Final Report

City of Portland Central City Density Bonus and Entitlement Transfer Mechanism Update

Prepared for:

Portland Housing Bureau
Bureau of Planning & Sustainability

Prepared by:

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The Economics of Land Use

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1.0 EXECUTIVE SUMMARY

This Executive Summary describes the major findings of EPS's analysis and recommendations. More detailed explanations, which are referenced in the Executive Summary, can be found in the body of the full report.

1.1 Overview

1.1.1 Process

Economic & Planning Systems (EPS) and Otak were retained by the City of Portland Bureau of Planning and Sustainability (BPS) and the Portland Housing Bureau (PHB) to complete a feasibility study for an update to the Central City's density bonus and entitlement transfer mechanisms. In conjunction with BPS and PHB, the process actively involved staff from other City bureaus, including Parks, Development Services, Commissioner Dan Saltzman's office, the Mayor's office, and others who collectively served on a monthly basis as the Executive Oversight Committee. The project also engaged external stakeholders, including affordable housing, residential and non-residential developers and brokers, builders, non-profit organizations, legal experts, and other industry professionals in one-on-one interviews and a roundtable discussion on February 19, 2015.

EPS and Otak would like to acknowledge the valuable insight and participation that this process, organized by BPS and PHB, generated. Throughout the process, stakeholders offered meaningful feedback and made significant contributions that helped not only to increase the robustness of inputs and assumptions, but that helped also to advance the general discussions around exploring this policy update.

1.1.2 Study Purpose and Approach

In the Central City Plan District, density bonuses are offered to incent developments to provide any one of 18 different community benefits (e.g. residential space, open space, bike lockers, etc.). There are also a number of mechanisms for transferring density, or floor area ratio (FAR), from one site within the plan district to another. These incentive mechanisms have been used with varying degrees of success, utilized more frequently when market demand is strong.

There is general consensus that, while some of the density bonus mechanisms have been successful, many of them compete with one another, diluting the City's ability to reach its goals toward any of the priority community benefits. Moreover, a recent increase in development momentum offers an opportunity to craft a better policy ahead of the market. As a result, BPS undertook this effort with the following objectives:

- Focus the options for bonus or transfer on a limited set of public benefits to achieve more substantial results
- Calibrate the value of the density bonus to the cost of providing the public benefit so the bonus system is more likely to be used
- Explore options for use of the bonus system to support production of affordable housing, open space amenities, and preservation of historic buildings

As such, this project represents those efforts to streamline the program and align it more closely with the economic realities of the market and development feasibility. To accomplish this, EPS took the following general approach to completing its research and analysis:

- Identify best practices of incentive programs in six cities with incentive zoning programs
- Develop a modeling tool and methodology for balancing the value created by density bonuses with the cost of providing community benefits
- Develop a tool that accommodates an evaluation of the degree of policy objectives that can be achieved under changeable market assumptions
- Tie the cost of providing the community benefit to the value of the density bonus earned

It should also be noted that this study is also among a few other broader subject matter efforts underway addressing the need to evaluate and create policies and tools that assist the City in reaching its community goals.

1.2 Summary of Findings

The following are the major findings from EPS's work. Each frames the context in which the recommendations are structured.

1. ***Case study research offers valuable lessons learned for Portland.***

   Case studies were selected around the country on the basis of demographic and economic similarities to Portland, and also on account of their innovative policy concepts. In the end, 6 were chosen (detailed more in the **Appendix**) that reflected a cross-section of applications in high-growth, generally high-cost cities.

   Two major lessons-learned from other cities is the degree to which loopholes in policy and overlap with similar policies erode effectiveness. A few of the case study cities noted loopholes in processes to obtain density bonuses, where developers would effectively skirt the obligation of providing some community benefit by obtaining the density bonus through alternative land use development or entitlement process means. Another observation was that the performance of incentive programs in these cities was characterized by an abundance of projects meeting program requirements by making cash contributions instead of onsite affordable housing construction, for example. This is generally because most development reported in the last 6 years has been non-residential, which in these cities was less likely to produce residential.

2. ***Case study research offers good examples of how the Central City density bonus policy should be crafted and what to avoid.***

   Each policy leveraged the density bonus as a way to encourage the provision of community benefits, with successful usage where market demand for density exceeded base entitlements. True of each successful program was that the community benefit carried some degree of economic value to the development, especially in the context of non-residential development. As Portland has seen high usage of the bike locker density bonus, other communities saw high usage of green building techniques for density bonuses, fountains, plaza space, and other civic amenities. In terms of affordable housing, however, residential programs are typically the most successful at producing units, but local housing and planning directors frequently speak of their development community's aversion to projects with a mix

of incomes citing a perceived lack of expertise to properly market, sell or lease, and maintain or operate the affordable units.

Although not the intent of the programs, most have been successful in generating revenue that the cities use to create community benefits such as affordable housing. In other communities, cash contributions can be related to a variety of different metrics: e.g. the cost of construction, the maximum affordable sales price of units that would have been built on site, or a politically-decided amount.

3. Although incentive zoning policies are part of the array of affordable housing development tools used in other cities, these policies have not created a substantial amount of affordable housing without the accompanying use of other affordable housing financing tools.

Review of performance data from case study cities illustrates that an incentive policy is often not the only tool communities use to create affordable housing inventories. In fact, the most successful policies have some form of permanent revenue-generating source that is leveraged to produce, acquire, rehabilitate, or preserve affordable housing inventory.

All communities with incentive programs were affected by recession, such that affordable housing production was quite minimal, as opposed to programs generating substantial sums through their cash contribution options. There is also considerable variation in the magnitude of production for communities with multiple housing or incentive structures, but lower magnitudes in communities with just one tool. Moreover, communities with permanent or alternative funding sources are also able to leverage not only federal but local funds to generate affordable housing. As an example, Seattle voters have successfully approved multiple time-limited housing property tax levies over the past 30 years, which the City has leveraged with its other housing policies, programs, and funding sources to produce many thousands of units. As another example, the City of Austin, though it has admittedly too many disparate density bonus programs, has an effective program that uses development fee waivers as incentives to leverage the production of affordable housing.

4. This study's modeling and methodology illustrate that positive economic value is created through density bonuses for residential and non-residential development.

In subdistricts where demand for density or development exceeds the base entitlement level, a density bonus can create positive additional value (i.e. profit) for a development. EPS's model identified this positive additional, or "residual", value by netting the total development costs (including an additional profit factor) of a development with a density bonus against the total development costs (including the base profit factor) for a project with base entitlements.

5. This positive economic value can be leveraged to feasibly provide community benefits.

Using the results of the residual value analysis, EPS's model was also used to estimate the "residual" value of density bonuses in each entitlement zone. This "residual" value refers to an additional profit value, netting all development costs and profit factors.

6. ***The model results show that a density bonus in a few specific zones triggers higher-cost construction, which can negatively impact the density bonus's positive economic value.***

   EPS consulted with developers and industry professionals to vet inputs and assumptions regarding hard and soft construction costs, site constraints, supportable market revenues, and review preliminary findings. EPS's "predictive" modeling analysis showed that at between 7 and 9 floors, and again at approximately 20 floors, significant additional costs were incurred for different construction materials, fire suppression systems, and general building core if a density bonus was offered that required a development to shift into a higher cost construction type. As a result, only in markets where market revenues cannot be increased to compensate for the increased cost, is a density bonus "predicted" not to be as attractive.

7. ***Strong markets, however, can support an increase in market rate rents, sales prices, or lease rates in proportion to the higher construction costs.***

   If a market is strong enough to support revenue increases in proportion to the increased construction costs, then the density bonus maintains a positive residual value. For example, in a 10,000 square-foot site in a 4:1 zone, a 50 percent density bonus would increase the scale of the site from 5 to 7 floors and trigger a higher-cost construction type. As a result, construction costs increase by 18 percent. If the project can support an 18 percent increase in anticipated rent levels, then the density bonus has a positive residual value. Depending on the base level economic returns, however, most density bonus allocations do not trigger a change in building code requirements and therefore higher construction costs.

8. ***Elements of the historic preservation entitlement transfer process and the disconnect between the economics of a sending and receiving site make this option difficult to reliably implement.***

   The economics of historic preservation are riddled with exceptions and unique circumstances. The first consideration is that the economics of the sending site differ greatly from the economics of the receiving site. The reality is that no reliable formula can simulate the nexus between the costs associate with a vast array of historic preservation type costs (that fluctuate widely with costly components such as structural work or seismic upgrades) and the amount of money a receiving site developer is willing to pay for transfers of development rights (TDR). A few additional considerations made by interviewees during discussion centered around additional complications, such as: the lack of a common "marketplace" where receiving site developers and sending site property owners can come together to "find" each other; or that there is also no single repository of information regarding the TDRs that may exist on all the historic structures that exist within the Central City.

9. ***Elements of the open space qualification process and the lack of sufficient space on typical development sites within the Central City make this community benefit option difficult to implement.***

   According to staff, the City typically prefers its new parks to be 2 to 4 acres if it's going to maintain them, although smaller sizes are acceptable in high need areas without good existing park service. In EPS's analysis, a typical 10,000 square foot lot does not leave much if any space to be dedicated to open space. Even on a 20,000 square foot lot, where half could possibly be dedicated to open space, it was determined that such a park might actually

not be large enough. While a formulaic approach to understanding the economics of an open space density bonus is easier to estimate than that of a historic preservation density bonus, the provision and value of open space is subject to a high degree of uncertainty.

1.3 Recommendations

1. ***The City should focus its attention on crafting its incentive policy to incent developers to provide the top 3 community benefits.***

   Bringing the Central City's incentive program into alignment with the economic realities of the market and development feasibility will more effectively assist the City in reaching its goals for increasing the inventory of affordable housing, historic preservation efforts, and the provision of open space.

2. ***Make a density bonus available to projects in all zones of the Central City that provide one or more of these community benefits onsite.***

   Although the density bonus is already made available to development projects in the Central City, the City should make density bonus available to projects across all entitlement zones that will appear both more uniform and predictable to the development community. Based on EPS's modeling and methodology, there are zones in which smaller and larger degrees of density bonus are likely to be utilized, subject to market strengths and conditions. For the sake of simplicity, however, it is recommended that the density bonus be made available uniformly and somewhat in excess of what is "predicted" for each zone. Under such a structure, it would be ultimately a decision of developers to decide what degree of density bonus is most feasible for their projects.

3. ***Make the density bonus available to residential and non-residential developments.***

   A developer of non-residential uses should be permitted to obtain a density bonus through provision of any of the City's priority community benefits. As noted previously, the model findings displayed and described in this report depict the economics of a mixed-use project with a small portion retail and office, but predominantly rental residential uses. (It should be noted that the same economic principles would also apply to a condominium development.) While the development community seems amenable to the option of an affordable housing density bonus, some developers have posed a legal question beyond EPS's expertise asking whether a commercial linkage study or nexus study is required to validate such a policy tool.

4. ***Utilize the positive residual value created by the density bonus to leverage the provision of community benefits.***

   The positive residual value identified by EPS's model across all zoning categories offers an opportunity to feasibly leverage this value (as an incentive) for the provision of community benefits, which places additional cost on development.

5. ***In addition to the provision of onsite community benefits, a cash contribution toward one of the community benefits should also be an option for obtaining a density bonus.***

   A balanced policy should offer alternative means of satisfaction. Onsite affordable housing, for example, may be infeasible under certain circumstances. As such, the incentive policy should allow for a development to make a cash contribution to an affordable housing fund.

