

City of Boston

Inclusionary Development Policy: Financial Feasibility Analysis Technical Report

February 1, 2023

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EXECUTIVE SUMMARY

Scope of Work

The scope of this analysis is to determine the financial impact resulting from increasing the inclusionary development policy (IDP) requirements in the City of Boston. RKG Associates Inc. (RKG) constructed a financial feasibility model to test specific scenarios chosen by the City of Boston and determined the relative impact in relation to developments constructed under the existing zoning requirements. The importance of this analysis cannot be understated, as setting the appropriate parameters for an updated IDP ordinance is key to ensuring housing development accommodates various income levels across the city while minimizing impact on existing development activity.

This document is a companion piece to the executive summary document submitted in December, 2022 and updated in February, 2023.

Process

The process undertaken was collaborative and included engaging City staff, local and regional housing developers, local debt and equity investors, and other real estate professionals to understand the market dynamics and performance indicators unique to the City of Boston. RKG utilized information gained from market research and interviews to construct an adaptable financial model. The model enables the City to test prototypical developments to understand the financial implications of changing the existing IDP ordinance.

Summary Findings

This analysis focused on understanding how an IDP requirement that targeted that middle income cohort would impact the financial feasibility of new residential development. While the results of the analysis are based upon a financial model driven by assumptions, the model utilizes local-market relevant analysis to forecast the financial return of the proposed project and compares the change in financial return between current market conditions and the adoption of an increased IDP requirement. The following section highlights the findings.

The city's current development approval process is generating a set aside of 17% of units. An analysis of recent projects indicates that residential developments without any subsidies or cross subsidization from commercial components are being delivered at an effective set aside rate of 17%. This rate is higher than the 13% outlined in the existing IDP ordinance and is a result of the negotiation process during permitting process. In other words, financial proformas generally have a built-in expectation that the final program will be required to exceed the IDP ordinance based on the permitting process.

Location impacts financial feasibility. Inner core areas of the city have the highest land prices and development costs (high rise construction and underground parking). Despite this, these areas also have the highest rents and sales prices, which has the potential to offset an enhanced IDP requirement. The economics of real estate development are different in outlying areas of the city,

and do not have the same revenue potential as the inner core. As a result, development in outer neighborhoods have proven to be more financially sensitive to changes in IDP requirements. Given the general consensus opinion that housing affordability should be consistent throughout Boston, any changes to the IDP need to be calibrated to that reality.

Construction costs for residential development are high, making financial feasibility very sensitive to change in costs. The cost for development in Boston is comparatively high against most other metropolitan areas. There are several factors influencing this including cost of materials, the cost of rezoning/approval processes, high local labor costs, and land prices. The feasibility modeling show that small percentage changes in these costs can have substantial impacts on returns. However, engagement with several entities in the real estate profession (including brokers, for-profit developers, non-profit developers, equity investors, financial institutions, and construction companies) reveals that opportunity costs make adjustments to these costs inflexible. In other words, the opportunity cost to shift location/project type/market means changes in cost structures tend to react more slowly than the marketplace. To this point, blanket assumptions about substantial changes (5% increases/decreases) or adjusting several variables simultaneously should be viewed as highly speculative.

Target income levels heavily skew modeling results. The initial assessment focused on understanding the impact of changing set aside and target AMI levels across several project types throughout the city. The following assessment focuses on the mayor's proposed adjustment to the IDP. The results detailed in this report reflect those assumptions. The analyses indicate that changing the percentage of unit set aside and targeting differing income thresholds have notable impacts on the financial feasibility of housing developments. Further, targeting income thresholds at or below 40% of Area Median Income are particularly impactful, as revenues generated from price points targeted to these thresholds financially cannot support the operation and maintenance of the unit.

Deeper affordability is possible by using Tenant-Based Vouchers. The mayor's proposal includes earmarking 3% of the set aside units for holders of Boston Housing Authority (BHA) housing choice vouchers. This approach offers an alternative that meets the need of households requiring deeply affordable units (targeting households at 30% of AMI), while at the same time ensuring developers can make projects work (providing rent levels ranging between 121% and 165% of AMI through the voucher payment program). The model shows that under a scenario where 17% of units are at 60% of AMI and 3% of the units are part of the BHA program can be feasible with some modest adjustments to project costs. This hybrid approach serves a lower average household income ratio (effectively 55% of AMI) while improves the financial feasibility of a prototypical project (financially equivalent to an average 70% to 75% of AMI depending upon neighborhood). Across all subareas of the city, the analysis indicates that financial feasibility can be achieved through this method.

Greater amounts of financial subsidy will be required to ensure deeper levels of affordability. To enact the Hybrid IDP approach, the city will be required to commit several housing vouchers to these market-rate projects, potentially creating competition with subsidized projects (e.g., LIHTC projects) and/or commit greater funds toward subsidizing units. Currently, long waitlists exist for

housing vouchers as demand outstrips supply. If the policy change is enacted, then voucher demand will further increase. Implementing an IDP that exceeds the proposed approach from the mayor's office will require additional subsidies and/or further cost reductions to maintain financial feasibility.

There can be tradeoffs between unit set aside requirements and targeted income levels. The feasibility analysis indicates that there are financial 'equivalents' when solving for lower income thresholds. For example, the analysis reveals that the mayor's 17% of units at 60% of AMI and 3% of BHA units has the same financial feasibility of a 15% of units at 50% of AMI and 3% of BHA units. Effectively, the alternative analysis shows that reducing unit requirements can accommodate lower average income levels. The city should consider variations of the proposal at varying income thresholds (similar to other cities such as New York City and Chicago).

Lowering the minimum unit threshold may result in the reduction in the size of projects. The current threshold that triggers the IDP is 10 units. RKG tested the financial impact of reducing the threshold downward from 10 to 6 units across the city. The data indicates that reduction in the threshold adversely impacts projects, with smaller projects being more sensitive to IDP changes. The reason for the greater impact is that smaller projects do not generate enough financial return on a dollar basis, to offset the cost of building and delivering a unit. These findings are consistent throughout all the subareas. To avoid 'downsizing' projects, or having development remain one unit below the minimum threshold, the city would need to [1] allow partial payments for all fractional units (e.g., a requirement of 11.4 units would mean delivering 11 units and making a 40% payment to the IDP Fund for the partial unit) and [2] remove the minimum threshold and have all projects trigger the IDP.

Existing payment in lieu fee needs to be updated. The payment in lieu of fractional units provide relief to the developer by only making them provide the market value equivalent to the policy formula. Updating the market value differential formula on a regular basis (typically every 1-2 years) ensures fairness to both the developer and the city. Currently, the fee amount is lower than the true value differential between market rate units and set aside units. RKG quantified the value differential for both owner and renter units for various unit types. The differential ranges between 1.5x and 3x the existing payment in-lieu fee, which indicates the city has the potential to raise the fee.

INTRODUCTION

The City of Boston has decided to investigate the feasibility of increasing affordable housing requirements for new housing development. This effort was borne through the City's Housing Needs Assessment, which identifies the various housing needs across the city. The City of Boston hired RKG to build a financial feasibility model to evaluate approaches toward enhancing the existing IDP requirements.

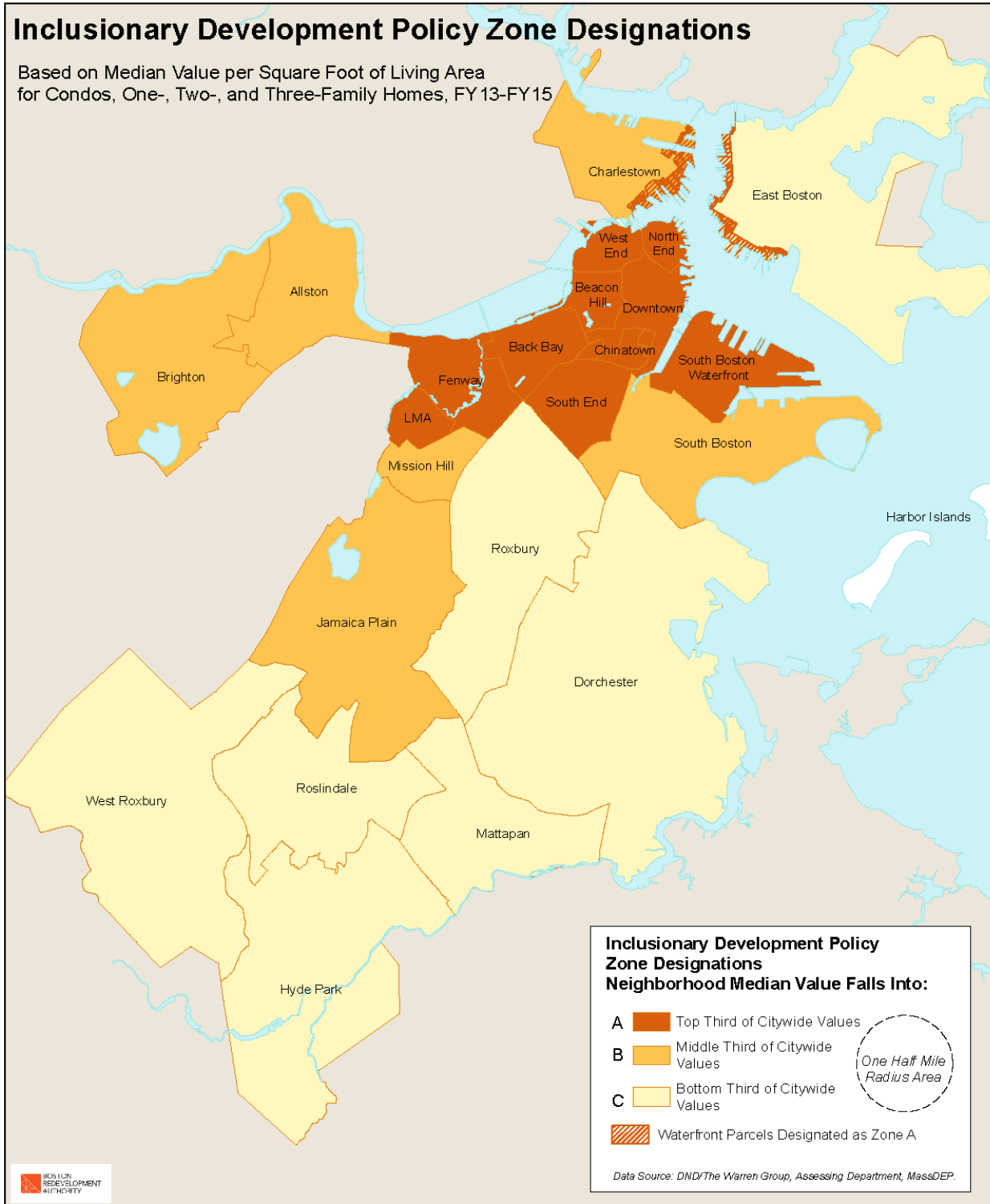
RKG Associates is a multi-disciplinary real estate, planning, and economic development consulting firm with more than 40 years of experience advising public-sector and private-sector clients on real estate development and financial feasibility. The RKG analysis relied on conducting market research, interviewing stakeholders, and working with the city to test a series of development typologies to understand the financial sensitivity of increasing IDP requirements.

Inclusionary zoning is a way in which communities can generate affordable housing through traditional market developments. Inclusionary zoning policies are typically based on a specific percentage applied to new housing development. For example, if the inclusionary zoning percentage were set at 10%, on a new 200-unit development then 20 units would be required to be affordable. Additionally, affordable units can be required to be delivered at specific Area Median Income (AMI) thresholds such as 50% AMI and 80% AMI. Traditionally, local housing authorities are responsible for providing housing to households at 30% of AMI and below. Generally, for inclusionary zoning, having a lower AMI requirement result in a greater reduction in financial return to a developer because costs are harder to recoup due to lower revenue streams.

The current IDP in Boston requires that 13% of the units for both owner and rental projects above 10 units are required to be affordable. For rental projects, 70% of AMI is required for affordable units, while for ownership units the average is 90% of AMI. An off-site option exists which requires an increase in the percentage of units delivered, with a requirement of 18% of units being affordable in Zone A and B, and 15% affordable in Zone C (see Figure 1). A payment in lieu of units is also possible, with the payment amount index to the requisite IDP Zone.

The following analysis details the approach RKG used to test potentially changing the existing IDP ordinance, results of the analysis, and recommendations to minimize financial impacts of such changes. The appendix section includes a glossary of terms used throughout this analysis as well as all assumptions used in the model.

Figure 1: Existing Zone Map



MODEL

To perform the analysis, RKG Associates created a financial feasibility model based on traditional proforma analysis standards for real estate development. The model was created in Microsoft Excel to allow for the greatest functional flexibility and analysis transparency.

The RKG Associates model uses both the Internal Rate of Return (IRR) and Cash on Cash (COC) calculations to evaluate financial feasibility. These measures are standard approaches to understanding the potential performance of a real estate investment. The IRR calculation accounts for the construction, operation, and eventual sale of a real estate investment, while the COC calculation looks at the development cost and realized cash flow at stabilization. IRR is generally compared against an investor's desired return rate (or discount rate) to determine if an investment's return potential exceeds the opportunity cost for similar investments in other municipalities or different product types. IRR calculations are much more detailed than overall return calculations, and account for inflation, projected income escalators and the reversion (or sale) of the property at the end of the hold period.

