

Brooklyn Wholesale Meat Market

REDEVELOPMENT



A black and white photograph showing a worker in a white coat and cap hanging large meat carcasses from a metal frame in a market. The carcasses are suspended by hooks from overhead beams.

STUDIO REPORT

BROOKLYN WHOLESALE MEAT MARKET REDEVELOPMENT

Spring 2017

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TABLE OF CONTENTS

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I. EXECUTIVE SUMMARY

II. GLOSSARY

1. INTRODUCTION

- 1.1 STUDIO MISSION
- 1.2 STUDIO
- 1.3 METHODOLOGIES
- 1.4 BRIEF SITE DESCRIPTION

2. SITE CONTEXT

- 2.1 HISTORY
- 2.2 ENVIRONMENTAL CONTEXT
- 2.3 SOCIAL CONTEXT
 - 2.3.1 DEMOGRAPHICS
 - 2.3.2 JOB CHARACTERISTICS
- 2.4 ZONING AND LAND USE
 - 2.4.1 ZONING
 - 2.4.2 LAND USE
 - 2.4.3 MAJOR INDUSTRY PRESENCE
- 2.5 AREA PLANS AND STUDIES
- 2.6 TRANSPORTATION
 - 2.6.1 CURRENT INFRASTRUCTURE
 - 2.6.2 PROPOSED TRANSPORTATION

3. BROOKLYN WHOLESALE MEAT MARKET CONDITIONS

- 3.1 SITE DESCRIPTION
- 3.2 WHOLESALE MARKET CONTEXT
- 3.3 INFORMATIVE CASE STUDIES

4. STAKEHOLDER INPUT

5. IDENTIFICATION OF ISSUES AND OPPORTUNITIES

6. PROPOSAL

- 6.1 VISION
- 6.2 CONCEPTUALIZATION
- 6.3 IMPLEMENTATION
- 6.4 PROPOSED INTERVENTIONS
 - 6.4.1 OPTIMIZATION
 - 6.4.2 SUSTAINABILITY AND RESILIENCY
 - 6.4.3 NEIGHBORHOOD INTEGRATION
 - 6.4.4 EXPANDED USES

7. DESIGN PROPOSALS
7.1 INCREMENTAL SITE IMPROVEMENTS
7.2 ADAPTIVE RE-USE
7.3 FULL REBUILD
7.4 SUMMARY OF DESIGN OPTIONS
2. SITE CONTEXT
8. IMPACTS OF PROPOSED REDEVELOPMENT
9. CONCLUSION
10. APPENDIX



EXECUTIVE SUMMARY

The Brooklyn Wholesale Meat Market is an industrial property located along Sunset Park's waterfront. It is a site owned by our client, the New York City Economic Development Corporation. The Market is fully operational, but our client believes that the Market is an ideal site for strategic redevelopment because building technologies are outdated, the site is not fully built out, and tenant leases are ending in five to ten years. The recommendations proposed take into account the needs of our clients, but also the community needs.

Our recommendation is to reposition the Brooklyn Wholesale Meat Market into a food distribution and manufacturing hub that we are calling the Sunset Park Food Terminal. The Sunset Park Food Terminal will be a vibrant food manufacturing ecosystem that houses the existing wholesale tenants. It will also be the site for many new uses such as the co-packing, food incubator, step-up spaces, and a workforce training center. The idea is to build an environment where food businesses can thrive.

The interventions, if implemented, will have a large positive impact. There will be new food manufacturing and distribution jobs, additional open space, public access to the waterfront, and permanent food manufacturing and distribution space.



GLOSSARY

BUSINESS IMPROVEMENT DISTRICT (BID)

A BID IS A PUBLIC PRIVATE PARTNERSHIP IN WHICH PROPERTY AND BUSINESS OWNERS ELECT TO MAKE A COLLECTIVE CONTRIBUTION TO THE MAINTENANCE, DEVELOPMENT AND PROMOTION OF THEIR COMMERCIAL DISTRICT. SEVERAL SERVICES THAT A BID PROVIDE INCLUDE: SANITATION AND MAINTENANCE, PUBLIC SAFETY, MARKETING AND PROMOTION, CAPITAL IMPROVEMENTS, BEAUTIFICATION, DISTRICT REPRESENTATION AND BUSINESS DEVELOPMENT.

CO-PACKING

SHORT FOR CONTRACT PACKAGING, CO-PACKING BUSINESSES ARE CONTRACTED BY OTHER BUSINESSES TO PACKAGE THEIR FOOD. CO-PACKING BUSINESSES CAN BE OF VARYING SCALES, FROM HAND PACKERS TO LARGE AUTOMATED FACILITIES AND PROVIDE A VARIETY OF SERVICES.

DOUBLE BOTTOM LINE

THE DOUBLE BOTTOM LINE PRINCIPLE IS THE FINANCIAL PRINCIPLE THAT ASSETS ARE BEING INVESTED WITH THE INTENTION OF A FINANCIAL RETURN, BUT ALSO A SOCIAL RETURN.

FLOOR AREA RATIO (FAR)

IT IS THE RELATIONSHIP BETWEEN THE TOTAL AMOUNT OF USABLE FLOOR AREA THAT A BUILDING HAS, OR HAS BEEN PERMITTED FOR THE BUILDING, AND THE TOTAL AREA OF THE LOT ON WHICH THE BUILDING STANDS.

FOOD MANUFACTURING

BUSINESSES THAT TAKE RAW FARM PRODUCTS AND ALTER THEM FOR CONSUMPTION. THESE CAN INCLUDE BAKERIES, BUTCHERS, BREWERIES, JUICE PRODUCERS, AND MORE.

INCUBATOR

AN INCUBATOR IS A SHARED SPACE THAT CAN BE RENTED OUT TO START-UP BUSINESSES IN ORDER FOR THEM TO GROW AND DEVELOP. INCUBATORS OFTEN OFFER BUSINESS SUPPORT IN THE FORM OF CLASSES OR OTHER SERVICES TO HELP INCUBATOR STUDENTS. A FOOD INCUBATOR IN PARTICULAR WILL HAVE A SHARED KITCHEN AND PROGRAMMING TO SUPPORT FOOD MANUFACTURERS.

INDUSTRIAL BUSINESS ZONE (IBZ)

BEGINNING IN 2006 NEW YORK CITY CREATED THE INDUSTRIAL BUSINESS ZONE DESIGNATION TO PROTECT DISTRICTS WITH INDUSTRIAL AND MANUFACTURING BUSINESSES. THIS DESIGNATION PROVIDES INCENTIVES FOR BUSINESS TO LOCATE WITHIN THEM AS OPPOSED TO LEAVING THE CITY LIMITS SUCH AS PROVIDING TAX CREDITS, AND BUSINESS ASSISTANCE.

NEIGHBORHOOD TABULATION AREAS

IT WAS FORMERLY KNOWN AS "NEIGHBORHOOD PROJECTION AREAS." THE NEW YORK CITY DEPARTMENT OF CITY PLANNING CREATED THESE AREAS TO "PROJECT POPULATIONS AT A SMALL AREA LEVEL, FROM 2000 TO 2030 FOR PLANYC, THE LONG-TERM SUSTAINABILITY PLAN FOR NEW YORK CITY." THESE GEOGRAPHIC UNITS HAVE A MINIMUM POPULATION OF 15,000 PEOPLE.

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION (NYCEDC)

THE NOT-FOR-PROFIT CORPORATION THAT CARRIES OUT THE CITY'S ECONOMIC DEVELOPMENT SERVICES

POP-UP MARKET

A POP-UP MARKET IS ANY MARKET THAT EXISTS IN A TEMPORARY OR SEASONAL FORM.

STEP-UP SPACE

IN THE MANUFACTURING CONTEXT, STEP-UP SPACES ARE SPECIFICALLY GEARED TOWARD BUSINESSES THAT HAVE BECOME MORE ESTABLISHED BUT ARE NOT READY TO COMMIT TO A LONG TERM LEASE. THEY OFFER CERTAIN AMENITIES AND SHORT-TERM LEASES THAT AID NEW BUSINESSES IN BECOMING MORE WELL ESTABLISHED IN THEIR GROWTH PERIOD.

TACTICAL URBANISM

TACTICAL URBANISM IS A LOW-INPUT, LOW-RISK, HIGH SOCIAL REWARD APPROACH THAT OFFERS LOCAL SOLUTIONS TO CHANGE THE BUILT ENVIRONMENT AS WELL AS CONTRIBUTE TO A SUSTAINABLE DEVELOPMENT

WORKFORCE TRAINING

PROGRAMMING AND EDUCATION TO HELP TRAIN SKILLED WORKERS IN A TRADE. WORKFORCE TRAINING PROGRAMS WILL SOMETIMES PLACE GRADUATES IN A JOB WHEN THEY HAVE GRADUATED.



01. INTRODUCTION

1.1 STUDIO MISSION

The mission of our studio is to propose a redevelopment plan for the Brooklyn Wholesale Meat Market. Our strategy will celebrate the client's double-bottom line goals: maximizing financial returns and economic development progress, and, as urban planners, we will also recommend solutions that address the broader site-, community-, and city-needs.¹ Our goal is to answer the question of what is the best use and programming in and around the site that the EDC could implement to maximize the utility of the site for EDC, its tenants, and the community.

1.2 STUDIO CLIENT

Our client is the New York City Economic Development Corporation (NYCEDC). NYCEDC is structured as a not-for-profit corporation that carries out the city's economic development services. NYCEDC is responsible for promoting and growing quality jobs and cultivating dynamic, resilient communities. Several core strategies that NYCEDC employs include: investing in infrastructure, unlocking human capital, making it easier for business to start and grow, and cultivating a global capital of innovation.

The client has charged us with imagining the redevelopment of the Brooklyn Wholesale Meat Market site, which is an industrial property located on Sunset Park's waterfront. The city acquired this property in the 1970s. The city built the Wholesale Meat Market in 1974, relocating the wholesale from the greenpoint meat market. Sunset

Park's industrial waterfront was deemed a more appropriate location because of its distance from residential, and location on the waterfront which at the time was a way to mitigate the negative effects of having industry in city centers. The EDC took over management of the site in 2015 from the previous management cooperative called 5600 Corp. This cooperative was responsible for management of the market and consisted of the meat market tenants. The city still owns the property and the Wholesale Meat Market is a public market, as is Hunts Point. This gives EDC as a representative of the city the ability to redevelop and rent out the property for uses related to markets.

NYCEDC became involved with urban development projects in Sunset Park when in 2007 the Deputy Mayor for Economic Development assigned NYCEDC to develop a comprehensive vision and investment strategy for Sunset Park's industrial district². NYCEDC remains an active player in urban development projects in Sunset Park.

There are two primary reasons why this site merits a redevelopment strategy. First, the site mainly consists of three buildings with cold storage capacities that have outlived their useful life and the buildings are not retrofitted with the newest technologies. Second, the tenants' leases will expire in the near term, offering the opportunity for changes to the site. Given these two reasons, NYCEDC sought our assistance in strategizing ways to plan for the site improvement in the short term and its longevity in the long term given its purpose and context.

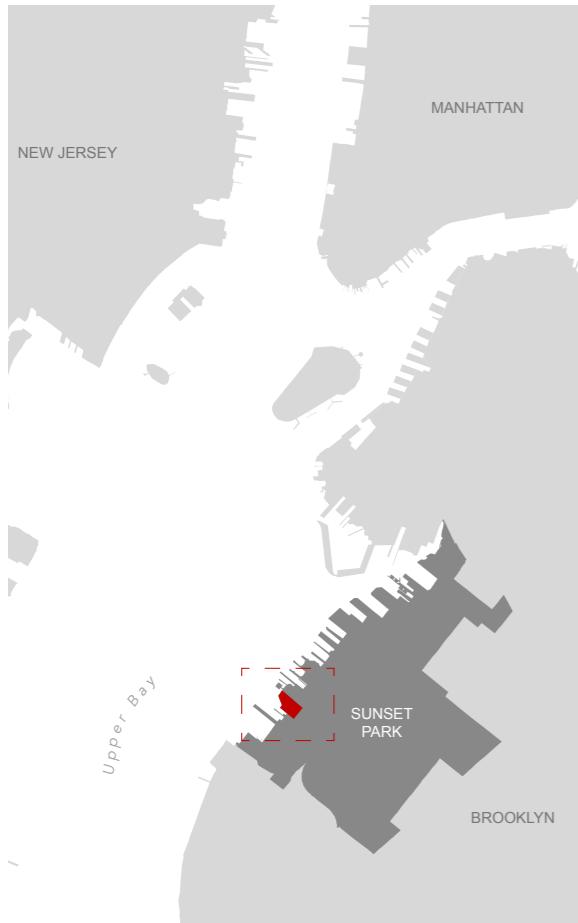
1.3 METHODOLOGIES

When evaluating options for the site, we took multiple approaches to get a comprehensive idea of the neighborhood context, client priorities, and industry trends.

The team conducted secondary data gathering from online sources and published reports about the neighborhood and the industrial waterfront. Topics covered in secondary research include the Sunset Park neighborhood history, economic and demographic data on the residents, environmental, infrastructure, and industry context now and in the foreseeable future, and past community plans by other parties. Other research also included news articles about recent investments in the neighborhood and EDC's role with waterfront development at Sunset Park.

In order to properly understand the current use of the wholesale meat market, the team conducted market research on wholesale distribution, summarized in this report, to determine the future conditions of the industry.

Figure 1. Site Location When moving into site redevelopment portion



of the recommendations, research was also conducted regarding proposed uses and site optimization options. Results of these industry and use analyses are summarized later in the report.

The team also contacted a variety of stakeholders in the neighborhood including local land owners, community organizations, and government representatives. Results from stakeholder interviews are summarized further in the report, with major takeaways that were included in determining our recommendations for the project site and neighborhood inclusion.

Site and community visits were also conducted in order to get a feel for the infrastructure and community surrounding the site. When visiting the site we spoke to EDC managers about operations and improvements made. Site visits were conducted with the intention of gaining a clear idea of how the wholesale market functions, what tenant spaces consisted of, and to help us identify areas for improvement. The

objective of visiting the neighborhood was to see how the industrial uses operated in the area, observe aspects such as walkability and ease of transit, and observe the public space improvements, for example Bush Terminal park. The visit also allowed us to experience first hand the divide between the neighborhood and the waterfront that the Gowanus Expressway creates along 3rd Avenue.

1.4 BRIEF SITE DESCRIPTION

The Brooklyn Wholesale Meat Market, built in 1974, is one of the many sites owned by EDC in the Sunset Park Waterfront, as pictured in Figure 2. The site houses multiple tenants for wholesale meat distribution as well as one tenant for school lunch preparation and distribution.

The other sites owned by EDC include the Brooklyn Army terminal, Bush Terminal Park, the South Brooklyn Marine Terminal and the 65th Street Rail Yard. The waterfront area is located within the Southwest Brooklyn Industrial Business Zone (IBZ) and is one of the twenty one IBZs in New York City³.

The industrial business zones were created to protect land for industrial uses and allow industries tax credits to incentivize locating within these zones.

In more recent years the area has seen increased investment, with developments such as Whale Square and Industry City being revitalized by Madison Realty Capital and Jamestown respectively with new uses and amenities to attract businesses and workers. The city itself has also increased investments in the terminals to promote small businesses and increase job opportunities.

The site is located on the industrial waterfront of Sunset Park, a neighborhood in South Brooklyn. This chapter will discuss Sunset Park's history, social and environmental characteristics, and the state of planning in the neighborhood.

Figure 2. Parcels Owned by the EDC
Sources: NYC DPC, LION





02. SITE CONTEXT

2.1 HISTORY

Sunset Park has a rich history of industry and immigrant populations that have changed over time. The area was mainly rural agricultural land before developing around trade in mid-19th century. In the late 19th century and early 20th century, Bush Terminal and Brooklyn Army Terminal were constructed, and during this time a large influx of Scandinavian immigrants came into the neighborhood and worked in the ports. Thus this area developed and became mainly for Maritime trade in the late 19th century⁴.

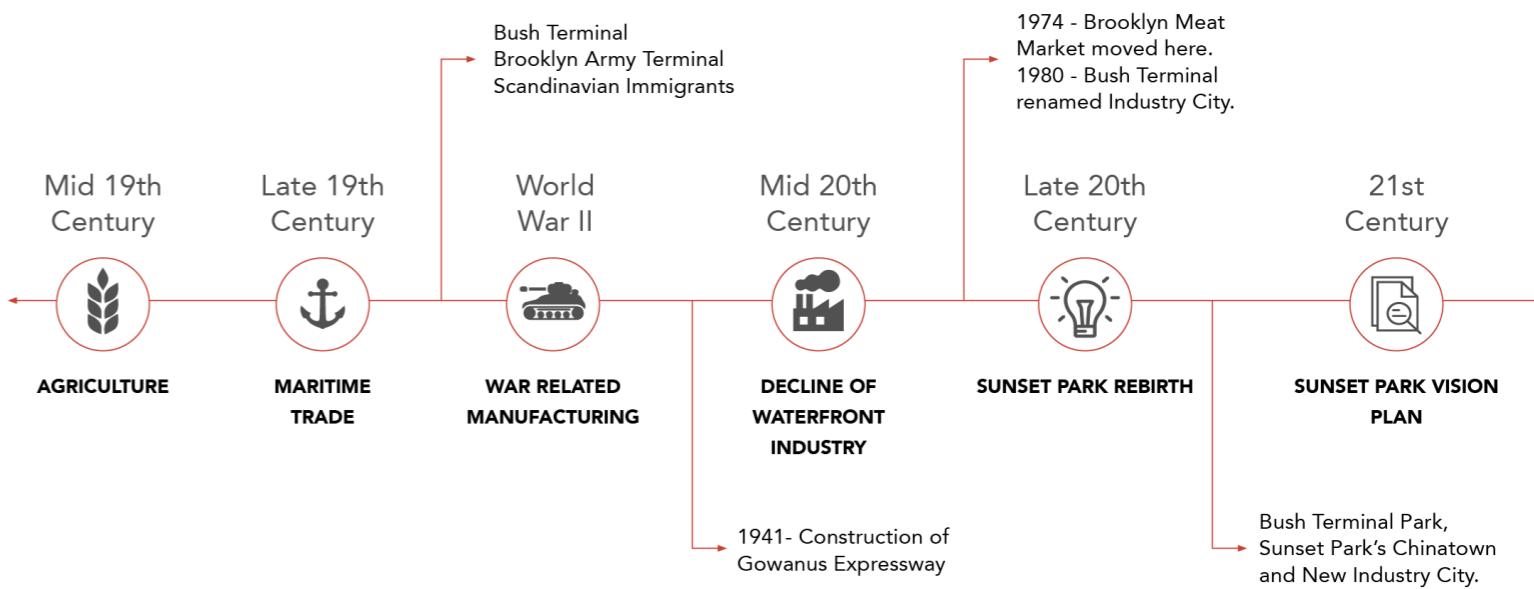
The Great Depression in 1930s had caused decline for the neighborhood, but during the World War II, war-related manufacturing at the terminals thrived and the neighborhood continued to grow⁵. After the war, the neighborhood suffered due to a movement towards truck shipping and away from maritime trade, the construction of the Expressway, and "white flight"⁶.

In the late 20th century, the neighborhood experienced both challenges and opportunities. In 1974, Brooklyn Wholesale

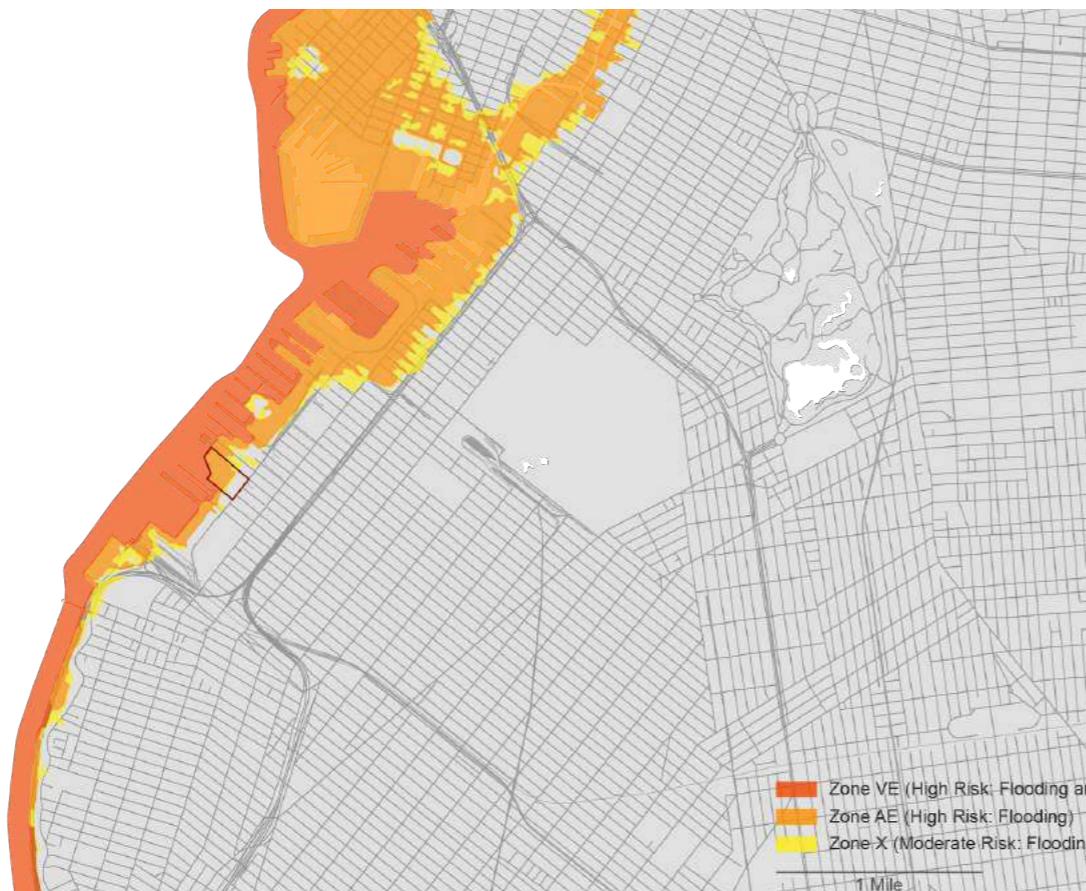
Meat Market moved here. The industry in this area faced ongoing problems of vacancy and the threats from ports in New Jersey. However, reinvestment in the terminals, the expansion of the medical center, and a new wave of Asian immigrants also began a revival of Sunset Park. In 1980s, more Chinese immigrants moved to the neighborhood because of the lower rent and costs than Manhattan. This new wave of immigrants operated businesses on the vacant 8th Avenue and formed the third largest Chinatown in New York City⁷, bringing a large number of workforce and new opportunities.

After 2000, both Bush Terminal Park and Industry city which is formerly Bush Terminal⁸ transformed to places for recreation and became more environmentally friendly. In recent years, more immigrants have come to reside in Sunset Park from Asia, Mexico and the Middle East. These residents continue to provide labor force for the neighborhood and stimulate local economies.⁹

Figure 3.
Historic
timeline of
Sunset Park
Neighborhood



2.2 ENVIRONMENTAL CONTEXT

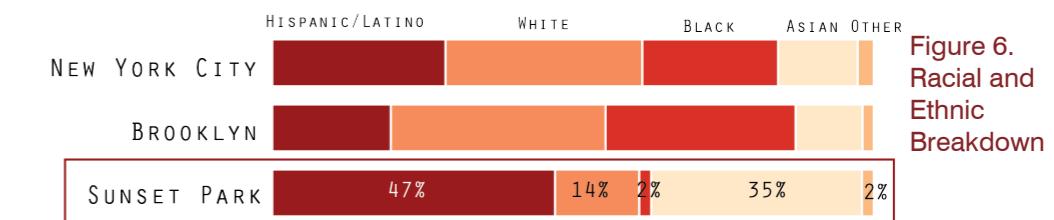


Due to the high concentrations of heavy industry and trucking, it is important to consider the environmental conditions of Sunset Park and how they may affect the public health of the residents. Looking at levels of air pollution, Sunset Park is not too different from the averages of New York and Brooklyn. The rate of hospitalizations for child asthma in Sunset Park is lower than the Brooklyn and NYC averages, but higher for avoidable asthma (or adult asthma) hospitalizations¹⁰.

In terms of flooding concerns, the site is under flood risk Zone AE, within Special Flood Hazard Areas, as shown in Figure 3¹¹, which means high flood risk subject to inundation by the 1 percent annual-chance flood event. The worse case scenario projections provided by the NPCC¹² have sea level rise at 6 feet by 2100, a case in which the industrial waterfront of Sunset Park would be almost entirely permanently inundated¹³.

