DEVE1-GC.2115

CAPSTONE IN SUSTAINABLE DEVELOPMENT

Professor Stuart Brodsky

WYTHE GREENS

Prospectus

Jennifer Dudgeon

December 13, 2021

TABLE OF CONTENTS

1.0 - EXECUTIVE SUMMARY

THE VISION

Over the last 20 years Brooklyn has experienced a boom in economic development that has led to dramatic improvements in the quality of available housing, public safety, public and private amenities, and the continued development of a world class publicly accessible waterfront. However, this has also driven gentrification, beginning with neighborhoods in the NW areas of the county, leading to lost diversity and exacerbating the affordability crisis.

This proposed development addresses recognized shortfalls in community and affordability needs within the gentrified neighborhood of North Williamsburg. Through the proposed selection of program uses, this project targets housing affordability, and commercial facilities in support of the creative community - specifically commercial artists and artisans - who used to be prolific in the area and who were instrumental in defining the character that made Williamsburg a desirable destination.

The prevalence of large luxury condo developments within the waterfront area has threatened to further erode the defining physical characteristics of the neighborhood. Therefore this project also explores a more appropriate scale and character in alignment with the Williamsburg Comprehensive Plan.

THE PROJECT - WYTHE GREENS

Wythe Greens will be a 6 story mixed use development- comprising 2 stories + basement of commercial units, as well as 96 residential units spread over 5 stories.

The primary commercial spaces will cater to the aforementioned creative community and include artist studies, an associated gallery space and a maker lab. The remaining commercial space will provide residential scale retail offerings including a fresh produce grocery store facing onto North 1 st, cafes and other food offerings facing onto the Grand Street commercial corridor, and other resident focused offerings on Wythe Ave.

50% of the residential units will be affordable, catering to very low, low and moderate AMI income bands, and include a combination of studios, 1, 2 and 3 bedroom units accommodating individuals and small families. A unit mix breakdown is provided in Table 7, Section 5. Supporting building amenities will include roof top lounge and gardens with unobstructed southern solar access, a gym, package room, virtual concierge, smart technologies & basement level laundry, storage and trash areas. Additionally, the project aims to be an exemplar of best practice design excellence, sustainability and resiliency. It will meet both Passive House and Enterprise Green Communities standards. Wrapped in a layer of green vegetation on both the facade and roof, one of the sustainability features -the buildings breathing skin- helps to keep it cool while giving it a distinct character and identity.

SITE DETAILS	
Address	296 Wyth Avenue
	69 Grand St
	71 Grand St
Neighborhood	Williamsburg, Brooklyn 11211
Land Area (sf)	25690
Lot Frontage (ft)	300'
Lot Depth (ft)	Max 110'
Max Stories	5- Grant St, 8- North 1st St
Zoning	M1-2/R6A/R6B/MX-1
Lot Coverage	21- 100%; 28 & 29 - 60%
Max Buildable ZFA	92484

FLOOR AREA DISTRIBUTION				
Floor Area Type	**Gross Sf**	**% Total**	**Net SF**	**Efficiency**
Residential	75685	61%	54185	72%
Commercial	48180	39%	48180	100%
Project Total	123865	100%	102365	83%

MIXED USE, 50/50 INCLUSIONARY HOUSING	
Development Cost	
Land Purchase Cost	$29,274,000
Total Hard Costs	$46,024,335
Total Soft Cost	$6,226,112
Total Development Cost	**$81,524,447**
Income Summary:	
Residential (REGI)	$3,425,314
Commercial (CEGI)	$2,887,674
Effective Gross Income (EGI)	$6,312,988
Total Operating Expenses	-$1,235,887
Net Operating Income (NOI)	**$5,077,101**
Hold Term	10 years
IRR	**12.72%**
Multiplier	**2.80**
Profit	**$45,623,182**

Table 1 -Project Highlights

FINANCING SUMMARY

The high cost of land in the Williamsburg area presents a challenge with finding the right balance between different program needs and their percentage of total project area, rental rates, and meeting the project intent and quality goals.

With focus on affordability and diversity, the baseline for the financial model assumes an inclusion of 50% affordable housing, and that roughly 50% of the retail rental area is below market rate rent.

The total development cost is $81.5m, with 37.5% allocated to the cost of land alone.

With a 10 year hold, and a projected cap rate of 6% at point of sale the property value is projected at $111.5m.

Consequently we arrive at an IRR of 12.72, equity multiplier of 2.2x, and total profit of $45m.

This is considered lucrative. The project is able to achieve the core social goals and obtain a return. On it's own the recommendation would be to pursue this development opportunity for our portfolio.

ADDED OPPORTUNITY

Given the focus on community needs, an alternate option is put forth for consideration, being that 100% affordable housing is pursued for the site. All other aspects of the program, construction and performance goals remain the same.

This would require government subsidies including tax exempt financing, HDC Bonds and Low income Housing Tax Credits. The following changes are required of the project deal structure:

Sources	
Equity	$16,304,889
Debt	$65,219,558
Total Sources	**$81,524,447**
Uses	
Land Purchase Cost	$29,274,000
Total Hard Costs	$46,024,335
Total Soft Cost	$6,226,112
Total Uses	**$81,524,447**

Table 3 -Baseline Sources and Uses

- The project is split into two separate condo stacks in order to increase eligibility for the government subsidies. One stack for the 100% affordable housing, and a second for the commercial program.
- The debt service details for the commercial stack would match the baseline option.
- The hold period for the commercial stack is 10 years per the baseline, but 30 years for the residential stack. Returns and profits are then spread out over 30 years.

This is further detailed in Section 9.0 Financials.

RECOMMENDATION

The recommendation is to engage in discussions with HDC to determine viability for pursuing 100% affordable housing for Wythe Greens. If this proves unsuccessful, the 50% affordable housing baseline should be pursued.

Table 2 -Financial Comparison Baseline & Alt 1

BASELINE - Mixed Use 50% Affordable	
Total Development Cost	$81,524,447
Terminal NOI	$5,856,330
Equity	$16,304,889
hold period	10 yrs
Sale Price	$111,549,151
IRR	12.72%
Multiplier	2.80x
Total Profit	$45,623,182

ALT 1 - 2 Condo Stacks: 100% Affordable + Commercal			
	Commercial	LIHTC Resi	Combined
Total Development Cost	$34,867,020	$54,266,432	$55,457,123
Terminal NOI	$2,707,015	$1,852,821	
HPD Subsidies - Bonds		$11,760,000	
LIHTC		$21,916,329	
Equity (commercial)	$6,973,404		$6,973,404
Developer Fee (HPD)		$7,116,458	$7,116,458
hold period	10 yrs	30 yrs	
Sale Price	$51,562,192	$30,880,352	$82,442,545
IRR	15.05%		17.93%
Multiplier	3.56x		9.99x
Profit	$24,855,150		$45,633,920

2.0 - PROJECT DESCRIPTION

THE NEIGHBORHOOD: A HISTORY

The development of Williamsburg's mixed-use character was influenced by many interrelated factors including its waterfront location, accessibility, immigration trends and, initially, lack of zoning. The completion of the Williamsburg bridge in 1903 and access to cheap labor and waterfront industry saw the rapid growth of the local economy. This, in parallel with unregulated development heavily contributed to the mixed use character. Successive waves of immigration into the area fueled steady growth, and resulted in a population characterized by cultural, religious, racial and ethnic diversity. Driven by the availability of affordable loft space, one such influx of residents were artists.

During the 80's, the City began to release it's waterfront industrial properties for redevelopment. The community recognized that the area was 'poised for significant land use changes' and began development of a Comprehensive plan to protect the neighborhood from systematic gentrification and 'the loss of diversity as residents, artisans and other creatives and mom and pop businesses are priced out of the neighborhood that they helped define the character of'. (Williamsburg Waterfront 197-a Plan, 1989).

In 1989 Brooklyn's Community Board 1 articulated its vision for the Williamsburg waterfront in a plan called the Williamsburg Waterfront 197-a Plan.

In the 2000's the City executed sweeping rezoning efforts in response to Mayor Bloomberg's PlaNYC goals. This included the Greenpoint and Williamsburg Waterfront rezoning in 2005. While many of the tenets of the comprehensive plan were addressed, there has been much criticism that loopholes in the rezoning bypass the needs laid out in local comprehensive plans, including the Williamsburg 197a. Onus is placed on developers to respect the spirit of the mixed use zoning, especially light industrial uses. Unfortunately, much of the new development on coveted waterfront land has targeted the luxury residential market where the highest returns are available. The ensuing building boom, briefly interrupted by the great recession, has driven quick paced gentrification of the area, with the original concerns surrounding the loss of diversity and affordability becoming realized.

Williamsburg Comprehensive Plan Highlights:

- Increase waterfront access and public open space;
- Encourage growth along the waterfront consistent with the scale and character of adjacent neighborhoods;
- Foster mixed-use development in the Northside and Southside
- Promote a clean and safe living and working environment;
- Promote local economic development that provides jobs and strengthens the residential and retail sectors;
- Support and strengthen existing ethnic and income diversity.
- Maintain income diversity in Williamsburg by pursuing all opportunities to develop affordable housing
- Attract new businesses, light industry and services that are appropriate to mixed use development to the area

Figure A -Context Plan and Williamsburg Local Plan

	Zoning	Max FAR	Lot Area	Buildable ZFA	Base Ht	Max Ht	Max Stories	Footprint
Lot 21	M1-2/R6A/Mx-1	3.6	12,810	46116	75'	85'	8	8967
	M1-2/R6B/Mx-1 *	3.6 *	3000	10800	45'	55'	5	2100
Lot 28	M1-2/R6B/Mx-1	3.6 *	1650	5940	45'	55'	5	990
Lot 29	M1-2/R6B/Mx-1	3.6 *	8230	29628	45'	55'	5	4938
			25690	**92484**				**16995**

Table 4 - Zoning Overview

* FAR to be increased from 2.2 through ZBA process. No change to max height

THE SITE

The site comprises three separate lots (21, 28 & 29) of single or two story industrial space, all on Block 2378. All lots are located within the mixed use overlay zone which accommodates commercial, light industrial and residential development. All lots are within an Inclusionary Housing overlay. Total street frontage includes 130' on Grand St, 225' on Wythe Avenue and 85' on North 1 St.

Site Description & Zoning:

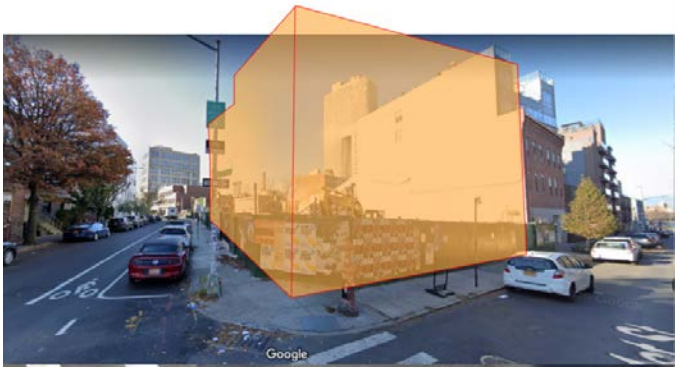
The site transects two different residential zonings - R6A to the north on N 1st Street, and R6B to the south on Grand St. R6A allows for up to 8 stories but development on N 1st street to the north and west are typically 6 stories, which this proposal respects. R6B allows for up to 5 stories. The building heights on Grand street are varied, with many buildings dating back to the early 1900's and still of single to two story height. To the west of the site there is an older 5 story building.

Lot 21 is currently a split lot and includes both R6A and R6B residential zones. The intention is to file with the Zoning Board of Appeals (on the basis of hardship due to the affordability inclusion) for approval to apply the 3.6 FAR available for Inclusionary Housing under the R6A zoning across the entire site. The current height restrictions and lot coverage percentage will still apply. Lot coverage does not exceed 60%. This increases the building size by 15,871sf over as of right, adding 15 units.

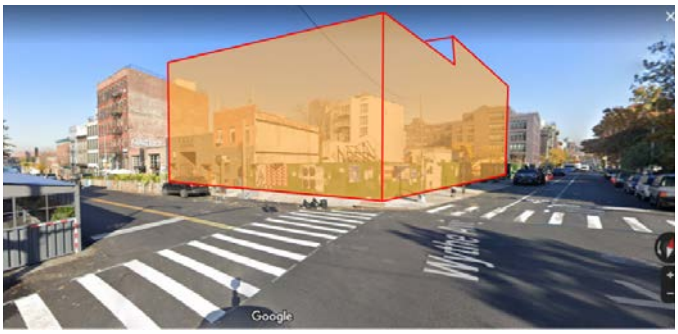
Areas immediately east of Wythe Avenue are zoned R6A multifamily residential with a pocket of commercial overlay along Wythe, supporting the inclusion of street level commercial to the base of the proposed building.

Grand street between Wythe Ave and Kent St is lined with commercial properties and is a recognized retail corridor - primarily for small cafes and restaurants/bars, as well as home goods stores.

The site is located one block inland from Kent Street, the primary waterfront arterial. West of Kent street are large scale mixed use towers ranging from 30 to 45 stories, and built within the gentrification boom. The recently approved River Ring development by Two Trees is located at the end of Grand on the waterfront and while it will be reduced in size by 1/3, will still likely be around 40 stories. Also along the waterfront is the Domino Park,



Site View - NE



Site View - SE

View Looking Down Grand St

Figure B -Site Plan & Photos

Proposed Beach

Domino Park

Figure C - Neighborhood Map *Source: Adapted from Two Trees*

which is part of the public access waterfront parkland which, per the zoning requirements, will continue to be developed as new projects are proposed. The River Ring project proposes a new beach and new piers along with other public open spaces designed to best practice resilient landscape standards.

The primary Williamsburg commercial areas including music venues and additional bars and restaurants, are within a 5 minute walk. Refer Figure C for further detail.

Transport:

WALK SCORE ®	TRANSIT SCORE ®	BIKE SCORE ®
Walker's Paradise (98)	Rider's Paradise (97)	Biker's Paradise (89)

The site has an excellent walk and transit score given it's short walking distance to most services and amenities, and areas of interest, and its close proximity to public transport. According to the Furman Report in 2019 85.8% of people have a car-free commute to work. There is a bus stop ½ block north on Wythe Ave for the B32 bus that connects the Williamsburg Plaza and the JMZ subway stop to Court Sq in Long Island City, and the E, M, G and 7 trains. The Bedford St L station is a 10 minute walk and one stop to Manhattan, as is the East Ferry North Williamsburg stop. The entrance to the BQE with access to the Williamsburg Bridge is a 2 minute drive.

Alternate Sites Options:

Additional remnant industrial sites located in mixed use zones were considered. These were primarily south of the subject site within proximity to the Williamsburg bridge. This includes 29 South 5th St, 69 South 2nd St and 361 Bedford Avenue. These are not as well located to the Bedford St / Nth Avenue commercial hubs as the subject site, with less foot traffic to service the proposed retail tenancies. Additionally, even with consolidation of adjacent properties, the total site area available is less than the subject site at 296 Wythe Ave.

Brownfield Remediation:

All three lots bear an E designation identifying environmental contamination may be present. This is not unexpected given the industrial legacy of the site. Remediation will be required and a Letter of No Further Action pursued, the costs for which have been assumed in the financial model.

Land Acquisition & Valuation

A land value assessment was undertaken on 6 similar sites with mixed use zoning that were either vacant, or included single or 2 story structures originally built for industrial or commercial use and which are currently occupied for commercial uses. A summary of the assessment is included in Appendix A.

A current day land value of **$385.47 /sf** was identified. This translates to a total land value assessment, including associated closing costs and fees of **$29.27m**

- **Lot 21 - 296 Wythe Ave** previously comprised 5 separate smaller lots that were purchased and consolidated in 2015. The existing single story structures were demolished in preparation for a luxury condo development which was stalled due to COVID (This project assumes the land owner chose to sell the site following the entitlement process, but prior to commencement of construction).
- **Lot 28 - 69 Grand St** currently houses a 2 story brick building with residential tenants
- **Lot 29 - 71 Grand St** includes two single story brick buildings, both occupied by food related tenancies.

Lot 21 - 52,716 sf =	$20,320,240
Lot 28 - 3,630 sf =	$1,399,243
Lot 29 - 18,106 sf =	$6,979,252
Subtotal	**$28,698,735**
Closing Costs	$574,000
Total Land Cost	**$29,274,000**

Figure D - Waterfront Rendering With Future River Ring Development *Source: Two Trees*

3.0 - MARKET ANALYSIS

The project consists of several targeted demographic groups and asset classes. The retail and market rate multifamily housing is reliant on a thriving economic market, while the affordable housing and artist studios are responding to demographic and amenities gaps.

Market Highlights:

- The economy is on a slow but steady recovery.
- Median salaries have increased which supports market rate housing rents, but is a clear signal of neighborhood gentrification.
- Forthcoming new units under construction will drive up vacancy rates therefore market rate units are higher risk.
- Population growth is below the City average which adds strain to the existing new construction market, but encourages immigration to the neighborhood.
- Good design and sustainability will be important for retaining a competitive edge in the market
- The neighborhood is under serviced by affordable housing options.
- Affordable housing units should be maximized within the designated project hurdle.
- A focus on retail tenancies to service the local residential community has proven effective in riding out the pandemic. Provision of outdoor dining space is must for any food service tenancies.
- The artist loft space will need to be priced in alignment with similar studios elsewhere in order to be cost effective for the target group. This is below market rate for Williamsburg. Should this prove uneconomical, it can easily be converted to coworking space in future.

Neighborhood Growth:

The population of Williamsburg as of 2019 is 151,308. The area has seen a 3% growth in population since 2010, which is below the NYC growth rate of 7.7%. (Furman Center 2020, and CoStar 2021)

Demographics:

In 1990, at the time of creation of the Williamsburg Comprehensive Plan, the population was relatively young, with 35% under 18 years, and 50% of the work age population working in the labor force. The population was relatively poor with 45% living below the poverty level. (Williamsburg Comprehensive Plan)

In 2019, the population is now middle aged, with less than 23% under 18 years, and 73% in the labor force. The median income rose by 143% from $41,190 in 2010 to $99,960 in 2019, which is about 42% above the citywide median household income ($70,590). This is primarily due to gentrification and the influx of a higher earning demographic of white collar professionals. Consequently, the poverty rate in Greenpoint/Williamsburg was 20.1% in 2019 compared to 16.0% citywide (Furman Center 2020).

As of 2019, the neighborhood is 61% white and 25% hispanic. This a shift of +17% and -27% respectively. The asian community grew by 69% but is still a small portion of the local demographic at 6.6% total.

Figure E -Real Median Gross Rent 2007-2019

Economics:

The onset of the Pandemic had a severe impact on the New York economy in 2020, as lock downs and fleeing residents caused businesses to shutter and unemployment to rise to above 20%. Both the multifamily and hospitality industries were especially affected. However, with the vaccine and return of residents the economy has picked up and the unemployment rate dropped back to under 10%. Continued slow but steady growth is predicted in the labor market. There was an increase of 3% in the median household salary which indicates increasing spending power, and it is predicted to increase further to 3.7% over the next 10 years (COSTAR multifamily report 2021).

Multifamily Market Rate:

Renter demand in the multifamily market dropped during 2020 as residents fled New York City, but has rebounded into mid 2021 due to a mixture of the return of residents, concessions and the reopening of the city. However, vacancies are still elevated when compared to pre-pandemic levels. This is in part due to construction completion of more than 20,000 new units over the past 18 months. As of 21Q1 more than 50,000 new units are currently under construction and expected onto the market within the next 1-3 years (CoStar 2021). The recent CB1 approval of the River Rings project and the Domino Sugar project will add another 2800 market rate units to the immediate area. In order to be competitive, provision of sustainable features including healthier interiors and lower operating costs will be a marketing benefit. Finally, quality architectural design that appeals to the creative community is a necessity.

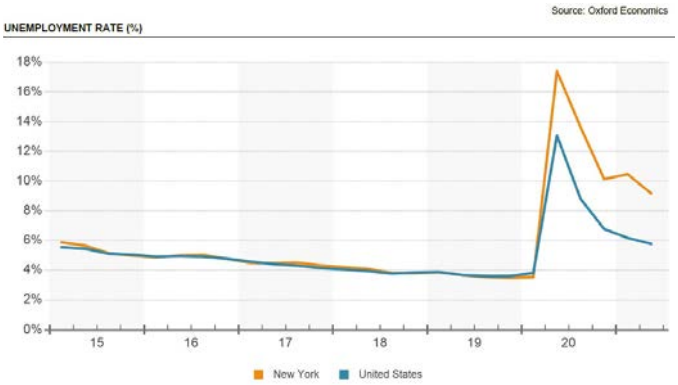


Figure G -Unemployment *Source: CoStar*

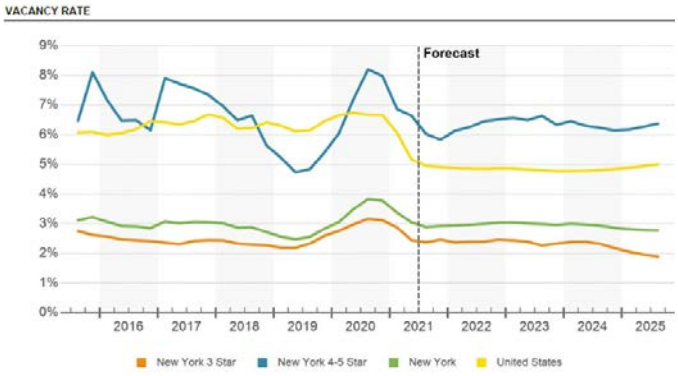


Figure H -Vacancy Rates *Source: CoStar*

Multifamily Affordable:

NYC is experiencing an affordable housing crisis. Due to the gentrification of the Williamsburg neighborhood, housing sales and rental prices have skyrocketed since 2000 as highlighted in Table 5. While the median income has increased, this reflects a change in the demographic with the original lower income community forced out to lower cost areas. Added to this is the shortage of locally available affordable housing units as shown in Figure F.

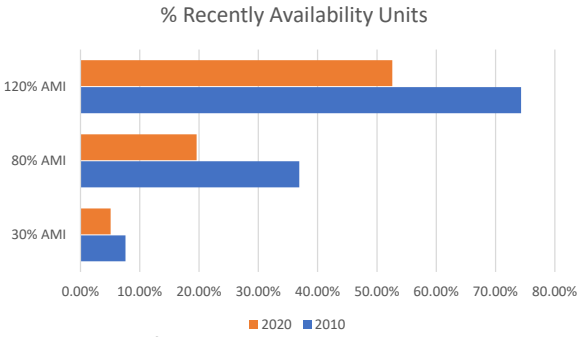


Figure F - Affordable Housing Williamsburg

Source: FurmanCenter.org

	2000	2006	2010	2019	2020	% Change	% Change
Median Sales Price/Unit						(2010-2020)	(2000-2020)
1 Family Building	$366,630	$762,100	$795,210	$1,601,930	$1,875,000	**236%**	**511%**
2-4 Family Building	$165,360	$368,550	$331,830	$795,630	$750,000	**226%**	**454%**
5+ Family Building	$58,130	$160,240	$146,830	$407,530	$410,940	**280%**	**707%**
Condominium	$411,330	$647,370	$595,530	$1,083,210	$990,000	**166%**	**241%**
Median Rent						(2010-2019)	(2000-2019)
2- and 3-bedrooms			$1,230	$1,700		**138%**	
Median rent, all	$930	$1,050	$1,250	$2,060		**165%**	**222%**
Recent movers			$1,830	$2,730		**149%**	
Studios and 1-bed			$1,250	$2,030		**162%**	
Asking							

Table 5 - Median Sales and Rental Prices 2000-2019 *Source: FurmanCenter.*

In 2017 the DeBlasio administration increased its funding goal for building and preserving 200,000 housing units by 2024 to an additional 100,000 by 2026. As of July 2021, only 167,000 units have been built. Additionally, the Biden administration has increased available funding for development of affordable housing, and democratic mayor elect Eric Adams has expressed his support for affordable housing programs. To that end, building affordable housing units, even in an area saturated by market rate units has merit. This project will pursue the Affordability NY 421a Tax Abatement. As an alternate, opportunities for utilizing HDC subsidies and Low Income Housing Tax Credits id discussed in Section 9, Financials.