Both IRR and COC calculations are presented as percentages. A higher percentage indicates the property will provide a greater return for the investor. Real estate development is a risk-based venture that requires an investor to guarantee a sum of money in exchange for the potential revenue and value created by that investment. Developers seek to reduce the risk of a project (i.e., development duration and cost overruns) while maximizing the revenue potential (i.e., rent payments and reversion for a rental project and sales pricing for an ownership project).

There is no universally accepted return rate to judge the return-risk of a real estate project. These market thresholds are established in each market based on several factors including current and projected demand, existing market supply, current and projected employment levels, and risk tolerances of local investors. Based on feedback from developer interviews, in the City of Boston the industry minimum standard for a desired IRR was set at 20% for new construction ownership residential and 15% for new construction rental residential projects, while the minimum COC preferred on a project is 4.75%. The feasibility analysis is intended to compare the impacts of differing scenarios (in this case, current market rate projects to similar projects subjected to an inclusionary zoning policy). Thus, it is important to set a consistent return expectation.

Once the expected return thresholds were established, RKG Associates was able to assess how an enhanced IDP would impact the return of the scenarios identified by the City (detailed in Table 1). RKG Associates used an inclusionary zoning policy threshold that required a minimum share of new housing units that are priced to be affordable for households earning no more than 70% of the regional Area Median Income (AMI). AMI affordability thresholds are detailed in Tables 2, 3, and 4.

Model Data Collection

Proforma development modeling, both IRR and COC approaches, require substantial market data to generate the model assumptions needed to calculate financial performance. There are three

primary data categories needed to run a proforma model, [1] construction/development data, [2] revenue/expenditure data, and [3] finance/investment data.

- Construction and development data include the costs of land, the costs to develop the structures, and the basic assumptions of types of units, size of units, and unit amenities.
- Revenue and expenditure data includes prevailing rent rates (both market rate and income controlled), prevailing sales prices, and operation costs for rental housing. Operation cost data points include direct operations (i.e., maintenance, marketing) and indirect costs (i.e., real estate taxes).
- Financial and investment data include prevailing lending rates, debt/equity requirements, capitalization rates, and discount rates.

RKG used several tools to gather this information, with a preference to gather locally relevant information specific to the City of Boston. In areas where local data was not available or not appropriate, RKG relied on regional data (i.e., Boston Metro). The primary data collection method was capturing primary and secondary data about the Boston housing market. The Mayor's Office of Housing (MOH) provided neighborhood level rental rates (per month) and sales data (by unit type) to RKG; the sources of this data were Rental Beast and the Warren Group. RKG gathered additional rental and sales data for newly constructed housing products via apartment market research and most recent sales data gained from the Multiple Listing Service (MLS). Additionally, RKG obtained land sales data from the Suffolk County Registry of Deeds to understand the difference in land prices across the city as they related to projects in the development pipeline.

RKG also interviewed several for-profit and non-profit residential developers, construction companies, and commercial lending bank professionals to garner greater understanding of the local marketplace. Finally, RKG used nationally recognized secondary data sources, such as Marshall & Swift Valuation Services, to verify data provided by the local real estate community. The results of this effort were used to create the baseline market assumptions for the financial feasibility model.

The following section provides details on the results of the data collection and provides the underlying performance metrics used to test the financial impacts of inclusionary zoning on specific development examples.

Components of the Model

As mentioned, the model functions on a traditional proforma analysis platform, measuring the potential revenue of a real estate investment and comparing it to the costs and expenditures to construct, operate, and sell the asset. The modeling efforts compared the financial performance of 16 distinct residential development scenarios under the existing IDP against the financial performance of those same scenarios under an enhanced IDP. The 16 development scenarios reflect various small, medium, and large-scale ownership and rental development projects that

may occur within the City of Boston. The results were compared to understand the impact of changing the IDP on the financial feasibility of each scenario.

The model has three primary components that drive the financial performance analysis: development assumptions, financial assumptions, and affordability assumptions. Each component influences the revenue and expenditure efficiencies of the development.

- *Development Assumptions* – The development assumptions focus on the ‘bricks and mortar’ facets of the proposed residential developments. Factors such as total unit count, unit breakout by bedroom count, average unit size by bedroom count, type of parking, and the cost of land to accommodate the development. These factors influence construction costs, potential operational revenues (for rental housing) and sale values (for ownership housing).
- *Financial Assumptions* – The financial assumptions include factors relating to debt and equity requirements, the cost of development financing (i.e., mortgage rates), inflation and appreciation rates (for operational costs and revenues), and project return expectations. The financial data directly affects the project’s financial performance by adjusting the timing and amount of capital outlays (both debt and equity).
- *Affordability Assumptions* – The affordability assumptions include the market performance data such as market rent rates, target income thresholds for the IDP units, assumptions about the size of the inclusionary units, and the percent requirement of IDP units of the total development. These assumptions further impact potential revenue levels as well as overall construction costs.

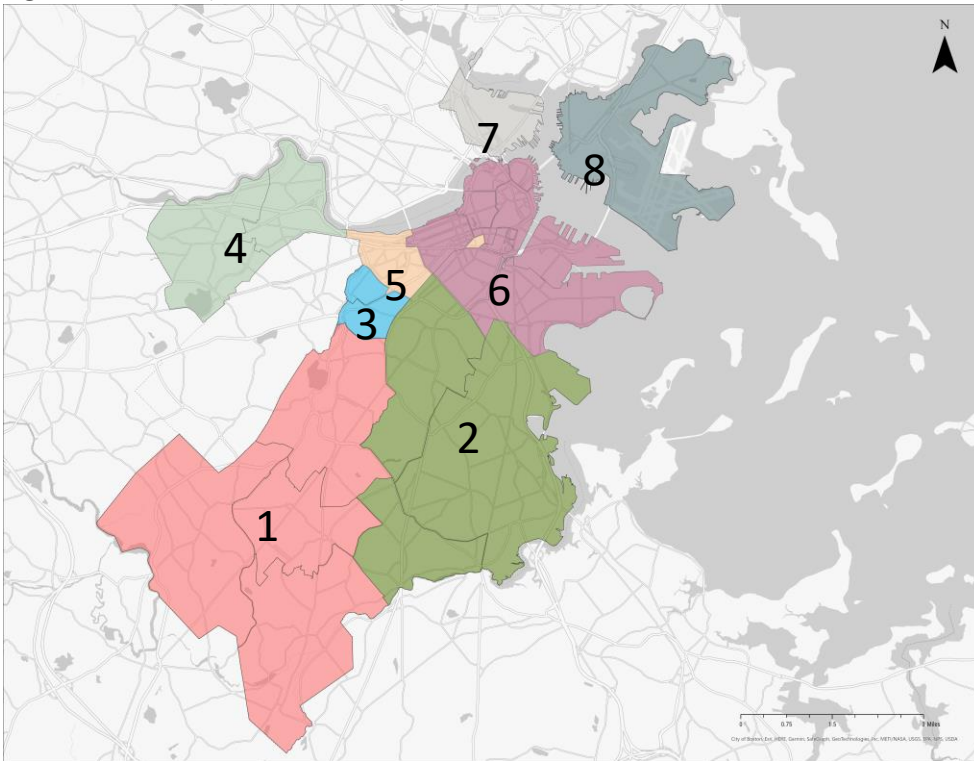
The following section details the individual assumptions used to run the model, and how those data points were collected. As mentioned, RKG collected primary and secondary data about residential development in the City of Boston. RKG also performed several interviews with local real estate professionals to verify those findings. That said, the model was constructed to enable the city to customize the proforma analysis through data overrides. This flexibility in modeling allowed RKG to perform sensitivity analyses on incorporating inclusionary zoning. This effort informed RKG’s findings.

Subareas– Across the City of Boston, there are many real estate submarkets. As part of the model building process to ensure the most accurate local data is used, a rental pricing and sales analysis for all Boston neighborhoods was conducted. Based on the metrics resulting from this analysis, as well as geographic considerations, eight subareas were created. Table 1 and Figure 2 below shows the subareas and their respective neighborhoods.

| Table 1. City of Boston Subareas | |
|----------------------------------|---|
| Subarea | Subarea Neighborhoods |
| 1 | Jamaica Plain/Hyde Park/Roslindale/West Roxbury |
| 2 | Roxbury/Mattapan/Dorchester |
| 3 | Longwood Medical Area/Mission Hill |
| 4 | Allston/Brighton |
| 5 | Bay Village/Fenway |
| 6 | Back Bay/Beacon Hill/Chinatown/Downtown/North End/South Boston/South Boston Waterfront/South End/West End |
| 7 | Charlestown |
| 8 | East Boston |

Source: City of Boston, RKG, 2022

Figure 2: IDP Analysis Subarea Map



Income Tiers – To assess an inclusionary zoning policy, determinations regarding household income are required. Table 2 details the 2022 HUD Area Median Income by household size for the City of Boston. Household income limits were used to calculate affordable rents in Boston. Area median incomes in Boston are high due to the inclusion of communities such as Cambridge, Newton, and Brookline, which have significantly median higher incomes than the City of Boston. The higher income limits affect affordability because the affordability thresholds are higher due to the higher

incomes. For the modeling exercise, RKG used the 3-person household income as the default for conducting the analysis.

| Table 2. FY 2022 Income Limits Summary - Boston, MA | | | | | | |
|---|----------------|-----------|-----------|-----------|-----------|-----------|
| Income Level | Household Size | | | | | |
| | 1-Person | 2-Person | 3-Person | 4-Person | 5-Person | 6-Person |
| 30% AMI | \$29,450 | \$33,650 | \$37,850 | \$42,050 | \$45,450 | \$48,800 |
| 40% AMI | \$39,300 | \$44,900 | \$50,500 | \$56,100 | \$60,600 | \$65,100 |
| 50% AMI | \$49,100 | \$56,100 | \$63,100 | \$70,100 | \$75,750 | \$81,350 |
| 60% AMI | \$58,900 | \$67,300 | \$75,700 | \$84,100 | \$90,850 | \$97,600 |
| 65% AMI | \$63,850 | \$72,950 | \$82,050 | \$91,150 | \$98,450 | \$105,750 |
| 70% AMI | \$68,750 | \$78,550 | \$88,350 | \$98,150 | \$106,050 | \$113,900 |
| 75% AMI | \$73,650 | \$84,150 | \$94,650 | \$105,150 | \$113,600 | \$122,000 |
| 80% AMI | \$78,550 | \$89,750 | \$100,950 | \$112,150 | \$121,150 | \$130,100 |
| 90% AMI | \$88,350 | \$101,000 | \$113,600 | \$126,200 | \$136,300 | \$146,400 |
| 100% AMI | \$98,150 | \$112,200 | \$126,200 | \$140,200 | \$151,450 | \$162,650 |
| 110% AMI | \$107,950 | \$123,400 | \$138,800 | \$154,200 | \$166,550 | \$178,900 |
| 120% AMI | \$117,800 | \$134,600 | \$151,450 | \$168,250 | \$181,750 | \$195,200 |
| 150% AMI | \$147,250 | \$168,250 | \$189,300 | \$210,300 | \$227,150 | \$243,950 |

Source: HUD, RKG, 2022

Rent Thresholds – The model calculates potential gross income by applying the market rate threshold to market rate units, and a rent threshold equivalent to 30% of gross income (utilities included) for income-controlled units. The market rate rents were calculated through RKG research of current rent levels for new apartments built in the city over the last five years across the various BPDA defined neighborhoods. The affordable rents were obtained from the MOH and based on HUD AMI thresholds. Table 3 details the thresholds for each income level used in the financial model. What can be seen from the table is that the market rate rent is priced close to or slightly more than (depending on unit type) 150% of AMI, indicating that the market itself is not building affordable units and the necessity of an effective IDP ordinance to generate affordable units.

| Table 3. Maximum Affordable Rents (Utilities Included) | | | | | | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|---------------------|
| Unit Type | 30% AMI | 40% AMI | 50% AMI | 60% AMI | 65% AMI | 70% AMI | 75% AMI | 80% AMI | 90% AMI | 100% AMI | 110% AMI | 120% AMI | 150% AMI | Average Market Rate |
| Efficiency | \$499 | \$690 | \$879 | \$1,068 | \$1,162 | \$1,257 | \$1,353 | \$1,447 | \$1,636 | \$1,825 | \$2,014 | \$2,204 | \$2,772 | \$2,535 |
| 1BR | \$590 | \$811 | \$1,031 | \$1,252 | \$1,361 | \$1,473 | \$1,584 | \$1,695 | \$1,914 | \$2,136 | \$2,357 | \$2,577 | \$3,240 | \$3,033 |
| 2BR | \$659 | \$911 | \$1,164 | \$1,417 | \$1,542 | \$1,668 | \$1,795 | \$1,921 | \$2,174 | \$2,426 | \$2,679 | \$2,931 | \$3,689 | \$4,118 |
| 3BR | \$734 | \$1,018 | \$1,303 | \$1,586 | \$1,727 | \$1,869 | \$2,011 | \$2,154 | \$2,437 | \$2,721 | \$3,007 | \$3,290 | \$4,141 | \$4,983 |

Source: MOH, HUD, and RKG Associates Inc., 2022

Sales Price Thresholds –The sales price thresholds were obtained from the MOH and based on HUD AMI thresholds. As seen in Table 4, home purchase income-controlled price thresholds are substantially lower than the market rate sales price levels identified by RKG. The market rate data

was compiled by parsing the city’s property sales database over the last five-years to determine average sales values by BPDA neighborhood.

