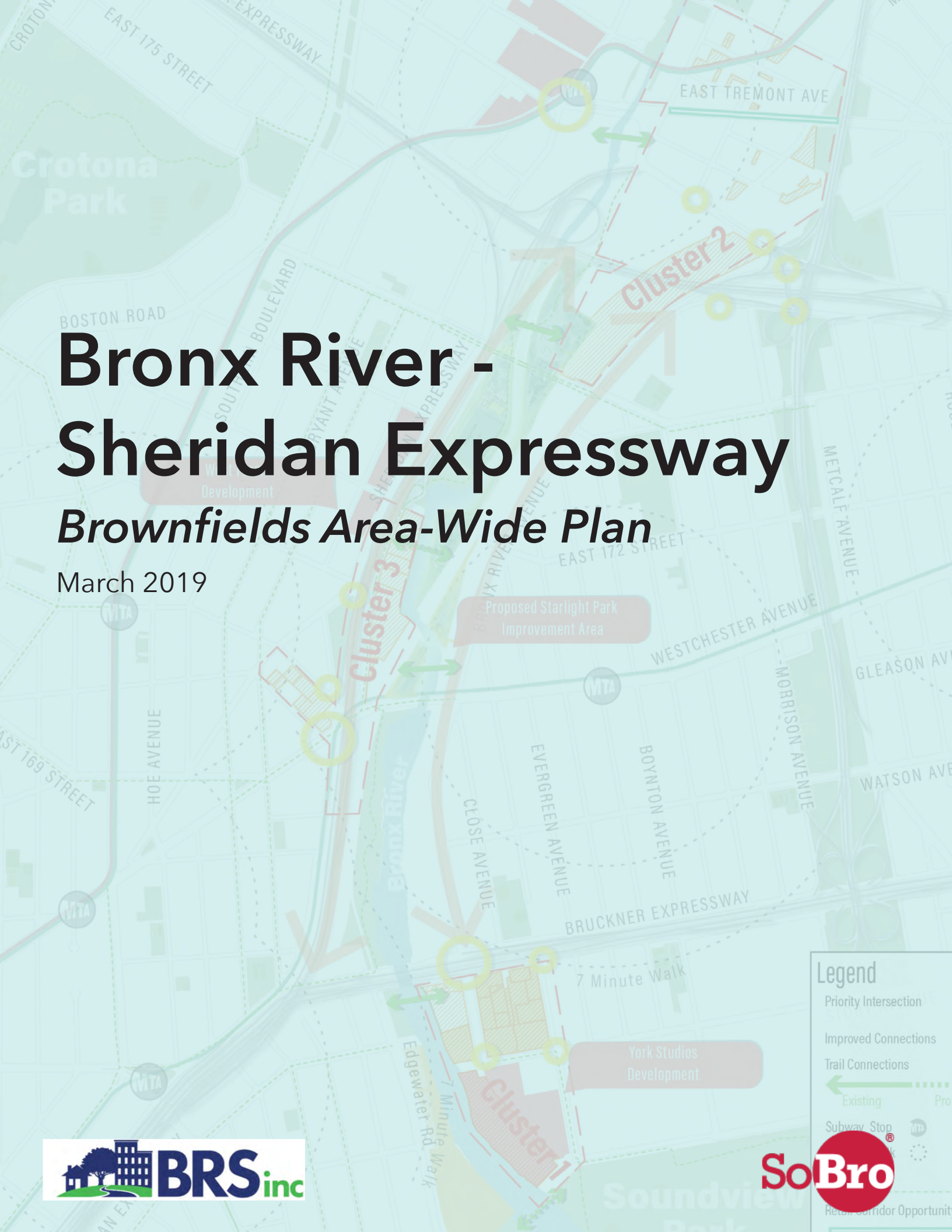

Bronx River - Sheridan Expressway

Brownfields Area-Wide Plan

March 2019

BRS inc

SoBro

The following plan could not have been created without the support and commitment of the following individuals:

THE BRONX COMMUNITY and PROPERTY OWNERS

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CONSULTANTS

Brownfield Redevelopment Solutions, Inc. (BRS, Inc.)
WRT Design

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Bronx River - Sheridan Expressway Plan Area

EXECUTIVE SUMMARY

OVERVIEW

The South Bronx Overall Economic Development Corporation (SoBro) received a $200,000 grant in 2015 to work with local community stakeholders to develop an area-wide plan and redevelopment strategy for brownfield sites along the Bronx River - Sheridan Expressway corridor. This corridor has historically been a hub for industrial businesses, and many sites within the plan area are perceived brownfields. The goal of the grant is to help spur the redevelopment and reuse of brownfield opportunity sites and conduct Phase I environmental assessments of certain strategic sites identified through the planning process.

PLAN AREA

While the Bronx River - Sheridan Expressway corridor is home to many industrial businesses that continue to operate, the area also contains many underutilized or vacant brownfield sites. The majority of the project area is zoned as M1-1 light industrial and C8-1 heavy commercial, with limited residential in Cluster 2. The planning team selected three "clusters" of brownfield properties to form the study area, building off the 2013 "Sheridan-Hunts Point Land Use and Transportation Study" completed by the U.S. Department of Transportation (DOT). The plan also takes into account anticipated changes to the area based on the State's plan announced to transform the Sheridan Expressway into a pedestrian-friendly boulevard and build three new ramps, which was announced in 2017 and began construction in fall 2018.

EXISTING CONDITIONS

According to OneNYC, Mayor De Blasio's Vision Plan released in 2016, the Bronx is expected to experience the largest population increase of all of the city's boroughs with a projected population growth of 14 percent between 2010 and 2040. Current residents are overwhelmingly renters and cost-burdened: in some neighborhoods, nearly half of all households pay more than 35 percent of their income towards housing costs, the primary measure of housing affordability. Other major issues in the area include high unemployment rates, access to well-paying jobs, educational attainment, sea-level rise, and the city's highest rates of diabetes and asthma.

PARTNERS

The planning process was led by SoBro with assistance from the planning firms BRS and WRT, as well as community engagement assistance and general advising provided by Youth Ministries for Peace and Justice (YMPJ) and the NYC Department of City Planning (DCP). The Steering Committee, made up of representatives from local stakeholder groups and government agencies working in the project area, also provided invaluable input throughout the planning process.

DEVELOPMENT SCENARIOS

SoBro and the consultant team proposed a set of development scenarios for nine sites located within Clusters 2 and 3. The scenarios envision the development of multiple 100 percent afforable mixed-use multifamily apartment buildings that would total over 1,110 new units and about 30,000 SF of ground-floor retail. These scenarios assume a zoning change to medium density residential with a commercial overlay. The proposed scenarios also include improved pedestrian routes to neighborhood parks, the waterfront, and greenway; streetscape improvements and enhanced visual connections to the Bronx River; and an enhanced range of uses along the waterfront. (The properties in Cluster 1 were purchased for redevelopment after the Area-Wide Planning process had begun, so the team shifted focus to Clusters 2 and 3.)

ABOUT THE PROJECT

PROJECT OVERVIEW

In 2015, the U.S. Environmental Protection Agency (EPA) awarded a $200,000 grant to the South Bronx Overall Economic Development Corporation (SoBro) to work with the local community and stakeholders in the process of developing an area-wide plan and redevelopment strategy for brownfield sites along the Bronx River - Sheridan Expressway corridor. The goal of the grant is to help spur the redevelopment and reuse of brownfield opportunity sites and conduct Phase I environmental assessments of certain strategic sites identified through the planning process. Another key objective of the grant is the engagement of the local project area community to aid in the consideration of community needs and possible brownfield site cleanup and reuses.

This plan builds on the 2013 "Sheridan-Hunts Point Land Use and Transportation Study," funded by the U.S. Department of Transportation, and proposes a framework for revitalizing two brownfield site clusters on either side of the Bronx River. The environment surrounding the Bronx River has been compromised for decades. Due to historic industrial dumping of waste on the land and directly into the river, contaminated stormwater runoff is a serious concern that not only prevents restoration of the former wetlands environment, but also contaminates areas inland along the river where it is more densely populated. Historic industrial uses, including automotive storage, coolants/refrigerants manufacturing, and hazardous waste generating activities, have led to soil contamination along the Bronx River, the nature and extent to which is unknown without further environmental assessment. This information is needed to establish an appropriate plan for clean-up and reuse of the sites.

Although three clusters of brownfields were included in the original project scope, one of these clusters was purchased for redevelopment after the Area-Wide Planning process had begun, so the project team decided it would be advantageous to shift focus to planning for the remaining two site clusters.

This document provides an overview of the project planning timeline; an analysis of the local demographic, economic and physical contexs; proposed redevelopment scenarios for the sites located within Clusters 2 and 3 of the project area that were driven by the community's vision for the area; a financial feasibility analysis and example proforma for the redevelopment scenarios; and a summary of funding options and next steps to implement the project.

PLAN TIMELINE

Spring 2015

The U.S. EPA awarded SoBro a $200,000 Brownfield Area-Wide Planning grant. SoBro and NYC City Planning staff began gathering information on the project area and developed the RFP to engage a qualified environmental consulting firm to carry out the technical analysis and design aspects of the planning process.

May 2015
SoBro, Youth Ministries for Peace and Justice (YMPJ), a local Bronx-based community organization, and NYC City Planning form a partnership to lead the community engagement aspect of the planning process. This team conducts background and historical research on the project area and begins organizing the project steering committee.

January 2016
The project team led a visioning session during Community Board 9's meeting held on January 26th. During this session, the NYC Department of City Planning provided information and background on the Area-Wide Planning process and gathered feedback from stakeholders, mostly made up of area residents, on possible redevelopment scenarios for the three site clusters.

Maps highlighting the potential brownfield sites were developed and the public was asked to provide feedback and share their concerns regarding each of the three site clusters. Summaries of the feedback collected during this session can be found on the following pages.

March 2016
A meeting with Lafayette Estates, a coop community of eight 19-story buildings located in the Soundview neighborhood, was organized on March 31st to inform residents of the plan and garner additional community feedback.

July 2016
BRS, Inc. was awarded the contract for planning and environmental services.

September 2016
The first meeting of the Brownfield Area-Wide Plan Steering Committee was held on September 28, 2016. The scope of the grant activities, as well as the project timeline and important milestones, were presented to the steering committee. The SoBro project team and consultants also provided an overview of existing conditions of the project area, discussed strategic site selection, and plans for community outreach.

December 2016
Residents, workers, and other stakeholders located within the boundaries of the three site clusters were invited to another visioning session held at Youth Ministries for Peace and Justice offices. The meeting was predominantly attended by teenagers employed by YMPJ. BRS, Inc. presented the findings of the background and existing conditions reports, which was followed by a discussion of the potential redevelopment scenarios for the project sites and a brief mapping activity.

The input attendees provided during this session was incorporated into the summary maps below.

March 2018
The project team led a visioning session focused on Cluster 2 during Community Board 6's meeting on March 7th. During this session, the NYC Department of City Planning and SoBro provided participants with background on the planning process to date before participants were invited to provide input on their visions for the area for Cluster 2.

Questions regarding the community's perceptions of the neighborhood, including the mix of uses, quality of buildings, transportation, housing, retail/entertainment, and jobs were asked. They were also asked open-ended questions about what they like and what they miss about their neighborhood.

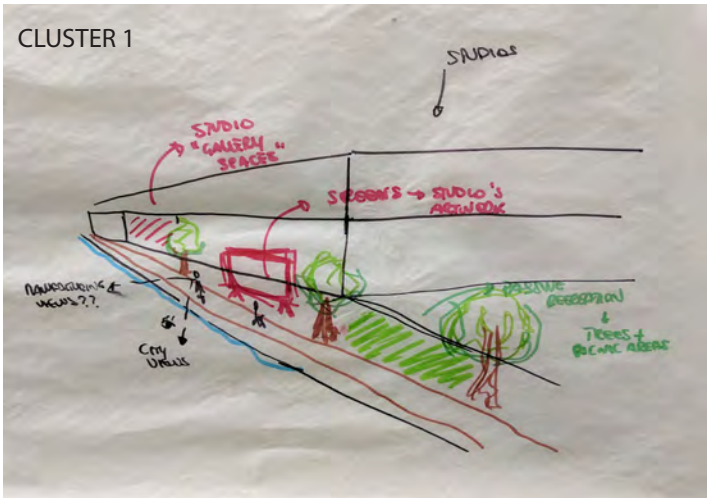
Later in March, the steering committee met to discuss the cumulative feedback of the public visioning sessions, review the critieria for selecting the strategic sites for the environmental assessments, and settle on the nine catalytic sites based on this criteria and the public feedback.

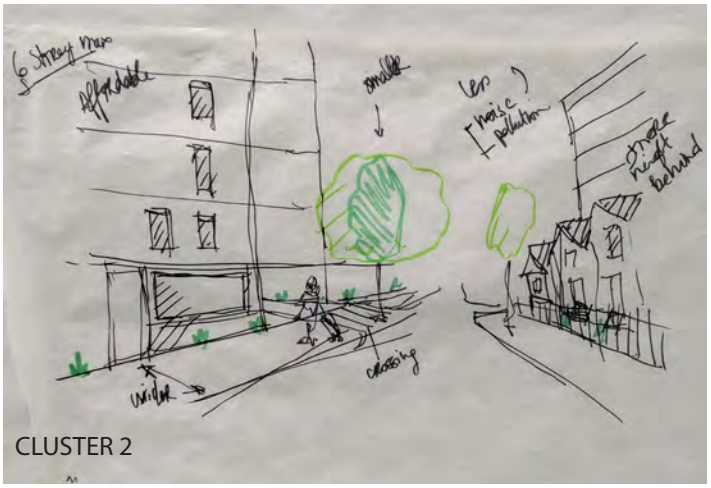
October 2018

The steering committee met to review plan updates, including the development scenarios, the status of the environmental site assessments, and steps moving forward after completion of the grant activities.

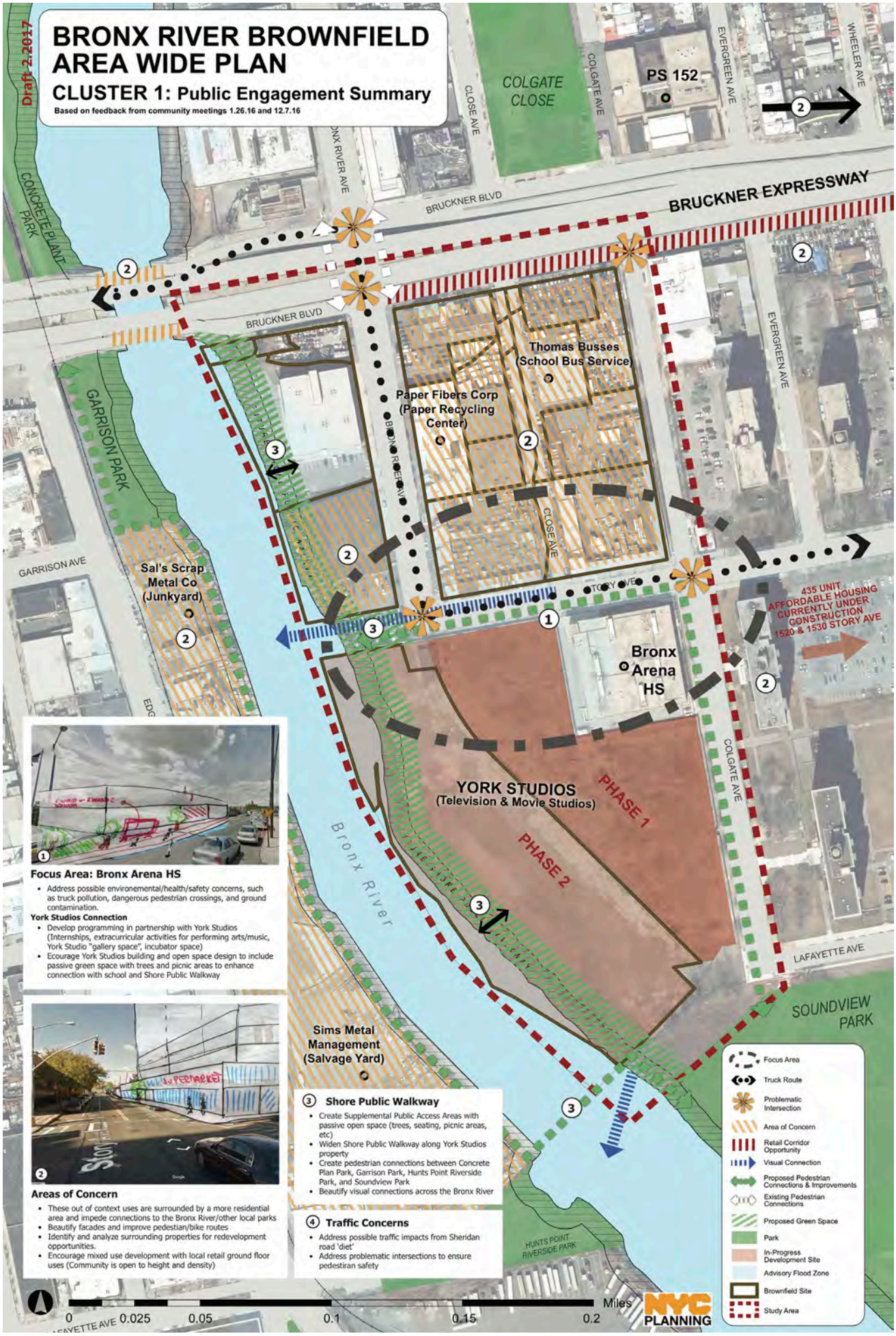
February 2019

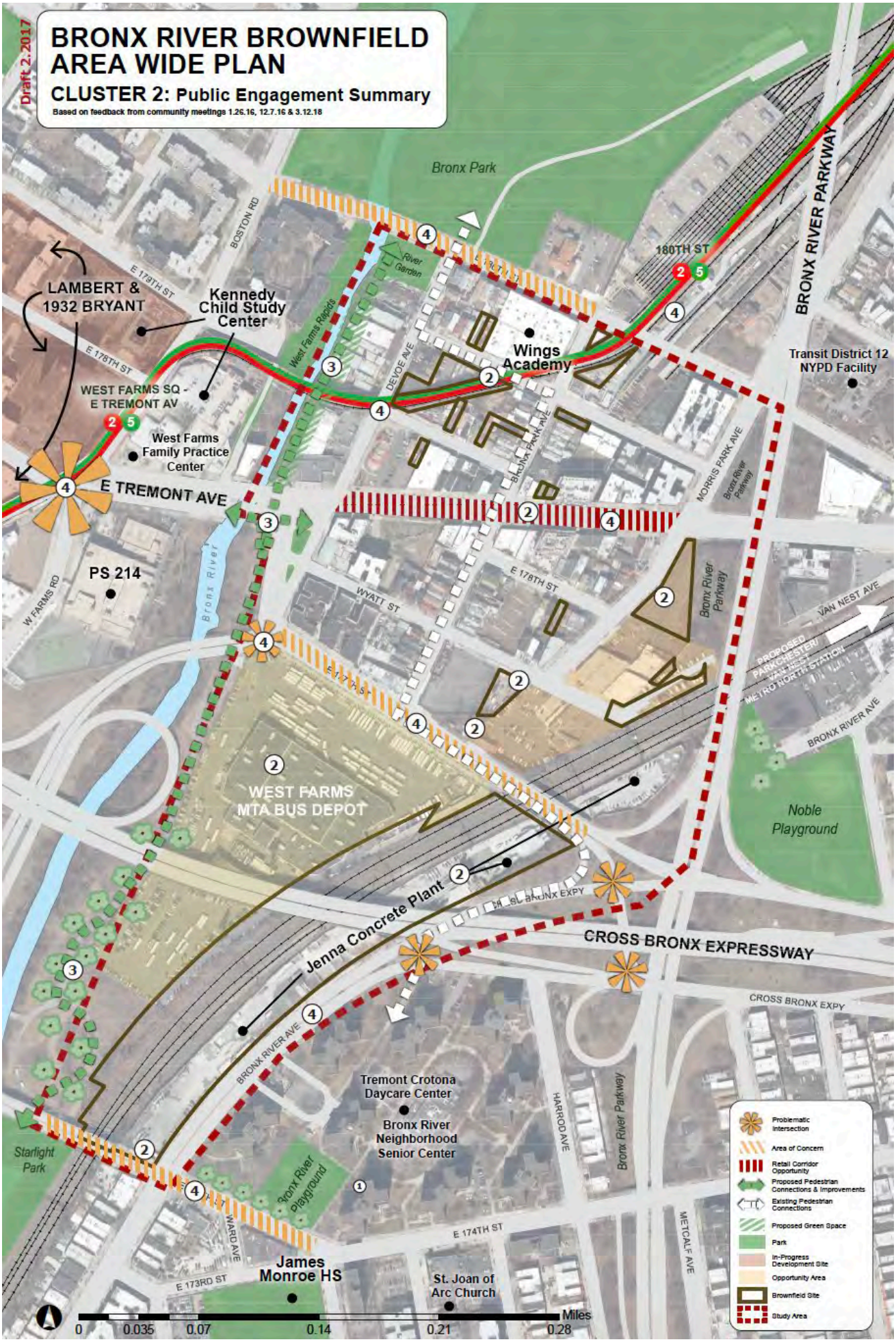
The Phase I environmental site assessments and Assessments of Brownfield Cleanup Alternatives were completed, and the Area-Wide Planning process was closed out.





Project visioning sketches created by stakeholders who participated in the public sessions. The maps on the following pages summarize the community's input during the January and December 2016 visioning meetings.


BRONX RIVER BROWNFIELD AREA WIDE PLAN
CLUSTER 1: Public Engagement Summary
Based on feedback from community meetings 1.26.16 and 12.7.16
Draft 2.2017
BRUCKNER EXPRESSWAY
BRUCKNER BLVD
COLGATE CLOSE
PS 152
EVERGREEN AVE
WHEELER AVE
CLOSE AVE
COLGATE AVE
CONCRETE PLANT PARK
GARRISON PARK
GARRISON AVE
Thomas Busses (School Bus Service)
Paper Fibers Corp (Paper Recycling Center)
Sal's Scrap Metal Co (Junkyard)
435 UNIT AFFORDABLE HOUSING CURRENTLY UNDER CONSTRUCTION 1520 & 1530 STORY AVE
Bronx Arena HS
YORK STUDIOS (Television & Movie Studios)
PHASE 1
PHASE 2
Bronx River
LAFAYETTE AVE
SOUNDVIEW PARK
Sims Metal Management (Salvage Yard)
HUNTS POINT RIVERSIDE PARK
Focus Area: Bronx Arena HS
Address possible environemental/health/safety concerns, such as truck pollution, dangerous pedestrian crossings, and ground contamination.
York Studios Connection
Develop programming in partnership with York Studios (Internships, extracurricular activities for performing arts/music, York Studio "gallery space", incubator space)
Ecourage York Studios building and open space design to include passive green space with trees and picnic areas to enhance connection with school and Shore Public Walkway
Areas of Concern
These out of context uses are surrounded by a more residential area and impede connections to the Bronx River/other local parks
Beautify facades and improve pedestian/bike routes
Identify and analyze surrounding properties for redevelopment opportunities.
Encourage mixed use development with local retail ground floor uses (Community is open to height and density)
3 Shore Public Walkway
Create Supplemental Public Access Areas with passive open space (trees, seating, picnic areas, etc)
Widen Shore Public Walkway along York Studios property
Create pedestrian connections between Concrete Plan Park, Garrison Park, Hunts Point Riverside Park, and Soundview Park
Beautify visual connections across the Bronx River
4 Traffic Concerns
Address possible traffic impacts from Sheridan road 'diet'
Address problematic intersections to ensure pedestiran safety
Focus Area
Truck Route
Problematic Intersection
Area of Concern
Retail Corridor Opportunity
Visual Connection
Proposed Pedestrian Connections & Improvements
Existing Pedestrian Connections
Proposed Green Space
Park
In-Progress Development Site
Advisory Flood Zone
Brownfield Site
Study Area
0 0.025 0.05 0.1 0.15 0.2 Miles
NYC PLANNING


Draft_2.2017
BRONX RIVER BROWNFIELD AREA WIDE PLAN
CLUSTER 2: Public Engagement Summary
Based on feedback from community meetings 1.26.16, 12.7.16 & 3.12.18
Bronx Park
BOSTON RD
E 178TH ST
LAMBERT & 1932 BRYANT
Kennedy Child Study Center
West Farms Rapids
River Garden
DEVOE AVE
Wings Academy
180TH ST
BRONX RIVER PARKWAY
Transit District 12 NYPD Facility
WEST FARMS SQ - E TREMONT AV
West Farms Family Practice Center
E TREMONT AVE
Bronx River
PS 214
W FARMS RD
WYATT ST
E 177TH ST
Bronx River Parkway
MORRIS PARK AVE
VAN NEST AVE
PROPOSED PARKCHESTER/ VAN NEST METRO NORTH STATION
BRONX RIVER AVE
WEST FARMS MTA BUS DEPOT
Noble Playground
Jenna Concrete Plant
CROSS BRONX EXPRESSWAY
CROSS BRONX EXPY
Tremont Crotona Daycare Center
Bronx River Neighborhood Senior Center
HARROD AVE
METCALF AVE
Starlight Park
Bronx River Playground
WARD AVE
E 174TH ST
E 173RD ST
James Monroe HS
St. Joan of Arc Church
Problematic Intersection
Area of Concern
Retail Corridor Opportunity
Proposed Pedestrian Connections & Improvements
Existing Pedestrian Connections
Proposed Green Space
Park
In-Progress Development Site
Opportunity Area
Brownfield Site
Study Area
0 0.035 0.07 0.14 0.21 0.28 Miles

CLUSTER 2 PUBLIC ENGAGEMENT SUMMARY MAP KEY

① Green Infrastructure and Open Space

- Green infrastructure and permeable surfaces to prevent sewer overflow and run-off into Bronx River
- Community gardening and farming along Bronx River, in Bronx Park and on other NYC property
- Green space with native plantings

③ Pedestrian Connections

- Pedestrian connections are needed from Tremont Avenue to the Shore Public Walkway and other local parks
- Extend Shore Public Walkway connecting Tremont Avenue and River Garden/Bronx Park
- Increase trees and greenery along Shore Public Walkway and other local parks
- Finish Greenway Bike Path plan

④ Areas of Concern

- Pedestrian improvements (lighting, sidewalk improvements) are needed surrounding local parks, at bus and subway stops, and along pedestrian connections, especially along Tremont Ave
- Attract more pedestrian activity along the southern border of Bronx Park
- Address problematic intersections to ensure pedestrian safety
- Address noise/traffic pollution and improve sitting areas around the very native area of West Farms Road/Tremont Avenue station
- Address unsafe intersection to get to entrance of Starlight Park, Greenway, and Bronx River on E 177th St and Devoe Ave, partially due to MTA Depot vehicles blocking right lane traffic lane

② Focus Areas:

Wyatt Street and Morris Park

- Open to height (6 story max) and low-density
- Affordable housing
- YMCA or healthy supermarket
- Improve Public Space Around Sites
  - Wider sidewalks
  - Smaller trees and greenery like living walls
  - Less noise and pollution
  - Develop park, playground, or skate-park

MTA Bus Depot

- Explore uses for MTA Bus Depot site or edges (park or recreation space) in connection with Shore Public Walkway and Greenway (bicycle storage and zero waste emissions vehicles)

Jenna Concrete Plant

- Explore ways to improve pedestrian access and beautify pathways to north of study area

E 177th Street

- Explore ways to improve pedestrian experience leading to Starlight Park, Greenway, and Bronx River entrance on E 177th St. and Devoe Ave, especially lighting and trees
- Explore redevelopment of parking lots with educational facilities, senior center, or farmers market.

E Tremont Avenue

- Explore redevelopment for commercial uses (especially self storage): sit-down restaurants, healthy fast causal restaurants or delis, where people want to stay and linger; bank (credit union)
- Avoid more self storage development (already clustering in area on 180th, Tremont, and 174th)

Lebanon Street & Bronx Park Avenue/Wings Academy

- Explore development and programming under and adjacent to the elevated train: green space with food activities, food trucks, market, community dance activities, restaurants, YMCA
- Explore site connection to Greenway Bike Path and Bronx River
- Improve lighting on Bronx Park Ave and Lebanon St

Morris Park Avenue

- Explore redevelopment for Community Facility and commercial use: grocery store with healthy alternatives, gym, YMCA, school, hospital/24 hr clinic
- Improve public space around site with lighting, trees, green space, playground

E 174th & Bronx River Ave

- Explore redevelopment for mixed-use commercial and residential at intersection: grocery and sit-down restaurants
- Improve lighting, pedestrian access and wayfinding into Starlight Park

(Note: Because there was an additional public engagement meeting for Cluster 2 in March 2018, this cluster received more community feedback compared to the other two clusters.)


Draft 2.2017
BRONX RIVER BROWNFIELD AREA WIDE PLAN
CLUSTER 3: Public Engagement Summary
Based on feedback from community meetings 1.26.16 and 12.7.16
Union Grove Missionary Baptist Church
WEST FARMS
SHERIDAN EXPRESSWAY
STARLIGHT PARK
VYSE AVE
BRYANT AVE
LONGFELLOW AVE
BOONE AVE
PS 66
Fannie Lou Hammer HS
JENNINGS ST
PS 811
FUTURE SHORE PUBLIC WALKWAY
AMTRAK
E 172ND ST
BRONX RIVER AVE
COLGATE AVE
EVERGREEN AVE
Freeman Family Residence
FREEMAN ST
W FARMS RD
DANIEL BOONE PLAYGROUND
FREEMAN TRIANGLE
HOME ST
New Day Family Residence
WESTCHESTER AVE
E 167TH ST
BRYANT TRIANGLE
WHITLOCK AV STATION
CONCRETE PLANT PARK
Bronx River
LOWELL ST
WHITLOCK AVE
Focus Area
Problematic Intersection
Area of Concern
Visual Connection
Proposed Pedestrian Connections & Improvements
Existing Pedestrian Connections
Proposed Green Space
Park
In-Progress Development Site
Advisory Flood Zone
Brownfield Site
Study Area
NYC PLANNING
0 0.035 0.07 0.14 0.21 0.28 Miles
Upland Connection
ADA accessibility and stair railings
Schools connection to waterfront (students currently test water for science class)
Supplemental Public Access Area
Active uses programmed by adjacent building
Mixed use Building with Ground Level Uses
Library
Rec Center looking out to Bronx River
Shore Public Walkway
Mix of active (workout stations, dock for kayaking/canoeing) and passive uses (natural landscape)
115'
Focus Area: Sheridan/Bronx River Connection
Mixed Use Residential on West Side of Sheridan
Ground floor use recommendations: restaurants, clothing stores
Development should relate to in-progress development
Focus Area: Freeman and Home St.
Explore mised use development, especially if Sheridan Boulevard Project moves forward
Pedestrian Connections
Create accessibile and quality connections to Shore Public Walkway north and south of Westchester Avenue
Improve access to Startlight Park, especially from Fannie Lou Hammer High School
Areas of Concern
Suggested active uses (basketball courts, playground) due to Residents concern that empty/isolated space will attract unwanted or dangerous activity
Explore possibility to develop land for restaurant, retail, community facility, and/or affordable housing
Address illigal parking on service roads from surrounding auto uses
Address problematic intersections to ensure pedestiran safety

SUMMARY OF PUBLIC ENGAGEMENT

The public engagement meetings elicited unique visions for each cluster, but there were common needs and desires shared by stakeholders in all three clusters. In all clusters, meeting participants agreed there is a need for more affordable housing, as well as safer, more accessible pedestrian crossings at major intersections. The community also expressed a desire for better pedestrian connections to open spaces and bike routes in all clusters. Community members want additional community spaces and designated recreational space, as well as more sit-down restaurants, ground-floor retail, and grocery stores offering healthy options.

Below is a summary of the cluster-specific community recommendations:

CLUSTER 1:
- Improve dangerous pedestrian connections and improve access to the Bronx River.
- Investigate saftey concerns related to Bronx Arena High School, including potential ground contamination, pedestrian connections, and pollution. Explore a partnership between the high school and York Studios to facilitate training and internship opportunities.
- Need for more mixed-use housing developments with local ground floor retail (the community is open to increased height and density).
- Improve pedestrian connections to sites around the proposed shore public walkway. Create bike routes.
- Explore opportunities to redevelop properties throughout the area.
- Beautify existing building facades and open spaces, and add more trees and better amenities, such as picnic areas and seating.
- Investigate traffic impacts of narrowing the Sheridan Expressway.

CLUSTER 2:
- Combat noise pollution, create more public and green spaces.
- Improve the overall pedestrian experience throughout the area through with lighting, wider sidewalks, reduced noise pollution, better wayfinding, and improved seating areas.
- More opportunities for active recreation (basketball court, bike paths)
- Develop green infrastructure and permeable surfaces (native plantings, spaces for community gardens).
- Create additional community space, as well as a YMCA or gym.

CLUSTER 3:
- Improve pedestrian safety (especially from Fannie Lou Hammer High School) and ADA accessibility at major intersections.
- Create additional spaces for active recreation along the shore public walkway (basketball courts, workout stations, playgrounds) and passive spaces to enjoy the natural landscape.
- Develop recreational programming adjacent to the new developments.
- Create mixed-use affordable housing developments with local groundfloor retail (clothing), restaurants, and possible community space (library, rec center).
- Address illegal parking due to the large number of auto shops in the area.

EXISTING CONDITIONS

DEMOGRAPHIC INFORMATION

The Bronx River - Sheridan Expressway Corridor Brownfield Area-Wide Plan (BF AWP) area consists of several neighborhoods in the South Bronx section of New York City, including Soundview, West Farms, Longwood, Claremont and Hunts Point. Together, these neighborhoods are home to approximately 157,708 people, according to estimates from the 2013 American Community Survey on Neighborhood Tabulation Areas. In addition, OneNYC, Mayor De Blasio's Vision Plan released in 2016, states that the Bronx is expected to experience the largest population increase of all of the city's Boroughs, with a projected population growth of 14 percent between 2010 and 2040.

The majority of plan area residents identify as Hispanic or Latino, with the second largest group of residents identifying as Black (20-40 percent, depending on the neighborhood). A large number of both of these resident populations are foreign-born, with many plan area residents originating from Africa, Central and South America, and the Caribbean. In fact, according to information from the U.S. Census Bureau, the largest countries of origin represented in the plan area are the Dominican Republic, Puerto Rico, Mexico, Honduras, Guyana, Jamaica and Ghana. Relatedly, nearly two-thirds of area residents speak a language other than English at home, a majority of whom speak either Spanish or Spanish Creole.

Residents of these neighborhoods struggle with low levels of educational and economic attainment. Less than 10 percent of area residents have obtained a college degree, compared to nearly a third of residents in New York City as a whole, and less than three-quarters have obtained a high school diploma or equivalency. Residents are overwhelmingly renters and cost-burdened: in some neighborhoods, nearly half of all households pay more than 35 percent of their income towards housing costs, the primary measure of housing affordability. The city's already high cost of living is increasing, and there is a severe lack of affordable housing. Median household income is roughly half of New York City as a whole, and approximately half of plan area residents receive SNAP/Food Stamp benefits, according to economic data from the 2013 American Community Survey.

LAND USE AND ZONING

Despite its many challenges, the planning area has significant assets and redevelopment potential, including the following:

- a strategic location at the intersection of the City's major transportation routes;
- a major industrial park and employment generator, Hunts Point;
- newly reconstructed parks and the potential for additional recreational programming along the Bronx River; and
- multiple long-standing community development organizations, including the South Bronx Overall Economic Development Corporation (SoBro), Youth Ministries for Peace and Justice (YMPJ) and the Bronx River Alliance.

These neighborhoods have also benefitted from being the subject of extensive planning studies over the past ten (10) years, ranging from the city-wide One New York (OneNYC) Vision Plan and Vision 2020 Waterfront Plan, to neighborhood-level plans and redevelopment reports, such as the Sheridan Expressway Hunts Point Land Use and Transportation Study. These are described in greater detail throughout this report.

LAND USES

The Bronx River – Sheridan Expressway corridor is characterized by a great diversity in land uses operating in close proximity to one another. The project area includes residential, commercial, and industrial uses, as well as public facilities like parks, schools, government offices, and institutional uses.

With the proposed Sheridan Expressway project described in greater detail below, the project area could receive an additional 325,000 square feet of developable waterfront to support a wide variety of uses, and the City's comprehensive waterfront plan, "Vision 2020," recommends that the City utilize newly available waterfront land to meet the community's needs for new housing and jobs for people of diverse income levels.

ZONING

Reflecting the diversity of land uses within the Bronx River – Sheridan Expressway Corridor, the zoning classifications in the project area are a mix of residential, commercial, industrial and special purpose districts. However, the brownfield sites identified within the project area are all zoned M1-1, with a single site, the MTA property in West Farms, being zoned C8-1. These zones are described in greater detail as follows:

M1-1

The M1-1 district permits light industrial uses, such as woodworking shops, repair shops, and wholesale service and storage facilities that must meet stringent performance standards. Offices, hotels and most retail uses are also permitted. Certain community facilities, such as hospitals, are allowed in this district only by special permit, but houses of worship are allowed as-of-right.

The M1-1 district is also subject to parking requirements based on the type of use and size of an establishment. For example, according to the NYC Department of Planning, a warehouse in an M1-1 district requires one off-street parking space per 2,000 square feet of floor area or per every three employees, whichever would be less. The floor area ratio (or FAR) in the M1-1 district is 1.0.

Finally, it is important to note that the M1-1 district serves as a buffer between adjacent residential or commercial uses and more intensive manufacturing or industrial uses (such as in the M2 and M3 zones). This is consistent with the diverse land uses in the project area, where residential and commercial uses coexist in close proximity to industrial uses.

C8 -1

The C8-1 district is the most intensive commercial district, intending to bridge commercial and manufacturing uses, and provide for automotive and other heavy commercial services that often require large amounts of land. Typical uses are automobile showrooms and repair shops, warehouses, gas stations and car washes—although all commercial uses as well as certain community facilities are permitted in this district. It is important to note that residential uses are not permitted in the C8-1 zoning district. Like the M1-1 district, the floor area ratio (FAR) is 1.0 and off-street parking is required. (New York City, Department of City Planning)

It is important to note that several of the plans and studies reviewed suggest further investigation of re-zoning some industrial parcels within the plan area. Zoning maps for the project area are shown on the following page.