6. A small portion of this positive residual value should be preserved for an incentive (i.e. profit) premium to developers.

EPS's model already accounts for the typical profit margins for developments of different scale. As a generality, it is assumed that there are higher risks (and therefore, higher performance or profit requirements) in projects of larger scale. So, to reflect this reality, a portion of 5 to 15 percent of the residual value created by the density bonus is preserved as that additional profit factor. That is, this incentive premium can be not only used to model the reality that a greater level of development necessarily carries greater risk and investment return requirements, but also can give the City a leverage point in incentivizing the provision of community benefits.

7. Calibrate the portions of this incentive premium to reflect lower and higher community benefit priorities, respectively.

A small incentive premium, e.g. 5 percent, means that 95 percent of the residual value is leveraged as the "cost" to a developer for providing the community benefit. A larger incentive premium, e.g. 15 percent, means that only 85 percent of the residual value is leveraged as the "cost" to a developer for providing the community benefit. That means that developers will be more inclined to seek density bonus options that have larger incentive premiums. As such, the City should apply the largest incentive premiums to the provision of community benefits it deems most valuable.

8. Make the density bonus available in increments.

Under the current program, a development is eligible for the entirety of a density bonus (within certain caps by entitlement zone) through the provision of a single community benefit. Rather than make 100 percent of the available density bonus available through the provision of a single community benefit, the City could make the density bonus available in increments. Under such a structure, for example, 75 percent (or some other portion) of the density bonus could be available to a developer that provides one community benefit, and the remaining 25 percent (i.e. the difference) would be available through the provision of a different community benefit. It should be noted that these 75 and 25 percent increments are simply examples used in the report and not intended to be prescriptive. Such a structure would give the development community flexibility of choice and give the City more assurance that the top 3 community needs are potentially being addressed. If such a policy were adopted, the City could also implement a policy making the provision of the highest priority community benefit a requirement in order to use any of the other community benefits.

9. Structure the order and magnitude of these increments to reflect the City's values, needs, and priorities.

It is equally important to structure the order of the 1st and 2nd increments. If the 1st increment is too large, such as the 75 percent, a developer may be less likely to pursue the 2nd increment. To avoid this, the City could choose to make the smaller increment of the density bonus available 1st and the larger increment available 2nd, or choose 1st and 2nd increments that are more similar, such as 60 percent and 40 percent or 50 and 50. However the City orders and sizes the increments, though, they should reflect the City's priorities with regard to the community benefits.

10. Consider varying the community benefit priorities by subdistrict.

Because the analysis and research revealed that there are subdistricts where there are greater or lesser needs, for historic preservation, and open space, EPS recommends that the City consider varying the priority level of the three community benefits by subdistrict. (It should be noted that analysis was not conducted to justify such an approach, because the prioritization of community benefits is a matter of policy and community priority and simply means interpreting the results of the residual value analysis to suit these policy and community priorities.)

11. For the affordable housing density bonus, the City should identify a highest priority income level.

EPS has modeled each of the income levels associated with affordable housing in the model, from 30 to 80 percent MFI. The model results presented in this report make it possible to select from any of them in order to fully utilize the residual value of the density bonus.

12. Use cash contribution options for historic preservation and open space density bonuses.

Given the complications surrounding entitlement transfers for historic preservation or onsite open space provision, EPS recommends that these density bonus options be available through cash contributions to respective funds. The analysis contained in this report provides guidance on what those cash contributions could be and how the incentive premiums might be assigned.

13. Ensure there are no other mechanisms by which development can obtain density bonuses.

One of the lessons learned from the case studies was that loopholes in zoning code or the entitlement and development review process often allowed development to obtain density bonuses by some (especially, cheaper) means other than contributing to some community benefit. The City should ensure that no other land use development or entitlement process grants density bonus to development. Such a redundancy would effectively devalue the incentive of the density bonus for this program.

14. The City should decide whether to standardize the values and findings of this technical analysis for the sake of simplicity.

Because EPS's findings are highly technical and differ with respect to each entitlement zone, EPS encourages the City to consider making the critical findings more uniform across entitlement zones – i.e. a) relative uniformity across entitlement zones of available density bonus; b) relative uniformity across entitlement zones of the portion (square footage as a percent of total) of density bonus required to be affordable housing; and c) the relative uniformity across entitlement zones of the dollar per square foot cash contribution amount. For example, the modeling suggests different portions of a density bonus should be utilized for affordable housing according to the entitlement zone. Making this portion uniform across all entitlement zones (e.g. 30 or 40 percent in all zones) adds simplicity to the planning process. Also, a cash contribution value uniform across the entitlement zones would also contribute to simplicity in the planning process. As such, the dollar values estimated by the model would be averaged and rounded to the nearest dollar.

1.4 Methodology and Definitions

EPS' methodology was designed to balance the quantifiable economic values of density bonuses with the cost of providing community benefits, such as affordable housing, historic preservation, and open space. It was developed to test the financial performance of prototypical projects under a variety of development scenarios, such as base entitlements, with a density bonus, and with a density bonus and the provision of some community benefit. It was also developed to show how such scenarios performed in the Central City's different entitlement zones. Many of the results displayed and described in this report, however, represent a prototypical mixed-use project that includes retail and office, but predominantly residential uses. EPS's model incorporated and vetted input and assumptions through one-on-one interviews and the focus group with developers and real estate professionals, the following major factors include:

- Multiple development prototypes (accounting for the variety of construction types and costs)
- Range of typical lot sizes in the Central City (10,000, 20,000 and 40,000 square feet)
- Residential and non-residential uses (e.g. office, retail)
- Current range in land values throughout the Central City ($100 to $200 per square-foot)
- Current development costs (materials, labor, financing, insurance, fees, etc.) ranging from approximately $155 per gross building square-foot to approximately $210 per square-foot)
- Current levels of market rate revenues (for-sale prices, rents, lease rates) – e.g. $2.05 per square-foot to $3.00 per square-foot for market-rate rental housing; retail lease rates at $24 per square foot NNN and office lease rates at $30 per square foot NNN
- Appropriate levels of expected return (i.e. profit) for developments of different scale – e.g. from 15 percent profit to more than 22 percent profit for larger scale developments

As a starting point, EPS built a standard development feasibility model, incorporating all hard and soft construction costs, land acquisition costs, and projected revenues. Because the objective of the modeling methodology was to specifically quantify the economic value of a density bonus, the "costs" side of the model was augmented to include a range of expected levels of profit to reflect different degrees of risk in projects of varying scale. As a result, the output of the model quantifies any additional economic value in a project. That additional economic value is called the "residual value".

- **Residual Value**: For some real estate developments, a residual value estimate is used to determine the supportable value of the land itself, i.e. an amount that a developer would be willing to pay to develop the site under proposed uses. This is referred to as a residual land value analysis. More generally, however, a residual value analysis can be done to illustrate merely what value may exist in a development after all development costs and expected returns are subtracted from projected revenues. In this case, residual value is defined as [revenues] – [hard and soft construction costs] – [land costs] – [overall developer profit]. In the example below, total revenues, construction costs, land costs, and an expected profit at 15 percent of total development costs (construction and land costs) yield the residual value of $100,000. Such a result can be interpreted to mean that either a higher supportable land acquisition cost is supportable or that there is additional profit in the project.

Base Entitlement

[Revenues]	-	[Construction Costs]	-	[Land Costs]	-	[Expected Profit]	=	[Residual Value]
$8.4 million	-	$6.2 million	-	$1.0 million	-	$1.1 million	=	**$100,000**

In this study, however, EPS applied the residual value analysis to all of the development prototypes and scenarios evaluated to ascertain what additional value exists in a development with base entitlements, with a density bonus, and with a density bonus and some form of community benefit. The result of this modeling effort was a characterization of the residual value per additional square foot of density bonus floor area (net of revenues, costs, and profit). Such a calculation answers a number of important questions for this analysis: How much is each square foot of density bonus worth? And how much community benefit can be provided to balance that value?

In the example below, a 50 percent density bonus is added to the base entitlements of the project above, increasing construction costs from $6.2 million to $11.0 million and revenues assuming market-rate uses increase from $8.4 million to $14.6 million. Holding the expected profit margin at 15 percent also increases the estimated profit to $1.8 million. Under this scenario, the residual value of the project has increased to $800,000 with the availability of the density bonus. In the second example, a portion of the density bonus floor area is dedicated to the provision of a community benefit, and the residual value is $300,000. The difference between these two residual values, i.e. $800,000 - $300,000 = $500,000, is considered the "net cost" of providing the community benefit.

Density Bonus at Market Rates

[Revenues]	-	[Construction Costs]	-	[Land Costs]	-	[Expected Profit]	=	[Residual Value]
$14.6 million	-	$11.0 million	-	$1.0 million	-	$1.8 million	=	**$800,000**

Density Bonus with Calibrated Community Benefit

[Revenues]	-	[Construction Costs]	-	[Land Costs]	-	[Expected Profit]	=	[Residual Value]
$14.1 million	-	$11.0 million	-	$1.0 million	-	$1.8 million	=	**$300,000**

These examples lead to another critical element of EPS's analysis based on the assumption that larger developments often require higher profit premiums to mitigate greater market, financing, entitlements, and timing risks. The example above illustrates the residual value of a development where community benefit is provided but does not utilize the entirety of the residual value created by the density bonus with only market-rate uses.

- **Incentive Premium**: This additional profit factor (defined as a portion of the residual value) functions as leverage to a developer to take advantage of the density bonus. In the example, the net "cost" of providing the community benefit is estimated at $500,000, or the difference between the residual value in a development with a density bonus and only

market-rate uses and the residual value in a development with a density bonus and calibrated community benefit (e.g. affordable housing). The amount of floor area utilized for community benefit, however, does not maximize the entirety of the residual value created above the base entitlement level. In this example, and as shown below, approximately $300,000 is allocated as the incentive premium. This incentive premium is the difference between the residual value of a development with density bonus and community benefit and the residual value of a development with base entitlements. The implication of this analysis and finding is that the land use incentive of a density bonus in which the City may leverage the economic value created, generates a financial incentive to the developer. In this example, this additional profit brings the expected return of the project from 15 to 17 percent. (This and other examples are detailed in the body of the report.)

Additional Profit Above Base Entitlement Residual Value

[Residual Value of Density Bonus at Market-Rate]	-	["Cost" of Community Benefit]	=	[Incentive Premium]
$800,000	-	$500,000	=	**$300,000**

2.0 MODELING AND METHODOLOGY

2.1 Approach

The following methodology was developed to update and enhance the bonus and transfer provisions of the City's Zoning Code and Affordable Housing Bonus. It was tailored to address specific policy objectives, such as targeting values that are sufficiently attractive to incent private investment, and be user-friendly. EPS built the model to allow for sensitivity testing among the many variables incorporated.

