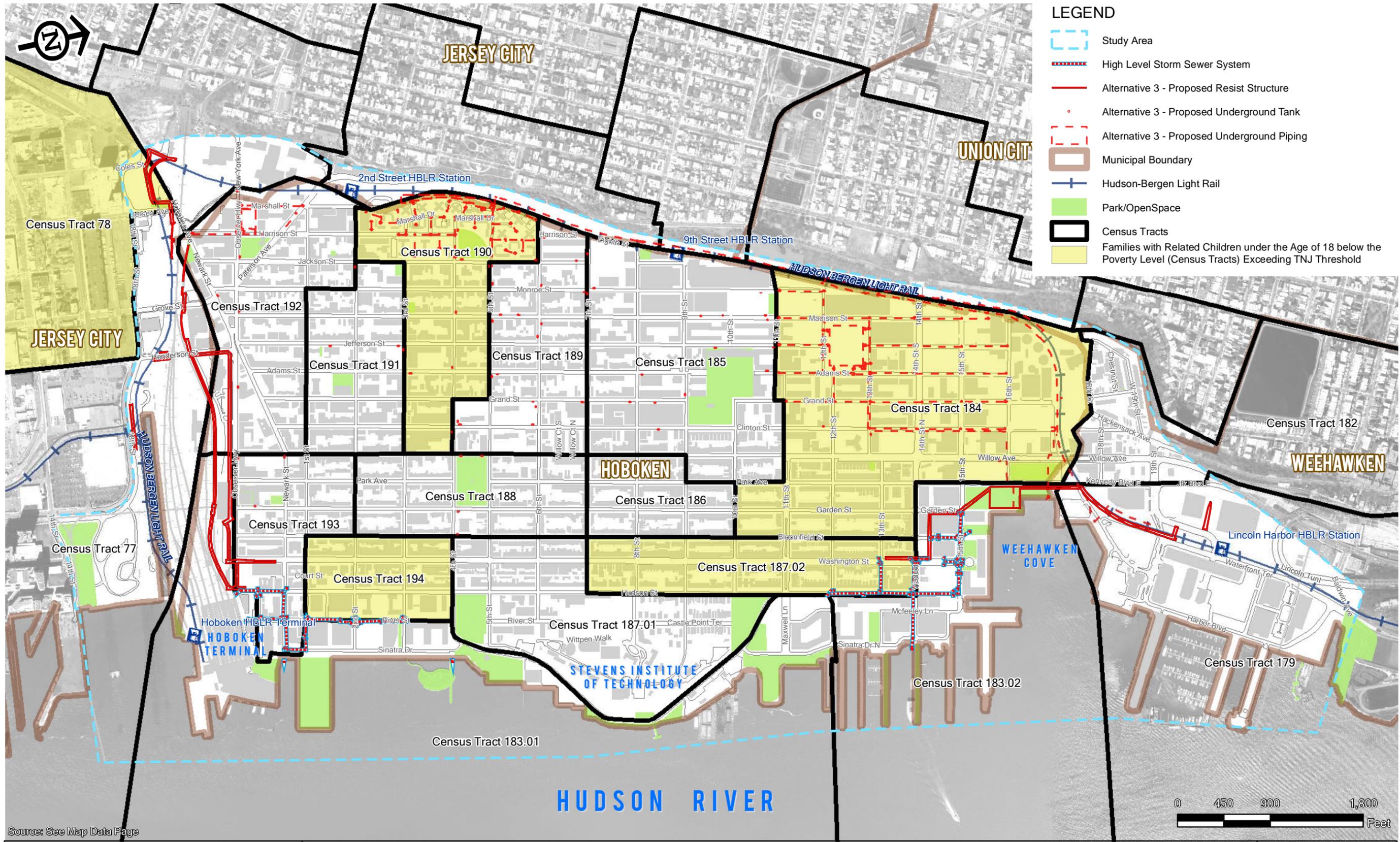


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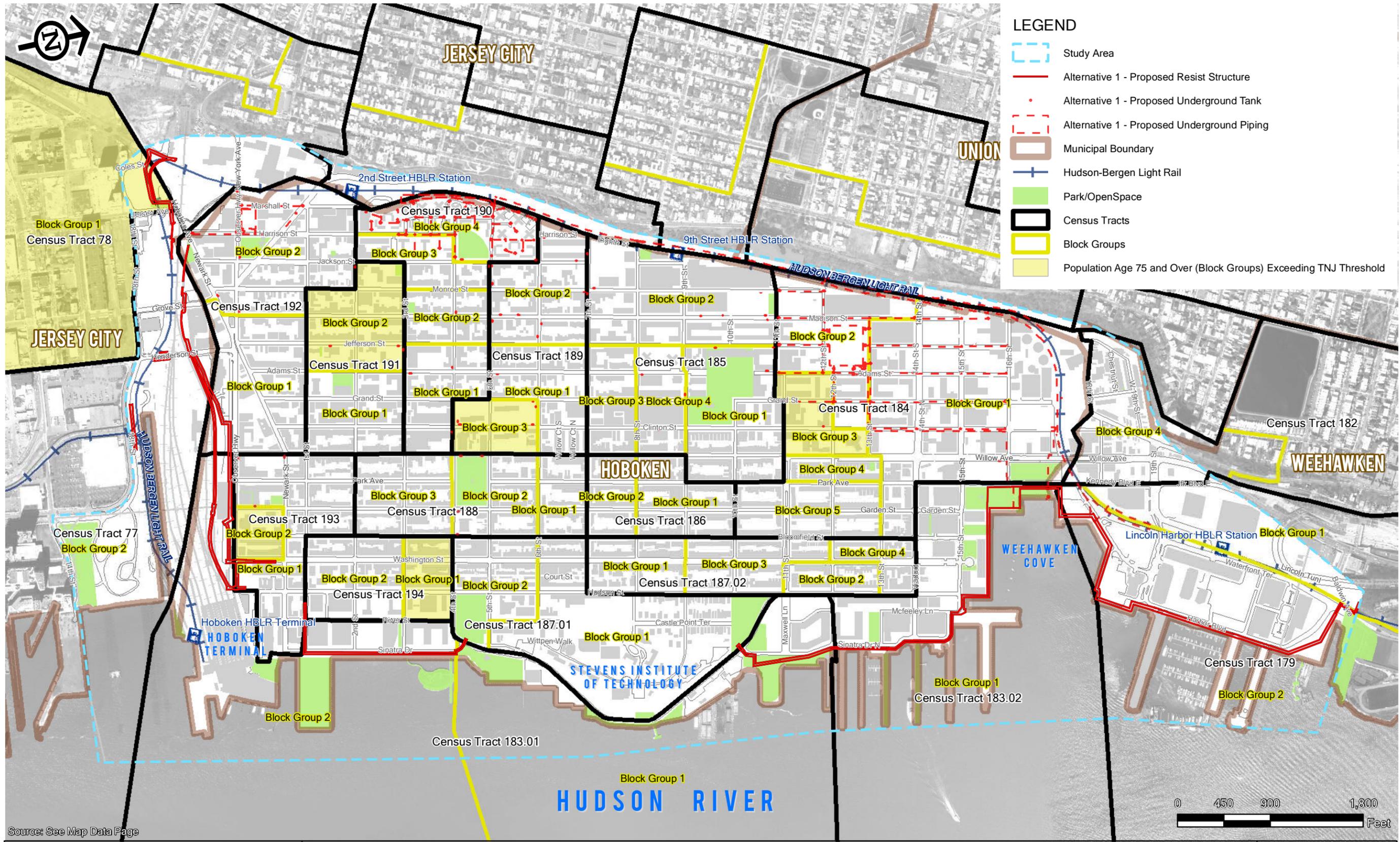
Families with Related Children under the Age of 18 below the Poverty Level (Census Tracts) - Alternative 1



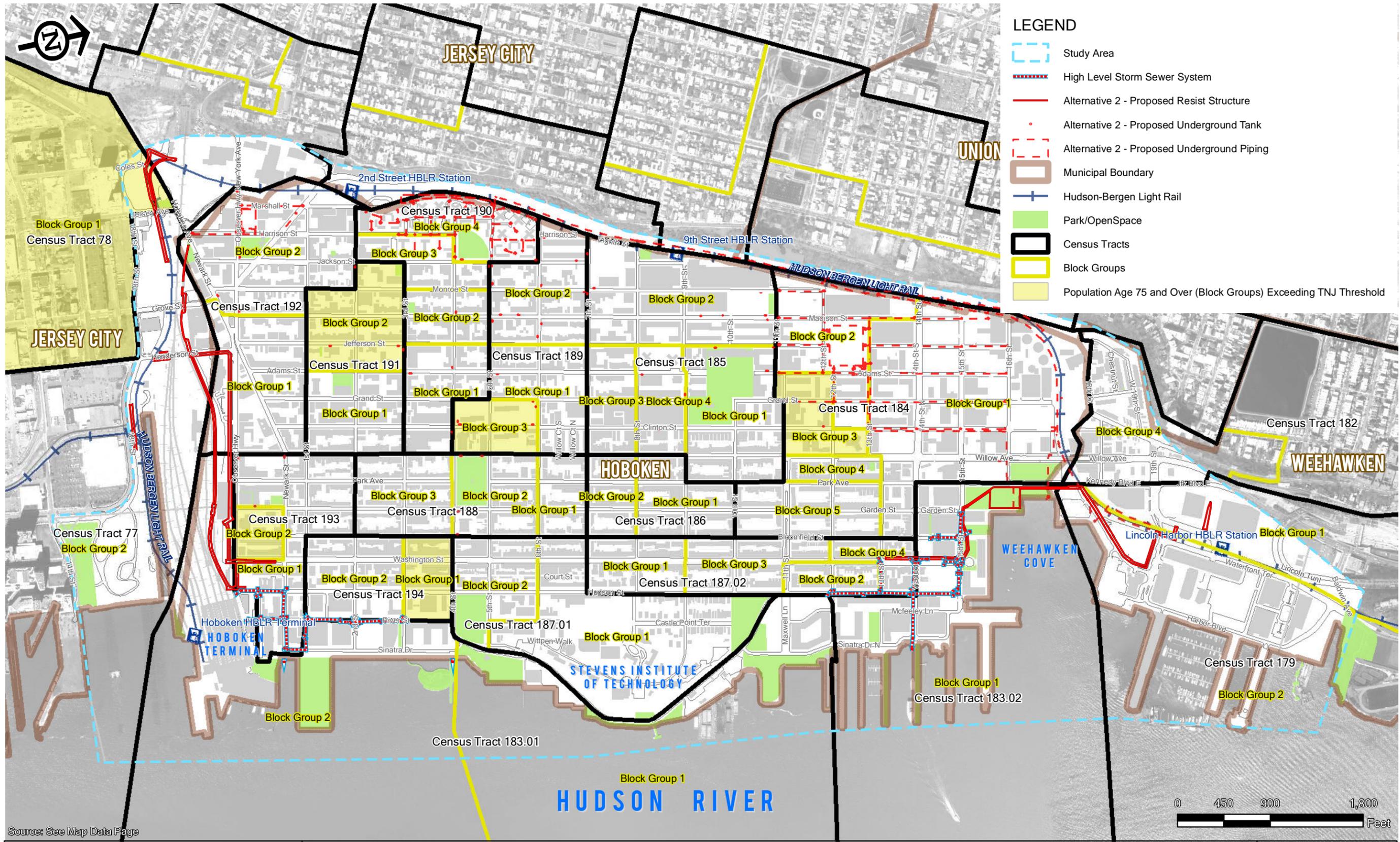
Families with Related Children under the Age of 18 below the Poverty Level (Census Tracts) - Alternative 2



Families with Related Children under the Age of 18 below the Poverty Level (Census Tracts) - Alternative 3