After Hurricane Sandy, the Bloomberg administration decided not to retreat from the city's coastline and to adopt "natural" means, such as green infrastructure to protect the waterfront. We cannot ignore climate-resilient strategies in the redevelopment for the site. The wholesale market itself is on the site of a former manufactured gas plant (Kings County MGP). The site has not been characterized yet, but has a history of spills due to test tank failure and still has in-use vaulted bulk storage underground¹⁴. Recovery wells were installed and are sampled on an annual basis. The site is classed as having no action under the Brownfield Cleanup Program and Voluntary Cleanup Program, and Active for coal tar under the Hazardous Waste Management Program¹⁵.

2.3 SOCIAL CONTEXT



2.3.1 DEMOGRAPHICS

The Sunset Park Neighborhood is split into two Neighborhood Tabulation Areas, Sunset Park East and Sunset Park West. For demographic information, we looked at the averages for both tabulation areas for an idea of the ethnic breakdown and social and economic characteristics of the neighborhood. The information was taken from the 2014 5-year ACS data provided by the U.S. Census Bureau.

Sunset Park has a population of 129,000¹⁶. Regarding educational attainment, only 18 percent of the neighborhood's residents have a bachelor's degree or higher, which is much less than New York as a whole and the Borough of Brooklyn, which have over 30% or more of residents with a bachelor's degree or higher. Unemployment in the area is 6.5%, which is higher than the New York City average of 5.3%. The median income in Sunset Park is \$39,398, which is also less than the median incomes of New York City as a whole and Brooklyn, which are \$52,737 and \$46,958 respectively.

The racial breakdown of the area is also very different than the rest of the city. As seen in the statistics shown below, Sunset Park has a large presence of both Asian and Hispanic Latino populations compared with the rest of the city.

A large share of the households in Sunset Park receive food assistance benefits from the city's the Supplemental Nutrition Assistance Program (SNAP) program. Thirty two percent of households participate, much higher than the city average of 20.4%¹⁷. All of the data presented indicates that Sunset Park is generally a disadvantaged neighborhood.

2.3.2 JOB CHARACTERISTICS

The Greater Sunset Park Area, which includes Sunset Park and Windsor Terrace, is experiencing fast job and population growth in recent years.¹⁸ A study conducted by Comptroller Thomas DiNapoli highlights the type, number and quality of jobs and businesses in the area.¹⁹

A key economic development progress indicator for communities is the growth in the number of local businesses. In the study, we learned that the number of local businesses increased by 56 percent from 2000 to 2014.²⁰ In addition, most of the new local businesses are small and medium-sized businesses. Eighty percent of the new businesses have less than 10 workers.²¹

As shown on the graph below, private sector employment in the Greater Sunset

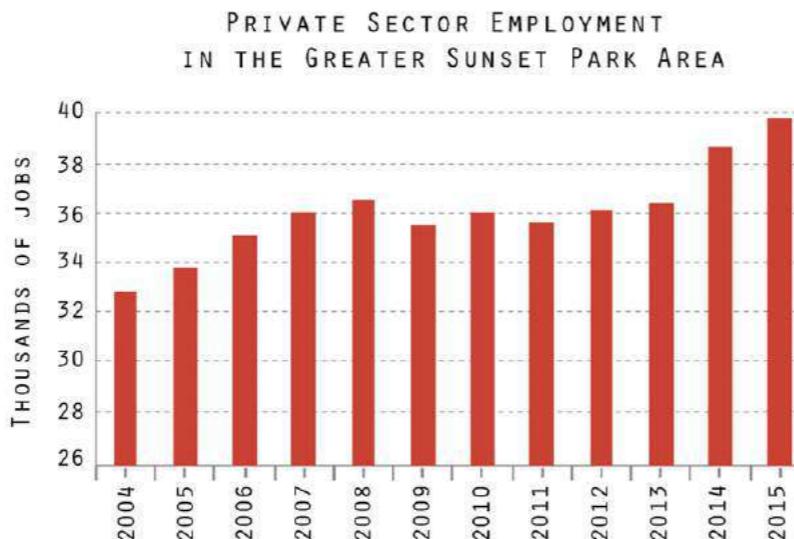


Figure 7:
Private Sector
Employment
in the Greater
Sunset Park
Area
Source: NYS
Department of
Labor; OSC
analysis

Park Area peaked at roughly 40,000 jobs in 2015.²² Manufacturing jobs declined by over 50 percent from 2002 to 2012.²³ However, the number of jobs in manufacturing has rebounded "slowly." In 2015, there were close to 5,000 manufacturing jobs.²⁴ Half of the residents living in Sunset Park were reportedly working in Brooklyn.

Table 1 below shows the occupations of Sunset Park residents and indicates the types of industry that the residents are employed in. The list does not indicate whether the jobs are located at the Greater Sunset Park Area. A high number of Sunset Park residents is employed in the restaurant business; they account for 17 percent of the total employed residents. Retail jobs account for close to 10 percent of the jobs held by Sunset Park residents.

These trends seems to indicate that the Greater Sunset Park Area is becoming a hotbed for new employment opportunities. NYCEDC is pouring financial resources into making Sunset Park into "the newest food manufacturing hub".²⁵ NYCEDC hopes that the Brooklyn Army Terminal's Annex, another NYCEDC-owned property, will be home to 10 budding food companies. Currently, food manufacturing accounts for 20 percent of total manufacturing jobs in the city. The fashion and entertainment industries are also actively reshaping Sunset Park's employment base.²⁶ The "Made in New York" initiative is pushing for the growth of fashion and film companies. Over 1,500 permanent jobs are expected once the project is completed in 2020.

OCCUPATIONS	EMPLOYED RESIDENTS	SHARE OF TOTAL EMPLOYED
Chefs, Cooks, Servers and Other Restaurant Workers	12,984	17.2%
Retail Sales Workers and Sales Representative	7171	9.5%
Accountants, Computer Analysts, Lawyers, and Other Professionals	7001	9.3%
Administrative Assistants, Clerks and Other Office Workers	6631	8.8%
Manufacturing Workers (e.g. Machine Operations and Assemblers)	4970	6.6%
Teachers, Teaching Assistants and Administrators	4543	6.0%
Housekeepers, Janitors and Other Maintenance Workers	4300	5.7%
Home Health Care Aides and Medical Assistants	4212	5.6%
Construction Workers	4136	5.5%
Personal and Child Care Service Workers	3540	4.7%
Creative Professionals (e.g. Producers, Editors and Designers)	2608	3.5%
Taxi Drivers, Truck Drivers, Bus Drivers, etc.	2377	3.2%
Doctors, Nurses and Other Medical Professionals	2314	3.1%
Counselors, Social Workers and Community Service Managers	1847	2.5%
Police Officers, Firefighters and Security Guards	1715	2.3%
All Other	4944	6.6%
Total Employed Residents	75,293	100.0%

Table 1:
Occupations
of Sunset Park
Residents
Sources:
U.S. Census
Bureau; OSC
Analysis

2.4 ZONING AND LAND USE

2.4.1 ZONING

The site is zoned as M3-1, which is designated for heavy industries that generate noise, traffic or pollutants. Areas that hold power plants, solid waste transfer facilities, recycling plants, and fuel supply deposits are normally found in areas zoned as M3. The New York City Department of City Planning states that M3 districts are usually located near the waterfront and buffered from residential areas.

Off-Street Parking Regulations for M3-1 sites are the same as M1-1, M1-2, M1-3, M2-1 and M2-2 districts. They require one parking space per 1,000 square feet of floor area, or one per three employees, whichever will require a higher number of spaces. Based on the current conditions, the parking requirement is determined by the floor area rather than the number of employees. At the moment, more parking spaces are available when relying on the floor area rather than the number of employees.

All manufacturing district zones require a minimum amount of loading berths. This is determined by the square feet of floor area. The first 8,000 square feet of floor area, no loading berths are required. At additional square footage increments of 17,000, 15,000, and 20,000 one loading berth is required for each increment. After this point, each additional 80,000 square feet of floor area or fraction thereof another berth is required. The size of each loading berth is required to be a minimum of 50 feet in length with a width of 12 feet and a vertical clearance of 14 feet.

2.4.2 LAND USE

The Sunset Park neighborhood is largely residential with industrial land uses along the waterfront. As seen in the land use map below, industrial uses cover the waterfront with the exception of some historic residential buildings at the edge of the industrial zone closer to 3rd Avenue. It is important to note that many of the areas along the waterfront that are characterized as transportation and utility land uses, house industrial manufacturing, such as the BAT which retains this land use category from its historic position as a shipping terminal. The neighborhood land use is important in redevelopment when considering the context of the site and what uses are compatible. The EDC was clear in its interest to maintain the industrial use of the site, which fits within the context of the industrial waterfront and city goals for IBZs. Industrial development in NYC faces challenges such as buildings that are not suitable for modern manufacturing and an overall decline in zoning dedicating space to industrial uses in the city over time, which affects industrial employment and rent prices of industrial space.

According to the Brownfield Opportunity Area Study, acreage zoned for industrial uses declined by 17% in five years (WXY, 2016)²⁷ is within character for the neighborhood, as the waterfront site is within the Industrial Business Zone for Sunset Park.

Figure 8: Area Zoning Map
Source: NYC Zoning Maps 16b and 22a

Figure 9: Land Use Map

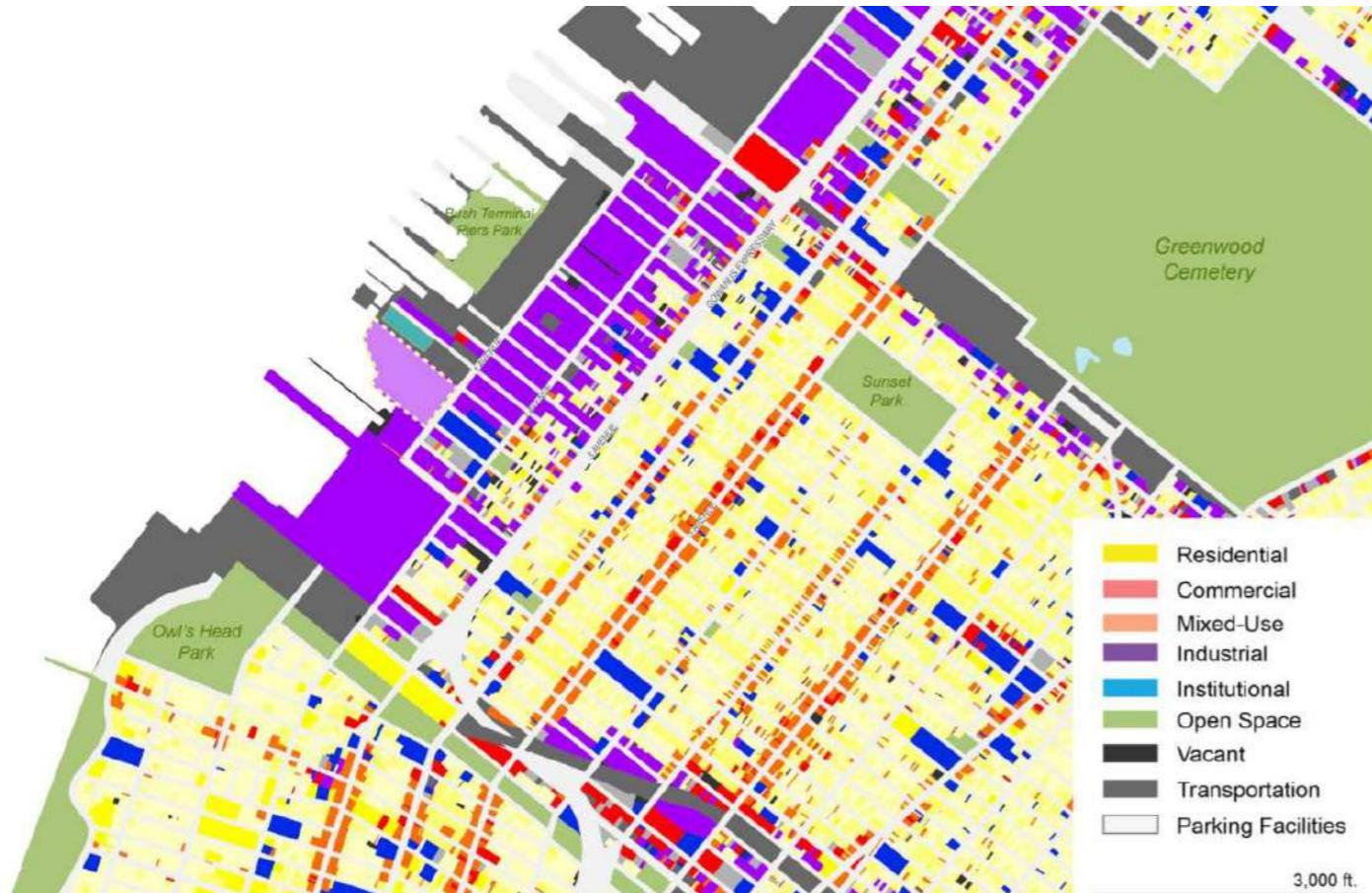
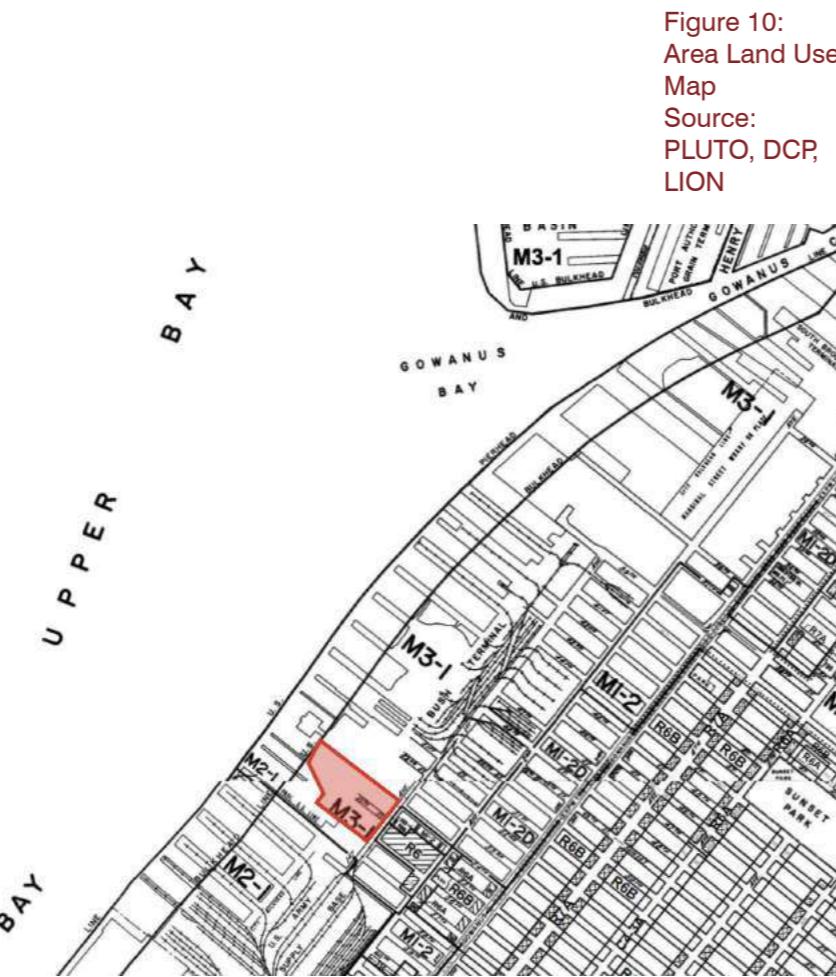


Figure 10:
Major Land Owners
Source: NYC DCP, LION, NYCEDC



2.4.3 MAJOR INDUSTRY PRESENCE

Historically, Sunset Park has been a dense industrial area related to maritime transportation and freight trade. Today, the area has seen a change in its character and has welcomed new industrial uses by transforming outdated buildings such as the Brooklyn Army Terminal into manufacturing hubs for small, medium and large companies. NYU Lutheran is a large presence in the neighborhood employing many New Yorkers. There are also many large manufacturing hubs in the area, like Brooklyn Army Terminal (BAT), Industry City, and Whale Square and many smaller industrial spaces in between. Industry City and the Annex at the BAT have large amounts of space dedicated to food manufacturing. The South Brooklyn Marine terminal is a shipping, warehousing, and manufacturing complex. Another important presence on the waterfront is Costco, a cash and carry wholesale food distributor. An important industrial neighbor not located in Sunset Park is the Brooklyn Navy yard, a city owned property which also houses a large amount of manufacturing businesses including a food hub being developed in Building 77.

Related Plans	Year	Main Author	Region
NYC Comprehensive Waterfront Vision Plan 2020	2011	NYCDCP	New York City
New Connections/New Opportunities – Community Board 7 Sunset Park 197a Plan	2011	NYCDCP	Sunset Park Neighborhood
Sunset Park Vision Plan	2009	NYCEDC	Sunset Park Waterfront
Sunset Park Brownfield Opportunity Study	2013	NYSDOS	Sunset Park Brownfield Area

2.5 AREA PLANS AND STUDIES

There have been 4 plans and studies related with the redevelopment of Sunset Park released in the past 10 years. Preservation of the former industrial function, environment protection, community engagement and public access are the main topics in these plans.

NYC COMPREHENSIVE WATERFRONT VISION PLAN 2020

This ten-year Vision Plan, produced in 2011, provides a plan for expanded uses of New York City waterfront and can be seen as a comprehensive framework for the waterfront development plan. The citywide plan includes goals such as expanding public access, enlivening the waterfront, supporting the working waterfront and increasing climate resilience²⁸. For Sunset Park specifically, the plan recommends more use of marine transportation to reduce truck use. Although there is limited public space suitable for pedestrians, future developments must separate the pedestrians from industrial businesses, support the Brooklyn Greenway and provide more public access apart from the Bush Terminal Piers Park.

COMMUNITY BOARD 7 - SUNSET PARK 197A PLAN

The 197a plan first came out in 2009 and was modified in 2011. NYCDCP, City Planning Commission, City Council and Community Board 7 all participated in the planning process. Published by NYCDCP, this plan was intended to be used as a policy guide for the development of Sunset Park neighborhood. Some goals and strategies of this plan provide us insight of the Market

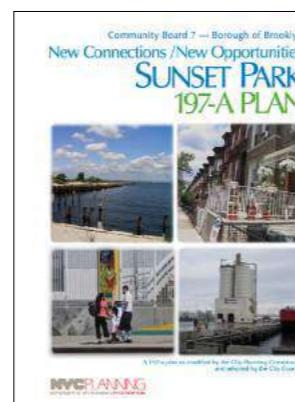


Table 2:
Previous Plans
for the Sunset
Park Industrial
Area

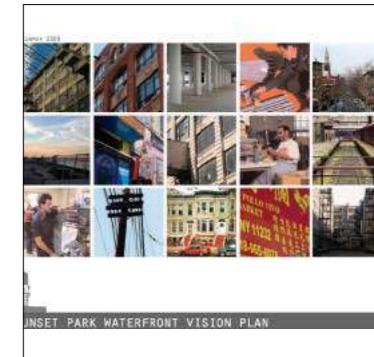
redevelopment, including the economic development, environment improvement and waterfront public access. Recommendations from the plan include increasing the amount of entry level jobs and workforce training, improving air quality through better environmental practices, improved transit services in the area, and pedestrian safety and public access to the waterfront²⁹.

SUNSET PARK VISION PLAN

This plan was Made by EDC with guidance of Brooklyn Community Board 7-Sunset Park 197(a) Plan. Understanding the significant role of industry in NYC economy, Sunset Park Vision Plan focused on the reinvestment and redevelopment in this area in the next 20 years, with special consideration for the Southwest Brooklyn Industrial Business Zone. The goals are similar to those in the 197(a) plan, aiming to create a more economically efficient and environmentally-friendly waterfront. Aside from protecting current industrial uses, Vision Plan also considers the neighborhood needs of enjoying a more public waterfront. The plan set different strategy for investment in short-term, medium-term and long-term in order to create more jobs. Workforce development is also mentioned as an important factor in industrial job protection and creation.

SUNSET PARK BROWNFIELD OPPORTUNITY AREA (BOA) STUDY

The BOA study was led by UPROSE, a local organization, prepared by WXY, and published in 2013. Sunset Park BOA has a great connection to the waterfront and historically contribute to the “walk-to-work” neighborhood with its manufacturing and construction jobs. To strengthen this characteristic, the study emphasizes the goal of job creation and businesses development, especially in the sustainable industry field to face the environment challenges in new era. More open space should be connected with the residential area. The plan also divided the waterfront development into four subzones, including industrial incubation spaces, large scale distribution, working waterfront, and utilities and large format retail³⁰.



SUMMARY OF PLANS

The consistent theme through these plans is that city agencies and community organizations envision a more publicly accessible, environmentally friendly industrial waterfront that provides both public amenities and economic growth for the community. These are principles that our studio should keep in mind and try to reflect in the redevelopment plan of the Market to create an integrated Sunset Park waterfront and benefit the neighborhood.



2.6 TRANSPORTATION

2.6.1 CURRENT INFRASTRUCTURE

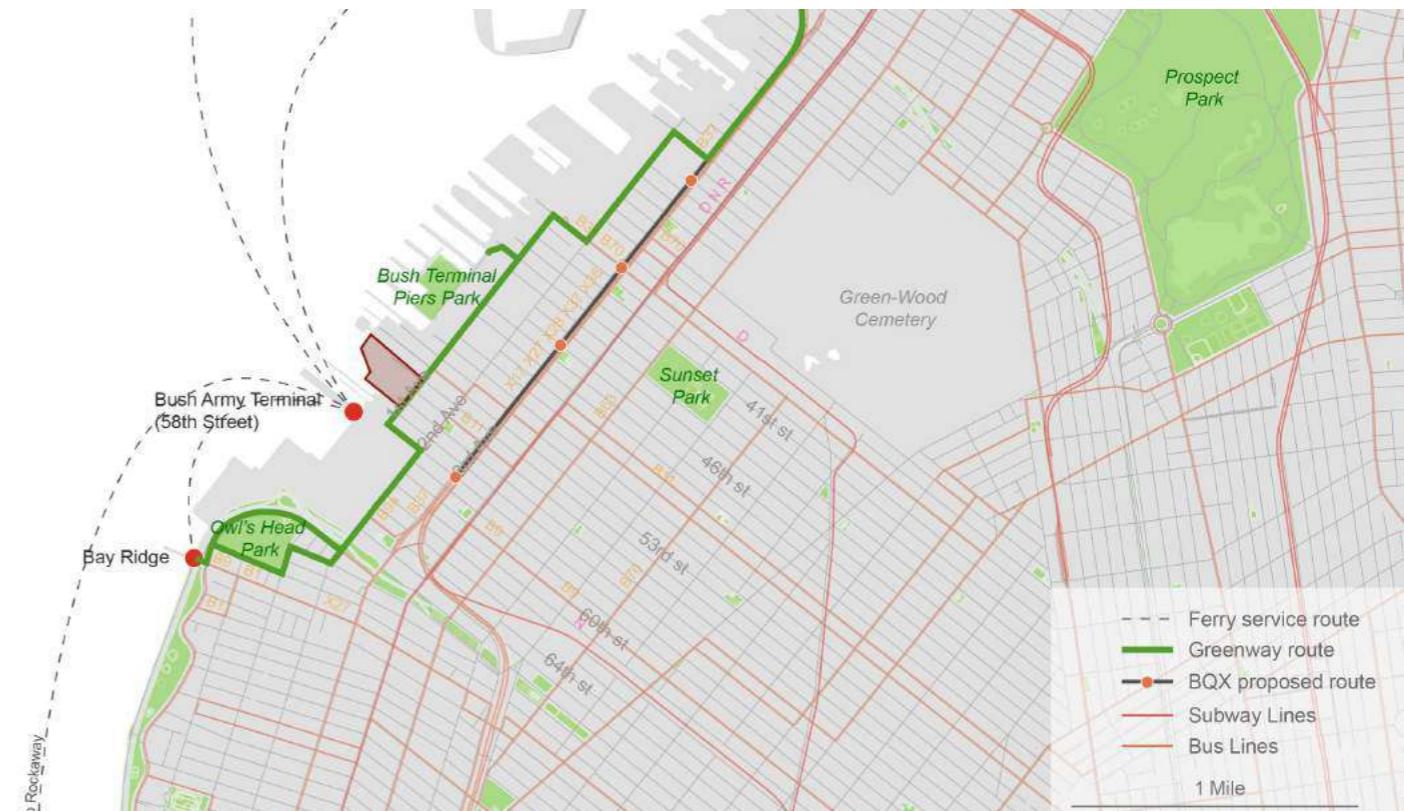
The early industrial development of Sunset Park neighborhood depended mainly on rail and marine to transport goods. Historical rail yards and lines remain and form part of the current transportation network. The rail lines are a visible part of the infrastructure landscape, unlike in Manhattan where they run mostly underground. Truck routes are designated on much of the road network around the site. The Gowanus Expressway, part of the Brooklyn-Queens Expressway, is the main truck route of the area and our site's connector to other boroughs and regions. The line aligned to 60th street can connect to Expressway and join regional network. Our site, being located on 1st Avenue, is part of the designated local truck network. There are two truck entrances to BWMM on north and south east side of the property along 1st avenue, perpendicular to building A's back face. The area surrounding the site is served by five bus lines, the B11, B35, B37, B63 and B70, among which B11 is the nearest to our site, and four subway lines, including the MTA BMT D and N Express subway lines, the R and

M local line³¹. These routes provide access to Manhattan and Downtown Brooklyn. Walking distances to the subway from the waterfront can be up 0.5 miles but that is not the main issue for pedestrians.