Commercial Market:

Brooklyn's residential market was able to sustain a base level of retail demand during much of 2020, and prime retail corridors such as Williamsburg have consequently bounced back in 2021. Much of this was attributed to the City's Open Streets Program, which was a critical lifeline to restaurants and bars during the pandemic and beyond, signaling the importance of outdoor dining space for any considered restaurant tenancies. REBNY reports a YOY 10% decline in rents with an average of $75/sf which should be considered in the Financial Modeling. (REBNY research Brooklyn Retail Report July 2021)

Artist Community:

Williamsburg saw a 40% drop in its artist population between 1996 and 2000. The great recession and consequential fall in rents saw a return of artists that then peaked in 2014 at around 3000. In parallel, the numbers in Brooklyn grew by 72%, with over 17,000 relocating to Brooklyn from Manhattan (Center for Urban Future Studies 2015). However a majority of those resettled to Bushwick (with a rise of 1116% in 2015) where rents are still comparatively cheap. It is unclear what impact COVID has had on the latest artist residency numbers. The 2020 census figures will provide further clarity when released in early 2022.

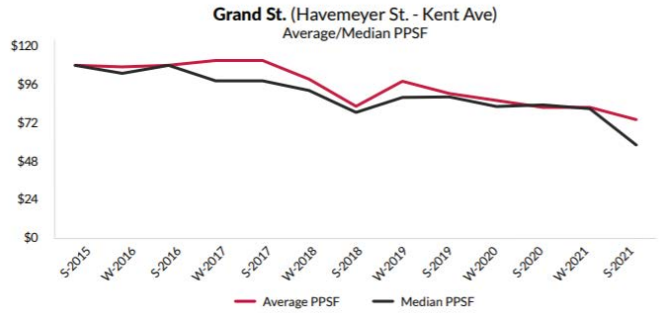


Figure I - Retail Rents Q3 2021 *Source: REBNY*

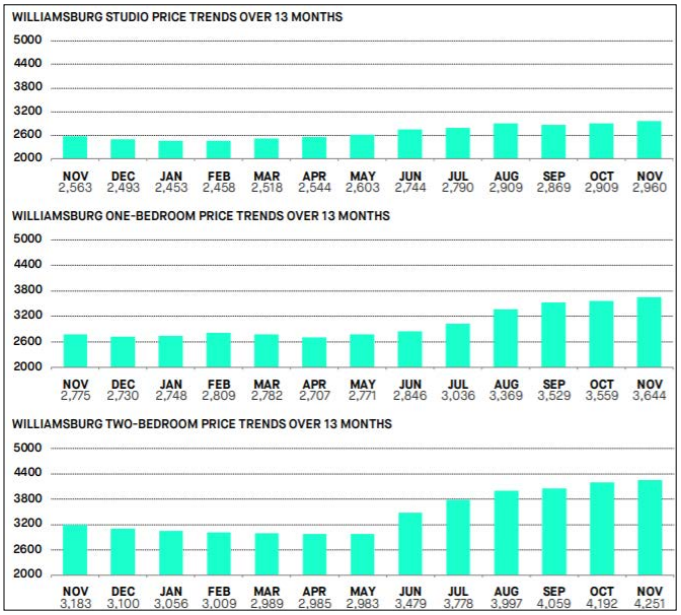


Figure J - Williamsburg Rental Price Trend 12 mths.
Source: M.N.S Nov 2021

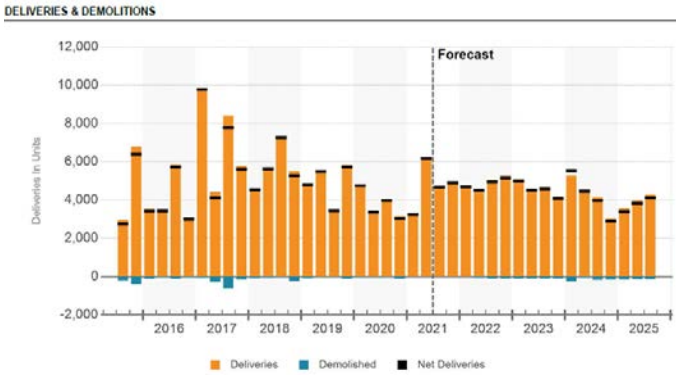


Figure K - NYC Deliveries and Demolitions
Source: CoStar Sept 2021

4.0 - THE TEAM

PARTNERS

The following operating partners are proposed:

Art Studio Operator - Trestle Art Space
http://trestleartspace.org/

Trestle Art Space offers studio space, both private and open studio access, workshops, professional development & exhibition opportunities in Brooklyn.

Maker Lab Operator - MakerSpace NYC
https://www.makerspace.nyc/

MakerSpace is a not-for-profit maker lab operator. Existing membership based locations include South Brooklyn and Staten Island. Sponsoring Partnerships include NYCEDC and Future Works.

Operator/ Not for Profit - Fifth Avenue Committee
https://fifthave.org/

Fifth Avenue Community builds and operates affordable housing in the Brooklyn area. Their vision is the creation of stable & thriving communities that are inclusive, healthy and sustainable.

Fifth Avenue Committee
Our Community. Our Future.

TRESTLE ART SPACE
Sunset Park & Greenwood

BK MAKERSPACE NY

CONSULTANTS / CONTRACTORS

The following consultants and contractors have been selected based on their relevant experience with design and execution of projects relating to Passive House standard, resiliency, affordability and design excellence:

Architect- Handel Architects
https://handelarchitects.com

Handel specialize in multifamily developments and Passive House

MEP Engineer - Buro Happold
https://www.burohappold.com/about/

BH are full service engineering firm specializing in low carbon building systems

Structural Engineer - Silman
https://www.silman.com/work/services/

Silman specialize in conversion projects and low carbon structural solutions

Construction Manager - CNY
https://www.cnygroup.com/about-us/our-company/

CNY is a Construction and development services firm based in New York City focusing on open shop construction of mid to large-scale developments

Sustainability Consultant - Steven Winters Associates
https://www.swinter.com/

SWA specialize in energy, sustainability and accessibility consulting.

Marketing Consultant - SMMC
https://smcc.com

SMMC are seasoned real estate storytellers and will be instrumental in developing the overall marketing strategy and key marketing materials.

HANDEL ARCHITECTS LLP

Silman
A TYLIN COMPANY

BURO HAPPOLD

smmc
sun+moon marketing communications

Steven Winter Associates, Inc.
Improving the Built Environment Since 1972

CNY

5.0 - BUILDING CONCEPT

VISION:

'Superbly designed residential developments can be lasting, place-based interventions that foster greater equity, sustainability, resiliency, and healthy living' (Public Design Commission). Quality architectural design instills pride, dignity and a sense of ownership with its residents. The design and creative legacy of Williamsburg is reflected in the granular details of the neighborhood, and has certainly inspired the newer waterfront architecture. Given the tight budget challenges, being smart with key architectural gestures will be an important strategy. Building performance, however, shouldn't be marginalized in the process.

BUILDING FLOOR AREA SUMMARY					
		Total		Residential	Non-Resi
Building Floor Area	**Elevation**	**Gross SF**	**Zoning SF**	**Gross SF**	**Gross SF**
Level 7 Bulkhead	75	1,200		1,200	
Level 6	65	12,000	11,280	12,000	
Level 5	55	16,995	15,975	16,995	
Level 4	45	16,995	15,975	16,995	
Level 3	35	16,995	15,975	16,995	
Level 2	25	16,995	16,335	5,000	11,995
Level 1	15	16,995	16,410	2,500	14,495
Total Floor Area (above grade)		98,175	91,951	71,685	26,490
Cellar		25,690		4,000	21,690
Total Floor Area		123,865	91,951	75,685	48,180

Table 6 -Floor Area Summary

RESIDENTIAL:

Above the retail base will be 96 housing units comprising a mix of studio, 1, 2 and 3 bedrooms, as well as affiliated amenity spaces. Unit Sizes and design standards align with HDC term sheets requirements to assist in pursuing subsidies if required.

Baseline 50% Affordable. Provisions here are in excess of the Affordable Housing NY requirements for 421a tax abatement eligibility. 20% of units are very low income, 20% are low income, 10% moderate income and 50% market rate.

Table 8 -Program Summary:

Basement
- **Commercial space affiliated with level 1 retail tenants**
- **Residential laundry room**
- **Residential Trash Room**
- **Residential storage areas and other**
- **BOH / Mech areas**
- **Loading Area**

Ground Floor
- **Maker Lab**
- **Grocery Store**
- **Art studio entrance lobby and gallery**
- **Storefronts - cafe/bar/restaurants**
- **Storefronts - residential amenities**
- **Basement entrance**
- **Residential entrance lobby & package room**
- **Sidewalk seating areas**

Level 2
- **Artist studios**
- **Residential units**

Level 3-5
- **Residential units**

Level 6
- **Residential units**
- **Resident Amenity/Lounge Room**

RESIDENTIAL UNIT MIX												
Unit Breakdown					**Baseline: 50% Affordable**				**Alt 1: 100% Affordable**			
	Units	Rooms /unit	Rooms	Net SF/Unit	AMI 50%	AMI 80%	AMI 120%	Market	AMI 40%	AMI 60%	AMI 100%	AMI 120%
Unit Type												
Studios	24	2	48	350	5	5	2	12	5	10	5	4
1 BRs	33	3	99	500	5	8	3	17	7	13	6	7
2 BRs	28	4	112	700	7	4	3	14	6	10	6	6
3BRs	10	5	50	900	2	2	1	5	2	4	2	2
super	1	4	4	700								
Total	96	3.3	313	565	19	19	9	48	20	37	19	19
					20.0%	20.0%	10.0%	50%	20%	40%	20%	20%

Table 7 - Residential Unit Mix

Alternative - 100% Affordable Housing. This is based on the NYC HDC Term Sheet for Mixed Income Program: Mix and Match where 40-60% of the units will be at rents up to AMI 60%, with the remaining up to AMI 130%.

The total number of units, construction quality, sustainability features and Building amenities for the two options remain the same.

COMMERCIAL INCOMES					
Tenant		SF	Monthly Rent/sf	Annual Rent/sf	Rent total /year
Tenant 1	Supermarket	13500	$6.31	$75.75	$1,022,625
Tenant 2	Makers Lab	10000	$3.17	$38.00	$380,000
Tenant 3	Café / restaurant	2000	$6.31	$75.75	$151,500
Tenant 4	Storefront	1000	$6.91	$82.92	$82,915
Tenant 5	Storefront	1000	$6.91	$82.92	$82,915
Tenant 6	Storefront	1340	$6.91	$82.92	$111,106
Tenant 7	Storefront	1340	$6.91	$82.92	$111,106
Tenant 8	Gallery	6000	$6.91	$82.92	$497,490
Tenant 9	Art Studios	12000	$4.17	$50.00	$600,000
Commercial Gross Potential In		**48180**			**$3,039,657**
	sf overage	0	**48,180**	**$73**	$31,663

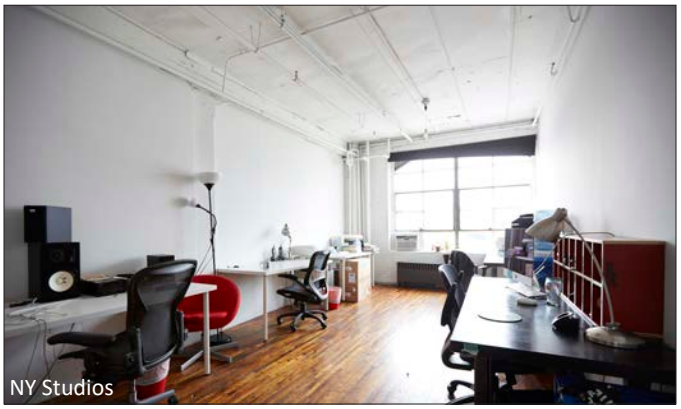
Table 9 - Commercial Unit Mix

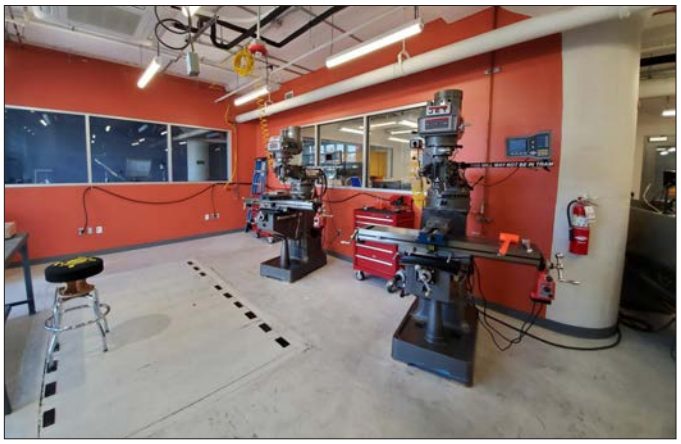
COMMERCIAL:

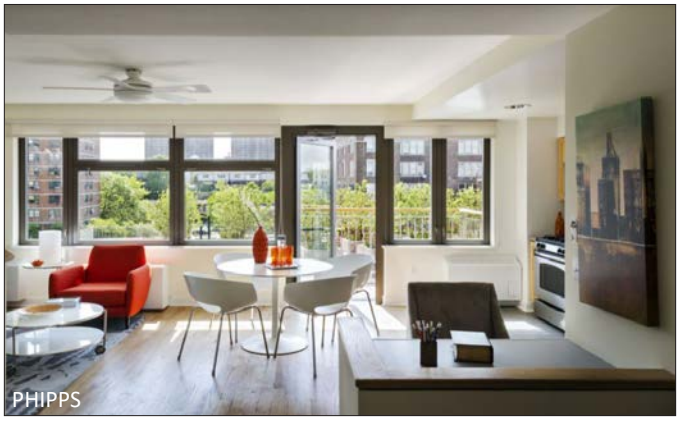
Retail: The ground floor will include retail tenancies appropriate to the local residential community and visitors. Cafes and food offerings will be predominantly on Grand Street to reinforce the existing retail corridor. This will extend along Wythe Avenue and include service amenities such as a pharmacy or shoe repair. A grocery store will be located on the North 1st street and Wythe Ave corner.

Maker Lab: To support artisanal light industries, a maker lab is proposed. This addresses a gap for this type of facility in the neighborhood, but also speaks to the MX-1 zoning and aspirational goals of the Williamsburg Comprehensive Plan. This would be available for use by the resident artists as well as the public. It is proposed to partner with MakerSpace who currently operate facilities in both the Brooklyn Army Terminal Building, and Staten Island. The fit-out and provision of equipment would be by MakerSpace, with funding through their sponsor partners EDC and Futureworks. Wood working, metal working, printing and laser cutting services would be included.

Artists Lofts: Once notorious for illegal loft warehouse occupation by artists, these dwellings have all but vanished. Studio space catering to professional artists will be located on level 2. This will include various sized private rooms ranging from 200 to 1000 square feet, as a well as some semi private space for flexibility. Communal facilities are included such as lounge areas, restrooms, a kitchenette, outdoor workspace, bike storage and some


NY Studios




PHIPPS


Park Slope COOP

storage areas in the basement. Rental leases would be on a yearly basis.

It is proposed to partner with art studio operator Trestle Art Space, as a North Williamsburg branch of their space offerings. In order to attract artists back to Williamsburg, the rates need to be competitive with lower cost areas. Rates included in the rental comps in the Appendix are per similar Studios located in a range of other neighborhoods.

A ground level gallery is affiliated with the art studio for showcasing resident artists' work.

PARKING:

Onsite parking is not required as the site is within a Transit and Inclusionary Housing Zone. However, an access ramp to a small unloading area in basement will be located on North 1 St to limit idling vehicles on street.

DESIGN AND CONSTRUCTION:

Massing and Zoning Response: Per the zoning, the building maintains a 5 story base along Grand and Wythe, stepping up to 6 stories towards North 1 street. This allows for a large south facing terrace, and to appropriately align with adjacent building massing and heights.

The apartments will be laid out on double loaded corridors, with a maximum depth of the residential floor at 70' for planning efficiency.

Streetscape: In order to accommodate outdoor seating to street level food tenancies, the foot path on Wythe Ave will be widened by 5'.

Construction and Finishes: The project is a combination of 3 and 4-Star per the CoStar Standard and constructed with higher end finishes and specifications, providing desirable amenities to residents and designed/built to competitive and contemporary standards.

The building structure will be concrete block and plank, commonly used for low cost construction, with a cast in place concrete basement level. This reallocates funds to the facade and sustainability features.

The street facing facade cladding will be a rainscreen system, comprising a palette of green wall and terracotta baguette which speak to and contemporizes the textures and character of older buildings in the neighborhood. The cladding conceals increased mineral wool insulation thickness that provides a continuous wrap around the building in accordance with Passive House standards. Blank walls including those facing the interior courtyard

Precast Concrete Plank

Ventilated Living Facade Facing the Street

Mural Art on Solid Walls

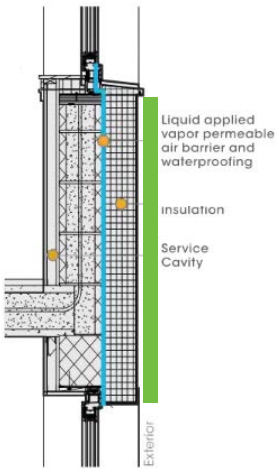


Figure L: Typical Block and Plank Section

Source: Adapted from Handel sketch

will be painted with murals, potentially by the resident artists. Triple glazed thermally broken operable aluminum windows also reduce noise from the train line, and are fritted to prevent bird collisions.

Interior finishes will be minimalist, but of a high quality, non toxic, and durable. Apartments will include floating wood floors with acoustic treatments, and reconstituted stone counters. Refer also section 6 Sustainability for further detail.

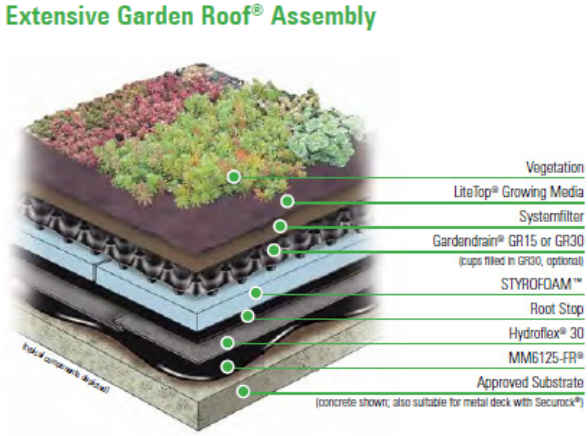
Landscaping: Landscaping throughout will be of drought tolerant native plant species. The level 5 south facing roof areas will be accessible to residents, and include a combination extensive green roof and light colored decking. Including areas of intensive green roofs with deeper soils will allow for larger shrubs and small trees which benefits a diverse range of invertebrate and avian biodiversity, adds to the biophillic qualities of the roof, and provides areas of respite and relaxation.

BioSolar: The upper roof over level 6 will house any mechanical units, and be finished in an extensive green roof system with photo voltaic panels over. While LL92 and LL94 only require either a green or solar roof in new developments, there is benefit in a combined solar / green roof, also known as a biosolar roof. Studies show that a green roof can benefit the efficiency of the solar panels due to the tempering benefits of the vegetation which can increase electricity production of the panels by 3.6% (Velaquez 2021). These panels may also extend beyond the edge of the roof and be supported by a steel framed canopy to shade areas of the 5th floor roof terraces while providing additional energy generation.

Blue Roof: The roof assembly will be a combined blue & green roof system to accommodate temporary stormwater detention. Careful consideration needs to be made to the choice of roofing membrane and structural loading of the roof to accommodate the extra weight of the saturated soil and any additional detained water. Multiple manufacturers can supply interchangeable systems with full membrane warranty which keeps pricing competitive and simplifies maintenance. This should be reviewed in consultation with the solar panel provider.

Further detailed information is provided on the green and solar roof assessments, benefits, costs and paybacks in Appendix L.

Biosolar Roof



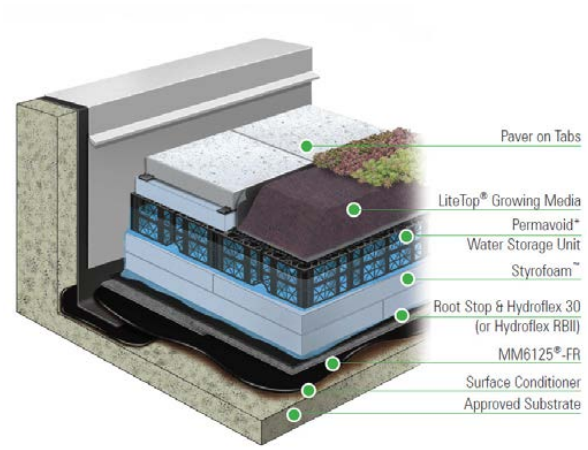


Figure M - Hydrotech Green and Blue Roof Systems

6.0 - SUSTAINABILITY

While whole building sustainability strategies are promoted and explored, priority is placed on decarbonization in critical decision making.

SUMMARY:
In accordance with the HPD design guidelines and the city's OneNYC, 80X50 program and decarbonization goals, the project will be an exemplar of sustainable, equitable & healthy building design. Therefore Passive House certification will be pursued as a complement to Enterprise Green Community Certification Plus which recognizes deep investment in energy efficiency, a critical strategy in our changing climate.

For multifamily housing, Passive House, through the use of first principles design, high thermal performance and efficient appliances can dramatially reduce energy use. This translates into reduced utility costs for the low income tenants and the building operator. The Enterprise Green Community program requires a holistic look at a broad range of sustainability indicators including:

- Integrative Design;
- Location and Neighborhood Fabric;
- Site improvement;
- Water;
- Operating Energy;
- Materials;
- Healthy Living Environment; and
- Operations, Maintenance and Resident Management.

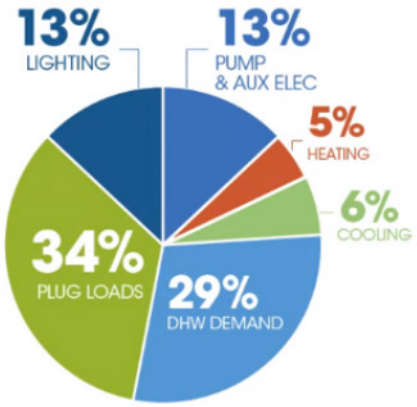


Figure N - Multifamily Passive house Building
Source: Urban Green Council 2018

A further breakdown of sustainability features includes:

ENERGY:

Under the Passive House standard, in multi-family buildings up to 60% energy savings can readily be achieved. Strategies on this project include:

Thermally efficiency enclosures with high R-value continuous insulation and airtight construction in accordance with Passive House Standards

Triple glazed thermally broken operable aluminum windows, that also reduce noise from the street, and are fritted to prevent bird collisions.

Efficient air source heat pump ventilation systems with heat recovery throughout. Air exchange rates to passive house standards ensures healthy interior spaces.

Additional exhaust is provided in key equipment spaces in the maker lab and restaurant in accordance with code requirements. Fabrication equipment in the maker lab would be grouped based on exhaust requirements for efficiency.

LED lighting throughout, with motion sensors in infrequently used spaces.

Smart Building technologies to optimize performance of appliances and provide real time energy data via phone apps, for education to influence behaviour. 34% of operational building use can be attributed to plug loads, and 10% of that is often from idle appliances. Smart Technologies will also be connected to a central building BMS.

Full electrification of the building. No gas or other types of combustion fuels on site.

100 kW rooftop solar panel system to Upper Roof. These are combined with the green roof but include some freestanding panels that provide shade to level 6 roof terrace. This can generate the equivalent of 5% of the total building design target load, often equivalent to the common area lighting load - See Appendix L for more detail.

WATER:

Watersmart water efficient fixtures throughout

Blue roof system for storm water detention: This can detain up to 90% of storm water during rain events and reduce pressure on the city CSO system.

LANDSCAPE & BIODIVERSITY:

Greenwall Facade - a greenwall rainscreen system will wrap around parts of the street facade, creating a strong aesthetic and identity for the building, as well as shading the facade from direct sun.

Green Roof - Extensive green roof systems will be located across all roof areas, including under solar panels and around mechanical systems.

MATERIALS:

Concrete: various low carbon concrete solutions will be pursued. Refer section on Low Carbon Concrete to the right and Appendix M.