EPS' methodology was designed to balance the quantifiable economic values of density bonuses with the cost of providing community benefits, such as affordable housing, historic preservation, and open space. It was developed to test the financial performance of prototypical projects under a variety of development scenarios, such as base entitlements, with a density bonus, and with a density bonus and the provision of some community benefit. It was also developed to show how such scenarios performed in the Central City's different entitlement zones. EPS's model incorporated and vetted, through one-on-one interviews and the focus group with developers and real estate professionals, the following major factors:

- Multiple development prototypes (accounting for the variety of construction types and costs)
- Range of typical lot sizes in the Central City (10,000 square feet, 20,000 and 40,000)
- Residential and non-residential uses (e.g. office, retail)
- Current range in land values throughout the Central City ($100 to $200 per square-foot)
- Current development costs (materials, labor, financing, insurance, fees, etc.) ranging from approximately $155 per gross building square-foot to approximately $210 per square-foot)
- Current levels of market rate revenues (for-sale prices, rents, lease rates) – e.g. $2.25 per square-foot to $3.00 per square-foot for market-rate rental housing
- Appropriate levels of expected return (i.e. profit) for developments of different scale – e.g. from 15 percent profit to more than 22 percent profit for larger scale developments

The following is an overview of the major aspects of EPS's modeling methodology, including the prototypes evaluated, levels of entitlement, land values, development costs, revenue rates, expected profit levels, and other critical financing inputs.

2.1.1 Prototypes

EPS incorporated the following prototypes into its model based on guidance from BPS and PHB. The purpose of selecting prototypes to test in the model is to ensure that the implications of the analysis are clear with regards to development that is likely to move forward in the near- and mid-term.

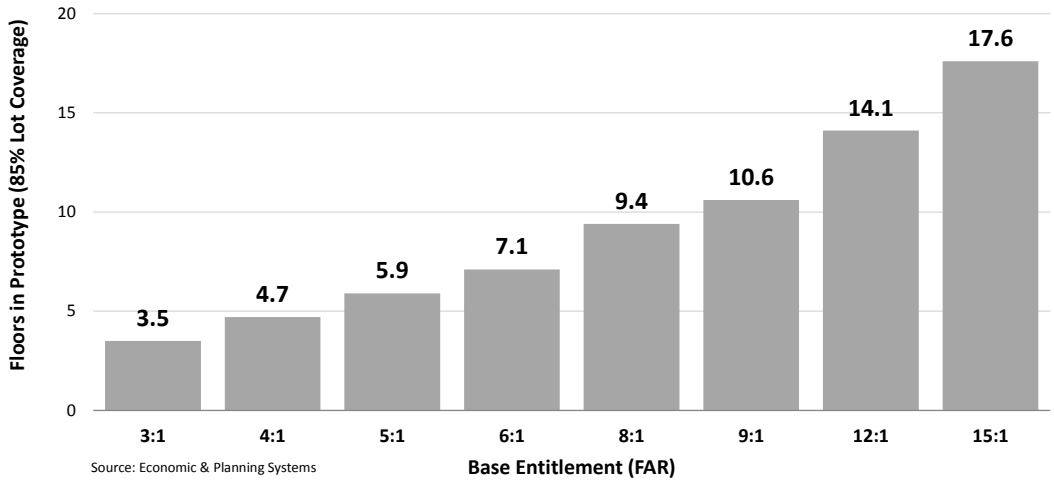
2.1.1.1 Base Entitlement

As mentioned, the model is built to accommodate varieties and different allocations of land uses within the framework of a base entitlement. EPS identified the most commonly appearing entitlement zones within the Central City. Specifically, EPS's model incorporated each entitlement zone between 3:1 and 15:1.

2.1.1.2 Building Height

Figure 1 illustrates the estimated height of building prototypes in the model assuming 85 percent lot coverage of 10,000 square foot sites. In the model, these reference points serve to trigger different construction types and costs per square-foot when certain height thresholds are reached. For example, 5-over-1 construction where up to five stories of wood-frame construction are built on a concrete podium is generally the type of construction used for buildings up to 6 floors total. Once the 6 floor threshold is crossed, however, a higher cost construction type is triggered, such as light gauge steel or possibly concrete. More on the increases in construction costs is explained below.

Figure 1
Number of Floors by Development Prototype



Source: Economic & Planning Systems

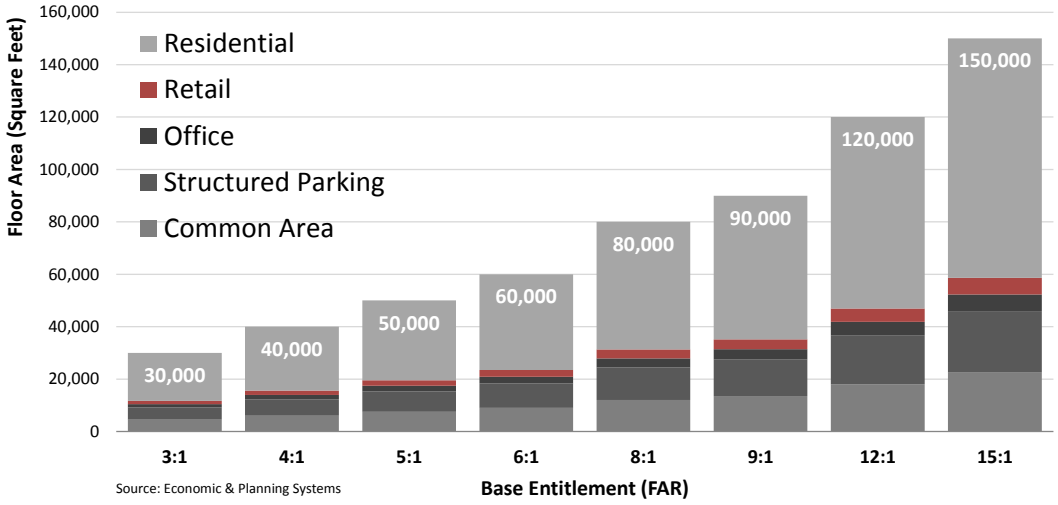
2.1.1.3 Prototypical Developments by Scale of Land Use

The model accommodates any combination of land uses (i.e. percent of the structure allocated to residential or non-residential, for example) and estimates the square feet that should be allocated to parking for each land use within the framework of the maximum allowable base FAR. Specifically, the model tests the following land uses: a) for-sale residential; b) rental residential; c) retail; d) office; and e) structured parking.

To accomplish this, the model was built to calibrate the appropriate amount of floor area for each use, including common area and required parking. **Figure 2** illustrates the different land uses in each development by entitlement zone. This graphic and the results presented in this report are calibrated to the following division of land uses:

- Common Area (lobbies, elevator, storage, etc.) = 15 percent of gross building area (GBA)
- Residential = 90 percent of net leasable area (NLA)
- Office = 5 percent of NLA
- Retail = 5 percent of NLA
- Parking = calibrated to 0.5 stalls per dwelling unit for residential uses and one stall per 1,000 square feet of retail or office space

Figure 2
Examples of Prototypical Development Configuration Scales



Source: Economic & Planning Systems

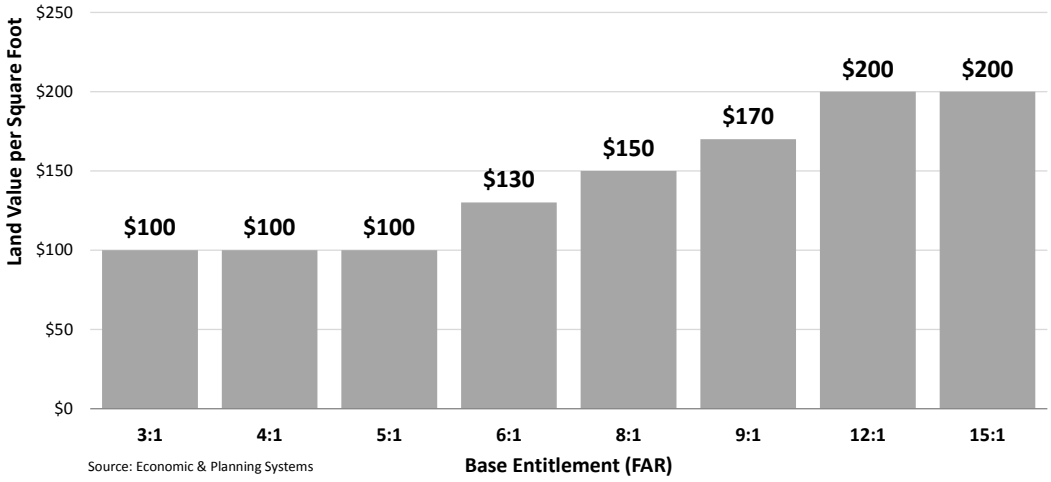
2.1.2 Inputs and Assumptions

The following section provides an overview of a few of the major or critical assumptions to the model and how they differ across the spectrum of development prototypes used in the model.

2.1.2.1 Land Value

Land values throughout the Central City vary considerably. Information collected from the City and through development industry stakeholders and developers indicates that land sales prices can be as low as $80 per square-foot in some sub-districts to as much as $300 per square-foot in Downtown. While not exactly correlated to allowable density (i.e. base entitlement), land value generally increases in the more densely-development parts of the Central City. **Figure 3** illustrates the assumptions used across the spectrum of base entitlement zones. EPS's feasibility model assumes that up to the 5:1 zone, land value would be $100 per square-foot, rising to $130 in 6:1 zones, $150 in 8:1 zones, $170 in 9:1 zones, and to $200 per square-foot for developments entering more into the conventional mid- to high-rise classifications.

Figure 3
Land Value Assumptions by Entitlement Level



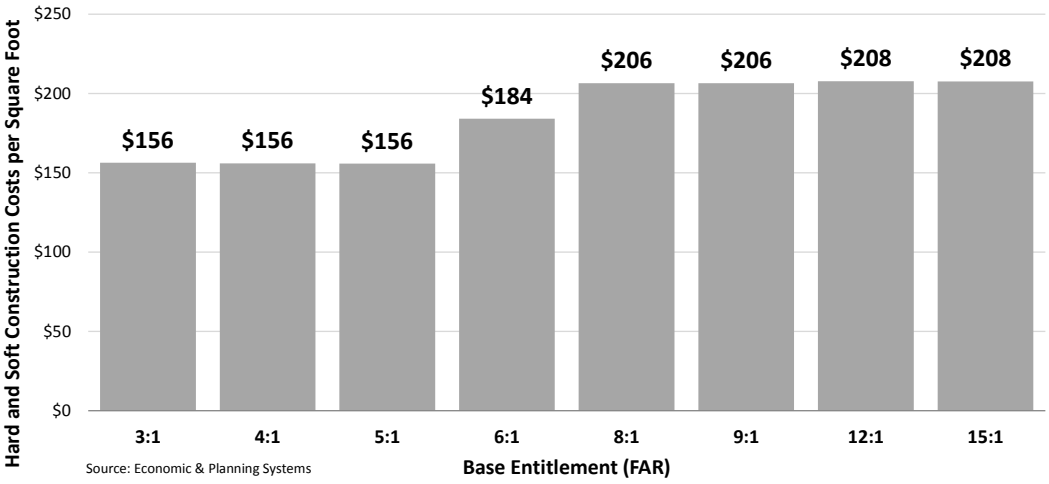
Source: Economic & Planning Systems

2.1.2.2 Vertical Development Costs

Among the critical inputs and assumptions are the vertical development costs. **Figure 4** illustrates the total development (hard and soft) costs per square foot. To calibrate these values, EPS interviewed a group of developers and architects to understand the magnitude of hard and soft costs associated with the different scales of development. These numbers are the result of inputting several hard cost factors and applying assumptions of soft costs (as a percent of total hard costs) above that. It should be noted that the prototype under the 15:1 zone reaches just 18 floors. Under the assumptions used in the model, construction costs increase again beyond the 20th floor as well. (See the Appendix for additional details regarding the scaling of hard costs and soft costs independently.)

