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

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I. Data on Figure of New Housing Units in NYC from 1920-2020

1920-1952 was from a 1952 NYC Housing Authority Annual report. 1960-2020 from NYC housing supply reports from Housing Supply Reports from the Rent Guidelines Board. 1953-1959 estimates from NYC PUTO file.

II. Data Sources for ROI Analysis

1. Lot sizes and building types are from the NYC PLUTO file. In this case, Rosedale Queens is defined as those blocks in zip code 11422 with tax block numbers greater than.
2. Rosedale sales prices are taken from the NYC DoF Rolling Sales file.
3. Construction costs are taken from *RSMeans Square Foot Costs* (2022). I use the per square foot costs. On page 79, they have a cost model for a 1-3 story apartment building, with an average U.S cost (hard+soft) of $225.30. I multiply that by 1.25 to adjust for costs in Queens, NYC (see page 527). For tall buildings, I used the costs from their cost model for a 4-7 story apartment building, which has an average U.S. cost of $198.80 (there are some economies of scale in the larger building). I then multiply that by 1.25 to get an estimate for Queens.

III. ROI Analysis

1. I assume an 8,000-square-foot lot (two typical lots combined). A large lot would be more economical for denser structures.
2. I assume floor area ratios that range from 1, 1.25, 1.5, 2, 2.5, 3, which gives usable floor areas that go from 8,000 square feet to 24,000 square feet.
3. I assume land values are the median price of homes divided by the lot size. In this case, I assume to cost of the lot is 8,000 x 152.5=$1.22 million.
4. The number of floors is assumed based on the formula: *Rounded Integer*[*(square feet)/(.55 x lot size)]*, which assumes the building footprint is on 55% of the lot.
5. Total construction costs are from *RSMeans* and include hard and soft costs. The total cost is based on *Gross Building Area= FAR*lot size*1.15*, where I assume 15% of the building is not occupied (i.e., for stairwells, and plant and equipment.).
6. I assume rentals average $2500 per unit, which is about the average for Rosedale. See: https://www.zumper.com/rent-research/new-york-ny/rosedale

7. Condos are assumed to average $440,000 per unit, which is about the average for Rosedale from the DoF sales file.
8. Estimated NOI (*total rent roll x 0.6*) for a rental, where the typical operating cost ratio is assumed to be 40%. See: https://bullpenre.com/operating-expense-ratio/
9. ROI for a rental is NOI/Total Cost. I assume no financing costs.
10. ROI for condos is total sales revenue/Total Cost. I assume 4 years to build out and get an average annual return based *ln(Rev/Cost)/4*.
11. Also note, that since there are hardly any multifamily properties, it's hard to get a cap rate for this neighborhood. For Queens multifamily, the current cap rate is around 5.3-5.4%, which suggests any new development must have an ROI higher than this.

Below is a spreadsheet with my calculations. In short, bigger is more profitable. However, given the characteristics of Rosedale, where everything has a FAR close to 0.5, a gradual increase in the FARs would likely be more rational (and less disruptive). Note bold values indicate an ROI greater than the average cap rate for Queens multi-family.

Allowable FAR	Floor Area	Constr. Cost Ft2	Total Constr. Cost ($)	Land Cost ($)	Total Project Cost	# Units	Floors
1	8,000	281	2,475,000	1,220,000	3,695,000	9	2
1.25	10,000	281	3,093,750	1,220,000	4,313,750	12	2
1.5	12,000	281	3,712,500	1,220,000	4,932,500	14	3
2	16,000	248	4,356,000	1,220,000	5,576,000	18	4
2.5	20,000	248	5,445,000	1,220,000	6,665,000	23	5
3	24,000	248	6,534,000	1,220,000	7,754,000	27	5

Allowable FAR	Floor Area	Annual Rental Revs ($)	ROI	Condo Revs	Total ROI (%)	Annual Return
1	8,000	270,000	4.38%	4,050,000	110	2.3%
1.25	10,000	360,000	5.01%	5,400,000	125	**5.6%**
1.5	12,000	420,000	5.11%	6,300,000	128	**6.1%**
2	16,000	540,000	**5.81%**	8,100,000	145	**9.3%**
2.5	20,000	690,000	**6.21%**	10,350,000	155	**11.0%**
3	24,000	810,000	**6.27%**	12,150,000	157	**11.2%**