Table 4. Maximum Affordable Purchase Price

| Unit Type | Efficiency | 1BR | 2BR | 3BR |
|----------------------------|------------------|------------------|--------------------|--------------------|
| 30% AMI | \$53,460 | \$67,860 | \$82,200 | \$96,540 |
| 40% AMI | \$71,280 | \$90,480 | \$109,600 | \$128,720 |
| 50% AMI | \$89,100 | \$113,100 | \$137,000 | \$160,900 |
| 60% AMI | \$117,900 | \$146,600 | \$175,300 | \$204,000 |
| 65% AMI | \$132,250 | \$163,400 | \$194,500 | \$225,600 |
| 70% AMI | \$146,600 | \$180,200 | \$213,700 | \$247,200 |
| 75% AMI | \$160,950 | \$196,950 | \$232,850 | \$268,750 |
| 80% AMI | \$175,300 | \$213,700 | \$252,000 | \$290,300 |
| 90% AMI | \$204,100 | \$247,200 | \$290,400 | \$330,200 |
| 100% AMI | \$232,800 | \$280,700 | \$326,000 | \$368,500 |
| 110% AMI | \$261,600 | \$313,000 | \$360,000 | \$406,800 |
| 120% AMI | \$290,300 | \$343,000 | \$394,100 | \$445,300 |
| 150% AMI | \$368,500 | \$432,500 | \$496,400 | \$560,400 |
| Average Market Rate | \$392,165 | \$690,968 | \$1,121,302 | \$1,865,731 |

Source: MOH, HUD, and RKG Associates Inc., 2022

Inclusionary Thresholds – The model built by RKG allows the user to select three different AMI percentages to generate a blended average AMI percentage to test the impact of inclusionary zoning. These percentages can be set for both rental and ownership projects. For the purposes of this modeling exercise, RKG used 70% of AMI as the baseline for rental projects and 90% of AMI for ownership projects based on the existing IDP. Under the scenario analysis, RKG tested the impact of lowering the AMI percentage all the way down to 40% of AMI.

Development Revenues

RENTS

RKG collected rental rate data for relatively new luxury developments which included efficiency (studio), one-bedroom, two-bedroom, and three-bedroom apartments. The market rental rates were used as a baseline for the analysis and compared to information obtained from developers. On average across the city, new units (built within the last 5 years) rent for between \$3.60 and \$4.67 per square foot depending on the unit type and location. Within the model the rents can be modified by the user. For more information about rental rates, see Appendix 1.

SALES VALUES

The sales values of housing units were determined through a combination of market research and utilizing the MOH’s property sales database to parse the most recent sales values by bedroom count. The results are used for the baseline assumption in the model. For more information about sales values, see Appendix 1.

OTHER INCOME

Income streams outside of traditional rent and sales value stem from parking revenues. For rental units, it was assumed in the model that parking revenues of \$300 per space were attainable. No parking revenues are included in ownership units because the parking space is inherently included in the price of the unit.

Development Costs

LAND COSTS

The amount of money a developer can pay for a piece of land is a critical component to the financial feasibility of a project. The higher the land value, the more a developer needs to offset their costs through things like higher density, lower parking rates, or increased sales prices and rents. The price of land is one of the key factors that can affect financial feasibility; and this is especially true for projects on the financial margin. From a cost perspective, the cheaper a developer can obtain the land, the greater the potential financial return. This is because in terms of development, construction and financing costs are relatively fixed. Whereas the price of land and its developable potential can significantly impact the viability of a project.

The price of land in the City of Boston has historically been high and has become even more expensive in recent years. Land prices fluctuate based on the underlying zoning and the total number of units which can be developed. An example being that in highly dense areas such as the Downtown or Seaport, land is selling nearly \$150,000 per unit for new construction, while in peripheral neighborhoods such as Jamacia Plain land prices are around \$60,000 per unit. The high price of land indicates that developable land is scarce in the City of Boston. Table 5 shows the average price of land for apartment development and condo development of projects that had reported land transactions within the past five years.

| Table 5. Average Land Cost Per Unit (2017-2022) | | | |
|--|--------------------|---------------------|-----------------------|
| Area | 25-50 Units | 51-125 Units | Over 125 Units |
| Condo Development | | | |
| Zone A | \$337,000 | \$280,000 | N/A |
| Zone B | \$82,000 | \$55,000 | N/A |
| Zone C | \$59,000 | \$43,000 | N/A |
| Apartment Development | | | |
| Zone A | \$90,000 | \$70,000 | \$55,000 |
| Zone B | \$70,000 | \$55,000 | \$45,000 |
| Zone C | \$60,000 | \$45,000 | \$40,000 |

Developers typically calculate the residual value of the land to determine what they would be willing to pay for the land on a per unit basis. This calculation considers construction costs, financing expenditures, and expected returns. The general approach towards determining the land value is to calculate the income expectations for the developed land, subtract all expenses associated with this development, and the remainder is the land residual. The decision to pursue the project depends on whether the developer can acquire the land at a favorable price.

Within the model RKG created a land value override where the model user can input their own land value assumption. This allows the user to test financial feasibility based on the different land costs, since they may vary significantly based on development size and underlying zoning.

CONSTRUCTION COSTS

To determine construction costs, RKG interviewed several developers and utilized the August 2022 Marshall & Swift Valuation Services booklet to build out customized per square foot construction costs for stick, stick over podium, and steel frame construction. RKG assumed that new construction would have either “excellent” or “good” interior or exterior finishes. Construction costs are adjusted by using a local Boston multiplier supplied by Marshall and Swift. The Marshall and Swift numbers are an industry standard based on market data. However, in conversation with local developers the price of materials and labor has been rising quickly since the start of the COVID-19 pandemic, and the Marshall and Swift data does not capture these pricing changes. RKG therefore factored into the Marshall and Swift construction cost number adjustments based on the price inflation identified by developers.

Within the model the appropriate construction cost is applied to the development based on its type and size. RKG quantified the costs for the three different construction styles, and these costs can be assigned to the typologies (Stick, Multifamily Podium, and Steel Frame) the City of Boston wants modeled. RKG assumed for this model that all projects would take one year to complete, and construction would begin in 2022. Appendix 1 has more detailed information about construction costs.

PARKING COSTS

Within the model three types of parking costs were included: surface, structured podium parking, and underground. The types of parking have dramatically different cost estimates. Surface parking is by far the cheapest option for parking. Typically, this type of parking is done on smaller projects which have sufficient land area to accommodate the parking requirements under zoning. Structured podium parking typically occurs in multifamily developments which are constrained by space. Underground parking is by far the most expensive and is generally restricted to dense high-rise developments.

The parking calculations are based on the number of parking spaces required by the city based on the total number of residential units and typology. The City of Boston is moving toward relaxing parking requirements for large developments and those near public transit. Appendix 1 has more detailed information about parking costs.

Financing

Development financing is possibly the most important element of any real estate deal. The ability to secure long-term financing at an affordable rate allows a developer to complete their project. Different types of financing are available depending on the scale of the project. For very large projects, financing might be obtained from a national bank, institutional investors, or a debt fund. These types of entities invest capital in projects for investors, and typically provide favorable interest rates given the track records of large-scale developers.

Smaller scale developers utilize traditional bank financing as the main source of funding. Local banks typically act as partners with smaller scale developers and provide funding to projects which meet their lending standards and risk profiles. Lending at the small scale is very much relationship based.

Modeling the financing component of development requires assumptions to be made about the equity, loan terms, and interest rates. As part of the data collection process, RKG interviewed several local developers who provided reality-based data regarding project financing.

EQUITY

The equity investment on the part of the developer which is required to obtain financing is dependent on many factors, some of which include: financial wherewithal, experience, project type, etc. Lenders require developers to contribute funding towards the project. The percentage of equity required is a variable within the model that can have a significant impact on the overall financial return. Typically, if a developer can secure financing which requires a smaller percentage of equity contribution, then the overall project return will be greater because the initial out-of-pocket cost will be less. The benefit to the developer is that they minimize their risk when they do not have to contribute large amounts of equity. For the modeling exercise, the default equity requirement was set at 30% for both owner and rental developments, this value can be changed within the model by the user.

TERMS

The length of the loan is dependent on the type of project under construction. For for-sale units, the loan is repaid once the units have sold. In this case, the loan period might last for 1 or 2 years depending on the time it takes for a project to be constructed and the units sold. For rental projects, the loan term can be variable. Developers have different exit strategies depending on their investment philosophies; some developers will hold a project for 10 years and then sell it, while others just build and hold the property. For the analysis, the model was calibrated to assume as a default that the loan for a for-sale development would be two years, and that for rental properties the loan term would be 20 years.

INTEREST RATES

Financial institutions provide funding based on the viability and potential success of a project, and the interest rates charged are evaluated against the developers financial standing and ability to complete the project. A range of interest rates could be charged to a developer depending on their track record, development program, or equity contribution. The higher the interest rate, the greater the overall cost to the developer. Small fluctuations in interest rates can have large impacts on the project's financial return because the cost of debt service can substantially increase, thus rendering a project infeasible. Some developers contribute greater amounts of out-of-pocket equity as a means of lowering the interest rate on the loan. The default model assumptions for interest rates were 5.0% for rental developments and 5.0% for ownership developments. The higher interest rate for rental developments was used because the loan term is longer than that of the ownership developments.

Cash Payment/Payment in Lieu

As a method to capture the full value of affordable units that do not get built under the inclusionary ordinance, RKG created the financial feasibility model to include a cash payment amount for fractional units. The modeled scenarios do not round any of the units, rather it prescribes each full unit be built, and any fractional piece be captured by a cash payment. This protects the developers from having to incur a cost greater than the policy requires, as having to build a full affordable unit for a fractional calculation (i.e., 0.5 units) will have a greater financial impact than a cash contribution equal to the fractional value of the net value difference between a market rate unit and an income-controlled unit.

The approach towards determining the payment amount is to utilize the “value gap” approach. The value gap is the difference between the value of a market rate unit and that of an affordable unit. The value of a rental unit is determined by the net operating income and the capitalization rate; for an ownership unit it is determined by the sales value of the unit. In the case of affordable units, the amount of rent or sale price is limited to the target income threshold of the inclusionary zoning policy. This results in lower revenue for a developer. This loss of revenue translates into a loss of value (hence, the value gap) and negatively impacts the overall financials of a developer because the cost of construction and land to build either an affordable or market rate unit are essentially the same. As part of the modeling process, an option was created to utilize the difference in value due to the loss of revenue in determining the fee amount to charge for fractional units.

From a financial standpoint, the calculated fee in-lieu payment is added to the initial cost of the development, which ultimately influences the overall financial return. Depending on the project size, a large fee in-lieu could have a detrimental impact. Typically, a small project tends to be more sensitive to greater upfront costs because small dollar amount changes can have an outsized impact as compared to larger projects.

SCENARIO ANALYSIS

Development Programs

To test the model and the underlying development assumptions, RKG ran 16 development scenarios, composed of eight rental and eight ownership scenarios. Table 6 presents the model calibration for each of the 16 scenarios. The scenarios were chosen by the city to understand the impact of changes to the IDP on prototypical developments.

Table 6. Modeled Rental Scenarios

| Scenario | Tenure | Unit Type | Location | Construction Type | Parking | Number of Units |
|----------|-----------|-------------|---|-------------------|--------------|-----------------|
| 1 | Rental | Multifamily | Allston-Brighton | Stick | Above Ground | 25 |
| 2 | Rental | Multifamily | Allston-Brighton | Stick/ Podium | Above Ground | 200 |
| 3 | Rental | Multifamily | East Boston | Stick | Surface | 25 |
| 4 | Rental | Multifamily | East Boston | Stick/ Podium | Above Ground | 200 |
| 5 | Rental | Multifamily | Back Bay | Stick | Above Ground | 25 |
| 6 | Rental | Multifamily | Back Bay | Steel | Above Ground | 200 |
| 7 | Rental | Multifamily | Jamaica Plain/Roxbury | Stick | Surface | 25 |
| 8 | Rental | Multifamily | Jamaica Plain/Roxbury | Stick | Surface | 200 |
| 9 | Ownership | Multifamily | Jamaica Plain/ Hyde Park/ Roslindale/ West Roxbury | Stick | Surface | 50 |
| 10 | Ownership | Multifamily | Roxbury/ Mattapan/ Dorchester | Stick | Surface | 50 |
| 11 | Ownership | Multifamily | Longwood Medical Area/ Mission Hill | Stick/ Podium | Aboveground | 50 |
| 12 | Ownership | Multifamily | Allston/Brighton | Stick | Aboveground | |
| 13 | Ownership | Multifamily | Bay Village/ Fenway | Stick/ Podium | Aboveground | 50 |
| 14 | Ownership | Multifamily | Back Bay/ Beacon Hill/ Chinatown/ Downtown/ North End/ South Boston/ South Boston Waterfront/ South End/ West End | Stick/ Podium | Aboveground | 50 |
| 15 | Ownership | Multifamily | Charlestown | Stick | Surface | 50 |
| 16 | Ownership | Multifamily | East Boston | Stick | Surface | 50 |

Source: City of Boston, and RKG Associates Inc.

Comparative Scenarios

The financial analysis conducted by RKG provides key insights regarding the relative impact on development finance resulting from modifying the existing IDP ordinance. RKG modeled each of the 16 scenarios by calibrating the model with market-tested assumptions. For each development program, RKG analyzed changes to the existing policy based on augmenting the unit set-aside rate and in the case of rental units, unit AMI targets.