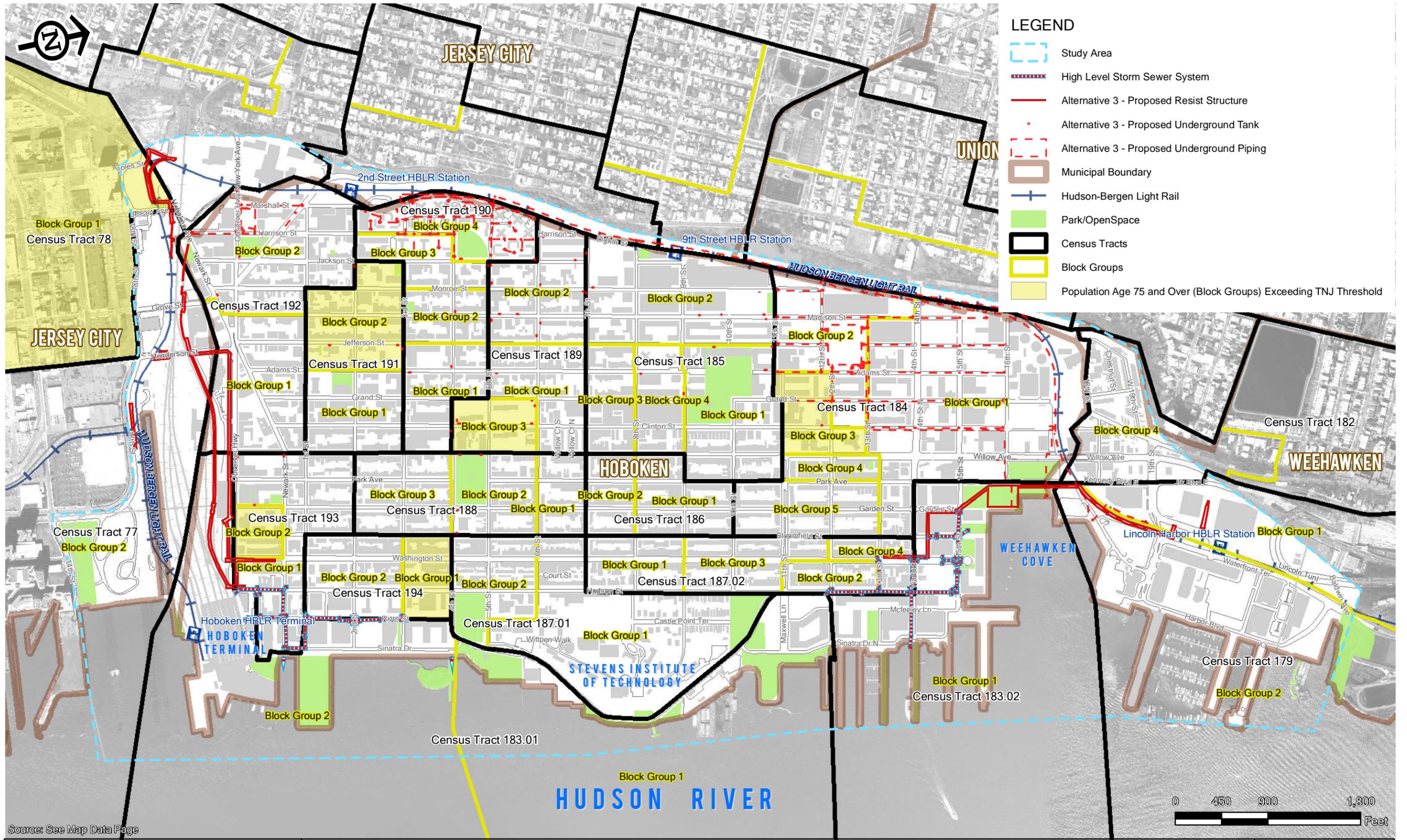


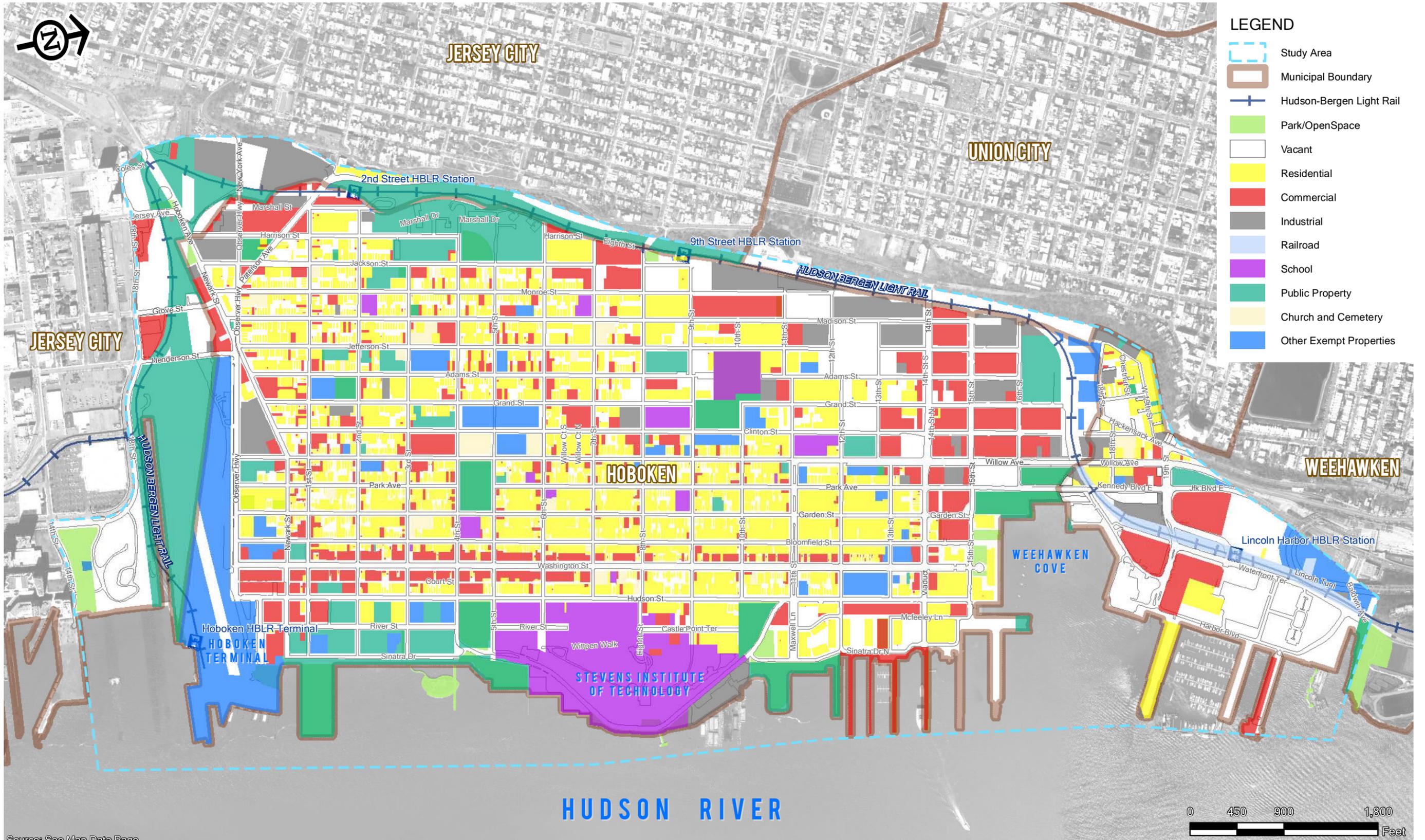
Population Age 75 and Over (Block Groups) - Alternative 1



Source: See Map Data Page

Population Age 75 and Over (Block Groups) - Alternative 2

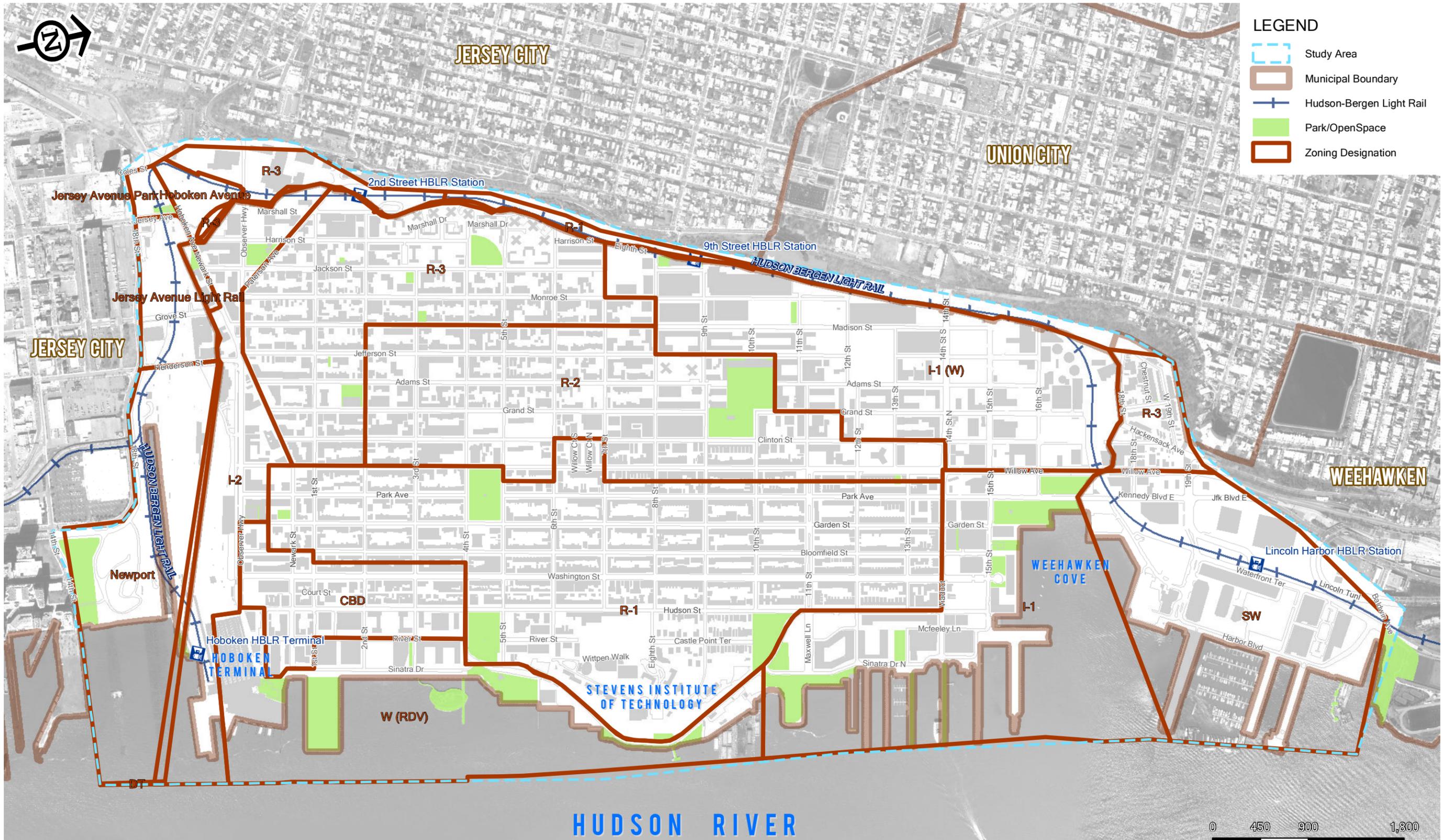




- LEGEND**
- Study Area
 - Municipal Boundary
 - Hudson-Bergen Light Rail
 - Park/OpenSpace
 - Vacant
 - Residential
 - Commercial
 - Industrial
 - Railroad
 - School
 - Public Property
 - Church and Cemetery
 - Other Exempt Properties

