A Shifted Perspective on Affordable Micro Housing

Jonathan Reisman

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MILLENIAL HOUSING
THE RISE OF MICRO-UNIT APARTMENTS

By: Jonathan Reisman
This thesis contends that growing cities around the world are out pricing the younger demographic from the urban fabric.

Contends that constantly rising real estate markets are forcing Millennials outside of city centers.

Understands that socially, the younger demographic provides the energy and income required to keep the city alive.

And believes that in order for the younger demographic to reclaim their position in the housing market, a new typology of living needs to be created.

“There’s no place like home — except when you can't afford one” “Millennials have been priced out of some of the biggest U.S. cities, with residential real estate prices rising even as wage growth remains elusive.”
As a direct result of today’s inadequate housing supply, apartment rental prices around the world have skyrocketed the cost of living, out pricing many in desired cities.

An issue spanning across the global market, it can be seen that several countries have real estate prices which have increased over 50 percent since the year 1985.
In addition, density along with the definition of urbanism has reached to a point today which was before never conceived possible.

Day in and day out buildings are growing taller while populations grow larger.

A trend that can be considered irreversible, it is now our responsibility to recreate the cities housing stock, taking this new understanding of density into consideration.
When taking a closer look specifically at the United States, it is seen that many cities are indeed outpricing the youth based upon the expensive rental rates.

Cities such as New York, Los Angeles and so on.

**Table: Top 10 Highest 1 Bedroom Median Rents - December 2014**

<table>
<thead>
<tr>
<th>City</th>
<th>1 Bed Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Francisco, CA</td>
<td>$3,390</td>
</tr>
<tr>
<td>New York, NY</td>
<td>$3,100</td>
</tr>
<tr>
<td>Boston, MA</td>
<td>$2,100</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>$2,010</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>$1,780</td>
</tr>
<tr>
<td>Los Angeles, CA</td>
<td>$1,750</td>
</tr>
<tr>
<td>Miami, FL</td>
<td>$1,700</td>
</tr>
<tr>
<td>Seattle, WA</td>
<td>$1,580</td>
</tr>
<tr>
<td>San Diego, CA</td>
<td>$1,430</td>
</tr>
<tr>
<td>Minneapolis, MN</td>
<td>$1,410</td>
</tr>
</tbody>
</table>

Looking at New York City specifically, it can be seen that the apartment market value has increased year over year now for an ongoing period now.

In an attempt to combat this ongoing problem, many people have begun to reconsider the apartment necessities. Decreasing residential apartment size, with the intentions of lowering urban living expenses.
An increasing trend today, Micro housing was created as an architectural response to these expensive cities.

An apartment which provides an outlet for relative affordability.

An innovative apartment model meant to question existing living conditions.

Where the units are known to be even smaller then the existing studios and one-bedroom apartments.
Frontlined by Mayor Bloomberg just a few years ago, the micro unit conversation was brought to New York City via the Adapt NYC Competition.

A pilot program centered around the development of these units in hopes to bridge an existing housing gap.

A competition which gave many developers a chance to rethink the ways in which we live today.

Ultimately leading to a compact apartment design, tailored to the younger demographic who don't feel the need for an over abundance of space.

Examples of these competition submittals are seen above.
Now, despite New York City currently being one of the most expensive and desirable housing markets in the world, the city also faces a very large and prevalent housing crisis today.

Rental costs are rising much faster than income rates, currently leaving many households rent poor.

A problem spanning across multiple demographics. To be rent poor is to spend most of your earnings on rent. An all too common occurrence today in New York.
As the current connotation to affordable housing is that of very low income, this project understands affordable housing as compared to individual salaries.

For example, as defined by New York State, an individual who's salary is that of 42 thousand dollars, requires an apartment rent under 1,100 $ to avoid rent burden. A figure almost unheard of in today's Manhattan market.

Ultimately reinforcing the main argument, suggesting that it is time for a change in the city's residential housing stock.

However to first understand this need for change, we must reference the cities residential development overtime.