As a result, EPS's vertical development costs range from $156 per square-foot ($110 per square foot for hard costs plus $46 per square foot for soft costs) for prototypes under 6 floors (i.e. under the 6:1 entitlement zone), increase 18 percent to $184 per square-foot ($130 per square foot for hard costs plus $54 per square foot for soft costs) for developments that exceed the 6-floor threshold, and increase again another 12 percent for prototypes that cross over the 10th floor threshold (i.e. the 8:1 entitlement zone). As noted by developers and architects, the 10th floor threshold, often approximately 100 feet pushes a project into new building code requirements for fire suppression and core structural requirements that increase the cost of the building. In general, the findings begin to point in the direction of the possibility that scale with positive residual value could be achieved so long as the additional density offered a project does not force a structure into a higher construction type and cost category.

Figure 4
Development Cost Assumptions by Entitlement Level

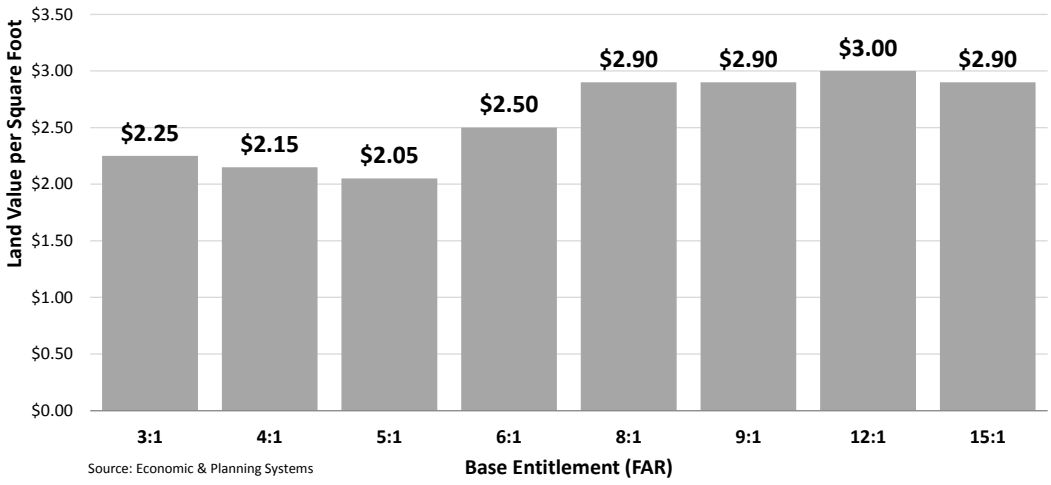


2.1.2.3 Rental Rates

Among the critical revenue factors, **Figure 5** illustrates one of the major assumptions for the development of rental residential. Analysis conducted by the City revealed that average rental rates throughout the Central City vary greatly, but that new product with a premium averages in the $2.05 to $3.00 per square-foot per month range. Additional vetting through the developers' roundtable yielded this slightly more conservative stance on the strength of the market and the reliability of projecting that level of rents onto all prototypes, given that current projects are beginning to push the $3.00 per square-foot threshold.

Some in the development community voiced skepticism as to the longevity of such high rental rates, not just from an affordability stand-point, but from the perspective that there markets always run the risk of over-building, at which point rental rates, lease rates, and sales prices begin to level off or even drop. As a result, EPS applied rents of $2.25 per square-foot or lower to prototypes under 5:1 base entitlement, $2.50 to projects in the 6:1 entitlement zone (given its height and increased construction type and quality), and only pressed into the higher premium range for the mid- to high-rise prototypes at $2.90 and $3.00 per square-foot.

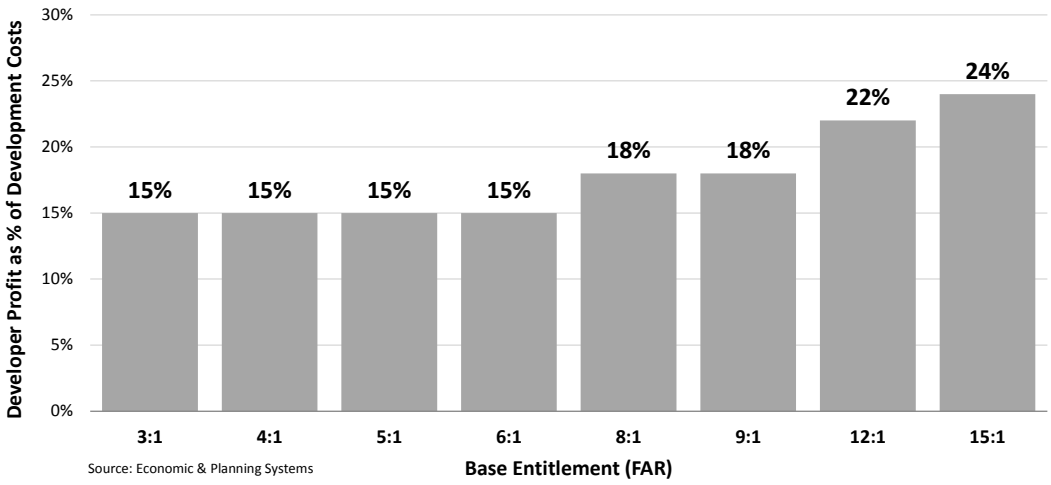
Figure 5
Rental Rate Assumptions by Entitlement Level



2.1.2.4 Developer Profit

A final critical input is the profit factor as a percent of total development costs (hard costs, soft costs, land, and construction loan interest carrying costs). **Figure 6** illustrates that EPS' model incorporates an escalated profit factor for developments of a higher scale, based on the market reality that developers of larger scale projects take on larger amounts of market, entitlement, timing, and financing risk. As such, the profit assumption is escalated from 15 percent for prototypes under 6:1 entitlement zones to 24 percent for developments in the 15:1 entitlement zones.

Figure 6
Profit Assumptions by Entitlement Level



2.1.2.5 Other Inputs and Assumptions

The following is a list of other assumptions used in the model that drive cost and revenue calculations, such as parking, non-residential revenue rates, and construction loan financing.

Parking

Parking stalls = 350 gross square feet each
Parking lease rate = $175 monthly
Ratio of residential units to parking stalls = 1 parking stall per 2 residential units
Ratio of office space to parking stalls = 1 parking stall per 1,000 square feet
Ratio of retail space to parking stalls = 1 parking stall per 1,000 square feet

Office Space

Lease rate = $24 NNN
Cap rate = 7.0 percent, versus 5.0 to 5.5 percent current rates
Cost of sale at reversion = 2.0 percent

Retail Space

Lease rate = $30 NNN
Cap rate = 7.25 percent, versus 6.0 percent current
Cost of sale at reversion = 2.0 percent

Construction Financing

Interest rate = 7.0 percent

2.2 Residual Value Analysis

The economic model used in this analysis incorporates the inputs and assumptions described in the previous section, and is structured to answer critical questions regarding the value created by density bonuses. Again, for illustrative purposes, the analysis was conducted for development on a typical 10,000 square-foot site with an 85 percent lot coverage factor. Those questions are:

- **How much density bonus can be offered within different entitlement zones before a higher cost per square-foot construction type is triggered?**

  It is important to understand in this analysis the limitations of the given assumptions regarding construction scale, associated costs and revenues. That is, the answer to this question informs the extent to which a density bonus has a positive value without forcing a developer to increase the average project revenue rates. For the purposes of this analysis, these limits are used to "predict" the magnitude of density bonus that developers in different entitlement zones are likely to use, assuming that the market's do not support higher revenue rate factors. As the following findings of the analysis will illustrate, not all markets or subdistricts can support the same magnitude of density bonus without increasing revenue assumptions.

- **How much value is created by the density bonus?**

  This question is answered first by identifying the residual value (defined below) of development scenarios with and without a density bonus as well as with and without the provision of a community benefit. More importantly, this analysis identifies the residual value per square-foot of the density bonus, also defined below. Ultimately, the residual value findings are used to calibrate supportable levels of cost associated with providing the community benefit.

- **How much of community benefit is supportable by the residual value of the density bonus?**

  It is assumed that a developer will be incented to take advantage of the density bonus incentive only if it is in their financial interest to do so. As such, the costs associated with different community benefits are calibrated not to exceed the residual value of the density bonus in any entitlement zone.

- **Is 100 percent of the residual value utilized?**

  There are many assumptions that are incorporated into the model already. Vetting major cost and revenue assumptions with the development community and industry professionals is one step to solidifying credible results, but the reality is that markets can change quickly and there can be higher or lower levels of risk associated with actual (versus the modeled) development. To deal with this, EPS has addressed these eventualities by evaluating the feasibility of including an additional premium value, defined below as an additional "incentive premium" to build.

2.2.1 Definitions

The following are two key terms and concepts used in the analysis of the density bonus. As a starting point to identifying them, EPS built a standard development feasibility model incorporating all hard and soft construction costs, land acquisition costs, and projected revenues. But because the objective of the modeling methodology was to specifically quantify the economic value of a density bonus, the "costs" side of the model was augmented to include a range of expected levels of profit to reflect different degrees of risk in projects of varying scale. As a result, the output of the model quantifies any additional economic value in a project. That additional economic value is called the "residual value".

- **Residual Value**: For some real estate developments, a residual value estimate is used to determine the supportable value of the land itself, i.e. an amount that a developer would be willing to pay to develop the site under proposed uses. This is referred to as a residual land value analysis. More generally, however, a residual value analysis can be done to illustrate merely what value may exist in a development after all development costs and expected returns are subtracted from projected revenues. In this case, residual value is defined as [revenues] – [hard and soft construction costs] – [land costs] – [overall developer profit]. In the example below, total revenues, construction costs, land costs, and an expected profit at 15 percent of total development costs (construction and land costs) yield the residual value of $100,000. Such a result can be interpreted to mean that either a higher supportable land acquisition cost is supportable or that there is additional profit in the project.

Base Entitlement

[Revenues]	-	[Construction Costs]	-	[Land Costs]	-	[Expected Profit]	=	[Residual Value]
$8.4 million	-	$6.2 million	-	$1.0 million	-	$1.1 million	=	**$100,000**

In this study, however, EPS applied the residual value analysis to all of the development prototypes and scenarios evaluated to ascertain what additional value exists in a development with base entitlements, with a density bonus, and with a density bonus and some form of community benefit. The result of this modeling effort was a characterization of the residual value per additional square foot of density bonus floor area (net of revenues, costs, and profit). Such a calculation answers a number of important questions for this analysis: How much is each square foot of density bonus worth? And how much community benefit can be provided to balance that value?

In the example below, a 50 percent density bonus is added to the base entitlements of the project above, increasing construction costs from $6.2 million to $11.0 million and revenues assuming market-rate uses increase from $8.4 million to $14.6 million. Holding the expected profit margin at 15 percent also increases the estimated profit to $1.8 million. Under this scenario, the residual value of the project has increased to $800,000 with the availability of the density bonus. In the second example, a portion of the density bonus floor area is dedicated to the provision of a community benefit, and the residual value is $300,000. The difference between these two residual values, i.e. $800,000 - $300,000 = $500,000, is considered the "net cost" of providing the community benefit.

