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TO: LDC Revision Team, City of Austin
FROM: Ian Carlton and Michelle Anderson, ECONorthwest
SUBJECT: Calibration Tool – Cover memo DRAFT

This memorandum provides an overview of the Excel-based tool that ECONorthwest created for the City of Austin staff, primarily within NHCD, to calibrate the affordable housing bonus program requirements, specifically the percent set-aside of affordable housing units and fees in lieu of providing affordable housing. This memorandum serves to introduce staff and relevant stakeholders to the fundamentals of the analysis so as to better understand the expected outputs.

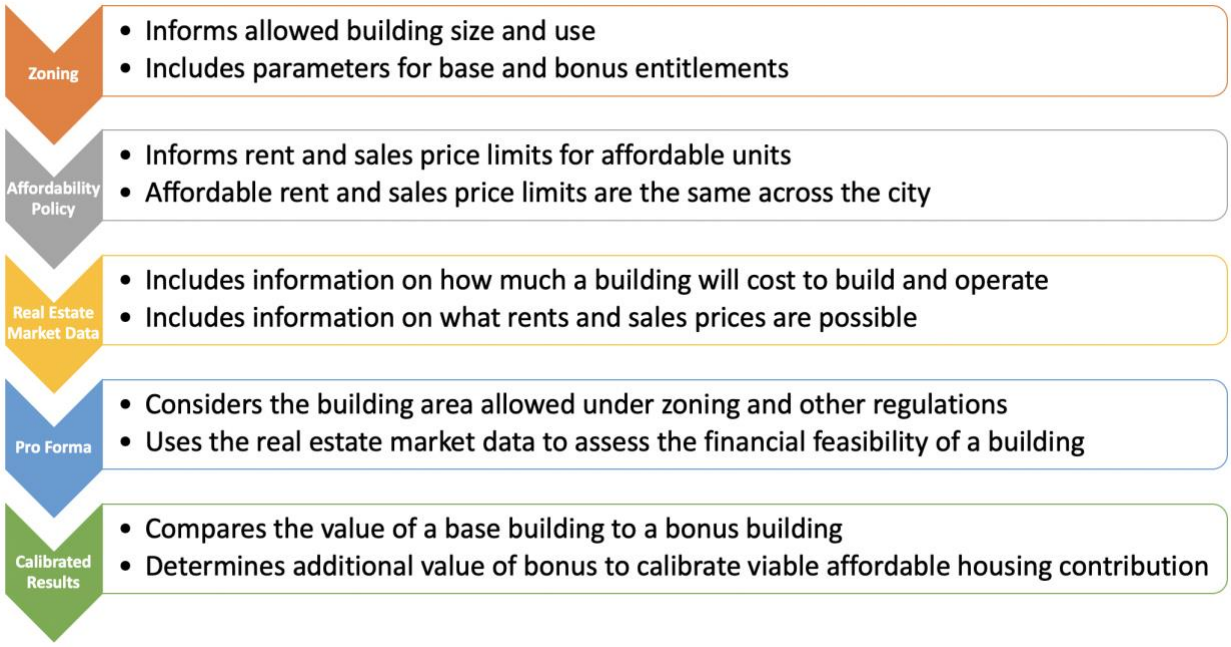
## Purpose

We built this tool so staff can regularly develop policy recommendations for existing and proposed affordable housing bonus programs. The tool helps staff calibrate the affordable housing bonus program requirements to preserve the incentive for developers to participate in the voluntary bonus programs and contribute to affordable housing production. These voluntary affordable housing bonus programs are a market-based solution to delivering more affordable housing, and this tool helps staff understand how the development industry may respond to different regulatory requirements at various times in the real estate cycle. The outputs of this tool are not intended to be the final recommendation, but to help ground those recommendations in market realities.