### What Is Affordable Housing?

<table>
<thead>
<tr>
<th>Income Band</th>
<th>Percentage of AMI</th>
<th>Monthly Rent Required to prevent rent-burden</th>
<th>Annual Income (for a four-person household)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Low Income</td>
<td>0-30%</td>
<td>Up to $629</td>
<td>&lt; $25,150</td>
</tr>
<tr>
<td>Very Low Income</td>
<td>31-50%</td>
<td>$630-$1,049</td>
<td>$25,151-$41,950</td>
</tr>
<tr>
<td>Low Income</td>
<td>51-80%</td>
<td>$1,050-$1,049</td>
<td>$41,951-$67,120</td>
</tr>
<tr>
<td>Moderate Income</td>
<td>81-120%</td>
<td>$1,679-$2,517</td>
<td>$67,121-$100,680</td>
</tr>
<tr>
<td>Middle Income</td>
<td>121-165%</td>
<td>$2,518-$3,461</td>
<td>$100,681-$138,425</td>
</tr>
</tbody>
</table>

A housing gap
Historically New York City throughout the 1900s experienced a massive amount of growth in both population and building size.

Recorded as the largest development era in New York's history, the 1920s produced a volume of housing which has never again been equaled quantitatively or qualitatively.

Largely based around the new progression in steel frame construction, buildings were put up faster than ever.
Separation of Wealth

As the city's urban density and population exploded, living conditions became an afterthought to the developer potential profits.

Without any existing restrictions, a large gap was created between the upper and lower classes of New York City.

Wealthy individuals moved into large and luxurious apartment buildings, while lower class citizens were moved into old and overcrowded buildings, known today as tenements.

These tenements which neglected many of the basic necessities a residence required, eventually became uninhabitable.

Forcing the state to act, and enabling the creation of city wide zoning codes.
The Origins of Zoning

Codes which originated with the establishment of the tenement housing act, have since transformed into a fully written guideline for developers and architects to follow.

Something which began as a way to ensure safe and comfortable living conditions, now a system of checks and balances for the city of New York.

However the New York City model itself refuses to stand still.

Having been constantly reformed with changing city demographics.

It can be seen that no code is considered set in stone.
The Origins of Zoning

Tenement housing act of 1867
State legislature’s first comprehensive legislation on housing conditions, prohibited cellar apartments unless the ceiling was 1 foot above street level; required one water closet per 20 residents and the provision of fire escapes.

Tenement housing act of 1901
“Known as the New Law, which implemented the Tenement House Committee’s recommendation of a maximum of 70 percent lot coverage and mandated strict enforcement, specified a minimum of 12 feet for a rear yard and 6 feet for an air and light shaft at the lot line or 12 feet in the middle of the building.”

Zoning Resolution of 1916
“Established height and setback controls and designated residential districts that excluded what were seen as incompatible uses.”

Zoning Resolution of 1961
“Coordinated use and bulk regulations, incorporated parking requirements and emphasized the creation of open space. It introduced incentive zoning by adding a bonus of extra floor space to encourage developers of office buildings and apartment towers to incorporate plazas into their projects. In the city’s business districts, it accommodated a new type of high-rise office building with large, open floors of a consistent size.”
Development Over Time

Looking at New York’s development over time, we can begin to see this progression of code and how it led to differing housing stock over the century.

Housing influenced by defining factors such as increasing population, technological advancements, government incentives and so on.
<table>
<thead>
<tr>
<th>Year</th>
<th>City Population</th>
<th>Housing Stock</th>
<th>General Sq Ft</th>
<th>Number of residence</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>1875</td>
<td>1,260,000</td>
<td>Low Rise 2-4</td>
<td>Medium</td>
<td>1875</td>
<td></td>
</tr>
<tr>
<td>1935</td>
<td>5,620,048</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**POPULATION DENSITY 3,437,202**

**POPULATION DENSITY 5,620,048**
Beginning in the 1800's, a population inflation of 2 million people forced many into overcrowded conditions known as tenements. These tenements had several residences surrounding a central circulation core where light and air was hard to come by. The central air shafts between buildings was often not enough daylight to suffice and left many feeling uncomfortable.
Housing Progression (Tenaments)

- COMMUNAL SPACE: 3216 SQFT
- SLEEPING SPACE: 800 SQ FT
- CIRCULATION SPACE: 490 SQFT
- SERVICE SPACE: 0 SQ FT
As time progressed and the city's population grew from 5 million to 7, another shift in New York City's residential housing stock can be seen.

Large scale developments such as Stuyvesant Town were constructed within the city, accommodating for the many families settling down post world war.

These developments replicated a single mid rise apartment model where residences lined a hallway and the central core dictated all circulation.

Placing both egress and Elevators in the center to maximise units and exposure.
Further it can be seen that these apartment units were basic in their necessities. With small floorplans and normative layouts for single family units.