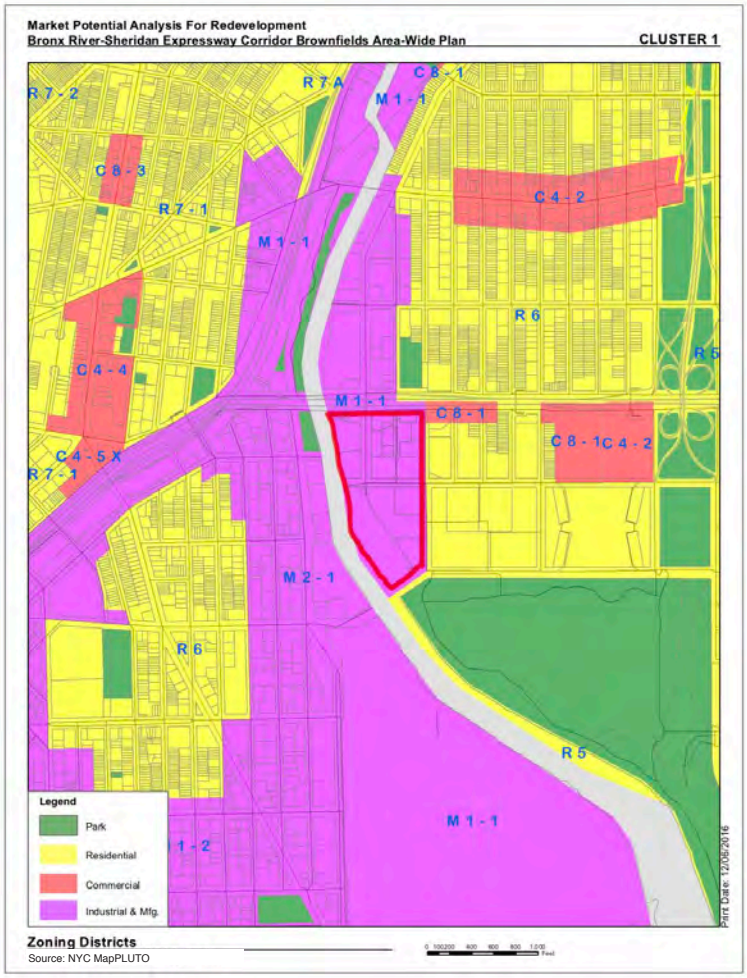
RECENT RE-ZONINGS

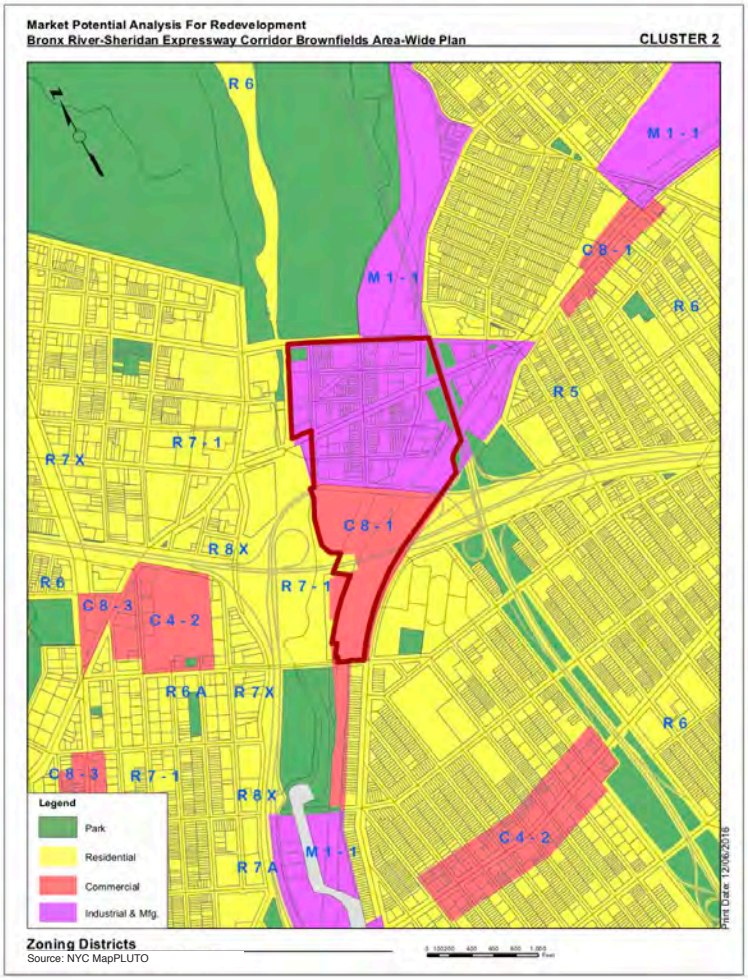
Several of the plans and studies reviewed suggest further investigation of re-zoning some industrial parcels within the plan area. For example, in 2011, City Council approved the re-zoning of an 11-block area in the Crotona Park/West Farms area immediately west of Cluster 3.

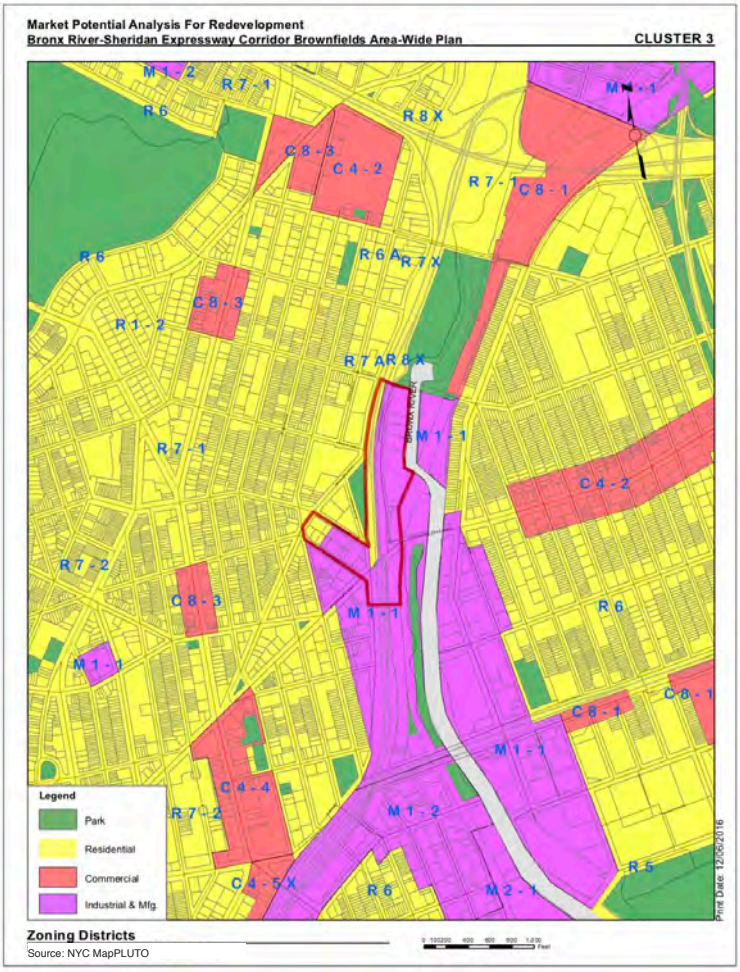
The area was primarily zoned as an M1-1 manufacturing district, and was rezoned to a range of medium- to high-density (R6A, R7A, R7X and R8X) residential districts with selected C2-4 commercial overlays. In addition, the area became an Inclusionary Housing Designated Area, which allows an increase in maximum residential FAR in exchange for providing affordable housing within the Community District or within 1⁄2-mile of the site receiving the density bonus.

The purpose of this re-zoning was to facilitate redevelopment of underutilized former industrial properties into mixed-use with affordable housing, commercial and community uses consistent with the vision of the surrounding communities. The total proposed redevelopment project consists of ten new buildings, containing up to 1,295,765 sf of residential use (1,325 dwelling units), 46,033 sf of local retail/service uses and 11,888 sf of daycare or other community facility use, as well as off-street accessory parking for approximately 332 vehicles.

In November 2016, the first new developments of the West Farms and Crotona Park East neighborhood were completed under the new zoning -- two new properties called Compass Residences developed by Signature Urban Properties located at 1490 and 1500 Boone Avenue. The buildings are nine stories and fifteen stories respectively and hold a combined 237 mixed-income units. The property includes 4,392 square feet of retail space, 71 parking spaces, a shared courtyard and a public plaza. Two additional buildings have been completed and fully leased since then, holding a combined 234 units, and a fifth is slated for occupancy by December 2018. According to the developers, these buildings represent the completion of the first three phases in a six-phase plan to develop a full 11 blocks of affordable housing, retail, and community facilities. The School Construction Authority is also planning construction of an elementary school across the street from Compass Residences 2B.


Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan
CLUSTER 1
R7-2
R7A
C8-1
M1-1
C8-3
C4-2
R7-1
M1-1
R6
R5
C4-4
M1-1
C8-1
C8-1C4-2
C4-5X
R7-1
M2-1
R6
R5
M1-1
Legend
Park
Residential
Commercial
Industrial & Mfg.
Zoning Districts
Source: NYC MapPLUTO
Print Date: 12/06/2016


Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan
CLUSTER 2
R6
M1-1
M1-1
C8-1
R6
R5
R7-1
R7X
C8-1
R8X
R6
C8-3
C4-2
R7-1
R6A
R7X
R6
C8-3
R7-1
R8X
M1-1
C4-2
R7A
Legend
Park
Residential
Commercial
Industrial & Mfg.
Zoning Districts
Source: NYC MapPLUTO
Print Date: 12/06/2016


Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan
CLUSTER 3
M1-2
R7-1
M1-1
R6
R8X
C8-3
C4-2
R7-1
C8-1
R6
R6A
R7X
C8-3
R1-2
R7AR8X
M1-1
R7-1
C4-2
R7-2
C8-3
M1-1
R6
M1-1
C8-1
C8-1
M1-1
C4-4
R7-2
M1-2
R5
C4-5X
R6
M2-1
Legend
Park
Residential
Commercial
Industrial & Mfg.
Zoning Districts
Source: NYC MapPLUTO
Print Date: 12/06/2016

INFRASTRUCTURE

According to the Mayor's Vision Plan, OneNYC, the city's infrastructure, including the transportation and utility networks, is aging and public investment has not kept pace with capital investment needs. In addition, the city's infrastructure, particularly water lines, sewer lines and the subway system, is vulnerable to the impacts of climate change, such as flooding. This is especially true in the BF AWP project area, where there are three subway lines, many bus routes, and the majority of residents use public transit to commute to work. The project area is also home to an MTA bus depot and the Amtrak/Metro North commuter line.

It is also important to consider "green infrastructure," such as natural areas that absorb stormwater and GreenStreets, which are formerly impermeable (paved) surfaces that have been converted into permeable green landscapes. According to OneNYC, the City has committed to funding the Green Infrastructure Grant program and providing incentives for property owners to install green infrastructure through programs like the Park Lot Stormwater Pilot Program, the stormwater discharge fee, and the Green Roof Tax Abatement program.

Finally, area infrastructure improvements, including green infrastructure, are recommended as part of the Sheridan Expressway Project, discussed in greater detail below. The Sheridan – Hunts Point Land Use and Transportation Study identifies the following infrastructure investments:

- Improved transit access
- Refurbished elevated lines and stations
- Select Bus Service
- Pedestrian plazas near stations
- GreenStreets and green infrastructure
- Curb and sidewalk extensions
- New signals and pedestrian crossings
- New bike paths
- Streetscaping
- Plantings
- Street trees
- New lighting
- Signage and wayfinding

This Study also affirms that future planning and design should identify opportunities to implement stormwater management best practices in areas where shallow bedrock levels limit the potential for below-grade stormwater detention and filtration.

SHERIDAN EXPRESSWAY PROJECT

The most significant planned infrastructure investment in the project area is the planned reconfiguration of the Bruckner-Sheridan interchange and the Sheridan Expressway. The Sheridan Expressway, also known as Interstate 895, is a 1.25 mile highway constructed in 1963 that was supposed to serve as a link between the Bruckner Expressway (I-278) and the Cross

Bronx Expressway (I-95). According to the Sheridan-Hunts Point Land Use and Transportation Study, traffic on the expressway operates below 50 percent capacity during peak rush hour.

Currently, the half mile at-grade portion of the Sheridan Expressway blocks east-west connections for local business and residents, and restricts access to both Starlight Park and the Bronx River Waterfront. In addition, the Sheridan Expressway restricts street activity, causes traffic congestion in surrounding communities, and endangers pedestrians at major intersections (Sheridan–Hunts Point Land Use and Transportation Study).

In March 2017, the State announced a plan to transform the Sheridan Expressway into a pedestrian-friendly boulevard, which incorporates many of the design recommendations included in the DOT's Land Use and Transportation Study. The State's plan includes the creation of flyover ramps to connect the Sheridan Boulevard and Bruckner Expressway to Edgewater Road, creating a direct link to the Hunts Point Produce Market. According to the State, this will remove heavy traffic and idling trucks from local roads and reduce travel time by about 5 minutes. Other strategies to "boulevardize" the Expressway include adding wide medians, landscaping, and decorative lighting, as well as at-grade crossings to facilitate better access to Starlight Park and the Bronx River Waterfront (NYSDOT, Sheridan Boulevard Plan). Construction is expected to be completed in 2019.

WHITLOCK/WESTCHESTER INTERSECTION

Westchester Avenue, between Whitlock and Bronx River Avenues, sits at the relative center of the City's Sheridan – Hunts Point Land Use and Transportation Study Area, and in Cluster 3 of the Bronx River – Sheridan Expressway Brownfield Area-Wide Plan boundaries. The intersection of Whitlock and Westchester has one subway stop, two rail lines, two expressway exits, two waterfront parks, and the Sheridan Expressway below grade. Because of the numerous infrastructure crossings, the intersection is both confusing and unwelcoming; however, it also presents an opportunity for neighborhood transformation. The City's Sheridan – Hunts Point Land Use Study recommends the following infrastructure improvements for the Whitlock/Westchester intersection.

1. Close the Sheridan Expressway southbound off-ramp to Whitlock Avenue and Westchester Avenue.
2. Make Boone one-way, and add curb extensions to allow for a sidewalk on the eastern side of Whitlock Avenue.
3. Explore closure of the Sheridan Expressway northbound off-ramp to Westchester Avenue.
4. Work with Amtrak to reuse the old rail station at Westchester Avenue or the existing platform to provide access to Concrete Plant Park.
5. Make crossing Westchester Avenue significantly safer and easier through improvements to the pedestrian real, including new crossings, bike lanes, markings and signage.
6. Complete design and cost analysis for decking at Westchester Avenue over portions of the Sheridan Expressway and/or Amtrak line, including reuse of the old station.

HOUSING

As noted above, most plan area residents are renters, and the majority are cost-burdened, meaning they pay more than 30 percent of their income towards housing costs. Even though over 4,600 new units of affordable housing have been created in the project area in the past twenty years, there is still an urgent need to create additional affordable housing opportunities to alleviate the number of cost-burdened households, as well as a desire to increase the diversity of housing types and tenures.

The Mayor's Vision Plan supports several initiatives that could begin to address this need, and could be integrated into the Bronx River – Sheridan Expressway Brownfield Area-Wide Plan. Specifically, the City proposes both the "New Infill Homeownership Opportunities program (NIHOP)," to create mixed-income communities with affordable homeownership opportunities for moderate-income households, and the "Neighborhood Construction Program (NCP)," which aggregates sites to develop affordable housing in order to achieve economies of scale in the development of rental housing on scattered infill lots. Both programs have been designed to encourage the development of small, previously difficult-to-develop infill sites, such as the small brownfield sites identified within the plan area.

Finally, the City's Sheridan-Hunts Point Land Use and Transportation Study indicates that residents have identified the continual shortage of affordable housing in the South Bronx, especially near transit and retail corridors, as a significant issue. This study also identifies a need for increased diversity in housing types and programs that encourage residents to become homeowners.

EMPLOYMENT AND ECONOMIC DEVELOPMENT

In 2014, the New York City Economic Development Corporation (NYCEDC) published a series of profiles highlighting research they had conducted on employment and economic development in various City neighborhoods. One of these, the "Neighborhood Trend and Insights - Hunts Point and Longwood" report, published in July 2014, focused on a portion of the BF AWP study area, Hunts Point and Longwood.

According to this report, the area's unemployment rate was higher than that of the Bronx and New York City as a whole, while the labor force participation rate was lower than the rates for the Bronx and New York City as a whole. On average, households in this area earn less than those in the rest of the borough and city, with median incomes varying from $12,688 in Census Tract 121.02 to $30,723 in Census Tract 93. This compares to a borough-wide median of $34,300 and a citywide median of $51,865 (2012 American Community Survey).

In 2012, the leading sector of employment for Hunts Point and Longwood residents was health care and social assistance, employing 22.6 percent of employed residents. Accommodation and food services, and retail trade follow with 11.2 percent each. In line with Hunts Point's position as a food distribution hub, the top industries for employment include manufacturing, transportation and warehousing, and wholesale trade. This information is also supported by OneNYC, the Mayor's 2016 Vision Plan. This plan states that jobs in sectors

such as retail, food series, and home care are increasing citywide, due to growth in the overall population, tourism and senior residents. A major benefit to employment in these sectors is that they provide opportunities for people who lack the skills to compete for higher wage jobs, and provide access to the job ladder to advance their careers.

This plan also indicates that residents of the Bronx River – Sheridan Expressway Corridor (West Farms, Crotona Park East, Longwood, Soundview and Hunts Point) are challenged to find well-paying jobs: 37 percent of neighborhood households live below the poverty line. This is similar to the city as a whole, where nearly half of residents continue to struggle with high rates of poverty and growing income inequality, including a disproportionate number of African-Americans, Latinos and Asians. In addition, workers that do have jobs are transit-dependent and manage long commutes: 66 percent of Corridor residents use public transit to commute to work, and 57 percent commute more than 40 minutes to work.

OPEN SPACE AND NATURAL RESOURCES

SUSTAINABILITY AND ENVIRONMENTAL JUSTICE

OneNYC, the Mayor's Vision Plan, focuses on four (4) principles to inform the plan's goals and initiatives, two of which are sustainability and resiliency. "Sustainability" means that the activities we undertake today will not compromise the present or future generations' ability to meet their own needs. The plan further states that "a sustainable city is connected by transportation systems that move people and goods to their destinations in a way that is both affordable and minimizes air pollution and gas emissions… the air is breathable and healthy food is available in any neighborhood."

Residents of the city's lower-income neighborhoods have historically been exposed to a disproportionate share of environmental hazards, leading to serious concerns about equity and environmental injustice. For example, there are significantly more premature deaths among certain racial/ethnic groups in certain neighborhoods. According to OneNYC, the age-adjusted premature mortality rate per 100,000 deaths was 276.1 for black Non-Hispanic New Yorkers compared to 188.2 for white Non-Hispanic New Yorkers. In addition, these numbers were the highest in project area neighborhoods, where the premature death rate ranged from 226.5-367.1 premature deaths per 100,000 residents.

Similarly, in the Bronx River Corridor, asthma-related emergency department visits for youth and adults exceeded 14 percent in 2013, and were higher than rates citywide.

OneNYC does propose several measures to address issues of environmental justice, several of which could have a significant impact residents of the plan area including improving air quality in vulnerable communities through reduced and diverted truck trips, improving parks that have received little capital investment and are located in areas of high need; and perhaps most importantly, **advancing an aggressive and participatory brownfields program that protects human health for those living in close proximity while creating new opportunities for affordable housing development and job creation.**

PARKS AND HEALTHY NEIGHBORHOODS

OneNYC further states that in a sustainable city, "parks offer spaces for children to play in and adults to walk around." The project area contains several City-owned parks, the largest of which are Soundview, Starlight, and Concrete Plant Parks. Smaller parks include Vidalia Park in West Farms and the Colgate Close Park in Soundview. There are also some playgrounds and community gardens in the project area, such as the Daniel Boone Playground, and the Daly Avenue Garden in West Farms.

Community gardens are particularly important in low-income neighborhoods, like the project area, because many residents lack equal access to fresh and health food: 77 percent of retail food stores are bodegas or corner stores, and less than 7 percent of residents eat five (5) or more servings of fruit and vegetables daily. The City has recommended supporting community gardens and urban farms in parts of the city to improve food access, affordable, and quality, and to encourage a sustainable and resilient food system.

However, citywide, there is disproportionately less parks and public spaces in low-income neighborhoods, and these tend to be underutilized. The City has proposed investing in parks and public spaces in under-resourced and growing neighborhoods and to improve access and connectivity for residents to existing parks. It is also important to increase recreation opportunities, such as providing access to the Bronx River for water-based recreational opportunities or completing the South Bronx Greenway to connect area parks and provide access to a multi-use recreational trail. The proposed Sheridan Expressway project will provide 1,600 linear feet of continuous, publicly accessible waterfront by using the Bronx River Greenway to connect Concrete Plant Park to Starlight Park.

Finally, parks can play a critically important role in increasing the city's resiliency during and after a storm event. According to "A Stronger, More Resilient New York," parkland can protect surrounding neighborhoods by acting as the first line of defense during severe storms. Therefore, it is critically important that the City continue to adapt parks to shield adjacent communities from the impacts of extreme weather events. Strategies include the following:

- harden or otherwise modify shorelines parks and adjacent roadways;
- reinforce or redesign bulkheads in coastal parks;
- increase the resiliency of playgrounds and athletic fields;
- protect mechanical systems at major park facilities and buildings; and
- create climate adaption plans for all parks in the 100-year floodplain.

(A Stronger, More Resilient New York, plaNYC, 2013)

CLIMATE CHANGE AND COMMUNITY RESILIENCY

One of the project area's greatest natural resources is the Bronx River itself, winding through the project area and providing the potential for unrivaled open space and recreational opportunities (the project area's waterfront is discussed in greater detail below). However, the presence of the Bronx River, combined with the area's sloping and low-lying terrain, also makes the project area particularly susceptible to the impacts of climate change. The

New York City Panel on Climate Change (NPCC) released the Building the Knowledge Base for Climate Resiliency Report in 2016, which predicts that by the 2050s, New York City will experience an increased average temperature of 4.1 to 5.7°; increased precipitation of 4 to 11 percent, and rising sea levels of 11 to 21 inches.

According to OneNYC, the sea level rise alone will contribute to an increase in the frequency and intensity of coastal flood events, which is particularly concerning for the portions of the plan area that lie in the flood plain and/or were impacted by Superstorm Sandy in 2012. In the Bronx River Corridor, the City has been working with local partners to increase community resiliency in the face of climate change. For example, at Starlight Park, the City invested in wetland creation, soil cleanup and ecosystem restoration to protect and strengthen the shoreline from flooding.

Also, in 2014, the City began performing climate change resiliency surveys of brownfield redevelopment projects that participate in the NYC Volunteer Cleanup Program (VCP). The purpose of these surveys is to educate brownfield developers on building design practices that reduce vulnerability to the effects of climate change, while providing information about financial incentives that may be available to increase overall project resiliency.

The map below shows a portion of the project area, Cluster 3, overlaid with FEMA's 2015 Preliminary Flood Insurance Study for New York City. The blue area shows the extent of the current one percent flood plain, meaning that these areas have a one percent chance of flooding in any given year. Notice that portions of the industrial parcels east of the Bronx River and south of Starlight Park are currently located within the one percent flood plain.

Clipped map Cluster 3 from New York City's Preliminary Flood Insurance Study (100-year Floodplain), 2015. Source: ZoLa, NYC DCP, Updated September 2017. Data Source: FEMA, Flood Insurance Rate Data, 2015.

WATERFRONT

"Vision 2020" is the City's10-year vision for the future of city's 520 miles of shoreline. This comprehensive waterfront plan provides a sustainable framework for more water transport, increased public access to the waterfront and economic opportunities that will help make the water part of New Yorkers' everyday lives. Some of the plan's goals include the following:

- Expand Access to the waterfront and waterways on public and private property.
- Enliven the waterfront with a range of attractive uses integrated with adjacent upland communities.
- Improve water quality through measures that benefit natural habitats, support public recreation, and enhance waterfront and upland communities.
- Enhance the public experience of the waterways that surround New York; and
- Identify and pursue strategies to increase the city's resilience to climate change and sea-level rise.

Implementation of the previously discussed Sheridan Expressway reconfiguration will open the Bronx River waterfront to new development opportunities. The Sheridan – Hunts Point Land Use and Transportation Study specifically recommends that any future waterfront program:

- Respect the uniqueness of the Bronx River;
- Enhance the natural waterfront, and support expansion and connections to the Greenway;
- Create a continuous waterfront shore public way;
- Activate uses and entries along the waterfront; and
- Provide for community resiliency measures.

BRONX RIVER GREENWAY

The Bronx River Greenway is an eight (8) mile long bike and pedestrian path and linear park in the Bronx that provides access to the Bronx River and increases green spaces in low-income communities who currently experience a disproportionate lack of Green Space. The Bronx River Greenway Plan (2006) was initiated by the Bronx River Alliance in collaboration with the New York City Department of Parks and Recreation an delineates a vision for the greenway that identifies sites to be acquired, developed and linked to existing parkland in order to create a continuous route.

Segment A of the Greenway runs from the East River to the Bruckner Boulevard and is located within the boundaries of the Bronx River – Sheridan Expressway Area-Wide Plan. It is the southernmost section of the Greenway, and will include on-street dedicated pathways on both sides of the river. On the east side of the Bronx River, a new greenway path will run along the edge of Soundview park from south to north, and from there, will follow Colgate, Story and Bronx River Avenues to the intersection of the Bruckner Boulevard. However, an alternative route could be made possible by the redevelopment of the Loral Site in Cluster 1. Sections of the Greenway also run through Concrete Plant Park, Starlight Park and the West

Farms neighborhood.

The City's Vision 2020 Comprehensive Waterfront Plan calls for expanded public access to the City's waterfront by extending waterfront greenways in all five Boroughs, including the Bronx River Greenway. Similarly, it calls for an increased range of recreational opportunities on the waterfront and construction using the City's "Design Principles for Waterfront Public Spaces."

SUMMARY OF ISSUES

After reviewing available demographic information, as well as recent plans and related documents, the following stand out as being significant issues for the Bronx River – Sheridan Expressway Corridor Brownfield Area-Wide Plan area:

- Housing affordability
- Educational attainment
- Family-sustaining wage employment
- Urban Environmental Conditions
- Climate change, particularly sea-level rise
- High rates of obesity and diabetes
- Infrastructure investment

The Bronx River – Sheridan Expressway Corridor Brownfield Area-Wide Planning process begins to examine these issues by identifying brownfields within the project area that contribute to poor environmental conditions and negative health outcomes, and planning for the remediation and redevelopment of these sites into a mix of housing, commercial, and open space uses that will begin to address the issues identified above.

LAND USE ANALYSIS

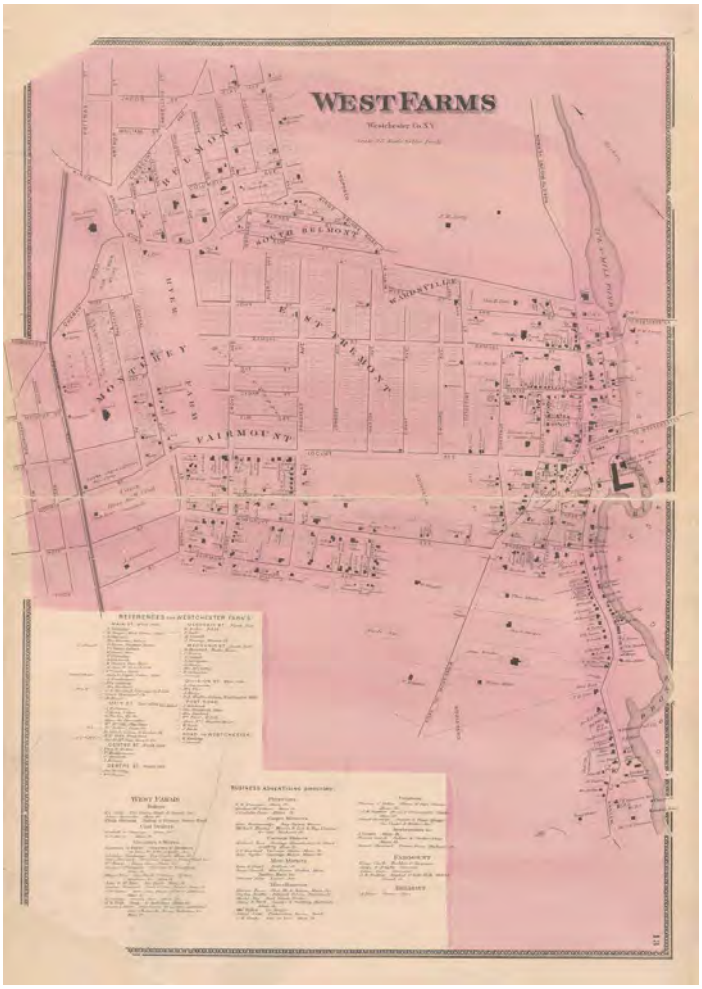
HISTORIC LAND USES

In order to trace historical land uses in the project area, the planning team referenced historic maps, documents and photographs going back 150 years to the immediate post-Civil War period. At this time, the area which is currently Cluster 3 was known as "Westchester Farms," whereas Clusters 1 and 2 were in the Township of "West Farms." Both of these areas were part of Westchester County until 1874, when it became part of New York City's 24th Ward. In 1890, the project area became part of the Bronx, when the Borough was officially formed.

While the Westchester Farms section was already platted for development, most parcels were still vacant, except for a concentration of homes, businesses and churches along the east side of the Bronx River, along what is now West Farms Road and the Sheridan Expressway. An 1868 "Business Directory," lists in this area the following: physicians, building material suppliers, carpet weavers, meat markets, painters, restaurants, grocery stores, saloons, an undertaker and an ice house. The West Farms area, meanwhile, was largely undeveloped before the turn of the century, with the exception of some farms, estates and institutional uses.

The population of the Westchester Farms area expanded rapidly following annexation to the City of New York, and investments in the area's physical infrastructure kept pace with this population growth. For example, by the turn of the Century, the City had laid 105 miles of sewer and water lines to the area west of the Bronx River). In 1895, New York City's Topographical Bureau had developed a series of maps (an example of which is on page 3 below) which show the area's parcels, owners and physical improvements, including provisions for roadways that were planned but not necessarily constructed. In addition, historic road names were changed to reflect an extension of the Manhattan grid northward, hence the numbered east/west streets. West Farms, meanwhile, remained largely undeveloped until after the turn of the 20th Century.

The population of the project area started to grow in earnest after 1900, when historic farm properties were subdivided for development, and infrastructure, such as roads, water and sewer lines were extended to this part of the Bronx. One particularly catalytic development that led to rapid population growth and housing development was the construction and opening of the Interborough Rapid Transportation (IRT) White Plains line to the project area in 1904. As you can see from the 1904 IRT Map below, stations at this time included Freeman Street and 174th, 177th and 180th Streets, which – with the exception of the now-closed 180th Street Station – continue to serve the project area via the 2 and 6 trains of the New York City Subway.

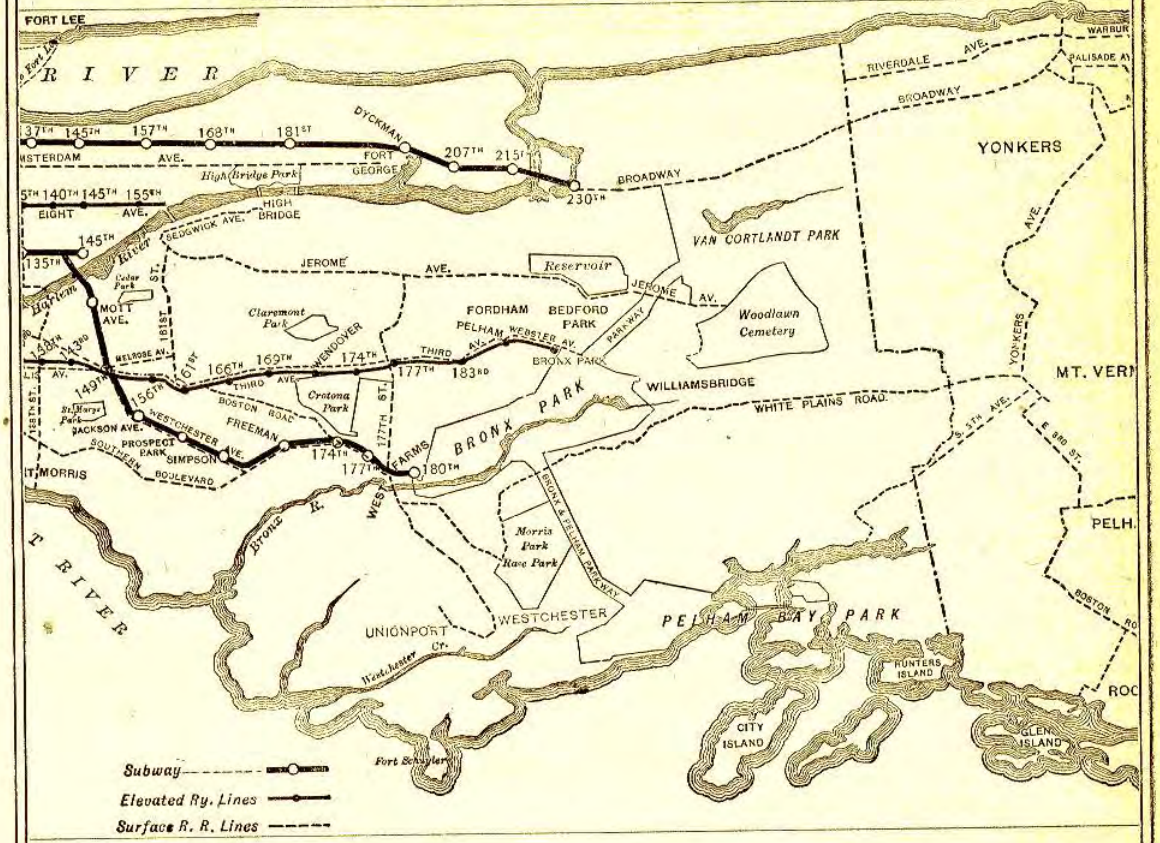


Left. 1868 West Farms, Westchester County, Business Directory (NYPL)

Above. 1904 Map of the 24th and 25th Wards (NYPL)

INTERBOROUGH RAPID TRANSIT COMPANY

OPERATING SUBWAY AND ALL ELEVATED LINES IN NEW YORK CITY.



SUBWAY DIVISION.—NEW YORK CITY—Continued.

TIME-TABLE.

West and East Branch Trains arrive and depart from same stations, south of Ninety-sixth Street Junction.

West Branch Local Trains run daily 4 to 6 minutes interval from 5 30 a.m. to **12 00** night, and 15 minutes from **12 00** night to 5 30 a.m.

East Branch Local Trains run daily 4 to 6 minutes interval from 5 30 a.m. to **12 00** night, and 15 minutes from **12 00** night to 5 30 a.m.

The West and East Branch Trains meeting south of Ninety-sixth Street Junction makes 2 and 3 minutes interval on Main Line from 5 37 a.m. to **12 07** night, and 7½ minutes from **12 07** night to 5 37 a.m.

Express Trains on West Branch leave One Hundred and Fifty-seventh St. and Broadway from 6 **27** a.m. to **11 45** p.m. 4 to 10 minutes interval.

Express Trains on East Branch leave One Hundred and Forty-fifth St. and Lenox Ave. from 6 24 a.m. to **11 40** p.m. 4 to 10 minutes interval.

Express Trains meeting at Ninety-sixth St. from West and East Branches make 2 and 5 minutes interval from 6 34 a.m. to **11 52** p.m.

Last Express Train from Brooklyn Bridge to One Hundred and Fifty-seventh Street and Broadway **12 22** night.

Last Express Train from Brooklyn Bridge to One Hundred and Forty-fifth Street and Lenox Avenue **12 17** night.

Shuttle Train is run between One Hundred and Forty-fifth Street and Lenox Avenue, and Ninety-sixth Street and Broadway, from **11 48** p.m. to 6 57 a.m., 12 to 15 minutes interval.

Shuttle Train is run between One Hundred and Fifty-seventh Street and Two Hundred and Twenty-first Street and Broadway daily from 24 to 5 minutes interval.

CONNECTIONS.

* With cross-town surface lines.

[1] With Staten Island Ferry and Railroad, Manhattan Beach, South and Hamilton Ferries for Brooklyn.

[2] Via cross-town line with Ferries to Pennsylvania Erie and Delaware, Lackawanna & Western R.Rs.

[3] Via cross-town line with Ferries to Long Island R.R.

[4] With New York Central & Hudson River R.R., New York, New Haven & Hartford R.R.

MANHATTAN RAILWAY DIVISION.

OPERATING ALL ELEVATED LINES IN NEW YORK CITY.

FOR SCHEDULES, SEE NEXT PAGE FOLLOWING.

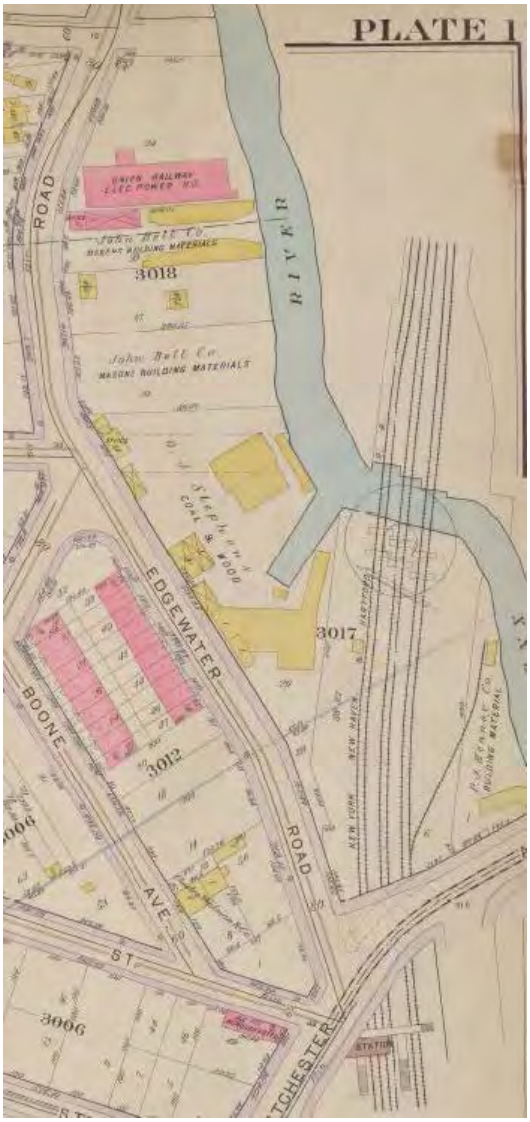
Route Map and Timetable of the Interborough Rapid Transit Company, 1906. (nycsubway.org)

By 1900, the population of the Bronx had doubled from approximately 100,000 residents to 200,000 residents. In addition to residential development, the entire area experienced rapid industrial and commercial growth in the period prior to World War I, related to both the population growth, infrastructure investments, and in the case of industrial uses, proximity to the Bronx River.