The sidewalk infrastructure and presence of trucking add to the poor access to public transit in the area. This is demonstrated by the provision of private shuttles by many of the organizations along the waterfront, including the Brooklyn Army Terminal, Whale Square, and NYU Lutheran. The only true public access point along the Sunset Park waterfront is the Bush Terminal Park, with access on 43rd street, and a second access point planned for 51st street. There is one other point in the neighborhood with an unobstructed view of the waterfront with a sidewalk leading to it, and that is 52nd street, which is not walkable or visually pleasing.

Figure 14 shows the dynamic of the waterfront with the industrial uses in the area and there is no doubt that the public is disconnected from the waterfront.

Figure 11:
Transportation
in the Sunset
Park Area
Source: NYC
Maps; MTA



2.6.2 PROPOSED TRANSPORTATION PROJECTS

Transportation infrastructure plans such as the Greenway, South Brooklyn Ferry, and BQX are all proposed to be located near the Brooklyn Wholesale Meat Market. These projects, along with those being conducted within the EDC Sunset Park Portfolio, and other NYC goals, shape the future context of the site redevelopment. The Brooklyn-Queens Connector, currently in planning, does not yet have a confirmed route, but it is proposed as a 16-mile light rail corridor connecting over 400,000 residents and 296,000 workers to major job hubs from Sunset Park to Astoria³³.

The BQX will largely support growing neighborhoods and job hubs in Brooklyn Army Terminal and the marine working waterfront.

The Proposed Brooklyn Waterfront Greenway is to be a shared road in front of the site³⁵, including a motor vehicle lane and pedestrian paths. The greenway will improve the public accessibility and walking comfort of the waterfront, and potentially bring more pedestrians to the area.

The South-Brooklyn ferry service, launching

summer 2017, will link the area to other parts of New York. The Brooklyn Army Terminal will serve as a commuter ferry stop³⁶, and more importantly, a transfer station for water and ground traffic. The two transit services will provide affordable and convenient transit for the waterfront communities and for job hubs in the industrial waterfront.

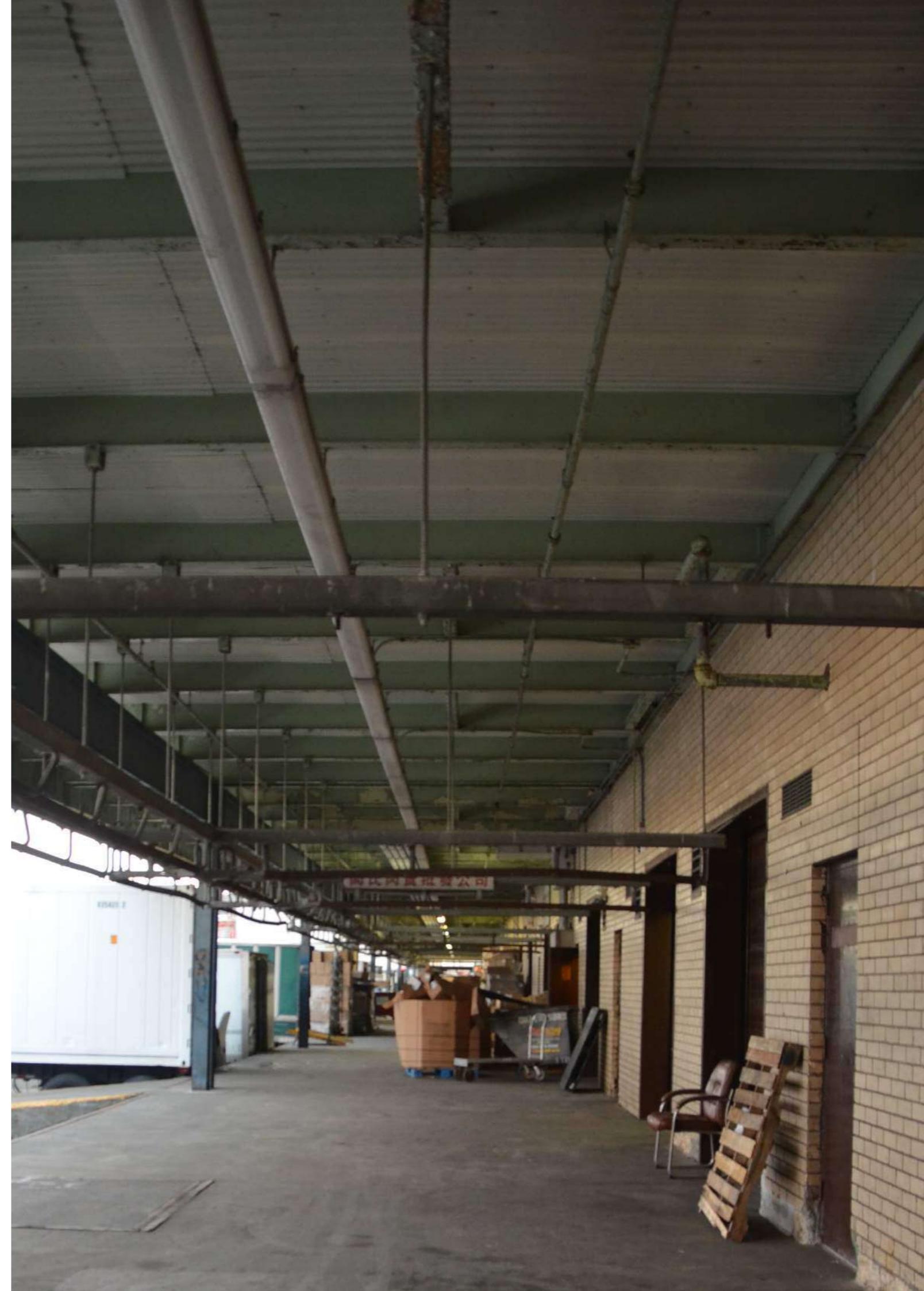
All of these factors contribute to a future context in which there will be more residents interacting with the waterfront due to more investment in public amenities and industrial uses.

EI Space is a part of a larger plan called, "Under The Elevated" created by Design Trust for Public Space. The purpose of the plan is to develop design and policy recommendations, in partnership with the NYC Department of Transportation, to transform the neglected public space under the city's elevated bridges, highways, subways and rail lines into valuable community assets. The project is reactivating the space under the Brooklyn Queens Expressway on Third Avenue and thirty six street. The pictures next show the transformation of the space.

Fig 13.a.
Current
Conditions
Fig 13.b.
Proposed



Figure 14.
Current Public
Access to the
Waterfront



03. BROOKLYN WHOLESALE MEAT MARKET



3.1 SITE DESCRIPTION

The Brooklyn Wholesale Meat Market (BWMM) was built in 1974 and is located along the Sunset Park industrial waterfront. Our site is just one of many properties owned by EDC in this industrial area. The site area tax lot, Block 819 Lot 1, is 33 acres total, only half of which is above water while the other half is inundated. Of the available 2.0 FAR, the current built FAR is only 0.22.

The site consists of three buildings, labeled buildings A, B and C. Buildings A and B are part of the wholesale Market, and provide 86,848 square feet and 75,590 square feet of tenant space respectively. Building C provides 71,770 square feet of tenant space and houses Maramont Corporation, a food manufacturing facility that prepares and distributes prepackaged meals food for over 200 public schools in Southern Brooklyn New

York City school lunches. The fourth smaller building on the site is currently occupied by offices for the Fire Marshall.

Two years ago in 2015, EDC took over management of the Brooklyn Wholesale site, while Maramont operates separately and pays rent to EDC. Regarding energy services, all tenants, including Maramont, are responsible for their own energy procurement and billing.

The wholesale tenants distribute mostly to local destinations. The Brooklyn Wholesale meat market has 22 tenants and approximately 600 employees, excluding truck drivers. Currently, only a couple of spaces in the buildings are vacant, and are being left intentionally vacant until EDC determines next steps on site.

BUILDING	TENANT	SQ FT
A	Springfield Group Inc.	10,067
A	Vacant	8,116
A	Vacant	-
A	Vacant	3,112
A	Vacant	3,112
A	Vacant	3,006
A	Ruby Freeman	2,977
A	Fort Meat Wholesale, Inc.	5,973
A	Dontis Produce Co., Inc	5,696
A	Crepini LLC	9,405
A	R & C Beef and Poultry	3,130
A	Orazio & Sons Meat	1,624
A	Pierless Fish Corp.	4,400
A	Chow Brothers	3,922
A	Vacant	7,892
A	Alex Meat Corporation	8,264
B	King Solomon Foods, Inc.	15,419
B	Pierless Fish Corp.	8,021
B	Pierless Fish Corp.	9,000
B	E. G. Food, Inc.	3,130
B	JJ Trading, LCL aka DC Wholesale Meat Inc.	1,331
B	Chow Trading Co. Inc.	4,268
B	Alex Meat & Provision Inc.	9,065
B	Lancaster Quality Pork, Inc.	5,554
B	Agriprocessors, Inc.	19,802
C	Maramount Corporation	61,770

Figure 15:
Brooklyn
Wholesale
Meat Market
Site
Source:
Google Earth



Table 3: Tenant List by Space and Building As a wholesale meat market, the site has unique hours of operation. The most active time on the site is between 3:00 am and 5:00 am from Monday through Friday. After 5:00 am, trucking operations slow down and operations continue in the storage area until around 10:00 am. Work continues on site in the offices during the day and by 5:00 pm the site is mostly empty. The site is mostly quiet during the weekends.

Figure 16: When EDC took over operations of the Meat Activity Levels on Site Market they began making improvements to the site to help efficiencies in operating. Some of these improvements included installing LED lighting in the tenants units, restriping the site, adding speed bumps and installing new oil water separators that comply with current codes. While these improvements were necessary for improving operations to the site, there are additional small scale

Figure 17: Market Phases First off, beef & pork wholesaling is in the “mature” phase of the product lifecycle (see graphic), which means that the industry can best be characterized by a saturated market with little room for product or service innovation. Over the last 5 years, consumers have been shifting toward healthier lifestyles, which has been causing a decrease in their

improvements that could increase efficiency of operations and the sustainability of the site as well as long term site improvements and redevelopment options that would more fully optimize use of the site. Some of the issues on the site include low ceiling heights of about 12' when tenants usually seek 24'+ ceiling heights³⁷, the need for tenants to use mobile cold storage units because they have grown, outdated cold storage technology, high energy costs, and that the site is in a flood zone.

3.2 WHOLESALE MARKET CONTEXT

Wholesale is the selling or distribution of goods to retailers, and in the case of BWMM the packaging and distributing of raw meat and fish to restaurants, grocery stores, and manufacturers. Food distributors such as wholesalers are an important piece of the food chain that feeds the city, as many point of sale outlets or manufacturers rely on them for sourcing their goods. In order to properly assess where things stand today for the redevelopment of the Brooklyn wholesale meat market, we did external market research to see how wholesale meat markets were performing nationwide.



consumption of beef and increase in their consumption of other meat sources such as fish and poultry.

Forecasted increases in consumer's disposable income and demand from "downstream" markets, however, will keep the demand for wholesale meat stable.³⁸ The Mid-Atlantic region accounts for 26.4% of all meat wholesaling locations in the US. Looking more closely at food distribution in NYC, the best resource is the recently released report by the NYCEDC and the Mayor's Office of Recovery and Resiliency on NYC food distribution and resiliency.³⁹ The demand for food is growing in NYC at 1.6% per year, which will result in an increase of 50,000 food outlets by 2025.

Regional food distributors like the Brooklyn Wholesale Meat Market provide over 50% of the city's food volume annually. Furthermore, the Brooklyn Wholesale Meat Market is situated in a cluster of food businesses, with neighboring food manufacturing, cash and carry, and retail outlets, a factor found in the study to increase the efficiency of receiving shipments and accommodating customer pick-up.

The mean annual salary of food distribution jobs is \$50,251. This is higher than the salary of manufacturing jobs, which is only \$32,000, because trucking jobs are high paying. Thirty

percent of those that hold such jobs have an associate's degree or higher.

From this market information, we can assess that the Brooklyn Wholesale Meat Market is in a good position to continue to provide wholesale goods due to the markets stability, the growing demand for food in NYC, and its location in a food business cluster. The value of the site also rests in its ability to provide good industrial jobs for populations with lower educational attainment.

3.3 INFORMATIVE CASE STUDIES

To understand the design and programming principles of successful meat markets, industrial developments and waterfront developments, we looked at a few national and international case studies. The case studies that we analyzed are listed below.

Fourteen case studies were studied in great detail. We teased out what we believed were the most important design and programming elements from these case studies. For example, the G.Dye Works and the Vancouver Convention Center case studies inspired us to look at site improvements that benefit the larger neighborhood context. We chose to elaborate four case studies that informed our design and programming proposals.

National	International
G. Dye Works, Philadelphia	Vancouver Convention Center, Canada
Raymond L. Flynn Marine Park, Boston	Puerto Madero, Argentina
San Francisco Wholesale Flower Market, San Francisco	Garak Market, South Korea
Hunts Point Produce Market, New York City	Rungis Wholesale Market, France
Eastern Market, Detroit	Tsukiji Market, Japan
Brooklyn Navy Terminal, New York City	
La Marqueta, New York City	
Organic Food Incubator, New York City	

Table 4:
Analyzed case
studies



Figure 18:
Hunt's Point
Market



Figure 19:
Rungis Meat
Market

HUNTS POINT PRODUCE MARKET

The consolidation of New York City's public markets began in the 1960s as development opportunities in Lower Manhattan began to conflict with the traffic congestion brought in by the markets.⁴⁰ Hunts Point in the Bronx was chosen as an alternate location for the market due to its industrial zoning and access to rail and highway lines. Today Hunts Point houses three major food markets situated in a 329 acre facility with over 155 public and private wholesalers. The market caters to 23 million people, and supplies NYC residents with 60 percent of daily fruits and vegetables and is situated in an Industrial Business Zone, similar to Brooklyn Wholesale Meat Market, which provides a commitment from the city that the industrial uses will be maintained.⁴¹

To increase the efficiency of the distribution center NYC EDC laid out the Hunts Point Vision Plan. The vision plan incorporates Organics Recovery Feasibility Study through, which the community partners articulated the need to evaluate environmentally sustainable practices in the operations of the Food Distribution Center, and an Energy Strategy Plan which assessed sustainable energy approaches at the Food Distribution Center to reduce current energy consumption and supply a substantial portion of the energy needs of the Food Distribution Center. The vision plan also discusses a resiliency study and anaerobic digestion feasibility study for the area.

Both Hunts Point Market and Brooklyn Wholesale Market have processed meat distribution operations however Hunts point has more diversified uses such as a dedicated produce market and a few food-processing services such as 'Bazzini Nuts' which coats nuts with chocolates. Hunts point was a key case study when looking at the option for the EDC to diversify uses and expansion of the wholesale portion of the site.

THE RUNGIS INTERNATIONAL MARKET

The Rungis International Market or *Marché International de Rungis* located outside the suburb of Paris has a history dating back to the 10th century. Since then it has served wholesalers and retailers and attracted tourists from all over the world. In the seventies the original market building at Le Halles became too small to accommodate

the market and it relocated to the outskirts of the city where it is located today.

The facility sprawls over 234 hectares where in addition to food wholesale and retail the site also has restaurants, salons, laundry and other additional uses. The market location is near to rail lines and Orly airport and serves 18 million consumers annually. Rungis Market has maintained its competitive edge by constantly diversifying and adopting modern techniques. Use of additional service industries such as catering and packaging and adoption of e-business strategies are good examples for other markets looking to modernize.

SAN FRANCISCO WHOLESALE PRODUCE MARKET

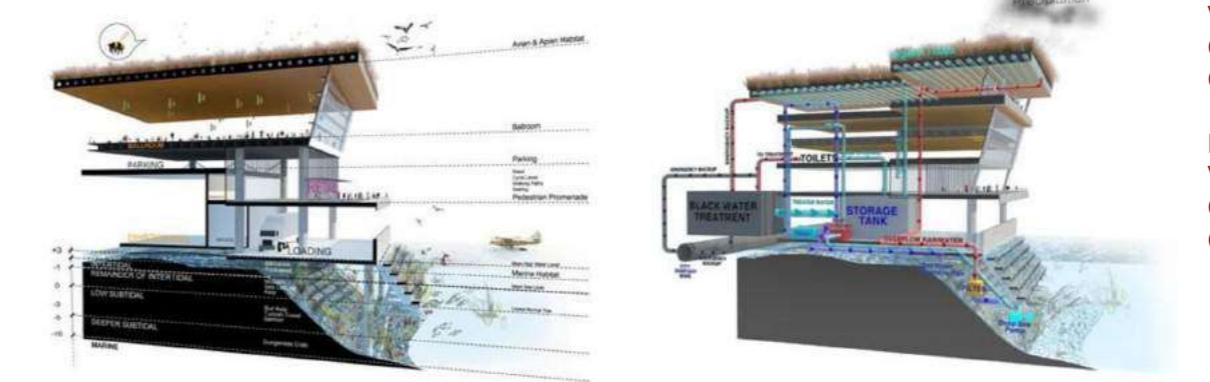
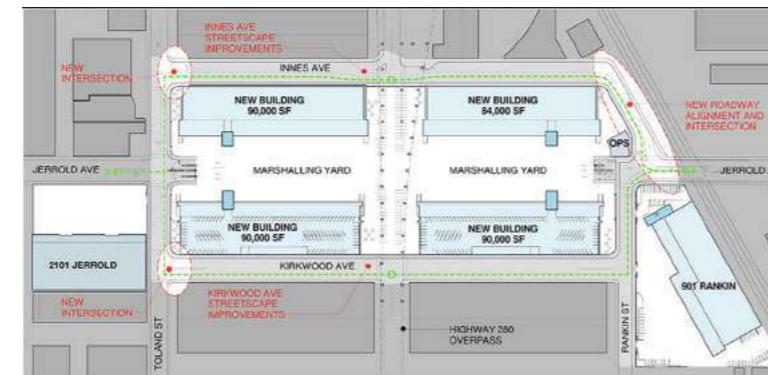
In 2012, the Mayor of SF signed a new 60-year lease agreement and invest \$100 million for the expansion of San Francisco Wholesale Produce Market⁴². The plan seeks to construct new market buildings, improve existing street and reroute the main road traffic, improve the vehicular circulation, and renovate the existing warehouses to meet modern food handling standard.

Both the Brooklyn Wholesale Meat Market and the San Francisco Wholesale Produce Market are historical wholesale markets near the waterfront on publicly-owned land. Both distribution centers have the goals of maintaining their food distribution function while creating more jobs. These sites differ in that the San Francisco produce market is much bigger than BWMM and is still expanding while BWMM has limited space for redevelopment.

The new San Francisco Wholesale Produce Market incorporates modern design and transport improvements over its previous design. The new building adopts closed docks on the first floor and office space on the second floor. Passive cooling, innovative ventilation design, improved lighting design, use of recycled materials, and innovative stormwater management contribute to the unique sustainability methods incorporated in the building design⁴³. The main takeaways from this case study are the improvements to the wholesale market in terms of innovation, HVAC, and circulation improvements, all of which the Wholesale Meat Market could benefit from.

Figure 20:
San Francisco Wholesale Produce Market

Figure 21:
San Francisco Wholesale Produce Market Plan



VANCOUVER CONVENTION CENTER WEST

Vancouver's Convention Center West project was chosen as a case study for its ecological focus and for its location on the waterfront. From the 1980s onward the city made an effort to bring back waterfront access in the Coal Harbour neighborhood and remediate the industrial waterfront, allowing the public access and providing neighborhood amenities. Completed in 2009, the convention center was the final piece in Vancouver's waterfront redevelopment in the Coal Harbour Neighborhood. The Convention Center's design had the goal of bringing urban ecology into the downtown core, by reactivating the waterfront and rebuilding natural habitats. The building itself was built to be socially and environmentally sustainable, and consists of an expansive green roof planted with native species as well as a concrete apron in the water under the building which fosters a

Figure 22:
Vancouver Convention Center Plans

Figure 23:
Vancouver Convention Center

renewed marine ecosystem. The project also shows how urban development can be integrated into the urban fabric through multimodal transportation, environmental restoration, sustainable building systems and waterfront access⁴⁴.

Many design decisions which helped Vancouver's Convention Center West project integrate into the environment are also steps implementable on the smaller scale of the Brooklyn Wholesale Meat Market. The Sunset Park waterfront has begun to be revitalized over the years and public access is very valuable to the community. As such, urban ecology integration and access integrated into the design, as the convention center accomplishes was a main takeaway from this case study.

SOUTHWEST
BROOKLYN

WORFORCE 1

URBAN MAN.
ALLIANCESUNSET PARK
BIDWHALE
SQUARECOMMUNITY
BOARD 7BROOKLYN CHINESE
AMERICAN ASSOC.

NYU LUTHERAN

CHINESE STAFF
& WORKERS ASSOC

UPROSE

04. STAKEHOLDER INPUT

In determining the appropriate development improvements on the Brooklyn Wholesale Meat Market Site our studio identified both industrial needs and community needs as important for context. Relevant stakeholders from the neighborhood were identified based on their position to offer unique perspectives and input on community and industry needs in relation to our site. These organizations are listed in sections below, however while we reached out to these organizations not all were available to schedule interviews or send comments electronically. We collected input from those who were responsive to incorporate in our redevelopment strategies and have summarized their feedback, however it is important to note that we believe all of the following organizations have valuable information that should be used in the formulation of redevelopment strategies.

UNAVAILABLE FOR COMMENT

SITE TENANTS

As noted in Site Description there are currently 22 wholesale tenants operating at the Brooklyn Wholesale Meat Market. As the facility is outdated and these tenants are likely most aware of how to optimize their operations, consulting existing tenants throughout the process would greatly benefit the design and outfit of a new or updated facility.

UPROSE

UPROSE is Brooklyn's oldest Latino community-based organization founded in 1966. The organization supports sustainability and resiliency in the Sunset Park Neighborhood and works to advocate for all residents to ensure needs are met and participatory planning is executed equitably. UPROSE would be a vital contact in community organization to get input from residents of the neighborhood regarding public access and improvements⁴⁵.

BCA / CSWA CHINESE STAFF AND WORKERS ASSOCIATION

Founded in 1979 the Chinese Staff and Workers Association is an organization that works to identify the needs and problems in workers lives. The organization prioritizes the struggles workers face in an effort to improve their conditions and lives⁴⁶.

NYU LUTHERAN MEDICAL CENTER

New York University Lutheran Medical Center, a 450-bed hospital and 250-bed nursing home, employs a large portion of the Sunset

Park Waterfront workforce and care for over 100,000 patients annually. They provide a shuttle and a cafeteria for their workers.

SOUTHWEST BROOKLYN IDC

The Southwest Brooklyn Industrial Development Corporation was founded in 1978 in an effort to help businesses grow and provide employment for local neighborhoods. THE SBIDC covers the neighborhoods of Sunset Park, Red Hook and Gowanus. The organization hosts workshops, assist with resiliency efforts, and advocates for businesses in the area. This organization would be a great partner in identifying primary concerns and business needs for the neighborhood, allowing future development to be better informed regarding key issues in the neighborhood for small businesses⁴⁷.

RESPONSES

COMMUNITY BOARD 7

The Community Board is the local representative body for residents in New York City. Community Board 7 consists of the neighborhoods of Sunset Park, Windsor Terrace, and portions of south Gowanus and Park Slope. The community board advocates for the needs of Sunset Park residents and was the sponsor for the recent 197a plan for New Opportunities in Sunset Park⁴⁸.

We were able to speak with Jeremy Laufer, who is the Brooklyn Community Board 7 District Manager. The district manager highlighted the problem of school overcrowding, and pedestrian safety in the area. Also discussed were the plentiful options for food retail in the area and the interest in keeping the waterfront manufacturing focused, but have it developed comprehensively rather than in a piecemeal fashion.