Density Bonus at Market Rates

[Revenues]	-	[Construction Costs]	-	[Land Costs]	-	[Expected Profit]	=	[Residual Value]
$14.6 million	-	$11.0 million	-	$1.0 million	-	$1.8 million	=	**$800,000**

Density Bonus with Calibrated Community Benefit

[Revenues]	-	[Construction Costs]	-	[Land Costs]	-	[Expected Profit]	=	[Residual Value]
$14.1 million	-	$11.0 million	-	$1.0 million	-	$1.8 million	=	**$300,000**

These examples lead to another critical element of EPS's analysis based on the assumption that larger developments often require higher profit premiums to mitigate greater market, financing, entitlements, and timing risks. The example above illustrates the residual value of a development where community benefit is provided but does not utilize the entirety of the residual value created by the density bonus with only market-rate uses.

- **Incentive Premium**: This additional profit factor (defined as a portion of the residual value) functions as leverage to a developer to take advantage of the density bonus. In the example, the net "cost" of providing the community benefit is estimated at $500,000, or the difference between the residual value in a development with a density bonus and only market-rate uses and the residual value in a development with a density bonus and calibrated community benefit (e.g. affordable housing). The amount of floor area utilized for community benefit, however, does not maximize the entirety of the residual value created above the base entitlement level. In this example, and as shown below, approximately $300,000 is allocated as the incentive premium. This incentive premium is the difference between the residual value of a development with density bonus and community benefit and the residual value of a development with base entitlements. The implication of this analysis and finding is that the land use incentive of a density bonus in which the City may leverage the economic value created, generates a financial incentive to the developer. In this example, this additional profit brings the expected return of the project from 15 to 17 percent. (This and other examples are detailed in the body of the report.)

Additional Profit Above Base Entitlement Residual Value

[Residual Value of Density Bonus at Market-Rate]	-	["Cost" of Community Benefit]	=	[Incentive Premium]
$800,000	-	$500,000	=	**$300,000**

2.2.2 Residual Value

There are two components to the residual value analysis: 1) predictive value findings (i.e. using the economic model to predict to what degree developers will likely use the density bonus within each entitlement zone without having to increase revenue rates) and; 2) findings that illustrate the residual value when cost and revenue assumptions are altered to accommodate a more

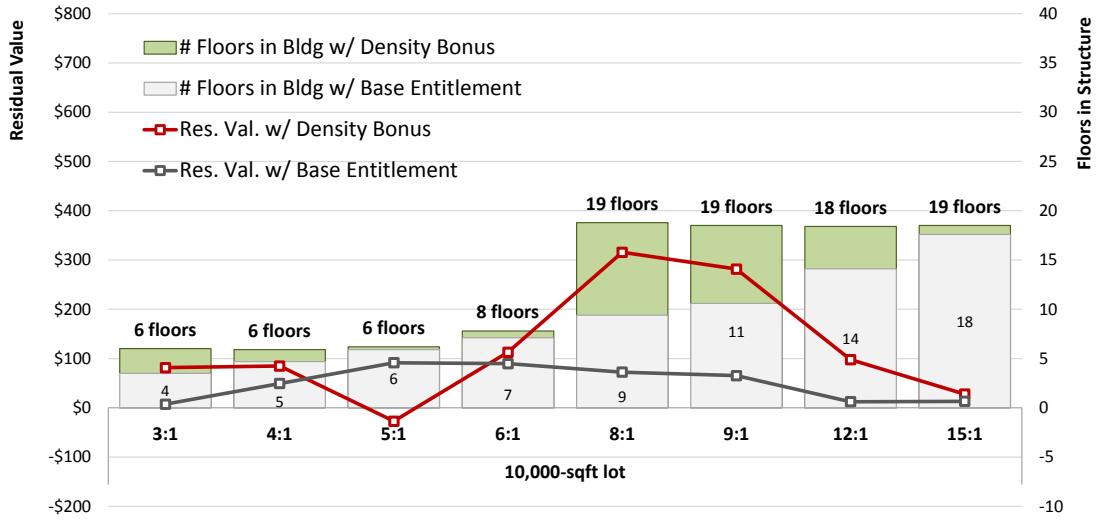
uniform policy determination. The analysis compares the residual values of base level developments (i.e. no density bonus) against developments with a density bonus.

2.2.2.1 Predictive Density Bonus Values

The EPS model was built to "predict" the degree to which a developer was likely to take advantage of a density bonus in each entitlement zone while not assuming that a project would be built into a higher cost construction type or that it would offset those increased costs by increasing average revenue factors. As such, **Figure 7** illustrates several key findings:

- **Base floors in development**: illustrated in gray columns, this shows the number of floors for a development on a typical 10,000 square-foot lot, where the floor plate is 8,500 square feet (an 85 percent lot coverage factor)
- **Residual value of base development**: shown as the gray line, the square markers indicate (using the left-hand vertical axis labels) the residual (i.e. additional) value per square foot of land that is generated by the development, after factoring in the construction costs, land cost, profit, and revenues.
- **Number of floors with a density bonus**: illustrated in green stacked above the gray portion, this shows the extra number of floors associated with the density bonus.
- **Residual value of development with density bonus**: shown as the red line, the square markers indicate (also using the left-hand vertical axis labels) the residual (i.e. additional) value per square foot of land that is generated by the development with a density bonus, after factoring in the construction costs, land cost, profit, and revenues.

Figure 7
Residual Value of Density Bonus Summary



EPS also calibrated these findings to "predict" the magnitude of density bonus that a developer would use. These findings assume, though, that a density bonus can be utilized only up to the point where a higher-cost construction type is triggered. These findings also assume that construction costs increase if a different construction type is triggered, but that project revenues remain flat (i.e. do not increase to compensate for increased construction costs).[1] **Table 1** also illustrates theses amount of a density bonus a developer is likely to use by zone.

- **3:1 Zone = 70 percent**: In this zone, EPS's model predicts that a developer could make use of a 70 percent density bonus before crossing the 6-floor limit from a 5-over-1 structure. This amount of additional density of 21,000 square feet would maximize a 6 floor structure and would not result in higher cost per square-foot construction type or warrant an increase in project revenue rates. So, why is the recommended density bonus lower? It should be noted that the EPS model assumes that each additional floor added is equal to lower floor square footages, meaning that no change to the form or no step-backs are made that would lower the floor area for higher floors added to use of the density bonus. In reality, projects will more than likely include architectural features and step-backs that reduce the amount of total floor area a structure may use before crossing the 6-floor construction type threshold.
- **4:1 Zone = 25 percent**: This is one of the Central City's more ubiquitous zones, and one of the likelier zones that the City will see potential for developments taking advantage of the density bonus incentive program. EPS predicts that a developer in this zone would take advantage of 25 percent additional density to maximize the 5-over-1 structure without crossing into a higher cost per square-foot construction type, and without having to increase revenue rates. This would result in a density bonus of 10,000 additional square feet and a total of 6 floors.
- **5:1 Zone = 5 percent**: EPS predicts that, because the floor area achievable on a typical 10,000 square foot lot brings this development scale very close to the maximum 6 floors of the 5-over-1 structure, that a developer is likely only to take advantage of 5 percent additional density without a higher cost per square-foot construction type or having to raise revenue rates. This would produce just 2,500 additional square feet for a total of 6 floors.
- **6:1 Zone = 10 percent**: This is also one of the Central City's more ubiquitous zones. Based on EPS's economic model, it is predicted that a developer is likely to take advantage of 10 percent additional density, because additional costs are associated with building to 8 or 9 floors. Again, this magnitude of density bonus assumes that construction costs per square-foot do not increase and that project revenue rates are not increased to compensate for increased costs. A 10 percent density bonus would add 10,000 additional square feet for a total of 8 floors.
- **8:1 Zone = 100 percent**: In this zone, a project is building up to 9 floors, which is already a higher-cost structure. Because the threshold above 10 floors does not create a negative residual value, EPS' economic model predicts that a developer is likely to see value in up to 100 percent additional density before entering into the higher cost per square-foot construction type. This allows for a supportable density bonus of 80,000 square feet, and a total of 19 floors.

[1] It should also be noted that the analysis rests on the developer-vetted assumptions for development costs and market revenues.

- **9:1 Zone = 75 percent**: As with the previous zone, EPS's model predicts that a developer would be likely to see value in building with up to 75 percent additional density without a higher cost per square-foot construction type. Such an increase in density would add 67,500 additional square feet and bring the project to a total of 19 floors.
- **12:1 Zone = 30 percent**: In this zone, EPS's model estimates that a developer would seek to take advantage of 30 percent additional density. This magnitude of additional floor area would result in a structure just under the 20-story threshold, at which point construction costs per square-foot increase. As such, construction costs per square-foot would not increase and neither would revenue rates need to be increased. This would add 36,000 square feet for a total of 19 floors.
- **15:1 Zone = 5 percent**: The scale of a project in this zone is estimated to be 18 floors. EPS's model predicts that a developer would choose to take advantage of just 5 percent additional density without entering a higher cost per square foot construction type and without having to increase project revenue rates. This would allow for additional density of 7,500 square feet and a total of 19 floors.

Table 1
Predicted Density Bonus Values

	Base Entitlement							
	3:1	**4:1**	**5:1**	**6:1**	**8:1**	**9:1**	**12:1**	**15:1**
Site Configuration								
	3	4	5	6	8	9	12	15
Lot Size (sqft)	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Building Envelope at 85% Coverage	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Gross Building Area (sqft)	30,000	40,000	50,000	60,000	80,000	90,000	120,000	150,000
# Floors	4	5	6	7	9	11	14	18
Density Bonus Floor Area (DFBA)								
Maximum "Supportable" DBFA	70%	25%	5%	10%	100%	75%	30%	5%
DBFA (sqft)	21,000	10,000	2,500	6,000	80,000	67,500	36,000	7,500
Additional # Floors	2	1	0	1	9	8	4	1
Gross Building Area w/ DBFA	**51,000**	**50,000**	**52,500**	**66,000**	**160,000**	**157,500**	**156,000**	**157,500**
# Floors	6	6	6	8	19	19	18	19

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-042915.xlsm]TABLE 5H - Supportable DBFA

2.2.2.2Available Density Bonus

As a matter of policy, though, the City has a larger number of areas (and greater land area) zoned 4:1 and 6:1 where density bonuses are likelier to be used, according to staff. The City would also like to limit the degree of density bonus offered in the 8:1 and 9:1 zones and preserve the additional density (i.e. taller buildings) for the 12:1 and 15:1 zones downtown.