Cluster 1 was still largely undeveloped, with the exception of a few scattered farm dwellings, even though the area's farms had been subdivided into parcels and infrastructure laid. Cluster 2, meanwhile, was mostly developed with small lot residential dwellings, in addition to an ice house, milk depot, telegraph company offices and the IRT right-of-way.

Cluster 3 was also nearly built-out with a mix of residential, commercial, institutional and industrial uses. These industrial uses provided the foundation for industrial development that would come to define the area for generations and which also contributed to the environmental contamination project area residents experience today. For example, a 1901 map of Cluster 3 shows the Northern Union Gas (a predecessor to Con Edison) coal gasification plant which operated from the 1880s to the 1920s on what is today Starlight Park.

Other industrial uses concentrated on the west side of the Bronx River on what is today the industrial parcels south of Starlight Park and facing the Sheridan Expressway include the Union Railway Electric Power Company, two building materials yards, a coal and wood yard, and large carpenters' operation, as shown in the 1913 Bromley map of the area at right.



Bromley maps from 1921 (see right) and 1942 of this same area shows a significant increase in industrial uses in what is now Cluster 3 in the interwar period. In addition to the uses mentioned above, industrial uses proliferated along West Farms Avenue, including numerous garages, a Pepsi-Cola Bottling Plant (Block 3012, Lot 18), the Fox Square Laundry (Block 3012, Lot 14), and a gas station (Block 3012, Lot 12).

Historic photographs from this time period also provide an indication of the project area's developing industrial nature. Both photos the show the intersection of Edgewater and West Farms Road; however, the first vantage point emphasizes the area's industrial character while the second photo shows the newly developed six-story residential buildings.

The most significant impacts on the project area following World War II relate to the well-known story of urban renewal, highway extension and urban flight. The City developed its Housing Authority, NYCHA in 1934, and the Bronx River Houses, the only public housing project located within the project area was opened in 1951 as a temporary project to house working families. It consists of nine, 14-story buildings with 1,260 apartments. The Bronx River Addition, consisting of 225 apartments for senior adults was completed in 1966. In addition, just south of the Bronx River Houses, a large Quonset hut development had been constructed in Cluster 1 at the intersection of Boynton Avenue and Bruckner Avenue to house returning veterans. These are still visible in an 1951 aerial photograph of the area, while the future Loral Site has not yet been developed.

Construction of the Sheridan Expressway, which abuts the eastern boundary of the rezoning area, began in 1958 as part of the elevated Bruckner Expressway project. The 1.2-mile-long Sheridan Expressway was constructed with two 12-foot-wide lanes in each direction, and forced the relocation of West Farms Road westward so that some of the project blocks were reduced in size.

Photos: Intersection of Edgewater and West Farms Road (1936 and 1938). (NYPL)

Also during this time period, the Cross Bronx Expressway was constructed through the East Tremont neighborhood, bifurcating Cluster 2, as shown in the photograph below.

The whole area grew rapidly in population until 1940s, with a relatively stable population until the 1970s. Population decline in the 1970s and 1980s can be attributed to a variety of factors, including forced re-locations related to highway construction, an aging and deteriorating housing stock, post-war lending practices that encouraged white flight, reduction of transportation services public and private disinvestment, property abandonment, crime and the huge decline in manufacturing jobs in the City overall.

The Cross Bronx Expressway and the Bronx River Houses, 1951.

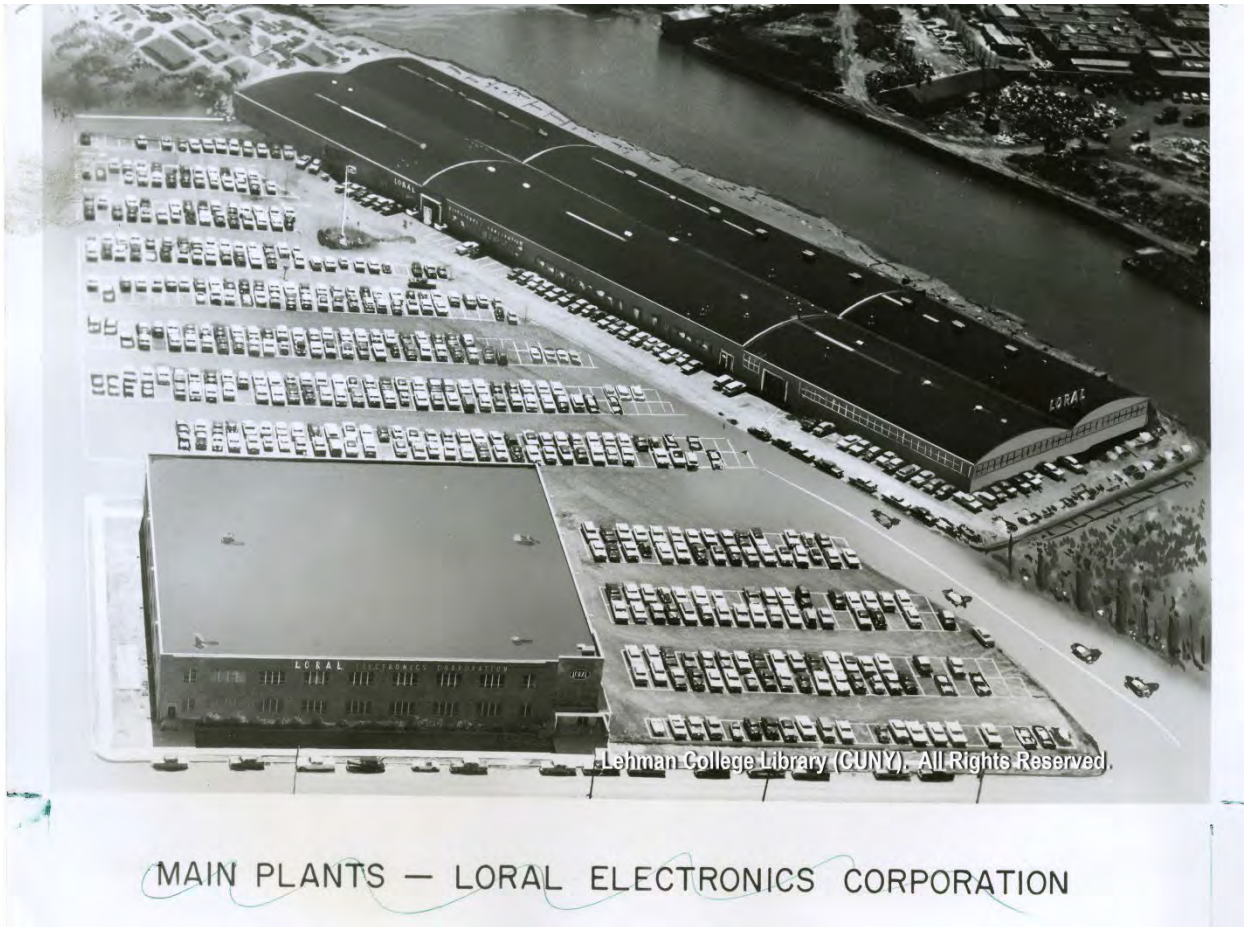
CURRENT LAND USES

Over the past two decades, the Bronx River- Sheridan Expressway Area-Wide Plan project area has been the site of increasing public and private investments, as compared to the substantial disinvestment and population loss experienced during the urban decline of the 1970s and 1980s. Today, the project area contains a mix of residential, commercial, industrial, institutional and open space uses. While a mix of uses is increasingly seen as desirable development type in center cities, the types of industrial uses that remain in the project area are largely incompatible, and in some cases, actively detrimental to the surrounding residential, commercial and recreational uses. In addition, the legacy of environmental contamination caused by historic industrial and heavy commercial uses has hindered new development that could be beneficial to current project area residents. The sections below provide a brief overview of the current land uses in each of the three (3) project clusters.

CLUSTER 1

The Loral Site is a six (6) acre site located at 1400 Story Avenue (Block 3621, Lot 1) on the east side of the Bronx River. It was developed in the 1960s to manufacture electronic components for the U.S. Air Force and other defense industry applications (see photo on the following page). To the north is a mix of industrial and heavy commercial uses, including auto uses, towing yards, junk and recycling yards, and a

waste transfer station. To the south is Soundview Park, and to the east is the Soundview Educational Complex and a large housing development, called Lafayatte Nelson Houses, which currently has a proposal for expansion. The Loral site is currently abandoned and for sale. In addition, the roads in Cluster 1 are in poor condition, and lack storm drains and other facilities to provide for run-off from these industrial uses.



Loral Site in the 1960s with the Bronx River in the background.

CLUSTER 2

Cluster 2 occupies a portion of the West Farms neighborhood bounded roughly by the Bronx River, the Cross Bronx Expressway, the Bronx River Parkway, and East 180th Street. Unfortunately, the river plus each of the major roadways also serves to isolate this section of West Farms from other portions of the neighborhood. Cluster 2 has a variety of uses, including residential, commercial and institutional uses. There is very little open space in this Cluster, with the exception of the River Garden at 1086 East 180 Street. However, Bronx Park and the Bronx Park Zoo are immediately to the north of the project area across East 180th Street.

In addition to Bronx Park, there is also one designated landmark just north of Cluster 2, the recently renovated 180th Street IRT station, which is on both the State and National Registers of Historic Places. Located at 481 Morris Park Avenue, this building opened in

180th Street Station at the intersection of E. 180th St. and Morris Park Ave (1928 and 2014)

1917 and served as an administration building for the former New York, Westchester and Boston Railroad. Today the building serves the MTA's 2 and 5 trains.

Relatedly, Cluster 2 also contains the unsightly terminus for the defunct IRT White Plains Road Line of the New York City Subway. Formerly the home of the 180th Street–Bronx Park station, this station formerly housed both tracks and platforms. This spur was closed in 1952, with the track and station demolished; however, the elevated structure remains on the 1100 block of Lebanon Street facing the newly constructed Lebanon Farms affordable housing development.

CLUSTER 3

Cluster 3 is concentrated on the east shore of the Bronx River between Starlight Park and Westchester Avenue as well as a contiguous block northwest of the intersection of Westchester and Whitlock Avenue. This area is defined by its many physical barriers, including the Bronx River, the Sheridan Expressway, the elevated train line, fenced vacant lots and an irregular street grid.

Elevated structure of the former 180th Street -Bronx Park Station on Lebanon Street (2014).

Industrial uses include transportation right-of-ways, manufacturing, storage, warehousing and garages. There has been a noticeable shift from concentrated manufacturing uses to storage and auto-related uses. Many of the industrial buildings are poorly maintained with windowless, blank facades, open storage areas, and truck bays that constitute a safety hazard for area residents. Industrial and commercial uses also generate a large volume of truck traffic, which creates congestion on local roads, air pollution and safety hazards for pedestrians. There are also quite a few underutilized surface parking lots.

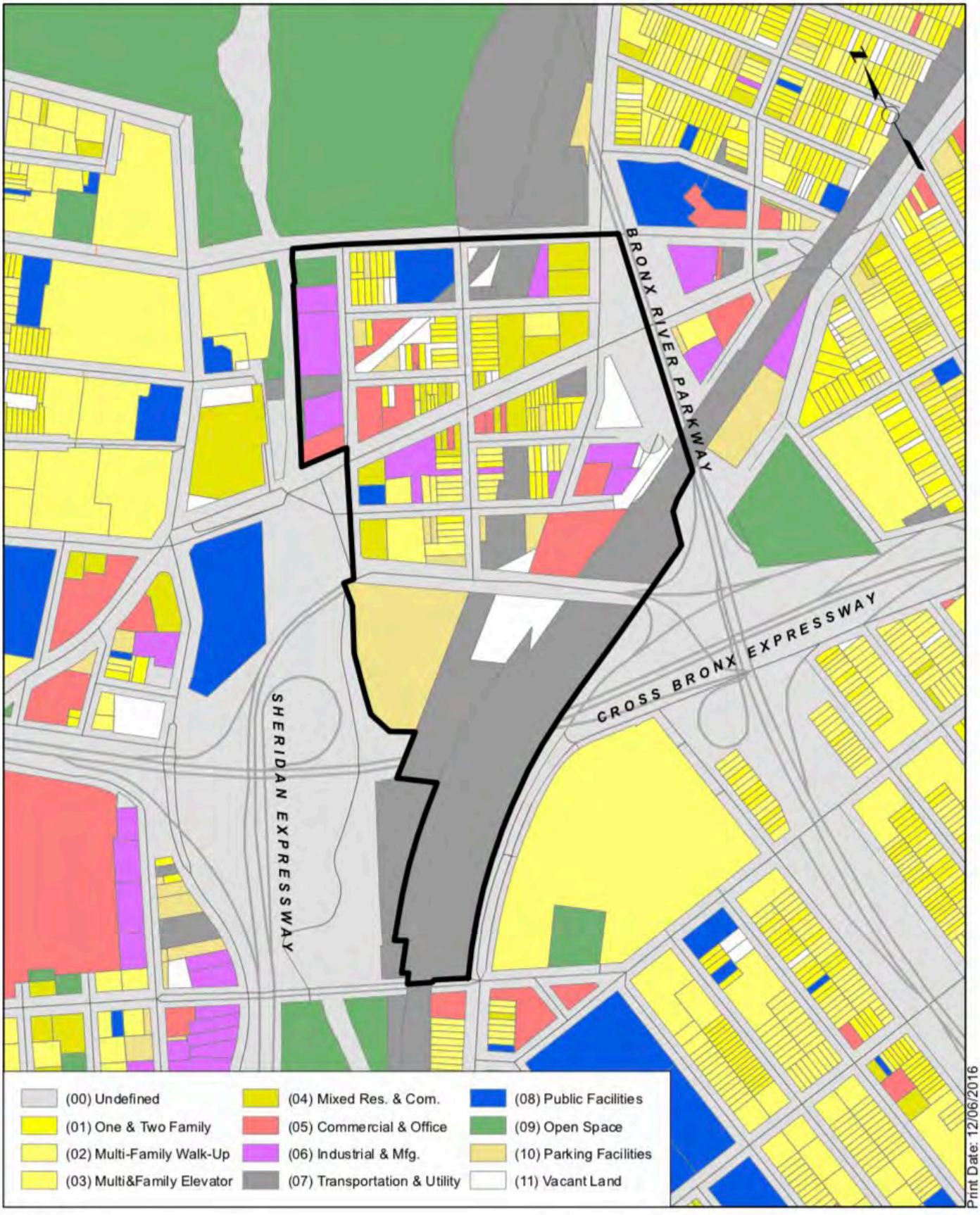
Cluster 3 also has multitude of small, active commercial uses, primarily auto-related, but also including food outlets, financial services, international shipping, and even a hotel. These commercial uses abut residential uses one block to the west, as well as numerous churches and schools (e.g. Fannie Lou Hamer, P.S. X811 and P.S. 66 School of Higher Expectations). While most of the churches have a very long history in the neighborhood, many of the school properties were created in the period 1960-1990 by clearing earlier development, including former commercial and industrial uses.

Green space is limited in Cluster 3 to Starlight Park on the northern end of the cluster, which is currently difficult to access, as well as the Daniel Boone Playground and the Freeman Triangle. The Daniel Boone Playground was created in 1963 when the block bounded by the Sheridan Expressway, Boone Avenue, and West Farms Road was cleared and turned into a playground. It had previously contained a gas station, two warehouses, and a contractor's garage.

The Sheridan Expressway runs north to south through the heart of Cluster 3, one block west of the Bronx River, and ends at 177th Street. The Sheridan Expressway forms a major physical barrier. Importantly, there is only a single crossing from the residential portion of the neighborhood into Starlight Park on the other side of the expressway, currently provided via the bridge at 174th Street.

Land Use

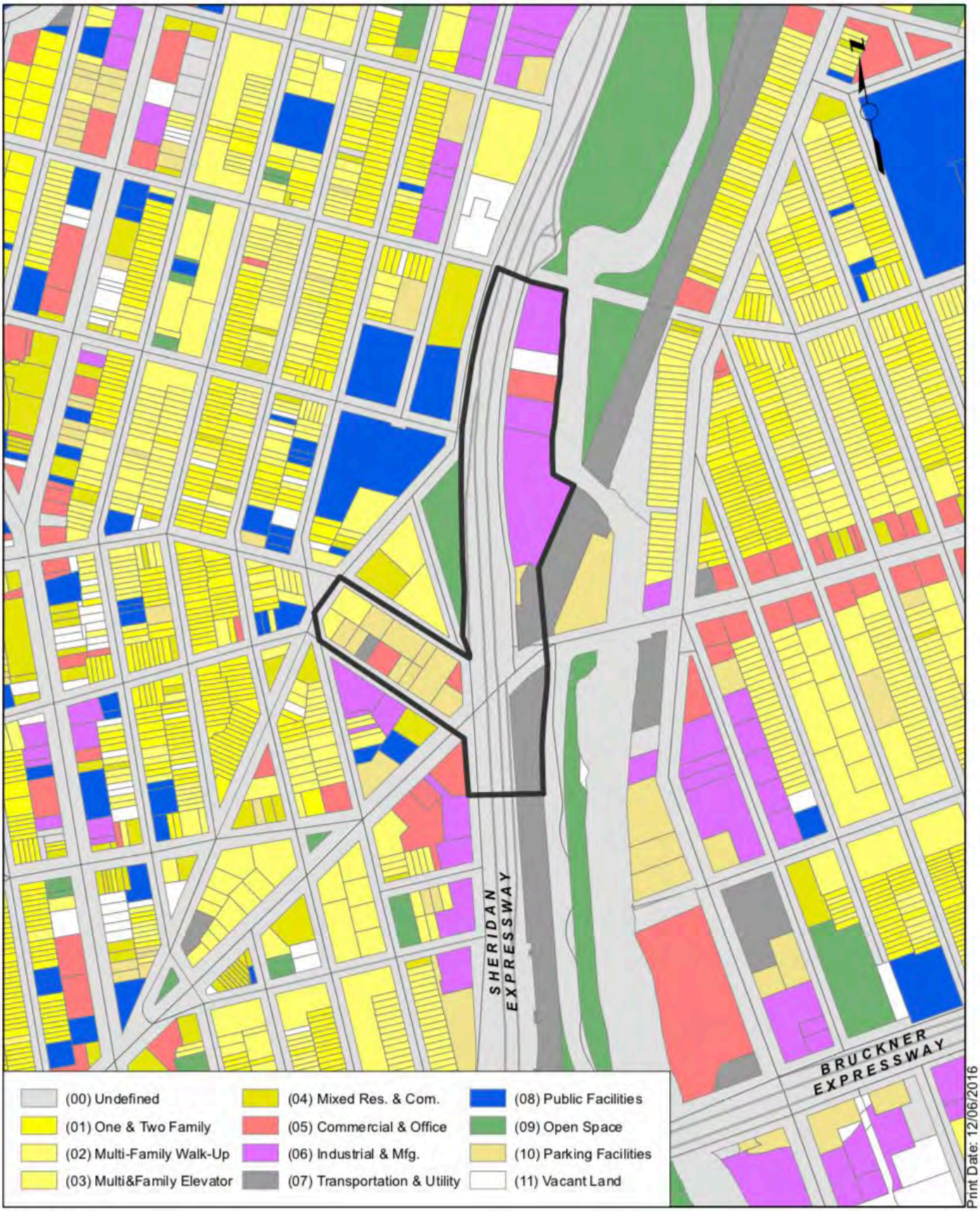
Source: NYC MapPLUTO



Land Use

0 100 200 400 600 800 1,000 Feet

Source: NYC MapPLUTO



Land Use

Source: NYC MapPLUTO

OTHER LAND USE REGULATIONS

A majority of the project area is located within the boundaries of New York City's Coastal Zone, as shown on the map below. Properties located in the Coastal Zone must be redeveloped in accordance with the New York City Waterfront Revitalization Program (WRP), the City's coastal zone management program. The WRP establishes the City's policies for development and use of the waterfront and provides the framework for evaluating the consistency of local, state and federal discretionary actions within New York City's Coastal Zone. The Coastal Zone Boundary is updated to reflect the most recent FEMA Preliminary Flood Insurance Rate Maps (PFIRMs).

Coastal Zone Boundaries in Bronx River-Sheridan Expressway Corridor.

The WRP is administered by the Department of City Planning and encourages coordination among all levels of government to promote sound waterfront planning. It also requires consideration of the program's ten (10) goals in making land use decisions. According to the Department of City Planning, a proposed project may be deemed consistent with the WRP

when it will not substantially hinder and, where practicable, will advance one or more of the ten WRP policies. The table below clarifies which actions are subject to WRP consistency review, which entities make the consistency determination, and which materials required for the WRP review should be forwarded to DCP:

City
• City Planning Commission (CPC) actions (e.g. ULURP) subject to City Environmental Quality Review (CEQR)
• City agency actions (no involved CPC action) subject to CEQR

State
• Direct Actions or Permits Granted by a State Agency (e.g. State highway construction, NYS Dept. of Environmental Conservation Permits)

Federal
• Direct Actions, Funding, or Permits Granted by a Federal Agency (e.g. FAA Funding, U.S. Army Corps. Permits)

Currently, the EPA has identified the Bronx River as "impaired" due to high levels of nutrients, organic enrichment, oxygen depletion, pathogens and trash.

ENVIRONMENTAL CONCERNS

As stated above and in the "Existing Conditions Report," the Bronx River - Sheridan Expressway Corridor Brownfield Area-Wide Plan project area has a rich history of commercial and industrial uses that has provided employment opportunities for area residents. Unfortunately, this history has also resulted in areas of environmental concern that must be addressed in order to facilitate redevelopment of vacant and underutilized sites, and improve health outcomes for area residents.

The planning team has identified potential environmental hazards of several of the lots within the proposed rezoning area, as a result of current or prior land uses. These include historic uses such as auto repair, gas stations, laundry facilities, and manufacturing. These brownfields have been researched and catalogued into the separate "Brownfield Inventory" database. A separate screening assessment could further identify the potential level of contamination at project area sites.

Potential and known environmental concerns have also been identified by numerous sources, including the New York State Brownfield Opportunities Area program, the City's CEQR process, BIG records, and EPA databases.

BROWNFIELD OPPORTUNITY AREA (BOA)

Cluster 1 and 3 are located within the boundaries of the South Bronx Waterfront Brownfield Opportunity Area (BOA). The BOA program is a program of New York State that provides

communities with guidance, expertise and financial assistance to complete revitalization and implementation strategies for neighborhoods or areas affected by brownfields or economic distress. The program takes an area-wide approach to the assessment and redevelopment of brownfields and other vacant or abandoned properties.

Youth Ministries for Peace and Justice (YMPJ), along with partners Sustainable South Bronx, The Point CDC, The Pratt Center and SoBro, received a $349,360 grant to prepare a Brownfield Opportunity Area Nomination Study for an 800 acre area of the South Bronx Waterfront Through the BOA program, YMPJ and its partners identified abandoned and contaminated sites within the study area and conducted a community process to determine residents' priorities for the future development of the neighborhood. The nomination study contains strategies to address community needs for open space, affordable housing, and living wage jobs; build a foundation for future growth by enhancing the environmental and economic performance of the area's regionally significant industrial sectors; and reclaim the area's waterfront as a unique environmental and economic asset.

ENVIRONMENTAL REVIEW ANALYSIS

The 2011 Crotona Park East/West Farms Rezoning was required to go through the City's Environmental Quality Review (CEQR). CEQR is the process by which New York City agencies determine what effect, if any, a discretionary action they approve may have upon the environment. As part of the CEQR process, an Environmental Impact Statement was completed for the area adjacent to Cluster 3, which provides critical environmental information that may inform environmental contamination of the Cluster as a whole.

Stantec Consulting Services and Sandstone Environmental Associates prepared an Environmental Impact Statement (EIS). While the re-zoning area is just outside of the Cluster 3 project area to the west, the purpose of this re-zoning was to facilitate redevelopment of underutilized former industrial properties similar in historic uses to the properties within the project area.

According to the EIS, many sites within the proposed opportunity area were identified as potentially contaminated with an array of both petroleum-based and non-petroleum-based chemicals as a result of former activities on or near those sites. The operations that may have contributed to the non-petroleum-based hazardous materials contamination include auto repair, sheet metal works, paint shops, dry cleaners, and iron works. Facilities that may have contributed to petroleum-based hazardous materials contamination included aboveground and underground fuel tanks, auto repair facilities, and gas stations. All of the 45 lots that were rezoned that were not under the City's control received (E) designations. The (E) designation requires that, prior to the issuance of construction-related permits for redevelopment, the property owner conduct a Phase I environmental site assessment, prepare and implement a soil and groundwater testing protocol, and perform such remediation activities as are deemed appropriate by the New York City Mayor's Office of Environmental Remediation (OER), to the satisfaction of OER.

For the 15 City-owned lots, a restrictive declaration was recorded against the property,

binding the City to perform all investigative or remedial activities required by DEP, in accordance with protocols devised by the agency, and to the agency's satisfaction, before submitting any permit applications to the New York City Department of Buildings. These actions were taken to ensure that no significant impacts related to hazardous materials would occur as a result of the proposed re-zoning.

EPA RECORDS

Finally, the U.S. Environmental Protection Agency (EPA) has identified a number of "regulated facilities" in the project area. These are shown in the table below:

Address	Operation	Industry
955 Bronx River Ave	NYC Transit	Transportation
960 Bronx River Ave	Paper Fibres Corporation	Recycling
960 Close Ave	Kurts & Wolfe Chemical Co.	Chemicals
962 Close Ave	Reliable Auto Body Repairs	Automotive Body, Paint, and Interior Repair and Maintenance
1148 E. 180th St	Bombardier Transportation	Rail Transportation
1151 E. 180th St	East 180th Street Yard	Local Transportation
1179 East 180th St	Polyseal Packaging Corp.	Plastics, foil and coated paper bags
1440 Bruckner Ave	A&J Haina Autobody &Repair Corp.	Automotive Body, Paint, and Interior Repair and Maintenance
1480 Sheridan Expwy	LKQ Hunts Point Auto	Used Auto Parts
1465 Bronx River Ave	Jenna Concrete Corp.	Concrete Manufacturing
1400 Story Ave	Loral Electronics	Communications Equipment Manufacturing

REFERENCES - LAND USE ANALYSIS

Photographs:
• Irma and Paul Milstein Division of United States History, Local History and Genealogy, The New York Public Library. The New York Public Library Digital Collections. http://digitalcollections.nypl.org
• Lehman College Library, CUNY, Bronx Chamber of Commerce Collection

Historic Maps:
• Lionel Pincus and Princess Firyal Map Division, The New York Public Library. The New York Public Library Digital Collections. http://digitalcollections.nypl.org/

Zoning and Land Use Maps:
• NYCityMap, City of New York, Office of Information Technology and Telecommunications. http://www.nyc.gov/citymap.

Other:
• Bromley, Ray, "Not So Simple! Caro, Moses, and the Impact of the Cross-Bronx Expressway." Bronx County Historical Society Journal. Vol. 35, No. 1, Spring 1998, pp. 4-29.

MARKET ASSESSMENT

OVERVIEW OF PROJECT AREA CHARACTERISTICS

STUDY AREA AND MARKET AREA LOCATION AND DESCRIPTION

The Study Area is comprised of three groupings or "clusters" of properties located in the south-west portion of Bronx County, New York.[1] These three clusters adjoin a north-south 1.8 mile stretch of the Bronx River that runs from the upper end of the West Farms neighborhood at E. 180th St. south towards the Soundview neighborhood at Lafayette Ave. The clusters are each separated by about 1,500 feet. Together, the three clusters comprise 0.162 square miles. Cluster 2 is located at the northern most point of the Study Area and is approximately 0.097 square miles. Cluster 1 and Cluster 3 are approximately 0.030 square miles and 0.035 square miles, respectively.

To evaluate the market characteristics of the Study Area, an expanded Market Area was determined by joining circular regions of a one-mile radius around the centroid of each of the cluster areas. The Market Area, thus formed, is approximately 5.92 square miles and represents roughly the 10-15 minute drive time from the boundary of the Market Area to the center of the nearest cluster. The Market Area constitutes approximately 10.3 percent of the land area of the Bronx and 18.3 percent of the population - making its population density somewhat higher than the average for the entire borough. Some key demographic and economic indicators for the Market Area and the Bronx from the U.S. Census Bureau 2010-2014 American Community Survey (ACS) are provided in Table 1 of this section.

The Market Area is useful to understand the physical, economic and demographic conditions of the three property clusters that comprise the Study Area by viewing these characteristics in comparison to the surrounding neighborhoods. As is common practice for market studies on a local scale, an initial radius of a 10-15 drive time from the centroid of the areas of interest was selected as a natural boundary for analysis.

At this level, land use patterns and the economic and demographic indicators and trends that influence the real estate market may become evident. It is also useful to see how the Study Area differs in key respects with the Market Area, and in turn how the Market Area and Study Area differ from the Bronx as a whole.

The U.S. Census data that was utilized to inform the demographic and economic analysis was generated from over 90 census blocks that comprise the Market Area and were collated to provide an accurate profile of population and economic trends.

A full size copy of the map presented to the left can be found in Appendix B.

Table 1: Demographic and Economic Indicators

Geography	Bronx County, New York		Market Area	
Area	57.47 sq. mi		5.92 sq. mi	
	Count	Percent	Count	Percent
Population by Race				
Total	1,413,566	100.0%	257,627	100.0%
Population Reporting One Race				
White	304,110	21.5%	36,838	14.3%
Black or African American	477,844	33.8%	85,611	33.2%
American Indian and Alaska Native	7,936	0.6%	1,361	0.5%
Asian	50,800	3.6%	8,807	3.4%
Native Hawaiian and Other Pacific Islander	660	0.0%	130	0.1%
Some Other Race	520,667	36.8%	113,021	43.9%
Population Reporting Two or More Races	51,549	3.6%	11,859	4.6%
Total Hispanic Population	767,506	54.3%	164,458	63.8%
Population by Sex				
Male	664,506	47.0%	122,521	47.6%
Female	749,060	53.0%	135,106	52.4%
Nativity and Citizenship Status				
U.S. citizen, born in the United States	825,640	58.4%	147,128	57.1%
U.S. citizen, born in Puerto Rico or U.S. Island Areas	91,904	6.5%	23,588	9.2%
U.S. citizen, born abroad of American parent(s)	15,679	1.1%	2,697	1.0%
U.S. citizen by naturalization	215,989	15.3%	33,044	12.8%
Not a U.S. citizen	264,354	18.7%	51,170	19.9%
Mean Income	$49,661		$40,296	
Households receiving food stamps	17.6%		21.3%	
Employment				
In labor force	59.3%		58.4%	
Employed	50.4%		48.5%	
Unemployment rate	15.0%		16.9%	
Housing				
Total Housing Units	518,149	100.0%	91,454	100.0%
Total Occupied Housing Units	480,323	92.7%	84,364	92.2%
Total Vacant Housing Units	37,826	7.3%	7,090	7.8%
Owner occupied	91,797	19.1%	10,568	12.5%
Renter occupied	388,526	80.9%	73,796	87.5%
Owner vacancy rate		2.6%		2.5%
Rental vacancy rate		3.2%		3.0%
Year Structure Built				
Total Housing Units	518,149	100.0%	91,454	100.0%
Built 2010 or later	3,618	0.7%	680	0.7%
Built 2000 to 2009	30,293	5.8%	6,307	6.9%
Built 1990 to 1999	19,094	3.7%	4,691	5.1%
Built 1980 to 1989	17,372	3.4%	4,037	4.4%
Built 1970 to 1979	42,187	8.1%	7,290	8.0%
Built 1960 to 1969	72,089	13.9%	11,245	12.3%
Built 1950 to 1959	76,669	14.8%	12,830	14.0%
Built 1940 to 1949	56,636	10.9%	9,725	10.6%
Built 1939 or earlier	200,191	38.6%	34,649	37.9%

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

Based on the ACS statistics, the Market Area is a fair representation demographically of the Bronx as a whole. The racial mix of the Market Area is similar to the Bronx except for a smaller percentage of White residents in the population (14.3 percent vs. 21.5 percent) and a larger percentage of Hispanics (63.8 percent vs. 54.3 percent). There is also a larger percentage of U.S. citizens born in Puerto Rico or U.S. Island Areas in the Market Area, as opposed to the borough-wide population (9.2 percent vs. 6.5 percent), and a larger percentage of non-U.S. citizens (19.9 percent vs. 18.7 percent).

Economically, the conditions are somewhat worse for the residents of the Market Area as compared to the Bronx as a whole. Mean income (by individual) is approximately 18 percent less in the Market Area ($40,296 vs. $49,661), a larger percentage of families have received food stamps (21.3 percent vs. 17.6 percent), and the unemployment rate reported by the 2014 ACS (Feb. 2013) was somewhat higher (16.9 percent vs. 15 percent).[2]

There are 91,454 housing units in the Market Area, approximately 17.7 percent of the total housing stock in the Bronx. In comparison, renter-occupied housing comprises a larger share of the housing market in the Market Area as compared to the Bronx as a whole (87.5 percent vs. 80.9 percent). Like the Bronx, the housing stock in the Market Area is dominated by structures built prior to 1939 (37.9 percent), with only 680 units (0.7 percent) of new residential housing being constructed in the Market Area since 2010.

EMPLOYMENT AND INDUSTRY

According to data provided by the U.S. Bureau of Labor Statistics, the principal industries by employment in the Bronx include: Health Care and Social Assistance Services (39.2 percent), Retail Trade (13.1 percent), Accommodation and Food Services (7.2 percent), Educational Services (6.9 percent), and Wholesale Trade (4.7 percent). See Figure 3. The five most common industry subsectors in the Bronx by employment is Social Assistance, Hospitals, Ambulatory Health Care Services, Nursing and Residential Care Facilities (all within the Health Care and Social Assistance Services sector), and Food Services and Drinking Places. The top five industry subsectors by total annual wages are all within the Social Assistance, Hospitals & Ambulatory Health Care Services sector, followed by Specialty Trade Contractors, Merchant Wholesalers, Real Estate, Food Services and Drinking Places, and Food and Beverage Stores. Those industry subsectors earning at Least 25 percent more than the mean average salary in the Bronx ($49,661) include Telecommunications, Hospitals, Specialty Trade Contractors, Insurance Carriers, Waste Management and Remediation Services, and Merchant Wholesalers. A table with relevant summary statistics by North American Industry Classification System (NAICS) industry sector and subsector are provided in Table 2 and Table 3 of this section.

According to the New York State Department of Labor, job growth is expected to increase by 13.2 percent in NYC (all boroughs) by 2020 over 2012 levels, with many of the most dominant industries in the Bronx far exceeding that expected average growth rate. Job growth for Health Care and Social Assistance is expected to reach 22.5 percent, with the Ambulatory Health Care Services subsector expected to increase by 41.7 percent. Other sectors, including Construction, Professional and Technical Services, and the Arts and Entertainment are also expected to experience strong, above-average growth.

The three property clusters that comprise the Study Area are for the most part zoned for

light manufacturing (M1-1). Although not strictly reserved for manufacturing and industry, the zoning does tend to limit the types of commercial development in these districts. According to a study completed by the NYC Department of City Planning in 2015, the relative importance of the employment sectors within the M-districts in the Study Area may be expected to vary from the Bronx as a whole due to the zoning. For example, based on the M-district statistics presented by the Department of City Planning, the Health Care and Social Assistance Services sector may account for only 16.3 percent of all jobs within the clusters, as opposed to 39.2 percent of all jobs in the Bronx. Employment offered by the Retail Trade sector is somewhat higher in the clusters as compared to the Bronx (16.3 percent vs. 13.1 percent), while the Construction sector and Transportation and Warehousing services sector are much more prevalent , comprising 12.8 percent and 11.0 percent of jobs, respectively. See Figure 4.

Given that the location of the Study Area is well connected to the region by the CSX Transportation's Oak Point Yard and Interstates 278 (Bruckner Expressway) and 895 (Sheridan Expressway), there is reason to expect that the Transportation and Warehousing sector could grow at rates well above those expected for the NYC region as a whole. The Study Area clusters are located near the Hunts Point Food Distribution Center, which is the largest food distribution center in the world. The Hunts Point Market is located on 329 acres and consists of over 200 wholesalers, distributors, and processing businesses with annual revenues of more than $5 billion. The New York City Terminal Market, the Hunts Point Cooperative Market, and the New Fulton Fish Market are the largest tenants. The market supports 115 private wholesalers that employ more than 8,000 people. In addition to traffic entering off of Interstates 278 and 895 (77,000 vehicles per day, including over 12,000 trucks), the Hunts Point markets receive approximately 2,700 rail cars per year served by an active freight rail connection operated by the CSX Railroad.[3]

In 2012, the market received a $10 million federal grant to expand and modernize rail operations and in 2015, Mayor de Blasio announced that New York would spend $150 million over 12 years to modernize the market.[4][5] Given these planned improvements, the New York State Department of Transportation (NYSDOT) projects that truck traffic volumes may increase to 17,000 trucks and 10,200 vans entering Hunts Point during a 24-hour period in 2030.[6]

Table 2: Summary Labor Statistics for the Bronx/M-Districts

NAICS Code	Industry	Bronx County[1]	M Districts[2]
62	Health care and social assistance	39.2%	16.3%
44-45	Retail trade	13.1%	16.3%
72	Accommodation and food services	7.2%	6.3%
42	Wholesale trade	4.7%	8.6%
23	Construction	4.6%	12.8%
81	Other services, except public administration	3.9%	4.3%
56	Administrative and waste services	3.5%	5.1%
31-33	Manufacturing	2.7%	8.1%
48-49	Transportation and warehousing	3.2%	11.0%
NA	All other sectors[3]	17.9%	11.1%
	Total	100.0%	100.0%

[1] U.S. Bureau of Labor Statistics

[2] "Employment in New York City's Manufacturing Districts", NYC Department of City Planning (2015)

[3] Other sectors include: Educational Services (NAICS 61), Real Estate (NAICS 53), Professional and Technical Services (NAICS 54), Finace and Insurance (NAICS 52), Arts & Entertainment (NAICS 71), and Information & Telecommunications (NAICS 51).