WHALE SQUARE

Madison Realty Capital, a real estate investment firm based in New York, purchased Whale Square in August of 2015. Whale Square is the building adjacent to the Brooklyn Wholesale Meat Market, located on 53rd Street along the waterfront. Whale Square is seven stories and 400,000 square feet, housing a mix of creative and industrial tenants. Due to their recent investment, redevelopment, and waterfront presence Whale Square is an ideal collaborator for site redevelopment⁴⁹⁵⁰.

Response: We contacted Andrew Solomon who is the Managing Director of Commercial Development at Madison Realty Capital and asked some questions regarding their own process of redevelopment at Whale Square. The purpose of this call was to get an idea of what a private developer has in mind with regards to the redevelopment of the Sunset Park area and how they approached some of the issues we are identifying in redevelopment of the Wholesale Meat Market.

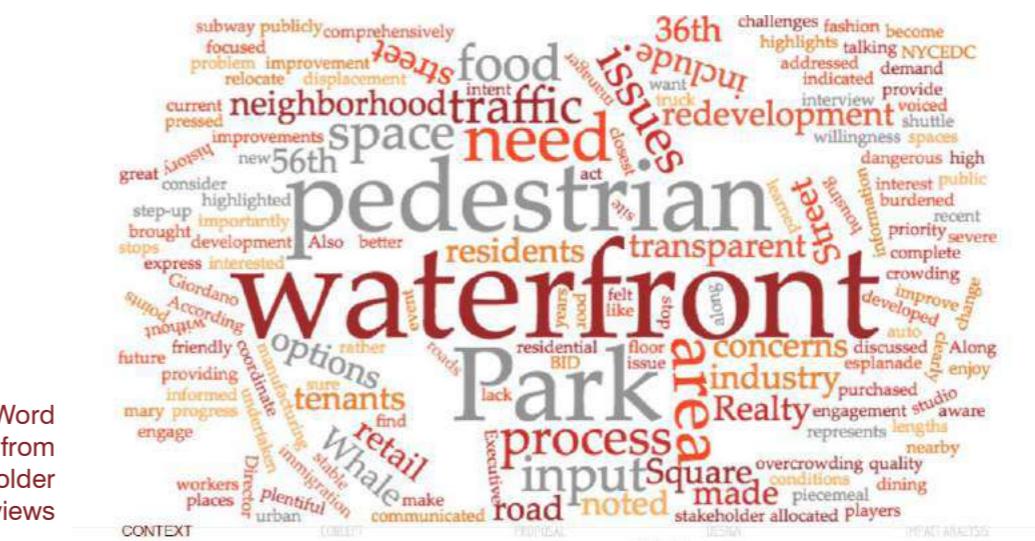
We learned that Madison Realty Capital purchased Whale Square with the intent of providing a shuttle for tenants from the major subway stops at 36th Street and 56th Street; 56th being the closest and 36th street being an express stop. Whale Square also allocated space for food retail on the ground floor, being aware that the area did not provide many dining options and that it was a dangerous area for pedestrian traffic.

Most importantly, this interview informed us that Madison Realty Capital would be interested in talking to major players in the Sunset Park waterfront to improve the neighborhood and the waterfront. They indicated a willingness to coordinate with NYCEDC in the future on these challenges.

SUNSET PARK BUSINESS IMPROVEMENT DISTRICT (SPBID)

The Sunset Park Business Improvement District (SPBID) was founded in 1995 in order to support and promote local businesses. The district includes from 38th to 64th Street along 5th Avenue in Brooklyn. There are 384 properties within the SPBID and more than 500 Mom and Pop shops. The SPBID holds events throughout the year including sidewalk sales, movie nights, and an annual street festival⁵¹.

Response: We spoke with Renee Giordano, the Executive Director of Sunset Park BID. Renee spoke in great lengths about the poor road conditions in Sunset Park. The residents that Renee represents want roads that "separate truck traffic from residential auto traffic" with better urban street design. Along with road improvements mentioned was the need for the waterfront to also act as a space for the community. On site they would like to see a publicly accessible esplanade for workers and residents to enjoy the waterfront.



05. IDENTIFICATION OF ISSUES AND OPPORTUNITIES

From our background and market research, stakeholder interviews and site visits, we have identified some issues and opportunities that can be addressed in the redevelopment of the Brooklyn Wholesale Meat Market site.

The buildings on site have outlived its usable life, and have many inefficiencies that could be addressed in a redevelopment. An opportunity is present to upgrade technologies and site policies in order to make the site more efficient. A redevelopment also presents the opportunity to make the site more resilient and sustainable, since it currently has high energy usage and is threatened by flooding and sea level rise.

Another opportunity presents itself in terms of the activation of this site in its industrial context. The land zoned for industry in New York City has decreased, affecting the

number of industrial jobs available as well as the prices of industrial real estate. It is important to maximize the availability of industrial space on site to help create jobs and support industry. Another opportunity is the EDC's intention to create a food hub in Sunset Park. There is already a growing number of food manufacturers in the area, and supporting this clustering can bring more benefits to this industry.

Another issue that became apparent through research and stakeholder interviews, is the need for industry in the area to be a better neighbor to the people of Sunset Park. Industry on the waterfront could do more to benefit the public and make the area safe for pedestrians. These issues and opportunities will be addressed in the following proposal through a series of intervention recommendations.



06. PROPOSAL

6.1 VISION



We propose to redevelop the Brooklyn Wholesale Meat Market into the **Sunset Park Food Terminal**. This would support the growth of a Southwest Brooklyn Food Hub that will increase the resiliency of the New York City food system, provide good jobs, and create an ecosystem for food businesses. We propose doing this in a way that is more efficient, sustainable, and that will make our site a better industrial neighbor. The following sections will detail what interventions are necessary in order to make this vision a reality and different design applications of the interventions.

6.2 CONCEPTUALIZATION

When conceptualizing the direction of this studio, the team saw a spectrum of possible interventions from simple, low cost improvements to complete rebuilding of the site. Our final recommendations for the project consist of multiple paths of redevelopment that are phased based on small- and large-scale interventions. This was done with the intention of providing recommendations for interventions that solve issues and provide opportunities on the site that can also fit into various site designs. Providing various scales and designs has been done due to the uncertainty of the level of redevelopment the EDC will be undertaking. The final proposal includes two stages. Stage one consists of small interventions while Stage Two consists of three paths varying in cost and length to implementation which all build on the improvements from Stage 1.

STAGE 1

Our first stage in redevelopment involves optimizing the site with small planning improvements. This step consists of lower cost, lower time to implementation items that can improve the site without major construction. This stage is meant for immediate action, which all paths in the following stage can build on.

STAGE 2

PATH ONE: INCREMENTAL SITE IMPROVEMENTS

Our lowest impact option focuses on incremental site improvements. This option consists of low cost interventions that can be executed to improve efficiency of site

Figure 25: Proposed Sunset Park Food Terminal logo

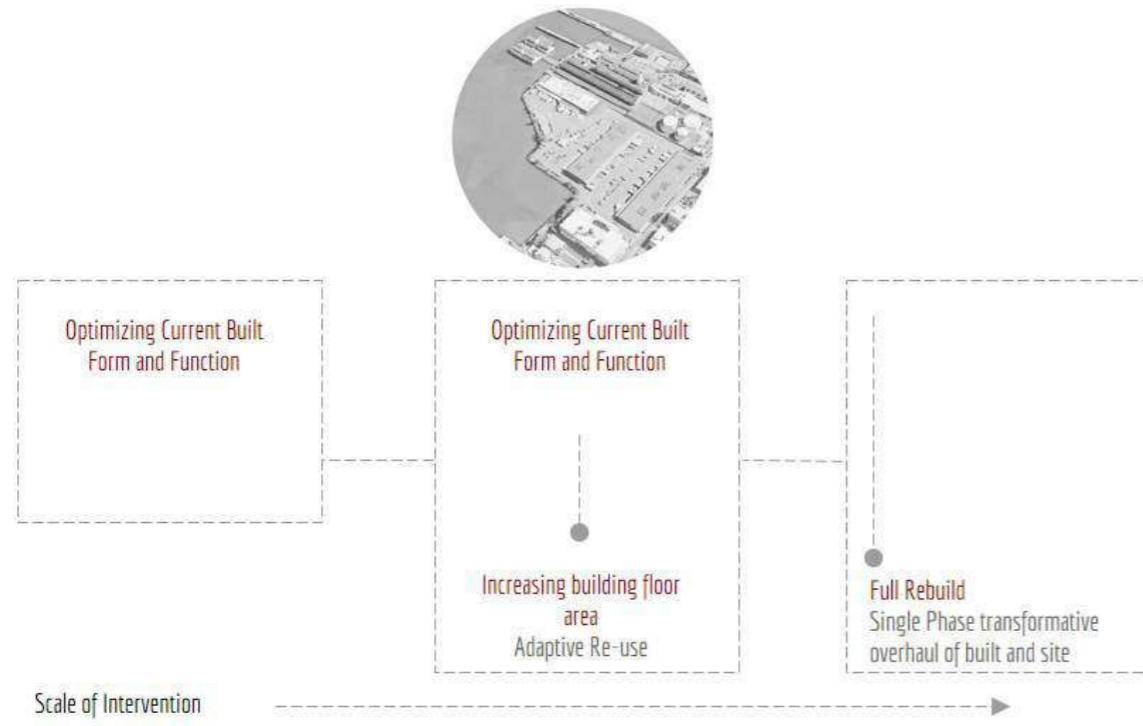


Figure 26: Stages of Intervention operations as well as well as integration of the waterfront into the Sunset Park neighborhood. This path does not include additional square footage or additional uses beyond the current ones on site but does include renovations, site improvements, and policy suggestions.

PATH TWO: ADAPTIVE REUSE

The next path, Adaptive Reuse, is a capital intensive redevelopment that includes additional square footage. This will include most of the optimization opportunities from phase one incremental site improvements. The existing structures will be kept and retrofit with more modern technology. Additions will be added to buildings A and B all to increase floor area, add additional uses, and use more of the sites available FAR.

Path Two is an opportunity to create redevelopment of the site without complete demolition, which studies have shown oftentimes is a more green way to execute redevelopment⁵³. This path was partially inspired by the idea expressed by Carl Elefante as “the greenest building is the one already standing”⁵⁴. While EDC has also been provided an option to rebuild, the team wanted to highlight the option to improve and reuse the existing site in a way that they could achieve increased economic returns and avoid the carbon heavy option of rebuilding. It should be noted that extensive analysis on final designs would need to be

executed to determine whether this rings true that redevelopment of the existing structures would be the more green option. Redevelopment is known to use fewer materials and more labor, generating more jobs than new construction. Additional work force labor to the neighborhood for both new construction and renovated construction would also help to spur the economy in Sunset Park.

PATH THREE: REBUILD

Path three New Construction is a complete demolition of the existing structures. The intent of this is to start fresh with the site and better utilize the site area. Full redevelopment will allow a more comprehensive integration of new technologies, new uses, and site policy improvements. This path offers an opportunity to rebuild a more efficient site with the most modern spaces for future tenants. As noted previously the current built FAR is only 0.22. Rebuilding on the site would offer EDC an opportunity to optimize design in a way to fully utilize the available space for additional uses and additional wholesale tenants.

6.3 IMPLEMENTATION

RELOCATION OF WHOLESALE IN INTERIM PERIOD

During redevelopment the current tenants of

the site need to be relocated for the duration of construction so that their operations can continue undisrupted. These wholesale businesses have weathered the use of old industrial buildings because of their affordability and the niche of operations that the tenants themselves can fit into. If these tenants cannot be relocated into affordable space where they can sustain their business and need to go out of business for a period of time, they might not survive.

Location- The meat wholesalers will need cold storage facilities in a relocation. These facilities are in demand, due to the history of conversion of industrial land uses and high demand for affordable cold storage space. One relocation option is Hunt's Point, where trucking and facilities infrastructure are geared towards wholesale. (other locations)

Subsidies- Relocating will change costs for the tenants, whether it is in the form of rent or further travel distances to points of sale. Most of the tenants distribute their products in Brooklyn. If relocated temporarily to Hunts Point, which is 20 miles away from the BWMM, the EDC should provide subsidies to help sustain these businesses, and provide ample time to secure a location for them in the interim period.

Succession Planning- Wholesale tenants operating a more traditional business model that allow them to work within the current BWMM space may depend on having a stable, affordable space. Succession planning and worker ownership models can help these businesses plan for the future and identify leaders within the business that can take over in time.

COMMUNITY OUTREACH

The Brooklyn Army Terminal, South Brooklyn Marine Terminal, and the Sunset Park Food Terminal together as a growing food hub can do more than just work within their own spaces. A transparent redevelopment process can help EDC gain support for their new incoming programming and let the community know what assets the EDC is building for them.

The pop-up market programming, leasable industrial space for rent, and incubator access should all be advertised to businesses in the community first, and through community input modified to create the best possible

programming for both parties. There should also be community meetings to gauge the public interest. The redevelopment process should also involve the Community Board. Surveys will also be conducted regularly to gather community feedback.

6.4 PROPOSED INTERVENTIONS

This section will detail the proposed interventions on the site. These interventions are categorized as optimization, sustainability and resiliency, integration, and expanded uses.

6.4.1 OPTIMIZATION

The following interventions are recommended with the idea that they can help to optimize site efficiency, cost savings and energy efficiency. These interventions are aimed to address our goals of decreasing air pollution, increasing safety on site and in the neighborhood, and decreasing the carbon footprint of the market. Shown in figure 27 is a matrix of all the interventions in this section and how they rank in terms of benefit and social impact and ease of implementation.

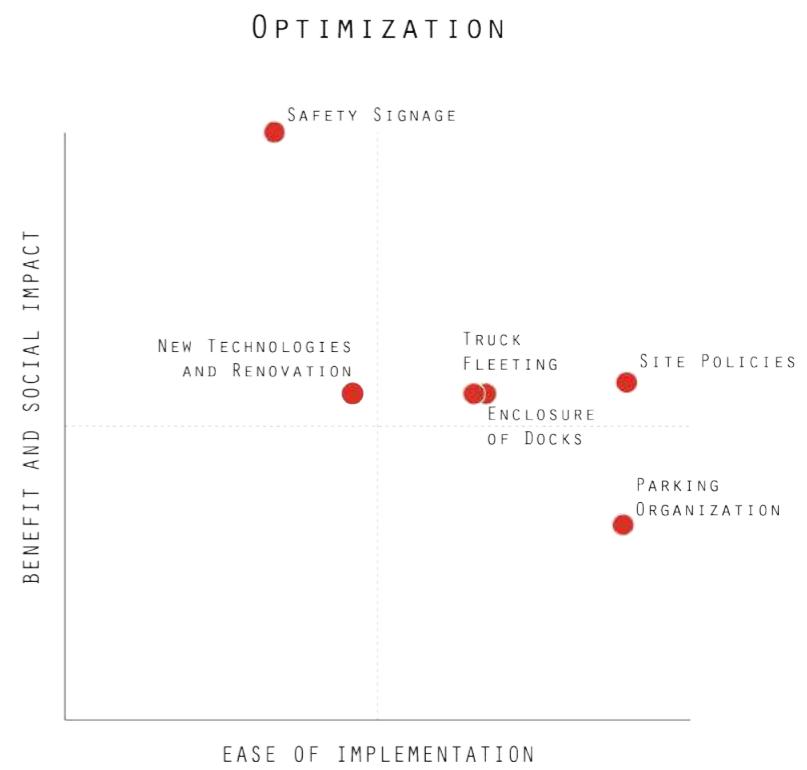


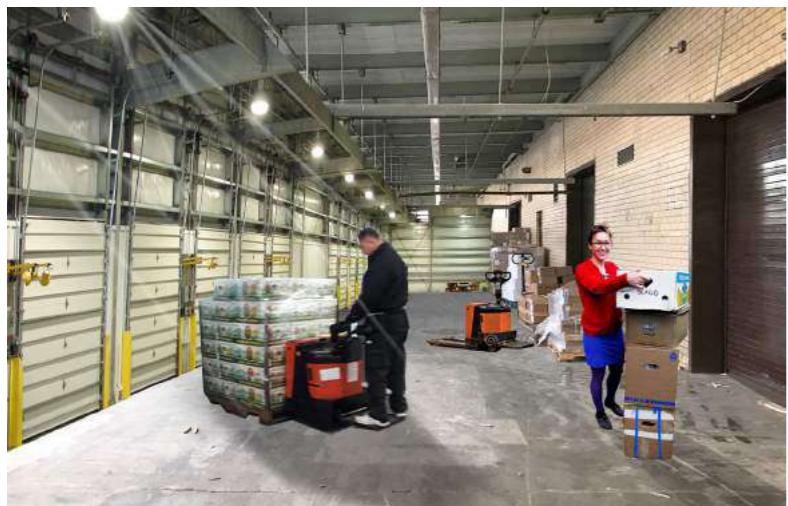
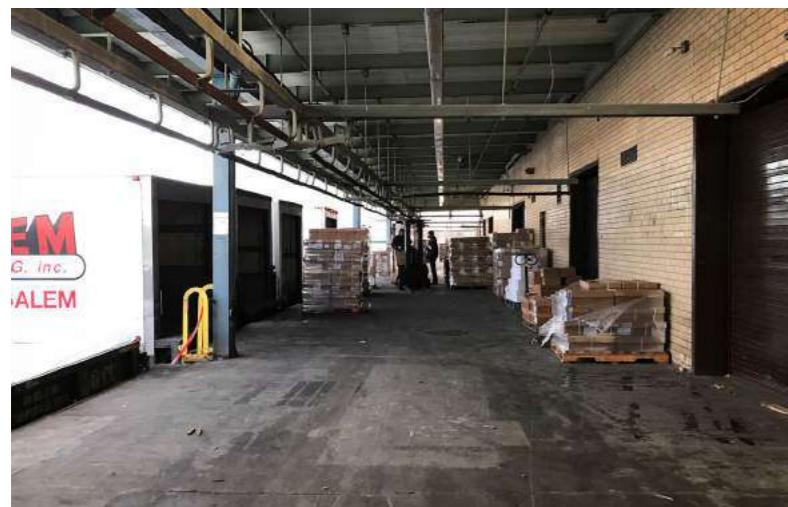
Figure 27: Optimization matrix

SAFETY SIGNAGE

Proposal: Inclusion of safety signage on and around the site to promote awareness of the industrial nature of the neighborhood.

In the future context it is noted that in the coming years the greenway will be extended, possibly in front of our site, and the industrial neighborhood will likely develop into a landscape that is more inviting to Sunset Park Residents. While that will make conditions safer in the future for pedestrians, action should be taken now to increase residents awareness of the industrial nature of the neighborhood. Additional signage on our site and around the neighborhood urging pedestrians to look both ways, look up from their cell phones, and stay vigilant could be helpful for those entering the area to visit the nearby park or bike paths.

Figure 28:
Existing and
proposed dock
enclosure



ENCLOSURE OF DOCKS AND ENERGY SAVINGS

Proposal: To enclose the currently open air loading docks in an effort to save energy costs on cooling buildings and help with creating a more sustainable site.

The loading docks on site are currently not enclosed but rather an open 20-foot loading dock with an overhang. Energy savings could be achieved with the addition of energy efficient loading docks. Sustaining a controlled environment is necessary when operating a temperature- and humidity-controlled facility such as a cold storage ("Energy Savings"). Enclosing the loading docks will reduce energy consumption and protect the perishable goods during loading and unloading. An easy retrofit and inexpensive solution would be to install a loading dock curtain ("Loading Dock Curtain Enclosures"). These curtains are made from industrial vinyl fabric⁵⁶.

Additional energy savings and opportunities for increased efficiency would be a replacement of loading dock doors. Many doors tend to leave gaps that cause heat to enter refrigerated spaces and . Unautomated doors can also be left open longer than necessary. Modern loading doors, such as LiftMaster provide automated systems that increase efficiency, protect workers from strenuous actions of lifting and closing doors, reduce energy costs, and maintenance (Lift master). With modern technology implemented on loading dock doors, timed closures can be set, freezers will have more efficient seals to keep energy costs down, and as the site manager EDC can receive reports on the status and activity of tenants door operations. These opportunities can make tenants lives easier while reducing costs and contributing to a more environmentally friendly site⁵⁷.

REORGANIZATION OF PARKING AND SITE VEHICLE POLICIES

Proposal: To execute a full traffic analysis of the site possibly removing barriers between wholesale and Maramot to create a more efficient use of space and maximize parking area and site circulation.

EDC recently performed restriping on the site, which the site was sorely lacking before they

took over management. While this has been an improvement, a closer look at the parking needs, on-site vehicle policy and truck turning analysis could improve efficiency of the site.

Efficiency navigating distribution centers depends on truck turning movements, and the fewer movements a driver needs to make the more time and fuel will be saved each trip. It is recommended that a thorough transportation engineering evaluation of the site, possibly including removal or revaluation of the barrier between Maramont and the wholesale meat market in order to decrease unusable space on site and maximize vehicle circulation and parking availability.

A consideration for optimization was to consolidate truck entrance points from two to one. The truck paths if only the northern entrance were to be used did not appear to be as efficient as the current layout with two entrances, however it would be recommended for future to attempt a separate entrance for truck vehicles than for personal vehicles. This would also allow pedestrians to be more attentive to a single point of truck traffic than multiple points of truck traffic.

During our site visit some trucks looked out of commission and abandoned, leading us to recommend implementation and enforcement of policy regarding upkeep of on-site vehicles to ensure all spaces are used by active trucks or personal vehicles. This policy would help to maximize efficient use of space.

Additional policy to ensure the correct allocation of spaces are used by tenants could be to implement numbered parking spaces on site. This would be a clear way of allocating employee parking and ensuring only operational vehicles are parked in spaces.

NEW TECHNOLOGY AND MANAGEMENT SYSTEM

Proposal: Renovation for new HVAC and refrigeration systems in the current wholesale meat market to replace existing outdated systems. This will allow for more energy efficiency when climate controlling the units and allow for easier monitoring of site energy use by EDC. Additional expanded technologies such as RFID could also be suggested for tenants to implement.

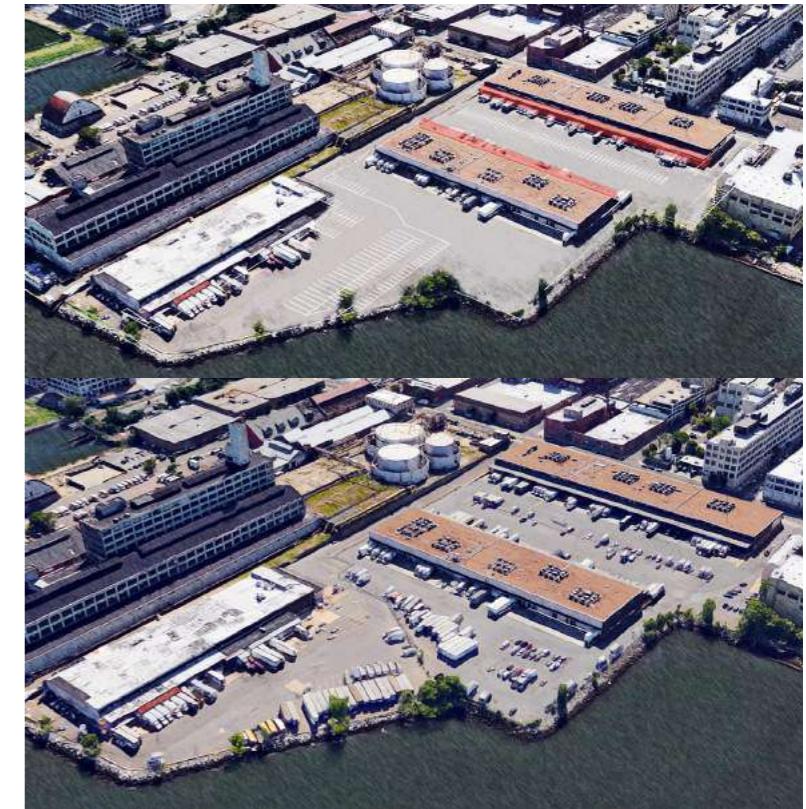


Figure 29:
Existing and
proposed
restriping for
the site

HVAC systems are significant in food storage uses. As the Market is outdated, new HVAC system need to be implemented, for example adding automatic control system to coordinate the outdoor and indoor temperatures, selecting equipment with proper part-load as systems often cannot meet the full load⁵⁸. Alternative refrigerants should be researched and invested to decrease the current use of HFCs (Hydrofluorocarbons)⁵⁹, which is commonly used in HVAC before but have negative for the global warming.

