

Konenberg Urbanists + Architects, KUA, staff spend a lot of time at thinking about housing choice. We research why we need it, we advocate for it in our communities, and most importantly: we build it. In the last six months we've worked with a local small developer on designs and rezonings for multiple MRMU (*a category of zoning seen as a transition from single and two-family homes to low-rise, low and medium density*) projects: 12-unit apartment buildings, each of which included 2 units of workforce housing to meet the growing demand for affordable units in walkable neighborhoods. Along the way, we received a lot of pushback from neighborhoods, the city, and even the ZRB, who asked us: why can't you build fewer units? Why don't you just build a quadplex? In many people's minds, building 12 units not only seemed inappropriate in the context of a single-family-zoned neighborhood, but was also unquestionably greedy.

It is often assumed that the deciding factor on the financial feasibility of a project is profit – that the profit on 4 (or 6, or 8) units must not be enough for the developers, and therefore they want to build more. We know that opposition to these projects is based on more than just the perceived motives of the developer, but we feel it is important that communities understand exactly how difficult it is to pull off a Missing Middle project in the City of Atlanta from a financial perspective. We understand that most people haven't seen the costs and returns of these types of projects - so today we're pulling back the curtain on MRMU financial math in an effort to illuminate the mysterious and challenging relationship between a project's feasibility, profit, and unit count.

Two weeks ago, we gave a presentation to ULI Center for Leadership on the financial math behind MRMU projects. This post is largely based on that presentation, which you can view [here](#). If you're a visual person like us, we recommend following along with the presentation PDF.

We ran pro formas (available for download [here](#) https://www.dropbox.com/s/mit3rgfqo0pgmdp/2020_02_19%20ULI%20Pro%20Forma%20Exercise_FIN_AL%20REVISIONS.pdf?dl=0) for hypothetical MRMU projects with varying unit counts of 4, 6, 8, 10, and 12. We also included a workforce housing scenario for the 10 and 12 unit projects, in keeping with the City of Atlanta's Inclusionary Zoning ordinance. The pro formas take into account real costs based on design, development, and construction data pulled from KUA projects in the Edgewood neighborhood of Atlanta. In this post, we walk through our assumptions, inputs, and target outcomes in order to demonstrate how the math shakes out for each unit configuration.

We asked the ULI audience (a diverse group of real estate professionals) to imagine an Atlanta that allowed and welcomed missing middle housing – for the purposes of the presentation, the only barriers they needed to worry about would be financial. We then asked them, based on our desired returns (but before running through the outcomes), who in the room would be willing to invest in an MRMU project?

No one raised their hand.

We were starting at a deficit before anyone even saw the math. As you'll see, if you're looking for a lucrative investment opportunity, building MRMU housing isn't it.

Static Costs

For our analysis, we have both static and variable assumptions. Static assumptions stay the same for each project type: these include the land cost, the cost of construction, the loan terms, and the developer fee.

STATIC ASSUMPTIONS:

- **MR-MU ZONING (ALREADY ZONED)**
- **\$350,000 LAND COST**
- **\$30,000 DEVELOPER FEE**
- **\$155/SF COST OF CONSTRUCTION**
- **25% DOWN PAYMENT**
- **5.75% LOAN INTEREST RATE**
- **25 YEAR AMORTIZATION PERIOD**

- Land Cost: The land cost of \$350,000 correlates to real prices for vacant lots or old tear-down houses in the Edgewood neighborhood. As we unpack the numbers, imagine trying to do this in a more expensive neighborhood, like Inman Park or Midtown.
- Developer Fee: The \$30,000 developer fee would cover all of the work the developer puts in for the project, which would likely take over a year from start to finish. Could you live on wages of \$30,000 for the year while tackling a project like this? Particularly if that is not an even distribution of money, but paid out when key milestones of the project are reached?
- Cost of Construction: The \$155/SF cost of construction is for the vertical building cost only. This number does not include site work or soft costs, and is a pretty optimistic cost estimate given today's rising construction prices.
- Loan Terms: We've assumed pretty good loan terms, with an interest rate of 5.75% and a 25 year pay-off period. A seasoned developer with strong financial backing could likely do a little better, while a younger developer would likely do worse.

One static cost we didn't include in our pro forma is the cost to get a property rezoned to the MR-MU category. Remember, we are assuming that all regulatory barriers have been removed, which is a BIG assumption. In reality, a rezoning would be necessary and would cost in the range of \$15,000-\$20,000 (a rezoning requires schematic building designs, surveys, paperwork and many, many meetings). And you are of course not guaranteed success, so that is a big financial risk to take on.