Figure 4: Employment by Sector Bronx County/M Districts

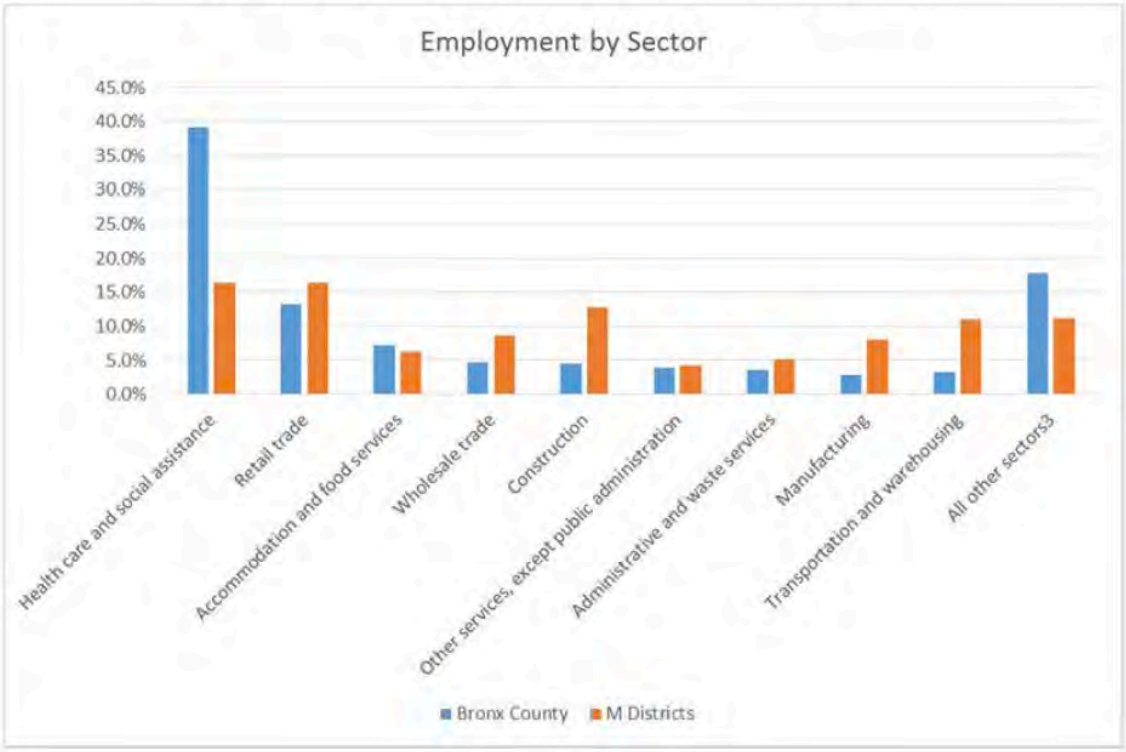


Table 3: Summary Labor Statistics by Industry Subsector for the Bronx

NAICS Code	Industry Name	Job Count by Industry					Average Annual Wage
		2012	2015	Net Change 2012-2015	Percent Change 2012-2015	Percent Change 2012-2020[1]	2015
624	Social assistance	23,258	26,491	3233	14%	22.0%	$ 27,841
622	Hospitals	24,575	25,246	671	3%	5.7%	$ 75,881
621	Ambulatory health care services	17,507	23,131	5624	32%	41.7%	$ 49,943
623	Nursing and residential care facilities	17,641	17,257	-384	-2%	18.0%	$ 41,235
722	Food services and drinking places	13,499	16,501	3002	22%	30.1%	$ 19,406
611	Educational services	14,217	16,291	2074	15%	10.6%	$ 55,152
445	Food and beverage stores	9,365	10,147	782	8%	14.9%	$ 24,605
531	Real estate	8,896	8,903	7	0%	8.6%	$ 41,532
424	Merchant wholesalers, nondurable goods	7,085	8,401	1316	19%	2.6%	$ 64,433
238	Specialty trade contractors	6,847	8,243	1396	20%	22.9%	$ 71,447
561	Administrative and support services	6,608	6,886	278	4%	21.2%	$ 25,935
452	General merchandise stores	4,317	5,325	1008	23%	14.1%	$ 17,761
541	Professional and technical services	3,991	4,477	486	12%	28.0%	$ 48,425
446	Health and personal care stores	3,752	4,442	690	18%	21.7%	$ 40,156
448	Clothing and clothing accessories stores	3,056	3,551	495	16%	16.0%	$ 18,191
485	Transit and ground passenger transportation	2,926	3,464	538	18%	18.0%	$ 35,476
813	Membership associations and organizations	3,088	3,362	274	9%	24.6%	$ 30,989
812	Personal and laundry services	2,852	3,135	283	10%	14.1%	$ 22,165
522	Credit intermediation and related activities	3,054	2,639	-415	-14%	-4.3%	$ 45,030
811	Repair and maintenance	1,981	2,379	398	20%	11.2%	$ 34,146
423	Merchant wholesalers, durable goods	2,412	2,333	-79	-3%	7.0%	$ 62,798
484	Truck transportation	1,873	1,962	89	5%	8.6%	$ 49,777
712	Museums, historical sites, zoos, and parks	1,834	1,951	117	6%	19.4%	$ 48,934
517	Telecommunications	2,314	1,909	-405	-18%	-11.1%	$ 79,238
311	Food manufacturing	1,728	1,767	39	2%	14.4%	$ 40,540
236	Construction of buildings	1,359	1,614	255	19%	16.0%	$ 52,081
441	Motor vehicle and parts dealers	1,521	1,580	59	4%	9.3%	$ 50,018
444	Building material and garden supply stores	1,386	1,469	83	6%	5.3%	$ 40,673
562	Waste management and remediation services	916	1,377	461	50%	42.6%	$ 65,018
524	Insurance carriers and related activities	1,023	1,288	265	26%	2.3%	$ 70,407

Source: U.S. Bureau of Labor Statistics, New York State Department of Labor, Division of Research and Statistics
Long-Term Industry Employment Projections, 2012-2022, NYC

BROWNFIELD REDEVELOPMENT POTENTIAL

As part of the planning process for the Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide study, several properties that are known or suspected to be contaminated ("brownfields") have been identified based on their history of land use and, in some cases, documented environmental investigations. Redevelopment on Brownfields may be complicated by many factors. The cost to investigate and remediate a contaminated site is sometimes difficult to assess accurately and often can be an iterative process that can take many months or years to fully understand as the evidence for on-site contamination is gathered and evaluated.

The type and spatial extent of the contamination may also influence the type of redevelopment that is permitted following completion of the site's remediation. For example, the site remediation regulations of the New York State Department of Environmental Conservation (NYSDEC) and the New York City Office of Environmental Remediation (NYC OER) will allow contamination to remain on-site after remediation, under certain conditions, when institutional and engineering controls have been put in place to protect the public from the residual contamination. In this case, where a site may not have been fully remediated to the so-called "unrestricted" standard (meaning that the use of the land in the context of the environmental contamination is unrestricted), certain types of post-remediation development, such as residential or community facility uses may be restricted. These considerations must be fully evaluated and included with any redevelopment plans.

In Cluster 1, 15 of the 27 parcels, comprising approximately 51 percent of the land area have been identified as brownfields. One of the sites, located at 1400 Story Ave. (Block 3621, Lot 1) is 261,700 sq. ft. and comprises more than half of the total Brownfield area in the cluster. Known as the "Loral Site", the parcel is a portion of the former operations of defense contractor Loral Electronics at this location, which closed in the late 1990s. The parcel adjoins the Bronx Arena High School, which was built on part of the Loral property in 2004. Following completion of the school, concerns were raised about the environmental safety of the site due to residual contaminants in the soil.[7]

The remaining 14 identified Brownfields in Cluster 1 comprise the entirety of the adjoining Blocks 3647 & 3648. All of the Brownfield parcels are contiguous, thus increasing their redevelopment value. Half of the parcels are vacant and the other 7 parcels have development including several buildings. Based on the ACS statistics, the Market Area is a fair representation demographically of the parcels is quite high, indicating that the sites may not be used at their highest and best value. For sites with a value ratio of less than 25 percent, the current usage may be a good indicator that the site is currently economically viable with its present development. In Cluster 1, Lot 30 on Block 36547 and Lots 35 and 43 have relatively high value ratios, indicating the sites may be currently underused. Often, a site's status as a known Brownfield may be a significant contributing factor to depressed property values.

Table 5: Cluster 1 Brownfield Property Characteristics

CLUSTER 1 BROWNFIELD PROPERTY CHARACTERISTICS								
Block/Lot	Ownername	Address	ZipCode	Bldg. Class	Lot Area (sf)	Bldg. Area (sf)	Value Ratio	Year Built
3621-1	Br-2012 Realty	1400 Story Ave.	10473	(V1) Vacant Land	261,700	-	-	-
3647-1	Bronx River Avenue	900 Bronx River Ave.	10473	(V1) Vacant Land	40,000	-	-	-
3647-20	D Benedetto Inc	960 Bronx River Ave.	10473	(E9) Warehouse	23,489	23,489	< 0.25	1964
3647-30	Eastern Boulevard Ass	1430 Bruckner Blvd.	10473	(G2) Garage	26,245	5,510	0.50 - 0.90	1949
3647-45	-	Bruckner Blvd.	10473	(V1) Vacant Land	-	-	-	-
3647-46	-	Close Ave.	10473	(V1) Vacant Land	-	-	-	-
3647-50	Ciminello Property	Bruckner Blvd.	10473	(V1) Vacant Land	3,414	-	-	-
3647-51	Ciminello Property	973 Close Ave.	10473	(E9) Warehouse	16,647	11,800	< 0.25	1955
3647-60	Ciminello Property	945 Close Ave.	10473	(E9) Warehouse	10,000	10,000	0.25-0.50	1959
3648-1	Bronx River Avenue,	900 Close Ave.	10473	(V1) Vacant Land	40,000	-	-	-
3648-19	New 970 Colgate Ave.	950 Close Ave.	10473	(V1) Vacant Land	28,500	-	-	-
3648-25	Ciminello Property	960 Close Ave.	10473	(E9) Warehouse	16,726	11,540	0.25-0.50	1961
3648-35	Renato Assoc.	968 Close Ave.	10473	(G2) Garage	14,217	1,750	0.50 - 0.90	1946
3648-43	-	1458 Bruckner Blvd.	10473	(Z9) Undefined	20,500	180	0.50 - 0.90	1955
3648-135	Thr Renato Corp.	Close Ave.	10473	(V1) Vacant Land	3,000	-	-	-

No parcels are located in historic or landmark areas. No parcels include residential area or condominiums. All parcels are uniquely zoned (M1-1) Light Manufacturing.

In Cluster 2, the identified brownfields include only 18 of the cluster's 172 parcels and comprise less than 4 percent of the total land area as "scattered sites" of vacant land interspersed amongst the other dense development. The location of these brownfields relative to the other non-brownfield sites may offer indications of the best future use of these sites. For example, the scattered brownfield sites located on Blocks 4004, 4005, 4006, and 4007 (north of E. Tremont Ave.) and Block 3908 (south of E. Tremont Ave.) that are located within areas of residential development may be used for in-fill residential structures, small retail or office buildings, mixed-use, side-yards, or even for installation of green stormwater infrastructure projects.[8] The remaining brownfields include commercial parking areas on Blocks 4005, 4008 (north of E. Tremont Ave.) and Blocks 3907, 3908 and 3909 (south of E. Tremont Ave.).

Table 6: Cluster 2 Brownfield Property Characteristics

CLUSTER 2 BROWNFIELD PROPERTY CHARACTERISTICS								
Block/Lot	Ownername	Address	ZipCode	Bldg. Class	Lot Area (sf)	Bldg. Area (sf)	Value Ratio	Year Built
3904-1	Eastern Blvd Realty C	E. 177 St. (1)	10472	(U6) Railroad	-	-	< 0.25	-
3907-19	Metropolitan Transpor	Wyatt St.	10460	(G7) Parking Lot	9,356	-	-	-
3908-16	Ciminello Industrial	1176 E. 178 St.	10460	(V1) Vacant Land	2,500	-	-	-
3908-63	Valle Edelimiro Jr	E. 178 St.	10460	(V1) Vacant Land	2,227	-	-	-
3908-68	390 Morris Park Ave.	1206 E. 178 St.	10460	(V1) Vacant Land	15,452	-	-	-
3909-61	391 Morris Park Ave.	420 Morris Park Ave.	10460	(V1) Vacant Land	25,500	-	-	-
4004-30	392 Morris Park Ave.	1112 E. 179 St.	10460	(V1) Vacant Land	2,000	-	-	-
4005-1	John Schauder	1129 E. 179 St.	10460	(V9) Vacant Land	2,500	-	-	-
4005-5	Transamerica Holdings	1119 E. 179 St.	10460	(V9) Vacant Land	2,501	-	-	-
4005-10	East 179 Llc	420 E. 179 St.	10457	(V9) Vacant Land	15,718	-	-	-
4005-12	Chand Tremont Corp	426 Devoe Ave.	10460	(O9) Office Bldg.	12,943	2,002	> 0.90	-
4006-6	Chand Tremont Corp	1115 Lebanon St.	10460	(V1) Vacant Land	2,500	-	-	-
4006-7	Joyce S Saywack	1113 Lebanon St.	10460	(V1) Vacant Land	2,500	-	-	-
4007-20	Joyce S Saywack	1159 E. Tremont Ave.	10460	(V1) Vacant Land	1,080	-	-	-
4007-21	Cojax Construction	1157 E. Tremont Ave.	10460	(V1) Vacant Land	1,128	-	-	-
4007-31	Ibrahim Kamara	434 Bronx Park Ave.	10460	(G0) Garage (Res.)	2,500	450	0.50 - 0.90	1924
4008-3	Juan Sanchez	Bronx Park Ave.	10460	(V1) Vacant Land	5,279	-	-	-
4008-5	Manuel Rodriguez	E. 180 St.	10460	(V1) Vacant Land	1,430	-	-	-

No parcels are located in historic or landmark areas. No parcels include residential area or condominiums.

The 15 identified Brownfield properties in Cluster 3 comprise approximately 1/3 of its total area. On Block 3017 there is a strip of 6 contiguous properties that lie in-between the Sheridan Expressway and the Bronx River. The development on these parcels includes multiple buildings used as warehouses and offices and scrap yards and a 3-floor Sheridan Hotel built in 2007. Cluster 3 also includes another 10 contiguous parcels located on the west side of the Sheridan Expressway on Block 3006 between Home St. and Freeman St. and bounded by the apartment buildings on West Farms Road. All of these properties are in use as parking lots or garages.

Table 7: Cluster 3 Brownfield Property Characteristics

CLUSTER 3 BROWNFIELD PROPERTY CHARACTERISTICS								
Block/Lot	**Ownername**	**Address**	**ZipCode**	**Bldg. Class**	**Lot Area (sf)**	**Bldg. Area (sf)**	**Value Ratio**	**Year Built**
3006-1	Palma, Kum Ok	1085 Home St.	10459	(G1) Garage	9,576	19,045	< 0.25	1931
3006-5	1301 Westchester Avea	1077 Home St.	10459	(G1) Garage	20,000	20,000	0.25-0.50	1931
3006-9	1077 Home Street	Home St.	10459	(G7) Parking Lot	5,000	-	-	-
3006-11	Ace 1028 Realty	1071 Home St.	10459	(G7) Parking Lot	5,000	-	-	-
3006-19	Homechester Realty	1051 Home St.	10459	(G7) Parking Lot	5,000	-	> 0.90	-
3006-21	Custodio, Inc.	Home St. (1)	10459	(G7) Parking Lot	6,500	-	-	-
3006-32	Ramos Eileen	1018 Freeman St.	10459	(G7) Parking Lot	10,000	-	> 0.90	-
3006-36	Ace 1028 Realty	1028 Freeman St.	10459	(G1) Garage	15,000	10,800	0.25-0.50	1931
3006-42	Ace 1028 Realty	1038 Freeman St.	10459	(G7) Parking Lot	5,000	-	-	-
3017-28	Ace 1028 Realty	1476 Sheridan Expwy	10459	(G2) Garage	8,500	2,930	0.50 - 0.90	1931
3017-29	Zardoya Mateo Realtyc	1476 Sheridan Expwy	10459	(E1) Warehouse	84,229	46,306	0.25-0.50	1924
3017-60	P D J Simone Rlty Co	1428 Edgewater Road	10459	(F1) Heavy Mfg.	23,495	16,398	0.25-0.50	1929
3017-65	W N F Holding Corp	1476 Sheridan Expwy	10459	(H4) Motel	19,070	26,353	< 0.25	2007
3017-68	Shri Sai Shakti, Llc	1476 Sheridan Expwy	10459	(V1) Vacant Land	14,411	-	-	-
3017-74	Wnf Holding Corp	1476 Sheridan Expwy	10459	(F1) Heavy Mfg.	41,149	14,000	0.25-0.50	1965

No parcels are located in historic or landmark areas. No parcels include residential area or condominiums.
All parcels are uniquely zoned (M1-1) Light Manufacturing, except as noted: (1) Parcel split zoned (M1-1) Light Manufacturing / (R7-1) Multifamily

Details of the brownfield parcel characteristics are provided in Table 5, Table 6, and Table 7 above. Detailed overview maps of the brownfields are provided in Appendix B, Map Group 5.

RESIDENTIAL: 1-3 FAMILY HOUSES, INDIVIDUAL CONDOMINIUMS, and COOPERATIVES

The residential ("Home") property category includes one-to-two family dwellings, individual condominiums, and cooperatives. These types of properties currently comprise about 10 percent of the land use in the Market Area and approximately 9 percent of the land area in Cluster 2. Cluster 1 and Cluster 3 have no one-to-two family homes in them at all. Residential zoning districts in the Market Area are almost entirely for higher density residential development (R4-R8), which favors attached apartments and high-rises, and other multifamily developments. According to data provided by the Real Estate Board of New York (REBNY), residential sales are currently at their highest levels in NYC since prior to the Great Recession in 2007 (but still below the level during the early 2000s), and have in the last quarter experienced some slowing. Sales volume (number of units sold) fell city-wide between the second quarter of 2015 (2Q15) and the second quarter of 2016 (2Q16) by 2 percent. However, residential sales in the Bronx remained strong with an increase in volume from 728 sales to 889 (22 percent increase) in the same 12 month period.

The average sale price of a home in NYC increased by 10 percent in 2Q16 to $1,018,000, up from $923,000 in 2Q15, while the average price of a home in the Bronx increased by 5 percent from $364,000 to $382,000. The median price for a home in the Bronx remained steady at a 1 percent increase from $356,000 to $360,000, while average square foot prices increased 7 percent from $237/sq. ft. to $253/sq. ft. Approximately 2,750 existing, non-distressed homes were sold in the borough from 2Q15 to 2Q16, up 12 percent compared with the number sold during the previous 12 months.

According to the New York University's Furman Center, since at least 2000, the Bronx has consistently demonstrated some of the weakest indicators regarding the residential housing market relative to the other boroughs. The Bronx has consistently had the lowest rates of home ownership (18.2 percent in 2014) of all the boroughs, lowest sales volume and lowest average and median sales prices. The indicators for the residential rental market, on the other hand, is considerably stronger. With a rental vacancy rate of 2.4 percent in 2014, the Bronx had the tightest rental market in all of New York City. The median rents are also the lowest ($1,078 in 2015).[9]

Table 8: Residential Property Sales in NYC/Bronx

	Home Sales					
	2Q 2016		% Change from 1Q 2016		% Change from 2Q 2015	
	NYC	Bronx	NYC	Bronx	NYC	Bronx
Total Residential Sales ($ Million)	$ 11,226	$ 340	4%	-9%	8%	28%
Avergae Price ($ Thousands)	$ 1,018	$ 382	12%	1%	10%	5%
Median Price ($ Thousands)	$ 582	$ 360	4%	-1%	7%	1%
Avergae $/SF	$ 702	$ 253	9%	2%	8%	7%

Source: The Real Estate Board of NY

Estimates provided by the U.S. Department of Housing and Urban Development (HUD) in the July 2015 Comprehensive Analysis of the Housing Market in New York City, indicates that the sales housing market in the Bronx is balanced. The current estimated vacancy rate is 2.0 percent, down from 2.3 percent during 2010. Single-family home construction, measured by permit counts by the U.S. Census, averaged approximately 40 homes annually in the Bronx from 2000 through 2007 and expanded to an average of 85 homes annually through 2009, before declining to fewer than 10 units annually since 2010. During the 12 months ending June 2015, virtually no single-family homes were permitted, unchanged from a year earlier.[10]

Table 9: Estimated Demand for New Market-Rate Sales Housing in the Bronx

Price Range	Units of Demand	Percent of Total
$200,000 - $350,000	160	25%
$350,000 - $450,000	250	38%
$450,000 - $600,000	180	28%
> $600,000	60	9%
Total:	**650**	**100%**

Forecast period - July 2015 - July 2018
Source: U.S. Dept. of Housing and Urban Development

A 3-year forecast (July 2015 – July 2018) developed by HUD for estimated demand for new marketrate sales housing in the Bronx is presented in Table 9. During the 3-year forecast period, demand in the Bronx is expected for 650 new homes. Demand is expected for approximately 190 homes and condominium units in the first year and is expected to increase to 220 homes in the second and third years of the forecast period.

During the same forecast period, demand is expected for 9,350 rental residential units in the Bronx. Demand is expected for approximately 8,000 income-restricted and 1,300 market rate units. Demand is expected to average 3,125 units during the second and third years.

COMMERCIAL AND INVESTMENT PROPERTY

The commercial and investment property category includes multifamily (3+ families) rental housing, industrial properties (including warehouses of all kinds, and manufacturing facilities), retail development (stores and shopping centers); garages, gas stations and vacant land; office buildings; hotels; and commercial condominiums. Individual condominium and cooperative apartments and all one-to-two family homes are excluded from this market (see the section above on single-family residential housing).

According to data provided by REBNY, the market for commercial and investment real estate in the Bronx is currently dominated by multifamily rental housing. In the first half of 2016, non-elevator (under 5-stories)[11] and elevator multifamily housing buildings accounted for 36 percent and 32 percent of the total market, respectively. Industrial development accounted for another 10 percent of the market. The property category including garages, gas stations and vacant land is 7 percent of the market. Retail included 5 percent of the market and office space accounted for another 4 percent. Approximately 5 percent of the market in the "Other" or "Special Uses" REBNY property category includes hospitals, theatres, churches, places of public assembly and outdoor recreation, as well as transportation and utility facilities. The current market for commercial condominiums and hotels in the Bronx is very small or non-

existent, and will not be considered further. See Table 10 below.

In comparison to New York City as a whole, multifamily housing comprises a larger share of the Bronx market (68 percent vs. 40 percent) as does industrial development (10 percent vs. 5 percent). The market for office space in New York City is dominated by Manhattan and Brooklyn, with the market in the Bronx for office space comparatively weak.

Table 10: Investment Real Estate Market in NYC and the Bronx

	First Half 2016					
	Total Considerations ($ Million)		Total Considerations (% of total)		Growth % (1H 2015 - 1H 2016)	
Property Category	NYC	Bronx	NYC	Bronx	NYC	Bronx
Multifamily Rentals, Elevator	$ 3,962	$ 495	29%	32%	-14%	19%
Multifamily Rentals, No Elevator	$ 3,936	$ 563	11%	36%	-11%	27%
Office	$ 12,093	$ 60	25%	4%	-14%	-8%
Garages / Gas Stations / Vacant Land	$ 1,687	$ 105	8%	7%	-48%	-55%
Industrial	$ 1,481	$ 154	5%	10%	-3%	8%
Retail	$ 2,027	$ 85	4%	5%	-31%	-38%
Commercial Condominiums	$ 1,495	$ 5	7%	0%	41%	-22%
Hotels	$ 1,536	$ -	5%	0%	-64%	0%
Other	$ 1,327	$ 81	5%	5%	34%	69%
Total	**$ 29,544**	**$ 1,549**	**100%**	**100%**	**-20%**	**4%**

Source: The Real Estate Board of NY

Note: Data includes the conveyances of investment property.A conveyance includes the transfer of a deed as well as a conveyance of property through a long-term lease that is subject to a New York City Real Property Transfer Tax (RPTT)

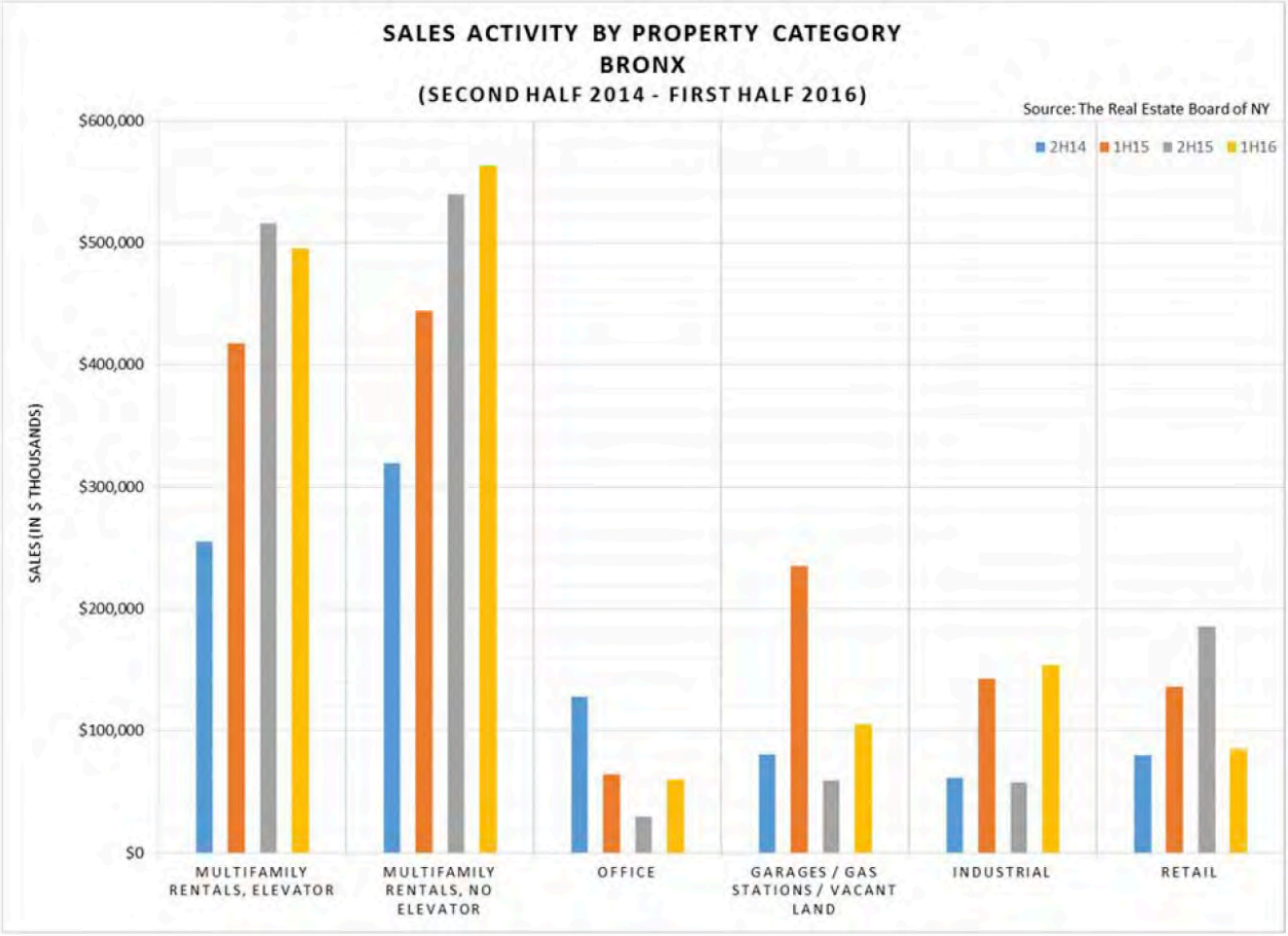
Although considerations and transaction volume for commercial and investment properties slowed throughout NYC as a whole in the first half of 2016 (1H16) compared to the first half of 2015 (1H15), the Bronx demonstrated the strongest growth of any of the boroughs with 4 percent overall growth compared to a drop of 20 percent city-wide. Multifamily building considerations continued to grow and outpace the rest of the City with growth in non-elevator and elevator multifamily rental housing considerations growing at rates of 27 percent and 19 percent, respectively. In comparison, multifamily considerations dropped by an average of 12.5 percent in NYC as a whole.

In addition, total Bronx multifamily rental building sales comprised more than a quarter of the city's multifamily rental consideration in the first half of 2016, as multifamily rental elevator and non-elevator sales increased in both consideration and number of transactions. Industrial development also showed strong growth in the Bronx at 8 percent compared to a slow-down of 3 percent city-wide.[12] See Table 10 above.

In its Bronx 2016 Mid-Year Sales Report[13], Ariel Property Advisors reports a bullish outlook for the Bronx multifamily market due to continued upward trends in both dollar and transaction volumes as well positive demographics such as the increasing population levels in the borough (highest since the 1970s) and relatively low unemployment levels. Ariel reported the largest multifamily transactions in 1H16 in the Bronx as the Emerald Equity Group and Harbor

Group's purchase of The Bronx 1000 Portfolio for $140 million from Jerome Associates, and City Life Realty's purchase of 1511 Sheridan Avenue for $34.7 million, a 45 percent jump over the 2015 sale price of $24 million. REBNY also reported for 1H16 a $67 million sale of a 470-unit elevator apartment complex at 549 Commonwealth Avenue in Clason Point and a $39 million sale of a 6,700-square foot parcel of vacant land at 841 East 141st Street, located in a manufacturing area of Port Morris.

Figure 7: Sales Activity by Investment Property Category



CONCLUSION

Over the last four years, the Bronx has experienced one of the strongest multifamily markets city-wide. In 2014, the Bronx had one of the tightest rental markets in all of New York City, with the lowest median rents, showing a clear need for more affordable housing in the borough. The increase in one-to-two family residential home sales 2Q15-2Q16, while home sales city-wide decreased, also indicates demand for additional market-rate housing in the Bronx. Given that the majority of the brownfield sites explored in this study are not being used at their highest and best value, as suggested by their value ratios, the cleanup and redevelopment of these properties into multifamily rental housing (both affordable and market rate) would be strongly supported by the current market.

END NOTES - MARKET ASSESSMENT

[1] Since 1914, the Bronx (borough) has had the same boundaries as Bronx County, a county of New York and the third most densely populated county in the United States.
[2] Due to differences between the methodology of the ACS and the U.S. Bureau of Labor Statistics (BLS) Current Population Survey, the unemployment rates reported here are higher than rates reported by the U.S. BLS. The unemployment rate for all of Bronx County in Feb. 2013 reported by the BLS was 12.9 percent. The current BLS estimate of unemployment for Bronx County as of August 2016 is 7.8 percent.
[3] "An Economic Snapshot of the Hunts Point Food Distribution Center." Office of the State Comptroller. https://www.osc.state.ny.us/reports/economic/huntspoint08.pdf
[4] "Hunts Point Market to Use $10 Million Grant For Rail Improvements", DNAinfo.com. June 25, 2012.
https://www.dnainfo.com/new-york/20120625/hunts-point/hunts-point-market-use-10m-grant-for-rail-improvements
[5] "Mayor de Blasio Announces $150 Million Investment in Hunts Point Food Distribution Center". NYCDEC. March 6, 2015. http://www.nycedc.com/blog-entry/mayor-de-blasio-announces-150-million-investment-hunts-point-fooddistribution-center
[6] New York State Department of Transportation (August, 2007). Bruckner-Sheridan and Access to Hunts Point Peninsula EIS NEPA Scoping Report. https://www.dot.ny.gov/regional-offices/region11/projects/projectrepository/bese/pdf/final_nepa_scoping_report_aug07.pdf?nd=nysdot
[7] "Film industry to develop Soundview site." Bronx News.com. March 9, 2015. http://www.bxtimes.com/stories/2015/9/09-studio-2015-02-27-bx_2015_9.html
[8] The use of green stormwater infrastructure to manage stormwater on brownfields may be complicated by the existence of contamination in the subsurface. However the many benefits of green stormwater infrastructure for resiliency, clean water and social and community benefits may make the additional planning, investigation, and remediation that may be necessary worth the expense.
[9] "The State of New York City's Housing and Neighborhoods in 2015." NYU Furman Center. http://furmancenter.org/research/sonychan
[10] "Comprehensive Housing Market Analysis. New York City, NY." U.S. Department of Housing and Urban Development. Jull 2015. https://www.huduser.gov/portal/publications/pdf/NYC-comp-16.pdf
[11] NYC Building Code 3002.4 requires an elevator when a building reaches a height of five stories or more, regardless of occupancy classification. However, other provisions in the 2008 NYC Construction Codes, such as sections BC
1104.4 and 1107.7.1 may necessitate an elevator for the purposes of providing an accessible route regardless of the overall height of the building.
[12] "New York City Investment Sales Report First Half 2016". The Real Estate Board of NY. August 2016. https://www.rebny.com/content/rebny/en/newsroom/research/NYCInvestmentSalesReport/First_Half_2016_NYC_Investment_Sales_Report.html
[13] "Bronx 2016 Mid-Year Sales Report." Ariel Property Advisors. July 2016. http://arielpa.com/report/report-APABronx-mid2016-Sales-Report

BROWNFIELD & CATALYST SITES

BROWNFIELD SITES

According to the U.S. Environmental Protection Agency (EPA), a brownfield is defined as "property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." The EPA estimates that there are more than 450,000 brownfields in the United States, and states that remediating and reinvesting in these properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment.

BROWNFIELD POLICIES AND INITIATIVES

According to OneNYC, the City of New York has cleaned up and redeveloped over one hundred brownfield sites, generating more than 420 new jobs and 550 units of affordable housing, including sites in the project area, such as the Lebanon West Farms site. However, many brownfield sites remain within the City and the project area and continue to create negative health impacts for plan area residents:

> "Comprehensive brownfield management has the potential to address many environmental, social, and economic problems in New York City. As our need for space grows, we must use our existing stock of land more effectively. Brownfield cleanup and redevelopment represents one our best opportunities to engage communities and reclaim land for development in the City. It also offers an opportunity to simultaneously benefit the environment, improvement the health of our neighborhoods and attain more equitable and sustainable development. **We aim to clean up contaminated land to eliminate exposure to environmental toxins and alleviate social inequality caused by disproportionately high occurrences of brownfields in low-income neighborhoods."** (OneNYC 2016)

In 2007, the City of New York initiated the nation's first municipal brownfield cleanup program called the NYC Voluntary Cleanup Program (NYC VPCP) as well the Land Cleanup and Revitalization Initiative (LCRI). The City also operates the NYC Brownfield Incentive Grant (BIG) program, which provides financial incentives to promote brownfield cleanup and redevelopment. Finally, the City of New York participates in the State's Brownfield Cleanup Program (BCP).

As part of the 2016 Vision Plan, the City proposed three (3) brownfield initiatives to assist communities like the Bronx River – Sheridan Expressway Corridor achieve the goal of remediation and redevelopment of brownfield sites.

1. **Accelerate cleanup of brownfields to improve public safety and encourage private investment in new development on brownfield sites.**

The City will continue its efforts to clean up brownfields by leveraging City and State brownfield programs, like NYC VCP, BIG and the Brownfield Jumpstart Programs and the NYS BCP. By 2020, the City aims to clean up 750 brownfield sites and create 5,000 new units of affordable housing.

2. Support community engagement by establishing additional place-based community brownfield planning areas.

The City currently supports place-based community brownfield planning in low-income neighborhoods that have a disproportionately high occurrence of brownfields. By 2020, the City aims to assist with the identification, cleanup and redevelopment of community-supported projects on 40 properties.

3. Facilitate cleanup of properties in the 100-year floodplain to reduce environmental risks from storm surges.

Brownfields in low-lying waterfront areas can present a substantial hazard if they are flooded, as this can cause the dispersal of environmental contaminants to surrounding areas. The City has already expanded the BIG program to support brownfield cleanup in the 100-year floodplain, strengthened standards or cleanup of industrial properties on the waterfront, established new community brownfield areas in flood-prone neighborhoods, and improved online access to maps of floodplain and related areas.

BROWNFIELD RESILIENCY

In addition, the City's "Stronger, More Resilient New York," contains actionable recommendations for increasing resilience of brownfield sites. This report strongly supports existing brownfield cleanup programs and recommends accelerating the pace of brownfield cleanup in the floodplain. This includes protecting operating industrial sites and remediating and redeveloping brownfields in a resilient fashion. In order to realize these goals, the City recommends many of the same initiatives as OneNYC, including identifying cost-effective measures to safeguard exposed substances in the 100-year floodplain, expanding the BIG program to accelerate cleanup of brownfields in the floodplain, and launch brownfield climate change resiliency audits.

The issue of brownfield resiliency is also addresses in "Vision 2020," the City's comprehensive waterfront plan. This plan similarly encourages the responsible cleanup of waterfront brownfield sites using existing programs, such as NYC BCP, NYC BIG and the NYS BOA program. Specific strategies for incentivizing the cleanup and redevelopment of waterfront brownfield sites including the following:

- Leverage redevelopment of waterfront brownfield sites through BIG grants;
- Encourage property owners to attain NYC Green Property Certification and enroll in the volunteer NYC and NYS brownfield cleanup programs;
- Increase the awareness of environmental cleanup resources and tools;
- Work with the NYS DEC to develop a model cleanup program for waterfront properties;

- Assess infrastructure needs of waterfront redevelopment sites; and
- Revise zoning to encourage redevelopment and reuse of waterfront industrial sites.

BROWNFIELD INVENTORY

The Sheridan – Hunts Point Land Use and Transportation Study further identifies opportunities to remediate and redevelop brownfield sites, particularly along Bronx River Avenue and the Sheridan Expressway. The largest vacant site is the Loral Site, located in the Soundview neighborhood adjacent to Soundview Park and an existing mix of residential and industrial uses. According to this Study, this site "presents an opportunity to provide direct waterfront access for thousands of residents while generating economic activity" on a site that is currently inactive and contaminated. Similarly, the remediation of waterfront industrial parcels adjacent to the Sheridan Expressway near Westchester Avenue could facilitate new uses near existing transit and parkland.

