

Data Sheet for Blog Post
Frictions and the City: Housing Affordability and Redevelopment in New York (Part I)

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June 13, 2022

I. Data Sources

All demographic data are taken from the American Community Survey available at <https://data.census.gov/cedsci/>. The data is for 2020 using the 5-year average estimates. The data is based on population-weighted averages of the census tracts in Norwood.

Building sales data is from the NYC Dept of Finance Rolling Sales File. In my case study, I used one building along Mosholu Parkway (45 East Mosholu Parkway N) which sold in October 2021 for \$12 million. It has 72 units, with a building area of 70,650 square feet and six floors, on a lot of 15,000 square feet. It is thus assumed that the land cost for a new project is \$12 million (and assumed that demolition and site-preparation costs and fees are subsumed in the per-square foot construction costs.) This sale price appears representative of sales in the neighborhood.

Additional building level data was obtained from the NYC PLUTO file, which contains building level information for all tax blocks in the city.

Based on research on recent multifamily sales in the Bronx and talking with a real estate broker, Lev Mavashev, Managing Principal of [Alpha Realty](#), who deals largely with multifamily sales in New York, a cap rate around Mosholu Parkway of 6% is deemed typical.

For the property at 45 E Mosholu Parkway N, if we assume a 6% cap rate, this gives an NOI of about \$720,000. If we assume an expense ratio of 45% that generates an average per unit monthly rent of around \$1500. A 45% expense ratio for older, non-tax abated buildings [is about average](#).

Mavashev confirmed that monthly rents a newly constructed building in Norwood would be about \$2200-2400 per unit, on average.

A new construction of expense ratio of about 25% (including tax abatements) is the industry standard rate, this was confirmed both by Mavashev and another NYC developer.

Construction costs of around \$300-350 per square foot was confirmed by Mavashev and another NYC real estate developer and is also a number published in media sources, such as in the [Real Deal](#) (though their figures are a few years old). I assume typical times and not ones plagued by supply chain disruptions or excessive inflation.

II. “Best Case Scenario” Assumptions

Regarding the hypothetical search for the building with the highest return, I assume the following:

1. I ignore current zoning and FAR requirements. I assume any building height is possible.
2. 10-12 units per floor on average.
3. Average rents for a 6-story building start at \$2200 per unit and rise at 0.5% with the addition of each floor. This is probably too high, but I wanted to give the building a fair shot. Floor height premiums of [0.6-1% are common](#), so the idea is that if the higher floors rent for more than the lower floors, the average rents will rise. At any rate, this assumption means that a 26-story building would have average rents close to \$2500, which seems reasonable for the neighborhood.
4. For construction costs, I assumed that for a 6-9 story building construction costs are \$300 per square foot. From 10-15 stories I assumed a jump to \$350 (stricter regulations kick in and more elevators, etc. are needed), then from floors 16 upward I assume that construction costs start at \$350 but with average costs rising at 2% per floor. See [Ericksen and Orlando \(2022\)](#), for example.
5. For each building, I take the number of units times the average rent to get an estimated total gross income. I “remove” 25% to get the NOI.
6. For construction costs I assume \$12 million plus the total construction costs based on the formula given above.
7. ROI is given as NOI/Total construction costs.

Below is a spreadsheet with my calculations.

Table 1: ROI analysis for different building heights for a 15,000 ft² property along Mosholu Parkway in the Bronx, as of ca 2021.

Units	Floors	FAR	Avg Monthly Rent (\$/unit)	Gross Income (\$)	Building Area (ft ²)	Avg. Constr. Cost \$/ft ²	Total Cost (\$)	NOI (\$)	ROI
72	6	4.8	2200	1,900,800	72,000	300.0	33,600,000	1,425,600	4.24%
82	7	5.5	2211	2,175,624	82,000	300.0	36,600,000	1,631,718	4.46%
92	8	6.1	2222	2,453,149	92,000	300.0	39,600,000	1,839,862	4.65%
102	9	6.8	2233	2,733,394	102,000	300.0	42,600,000	2,050,046	4.81%
112	10	7.5	2244	3,016,381	112,000	350.0	51,200,000	2,262,286	4.42%
122	11	8.1	2256	3,302,129	122,000	350.0	54,700,000	2,476,597	4.53%
132	11	8.8	2267	3,590,660	132,000	350.0	58,200,000	2,692,995	4.63%
142	12	9.5	2278	3,881,993	142,000	350.0	61,700,000	2,911,494	4.72%
152	13	10.1	2290	4,176,149	152,000	350.0	65,200,000	3,132,112	4.80%
162	14	10.8	2301	4,473,150	162,000	350.0	68,700,000	3,354,863	4.88%
172	15	11.5	2313	4,773,017	172,000	350.0	72,200,000	3,579,763	4.96%
182	16	12.1	2324	5,075,771	182,000	355.3	76,655,500	3,806,828	4.97%
192	16	12.8	2336	5,381,432	192,000	360.6	81,231,120	4,036,074	4.97%
202	17	13.5	2347	5,690,024	202,000	366.0	85,929,461	4,267,518	4.97%
212	18	14.1	2359	6,001,567	212,000	371.5	90,753,175	4,501,175	4.96%
222	19	14.8	2371	6,316,083	222,000	377.0	95,704,967	4,737,062	4.95%
232	20	15.5	2383	6,633,594	232,000	382.7	100,787,593	4,975,196	4.94%
242	21	16.1	2395	6,954,123	242,000	388.4	106,003,864	5,215,592	4.92%
252	21	16.8	2407	7,277,690	252,000	394.3	111,356,646	5,458,268	4.90%
262	22	17.5	2419	7,604,320	262,000	400.2	116,848,861	5,703,240	4.88%
272	23	18.1	2431	7,934,034	272,000	406.2	122,483,487	5,950,526	4.86%
282	24	18.8	2443	8,266,855	282,000	412.3	128,263,560	6,200,141	4.83%
292	25	19.5	2455	8,602,806	292,000	418.5	134,192,177	6,452,105	4.81%
302	26	20.1	2467	8,941,910	302,000	424.7	140,272,493	6,706,432	4.78%
312	26	20.8	2480	9,284,190	312,000	431.1	146,507,726	6,963,142	4.75%