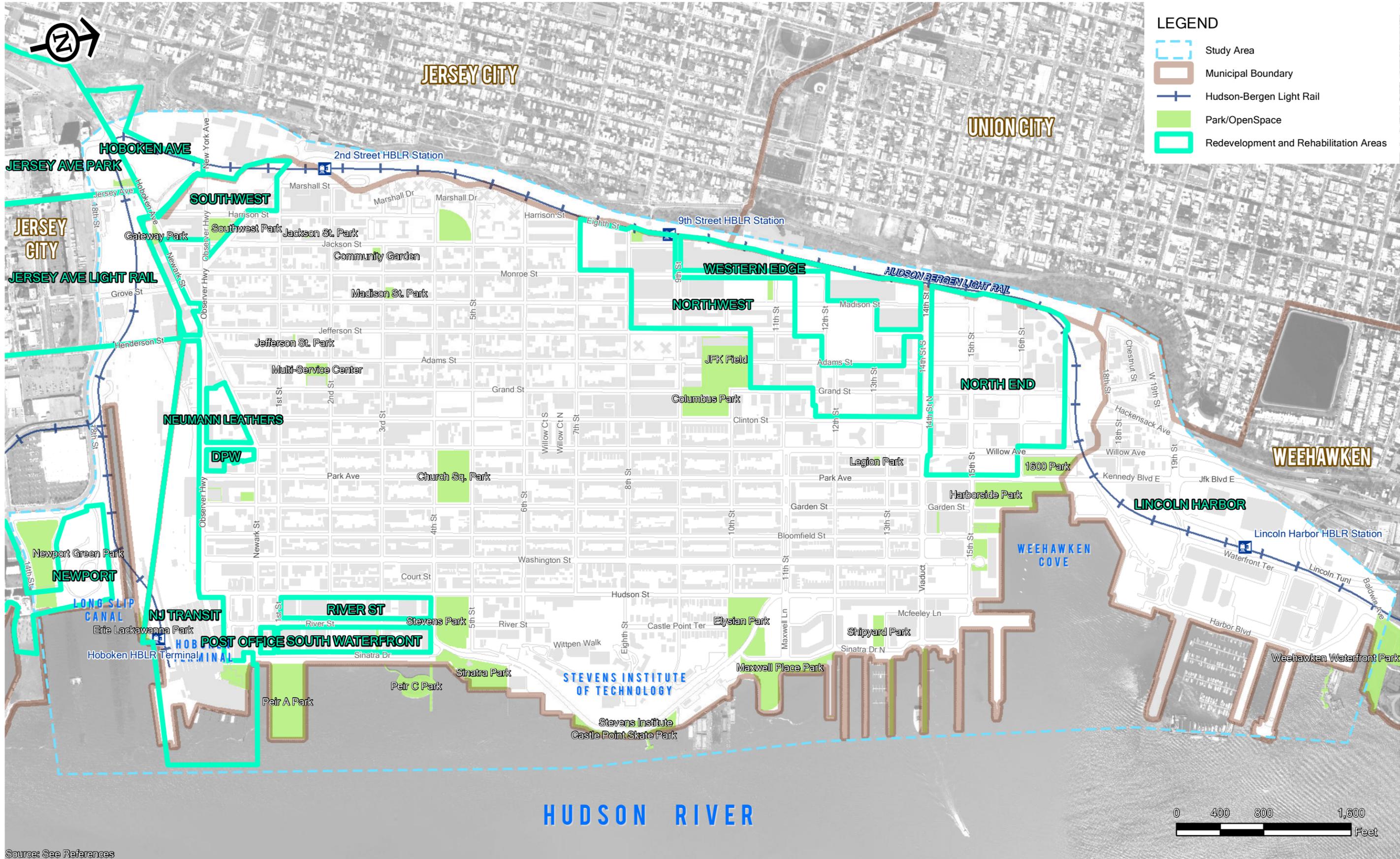
Source: See Map Data Page

LandUse



Source: See Map Data Page

Zoning Map

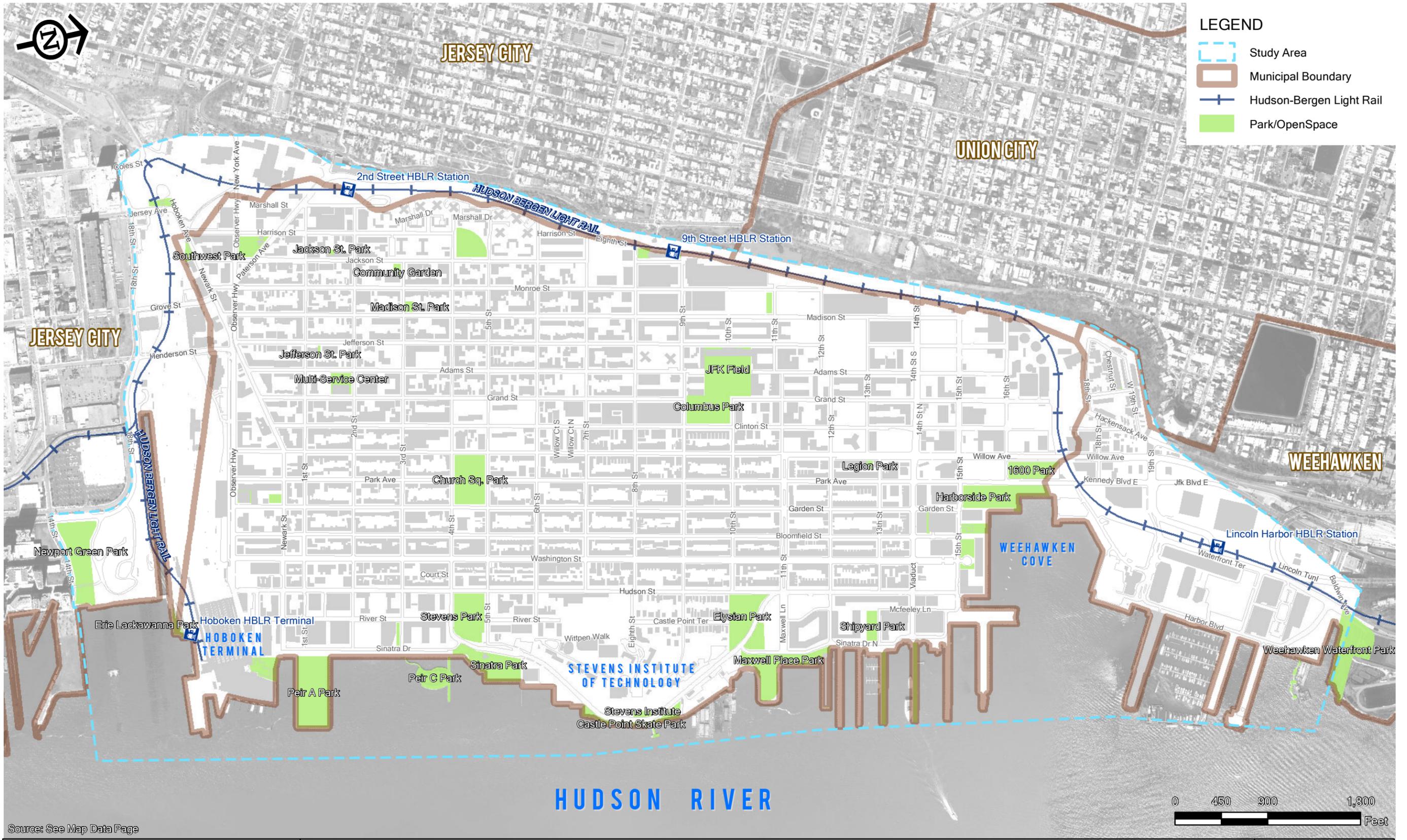


LEGEND

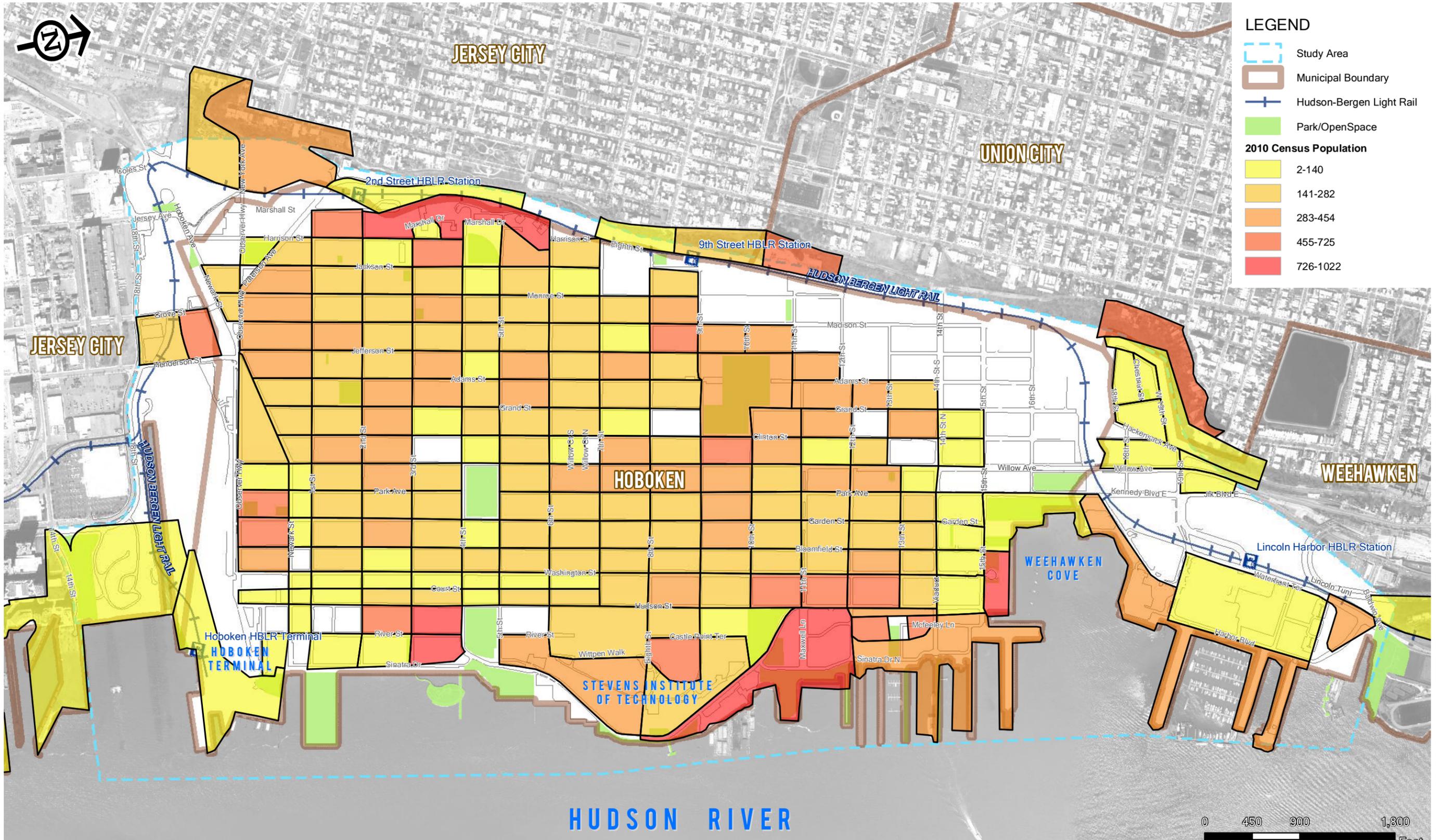
- Study Area
- Municipal Boundary
- Hudson-Bergen Light Rail
- Park/OpenSpace
- Redevelopment and Rehabilitation Areas