CURRENT MARKET/BASELINE SCENARIO

The first scenario uses the current market conditions assumptions collected during the analysis to ensure the model is properly calibrated with accurate assumptions. The baseline scenario provides an assessment of how a project would perform (financially) based on market averages for acquisition, construction, operation, and reversion.

ADJUSTMENTS TO THE EXISTING IDP SCENARIO

This scenario measures the financial impact of the proposed policy change against the target return. This analysis was done to understand the fiscal impact of this proposed policy on a project

that met the minimum return threshold. Instances where this scenario returned a lower IRR/COC indicate the policy creates a financial disincentive, while instances where this scenario has a higher IRR/COC than the target return scenario indicates the policy creates a positive financial impact.

Interpreting Results

The financial model calculates the basic go/ no-go decision a developer must make about a potential project. The decision to pursue a project comes down to overall financial return and risk exposure. If there is confidence that the desired returns will be reached, then the project will be pursued, otherwise the project will not be undertaken.

From a financial perspective, the model calculates outputs that can be helpful when determining whether a developer or a lender will choose to go forward with a project. Of these outputs, both the IRR and COC are industry standard financial viability metrics for a given project. While these are important metrics, they are not the sole arbiters of financial viability, as project risk assessment and developer track record are also important factors. The IRR is the calculated annual return on investment, taking into consideration net operating income, investment holding period, and sales value. The COC is the net operating income of the project divided by the total development cost.

The decision factor for not pursuing a project is if the IRR or COC does not meet the required rate of return. In cases such as this, the decision process becomes more nuanced as the developer would have to get comfortable with realizing a lower return. Within the development industry, IRR return thresholds of 15% for a new construction rental project. The threshold to proceed on a project using COC is a minimum of 4.75% for new construction rental product.

Analysis Limitations

The undertaken analysis is not without limitations. The financial model is based upon assumptions which were collected through developer interviews, market research, and professional judgement. These assumptions are the main drivers of the financial model. The developments that are modeled in this analysis are prototypical developments that could potentially be found in Boston, and not actual developments. While all the assumptions that drive the model can be customizable, RKG calibrated the model such that the base assumptions reflect what an 'average' or 'typical' development would experience. That said, there are countless permutations that can be modeled and for every project where an assumption overstates the financial reality of one project, there is another project where that assumption understates the financial reality.

To this point, it is challenging for a single policy for a community the size and market complexity of Boston to be able to accommodate every development possibility. The approach taken for this analysis is to provide the city leadership with development scenarios that reflect a 'middle ground' performance level and the potential impacts to those scenarios. Using this approach offers the city's decision makers information that is most beneficial to inform the decision-making process. In other words, the model output helps show the relative impact of ordinance changes

on development financial feasibility for development assumptions that represent the average for that project size and location.

RENTAL SCENARIO ANALYSIS

The current IDP program for rental units requires a developer to set aside 13% of the units at 70% of AMI. The IDP also allows for off-site units which must be built within one-half mile from the proposed project site. And requires that in Zones A and B 18% of the units must be set aside, while only 15% are required to be set aside in Zone C

Data provided by the city shows that recent residential projects without a substantial commercial component or receiving any financial subsidy are averaging a set aside rate of approximately 17%. This rate is higher than the 13% outlined in the ordinance and is a result of the negotiation process during permitting between the developer and the city.

For the rental residential assessment, RKG modeled increases in the minimum set aside across all eight subareas, testing both smaller-scale projects (25-units) and larger-scale projects (200-units) in various locations of the city. This approach was taken because the size of the project and its location affects the construction, operation, and revenue potential. For example, projects in Downtown or Back Bay typically have higher construction costs due to more luxurious finishes and the use of structured parking. These areas also tend to capture substantially higher rent levels. The assumptions for each project are detailed in this section. Data on revenue differences by area of the city is detailed in the Appendix section. The analysis investigated the impact on development feasibility by looking specifically at both IRR and COC returns. **An IRR of 15% typically indicates a rental project is financially feasible, while a COC of 4.75% is the minimum acceptable return.**

Additionally, RKG investigated the impact on land prices when adjusting both the affordability set-aside and AMI of affordable units. The land cost analysis uses the market average cost per unit based on the effective delivery within the city of a 17% set aside of units priced at an average of 70% of AMI. The following tables show the incremental effect of various changes to set aside rate and target AMI. The analysis shows that as set aside and income targets become more aggressive (resulting in less revenue), land prices would need to decrease fairly rapidly to accommodate a consistent return to the current effective ratio.

Scenario 1 - 25 Unit Rental Project in Allston/ Brighton

RKG tested the financial feasibility of several set aside and target income assumptions for a 25-unit project in Allston/Brighton. Under the current effective market performance of 17% set aside at 70% AMI, 4.25 of the 25 new units would be required to be affordable. The financial return both from a COC (4.61%) and IRR (15.97%) perspective effectively at the expected return thresholds, and therefore the project likely would be pursued. As indicated in the table below, as affordability and inclusionary requirements increase, project viability decreases.

| Table 7. 25 Unit Rental Project in Allston/ Brighton | | | | | | |
|--|-----|-----------------------------|---------|---------|---------|---------|
| COC | | Target Income AMI (Average) | | | | |
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 5.37% | 5.18% | 4.99% | 4.79% | 4.60% |
| | 17% | 4.61% | 4.35% | 4.09% | 3.83% | 3.58% |
| | 20% | 3.95% | 3.64% | 3.33% | 3.01% | 2.70% |
| Share of Units | 25% | 2.89% | 2.51% | 2.12% | 1.73% | 1.35% |
| | 30% | 2.13% | 1.68% | 1.22% | 0.77% | 0.32% |

| Table 7. 25 Unit Rental Project in Allston/ Brighton | | | | | | |
|--|-----|-----------------------------|---------|---------|---------|---------|
| IRR | | Target Income AMI (Average) | | | | |
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 17.34% | 17.00% | 16.66% | 16.31% | 15.96% |
| | 17% | 15.97% | 15.50% | 15.03% | 14.55% | 14.06% |
| | 20% | 15.09% | 14.49% | 13.89% | 13.28% | 12.65% |
| Share of Units | 25% | 12.75% | 11.98% | 11.20% | 10.40% | 9.58% |
| | 30% | 10.94% | 10.02% | 9.07% | 8.09% | 7.06% |

At 20% of units at 60% of AMI would yield a 3.64% COC, making the project infeasible to a potential investor without some cost offsets. Similarly, the IRR of the project declines to 14.49%.

| Table 8. 25 Unit Rental Project in Allston/ Brighton | | | | | | |
|--|-----|-----------------------------|-----------|------------|------------|------------|
| Land Value Per Door (COC) | | Target Income AMI (Average) | | | | |
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$95,800 | \$90,500 | \$84,600 | \$80,000 | \$74,200 |
| | 17% | \$75,000 | \$67,800 | \$60,200 | \$54,000 | \$46,600 |
| | 20% | \$56,500 | \$48,400 | \$40,000 | \$31,400 | \$22,500 |
| | 25% | \$27,800 | \$17,500 | \$7,100 | (\$3,900) | (\$14,500) |
| | 30% | \$8,100 | (\$4,100) | (\$17,000) | (\$29,300) | (\$41,700) |

| Table 8. 25 Unit Rental Project in Allston/ Brighton | | | | | | |
|--|-----|-----------------------------|-----------|-----------|-----------|------------|
| Land Value PSF | | Target Income AMI (Average) | | | | |
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$290.30 | \$274.24 | \$256.36 | \$242.42 | \$224.85 |
| | 17% | \$227.27 | \$205.45 | \$182.42 | \$163.64 | \$141.21 |
| | 20% | \$171.21 | \$146.67 | \$121.21 | \$95.15 | \$68.18 |
| | 25% | \$84.24 | \$53.03 | \$21.52 | (\$11.82) | (\$43.94) |
| | 30% | \$24.55 | (\$12.42) | (\$51.52) | (\$88.79) | (\$126.36) |

Related to the fluctuation in investment returns are land prices. Under the baseline scenario of 17% of the units at 70% of AMI land costs \$75,000 per unit. Under a scenario where 20% of the units are at 60% of AMI the price a developer is willing to pay for land decreases to \$48,400 per unit, or more than 33% lower than at the current effective policy thresholds to obtain a consistent rate of return.

Scenario 2 - 200 Unit Rental Project in Allston/ Brighton

RKG tested the financial feasibility of several set aside and target income assumptions for a 200-unit project in Allston/Brighton. Under the current effective market performance of 17% set aside

at 70% AMI, 34 of the 200 new units would be required to be affordable. Under this scenario the project is borderline viable depending on the metrics used by the developer. From a COC (4.39%) perspective the project is not viable, while under an IRR (14.48%) perspective it could potentially be viable.

Table 9. 200 Unit Rental Project in Allston/ Brighton

| COC | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 5.17% | 4.97% | 4.77% | 4.57% | 4.36% |
| | 17% | 4.39% | 4.13% | 3.87% | 3.00% | 3.34% |
| | 20% | 3.63% | 3.32% | 3.00% | 2.68% | 2.37% |
| Share of All Units | 25% | 2.63% | 2.23% | 1.84% | 1.44% | 1.05% |
| | 30% | 1.69% | 1.22% | 0.75% | 0.28% | -0.19% |

| IRR | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 17.34% | 16.98% | 16.61% | 16.24% | 15.86% |
| | 17% | 15.92% | 15.43% | 14.93% | 14.42% | 13.91% |
| | 20% | 14.48% | 13.87% | 13.25% | 12.62% | 11.98% |
| Share of All Units | 25% | 12.51% | 11.71% | 1.09% | 10.04% | 9.18% |
| | 30% | 10.58% | 9.56% | 8.51% | 7.43% | 6.29% |

At 20% of units at 60% of AMI would yield a 3.32% COC, making the project infeasible to a potential investor without some cost offsets. Similarly, the IIR of the project declines to 13.87%.

Table 10. 200 Unit Rental Project in Allston/ Brighton

| Land Value Per Door (COC) | | Target Income AMI (Average) | | | | |
|---------------------------|-----|-----------------------------|------------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$56,700 | \$51,100 | \$45,500 | \$39,600 | \$35,100 |
| | 17% | \$35,000 | \$27,300 | \$19,800 | \$12,500 | \$5,100 |
| | 20% | \$14,100 | \$4,300 | (\$4,400) | (\$13,000) | (\$22,200) |
| | 25% | (\$14,800) | (\$26,100) | (\$36,900) | (\$48,100) | (\$59,000) |
| | 30% | (\$41,100) | (\$53,800) | (\$67,500) | (\$80,700) | (\$93,900) |

| Land Value PSF | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|------------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$153.60 | \$138.43 | \$123.26 | \$107.27 | \$95.08 |
| | 17% | \$94.81 | \$73.95 | \$53.64 | \$33.86 | \$13.82 |
| | 20% | \$38.20 | \$11.65 | (\$11.92) | (\$35.22) | (\$60.14) |
| | 25% | (\$40.09) | (\$70.70) | (\$99.96) | (\$130.30) | (\$159.83) |
| | 30% | (\$111.34) | (\$145.74) | (\$182.85) | (\$218.61) | (\$254.37) |

Related to the fluctuation in investment returns are land prices. Under the baseline scenario of 17% of the units at 70% of AMI land costs \$35,000 per unit. Under a scenario where 20% of the units are at 60% of AMI the price a developer is willing to pay for land decreases to \$4,300 per unit, or almost 85% less than at the current effective set aside to obtain a similar rate of return.

Scenario 3 - 25 Unit Rental Project in East Boston

RRKG tested the financial feasibility of several set aside and target income assumptions for a 25-unit project in East Boston. Under the current effective market performance of 17% set aside at 70% AMI, 4.25 of the 25 new units would be required to be affordable. The financial return both from a COC (4.55%) and IRR (15.85%) perspective are approximately at a developer's expected return and therefore the project likely would be pursued. As indicated in the table below, as affordability and inclusionary requirements increase, project viability decreases.

| Table 11. 25 Unit Rental Project in East Boston | | | | | | |
|---|-----|-----------------------------|---------|---------|---------|---------|
| COC | | Target Income AMI (Average) | | | | |
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 5.32% | 5.11% | 4.90% | 4.69% | 4.48% |
| | 17% | 4.55% | 4.28% | 4.00% | 3.72% | 3.44% |
| | 20% | 3.90% | 3.56% | 3.22% | 2.88% | 2.54% |
| | 25% | 3.00% | 2.59% | 2.17% | 1.75% | 1.33% |
| | 30% | 2.24% | 1.75% | 1.26% | 0.78% | 0.29% |

| Table 11. 25 Unit Rental Project in East Boston | | | | | | |
|---|-----|-----------------------------|---------|---------|---------|---------|
| IRR | | Target Income AMI (Average) | | | | |
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 17.22% | 16.85% | 16.48% | 16.10% | 15.72% |
| | 17% | 15.85% | 15.34% | 14.83% | 14.31% | 13.78% |
| | 20% | 14.98% | 14.34% | 13.69% | 13.02% | 12.34% |
| | 25% | 12.93% | 12.12% | 11.28% | 10.41% | 9.53% |
| | 30% | 11.13% | 10.14% | 9.11% | 8.06% | 6.95% |

At 20% of units at 60% of AMI would yield a 3.56% COC, making the project infeasible to a potential investor without some cost offsets. Similarly, the IIR of the project declines to 14.34%.

| Table 12. 25 Unit Rental Project in East Boston | | | | | | |
|---|-----|-----------------------------|------------|------------|------------|------------|
| Land Value Per Door (COC) | | Target Income AMI (Average) | | | | |
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$69,300 | \$64,200 | \$58,800 | \$53,700 | \$48,300 |
| | 17% | \$50,000 | \$43,100 | \$35,900 | \$28,900 | \$21,900 |
| | 20% | \$33,400 | \$24,700 | \$16,200 | \$7,600 | (\$900) |
| | 25% | \$10,900 | \$100 | (\$10,300) | (\$21,600) | (\$31,600) |
| | 30% | (\$8,600) | (\$20,900) | (\$33,400) | (\$45,400) | (\$57,500) |

| Table 12. 25 Unit Rental Project in East Boston | | | | | | |
|---|-----|-----------------------------|-----------|------------|------------|------------|
| Land Value PSF | | Target Income AMI (Average) | | | | |
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$210.00 | \$194.55 | \$178.18 | \$162.73 | \$146.36 |
| | 17% | \$151.52 | \$130.61 | \$108.79 | \$87.58 | \$66.36 |
| | 20% | \$101.21 | \$74.85 | \$49.09 | \$23.03 | (\$2.73) |
| | 25% | \$33.03 | \$0.30 | (\$31.21) | (\$65.45) | (\$95.76) |
| | 30% | (\$26.06) | (\$63.33) | (\$101.21) | (\$137.58) | (\$174.24) |

Related to the fluctuation in investment returns are land prices. Under the baseline scenario where 17% of the units are at 70% of AMI land costs \$50,000 per unit. Under a scenario where 20% of the

units are at 60% of AMI the price a developer is willing to pay for land decreases to \$24,700 per unit, or approximately half of the value at the effective policy level, to garner a similar return.