Generally, low impact materials will be selected based on high recycled content, considerations towards resource extraction and end of life recyclability or reuse.

All wood will be FSC certified

Zero VOC, non toxic finishes will be used throughout.

GREEN LEASE:
All tenants will enter into a Green Lease agreement to ensure operations and any fitouts are in accordance with the development goals.

RESILIENCY:

Floods: The site is located outside of the FEMA 1:100 year storm event flood zone. However, ground and basement equipment rooms will be designed to take dry flood proof panels to protect against surface runoff.

Passive Survivability: The high thermal performance of the enclosure helps to keep the interior temperatures stable for longer in the event of a power outage during an extreme heat or cold events. Revenue streams from the rooftop solar panels will be reviewed for potential future funding of onsite battery storage to supply baseline power to key communal areas during a power out.

LOW CARBON CONCRETE:

Concrete accounts for almost 8% of total greenhouse gas emissions. This project will prioritize decarbonization of concrete including readymix, precast and block components. Strategies include:

- Using less: Hollow core precast and block systems use less concrete by volume than cast in place options
- Low carbon performance based specification: This allows for innovation by the engineering team and contractor to utilize a combination of strategies.
- Carbon sequestration and utilization within the concrete mixes, such as Carboncure
- Maximize cementitious substitution including from slag, flyash and recycled pozzolan.
- Specifying low carbon cement products.
- Utilizing innovative curing techniques.

This is covered in more detail in Appendix M

ENERGY: TARGET FINDER ASSESSMENT

An energy assessment was undertaken using the EPA Target Finder tool. This included the 96 multifamily residential units and amenity spaces; the grocery store; one sit down restaurant; Art Studios (which include shared common areas such as kitchenette, lounges and restrooms), a gallery, and non food based retail storefronts. Due to the as yet undetermined allocation of plug loads in the Maker Space, it was excluded from the assessment.

Initially an energy use assumption of 13 kWh/sf was applied across all the space types resulting in a score of 81. This is 16.2% better than the median property score of 50.

Following on this, a revised goal of 45% improvement over Median, equivalent to 8 kWh/sf was applied resulting in a score of 96. This is in line with our Passive House objecties and is the basis moving forward.

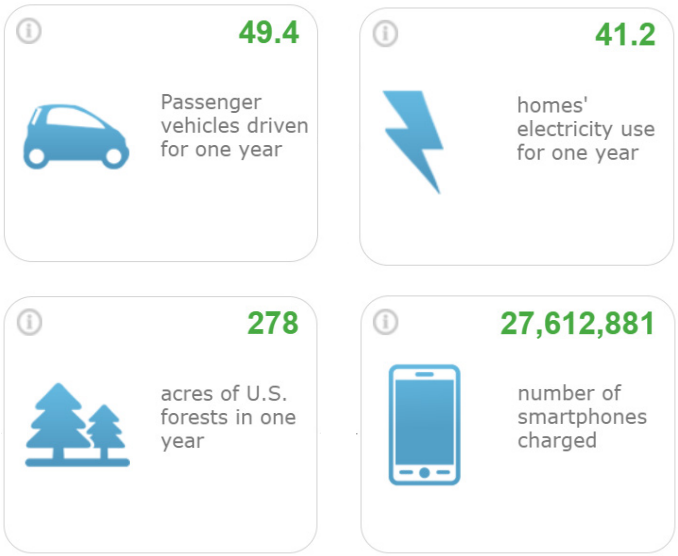
A score of 96 equates to a total energy cost savings of $166,533 a year, or $1.42/sf/yr. This is equivalent to saving 227 metric Tonnes of CO2e per year. or equivalent to removing 49.4 passenger vehicles from the road, or the carbon sequestration from 278 acres of forest in the US per year as compaired to a median project.

In terms of property value, a reduction in OPEX of $1.42/sf/yr at the caprate of 5% translates to $28.37/sf of incremental value, for a total increase of property value of $3,230,657.

Inputs

Use	GSF
Multifamily Apts	79185
Supermarket	10000
Café / restaurant	2000
Retail Storefront	4700
Gallery	6000
Art Studios	12000
Total SF	**113885**

Figure 0 - CO2 Savings Equivalencies



Summary of Energy Cost Savings - Score 96

Design Target	Median	Difference	Total Savings	Incremental Value	Total Value Increase
$1.73	$3.15	$1.42	$161,532.83	$28.37	$3,230,656.60

Table 10 - Target Finder Output Summary

Metric	Design Project	Design Target*	Median Property*
ENERGY STAR score (1-100)	81	96	50
Source EUI (kBtu/ft²)	124.2	92.6	168.3
Site EUI (kBtu/ft²)	44.4	33.1	60.1
Source Energy Use (kBtu)	14,144,156.4	10,543,084.0	19,169,243.7
Site Energy Use (kBtu)	5,051,484.4	3,765,387.6	6,846,159.3
Energy Cost ($)	264,862.34	197,429.01	358,961.84
Total GHG Emissions (Metric Tons CO2e)	372.7	277.8	505.2

NYC LL97 CARBON EMISSIONS CAP & FINES

Assuming the target finder score of 96, a review of compliance against LL97's GHG emissions limits was undetaken. Using the Be-Ex calculator, the following projected emissions fines within the 3 identified thresholds were identified:

	Median Property kWh	Design Target kWh
Source Energy	5617951	3089873
Site Energy	2006411	1103526

2024-2029
Estimated Fines per Year - $0
Total Annual Costs including Utilities - $556,177

2030-2034
Estimated Fines per Year - $143,853
Total Annual Costs including Utilities - $670,030

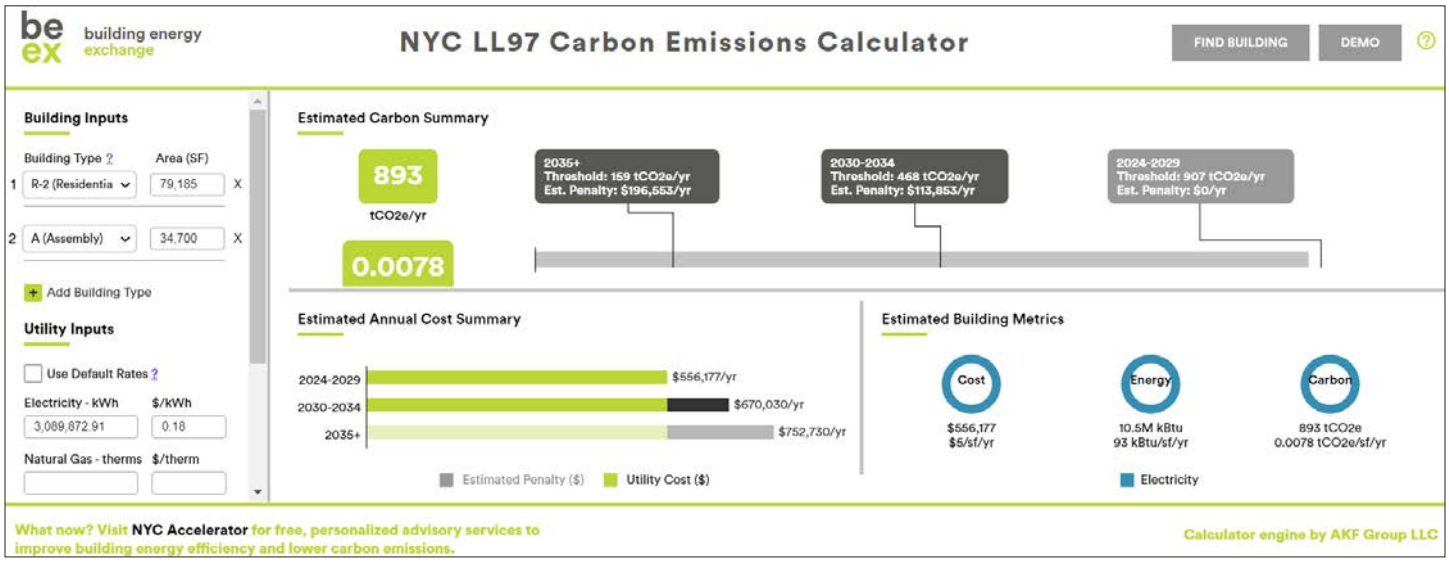
2035+
Estimated Fines per Year - $196,553
Total Annual Costs including Utilities - $752,730

A design target of 96 equates to an OPEX savings over the median of $643,823 a year from 2024 to 2029.

Adding 100kW of Solar Panels

The proposed 100 kW biosolar panel system generates 165,760 kWh/yr. This eliminates 17 metric tons of CO2 per year, the equivalent of taking 13 cars off the road. Additionally, from 2030 onwards, this will reduce the emissions fine under LL97 by $4,556 a year.

Figure P: NYC LL97 Carbon Emission Calculator Output - 296 Wyth Ave Target Finder Score 96



7.0 - MARKETING APPROACH

THE MARKET

The development of Williamsburg's mixed-use character was influenced by many interrelated factors including its waterfront location, past industrial heritage, accessibility, immigration trends and, initially, lack of zoning. Successive waves of immigration into the area fueled steady growth, and resulted in a population characterized by cultural, religious, racial and ethnic diversity. Driven by the availability of affordable loft space, one such influx of residents were artists, who in return were instrumental in establishing the gritty and creative identity that Williamsburg is infamous for. Unfortunately, due to gentrification much of the artisanal and creative community was forced to relocate.

This development aims to create an affordable living and working environment for lower income creatives back in the neighborhood for which they were so integral in defiining.

BRANDING & PROJECT IDENTITY

Art and Design, and Sustainability are seen as important to the target demographic, and are therefore an integral part of the projected identity of the Wythe Greens.

A strong physically defining feature, providing iconic street identity, is the green wall facade. It contemporises the textures and character of older buildings in the neighborhood. It also supports biodiversity and habitat creation and is a metaphor for diversity and sustainable growth. In addition, blank walls will be positioned as canvases for street art - with potential resident artists commissioned to paint murals.

With that in mind some identity markers can include:

- Unique and Iconic Architectural Character
- A Creative Enclave
- Affordable High Quality and Healthy Living
- Pinnacle of Low Impact Sustainable Living

MARKETING STREAMS

Marketing strategies in this chapter target our baseline option: a mixed use rental building with a combination of market rate and affordable housing. Some of the strategies listed will be relevant for marketing at point of sale at 10 and 30 years.

Marketing is broken into the following audiences for which materials should be tailored:

1. Market Rate Residential Apartments
2. Low Income Residential Apartments
3. Commercial:

   Grocery Store operator

   Residential Focused Retail and Amenity tenancies
4. Art Studio and Gallery Operator
5. Maker Space Operator

HPD Affordable Housing: Unit leasing in this scenario would be managed by not-for-profit operating partner Fifth Avenue Committee and in accordance with HPD guidelines.

MARKETING SCHEDULE

Preconstruction

- Create Property Identity for use in external communications including City meetings
- Create and utilize materials for establishing partnerships with major anchor tenants and operaters providing capital funding for fitouts/equipment such as the Artist Studios, Maker Space and Grocery Store.

Construction

- Site hoarding to include information on project including imagery and signed up retail tenants
- Start marketing campaign for leasing apartments
- Start marketing campaign for small retail tenancies

Conversion

- Continue apartment and retail tenancy lease up.

Ongoing

- Project website



MARKETING STRATEGIES

Working with SMMC, key marketing strategies for each of the 4 target audience groups will be developed. These may include the following:

- Website: This could be a standalone website or, hosted on the Developers website. Example: www.twotrees.com
    - A login only section of the website can also be used by tenants and the property manager.
    - The website will include digital material that can be used for print purposes such as:
        - Printable Flyers
        - Renderings of the building and the key living / retail areas
        - Virtual tour
        - Interactive list of features
        - Map of Neighbourhood with attractions and retail tenancies such as: Parks and Landmarks; Cafes Restaurants and Bars; Retailers; Public Transport
- PDF Setups/ Flyers: downloadable from the website but also for postings to public sites (short listed by SMCC) such as Zillow, Loopnet and Streeteasy, or on individual broker websites.

MARKETING SUSTAINABILITY

Marketing for sustainability will apply a hierarchy of tangible building features that firstly address ***Life Style Qualities*** including: Healthy Living, Daylight, Lower Bills, and access to nature through features such as the Green Roof and Green walls. Integrating sustainability features with those targeting the broader building and neighborhood amenities will promote these as a normative part of any buildings desirable offerings

Referencing green certifications will also be important as it is an indicator of verified performance. Therefore it is important that the marketing materials identify the key building features associated with the Enterprise Green Communities and Passive House certifications. Links on the property website can cover topics in depth such as how the building provides energy savings, the on site energy generation, habitat creation, water savings, indoor air quality, and healthy materials to name a few.

The 'Brown Discount': It is becoming increasingly recognized that projects that are not designed to the highest sustainability standards and future proofed against evolving strict regulations (such as LL97) and the increased effects of climate change will diminish in value in future. This is called the 'Brown Discount'. While this is of little immediate impact to rental properties, design and development decisions are being made in consideration of this for the buyers in 10 years.

CONSOLIDATED MESSAGING

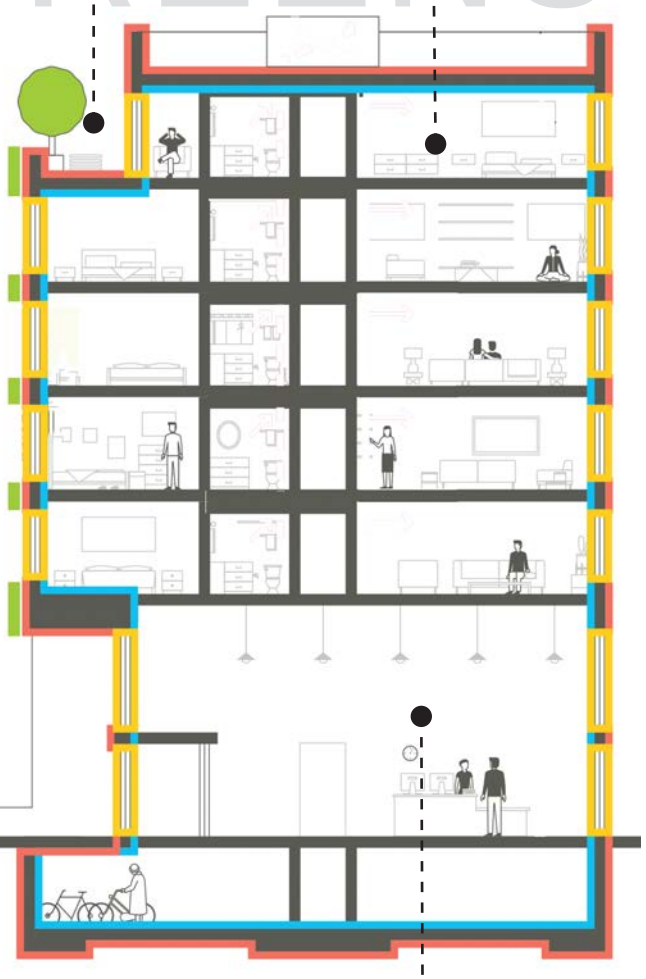
- Iconic & Sustainable Design
- Healthy Living
- Passive House Certified
- Quiet & Healthy Interiors
- Lots of Natural Daylight
- Low Electricity Bills
- Fully Wired With Smart Home Technology
- Communal Resident Rooftop Garden, & Lounge with Views
- In Building Grocery Store
- In Building Gym for Residents
- In Building Coffee Shop

The Neighborhood:

Key desirable features of the neighborhood to be included in marketing material include:

- Excellent access to Mass Transit in a highly walkable Neighborhood
- Located on the Grand St restaurant corridor
- 2 Blocks from the proposed Brooklyn Beach and waterfront parks!
- A quick walk to the thriving central Williamsburg nightlife and shopping area
- In-building supermarket, and a 5 minute walk to whole foods

RESIDENTIAL MARKETING MOCKUP



ICONIC

SUSTAINABLE

CREATIVE ENCLAVE

Healthy Living in the Heart of Williamsburg!

Passive House Designed

Healthy and Quiet Interiors

Communal Resident Rooftop Garden & Lounge with Views

Low Electricity Bills

Fully Wired With Smart Home Technology

FLooded With of Natural Daylight

In-Building Grocery Store

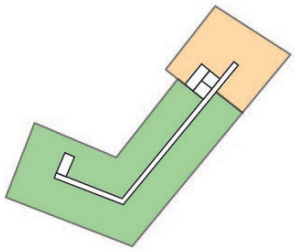
In-Building Gym for Residents

In-Building Coffee Shop

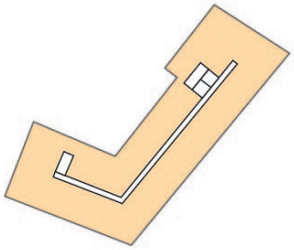
SAMPLE STACKING LAYOUTS

The sample plans shown are based on typical HPD Design Guide Compliant Layouts for Studio, 1 Bedroom, 2 Bedroom and 2 Bedroom Affordable Apartments

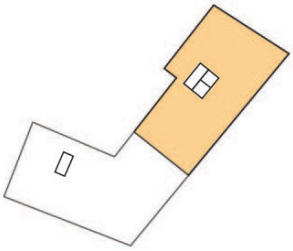
Ground



Level 2



Level 3-5



Level 6

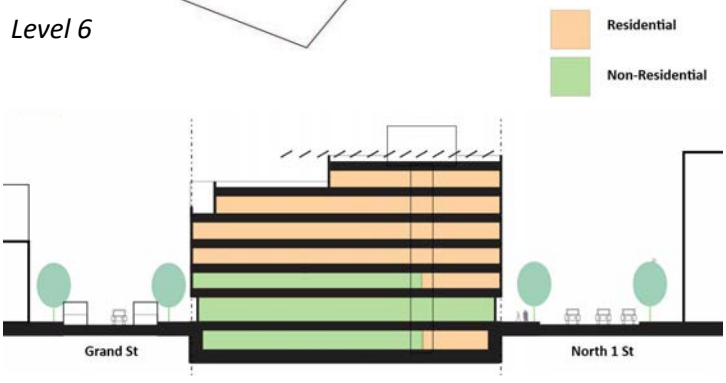
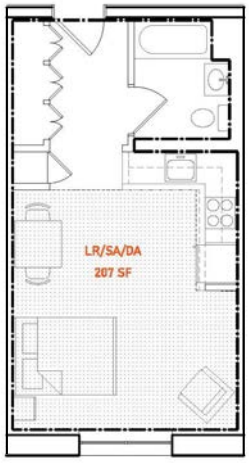
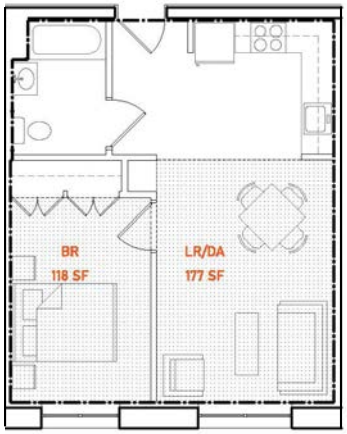


Figure Q - Stacking Diagrams



STUDIO



1 BEDROOM

2 BEDROOM

3 BEDROOM

Figure R - Sample Plans
Source: HPD

8.0 - CONSTRAINTS & INCENTIVES

INITIAL SWOT ANALYSIS

The SWOT analysis will be used as a risk mitigant tool during the planning and design phase of the project. By identifying all the nuances of the project, the development team can better understand and implement the solutions to ensure a successful project.

Deal Killers

- Unable to clear 2x Multiplier
- Unable to access government subsidies/tax credits for 100% affordability option

Strengths (Positive internal factors within your control on which you could capitalize)

- Healthy and sustainable building for enhanced living experience
- Program uses align with the Williamsburg Comprehensive plan
- Site selection for proximity to public transport, commercial corridors and open space.
- Site selection outside of 2050 1:100 year flood zone
- Site selection for minimal future over shadowing from neighboring developments

Weaknesses (Negative internal factors within your control that should be limited or improved upon)

- Low NOI from below market rent rolls
- High cost of construction for quality goals
- Risk of not meeting environmental design goals

Opportunities (Positive external factors outside of your control on which you could capitalize)

- Housing crisis supports including affordable housing unit mix
- Desirable neighborhood
- Lack of diversity provides niche for proposed re-instated art studios
- Proximity to waterfront and public open space, including future beach

Threats (negative external factors outside of your control whose effects you should seek to lessen)

- Risk of not being able to afford project
- Risk of not obtaining HPD or other subsidies
- Risk of larger vacancy rate than anticipated
- Risk of rezoning more locally to increase FAR that the project can't take advantage of
- Uncertainty with contractor pricing

10.0 - FINANCIALS

FINANCIAL OVERVIEW:

With focus on affordability and diversity, the baseline for the financial model assumes an inclusion of 50% affordable housing, and that roughly 50% of the retail rental area is at below market rate rent. When adding the high cost of land in the Williamsburg area, this presented a challenge with finding the right balance between different program needs and their percentage of total project area, rental rates, and meeting the project intent and quality goals.

- The baseline project assumes a 10 year hold and a LTV of 80%.
- The total development cost is $81.5m, with 37.5% allocated to the cost of land alone.
- The project terminal NOI at year ten is $5.8m.
- At point of sale we are projecting a cap rate of 6% and therefore a property value of $111.5m.

Consequently we are seeing an IRR of 12.72, equity multiplier of 2.2, and total profit of $45m.

This is considered lucrative. We are able to achieve the core project goals and obtain a return. On it's own the recommendation would be to pursue this development opportunity for our portfolio.

Assumptions in the baseline model include:

- Purchase price of land of $29.4m. The details for the assessment are included in Appendix A.
- 50% of the apartments are affordable, set at 50%, 80% and 120% AMI. See Appendix D for Units and Income Summary
- 50% of the apartments are market rate, established using the rent roll analysis in Appendix B
- The Art Studios, representing 50% of the commercial space is below market rate. The remainder of the commercial space is at market rental rates based on neighborhood comps. See Appendix B.
- Construction costs are $420 sf for the residential and $250sf for the commercial component, averaging at $350sf project wide. Commercial fit-out costs are by operating partners and tenants. Included is $20 sf for the sustainability features, prorated between the residential and commercial scope.
- A 25 year 421-a tax abatement will be utilized which freezes the undeveloped land tax rates.

BASELINE - Single Stack	
MIXED USE, 50/50 INCLUSIONARY HOUSING	
Development Cost	
Land Purchase Cost	$29,274,000
Total Hard Costs	$46,024,335
Total Soft Cost	$6,226,112
Total Development Cost	**$81,524,447**
Income Summary:	
Residential (REGI)	$3,425,314
Commercial (CEGI)	$2,887,674
Effective Gross Income (EGI)	$6,312,988
Total Operating Expenses	-$1,235,887
Net Operating Income (NOI)	**$5,077,101**
Hold Term	10 years
IRR	**12.72%**
Multiplier	**2.80**
Profit	**$45,623,182**

Debt Assumptions	
Loan to Value	80.00%
Loan Amount	$65,219,558
Term	10
Schedule	30
Interest Rate	4.5%
Annual Payment	$3,965,495
Monthly	$330,457.92
Exit Assumptions	
Exit Cap Rate	5.25%
Terminal NOI	$5,856,330
Terminal Value	$111,549,151
Cost of Sale	1%
Remaining Debt Balance	$52,233,975

Sources	
Equity	$16,304,889
Debt	$65,219,558
Total Sources	**$81,524,447**
Uses	
Land Purchase Cost	$29,274,000
Total Hard Costs	$46,024,335
Total Soft Cost	$6,226,112
Total Uses	**$81,524,447**

ADDED OPPORTUNITY

Given the focus on community needs, an alternate option is put forth for consideration, being that 100% affordable housing is pursued for the site. All other aspects of the program, construction and performance goals remain the same.

This would require government subsidies including tax exempt financing, HDC Bonds and Low income Housing Tax Credits. Currently the project does not comply as of right with the term sheet requirements for HDC's Mixed Income Program: Mix and Match. A 100 unit minimum is typically required. However, smaller developments with no fewer than 50 units may be considered on a case by case basis, and predicated on the community need being serviced. Wythe Greens has 95 units. Williamsburg is woefully under serviced by affordable housing and affordable commercial rents so it is anticipated there will be a level of receptivity. Additionally, the team assembled are experienced in the delivery of affordable housing projects.