Source: See References

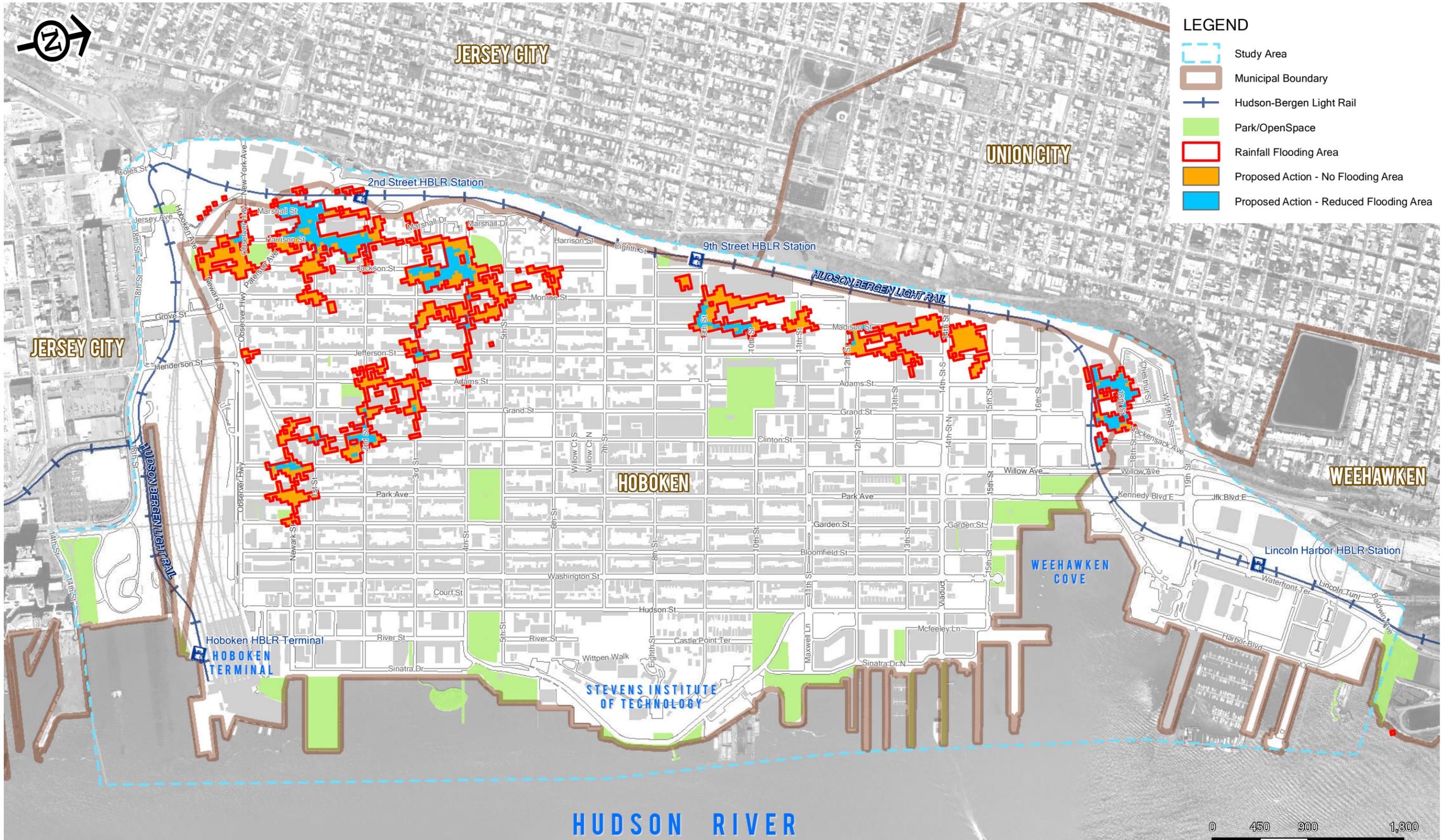


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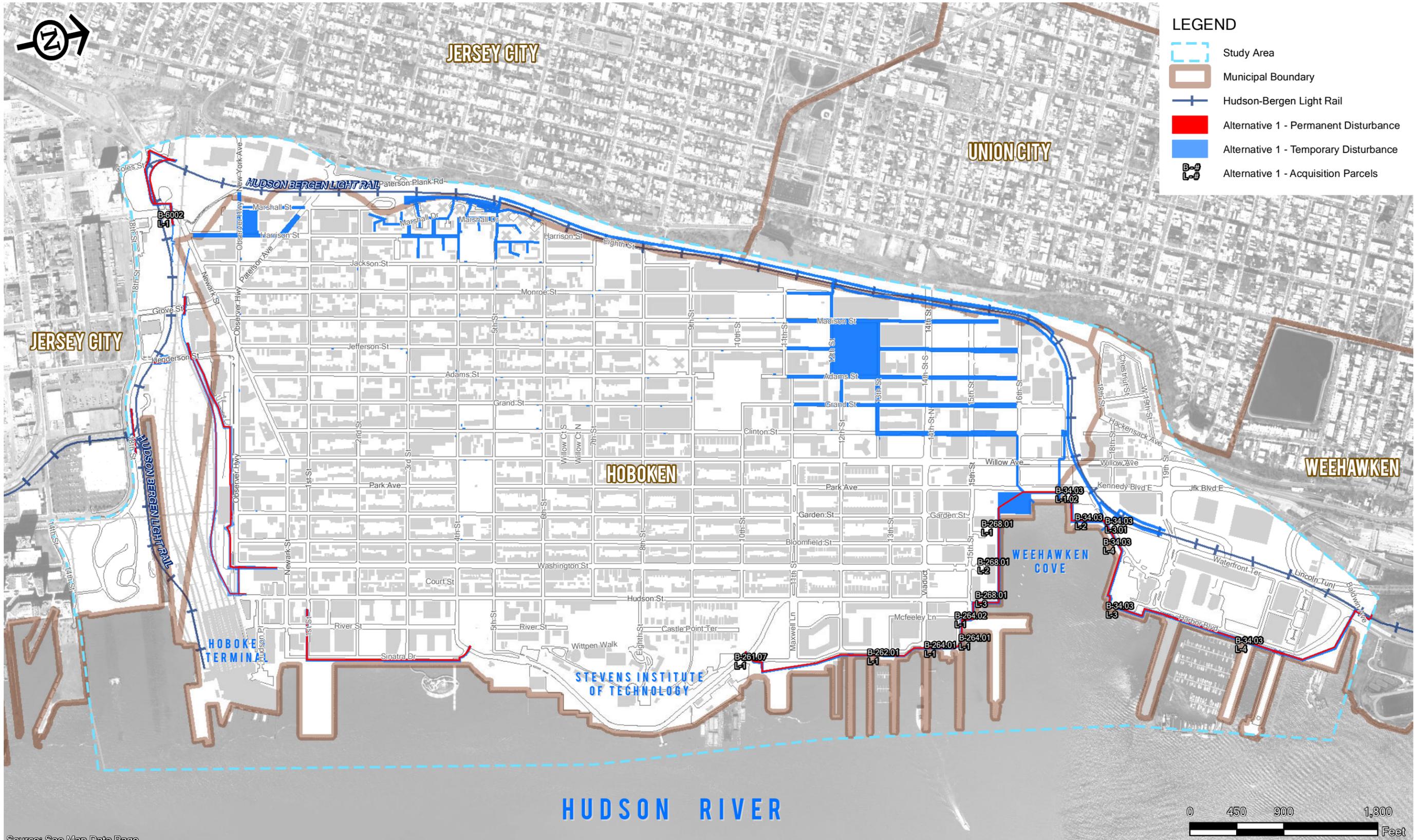
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Population Distribution



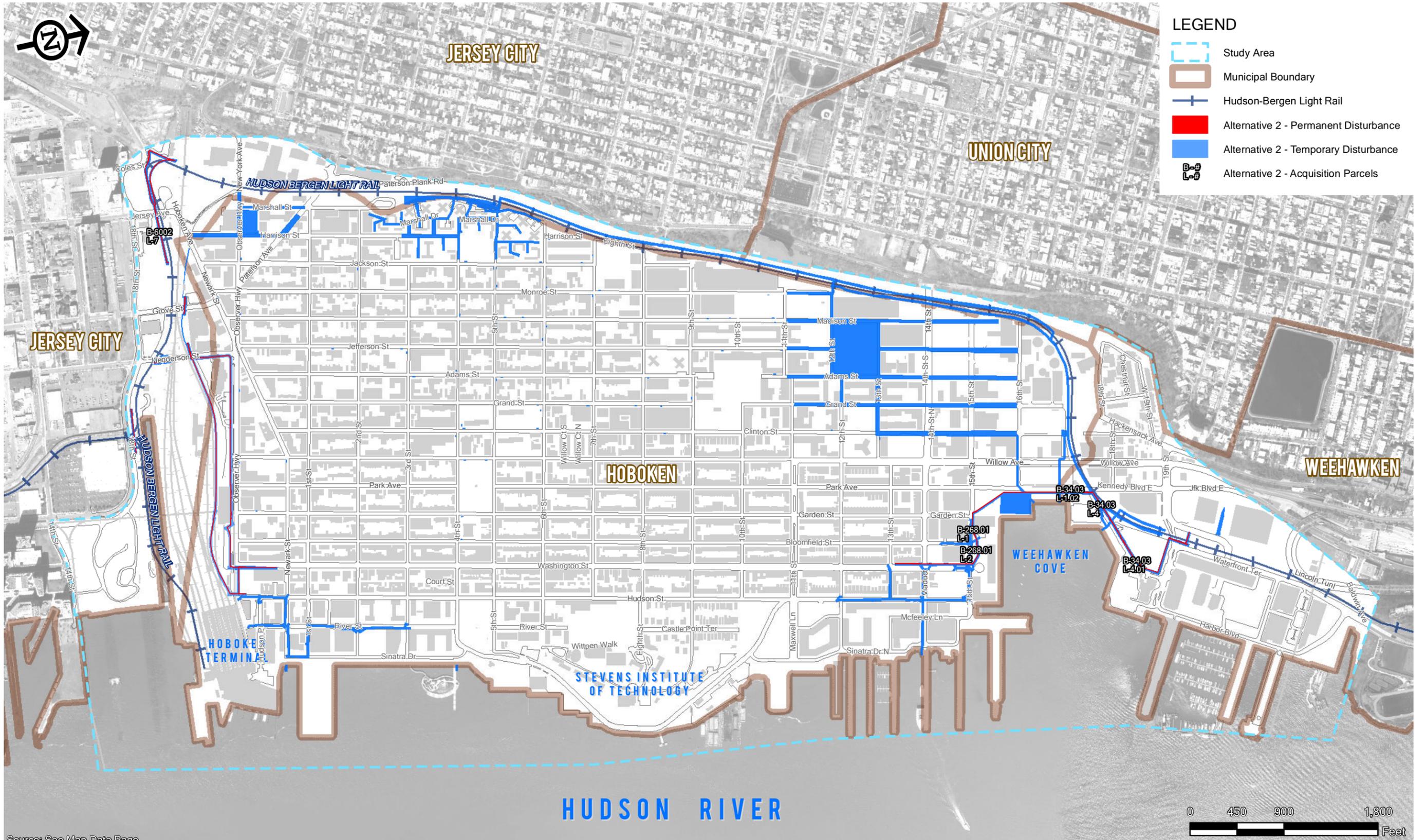
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Areas Flooded at High Tide during 5-year or greater Rainfall Event