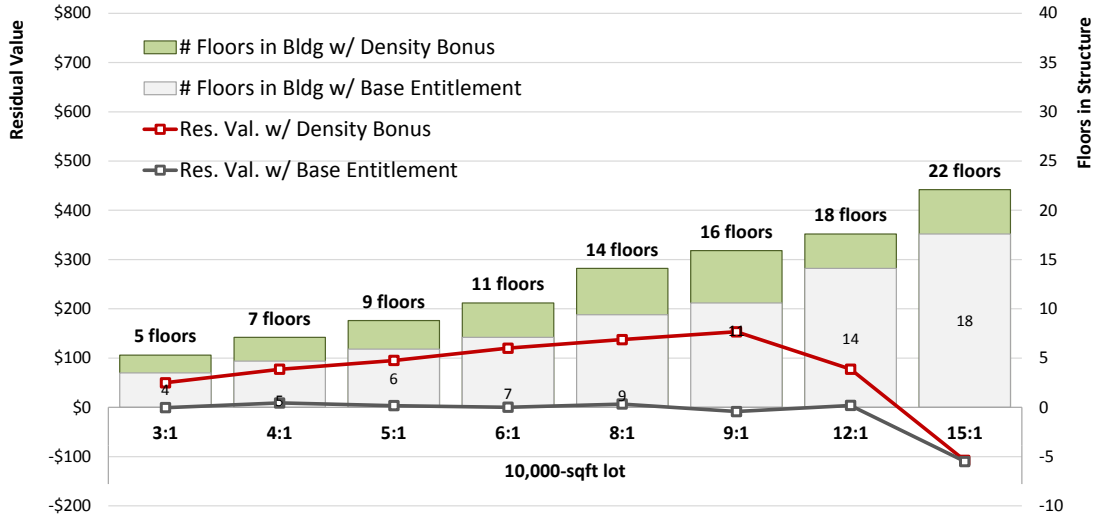
It is recognized that the ultimate policy should provide developers with a relatively uniform density bonus option regardless of entitlement zone. As such, the following analysis was conducted using the EPS model to identify the residual values associated with offered a density bonus of 50 percent for the entitlement zone under 12:1 and 15:1, which might be set at something lower like 25 percent density bonus, and assuming that higher revenue factors are achievable to compensate for higher cost per square foot construction types.

Figure 8 illustrates the findings of the analysis vetted construction cost and pricing, land values, and other market inputs. Again, these results illustrate the residual value of base entitlement on a typical 10,000 square-foot lot with 85 percent lot coverage. The results illustrate that higher residual value can be created in each entitlement zone when slightly increasing revenue factors to compensate for higher costs.

Specifically, these density bonuses are supportable in each of the entitlement zones according to the following adjustments. Cost assumptions were automatically increased according to the higher construction type, but EPS adjusted revenue factors only to the degree that they triggered positive and uniform residual value premiums.

- **3:1 zone**: construction costs remain at $156 per square foot, and rental rates are held constant at $2.25 per square foot
- **4:1 zone**: construction costs increase by 18 percent from $156 to $184, and to compensate, rental rates are increased by 21 percent from $2.15 to $2.60 per square foot
- **5:1 zone**: construction costs increase by 22 percent from $156 to $191, and to compensate, rental rates are increased by 30 percent from $2.05 to $2.65 per square foot
- **6:1 zone**: construction costs increase by 12 percent from $184 to $206, and to compensate, rental rates are increased by 16 percent from $2.50 to $2.90 per square foot
- **8:1 zone**: construction costs increase by less than 1 percent from $206 to $207, and to compensate, rental rates are increased by 2 percent from $2.90 to $2.95 per square foot
- **9:1 zone**: construction costs are level at $207, and rental rates are increased by 2 percent from $2.90 to $2.95 per square foot
- **12:1 zone**: construction costs remain constant at $208 as do rental rates at $3.00 per square-foot
- **15:1 zone**: construction costs increase by 7 percent from $208 to $222 per square-foot, and rental rates are increased from $2.90 to $3.10 per square-foot

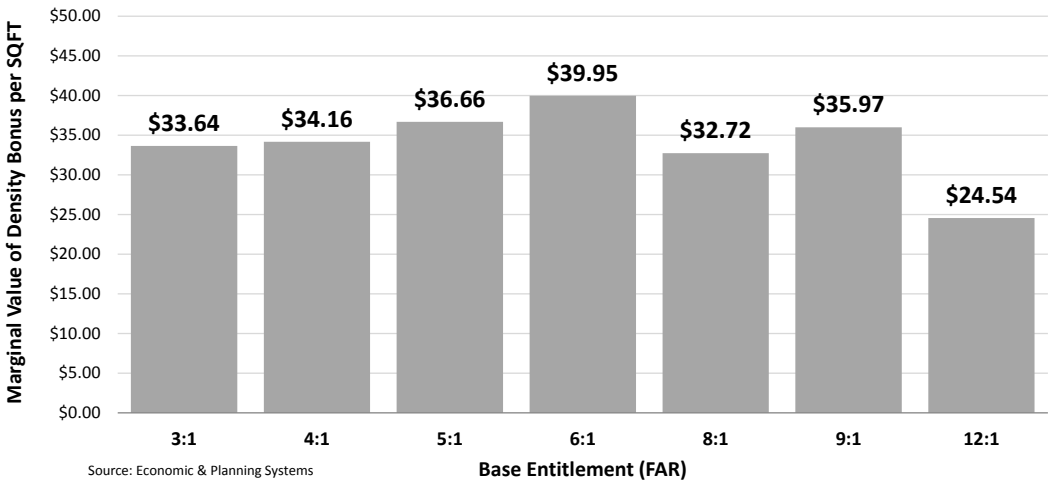
Figure 8
Residual Value of Density Bonus Summary



2.2.3 Residual Value of Bonus FAR by Prototype

This section uses the results from multiple iterations of the preceding residual value analysis within each zoning category to determine the residual (i.e. net positive) value per square-foot of the density bonus. That is, the residual value of the density bonus is the positive value created by the density bonus, net of all costs as well as the given profit factor. **Figure 9** illustrates the residual value per square foot of the 50 percent density bonus offered to each of the entitlement zones, which incorporates the increased costs and revenues associated with the higher scale development type. In general, the residual value of the density bonus fluctuates between $33 and approximately $40 per square foot. These are the values from which the analysis that follows uses to ascertain the appropriate level of community benefit that can be achieved by utilizing some portion of the total residual value.

Figure 9
Residual Value per SQFT of Bonus FAR Summary



3:1 Zone

The following **Figure 10** illustrates the residual value per square-foot of a density bonus offered to a development in a base entitlement zone of 3:1. As illustrated, the residual value per square-foot is approximately $34, and the maximum value to utilize net of the incentive premium is approximately $32 per square-foot.

The columns within the outline indicate the "cost" per square-foot of utilizing 20 percent of the bonus floor area for affordable housing at different MFI levels. The illustration indicates that a greater portion of floor area than 20 percent could be supported for affordable housing at the 80 percent MFI level, for example. The following chart illustrates at which percentage the bonus floor area may be utilized for affordable housing at this and the other affordability levels.

Figure 10
Residual Value in 3:1 FAR Zones

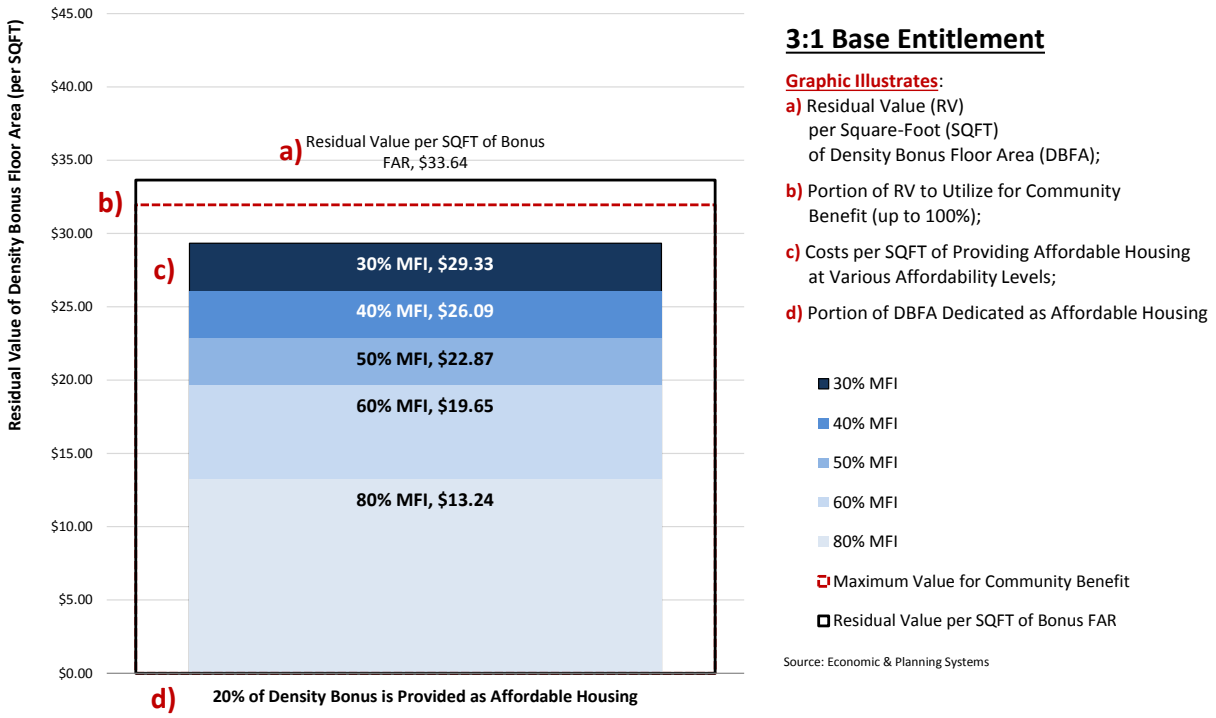
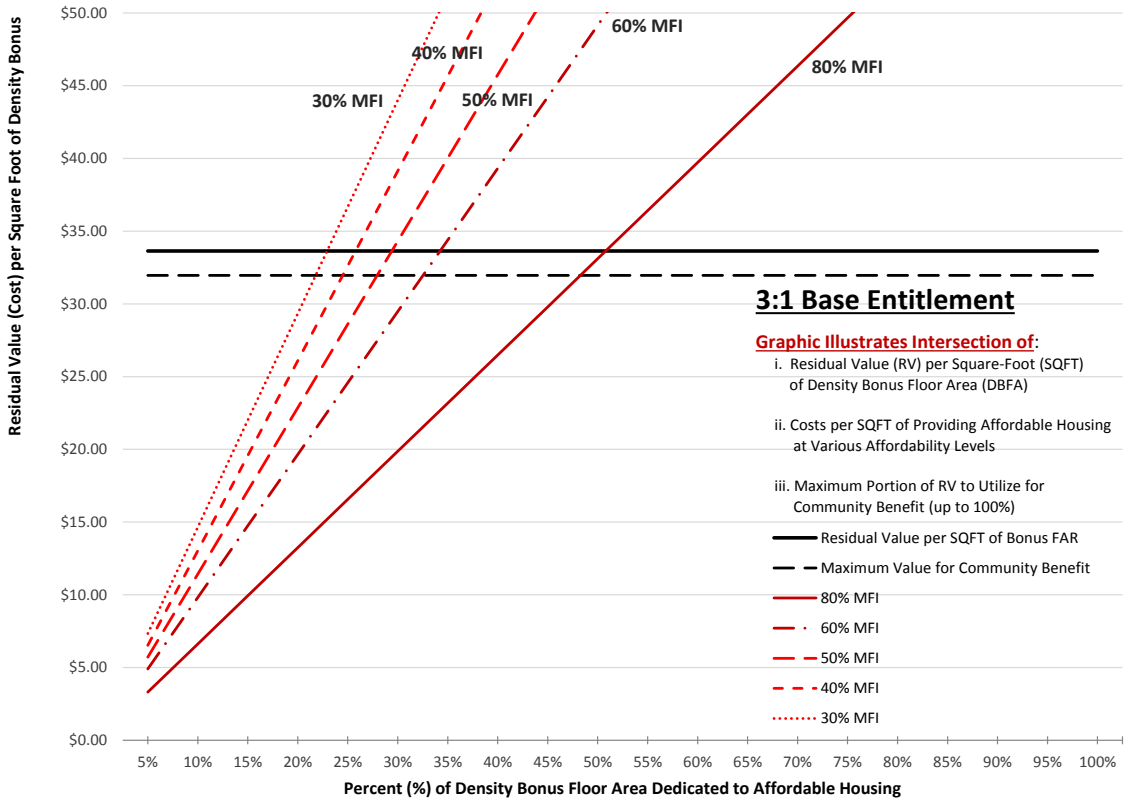


Figure 11 illustrates the portion of bonus floor area (X-axis) that may be utilized as affordable housing, and its residual value (Y-axis). The red lines represent the relationship between the cost of the amount of floor area dedicated to housing at which affordability level. The intersection between the red and black lines indicates the maximum utilization of the floor area for affordable housing and its cost. For this entitlement zone, the residual value can be utilized with the following degrees of affordable housing at various affordability levels.[2]

- **80 percent MFI**: it is estimated that 45 percent of the bonus floor area can be utilized, costing $29.80 per square foot, under the allowable amount net of the incentive premium at $31.96 per square foot.
- **60 percent MFI**: it is estimated that 30 percent of the bonus floor area can be utilized, costing $29.48 per square foot, under the allowable amount of $31.96.
- **50 percent MFI**: it is estimated that 25 percent of the bonus floor area can be utilized, costing $28.59 per square foot.
- **40 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $26.09 per square foot.
- **30 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $29.33 per square foot.