Updated HVAC system can be optimization for current site such as demand controlled ventilation and economizers. To improve the efficiency and efficacy of existing systems, EDC can also use different temperature control in warehouse area and shipping area, and add demand-control system in unoccupied hours⁶⁰. Regular maintenance and cleaning practices as well as air filtration upgrade⁶¹ also need to be implemented. Refrigeration in the cold storage has improved significantly in the past couple of decades. Newer refrigeration technologies have "modular construction [that] allows for future relocation of equipment".⁶² This particularly important because of the need for flexibility. In cold storage facilities, refrigeration units are typically the systems that use up the highest energy.⁶³

Lighting is also an important factor for the existing building. Both natural sunlight and



Figure 30:
Current food
distribution
device in the
Market.



Figure 31:
Clean Truck
Program at
Hunt's Point



indoor lighting improvement should be taken into account. Enough natural sunlight usually requires a redesign of windows and structures and would be an option in the rebuild of the site. For adaptive reuse, EDC could implement time-control and light-control sensors in order to decrease energy use in the storage areas. An example of this would be using photo sensors to turn off lights in areas with ample natural light. Research indicates that installing sensors in intermittently used areas can reduce energy use by up to 75 percent⁶⁴.

IMPROVE AIR QUALITY STANDARDS

Proposal: Implement policies and programs on site to decrease emissions from trucking operations in order to help improve air quality.

Improving air quality is an important concern surrounding trucking operations. Improving standards at the site can come through Clean Truck Fleeting Program as implemented in Hunts Point to reduce fuel inefficiencies and emissions in trucks on site by replacing old trucks. The Hunts Point Clean Trucks Program is Led by the NYC Department of Transportation (NYCDOT) and offers rebate incentives to Hunts Point truck owners for purchasing advanced and environmentally friendly transportation options. This is a program that could either be expanded

or replicated to apply to tenants of all EDC owned properties, particularly at our site the Brooklyn Wholesale Meat Market.

The EDC can also improve air quality in the area through simple policy implementation and enforcement such as idling rules. The site is currently lacking specific idling signage, with only several signs on the fence near the waterfront. The New York City Administrative Code restricts that "no person should allow the engine of a motor vehicle to idle for longer than three minutes while parking, standing, or stopping"⁶⁵. Although vehicles whose engine is used to operate a loading, unloading or processing device could be an exception according to the regulation, it would be more environmentally friendly if the trucks are required to turn off the engine when not in use.

LIMITATIONS

These site optimization interventions will improve workplace efficiency, reduce energy consumption, and minimize the negative environmental impacts. Yet, we need to be aware of the shortcomings of our recommendations. A comprehensive study of the pros and cons of the interventions should be conducted prior to the implementation. For example, in the event of a power outage, employees should be able to

SUSTAINABILITY AND RESILIENCY

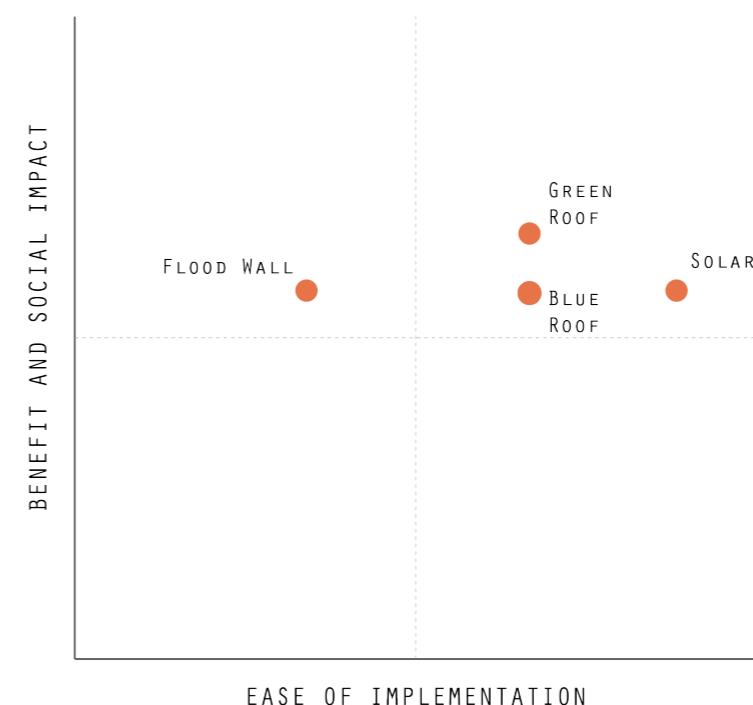


Figure 32:
Sustainability
and Resiliency
matrix



Figure 33:
Solar panels
implemented
in roof of a
Walmart.

Figure
34: Green
roof above
Chicago's City
Hall market.

operate the automatic loading dock curtain manually. Another example could arise when implementing of new technologies. Existing maintenance staffs may require re-training to operate the new technologies; if not, the solution would be to hire new employees with the appropriate training. There may be workplace disruption.

6.4.2 SUSTAINABILITY AND RESILIENCY

This section, in addition to some of the Optimization interventions, has recommendations for making the site more sustainable and resilient, as well as reduce energy costs for tenants and improve the longevity of the building. Shown in figure 32 is a matrix for sustainability and resiliency which includes the interventions proposed and how they rank in terms of benefit and social impact and ease of implementation.

SOLAR

Proposal: Implement solar panels on buildings as a method of sustainable energy to power site utilities and tenant spaces.

Adding solar roofs is an energy efficiency and sustainability option that EDC can implement to bring down the high energy cost of running the cold storage. According to the energy

usage of Buildings A and B provided by the client and NYC Solar Map projections, EDC could implement a solar system of 1,047 kW DC across the two buildings that would cost about \$2 million after incentives and save about \$280K a year for a payback period of 9 years. While a large investment would be required upfront by the EDC, the reduced energy costs would be a valuable asset that the EDC could advertise to tenants. (See appendix for table and calculations).⁶⁶

GREEN ROOF/ BLUE ROOF

Proposal: Implement green roofs on buildings where possible to receive benefits of energy savings, roof lifespan increases, and additional amenities for tenants. Either blue or green roofs can also serve as stormwater detention options.

In any redevelopment scenario, the site will be subject to the New York City's Department of Environmental Protection's (NYC DEP) stormwater management requirements, likely requiring stormwater detention. Two common rooftop storage methods supported by the NYC DEP are green roof and blue roof storage. Either of these options could be implemented in a renovation scenario and have different benefits.

Green roofs are a thin cross section of

plants, growing media, filter fabric, drainage layer, insulation, and waterproofing. Green roofs can be used with or without the intent to provide stormwater detention, can also function as a rooftop amenity for building tenants.

Additional benefits of green roofs as provided by the NYC Parks Department research laboratory include the following:

- Improving water quality
- Mitigating heat island effect
- Extending lifespan of roofs
- Conserving energy for building heating and cooling
- Improving air quality
- Reduction of noise pollution
- Creation of natural habitats

While green roofs provide many benefits and a workplace amenity, they do require maintenance and are an additional cost during construction. Costs of construction can vary depending on how extensive the green roof is and what materials are used. Approximations of labor and material costs can vary, with costs of shallow extensive (Cross sections less than 6-inches) units costing from around \$10 per square foot to more intensive (cross section greater than 6-inches) elevated planters costing closer to \$45 or \$50 per square foot.

An alternate option for providing rooftop storage is a blue roof. Blue roofs detain stormwater on the roofs of structures using control flow roof drains to slowly release stormwater into the storm sewer. Blue roofs can provide a significant amount of storage and would not require the same amount of upkeep as green roofs. An added benefit to blue roof storage would be that solar panels could easily be installed over the blue roof storage.

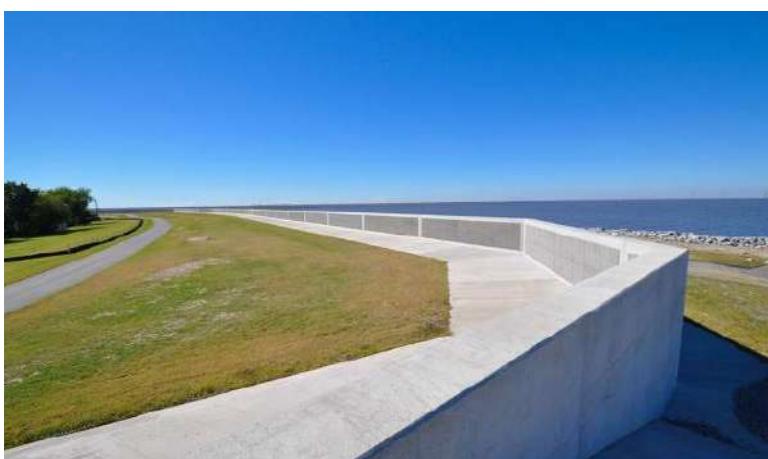


Figure 35: Flood Wall

Either option would not remove the need for stormwater detention, as site stormwater will need to be controlled as well, but could significantly decrease the amount of space needed to be dedicated to stormwater detention either within the building or underground.

CLIMATE-RESILIENT INFRASTRUCTURE

Proposal: Redesign the site with green infrastructure and waterfront resiliency methods to protect the site from imminent sea level rise threats.

Our site and the Sunset Park waterfront, as discussed previously, is threatened by sea level rise and stormwater flooding. The site is currently somewhat resistant to floods due to the natural elevation of the buildings from loading dock requirements, but this does not make it safe long-term. Damages to infrastructure and interruptions to trucking movements and food distribution activities would be costly to the EDC and tenants in the event of a disaster. The EDC and the city must look long-term to protecting its industrial assets, and if there is to be investment in a redevelopment, climate resilient strategies must be considered. A common approach to protect from rising waters is to elevate the buildings, but due to the reliance on loading docks on site this is not an option, the whole site would instead have to be elevated, which is very costly. A gradually sloping living shoreline is also not an option due to space constraints. Therefore we recommend that the EDC pursue the use of green infrastructure in the form of a landscaped floodwall is proposed in order to adapt the industrial waterfront to flood risks and climate changes and meanwhile enliven, rather than cut off, the waterfront area, creating environmental and cultural intervention in the vulnerable area.

A floodwall, elevated to the standard of 16 feet, could serve as a protective barrier as well as landscaped public space. Floodwall, which is usually made of concrete, is a permanent flood-resilient infrastructure. Public-accessible space is usually provided on the top of the landscaped wall to make up the shortcoming of the floodwall of cutting off the connection with the waterfront. Besides the main function, the public-accessible floodwall also brings benefits including providing

attractive natural appearance and creating recreational use areas, which would have a long-term impact on the redevelopment and reactivation of waterfront.

The construction and maintenance of climate-resilient infrastructures requires a substantial cost. Wrapping a floodwall around the site individually is not a cost-effective means of flood protection, since deployables would be needed for the truck entrances. We believe that flood protection measures should be coordinated along the entire South Brooklyn industrial waterfront area.

6.4.3 NEIGHBORHOOD INTEGRATION

These Integration Interventions are proposed to better integrate this site with the waterfront, industry in the area, and the community. They include a waterfront workers shuttle service, a public access addition, a walkway to the ferry, wayfinding measures, and tactical urbanism. These interventions are shown in figure 36 in a matrix with their rankings in benefit and social impact, and ease of implementation.

WATERFRONT WORKFORCE SHUTTLE SERVICE

Proposal: Coordinate with neighbors to provide a shuttle serving all of the workers on the industrial waterfront.

A critical concern regarding employment opportunities in Sunset Park's industrial area is transportation to the job location. As noted many businesses in the neighborhood provide private shuttles already as they have been identified as a need by landowners. Brooklyn's Wholesale Meat Market should provide the same service, and EDC has the unique opportunity to partner with neighboring industries and provide an industrial neighborhood shuttle for their own sites as well as neighboring sites. Residents coming from the nearby subway stations as well as the sunset park residential area could be provided shuttle service where the MTA lacks sufficient routes in order to provide safe access through an area that is often known for being dangerous, particularly the crossing under the Belt Parkway.

BENEFIT AND SOCIAL IMPACT

SHUTTLE
POPUP MARKET
PUBLIC ACCESS
WAYFINDING
TACTICAL URBANISM
FERRY WALKWAY

TEMPORARY TENANT RELOCATION

EASE OF IMPLEMENTATION



Figure 36: Neighborhood integration matrix
Figure 37: Rendering of the proposed public access area



Figure 38:
Map with
proposed
shuttle route

Provided are two concepts for this shuttle service, one is a loop running from the nearby subway stations on 4th Avenue to the major industrial centers along the Sunset Park Waterfront. The second concept extends out into the Sunset Park residential neighborhood and is more conceptual, as the community would need to be consulted in design regarding the most appropriate locations for resident pick up.

PUBLIC WATERFRONT ACCESS

Proposal: Create an area for public access to the waterfront on the site that is physically separated from the industrial activities on site.

A common request among stakeholders was access to the waterfront for Sunset park community members. Public access to the waterfront is important because waterfront green space is a potential benefit for residents of Sunset Park. Cities are using waterfront zoning regulations, new financial and partnership models to redevelop the former industrial waterfront, and create a more desirable place with diverse activities for neighborhood to enjoy the waterfront resources. In New York City, special zoning regulations have been adopted since 1993 to guide the waterfront development. As regulated, a waterfront public access area (WPAA) is "the portion of a waterfront zoning lot where publicly accessible open space is provided to and along the shoreline"⁶⁷. These areas are required to include trees,

seating and other amenities for landscape improvement. In *Waterfront Edge Design Guidelines*⁶⁸, the Vision 2020 criteria for designing the waterfront in residential areas, commercial areas, industrial areas and parks⁶⁹, stresses safety in waterfronts near to industrial and maritime land uses. Protective fencing, lighting, catwalks, and overlooks or platforms within and throughout the industrial sites are suggested to provide a safe pathway. We propose that the EDC safely provide waterfront access to the site. This would require design thinking to separate the public area from trucking operations of the site. That might involve it only being open certain parts of the day, or spatial separation. There is unused space on the current site that could be converted to public access space by making trucking and parking more efficient.

In a complete rebuild scenario public access could be a larger part of the property. A clear concern for the site is that desires for public access must be balanced with the needs of industrial businesses, including safety and security concerns.

FERRY WALKWAY

Proposal: Create a public walkway along the waterfront to the incoming Brooklyn Army Terminal ferry station to improve community connections to the waterfront.

It is important to protect these city assets from flooding and sea level rise, but protecting only this site would be a costly endeavor. A better course of action would be

to expand the shoreline walkway and flood wall to the rest of Sunset Parks waterfront. South Brooklyn Marine Terminal, Bush Terminal Park, Brooklyn Army Terminal and the Brooklyn Wholesale Meat Market could share a joint walkway and both land and water transportation. This walkway could be developed as a continuous pedestrian and bike walkway along the waterfront that connects to the ferry pier. The city-wide ferry service will change the way the people live, and the walkway to ferry is a good opportunity to connect people to water both for recreation or work. To take this a step further, the walkway can connect to the Bush Terminal park nearby, as shown in the visual below, to create a waterfront connection.

POP UP MARKETS

Proposal: Seek joint use agreements for pop-up vendors in the parking lot (or waterfront walkway) during low activity hours. This could bring workers in the surrounding factories to the lot for lunch or groceries.

A pop-up market is any market that exists in a temporary or seasonal form. CSA and pop-up markets/public markets vend on school grounds, senior centers, wellness centers, civic squares, parks, transit hubs, and neighborhood centers during low-activity hours such as weekends or afternoons. They often take the form of farmers markets/CSA dropoff, street/truck vendors, christmas markets or other artisans markets.

The pop-ups that are currently in Sunset Park take the form of one farmer's market and a number of primarily latino/hispanic food trucks that locate along and around 5th Avenue. The farmers market, the Sunset Park Greenmarket on 4th and 59th, is open from July to November on Saturdays with 6 farms participating.

There are a number of opportunities that present themselves with pop-up markets on the site. One is that it is an opportunity to bring people to the waterfront and give them access to fresh and culturally appropriate food in the community. It can also provide a space for local entrepreneurs, such as food truck businesses, bakers working out of their homes to sell their goods, and in that way, it



Figure 39:
Pop-up farmers
market

can be a low maintenance incubator space. It is also an opportunity to partner with NYU Lutheran to provide health screenings on site, an emerging trend in farmers markets across the country.

A pop-up market will only be able to flourish if there is increased pedestrian presence along the waterfront, which the ferry, BQX, Greenway, and other public uses in the industrial area are expected to bring. A pop-up on the Brooklyn Wholesale Meat Market would also need to take into account site operations and be strategically timed to offer the safest conditions for pedestrians.

WAYFINDING

Proposal: Create a wayfinding strategy for the area to help current and new users find their way in the area and be able to access new and existing public spaces.

As we learn to live in a city, we interpret our surroundings and store mental maps that help us locate specific points in an area. Wayfinding is a known strategy to help people navigate

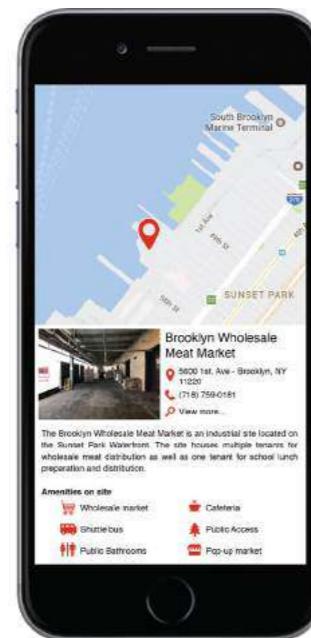


Figure 40:
Prototype of
a Wayfinding
App



Figure 41:
Walk NYC
totems

complex cities and gain understanding about distances and locations.

New York City already has a wayfinding project underway called WalkNYC, which consists of totems strategically located next to Citi Bike stations and important crossroads that help people locate themselves in the built environment. They contain a location map, near landmarks and transportation services in the proximities. It is a comprehensive plan with a clear and consistent visual design.

"As architectural environments become more complicated, people need visual cues such as maps, directions, and symbols to help guide them to their destinations. In these often high-stress environments, effective wayfinding systems contribute to a sense of well-being, safety, and security."⁷⁰

Our recommendation for EDC is to have the city extend the WalkNYC plan to the Sunset Park Waterfront area to improve access to

existing public spaces such as the Bush Terminal Piers Park and to potential new public spaces and amenities in the neighborhood. Together with this, we also recommend implementing strategies such as signage to improve the pedestrian experience and orient people towards the waterfront, especially in existing amenities such as the Fishing Pier in Brooklyn Army Terminal.

A more specific means of wayfinding, digital wayfinding, would also be beneficial to the Sunset Park Neighborhood and help invite the community to the amenities EDC has and the new park areas in Sunset Park. A phone application could be developed, which would provide safe walking routes through the neighborhood and identify food and amenity spaces in EDC properties and neighboring buildings. The app could also provide background on the industrial history of the neighborhood as well as more recent history of waterfront renovation.

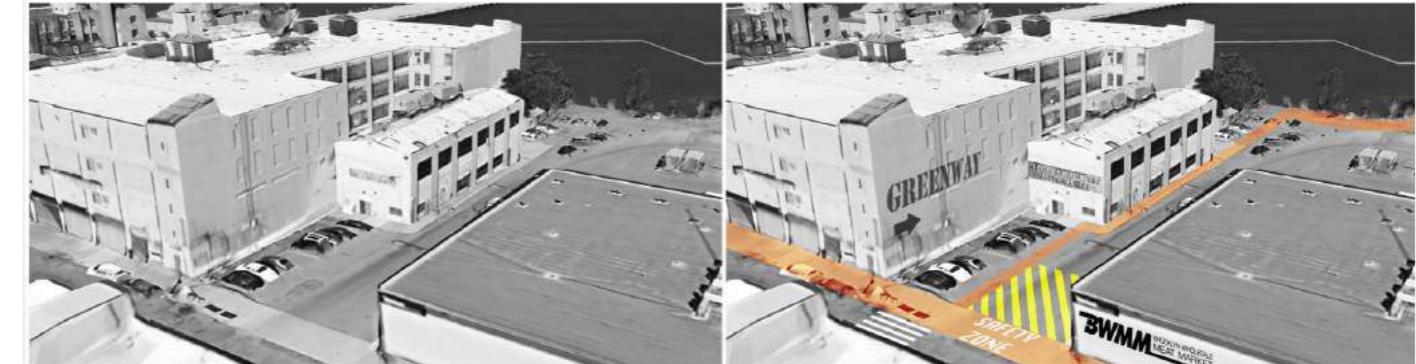


Figure 42: Rendering of
Wayfinding interventions



Figure 43: Rendering
of tactical urbanism
interventions

PUBLIC ART AND TACTICAL URBANISM

Proposal: In order to make the industrial environment more friendly, we recommend implementing tactical urbanism strategies in the redevelopment of the site.

Tactical Urbanism is a low-input, low-risk, high social reward approach that offers local solutions to change the built environment as well as contribute to a sustainable development⁷¹. Feedback from community stakeholders often indicated the need to allow the community more waterfront access. While this area is in transition to becoming a more pedestrian friendly neighborhood, much work will need to be done before it is entirely safe for pedestrians. The site's frontage along 1st Avenue and any public access EDC may offer

with appropriate fencing and programming to the waterfront could benefit from tactical urbanism methods. While the wall along 1st Avenue is required by zoning, it is also an ideal place to locate rotating public murals. Asphalt space along the waterfront can be provided as community space and made more inviting by using paint to indicate safe areas and public ownership over the space. Creative fence embellished with plants could also be used along the shoreline walkway or combined with seating in the public space near the waterfront.

6.5. POTENTIAL USES

In evaluating the potential uses on the site in the event of an expansion, we considered a number of factors including job density, community need, current presence in

neighborhood, compliance with the EDC core four, labor income, the ability to create businesses, and complementary nature to the current use of the site. Table 5 shows the uses we evaluated.

Use	Definition	Core Four?	Pro	Con
Food wholesale	The distribution of food goods to point of sale outlets such as restaurants or supermarkets	Yes	Expected growth, current site use, job dense, quality income, few barriers to entry	Need space for trucking infrastructure, inflexible space use
Other wholesale	Durable or non-durable wholesale other than food	Yes	Expected growth, lower energy use, more flexible type of space	Not most lucrative, can be low job density, ground floor use
Large food manufacturing	Spaces over 15,000 square feet meant for established food manufacturers	Yes	Expected growth, current site use, job dense, flexible space, can be housed on second floor	Space free in Brooklyn Army Terminal (BAT) Annex
Other manufacturing	Spaces for other types of non-food manufacturing	Yes	Job dense	Space available in BAT, Whale, Bush, and Navy Yard. Heavy manufacturing can require ground floor
Energy Generation/storage	Generation or storage of electricity, oil or gas	Yes	Lucrative use	Ground floor use
Incubator	Shared space rented out to start-up businesses with programming and support for business development	Yes	Fosters job and business growth	Unestablished businesses, other incubators exist
Food incubator	Shared kitchen and space rented out to start up food businesses with programming and support for business development	Yes	Fosters job and business growth, support food hub creation	Unestablished businesses, other food incubator in north brooklyn
Step-up food manufacturing	Smaller spaces geared toward businesses that are more established than start-ups but need flexible leasing and kitchen amenities	Yes	Fosters job and business growth, support food hub creation, flexible space for different businesses	Short leases require more management, need to build-out with kitchen
Copackaging	Businesses that are contracted out to provide services such as packaging, marketing, shipping, and recipe scaling	Yes	Industry not present in area, supports manufacturers and food hub creation	Sometimes highly automated and not job dense
Workforce development	Programming and education to train skilled workers	Yes	Support the training of skilled workers	Does not create jobs alone
Restaurant or cafeteria	Place for employees of the building or the public to eat	Yes	Not many places to eat in the area, worker amenity	Not high foot traffic
Vertical farming	Indoor urban farming that produces food year round	Yes	Support food hub creation	Not job dense
Brewery	A space built to attract a brewer tenant. Could possibly have a bar/restaurant attached	Yes	Support food hub creation, creates destination, historical	Smaller brewers trend in the area, needs to be built to specific specifications (not a flexible use)
Composting facility	City-owned site to gather and compost food waste	Yes	The city is going zero-waste, need more facilities, not flexible space	Environmental justice issues, not enough land
Catering	Production of food and meals for events	Yes	Expected growth, supports food hub creation	Spaces being added to Bush Terminal
Public market	Publicly-owned facility that rents out stalls to farmers, small food manufacturers like bakers, and secondary distributors that the public can come to buy food	No	Supports food hub creation, works well with wholesale	Site is not accessible, there are many places to purchase food in the area, not industrial use
Auction space	In this context, auction spaces would be publicly-dedicated areas that could be used as a place for public food auction. Ex. Japan's fish auction	No	Creates a destination	No demonstrated need
Office space	Non-tenant office spaces that anyone can rent out	No	Job dense	Not an industrial use, provided elsewhere
Biomedical research	Research facility lab	No	Link with hospital, lucrative use	Barriers to entry for jobs
Parking lot	Public parking facilities	No	Parking is a need for industrial uses	Not an industrial use, not job dense
Parkland extension	Development of the site into a park	No	There is poor access to the waterfront	Not an industrial use, Bush terminal park recently created, loss of jobs
Distribution center	Warehouse stocked with boxed products to distribute to buyers	Yes	Movement towards online retail	Not job dense
Residential	Development of apartments for sale or for rent	No	Need for affordable housing, high profit	Not industrial use, loss of jobs
Retail	Spaces leased for retail purposes	No	Low pedestrian traffic and low job density	Not accessible, other places in the area provide retail spaces
Daycare	Site for workers to drop off their young children during the work day	No	Amenity for workers in the area	Loss of jobs, daycare being added to BAT, not entirely compliant with zoning
School	K-12 schools	No	Solve school overcrowding issue	Not allowed in industrial zone
Community Center	Community centers for hosting public meetings, indoor leisurely activities	No	Solve issue of no community center in Neighborhood	Loss of industrial jobs

We were especially concerned with the value and accessibility of the jobs being housed on site. We wanted the uses to have a dense amount of high quality jobs with low barriers to entry. Highlighted in the Potential Uses Evaluation Table are the uses that were chosen, which will be detailed with supporting evidence and examples in the following sections. Shown in figure 44 is a matrix with all chosen uses and how they rank compared with each other in terms of benefit and social impact, and ease of implementation.