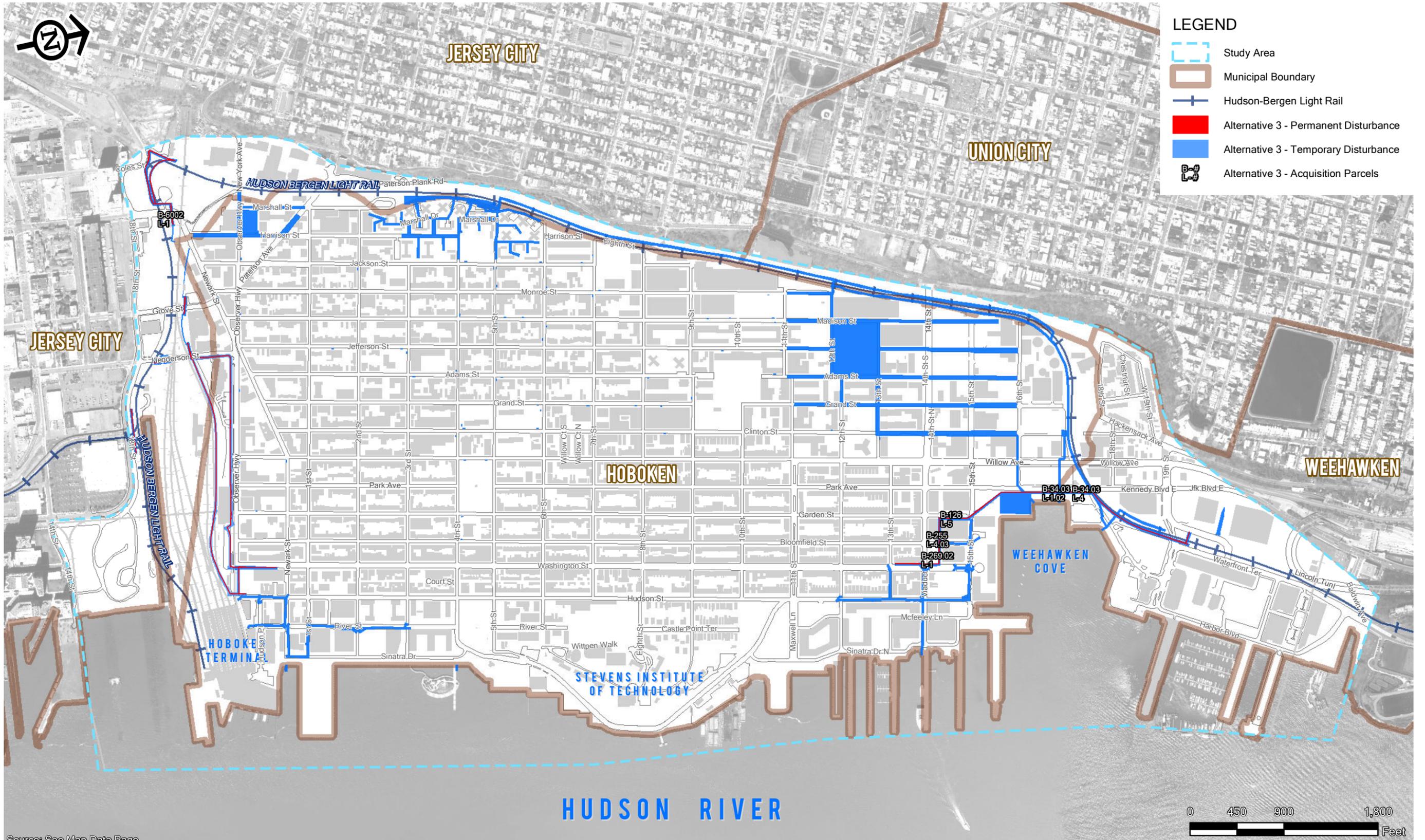
Source: See Map Data Page

Easements - Alternative 1



Easements - Alternative 2

January 2017
FIGURE 33



Source: See Map Data Page

Easements - Alternative 3

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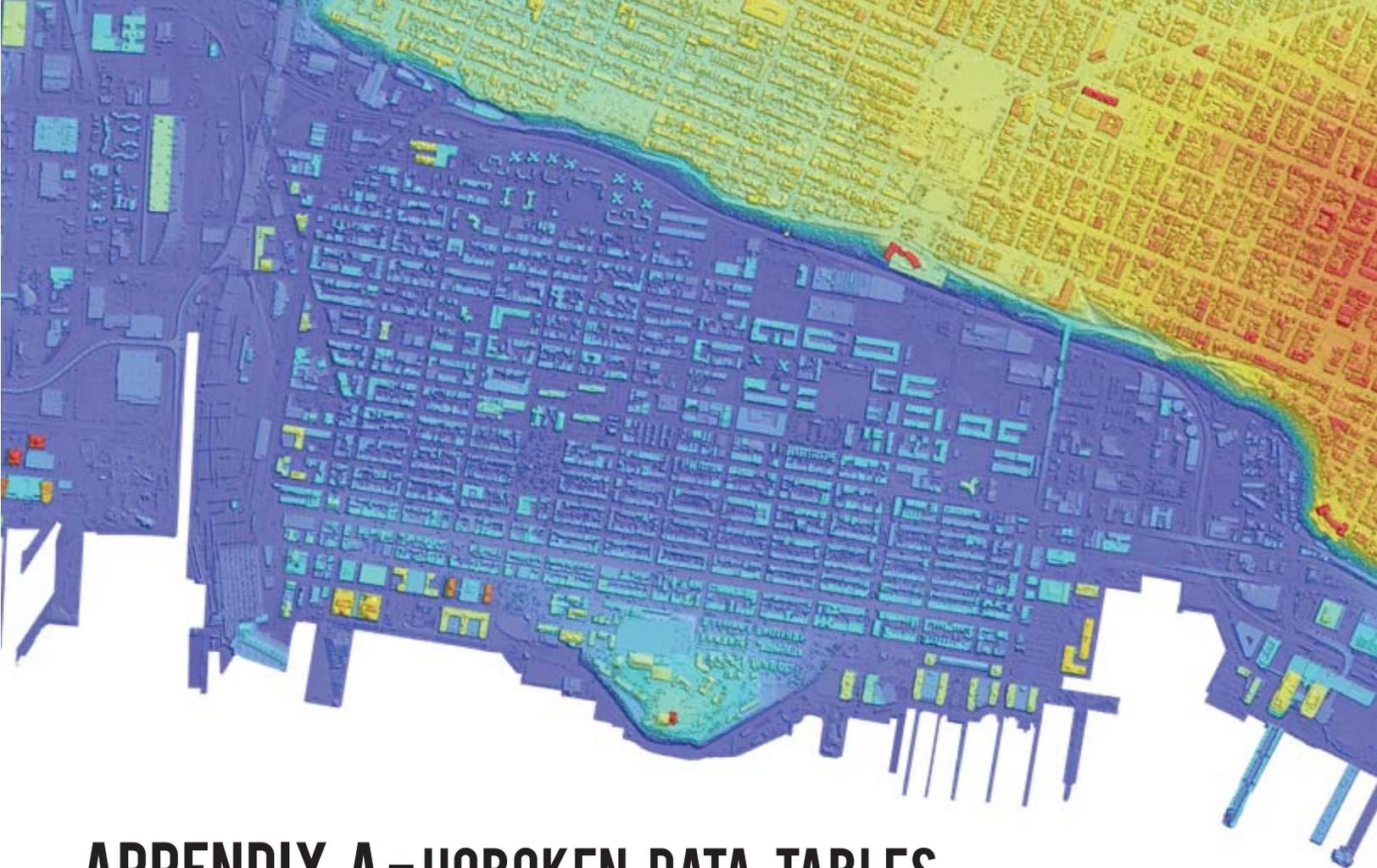
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APPENDIX A – HOBOKEN DATA TABLES



**Appendix A
Hoboken Data Tables
Hoboken City, Hudson County, New Jersey**

POPULATION CHARACTERISTICS																			
	Block Group 1, Census Tract 183.01	Block Group 2, Census Tract 183.01	Block Group 1, Census Tract 183.02	Block Group 1, Census Tract 184	Block Group 2, Census Tract 184	Block Group 3, Census Tract 184	Block Group 4, Census Tract 184	Block Group 5, Census Tract 184	Block Group 1, Census Tract 185	Block Group 2, Census Tract 185	Block Group 3, Census Tract 185	Block Group 4, Census Tract 185	Block Group 1, Census Tract 186	Block Group 2, Census Tract 186	Block Group 1, Census Tract 187.01	Block Group 2, Census Tract 187.01	Block Group 1, Census Tract 187.02	Block Group 2, Census Tract 187.02	Block Group 3, Census Tract 187.02
TOTAL POPULATION	784	1,018	3,124	1,121	709	1,013	763	1,342	2,263	2,215	946	729	1,570	795	2,039	897	957	1,239	1,323
WHITE ALONE	656	871	2,769	944	493	817	585	1,193	1,936	1,954	813	539	1,356	696	1,671	781	835	880	1,214
BLACK OR AFRICAN AMERICAN ALONE	11	19	20	18	63	22	32	22	64	28	27	53	29	9	56	11	13	67	10
AMERICAN INDIAN AND ALASKA NATIVE ALONE	0	0	1	1	2	6	3	1	5	2	0	2	2	2	2	2	0	2	0
ASIAN ALONE	101	101	223	96	77	93	42	47	97	151	75	40	123	54	190	80	75	43	58
NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE	0	0	0	0	0	2	0	0	0	1	0	0	0	0	1	0	4	0	0
SOME OTHER RACE ALONE	6	4	40	31	46	48	82	46	94	32	14	68	30	23	49	8	7	196	18
TWO OR MORE RACES	10	23	71	31	28	25	19	33	67	47	17	27	30	11	70	15	23	51	23
TOTAL MINORITY	128	147	355	177	216	196	178	149	327	261	133	190	214	99	368	116	122	359	109
PERCENT MINORITY	16.3%	14.4%	11.4%	15.8%	30.5%	19.3%	23.3%	11.1%	14.4%	11.8%	14.1%	26.1%	13.6%	12.5%	18.0%	12.9%	12.7%	29.0%	8.2%

POPULATION CHARACTERISTICS																			
	Block Group 4, Census Tract 187.02	Block Group 1, Census Tract 188	Block Group 2, Census Tract 188	Block Group 3, Census Tract 188	Block Group 1, Census Tract 189	Block Group 2, Census Tract 189	Block Group 3, Census Tract 189	Block Group 1, Census Tract 190	Block Group 2, Census Tract 190	Block Group 3, Census Tract 190	Block Group 4, Census Tract 190	Block Group 1, Census Tract 191	Block Group 2, Census Tract 191	Block Group 1, Census Tract 192	Block Group 2, Census Tract 192	Block Group 1, Census Tract 193	Block Group 2, Census Tract 193	Block Group 1, Census Tract 194	Block Group 2, Census Tract 194
TOTAL POPULATION	754	752	783	1,723	1,396	1,472	686	1,156	981	993	1,484	1,726	1,666	1,648	2,280	2,005	808	1,483	1,362
WHITE ALONE	611	677	699	1,422	1,183	1,213	634	1,028	843	576	436	1,501	1,248	1,383	1,817	1,733	654	1,293	1,170
BLACK OR AFRICAN AMERICAN ALONE	26	8	2	55	21	38	14	23	20	175	558	27	64	26	28	17	30	50	11
AMERICAN INDIAN AND ALASKA NATIVE ALONE	1	0	0	5	0	1	0	0	0	7	6	0	4	2	0	3	5	6	0
ASIAN ALONE	32	51	52	135	126	120	4	53	59	22	10	110	120	170	343	164	31	80	110
NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE	1	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	2	0	0
SOME OTHER RACE ALONE	55	4	15	55	37	49	27	28	39	177	377	47	163	23	28	39	74	27	38
TWO OR MORE RACES	28	12	15	50	29	51	7	24	19	34	97	41	67	44	64	49	12	27	33
TOTAL MINORITY	143	75	84	301	213	259	52	128	138	417	1048	225	418	265	463	272	154	190	192
PERCENT MINORITY	19.0%	10.0%	10.7%	17.5%	15.3%	17.6%	7.6%	11.1%	14.1%	42.0%	70.6%	13.0%	25.1%	16.1%	20.3%	13.6%	19.1%	12.8%	14.1%

Note: Block Groups Exceeding the TNJ Threshold of 42.6% are in **RED**

Source: U.S. Census Bureau, 2010 Census, STF1

**Appendix A
Hoboken Data Tables
Hoboken City, Hudson County, New Jersey**

HISPANIC OR LATINO POPULATION																			
	Block Group 1, Census Tract 183.01	Block Group 2, Census Tract 183.01	Block Group 1, Census Tract 183.02	Block Group 1, Census Tract 184	Block Group 2, Census Tract 184	Block Group 3, Census Tract 184	Block Group 4, Census Tract 184	Block Group 5, Census Tract 184	Block Group 1, Census Tract 185	Block Group 2, Census Tract 185	Block Group 3, Census Tract 185	Block Group 4, Census Tract 185	Block Group 1, Census Tract 186	Block Group 2, Census Tract 186	Block Group 1, Census Tract 187.01	Block Group 2, Census Tract 187.01	Block Group 1, Census Tract 187.02	Block Group 2, Census Tract 187.02	Block Group 3, Census Tract 187.02
TOTAL POPULATION	784	1,018	3,124	1,121	709	1,013	763	1,342	2,263	2,215	946	729	1,570	795	2,039	897	957	1,239	1,323
HISPANIC OR LATINO POPULATION	28	35	196	128	202	177	199	155	434	155	74	227	146	77	159	39	64	535	81
PERCENT HISPANIC OR LATINO	3.6%	3.4%	6.3%	11.4%	28.5%	17.5%	26.1%	11.5%	19.2%	7.0%	7.8%	31.1%	9.3%	9.7%	7.8%	4.3%	6.7%	43.2%	6.1%
HISPANIC OR LATINO POPULATION																			
	Block Group 4, Census Tract 187.02	Block Group 1, Census Tract 188	Block Group 2, Census Tract 188	Block Group 3, Census Tract 188	Block Group 1 Census Tract 189	Block Group 2, Census Tract 189	Block Group 3, Census Tract 189	Block Group 1, Census Tract 190	Block Group 2 Census Tract 190	Block Group 3, Census Tract 190	Block Group 4, Census Tract 190	Block Group 1, Census Tract 191	Block Group 2, Census Tract 191	Block Group 1, Census Tract 192	Block Group 2, Census Tract 192	Block Group 1, Census Tract 193	Block Group 2, Census Tract 193	Block Group 1, Census Tract 194	Block Group 2, Census Tract 194
TOTAL POPULATION	754	752	783	1723	1,396	1,472	686	1,156	981	993	1,484	1,726	1,666	1,648	2,280	2,005	808	1,483	1,362
HISPANIC OR LATINO POPULATION	192	55	54	198	200	179	113	158	106	450	987	234	414	138	131	184	306	1,240	149
PERCENT HISPANIC OR LATINO	25.5%	7.3%	6.9%	11.5%	14.3%	12.2%	16.5%	13.7%	10.8%	45.3%	66.5%	13.6%	24.8%	8.4%	5.7%	9.2%	37.9%	83.6%	10.9%