Contrasted to the upper class mid rise development, which supports large residential units and an abundance of space.
Contrasted to the upper class mid rise development, which supports large residential units and an abundance of space.

DWELLING AT LONDON TERRACE IS SEEN TO BE PRIVATE WITH MINIMALLY SHARED CIRCULATION SPACE BETWEEN TWO LARGER APARTMENTS.
1975 POPULATION DENSITY 8,143,197

2015 POPULATION DENSITY 8,400,000

http://www.infoplease.com/ipa/A0922422.html
Now, as the population increased to a present 8.4 million inhabitants, Housing today has taken a turn towards the sky.

Buildings are constructed taller as a way to accommodate for expensive land prices. Prices which respond to the lack of undeveloped land in the New York City region.

Because of this, new buildings are often built for high end residential. While old buildings become refurbished as a way to extend a rentable lifetime.

However this is where the problem lies today. As buildings continuously get refurbished, and old floorplans remain. New tenants are forced into an old standard of living.
Forcing residents of the 21st century, who live arguably very differently from the residents of the 20th century, into the left over housing stock of an earlier generation.

A generation where previously individuals were getting married in their twenties and starting families earlier in life.

Millenials today are living outside this family setting for a much longer period of time.

The decline in marriage amount the young

% Married at Age 18 to 32, By Generation

- **Millennial (2013)**: 26%
- **Gen X (1997)**: 36%
- **Boomer (1980)**: 48%
- **Silent (1960)**: 65%

http://www.huffingtonpost.com/2014/03/11/millennials-marriage-age_n_4944558.html
A Millenial Shift

And as previous apartments buildings were tailored to the 3-4 bedroom family unit, A societal shift towards the non family oriented living condition has left buildings of the past unsuited to the needs of current city demographics.

Millenials today have turned to sharing space with roommates as a way to in fill the previous 3-4 bedroom apartments, and offset rental costs of the oversized space.
A Millenial Shift

However unfortunate it may be, New Yorkers understand that to afford rent in the city, recent college grads will likely need to move into areas far removed from Manhattan and double up—or even triple up—on roommates.

Where it is seen that a recent grad on any basic starting salary cannot afford to live on their own, with only 30 percent of their income going towards rent.

<table>
<thead>
<tr>
<th>MAJOR</th>
<th>STARTING SALARIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>$55,150</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>$50,528</td>
</tr>
<tr>
<td>Biology</td>
<td>$45,652</td>
</tr>
<tr>
<td>Engineering</td>
<td>$44,860</td>
</tr>
<tr>
<td>English</td>
<td>$44,170</td>
</tr>
<tr>
<td>History</td>
<td>$41,672</td>
</tr>
<tr>
<td>Communications</td>
<td>$39,810</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>$36,090</td>
</tr>
<tr>
<td>Psychology</td>
<td>$36,076</td>
</tr>
<tr>
<td>Education</td>
<td>$28,460</td>
</tr>
</tbody>
</table>
Moreover, it is clear that if the individual is willing to have two or more roommates, and still only limit themselves to spending 30 percent of their income on rent, the options throughout the city dramatically increase.

Interestingly enough, even with all of this knowledge on roommate statistics and affordability, we can still see buildings today following the same residential structure of the past.

http://ny.curbed.com/archives/2015/05/13/mapping_where_new_grads_can_barely_afford_to_rent_in_nyc.php
Buildings such as 95 Wall Street offering units which resemble the normative studio, one bedroom and two bedroom configuration.

Apartments constructed as a byproduct of current zoning ordinances, limiting the size of any one residence to 450 square feet.

Laws and guidelines which still restrict residential developments despite the changed dwelling habits of the modern demographic.
Mayor Bloomberg recognized this need for change, and began to reshape the outdated zoning ordinances. Understanding that apartments in expensive cities can function smaller than the required 450 SqFt.

His Adapt nyc competition was the first enabler to this 21st century zoning reform, and with the competition now coming to completion, the site can act as a precedent for future micro unit developments.

Developments that can begin to use newly adjusted zoning to create a changed living typology within urban cities. A new residential model providing an more affordable housing solution to the younger demographic.
This thesis will piggy back off this micro unit concept, and re purpose the individual typology into a larger communal living and social development.

A residential take on the already established communal office space. Where companies such as We Work have transformed the work environment entirely.