Another constant across each pro forma are the rent assumptions.

UNIT SIZES AND RENTS:

- | | | |
|----------------------------|---------------|---------------|
| • TWO BED | 850 SF | \$1800 |
| • TWO BED @ 80% AMI | 850 SF | \$1350 |
| • ONE BED | 500 SF | \$1300 |
| • ONE BED @ 80% AMI | 500 SF | \$1000 |

NOTE: RENTS DO NOT INCLUDE UTILITIES

- Market-Rate Rents: The first number shown is the market-rate rent. We have heard many people say that these rent assumptions are not “affordable,” and therefore these projects should not claim to be affordable or inclusive. The market-rate rents are far **more affordable** than any mortgage or new construction apartment (which includes expensive parking decks and amenities) would be in the same neighborhood, therefore making these units much more accessible and inclusive to people who otherwise wouldn’t be able to live in the area. Can everyone pay \$1300 in rent per month? Of course not. But does this unlock housing options in the neighborhood for more than just the people who can afford to buy a \$500,000+ house or pay for a luxury rental? Absolutely. Remember, it’s about providing choice.
- Workforce Rents: The second number shown is the workforce rent. Workforce rents are defined by HUD and are based on a metric called Area Median Income (AMI). 80% AMI means that the rent is deemed to be affordable to people making 80% of the area’s median income. For the Atlanta Metro, the annual income for one person making 100% of the AMI is set at \$55,800 for 2019. This means that someone making 80% of AMI in Atlanta would have an annual income of \$44,640. Per HUD, housing is considered affordable if a household pays no more than 30% of its income for housing costs. This translates to a total housing cost of \$1,196 for a one-bedroom unit and \$1,436 for a two-bedroom unit. For our scenarios, we assumed lower rents than these limits to provide a buffer for assumed utility costs.
- Vacancy: We’ve assumed a 5% vacancy rate, which is a standard assumption to account for vacancy due to tenant turnover, repairs, renovations, etc.

It’s important to note that the workforce units cost the same amount of money to build, operate and maintain as the market-rate units, but they bring in 20% less rent. Providing workforce housing is incredibly important, but when we ask developers to subsidize housing, we need to remember that those costs have to be made up somewhere. We should also note that rent assumptions matter a great deal. If these assumptions are even slightly off (ie if you don’t get the rents you thought you could), the entire pro forma is as bust, and you as a developer are in big financial trouble.

Varied Costs

Next, we have our variable assumptions. These costs are variable because they change based on the size of the project: the bigger the project, the bigger the costs.

VARIED ASSUMPTIONS:

- **ARCHITECTURE & ENGINEERING FEES**
- **SITE COSTS**
- **ANNUAL OPERATING EXPENSES: PROPERTY MANAGEMENT, INSURANCE, MAINTENANCE, REPAIRS**
- **OWNER COSTS: BANK FEES, PERMIT/IMPACT FEES, LOAN INTEREST, APPRAISAL, TITLE WORK, SURVEY, ADMIN FEES**

- Design Fees and Site Costs: The architecture & engineering fees and site costs are estimated as a percentage of the total construction cost (larger projects = higher fees). Site costs include things like commercial stormwater, grading, parking, and landscaping.
- Operating Expenses: Annual operating expenses are estimated as percentages of income (more units = more operating expenses).

- Owner Costs: These include various project fees (which vary based on project size) and loan interest (bigger loan = more interest owed).

Desired Outcomes for Developer Math

The static and varied assumptions together form our inputs. So, what are we looking for in terms of outputs? There are a few key metrics that help determine if a project is financially feasible and worth pursuing.

1. Cash-on-cash return (measures the amount of cash flow relative to the amount of cash invested in a project, on a pre-tax basis. Wants >10%.
2. Cap Rate (estimates an investor's potential return on a project – used to quickly compare relative value of similar real estate investments in the market. Wants >7%.

$$\text{CAP RATE} = \frac{\text{NOI}}{\text{TOTAL PROJECT COST}}$$

3. Debt Service Coverage Ratio (DSCR) (Measures the cash flow available to pay current debt obligations. Wants >1.25.

$$\text{DSCR} = \frac{\text{NOI}}{\text{ANNUAL DEBT SERVICE}}$$

- Down Payment: The first is the Down Payment: this is how much cash must be raised for the project to get a loan. A 25% Down Payment requires a hefty amount of cash, with all of these projects needing between \$300,000-\$500,000 to get started. This is a major financial barrier for most small developers, requiring access to equity partners who have this sort of cash available for investment.
- Equity: Equity partners who invest will quite reasonably expect a return on their investment. The amount of return is typically tied to the risk of the investment. For the risk averse, investing in bonds is a safe option, with returns typically around 2-3% (low risk, low return). Others choose to invest in the stock market, with average long-term returns around 10%. There are two metrics used to measure returns:

$$\text{CASH-ON-CASH RETURN} = \frac{\text{ANNUAL CASH FLOW}}{\text{DOWN PAYMENT}}$$