Note: Block Groups Exceeding the TNJ threshold of 19.5% are in **RED**

Source: U.S. Census Bureau, 2010 Census, STF1

**Appendix A
Hoboken Data Tables
Hoboken City, Hudson County, New Jersey**

HOUSEHOLDS BELOW THE POVERTY LEVEL														
	Census Tract 183.01	Census Tract 183.02	Census Tract 184	Census Tract 185	Census Tract 186	Census Tract 187.01	Census Tract 187.02	Census Tract 188	Census Tract 189	Census Tract 190	Census Tract 191	Census Tract 192	Census Tract 193	Census Tract 194
POPULATION	1,992	3,509	5,402	6,275	2,440	2,685	4,792	3,098	3,872	4,614	3,384	3,997	2,762	2,711
HOUSEHOLDS	963	1,787	2,297	2,875	1,110	695	2,200	1,636	1,830	2,277	1,883	1,839	1,563	1,467
HOUSEHOLDS WITH INCOMES BELOW THE POVERTY LINE	6	43	330	131	60	31	277	99	190	630	336	31	201	197
PERCENT HOUSEHOLDS BELOW THE POVERTY LINE	0.6%	2.4%	14.4%	4.6%	5.4%	4.5%	12.6%	6.1%	10.4%	27.7%	17.8%	1.7%	12.9%	13.4%

Note: Census Tracts Exceeding the TNJ threshold of 8.9% are in **RED**

Source: American Community Survey 2010-2014 Five Year Estimates

**Appendix A
Hoboken Data Tables
Hoboken City, Hudson County, New Jersey**

FAMILIES WITH RELATED CHILDREN UNDER THE AGE OF 18 BELOW THE POVERTY LEVEL														
	Census Tract 183.01	Census Tract 183.02	Census Tract 184	Census Tract 185	Census Tract 186	Census Tract 187.01	Census Tract 187.02	Census Tract 188	Census Tract 189	Census Tract 190	Census Tract 191	Census Tract 192	Census Tract 193	Census Tract 194
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
TOTAL FAMILIES	523	798	1,002	1,187	399	247	980	461	733	1,071	537	816	464	423
INCOME IN THE PAST 12 MONTHS BELOW POVERTY LEVEL:	6	20	97	19	7	24	144	14	49	428	75	0	46	47
MARRIED-COUPLE FAMILY WITH RELATED CHILDREN UNDER 18 YEARS:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER FAMILY:	6	20	97	13	7	0	144	14	31	428	35	0	19	25
MALE HOUSEHOLDER WITH RELATED CHILDREN UNDER 18 YEARS:	0	0	0	0	7	0	18	0	0	0	0	0	0	0
FEMALE HOUSEHOLDER WITH RELATED CHILDREN UNDER 18 YEARS:	0	20	97	13	0	0	112	8	31	328	11	0	0	25
FAMILIES WITH RELATED CHILDREN AND INCOMES BELOW THE POVERTY LINE:	0	20	97	13	7	0	130	8	31	328	11	0	0	150
PERCENT OF FAMILIES LIVING BELOW THE POVERTY LINE:	0.0%	2.5%	9.7%	1.1%	1.8%	0.0%	13.3%	1.7%	4.2%	30.6%	2.0%	0.0%	0.0%	35.5%

Note: Census Tracts Exceeding the TNJ threshold of 5.0% are in **RED**

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0.00% **35.46%**

Source: U.S. Census Bureau, 2010-2014 5-Year American Community Survey, STF1

**Appendix A
Hoboken Data Tables
Hoboken City, Hudson County, New Jersey**

POPULATION AGE 75 AND OVER																			
	Block Group 1, Census Tract 183.01	Block Group 2, Census Tract 183.01	Block Group 1, Census Tract 183.02	Block Group 1, Census Tract 184	Block Group 2, Census Tract 184	Block Group 3, Census Tract 184	Block Group 4, Census Tract 184	Block Group 5, Census Tract 184	Block Group 1, Census Tract 185	Block Group 2, Census Tract 185	Block Group 3, Census Tract 185	Block Group 4, Census Tract 185	Block Group 1, Census Tract 186	Block Group 2, Census Tract 186	Block Group 1, Census Tract 187.01	Block Group 2, Census Tract 187.01	Block Group 1, Census Tract 187.02	Block Group 2, Census Tract 187.02	Block Group 3, Census Tract 187.02
TOTAL FAMILIES	784	1018	3124	1121	709	1013	763	1342	2263	2215	946	729	1570	795	2039	897	957	1239	1323
MALE: - 75 TO 79	2	3	3	0	1	11	3	7	7	5	5	3	9	1	4	2	2	7	3
MALE: - 80 TO 84	0	0	3	0	1	4	7	6	2	2	1	2	7	4	3	2	4	9	5
MALE: - 85 AND OVER	1	2	5	2	1	13	1	5	1	0	0	0	2	5	2	4	2	5	4
FEMALE: - 75 TO 79	0	2	7	1	0	14	4	11	19	1	2	1	10	1	3	8	4	15	5
FEMALE: - 80 TO 84	1	2	5	1	0	15	2	9	2	0	1	10	12	5	5	1	10	11	6
FEMALE: - 85 AND OVER	1	1	7	0	2	13	8	6	7	1	3	7	3	5	3	5	12	14	10
POPULATION OVER AGE 75	5	10	30	4	5	70	25	44	38	9	12	23	43	21	20	22	34	61	33
% POPULATION OVER THE AGE OF 75	0.6%	1.0%	1.0%	0.4%	0.7%	6.9%	3.3%	3.3%	1.7%	0.4%	1.3%	3.2%	2.7%	2.6%	1.0%	2.5%	3.6%	4.9%	2.5%

POPULATION AGE 75 AND OVER																			
	Block Group 4, Census Tract 187.02	Block Group 1, Census Tract 188	Block Group 2, Census Tract 188	Block Group 3, Census Tract 188	Block Group 1, Census Tract 189	Block Group 2, Census Tract 189	Block Group 3, Census Tract 189	Block Group 1, Census Tract 190	Block Group 2, Census Tract 190	Block Group 3, Census Tract 190	Block Group 4, Census Tract 190	Block Group 1, Census Tract 191	Block Group 2, Census Tract 191	Block Group 1, Census Tract 192	Block Group 2, Census Tract 192	Block Group 1, Census Tract 193	Block Group 2, Census Tract 193	Block Group 1, Census Tract 194	Block Group 2, Census Tract 194
TOTAL FAMILIES	754	752	783	1723	1396	1472	686	1156	981	993	1484	1726	1666	1648	2280	2005	808	1483	1362
MALE: - 75 TO 79	7	4	7	5	5	5	6	7	4	2	10	17	18	1	1	4	19	24	4
MALE: - 80 TO 84	1	5	3	5	8	6	11	6	3	1	6	12	17	2	1	3	11	15	3
MALE: - 85 AND OVER	3	4	4	3	2	1	9	4	2	0	0	6	9	0	0	2	8	8	0
FEMALE: - 75 TO 79	6	8	7	11	12	12	15	12	7	7	11	30	36	1	3	10	34	39	4
FEMALE: - 80 TO 84	3	8	2	5	9	8	21	14	5	2	12	20	23	2	1	4	30	19	8
FEMALE: - 85 AND OVER	4	6	8	11	7	6	33	4	0	0	5	27	13	4	1	6	39	29	2
POPULATION OVER AGE 75	24	35	31	40	43	38	95	47	21	12	44	112	116	10	7	29	141	134	21
% POPULATION OVER THE AGE OF 75	3.2%	4.7%	4.0%	2.3%	3.1%	2.6%	13.8%	4.1%	2.1%	1.2%	3.0%	6.5%	7.0%	0.6%	0.3%	1.4%	17.5%	9.0%	1.5%

Note: Block Groups Exceeding the TNJ Threshold of 6.6% are in **RED**

Source: U.S. Census Bureau, 2010 Census, STF1



APPENDIX B- JERSEY CITY DATA TABLES



Appendix B
Jersey City Data Tables
Jersey City, Hudson County, New Jersey

POPULATION CHARACTERISTICS		
	Block Group 2, Census Tract 77	Block Group 1, Census Tract 78
TOTAL POPULATION	3,392	1,360
WHITE ALONE	963	465
BLACK OR AFRICAN AMERICAN ALONE	178	326
AMERICAN INDIAN OR ALASKA NATIVE ALONE	18	2
ASIAN ALONE	2,114	329
NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE	0	0
SOME OTHER RACE ALONE	52	163
TWO OR MORE RACES	67	75
TOTAL MINORITY POPULATION	2429	895
PERCENT	71.6%	65.8%

Note: Block Groups Exceeding the TNJ Threshold of 42.6% are in RED

Source: U.S. Census Bureau, 2010 Census, STF1

Appendix B
Jersey City Data Tables
Jersey City, Hudson County, New Jersey

HISPANIC OR LATINO POPULATION		
	Block Group 2, Census Tract 77	Block Group 1, Census Tract 78
TOTAL POPULATION	3392	1360
HISPANIC OR LATINO	167	381
TOTAL PERCENT HISPANIC OR LATINO	4.9%	28.0%

Note: Block Groups Exceeding the TNJ threshold of 19.5% are in **RED**

Source: U.S. Census Bureau, 2010 Census, STF1

Appendix B
Jersey City Data Tables
Jersey City, Hudson County, New Jersey

HOUSEHOLDS BELOW THE POVERTY LEVEL		
	Census Tract 77- Jersey City	Census Tract 78-Jersey City
POPULATION	9,708	1,291
HOUSEHOLDS	4,254	594
HOUSEHOLDS WITH INCOMES BELOW THE POVERTY LINE	442	192
PERCENT HOUSEHOLDS BELOW THE POVERTY LINE	10.4%	32.3%

Note: Census Tracts Exceeding the TNJ threshold of 8.9% are in RED

Source American Community Survey 2010-2014 Five Year Estimates

Appendix B
Jersey City Data Tables
Jersey City, Hudson County, New Jersey

FAMILIES WITH RELATED CHILDREN UNDER THE AGE OF 18 BELOW THE POVERTY LEVEL		
	Census Tract 77- Jersey City	Census Tract 78-Jersey City
	Estimate	Estimate
TOTAL FAMILIES	2,351	286
MARRIED COUPLE FAMILY WITH RELATED CHILDREN UNDER 18 YEARS	51	0
OTHER FAMILY WITH RELATED CHILDREN UNDER 18 YEARS	0	0
FEMALE HOUSEHOLDER WITH RELATED CHILDREN UNDER 18 YEARS	40	76
FAMILIES WITH RELATED CHILDREN AND INCOMES BELOW THE POVERTY LINE	91	76
PERCENT OF FAMILIES LIVING BELOW THE POVERTY LINE	3.9%	26.6%

Note: Census Tracts Exceeding the TNJ threshold of 5.0% are in **RED**

Source: U.S. Census Bureau, 2010-2014 5-Year American Community Survey, STF1

Appendix B
Jersey City Data Tables
Jersey City, Hudson County, New Jersey

POPULATION AGE 75 AND OVER		
	Block Group 2, Census Tract 77	Block Group 1, Census Tract 78
TOTAL POPULATION	3,392	1,360
MALE:- 75 TO 79 YEARS	6	30
MALE:- 80 TO 84 YEARS	2	18
MALE:- 85 YEARS AND OVER	2	5
FEMALE:- 75 TO 79 YEARS	6	40
FEMALE:- 80 TO 84 YEARS	0	24
FEMALE:- 85 YEARS AND OVER	1	27
POPULATION OVER AGE 75	17	144
% POPULATION OVER THE AGE OF 75	0.5%	10.6%

Note: Block Groups Exceeding the TNJ Threshold of 6.6% are in RED

Source: U.S. Census Bureau, 2010 Census, STF1



APPENDIX C- WEEHAWKEN DATA TABLES



Appendix C
Weehawken Data Tables
Weehawken, Hudson County, New Jersey

POPULATION CHARACTERISTICS			
	Block Group 1, Census Tract 179	Block Group 2, Census Tract 179	Block Group 4, Census Tract 182
TOTAL POPULATION	834	716	611
WHITE ALONE	616	454	479
BLACK OR AFRICAN AMERICAN ALONE	44	28	40
AMERICAN INDIAN OR ALASKA NATIVE ALONE	0	0	0
ASIAN ALONE	115	210	44
NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE	0	0	0
SOME OTHER RACE ALONE	35	6	27
TWO OR MORE RACES	24	18	21
TOTAL MINORITY POPULATION	218	262	132
PERCENT	26.1%	36.6%	21.6%