That given, the following changes are required of the project structure:

- The project is split into two separate condo stacks in order to increase eligibility for the government subsidies. One stack for the 100% affordable housing, and a second for the commercial program.
- The debt service details for the commercial stack would match the baseline option.
- There is added complexity and administrative work to manage the two condo stacks and HDC administrative requirements. This is reflected in the soft costs.
- The hold period for the commercial stack is 10 years per the baseline, but 30 years for the residential stack. Returns and profits are then spread out over 30 years.
- Less equity is required upfront, and for the commercial stack only which is returned in full by year 10.

ALTERNATE - 2 Condo Stacks	
COMMERCIAL	
Development Cost	
Land Purchase Cost	$20,400,000
Total Hard Costs	$12,045,238
Total Soft Cost	$2,421,783
Total Development Cost	**$34,867,020**
Income Summary:	
Residential (REGI)	$0
Commercial (CEGI)	$2,887,674
Effective Gross Income (EGI)	$2,887,674
Total Operating Expenses	-$533,921
Net Operating Income (NOI)	**$2,353,753**
Hold Term	10 years
IRR	**15.05%**
Multiplier	**3.56**
Profit	**$24,855,150**

Sources	
Equity	$6,973,404
Debt	$27,893,616
Total Sources	**$34,867,020**
Uses	
Land Purchase Cost	$20,400,000
Total Hard Costs	$12,045,238
Total Soft Cost	$2,421,783
Total Uses	**$34,867,020**

LIHTC MULTIFAMILY	
Development Cost	
Land Purchase Cost	$8,874,000
Total Hard Costs	$33,377,085
Total Soft Cost	$4,898,889
Developer Fee	$7,116,458
Total Development Cost	**$54,266,432**
Income Summary:	
Residential (REGI)	$1,839,794
Commercial (CEGI)	$0
Effective Gross Income (EGI)	$1,839,794
Total Operating Expenses	-$609,621
Net Operating Income (NOI)	**$1,230,173**
Hold Term	30 years
15 Year Net Cashflow (Defered fee)	**$4,779,958**

Exit Assumptions	
Exit Cap Rate	6.00%
Terminal NOI	$1,852,821
Terminal Value @ 30 yrs	$30,880,352
Hold Period	30 years

Sources	
Debt	
Tax Exempt Bonds (Mortg 1)	$15,631,204
Mortg 2	$6,240,000
Subsidies & Fee	
HDC Subsidy	$11,760,000
LIHTC Equity	$21,916,329
Deferred Developer Fee	$4,779,958
Deferred Construction Interest	$777,280
Gap	-$6,838,339
Total Sources	**$54,266,432**
Uses	
Land Purchase Cost	$8,874,000
Total Hard Costs	$33,377,085
Total Soft Cost	$4,898,889
Developer Fee	$7,116,458
Total Uses	**$54,266,432**

10.0 - SCHEDULE & NEXT STEPS

SCHEDULE:

The project schedule assumes 6 months for finalization of land purchase and mobilization of the team, followed by 18 months of preconstruction, 24 months of construction and 8 months for leasing up.

RECOMMENDATION & NEXT STEPS:

Wythe Greens presents an lucrative development opportunity even in light of the communty related consessions.

While the baseline project option is considered a viable investment, given the mission based focus of this development project, there is great value in pursuing Alternate 1 for 100% affordable housing. This would require the project be procured as two separate condo stacks in order to improve eligibiltiy for the necessary LIHTC and government subsidies. Pursuant to the schedule below, a decision as to which affordability strategy and procurement option to move forward with is required as soon as possible. The next steps are recommended:

- Determine preferred affordability target
- Speak To HPD about potential eligibiltiy for subsidies and LIHTC
- Continue with review of broader subsisies and debt options including-
    - cPace financing
    - NYSERDA Multifamily Performance Program
    - Capital through 'Affordable Real Estate for Artists Program'

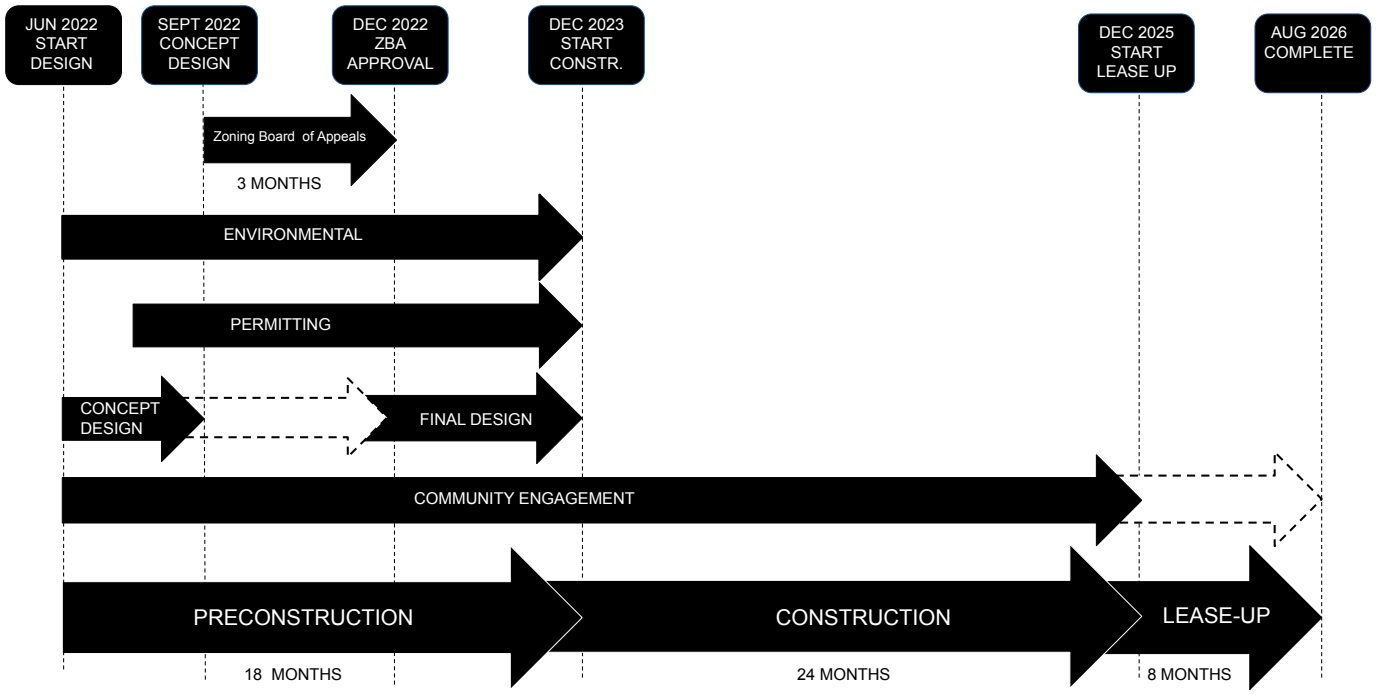


Figure S - Schedule

11.0 APPENDIX

APPENDIX A- LAND COMPS

LAND SALES COMPARABLES 296 WYTHE AVE, WILLIAMSBURG										Alternate Sites, no comps, not for sale.	
SALE NO.	**SUBJECT**	**SUBJECT**	**SUBJECT**	**1**	**2**	**3**	**4**	**5**	**6**		
ADDRESS	**69 Grand St**	**71 Grand St**	269 Wythe Ave	2900 Northern Boulevard	168 N 10th St	241 N 5th Street	510 Driggs	354-360 Wythe Ave	361 Bedford Ave	29 S 5th Street	69 2nd St
NEIGHBORHOOD	Williamsburg	Williamsburg	Williamsburg	LIC	Williamsburg	Williamsburg	Willamsburg	Williamsburg	Willilamsburg	Williamsburg	Williamsburg
BLOCK/LOT	2378/ 29	2378/28	2378/21		2305/10	2338/31	2312/23		2444/4	2441/41	2404/1
DISTANCE (MILES)			-	3.2	0.6	0.5	0.6	0.2	0.5	0.4	0.2
SALE DATE			11/6/15	2/25/2020	10/15/2021	10/15/2018	7/19/17	4/16/16	7/17/2019	-	-
SALE PRICE			$26,500,000	$18,000,000	$4,499,000	$2,500,000	$30,300,000	$36,200,000	$16,000,000	$14,653,886.04	$7,025,122.92
OWNER	69 Grand Realty	69 Grand Realty	296 Wythe							2939 LLC	NHK REALTY
DOCUMENT #			255000	2020030200755001					2019000239486	-	-
SOURCE			Loopnet/ ACRIS	Property Shark/ACRIS	Property Shark / ACRIS				ACRIS	ZOLA	ZOLA
DESCRIPTIVE INFORMATION										**DESCRIPTIVE INFORMATION**	
LAND AREA (SF)	8230	1650	15,810	6,200	3,787	5,000	20,000	14,500	15,900	10,560	7500
LOT FRONTAGE (FEET)	75	20	345.00							122	175
LOT DEPTH (FEET)	117	84	85.00							97	75
MAX AVAILABLE STORIES	5	5	8	21	9	5	9	9	11	11	
ZONING	M1-2/R6B MX-8	M1-2/R6B MX-8	M1-2/R6A M1-2/R6B MX-8	M1-6/ R10	R6A	R6B	M1-2/R6A/R6B/MX-8	M1-4/R6A/MX-8	M1-2/R6/MX-8	M1-2/R6A/R6B/MX-8	R6
MAX FLOOR AREA RATIO	2.2	2.2	3.6	12	2.7	2.2	3.6	3.6	3.6	3.6	2.43
MAX BUILDING AREA EST.	18,106	3,630	56,916	74,400	10,225	11,000	72,000	52,200	57,240	38,016	18,225
DEVELOPMENT RIGHTS			-	-	-	-	-	-			
USE TYPE AT PURCHASE	single story warehouse	2 story office	Single story warehouses	Vacant Land	Vacant Land	Vacant Land	Vacant Land	Vacant Land	Vacant Land	Single Story Warehouse	Single Story Warehouse
NEIGHBORHOOD LOCATION INDICATORS										**NEIGHBORHOOD LOCATION INDICATORS**	
SURROUNDING USES	Excellent Well located to public tranport, waterfront and commercial districts.	Excellent Well located to public tranport, waterfront and commercial districts.	Excellent Well located to public tranport, waterfront and commercial districts.	Good LIC is an excellent hub. The subject site is close to railway lines and further from tranport links	Excellent Desirable central location. Near all amenities. No commercial overlay.	Good Close to BQE and noise. Less desirable area. No commercial overlay	Excellent Similar mix of zoning. Very central and desirable location	Excellet Similar mix of zoning. 2 Blocks from site. Good amenities. Less foot traffic.	Good Williamsburg bridge and JMZ. Further away from commercial core of Williamsburg	Average Next to Williamsburg Bridge. Close to Waterfront and Domino Park. Within flood zone.	Good Residential Only. Close to subject site. Smaller building footprint
MOBILITY SCORE	76	76	76	100	93	95	97	82	85	85	82
WALK SCORE	96	96	96	92	97	97	99	99	96	96	99
FINANCIAL INDICATORS										FINANCIAL INDICATORS	
REAL ESTATE TAXES	$46,246	$10,346	$38,036.00								
ASSESSOR OPINION MARKET VALUE	$961,000	$215,000	$1,265,000.00								
ASSESSED LAND VALUE MARKET	$166,500	$29,700	$569,250.00								
ASSESSED LAND VALUE - TRANS	$166,500	$29,700	$569,250.00								
ASSESSED VALUE TOTAL - MARKET	$432,450	$96,750	$355,680.00								
ASSESSED VALUE TOTAL - TRANS	$516,330	$108,900	$355,680.00								
CASE SHILLER INDEX AT SALE			363.73	455.78	510.08	423.33	401.55	373.98	442.23		
VALUATION INDICATORS										VALUATION INDICATORS	
SALE PRICE/SF			$465.60	$241.94	$440.00	$227.27	$420.83	$693.49	$279.52	$385.47	$385.47
ADJUSTMENTS											
TIME (MONTHS)			3%	13%	18%	9%	5%	1%	11%		
TIME - SHILLER INDEX				25%	40%	16%	10%	3%	22%		
SIZE				5%	-10%	-10%	5%	0%	0%		
LOCATION				-15%	0%	-5%	0%	0%	-5%		
CONDITION				0%	0%	0%	0%	0%	0%		
NET ADJUSTMENT				15%	30%	1%	15%	3%	17%		
ADJ PRICE PER FOOT				$278.97	$573.04	$230.42	$485.63	$713.03	$325.88		

STATISTICAL			**ADJUSTED PRICE/SF**	**UNADJUSTED PRICE/SF**
MEAN			$434.50	$383.84
MEDIAN			$405.75	$350.18
LOW			$230.42	$227.27
HIGH			$713.03	$693.49

CONCLUSION

PRICE/SF	**BUILDABLE SQUARE FEET**	**VALUE**	**ROUND TO**
$385.47	74,452	$28,698,735	$28,700,000

APPENDIX B- RENTAL COMPS

COMMERCIAL COMPS

Comp Commercial Rents - Food Service

No.	Location	Tenant	Lease Date	Area (SF)	Annual Rent/SF	Term (yrs)	Terms	Escalations	Source
1	119 Kent St	JaJaJa Mexicana	2/28/2021	2000	$101.00	10.0	Mod Gross	3% annual increase	Compstak
2	40 N6th St	The Edge - Restaurant space	Q3 2021	3000	$52.00	10.0	Mod Gross	3% annual increase	Loopnet
3	70 Driggs	For Lease	Neg	1050	$72.00	Neg	NNN	NAV	Loopnet
4	251 Grand St	Restaurant / Café	Q3 2021	1300	$78.00	10.0	NNN	NAV	Compstak
			AVERAGE	1838	$75.75				

Comp Commercial Rents - Light Industrial

No.	Location	Tenant	Lease Date	Area (SF)	Annual Rent/SF	Term (yrs)	Terms	Escalations	Source
1	226 N 6th St , Williamsburg	Melos	Q1 2018	5000	$36.00	5.0	Mod Gross	3% annual increase	Compstak
2	28 Wythe St	For Lease	Q3 2021	24000	$60.00	5.0	Mod Gross	NAV	Loopnet
3	236 Plymouth St	For Lease	Q3 2021	25000	$27.00	1 to 3	Mod Gross	NAV	Loopnet
4	28 Dobbin St	For Lease	Q3 2021	13000	$30.00	Neg	Mod Gross	NAV	Loopnet
			AVERAGE	16750	$38.25				

Comp Commercial Rents - Retail

No.	Location	Tenant	Lease Date	Area (SF)	Annual Rent/SF	Term (yrs)	Terms	Escalations	Source
1	127 Kent St	Brooklinen	3/4/2020	2500	$75.00	5.0	Mod Gross	3% annual increase	Compstak
2	85 N 3rd St	Madison Reed Color Bar	6/10/2021	1427	$100.00	10.0	Mod Gross	3% annual increase	Compstak
3	80 N 3rd St	Huf Worldwide Apparel	3/4/2020	900	$90.00	1 yr	Mod Gross	NA	Compstak
4	402 Graham St	Land to Sea	5/25/2021	900	$66.66	10 yr	Mod Gross	3% annual increase	Compstak
			AVERAGE	1432	$82.92				

Comp Commercial Rents - Art Studios

No.	Location	Tenant	Lease Date	Area (SF)	Annual Rent/SF	Term (yrs)	Terms	Escalations	Source
1	Art Studio	Brooklyn Art Studio	Q2 2019	100	$60.00	1.0	Mod Gross		Website
2	Art Studio	Tretle Art Space	Q4 2021	500	$42.00	1.0	Mod Gross		Website
3	Art Studio	NY Studio	Q3 2021	100	$60.00	1.0	Mod Gross		Website
4	Art Studio	NY Studio	Q3 2021	500	$40.00	1.0	Mod Gross		Website
			AVERAGE	300	$50.50				

RESIDENTIAL COMPS

Comparable Residential Rent Survey

269 Wythe Avenue, Williamsburg, Brooklyn

No.	Address	Unit #	Rent Regs	Room Count	Baths	Square Feet	Date Closed	Rental Amount Studio	Rental Amount 1 bed	Rental Amount 2 bed	Rental Amount 3 bed	Rent/SF/Yr	Comments	Source
1	420 Kent St, Williamsburg	411	Market	2.0	1.0	400	11-Mar-21	$ 3,255				$97.65	New Building. No fees. Waterfront. Elevator. Swimming pool	StreetEasy
2	80 Metropolitan	4R	Market	2.0	1.0	525	27-Jun-21	$ 2,800				$64.00	Built 2007. Doorman. Laundry in unit	StreetEasy
3	185 S 4th St	6D	Market	2.0	1.0	400	8-Sep-21	$ 2,672				$80.16	Built 2008, Elevator building	StreetEasy
4	1 N 4th Place	32A	Market	2.0	1.0	538	19-Aug-21	$ 3,450				$76.95	Built 2014, elevator, doorman, pool, luxury	StreetEasy
5	187 Kent St	641	Market	2.0	1.0	641	7-Jun-21	$ 3,500				$65.52	Built 2018, Full amenities	StreetEasy
6	169 N 10th Street	5A	Market	3.0	1.0	750	4-Aug-20		$ 3,570			$57.12	Built 2015. 7 story elevator. Mod cons	StreetEasy
7	80 Metropolitan	4B	Market	3.0	1.0	700	20-Jun-21		$ 3,800			$65.14	Built 2007. Doorman. Laundry in unit	StreetEasy
8	96 N 5th St	2B	Market	3.0	1.0	600	2-Dec-21		$ 3,800			$76.00	Built 2017, 6 story walkup.	StreetEasy
9	185 S 4th St	6B	Market	3.0	1.0	730	20-Jul-21		$ 3,695			$60.74	Built 2008, Elevator building	StreetEasy
10	420 Kent St	1821	Market	3.0	1.0	550	21-Oct-21		$ 4,043			$88.21	New Building. No fees. Waterfront. Elevator. Swimming pool	StreetEasy
11	169 N 10th Street	7A	Market	4.0	2.0	981	23-Apr-21			$ 6,075		$74.31	Built 2015. 7 story elevator. Mod cons	StreetEasy
12	138 Havemeyer	2A	Market	4.0	2.0	736	11-Feb-21			$ 3,700		$60.33	Built 1910. Conversion. 3 story, 3 unit	StreetEasy
13	80 Metropolitan	4H	Market	4.0	2.0	1,200	29-Jul-21			$ 6,500		$65.00	Built 2007. Doorman. Laundry in unit	StreetEasy
14	96 N 5th St	3B	Market	4.0	2.0	1,000	21-Apr-21			$ 5,500		$66.00	Built 2017, 6 story walkup.	StreetEasy
15	420 Kent St	1530	Market	4.0	2.0	850	17-Oct-21			$ 6,090		$85.98	New Building. No fees. Waterfront. Elevator. Swimming pool	StreetEasy
16	169 N 10th Street	6B	Market	5.0	2.0	1,350	20-Jul-21				$ 6,500	$57.78	Built 2015. 7 story elevator. Mod cons	StreetEasy
17	80 Metropolitan	PTH	Market	5.0	2.0	1,300	23-Sep-21				$ 7,500	$69.23	Built 2007. Doorman. Laundry in unit	StreetEasy
18	185 S 4th St	12B	Market	5.0	2.0	1,200	7-Mar-21				$ 6,250	$62.50	Built 2008, Elevator building	StreetEasy
19	187 Kent St	512	Market	5.0	2.0	900	25-Oct-21				$ 8,000	$106.67	Built 2018, Full amenities	StreetEasy
20	60 Broadway	8J	Market	5.0	2.0	1,900	21-Sep-21				$ 8,000	$50.53	Built 1916, Factory conversion, doorman, elevator	StreetEasy

Comparables / SF

	SF	Studio	1 Bed	2 Bed	3 Bed	Rent/SF/Yr
MIN	400	$2,672	$3,570	$3,700	$6,250	$50.53
MAX	1900	$3,500	$4,043	$6,500	$8,000	$106.67
AVG	863	$3,135	$3,782	$5,573	$7,250	$71.49
MEDIAN	743	$3,255	$3,800	$6,075	$7,500	$65.76

APPENDIX C- FLOOR AREA SUMMARY

SUMMARY		
Zoning district		M1-2/R6A
		M1-2/R6B
		MX-8
Street Wythe		Narrow
Street N1st and Grand		Narrow
Total Lot Size		25,690
Max Coverage (corner lot)		100%
Max Coverage (inner lot)		60%
USE	FAR	ZFA
Residential ZFA R6A	2.7	34587
Residential IH ZFA R6A	3.6	46116
Residential ZFA R6B	2	25760
Residential IH ZFA R6B	2.2	28336
Commerical/Light industrial ZFA	2	51380

BUILDING PROGRAM SUMMARY		
Gross Floor Area		
Residential Floor Area	79,185	64%
Non-Residential Floor Area	44,680	36%
Total Gross Floor Area	123,865	
Residential Units	96	
Residential GFA/Unit	825	
Residential ZFA/Unit	775	
Residential Efficiency	68%	

	Zoning	Max FAR	Lot Area	Buildable ZFA	Base Ht	Max Ht	Max Stories	Footprint
Lot 21	M1-2/R6A/Mx-1	3.6	12,810	46116	75'	85'	8	8967
	M1-2/R6B/Mx-1 *	3.6	3000	10800	45'	55'	5	2100
Lot 28	M1-2/R6B/Mx-1	3.6	1650	5940	45'	55'	5	990
Lot 29	M1-2/R6B/Mx-1	3.6	8230	29628	45'	55'	5	4938
			25690	92484				16995

* FAR for R6B IH is 2.2 but assuming going to ZBA to apply blanket 3.6 across whole site. Height restrictiosn to still apply. Gains 15 units

BUILDING FLOOR AREA SUMMARY												
			Total		Residential						Non-Resi	
Building Floor Area	Height	Elevation	Gross SF	Zoning SF	Gross SF	ZSF	Mech/BOH	Amenity SF	Net SF	Efficiency %	Gross SF	Zoning SF
Level 7 Bulkhead			1,200		1,200	1,128	1,200		-			
Level 6`	10	65	12,000	11,280	12,000	11,280	1,500	1,500	9,000	75%		
Level 5	10	55	16,995	15,975	16,995	15,975	2,700		14,295	84%		
Level 4	10	45	16,995	15,975	16,995	15,975	2,700		14,295	84%		-
Level 3	10	35	16,995	15,975	16,995	15,975	2,700		14,295	84%		-
Level 2	10	25	16,995	16,335	5,000	4,700	2,700		2,300	46%	11,995	11,635
Level 1	15	15	16,995	16,395	3,000	2,820	1,500	1,500			13,995	13,575
Total Floor Area (above grade)			98,175	91,936	72,185	67,854	15,000	3,000	54,185	75%	25,990	25,210
Cellar			25,690		7,000						18,690	
Total Floor Area			123,865	91,936	79,185	67,854	15,000	3,000	54,185	68%	44,680	25,210
ZFA Surplus/Deficit				548		24,630						26,170
Mechanical Deduction						6%						3%

RESIDENTIAL UNIT DISTRIBUTION						
Level	Studios	1 BRs	2BRs	3BRs	Total	Net SF
Bulkhead						
Level 6	8	8	2	1	19	9,000
Level 5	5	7	9	3	24	14,295
Level 4	5	7	9	3	24	14,295
Level 3	5	7	9	3	24	14,295
Level 2	1	4	0	0	5	2,300
Level 1					-	
Total Units	24	33	29	10	96	54,185
Target %	25%	35%	30%	10%		45,185
Actual %	25%	34%	30%	10%		
Average Unit Sizes	350	500	700	900	613	564

APPENDIX D - UNITS AND INCOME SUMMARY : BASELINE 50% AFFORDABLE

FLOOR AREA DISTRIBUTION				
Floor Area Type	**Gross Sf**	**% Total**	**Net SF**	**Efficiency**
Residential	75685	61%	54185	72%
Commercial	48180	39%	48180	100%
Project Total	**123865**	**100%**	**102365**	**83%**

RESIDENTIAL UNIT SUMMARY					
Unit Type	**Units**	**Rooms/Unit**	**Rooms**	**Net SF/Unit**	**Net SF**
Studios	24	2	48	350	8400
1 BRs	33	3	99	500	16500
2 BRs	28	4	112	700	19600
3BRs	10	5	50	900	9000
Subtotal	95	3	309	563	53500
Super's Unit	1	4	4	700	700
Total	96.00	3.26	313	565	54200

RESIDENTIAL INCOME MIX								
Income Band				AMI	50%	80%	120%	Market
Target Income Mix					20.0%	20.0%	10.0%	50%
Actual Mix					20%	20%	9%	51%
Unit Type	Target Unit Mix	Actual Unit Mix	Over/(Under)					
Studios	24	24	0		5	5	2	12
1 BRs	33	33	0		5	8	3	17
2 BRs	28	28	0		7	4	3	14
3BRs	10	10	0		2	2	1	5
Actual Mix	95	95	0		19	19	9	48

Weighted Average AMI #REF!