[2] It should be noted that in **Figure 12** and the following charts, the maximum utilization of bonus floor area does not exactly correspond to the point of intersection the cost of affordable housing and the maximum allowable per square foot value. The floor area utilization is calibrated to the nearest increment of 5 percent.

Figure 11
Residual Value and Affordable Housing in 3:1 FAR Zones



4:1 Zone

Figure 12 illustrates the residual value per square-foot of a density bonus offered to a development in a base entitlement zone of 4:1. As illustrated, the residual value per square-foot is also approximately $34, and the maximum allowable for the community benefit, net of the incentive premium is a little more than $33 per square-foot. As with the residual value of the 3:1 entitlement zone, this illustration indicates also that a greater portion of floor area than 15 percent could be supported for affordable housing at the 80 percent MFI level, as well as for a few other MFI categories.

Figure 12
Residual Value in 4:1 FAR Zones

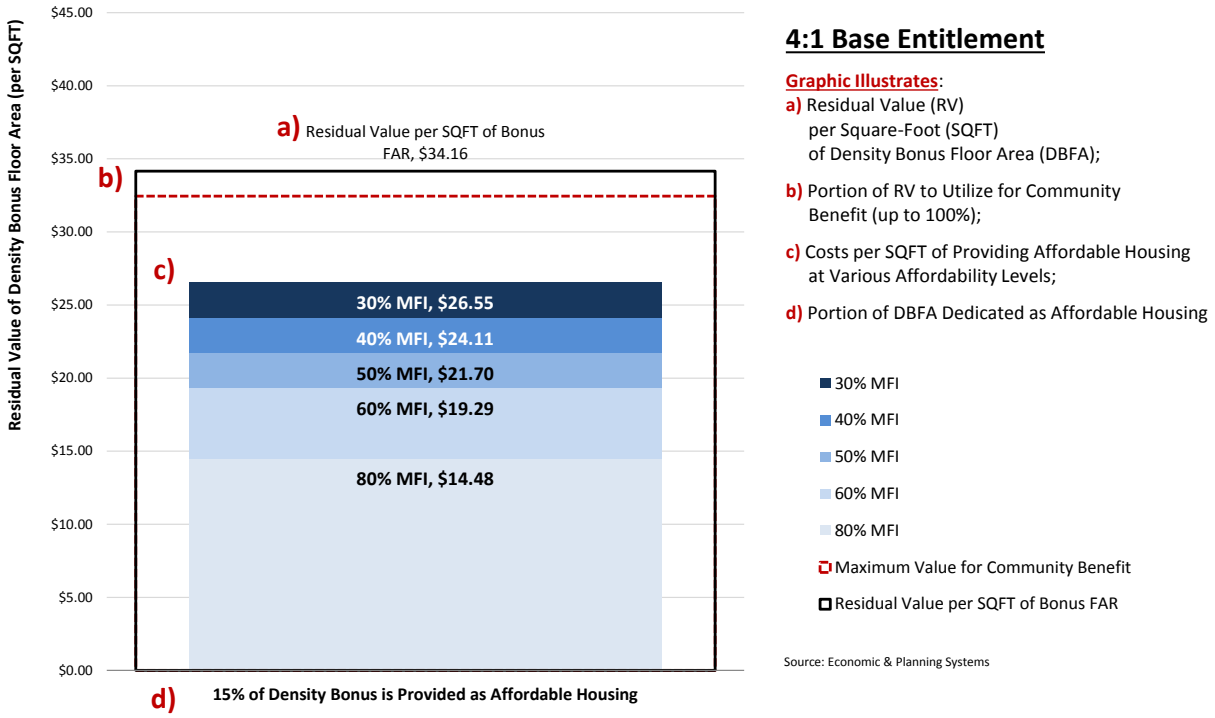
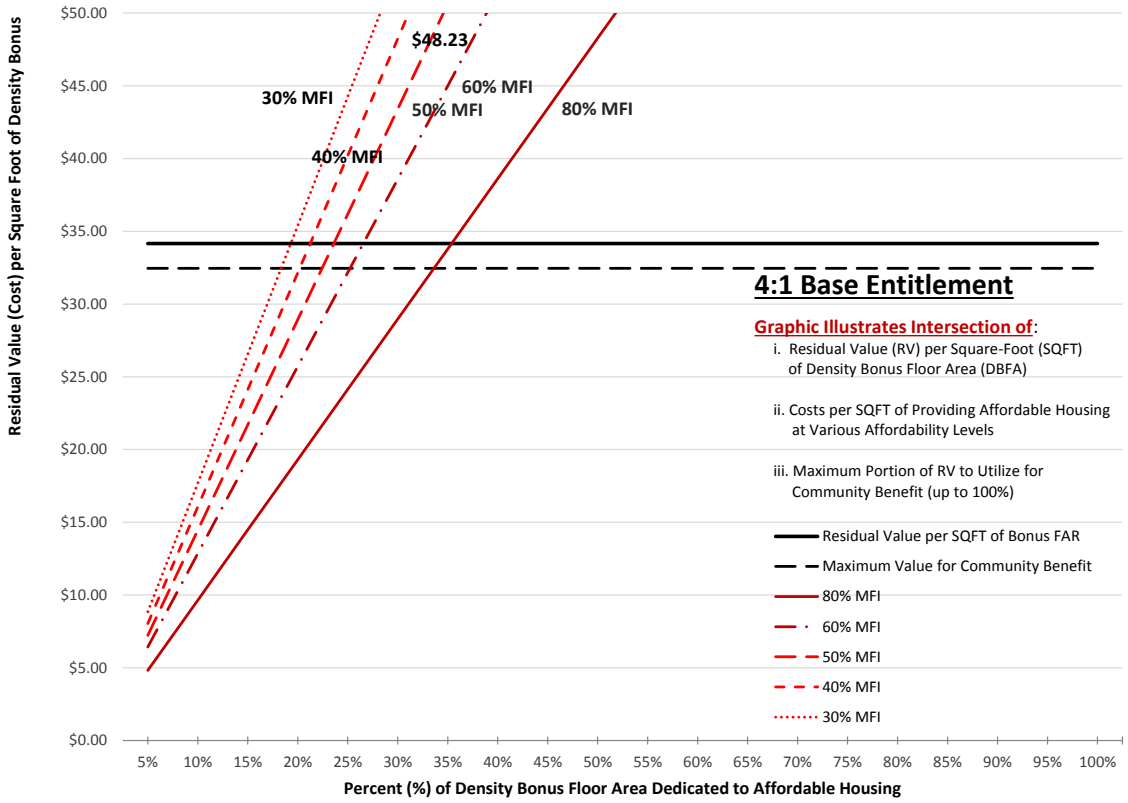


Figure 13 illustrates the residual value can be utilized with the following degrees of affordable housing at various affordability levels.

- **80 percent MFI**: it is estimated that 30 percent of the bonus floor area can be utilized, costing $28.96 per square foot, under the allowable amount net of the incentive premium at $32.45 per square foot.
- **60 percent MFI**: it is estimated that 25 percent of the bonus floor area can be utilized, costing $32.15 per square foot.
- **50 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $32.15 per square foot.
- **40 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $32.15 per square foot.
- **30 percent MFI**: it is estimated that 15 percent of the bonus floor area can be utilized, costing $26.55 per square foot.

Figure 13
Residual Value and Affordable Housing in 4:1 FAR Zones



6:1 Entitlement

The following **Figure 14** illustrates the residual value per square-foot of a density bonus offered to a development in a base entitlement zone of 6:1. The residual value per square-foot is approximately $37, and the allowable for the community benefit, net of the incentive premium is approximately $35 per square-foot. This illustration also indicates that a greater portion of floor area than 15 percent could be supported for affordable housing at the 80 percent MFI level, as well as for a few other MFI categories.