This Study further encourages the redevelopment of underutilized sites by:

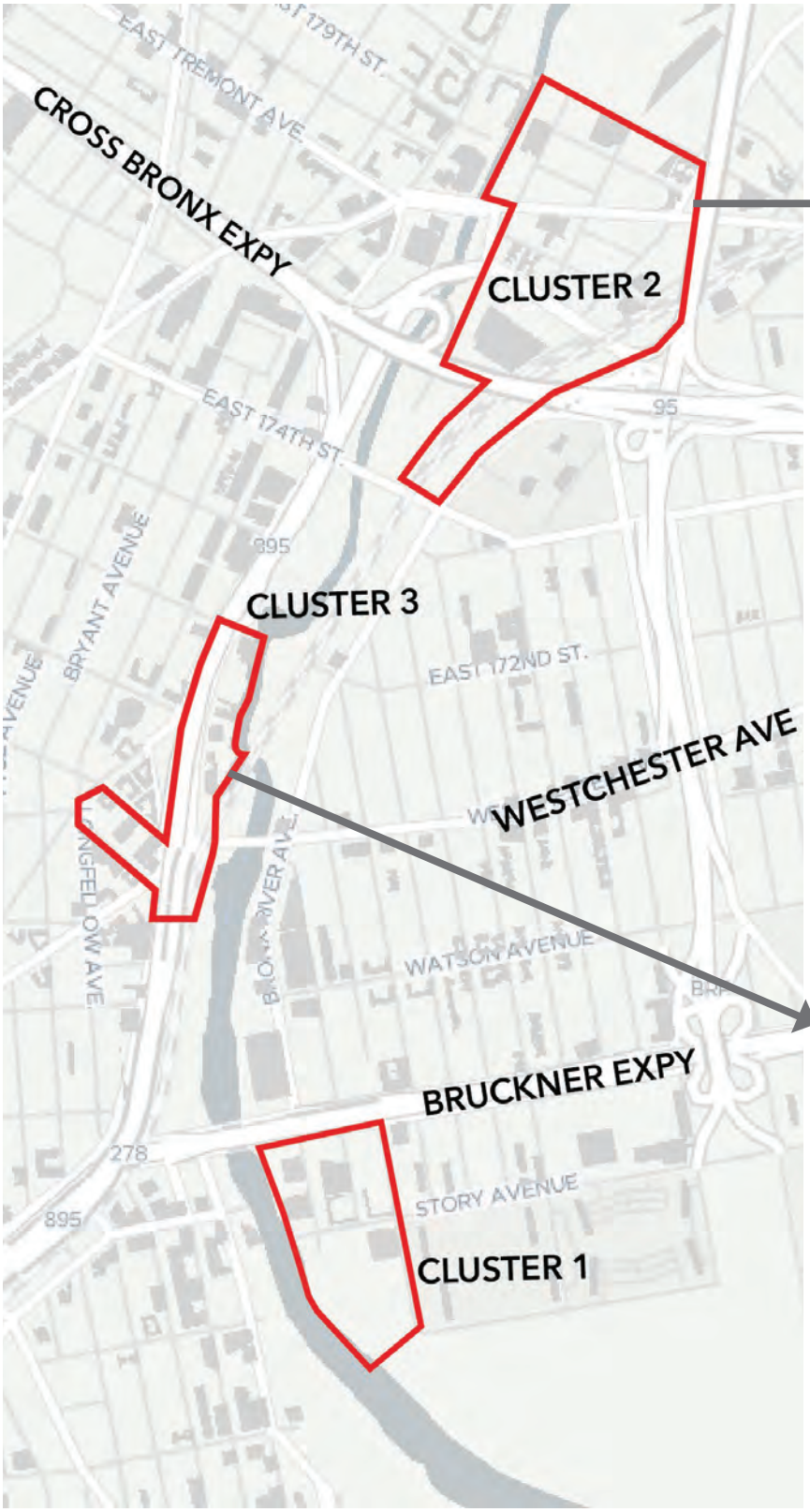
- Supporting remediation and redevelopment of existing and potential brownfield sites along the Bronx River through exploration of environmental conditions;
- Identifying funding sources for environmental testing on potential development sites; and
- Pursuing Brownfield Opportunity Areas funding where appropriate to facilitate planning for the future of key brownfield sites.

CATALYST SITE SELECTION

The consultant team conducted a field survey in August 2016 to inventory brownfield sites within the three (3) clusters identified in the Bronx River-Sheridan Expressway Corridor project area. This investigation found a minimum of 36 potential brownfield sites, ranging in size from a rowhouse lot to the six acre Loral site. See the complete inventory of these sites in Appendix A.

The consultant team then mapped the inventoried brownfield sites and together with the project planning team invited the public to provide feedback and share their concerns regarding each of the three site clusters. Based on this feedback, the Steering Committee selected the catalyst sites for potential environmental site assessment (ESA) under the Area-Wide Planning grant. See maps of the nine sites selected for environmental site assessments on page 54. (The brownfield prioritization tool, maps, and community outreach documentation can all be found in the Appendix.)

PROJECT AREA & CATALYST SITES



CLUSTER 2

Ref	Block	Lot	Address
1	3908	68	1206 E 178th St
2	3908	63	N/A E 178th St
3	3907	19	1168-1172 Wyatt St
4	3909	61	420 Morris Park Ave

CLUSTER 3

Ref	Block	Lot	Address
5	3017	74	1460 Sheridan Expwy SR
6	3017	68	1458 Sheridan Expwy SR
7	3017	65	1428 Edgewater Rd
8	3017	60	1480 Sheridan Expwy SR
9	3017	29	1476 Sheridan Expwy SR

DEVELOPMENT SCENARIOS

SoBro, together with the consultant team, proposed redevelopment scenarios of nine brownfield sites located in Clusters 2 and 3. The proposed development and program was informed by the public engagement process, the market analysis, and the infrastructure and development analysis (see Appendix C).

As noted in previous sections, the Bronx River Waterfront is already the focus of many efforts to improve its ecological health, provide a recreational and environmental resource, and realize a continuous waterfront greenway. Development of the waterfront would also open up new points of public access to the river. The development scenarios also directly advance the following goals that came out of the Existing Conditions analysis:

- Establish more direct, pedestrian-friendly routes to neighborhood parks, the Bronx River waterfront and the Greenway;
- Create new off-street, waterfront connections between sections of Greenway;
- Enhance visual connections to the Bronx River to entice more patrons to the waterfront and provide additional levels of safety;
- Support completion of Phase II of Starlight Park and connections to eastern neighborhoods to the waterfront and South Bronx Greenway; and
- Provide for a range of uses along the waterfront that complement adjacent neighborhoods, take advantage of transit access and enhance the natural environment of the Bronx River.

PROMINENT ASSUMPTIONS

1. These scenarios assume a zoning change to a medium density residential district with a commercial overlay. FAR would be approximately 4.6 based on 100 percent affordability.

2. Based on other similar developments in the South Bronx, 100 percent unit affordability is assumed. (Affordability will be discussed further in the Financial Feasibility section.)

3. The scenarios also assume a realignment of the Sheridan Expressway in line with the State's current plan to tranform the highway into a more pedestrian-friendly boulevard and create additional on-off ramps.

CLUSTER 2

Lot Area = 230,000 square feet

The proposed redevelopment scenario for Cluster 2 envisions four mixed use residential buildings fronting Wyatt Street with parking tucked behind. The buildings are stepped back

to minimize impact on the surrounding neighborhood character. Up to 400 residential units spread across the four buildings make up about 500,000 square feet of the program. There is an additional 7,000 square feet of ground-floor retail to augment the proposed residential space. The rear surface parking lot includes 150 spaces to accommodate residents and visitors.

As shown in the redevelopment diagram below, the scenario also envisions streetscape improvements along 177th Street to enhance the pedestrian connection to the Bronx River Trail, as well as a landscape buffer along the southeastern edge of the development to mitigate noise from the adjacent Amtrak rail line.

Redevelopment scenario diagram for Cluster 2. Image by WRT Design.

Redevelopment scenario for Cluster 2, view from above. Image by WRT Design.

CLUSTER 2 - ALTERNATIVES

- Given the community's interest in creating a new community space, the ground-floor area of one of the new developments could include a new multi-purpose community space.
- The public engagement meetings also revealed the community's interest in developing a school, which could also serve as a designated community space and/or gym. An additional building could be developed at the eastern edge of the development cluster, fronting 177th Street, to replace a portion of the proposed parking lot (see the diagram on page 56). This location would create an accessible pedestrian connection to the Bronx River Trail, ensuring convenient access for community members outside of the immediate vicinity.

CLUSTER 3 - Freeman Street and Home Street

Lot Area = 102,534 square feet

The proposed program for a portion of Cluster 3 is broken into three mixed use residential buildings totaling more than 350 units, about 450,000 square feet. A group parking garage is included at the base of the buildings, offering approximately 200 spaces, and up to 10,000 square feet of retail space is included on the ground floor.

Redevelopment scenario diagram for Cluster 3. Image by WRT Design.

CLUSTER 3 - Sheridan Expressway

Lot Area = 209,533 square feet

In the portion of Cluster 3 between the Sheridan Expressway and Bronx River, the consultant team proposes four mixed use residential buildings fronting the newly aligned Sheridan Expressway. The medium-density buildings contain more than 400 residential units, totaling about 500,000 square feet. 10,000 square feet of ground-floor retail space serves residents and park users. A group parking lot at the base of the buildings includes approximately 200 parking spaces.

CLUSTER 3 - ALTERNATIVES

- The community expressed interest in creating a library and additional recreational activities associated with the newly accessible waterfront. A portion of the proposed parking at the base of the buildings could alternatively be used for a library and/or equipment rental (e.g. kayaks, canoes) or recreational equipment storage.

Redevelopment scenario for Cluster 3, view from above. Image by WRT Design.

FINANCIAL FEASIBILITY

PURPOSE AND SCOPE

The purpose of this section is to examine how to finance the specific redevelopment scenarios of the strategic brownfield properties in the study area. In particular, this section builds off of the findings of the Market Potential Analysis to evaluate the economic requirements for development of new multifamily affordable housing in the study area. Multifamily developments have been identified as one of the most likely reuses of brownfield sites in the study area given current trends in the South Bronx real estate market.

Detailed background information, including descriptions of the study area, and economic indicators, such as employment and industry, local transportation networks, and land use patterns can be found in the accompanying Market Potential Analysis Report for Cluster 2 provided in Appendix E. The special characteristics, limitations, constraints, and opportunities that are presented by redevelopment on brownfields are also discussed in the Market Potential Analysis Report.

Development of large-scale, neighborhood-transforming multifamily housing projects is a complicated business, requiring the leverage of large amounts of public and private capital. Often, the attraction of sufficient private capital is only made feasible through the promise of direct government assistance and financial benefits provided through complex tax law. This report is intended to act as an "explainer" of these types of deals to allow the community to determine for itself what role it can play in fostering these projects and evaluating the level of effort and risk involved.

Local community development groups, such as SoBro, may sometimes involve themselves fully in the development process by taking the role of developer or an asset manager responsible for the attraction and allocation of the capital funds necessary to plan, design, build and operate multifamily housing projects.

In other instances, communities can assist in making the investments attractive by raising funds for the "soft" costs of development, which may include early planning efforts, site development through demolition of structures, installation of roads and utilities, or environmental remediation. These economic efforts could support other grassroots level organizing for rezoning of sites when necessary and obtaining City approvals for project construction.

THE PROPOSED DEVELOPMENT

For purposes of demonstrating the financial feasibility of brownfield redevelopment, this analysis focuses on one proposed redevelopment site located within Cluster 2 of the Bronx River-Sheridan Expressway Corridor Brownfields Area, which serves as an example project.

Given that the proposed redevelopment sites located in Cluster 3 are very similar in all aspects, this analysis can also be applied to the proposed redevelopment within Cluster 3.

In Cluster 2, approximately 20 percent of the land use is currently residential single-family or multifamily development with another 12 percent of mixed commercial-residential use. Non-residential development is dominated by parking facilities (18.7 percent), with commercial and office, industrial and manufacturing, and vacant land comprising approximately 13 percent each of the total land area.

The proposed redevelopment site is situated on approximately 208,000 square feet located next to the Bronx River Parkway and the Amtrak rail lines, south of E. Tremont Avenue. The proposed development site is bounded by Bronx Park Ave., Morris Park Ave., and E. 177th Street, and intersected by Wyatt Street and E. 178th Street. The proposed redevelopment site includes 14 parcels located across Blocks 3907, 3908, 3909 and 3910. A site diagram of the area and layout of the parcels is provided in Appendix E, Exhibit 1.

All of the properties included in the proposed redevelopment area are zoned M1-1 (Light Manufacturing), which includes all industrial uses as well as commercial and office space. None of the properties are currently used for residential development, however new residential developments and conversions are permitted in selected M1 districts that have a significant number of existing residences (as indicated, land use in the surrounding area is currently only 20 percent residential). Thirteen of the parcels in the proposed redevelopment area, comprising approximately 70 percent of the total land area (147,219 sq. ft.), are privately owned and one of the parcels (Block 3907, Lot 1), comprising approximately 30 percent of the total land area (60,700 sq. ft.) is owned by NYC Transit. Approximately 25 percent of the property (50,650 sq. ft.) in the proposed redevelopment area is covered by 1 and 2-story buildings used for light manufacturing or office space. The remainder of the lots, including the lot owned by NYC Transit, are paved and used for surface parking.

Three of the lots are known to be brownfields, including Lot 61 on Block 3909, Lot 68 on Block 3910, and Lot 19 on Block 3907. However, given the location and historical land use of the area, it may be assumed that all of the sites are subject to a high probability of environmental contamination including the existence of contaminated historic fill. A Phase I and Phase II Site Investigation should be conducted to confirm the existence of contamination.

As noted abover, the proposed redevelopment scenario envisions four eight-story mixed-use residential buildings fronting Wyatt Street with parking located in the rear (see Appendix E, Exhibit 1). The buildings are stepped back from the surrounding streets to minimize impact on the adjacent neighborhood character. The total footprint of the four eight-story buildings is 74,500 sq. ft. with a total Gross Floor Area of 501,500 sq. ft. It is projected that there will be 420 residential apartments with an additional 7,000 square feet of ground-floor retail. The rear surface parking lot includes 150 spaces to accommodate residents, staff, and visitors.

THE MARKET FOR MULTIFAMILY RENTAL HOUSING

As discussed in the Market Potential Analysis Report, the market for commercial and investment real estate in the Bronx is currently dominated by multifamily rental housing

and is increasing at a rate higher than that of rest of New York City as a whole. In addition to continued upward trends in both dollar and transaction volumes in the Bronx multifamily market for existing properties, the New York Times[1] reports that (as of March 2017) more than 5,000 affordable apartments are being developed or planned in South Bronx neighborhoods including Mott Haven, Hunts Point and Melrose Commons. The projects include the 5-building "Peninsula" development located at Spofford Avenue & Tiffany Street (Hunts Point) that will include 740 units of affordable housing; the 425 Grand Concourse 28-story, 241-unit tower development at the site of the former P.S. 31 School building in Mott Haven; "La Central", a 5-building development with 992 units of affordable housing at 430 Westchester Avenue in Melrose Commons; "Elton Crossing" located at 432 East 162nd Street, at Elton Avenue with 199 affordable units; "Bronx Commons" located in the Melrose Commons neighborhood on the west side of Elton Avenue, between East 162nd and East 163rd Street with 305 units of affordable housing; and "Crossroads Plaza" in Mott Haven, a 3-building development with a planned 425 units of affordable housing.

Each of these developments include thousands of square feet of ground-level retail and other major community developments such as new gyms and swimming pools, charter schools, concert halls, roof top gardens and acres of public outdoor space. The new units of affordable housing to be constructed includes rental apartments ranging in size from studios to four-bedrooms and will be available to households earning between 30 and 100 percent of the NYC Area Median Income (AMI). Many of the units will include setasides for populations such as the formerly homeless, senior citizens, and veterans.

REGULATORY AND FINANCIAL DRIVERS FOR AFFORDABLE HOUSING

"Affordable" rental housing means that the rent paid by the tenants is controlled in some fashion by the government to keep them at non-market rates so that the apartments are affordable to those with a household income at 100 percent of the AMI, or less. Lower-than-market rents on the apartments means lower net operating income to a project developer and thereby lower return on investment. Public policy in New York City favors the inclusion of affordable housing in all new residential development projects and government programs are available in many forms to allow these projects to be financially feasible for those who build, own and operate the apartment complexes. For example, to encourage developers to build affordable housing and defray construction costs, New York City has often sold publicly owned land at a fraction of its true market value to affordable housing developers when such action was economically necessary to make a project feasible. In one instance of this type of subsidy, the developer of the La Central project paid only nominal amounts for almost four and a half acres of land used to build the project – an area which brokers estimate to have a market value of more than $12 million.[2]

There may be other types of incentives that may also be used to achieve public policy goals to increase the availability of affordable housing. One way for governments to incentivize developers is to offer something of value through regulation, rather than as a direct financial subsidy. One example in New York City is the Inclusionary Housing Program, which can provide zoning changes to allow denser development in exchange for voluntary or mandatory inclusion of affordable units. The goal is to incentivize developers to include some percentage of affordable units into their otherwise market-rate building development. As

such, the entire building would not be low income, they would instead be mixed-income buildings with market and non-market rate apartments constructed side-by-side. As can be seen with this example, the incentive can have a big impact on how many affordable units will be included in the mix of market and non-market rate housing.

One of the most successful subsidy programs available for developers of multifamily affordable housing projects are Low Income Housing Tax Credits (LIHTC) offered by New York City (using federal dollars) through its Department of Housing Preservation and Development (HPD). The LIHTC does not subsidize affordable housing directly, but instead offers tax credits (as a way of attracting equity to the projects) to those who would construct new affordable housing or rehabilitate existing affordable housing. Those who provide the equity to these LIHTC projects (typically these would be large corporations or banks) use the tax credits to off-set their tax bills on other business income they produce. In general, tax credits are more attractive to large investors than tax deductions because tax credits offer a dollar-for-dollar deduction in federal income tax. Tax deductions, such as costs of doing business, or interest on loans, or paper losses such as depreciation, only reduce taxable income.

The tax credit is calculated as a percentage of costs incurred in developing the affordable housing property and is claimed annually over a 10-year period. The LIHTC thereby provides an incentive to these large organizations to become involved in affordable housing projects. To see how this works, and how community groups may participate, the proposed Bronx Park Ave. & Wyatt St. development project will be used as an example. However, as will be seen, relying on LIHTC for a project of this size is generally impractical. Although LIHTC projects are typically used for large projects that involve 60+ affordable units, in NYC they generally do not exceed 100 units for new construction, and the average tax credit award for new construction is about $22,500 per unit. Although the exercise of calculating the potential LIHTC is useful, other means to attract equity, such as a higher return on investment, or exploring other City or State programs to subsidize costs, must be used to build a project of this size.

SETTING UP THE PROJECT

The LIHTC come in a variety of forms that allow investors in the projects to claim tax credits worth a certain percentage of the value of the project. In the example to be presented here, the so-called "9 percent" tax credit will be used. This particular program allows up to 70 percent of the present value of project costs to be claimed as tax credits over a ten-year period. To arrive at the 70 percent value, a nominal 9 percent annual credit is provided against eligible acquisition and construction costs.

Due to the large investment required to fund multifamily apartment complex construction, a typical business model for an LIHTC project includes the use of a Limited Partnership to own and operate the building, where the equity partners who will make use of the tax credits will own up to 99.99 percent of the partnership. The remaining .01 percent will be owned by a General Partner who will perform the actual day-to-day work of developing the project, operating the building once it is up and running, and providing management of the Limited Partnership itself. For all of this work, the General Partner will collect fees. A community organization, with a great deal of experience in developing and managing affordable

housing projects may sometimes take on the role of the General Partner. In this capacity the community may be directly involved with the development in every aspect and provide its services to ensure a successful project.

Although the LIHTC program allows development to include minimum percentages of affordable housing between as low as 20-40 percent of the total number of units (depending on the type of project), these programs are competitive, and developers find that they must make all of the units, or at least a very high percentage, affordable in able to receive these tax credit awards. For example, in 2017 the NYC Department of Housing Preservation and Development awarded 9 projects a total of $14.5 million of the 9 percent tax credits. Of these projects, only one of them had less than 100 percent affordable housing units. Therefore, to hope to use the 9 percent tax credit to attract equity to the project, it would be expected that 100 percent of the units must meet the NYC standards for affordable housing.

The tool that is commonly used to analyze the financial feasibility of a potential multifamily affordable housing project is the proforma and 20-year cash flow analysis. The proforma provides a summary view of the financial return that a proposed real estate development is likely to create. It does this by showing the costs of development and operation of the apartments, along with projected revenues. The 20-year cash flow analysis provides a more detailed year-by-year look at the proposed business deal that includes the time-value of money. Although imperfect in many ways, the proforma and cash flow analysis do provide a fairly sophisticated way to evaluate the risk and return of investment in these projects at an early stage of development.

The key considerations of setting up the proforma are outlined below, with a more detailed example included in Appendix F.

RESIDENTIAL RENTS

The first step in setting up the proforma is to establish the number of the apartments that can realistically be included in the development so that a projection of residential rents and project income can be established. In this case a net-to-gross floor ratio (the ratio of net rentable space versus total gross building space) of 70-75 percent is used as a way of rough estimating the number of apartments that can be included while maintaining typical common areas, as well as common functional areas like stairways, elevators and atriums. Using average square footage values for apartments located in the proposed developments for studios, and 1, 2, and 3-bedroom units, a total of approximately 400 apartments are estimated for this development in the four medium density buildings. A summary of the projected mix of apartment types are presented in Appendix F, Exhibit 2. As indicated above, it is assumed that 100 percent of the units will be compliant with NYC requirements for affordable housing, therefore the rents indicated in Exhibit 2 are an average of allowable rents for units reserved for families earning between 20-100 percent of the AMI.

The example included in the Appendix also includes additional income derived from the lease on the commercial space, commercial space tenant contributions towards payment of utilities and other costs, and other income that will be derived from parking, vending machines, cable and telephone fees, etc.

DEVELOPMENT COSTS

For purposes of this analysis, the costs to construct the project have been divided between site development costs and the building construction costs. Site development includes all the work required both on-site and off-site in the surrounding areas that is necessary to prepare the site for construction of the apartment buildings. Site development costs typically include the purchase of the land, demolition of existing buildings and other structures, environmental remediation, and any engineering improvement that may be required such as new water and sewer infrastructure and construction of streets and curbs. A complete table of estimated development costs is provided in Appendix F, Exhibit 3.

The main driver of building construction costs are the so-called "hard" construction costs that include the tangible assets needed to complete the construction projects. In contrast, the "soft" costs of construction are those costs for services such as design fees, legal fees, and insurance. Both types of costs are estimated on a per square foot basis. It is important to note that not all costs are eligible to be used in the calculation of the LIHTC. Only tangible assets that may be depreciated, as well as some fees, may be included. For example, land acquisition costs are not eligible for the 9 percent LIHTC. However, other programs offered by New York City Housing Preservation and Development (HPD) that are discussed later on in this section allow funding to be used for land acquisition.

EQUITY CALCULATIONS

As mentioned previously, the purpose of the LIHTC is to attract equity to the project from large investors (such as corporations and banks) that can use large tax credits to offset other taxes due off of business income. This is done by selling the tax credits on a secondary market at a discount to the organizations that can use them. For example, a bank may be able to buy tax credits for this particular project at a rate of $0.90 for every dollar of tax credit.

Starting with the equity attracted to the project by the tax credits, a "capital stack" can then be assembled. The capital stack is the sum of all capital invested in the project, including pure debt and equity brought in by investors, which can tell you the additional funding required in the form of bank debt or other sources is needed to fund the project. In lieu of providing its equity stake in cash, the General Partner may be able to delay payment of its Developer Fee until cash flow begins or the construction loan is taken out by a permanent loan. Appendix F, Exhibit 4 provides a step-by-step analysis of calculation of the LIHTC for this project based on the estimated development costs.

OPERATIONAL EXPENSES

Annual operating expenses for the project may be estimated on a per unit, per square foot, or percentage of revenue basis. Operating expenses include cost to maintain the facilities and provide day-to-day management of the buildings, as well as pay property taxes, utility bills, and insurance coverages. Replacement reserves are funds used to replace durable items such as appliances or essential parts of the building's structure. The total operating expenses ,including the replacement reserves, total just under 40 percent of the expected revenue of the project.

AFER-TAX CASH FLOW

For a project where tax credits and depreciation of assets is a main driver for financial feasibility, the After-Tax Cash Flow provides the key to understanding financial performance of the project by looking at the partnership's ability to generate cash flow through its operations. As is demonstrated by examination of the Year 1 cash flow presented in Appendix F, Exhibit 5, although the After-Tax Cash Flow is positive for this project for the equity partners, its return on investment is relatively low. This is where additional funding offered through other City and State capital subsidy programs, as discussed in the next section, can increase the project's viability.

IMPROVING THE PROJECT

To improve the financial performance of this project, a few other possibilities may be explored in the proforma and cash flow analysis to gauge the potential effect (negative or positive) on the business model used to construct the project.

In this particular proposed scenario, none of the land is owned by the City, so it cannot be expected that the land will be sold at a steep discount to the developer (the land costs have been estimated at the going market rate for similar developable land in the Bronx at $60 per square foot). Instead, the community may be able to raise government grants sufficient to cover all or part of the site development costs. The next step is to investigate the use of government funds to cover portions of the development costs. Considering the overall size of the project, it may make more sense to develop a different financing strategy and/or affordability mix for each building separately, depending on how the land acquisition process unfolds.

In addition to LIHTC, HPD offers two capital subsidy programs that would greatly enhance the feasibility of the proposed project. The first is the Extremely Low and & Low-Income Affordability (ELLA) program that can be utilized in addition to the 9 percent LIHTC, which is already included in the proforma set-up. Under the ELLA program's first option, the project must comply with the following:

- 10% of the units serve formerly homeless households,
- 10% of the units serve households up to 30% of Area Median Income (AMI),
- 10% of the units serve households up to 40% of AMI,
- 10% of the units serve households up to 50% of AMI,
- (Optional): up to 30% of the units with rents affordable to households earning 70%-100% of AMI, and
- Remaining units serve households up to 60% of AMI. [3]

For the proposed Cluster 2 development, as explored in the previous section, the ELLA program would add up to about $60 million in additional loan subsidy under the affordability tier option shown above.

The second program that should be explored is HPD's Mixed Income program. (This program

was utilized for the Compass Residences case example below.) This program is not eligible to be applied to projects in tandem with the 9 percent LIHTC, but it is at the reduced 4 percent LIHTC, which would need to be accounted for in the proforma and cash flow analysis discussed in the last section. The Mixed Income program requires at least four affordability tiers and funds new construction of mixed income multifamily rental development in which 40%-60% of the units are at rents affordable to households earning up to 60% of AMI and the other 40%-60% of units would have rents affordable to moderate and/or middle income households earning up to 130% of AMI. A minimum of 10% of units must be set aside for the formerly homeless and a minimum of 10% of units must be affordable to households earning between 30-50% AMI. [4]

Depending on the chosen affordability mix, the Mixed Income program would add an additional $50 to $60 million in loan subsidy for the proposed 400+ unit development in Cluster 2.

Both the ELLA and Mixed Income programs have 30 year loan terms. It is important to note that acquisition costs for private land are eligible under both of these City programs on a case-by-case basis, since acquisition costs are not eligible using LIHTC.

New York City's Housing Development Corporation also offers several loan subsidy programs, including the Low-Income Affordable Marketplace Program (LAMP) (up to 60% AMI) and New Housing Opportunities Program (NHOP) (up to 130% AMI), which provide loans through first and second mortgages for new developments. By using these tax-exempt bonds, the projects also automatically qualify for the 4 percent federal LIHTC, which would need to be accounted for in the proforma and cash flow analysis explored in the previous section.

Many other affordable developments are currently being built in the Bronx, providing helpful precedents for how the proposed developments for this project can be successfully financed. The makeup of the development team, and the overall risk the developer is willing to take on, is another factor contributing to the ultimate success of any new housing project. A review of other current projects in the Bronx can be helpful in identifying development partners that have experience building and financing similar projects in the Bronx and might be interested in this project.

CASE EXAMPLE: COMPASS RESIDENCES

The Compass Residences development is located across from Cluster 3 fronting the Sheridan Expressway in the West Farms and Crotona Park East neighborhoods. The project is the result of the largest private rezoning in Bronx history that was approved in 2011. The large scale development, which is currently about half-way complete, is being constructed in multiple phases and will comprise eight mixed-use 9- to 16-story buildings, adding more than 1,300 units, 46,000 SF of retail, several public open spaces, and an elementary school to the area once fully complete in 2020.

The project is a mix of studio, one, two and three bedroom units affordable at a mix of incomes. About 75 percent of the apartments are available to families earning up to 60

percent of Area Median AMI, and the remaining units are set aside for moderate-income households, earning 60 to 90 percent AMI, with a portion of the units set aside for formerly homeless families, mobility-impaired residents, and those with visual or hearing impairments.

The project was financed through a variety of NYC and NYS affordable housing programs, including: the Low-Income Affordable Marketplace Program (LAMP) and New Housing Opportunities Program (NHOP) programs of the NYC Housing Development Corporation; the Low Income Rental Program (LIRP) and Mixed Income programs of the NYC Department of Housing Preservation and Development; and the Homes for Working Families and Low-Income Housing Tax Credit (SLIHC) programs of NYS Homes and Community Renewal. [5]

The project partners include Monadnock Development, Signature Urban Properties, and GTIS Partners.[7] Monadnock Development is a leader in housing development throughout New York and served as the developer for the project, and Signature and GTIS are real estate investment firms.

CONCLUSIONS

This study of example business cases for the development of a large multifamily affordable apartment complex has demonstrated how the project can be financially viable. The first case assumed that the project would be composed of 100 percent affordable housing and rely on the use of the Low-Income Housing Tax Credit (LIHTC) to attract sufficient equity to build the project. However, as discussed, there are multiple challenges associated with this type of model that make the sole use of LIHTC on such a large project, impractical. The second case explored the use of other government funds to help reduce the overall costs of development, which increased the chance of showing better financial performance.

See a full sample Market Potential Analysis for Cluster 2 in Appendix F.

END NOTES - FINANCIAL FEASIBILITY ANALYSIS

[1] C. J. Hughes (March 3, 2017). The Bronx is Building. New York Times. https://www.nytimes.com/2017/03/03/realestate/the-bronx-is-building.html
[2] ibid.
[3] NYC HPD (May 15, 2017) ELLA, Term Sheet.
[4] NYC HPD (May 15, 2017) Mixed-Income: Mix & Match, Term Sheet.
[5] Dattner Architects (Feb 27,2017). American Institute of Architects. West Farms Redevelopment Plan – Compass 1 Residences. https://www.architectmagazine.com/project-gallery/west-farms-redevelopment-plan-compass-1-residences
[6] New York Housing Conference. nd. Compass Residences. http://thenyhc.org/projects/compass-residences/

CONCLUSION & NEXT STEPS

The Bronx River - Sheridan Expressway Area-Wide Plan established a clear vision for the redevelopment of brownfield sites along the corridor that directly reflects the community's own needs and desires, in addition to the creation of the brownfields inventory the community can utilize in future plans and developments.

Although SoBro and the consultant team selected nine catalyst brownfield sites to receive Phase I Site Investigations, the team was only able to succesfully engage one property owner — Simone Development. Simone has been an active member of the project Steering Committee since it was formed. Simone owns two sites in Cluster 3 (1460 and 1480 Sheridan Expressway), both of which received Phase 1 Assessments under the Area-Wide Planning grant. Simone Development is moving forward with plans to redevelop their sites into multifamily affordable housing, acting as the developer with assistance from outside consultants. They have expressed interest in purchasing the adjacent properties to their sites in Cluster 3 (the portion between Sheridan Expressway and the Bronx River), but neither Simone Development nor SoBro have successfully engaged the property owners.

Brownfield remediation is a multi-stage process and additional funding is needed to move forward with the cleanup and redevelopment of the Simone sites, which may also facilitate further communication with adjacent property owners about the future of the area. Federal public financing is available for brownfield cleanup and technical assistance on brownfield projects through the U.S. EPA, the U.S. Department of Housing and Urban Development, the U.S. Department of Agriculture, the U.S. Department of Transportation, and the U.S. Department of Commerce. At the state level, brownfield cleanup funding is available through the Department of Environmental Conservation, and at the city level, the NYC Office of Environmental Remediation offers grants for environmental investigation and cleanup of brownfields under its Brownfield Incentive Grants program.

APPENDIX A: EXISTING CONDITIONS
BRONX RIVER - SHERIDAN EXPWY CORRIDOR BROWNFIELD INVENTORY

CLUSTER	STREET ADDRESS / P.O. BOX	BLOCK	LOT	OWNER	ZONING	SITE SIZE (SQF)
1	1400 Story Ave	3621	1	BR-2012 REALTY LLC	M1-1	26,1700
1	950 Close Ave	3648	19	New 970 Colgate Ave	M1-1	28500
1	900 block Close Ave	3648	Multiple	Multiple	M1-1	Multiple
2	1113 Lebanon St	4006	7	Joyce Sawack	M1-1	2500
2	1115 Lebanon St	4006	6	Joyce Sawack	M1-1	2500
2	SW Corner E 180th St and Bronx Ave	4008	3	Manuel Rodriguez	M1-1	5279
2	SW Corner E 180th St and Bronx Park Ave	4008	5	Kim Ok Palma	M1-1	1430
2	426 Devoe Ave	4005	12	Chand Tremont Corp	M1-1	12,943
2	420 E 179th St	4005	10	Chand Tremont Corp	M1-1	15,718
2	1119 E 179th St	4005	5	East 179 LLC	M1-1	2501
2	420 Morris Park Ave	3909	61	420 Morris Park Avenue	M1-1	25,500
2	1176 E 178th St	3908	16	Valle Edelimiro, Jr.	M1-1	2500
2	1157 E Tremont Ave	4007	21	Ibrahim Kamara	M1-1	1128
2	1159 E Tremont Ave	4007	20	Cojax Construction Co	M1-1	1080
2	434 Bronx Park Ave	4007	31	Juan Sanchez	M1-1	2500
2	1129 E 179th St	4005	1	Transamerica Holdings	M1-1	2500

CLUSTER	STREET ADDRESS / P.O. BOX	BLOCK	LOT	OWNER	ZONING	SITE SIZE (SQF)
2	1112 E 179th St	4004	30	John Schauder	M1-1	2000
2	1168-1172 Wyatt St	3907	19	Ciminello Industrial	M1-1	9356
2	N/A E 178th St	3908	63	390 Morris Park Ave	M1-1	2227
2	1206 E 178th St	3908	68	390 Morris Park Ave	M1-1	15,452
2	1465 Bronx River Ave	3904	1	MTA	C8-1	0
3	1085 Home St	3006	5	1077 Home St LLC	M1-1	20,000
3	1073-1075 Home St	3006	9	Ace 1028 Realty	M1-1	5000
3	1071 Home St	3006	11	Homechester Realty LLC	M1-1	5000
3	1051 Home St	3006	19	Custodio, Inc.	M1-1	5000
3	1049 Home St	3006	21	Eileen Ramos	M1-1	6500
3	1018 Freeman St	3006	32	Ace 1028 Realty	M1-1	10,000
3	1028 Freeman St	3006	36	Ace 1028 Realty	M1-1	20,000
3	1038 Freeman St	3006	42	Ace 1028 Realty	M1-1	5000
3	1476 Sheridan Expwy SR	3017	28	Zardoya Mateo Realty	M1-1	8500
3	1480 Sheridan Expwy SR	3017	29	PDJ Simone Realty Co	M1-1	84,229
3	1428 Edgewater Rd	3017	60	WNF Holding Corp	M1-1	23,495
3	1440 Sheridan Expwy SR	3017	65	Shri Sai Shakti	M1-1	19,070
3	1458 Sheridan Expwy SR	3017	68	WNF Holding Corp	M1-1	14,411
3	1460 Sheridan Expwy SR	3017	74	West Farms Realty LLC	M1-1	41,149

CITY'S SHERIDAN-HUNTS POINT LAND USE AND TRANSPORTATION STUDY (2013), Plan Recommendations by Neighborhood (Cluster)

Bronx River Avenue (Cluster 1)

Named for the adjacent waterway, the Bronx River neighborhood is ironically completely disconnected. Improved connectivity, preservation and enhancement of the existing residential community and facilitation of growth of the industrial section of the Bronx River neighborhood were identified as goals.

Recommendations:

- Facilitate connections between the Bronx River neighborhood and the waterfront, including the construction of a new bridge across the rail line and river at 172nd Street. Improving streetscaping along Bronx River Avenue and safety at major intersections such as at Bruckner Boulevard are key to this area's walkability.
- Promote mixed use development at key intersections and encourage redevelopment of vacant sites. Identify economic development policy to support existing and new businesses. Encourage redevelopment of Loral site and publicly owned NYCHA site.
- Identify economic development policies that can support existing and attract new industrial businesses to the Bronx River Avenue industrial corridor and encourage the redevelopment of area brownfields.

East Tremont (Cluster 2)

The major issues affecting this area include a disconnect between neighborhood and open space resources due to a variety of transportation infrastructure and complicated intersection. The area has seen a trend towards housing development, which is a divergence from the previous industrial character supported by the current manufacturing zoning.

Recommendations:

- Improve pedestrian connections by implementing a unified Bronx Park/Greenway wayfinding system from West Farms Square to Hunts Point Avenue and identifying connection points across the Cross Bronx Expressway.
- Explore opportunities and strategies for mitigating storm water run-off from the MTA Bus Depot site and work to encourage sustainable development principles in waterfront redevelopment.
- Redevelop the publicly owned MTA site. Conduct zoning analysis of the focus area to create new opportunities for businesses and affordable housing. Support redevelopment redesign of West Farms Square, including a focus on how the site will relate to the Bronx River waterfront.

Bronx River Waterfront (Cluster 3)

The Bronx River waterfront along the Sheridan Expressway is zoned for manufacturing uses and is mainly occupied by auto-related uses. The lack of public access to the waterfront, uninviting edge conditions of the Bronx River and underutilization of the waterfront properties are the challenges affecting this area.

Recommendations:

- Maintain essential roadway connections between the Sheridan, Bruckner and Cross Bronx Expressways, while improving pedestrian crossings cross the expressways.
- Incorporate elements into the Sheridan redesign that reduce surface run-off and promote walkability. Develop the Bronx River waterfront so as to minimize the risk of flooding and allow for visual and physical access to the river.
- Improve the 174th Street pedestrian bridge through lighting, signage and art, so that it can function as a gateway to the neighborhoods on either side of the Bronx River. Create a zoning strategy which encourages a mix of uses along the Bronx River and facilitates physical improvements to the waterfront.