RESIDENTIAL INCOMES - AFFORDABLE								
2021 HUD Income Limits	**$119,300 Family of Four**							
50% AMI	$59,650							
Unit Size	**HH Size**	**HH Factor**	**HH Income**	**Gross Rent**	**Utility Allow**	**Net Rent**	**Units**	**Annual Rent**
Studios	1	0.6	$35,790	$895	$0	$895	5	$53,685
1 BRs	1.5	0.75	$44,738	$1,118	$0	$1,118	5	$67,106
2 BRs	3	0.9	$53,685	$1,342	$0	$1,342	7	$112,739
3BRs	4.5	1.04	$62,036	$1,551	$0	$1,551	2	$37,222
							19	**$270,751**
80% AMI	$95,440							
Unit Size	**HH Size**	**HH Factor**	**HH Income**	**Gross Rent**	**Utility Allow**	**Net Rent**	**Units**	**Annual Rent**
Studios	1	0.6	$57,264	$1,432	$0	$1,432	5	$85,896
1 BRs	1.5	0.75	$71,580	$1,790	$0	$1,790	8	$171,792
2 BRs	3	0.9	$85,896	$2,147	$0	$2,147	4	$103,075
3BRs	4.5	1.04	$99,258	$2,481	$0	$2,481	2	$59,555
							19	**$420,318**
120% AMI	$143,160							
Unit Size	**HH Size**	**HH Factor**	**HH Income**	**Gross Rent**	**Utility Allow**	**Net Rent**	**Units**	**Annual Rent**
Studios	1	0.6	$85,896	$2,147	$0	$2,147	2	$51,538
1 BRs	1.5	0.75	$107,370	$2,684	$0	$2,684	3	$96,633
2 BRs	3	0.9	$128,844	$3,221	$0	$3,221	3	$115,960
3BRs	4.5	1.04	$148,886	$3,722	$0	$3,722	1	$44,666
							9	**$308,796**
Total Annual Residential Renters Income - AFFORDABLE							**47**	**$999,865**
							per unit	$10,525

RESIDENTIAL INCOMES - MARKET					
Unit Size	**Unit #'s**	**Net SF/Unit**	**Annual Rent/sf**	**Monthly Rent**	**Annual Rent**
Studios	12	350	$107	$3,135	$451,498
1 BRs	17	500	$91	$3,782	$771,446
2 BRs	14	700	$96	$5,573	$936,264
3BRs	5	900	$97	$7,250	$435,000
Total Annual Residential Renters Income - MARKET RATE					**$2,594,208**
				per unit	$54,046

RESIDENTIAL INCOME SUMMARIES					
Total Residential Rental Incomes				$/Month	$3,594,073
Parking Income	Spaces	0	income/month	$200.00	$0
Laundry Income	Units	96	income/month	$10.00	$11,520
Residential Gross Potential Income					$3,605,593
Less Residential Vacancy				5%	-$180,280
Residential Effective Gross Income (REGI)					**$3,425,314**
				REGI per unit	$35,680

COMMERCIAL INCOMES						
Tenant		**SF**	**Monthly Rent/sf**	**Annual Rent/sf**		**Rent total /year**
Tenant 1 Income	Supermarket	13500	$6.31	$75.75		$1,022,625
Tenant 2 Income	Makers Lab	10000	$3.17	$38.00		$380,000
Tenant 3 Income	Café / restaurant	2000	$6.31	$75.75		$151,500
Tenant 4 Income	Storefront	1000	$6.91	$82.92		$82,915
Tenant 5 Income	Storefront	1000	$6.91	$82.92		$82,915
Tenant 6 Income	Storefront	1340	$6.91	$82.92		$111,106
Tenant 7 Income	Storefront	1340	$6.91	$82.92		$111,106
Tenant 8 Income	Gallery	6000	$6.91	$82.92		$497,490
Tenant 9 Income	Art Studios	12000	$4.17	$50.00		$600,000
Commercial Gross Potential Income		**48180**				**$3,039,657**
	sf overage	0	**48,180**	**$73**	per unit	$31,663

COMMERCIAL INCOME SUMMARIES				
Commercial Gross Potential Income	48180	sf		$3,039,657
Less Commercial Vacancy			5%	-$151,983
Commercial Effective Gross Income (CEGI)				**$2,887,674**
			CEGI /unit	$30,080

EFFECTIVE GROSS INCOME	
	$6,312,988

APPENDIX E - UNITS AND INCOME SUMMARY : ALT 1 100% AFFORDABLE

FLOOR AREA DISTRIBUTION				
Floor Area Type	**Gross Sf**	**% Total**	**Net SF**	**Efficiency**
Residential	75685	61.10%	54185	72%
Commercial	48180	38.90%	48180	100%
Project Total	**123865**	**100%**	**102365**	**83%**

RESIDENTIAL UNIT SUMMARY					
Unit Type	**Units**	**Rooms/Unit**	**Rooms**	**Net SF/Unit**	**Net SF**
Studios	24	2	48	350	8400
1 BRs	33	3	99	500	16500
2 BRs	28	4	112	700	19600
3BRs	10	5	50	900	9000
Subtotal	95	3	309	563	53500
Super's Unit	1	4	4	700	700
Total	96.00	3.26	313	565	54200

RESIDENTIAL INCOME MIX							
Income Band				AMI	40%	60%	100%	120%
Target Income Mix					20.0%	40.0%	20.0%	20%
Unit Type	Target Unit Mix	Actual Unit Mix	Over/(Under)					
Studios	24	24	0		5	10	5	4
1 BRs	33	33	0		7	13	6	7
2 BRs	28	28	0		6	10	6	6
3BRs	10	10	0		2	4	2	2
Actual Mix	95	95	0		20	37	19	19

Weighted Average AMI #REF!

RESIDENTIAL INCOMES - AFFORDABLE

2021 HUD Income Limits **$119,300** **Family of Four**

Utility Allowances	
Studios	$73
1 BRs	$83
2 BRs	$109
3 BRs	$136

40% AMI $47,720

Unit Size	HH Size	HH Factor	HH Income	Gross Rent	Utility Allow	Net Rent	Units	Annual Rent
Studios	1	0.6	$28,632	$716	-$73	$643	5	$38,568
1 BRs	1.5	0.75	$35,790	$895	-$83	$812	7	$68,187
2 BRs	3	0.9	$42,948	$1,074	-$109	$965	6	$69,458
3BRs	4.5	1.04	$49,629	$1,241	-$136	$1,105	2	$26,513
						$881	20	**$202,727**

60% AMI $71,580

Unit Size	HH Size	HH Factor	HH Income	Gross Rent	Utility Allow	Net Rent	Units	Annual Rent
Studios	1	0.6	$42,948	$1,074	-$73	$1,001	10	$120,084
1 BRs	1.5	0.75	$53,685	$1,342	-$83	$1,259	13	$196,424
2 BRs	3	0.9	$64,422	$1,611	-$109	$1,502	10	$180,186
3BRs	4.5	1.04	$74,443	$1,861	-$136	$1,725	4	$82,804
						$1,372	37	**$579,497**

100% AMI $119,300

Unit Size	HH Size	HH Factor	HH Income	Gross Rent	Utility Allow	Net Rent	Units	Annual Rent
Studios	1	0.6	$71,580	$1,790	-$73	$1,717	5	$102,990
1 BRs	1.5	0.75	$89,475	$2,237	-$83	$2,154	6	$155,079
2 BRs	3	0.9	$107,370	$2,684	-$109	$2,575	6	$185,418
3BRs	4.5	1.04	$124,072	$3,102	-$136	$2,966	2	$71,179
						$2,353	19	**$514,666**

120% AMI $143,160

Unit Size	HH Size	HH Factor	HH Income	Gross Rent	Utility Allow	Net Rent	Units	Annual Rent
Studios	1	0.6	$85,896	$2,147	-$73	$2,074	4	$99,571
1 BRs	1.5	0.75	$107,370	$2,684	-$83	$2,601	7	$218,505
2 BRs	3	0.9	$128,844	$3,221	-$109	$3,112	6	$224,071
3BRs	4.5	1.04	$148,886	$3,722	-$136	$3,586	2	$86,068
							19	**$628,215**
Total Annual Residential Renters Income - AFFORDABLE							**95**	**$1,925,105**
							per unit	$20,264

RESIDENTIAL INCOME SUMMARIES					
Total Residential Rental Incomes					$1,925,105
Parking Income	Spaces	0	income/month	$200.00	$0
Laundry Income	Units	96	income/month	$10.00	$11,520
Residential Gross Potential Income					$1,936,625
Less Residential Vacancy				5%	-$96,831
EFFECTIVE GROSS INCOME					**$1,839,794**
				REGI per unit	$19,366

APPENDIX F - OPERATING EXPENSES

OPERATING EXPENSES - BASELINE Mixed Use Building with 50% Affordability									
		Assumption		/Room	/Unit (DU)	/GSF	/EGI	Total	Notes
				313	96	123865	$6,312,988		
Administrative									
Legal		2%	of EGI	$403.39	$240.00	$1.02	2.0%	$126,260	
Accounting		$16,600	project	$53.04	$172.92	$0.13	0.3%	$16,600	
Property Management Fee		6%	of EGI	$1,210.16	$3,945.62	$3.06	6.0%	$378,779	
Insurance		3%	of EGI	$605.08	$875.00	$1.53	3.0%	$189,390	
Tax Credit Monitoring		$17,500	capped	$15.13	$49.32	$0.04	0.1%	$4,735	.075% of REGI
Administrative Subtotal				**$2,286.78**	**$7,455.87**	**$5.78**	**11%**	**$715,763**	
Payroll									
Superintendant	1	$91,171	salary	$291.28	$949.70	$0.74	1%	$91,171	
Payroll Subtotal				**$291.28**	**$949.70**	**$0.74**	**1%**	**$91,171**	
Utilities									
Heating				$225.00	$0.00	$0.00	0.0%	$0	heating included in elec for
Electricity		$0.18	kWh	$140.00	$78,026	$0.35	0.5%	$43,820	common areas. 8 kWh
Water and Sewer		1.8%	of EGI	$260.00	$847.71	$0.66	1.8%	$81,380	
Utilities Subtotal				**$400.00**	**$1,304.17**	**$1.01**	**2.0%**	**$125,200**	
Maintenance									
Supplies/Cleaning/Exterminating		0.5%	of EGI	$135.00	$328.80	$0.25	0.5%	$31,565	
Repairs/Replacement		2%	of EGI	$403.39	$800.00	$1.02	2%	$126,260	
									2 elev resi
Elevator Maintenance	3	$7,500	ea	$71.88	$234.38	$0.18	0%	$22,500	1 elevator comm.
Maintenance Subtotal				**$576.12**	**$1,878.38**	**$1.46**	**3%**	**$180,325**	
Maintenance & Operation Subtotal				**$3,554.18**	**$11,588.12**	**$8.98**	**18%**	**$1,112,459**	
Resiliency Reserves		2%	of EGI	$92.01	$300.00	$0.23	2%	$28,800	
Real Estate Taxes		421a		$302.33	$985.71	$0.76	1.5%	$94,628	100% Lots 21 , 28, 29
Net Operating Expenses				**$3,646.20**	**$11,888.12**	**$9.98**	**20%**	**$1,235,887**	

OPERATING EXPENSES - ALT 1 LIHTC Housing Only									
		Assumption		/Room	/Unit (DU)	/RGSF	/REGI	Total	Notes
				313	96	75685	$1,839,794.19		
Administrative									
Legal		$240	du	$73.61	$240.00	$0.19	0.4%	$23,040	
Accounting		$16,600	project	$53.04	$172.92	$0.13	0.3%	$16,600	
Property Management Fee		6%	of ERI	$352.68	$1,149.87	$0.89	6.0%	$110,388	
Insurance		$875	du	$268.37	$875.00	$0.68	1.3%	$84,000	
Tax Credit Monitoring		$17,500	capped	$4.73	$15.42	$0.01	0.0%	$1,480	.075% of REGI + $100
Benchmarking Expense		$495	building	$495.00	$495.00	$495.00	0.01%	$495	
Administrative Subtotal				**$754.00**	**$2,458.36**	**$3.12**	**13%**	**$236,002**	
Payroll									
Superintendant	1	$91,171	salary	$291.28	$949.70	$0.74	1%	$91,171	
Porter	1	$89,872	salary	$287.13	$936.17	$0.73	1%	$89,872	
Payroll Subtotal				**$291.28**	**$949.70**	**$0.74**	**5%**	**$91,171**	
Utilities									
Heating		225	rm	$225.00	$733.59	$0.93	1%	$70,425	
Electricity		140	rm	$140.00	$456.46	$0.35	1%	$43,820	
Water and Sewer		260	rm	$260.00	$847.71	$0.66	1%	$81,380	
Utilities Subtotal				**$625.00**	**$2,037.76**	**$1.58**	**11%**	**$195,625**	
Maintenance									
Supplies/Cleaning/Exterminating		$135	rm	$135.00	$440.16	$0.34	1%	$42,255	
Repairs/Replacement		$8.00	du	$2.45	$800.00	$0.01	0%	$768	
Elevator Maintenance	2	$7,500	ea	$47.92	$156.25	$0.12	0%	$15,000	2 elev res
Maintenance Subtotal				**$185.38**	**$604.41**	**$0.47**	**3%**	**$58,023**	
Maintenance & Operation Subtotal				**$1,855.66**	**$6,050.22**	**$4.69**	**32%**	**$580,821**	
Resiliency Reserves		$300	du	$92.01	$300.00	$0.38	2.6%	$28,800	
Real Estate Taxes		Article XI		$0.00	$0.00	$0.00	0.0%	$0	60% of Lots 21 , 28, 29
									or 0% under article XI?
Net Operating Expenses				**$1,947.67**	**$6,350.22**	**$5.07**	**33%**	**$609,621**	

OPERATING EXPENSES - ALT 1 Commercial Only									
		Assumption		/Room	/Unit (DU)	/CGSF	/CEGI	Total	Notes
				0	0	48180	$2,887,674.34		
Administrative									
Legal		2%	of EGI	$184.52	$240.00	$0.47	2.0%	$57,753	
Accounting		$16,600	project	$21.21	$69.17	$0.05	#DIV/0!	$6,640	by 40%
Property Management Fee		6%	of EGI	$553.55	$1,804.80	$1.40	6.0%	$173,260	
Insurance		3%	of EGI	$276.77	$875.00	$0.70	3.0%	$86,630	
Administrative Subtotal				**#DIV/0!**	**#DIV/0!**	**$6.73**	**11%**	**$324,284**	
Payroll									
Superintendant	0	$91,171	salary	$0.00	$0.00	$0.00	0%	$0	Part of residential only
Payroll Subtotal				**$0.00**	**$0.00**	**$0.00**	**0%**	**$0**	
Utilities									
Heating		by tenant		$0.00	$0.00	$0.00	0%	$0	incl in elec for common areas
Electricity		0.5%	of EGI	$0.00	$0.00	$0.00	0.0%	$0	Modified Gross Lease
Water and Sewer		2%	of EGI	$260.00	#DIV/0!	$0.47	2%	$57,753	
Utilities Subtotal				**$184.52**	**$601.60**	**$0.47**	**2%**	**$57,753**	
Maintenance									
Supplies/Cleaning/Exterminating		1%		$135.00	$300.80	$0.23	1%	$28,877	
Repairs/Replacement		2%	of ERI	$184.52	$800.00	$0.47	2%	$57,753	
Elevator Maintenance	1	$7,500	ea	$23.96	$78.13	$0.06	0%	$7,500	1 elevator com.
Maintenance Subtotal				**$300.74**	**$980.52**	**$0.76**	**3%**	**$94,130**	
Maintenance & Operation Subtotal				**$1,521.30**	**$4,960.08**	**$3.84**	**16%**	**$476,168**	
Resiliency Reserves		2%	of EGI	$184.52	$300.00	$1.20	2.0%	$57,753	
Real Estate Taxes		Article X1		$0.00	$0.00	$0.00	0.0%	$0	Article XI for entire site
Net Operating Expenses				**$1,705.82**	**$5,260.08**	**$5.04**	**18%**	**$533,921**	

APPENDIX G - DEVELOPMENT BUDGET

Units	96	
Residential gsf	75,685	61%
Commerical gsf	48,180	39%
Total GSF	**123,865**	

DEVELOPMENT COSTS - BASELINE 50% AFFORDABLE + COMMERCIAL							
		Total	Residential	Commercial	% TDC		
ACQUISITION COST							
Land	$ 385.47	$28,700,000	$8,700,000	$20,000,000	35.2%		
Closing Cost	2%	$574,000	$174,000	$400,000			
Acquisition Total		**$29,274,000**	**$8,874,000**	**$20,400,000**	**36%**		
HARD COST							
Contractor Price							
Residential	$420 rsf	$31,787,700	$31,787,700		58.6%		
Commercial	$250 csf	$12,045,000		$12,045,000	0.0%		
Total Contractor Price		**$43,832,700**	**$31,787,700**	**$12,045,000**	**58.6%**		
Owners Contingency	5 %	$2,191,635	$22,830	$238	2.9%		
Total Hard Cost		**$46,024,335**	**$31,787,700**	**$12,045,238**	**56%**		
SOFT COST							
Architect and Engineering							
Architect and Engineers	$20 sf	$2,477,300	$1,513,700	$963,600	2.4%		
Landscape Architect	$115,000 total building	$115,000	$70,268	$44,732	0.2%		
Civil Engineer	$125,000 total building	$125,000	$76,379	$48,621	0.1%		
Geotechnical Engineer	$110,000 total building	$110,000	$67,213	$42,787	0.1%		
Sustainability Consultant	$250,000 total building	$250,000	$152,757	$97,243	0.3%		
Survey	$50,000 total building	$50,000	$30,551	$19,449	0.1%		
Environmental Phase 1 & 2	$80,000 total building	$100,000	$61,103	$38,897	0.1%		
CEQR Analysis	$250,000 total building	$250,000	$152,757	$97,243	0.3%		
Architect and Engineering Subtotal		**$3,477,300**	**$2,124,728**	**$1,352,572**	**4%**	**56%**	
Construction Related							
Expeditor	$100,000 total building	$100,000	$61,103	$38,897	0.1%		
Permits and Fees	0.40% HC	$175,331	$107,132	$68,199	0.0%		
Preconstruction Services	$175,000 total building	$200,000	$122,206	$77,794	0.2%		
Workforce Consultant	$100,000 total building	$100,000	$61,103	$38,897	0.1%		
Controlled Inspections	$350,000 total building	$350,000	$213,860	$136,140	0.4%		
Construction Related Subtotal		**$925,331**	**$565,403**	**$359,928**	**1%**	**15%**	
Legal & Accounting							
Transaction Counsel		$400,000	$244,411	$155,589	0.7%		
Land Use Counsel		$150,000	$91,654	$58,346	0.3%		
Construction Counsel		$35,000	$21,386	$13,614	0.1%		
Commercial Leasing Counsel		$75,000	$45,827	$29,173	0.1%		
Lenders Counsel		$125,000	$76,379	$48,621	0.2%		
Accounting		$65,000	$39,717	$25,283	0.1%		
Subtotal Legal And Accounting		**$850,000**	**$519,374**	**$330,626**	**1%**	**14%**	
Marketing & Lease-Up							
Marketing & Lease-Up	$2,000 unit	$192,000	$117,317	$74,683	0.4%		
Public Relations		$50,000	$30,551	$19,449	0.1%		
OurSpace FFE		$85,000	$51,937	$33,063	0.1%		
Furniture, Fixtures and Equipment		$350,000	$213,860	$136,140	0.6%		
Marketing and Lease-Up Subtotal		**$677,000**	**$413,666**	**$263,334**	**1%**	**11%**	
Reserves and Contingency							
Soft Cost Contingency	5%	$296,482	$181,159	$115,323	0.4%		
Reserves and Contingency Subtotal		**$296,482**	**$181,159**	**$115,323**	**0.4%**	**5%**	
Total Soft Cost		**$6,226,112**	**$3,804,330**	**$2,421,783**	**7.64%**	**100%**	
					14%	**of HC**	
TOTAL DEVELOPMENT COST		**$81,524,447**	**$44,466,030**	**$34,867,020**	**100.0%**		