Scenario 4 - 200 Unit Rental Project in East Boston

RKG tested the financial feasibility of several set aside and target income assumptions for a 200-unit project in East Boston. Under the current effective market performance of 17% set aside at 70% AMI, 34 of the 200 new units would be required to be affordable. From a COC (3.15%) perspective the project is not viable, while under an IRR (13.55%) perspective it could potentially be viable if some offsets were provided.

Table 13. 200 Unit Rental Project in East Boston

| COC | | Target Income AMI (Average) | | | | |
|----------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| All | 13% | 3.85% | 3.65% | 3.44% | 3.23% | 3.02% |
| | 17% | 3.15% | 2.88% | 2.61% | 2.34% | 2.06% |
| | 20% | 2.54% | 2.22% | 1.89% | 1.57% | 1.24% |
| Share of Units | 25% | 1.64% | 1.24% | 0.83% | 0.43% | 0.02% |
| | 30% | 0.79% | 0.30% | -0.18% | -0.66% | -1.14% |

| IRR | | Target Income AMI (Average) | | | | |
|----------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| All | 13% | 14.90% | 14.51% | 14.11% | 13.70% | 13.30% |
| | 17% | 13.55% | 13.01% | 12.47% | 11.92% | 11.36% |
| | 20% | 12.34% | 11.67% | 11.00% | 10.31% | 9.61% |
| Share of Units | 25% | 10.47% | 9.60% | 8.70% | 7.77% | 6.80% |
| | 30% | 8.59% | 7.48% | 6.32% | 5.10% | 3.82% |

At 20% of units at 60% of AMI would yield a 2.22% COC, making the project infeasible to a potential investor. Similarly, the IIR of the project declines to 11.67%.

Table 14. 200 Unit Rental Project in East Boston

| Land Value Per Door (COC) | | Target Income AMI (Average) | | | | |
|---------------------------|-----|-----------------------------|------------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$49,900 | \$44,000 | \$38,600 | \$31,700 | \$25,700 |
| | 17% | \$30,000 | \$21,900 | \$14,200 | \$6,100 | (\$2,200) |
| | 20% | \$12,200 | \$2,700 | (\$6,900) | (\$16,300) | (\$26,100) |
| | 25% | (\$14,200) | (\$25,800) | (\$37,800) | (\$49,600) | (\$61,900) |
| | 30% | (\$39,200) | (\$53,200) | (\$67,300) | (\$81,400) | (\$95,700) |

| Land Value PSF | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|-----------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$135.17 | \$119.19 | \$104.56 | \$85.87 | \$69.62 |
| | 17% | \$81.27 | \$59.33 | \$38.47 | \$16.52 | (\$5.96) |
| | 20% | \$33.05 | \$7.31 | (\$18.69) | (\$44.16) | (\$70.70) |
| | 25% | (\$38.47) | (\$69.89) | (\$102.40) | (\$134.36) | (\$167.68) |
| | 30% | (\$26.06) | (\$63.33) | (\$101.21) | (\$137.58) | (\$174.24) |

Related to the fluctuation in investment returns are land prices. Under the baseline scenario where 17% of the units are at 70% of AMI land costs \$30,000 per unit. Under a scenario where 20% of the units are at 60% of AMI the price a developer is willing to pay for land decreases to \$2,700 per unit, more than 90% reduction in value, to retain a similar return rate.

Scenario 5 - 25 Unit Rental Project in Back Bay

RKG tested the financial feasibility of several set aside and target income assumptions for a 25-unit project in Back Bay. Under the current effective market performance of 17% set aside at 70% AMI, 4.25 of the 25 new units would be required to be affordable. The financial return both from a COC (4.59%) and IRR (15.97%) perspective are approximately at a developer's expected return and therefore the project likely would be pursued. As indicated in the table below, as affordability and inclusionary requirements increase, project viability decreases.

Table 15. 25 Unit Rental Project in Back Bay

| COC | | Target Income AMI (Average) | | | | |
|----------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All | 13% | 5.47% | 5.30% | 5.13% | 4.95% | 4.78% |
| | 17% | 4.59% | 4.36% | 4.12% | 3.89% | 3.66% |
| | 20% | 3.88% | 3.60% | 3.32% | 3.04% | 2.76% |
| Share of Units | 25% | 2.85% | 2.50% | 2.16% | 1.81% | 1.46% |
| | 30% | 1.96% | 1.56% | 1.15% | 0.75% | 0.34% |

| IRR | | Target Income AMI (Average) | | | | |
|----------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All | 13% | 17.56% | 17.25% | 16.94% | 16.63% | 16.32% |
| | 17% | 15.97% | 15.55% | 15.12% | 14.69% | 14.25% |
| | 20% | 14.96% | 14.42% | 13.88% | 13.33% | 12.77% |
| Share of Units | 25% | 12.69% | 12.00% | 11.30% | 10.58% | 9.85% |
| | 30% | 10.67% | 9.83% | 8.96% | 8.08% | 7.15% |

At 20% of units at 60% of AMI would yield a 3.60% COC, making the project infeasible to a potential investor without some cost offsets. Similarly, the IIR of the project declines to 14.42%.

Table 16. 25 Unit Rental Project in Back Bay

| Land Value Per Door (COC) | | Target Income AMI (Average) | | | | |
|---------------------------|-----|-----------------------------|-----------|-----------|-----------|-----------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$161,800 | \$155,100 | \$150,100 | \$145,900 | \$140,700 |
| | 17% | \$135,000 | \$127,800 | \$121,500 | \$113,800 | \$106,700 |
| | 20% | \$113,400 | \$105,100 | \$96,600 | \$87,900 | \$79,400 |
| | 25% | \$82,300 | \$71,900 | \$61,300 | \$50,900 | \$40,200 |
| | 30% | \$55,400 | \$43,100 | \$30,900 | \$18,600 | \$6,300 |

| Land Value PSF | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|----------|----------|----------|----------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$490.30 | \$470.00 | \$454.85 | \$442.12 | \$426.36 |
| | 17% | \$409.09 | \$387.27 | \$368.18 | \$344.85 | \$323.33 |
| | 20% | \$343.64 | \$318.48 | \$292.73 | \$266.36 | \$240.61 |
| | 25% | \$249.39 | \$217.88 | \$185.76 | \$154.24 | \$121.82 |
| | 30% | \$167.88 | \$130.61 | \$93.64 | \$56.36 | \$19.09 |

Related to the fluctuation in investment returns are land prices. Under the baseline scenario of 17% of the units at 70% of AMI land costs \$135,000 per unit. Under a scenario where 20% of the units are at 60% of AMI the price a developer is willing to pay for land decreases to \$105,100 per unit, or approximately 22 percent below the value for a similar financial return.

Scenario 6 - 200 Unit Rental Project in Back Bay

RKG tested the financial feasibility of several set aside and target income assumptions for a 200-unit project in Back Bay. Under the current effective market performance of 17% set aside at 70% AMI, 34 of the 200 new units would be required to be affordable. From a COC (3.73%) perspective the project is not viable, while under an IRR (14.67%) perspective it could potentially be viable if some offsets were provided.

Table 17. 200 Unit Rental Project in Back Bay

| COC | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 4.53% | 4.36% | 4.18% | 4.01% | 3.83% |
| | 17% | 3.73% | 3.50% | 3.28% | 3.05% | 2.82% |
| | 20% | 2.90% | 2.63% | 2.36% | 2.09% | 1.82% |
| | 25% | 1.88% | 1.54% | 1.20% | 0.86% | 0.52% |
| | 30% | 0.91% | 0.51% | 0.11% | -0.30% | -0.70% |

| IRR | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 16.17% | 15.85% | 15.52% | 15.20% | 14.87% |
| | 17% | 14.67% | 14.23% | 13.79% | 13.35% | 12.90% |
| | 20% | 13.06% | 12.52% | 11.97% | 11.41% | 10.84% |
| | 25% | 10.97% | 10.25% | 9.51% | 8.76% | 7.98% |
| | 30% | 8.88% | 7.96% | 7.00% | 6.02% | 4.99% |

At 20% of units at 60% of AMI would yield a 3.50% COC, making the project infeasible to a potential investor without some cost offsets. Similarly, the IIR of the project declines to 14.23%.

Table 18. 200 Unit Rental Project in Back Bay

| Land Value Per Door (COC) | | Target Income AMI (Average) | | | | |
|---------------------------|-----|-----------------------------|------------|------------|------------|-------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$66,700 | \$61,300 | \$55,300 | \$49,100 | \$43,500 |
| | 17% | \$45,000 | \$32,200 | \$24,600 | \$16,800 | \$9,100 |
| | 20% | \$11,600 | \$2,700 | (\$6,400) | (\$15,700) | (\$25,000) |
| | 25% | (\$23,000) | (\$34,300) | (\$45,600) | (\$57,100) | (\$68,600) |
| | 30% | (\$55,300) | (\$69,100) | (\$82,900) | (\$96,500) | (\$110,000) |

| Land Value PSF | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|------------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$180.68 | \$166.06 | \$149.80 | \$133.01 | \$117.84 |
| | 17% | \$121.90 | \$87.23 | \$66.64 | \$45.51 | \$24.65 |
| | 20% | \$31.42 | \$7.31 | (\$17.34) | (\$42.53) | (\$67.72) |
| | 25% | (\$62.30) | (\$92.92) | (\$123.53) | (\$154.68) | (\$185.83) |
| | 30% | (\$149.80) | (\$187.19) | (\$224.57) | (\$261.41) | (\$297.98) |

Related to the fluctuation in investment returns are land prices. Under the baseline scenario of 17% of the units at 70% of AMI land costs \$45,000 per unit. Under a scenario where 20% of the units are at 60% of AMI the price a developer is willing to pay for land decreases to \$2,700 per unit (a net loss of more than 90% of value) to net a similar return rate.

Scenario 7 - 25 Unit Rental Project in Jamaica Plain/Roxbury

RKG tested the financial feasibility of several set aside and target income assumptions for a 25-unit project in Jamaica Plain/Roxbury. Under the current effective market performance of 17% set aside at 70% AMI, 4.25 of the 25 new units would be required to be affordable. The financial return both from a COC (4.53%) and IRR (15.78%) perspective are proximate to a developer's expected return and therefore the project would be pursued. As indicated in the table below, as affordability and inclusionary requirements increase, project viability decreases.

Table 19. 25 Unit Rental Project in Jamaica Plain/ Roxbury

| COC | | Target Income AMI (Average) | | | | |
|----------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| All | 13% | 5.22% | 5.00% | 4.78% | 4.56% | 4.34% |
| | 17% | 4.53% | 4.23% | 3.94% | 3.65% | 3.36% |
| | 20% | 3.96% | 3.61% | 3.25% | 2.90% | 2.54% |
| Share of Units | 25% | 2.98% | 2.54% | 2.10% | 1.66% | 1.22% |
| | 30% | 2.29% | 1.78% | 1.26% | 0.75% | 0.24% |

| IRR | | Target Income AMI (Average) | | | | |
|----------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| All | 13% | 17.02% | 16.63% | 16.24% | 15.84% | 15.44% |
| | 17% | 15.78% | 15.25% | 14.70% | 14.16% | 13.60% |
| | 20% | 15.00% | 14.43% | 13.75% | 13.05% | 12.33% |
| Share of Units | 25% | 12.88% | 12.01% | 11.12% | 10.21% | 9.27% |
| | 30% | 11.20% | 10.16% | 9.09% | 7.97% | 6.81% |

At 20% of units at 60% of AMI would yield a 4.23% COC, making the project infeasible to a potential investor without some cost offsets. Similarly, the IIR of the project declines to 14.43%.