EXPANSION OF WHOLESALE

Proposal: Along with maintaining the current tenants, the wholesale on site should be expanded to include other categories of food.

The meat and fish wholesale currently on this site are thriving business with high job densities. This site is well suited for wholesale because of its proximity to distribution routes and its location in a growing food hub. As stated before, the demand for food in NYC is growing, the way that food is distributed is not predicted to change much, and meat wholesale is a stable industry. The site is operating well with its current tenants, and there is no need to displace good businesses and jobs currently active on the site with different ones. We recommend however, that along with housing all current tenants, that the EDC bring new wholesale tenants into the added space. All other wholesale categories are predicted to grow at a faster rate than meat, with dairy and produce wholesaling growing most rapidly in the next 5 years (IBISWorld Industry Report 42443). Wheat wholesaling is also gaining more prominence for nonfood uses so it is expected to have increased demand (IBISWorld Industry Report 42451). Maintaining and expanding wholesale in the area will better serve the creation of a food hub in Sunset Park and also provide resiliency in the market, by ensuring through the future that Hunts Point is not the only food wholesale hub in NYC.

Expanding wholesale requires that any additional ground floor available be dedicated to this use because of the high dependency of wholesale on immediately accessible loading docks. The reservation of the ground floor by food wholesale means that all other uses must be able to operate on the second floor, eliminating heavy manufacturing, energy generation or storage, and other types of wholesale as plausible industrial uses for the site.

EXPANDED USES



PAST AND PREDICTED GROWTH OF NATIONAL WHOLESALE MARKETS

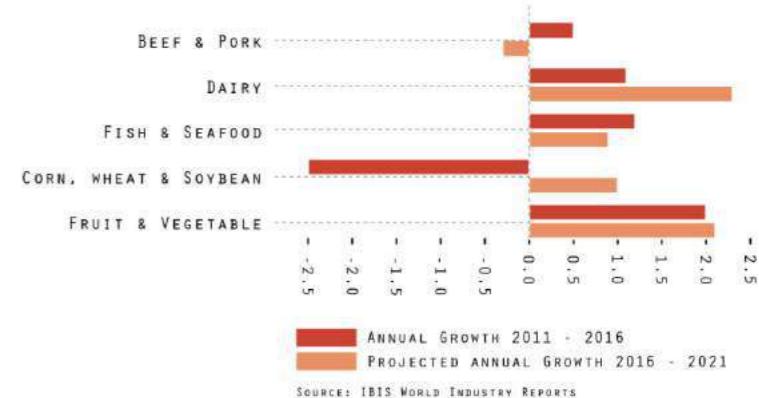


Figure 44:
Expanded uses
Matrix

Figure 45:
Past and
predicted
growth of
national wholesale
markets

FOOD MANUFACTURING

Proposal: Activate additional space in the redevelopment for food manufacturing purposes to bolster the creation of a food hub.

Food manufacturing has been continuously growing in the past decade as shown in figure 46, adding establishments and employees while other manufacturing jobs are downtrending. In 2015, food manufacturing employed 17,713 people in 1,130 establishments, accounting for 19.5 percent of manufacturing establishments and 22.9 percent of employees⁷². In the past decade, the industry in New York City has seen a percent increase of 28.8 percent in establishments and 27.1 percent in employees, or about 2 percent per year for both. Most of the sector employs between 1 to 5 employees, and bakeries dominate the sector⁷³. The number of people employed in food processing is expected to increase by 15.3 percent by 2022⁷⁴. With these trends, and the already high demand for affordable industrial space, it is important that NYC continue to add good food manufacturing spaces to the industrial portfolio. We suggest that the EDC add a variety of food manufacturing spaces to the site that support food manufacturing businesses at different stages of growth, including full-programming incubators, step-up space, and large food manufacturing spaces.

This will support the creation of a food hub, and connect the site with other food manufacturing businesses in the area. Additional food manufacturing can also support the wholesale on site, from which they can procure raw materials and decrease their footprint.

Figure 46:
Manufacturing
and food
manufacturing
employment
and
establishments

impact and be more of a presence in the community.

Housing an incubator, however, would require a level of management and marketing to ensure that the space is being well utilized that other uses may not. The businesses in this space are also less well established than other food manufacturers, so there is a risk factor in building the space for an incubator.

Case Study: Organic Food Incubator

Area: 15,000 SF

Amenities: includes a shared kitchen space, move-in ready step up space with individual kitchens with short term leases, rental dry or cold storage, contract manufacturing and packaging services, coaching and classes on business management, labeling and packaging, compliance, and good practices.

This incubator specializes in aiding craft or niche small food manufacturers, with vegetarian or gluten-free products, get their product to market. OFI has classes that cover the basics of food business and provide shared kitchens rentable by the hour or private kitchens rentable on a monthly basis. More than 75 businesses went through this incubator from 2011-2016.

Figure 48:
Step up space



B. STEP-UP SPACE FOR SMALL FOOD MANUFACTURERS

Proposal: Create step-up spaces for small businesses to establish themselves and expand.

Step-up spaces are manufacturing spaces that offer short term leases for growing businesses. These spaces are often rented to incubator graduates or people working from home when they are ready to expand. Business looking for step up spaces are often food manufacturers that have been in business for 3-5 years, have worked out of a shared industrial kitchen space, and reached a certain level of stability but don't have the financial liquidity to commit to a long-term lease. 45% of surveyed food manufacturers could not add employees because of a need to find a larger, more affordable space⁸⁰. Step-up space should include its own kitchen, but it is possible that shared storage models and office space can be incorporated. These spaces are smaller, and according to table 6 may even have a higher job density than the largest food manufacturing spaces.

Affordable step-up space is necessary in order to retain growing food manufacturing businesses in NYC. In New York City, the small food manufacturer sector is growing due to an increased demand for specialty foods. However, there is unmet demand for smaller, affordable production spaces for companies to expand. Residential development in industrial areas has made prices higher and vacancy rates lower, so it is important to leverage the remaining industrial space. Adding small, affordable spaces that are pre-built for food manufacturers to the market will make sure that businesses in crucial stages of growth can succeed, and stay. Caterers, brewers, bakers and other food manufacturers can rent these spaces. They also make a good connection with the incubator, because graduates can move into short term leases without having to relocate operations to a new site.

Step-up space must be built out with kitchens but remain affordable to attract small manufacturers. Although the businesses that would seek these spaces are more established than start-ups, the leases would still have to be short and require some management.



Figure 49:
Layout of La
Marqueta
Source: NYC
EDC

Case Study: Building 3 at La Marqueta

Area: 10,000 SF

Spaces: Three individual commercial kitchens ranging in size from 1,400 to 2,600 sq ft and Eight individual walk-in coolers ranging in size from 120 to 210 sq ft that can be leased together or separately.

This space was developed with the intention of getting small food businesses using shared kitchens or working from home into a built-out food manufacturing space with 5 year leases. The storage is intended for these businesses or for farmers coming from outside NYC to distribute their goods.

C. FULL SPACE FOR LARGE FOOD MANUFACTURERS

Proposal: To complete the chain of food manufacturing spaces, house large food manufacturers in additional spaces. This is important to continue the growth of food manufacturing in NYC and create jobs on site.

To complete the chain of food manufacturing spaces, the EDC should look to make some more large food manufacturing spaces available on site. Maramont Corporation is a large food manufacturing facility already present on site that has been in business for nearly 40 years.

Providing more large food manufacturing on site is recommended with much of the reasoning mentioned before- growing food manufacturing industry in NYC, demand for affordable spaces, an already present trucking infrastructure, and a good fit with the goals of the EDC and uses present on site. Established food manufacturers seeking a large space can provide a large number of jobs, as seen in Table 6.

Large manufacturing spaces available for food manufacturing uses are currently present in the BAT Annex. It is probable that these will be filled before a redevelopment occurs. However, if the EDC finds that demand is indeed low for this space in Sunset Park, then incorporating more spaces in the redevelopment might not be the best path.



Figure 50 &
51: Large
manufacturing
spaces

D. WORKFORCE TRAINING IN FOOD BUSINESS SKILLS

Proposal: Provide workforce training for food manufacturing skills to leverage incubator kitchen space a produce qualified food workers for the food manufacturing sector.

A study conducted by Pratt found that as manufacturing is growing and people are adding employees, they are finding that the labor market is not supplying workers with the necessary skills to fill those jobs⁸¹. For example, Hot Bread Kitchen is the only incubator that specifically trains for commercial bakery jobs in the city.

Workforce training can involve soft skills, such as business etiquette, and hard skills such as english as a second language, business management, and cooking skills.

Figure 52: We recommend that the EDC include Copacking workforce training in this site to leverage the Figure 53: kitchen and classroom space available on Hot Bread food manufacturing jobs in the area.

This training can be modeled after the workforce training in the Hot Bread Kitchen program. Possible options for training at BWMM would be businesses that could run out of the incubator space, catering specific training which could operate in the on site cafeteria, or possibly rotational apprenticing with the various food manufacturers in incubator or in step-up spaces. An interesting model may be to combine workforce training with a shared employment service. A shared employment service is provided by some incubators, and allows incubating businesses that can't hire a permanent worker to share rotating employees with other businesses in the incubator. Students in the workforce training program could opt into the shared employment program and be hired by the small manufacturers in the incubator or step-up space.

Case Study: Hot Bread Kitchen - Bakers in Training

Trains for commercial bakery jobs in New York City in a 6-month paid-on-the-job program where the bakers-in-training produce bread alongside professional baking staff, take classes in English, baking math, and science.

E. CO-PACKING

Proposal: Seek a co-packing business to operate out of additional space on the site to support food manufacturers in the area.

A co-packing business, short for contract packaging, packages products for food manufacturers to make them shelf ready. They are often specialized in one or more of the following areas: liquid packaging, dry packaging, ingredient pre-blends, labeling, packaging service only, and product development/recipe conversion. There are different scales of co-packing facilities, from large ones with many services and automated machines or small cooperatives of hand packers. As discussed in the market



context section, food manufacturing has grown about 2% every year for the past decade. Co-packers can help to maintain this growth by providing services to this industry sector. A survey conducted at Pratt showed that almost 25% of food manufacturers used co-packers outside of NYC, and 22% had a desire to shift production to a co-packer⁸².

In order for small food manufacturing (or other manufacturing) businesses to stay competitive, they need access to automated packaging facilities. Housing a co-packing facility in the heart of the South Brooklyn food manufacturing hub that can handle small food manufacturers needs will help these businesses succeed. Co-packers can help small manufacturers without the production capacity to scale up recipes and production and make their products shelf ready. The EDC should seek out a co-packer that can serve the needs of small food manufacturers in Sunset Park and Brooklyn by providing small batch packaging, marketing, and production services.

Incubators do not often provide co-packing to their students, although it is important for start-up and step-up businesses to have this resource. A model where equipment can be shared between the co-packers and the small manufacturers or incubator students would be helpful those trying to grow their business. Incubators offering co-packing services usually price this service as a fee per unit or as a percentage of revenue that the food business receives for their products.

A possible model is allowing small manufacturers on EDC property and incubators to have discounted co-packing services.

Case Study: Common1Wealth Kitchen, Dorchester MA

Area: 36,000 SF

Services: recipe development and scaling, ingredient prep, storage, small batch contract production, packaging and marketing. CommonWealth Kitchen is a combined food production facility on the site of the former Bornstein & Pearl Meat factory in Dorchester. It is a combined incubator and copacking facility that serves food businesses at various stages of growth.

F. CAFETERIA

Proposal: Create a cafeteria on site to create breakfast and lunch options for workers on site and the waterfront.

After speaking to other local stakeholders on their approach to development and considering the lack of office supportive amenities in the neighborhood it is our recommendation that EDC provide a cafeteria on site. As we are adding to the workforce on site with tenants, an amenity space for food would be more attractive to incoming tenants and make the site more competitive when attracting new businesses, particularly as the current neighborhood condition is not very pedestrian friendly and would be challenging for people to navigate during their lunch hours.

With the increased number of workers on site and limited number of food options in the immediate area, the EDC should look to house a cafeteria on site open for breakfast and lunch.

Figure 54: Cafeteria in BAT.



Example: Pete's Brooklyn Eats, BAT.

Area: 5,000 SF

Cafeteria for workers in the BAT that is also open to the public that also does catering. It is one of the few places in the area for breakfast and lunch for the employees, and many people from NYU Lutheran eat here.



07. DESIGN PROPOSALS

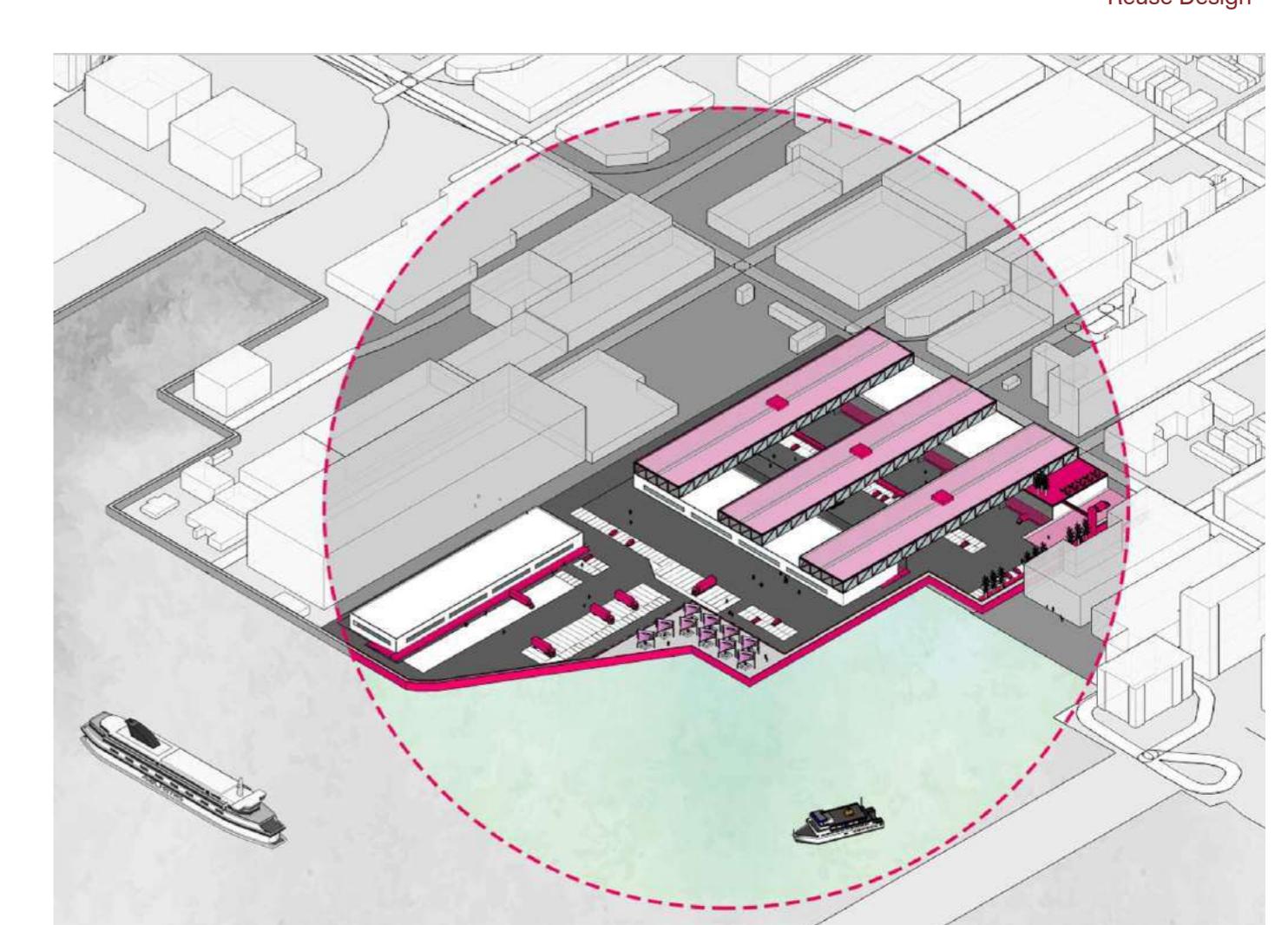
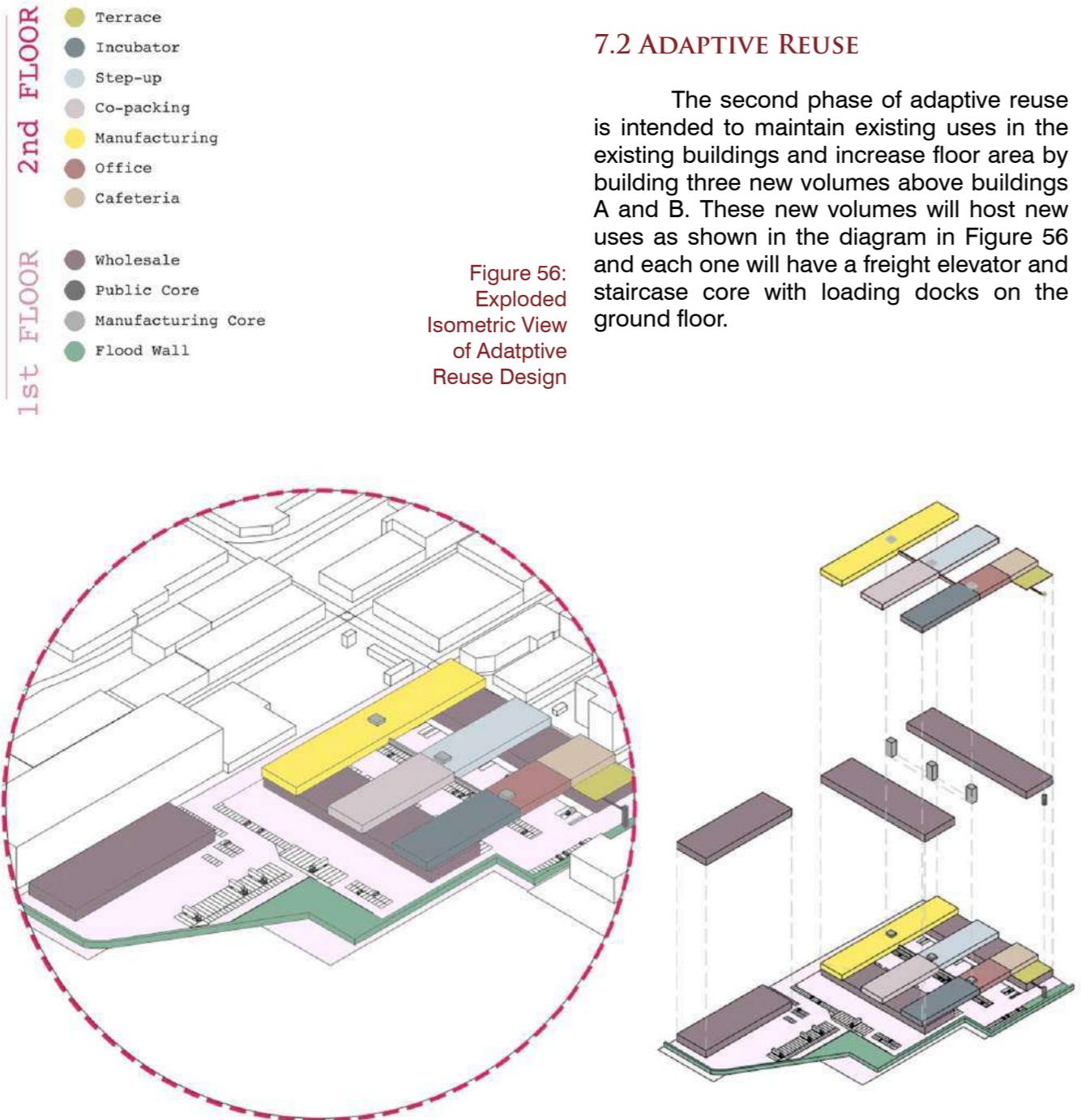


Figure 55:
Adaptive
Reuse Design



7.2 ADAPTIVE REUSE

The second phase of adaptive reuse is intended to maintain existing uses in the existing buildings and increase floor area by building three new volumes above buildings A and B. These new volumes will host new uses as shown in the diagram in Figure 56 and each one will have a freight elevator and staircase core with loading docks on the ground floor.

PROGRAMMING

Building 1 will have two large manufacturing spaces, each with 29,000 sqft. Building 2 will have a co-packing facility and 12 step-up spaces, each with 1,700 sq.ft approximately and will share a cold and dry storage area and common office space. Building 3 will have 4 incubator kitchens, each with 2,000 sq.ft, two classroom, also about 2,000 sq.ft each, shared storage and office space and a cafeteria with an outdoor terrace overlooking the site and waterfront that can be accessed by the public through an elevator and bridge. The Fire Department offices that occupied the existing fourth building on site will be transferred to Building 3 and the old structure will be demolished to make room for public access from the street.

BUILDING STRUCTURE

The proposed new buildings will be structurally independent from the existing ones, except for the columns located at the ends of each. These will have to be reinforced to support the vertical load of the new buildings. The structural reasoning behind this proposal is that the new volumes will act like a table, held together by ‘legs’ and diagonals, as shown in the diagram right. This concept is known as a *braced rigid frame*⁸³⁸⁴ and is characterized by standard connections between elements such as columns and beams. This system is generally used due to its low economic cost (simple connections between elements and quick construction), large open span between vertical supports and versatile design possibilities. Braced frame buildings are very adaptable and offer flexibility in the design, elements such as doors, windows or walls can be placed anywhere, and HVAC units can be easily placed on the roof. The interior of this type of structures offer open-concept type of layouts, which in our proposal offers a flexible division of interior spaces or allow for large open uses such as large manufacturing or co-packing. In terms of aesthetics, the frame can be covered in all sorts of materials without the need to change or adapt the structure.

PUBLIC SPACE

Our Adaptive reuse plan proposes a waterfront flood wall that encompasses the site and protects it from flooding conditions as well as provides a public amenity for residents and workers. The former parking area near the

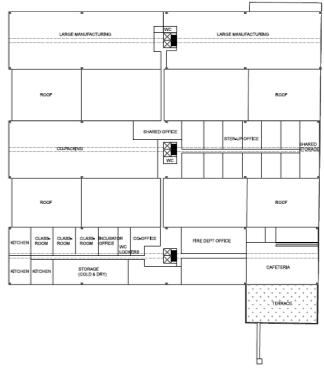
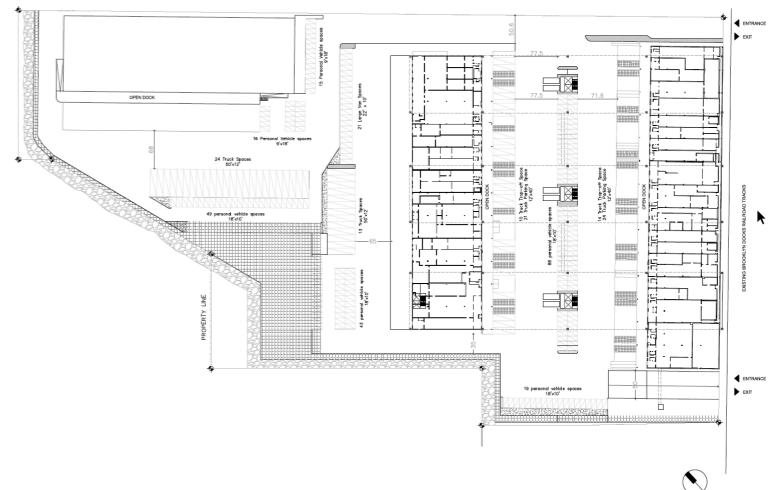


Figure 57:
Groundfloor
Plan of
Adaptive
Reuse Scheme

Figure 58:
Second
Floor Plan
of Adaptive
Reuse Scheme

Figure 59:
Building
structure,
Braced rigid
frame

waterfront on the back of Building B will be converted to a waterfront public access area for more public use. A shoreline walkway, waterfront lounge, public area for relaxing as well as tactical urbanism strategies will be implemented in this space in accordance with the zoning and the special regulation in waterfront areas,. Future potential uses for these new public spaces could include pop-up markets, food trucks, and events like food festivals. The shoreline walkway wall will be built to a 16 foot elevation. The upland connection creates a pedestrian route for people to get to the waterfront and connect the shore walkway with other public

Figure 60:
South Access
Concept

Figure 61:
North Access
Concept

space, which is from the south entrance of the BWMM to the waterfront. The height of the public space right near the waterfront is reduced to provide water-approachable area, and when there is a flood event, this space will be floodable while the rest of the site is protected by the floodwall. The space under the elevated public space can provide parking space and public bathrooms, which efficiently

make full use of the space and provide public amenities for the further opening-up of the site. This design would provide 9,500 SF of public space. This proposed flood wall and access could be built as an independent site specific intervention or a comprehensive waterfront protection measure, incorporating the waterfront walkway as proposed earlier.