DEVELOPMENT COSTS - ALT 1 100% AFFORDABLE RESIDENTIAL ONLY								LIHTC ANALYSIS		
		Total	/Unit	/GSF	% Total	Notes		Residential 100%	Eligible? Y/N/P	Eligible Basis 50%
ACQUISITION COST										
Land	$ 385.47	$8,700,000	$90,625	$115	16.0%	64% of total land cost. Calculated based on land value comps		$8,700,000	N	$0
Closing Cost	2%	$174,000								
Acquisition Total		**$8,874,000**	**$90,625**	**$115**	**16.4%**			**$8,700,000**		**$0**
HARD COST										
Contractor Price										
Residential	$420 rsf	$31,787,700	$331,122	$420	58.6%	Includes Entrprise Green & Passive House		$31,787,700	Y	$31,787,700
Total Contractor Price		**$31,787,700**	**$331,122**	**$420**	**58.6%**			**$31,787,700**		**$31,787,700**
Owners Contingency	5 %	$1,589,385	$16,556	$21	2.9%					
Total Hard Cost		**$33,377,085**	**$331,122**	**$420**	**61.5%**			**$31,787,700**		**$31,787,700**
SOFT COST										
Architect and Engineering										
Architect and Engineers	$17 sf	$1,286,645	$13,403	$17	2.4%	higher end due to passive house		$1,286,645	Y	$1,286,645
Landscape Architect	$115,000 total building	$115,000	$1,198	$2	0.2%	green roofs		$115,000	Y	$115,000
Civil Engineer	$125,000 total building	$76,379	$796	$1	0.1%	with basement @ 60%		$76,379	Y	$76,379
Geotechnical Engineer	$110,000 total building	$67,213	$700	$1	0.1%	moderate @ 60%		$67,213	Y	$67,213
Sustainability Consultant	$250,000 total building	$152,757	$1,591	$2	0.3%	Enterprise + Passive House @ 60%		$152,757	Y	$152,757
Survey	$50,000 total building	$30,551	$318	$0	0.1%	Simple site		$30,551	N	$0
Environmental Phase 1 & 2	$80,000 total building	$48,882	$509	$1	0.1%	Assuming low level contam.		$48,882	Y	$48,882
CEQR Analysis	$250,000 total building	$152,757	$1,591	$2	0.3%	Assuming contamination		$152,757	Y	$152,757
Architect and Engineering Subtotal		**$1,930,184**	**$20,106**	**$26**	**3.6%**			**$1,930,184**		**$1,899,633**
Construction Related										
Expeditor	$100,000 total building	$61,103	$636	$1	0.1%	Lot consolidation @60%		$61,103	Y	$61,103
Permits and Fees	0.40% HC	$0	$0	$0	0.0%			$0	Y	$0
Preconstruction Services	$175,000 total building	$106,930	$1,114	$1	0.2%	Cost control @ 60%		$106,930	Y	$106,930
Workforce Consultant	$100,000 total building	$61,103	$636	$1	0.1%	Middle range @ 60%		$61,103	Y	$61,103
Controlled Inspections	$350,000 total building	$213,860	$2,228	$3	0.4%	@60%		$213,860	Y	$213,860
Construction Related Subtotal		**$442,995**	**$4,615**	**$6**	**0.8%**			**$442,995**		**$442,995**
Legal & Accounting										
Transaction Counsel	$400,000 OPT 2 only	$400,000	$4,167	$5	0.7%			$400,000	P	$300,000
Land Use Counsel	$150,000 OPT 2 only	$150,000	$1,563	$2	0.3%	Non conforming uses		$150,000	Y	$150,000
Construction Counsel	$35,000 OPT 2 only	$35,000	$365	$0	0.1%			$35,000	Y	$35,000
Commercial Leasing Counsel	$75,000 OPT 2 only	$75,000	$781	$1	0.1%	10 tenants		$75,000	N	$0
Lenders Counsel	$125,000 OPT 2 only	$125,000	$1,302	$2	0.2%			$125,000	N	$0
Accounting	$65,000 OPT 2 only	$65,000	$677	$1	0.1%			$65,000	Y	$65,000
Subtotal Legal And Accounting		**$850,000**	**$8,854**	**$11**	**1.6%**			**$850,000**		**$550,000**
Marketing & Lease-Up										
Marketing & Lease-Up	$2,000 unit	$192,000	$2,000	$3	0.4%			$192,000	N	$0
Public Relations	$30,000	$30,000	$313	$0	0.1%			$30,000	N	$0
OurSpace FFE	$50,000	$50,000	$521	$1	0.1%			$50,000	y	$50,000
Furniture, Fixtures and Equipment	$300,000	$300,000	$3,125	$4	0.6%			$300,000	Y	$300,000
Marketing and Lease-Up Subtotal		**$572,000**	**$5,958**	**$8**	**1.1%**			**$572,000**		**$350,000**
Financing Fees										
Upfront L/C Fee	0.85% LOC amount	$275,432	$2,869	$4	0.5%			$275,432	Y	$275,432
Annual L/C Fee	1.00% LOC amount	$648,076	$6,751	$9	1.2%			$648,076	P	$486,057
L/C Admin Fee	$250 month	$8,000	$83	$0	0.0%			$8,000	P	$6,000
HDC Commitment Fee	0.75% HDC First	$241,379	$2,514	$3	0.4%			$241,379	N	$0
NY State Bond Insurance	0.84% HDC First	$270,345	$2,816	$4	0.5%			$270,345	N	$0
Cost of Insurance	1.50% HDC First	$234,468	$2,442	$3	0.4%			$234,468	N	$0
LITHC Fee	8% Annual Credit	$175,331	$1,826	$2	0.3%			$175,331	N	$0
LITHC Application Fee		$3,000	$31	$0	0.0%			$3,000	N	$0
HDFC Fee		$75,000	$781	$1	0.1%			$75,000	N	$0
Title Insurance		$250,000	$2,604	$3	0.5%	Larger end project scale		$250,000	N	$0
Appraisal		$15,000	$156	$0	0.0%			$15,000	Y	$15,000
Financing Fees Subtotal		**$343,000**	**$22,875**	**$29**	**0.6%**			**$15,000**		**$290,432**
Carrying Costs										
Construction Loan Interest		$1,864,689	$19,424	$25	3.4%			$1,864,689	P	$1,398,517
Deferred Construction Interest		$777,280	$8,097	$10	1.4%			$777,280	P	$582,960
Negative Arbitrage		$778,830	$8,113	$10	1.4%			$778,830	N	$0
Utilities During Construction	$1,500 month	$36,000	$375	$0	0.1%			$36,000	N	$0
Insurance		$400,000	$4,167	$5	0.7%			$400,000	P	$300,000
Carrying Costs Subtotal		**$436,000**	**$40,175**	**$51**	**0.8%**			**$436,000**		**$300,000**
Reserves and Contingency										
Captilized operating Reserve	$1,000 unit	$96,000	$1,000	$1	0.2%			$0	N	$0
social Security Reserve	$7,500 FH Unit	$0	$0	$0	0.0%			$0	N	$0
Soft Cost Contingency	5%	$228,709	$2,382	$2	0.4%			$228,709	P	$171,532
Reserves and Contingency Subtotal		**$324,709**	**$2,382**	**$2**	**0.6%**			**$228,709**		**$171,532**
Total Soft Cost		**$4,898,889**	**$104,966**	**$132**	**9.0%**			**$4,246,180**		**$3,242,628**
DEVELOPER FEE										
Paid Fee		$2,336,500.00	$24,339	$19	4.3%			**$2,336,500**	Y	**$2,336,500**
Deferred Fee		$4,779,958	$49,791	$39	8.8%			**$4,779,958**	Y	**$4,779,958**
Developers Fee		**$7,116,458**	**$74,130**	**$57**	**13.1%**			**$7,116,458**		**$7,116,458**
TOTAL DEVELOPMENT COST		**$54,266,432**	**$600,842**	**$724**	**100%**			**$51,850,338**		**$42,146,786**

APPENDIX H - ALT 1 : HDC FINANCES

BOND AMOUNT		
Aggregate Basis	**$60,724,338**	
% of Aggregate Basis	53%	
Minimum Bonds Required During Construction	$32,183,899	
Short Term Bonds	$16,552,695	51%
Long Term Bonds	$15,631,204	49%
Total Bond Amount	$32,183,899	100%
	$0	

BOND TERM	Months	Years
Construction Term	24	2.0
Lease-up and Conversion	8	**0.7**
Total Bond Term	32	2.7

FIXED INTEREST RATES	
Short Term Bonds	2.00%
Long Term Bonds	4.10%
HDC 2nd - Paid	1.00%
HDC2nd - Deferred	1.26%
HPD 3rd - Paid	0.25%
HPD 3rd - Deferred	1.81%

INTEREST RESERVE CALCULATION	Amount	% Outstanding	Term	Interest Rate	Paid Interest	Deferred interest
Short-Term Bonds	$16,552,695	50.00%	2.0	2.00%	$331,054	
Short-Term Bonds	$16,552,695	100.00%	0.67	2.00%	$220,703	
Long Term Bonds	$15,631,204	50.00%	2.00	4.10%	$640,879	
Long Term Bonds	$15,631,204	100.00%	0.67	4.10%	$427,253	
HDC 2nd - Paid	$6,240,000	100.00%	2.67	1.00%	$166,400	
HDC 2nd Deferred	$6,240,000	100.00%	2.67	1.26%		$209,664
HPD 3rd - Paid	$11,760,000	100.00%	2.67	0.25%	$78,400	
HPD 3rd - Deferred	$11,760,000	100.00%	2.67	1.81%		$567,616
Paid Construction Interest					$1,864,689	
Deferred Construction Interest						$777,280

NEGATIVE ARBITRAGE		
Investment Rate	**0.60%**	**0.60%**
Interest Rate	2.00%	4.10%
Investment Spread	-1.40%	-3.50%
	Short Term	**Long Term**
Bond Amount	$16,552,695	$15,631,204
% Bonds Outstanding	50%	**50%**
Construction Term	2.0	2.0
Arbitrage	-$231,738	-$547,092
Total Negative Arbitrage	$778,830	

LETTER OF CREDIT		
Bond Amount		**$32,183,899**
Days of Interest		60
Interest		$219,923
Letter Of Credit Amount		$32,403,822
Upfront Fee	0.850%	of LOC Amount
Annual Fee	1.00%	of LOC Amount
Admin Fee	$250.00	per month

PROJECT INCOME SUMMARY - LIHTC UNITS		
Residential income		
Residential Rental Income		$1,925,105
Parking Income		$0
Laundry Income		$11,520
Residential Gross Potential Income		$1,936,625
Less Residential Vacancy	5%	-$96,831
Residential Effective Gross Income (REGI)		**$1,839,794**
Operating Expenses		
Administrative		$236,002
Payroll		$91,171
Utilities		$195,625
Maintenance		$58,023
Replacement Reserves		$28,800
Real Estate Taxes		$0
Total Operating Expenses		**$609,621**
Net Operating Income (NOI)		**$1,230,173**

PERMANENT LOAN SIZING - LIHTC RESIDENTIAL ONLY				
		Permanent Loan Sizing Test		
HDC Tax-exempt Bonds	**$15,631,204**	First DSCR	1.25	$15,631,204
HDC 2nd mort	$6,240,000	Loan to Value	85%	$27,675,880
HDP 3rd Mort	$11,760,000	I/E	1.05	#REF!
		Overall DSCR	1.15	$15,999,331

	HDC 1st Mort	HDC 2nd Mort	HDP 3rd Mort
Loan Amount	$15,631,204	$6,240,000	$11,760,000
Loan Amount/Unit	$162,825	$65,000	$122,500
Term	30	30	30
Interest Rate	4.80%	2.06%	2.06%
Paid Interest Rate		1.00%	0%
Annual Debt Service	**$984,138**	**$62,400**	

Permanent Interest Loan Rate (term sheets)	
Base Rate	3.85%
Servicing Fee	0.20%
Mortgage Insurance Premium	**0.50%**
Spread / Cushion	0.25%
Interest Rate	**4.80%**

LOW INCOME HOUSING TAX CREDITS	
Eligible Basis	**$42,146,786.24**
Eligible Basis Boost	130%
Adjusted Eligible Basis	$54,790,822.11
Applicable Fraction	100%
Qualified Basis	$54,790,822.11
Annual Credit Rate	4%
Annual Credit	$2,191,632.88
Credit Period	10
Total Tax Credit	$21,916,328.85
Purchase Price Per Credit	1
LIHTC Equity	**$21,916,328.85**
% LIHTC Equity during Construction	20%
LIHTC Equity During Construction	**$4,383,265.77**

PAID DEVELOPERS FEE - HPD			
Income Band	**Paid Dev Fee/Unit**	**Units**	**Total Dev Fee**
27%-47% AMI	$35,000	20	$700,000
57%-77% AMI	$27,000	37	$999,000
80%-90% AMI	$20,000	19	$380,000
100%-120% AMI	$12,500	19	$237,500
Supers Unit	$20,000	1	$20,000
Total Paid Developer's Fee		**96**	**$2,336,500**
Deferred Developer's Fee			**$4,779,958**
Total Developer Fee			$7,116,458
% Paid Developer's Fee Prior Conversion			10%
Paid Developer's Fee Prior Conversion			$467,300
Deferred Developer's Fee During Construction			**$6,649,158**

OPT 2 LIHTC SOURCES AND USES

Units	**96**
GSF	**75685**

CONSTRUCTION SOURCES	Total	/Unit	/GSF	% Total
HDC 1st Mort	$15,631,204	$162,825	$207	29%
HDC 2nd Mort	$6,240,000	$65,000	$82	11%
HPD 3rd Mort	$11,760,000	$122,500	$155	22%
LIHTC Equity	$4,383,266	$45,659	$58	8%
Deferred Developer's Fee	$6,649,158	$69,262	$88	12%
Deferred Construction Interest	$777,280	$8,097	$10	1%
GAP/(SURPLUS)	$8,825,524	$91,933	$117	16%
Total Construction Uses	**$54,266,432**	**$565,275**	**$717**	**100%**

PERMANENT SOURCES	Total	/Unit	/GSF	% Total
HDC 1st Mort	$15,631,204	$162,825	$207	29%
HDC 2nd Mort	$6,240,000	$65,000	$82	11%
HPD 3rd Mort	$11,760,000	$122,500	$155	22%
LIHTC Equity	$21,916,329	$228,295	$290	40%
Deferred Developer's Fee	$4,779,958	$49,791	$63	9%
Deferred Construction Interest	$777,280	$8,097	$10	1%
GAP/(SURPLUS)	-$6,838,339	-$71,233	-$90	-13%
Total Permanent Uses	**$54,266,432**	**$565,275**	**$717**	**100%**

USES	Total	/Unit	/GSF	% Total
Acquisition Cost	$8,874,000	$92,438	$117	16%
Hard Cost	$33,377,085	$347,678	$441	62%
Soft Cost	$4,898,889	$51,030	$65	9%
Developer's Fee	$7,116,458	$74,130	$94	13%
Total Uses	**$54,266,432**	**$565,275**	**$717**	**100%**

APPENDIX I - CASHFLOW : BASELINE 50% AFFORDABLE

10 year hold			
Debt Assumptions			
	Loan to Value		80.00%
	Loan Amount		$65,219,558
	Term		10 Years
	Schedule		30 Years
	Interest Rate		4.50%
	Annual Payment	(perm)	$3,965,495
	Monthly		$330,458
	IO annual @ 6%	(constr)	$3,913,173
Exit Assumptions			
	Exit Cap Rate		5.25%
	Terminal NOI		$5,856,330
	Terminal Value		$111,549,151
	Cost of Sale		1.00%
	Remaining Debt Balance		$ 52,233,975.29

SOURCES		USES	
Equity	$16,304,889	Purchase Price	$29,274,000
Debt	$65,219,558	Hard Costs	$46,024,335
		Soft Costs	$6,226,112
Total Sources	**$81,524,447**	**Total Uses**	**$81,524,447**

PROJECT CASHFLOW		Closing	Construction Yr 1	Construction Yr 2	3	4	5	6	7	8	9	10	11
Purchase Price		$ 29,274,000											
Hard Costs		$ 46,024,335											
Soft Costs		$ 6,226,112											
Total Development Cost		**$ 81,524,447**											
		(2% land closing costs & 5% contingency built in- see development budget tab)											
Residential Income	Escalation												
Residential Rental Income	2%				$3,594,073	$3,665,955	$3,739,274	$3,814,059	$3,890,340	$3,968,147	$4,047,510	$4,128,460	$4,211,030
Parking Income	2%				$0								
Laundry Income	2%				$11,520	$11,750	$11,985	$12,225	$12,470	$12,719	$12,973	$13,233	$13,498
Residential Potential Income					**$3,605,593**	**$3,677,705**	**$3,751,259**	**$3,826,284**	**$3,902,810**	**$3,980,866**	**$4,060,484**	**$4,141,693**	**$4,224,527**
Less Vacancy	5%				-$180,280	-$183,885	-$187,563	-$191,314	-$195,141	-$199,043	-$203,024	-$207,085	-$211,226
Residential Effective Gross Income					**$3,425,314**	**$3,493,820**	**$3,563,696**	**$3,634,970**	**$3,707,670**	**$3,781,823**	**$3,857,459**	**$3,934,609**	**$4,013,301**
Commercial Income													
Commercial Income	2%				$3,039,657	$3,100,450	$3,162,459	$3,225,709	$3,290,223	$3,356,027	$3,423,148	$3,491,611	$3,561,443
Commercial Potential Gross Income					$3,039,657	$3,100,450	$3,162,459	$3,225,709	$3,290,223	$3,356,027	$3,423,148	$3,491,611	$3,561,443
Less Vacancy	5%				-$151,983	-$155,023	-$158,123	-$161,285	-$164,511	-$167,801	-$171,157	-$174,581	-$178,072
Commercial Effective Gross Income					**$2,887,674**	**$2,945,428**	**$3,004,336**	**$3,064,423**	**$3,125,712**	**$3,188,226**	**$3,251,990**	**$3,317,030**	**$3,383,371**
Project Effective Gross Income					**$6,312,988**	**$6,439,248**	**$6,568,033**	**$6,699,393**	**$6,833,381**	**$6,970,049**	**$7,109,450**	**$7,251,639**	**$7,396,672**
Operating Expenses													
Administration	3%				$715,763	$737,236	$759,353	$782,134	$805,598	$829,766	$854,659	$880,299	$906,708
Payroll	3%				$91,171	$93,906	$96,723	$99,625	$102,614	$105,692	$108,863	$112,129	$115,493
Utilities	3%				$125,200	$128,956	$132,825	$136,809	$140,914	$145,141	$149,495	$153,980	$158,600
Maintenance	3%				$180,325	$185,734	$191,306	$197,046	$202,957	$209,046	$215,317	$221,777	$228,430
Replacement Reserves	3%				$28,800	$29,664	$30,554	$31,471	$32,415	$33,387	$34,389	$35,420	$36,483
Real Estate Taxes	421a				$94,628	$94,628	$94,628	$94,628	$94,628	$94,628	$94,628	$94,628	$94,628
Total Operating Expenses					**$1,235,887**	**$1,270,125**	**$1,305,390**	**$1,341,713**	**$1,379,125**	**$1,417,660**	**$1,457,351**	**$1,498,233**	**$1,540,341**
Net Operating Income (NOI)					**$5,077,101**	**$5,169,123**	**$5,262,643**	**$5,357,680**	**$5,454,256**	**$5,552,388**	**$5,652,098**	**$5,753,406**	**$5,856,330**
	per unit				$52,886								

Total 10 year unlevered cashflow	**$49,135,025**

Levered Analysis 10 yr hold		Construction yr 1	Construction Yr 2	3	4	5	6	7	8	9	10
Cashflow		$ -	$ -	$5,077,101	$5,169,123	$5,262,643	$5,357,680	$5,454,256	$5,552,388	$5,652,098	$5,753,406
Debt Service		$3,913,173	$3,913,173	$3,965,495	$3,965,495	$3,965,495	$3,965,495	$3,965,495	$3,965,495	$3,965,495	$3,965,495
Net Cash Flow After Debt Service		-$3,913,173	-$3,913,173	$1,111,606	$1,203,628	$1,297,148	$1,392,185	$1,488,761	$1,586,893	$1,686,603	$1,787,911
Purchase Priced	-$16,304,889										
Debt Retirement											-$52,233,975.29
Sale Price											$111,549,151
Cost of Sale											-$1,115,492
Total Levered Cash Flow	-$16,304,889	-$3,913,173	-$3,913,173	$1,111,606	$1,203,628	$1,297,148	$1,392,185	$1,488,761	$1,586,893	$1,686,603	$59,987,595

Levered IRR		**12.72%**
Equity Multiple		**2.80x**
Profit	**$**	**45,623,182**

APPENDIX J - CASHFLOW : ALT 1 LIHTC RESIDENTIAL

OPT 2 PROJECT CASHFLOW - LIHTC only structure - (15 years used to determine deferred developer fee)		Closing	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Purchase Price		$ 8,874,000.00	**19%**														
Hard Costs		$ 33,377,085.00															
Soft Costs		$ 4,898,888.7															
Total Development Cost		**$ 47,149,973.72**															
		(2% land closing costs & 5% contingency built in- see development budget tab)															
Residential Income	Escalation																
Residential Rental Income	2%		$1,925,105	$1,963,608	$2,002,880	$2,042,937	$2,083,796	$2,125,472	$2,167,981	$2,211,341	$2,255,568	$2,300,679	$2,346,693	$2,393,627	$2,441,499	$2,490,329	$2,540,136
Parking Income	2%		$0														
Laundry Income	2%		$11,520	$11,750	$11,985	$12,225	$12,470	$12,719	$12,973	$13,233	$13,498	$13,767	$14,043	$14,324	$14,610	$14,902	$15,200
Residential Potential Income			**$1,936,625**	**$1,975,358**	**$2,014,865**	**$2,055,162**	**$2,096,266**	**$2,138,191**	**$2,180,955**	**$2,224,574**	**$2,269,065**	**$2,314,447**	**$2,360,736**	**$2,407,950**	**$2,456,109**	**$2,505,232**	**$2,555,336**
Less Vacancy	5%		-$96,831	-$98,768	-$100,743	-$102,758	-$104,813	-$106,910	-$109,048	-$111,229	-$113,453	-$115,722	-$118,037	-$120,398	-$122,805	-$125,262	-$127,767
Residential Effective Gross Income			**$1,839,794**	**$1,876,590**	**$1,914,122**	**$1,952,404**	**$1,991,452**	**$2,031,281**	**$2,071,907**	**$2,113,345**	**$2,155,612**	**$2,198,724**	**$2,242,699**	**$2,287,553**	**$2,333,304**	**$2,379,970**	**$2,427,569**
Project Effective Gross Income			**$1,839,794**	**$1,876,590**	**$1,914,122**	**$1,952,404**	**$1,991,452**	**$2,031,281**	**$2,071,907**	**$2,113,345**	**$2,155,612**	**$2,198,724**	**$2,242,699**	**$2,287,553**	**$2,333,304**	**$2,379,970**	**$2,427,569**
Operating Expenses																	
Administration	3%		$236,002	$243,083	$250,375	$257,886	$265,623	$273,592	$281,799	$290,253	$298,961	$307,930	$317,168	$326,683	$336,483	$346,578	$356,975
Payroll	3%		$91,171	$93,906	$96,723	$99,625	$102,614	$105,692	$108,863	$112,129	$115,493	$118,957	$122,526	$126,202	$129,988	$133,888	$137,904
Utilities	3%		$195,625	$201,494	$207,539	$213,765	$220,178	$226,783	$233,586	$240,594	$247,812	$255,246	$262,904	$270,791	$278,914	$287,282	$295,900
Maintenance	3%		$58,023	$59,764	$61,557	$63,403	$65,305	$67,265	$69,282	$71,361	$73,502	$75,707	$77,978	$80,317	$82,727	$85,209	$87,765
Replacement Reserves	3%		$28,800	$29,664	$30,554	$31,471	$32,415	$33,387	$34,389	$35,420	$36,483	$37,577	$38,705	$39,866	$41,062	$42,294	$43,563
Real Estate Taxes	3%		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Expenses			**$609,621**	**$627,910**	**$646,747**	**$666,150**	**$686,134**	**$706,718**	**$727,920**	**$749,758**	**$772,250**	**$795,418**	**$819,280**	**$843,859**	**$869,174**	**$895,250**	**$922,107**
Net Operating Income (NOI)			**$1,230,173**	**$1,248,680**	**$1,267,374**	**$1,286,254**	**$1,305,318**	**$1,324,563**	**$1,343,987**	**$1,363,588**	**$1,383,362**	**$1,403,307**	**$1,423,419**	**$1,443,694**	**$1,464,129**	**$1,484,720**	**$1,505,462**
	per unit		$12,949														
Total 15 year Cash Flow			**$20,478,030**														
ANNUAL DEBT SERVICE																	
HDC Tax-exempt Bonds			$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138	$984,138
HDC 2nd Mort			$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400	$62,400
HPD 3rd Mort			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Annual Debt Service			$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538	$1,046,538
Debt Service Coverage Ratio			1.18	1.19	1.21	1.23	1.25	1.27	1.28	1.30	1.32	1.34	1.36	1.38	1.40	1.42	1.44
Cash Flow After Debt Service			**$183,635**	**$202,142**	**$220,836**	**$239,716**	**$258,780**	**$278,025**	**$297,449**	**$317,050**	**$336,824**	**$356,768**	**$376,880**	**$397,156**	**$417,591**	**$438,182**	**$458,924**
Total Net Cash Flow over 15 years			**$4,779,958**														

APPENDIX K - CASHFLOW : ALT 1 COMMERCIAL

OPT 2 PROJECT CASHFLOW - Retail With Condo Structure		Closing	Construction yr 1	Construction Yr 2	3	4	5	6	7	8	9	10	11
Land Purchase Price		$ 20,400,000											
Hard Costs		$ 12,045,238											
Soft Costs		$ 2,421,783											
Total Development Cost		**$ 34,867,020**											
		(2% land closing costs & 5% contingency built in- see development budget tab)											
Commercial Income													
Commercial Income	2%				$3,039,657	$3,100,450	$3,162,459	$3,225,709	$3,290,223	$3,356,027	$3,423,148	$3,491,611	$3,561,443
Commercial Potential Gross Income					$3,039,657	$3,100,450	$3,162,459	$3,225,709	$3,290,223	$3,356,027	$3,423,148	$3,491,611	$3,561,443
Less Vacancy	5%				-$151,983	-$155,023	-$158,123	-$161,285	-$164,511	-$167,801	-$171,157	-$174,581	-$178,072
Project Effective Gross Income					**$2,887,674**	**$2,945,428**	**$3,004,336**	**$3,064,423**	**$3,125,712**	**$3,188,226**	**$3,251,990**	**$3,317,030**	**$3,383,371**
Operating Expenses													
Administration	3%				$324,284	$334,013	$344,033	$354,354	$364,985	$375,934	$387,212	$398,829	$410,793
Payroll	3%				$0	$0	$0	$0	$0	$0	$0	$0	$0
Utilities	3%				$57,753	$59,486	$61,271	$63,109	$65,002	$66,952	$68,961	$71,030	$73,160
Maintenance	3%				$94,130	$96,954	$99,863	$102,859	$105,944	$109,123	$112,396	$115,768	$119,241
Replacement Reserves	3%				$57,753	$59,486	$61,271	$63,109	$65,002	$66,952	$68,961	$71,030	$73,160
Real Estate Taxes	3%				$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Operating Expenses					**$533,921**	**$549,939**	**$566,437**	**$583,430**	**$600,933**	**$618,961**	**$637,530**	**$656,656**	**$676,356**
Net Operating Income (NOI)					**$2,353,753**	**$2,395,489**	**$2,437,899**	**$2,480,993**	**$2,524,778**	**$2,569,265**	**$2,614,460**	**$2,660,374**	**$2,707,015**

Total 10 year Cash Flow	**$22,744,026**

Levered Analysis 10 yr hold	0	Construction Yr 1	Construction Yr 2	3	4	5	6	7	8	9	10
Cashflow		**$0.00**	**$0.00**	**$2,353,753**	**$2,395,489**	**$2,437,899**	**$2,480,993**	**$2,524,778**	**$2,569,265**	**$2,614,460**	**$2,660,374**
Debt Service		-$1,673,617	-$1,673,617	-$1,695,994	-$1,695,994	-$1,695,994	-$1,695,994	-$1,695,994	-$1,695,994	-$1,695,994	-$1,695,994
Net Cash Flow After Debt Service		-$1,673,617	-$1,673,617	$657,759	$699,495	$741,905	$784,999	$828,784	$873,270	$918,466	$964,380
Purchase Priced	$ (6,973,404)										
Debt Retirement											-$22,339,840
Sale Price											$51,562,192
Cost of Sale											-$515,622
Total Levered Cash Flow	**$ (6,973,404)**	**-$1,673,617**	**-$1,673,617**	**$657,759**	**$699,495**	**$741,905**	**$784,999**	**$828,784**	**$873,270**	**$918,466**	**$29,671,111**

Levered 10 year hold

IRR	**15.05%**
Equity Multiple	**3.56x**
Profit	**$ 24,855,150**

APPENDIX L - SUSTAINABLE PRODUCT REVIEW - GREEN ROOF VS SOLAR PANEL

LOCAL LAW 92 & 94

In 2019 the city passed Local Law 92 and 94 as part of the Climate Mobility Act, requiring sustainable roofing systems for new construction, existing roof expansions and roof replacements. Under these laws, sustainable roofing is defined as a solar photovoltaic system, a green roof, or a combination of both. This applies to all buildings regardless of size, however, there are varying compliance requirements. For instance the minimum system size for PV is 4kW, for which you usually need at least 200sf. Green roofs can also be limited by roof pitch. Additionally, alternate compliance pathways are currently in place until 2024 for affordable housing while impacts to affordable development costs are assessed.