Table 20. 25 Unit Rental Project in Jamaica Plain/ Roxbury

| Land Value Per Door (COC) | | Target Income AMI (Average) | | | | |
|---------------------------|-----|-----------------------------|------------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$41,300 | \$36,100 | \$31,400 | \$25,300 | \$20,600 |
| | 17% | \$25,000 | \$17,700 | \$10,400 | \$3,600 | (\$3,500) |
| | 20% | \$11,800 | \$2,500 | (\$5,300) | (\$14,300) | (\$23,000) |
| | 25% | (\$12,500) | (\$22,900) | (\$33,800) | (\$43,800) | (\$54,400) |
| | 30% | (\$29,100) | (\$41,200) | (\$53,800) | (\$66,000) | (\$78,200) |

| Land Value PSF | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|------------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$125.15 | \$109.39 | \$95.15 | \$76.67 | \$62.42 |
| | 17% | \$75.76 | \$53.64 | \$31.52 | \$10.91 | (\$10.61) |
| | 20% | \$35.76 | \$7.58 | (\$16.06) | (\$43.33) | (\$69.70) |
| | 25% | (\$37.88) | (\$69.39) | (\$102.42) | (\$132.73) | (\$164.85) |
| | 30% | (\$88.18) | (\$124.85) | (\$163.03) | (\$200.00) | (\$236.97) |

Related to the fluctuation in investment returns are land prices. Under the baseline scenario of 17% of the units at 70% of AMI land costs \$25,000 per unit. Under a scenario where 20% of the units are at 60% of AMI the price a developer is willing to pay for land decreases to \$2,500 per unit, or a 90% reduction in value to yield a similar return rate.

Scenario 8 - 200 Unit Rental Project in Jamaica Plain/Roxbury

RKG tested the financial feasibility of several set aside and target income assumptions for a 200-unit project in Jamaica Plain/Roxbury. Under the current effective market performance of 17% set

aside at 70% AMI, 34 of the 200 new units would be required to be affordable. From a COC (4.21%) perspective the project is not viable, while under an IRR (15.57%) the project is viable.

Table 21. 200 Unit Rental Project in Jamaica Plain/ Roxbury

| COC | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 4.91% | 4.68% | 4.45% | 4.22% | 3.99% |
| | 17% | 4.21% | 3.91% | 3.61% | 3.31% | 3.00% |
| | 20% | 3.57% | 3.21% | 2.85% | 2.49% | 2.13% |
| Share of Units | 25% | 2.66% | 2.21% | 1.76% | 1.31% | 0.86% |
| | 30% | 1.82% | 1.29% | 0.75% | 0.22% | -0.32% |

| IRR | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|---------|---------|---------|---------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | 16.87% | 16.45% | 16.02% | 15.59% | 15.16% |
| | 17% | 15.57% | 15.01% | 14.43% | 13.85% | 13.26% |
| | 20% | 14.36% | 13.67% | 12.95% | 12.23% | 11.49% |
| Share of Units | 25% | 12.58% | 11.67% | 10.73% | 9.76% | 8.76% |
| | 30% | 10.85% | 9.70% | 8.51% | 7.27% | 5.96% |

At 20% of units at 60% of AMI would yield a 3.21% COC, making the project infeasible to a potential investor without some cost offsets. Similarly, the IIR of the project declines to 13.67%.

Table 22. 200 Unit Rental Project in Jamaica Plain/ Roxbury

| Land Value Per Door (COC) | | Target Income AMI (Average) | | | | |
|---------------------------|-----|-----------------------------|------------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$32,400 | \$26,400 | \$20,900 | \$15,200 | \$9,400 |
| | 17% | \$15,000 | \$7,600 | (\$100) | (\$7,700) | (\$15,100) |
| | 20% | (\$1,200) | (\$10,000) | (\$18,900) | (\$28,100) | (\$36,800) |
| | 25% | (\$17,100) | (\$35,100) | (\$46,000) | (\$57,400) | (\$68,300) |
| | 30% | (\$44,500) | (\$57,800) | (\$71,400) | (\$84,500) | (\$97,700) |

| Land Value PSF | | Target Income AMI (Average) | | | | |
|--------------------|-----|-----------------------------|------------|------------|------------|------------|
| | | 70% AMI | 60% AMI | 50% AMI | 40% AMI | 30% AMI |
| Share of All Units | 13% | \$87.77 | \$71.52 | \$56.62 | \$41.18 | \$25.46 |
| | 17% | \$40.63 | \$20.59 | (\$0.27) | (\$20.86) | (\$40.90) |
| | 20% | (\$3.25) | (\$27.09) | (\$51.20) | (\$76.12) | (\$99.69) |
| | 25% | (\$46.32) | (\$95.08) | (\$124.61) | (\$155.49) | (\$185.02) |
| | 30% | (\$120.55) | (\$156.57) | (\$193.42) | (\$228.90) | (\$264.66) |

Related to the fluctuation in investment returns are land prices. Under the baseline scenario of 17% of the units at 70% of AMI land costs \$15,000 per unit. Under a scenario where 20% of the units are at 60% of AMI the land becomes worthless at negative \$10,000 per unit.

OWNERSHIP SCENARIO ANALYSIS

The current IDP program for ownership units requires a developer to set aside 13% of the units with 50% of the units priced at 80% of AMI and 50% of the units priced at 100% of AMI. This results in a blended rate of 90% AMI units. The IDP also allows for off-site units which must be built within one-half mile from the proposed project site. And requires that in Zones A and B 18% of the units must be set aside, while only 15% are required to be set aside in Zone C

Recent projects indicate the program has an effective set aside rate of 17%. This rate is higher than the 13% outlined in the ordinance and is a result of the negotiation process during permitting between the developer and the city.

As part of the analysis, RKG modeled increases in the minimum set aside across all eight subareas. RKG tested a mid-size 50-unit ownership development in various locations of the city with differing construction types and associated finishes. The analysis investigated the impact on development feasibility by looking specifically at the Internal Rate of Return (IRR). The IRR is a standard metric developers use to assess financial feasibility on for-sale products. **An IRR of 20% typically indicates a project is financially feasible.**

Scenario 9 - 50 Unit Ownership Project in Jamaica Plain/ Hyde Park/ Roslindale/ West Roxbury

Under the current effective rate of 17% of the units set aside at 90% of AMI on a 50-unit project in the outer areas of the city (Jamaica Plain /Hyde Park/ Roslindale/ West Roxbury) is not financially feasible. Table 23 provides the assumptions used for the model run. Even with a relatively low land cost per unit (\$59,000), the average market sales price (\$735 PSF) of a unit is not sufficient to generate the required financial return on investment for a developer.

| Assumption Categories | Assumptions |
|------------------------------|--------------------|
| Construction Type | Wood Frame |
| Construction Finishes | Standard |
| Parking Type | Surface |
| Average Market Price (PSF) | \$735 |
| Average Land Cost (Per Unit) | \$59,000 |

Given that the project is currently financially infeasible, increasing the required set aside would further decrease the financial performance of the project. Table 23 shows the impact of increasing the set-aside for affordable units. Under the scenario examined, the IRR returns become increasingly negative.

Table 24. Project Financial Return for 50-Unit Ownership Development in Jamaica Plain/ Hyde Park/ Roslindale/ West Roxbury

| Project Assumptions | Unit Set Aside Rate (at 90% Blended AMI) | | | |
|-------------------------------|--|-------|-------|-------|
| | 17% | 18% | 19% | 20% |
| Internal Rate of Return (IRR) | -100% | -100% | -100% | -100% |

Scenario 10 - 50 Unit Ownership Project in Roxbury/ Mattapan/ Dorchester

Under the current effective rate of 17% of the units set aside at 90% of AMI on a 50-unit project in the outer areas of the city (Roxbury/ Mattapan/ Dorchester) is not financially feasible. Table 25 provides the assumptions used for the model run. Even with a relatively low land cost per unit (\$59,000), the average market sales price (\$693 PSF) of a unit is not sufficient to generate the required financial return on investment for a developer.

Table 25. Assumptions for 50-Unit Ownership Development in Roxbury/ Mattapan/ Dorchester

| Assumption Categories | Assumptions |
|------------------------------|-------------|
| Construction Type | Wood Frame |
| Construction Finishes | Standard |
| Parking Type | Surface |
| Average Market Price (PSF) | \$693 |
| Average Land Cost (Per Unit) | \$59,000 |

Given that the project is currently financially infeasible, increasing the required set aside would further decrease the financial performance of the project. Table 25 shows the impact of increasing the set-aside for affordable units. Under the scenario examined, the IRR returns become increasingly negative.

Table 26. Project Financial Return for 50-Unit Ownership Development in Roxbury/ Mattapan/ Dorchester

| Project Assumptions | Unit Set Aside Rate (at 90% Blended AMI) | | | |
|-------------------------------|--|-------|-------|-------|
| | 17% | 18% | 19% | 20% |
| Internal Rate of Return (IRR) | -100% | -100% | -100% | -100% |

Scenario 11 - 50 Unit Ownership Project in Longwood Medical Area/ Mission Hill

Under the current effective rate of 17% of the units set aside at 90% of AMI on a 50-unit project in the inner core of the city (LMA/Mission Hill) is financially feasible. Table 27 provides the assumptions used for the model run. Even with a high land cost per unit (\$337,000), the average market sales price of a unit (\$1,359 PSF) is more than sufficient to generate the required financial return on investment. A prototypical project yields an IRR of 28%.

| Table 27. Assumptions for 50-Unit Ownership Development in Longwood Medical Area/ Mission Hill | |
|--|-----------------|
| Assumption Categories | Assumptions |
| Construction Type | Stick-on-Podium |
| Construction Finishes | Higher-End |
| Parking Type | Aboveground |
| Average Market Price (PSF) | \$1,359 |
| Average Land Cost (Per Unit) | \$337,000 |

Given that the project is currently financially feasible, increasing the required set aside to 20% would decrease the financial performance of the project and push the IRR below the 20% threshold.

| Table 28. Project Financial Return for 50-Unit Ownership Development in Longwood Medical Area/ Mission Hill | | | | |
|---|--|--------|--------|--------|
| Project Assumptions | Unit Set Aside Rate (at 90% Blended AMI) | | | |
| | 17% | 18% | 19% | 20% |
| Internal Rate of Return (IRR) | 28.00% | 22.90% | 22.10% | 16.00% |

Scenario 12 - 50 Unit Ownership Project in Allston/ Brighton

Under the current effective rate of 17% of the units set aside at 90% of AMI on a 50-unit project in the inner core of the city (Allston/ Brighton) is financially feasible. Table 29 provides the assumptions used for the model run. Even with a high land cost per unit (\$82,000), the average market sales price of a unit (\$931 PSF) is more than sufficient to generate the required financial return on investment. A prototypical project yields an IRR of 32.4%.

| Table 29. Assumptions for 50-Unit Ownership Development in Allston/ Brighton | |
|--|---------------|
| Assumption Categories | Assumptions |
| Construction Type | Above Average |
| Construction Finishes | Aboveground |
| Parking Type | \$931 |
| Average Market Price (PSF) | \$82,000 |
| Average Land Cost (Per Unit) | Above Average |

The analysis indicates that increasing the required set aside to 20% would result in an IRR of 20.9%, slightly above the target financial performance threshold of 20%.

| Table 30. Project Financial Return for 50-Unit Ownership Development in Allston/ Brighton | | | | |
|---|--|--------|--------|--------|
| Project Assumptions | Unit Set Aside Rate (at 90% Blended AMI) | | | |
| | 17% | 18% | 19% | 20% |
| Internal Rate of Return (IRR) | 32.40% | 26.90% | 25.30% | 20.90% |

Scenario 13 - 50 Unit Ownership Project in Bay Village/ Fenway

Under the current effective rate of 17% of the units set aside at 90% of AMI on a 50-unit project in the inner core of the city (Bay Village/ Fenway) is financially feasible. Table 31 provides the assumptions used for the model run. Even with a high land cost per unit (\$337,000), the average market sales price of a unit (\$1,580 PSF) is more than sufficient to generate the required financial return on investment. A prototypical project yields an IRR of 43.0%.

| Table 31. Assumptions for 50-Unit Ownership Development in Bay Village/ Fenway | |
|--|-----------------|
| Assumption Categories | Assumptions |
| Construction Type | Stick-on-Podium |
| Construction Finishes | Premium |
| Parking Type | Aboveground |
| Average Market Price (PSF) | \$1,580 |
| Average Land Cost (Per Unit) | \$337,000 |

Because recent condominium development in the Bay Village/Fenway area has a high price point, the project remains viable at 20% of the units.

| Table 32. Project Financial Return for 50-Unit Ownership Development in Bay Village/ Fenway | | | | |
|---|--|--------|--------|--------|
| Project Assumptions | Unit Set Aside Rate (at 90% Blended AMI) | | | |
| | 17% | 18% | 19% | 20% |
| Internal Rate of Return (IRR) | 43.00% | 39.20% | 36.40% | 34.10% |

Scenario 14 - 50 Unit Ownership Project in Back Bay/Beacon Hill/Chinatown/ Downtown/North End/South Boston/ South Boston Waterfront/South End/ West End/ Bay Village/ Fenway

Under the current effective rate of 17% of the units set aside at 90% of AMI on a 50-unit project in the inner core of the city (Back Bay/ etc.) is financially feasible. Table 33 provides the assumptions used for the model run. Even with a high land cost per unit (\$337,000), the average market sales price of a unit (\$1,166 PSF) is more than sufficient to generate the required financial return on investment. A prototypical project yields an IRR of 32.3%.