TIMELINE

This proposed path for redevelopment entails no demolition but relocation of tenants of buildings A and B during renovation of the interiors of the buildings. It would also likely require relocation of tenants to extend until construction of new additions are completed.

7.3. FULL REBUILD

Our clients expressed an intent to position the Brooklyn Wholesale Meat Market as an economic catalyst within the fabric of Sunset Park and thus laid an opportunity in front of us to reinvent the market to be able to maximize efficiency. To intervene in the site so the aspirations of our client and stakeholders can be best achieved, we propose a complete rebuild of the site. The intent of this phase is to start fresh with the site and better utilize the site area. The rebuild option aims to reinvent the market to be able to maximize efficiency and enhance accessibility for the public to the waterfront.

PROGRAMMING

The project requires ground access to all the wholesale tenants, existing and proposed. Furthermore, as wholesale results in increased truck movement and parking it

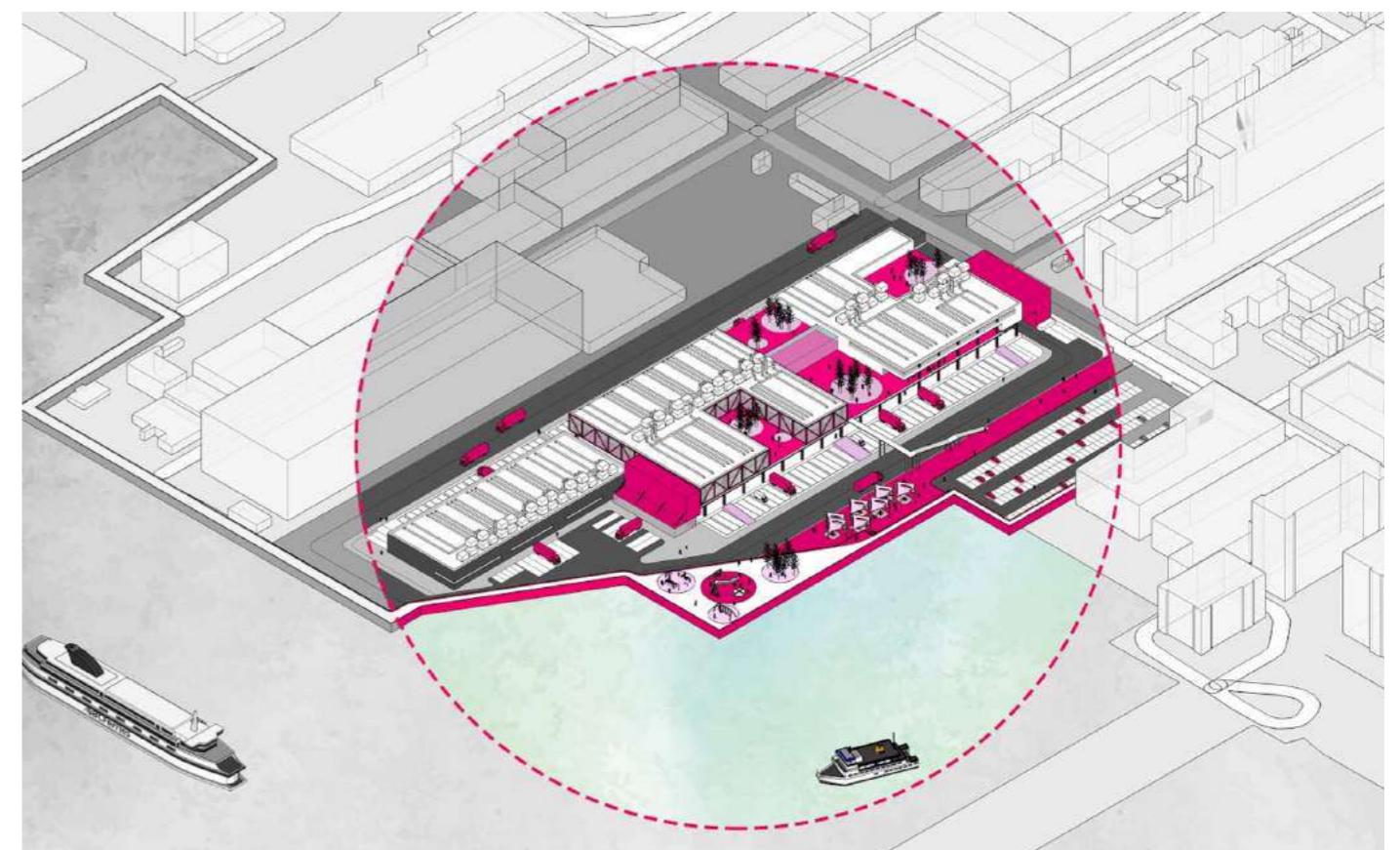
became essential to dedicate surface to the activity. Despite such challenges this design boasts a 20 percent increase in square footage of wholesale space.

The ground floor includes a large Wholesale space and Maramont. Since the ceiling height of the ground floor is increased to 32 feet, the effective usable area could be 1.50 times as much as before. The exit corridor on the ground floor of the building is open to the workers and could be enclosed by roller shutter door. Offices for wholesale are put on the mezzanine floor, which increases accessibility to wholesale space making it easier to handle daily fairs.

The second floor includes six large manufacturing spaces, of which the total area is 99,500 s.f. It also includes cafeteria and a fire dept & shared boardroom. The roof on the second floor can be used as terrace for green or blue roof. The manufacturing elevator core connects the businesses on all levels to loading docks.

The third floor houses the co-packing, step-up spaces and incubator which each have 27,000 SF, 40,000 SF and 33,000 SF provided respectively. The public elevator core near the entrance of our site is used to lift workers in step-up spaces/incubators and

Figure 62:
Rebuild
Design



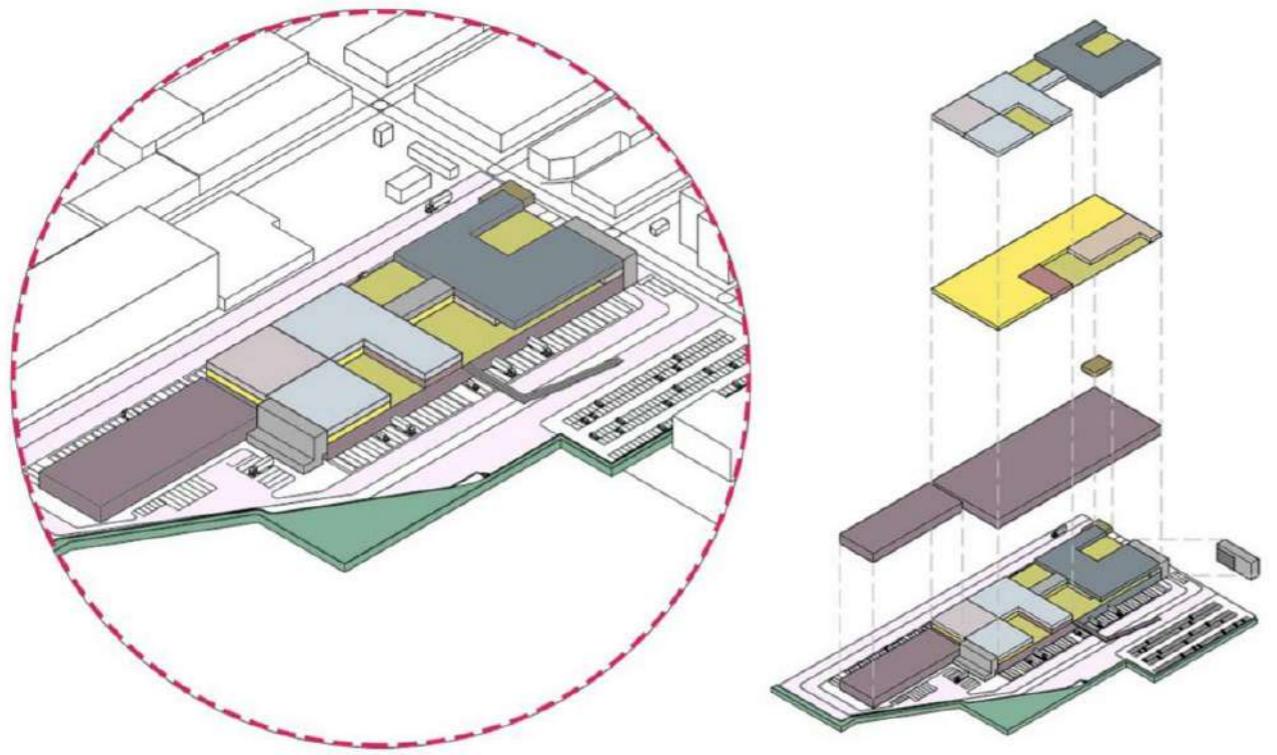


Figure 63.
Rebuild Design-Programming

the public separately. This core allows public access to the cafe, outdoor event space on the second floor, and connects workers to the manufacturing, incubators and step-up spaces.

Parking and loading docks have been determined based on New York City Zoning regulations. There are 188 private parking spaces, 45 truck parking spaces and 83 loading drop-off spaces. Private parking has been separated from trucking in order to make trucking movements more efficient and not be impeded by personal vehicles. The main truck route flows around the building so that goods can be transported easily through loading docks. The waterfront open space and walkway can be accessed by the public through a separate pedestrian route on site.

BUILDING STRUCTURE

The building itself is proposed to be a modular structure for ease of construction. Architecturally, the form has been kept linear to facilitate future expansion of the building as and when needed.

The building is dedicated to making the industrial and manufacturing activities related to the food industry robust. The new structure, increased ceiling heights, new uses, and new technology of loading/unloading facilitates will promote a faster and

more efficient wholesale trading and create more high-quality job opportunities.

PUBLIC SPACE

Similar to the adaptive reuse proposal, there will be a shoreline walkway flood wall, built to a 16 foot elevation, which would provide a public access along the waterfront edge. This space would be larger than in the adaptive reuse scenario providing 26,000 SF of public space. It would additionally be able to support the proposed uses mentioned earlier of pop up markets, tactical urbanism activities and recreational and leisure programming for community members and workers of Sunset Park. Also similar to the adaptive reuse this could be built as an independent site specific intervention or a comprehensive waterfront protection measure, incorporating the waterfront walkway as proposed earlier.

TIMELINE

This proposed path for redevelopment entails phased demolition of buildings A and B and construction of the larger building – 1 as indicated in figures 64 through 68. As the construction proceeds (and ground floor of building 1 is completed), the tenants in building C can be shifted to building 1 along with the tenants that were initially relocated.



Figure 64.
Ground Floor
Plan of Rebuild
Design

Figure 65.
Mezzanine
Floor Plan of
Rebuild Design

Figure 66.
Second Floor
Plan of Rebuild
Design

Figure 67.
Third Floor
Plan of Rebuild
Design

Figure 68:
Rebuild Design
Circulation
diagram

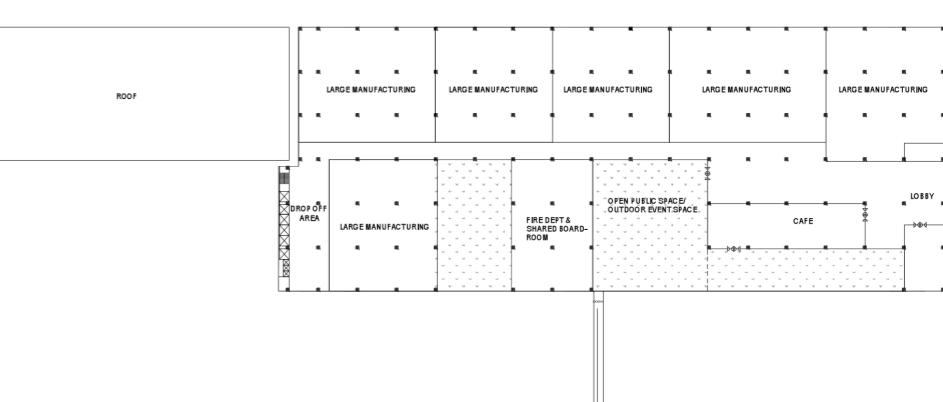
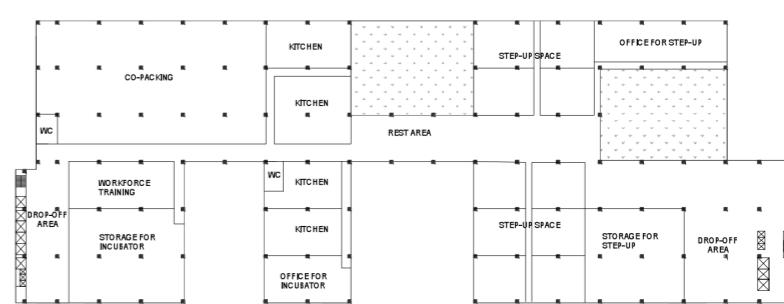
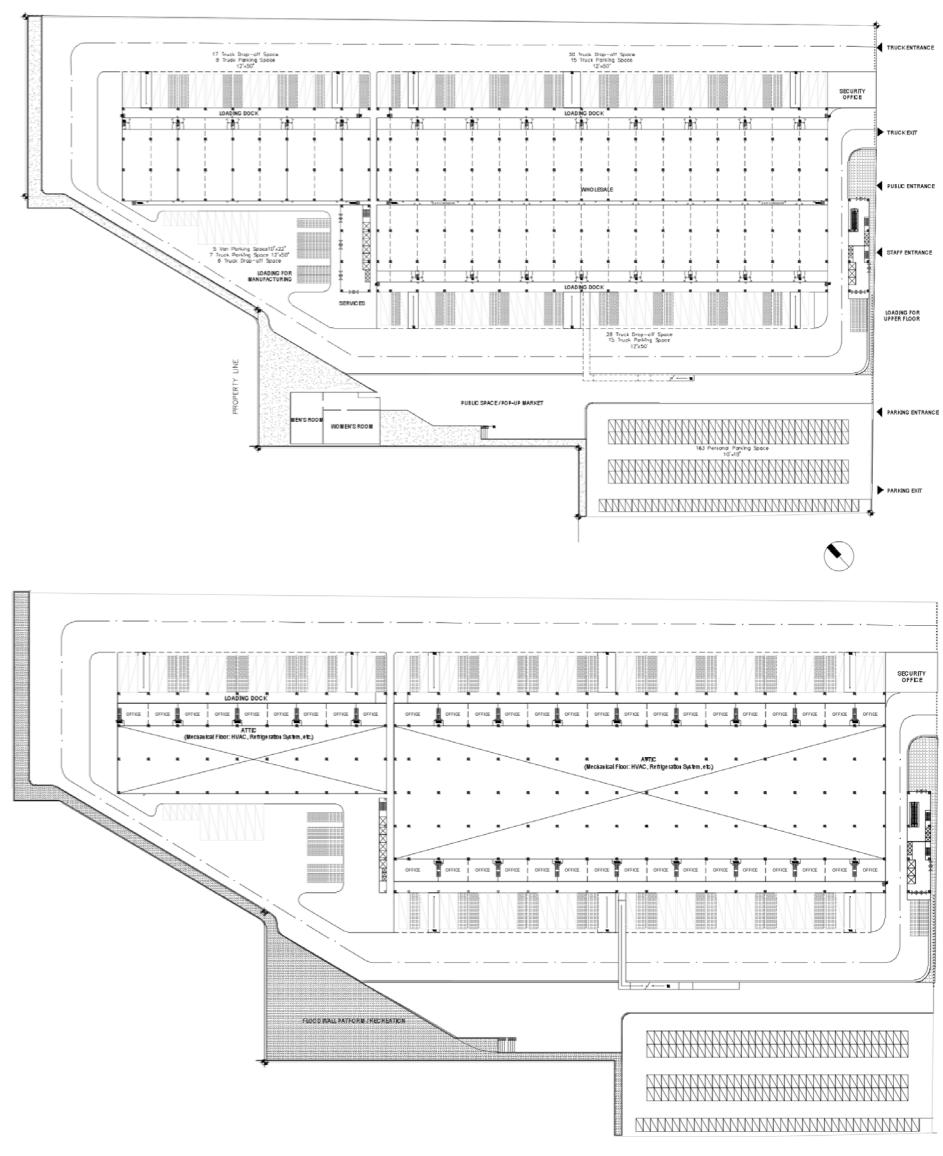




Figure 69:
Rebuild Design
Southern View
and Pedestrian
Access

Figure 70:
Rebuild
Design Public
Waterfront
Access

7.4 SUMMARY OF DESIGN OPTIONS

Use / Area	Existing	Adaptive Reuse	Rebuild
Wholesale	139,015	139,000	262,500
Incubator space	0	29,000	33,000
Step-up Food Manufacturing Space	0	26,000	40,000
Large Food Manufacturing Space	57,000	58,000	99,500
Co-packing	0	28,000	27,000
Cafeteria	0	13,500	7,500
Total	196,015	280,000	469,500

Table 7: New
Uses Square
Footage

Figure 71:
Rebuild Design
Roof View



8. IMPACTS OF PROPOSED REDEVELOPMENT

An important aspect of our recommendation is analyzing the social, economic and environmental impact of the interventions that we proposed. How is the project contributing to the economic vitality of the Sunset Park food manufacturing economy? What is the impact of increased truck activity for residents living in Sunset Park? How will the development of the Sunset Park Food Terminal impact the local tax base? These are some of the questions that were raised in the site use selection process. Ultimately, our recommendation will leave a lasting positive impact.

SOCIAL IMPACT

A core mission of the New York City Economic Development Corporation is cultivating dynamic, resilient communities. These are the social impacts of our interventions:

Increase Access to Waterfront and Open Space. Our interviews with relevant stakeholders indicated that Sunset Park residents want access to the waterfront. However, residents have access to the waterfront only through the Bush Terminal Piers Park. The Brooklyn Army Terminal Pier will soon open to the public. Our intervention will provide one additional access point through the large waterfront open space. The adaptive re-use scenario will add the amount of open space by 9,500 square feet, whereas the rebuild scenario will add 26,000 square feet of open space.

Improve Walkability and Wayfinding. Presently, there are few crosswalks surrounding the site. Tactical urbanism interventions such as the crosswalk redesign will increase pedestrian safety. The

digital wayfinding and physical wayfinding recommendations will also ensure separation of trucking and pedestrian activities.

Develop a Skilled Workforce Base. Another important element of our adaptive reuse and re-build strategy is the inclusion of the workforce training center. The Sunset Park Food Terminal will have a dedicated space for a workforce training center that specializes in developing food manufacturing skills. With the rapidly growing food manufacturing hub in Sunset Park, there is a need for hiring a skilled workforce.

Expand Food Options. Food entrepreneurs, such as owners of food trucks and small batch bakers, can sell their goods at the pop art market. Pop up markets will operate out of the open space area over the weekend. In addition, our recommendation includes a publicly accessible criteria. These interventions will expand the residents' food options.

ECONOMIC IMPACT

The Sunset Park Terminal will be a driver of job growth and new business creation. We believe the site has the potential to:

Strengthen the Southwest Brooklyn Food Hub

The Sunset Park Food Terminal will serve the needs of the existing wholesale tenants, but also incorporate new site uses. The creation of a vibrant food manufacturing and distribution ecosystem will strengthen the Southwest Brooklyn Food Hub as the go to area for all food business related activities. This central hub will attract new food entrepreneurs and larger, established food businesses to the area.

Generate Jobs and Promote Entrepreneurship

Both redevelopment strategies, the adaptive re-use and rebuild, will generate new jobs for the Sunset Park area. In the site use selection process, we focused on selecting job-producing uses. The food incubator encourages the formation of new food companies.

Increase the Amount of Leasable Industrial Space

The adaptive re-use and rebuild scenarios will also increase the amount of leasable industrial space available on the site. In the adaptive re-use scenario, with the addition of three new buildings, there will be a 75 percent increase in the amount of square footage available. In the rebuild scenario, there will be a 158 percent increase in the amount of square footage available. The floor-to-area ratio will increase from 0.22 to 0.39 and 0.57 for the adaptive re-use and rebuild scenarios, respectively.

Increase the Rental Revenue and Improve the Tax Base. The increase in leasable industrial space on the site also means an increase in the amount of rental revenue that can be collected. The redevelopment project will also generate additional tax revenue for New York City. This includes income taxes paid by New York City residents employed at the Sunset Park Food Terminal and business taxes paid by the contractors and suppliers.

09. CONCLUSION

The Brooklyn Wholesale Meat Market, a site owned by the New York City Economic Development Corporation, is an industrial property located along the Sunset Park's waterfront. The Market is home to 22 wholesale food tenants. Although the Market is fully operational, our client believes that the Market is an ideal site for strategic redevelopment- building technologies are outdated, the site is not fully built out, and tenant leases are ending in 5 to 10 years. As a city agency, our client has two primary goals: maximizing the financial gains from their properties and generating positive social impacts, which they call their double-bottom line goals. The recommendations in this paper take into account our client needs as well as other building-, site-, and community-issues that were not raised by our client.

Based on our research and analysis, we believed that our site is uniquely positioned to be a food distribution and manufacturing hub. We are repositioning the Brooklyn Wholesale Meat Market into the Sunset Park Food Terminal, a vibrant food manufacturing ecosystem. The Sunset Park Food Terminal will be home to the existing wholesale tenants as well as a co-packer, a food incubator, step-up spaces, and a workforce training center. A small food business can test their ideas in the food incubator, move to a step-up space once they require a more permanent working area, and later graduate into a larger food

manufacturing space. The business can also benefit from the co-packing facility and workforce training center.

Our stepped proposal take into account short- and long-term needs, environmental sustainability concerns, and economic and social impacts. The first stage includes low time to implementation options that can improve overall site efficiency and sustainability. Our second stage includes three paths, first offering building renovation and other small scale options that do not increase floor area. Our second path option, adaptive re-use, increases the site's leasable floor area.

Our third path is a scenario where we start with a blank slate. We designed new buildings that are tailored for future site use. Given the flexibility and depth of our recommendation, our client has the opportunity to decide for themselves which interventions make the most sense.

The interventions that we recommend, if implemented, will have a large positive impact. First, we will increase the number of quality food manufacturing and distribution jobs for the area. Second, we will increase the amount of open space available and improve public access to the waterfront. Third, our recommendation provides permanent food manufacturing and distribution space for the Sunset Park area. Finally, another impact will be the amount of leasable industrial space that we are adding to the building.