Note: Block Groups Exceeding the TNJ Threshold of 42.6% are in RED

Source: U.S. Census Bureau, 2010 Census, STF1

Appendix C
Weehawken Data Tables
Weehawken, Hudson County, New Jersey

HISPANIC OR LATINO POPULATION			
	Block Group 1, Census Tract 179	Block Group 2, Census Tract 179	Block Group 4, Census Tract 182
TOTAL POPULATION:	834	716	611
HISPANIC OR LATINO:	193	40	131
TOTAL PERCENT HISPANIC OR LATINO:	23.1%	5.6%	21.4%

Note: Block Groups Exceeding the TNJ threshold of 19.5% are in **RED**

Source: U.S. Census Bureau, 2010 Census, STF1

Appendix C
Weehawken Data Tables
Weehawken, Hudson County, New Jersey

HOUSEHOLDS BELOW THE POVERTY LEVEL		
	Census Tract 179-Weehawken	Census Tract 182- Weehawken
POPULATION	1,900	4,189
HOUSEHOLDS	843	977
HOUSEHOLDS WITH INCOMES BELOW THE POVERTY LINE	32	41
PERCENT HOUSEHOLDS BELOW THE POVERTY LINE	3.8%	4.2%

Note: Census Tracts Exceeding the TNJ threshold of 8.9% are in **RED**

Source American Community Survey 2010-2014 Five Year Estimates

Appendix C
Weehawken Data Tables
Weehawken, Hudson County, New Jersey

FAMILIES WITH RELATED CHILDREN UNDER THE AGE OF 18 BELOW THE POVERTY LEVEL		
	Census Tract 179-Weehawken	Census Tract 182-Weehawken
	Estimate	Estimate
TOTAL FAMILIES	412	952
MARRIED-COUPLE FAMILY WITH RELATED CHILDREN UNDER 18 YEARS	0	0
OTHER FAMILY WITH RELATED CHILDREN UNDER 18 YEARS	0	0
FEMALE HOUSEHOLDER, NO HUSBAND PRESENT	0	0
FEMALE HOUSEHOLDER WITH RELATED CHILDREN UNDER 18 YEARS	0	14
FAMILIES WITH RELATED CHILDREN AND INCOMES BELOW THE POVERTY LINE	0	14
PERCENT OF FAMILIES LIVING BELOW THE POVERTY LINE	0.0%	1.5%

Note: Census Tracts Exceeding the TNJ threshold of 5.0% are in **RED**

Source: U.S. Census Bureau, 2010-2014 5-Year American Community Survey, STF1

Appendix C
Weehawken Data Tables
Weehawken, Hudson County, New Jersey

POPULATION AGE 75 AND OVER			
	Block Group 1, Census Tract 179	Block Group 2, Census Tract 179	Block Group 4, Census Tract 182
TOTAL	834	716	611
MALE:- 75 TO 79 YEARS	8	7	3
MALE:- 80 TO 84 YEARS	7	3	3
MALE:- 85 YEARS AND OVER	4	0	3
FEMALE:- 75 TO 79 YEARS	17	2	11
FEMALE:- 80 TO 84 YEARS	8	1	5
FEMALE:- 85 YEARS AND OVER	7	0	6
POPULATION OVER AGE 75	51	13	31
% POPULATION OVER THE AGE OF 75	6.1%	1.8%	5.1%

Note: Block Groups Exceeding the TNJ Threshold of 6.6% are in RED

Source: U.S. Census Bureau, 2010 Census, STF1



APPENDIX D- BUSINESSES IMPACTED BY BUILD ALTERNATIVES



**Appendix D
Businesses Impacted by Build Alternatives**

BUSINESSES IMPACTED BY BUILD ALTERNATIVES											
#	BLOCK_LOT	NAME OF BUSINESS	ADDRESS	RETAIL	OFFICE	INDUSTRIAL	TOTAL NUMBER OF BUSINESSES	ALTERNATIVES			DSD/RESIST
								1	2	3	
1	3_4	A.M. Construction Corporation	611 Newark St, Hoboken, NJ			1	1	✓	✓	✓	DSD
2	11_9	Academy Bus LLC	111 Paterson Ave, Hoboken, NJ			1	1	✓	✓	✓	DSD
3	All of Block 129	Academy Bus LLC	1515 Jefferson St, Hoboken, NJ			1	1	✓	✓	✓	Resist
4	130_32	Academy Training Center	1500 Grand Street, Hoboken, NJ			1	1	✓	✓	✓	DSD
5	231.4_2	Ainsworth	310 Sinatra Dr, Hoboken, NJ	1			1	✓			Resist
6	210.01_19	American Apparel	80 Hudson St, Hoboken, NJ	1			1	✓			Resist
7	245_5	Ankle & Foot Specialists-Hoboken	59 14th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
8	215_1	Applied Housing Management Co.	401 Washington St, Hoboken, NJ		1		1	✓	✓	✓	DSD
9	255_4.01 and 4.02	Avis Parking Garage	1450 Bloomfield St, Hoboken, NJ	1			1	✓	✓	✓	DSD
10	211.01_10	Bagel Express	53 Newark St, Hoboken, NJ	1			1	✓			Resist
11	269_4	Baja Mexican Bar & Grill	104 14th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
12	230_6.01	Bar Method	86 River St, Hoboken, NJ	1			1	✓	✓	✓	Resist
13	210_10	Barnatas Health at Hoboken	59 Washington St, Hoboken, NJ	1			1	✓			Resist
14	6_17	Barsky Gallery	51 Harrison Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
15	57_1	Big Banner	401 Jackson St, Hoboken, NJ	2			2	✓	✓	✓	DSD
16	223_6.02	Biggie's Clam Broth House	36 Newark St, Hoboken, NJ	1			1	✓	✓	✓	Resist
17	248_6	Bim 14 Wine Bar	1314 Washington St, Hoboken, NJ	1			1	✓	✓	✓	DSD
18	81_3.01_C000C	Bistro Des Artistes	720 Monroe St Hoboken, NJ	1			1	✓	✓	✓	DSD
19	231.3_1	Bliss	Chandelier Room, 225 River St, Hoboken, NJ	1			1	✓	✓	✓	Resist
20	114_18	Bow Tie Cinemas	1400 Grand Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
21	231.1_1	Cadillac Cantina	81 River Street Hoboken, NJ	1			1	✓	✓	✓	Resist
22	222_3	Caffé Bene	79 Hudson St, Hoboken, NJ	1			1	✓	✓	✓	Resist
23	122_1	Carpe Diem	1405 Grand St, Hoboken, NJ 07030	1			1	✓	✓	✓	DSD

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BUSINESSES IMPACTED BY BUILD ALTERNATIVES											
#	BLOCK_LOT	NAME OF BUSINESS	ADDRESS	RETAIL	OFFICE	INDUSTRIAL	TOTAL NUMBER OF BUSINESSES	ALTERNATIVES			DSD/RESIST
								1	2	3	
24	262_1	Chart House	Lincoln Harbor Pier D-T, Weehawken, NJ	1			1	✓			Resist
25	223_1.01	Chelsey Realty Inc.	89 Hudson St, Hoboken, NJ		1		1	✓			Resist
26	122_16	Chicken Galore	363 15th St, Hoboken, NJ 07030	1			1	✓	✓	✓	DSD
27	231.2_1	Citi Bank	110 River Street, Hoboken, NJ	1			1	✓	✓	✓	Resist
28	6_17	City Window with Fashions	47 Harrison Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
29	79_1	Classic Cleaners	364 Sixth St, Hoboken, NJ	1			1	✓	✓	✓	DSD
30	79_1	Classic Cleaners	601 Grand Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
31	79_1	Classic Cleaners	364 Sixth St, Hoboken, NJ	1			1	✓	✓	✓	DSD
32	22_1	ClearPoint Interactive	89 Willow Avenue, Hoboken, NJ		1		1	✓			Resist
33	230_11	Coffee Place	2 Newark Street, Hoboken, NJ	1			1	✓	✓	✓	Resist
34	269_9	Cork Wine Spirits	1450 Washington St, Hoboken, NJ	1			1	✓	✓	✓	DSD
35	262_1	Creative Interiors and Designs, LLC	1332 Shipyard Lane, Hoboken, NJ	1			1	✓	✓	✓	Resist
36	231.2_2	Crunch Fitness	110 Sinatra Drive, Hoboken, NJ	1			1	✓	✓	✓	Resist
37	231.2_2	Crunch Fitness	110 Sinatra Drive, Hoboken, NJ	1			1	✓			Resist
38	126_3	CSBK Bank	1470 Garden St, Hoboken, NJ	1			1	✓	✓	✓	DSD
39	120_18	CSC	1458 Adams St, Hoboken, NJ	1			1	✓	✓	✓	DSD
40	225_2	Del Frisco's Grill	221 River St, Hoboken, NJ	1			1	✓			Resist
41	123_15	DEX Logistics Direct Freight	1420 Willow Ave, Hoboken, NJ			1	1	✓	✓	✓	Resist
42	230_1_C0001	Don Dinato Cigars	77 River St #27, Hoboken, NJ	1			1	✓	✓	✓	Resist
43	104_1.01_CX314	Dunkin Donuts	1200 Grand St #4, Hoboken, NJ	1			1	✓	✓	✓	DSD
44	210.01_21	Edwards Hotel	73 Hudson St, Hoboken, NJ	1			1	✓			Resist
45	261_12	Exxon Gas Station	854 Jersey Ave, Jersey City, NJ	1			1		✓		Resist
46	223_1.03	Eye Shoppe of Hoboken	44 Newark St, Hoboken, NJ	1			1	✓	✓	✓	Resist
47	17_1	Fit Lab	550 Observer Hwy, Hoboken, NJ	1			1	✓	✓	✓	DSD

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								1	2	3	
48	6_1	Flores Welders	664 Newark St, Hoboken, NJ			1	1	✓	✓	✓	DSD
49	261.01_1	Frank R. DePaola DDS & Associates, LLC	1130 Maxwell Ln, Hoboken, NJ 07030	1			1	✓	✓	✓	DSD
50	245_10_C02-B	Ganache Café	1500 Hudson St, Hoboken, NJ	1			1	✓			Resist
51	231.4_1	Giannone Wine & Liquor Co.	305 River St, Hoboken, NJ	1			1	✓	✓	✓	Resist
52	245_10_C02-B	GNC	53 14th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
53	222_3	Gogi Grill	79 Hudson St, Hoboken, NJ	1			1	✓	✓	✓	Resist
54	231.3_1	Greek from Greece	223 River Street, Hoboken, NJ	1			1	✓	✓	✓	Resist
55	210.01_24	Green Rock Tap and Grill	70 Hudson St, Hoboken, NJ	1			1	✓			Resist
56	223_6.01	Havana	32 Newark St, Hoboken, NJ	1			1	✓	✓	✓	Resist
57	133_6	Hoboken Brownstone Co.	1520 Willow Ave, Hoboken, NJ 07030		1		1	✓	✓	✓	DSD
58	5_9	Hoboken Business Center (HBC)	50 Harrison Street, Hoboken, NJ		74		74	✓	✓	✓	DSD
59	330_C	Hoboken Motorcycle Club (HMC)	50 Hoboken Avenue, Jersey City, NJ 07310	1			1	✓	✓	✓	Resist
60	231.1_1	Hoboken Office Center	80 River Street Hoboken, NJ		25		25	✓	✓	✓	Resist
61	222_1	Hotel Victor	77 Hudson St, Hoboken, NJ	2			2	✓	✓	✓	Resist
62	231.4_4	House of 'Que	340 Sinatra Dr, Hoboken, NJ	1			1	✓			Resist
63	223_1.01	Hudson Legal Center	86 Hudson Street, Hoboken, NJ		1		1	✓			Resist
64	245_10_C02-A	Hudson Tavern	51 14th St, Hoboken, NJ	1			1	✓	✓	✓	Resist
65	177_17.4_C001L	Investor's Bank	221 2nd Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
66	139_1.02	J.F. Caulfield Association Fields Development Group	1 Henderson Street, Hoboken, NJ		1		1	✓	✓	✓	Resist
67	14_1	Jack's Cabin	9 Paterson Ave, Hoboken, NJ	1			1	✓	✓	✓	DSD
68	245_11.01	Jarets Stuffed Cupcakes	1401 Hudson St, Hoboken, NJ 07030	1			1	✓	✓	✓	Resist
69	30_4.1	Jerry Molloy	123 Jefferson St, Hoboken, NJ 07030	1			1	✓	✓	✓	DSD
70	245_5	Julie's Cleaners	1315 Washington St, Hoboken, NJ	1			1	✓	✓	✓	DSD
71	231.4_1	Kings	325 River St, Hoboken, NJ	1			1	✓	✓	✓	DSD
72	114_1	Ko Ko Fit Club	1320 Adams St, Hoboken, NJ	1			1	✓	✓	✓	DSD