Working with the Millenials willingness to share space, as seen above. This differing approach to the apartment complex can supply an appropriate dwellings better suited the needs of the inhabitants, at a more affordable rate. Where require roommates to afford their own individual space.
By overlapping the micro unit with communal living space, the entire demeanor of what it means to live in "micro-housing" changes.

The break out space between the units will act as an extension of the personal individual unit. Meaning the entire building will function collectively.

- Giving back much needed space to the inhabitants of such small living quarters
- Providing a social atmosphere within the context of a single building
- Eliminating major building cost redundancies with shared amenities.
Specifically this building will be a combination of micro individual units and open shared living spaces.

Designed to feel as if the entire building is a usable space with the individual's room apart of a larger network.

Deconstructing the ideology of an apartment to include shared kitchens, living rooms, tables and so on.

Further the building will provide a variety of mixed-use program tailored to the desires of a young adult.

Examples include, restaurants, gyms, lounges, cafes, markets and so on.
Building Response

By providing the normative components of the apartment into programmatically shared spaces accomplishes a few things in terms of better living conditions for the inhabitants.

Where in the past kitchens, bathrooms, living rooms and so on were minimized and crowded, this building will feel larger and open the occupant.

Giving back a feeling of light and air to a resident of an otherwise small space.

Qualities proposed and lost by Le Corbusier during the 19th century seen in both the immobile villas and the new city.
Simultaneously, this building's communal living typology inherently increases the social nature of the space. The building becomes a community in which residents have the ability to meet and network on both a personal and professional level.
Ultimately this proposal establishes an in-between step for the young professionals as they begin the transition into adulthood. With the creation of a starter apartment, this building allows an otherwise out-priced demographic to live and give back economically and socially to the city. Combining a variety of differing residential typologies into a new model of micro communal housing. Accomplished through an analysis of these typologies which include the micro unit, dormitory housing and social housing, to further understand the best ways of successfully creating this building.
This proposed Micro unit building development is made up of a majority of single studio 300 SqFt micro apartments.

The corners are designed as larger apartments, breaking the space down into three and four person residences.

Throughout the core are a few opportunities for communal spaces, though not specified or designated.

Further the building accommodates amenities, dining living rooms lobbys and gyms for its residents. (Which can be seen labeled in the diagrams)
"A micro-unit has been described as an innovative apartment model, one that includes a kitchen and bathroom all smaller than what is allowed under current regulations."

Similar to the studio apartments, these units are known to be an individual’s first apartment.

The major differences between the two are that the micro unit optimizes the use of space at every opportunity, whereas the studio apartments may not. And that micro unit is often prefabricated off site to minimize cost and increase productivity.

Understanding Micro Units

With Sink, Stove Top
And Under Counter Refrigerator.

Open Closet Space Allows for personalized storage

Maximize Seating While adding Storage

For Natural light and Views

300SF Seems Pretty Spacious
The Morphosis design Emerson Film school in Los Angeles is a combined dormitory and institution, and is a great example of communal living.

The building has a variety of shared amenities such as kitchens, gyms, studios, classrooms, cafes, patios, and so on.

The program is kept completely separated and integrated completely, allowing inhabitants to either be in the institutionalised space or bypass it completely through two differing modes of circulation.

**Combining Typologies (Dormatory Housing)**

**Programatic Layout**

1. Distance learning Room
2. Multi Purpose Room
3. Production Room
4. Post Studio Room
5. Screening Room
6. Student Dormatory
7. Grand Stair
8. Public Cafe
9. Car Park
10. Conference Room
11. Teaching Office
12. Common Room
13. Terrace
14. Lobby
15. Computer Lab
16. Cafe
17. Bath
18. Fitness
19. Hall
20. Classroom
The MVDRV designed Celosia house is a great example of modern European social housing.

This building incorporates a variety of open spaces in between uniform blocks of programmatic residences to create an inviting atmosphere.

Further, the redundancy of the building allows for cheaper and faster building methods.
This development of 21 micro-units is currently under construction in what will become a dorm-room-esque experiment in collective living. Each apartment will have a tiny kitchen, bathroom, bedroom and living space packed into 300 square feet. But outside the apartments is a common space, a chef’s kitchen, a game room and a TV room. “An interesting precedent to follow and consider moving forward.”
The Site

The Site located at 11 West 17th street in West Chelsea, New York is a perfect location for a new development tailored to the younger demographic. Not only is the area one of the most desirable locations in the city for the younger population, the surrounding context also tailors progratically the this demographic.
The Site
The Site

SITE Plan
**Site Demographics**

**Median Age of Population**

There are 2,877 people residing in this area, which is equivalent to 7,398 People per Mi².