## Approach

The City of Austin's affordable housing bonus programs rely on the private real estate market to deliver the affordable units. We therefore created an analysis tool that employs the same financial considerations a real estate developer would use to determine if a proposed development is financially feasible. These financial calculations are referred to as a pencil out pro forma model. A pro forma considers the size of the building allowed by zoning and the revenue that building can deliver (from rents and sales prices) relative to the costs of constructing and operating the building. To determine whether a development bonus is valuable, a developer would analyze the financial considerations of building a bigger building in exchange for providing affordable units or paying an in-lieu fee. The key categories of factors that inform that pro forma analysis are summarizes in Exhibit 1. We evaluate these factors via a pro forma model in order to arrive at the calibrated outputs for set-aside and in-lieu fee requirements.

Exhibit 1. Calibration Diagram




Many factors are considered in the analysis. More details about these factors are provided in Exhibit 2.

Exhibit 2. Categories of Data in the Analysis

| Type of Data | Examples | Sources | Impact on the Outputs |
|---|---|---|---|
| Zoning | Allowed land uses, building height, floor area ratio (FAR), dwelling units, setbacks, impervious coverage | Land Development Code, existing bonus program area plan documents | Informs the size of the base and bonus buildings that are allowed |
| Affordability Policy | Target depth of affordability, affordable rents, affordable sales prices | HUD Median Family income, City of Austin Calculations, Land Development Code, existing bonus program area plan documents | Informs the maximum rents and sales prices of affordable units in a building |
| Real Estate Market Data | Rents and sales prices, construction costs, operating costs, investment metrics | CoStar, Zillow, Redfin, Austin Board of Realtors, Assessor data, RS Means, developer interviews, City of Austin Economic Development Department | Informs the pro forma calculations to determine if a building is financially feasible |

## Key Functions and Methodology of the Tool

The fundamental function of the analysis is to determine the value a density bonus provides so that public benefits can be appropriately calibrated – in this case a set-aside of affordable housing units or fee in lieu of providing those units. Estimating the value of a bonus allows us to understand the capacity of developers to provide public benefit while still advancing a

development project that uses the bonus entitlements. Developers may choose to use the base entitlements if the bonus-related public benefits cost more than the bonus value.

The value generated by a density bonus varies depending on market conditions and the regulatory framework of the zoning code and affordability policy. We captured these market conditions and regulatory requirements in the analysis and they each have key functions and assumptions that influence the resulting outputs.

The RLV analysis is an estimate of the feasibility for the market to produce affordable housing – it is used to compare policy choices but does not produce a precise, scientific answer. There are limitations to any analysis and tool design choices influence the final values, which are intended to ground recommendations and policy discussions in market realities. We highlight these methodological choices throughout the discussion below.

### Residual Land Value Methodology and Pro Forma Analysis

Calibrating a policy to capture some of the bonus value requires an understanding of a developer's financial capacity. To make this determination, the analysis includes calculations that reflect how developers, investors, and lenders typically evaluate real estate deals.

More specifically, the analysis evaluates the *residual land value* (RLV) to understand development feasibility and the value that a density bonus might provide. RLV is an estimate of what a developer would be willing to pay for land given the property's income from leases or sales, the cost of construction, and the investment returns needed to attract capital for the project. While there are other quantitative methods for calculating density bonus value and calibrating affordable density requirements, such as an internal rate of return (IRR) threshold approach, all of the potential methods share drawbacks regarding the quality of inputs and sensitivity to those inputs. An advantage of the RLV approach is that it does not rely on land prices as an input. Rather, observed land prices can be compared with the model outputs to help calibrate the model and ensure it reflects reality.

The analysis includes multiple building prototypes that conform to various base zone and bonus entitlements, on multiple prototypical lot sizes appropriate for the respective bonus areas, and of different land-uses (residential rental, residential for-sale, and commercial). We also validated these prototypical buildings by researching and comparing them to recent developments (built or under construction during the last five years) in the respective bonus areas.

The prototypical buildings in the analysis sit on "prototypical" lots, because they were purposefully designed to be rectilinear and easy to compare. We looked at the approximate lot sizes of typical developments in the bonus areas to arrive at a consolidated list of "prototypical" lot sizes. In reality, there are more lot sizes and shapes present in each bonus area than what we modeled. Therefore, the tool CANNOT be used to conduct a parcel-level evaluation that accounts for precise lot sizes and existing land uses.