10. APPENDIX

1. William Stein and Julie Stein. Client Meeting. 30 Jan. 2017.
2. NYCEDC, New York Economic Development Corporation. "Sunset Park Vision Plan," September 24, 2015. Web. 27 Apr. 2017.
3. NYCEDC, New York City Economic Development Corporation. "New York City Industrial Business Zones," November 2, 2014. Web. 27 Apr. 2017.
4. Frank M. Pohole , Cacique Web Designs. "A Brief History of Sunset Park." Sunset Park. com. N.p., 1 Jan. 2006. Web. 27 Apr. 2017.
5. Spellen, Suzanne. Industry City's Rise, Fall and Rebirth, From Wartime Manufacturing to Artisanal Mecca. Nov. 15, 2015.
6. Vo, Linda Trinh, and Rick Bonus. Contemporary Asian American communities: intersections and divergences. P34. Temple University Press, 2009.
7. Brooklyn Chinese-American Association. "A Bluer Sky: A History of the Brooklyn Chinese-American Association." Accessed on April 16, 2017.<http://www.bca.net/eng/about.html>
8. Spellen, Suzanne. How Bananas Built Industry City — the Story of Sunset Park's Bush Terminal. Nov. 16, 2015. Accessed on April 12, 2017.
9. Spellen, Suzanne. "Industry City Brooklyn -- Bush Terminal, Sunset Park History." Brownstoner, November 30, 2015. <http://www.brownstoner.com/history/industry-city-brooklyn-bush-terminal-sunset-park-history/>.
10. King L, Hinterland K, Dragan KL, Driver CR, Harris TG, Gwynn RC, Linos N, Barbot O, Bassett MT. Community Health Profiles 2015, Brooklyn Community District 7: Sunset Park; 2015; 31(59):1-16.
11. Crean, Sarah. Preliminary FEMA Flood Maps & What They Show About Sunset Park. October 6, 2016.
12. NPCC. New York City Panel on Climate Change 2015 Report Executive Summary. Ann. N.Y. Acad. Sci., 1336: 9–17. 2015. doi:10.1111/nyas.12591
13. Regional Plan Association. Under Water: How Sea Level Rise Threatens the Tri-State Region. 2016. <http://library.rpa.org/pdf/RPA-Under-Water-How-Sea-Level-Rise-Threatens-the-Tri-State-Region.pdf>
14. Willard, C. "Annual Report Concerning the Status of site Investigation and Remediation Costs, Schedules and Regulatory Compliance (Case 11-M-0034"). New York, NY: New York State Public Service Commission . March 31, 2014.
15. New York State Department of Environmental Conservation. Environmental Remediation Databases. Retrieved February 12, 2017.
16. U.S. Census Bureau; American Community Survey, 2014 American Community Survey 5-Year Estimates; using American FactFinder;
17. U.S. Census Bureau; American Community Survey, 2014 American Community Survey 5-Year Estimates; using American FactFinder;
18. Santore, John V. "Study: Sunset Park Is a 'Neighborhood on the Rise.'" Sunset Park, NY Patch. N.p., 14 Sept. 2016. Web.
19. DiNapoli, Thomas P. "An Economic Snapshot of the Greater Sunset Park Area." Sept. 2016. Web.
20. Ibid.
21. Ibid.
22. Ibid.
23. Ibid.
24. Ibid. .
25. Venugopal, Nikhita. "City Opens Food Manufacturing Hub in Sunset Park." DNAinfo New York. N.p., n.d. Web.
26. Warerkar, Tanay. "Sunset Park Will Become Home to a Sprawling Hub for NYC's Fashion Industry." Curbed NY. N.p., 14 Feb. 2017. Web.
27. WXY Consultants. 2016. "Sunset Park Brownfield Opportunity Area Nomination Study Report."
28. NYC Department of City Planning. NYC Comprehensive Waterfront Vision Plan 2020. March 2011. Accessed on April 13, 2017
29. Community Board 7 Borough of Brooklyn. "New Connections/ New Opportunities: Sunset Park 197a Plan". 2011. Accessed on Jan. 30, 2017
30. WXY. Sunset Park Brownfield Opportunity Area Nomination Study Report. March 2013. Accessed on April 13, 2017
31. Sunset Park 197-A Plan. 2011, Accessed Jan. 29.
32. Ibid
33. NYCEDC. "Brooklyn-Queens Connector (BQX)." NYCEDC, February 8, 2017. <https://www.nycedc.com/project/brooklyn-queens-connector-bqx>.
34. Ibid
35. Brooklyn Greenway Initiative. "Brooklyn Bike Rave." Brooklyn Greenway, February 8, 2016. <http://www.brooklyngreenway.org/event/brooklyn-bike-rave/>.
36. NYCEDC. "Citywide Ferry Service." 2017. Accessed February 12. <https://www.nycedc.com/project/citywide-ferry-service>
37. New York City Economic Development Corporation. "2016 New York City Food Distribution & Resiliency Study Results." Mayor's Office of Recovery & Resiliency, 1 Jan. 2017. Web. 6 Feb. 2017.
38. IBISWorld Industry Report42447: "Beef & Pork Wholesaling in the US". 2016. Accessed February 5.
39. New York City Economic Development Corporation. "2016 New York City Food Distribution & Resiliency Study Results." Mayor's Office of Recovery & Resiliency, 1 Jan. 2017. Web. 6 Feb. 2017.
40. NYCEDC. NEIGHBORHOOD TRENDS & INSIGHTS -Exploring New York City Communities . Rep. New York: NYCEDC, 2014. Print.
41. NYCEDC. "Hunts Point Peninsula." NYCEDC, September 12, 2016. <https://www.nycedc.com/project/hunts-point-peninsula>.
42. City of San Francisco. "SF Wholesale Produce Market » Blog Archive » Mayor Lee

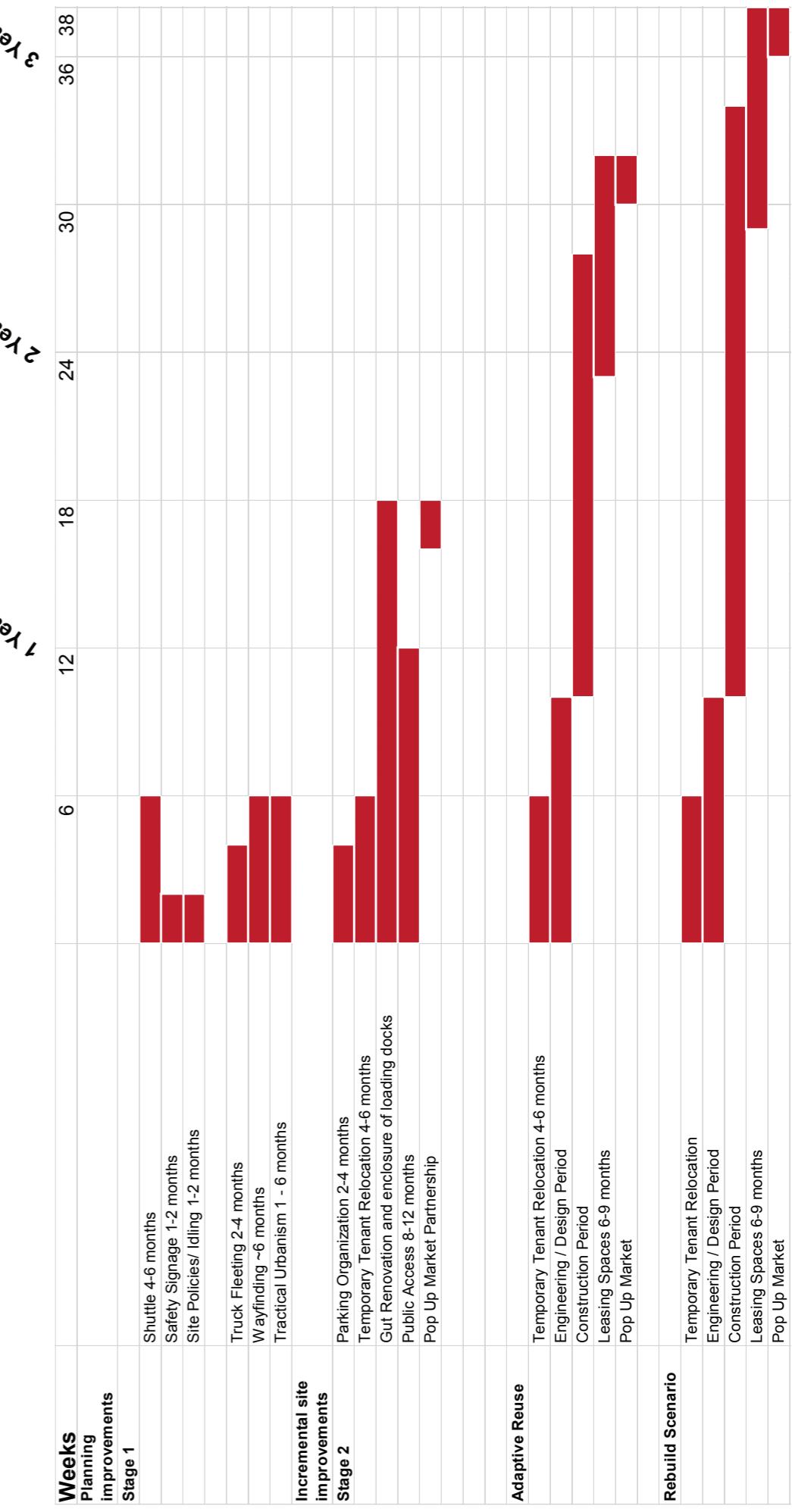
- Announces Long-Term Lease & Expansion of Wholesale Produce Market," May 1, 2012. <http://www.sfproduce.org/whatsnew/mayor-lee-announces-long-term-lease-expansion-of-wholesale-produce-market/>.
43. Liles, Jackson. "San Francisco Wholesale Produce Market : 901 Rankin." Jackson Liles Architecture. N.p., n.d. Web. 27 Apr. 2017.
 44. "Vancouver Convention Center West." LMN Architects. Accessed February 1, 2017.
 45. "Home." UPROSE. n.d. Web. 17 Apr. 2017.
 46. "About Us." CSWA. Chinese Staff and workers, n.d. Web 17 Apr. 2017.
 47. "The Organization" SBIDC. Southwest Brooklyn Industrial Development Corporation., n.d. April 17, 2017.
 48. "Profile Brooklyn Community Board 7." NYC DCP. n.d. April 17, 2017.
 49. "Madison Realty Capital | The Real Deal New York." Accessed May 10, 2017. <https://therealdeal.com/new-research/topics/company/madison-realty-capital/>.
 50. Madison Realty. "Madison Realty Capital Acquires the Brooklyn Whale Building for \$82.5 Million." Accessed May 10, 2017. <http://www.prnewswire.com/news-releases/madison-realty-capital-acquires-the-brooklyn-whale-building-for-825-million-300127778.html>.
 51. "Bid Mission." Sunset Park Bid. Sunset Park Business Improvement District, n.d. Web. 27 Apr. 2017.
 52. New York City Council. "District 38." Carlos Menchaca. Accessed May 10, 2017. <http://council.nyc.gov/carlos-menchaca/district-38/>.
 53. Alter, Lloyd. "Proof That the Greenest Building is the One Already Standing Released in New Report from Preservation Green Lab." TreeHugger, January 24, 2012. <http://www.treehugger.com/green-architecture/proof-greenest-building-one-already-standing-released-new-report-preservation-green-lab.html>.
 54. Alter, Lloyd. "Renovation Uses Twice As Much Labor, Half as Much Material as New Construction." TreeHugger, June 2, 2008. <http://www.treehugger.com/sustainable-product-design/renovation-uses-twice-as-much-labor-half-as-much-material-as-new-construction.html>.
 55. Ibid
 56. "Energy-Saving Loading Dock Solutions By Serco." Serco. Accessed May 10, 2017. <http://sercoentrematic.com/challenges/energy-savings/>.
 57. "TZD Loading Dock Enclosures." Accessed May 10, 2017. <http://www.trj-inc.com/indusrefrig.html>.
 63. Sowinski, Lara L. "Latest Cold Storage Trends Focus On Energy Efficiency - Cool Insights - July 2014." Food Logistics. N.p., n.d. Web.
 64. Energy Trust of Oregon. Cold storage facility energy saving guide. https://insider.energytrust.org/wp-content/uploads/ind_fs_guide_coldstorage.pdf. Accessed on April 3, 2017.
 65. NYC Business. "Idling Regulations - NYC Business." Accessed April 1, 2017. <https://www1.nyc.gov/nycbusiness/description/idling-regulations>.
 66. Danko, Pete. "Is Walmart as Green as It Claims? Company, Enviro Duke It Out." Breaking Energy, November 21, 2014. <http://breakingenergy.com/2014/11/21/is-walmart-as-green-as-it-claims-company-enviros-duke-it-out/>.
 67. NYCDCP. Glossary of Planning Terms. https://www1.nyc.gov/site/planning/zoning/glossary.page#waterfront_public_access_area. Accessed on April 3, 2017.
 68. "Waterfront Edge Design Guidelines (WEDG)." Waterfront Alliance. Accessed on March 27, 2017. <http://waterfrontalliance.org/what-we-do/waterfront-edge-design-guidelines/WaterAlliance.WaterfrontEdgeDesignGuidelines>.
 69. NYCDCP. Vision 2020: New York City Comprehensive Waterfront Plan. <http://www1.nyc.gov/site/planning/plans/vision-2020-cwp/vision-2020-cwp.page>. Accessed on Feb 3, 2017.
 70. Roux, Clive. "What Is Wayfinding?" Text, March 23, 2014. <https://segd.org/what-wayfinding>.
 71. Bassett, Nathanael. "The Street Plan's Collective: Tactical Urbanism (Beta) Document." Interventionist Aesthetics, March 8, 2013. <https://interventionistaesthetics.wordpress.com/2013/03/07/the-street-plans-collective-tactical-urbanism-beta-document/>.
 72. U.S Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW). "NAICS Based Industry Employment and Wages for Food Manufacturing." Date Accessed: 2/15/17
 73. Bassett, Nathanael. "The Street Plan's Collective: Tactical Urbanism (Beta) Document." Interventionist Aesthetics, March 8, 2013. <https://interventionistaesthetics.wordpress.com/2013/03/07/the-street-plans-collective-tactical-urbanism-beta-document/>.
 74. U.S Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW). "NAICS Based Industry Employment and Wages for Food Manufacturing." Date Accessed: 2/15/17
 75. Jennifer Becker, and Caitlin Dourmashkin. Food+Workforce: Connecting Growth and Good Jobs for NYC's Emerging Specialty Food Manufacturing Sector. Pratt Center For Community Development, 2015. Web.
 76. New York State Department of Labor, Division of Research & Statistics. "Long-Term Occupational Employment Projections, 2012-2022"
 77. Econsult Solutions, U.S. Kitchen Incubators: An Industry Snapshot, August 5, 2013
 78. Econsult Solutions, U.S. Kitchen Incubators: An Industry Snapshot, August 5, 2013
 79. Econsult Solutions, U.S. Kitchen Incubators: An Industry Snapshot, August 5, 2013
 80. Jennifer Becker, and Caitlin Dourmashkin. Food+Workforce: Connecting Growth and Good Jobs for NYC's Emerging Specialty Food Manufacturing Sector. Pratt Center For Community Development, 2015. Web.
 81. Smith, Ned, BusinessNewsDaily Senior Writer October 5, and 2010 01:01 pm EST. "Incubators Heat Up Chances of Small Business Survival." Business News Daily. Accessed May 10, 2017. <http://www.businessnewsdaily.com/272-incubators-increase-small-business-success.html>.
 82. Jennifer Becker, and Caitlin Dourmashkin. Food+Workforce: Connecting Growth and Good Jobs for NYC's Emerging Specialty Food Manufacturing Sector. Pratt Center For Community Development, 2015. Web.
 83. Jennifer Becker, and Caitlin Dourmashkin. Food+Workforce: Connecting Growth and Good Jobs for NYC's Emerging Specialty Food Manufacturing Sector. Pratt Center For Community Development, 2015. Web.
 84. Jennifer Becker, and Caitlin Dourmashkin. Food+Workforce: Connecting Growth and Good Jobs for NYC's Emerging Specialty Food Manufacturing Sector. Pratt Center For Community Development, 2015. Web.
 85. Steel Construction. "Braced Frames." Steelconstruction.info. Accessed April 14, 2017. http://www.steelconstruction.info/Braced_frames.
 86. "Frame Structures - Definition, Types of Frame Structures." Accessed May 10, 2017. <http://www.aboutcivil.org/frame-structures-definition-types.html>.

SOLAR PANEL CALCULATIONS

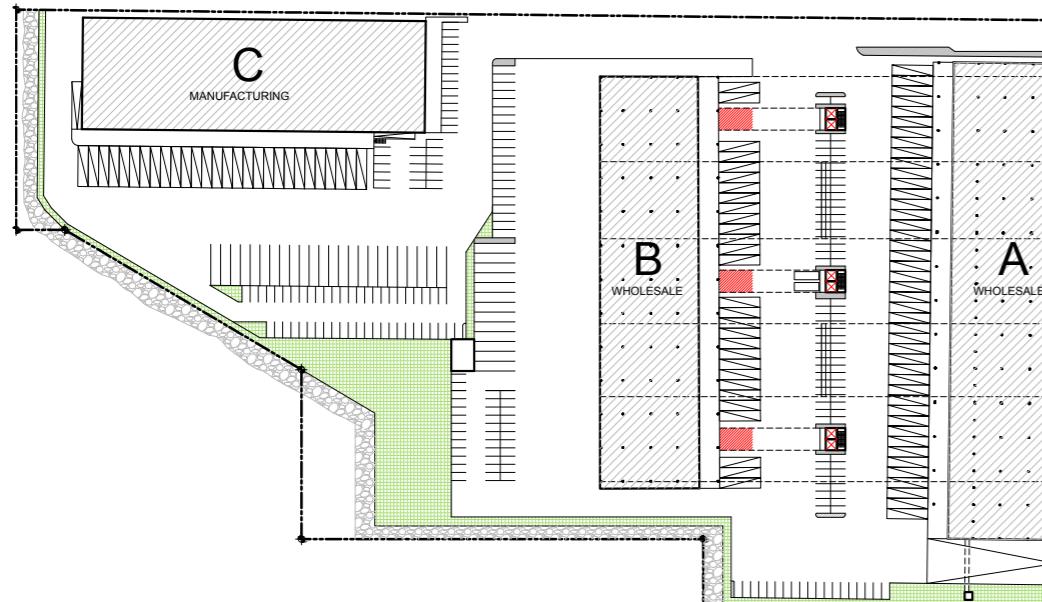
Building	Approximate Monthly Electric Bill	Optimal System Size (kW DC)	Square feet	Payback Period	Annual Savings	Out of Pocket Cost	Net Cost After Tax Incentives
A - 91,151SF	\$10,129	576.39	57,640 square feet out of 67,153 usable square feet	9 years	\$155,173	\$1,385,658	\$1,135,658
B - 74,581SF	\$8,287	471.37	47,137 square feet out of 67,153 usable square feet	9 years	\$126,899	\$1,185,985	\$948,788
Total	\$18,416	1,047.76	104,777 SF	9 Years	\$282,072	\$2,571,643	\$2,084,446

Source: SolarNYC

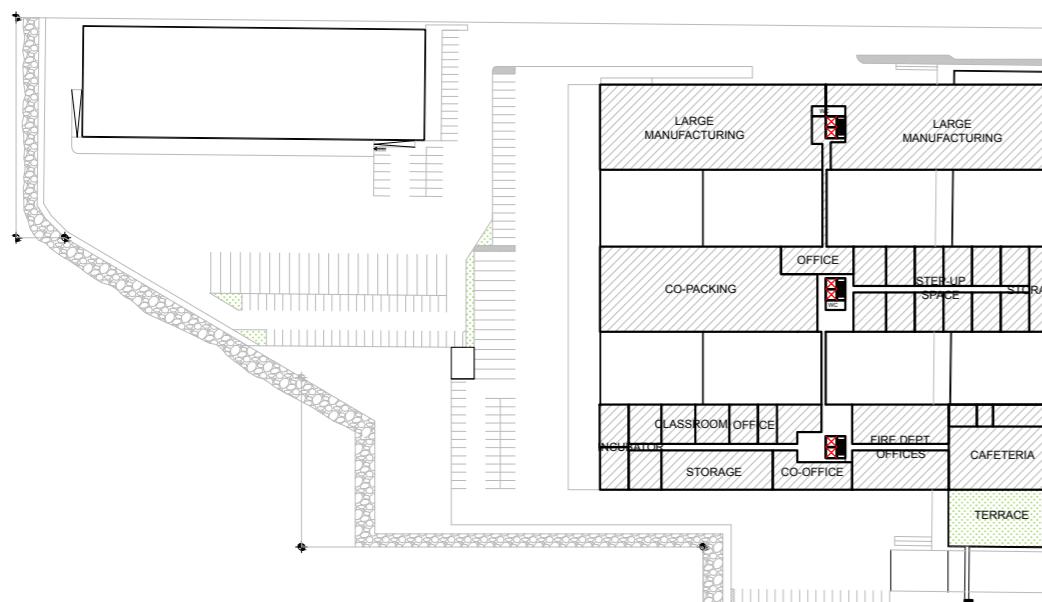
GANTT CHART



ADAPTIVE REUSE LAYOUT

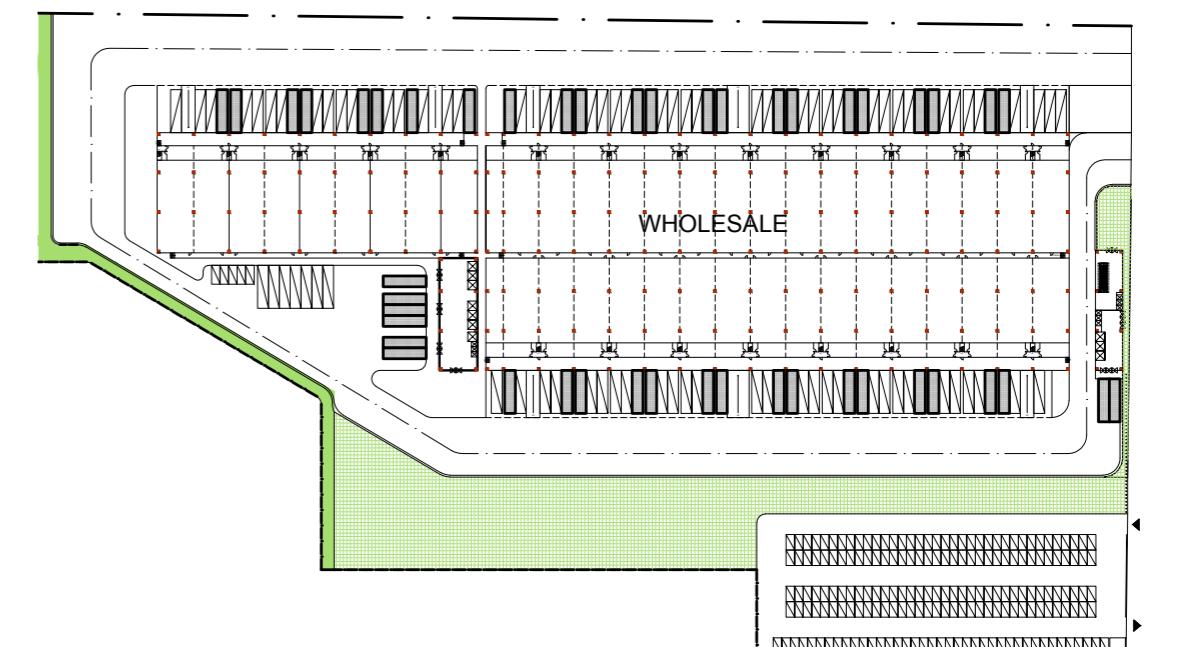


GROUND FLOOR

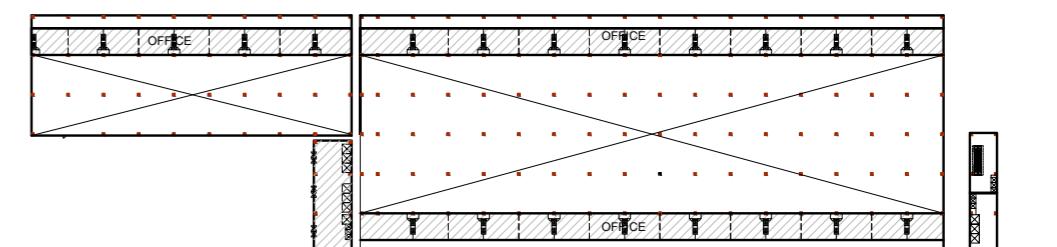


SECOND LEVEL

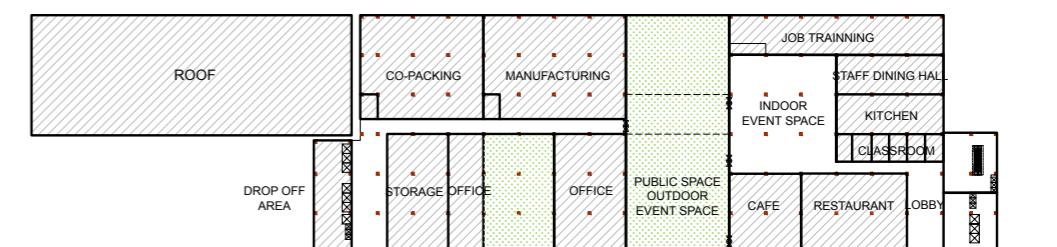
REBUILD LAYOUT



GROUND FLOOR



MEZZANINE LEVEL



SECOND LEVEL



THIRD LEVEL