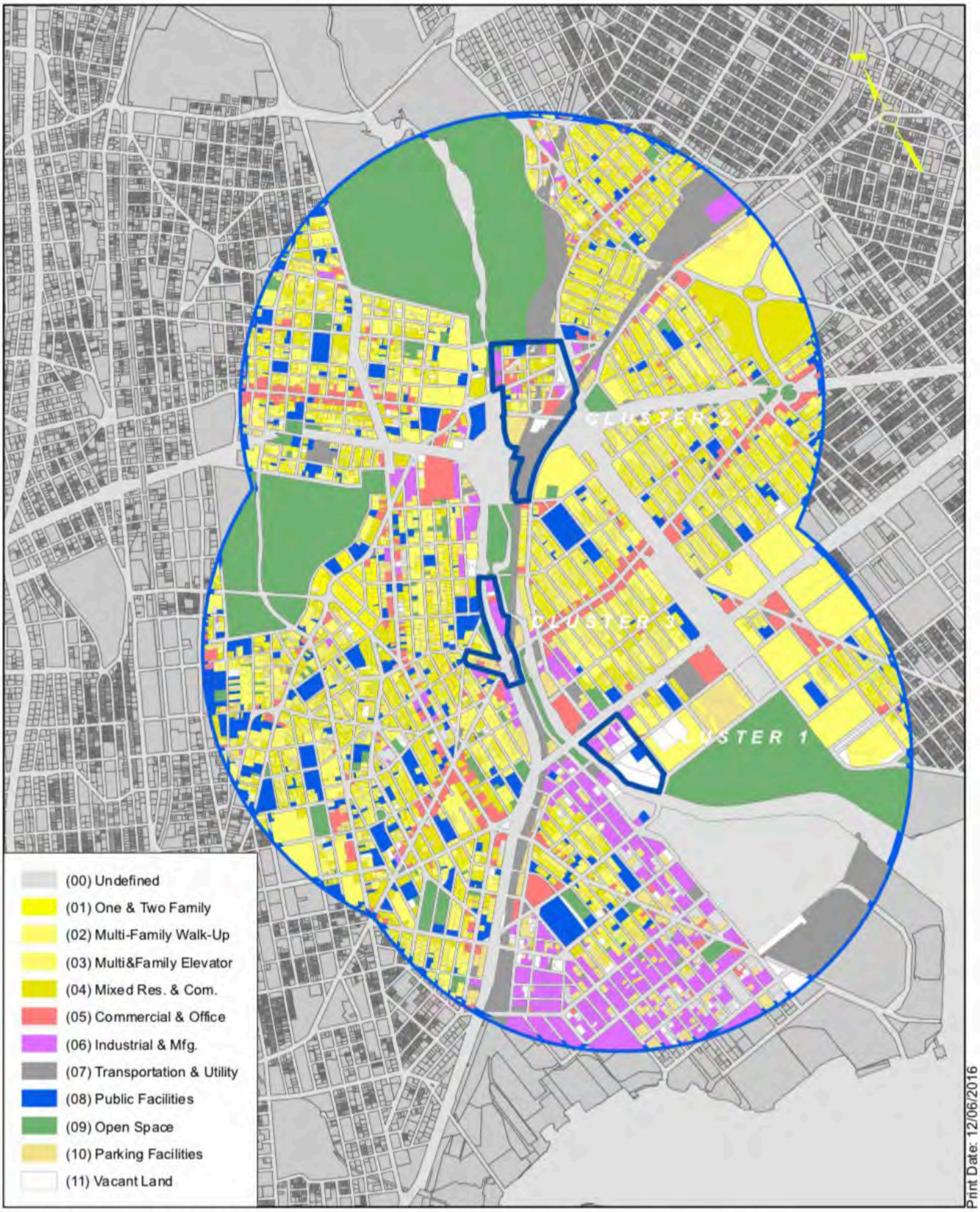
Map Group 1: Overview of Market Area

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan

Overview Map (Market Area)
Source: NYC MapPLUTO

0 500 1,000 2,000 3,000 4,000 Feet

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan



Land Use Map (Market Area)
Source: NYC MapPLUTO

Map Group 2: Overview of Property Clusters

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 1**

Overview Map with Subway and Bus Routes

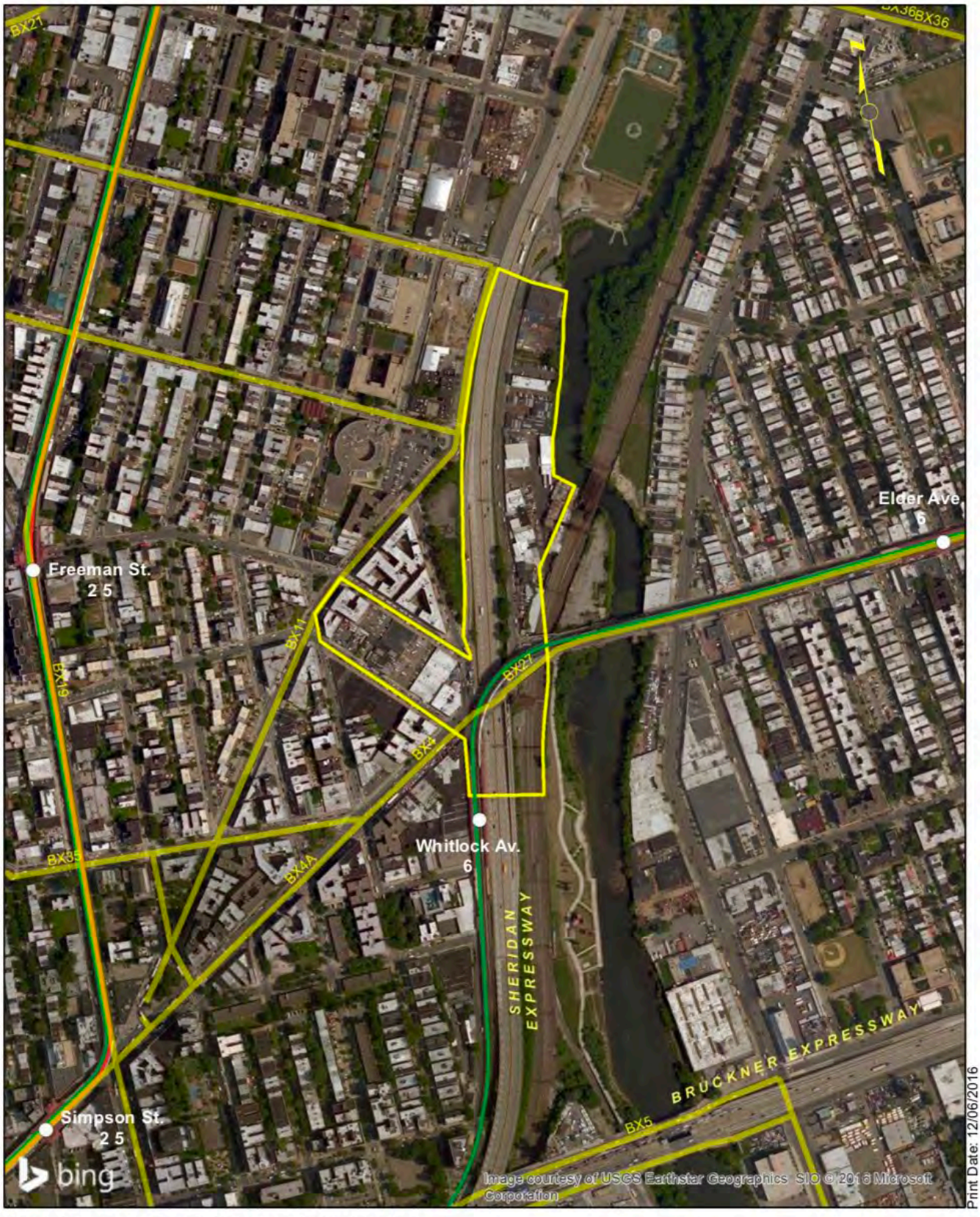
0 100 200 400 600 800 1,000 Feet

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 2**

Overview Map with Subway and Bus Routes

Print Date: 12/06/2016

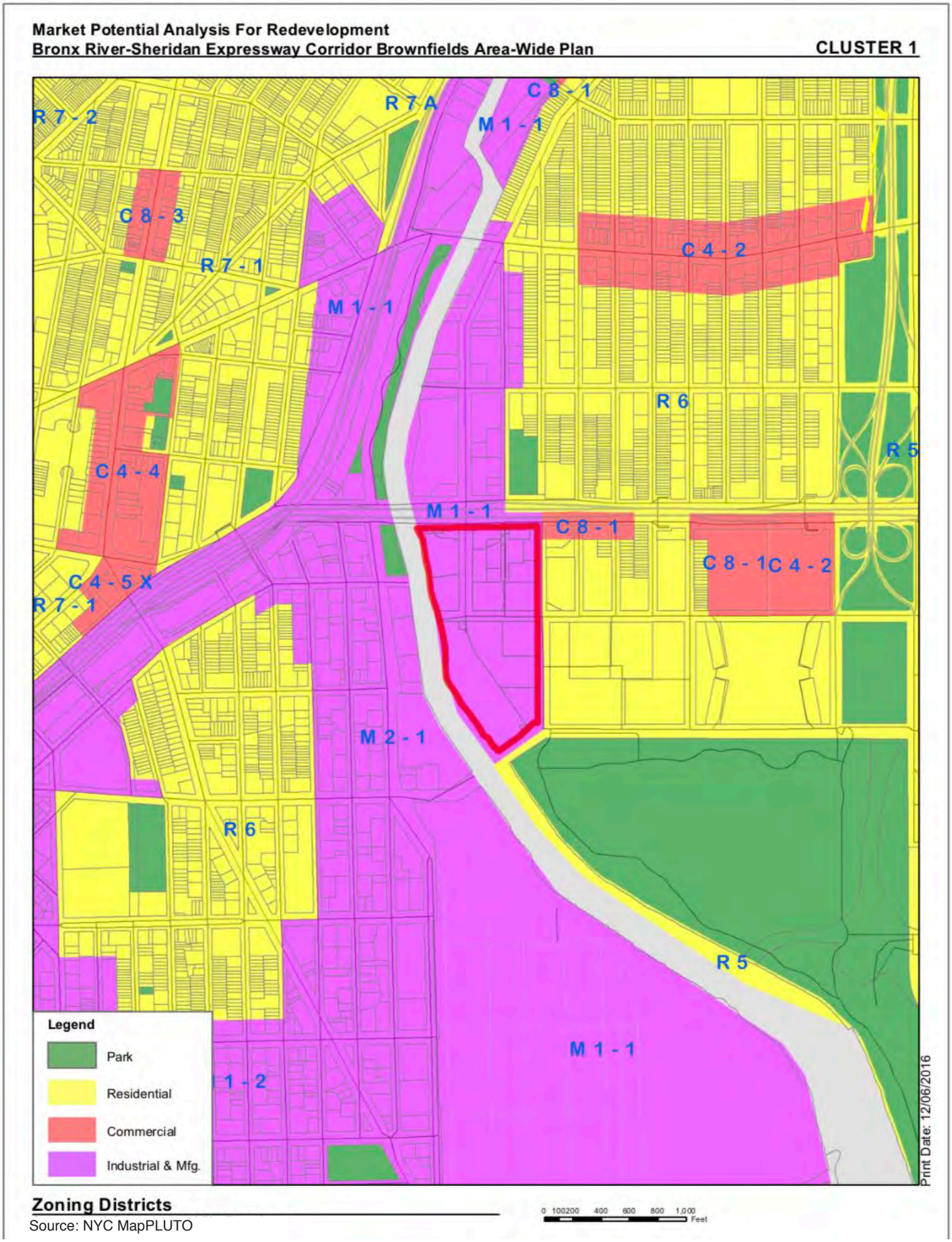
Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 3**



Overview Map with Subway and Bus Routes

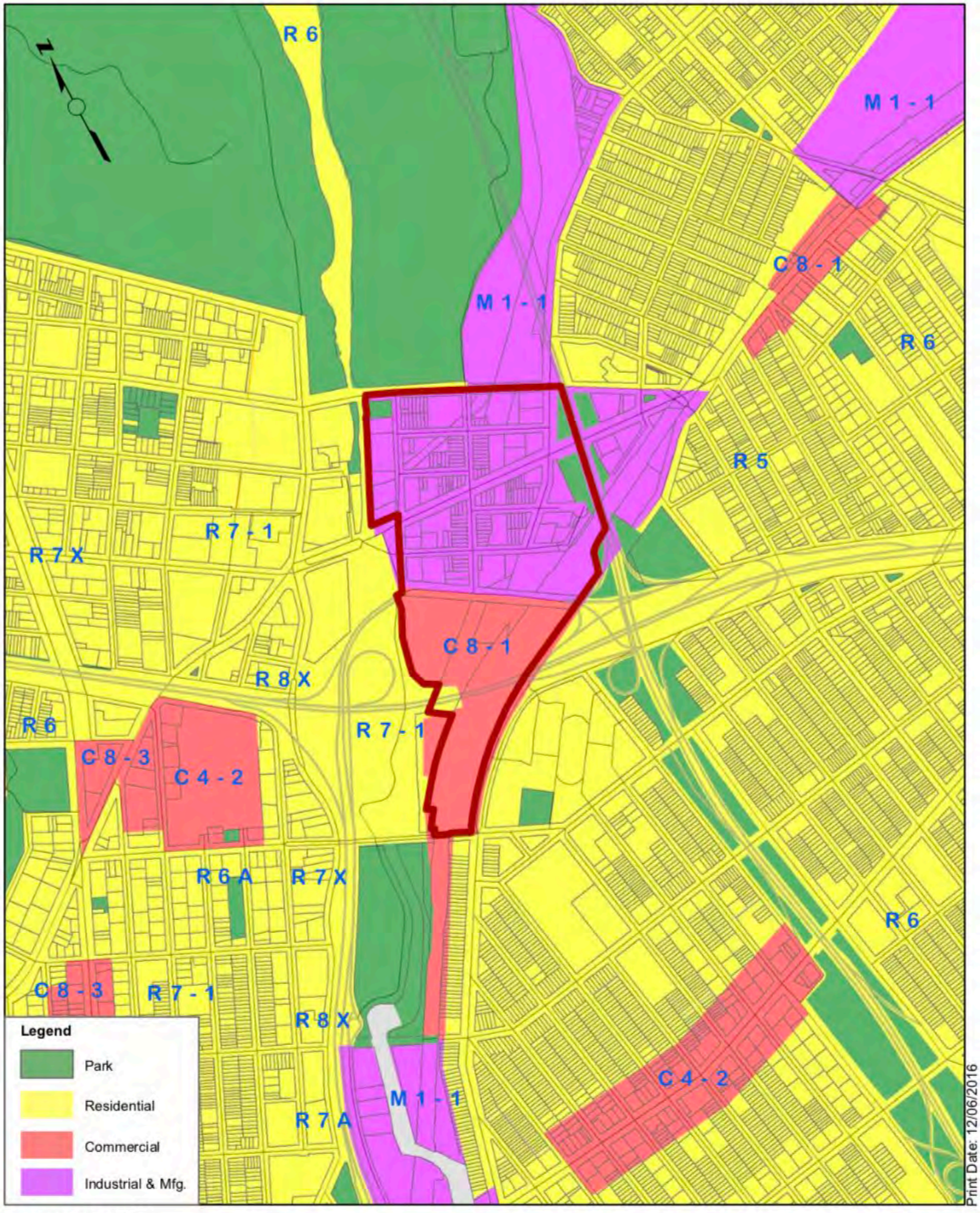
0 100 200 400 600 800 1,000 Feet

Map Group 3: Zoning Districts



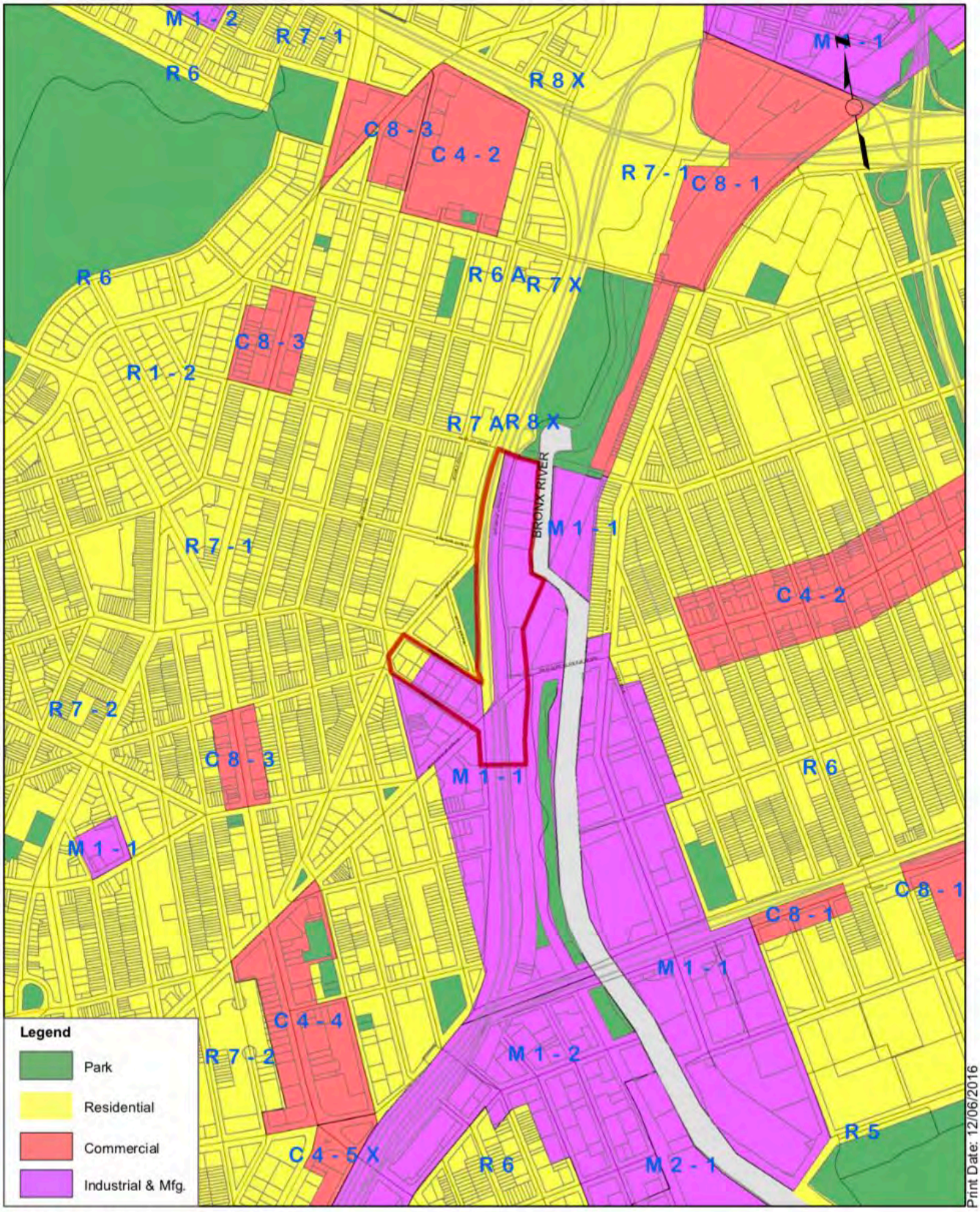
Source: NYC MapPLUTO

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 2**



Zoning Districts
Source: NYC MapPLUTO

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 3**

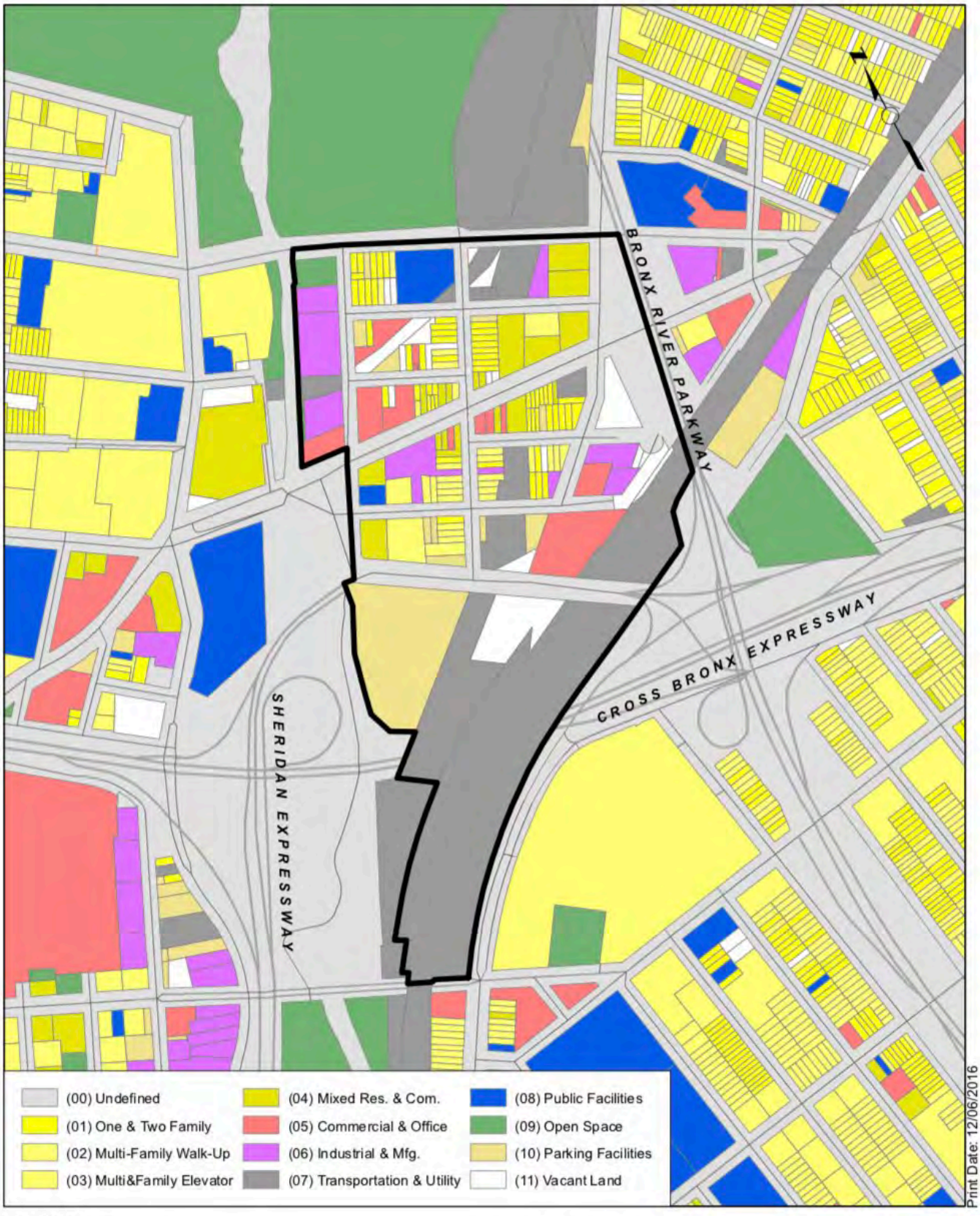


Zoning Districts
Source: NYC MapPLUTO

Map Group 4: Land Use Patterns

Source: NYC MapPLUTO

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 2**

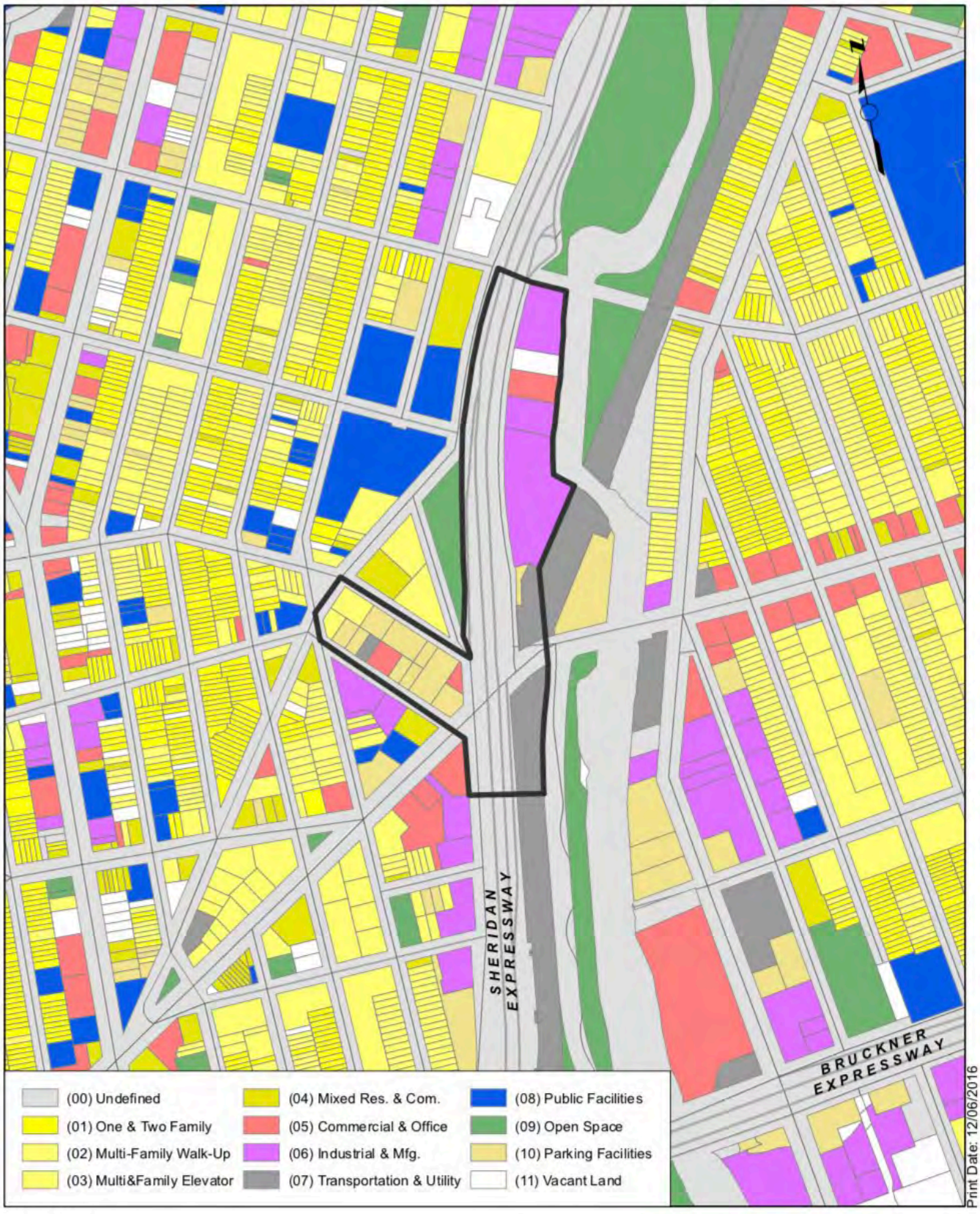


Land Use

0 100 200 400 600 800 1,000 Feet

Source: NYC MapPLUTO

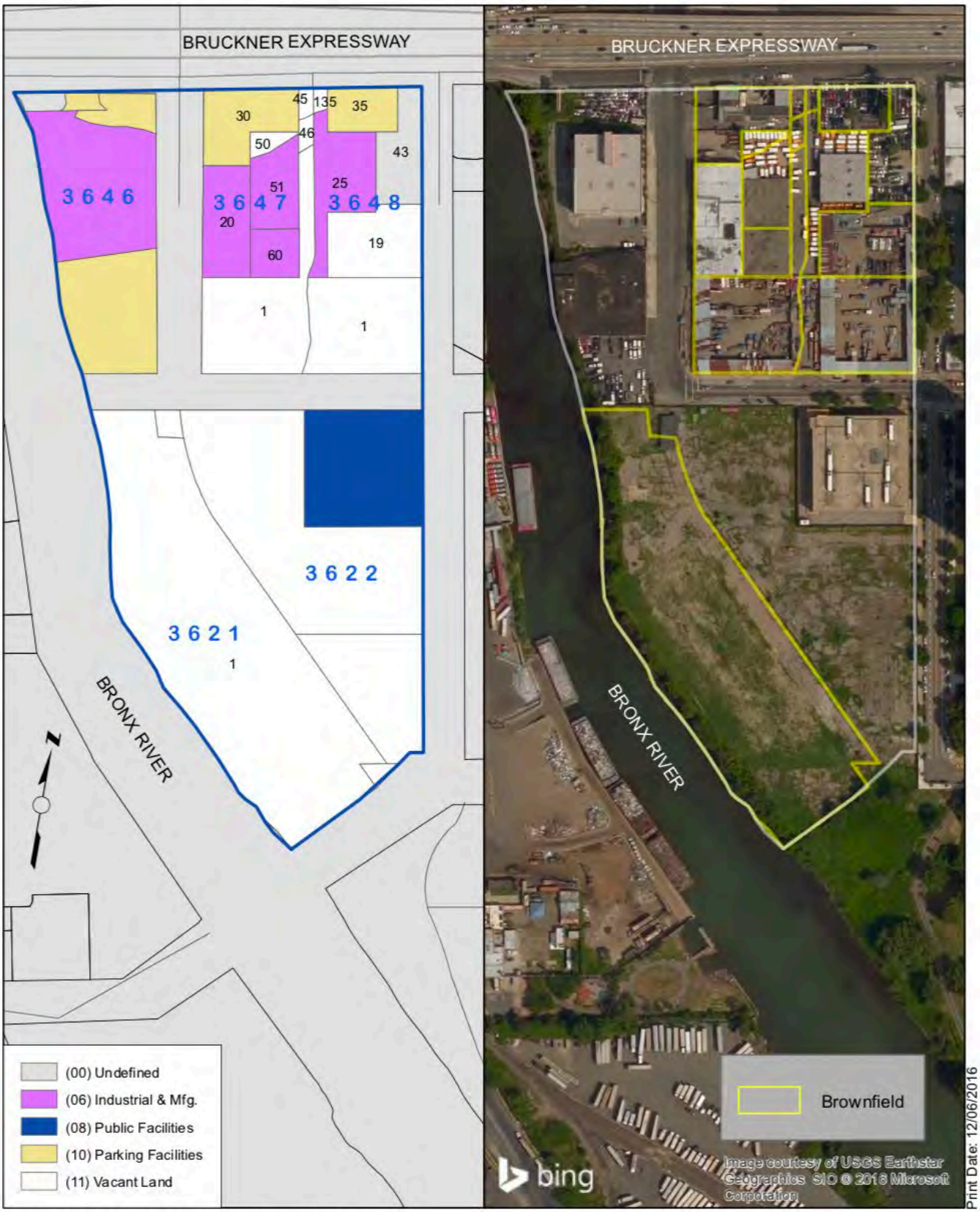
Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 3**



Land Use
Source: NYC MapPLUTO

Map Group 5: Brownfield Detail Mapping

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 1**



Brownfield Overview with Block/Lot
Source: NYC MapPLUTO

0 50 100 200 300 400 500 Feet

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 2A**

Brownfield Overview with Block/Lot
Source: NYC MapPLUTO

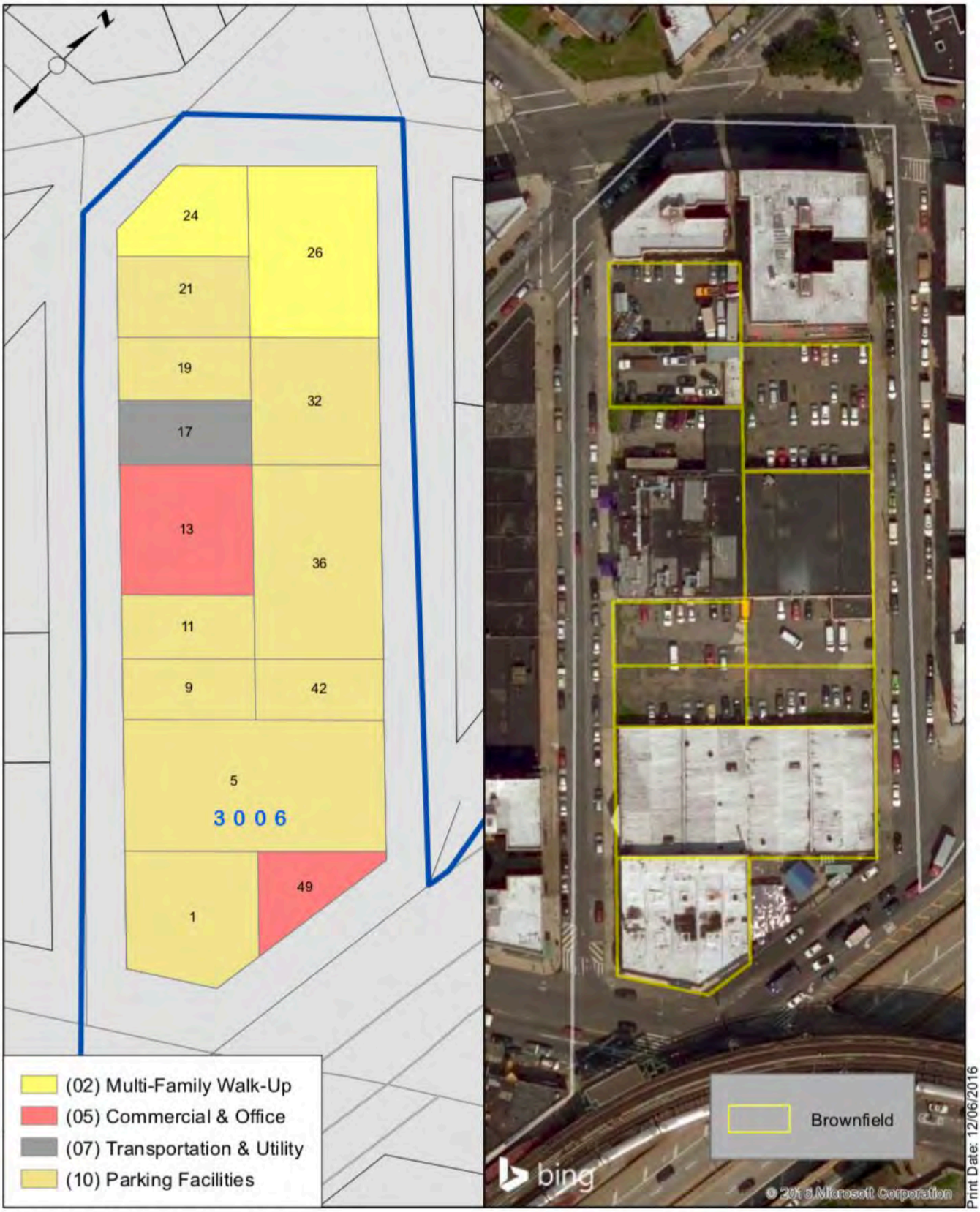
Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 2B**

Brownfield Overview with Block/Lot
Source: NYC MapPLUTO

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 3A**

Brownfield Overview with Block/Lot
Source: NYC MapPLUTO

Market Potential Analysis For Redevelopment
Bronx River-Sheridan Expressway Corridor Brownfields Area-Wide Plan **CLUSTER 3B**



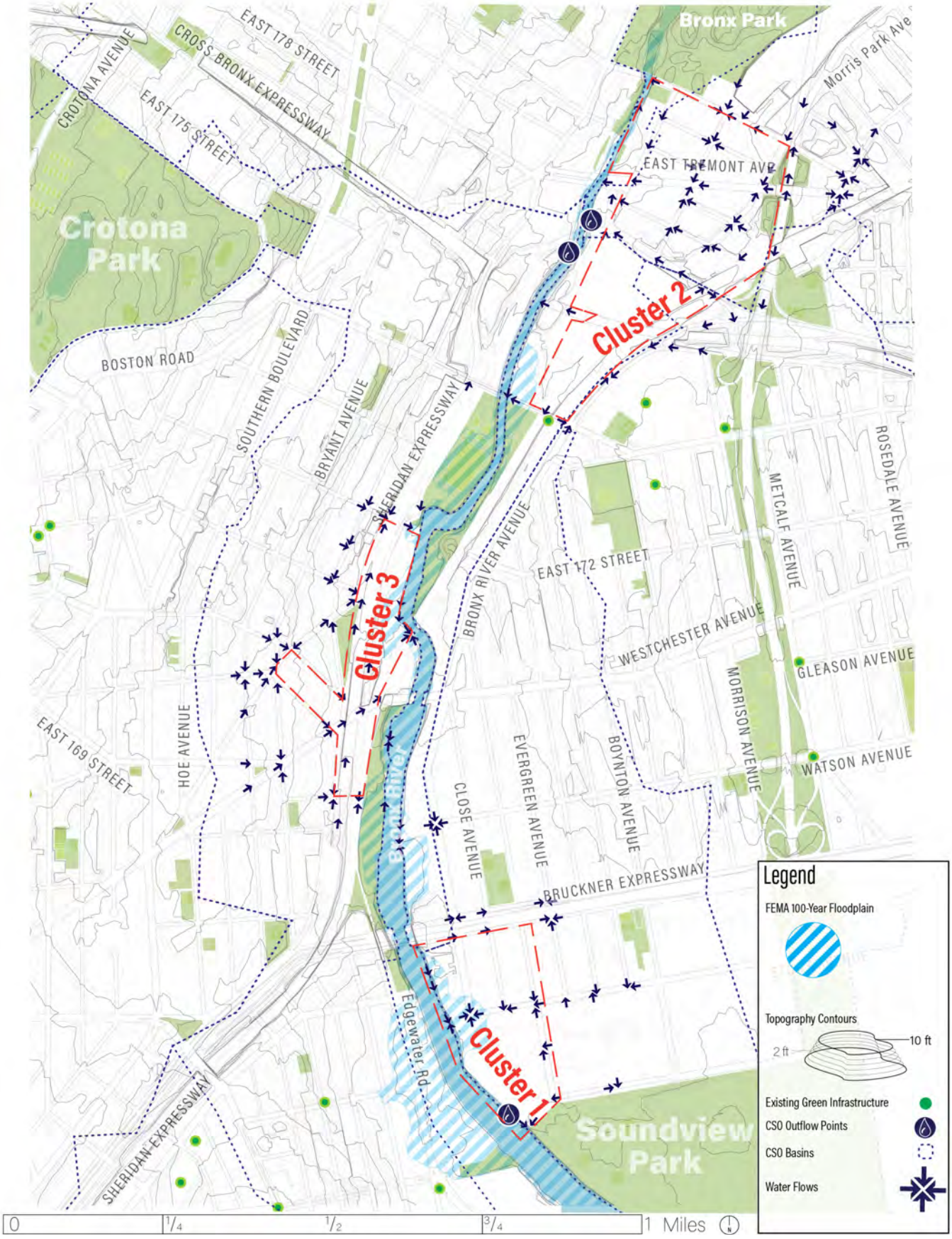
Brownfield Overview with Block/Lot
Source: NYC MapPLUTO