**NUMBER OF PEOPLE PER AGE GROUP:**

- 60% <18
- 40% 18-25
- 20% 25-35
- 0% 35-45
- 0% 45-55
- 0% 55-65
- 0% 65+
Population Commuting Longer than 30

- <25%
- >75%

Population Commuting By Transit

- <1%
- >50%
MEDIAN RENTAL PRICE
2800 PRICE/BEDROOM

40% Inhabitants between 25-35
Chelsea Peir- Chelsea Piers is one of the finest sports and recreational facilities in the country, offering instructional programs, sports leagues, competitive teams, fitness and drop-in fun for children and adults.

The pier includes:
- Golf Club
- Sports Center and Health Club
- Sky Rink
- Field House
- Bowling Alley
- Studios
- Marina
- Venue
Chelsea Market - an enclosed urban food court, shopping mall, office building and television production.

Examples of Program Include:

- A Shine & Co.
- Amy's Bread
- Anthropology
- Artists & Fleas
- Bar Suzette
- Beyond Sushi
- Bowery Kitchen
- Buddakan
- Buon Italia
- Chelsea Market Baskets
- Chelsea Thai
- Chelsea Wine Vault
- Corkbuzz
- Cull and Pistol
There are several other outlets for food in the area. Restaurants in the area include:

- The Standard Grill
- Artichoke Pizza
- Starbucks
- Dos Caminos
- The Sugar Factory
- The Park
- Sarafinas
- Fig and Olive
- Del Pesto
- The Beer Garden
- The Diner
- Solstice
- Loctain
- Coffee Bean and Tea Leaf
There are several retail stores in the area. Examples of these stores include:

- The Apple Store
- Scoop
- Asics
- Patagonia
- Levi
- Hugo Boss
- The Kooples
- Lulu Lemon
- And so on...
Generally there are a lot of things to do in the area, from nightlife to sports and fitness. Activities in the area include:

- Soul Cycle
- Equinox
- 1-Oak
- The Gansevort
- Soho House
- Highline Ballroom
- The Standard rooftop
- The Beer Garden
- The Brazen Fox
- The Whitney Museum
- The Dream Hotel
- Chelsea Pier
There are Two Bus Stops on site.

The M12 & The M14A

The M12 bus connects west Chelsea to Columbus circle, with several stops in between.

While the M14A Connects Chelsea piers, or the west side, with the lower east side Via 14th street.
Train Routes

The closest subway lines to the site are The A, C, & E

The A, C & E subway lines run from west Chelsea into several different areas around the city. Connecting the site to the upper west side, lower financial district, Queens and Brooklyn.

Located only a 4 blocks walk away, an individual can get to any part of the city with this interconnected train line.
The site has many outlets for biking and walking around the area. On one side of the site is the high line, which connects the meat packing district up to Hudson yards via an elevated walkway. And on the other side of the site is the west side bike and running path. This pathway allowing for walking and biking follows the west side highway and connects the financial district all the way up past Columbus circle.
Site Breakdown

76 11th Avenue was acquired by HFZ Capital in April 2015

A group including JPMorgan, Backrock, and SL Green

The land acquisition price was $870,000,000 at $1,100 per SqFt.

The lot size is 72,940 SqFt, and the site is zoned for 850,000 SqFt of building development.

A R-10 high rise zoning with a current height restriction at 38 stories.

In R-10 districts there are no height factors or open space ratios. Each zoning lot, regardless of its size, has a floor area ratio of 10. Open space is controlled by a lot coverage requirement.
In order to make micro unit affordable housing a reality on this site, the building site will have to be separated into three differing building typologies.

High end Residential, Micro Unit Housing, and commercial retail space.

The introduction of both high end residential apartments and commercial retail space will ultimately offsets majority of the costs associated with both land, and construction. Enabling the development of affordable units on an otherwise unaffordable location.
The construction cost of the full 850 thousand square feet of buildable space comes out to 260 Million Dollars.

When assuming both the average New York city construction costs of 400-600$SqFt for high end residential, and average pre fabrication building costs of 200$ SqFt for the remainder.