- Cash-On-Cash Return: The first is Cash-On-Cash Return. This measures the amount of cash flow relative to the amount of cash invested in a project, on a pre-tax basis. This is calculated by dividing Annual Cash Flow by the Down Payment. A decent Cash-On-Cash Return could be considered 10%.
- Cap Rate: The second metric is the Capitalization Rate. This estimates an investor's potential return on a project and is often used to quickly compare the relative market value of similar investments (how does this compare to investing in the stock market, for example?). The Cap Rate is calculated by dividing the Net Operating Income (NOI) by the Total Project Cost. NOI is

the annual rent income minus annual operating expenses. A decent Cap Rate is considered 7% (not quite as high as stock market returns, but higher than bonds).

A 10% Cash-On-Cash Return and a 7% Cap Rate are typically considered acceptable outcomes, but by no means will equity partners be knocking down your door to invest in a project with these rates. Remember, when we asked the room full of ULI professionals who would be willing to invest in a project with these returns, **no one** raised their hand. Most folks who take on challenging, risky projects will want their efforts to be rewarded with more than just acceptable returns. Why take on the risk otherwise?

- **DSCR:** The last critical metric is the Debt Service Coverage Ratio (DSCR). This measures the cash flow available to pay off debt obligations and is a number that a bank will review before offering a loan. The DSCR is calculated by dividing NOI by Annual Debt Service. Banks require the NOI to be at least 25% more than annual debt service, which translates to a DSCR of 1.25. In simple terms, if your mortgage is \$1000 per month, the bank would require an income of \$1250 per month, after accounting for all other expenses. If a DSCR of 1.25 is not met, a bank will not lend on the project. Note that not all banks will lend at this rate: a banker in the ULI audience said that her bank will not lend on projects with a DSCR of less than 1.35!

Findings

When we run the numbers with these assumptions, there are several key outcomes.

Pro Forma Comparisons

	4 UNITS	6 UNITS	8 UNITS	10 UNITS	12 UNITS
Total Project Costs	\$ 1,159,900	\$ 1,474,050	\$ 1,809,400	\$ 1,942,225	\$ 2,071,550
Cost Per Unit	\$ 289,975	\$ 245,675	\$ 226,175	\$ 194,222	\$ 172,630
Down Payment	\$ 289,975	\$ 368,513	\$ 452,350	\$ 485,556	\$ 517,888
Net Operating Income (NOI)	\$ 47,834	\$ 86,000	\$ 120,668	\$ 139,933	\$ 158,197
Annual Debt Service	\$ (65,520)	\$ (83,460)	\$ (102,450)	\$ (109,968)	\$ (117,290)
Annual Cash Flow	\$ (17,686)	\$ 2,540	\$ 18,218	\$ 29,965	\$ 40,907
Return on Equity	-6.15%	0.69%	4.03%	6.17%	7.90%
CAP Rate	4.12%	5.83%	6.67%	7.20%	7.64%
Debt Service Coverage Ratio (1.25 min)	0.73	1.03	1.18	1.27	1.35
				10 UNITS (WF)	12 UNITS (WF)
				\$ 1,942,225	\$ 2,071,550
				\$ 194,222	\$ 172,630
				\$ 485,556	\$ 517,888
				\$ 131,981	\$ 150,245
				\$ (109,968)	\$ (117,290)
				\$ 22,013	\$ 32,955
				4.53%	6.36%
				6.80%	7.25%
				1.20	1.28

Or with "Free Land" Pro Forma Comparisons:

Free Land Scenario						
	4 UNITS	6 UNITS	8 UNITS	10 UNITS	12 UNITS	
Total Project Costs	\$ 809,900	\$ 1,124,050	\$ 1,459,400	\$ 1,592,225	\$ 1,721,550	
Cost Per Unit	\$ 202,475	\$ 187,342	\$ 182,425	\$ 159,222	\$ 143,462	
Down Payment	\$ 202,475	\$ 281,013	\$ 364,850	\$ 398,056	\$ 430,388	
Net Operating Income (NOI)	\$ 47,834	\$ 86,000	\$ 120,668	\$ 139,933	\$ 158,197	
Annual Debt Service	\$ (45,856)	\$ (63,643)	\$ (82,630)	\$ (90,151)	\$ (97,473)	
Annual Cash Flow	\$ 1,978	\$ 22,357	\$ 38,038	\$ 49,782	\$ 60,724	
Return on Equity	0.98%	7.96%	10.43%	12.51%	14.11%	
CAP Rate	5.91%	7.65%	8.27%	8.79%	9.19%	
Debt Service Coverage Ratio (1.25 min)	1.04	1.35	1.46	1.55	1.62	
				10 UNITS (WF)	12 UNITS (WF)	
				\$ 1,592,225	\$ 1,721,550	
				\$ 159,222	\$ 143,462	
				\$ 398,056	\$ 430,388	
				\$ 131,981	\$ 150,245	
				\$ (90,151)	\$ (97,473)	
				\$ 41,830	\$ 52,772	
				10.51%	12.26%	
				8.29%	8.73%	
				1.46	1.54	

- A quadplex is not only not worth investing in, it is not financially viable, with losses of over \$17,000 each year. The rental income doesn't even come close to covering the costs of the project.
- A sixplex is cash flow positive, bringing in a whopping \$2,500 per year. However, the key metrics are not met, including the DSCR, meaning that even if you wanted to pursue this project, a bank would not lend you the money.
- The same holds true for the eightplex. While cash flow is up to \$18,000 annually, a typical bank loan is still unattainable for this project type.
- The tenplex is the first project that might qualify for a bank loan, with a DSCR of 1.27. The Cap Rate is just over 7%, but the Cash-On-Cash return is still well under the desired 10%. It's a viable project, but not investable.
- The workforce tenplex (which includes two workforce units) is back in the red, unable to achieve a bank loan due to an insufficient DSCR. Remember that the project costs are the same, but the cash flow is reduced.
- The 12plex is the most viable project, but still doesn't achieve a 10% Cash-On-Cash Return. This means that while this project is viable, anyone investing in this project is certainly not motivated by profitability.
- And finally, a 12plex with two units of workforce housing is also a feasible project – albeit with a lower return. The return translates to roughly \$40,000 in operating profit each year – that's if nothing goes wrong, after investing over half a million dollars and taking on significant debt. This type of high-risk, low-reward project is unlikely to attract many (or any) investors.

So what did we learn? We learned that the only financially viable project type with workforce housing is a 12plex, and that feasibility and profitability are not the same things. There is a gigantic mismatch between what communities believe is appropriate and what is financially feasible to build. This is a trend we are seeing play out across the country: cities say they want and need housing choice, so they change their laws to allow it. Those laws are then knee-capped by communities who either reject missing middle projects wholesale, or who ask developers to deliver project types that are not feasible to finance and build. That leaves us with a big question: how do we make it more financially viable to build the housing types we want and need?

What are some ways to reduce the financial burden of these projects to make them more viable? What if, for example, the land was free? We ran a 'free land' scenario, and found that even with free land, a quadplex still isn't financially viable. But, the math for the other housing types does work, making this an option worth exploring with nonprofit partners such as the Atlanta Land Trust or Westside Future Fund. However, we should caveat that these pro formas are based upon rents that may not be achievable in all areas of the city. Reduced rent assumptions quickly make all the scenarios presented unable to achieve the necessary DSCR required for typical financing.

And what about parking: what if we didn't provide any? Parking is a cost double whammy – it's expensive to build and eats up land that could otherwise be used for rent-generating housing. Projects that provide limited or no parking would need to be located in walkable, transit-accessible areas (they would also need laws that allow this). We know that land in these locations is expensive, and over 1/3 of it in Atlanta is zoned for single family! This means communities would need to not only be on board with a rezoning (and comfortable with enough units that could offset the cost of expensive land), but also on board with a project that provides little or no parking.

Key Takeaway

It is essential that communities begin to recognize the trade-offs associated with desires and demands. If we desire affordability – even market-rate affordability - we must be willing to allow density so that the projects are financially viable. These project types need investors, bank loans, and developers willing take on a lot of risk for a little profit. With local and federal governments unable to build housing fast enough to meet demand, we need to recognize that private developers are essential players in the affordable housing conundrum. If we want developers to build certain housing types, it must be financially viable. If we want the market to help deliver more affordable housing, then we all need to work together to achieve this common goal. Otherwise, we need to raise taxes and collectively subsidize housing. There is no other way.