The law aims to (NYC Mayor's office of sustainability, 2019) -

- Create an additional 20-35MW of inner city solar power each year
- Manageme onsite an additional 1 million gallons of stormwater each year
- Reduce roughly 1 million tons of GHG emissions each year
- Create hundreds of green economy jobs

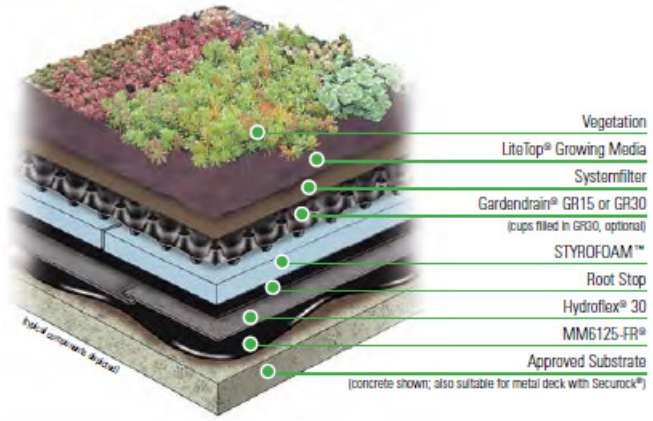
GREEN ROOF:

Benefits:

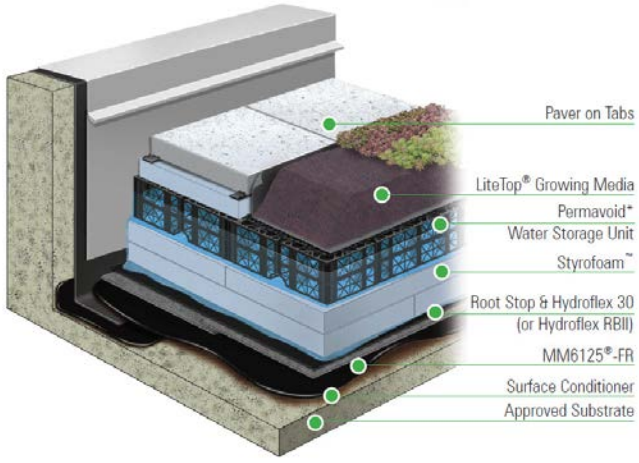
The most immediately noticeable impact of green roofs is their role in cooling and insulation. Due to the heat island effect, city temperatures are on average 5 deg F higher than surrounding areas (BeEx 2019). Vegetated roofs have a lower heat capacity and thermal conductivity than building materials and hard surfaces. This helps to reduce the urban heat island effect by shading building surfaces, deflecting radiation from the sun, and releasing moisture into the atmosphere. While vegetation technically has low albedo, the radiation is absorbed by the leaves. A green roof system can also provide some insulative properties, though these are low and usually attributed to the rigid insulation included in the system buildup.

A green roof system can also provide some stormwater detention benefits which reduces the stress on the City's 150 year old combined storm sewer system. The CSO tends to overflow in a rain event sending untreated wastewater directly into the rivers. A 15 month demonstration project in Portland Oregon showed a 4" extensive green roof system was able to reduce runoff by 70%, and reduce peak runoff by 95% during an intense storm (Hydrotech USA, 2015). This is better managed in tandem with a blue roof system whereby lightweight waffle structures can be included in the green roof buildup in

Extensive Garden Roof® Assembly



Hydrotech's Garden Roof® Assembly Blue Roof



Source: Hydrotech USA

order to detain water beyond the soil capacity. Careful consideration needs to be made to the choice of roofing membrane and structural loading of the roof to accommodate the extra weight of the saturated soil and any additional detained water. An added benefit is that a green roof system can greatly extend the life of the roof by protecting the membrane from damage and UV. Multiple manufacturers can supply interchangeable systems with full warranty which keeps pricing competitive and simplifies maintenance.

Green Roofs also present a form of habitat creation for insects and birds. Including areas of intensive green roofs with deeper soils that allows for larger shrubs and small trees benefits a diverse range of invertebrate and avian biodiversity.

Finally, a green roof has biophilic qualities. Biophilia is defined as 'the innate human instinct to connect with nature and other living beings' (NRDC) and has been found to support cognitive function, physical health, and psychological well-being. In short, being in nature makes people happy. Having a green roof people can access or even just have views onto can be considered a desirable building amenity and a value add.

Cost and Incentives:
Green roof costs in NYC can vary greatly as they are subject to economies of scale. For a 10,000-20,000sf system, which aligns with the size of the 296 Wythe Street Project, Urban Strong quotes $18sf supply and install. Hydrotech quotes $22/sf, including the roofing membrane. In NYC there is a green roof property Tax Abatement which can range between $5.23/sf and $15/sf. However, it cannot be used if other tax abatements, such as 421a, are being pursued. There is also a DEP Green Infrastructure Grant that can cover up to 100% of the capital cost, but the requirement for existing mortgages to be subordinate to the DEP Grant means that it is almost impossible to qualify for. The cost of the green roof system could be included in a cPace funding allocation, which is paid off via property taxes, which can also be claimed as a tax deduction.

Given the above, it is not anticipated that funding opportunities will be available for the green roof system on the project, except possibly through cPace debt.

SOLAR PANELS:

Benefits:
The core benefit to having rooftop solar panels is on-site energy generation, however they also help to provide shading of buildings and therefore assist with cooling of interiors. In NYC there are flexible ownership models where building owners and developers are able to reap the benefits of solar energy, often at little to no up-front cost. Three primary setups include:

- Direct purchase, where the photovoltaic system becomes part of the property.
- Solar leasing, where the building owner rents a solar array owned by a third party.
- Solar Power Purchase Agreement (PPA), where building owners purchase the energy output from a solar array owned by a third party.

Direct Purchase:

Net Metering: The cost of the system is borne by the developer/building owner. Electricity generated is fed back into the grid and the meter 'rolled' back. This is directly reflected in the property bills therefore the owner gets the benefit. Additionally, rebates or tax incentives are typically given to the owner. Rates that ConED purchase the net metered electricity at are typically lower than the supply charge. Current quoted rates are 10.5c per kW/h. The payback on a 100kW system at this rate with no subsidies is roughly 12 years (excluding maintenance). The energy generated counts towards reducing the carbon footprint of the building. On site battery storage can also be added for passive survivability with power to somecommon areas during a power outage.

Benefits: The building gets the benefit of the electricity generated including: A reduction in electricity bill; access to subsidies and tax incentives; reduction in carbon footprint; and credit towards compliance with the emissions limits under LL97.

Costs and Subsidies: Government subsidies that can offset the capital cost include the NYSERDA Sun grant which accounts for roughly 15-20% of system cost, NYC property tax abatement and Federal Income tax credits. Additionally there is a Federal accelerated depreciation program.

Community Solar:

Community Solar Business models can be via a direct purchase or roof lease option, both of which provide income streams. For direct purchase Community Solar, subsidies were available through NYSERDA, however, at time of writing these have been exhausted. See figure T.

rates by CONED are higher for the community solar projects at $0.24 /kW. These are issued as credits with a higher return and are essentially an income stream, but cannot count towards the energy efficiency or GHG emissions reduction goals.

It's important to note that the incentives landscape is constantly changing and it is anticipated that due to the recently signed infrastructure bill that further subsidies will likely become available to developers and building owners.

Biosolar

While the law only requires either green or solar roof, there is benefit in a combined solar / green roof, also known as a bioroof. Studies show that a green roof can benefit the efficiency of the solar panels due to the tempering benefits of the vegetation which can increase electricity production of the panels by 3.6% (Velaquez 2021).

Allocated Capacity of CC and MTC per Tranche (MW AC)

Tranche	ConEd	NYSEG	Orange & Rockland	Central Hudson	National Grid	RG&E
Community Credit - Tranche 1	350 of 350 MW - Closed	110 of 125 MW - Closed	N/A	N/A	514 of 525 MW - Closed	81 of 80 MW - Closed
Community Credit - Tranche 2	N/A	36 of 36 MW - Closed	N/A	N/A	40 of 40 MW - Closed	7 of 7 MW - Closed
MTC - Tranche 0/1	8 of 136 MW - Closed	61 of 62 MW - Closed	19 of 23 MW - Closed	25 of 39 MW - Closed	66 of 140 MW - Closed	25 of 28 MW - Closed
MTC - Tranche 2	0 of 206 MW - Closed	59 of 84 MW - Closed	8 of 12 MW - Closed	18 of 19 MW - Closed	0 of 160 MW - Closed	37 of 42 MW - Closed
MTC - Tranche 3	0 of 205 MW - Closed	52 of 77 MW - Closed	26 of 12 MW - Closed	30 of 19 MW - Closed	0 of 177 MW - Closed	0 of 41 MW - Closed
MTC - Tranche 4	N/A	0 of 80 MW - Closed	14 of 15 MW - Closed	21 of 20 MW - Closed	N/A	N/A

BACK TO TOP

Current as of October 6, 2021. Closed tranches are indicated in red.

Figure T - NYSERDA Community Solar Allocation
Source: NYC.gov

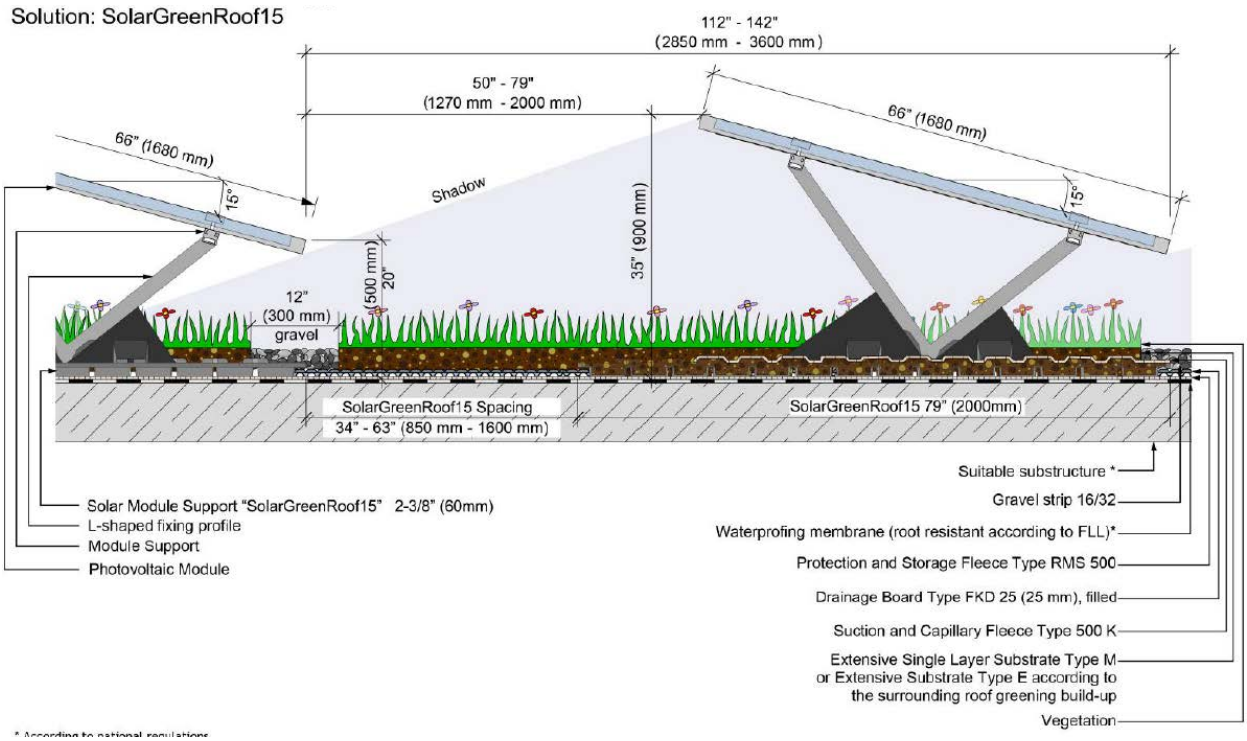


Figure U- BioSolar Roof System
Source: Urbanstrong

Total Costs:
This project is pursuing a biosolar roof system with a combination of extensive and intensive green roof, and assuming direct purchase of a 100 kW solar panel system that generates 165,760 kWh/yr (3.6% up from the 160,000 kWh/yr baseline). Eliminated CO2 per year equals 17 metric tons. Assumptions regarding subsidies include access to the NY-Sun grant, NYC Property Tax Abatement and Federal Investment Tax Credit. As the project is pursuing 421a or Articel XI tax abatements the Green Roof Abatement is not available. The solar panels count towards a reduction in emissions fines from 2030 onwards of $268/tonne. This results in a pay back of the biosolar system of 12 years.

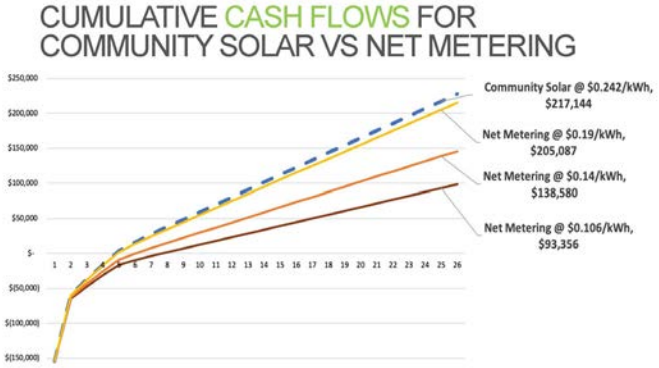


Figure V
Source: Urban Strong

Table 13 - Summary of Costs & Paybacks for Wythe

	Green Roof - 10,000sf	**Solar Panels - 100 kW**
Supply and Install Cost	$18/sf	$2.62 /W
Total Cost	**$180,000**	$262,000
Available Subsidies		66%
Updated Total Cost		**$89,080**
Annual Income @ $0.105 /kWh		$17,404
Annual Reduction in LL97 fines starting 2030 from solar		$4,556
Payback in years solar only		5
Payback in years solar & green roof	13	

Table 14- Summary of Available Incentives

Green Roof	**Solar Panels**
Green Roof Property Tax Abatement • $5.25 or $15/sf for priority areas DEP Green Infrastructure Grant • Up to 100% capital costs • 25 year restrictive covenant and funding doc • Existing mortgages must be subordinated C-PACE	NY-Sun Grant • $30/w - <20% of system cost NYC Property Tax Abatement • 20% total project costs C-PACE Federal Investment Tax Credit- 26% Federal Accelerated Depreciation NYC - Avoided cost of carbon - $268/ton

APPENDIX M - SUSTAINABLE PRODUCT REVIEW - CONCRETE

OVERVIEW

***Concrete is the world's most consumed resource after wat*er (Architecture 2030).**

Concrete is responsible for 8% of global GHG emissions. Roughly speaking, half the embodied carbon in a building is tied up in the foundations and the structure, which more often than not is constructed of concrete. Therefore 'reducing the carbon footprint from concrete is one of the most significant actions that the building sector can take' (Buildinggreen 2012).

Wythe Greens is a concrete block and plank building, commonly used for low cost construction, with a cast in place concrete basement level. This involves three key concrete product sectors:

- Ready Mix
- Precast
- Concrete Block

This sustainable product review looks to identify stand alone or composite low carbon solutions available specifically in the NYC region for use on the project.

THE BENEFITS OF CONCRETE

Concrete is an attractive building material because it is versatile and can be moulded when in its "wet" state. It solidifies over time, gaining strength and durability and is inherently fire proof. It is high in thermal mass and if designed property, works hard to help modulate interior temperatures to reduce heating and cooling loads and improve thermal comfort. Precast components can allow for expedited construction and higher quality control, and block construction requires no cure time onsite and can be easier and in some instances quicker to install than cast in place concrete.

ENVIRONMENTAL CONCERNS

Concrete is made from cement, sand, crushed stone and water. While the percentage of these components may vary between ready mix, precast and block, the constitutent parts remain the same. While environmental impacts including from resource extraction of stone and sand, as well as water use are a concern, this study focuses on Global Warming Potential (GWP). The majority of GHG emissions associated with concrete are actually attributed to the cement.

To meet the demands of society, 4.1 billion tonnes of cement is produced every year. (CEMBUREAU 2018 activity report). Based on population and development, the IEA CSI Cement Technology Roadmap predicts that global cement production is set to grow by 12-23% by 2050. Cement is made by firing limestone, clay and other materials at high temperatures in a kiln which is an energy intensive process. 60% of cement related emissions are from the heated limestone itself, and the other 40% from combustion of fuels in the cement kiln and other plant related processes' (GCCA).

Table 1Typical Concrete Mix

Typical Concrete Mix

Component	Percent by weight
Portland cement	12%
Sand	34%
Crushed stone	48%
Water	6%

Source: Based on figures provided by the Ready Mix Concrete Association, personal communication.

Source: GCCA

Baseline vs. Low-Carbon Concrete GWP
Source: BuildingGreen

Embodied Energy for Cement and Concrete Production

	% by weight	Btus per ton Materials	Btus per ton Hauling	Btus/yard concrete	Energy %
Cement	12%	5,792,000	504,000	1,574,000	94%
Sand	34%	5,000	37,000	29,000	1.7%
Crushed Stone	48%	46,670	53,000	100,000	5.9%
Water	6%	0	0	0	0%
Concrete	100%	817,600		1,700,000	100%

Figure W - Concrete Makeup and GWP

In reviewing whole life cycle impacts of cement and concrete, the GCCA identified several key levers for reducing carbon emissions towards achieving net zero. These are outlined below. As GCCA is an industry mody, a bias must be recognized towards allocation of impacts as highlighted in Figure X.

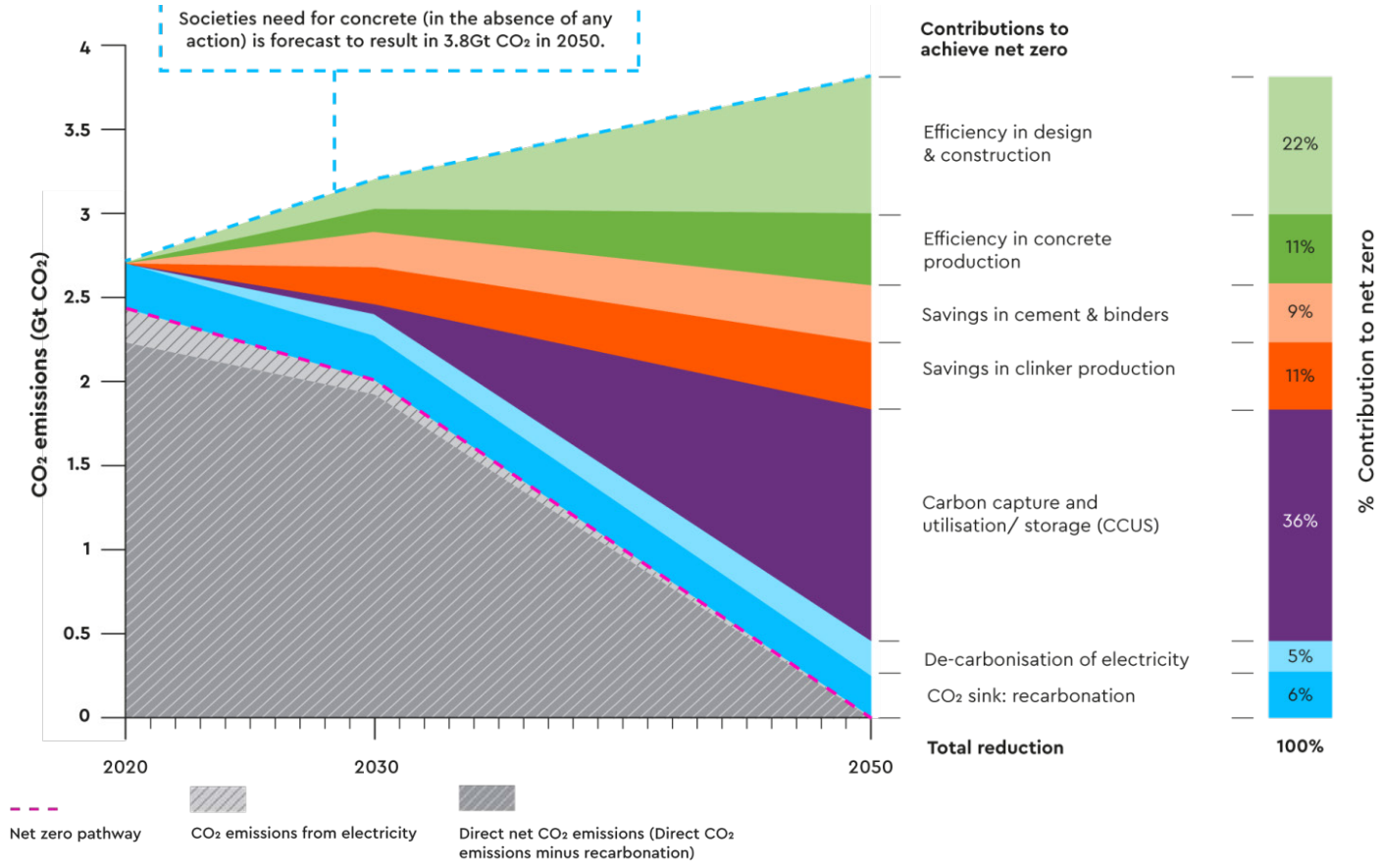
GCCA Levers for Getting to Net-Zero

1. **Savings in Clinker Production**
   Including from use of debarconated raw materials in lieu of limestone, thermal energy efficiency measures, non-recyclable alternative fuels (ie biomass) and kiln electrification
2. **Savings in Cement and Binders**
   Using cement substitutes such as flyash, slag and possolan, and mixtures or technologies that require less cement
3. **Efficiency in Concrete Production**
   Larger scale Industrialization over small batching
4. **Carbon Capture and Utilization and Storage**
   Injection of CO2 into wet concrete, curing of hardened concrete and in the manufacturing of aggregates
5. **Decarbonization of Electricity**
6. **Recarbonation**
   Accounting for the ambient sequestering of CO2 into cured concrete
7. **Efficiency in design and construction**
   Choice of concrete geometry and system for optimized design

DETAILED STUDIES

With a focus on decarbonization, products by two companies operating locally are reviewed in further detail - Pozzitive by Urban Mining, and Carbon Cure. These products address savings in cement, efficiency in concrete production, and carbon sequestration.