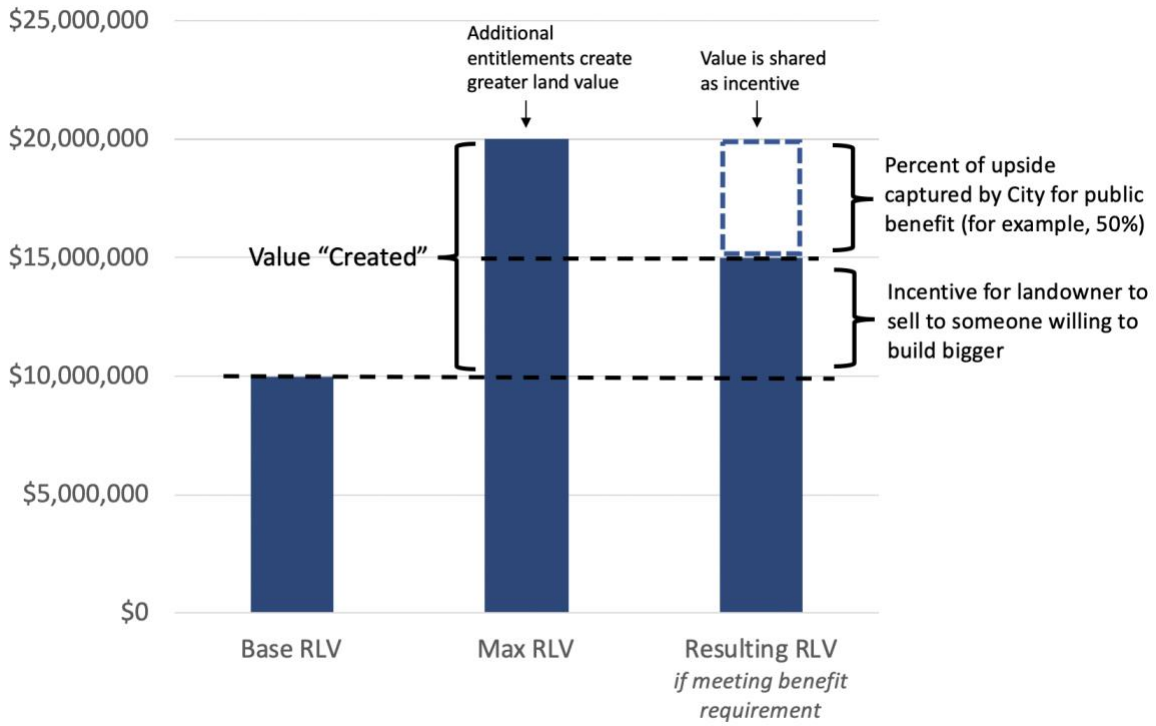
The analysis also references various real estate market data relevant to the pro forma financial model. These data include building program assumptions (e.g. unit mix, parking ratios, floor heights), operating assumptions (e.g. sales prices, rents, vacancy, operating costs), development costs (e.g. hard costs, soft costs), and valuation metrics (i.e. return on cost and yield thresholds).

Using this information, the analysis evaluates the RLV of the prototypes on all the lot sizes. To do so, the financial pro forma model compares the total cost to build the prototypes, including the returns required by investors, to the respective value of the prototype such that the difference between the two is the RLV.

Then the analysis compares the RLV results for the development options buildable only under base entitlements to those buildable only under bonus entitlements to identify the value that might be conferred by a bonus. Not all prototypes will be compared to one another because of these zoning filters.

To arrive at the calibrated outputs, a portion of the bonus value is dedicated to affordable housing production, leaving a portion of the incremental bonus value to incentivize a landowner to sell to a developer that would use the bonus entitlements rather than the base. This methodology is illustrated, using generalized numbers, in Exhibit 3.