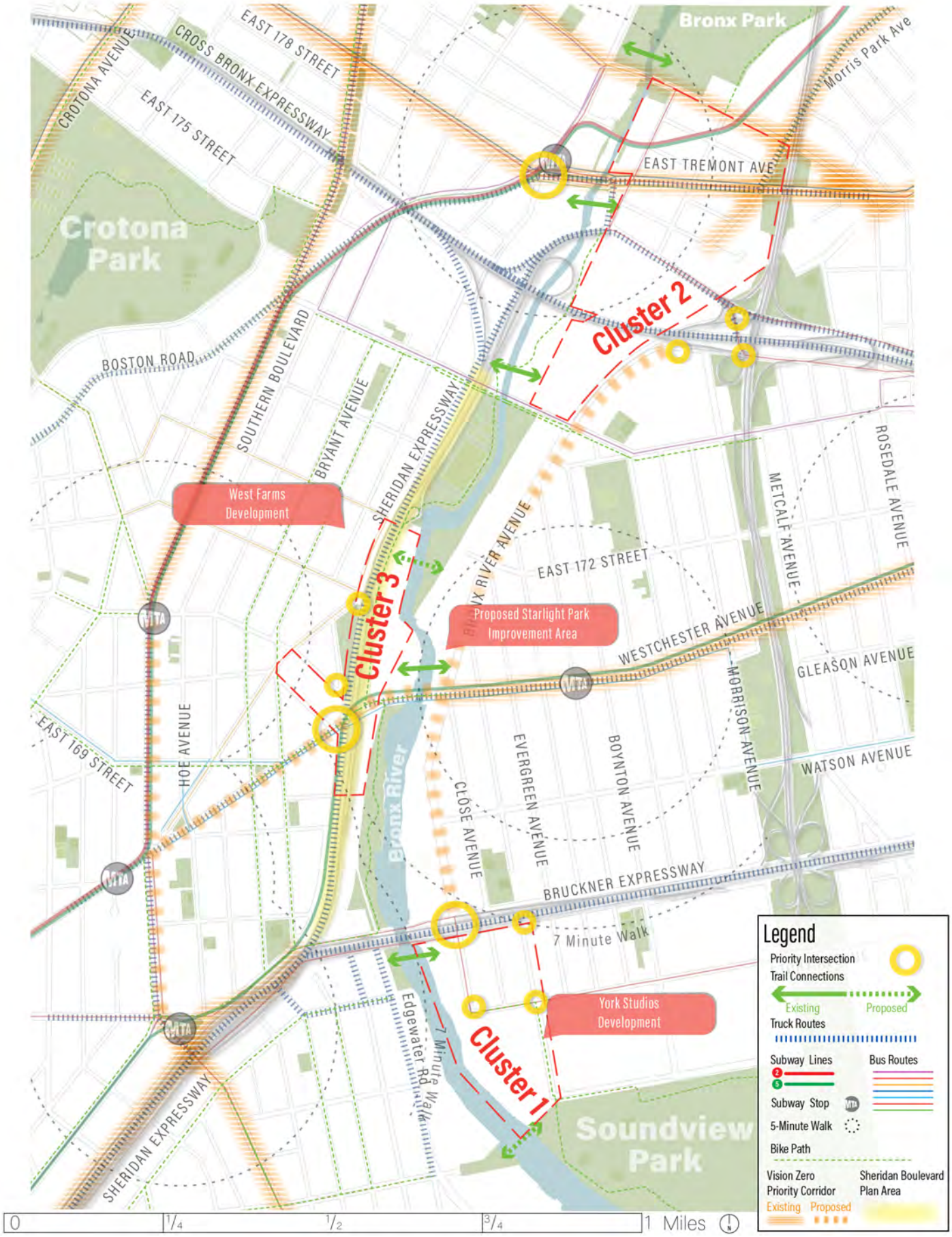
APPENDIX C: BRONX RIVER -
Brownfield CATALYST SITE PRIORITIZATION CRITERIA

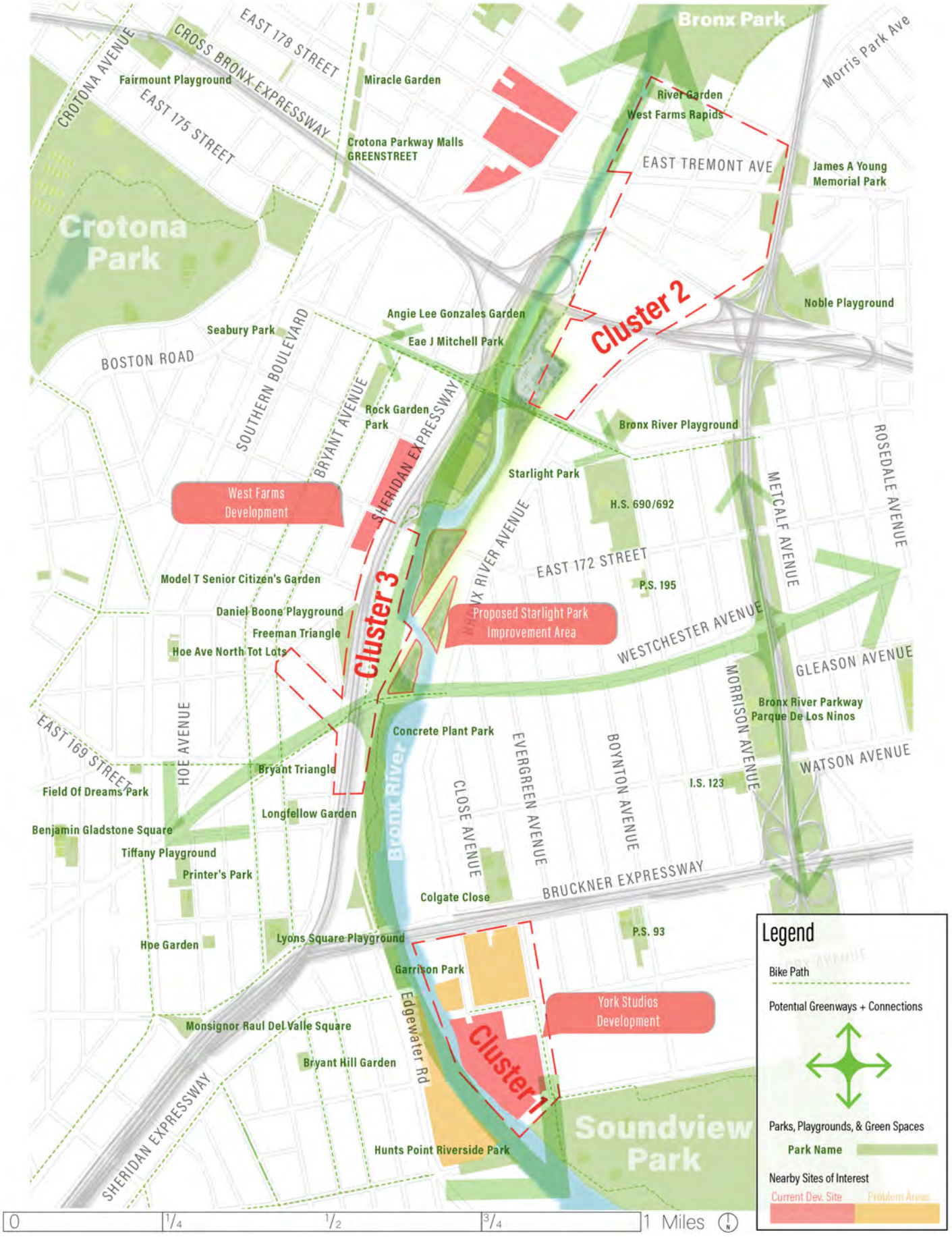
Site # **Site Name:**

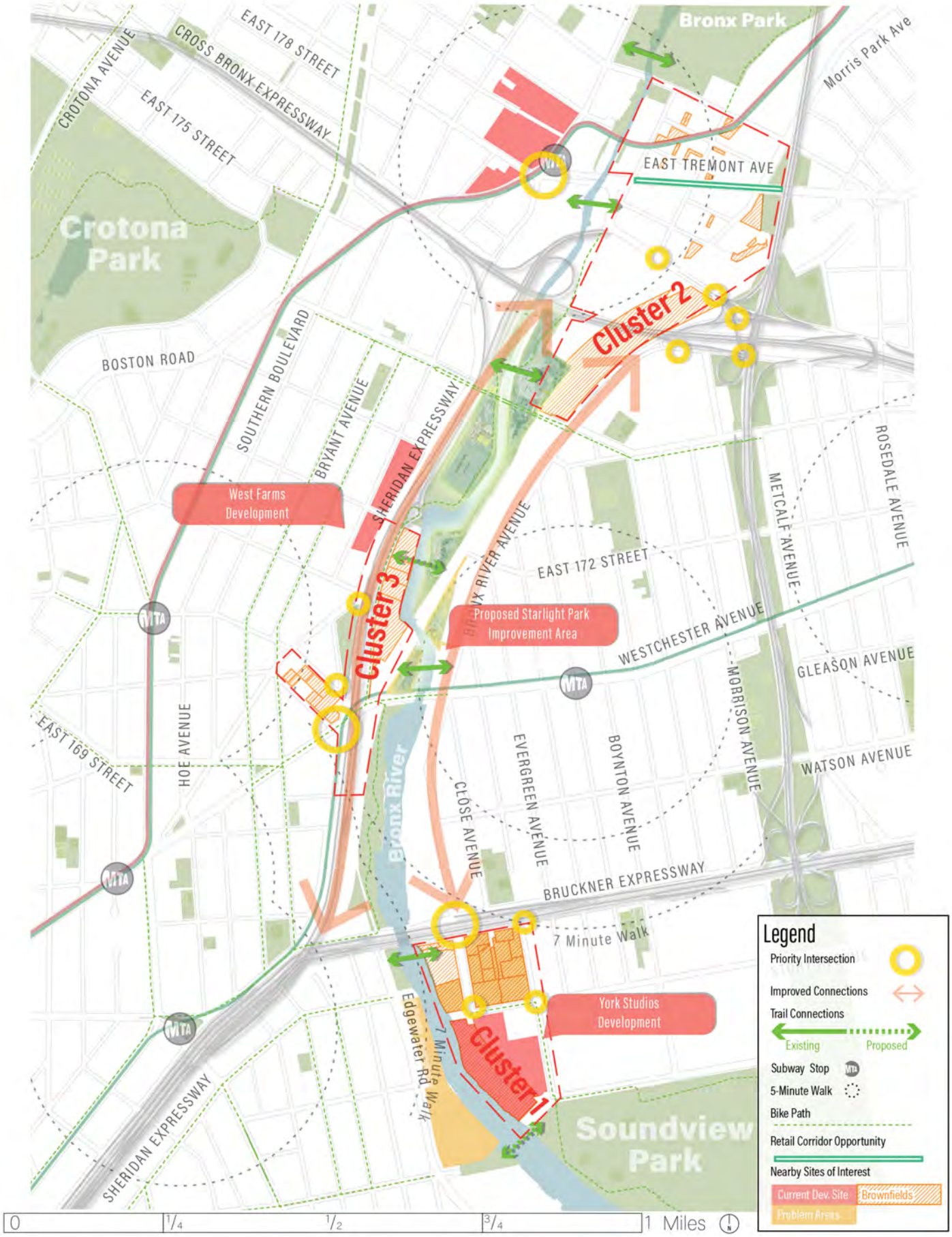
Location	**Score**
Is the site readily accessible by major transportation mode (rail, highway, and/or water)? yes=1 point no=0 points	
Does the site have the potential of being clustered with adjacent properties? yes=3 point no=0 points	
Physical Site Characteristics	
Is the site vacant (no structures present)? yes=1 point no=0 points	
Environmental Considerations	
Contamination **(only one criteria can apply)*	
Has a site assessment been *completed* resulting in no known contamination? 3 points	
Has the site remediation been *completed*? 3 points	
If site remediation has not been completed or even started, has a Remedial Action Work plan been prepared and approved by the NJDEP and/or certified by a LSRP? 2 points	
Has a site assessment been *completed* resulting in known contamination (but remediation plan has *not* yet been approved/certified)? 1 point	
Is site contamination unknown, or is a site assessment underway (not yet completed)? 0 points	
Is the site listed on the National Priorities List (Superfund)? 0 points	
Is the property under a federal or state enforcement action? 0 points	
Other Constraints	
Is the site located within a floodplain? yes=0 points no=1 point	
Are there wetlands present on the site? yes=0 points no=1 point	
Is the site or structures on the site listed on either the National or State Register of Historic Places? yes=0 points no=1 point	
Planning Considerations	
Is redevelopment of the site for economic purposes inconsistent with regional plans (e.g., DVRPC Connections Plan)? no=1 point yes=0 points	
Is redevelopment of the site for economic purposes inconsistent with state plans (e.g., New Jersey Energy Master Plan)? no=1 point yes=0 points	
Is redevelopment of the site for economic purposes consistent with The City of Camden Master Plan? yes=2 point no=0 points	
Is redevelopment of the site for economic purposes consistent with an existing Neighborhood Redevelopment Plan, Neighborhood Plan or Redevelopment Project as designated for review by the City of Camden? yes=2 point no=0 points	
Is the site specifically mentioned in an existing Neighborhood Redevelopment Plan, Neighborhood Plan or Redevelopment Project as designated for review by the City of Camden in a manner consistent with economic redevelopment? yes=2 point no=0 points	
Ownership	
Is the site owned by a public entity (municipality, county or state)? yes=6 points no=0 points	
If the site is not owned by a public entity, is an agreement in place with the property owner? Yes=2 points no=0 points	
Total Score:	

APPENDIX D: INFRASTRUCTURE ANALYSIS + DEVELOPMENT FRAMEWORK




Bronx Park
Morris Park Ave
EAST 178 STREET
CROSS BRONX EXPRESSWAY
CROTONA AVENUE
EAST 175 STREET
EAST TREMONT AVE
Crotona Park
Cluster 2
BOSTON ROAD
SOUTHERN BOULEVARD
BRYANT AVENUE
SHERIDAN EXPRESSWAY
West Farms Development
ROSEDALE AVENUE
METCALF AVENUE
BRONX RIVER AVENUE
EAST 172 STREET
Cluster 3
Proposed Starlight Park Improvement Area
WESTCHESTER AVENUE
GLEASON AVENUE
EAST 169 STREET
HOE AVENUE
MORRISON AVENUE
WATSON AVENUE
Bronx River
CLOSE AVENUE
EVERGREEN AVENUE
BOYNTON AVENUE
BRUCKNER EXPRESSWAY
7 Minute Walk
York Studios Development
Edgewater Rd
7 Minute Walk
Cluster 1
SHERIDAN EXPRESSWAY
Soundview Park
Legend
Priority Intersection
Trail Connections
Existing
Proposed
Truck Routes
Subway Lines
Bus Routes
Subway Stop
5-Minute Walk
Bike Path
Vision Zero Priority Corridor
Existing
Proposed
Sheridan Boulevard Plan Area
0
1/4
1/2
3/4
1 Miles


Bronx Park
Morris Park Ave
EAST 178 STREET
CROSS BRONX EXPRESSWAY
CROTONA AVENUE
Fairmount Playground
EAST 175 STREET
Miracle Garden
Crotona Parkway Malls
GREENSTREET
River Garden
West Farms Rapids
EAST TREMONT AVE
James A Young
Memorial Park
Crotona
Park
Cluster 2
Noble Playground
Angie Lee Gonzales Garden
Seabury Park
Eae J Mitchell Park
BOSTON ROAD
SOUTHERN BOULEVARD
BRYANT AVENUE
Rock Garden
Park
SHERIDAN EXPRESSWAY
Bronx River Playground
ROSEDALE AVENUE
Starlight Park
West Farms
Development
H.S. 690/692
METCALF AVENUE
BRONX RIVER AVENUE
EAST 172 STREET
Model T Senior Citizen's Garden
Cluster 3
P.S. 195
Daniel Boone Playground
Freeman Triangle
Proposed Starlight Park
Improvement Area
WESTCHESTER AVENUE
Hoe Ave North Tot Lots
GLEASON AVENUE
Bronx River Parkway
Parque De Los Ninos
EAST 169 STREET
HOE AVENUE
Concrete Plant Park
MORRISON AVENUE
Bryant Triangle
Bronx River
CLOSE AVENUE
EVERGREEN AVENUE
BOYNTON AVENUE
WATSON AVENUE
I.S. 123
Field Of Dreams Park
Longfellow Garden
Benjamin Gladstone Square
Tiffany Playground
Printer's Park
BRUCKNER EXPRESSWAY
Colgate Close
P.S. 93
Hoe Garden
Lyons Square Playground
Garrison Park
York Studios
Development
Edgewater Rd
Monsignor Raul Del Valle Square
Cluster 1
Bryant Hill Garden
SHERIDAN EXPRESSWAY
Soundview
Park
Hunts Point Riverside Park
Legend
Bike Path
Potential Greenways + Connections
Parks, Playgrounds, & Green Spaces
Park Name
Nearby Sites of Interest
Current Dev. Site
Problem Areas
0
1/4
1/2
3/4
1 Miles
N


Bronx Park
Morris Park Ave
EAST 178 STREET
CROSS BRONX EXPRESSWAY
CROTONA AVENUE
EAST 175 STREET
Crotona Park
EAST TREMONT AVE
Cluster 2
BOSTON ROAD
SOUTHERN BOULEVARD
BRYANT AVENUE
SHERIDAN EXPRESSWAY
West Farms Development
ROSEDALE AVENUE
METCALF AVENUE
BRONX RIVER AVENUE
EAST 172 STREET
Cluster 3
Proposed Starlight Park Improvement Area
WESTCHESTER AVENUE
GLEASON AVENUE
EAST 169 STREET
HOE AVENUE
MORRISON AVENUE
WATSON AVENUE
Bronx River
CLOSE AVENUE
EVERGREEN AVENUE
BOYNTON AVENUE
BRUCKNER EXPRESSWAY
7 Minute Walk
York Studios Development
Edgewater Rd.
7 Minute Walk
Cluster 1
Soundview Park
SHERIDAN EXPRESSWAY
Legend
Priority Intersection
Improved Connections
Trail Connections
Existing
Proposed
Subway Stop
5-Minute Walk
Bike Path
Retail Corridor Opportunity
Nearby Sites of Interest
Current Dev. Site
Brownfields
Problem Areas
0
1/4
1/2
3/4
1 Miles

APPENDIX E: MARKET ASSESSMENT (ADDITIONAL ANALYSIS)

LOCAL TRANSPORTATION NETWORKS

The Study Area is well connected to the rest of New York City and the northeast region by Interstates 278 (Bruckner Expressway) and 895 (Sheridan Expressway). The Study Area is served by the MTA subway lines 2 (Seventh Ave. Express), #5 (Lexington Ave. Express) and #6 (Lexington Avenue Express/Local) with stops located within or near each of the clusters. The entire area, like much of the Bronx as a whole is well-served by numerous bus lines of the NYC MTA. The MTA NYC Transit West Farms Bus Depot is located within Cluster 2 at E. 177th St. and Devoe Ave. Maps of the transportation networks are provided in the Appendix in Map Groups 1 and 2.

LAND USE PATTERNS

According to data provided by the Department of City Planning, the largest use of the land within the Market Area is for residential structures (34.21 percent) including 1-2 family and multi-family development. Approximately 26 percent of the land area is public open space. Industrial development, including transportation and utility facilities, account for another 13.1 percent of the land area. Approximately 3 percent of the Market Area is vacant land and another 3 percent is used for parking. A summary of land use for the Market Area is provided in Table 4. A graphical depiction of land use in the Market Area and property clusters is presented in the Appendix in Map Groups 1 and 4.

In contrast to the Market Area, the three property clusters in the Study Area are comprised mainly of the M1-1 zoning district, light manufacturing. The only significant exception to the M1-1 zoning district classification in the Study Area is the C8-1 commercial zoning district in Cluster 2 south of E. 177th St. which encompasses the MTA NYC Transit West Farms Bus Depot and the parking areas adjoining the CSX and Amtrak rail lines.

Table 4: Study Area Land Use Summary

	MARKET AREA		CLUSTER 1		CLUSTER 2		CLUSTER 3	
Area	5.92 sq.mi.		0.035 sq.mi.		0.097 sq.mi		0.030 sq. mi	
Land Use	**Num. Parcels**	**Percent of Total Area**	**Num. Parcels**	**Percent of Total Area**	**Num. Parcels**	**Percent of Total Area**	**Num. Parcels**	**Percent of Total Area**
(01) One & Two Family	5093	10.14%	-	-	55	9.92%	-	-
(02) Multi-Family Walk-Up	4623	12.64%	-	-	28	7.02%	2	6.26%
(03) Multi-Family Elev.	354	11.43%	-	-	2	3.22%	-	-
(04) Mixed Res. & Com.	746	4.08%	-	-	18	12.11%	-	-
(05) Commercial & Office	447	4.33%	-	-	12	12.98%	3	10.75%
(06) Industrial & Mfg.	433	6.25%	5	14.07%	9	13.05%	3	47.92%
(07) Transport. & Utility	118	6.90%	-	-	14	2.97%	3	1.61%
(08) Public Facilities	384	6.21%	1	6.71%	2	4.26%	-	-
(09) Open Space	135	25.98%	-	-	2	2.33%	-	-
(10) Parking Facilities	492	3.45%	5	11.29%	11	18.79%	10	28.83%
(11) Vacant Land	598	3.07%	14	65.31%	19	13.35%	1	4.64%
(00) Undefined	112	5.53%	2	2.61%	1	0.00%	-	-
Total:	13535	100.00%	**27**	**100%**	**173**	**100%**	**22**	**100.00%**

Source: NYC Department of City Planning

The M1-1 zoning in the Study Area generally prohibits (with certain exceptions as listed in the NYC Zoning Resolution) certain specific Use Groups based on incompatibility of use. These prohibited Use Groups include: Use Groups 1 & 2 (Single family detached residential development and all other types of residential development designed for permanent occupancy.); Use Group 3 (Community facilities, such as schools, libraries, museums, college dormitories, nursing homes and residential facilities for special needs populations); Use Group 15 (Large commercial amusement establishments, including typical amusement park attractions), and Use Group 18 (Heavy industrial uses), which in only allowed in M3 districts (heavy manufacturing).except if the use can comply with all of the applicable performance standards for M1 and M2 districts.

The prohibition on residential development in manufacturing districts was initiated in the 1961 Zoning Resolution, which separated industrial and residential areas for safety and to minimize industrial traffic, pollution, and noise that City residents would be exposed to, and to guard industry from complaints by residents against their normal operations. The 1961 Zoning Resolution allowed no new residences in the three manufacturing districts, although many existing residences in these districts remained as nonconforming uses due to historic land use patterns. In the Study Area, residential development is largely restricted to Cluster 2, of which approximately 20 percent of the land use is residential single family or multi-family family development with another 12 percent of mixed commercial-residential use. Other residential land usage in the Study Area includes two multi-story apartment buildings in Cluster 3 on West Farms Road.

Apart from residential land uses, each of the property clusters also presents a unique land use profile for non-residential development. Cluster 1 is dominated by vacant land (14 parcels accounting for approximately 65 percent of all land), followed by industrial and manufacturing uses on 5 parcels (14 percent) and parking facilities (11 percent). Cluster 1 includes no open green space.

Cluster 2 has the most diverse non-residential development profile of any of the property clusters. Nonresidential development is dominated by parking facilities (18.7 percent), with commercial and office, industrial and manufacturing, and vacant land comprising approximately 13 percent of the land area.

Non-residential development in Cluster 3 is primarily industrial and manufacturing uses (40.6 percent) and parking facilities (24.4 percent) with lesser amount of commercial and office space (10.7 percent). Cluster 3 includes no open green space.

APPENDIX F: MARKET POTENTIAL ANALYSIS FOR REDEVELOPMENT - CLUSTER 2

Print Date: 08/12/2018

Bronx Park Ave and Wyatt Street Development
Lot Area = 230,000 square feet

0 40 80 160 240 320 400 Feet

BRS inc

SETTING UP THE PROJECT DETAILED EXAMPLE - CLUSTER 2

Below is a detailed example of how to set up the proforma setup for Cluster 2, along with an explanation for the proforma calculations when utilizing LIHTC as the primary financing strategy. It is important to note that other potential funding available through government programs that could be added to the capital stack are not included in the calculations.

RESIDENTIAL RENTS

Using average square footage values for apartments located in the Bronx for studios, and 1, 2, and 3-bedroom units, a total of 420 apartments are estimated for this development in the four eight-story buildings. A summary of the projected mix of apartment types are presented in Exhibit 2 below. As indicated above, it is assumed that 100 percent of the units will be compliant with NYC requirements for affordable housing, therefore the rents indicated in Exhibit 2 are an average of allowable rents for units reserved for families earning between 20-100 percent of the AMI.

As may be seen in Exhibit 2, the "Gross Residential Rent", or the maximum amount of rent that could be expected at any time assuming that all of the apartments were occupied and paying rent without problem, is $5,608,800 (when the rents are stabilized at the affordable rates). Adding in other potential additional income from proceeds from the lease on the commercial space, commercial space tenant contributions towards payment of utilities and other costs, and other income that will be derived from parking, vending machines, cable and telephone fees, etc. the total expected gross annual income for the project is $6,494,300 (see Table 1 below).

Table 1: Potential Project Income

Residential Income	5,608,800
Commercial Income	325,500
Tenant Contributions	35,000
Other Income	525,000
Total Income	**6,494,300**

DEVELOPMENT COSTS

For purposes of this analysis, the costs to construct the project have been divided between site development costs and the building construction costs. Site development includes all the work required both on-site and off-site in the surrounding areas that is necessary to prepare the site for construction of the apartment buildings. Site development costs typically include the purchase of the land, demolition of existing buildings and other structures, environmental remediation, and any engineering improvement that may be required such as new water and sewer infrastructure and construction of streets and curbs. A complete table of estimated development costs is provided in Exhibit 3. As indicated in Table 3A (Exhibit 3), acquisition of the land (including only the portion of the land outside of the building footprint where the parking lots and landscaped areas will be constructed) is estimated to be $8,010,000 or $60/ square foot. Other site development costs include demolition of the existing buildings and site remediation ($2,647,050) and the on-site and off-site infrastructure improvements. Total

site development costs are estimated to be $18,598,200, or approximately 11.9 percent of the total project costs.

The formulation of estimated costs for services such as demolition and remediation, and the construction of the on-site and off-site infrastructure was accomplished by applying typical unit costs or percentages to the costs for acquisition and construction of the project. In the case of this proposed development project, the following percentages were applied: 2 percent of acquisition and construction costs for demolition and site remediation, 2.5 percent for on-site improvements and 3.5 percent for off-site improvements. While necessarily imprecise, using percentages and unit costs for high-level estimating can be very useful when attempting to estimate project costs before any detailed design work has been completed.

The main driver of building construction costs are the so-called "hard" construction costs that include the tangible assets needed to complete the construction projects. In contrast, the "soft" costs of construction are those costs for services such as design fees, legal fees, and insurance. Both types of costs are estimated on a per square foot basis. In this case hard and soft construction costs have been estimated at a total of $255 per square foot, which is low for New York City but reasonable for new construction projects in the Bronx. As may be seen in Table 3A (Exhibit 3 below) not all costs are eligible to be used in the calculation of the LIHTC. Only tangible assets that may be depreciated, as well as some fees, may be included. For example, land acquisition costs are not eligible for the 9 percent LIHTC. Total building construction costs are estimated at $137,977,490, bringing the total project costs to $156,575,690 or $372,800 per unit to be constructed.

EQUITY CALCULATIONS

Exhibit 4 provides a step-by-step analysis of calculation of the LIHTC for this project based on the estimated development costs, as well as the amount of equity that may be attracted to this project using the LIHTC, which is $88,272,350.

The capital stack is the sum of all capital invested in the project, including pure debt, and equity brought in by investors. As shown in Table 2, after the equity brought to the project by the limited and general partners, an additional $67,420,616 is required in bank debt to fund the project. In lieu of providing its equity stake in cash, the General Partner may be able to delay payment of its Developer Fee until cash flow begins or the construction loan is taken out by a permanent loan. In this case, the Developer Fee is estimated at 1 percent of the costs of acquisition and construction, or $1,323,530 – an amount large enough to cover the estimated General Partner stake of $882,724. Therefore, to hope to use the 9 percent tax credit to attract equity to the project, it would be expected that 100 percent of the units must meet the NYC standards for affordable housing.

Table 2: Capital Stack (Example 1)

Sources of Funds	Dollar Amount	Percetage
Tax Credit Equity	88,272,350	56.4%
Bank Debt	67,420,616	43.1%
GP Equity	882,724	0.6%
Total:	**156,575,690**	**100.0%**

OPERATIONAL EXPENSES

Annual operating expenses for the project may be estimated on a per unit, per square foot, or percentage of revenue basis. Table 3 below presents this calculation. Operating expenses include cost to maintain the facilities and provide day-to-day management of the buildings, as well as pay property taxes, utility bills, and insurance coverages. Replacement reserves are funds used to replace durable items such as appliances or essential parts of the building's structure. As may be seen in Table 3, the total operating expenses including the replacement reserves total to just under 40 percent of the expected revenue of the project, which is a reasonable, but conservative, amount for a new building.

Table 3: Operating Expenses (Example 1)

	Total	Per Unit	Per SF	% of Revenue
Total Operating Expenses	2,208,062	5,257	5.94	34.00%
Replacement Reserves	357,187	850	0.96	5.50%
Total Operating Exp. and Reserves	**2,565,249**	**6,108**	**5.12**	**39.50%**

AFER-TAX CASH FLOW

For a project where tax credits and depreciation of assets is a main driver for financial feasibility, the After-Tax Cash Flow provides the key to understanding financial performance of the project by looking at the partnership's ability to generate cash flow through its operations. As is demonstrated by examination of the Year 1 cash flow presented in Exhibit 5 below, although the After-Tax Cash Flow is positive for this project for the equity partners, its return on investment is lower than the investors could probably find with other investments.

To start the cash flow analysis, a calculation of the Before-Tax Cash Flow is provided in Table 5A (Exhibit 5). The Gross Residential Rent ($5,608,800/Line 1) and other income produced from the residential portion of the property ($525,000/Line 2) is reduced by expected vacancy losses during the year ($184,014/Line 3), which in this instance is estimated at 3 percent. This provides the total expected residential income for the year ($5,424,786/Line 4).

Next, the expected annual commercial income is calculated ($349,685/Line 10). This amount, added to the residential income, provides the Effective Gross Income for the year ($6,299,471/ Line 12). The operating expenses ($2,208,062/Line 13) and reserves ($357,187 / Line 14) are then subtracted off to arrive at the Net Operating Income or "NOI" ($3,734,223 /Line 15). This amount is then used to pay the required principal and interest on the bank debt ($4,270,450 /Line 16) resulting in a small loss for the year (-$536,228/Line 17). As can be seen, the NOI is not even enough to cover the bank debt, resulting in a Debt Coverage Ratio (DCR) of 0.87 (Line 19).[1] Banks will typically require that a proforma and cash flow analysis show a DCR of 1.1 – 1.2 to provide a bank loan. Further, using a cap rate of 8.5 percent applied to the NOI the potential sale value of the apartment complex is estimated at $43,932,029 (Line 23). Another measure that banks will use to evaluate a potential loan is the Loan to Value (LTV), which is the ratio of the debt as a percentage of the total appraised value of real property. Typically, a bank will allow an LTV of 75-80 percent. In this case the bank debt is higher than the first-year estimated sale price of the building, therefore the LTV would be over 1, which would be unacceptable. At this point it can be seen that this business deal is already in trouble.

The After-Tax Cash Flow calculation, presented in Table 5B (Exhibit 5), starts with a calculation of the taxes due to the government. (In this case, state taxes will be ignored for the sake of simplicity). Starting with the before-tax cash flow determined in Line 17 of Table 5A, non-cash tax deductions are subtracted off including depreciation expenses for the tangible assets, amortization of banking fees, and any accrued interest on interest-only loans (Lines 3-5 in Table 5B). The portion of the bank debt principal paid down during the period, as well as the funded operational reserve, is added back to the cash flow (Lines 6-7), since these are not deductible from taxes. Applying a 21 percent corporate federal tax rate, a negative tax liability (i.e. a tax savings) of -$698,865 is calculated (Line 10). When added to the negative cash flow of -$536,228, this results in a net tax savings of $162,627 (Line 13). In other words, this is a loss that could be applied against a tax bill that the investor would have to pay for income earned on other businesses. However, the tax savings do not stop here. The tax credit that was purchased by the investor is then applied, dollar-for-dollar to the tax bill (Line 19). This results in a net after-tax cash benefit of $9,971,647 (Line 21). This is the total amount of cash flow, monetized as a credit against other payable taxes, available to the investor.

Although a positive cash flow of $ 9,971,647 may seem attractive, when seen in the context of the business deal as a whole across a 15-year period, the return on the investment is only 2.4 percent. This is a very poor return on investment dollars and would not attract equity to the project. As one point of interest, it is notable how the after-tax cash flow in the table falls off precipitously after Year 10 – once the annual tax credits are completed. This illustrates both the importance of the tax credit to the project, and how even a very generous tax credit is not enough to sustainably fund a 100 percent affordable project of this size.

Table 4: After-Tax Cash Flow (Example 1)

YEAR	0	1	2	3	4	5
	(88,272,350)	9,973,515	9,987,691	10,001,644	10,015,370	10,028,866
YEAR		6	7	8	9	10
		10,042,127	10,055,152	10,067,940	10,080,490	10,092,803
YEAR		11	12	13	14	15
		393,949	405,792	417,404	428,791	439,960
Actual IRR	2.4%					

END NOTES - FINANCIAL FEASIBILITY ANALYSIS DETAILED EXAMPLE

[1] The formula for debt coverage ratio is net operating income divided by debt service. The debt coverage ratio is used in banking to determine a project's ability to generate enough income in its operations to cover the expense of the requested loan.

EXHIBIT 1

Table 1: Parcel Information for Proposed Redevelopment Area

Block	Lot	ZoneDist1	Address	Owner Name	Land Use	Lot Area	Building Class	BldgArea
3907	1	M1-1	BRONX PARK AVENUE	NEW YORK CITY TRANSIT	Transportation & Utility (7)	31,207	Transportation, Public Ownership (U7)	0
3907	7	M1-1	1150 WYATT STREET	CIMINELLO INDUSTRIAL	Parking Facilities (10)	2,500	Unlicensed Parking Lot (G7)	0
3907	19	M1-1	WYATT STREET	CIMINELLO INDUSTRIAL	Parking Facilities (10)	9,356	Unlicensed Parking Lot (G7)	0
3907	43	M1-1	EAST 177 STREET	SCHAINBERG, MARION	Vacant Land (11)	6,210	Vacant - Not Zoned Residential (V1)	0
3908	51	M1-1	390 MORRIS PARK AVENUE	390 MORRIS PARK AVENU	Commercial & Office Buildings (5)	13,340	Office Building (O1)	11600
3908	56	M1-1	396 MORRIS PARK AVENUE	SASSONE, ANTHONY/DBA	Industrial & Manufacturing Buildings (6)	14,960	Factory/Industrial Building (F9)	6320
3908	63	M1-1	EAST 178 STREET	390 MORRIS PARK AVENU	Vacant Land (11)	2,227	Vacant - Not Zoned Residential (V1)	0
3908	64	M1-1	VAN NEST AVENUE	390 MORRIS PARK AVENU	Vacant Land (11)	1,062	Vacant - Not Zoned Residential (V1)	0
3908	66	M1-1	1211 WYATT STREET	390 MORRIS PARK AVENU	Industrial & Manufacturing Buildings (6)	9,865	Warehouse (E9)	8164
3908	68	M1-1	1206 EAST 178 STREET	390 MORRIS PARK AVENU	Vacant Land (11)	15,452	Vacant - Not Zoned Residential (V1)	0
3909	61	M1-1	420 MORRIS PARK AVENUE	420 MORRIS PARK AVENU	Vacant Land (11)	25,500	Vacant - Not Zoned Residential (V1)	0
3910	29	M1-1	1208 WYATT STREET	CIMINELLO INDUSTRIALP	Commercial & Office Buildings (5)	60,700	Office Building (O5)	24565
3910	36	M1-1	VAN NEST AVENUE	390 MORRIS PARK AVENU	Vacant Land (11)	3,795	Vacant - Not Zoned Residential (V1)	0
NA	NA	M1-1	VAN NEST AVENUE	390 MORRIS PARK AVENU	Vacant Land (11)	11,745	Vacant - Not Zoned Residential (V1)	0

EXHIBIT 2: RESIDENTIAL RENTS

Table 2A: Residential Rents (Example 1)

RESIDENTIAL RENTS

All Units	Studio	1 bedroom	2 bedroom	3 bedroom
# Units (Total)	60	150	150	60
Percent of Total	15%	35%	35%	15%
Avg. Area (sf)	520	820	950	1250
Market-Rate	**Studio**	**1 bedroom**	**2 bedroom**	**3 bedroom**
# Units	0	0	0	0
Monthly Rent	$1,560.00	$1,750.00	$1,990.00	$2,240.00
$/sf	$3.00	$2.13	$2.09	$1.79
Income Restricted	**Studio**	**1 bedroom**	**2 bedroom**	**3 bedroom**
# Units	60	150	150	60
Avg. Monthly Rent	$900.00	$1,010.00	$1,210.00	$1,340.00
$/sf	$0.58	$0.81	$0.79	$0.93

Total Units:	420
Net Rentable Area	371,700
Avg. Area/Unit (SF):	890
Gross Residential Rent:	$5,608,800
Avg. Rent per Unit:	$13,354.29
Avg. Rent per SF:	$15.09

Table 2B: Residential Rents (Example 2)

RESIDENTIAL RENTS				
All Units	**Studio**	**1 bedroom**	**2 bedroom**	**3 bedroom**
# Units (Total)	60	150	150	60
Percent of Total	15%	35%	35%	15%
Avg. Area (sf)	520	820	950	1250
Market-Rate	**Studio**	**1 bedroom**	**2 bedroom**	**3 bedroom**
# Units	48	120	120	48
Monthly Rent	$3,110.00	$3,500.00	$3,970.00	$4,470.00
$/sf	$5.98	$4.27	$4.18	$3.58
Income Restricted	**Studio**	**1 bedroom**	**2 bedroom**	**3 bedroom**
# Units	12	30	30	12
Avg. Monthly Rent	$900.00	$1,010.00	$1,210.00	$1,340.00
$/sf	$0.58	$0.81	$0.79	$0.93
Total Units:	420			
Net Rentable Area	371,700			
Avg. Area/Unit (SF):	890			
Gross Residential Rent:	$16,244,640			
Avg. Rent per Unit:	$38,677.71			
Avg. Rent per SF:	$43.70			

EXHIBIT 3: DEVELOPMENT COSTS

Table 3A: Development Costs (Example 1)

Line	Item	Cost	% Total	LIHTC Eligible
1	Land Acquisition (Parking Lots & Land	8,010,000	5.1%	-
2	Demolition & Site Remediation	2,647,050	1.7%	-
3	On-Site Imp.	3,308,810	2.1%	3,308,810
4	Off-Site Imp.	4,632,340	3.0%	4,632,340
5	**Total Site Development Cost**	**18,598,200**	**11.9%**	
6				
7	Land Acquisition (Bldg. Footprint Only	4,470,000	2.9%	-
8	Hard Construction Costs	95,911,880	61.3%	95,911,880
9	Contractor and Design Fees	31,970,630	20.4%	31,970,630
10	Loan Fees	1,985,290	1.3%	-
11	Organizational & Marketing Expenses	992,640	0.6%	-
12	Developer Fee	1,323,530	0.8%	1,323,530
13	Other LIHTC Eligible Expenses	661,760	0.4%	661,760
14	Other LIHTC Non-Eligible Expenses	661,760	0.4%	-
15	**Total Building Development Cost**	**137,977,490**	**88.1%**	**129,867,800**
16				
17	**Total Project Cost:**	**$156,575,690**	**100.0%**	
18	Development Costs/Unit:	$372,799.26		

Table 3B: Development Costs (Example 2)

Line	Item	Cost	% Total	LIHTC Eligible
1	Land Acquisition (Parking Lots & Land	8,010,000	4.8%	-
2	Demolition & Site Remediation	2,847,650	1.7%	-
3	On-Site Imp.	3,559,560	2.1%	3,559,560
4	Off-Site Imp.	4,983,390	3.0%	4,983,390
5	**Total Site Development Cost**	**19,400,600**	**11.6%**	
6				
7	Land Acquisition (Bldg. Footprint Only	4,470,000	2.7%	-
8	Hard Construction Costs	103,434,380	61.6%	103,434,380
9	Contractor and Design Fees	34,478,130	20.5%	34,478,130
10	Loan Fees	2,135,740	1.3%	-
11	Organizational & Marketing Expenses	1,067,870	0.6%	-
12	Developer Fee	1,423,830	0.8%	1,423,830
13	Other LIHTC Eligible Expenses	711,910	0.4%	711,910
14	Other LIHTC Non-Eligible Expenses	711,910	0.4%	-
15	**Total Building Development Cost**	**148,433,770**	**88.4%**	**140,048,250**
16				
17	**Total Project Cost:**	**$167,834,370**	**100.0%**	
18	Development Costs/Unit:	$399,605.64		

EXHIBIT 4: LIHTC EQUITY CALCULATION

1	Eligible Expenses	129,867,800
2	- % Commercial	1,812,711
3	- Grants	0
4	= Const. Basis	128,055,089
5	x LIHTC '9%' Rate	7.66%
6	x Bonus Area	100%
7	= Annual Credit	9,809,020
8	x % Low Income	100%
9	= Amount of Credit/Year	9,809,020
10	x LIHTC Sale Rate	0.90
11	= 1 YR LIHTC	8,828,118
12	10 Year LIHTC	88,281,178
13	x % Ownership	99.99%
14	**= Partnership Equity**	**88,272,350**

Line 1: Eligible Expenses – These are the LIHTC eligible costs for development as listed in Table 2.
Line 2: Commercial – This line subtracts off the percentage of the project that is not devoted to residential living space. In this case, 7,000 square feet of retail space (1.4 percent of the total floor area) is planned for the ground floor, therefore the LIHTC eligible amount has been decreased by 1.4 percent.
Line 3: Grants – If any other grants from governmental agencies had been received for this project, the amount of those grants will be subtracted from the eligible amount.
Line 4: Constriction Basis – Amount of the project costs that are available for the LIHTC calculation.