Table 33. Assumptions for 50-Unit Ownership Development in Back Bay/ Beacon Hill/ Chinatown/ Downtown/ North End/ South Boston/ South Boston Waterfront/ South End/ West End/ Bay Village/ Fenway

| Assumption Categories | Assumptions |
|------------------------------|-----------------|
| Construction Type | Stick-on-Podium |
| Construction Finishes | Premium |
| Parking Type | Aboveground |
| Average Market Price (PSF) | \$1,166 |
| Average Land Cost (Per Unit) | \$337,000 |

The analysis indicates that increasing the required set aside to 20% would result in an IRR of 20.6%, slightly above the target financial performance threshold of 20%.

Table 34. Project Financial Return for 50-Unit Ownership Development in Back Bay/ Beacon Hill/ Chinatown/ Downtown/ North End/ South Boston/ South Boston Waterfront/ South End/ West End/ Bay Village/ Fenway

| Project Assumptions | Unit Set Aside Rate (at 90% Blended AMI) | | | |
|-------------------------------|--|--------|--------|--------|
| | 17% | 18% | 19% | 20% |
| Internal Rate of Return (IRR) | 32.30% | 27.20% | 25.50% | 20.60% |

Scenario 15 - 50 Unit Ownership Project in Charlestown

Under the current effective rate of 17% of the units set aside at 90% of AMI on a 50-unit project in the outer area of the city (Charlestown) is financially feasible. Table 35 provides the assumptions used for the model run. Even with a moderate land cost per unit (\$59,000), the average market sales price of a unit (\$908 PSF) is sufficient to generate the required financial return on investment. A prototypical project yields an IRR of 24.0%.

Table 35. Assumptions for 50-Unit Ownership Development in Charlestown

| Assumption Categories | Assumptions |
|------------------------------|-------------|
| Construction Type | Wood Frame |
| Construction Finishes | Standard |
| Parking Type | Surface |
| Average Market Price (PSF) | \$908 |
| Average Land Cost (Per Unit) | \$59,000 |

Increasing the required set aside would decrease the financial performance of the project and result in it being infeasible.

Table 36. Project Financial Return for 50-Unit Ownership Development in Charlestown

| Project Assumptions | Unit Set Aside Rate (at 90% Blended AMI) | | | |
|-------------------------------|--|--------|--------|--------|
| | 17% | 18% | 19% | 20% |
| Internal Rate of Return (IRR) | 24.00% | 18.50% | 17.40% | 13.30% |

Scenario 16 - 50 Unit Ownership Project in East Boston

Under the current effective rate of 17% of the units set aside at 90% of AMI on a 50-unit project in the outer area of the city (East Boston) is financially feasible. Table 37 provides the assumptions used for the model run. Even with a moderate land cost per unit (\$82,000), the average market sales price of a unit (\$829 PSF) is more than sufficient to generate the required financial return on investment. A prototypical project yields an IRR of 32.5%.

Table 37. Assumptions for 50-Unit Ownership Development in East Boston

| Assumption Categories | Assumptions |
|------------------------------|---------------|
| Construction Type | Wood Frame |
| Construction Finishes | Above Average |
| Parking Type | Surface |
| Average Market Price (PSF) | \$829 |
| Average Land Cost (Per Unit) | \$82,000 |

The analysis indicates that increasing the required set aside to 20% would result in an IRR of 21.0%, slightly above the target financial performance threshold of 20%.

Table 38. Project Financial Return for 50-Unit Ownership Development in East Boston

| Project Assumptions | Unit Set Aside Rate (at 90% Blended AMI) | | | |
|-------------------------------|--|--------|--------|--------|
| | 17% | 18% | 19% | 20% |
| Internal Rate of Return (IRR) | 32.50% | 27.90% | 26.50% | 21.90% |

RECOMENDATIONS

Preferred IDP Approach

RENTAL STRATEGY

Based on the results of the analysis of the existing IDP program, RKG and the MOH have engaged on how the IDP can be modified to enhance the city’s efforts to promote housing diversity. To that end, a new and emerging concept was put forward by Mayor Wu in December that integrates the current IDP approach with BHA Tenant-Based Vouchers, which serve extremely low-income households. RKG calibrated the financial model to assess the Mayor’s proposal, which included a 20% units set aside where 17% of units are priced to an average of 60% AMI and 3% of the units are required to be dedicated to recipients of BHA housing choice vouchers. This hybrid approach reaches a lower average AMI while improving the financial feasibility of a prototypical project since the housing choice vouchers are priced by neighborhood, ranging from an effective 120% AMI to 165% of AMI. Table 39 shows the effective AMI served as well as the effective financial AMI based on the combined approach.

| Zip | | IDP Set Aside | | BHA Set Aside | | Effective | Effective |
|-------|---------------------------|---------------|------------|---------------|------------|-------------|---------------|
| Code | Neighborhood | % of Units | Target AMI | % of Units | Target AMI | Blended AMI | Financial AMI |
| 02115 | Fenway | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02119 | Roxbury | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02120 | Mission Hill | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02121 | Dorchester/ Grove Hall | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02122 | Dorchester | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02124 | Dorchester | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02125 | Dorchester | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02126 | Mattapan | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02128 | East Boston | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02131 | Roslindale | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02132 | West Roxbury | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02136 | Hyde Park | 17.0% | 60.0% | 3.0% | 121.1% | 55.5% | 69.2% |
| 02118 | South End | 17.0% | 60.0% | 3.0% | 123.3% | 55.5% | 69.5% |
| 02130 | Jamaica Plain | 17.0% | 60.0% | 3.0% | 124.6% | 55.5% | 69.7% |
| 02134 | Allston | 17.0% | 60.0% | 3.0% | 124.6% | 55.5% | 69.7% |
| 02127 | South Boston | 17.0% | 60.0% | 3.0% | 128.7% | 55.5% | 70.3% |
| 02135 | Brighton | 17.0% | 60.0% | 3.0% | 133.2% | 55.5% | 71.0% |
| 02113 | North End | 17.0% | 60.0% | 3.0% | 138.2% | 55.5% | 71.7% |
| 02129 | Charlestown | 17.0% | 60.0% | 3.0% | 147.9% | 55.5% | 73.2% |
| 02111 | Chinatown | 17.0% | 60.0% | 3.0% | 149.1% | 55.5% | 73.4% |
| 02215 | Fenway | 17.0% | 60.0% | 3.0% | 156.2% | 55.5% | 74.4% |
| 02116 | Back Bay/South End | 17.0% | 60.0% | 3.0% | 158.3% | 55.5% | 74.7% |
| 02108 | Downtown | 17.0% | 60.0% | 3.0% | 165.2% | 55.5% | 75.8% |
| 02109 | Downtown | 17.0% | 60.0% | 3.0% | 165.2% | 55.5% | 75.8% |
| 02110 | Downtown | 17.0% | 60.0% | 3.0% | 165.2% | 55.5% | 75.8% |
| 02114 | West End/Beacon Hill | 17.0% | 60.0% | 3.0% | 165.2% | 55.5% | 75.8% |
| 02199 | Prudential/Back Bay | 17.0% | 60.0% | 3.0% | 165.2% | 55.5% | 75.8% |
| 02210 | Seaport | 17.0% | 60.0% | 3.0% | 165.2% | 55.5% | 75.8% |

The results of this analysis are detailed in the companion summary document. Effectively, the Mayor’s proposal shows there is financial feasibility throughout the city (although it creates a slightly higher feasibility challenge in the city’s outer neighborhoods) for this approach with some cost savings accommodations that are within a reasonable market range for construction costs (as detailed in the companion piece). Based on this financial feasibility analysis, the Mayor’s approach effectively balances the goal of increasing the set aside rate (from the current required rate of 13% and the effective rate of 17%), reducing the targeted average AMI (from the current required rate of 70% AMI) while minimizing the potential to substantially disrupt development activity in the city.

OWNERSHIP STRATEGY

The ownership analysis indicates that ownership development is not viable everywhere in Boston. Simply put, the outer neighborhoods do not capture a high enough sale price for market rate ownership units in commercial scale development (above 10 units) to justify the cost of development (without substantial subsidies). In contrast, price points in the inner core neighborhoods of Boston do generate strong enough market rate prices to accommodate the current IDP requirements as well as in increase in set asides to 20%. While one goal of the IDP review process was to maintain a single policy for the entire city, the analysis indicates that a bifurcated solution that increases the set aside for inner core neighborhoods to 20% set aside while leaving the outer neighborhoods threshold at 13% is the best solution to attract more price-diverse ownership development in the city.

Changes to Unit Threshold

The city is considering modifying the minimum threshold for when a development project must adhere to the IDP. The current threshold is 10 units. RKG tested the financial impact of reducing the threshold downward from 10 to 6 units across the city, the results within Allston/Brighton and Roxbury/Mattapan/Dorchester are presented here in Table 39.

Table 40. Impact of Changing Affordable Unit Threshold on COC Return

| Unit Type | Allston/Brighton | | Roxbury/Mattapan/ Dorchester | |
|-----------|-------------------------------|-------------|-------------------------------|-------------|
| | With IDP (Preferred Approach) | Without IDP | With IDP (Preferred Approach) | Without IDP |
| 10 Units | 4.95% | 8.66% | 4.71% | 7.95% |
| 9 Units | 6.68% | 8.58% | 6.32% | 7.94% |
| 8 Units | 5.76% | 8.08% | 5.49% | 7.47% |
| 7 Units | 6.17% | 8.54% | 5.85% | 7.88% |
| 6 Units | 5.70% | 8.44% | 5.50% | 7.84% |

Data indicates that reduction in the threshold adversely impacts projects, with smaller projects being more sensitive to IDP changes. The reason for the greater impact is that smaller projects do not generate enough financial return on a dollar basis, to offset the cost of building and delivering a unit. These findings are consistent throughout all the subareas.

Reducing the unit threshold may result in smaller projects which fall under the IDP requirement. If the city reduces the 10-unit threshold, the immediate impact would be pressure for developers to reduce the number of units to fall below the new threshold. The reason for the reduction in units is that on smaller projects the cost of building and delivering an affordable unit is significant in comparison to the financial return and initial capital outlay. As such, developer may try to avoid projects which triggers IDP. To avoid ‘downsizing’ projects, or having development remain one unit below the minimum threshold, the city would need to set the threshold to two units.

Even with this change, the feasibility analysis reveals that projects under 10 units should be allowed to use a payment in lieu rather than having to deliver the unit on site. The reason is twofold. First, the financial impact of having to deliver a unit onsite is greater than the payment in lieu value (as detailed above). Second, managing the compliance a single onsite unit creates substantial costs and challenges to the city. Capturing the value of these stand alone units to create a higher set aside or greater affordability in a larger project will still meet the community need of greater units while mitigating the cost of monitoring and compliance.

Changes to Payment In-Lieu of Units Fee

The existing IDP offers a developer the opportunity to make a payment in lieu of delivering units on-site. Typically, this option is exercised by developers of ownership units. The existing payment in-lieu is based on Zone, with Zone A having the highest payment amount of \$380,000 and Zone C having the lowest at \$200,000. These values were codified into the zoning ordinance and have not been updated since 2015. Table 40 presents an analysis of the payment in-lieu options tested.

| Blended Average Value Gap | Existing IDP Units | Rental Units | | | Ownership Units | | | |
|---------------------------|--------------------|------------------------|----------|---------------------------|------------------------|----------|---------------------------|--------------|
| | | Per Value Differential | Unit Gap | Per Foot Gap Differential | Per Value Differential | Unit Gap | Per Foot Gap Differential | Square Value |
| Zone A | \$380,000 | \$629,000 | | \$674.39 | \$1,031,000 | | \$850.45 | |
| Zone B | \$300,000 | \$428,000 | | \$458.88 | \$599,000 | | \$494.10 | |
| Zone C | \$200,000 | \$340,000 | | \$364.53 | \$366,000 | | \$301.91 | |

Payment in-lieu values are typically based on the value differential between delivering an affordable and market rate unit. The value differential is based on the expected net operating income and capitalization rate/sales value. RKG quantified the value differential for both owner and renter units for various unit types. The differential ranges between 1.5x and 3x the existing payment in-lieu fee, which indicates the city has the potential to raise the fee.

Increasing the payment in-lieu threshold will adjust the payment level to be commensurate with current market conditions. Developers are currently accustomed to the existing IDP payment in-lieu policy. Updating the fee, to a value gap approach will mitigate the 'jump' in return levels for staying one unit under the requirement to deliver the next on-site unit.

Zoning

Zoning is an extremely powerful tool for setting up predictable yet flexible land use policies in the city. There are several ways Boston could use zoning to create a more simplified and streamlined process, as well as incentivize development where desired. Enacting zoning where specific uses and projects of a certain size are allowed by right can help reduce the time it takes to get an approval and therefore the cost associated with that approval process. It can also help make development outcomes more predictable in the eyes of the neighborhood.

Zoning that clearly defines density, land use, and design can also save time and reduce costs, but can also create value if incentives are in place to capture value for public good as a trade-off for deeper levels of affordable housing. The use of zoning tools like density bonuses can be a way to help increase affordability within a project.

Approval Process

The development approval and permitting process in the City of Boston can be long and expensive depending on where a project is located, the size and complexity of the project, and if there is any neighborhood opposition to the project. Speaking with developers across Boston, it was noted that soft costs for construction can constitute 20% of hard costs (between \$70 and \$100 PSF) for a project. This is a sizable percentage of total construction costs on a per square foot basis and is one of the few cost metrics the city can influence.