Overall construction cost, plus the land acquisition equates to a total development cost of 1.295 Billion Dollars.
Breaking down the site into three revenue streams.

250 Thousand Square feet will be sold as apartments at the on site market rate of $3,500 SqFt.

150 Thousand Square Feet will be allocated to commercial use. Renting at the on site market rate of $2,500 SqFt.

450 Thousand Square Feet will be broken up into 743 Micro units rented at $1,500 SqFt.
Assuming 100 percent of the Apartments sell out, this portion of the building will bring in 875 Million dollars of revenue. A one time fee.

Additionally the commercial space renting at the on site market rate will bring in 375 million dollars of revenue a year to the site.

Lastly, renting the micro units at the affordable margins of 1,500 $SqFt will bring in 13,374 million dollars of revenue a year.
### Market Comparables

**Price per Square Foot Average = $2,850**

**Available Units**

<table>
<thead>
<tr>
<th>UNIT</th>
<th>PRICE</th>
<th>SQ FEET</th>
<th>PRICE PER SQFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>5a</td>
<td>$4,990,000</td>
<td>2,144</td>
<td>2,327</td>
</tr>
<tr>
<td>3west</td>
<td>$6,300,000</td>
<td>2,993</td>
<td>2,104</td>
</tr>
<tr>
<td>2B</td>
<td>$6,600,000</td>
<td>3,093</td>
<td>2,133</td>
</tr>
<tr>
<td>6 West</td>
<td>$7,800,000</td>
<td>2,993</td>
<td>2,600</td>
</tr>
<tr>
<td>Penthouse West</td>
<td>$18,850,000</td>
<td>4,664</td>
<td>4,041</td>
</tr>
<tr>
<td>Penthouse 1</td>
<td>$22,000,000</td>
<td>5,728</td>
<td>3,840</td>
</tr>
</tbody>
</table>
Now looking at the whole site collectively, when separating the sales of luxury apartments into a thirty year break mortgage break down, the development's total annual income comes out to 417.5 Million dollars.

Comparing that income revenue stream to the total operating expenses, the net operating income per year comes out to 374.3 Million dollars.

Ultimately proving that micro units can exist on site for affordable prices.

\[
\frac{875,000,000}{30} = \\
+ 29,166,666 + 375,000,000 + 13,374,000 = 417,540,666 \text{ Annual Income} \\
\times 10\% \text{ Vacancy Rate} = 375,786,000 \text{ Annual Income} \\
- 965,000 \text{ Annual Operating Expenses} = 374,821,000 \text{ Annual Income}
\]
### Detailed Financial Statement

**DEVELOPMENT COSTS**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition Costs</td>
<td>$870,000,000.00</td>
</tr>
<tr>
<td>Hard Costs</td>
<td>$260,000,000.00</td>
</tr>
<tr>
<td>Total Acquisition &amp; Construction</td>
<td>$1,190,000,000.00</td>
</tr>
</tbody>
</table>

**Soft Costs**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Fee</td>
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</tr>
<tr>
<td>Construction Interest (12months)</td>
<td>$56,500,000.00</td>
</tr>
<tr>
<td>Architectural</td>
<td>$22,600,000.00</td>
</tr>
<tr>
<td>Filing Fees</td>
<td>$11,300,000.00</td>
</tr>
<tr>
<td>Legal</td>
<td>$2,825,000.00</td>
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<td>Accounting</td>
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<td>Appraisal</td>
<td>$5,000.00</td>
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<tr>
<td>Title Insurance</td>
<td>$5,650,000.00</td>
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<tr>
<td>Marketing</td>
<td>$2,825,000.00</td>
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<tr>
<td>Subtotal</td>
<td>$161,030,000.00</td>
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<td>Contingency</td>
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<tr>
<td>Total Soft Costs</td>
<td>$165,860,900.00</td>
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**Total Development Costs**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,295,860,900.00</td>
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**EXPENSES**