Exhibit 3. Generalized Illustration of Bonus Value and Calibration Calculations




To arrive at the percent of units to set aside as affordable, the analysis takes the portion of the incremental value of the bonus available for affordable housing production and divides it by the buy-down cost of an affordable unit to understand the total number of affordable units the

bonus could financially support. Then it divides the number of affordable units by the number of units in the bonus to arrive at the percentage of units that could be set-aside as affordable units. To arrive at a fee in lieu of providing affordable housing (as a fee per square foot), the calculations take a portion of the incremental value of the bonus and divide it by the bonus square footage.

Reserving a portion of the incremental value helps preserve the incentive for the developer to build under the bonus entitlements instead of the base, while still directing value toward the set-aside and in-lieu fee. This ensures that a developer willing to build in the bonus is still able to compete for land in the marketplace. Leaving some value on the table, rather than requiring a set-aside or charging an in-lieu fee closely approximating the value of the bonus, also affords some policy resilience as market dynamics change over time. We illustrate this methodology in more detail in Exhibit 4 using generalized numbers.

Exhibit 4. Detailed Illustration of Bonus Value and Calibration Calculations

| Row | Step | Set-aside Result | Set-aside Calculation | In-lieu Fee Result | In-lieu Fee Calculation |
|---|---|---|---|---|---|
| A | Value of base building | $1M | | $1M | |
| B | Value of bonus building | $3M | | $3M | |
| C | Incremental value of the bonus building | $2M | B - A | $2M | B - A |
| D | Portion of incremental value directed to public benefit | 50% | | 75% | |
| E | Nominal amount available for fee | $1M | C * D | $1.5M | C * D |
| F | Buy-down cost of an affordable unit | $200,000 | | N/A | |
| G | Number of units building built under bonus entitlements* | 100 | | N/A | |
| H | Square footage of building built under bonus entitlements* | N/A | | 100,000 | |
| I | Total affordable units possible | 5 | E / F | N/A | |
| **J** | **Estimated set-aside in bonus** | **5%** | **I / G** | | |
| **K** | **Estimated in-lieu fee per square foot of bonus** | | | **$15** | **E ÷ H** |

*Some existing bonus program areas calibrate the set-aside and in-lieu fee relative to the entire building as opposed to the area of the bonus, thus changing the denominator in this equation to the square footage of the entire building. We calibrated the set—asides and in-lieu fees in the bonus program areas accordingly.

Given that the value of a bonus can differ between land-uses, the analysis separates the fees into three categories associated with each use: residential rental, residential for-sale, and commercial. Then, the analysis allows two different comparisons to understand the value of the bonus: a comparison of the most valuable building built under bonus entitlements within each land use to the most valuable building built under base entitlements of all land uses or a comparison of the most valuable building built under bonus entitlements within each land use to the most valuable building built under the base entitlements for the same land use. The former comparison reflects the market reality that multiple development actors are often competing for land to build different product types and that the landowner is incentivized to sell to the highest bidder regardless of their development prospects, while the latter reflects the prior analysis methodology employed by consultants to arrive at the original fees for the Downtown Density Bonus Program.

It is important to note that the analysis (1) picks the highest value from an array of buildings that conform to the base entitlements and (2) picks the highest value from an array of buildings

that conform to the bonus. The analysis does NOT consider whether other buildings in the array are feasible or infeasible.

This analysis is completed on the sample of prototypical lot sizes for each bonus area to identify the highest-value prototype by lot size. Then the analysis averages the resulting fees across the respective lot sizes – this is done irrespective of the distribution of lot sizes and available parcels in each bonus area. Certain buildable prototypes on some lot sizes had the capacity to pay a higher fee, while others could not (due to a variety of factors such as building type and the respective construction costs and achievable rents). Averaging across lot sizes was a simplification to arrive at a single set-aside and in-lieu fee.

Once the user of the analysis derives the set-asides and in-lieu fees for each use (averaged across lot sizes), under different base and bonus combinations, they can aggregate and simplify the results based on a variety of ways that the fee could be applied in practice: by the entire bonus area, by base zone, by bonus entitlement incentives, by existing bonus area subdistricts, and by existing bonus area fee geographies. These variations can help policymakers consider whether the results exhibited consistency or patterns, which can help users choose a single set-aside or in-lieu fee specification that best reflects the variation across regulatory and market differences.