Finding ways to reduce those costs through predictable and flexible zoning, streamlined approval processes, and neighborhood planning that sets expectations for residents about future development can have a substantial impact on development costs, and therefore financial feasibility.

Financial Incentives

The use of financial incentives already exists in Massachusetts and the City of Boston. Both the city and state provide financial support for certain housing projects (e.g., LIHTC Projects), and are making direct and indirect contributions (e.g., reduced cost of publicly owned land) to increase the production of price-diverse housing. However, the city's financial tools have been exclusively used to augment other state and federal grant funds, and not invested into private-sector IDP projects.

The feasibility analysis reveals that achieving greater set-asides or lower income thresholds are not financially feasible without some form of financial assistance. The city can use existing programs, or even consider tax abatements, to increase the reach of the IDP without greater risk of market disruption.

Cross Subsidization

The IDP model measures residential-only developments. Mixed-use projects, particularly those that have included a life science/lab component, offer a substantially different financial reality. Recently developed and approved projects that include a substantial commercial/lab component have offered higher percentages of affordable units because the revenue from life science uses is great enough to offset the revenue losses of the additional affordable units.

There are numerous examples of these mixed-use projects in Boston, Cambridge, and Somerville where cross-subsidization has been a successful model for deeper residential affordability. However, those projects are likely to occur in specific locations that are conducive to the life science market. These projects also require a larger land area, higher floor to floor heights, and more intensive infrastructure. These projects are not appropriate for all neighborhoods in Boston and should not be considered a “typical” example of how residential development happens in Boston.

Linkage

In addition to analyzing the financial feasibility of changes to IDP, the City is also studying the current linkage fee program that applies to commercial development. The current linkage fee program applies a fee of \$15.39 per square foot to commercial projects over 100,000 SF in size. Linkage is important to advancing affordable housing in Boston because \$13.00 of the \$15.39 is dedicated to affordable housing. The linkage fee program generates millions of dollars of flexible funds the City can direct toward affordable housing projects.

The interplay between linkage fees and IDP is important to understand because setting the linkage fees too high could impact commercial feasibility in Boston which would in turn reduce linkage fees for affordable housing. Setting the fee too low could encourage more commercial development at the expense of residential or mixed-use projects. Therefore, these two policies should be considered in parallel.

Construction Costs

Construction costs (specifically hard costs) in Boston are twice as high as most other markets across the United States. Some of this is related to the complexities of building in an urban environment with existing infrastructure, but the impact of high construction costs creates the need to generate offsetting revenue from residential rents or sale prices. The pandemic created dramatic shifts in labor and material costs which in turn placed pressure on raising market rents and sale prices. This cycle creates less price diversity in the city and leads to greater levels of gentrification and displacement of existing residents.

The higher construction costs also erode the developer’s ability to provide more affordable housing or lower AMIs. Through our modeling efforts we noted a 5% reduction in hard costs

(about \$19 PSF) for the sample project we tested would have supported 5% more affordable units at 70% of AMI (6 more units) without impacting the financial feasibility of the project.

Phasing

Substantial and immediate changes to any policy or program that impacts development in the city can have a cooling effect on the market and could result in a slowdown of development in the near-term. To moderate these potential shocks to the market, changes to the IDP could be phased in over time with the goal of increasing the affordable housing percentage as well as lowering the AMI targets.

Creating a strategy that increases requirements over a set period can add a level of predictability for both developers and property owners and allow the market to absorb and plan for future changes along the way.

Public Land

In addition to regulatory changes and financial incentives, the City of Boston also has control over publicly owned land. Given that land costs are a substantial factor in financial modeling, using low- or no-cost land leases of public land in return for greater levels of residential affordability could be another effective tool.

The city has already begun to explore opportunities for leveraging public land for public good through the Mayor's recent study of city-owned parcels. To date, Boston has identified 9.5 million SF of vacant or underutilized land across 1,238 individual parcels. While this land may be used for a variety of public purposes, affordable housing is a top priority for the administration.

APPENDIX 1 - BASELINE MODEL ASSUMPTIONS

| Market Rents Per Square Foot | | | | |
|--|-----------------|------------------|------------------|------------------|
| Subareas | Eff Rent | 1 Br Rent | 2 Br Rent | 3 Br Rent |
| Jamaica Plain/Hyde Park/Roslindale/West Roxbury | \$4.78 | \$4.38 | \$3.96 | \$4.24 |
| Roxbury/Mattapan/Dorchester | \$5.43 | \$4.64 | \$4.46 | \$3.92 |
| Longwood Medical Area/Mission Hill | \$5.12 | \$4.91 | \$4.72 | \$4.57 |
| Allston/Brighton | \$6.45 | \$5.36 | \$5.16 | \$5.78 |
| Bay Village/Fenway | \$7.50 | \$6.67 | \$5.88 | \$7.84 |
| Back Bay/Beacon Hill/Chinatown/Downtown/North End/South Boston/South Boston Waterfront/South End/West End | \$7.29 | \$6.34 | \$5.40 | \$7.84 |
| Charlestown | \$5.89 | \$4.47 | \$3.92 | \$5.78 |
| East Boston | \$6.16 | \$5.09 | \$4.34 | \$3.98 |

| Market Condo Sales Price Per Square Foot | | | | | |
|--|---------------------------|------------|---------|---------|---------|
| Subareas | | Efficiency | 1BR | 2BR | 3BR |
| Jamaica | Plain/Hyde | \$1,138 | \$661 | \$646 | \$497 |
| Park/Roslindale/West Roxbury | | | | | |
| Roxbury/Mattapan/Dorchester | | \$1,061 | \$668 | \$591 | \$464 |
| Longwood | Medical Area/Mission Hill | \$1,286 | \$1,339 | \$980 | \$1,833 |
| Allston/Brighton | | \$1,140 | \$992 | \$958 | \$637 |
| Bay Village/Fenway | | \$1,286 | \$1,587 | \$1,617 | \$1,833 |
| Back Hill/Chinatown/Downtown/North End/South Boston/South Boston Waterfront/South End/West End | Bay/Beacon | \$1,146 | \$1,250 | \$1,076 | \$1,193 |
| Charlestown | | \$1,138 | \$792 | \$785 | \$920 |
| East Boston | | \$1,061 | \$866 | \$731 | \$656 |

| Maximum Affordable Rents | | | | | | |
|--------------------------|---------|---------|---------|---------|---------|---------|
| Unit Type | 30% AMI | 40% AMI | 50% AMI | 60% AMI | 65% AMI | 70% AMI |
| Efficiency | \$499 | \$690 | \$879 | \$1,068 | \$1,162 | \$1,257 |
| 1BR | \$590 | \$811 | \$1,031 | \$1,252 | \$1,361 | \$1,473 |
| 2BR | \$659 | \$911 | \$1,164 | \$1,417 | \$1,542 | \$1,668 |
| 3BR | \$734 | \$1,018 | \$1,303 | \$1,586 | \$1,727 | \$1,869 |

| Maximum Affordable Sales Price | | | | | | |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unit Type | 30% AMI | 40% AMI | 50% AMI | 60% AMI | 65% AMI | 70% AMI |
| Efficiency | \$53,460 | \$71,280 | \$89,100 | \$117,900 | \$132,250 | \$146,600 |
| 1BR | \$67,860 | \$90,480 | \$113,100 | \$146,600 | \$163,400 | \$180,200 |
| 2BR | \$82,200 | \$109,600 | \$137,000 | \$175,300 | \$194,500 | \$213,700 |
| 3BR | \$96,540 | \$128,720 | \$160,900 | \$204,000 | \$225,600 | \$247,200 |
| | \$110,880 | \$147,840 | \$184,800 | \$232,700 | \$256,700 | \$280,700 |

| Land Value Per Unit | | | |
|---------------------|----------|----------|-----------|
| Unit Breakdown | Min Unit | Max Unit | Boston |
| Condominium | N/A | N/A | \$185,000 |
| Apartment | 1 | 25 | \$75,000 |
| Apartment | 26 | 50 | \$65,000 |
| Apartment | 51 | 125 | \$45,000 |
| Apartment | 126 | 1,000 | \$40,000 |

| Unit Sizes | | |
|------------|-----------|-------|
| Unit Type | Apartment | Condo |
| Eff | 543 | 705 |
| 1BR | 767 | 997 |
| 2BR | 1,039 | 1,294 |
| 3BR | 1,383 | 1,853 |

| Unit Allocation | | |
|-----------------|-----------|-------|
| Unit Type | Apartment | Condo |
| Eff | 31% | 12% |
| 1BR | 39% | 37% |
| 2BR | 27% | 43% |
| 3BR | 3% | 8% |

| Hard Construction Costs | | |
|-------------------------|-----------|-------|
| Construction Type | Apartment | Condo |
| Stick | \$340 | \$390 |
| Stick Over Podium | \$390 | \$440 |
| Steel Frame | \$490 | \$540 |

| Soft Costs | |
|------------------------------|------|
| Soft Costs (% of Hard Costs) | Rate |
| Soft Costs | 20% |

| Building Efficiency | |
|---------------------|------|
| | Rate |
| Building Efficiency | 80% |

| Parking Costs | |
|---------------------|-------------|
| Parking Type | Cost |
| Surface | \$35,000 |
| Aboveground | \$67,500 |
| Underground | \$125,000 |

| Parking Ratio | |
|---------------------|--------------|
| Parking Type | Ratio |
| Apartment | 0.375 |
| Condominium | 0.750 |

| Construction Timeline | |
|---------------------------------|-------------|
| Construction Timeline | Time |
| Start Year | 2022 |
| Term of Construction (in Years) | 2 |
| Operation Start Year | 2024 |

| Interest Rates | |
|----------------------|-------------|
| Building Type | Rate |
| Rental | 5.00% |
| Ownership | 5.00% |

| Discount Rate (Projected Developer Return) | |
|--|--------|
| | |
| Building Type | Rate |
| Rental | 15.00% |
| Ownership | 20.00% |

| Inflation Rate | |
|----------------|-------|
| | |
| | Rate |
| Inflation Rate | 2.50% |

| Cap Rate | |
|----------|-------|
| | |
| | Rate |
| Cap Rate | 5.00% |

| Escalation Rate | |
|-----------------|-------|
| | |
| | Rate |
| Escalation Rate | 2.50% |

| Mortgage Term | |
|---------------|-------|
| Building Type | Years |
| Rental | 30 |
| Ownership | 1 |

| Payment in Lieu | |
|------------------------|-----------|
| | |
| Building Type | Amount |
| Zone A | \$380,000 |
| Zone B | \$300,000 |
| Zone C | \$200,000 |
| Construction Hard Cost | \$459,124 |
| Value Gap Approach | \$425,899 |

| Community Benefit | |
|-------------------|-----------|
| | |
| | Amount |
| Community Benefit | \$100,000 |

| Operating Expenses | |
|--------------------|------|
| | |
| | Rate |
| Operating Expenses | 25% |

| Vacancy and Collection Loss | |
|-----------------------------|------|
| | |
| | Rate |
| Vacancy and Collection Loss | 5% |

| Parking Revenue | |
|-----------------|-----------------|
| | |
| Parking Revenue | Monthly Revenue |
| Apartment | \$300 |
| Condominium | \$0 |

| Equity | |
|-----------|--------|
| | |
| Equity | Rate |
| Rental | 30.00% |
| Ownership | 30.00% |

| Equity Investor | |
|------------------------------------|--------|
| | |
| | Rate |
| Equity Investor Percentage | 20.00% |
| Equity Investor Return Expectation | 20.00% |

| Cost of Sales | |
|---------------|------|
| | |
| | Rate |
| Cost of Sales | 6% |

| Reversion Period | |
|------------------|-------------|
| | |
| Reversion Period | Time Period |
| Rental | 10 |
| Ownership | 1 |

| Financing Fee | |
|---------------|-------|
| | Rate |
| Financing Fee | 3.00% |

| Contingency | |
|--|-------|
| Contingency (% of Hard Costs, Soft Costs, and Parking Costs) | Rate |
| Contingency | 5.00% |

| Developer Fee | |
|--|-------|
| Developer Fee (% of Hard Costs, and Parking Costs) | Rate |
| Developer Fee | 5.00% |

APPENDIX 2 - GLOSSARY OF TERMS

Capitalization Rate – Ratio between the net operating income of a property and its sales value

Discount Rate – The interest rate used in discounted cash flow analysis to determine the present value of future cash flows

Density Bonus - A ordinance mechanism allowing a developer to build a greater number of units than the existing underlying zoning dictates in exchange for the creation of additional affordable units

Equity – Initial out-of-pocket investment on the part of developer that is required to obtain financing

Effective Gross Income – Gross income minus the vacancy collection loss

Fee in-Lieu – Payment made to City to account for fractional affordable unit not built.

Internal Rate of Return - Annualized rate of return sought by a developer based on the project discounted cashflow

Net Operating Income – Net income after deducting operating expenses from potential gross income

Net Present Value – Net value of the initial investment and cashflows generated from a project, discounted back to the current year

Operating Expenses – Expenses related to operating the building such as maintenance, salaries, and repairs

Other Income – Income generated from the property aside from rent, this income is parking revenues for leased spaces

Potential Gross Income – Potential income generated from rental income or sale of a property. Calculated by multiplying the number of units and rent for each unit

Residual Land Value - The price a developer pays for a piece of land. Generally, involves calculating the income expectations for the developed land, subtract all expenses associated with this development, and the remainder is the land residual

Vacancy and Collection Loss – Percent of rent that is uncollectable

Value Gap – Difference in value between a market rate unit and affordable unit