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Management Fee (of Total Inc.)</td>
<td>5% $16,190,000.00</td>
</tr>
<tr>
<td>Total Insurance</td>
<td>7,000.00</td>
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<tr>
<td>Maintenance and Repair</td>
<td>10,000.00</td>
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<tr>
<td>Common Area Utilities</td>
<td>10,000.00</td>
</tr>
<tr>
<td>Water</td>
<td>3,000.00</td>
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<tr>
<td>Elevator Maintenance Contract</td>
<td>10,000.00</td>
</tr>
<tr>
<td>Window Cleaning/Snow Removal</td>
<td>2,000.00</td>
</tr>
<tr>
<td>Trash</td>
<td>12,000.00</td>
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<tr>
<td>Accounting</td>
<td>5,000.00</td>
</tr>
<tr>
<td>Cleaning Contract - Janitorial</td>
<td>8,000.00</td>
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<tr>
<td>HVAC Repairs and Maintenance</td>
<td>3,000.00</td>
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<td>Real Estate Taxes - 485 A Program</td>
<td>20,000.00</td>
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**TOTAL EXPENSES**

<table>
<thead>
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<th>Amount</th>
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<tbody>
<tr>
<td>$106,290</td>
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**First Mortgage Financing**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Total Development Costs</td>
<td>$1,295,860,900.00</td>
</tr>
<tr>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>Economic State Development - Grant</td>
<td>$1,295,860,900.00</td>
</tr>
<tr>
<td>Amount to Finance</td>
<td></td>
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<tr>
<td>Schedule</td>
<td>$100,000.00</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>5%</td>
</tr>
<tr>
<td>Payment</td>
<td>(254,477,538.10)</td>
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**INCOME AFTER DEBT**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
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<tbody>
<tr>
<td>$291,344,061.82</td>
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**NET OPERATING INCOME**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$374,821,600.00</td>
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</table>

**COMMERCIAL INCOME**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>$375,000,000.00</td>
</tr>
<tr>
<td>Rate</td>
<td>5%</td>
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<tr>
<td>Monthly Rent</td>
<td>$875,000,000.00</td>
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<td>One Time Fee</td>
<td>0.5%</td>
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**RESIDENTIAL INCOME**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>High End Residential</td>
<td>$29,166,666.67</td>
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<tr>
<td>Low End Residential</td>
<td>$13,374,000.00</td>
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**TOTAL INCOME**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$427,540,666.67</td>
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**Effective Gross Income**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$375,786,600.00</td>
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</table>

**INCOME AFTER DEBT**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$374,821,600.00</td>
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</tr>
</tbody>
</table>

**Debt Coverage Ratio**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.49</td>
<td></td>
</tr>
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</table>
Because West Chelsea Currently has a population of 2,877 inhabitants. The existing programmatic infrastructure supporting this community will not be enough to handle the influx of people.

The additional residents to the neighborhood will require more programmatic space. Necessities such as super markets, Pharmacies, Banks, Cafes, Restaurants, Gyms, and so on.
A First look at 76 11th Avenue, BIGG-Designed Towers

The Project will total nearly 850,000 Square feet, and will be split between two buildings. The western tower will rise to 402 feet while its eastern counterpart will stand 302 feet and both will sit atop an active base featuring a major retail component as well as a hotel.

Retail will span the entire first floor, and per stacking diagrams, the space could also include a gallery. The next three floors will feature a hotel, as well as the residential amenities.

Plans include approximately 50,000 square feet of retail, 200,000 square feet of hotel and roughly 550,000 square feet of residential.
Concluding Remarks

In a city where expensive rental rates are outpricing the younger demographic, a new take on micro housing, which suggests a change in existing zoning laws, can provide an a solution to the current real estate crisis. Bringing a missing demographic back into the city, by utilizing the cash flows of both high end residential and commercial ventures as a way to offset expensive land and construction prices.
BIBLIOGRAPHY


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http://www.citylab.com/housing/2015/05/most-millennials-dont-live-downtown/393269/
http://www.nytimes.com/2014/10/20/nyt/where-young-college-graduates-are-choosing-to-live.html?_r=0
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http://www.curbed.com/archives/2015/04/16/see_a_390squarefoot_studio_morph_into_5_different_rooms.php#more
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MICRO UNIT APARTMENTS
10%
MONTHLY RENT
$501,200 ANNUAL RENT
1005 PER RESIDENT