Figure X - Getting to Net-Zero
Source: GCCA



POZZITIVE, by Urban Mining:

Based in New Rochelle NY, Urban Mining is a licensed regional producer of Pozzitive, a high performance post-consumer pozzolan and functional industrial filler.

Using patented technology, Pozzitive turns any type of post consumer glass into a high quality refined fine powder which can be used in a wide variety of products, including as a cement substitute in concrete. The post consumer glass stream includes municipal waste glass such as bottles and jars, colored glass, as well as window plate.

Cement substitution in concrete is not new, and has been advocated for in tools like LEED for close to 20 years. Commonly used substitutes are post industrial bi-products such as flyash (from coal burning) and slag (from steel smelting). Flyash can swap out up to 50% of cement by volume, and slag, depending on the concrete use and specific strength requirements, can go up to 80%. However, both are increasingly difficult to source in the region, with slag currently imported from Europe.

Environmental Benefits of Pozzitive:

- 95% lower GWP than cement
- Increased strength to concrete over portland cement
- Whiter concrete color for reduced heat island effect
- Uses locally sourced post consumer recycled glass, minimizing waste to landfill

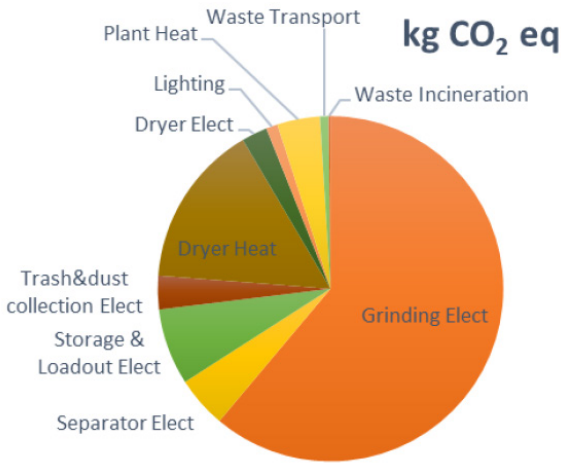


Figure Y - GWP Breakdown of Pozzitive
Source:Climate Earth LCA

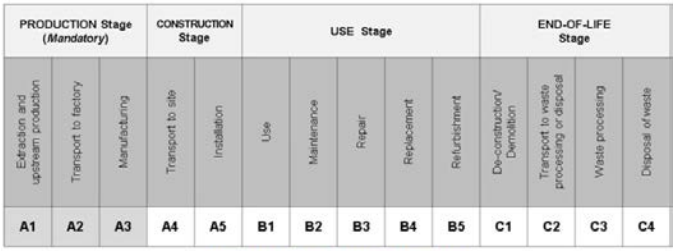


Figure 1: Life-cycle stages and modules

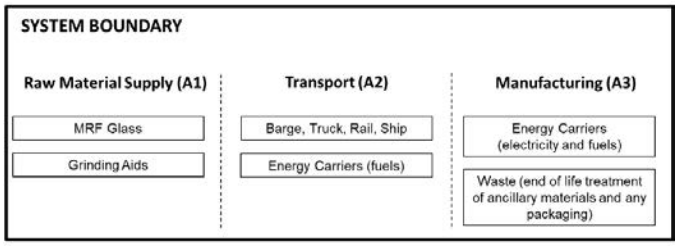


Figure 2: System Boundary for study

Figure Z - Lifecycle Stages and System Boundary of Study
Source:Climate Earth LCA

GWP: The global warming potential of a metric ton of Pozzitive is 56 kgCO2e. When compared to US Industry average GWP for Portland cement of 1040 kg CO2e, this equates to a 95% reduction in impacts. (Climate Earth Study).

An LCA was undertaken on the GWP of a concrete mix design by US Concrete/Eastern Concrete at their Jersey City plant. Results show a 42.2% reduction in GWP for the 9000 PSI mix when replacing 50% of the mix with Pozzitive. This factors in not only the reduced GHG emissions from the manufacturer of cement, but the change in shipping distance of cement and Pozzitive in the NY/NJ region.

The LCA study inputs from cradle to gate included the raw material supply, transportation of the glass to their Beacon Falls CT plant, and the energy to run the plant. A majority of the impacts come from the A3 lifecycle stage identified in Figure Z, with electricity from the grinding operation of the salvaged glass the primary source of global warming potential.

Glass availability: According to the American Concrete Institute, in New York, 3 million tons of cement are used annually for concrete. At a typical 30% SCM cement replacement, this potentially represents 1 million tons per year of glass pozzolan using 6 billion post-consumer bottles and creating a $1 billion USD market (ACI 2019).

Currently Urban Mining's post consumer recycled glass is sourced from Connecticut. They identified that they are in discussions with the City of New York to explore possibilities for establishing a NYC based supply chain from municipal recycling facility waste glass, and window pane glass (Grasso, 2021).

140,000 tons of waste glass is collected annually in NYC, but only 50% is actually recycled (ACI 2019). The rest is typically sent to landfill. This is due to limited markets for all types of glass included in municipal waste streams, especially colored glass. However, mixed-color waste glass from the bottle and jar industry is an inert material that when milled to micro-level particles does not change its chemical composition and provides favorable pozzolanic reactivity, making it suitable for use in the concrete production industry (ACI 2019). This supports glass waste reduction as a value-added sustainable construction material.

While volumes of potentially available municipal waste glass alone don't cover the cement replacement demand within NYC, use in the concrete sector presents an opportunity to support local government policy and improve collection processes. (CandEN 2021)

Current uptake: Previous concerns with the use of Pozzolans in concrete include quality control from the post consumer source, and the potential alkali-silica reaction which acts to reduce the alkali content of the cement. However, more recent studies undertaken for the NYC DDC using possolans from the Pozzitive patented technology, have identified that 'concrete mixes with pozzolans can follow standard procedures as for other conventional concrete,' (ACI 2019) and in fact, increases the strength of the concrete. Additionally, Pozzitive purports that with 50% inclusion 'the resulting concrete is made more durable, longer lasting and more impervious to the impact of chloride, sulfte attack and the stresses of the freeze/thaw cycle. It also assists with prevention of efflorescence' (Pozzitive website). Pozzitive can be used symbiotically with other cement replacement materials such as slag to achieve higher levels of substitution without compromising concrete performance.

Table 4: Cradle to Gate (A1-A3) GWP (kg CO2e) per cubic yard of a US Concrete/Eastern Concrete mix design with and without Pozzotive®

Mix Design/cyd			
material	quantity	w/out Pozzotive	with Pozzotive®
Type I/II Cement	lb	850	425
Pozzotive	lb	0	425
Sand	lb	1,150	1,150
Stone 1	lb	1,000	1,000
Stone 2	lb	700	700
Water	gal	34.7	34.7
Admix1	fl.oz	46.8	46.8
Admix2	fl.oz	17	17
Admix3	fl.oz	25.5	25.5
Global Warming Potential ($kg\ CO_2\ eq/m3$)		625	361

Table 15 GWP Comparisons of Concrete
Source:Climate Earth LCA

Local concrete companies that partner with Urban Mining and include Pozzitive in their mix designs for consideration in our specifications include:

- Glenwood Mason (CMU & Pavers)
- West Bricks (CMU & Pavers), and
- US Concrete (Ready Mix)

CARBON CURE

Carbon Cure manufactures a technology that introduces recycled CO_2 into fresh concrete. Once injected, the CO_2 undergoes a mineralization process and becomes permanently embedded. The CO2, when mixed with cement, converts into calcium carbonate which not only permanently stores the CO2, but increases the compressive strength of the concrete. This allows for optimization of mix designs, safely reducing cement content and lowering the carbon footprint of the concrete.

Carbon Cure's injection technology is set up at the concrete manufacturing plant. The system software speaks to the plant concrete mixer and it injects the CO2 as required for the chosen mix design. They have developed systems for Ready Mix, Precast and Block products that are tailored to the associated production lines. The CO2 is sourced from exhaust created by heavy industry. The gas is purified by the industrial suppliers and then delivered to concrete plants in pressurized tanks where it is injected into the concrete using the Carboncure equipment.

Savings gained vary between the concrete products as follows but on average, this equates to a reduced cement content of 3-6% with no compromise on concrete quality or performance, equivalent to 20-35 lbs CO2 per yd3.

- Ready Mix: 25 lb per cubic yard / 15 kg per cubic meter CO2 saved
- Precast: 34 lb per cubic yard / 20 kg per cubic meter CO2 saved
- Block : 1 lb / 0.5 kg CO2 saved per 30 standard blocks

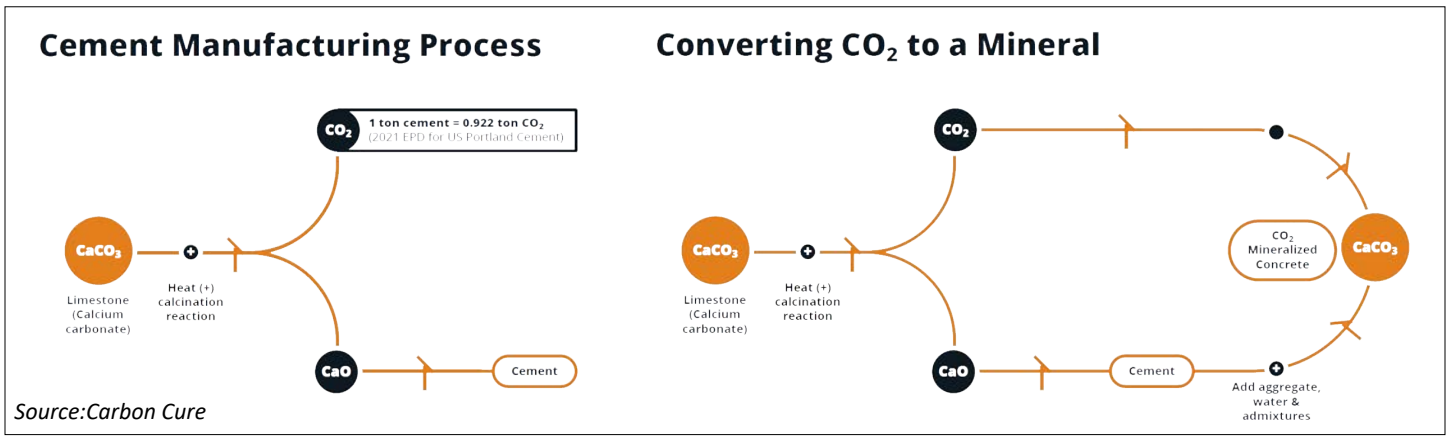
Additionally, the Carbon Cure system can be used to inject CO2 into unused concrete mix. It transforms the cement in reclaimed water slurry into a predictable resource that can be reused, reducing the virgin cement and water requirements in new concrete mixes. This reduces the use of fresh water by 17-20% and virgin cement by 8-10% when used in conjunction with CarbonCure Ready Mix.

In all, CO2 mineralization displaces a small portion of the total cement content. However, it can be used in combination with a variety of low carbon strategies without compromising performance and is cost neutral. Additionally, the concrete producer has the opportunity to purchase carbon offsets associated with the saved GHG emissions, which also equates to marketing goodwill.

Local concrete companies that partner with Carbon Cure that should be considered in our specifications include:

- Gotham Readymix (Readymix)
- Glenwood Mason (CMU & Pavers)
- Coreslab Structures (Hollowcore Planks)
- West Bricks (CMU and Pavers)

CARBON CURE™



Source:Carbon Cure

CONCRETE: NEXT STEPS

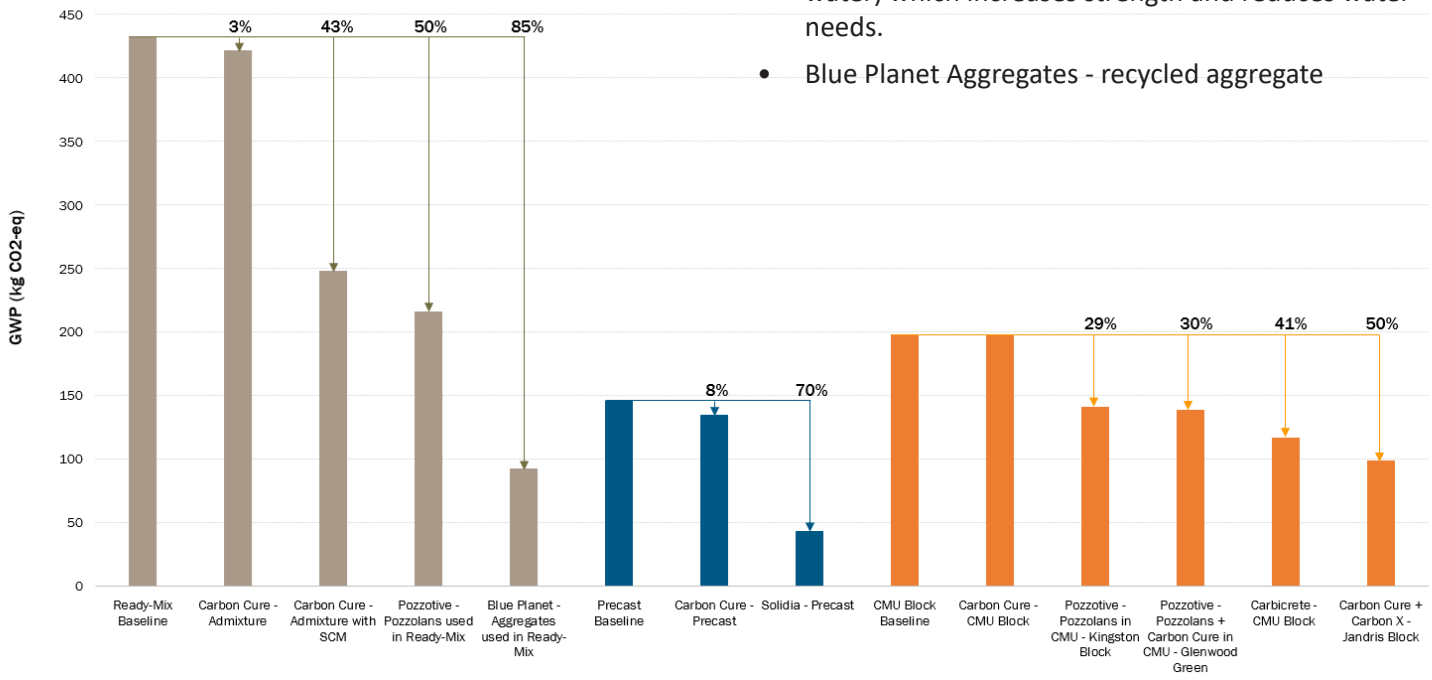
The research identifies that there is no one solution to achieving best practice low carbon concrete and that even within specific product streams, supply chains and location may impact their GWP.

For this project, some key actions for providing the greenest concrete possible include:

- Communicate our commitment to embodied carbon reduction throughout the supply chain early and often
- Establish design strengths for what is needed
- Use supplementary cementitious materials like Pozzitive and/or low-carbon cement (Solidia)
- Remove unnecessary prescriptive concrete specs
- Consider performance-based concrete specs
- Specify and/or approve CO2 mineralized concrete (Carbon Cure)
- Use recycled water, aggregates and sand

Some additional low carbon technologies to be further researched include but are not limited to:

- Solidia - low carbon cement from efficient manufacturing processes, and CO2 curing process (in lieu of water) which increases strength and reduces water needs.
- Blue Planet Aggregates - recycled aggregate



Source: Atelier 10

APPENDIX N - BIBLIOGRAPHY

CB1, “Williamsburg 197a - Comprehensive Plan“ Spring 2002 https://www1.nyc.gov/assets/planning/download/pdf/community/197a-plans/bk1_greenpoint_197a.pdf

NYCDCP, ”Greenpoint/Williamsburg rezoning” 03/6/2006 https://www1.nyc.gov/assets/planning/download/pdf/plans/greenpoint-williamsburg/greenpointwill.pdf

“Zoning without Planning”, Gotham Gazette https://www.gothamgazette.com/index.php/opinions/223-zoning-without-planning

Fred Stlouisfed.org “All Transactions Housing Pricing Index” https://fred.stlouisfed.org/series/USSTHPI

NYU Furman Cente, “Greenpoint/Williamsburg” 2020 https://furmancenter.org/neighborhoods/view/greenpoint-williamsburg

NYC GreenPoint Williamsburg Rezoning https://www1.nyc.gov/assets/planning/download/pdf/plans/greenpoint-williamsburg/greenpointwill.pdf

REBNY Brooklyn Retail Report - Summer 2021 https://www.rebny.com/content/rebny/en/research/retail/Summer_2021_Brooklyn_Retail_Report.html

FlatIron Real Estate Advisors, “CoStar Multifamily Market Report, NYC, NY”, 9/9/21

Corcoran “Brooklyn Rental Report”, July 2021 https://www.ecorcoran.com/uploaded_doc/Brooklyn_7_2021-Rental.pdf

Elliman “Q2 2021 Brooklyn Report” https://www.elliman.com/resources/siteresources/commonresources/static%20pages/images/corporate-resources/q2_2021/brooklyn-q2_2021.pdf

NYC Public Design Commission, AIA, Fine Arts Commission of New York, “Designing New York: Quality Affordable Housing”, 2018 https://www1.nyc.gov/assets/designcommission/downloads/pdf/5-8-2018_PDC_Designing_NY_Quality_Affordable_Housing_lowres.pdf

“Increase in Artists“ https://bklyner.com/number-artists-moving-brooklyn-rises/

Valeria Ricciulli, “A Guide to the Megaprojects: Domino Sugar Factory Redevelopment” Curbed, 11/11/2019 https://ny.curbed.com/2019/11/11/20954204/domino-sugar-factory-redevelopment-williamsburg-brooklyn-buildings

Center for an Urban Future, “More NYC artists, fewer studio schools” 2015 https://nycfuture.org/research/more-NYC-artists-fewer-studios-schools

Sadef Ali Kully, “De Blasio Housing Plan Created More Affordable Units, But Left Out City’s Most Vulnerable: Report” CityLimits, 02/05/21 https://citylimits.org/2021/02/05/de-blasio-housing-plan-created-more-affordable-units-but-left-out-citys-most-vulnerable-report/

Whitehouse Fact Sheet 09/01/21 https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/01/fact-sheet-biden-harris-administration-announces-immediate-steps-to-increase-affordable-housing-supply/

HDC “Extremely Low & Low-Income Affordability (ELLA) (Tax-Exempt Bonds)” https://www.nychdc.com/sites/default/files/2020-09/HDC_ELLA_Termsheet.pdf

HPD “New Construction term sheets” https://www1.nyc.gov/site/hpd/services-and-information/term-sheets.page

Kristin Brenlan, “Community Board 1 Approves River Ring in Marathon Meeting”, Brooklyn Paper, 09/15/2021 https://www.brooklynpaper.com/cb1-approve-river-ring/

River Ring https://www.riverring.nyc/

GEM Green Energy Money, “Brown Discounts & Green Premium Value Trends–New Real Estate Market Emerging Risk”, https://www.greenenergy.money/brown-discounts-green-premium-value-trends-new-real-estate-market-emerging-risk/

NY Passive House https://www.nypassivehouse.org

NY Engineers “Local Laws 92 and 94 a Practical Guide” https://www.ny-engineers.com/blog/local-laws-92-and-94-of-2019-a-practical-guide

APPENDIX N - BIBLIOGRAPHY

Urban Strong https://urbanstrong.com/blog

Bergland, Christian, "Navigating New York City's Sustainable Roof Requirement" Building Energy Exchange https://be-exchange.org/insight/navigating-new-york-citys-sustainable-roof-requirements/

Hydrotech USA https://www.hydrotechusa.com/sites/default/files/press/Stormwater-Oct-2015.pdf

NYC Mayor Office of Sustainability. "Local Law 92 and 94: Frequently Asked Questions"

Living Roofs https://livingroofs.org/green-roof-solar-boost-push-biosolar/

Turbinegenerator.org "New York Sunlight Hours & Renewable Energy Information" https://www.turbinegenerator.org/solar/new-york/

Building Energy Exchange "HPRT Tech Primer - solar PV and Batteries" https://beexchange.wpengine.com/wp-content/uploads/2019/01/HPRT_techprimer_Solar-PV-and-batteries.pdf

NY-Engineers, "Solar Purchasing Options Recommended by Engineers" , https://www.ny-engineers.com/blog/solar-power-purchasing-options-recommended-by-energy-consultants

Velaquez, Aramis (August 2021) "Study Finds Green Roofs Make Solar Panels More Efficient " Greenroofs.com https://www.greenroofs.com/2021/08/28/study-finds-green-roofs-make-solar-panels-more-efficient/

Global Cement and Concrete Association - "Carbon Neutral concrete by 2050" https://gccassociation.org/climate-ambition/

Carbon Cure "Low Embodied Carbon Concrete Leadership Act (LECCLA)" https://www.carboncure.com/concrete-corner/new-yorks-proposed-low-carbon-concrete-policy/

Ehrlich, B. (2012, June 29). "CarbonCure-Capturing Carbon in Concrete Blocks" Building Green https://www.buildinggreen.com/product-review/carboncure-capturing-carbon-concrete-blocks

Imperial College London, "Best Ways to Cut Carbon Emissions From Concrete" https://www.imperial.ac.uk/news/221654/best-ways-carbon-emissions-from-cement/

Building Green (1993, March 1). "Cement and Concrete: Environmental Considerations" https://www.buildinggreen.com/feature/cement-and-concrete-environmental-considerations

Malin, N. (2012, October 26). "Setting Carbon Footprint Rules for Concrete" Building Green https://www.buildinggreen.com/news-analysis/setting-carbon-footprint-rules-concrete

Melton, P., & Ehrlich, B. (2021, February 8). "Neutralizing the Downsides of Concrete". Building Green https://www.buildinggreen.com/primer/neutralizing-downsides-concrete

Global Cement and Concrete Association "Getting to zero" https://gccassociation.org/concretefuture/getting-to-net-zero/

Positive, "Product Benefits" Urban Mining https://pozzotive.com/product-benefits/#GGP

Ramsden, Keegan, "Cement and Concrete The Environmental Impact" Princeton Student Climate Initiave, https://psci.princeton.edu/tips/2020/11/3/cement-and-concrete-the-environmental-impact

Jacoby, Mitch (February 11, 2019) "Why glass recycling in the US is broken" Chemical and Engineering News. https://cen.acs.org/materials/inorganic-chemistry/glass-recycling-US-broken/97/i6#:~:text=Americans%20dispose%20of%20some%2010,makes%20glass%20difficult%20to%20recycle.)

West Bricks Website https://westbricks.com/

Pozzitive website https://pozzotive.com/

Carbon Cure website https://www.carboncure.com/case-studies/

APPENDIX N - BIBLIOGRAPHY

Reference artist studios and resources:

Brooklyn Art Studio- http://brooklynartstudiosnyc.blogspot.com/

NY Studio Factory - http://nystudiofactory.com/artist-studios

Nolo Studios - https://www.nolostudiosbrooklyn.com/nolo-collective-residency

NYFA https://www.nyfa.org/spaces/

MakerSpace - https://www.makerspace.nyc/

BX2 - https://www.bxspaces.com/locations/

Trestle Art - http://trestleartspace.org/

Materials Research Interviews:

Alan Burchel (Owner, Urban Strong) in discussion with Jennifer Dudgeon, October 2021

Rob Craudereuff (Owner, Crauderueff Consulting) in discussion with Jennifer Dudgeon, October 2021

Eric Dunford, (Senior Director, Carbon Cure) in discussion with Jennifer Dudgeon, November 2021

Patrick Grasso (Architectural Rep, Urban Mining) in discussion with Jennifer Dudgeon, November 2021

Charles Rotondo (Business Development, Glenwood Masonry) in discussion with Jennifer Dudgeon, November 2021

Katlyn Cadell (Architectural Rep, Jandris Block) in discussion with Jennifer Dudgeon, November 2021

Chris Neidl (Policy Advisor Concrete and Cement Decarbonization, NRDC) in discussion with Jennifer Dudgeon, November 2021