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BUSINESSES IMPACTED BY BUILD ALTERNATIVES											
#	BLOCK_LOT	NAME OF BUSINESS	ADDRESS	RETAIL	OFFICE	INDUSTRIAL	TOTAL NUMBER OF BUSINESSES	ALTERNATIVES			DSD/RESIST
								1	2	3	
73	139_1.02	Kobrick's Coffee Company	693 Henderson Street, Hoboken, NJ	1			1	✓	✓	✓	Resist
74	245_4	Las Olas Sushi Bar and Grill	1319 Washington St, Hoboken, NJ	1			1	✓	✓	✓	DSD
75	230_10	Law Offices	1 Newark Street, Hoboken, NJ		3		3	✓	✓	✓	Resist
76	526_1.A	Liberty Bank	666 Newark Ave, Jersey City, NJ	1			1	✓	✓	✓	DSD
77	104_1.01_CX208	Liberty Gourmet	1100 Adams St # 1, Hoboken, NJ	1			1	✓	✓	✓	DSD
78	231.4_2	Litzky Public Relations Inc.	320 Sinatra Dr, Hoboken, NJ		1		1	✓			Resist
79	248_5	Madison Bar and Grill	1316 Washington St, Hoboken, NJ	1			1	✓	✓	✓	DSD
80	223_6.03	Marciano Dental Group	33 Newark St, Hoboken, NJ	1			1	✓	✓	✓	Resist
81	231.2_1	Marsh and Mc Lennan Companies	121 River St, Hoboken, NJ		1		1	✓	✓	✓	Resist
82	262_1	McLoone's Pier House	1300 Frank Sinatra Dr, Hoboken, NJ 07030	1			1	✓			Resist
83	115_32	Metropolitan Dry Cleaners	364 13th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
84	115_32	Metropolitan Nails	352 13th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
85	122_21	Mile Square Theater	1408 Clinton St, Hoboken, NJ 07030	1			1	✓	✓	✓	DSD
86	723_23	Mobile Studio Company	2 New York Ave, Jersey City, NJ	1			1	✓	✓	✓	DSD
87	12_10	Mola Iron Work	61 Paterson Ave, Hoboken, NJ			1	1	✓	✓	✓	DSD
88	26_20_C02FN	MVP Cleaners & Tailors	133 Jackson St, Hoboken, NJ	1			1	✓	✓	✓	DSD
89	213_7.02	Nail and Spa Salon	213 Washington St, Hoboken, NJ	1			1	✓	✓	✓	Resist
90	231.3_1 and 2	Newell Brands - Pearson	278 Marine View Plaza, Hoboken, NJ (entrance on 221 River St)		4		4	✓	✓	✓	Resist
91	45.01_26	NY Waterway	4800 Avenue at Port Imperial Boulevard, Weehawken, NJ	1			1	✓	✓	✓	Resist
92	10_27	Oak Construction Company	68 Harrison St, Hoboken, NJ			1	1	✓	✓	✓	DSD
93	57_13	Ottomanelli's Liquor	422 Monroe St, Hoboken, NJ	1			1	✓	✓	✓	DSD

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#	BLOCK_LOT	NAME OF BUSINESS	ADDRESS	RETAIL	OFFICE	INDUSTRIAL	TOTAL NUMBER OF BUSINESSES	ALTERNATIVES			DSD/RESIST
								1	2	3	
94	107_1	Parking Garage	513 13th St, Hoboken, NJ	1			1	✓	✓	✓	Resist
95	6_17	Paul Vincent Studios	49 Harrison Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
96	121_14 - 17	Pilsner Haus & Biergarten	1422 Grand St, Hoboken, NJ 07030	1			1	✓	✓	✓	DSD
97	245_9	Planet Sun Tanning Salon	55 14th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
98	269_2	Prime Grocery	112 14th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
99	222_7	Provident Bank	77 River Street, Hoboken, NJ	1			1	✓	✓	✓	Resist
100	91_1.02	Public Storage	410 8th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
101	223_7.02	Reign Hoboken	92 River St, Hoboken, NJ	1			1	✓	✓	✓	Resist
102	116_1.01	Rite Aid	1300 Willow Ave, Hoboken, NJ	1			1	✓	✓	✓	DSD
103	222_4	Riverview Historical Plaza II	33-41 Newark Street, Hoboken, NJ	2			2	✓	✓	✓	Resist
104	210.01_22	S O Gong Dong	72 Hudson St, Hoboken, NJ	1			1	✓			Resist
105	114_1	San Giuseppe Coal Fired Pizza & Cucina	1320 Adams St, Hoboken, NJ	1			1	✓	✓	✓	DSD
106	230_6.01	Santander	86 River St, Hoboken, NJ	1			1	✓	✓	✓	Resist
107	210.01_21	Scotland Yard	73 Hudson St, Hoboken, NJ	1			1	✓			Resist
108	34.03_4	Sheraton Hotel	500 Harbor Blvd, Weehawken, NJ	2			2	✓			Resist
109	198_13.01	Shipco Transport Inc.	80 Washington St, Hoboken, NJ 07030			1	1	✓			Resist
110	34.03_4.01	Shops At Lincoln Harbor	600 Harbor Blvd, Weehawken, NJ 07086	12			12	✓			Resist
111	245_3.01	Silver Nails	1315 Washington St # 1, Hoboken, NJ	1			1	✓	✓	✓	DSD
112	175_2	SP + Parking	35 Park Avenue and Observer Hwy, Hoboken, NJ	1			1	✓			Resist
113	175_1	SP + Parking	77 Park Ave, Hoboken, NJ 07030	1			1	✓			Resist
114	210_1	SP + Parking	1 Washington St, Hoboken, NJ	1			1	✓			Resist
115	229_2	SP + Parking	23-31 Hudson Pl, Hoboken, NJ 07030	1			1	✓			Resist
116	210.01_23	Spa Aura Physical Therapy	71 Hudson St, Hoboken, NJ	1			1	✓			Resist
117	210.01_20	Spa Diner	74 Hudson St, Hoboken, NJ	1			1	✓			Resist

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#	BLOCK_LOT	NAME OF BUSINESS	ADDRESS	RETAIL	OFFICE	INDUSTRIAL	TOTAL NUMBER OF BUSINESSES	ALTERNATIVES			DSD/RESIST
								1	2	3	
118	200_24	Sparrow Wine and Liquors	126 Washington St, Hoboken, NJ	1			1	✓	✓	✓	DSD
119	210_10	Spirit Halloween	59 Washington St, Hoboken, NJ	1			1	✓			Resist
120	210.01_19	Starbucks	51 Newark St, Hoboken, NJ	1			1	✓			Resist
121	244_1.02	Starbucks	1205 Hudson St, Hoboken, NJ	1			1	✓	✓	✓	DSD
122	Block 98 and 94 (Multiple Lots)	Strip Mall	900 Madison St Hoboken, NJ	6			6	✓	✓	✓	DSD
123	231.4_2	Strip Mall	304 Sinatra Dr, Hoboken, NJ	2			2	✓			Resist
124	121_19	Strip Mall	1414 Grand Street, Hoboken, NJ	2			2	✓	✓	✓	DSD
125	68_3	Studio L Dance Co.	505 Madison St, Hoboken, NJ	1			1	✓	✓	✓	DSD
126	210.01_19	Studio Z Hair Salon	80 Hudson St, Hoboken, NJ	1			1	✓			Resist
127	231.2_1	Subway	110 River Street, Hoboken, NJ	1			1	✓	✓	✓	Resist
128	222_4	TD Bank	47 Newark St, Hoboken, NJ	1			1	✓	✓	✓	Resist
129	269_10	TD Bank	60 14th St #68, Hoboken, NJ	1			1	✓	✓	✓	Resist
130	222_4	TD Bank	47 Newark St, Hoboken, NJ	1			1	✓	✓	✓	DSD
131	222_6	Texas Arizona Bar and Grill	76 River Street, Hoboken, NJ	1			1	✓	✓	✓	Resist
132	109_1.01_C0505	The Chique (Tu Chique)	1200 Grand Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
133	223_9	The Dubliner	96 River St, Hoboken, NJ	1			1	✓	✓	✓	Resist
134	269_5	The Hudson Reporter	1400 Washington St, Hoboken, NJ		1		1	✓	✓	✓	DSD
135	269_5	The Hudson Reporter	1400 Washington St, Hoboken, NJ		1		1	✓	✓	✓	DSD
136	130_1	The Poggi Press Printers	1501 Adams St, Hoboken, NJ		1		1	✓	✓	✓	DSD
137	60_24	The Stewed Cow	400 Adams St, Hoboken, NJ	1			1	✓	✓	✓	DSD
138	222_5	Toll Brothers City Living	33 Newark St, Hoboken, NJ	1			1	✓	✓	✓	DSD
139	6_16	Tonal Art Music Center	47B Harrison Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
140	114_1	Tony Baloney's Bus Depot	1320 Adams St, Hoboken, NJ			1	1	✓	✓	✓	DSD
141	263_1	TP News and Café	1420 Frank Sinatra Dr, Hoboken, NJ	1			1	✓	✓	✓	Resist
142	11_3	Triangle Hand Car Wash	711 1st Street, Hoboken, NJ	1			1	✓	✓	✓	DSD

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#	BLOCK_LOT	NAME OF BUSINESS	ADDRESS	RETAIL	OFFICE	INDUSTRIAL	TOTAL NUMBER OF BUSINESSES	ALTERNATIVES			DSD/RESIST
								1	2	3	
143	198_14.01	Uber	74 Washington Street, Hoboken, NJ		1		1	✓			Resist
144	231.4_2	UFC Gym	316 Sinatra Dr, Hoboken, NJ	1			1	✓			Resist
145	231.4_2	Union Hall	306 Sinatra Dr, Hoboken, NJ	1			1	✓			Resist
146	263_1	UPS Store	4 14th St, Hoboken, NJ 07030	1			1	✓	✓	✓	Resist
147	269_12	Uptown Pizzeria	54 14th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
148	269_1	Urban Coal House	116 14th St, Hoboken, NJ 07030	1			1	✓	✓	✓	DSD
149	245_9	US Post Office	57 14th St, Hoboken, NJ	1			1	✓	✓	✓	DSD
150	103_1	Veneta Cucine NJ	1101 Madison St, Hoboken, NJ	1			1	✓	✓	✓	DSD
151	115_1	Vicki Jewelers	1300 Grand Street, Hoboken, NJ	1			1	✓	✓	✓	DSD
152	40.02_4	Vivero Western Live Poultry Market	907 Bergenline Ave, Union City, NJ	1			1	✓	✓	✓	DSD
153	152_3.02	Warehouse	351 8th Street, Hoboken, NJ			1	1	✓	✓	✓	DSD
154	27_20	Warehouse	160 Monroe St, Hoboken, NJ			1	1	✓	✓	✓	DSD
155	139_1.02	Warehouse	4900 Vezzetti Way Hoboken, NJ 07030			1	1	✓			Resist
156	231.2_2	Waterfront Corporate Center	111 River St # 5, Hoboken, NJ		5		5	✓	✓	✓	Resist
157	230_10	Weichert Realtors	1 Newark Street, Hoboken, NJ	1			1	✓	✓	✓	Resist
158	231.1_2	Wells Fargo	95 River St, Hoboken, NJ	1			1	✓	✓	✓	Resist
159	263_1	Wells Fargo	2 14th St, Hoboken, NJ 07030	1			1	✓	✓	✓	Resist
160	231.2_2	Wicked Wolf Tavern	120 Sinatra Dr, Hoboken, NJ	1			1	✓			Resist
161	231.2_1	Wiley Publishing	111 River St, Hoboken, NJ		1		1	✓			Resist
162	217_2	Women's Health Center	609 Washington St, Hoboken, NJ	1			1	✓	✓	✓	DSD
163	168_1.02	Work It Out	603 Willow Ave, Hoboken, NJ	1			1	✓	✓	✓	Resist
Total				154	124	13	291	291	238	235	