MICRO UNIT APARTMENTS
30%
STABILIZED RENT
$7,632,000 ANNUAL RENT
$1000-1600 A MONTH

MARKET RATE APARTMENTS
40%
MARKET RATE SALES
$972,837,500 ONE TIME
APARTMENTS STARTING AT $2,250 - $3300

RETAIL SPACE
20%
MARKET RATE LEASING
$77,306,880 ANNUAL RENT
RETAIL SPACE AT $40 A MONTH

NET OPERATING INCOME
$129,760,410
PAYMENT (OVER 30 YEARS)
$93,129,913
INCOME AFTER DEBT
$36,630,496

R-10 BUILDING ENVELOPE
MIXED USE DEVELOPMENT
875,280 SqFt

COST TO BUILD
1005 SQFT ESTIMATE
$437,640,000

SITE ACQUISITION
1,100 SQFT
$870,000,000

DEBT COVERAGE RATIO
1.39
**PRO FORMA  40% 40 % 20 % split**

76 11th Ave  
Stabilized Income and Expense Pro-forma

<table>
<thead>
<tr>
<th>Recurring Revenue</th>
<th>Sq. Ft.</th>
<th>Rental Rate</th>
<th>Monthly Rent</th>
<th>One Time Fee</th>
<th>Annual Rent</th>
<th>$77,306,880</th>
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<tbody>
<tr>
<td>COMMERCIAL INCOME</td>
<td>161,056</td>
<td>40</td>
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<td>$77,306,880</td>
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<table>
<thead>
<tr>
<th>RESIDENTIAL INCOME</th>
<th>Beds</th>
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<tbody>
<tr>
<td>(40%) Low End Residential</td>
<td>424</td>
<td>$1,500</td>
<td>636,000</td>
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<td>$7,632,000.00</td>
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<tr>
<td>Amenity Fee</td>
<td>$100</td>
<td>42,400</td>
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<td>551,200.00</td>
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<table>
<thead>
<tr>
<th>TOTAL INCOME</th>
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<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Gross Potential Income</td>
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<td></td>
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<td>$85,490,080.00</td>
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<tr>
<td>(Low End &amp; Commercial) Vacancy</td>
<td>10%</td>
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<td></td>
<td></td>
<td>$8,549,008.00</td>
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<tr>
<td>(High End) Vacancy</td>
<td>50%</td>
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<td>$486,418,750.00</td>
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<td>Effective Gross Income</td>
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<thead>
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<td>$48,641,875.00</td>
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<td>Insurance Fee</td>
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<td>100,000.00</td>
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<tr>
<td>Common Area Utilities</td>
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<td></td>
<td></td>
<td></td>
<td>100,000.00</td>
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<tr>
<td>Water</td>
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<td>50,000.00</td>
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<tr>
<td>Elevator Maintenance Contract</td>
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<td>Window Cleaning/Snow Removal</td>
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<td>15,000.00</td>
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<td>46,085,919.66</td>
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<td>Cleaning Contracts</td>
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<td>100,000.00</td>
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<tr>
<td>Real Estate Taxes</td>
<td>17%</td>
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<td></td>
<td></td>
<td>261,153,544.74</td>
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| Total Operating Expense                    |         |             |              |              | $356,658,339.40 |             |     |

| NET OPERATING INCOME                       | $129,760,410.60 | |      | |

<table>
<thead>
<tr>
<th>First Mortgage Financing</th>
<th>Total</th>
<th>$1,445,699,243.00</th>
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<tbody>
<tr>
<td>Total Development Costs</td>
<td></td>
<td>$1,445,699,243.00</td>
<td></td>
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<tr>
<td>Equity</td>
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<tr>
<td>Amount to Finance</td>
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<tr>
<td>Interest Rate</td>
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<tr>
<td>Payment</td>
<td>(593,129,913.08)</td>
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| INCOME AFTER DEBT                          | $36,630,496.92 |   |
| Debt Coverage Ratio                        | 1.39       | |
### Market Comparables

<table>
<thead>
<tr>
<th>Availability</th>
<th>Unit</th>
<th>Beds</th>
<th>Bathrooms</th>
<th>Price</th>
<th>SQ Feet</th>
<th>Outdoor Space</th>
<th>Floorplan</th>
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<tbody>
<tr>
<td>3 West</td>
<td>3</td>
<td>3.5</td>
<td></td>
<td>$6,300,000</td>
<td>9,993</td>
<td>-</td>
<td>PDF download</td>
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<tr>
<td>5D</td>
<td>3</td>
<td>3.5</td>
<td></td>
<td>$6,500,000</td>
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<tr>
<td>Penthouse West</td>
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<td>4.5</td>
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<td>$18,850,000</td>
<td>4,664</td>
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<td>PDF download</td>
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<tr>
<td>Penthouse 1</td>
<td>4</td>
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<td>$22,000,000</td>
<td>5,798</td>
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