Line 5: LIHTC '9 percent' rate – The IRS recalculates the actual percentage that is necessary to keep the program in compliance with the 70 percent net present value requirement. As of August 2018, that percentage is 7.66 percent. This is the annual rate of credits available to investors.
Line 6: The LIHTC program allows a 30 percent bonus to developments in special areas identified by zip code. The proposed project is not located in a special area; therefore, no bonus area is provided.
Line 7: Annual Credit – Amount of tax credits that are available to investors on an annual basis for 10 years for the portion of the development that will include affordable housing.
Line 8: percent Low Income – Percentage of the building that is affordable housing. For this example, project, 100 percent of the units will be affordable housing.
Line 9: Amount of credit per year - Amount of tax credits that are available to investors on an annual basis for 10 years given the amount of affordable housing being made available by the development.
Line 10: LIHTC Sales Rate – Discount provided on the sale of the tax credits to investors on the secondary market. The current going rate is $0.90 on the dollar.
Line 11: 1-year LIHTC – Amount of equity attracted by the LIHTC in one year.
Line 12: 10-year LIHTC – Amount of equity attracted over the 10-year life f the tax credits. This is the total amount of equity made available by the LIHTC for use in constructing the project.
Line 13: percent Ownership – Percentage ownership of the Limited Partnership that will build, own, and operate the project.
Line 14: Partnership Equity – The total equity attracted to the project from the Limited Partner.

EXHIBIT 5: BEFORE-TAX & AFTER-TAX CASH FLOWS

Table 5A: Year 1 Before-Tax Cash Flow (Example 1)

Line	*Year*		*1*
1	**Gross Residential Rent**		5,608,800
2	+ Other Income		525,000
3	- Residential Vacancy		184,014
4	**= Residential Income**		5,424,786
5			
6	**Gross Commercial Rent**		325,500
7	+ Tenant Contributions		35,000
8	= Commercial Rent		360,500
9	- Commercial Vacancy		10,815
10	**= Commercial Income**		349,685
11			
12	**= Effective Gross Income**		6,299,471
13	- Operating Expenses		2,208,062
14	- Transfer to Reserves		357,187
15	**= Net Operating Income**		3,734,223
16	- Debt Service (p+i) bank		4,270,450
17	**= Cash Flow Available for Distribution**		(536,228)
18			
19	Debt Coverage Ratio-Bank Loan (1.2)		0.87
20	Cash on Cash (CF/EQ)		-0.61%
21			
22			
23	Reversion (Cap Rate =)	8.50%	43,932,029

Table 5B: Year 1 After-Tax Cash Flow (Example 1)

Line	*Year*	*1*
1	**Determination of Taxes**	
2	Cash Flow	(536,228)
3	- Depreciation Expense	4,722,465
4	- Amortization of Fees	198,529
5	- Accrued Interest	0
6	+ Amortization of Principal	1,573,626
7	+ Funded Reserves	357,187
8	**= Earnings (Loss) Before Tax**	(3,327,881)
9	x Tax Rate	21.00%
10	**= Tax Incurred (Saved)**	(698,855)
11		
12	Cash Flow	(536,228)
13	- Tax Incurred (+ Saved)	(698,855)
14	**= Cash Flow After-Tax**	162,627
15		
16	**After-Tax Benefits Analysis**	
17	Cash Flow	(536,228)
18	- Taxes	(698,855)
19	+ LIHTC	9,809,020
20	+ Net Sales Proceeds	0
21	**= Net Cash Flow After-tax**	9,971,647

Table 5C: Year 1 Before-Tax Cash Flow (Example 2)

Line	*Year*	*1*
1	**Gross Residential Rent**	16,244,640
2	+ Other Income	525,000
3	- Residential Vacancy	503,089
4	**= Residential Income**	15,741,551
5		
6	**Gross Commercial Rent**	325,500
7	+ Tenant Contributions	35,000
8	= Commercial Rent	360,500
9	- Commercial Vacancy	10,815
10	**= Commercial Income**	349,685
11		
12	**= Effective Gross Income**	16,616,236
13	- Operating Expenses	5,139,042
14	- Transfer to Reserves	942,158
15	**= Net Operating Income**	10,535,036
16	- Debt Service (p+i) bank	7,521,486
17	**= Cash Flow Available for Distribution**	3,013,550
18		
19	Debt Coverage Ratio-Bank Loan (1.2)	1.40
20	Cash on Cash (CF/EQ)	15.83%
21		
22		
23	Reversion (Cap Rate =) 8.50%	123,941,601

Table 5D: Year 1 After-Tax Cash Flow (Example 2)

Line	*Year*	*1*
1	**Determination of Taxes**	
2	Cash Flow	3,013,550
3	- Depreciation Expense	5,092,664
4	- Amortization of Fees	213,574
5	- Accrued Interest	0
6	+ Amortization of Principal	2,771,605
7	+ Funded Reserves	942,158
8	**= Earnings (Loss) Before Tax**	1,634,650
9	x Tax Rate	21.00%
10	**= Tax Incurred (Saved)**	343,276
11		
12	Cash Flow	3,013,550
13	- Tax Incurred (+ Saved)	343,276
14	**= Cash Flow After-Tax**	2,670,274
15		
16	**After-Tax Benefits Analysis**	
17	Cash Flow	3,013,550
18	- Taxes	343,276
19	+ LIHTC	2,115,591
20	+ Net Sales Proceeds	0
21	**= Net Cash Flow After-tax**	4,785,865

Analysis of Brownfields Cleanup Alternatives

1460 Sheridan Expressway
Block 3017, Lot 74
Bronx, New York

Prepared by BRS, Inc. for

South Bronx Overall Economic
Development Corporation (SoBro)
555 Bergen Avenue
Bronx, New York 10455

February 2019

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CONTENTS

ATTACHMENTS

1 INTRODUCTION & BACKGROUND

The subject site includes one property located at 1460 Sheridan Expressway in the Bronx River – Sheridan Expressway corridor, a New York State Brownfield Opportunity Area (BOA) and recipient of a U.S. EPA Brownfields Area-Wide Planning Grant, in the Bronx, New York. The site is bounded on the west by Sheridan Expressway and on the east by the Bronx River. Access to the Sheridan Expressway via ramps is located north of the site and several vacant paved lots bound the site to the south. The site is located in an area surrounded by a mix of residential, commercial, and industrial properties. The subject property is located within the 100-year floodplain. See Site Location Map provided as Attachment A.

The South Bronx Overall Economic Development Corporation (SoBRO) (the Grantee), intends to use the subject properties for redevelopment to provide public access to the waterfront and improve quality of life for surrounding residents. SoBRO has contracted Brownfield Redevelopment Solutions, Inc. (BRS), to prepare this Analysis of Brownfields Cleanup Alternatives (ABCA) as part of the redevelopment planning process. As a result of delays to Phase I and Phase II assessment activities and the winding down of the Brownfields Area-Wide Planning Grant activities, BRS has prepared this draft ABCA after issuance of a Phase I Environmental Site Assessment (ESA) completed by CDM Smith on December 21, 2018. Based on the findings of the Phase I ESA, a Phase II assessment will be necessary at this property. Once this investigative work is completed, this draft ABCA will need to be updated.

The purpose of the ABCA is to:

- Identify reasonable brownfields cleanup alternatives considered for addressing the contamination identified at the site;
- Analyze the various factors influencing the selection of a preferred cleanup method, including effectiveness, implementability, costs, and sustainability;
- Select the preferred cleanup method, based on the analyses performed; and
- Provide community outreach and solicit public participation and comment on the remedial selection process prior to the final decision.

Community involvement with the environmental cleanup and site redevelopment project may include targeted outreach to notify communities of the availability of this Draft ABCA. Additional details regarding the public notification process will be presented in a *Community Relations Plan* to be prepared for the site. A Brownfields Cleanup Decision Memo will be prepared at the end of the public comment process, which will describe the cleanup options selected by SoBRO. The ABCA and the Decision Memo will be included with the Administrative Record. The Administrative Record repository is located at the offices of SoBRO.

The expected outcomes of the project include a Certificate of Completion (COC) letter to be issued by New York State Department of Environmental Conservation (NYSDEC) and/or a Notice of Completion from New York City Office of Environmental Remediation (NYC OER).

1.1 Site Description and Previous Uses

According to New York City Department of Finance tax maps, the subject property is listed as Block 3017, Lot 74. The subject property is approximately 0.94 acres and owned by PDJ Simone Realty Co. 1460 Sheridan Expressway is currently used as an automotive parts shop. A newly remodeled, two-story building (14,000-square-foot) contains office space and is attached to a large warehouse. The property is currently zoned for industrial use.

Unused construction equipment and materials are found in the rear of the site. The garage buildings on-site exhibit some damage, including chipped paint, damaged walls, and rusted metal. Stains, likely from petroleum products, were observed on concrete across the lot.

The subject property at 1460 Sheridan Expressway was historically used for industrial and commercial purposes and operated for a variety of businesses since the late 1890s including as a bus repair and automobile demolition facility, blacksmith shop, iron yard, coal and lumberyard, and various railway companies.

1.2 Surrounding Land Use

The land use in the surrounding area includes residential, commercial, and industrial uses. The site is bounded on the west by Sheridan Expressway and on the east by the Bronx River. Access to the Sheridan Expressway via ramps is located north of the site and several vacant paved lots bound the site to the south.

Historical use of the properties surrounding the subject property have been predominantly commercial and industrial businesses, including laundromats, steel storage, and welding companies. Current uses of lots immediately adjacent to the subject property include vacant paved lots for long- and short-term parking yards and Sheridan Expressway on/off ramps.

Bronx County was first settled in the 1600s and was incorporated into New York City as one of five boroughs beginning in 1874. It is approximately 42 square miles. As part of a large metropolitan area, the Bronx is composed of a wide variety of land uses, including residential properties, commercial businesses, and industrial settings. It is bordered to the north by Westchester County and to the south by Manhattan. It is separated from New Jersey on the west by the Hudson River and separated from Queens on the east by the East River.

As part of a large metropolitan city, residential houses, apartment buildings, and other commercial properties quickly developed in the neighborhood where the subject properties

are located, beginning in the late 1800s. The local area continues to be improved with schools, new housing, and a variety of businesses.

1.3 Project Goal (Reuse Plan)

The goal of the project is to be determined per the redevelopment plans for the site. Potential project goals could include removal of contaminated soil and soil hot spots from the property; phytoremediation of contaminated soil and/or groundwater; or installation of a clean soil cap over certain areas of contaminated soil and/or historic fill for example. All of this work will support redevelopment efforts as SoBRO intends to use the subject property to provide public access to the waterfront and improve quality of life for surrounding residents.

1.4 Summary of Environmental Conditions

Environmental assessment activities have been undertaken at the site and surrounding area since 2017. Targeted investigation activities will be conducted prior to implementing the remediation in order to define the extent of contamination. To date, soil and groundwater at the site are not known to be impacted. However, once investigation activities are complete it is presumed that soil, soil vapor and/or groundwater may be impacted by volatile organic compounds (VOCs), semi-VOCs (SVOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), petroleum hydrocarbons and metals exceedances of NYSDEC Subpart 375-6 restricted residential use soil cleanup objectives and NYSDEC Class GA Groundwater Criteria.

The proposed cleanup activities for which EPA funding may be used include: excavation and off-site disposal of certain contaminated soils, on-site remediation of other soils and groundwater via phytoremediation, and engineering and institutional controls. Additional tasks associated with the cleanup for which EPA funding is requested include: cooperative agreement oversight, public engagement, remediation oversight, and compliance with NYSDEC permitting requirements.

1.5 Physical Setting

The Site is located at approximately 8 feet above mean sea level, with a slight slope east toward the Bronx River. The subject properties immediately border the Bronx River along the eastern property boundary and are a part of the Long Island Sound Drainage Basin. Groundwater at the subject properties is expected to flow east toward the Bronx River. The subject properties are located within the 100-year floodplain.

According to the *Bedrock and Engineering Geologic Maps of Bronx County and Parts of New York and Queens Counties, New York* (USGS 1992), the subject area falls within the Hartland Formation (Middle Ordovician to Lower Cambrian), which consists of gray and medium-gray thinly laminated and fine-grained muscovite-biotite-quartz schist with minor garnet; white to pinkish white fine to medium-grained gneissic quartz-microcline-muscovite-biotite-plagioclase granite with minor garnet, dark greenish-black quartz-

biotite-hornblende amphibolite with some white and pink granite pegmatite; and gray unevenly foliated sillimanite-plagioclase-muscovitebiotite- microcline-quartz gneissic schist with minor garnet and mica-feldspar.

1.6 Exposure Pathways

In order for contaminants from a site to pose a human health or environmental risk, one or more completed exposure pathways must link the contaminant to a receptor (human or ecological). A completed exposure pathway consists of four elements:

- A source and mechanism of substance release;
- A transport medium;
- A point of potential human or ecological contact with the substance ("exposure point"); and
- An "exposure route", such as dermal contact, ingestion, etc.

Preliminary evaluation indicates the following potentially completed exposure pathways related to the site in its current condition (i.e. pre-remediation):

1. **Direct contact with Soil**. Soil might be handled, inhaled or ingested by occasional on-site construction workers or trespassers. This exposure pathway will be mitigated immediately by implementation of the proposed cleanup activities, which includes excavation and offsite disposal of certain contaminated soils and on-site treatment of other contaminated soils. Residual risk related to this pathway will be eliminated with engineering and institutional controls.
2. **Direct Contact with, or Ingestion of, Groundwater.** There are no current or anticipated future uses of onsite groundwater. In addition, on-site groundwater remediation and an institutional control may be implemented to prevent future groundwater use, if necessary.

2 APPLICABLE LAWS AND CLEANUP STANDARDS

All site remediation to be performed under this grant would be conducted in accordance with the New York Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation-10 (DER-10) Technical Guidance for Site Investigation and Remediation dated May 2010.

The reference remediation standards for soil will be NYSDEC's published numeric values for NYSDEC Subpart 375-6 restricted residential use soil cleanup objectives (SCOs).

The reference remediation standards for groundwater will be the current version of NYSDEC Class GA Groundwater Criteria.

The effective implementation of the applicable laws and guidance will be managed and overseen by a Qualified Environmental Professional (QEP), to be retained for the site by SoBRO. Project reports will be submitted on behalf of SoBRO to the NYCOER and/or NYSDEC.

3 EVALUATION OF CLEANUP ALTERNATIVES

This section identifies various reasonable remediation alternatives that were considered in response to the environmental contamination issues at the site. The following potential remedial alternatives were considered:

Alternative No. 1) Removal of certain soil, on-site treatment of other soil and enactment of engineering and institutional controls,

Alternative No. 2) Removal of all impacted medial, including any historic fill, and

Alternative No. 3) No action.

The following evaluation criteria were considered in comparing the remedial alternatives.

A. Effectiveness in providing compliance with NYSDEC and NYCOER regulations and increased protectiveness to public health and the environment;

B. Implementability of the considered alternative;

C. Cost of the considered alternative; and

D. Sustainability and Resilience considerations.

3.1 Alternative No. 1 - Removal of Certain Soil, On-Site Treatment of other Soil and Enactment of Engineering and Institutional Controls

Under this alternative, the remedial action will include removal of contaminated soil hot-spots from the sources of identified releases followed by design and installation of Engineering Controls including phytoremediation installations, permeable and impermeable caps, and recording of a deed notice and environmental easement as Institutional Controls. This combination of remedies will remove the source of identified releases and associated contaminated soils, prevent exposure to residual site contaminants and provide for long-term remediation of overall toxic loading in the community. Further details of the remediation plan will be based on redevelopment plans for this site and will be presented below.

Selection of this alternative will result, upon completion, in restricted future use of the site.

3.1.1 Effectiveness

The Institutional and Engineering Controls approach does not physically remove all contaminants in site soil, sediments and water. However, this alternative would effectively achieve project remediation goals by:

- Removing the most highly contaminated soil from the site;
- Achieving technical and administrative compliance with the NYSDEC and NYCOER site remediation regulations;

- Disruption of the pathway of contaminated material to the outside environment. Although the contamination still exists, the Institutional and Engineering Controls will significantly reduce the potential of human exposure.
- Provide notice of site environmental conditions to future site owners, occupants, and the general public by means of the Deed Notice.

3.1.2 Sustainability and Resilience

This criterion evaluates the degree to which the remedial alternative may reduce greenhouse gas discharges, reduce energy use, employ alternative energy sources, reduce volume of wastewater to be disposed, reduce volume of materials to be taken to a landfill, and/or allow for the reuse or recycling of materials during cleanup is considered, where applicable.

This alternative limits excavation and truck transportation of contaminated media to areas with the highest contamination, thereby reducing the fossil fuel energy use, and associated greenhouse gas discharges associated with that task.

3.1.3 Implementability

Soil excavation and cap placement is easily and rapidly implementable because it involves relatively simple technology and equipment. This type of remedy is a widely used and readily accepted alternative for remediating and encapsulating contaminated soils. SoBRO and/or its consultant will retain a contractor that is licensed, qualified, and OSHA-certified to perform work on hazardous materials sites. The deed notice and any environmental restrictions, prepared in accordance with NYSDEC and NYCOER guidance documents and regulations, are relatively routine administrative submissions.

3.1.4 Operation and Maintenance

Operation and Maintenance on the installed soil cap should include the following:

- Routine inspections
- Vegetation maintenance (grass mowing and weed control)
- Written O&M Plan that includes a discussion including but, not limited to; soil cover maintenance, reporting, maintenance agreement, a utility plan should future utilities or building be proposed at the Site, and fence maintenance (if applicable).

3.1.5 Institutional Controls

This alternative will require Institutional Controls.

3.1.6 Cost

The costs for completing remediation under this approach were estimated using the following elements and assumptions:

1) Retain environmental engineering firm, and review of previous reporting;

2) Project and Grant Management tasks, including public notification;
3) Prepare project specifications and bid documents;
4) Conduct procurement process;
5) Design and implement remedial design;
6) Prepare regulatory reporting requirements;
13) Prepare Quality Assurance, and Health and Safety deliverables.

The estimated cost for this cleanup alternative is not currently known. The USEPA cleanup grant contribution would be up to $500,000. SoBRO cost share would provide the remaining moneys and the EPA match requirement from other funding sources.

3.2 Alternative No. 2 - Removal of Contaminated Soil Sitewide

Under this alternative, the remedial action will consist of removal of all contaminated soil, estimated to be present at a depth of 8 to 10 feet site-wide, and replacement with clean soil fill. Selection of this alternative is expected to result, upon completion, in unrestricted future use of the site. No engineered cap would be installed, as no contaminated materials would remain on site. No Institutional Controls would be needed as removal of impacted soil is expected to remediate potential groundwater impacts.

3.2.1 Effectiveness

This alternative would be immediately effective by removal of the potential continuing contaminant sources associated with the presence of potentially contaminated soil from the site. The remedial action should result in unrestricted use of all areas of the site.

3.2.2 Sustainability and Resilience

This alternative compares unfavorably to Alternative 1 (described in Section 3.1) with regard to sustainability metrics. The approach would result in increased energy use, greenhouse gas emissions, and landfill disposal volume. It is expected to compare favorably to Alternatives 1 and 3 in resilience metrics, such as the continuing protectiveness of the remedy in light of reasonably foreseeable changing climate conditions.

3.2.3 Implementability

This alternative is feasible and implementable. This approach will involve the work elements described in Section 3.1, with the exception of the emplacement of a clean soil cap and deed notice, plus additional volumes of excavated soil and clean backfill.

3.2.4 Operation and Maintenance

This approach, upon successful implementation, would allow for unrestricted use of the site. No ongoing operation and maintenance of remedial systems would be required.

3.2.5 Institutional Controls

This approach, upon successful implementation, would provide for the removal of all contaminated soil from the site. No Deed Notice is required.

3.2.6 Cost

To implement this strategy, all contaminated soil would be excavated, disposed, and replaced with clean fill. Total project costs for this alternative are estimated at $3,800,000.

3.3 Alternative No. 3 - No Action

If no environmental cleanup remedy were performed at this site:

- The site would likely be out of compliance with NYSDEC's regulations; and
- The potential for exposure to contaminated soil and water by human and ecological receptors would remain.

3.3.1 Effectiveness

The "no action" alternative is not effective in that it does not provide for compliance with NYSDEC regulations and it fails to provide for the beneficial reuse of the site.

3.3.2 Sustainability and Resilience

The "no action" approach would not meet project remediation goals because the contamination would remain in place, untreated, and without a barrier. As such, the "no action" approach would present a continuing risk to the public. Based on this, evaluation of the approach with regards to other sustainability criteria is not relevant.

3.3.3 Implementability

The "no action" alternative is technically feasible, although the presence of untreated soil and groundwater contaminants would not be in compliance with NYSDEC regulations.

3.3.4 Operation and Maintenance

Because there is no remedy implemented, there would also be no operation and maintenance requirements at the Site.

3.3.5 Institutional Controls

Because there is no remedy implemented, there would be not institutional controls at the Site.

3.3.6 Cost

There are no costs associated with this remedial alternative.

3.4 Preferred Alternative

The preferred alternative is Alternative No. 1 – "Removal of Certain Soil, On-Site Treatment of other Soil and Enactment of Engineering and Institutional Controls." Soil excavation is a proven method, easily and quickly implementable, environmentally effective, and cost-effective. Excavation equipment is readily available. Soil excavation and emplacement of a cap, along with implementation of an Institutional Control, is accepted by the NYSDEC as a remedy. This remedy can be readily completed within the timeframe of the USEPA Brownfields Grant.

Attachment A
Site Location Map

Source: Google Maps (2017)

Property Boundary

N

0’ 150’ 450’ 750’

CDM Smith

Figure 1-1
Site Location Map
1460 and 1480 Sheridan Expressway
Target Brownfield Assessments
Bronx, New York

ATTACHMENT B

Summary of Public Comments and Responses

Analysis of Brownfields Cleanup Alternatives

1480 Sheridan Expressway
Block 3017, Lot 29
Bronx, New York

Prepared by BRS, Inc. for

South Bronx Overall Economic
Development Corporation (SoBRO)
555 Bergen Avenue
Bronx, New York 10455

February 2019

BRS inc

CONTENTS

ATTACHMENTS

1 INTRODUCTION & BACKGROUND

The subject site includes one property located at 1480 Sheridan Expressway in the Bronx River – Sheridan Expressway corridor, a New York State Brownfield Opportunity Area (BOA) and recipient of a U.S. EPA Brownfields Area-Wide Planning Grant, in the Bronx, New York. The site is bounded on the west by Sheridan Expressway and on the east by the Bronx River. Several vacant paved lots bound the site to the north and a hotel bounds the site to the south. The site is located in an area surrounded by a mix of residential, commercial, and industrial properties. The subject property is located within the 100-year floodplain. See Site Location Map provided as Attachment A.

The South Bronx Overall Economic Development Corporation (SoBRO) (the Grantee), intends to use the subject properties for redevelopment to provide public access to the waterfront and improve quality of life for surrounding residents. SoBRO has contracted Brownfield Redevelopment Solutions, Inc. (BRS), to prepare this Analysis of Brownfields Cleanup Alternatives (ABCA) as part of the redevelopment planning process. As a result of delays to Phase I and Phase II assessment activities and the winding down of the Brownfields Area-Wide Planning Grant activities, BRS has prepared this draft ABCA after issuance of a Phase I Environmental Site Assessment (ESA) completed by CDM Smith on December 21, 2018. Based on the findings of the Phase I ESA, a Phase II assessment will be necessary at this property. Once this investigative work is completed, this draft ABCA will need to be updated.

The purpose of the ABCA is to:

- Identify reasonable brownfields cleanup alternatives considered for addressing the contamination identified at the site;
- Analyze the various factors influencing the selection of a preferred cleanup method, including effectiveness, implementability, costs, and sustainability;
- Select the preferred cleanup method, based on the analyses performed; and
- Provide community outreach and solicit public participation and comment on the remedial selection process prior to the final decision.

Community involvement with the environmental cleanup and site redevelopment project may include targeted outreach to notify communities of the availability of this Draft ABCA. Additional details regarding the public notification process will be presented in a *Community Relations Plan* to be prepared for the site. A Brownfields Cleanup Decision Memo will be prepared at the end of the public comment process, which will describe the cleanup options selected by SoBRO. The ABCA and the Decision Memo will be included with the Administrative Record. The Administrative Record repository is located at the offices of SoBRO.

The expected outcomes of the project include a Certificate of Completion (COC) letter to be issued by New York State Department of Environmental Conservation (NYSDEC) and/or a Notice of Completion from New York City Office of Environmental Remediation (NYC OER).

1.1 Site Description and Previous Uses

According to New York City Department of Finance tax maps, the subject property is listed as Block 3017, Lot 29. The subject property is approximately 1.93 acres and owned by PDJ Simone Realty Co. 1480 Sheridan Expressway is a mixed-use lot, predominantly used as a long- and short-term parking yard, with several open garage spaces and an office area. The property is currently zoned for industrial use.

Unused construction equipment and materials are found in the rear of the site. The garage buildings on-site exhibit some damage, including chipped paint, damaged walls, and rusted metal. Stains, likely from petroleum products, were observed on concrete across the lot.

The subject property at 1480 Sheridan Expressway was historically used for industrial and commercial purposes and operated for a variety of businesses since the late 1890s including as a coal and lumber yard, concrete slab manufacturing facility and more recently as a contractors yard with shop and storage.

1.2 Surrounding Land Use

The land use in the surrounding area includes residential, commercial, and industrial uses. The site is bounded on the west by Sheridan Expressway and on the east by the Bronx River. Several vacant paved lots bound the site to the north and a hotel bounds the site to the south.

Historical use of the properties surrounding the subject properties have been predominantly commercial and industrial businesses, including laundromats, steel storage, and welding companies. Current uses of lots immediately adjacent to the subject property include a hotel and vacant paved lots.

Bronx County was first settled in the 1600s and was incorporated into New York City as one of five boroughs beginning in 1874. It is approximately 42 square miles. As part of a large metropolitan area, the Bronx is composed of a wide variety of land use, including residential properties, commercial businesses, and industrial settings. It is bordered to the north by Westchester County and to the south by Manhattan. It is separated from New Jersey on the west by the Hudson River and separated from Queens on the east by the East River.

As part of a large metropolitan city, residential houses, apartment buildings, and other commercial properties quickly developed in the neighborhood where the subject properties are located, beginning in the late 1800s. The local area continues to be improved with schools, new housing, and a variety of businesses.

1.3 Project Goal (Reuse Plan)

The goal of the project is to be determined per the redevelopment plans for the site. Potential project goals could include removal of contaminated soil and soil hot spots from the property; phytoremediation of contaminated soil and/or groundwater; installation of a clean soil cap over certain areas of contaminated soil and/or historic fill. All of this work will support redevelopment efforts as SoBRO intends to use the subject property to provide public access to the waterfront and improve quality of life for surrounding residents.

1.4 Summary of Environmental Conditions

Environmental assessment activities have been undertaken at the site and surrounding area since 2017. Targeted investigation activities will be conducted prior to implementing the remediation in order to define the extent of contamination. To date, soil and groundwater at the site are not known to be impacted. However, once investigation activities are complete it is presumed that soil, soil vapor and/or groundwater may be impacted by volatile organic compounds (VOCs), semi-VOCs (SVOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), petroleum hydrocarbons and metals exceedances of NYSDEC Subpart 375-6 restricted residential use soil cleanup objectives and NYSDEC Class GA Groundwater Criteria.

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The Site is located at approximately 8 feet above mean sea level, with a slight slope east toward the Bronx River. The subject properties immediately border the Bronx River along the eastern property boundary and are a part of the Long Island Sound Drainage Basin. Groundwater at the subject properties is expected to flow east toward the Bronx River. The subject properties are located within the 100-year floodplain.

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In order for contaminants from a site to pose a human health or environmental risk, one or more completed exposure pathways must link the contaminant to a receptor (human or ecological). A completed exposure pathway consists of four elements:

- A source and mechanism of substance release;
- A transport medium;
- A point of potential human or ecological contact with the substance ("exposure point"); and
- An "exposure route", such as dermal contact, ingestion, etc.

Preliminary evaluation indicates the following potentially completed exposure pathways related to the site in its current condition (i.e. pre-remediation):

1. **Direct contact with Soil**. Soil might be handled, inhaled or ingested by occasional on-site construction workers or trespassers. This exposure pathway will be mitigated immediately by implementation of the proposed cleanup activities, which includes excavation and offsite disposal of certain contaminated soils and on-site treatment of other contaminated soils. Residual risk related to this pathway will be eliminated with engineering and institutional controls.
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The reference remediation standards for groundwater will be the current version of NYSDEC Class GA Groundwater Criteria.

The effective implementation of the applicable laws and guidance will be managed and overseen by a Qualified Environmental Professional (QEP), to be retained for the site by SoBRO. Project reports will be submitted on behalf of SoBRO to the NYCOER and/or NYSDEC.

3 EVALUATION OF CLEANUP ALTERNATIVES

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Alternative No. 2) Removal of all impacted medial, including any historic fill, and

Alternative No. 3) No action.

The following evaluation criteria were considered in comparing the remedial alternatives.

A. Effectiveness in providing compliance with NYSDEC and NYCOER regulations and increased protectiveness to public health and the environment;

B. Implementability of the considered alternative;

C. Cost of the considered alternative; and

D. Sustainability and Resilience considerations.

3.1 Alternative No. 1 - Removal of Certain Soil, On-Site Treatment of other Soil and Enactment of Engineering and Institutional Controls

Under this alternative, the remedial action will include removal of contaminated soil hot-spots from the sources of identified releases followed by design and installation of Engineering Controls including phytoremediation installations, permeable and impermeable caps, and recording of a deed notice and environmental easement as Institutional Controls. This combination of remedies will remove the source of identified releases and associated contaminated soils, prevent exposure to residual site contaminants and provide for long-term remediation of overall toxic loading in the community. Further details of the remediation plan will be based on redevelopment plans for this site and will be presented below.

Selection of this alternative will result, upon completion, in restricted future use of the site.

3.1.1 Effectiveness

The Institutional and Engineering Controls approach does not physically remove all contaminants in site soil, sediments and water. However, this alternative would effectively achieve project remediation goals by:

- Removing the most highly contaminated soil from the site;
- Achieving technical and administrative compliance with the NYSDEC and NYCOER site remediation regulations;

- Disruption of the pathway of contaminated material to the outside environment. Although the contamination still exists, the Institutional and Engineering Controls will significantly reduce the potential of human exposure.
- Provide notice of site environmental conditions to future site owners, occupants, and the general public by means of the Deed Notice.

3.1.2 Sustainability and Resilience

This criterion evaluates the degree to which the remedial alternative may reduce greenhouse gas discharges, reduce energy use, employ alternative energy sources, reduce volume of wastewater to be disposed, reduce volume of materials to be taken to a landfill, and/or allow for the reuse or recycling of materials during cleanup is considered, where applicable.

This alternative limits excavation and truck transportation of contaminated media to areas with the highest contamination, thereby reducing the fossil fuel energy use, and associated greenhouse gas discharges associated with that task.

3.1.3 Implementability

Soil excavation and cap placement is easily and rapidly implementable because it involves relatively simple technology and equipment. This type of remedy is a widely used and readily accepted alternative for remediating and encapsulating contaminated soils. SoBRO and/or its consultant will retain a contractor that is licensed, qualified, and OSHA-certified to perform work on hazardous materials sites. The deed notice and any environmental restrictions, prepared in accordance with NYSDEC and NYCOER guidance documents and regulations, are relatively routine administrative submissions.

3.1.4 Operation and Maintenance

Operation and Maintenance on the installed soil cap should include the following:

- Routine inspections
- Vegetation maintenance (grass mowing and weed control)
- Written O&M Plan that includes a discussion including but, not limited to; soil cover maintenance, reporting, maintenance agreement, a utility plan should future utilities or building be proposed at the Site, and fence maintenance (if applicable).

3.1.5 Institutional Controls

This alternative will require Institutional Controls.

3.1.6 Cost

The costs for completing remediation under this approach were estimated using the following elements and assumptions:

1) Retain environmental engineering firm, and review of previous reporting;

2) Project and Grant Management tasks, including public notification;
3) Prepare project specifications and bid documents;
4) Conduct procurement process;
5) Design and implement remedial design;
6) Prepare regulatory reporting requirements;
13) Prepare Quality Assurance, and Health and Safety deliverables.

The estimated cost for this cleanup alternative is not currently known. The USEPA cleanup grant contribution would be up to $500,000. SoBRO would provide the remaining moneys and the required EPA cost share from other funding sources.

3.2 Alternative No. 2 - Removal of Contaminated Soil Sitewide

Under this alternative, the remedial action will consist of removal of all contaminated soil, estimated to be present at a depth of 8 to 10 feet site-wide, and replacement with clean soil fill. Selection of this alternative is expected to result, upon completion, in unrestricted future use of the site. No engineered cap would be installed, as no contaminated materials would remain on site. No Institutional Controls would be needed as removal of impacted soil is expected to remediate potential groundwater impacts.

3.2.1 Effectiveness

This alternative would be immediately effective by removal of the potential continuing contaminant sources associated with the presence of potentially contaminated soil from the site. The remedial action should result in unrestricted use of all areas of the site.

3.2.2 Sustainability and Resilience

This alternative compares unfavorably to Alternative 1 (described in Section 3.1) with regard to sustainability metrics. The approach would result in increased energy use, greenhouse gas emissions, and landfill disposal volume. It is expected to compare favorably to Alternatives 1 and 3 in resilience metrics, such as the continuing protectiveness of the remedy in light of reasonably foreseeable changing climate conditions.

3.2.3 Implementability

This alternative is feasible and implementable. This approach will involve the work elements described in Section 3.1, with the exception of the emplacement of a clean soil cap and deed notice, plus additional volumes of excavated soil and clean backfill.

3.2.4 Operation and Maintenance

This approach, upon successful implementation, would allow for unrestricted use of the site. No ongoing operation and maintenance of remedial systems would be required.

3.2.5 Institutional Controls

This approach, upon successful implementation, would provide for the removal of all contaminated soil from the site. No Deed Notice is required.

3.2.6 Cost

To implement this strategy, all contaminated soil would be excavated, disposed, and replaced with clean fill. Total project costs for this alternative are estimated at $5,500,000.

3.3 Alternative No. 3 - No Action

If no environmental cleanup remedy were performed at this site:

- The site would likely be out of compliance with NYSDEC's regulations; and
- The potential for exposure to contaminated soil and water by human and ecological receptors would remain.

3.3.1 Effectiveness

The "no action" alternative is not effective in that it does not provide for compliance with NYSDEC regulations and it fails to provide for the beneficial reuse of the site.

3.3.2 Sustainability and Resilience

The "no action" approach would not meet project remediation goals because the contamination would remain in place, untreated, and without a barrier. As such, the "no action" approach would present a continuing risk to the public. Based on this, evaluation of the approach with regards to other sustainability criteria is not relevant.

3.3.3 Implementability

The "no action" alternative is technically feasible, although the presence of untreated soil and groundwater contaminants would not be in compliance with NYSDEC regulations.

3.3.4 Operation and Maintenance

Because there is no remedy implemented, there would also be no operation and maintenance requirements at the Site.

3.3.5 Institutional Controls

Because there is no remedy implemented, there would be not institutional controls at the Site.

3.3.6 Cost

There are no costs associated with this remedial alternative.

3.4 Preferred Alternative

The preferred alternative is Alternative No. 1 – "Removal of Certain Soil, On-Site Treatment of other Soil and Enactment of Engineering and Institutional Controls." Soil excavation is a proven method, easily and quickly implementable, environmentally effective, and cost-effective. Excavation equipment is readily available. Soil excavation and emplacement of a cap, along with implementation of an Institutional Control, is accepted by the NYSDEC as a remedy. This remedy can be readily completed within the timeframe of the USEPA Brownfields Grant.

Attachment A
Site Location Map

Source: Google Maps (2017)

Property Boundary

N

0’ 150’ 450’ 750’

CDM Smith

Figure 1-1
Site Location Map
1460 and 1480 Sheridan Expressway
Target Brownfield Assessments
Bronx, New York

ATTACHMENT B

Summary of Public Comments and Responses