Figure 14
Residual Value in 6:1 FAR Zones

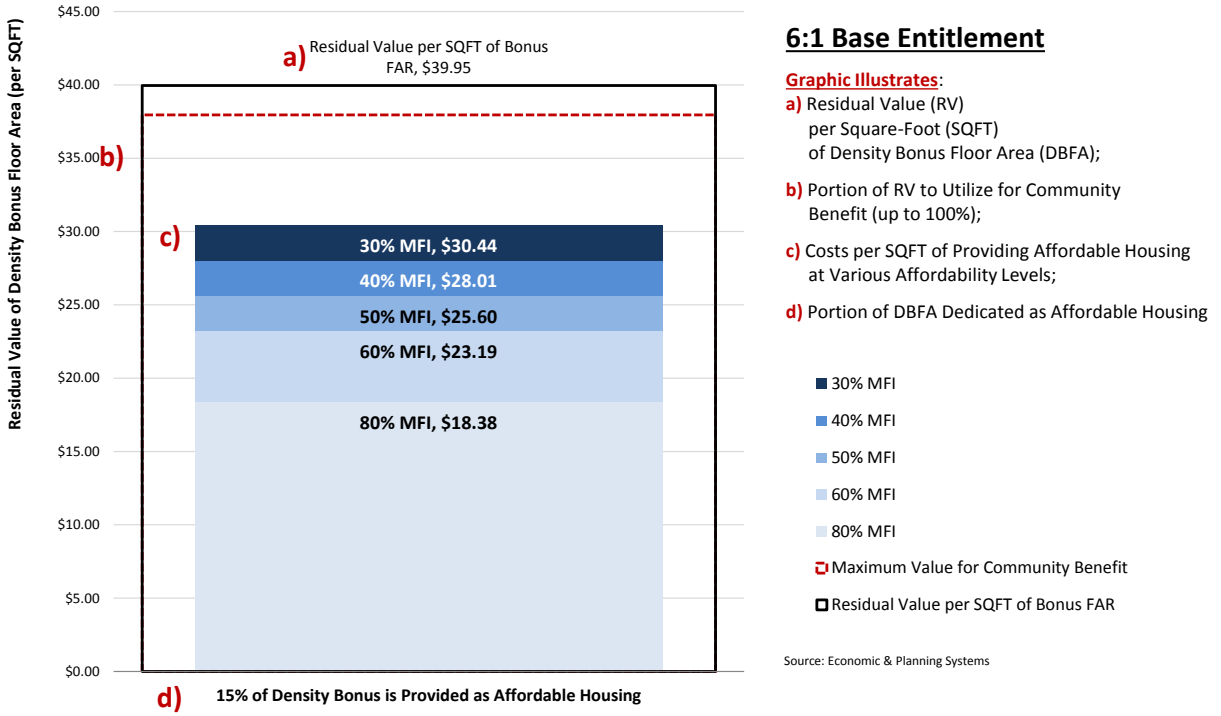
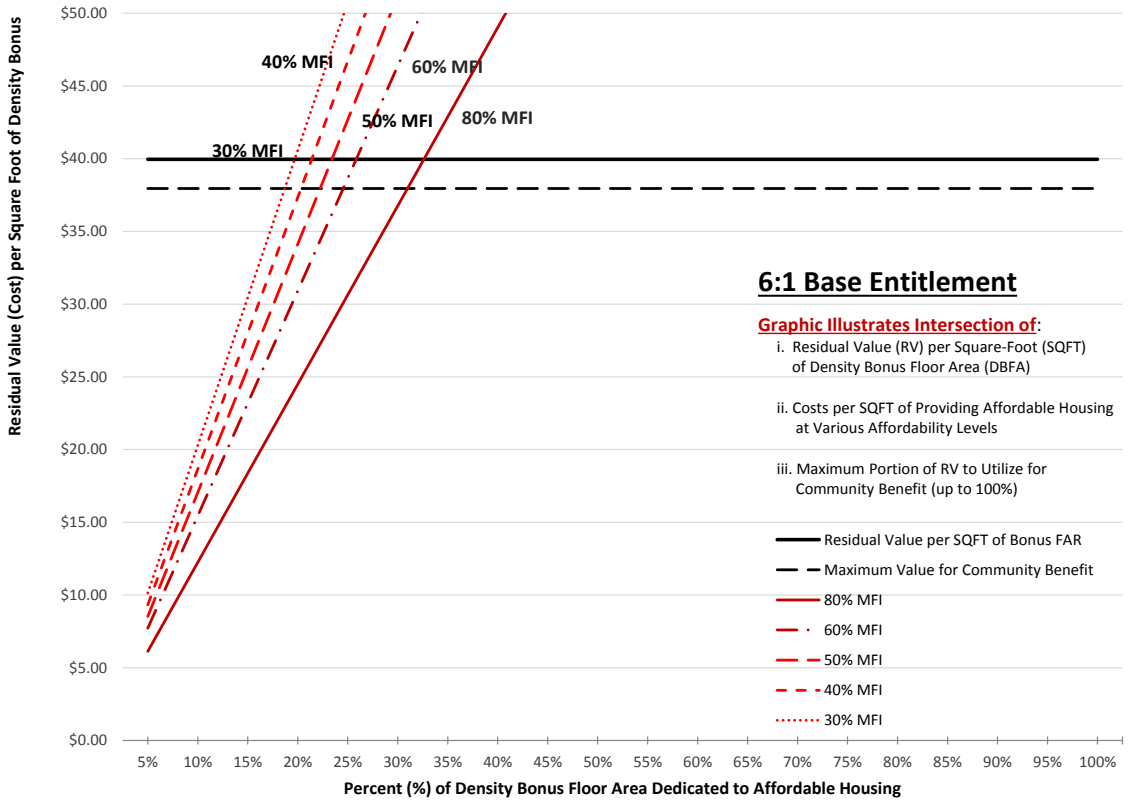


Figure 15 illustrates that for this entitlement zone:

- **80 percent MFI**: it is estimated that 30 percent of the bonus floor area can be utilized, costing $30.26 per square foot, under the allowable amount net of the incentive premium at $34.83 per square foot.
- **60 percent MFI**: it is estimated that 25 percent of the bonus floor area can be utilized, costing $33.23 per square foot.
- **50 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $29.80 per square foot.
- **40 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $33.02 per square foot.
- **30 percent MFI**: it is estimated that 15 percent of the bonus floor area can be utilized, costing $27.20 per square foot.

Figure 15
Residual Value and Affordable Housing in 6:1 FAR Zones



8:1 Zone

The following **Figure 16** illustrates the residual value per square-foot of a density bonus offered to a development in a base entitlement zone of 8:1. The residual value (MV) per square-foot is slightly lower than the MV of the 3:1 and 4:1 entitlement zones at approximately $33, and the maximum to utilize while maintaining an additional 5 percent of the MV for additional development incentive is approximately $32 per square-foot. This illustration also indicates that a greater portion of floor area than 15 percent could be supported for affordable housing at the 80 percent MFI level, as well as for a few other MFI categories.

Figure 16
Residual Value in 8:1 FAR Zones

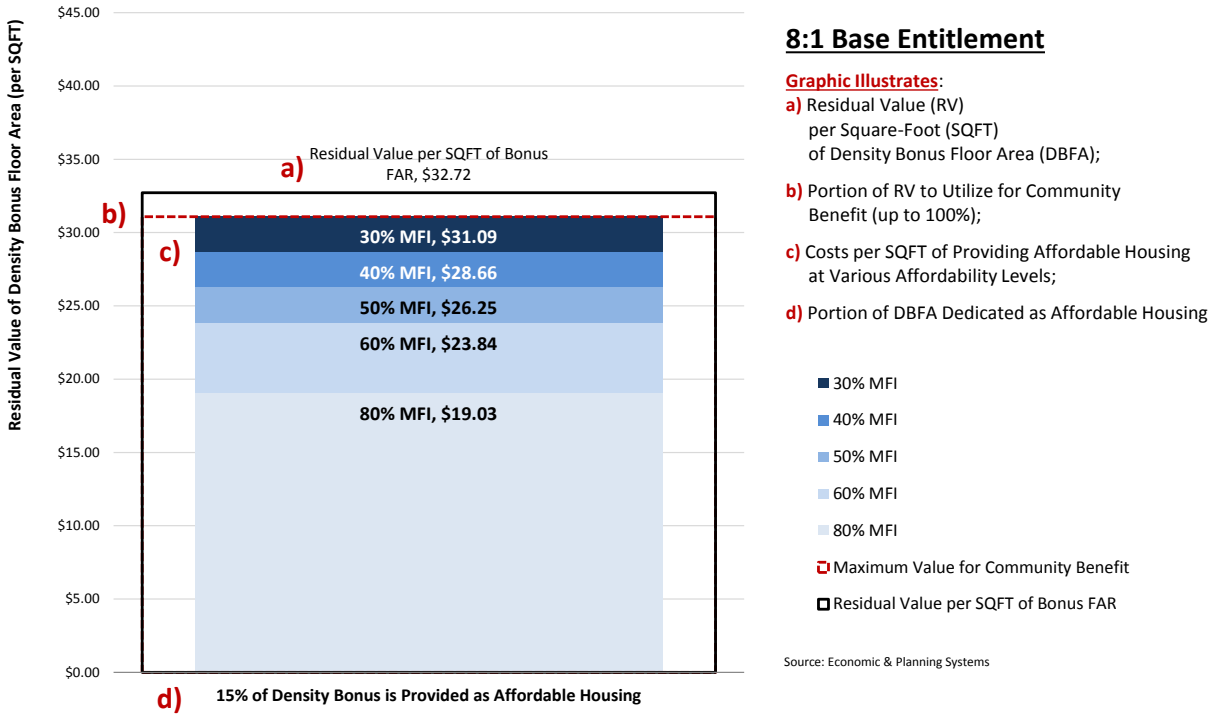
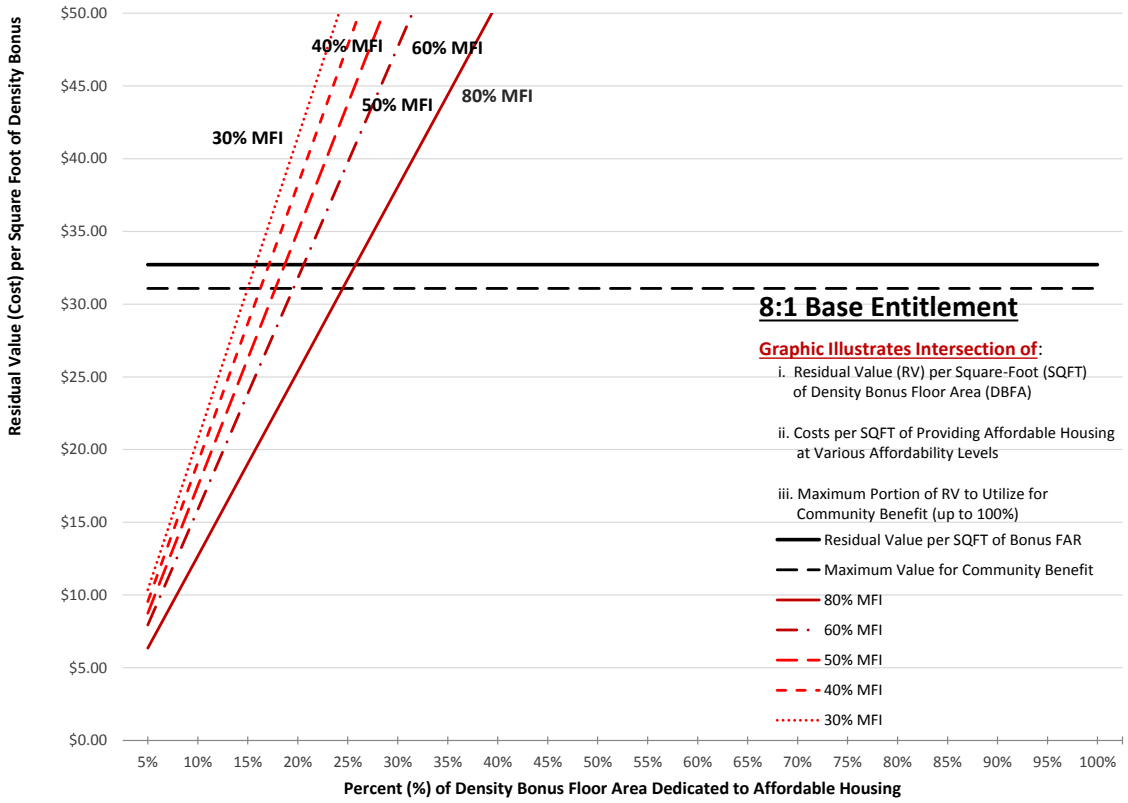


Figure 17 illustrates that for this entitlement zone:

- **80 percent MFI**: it is estimated that 30 percent of the bonus floor area can be utilized, costing $36.76 per square foot, under the allowable amount net of the incentive premium at $37.96 per square foot.
- **60 percent MFI**: it is estimated that 25 percent of the bonus floor area can be utilized, costing $30.92 per square foot.
- **50 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $34.13 per square foot.
- **40 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $37.35 per square foot.
- **30 percent MFI**: it is estimated that 15 percent of the bonus floor area can be utilized, costing $30.44 per square foot.

Figure 17
Residual Value and Affordable Housing in 8:1 FAR Zones



9:1 Zone

The following **Figure 18** illustrates the residual value per square-foot of a density bonus offered to a development in a base entitlement zone of 9:1. The residual value (MV) per square-foot is slightly lower than the MV of the 3:1 and 4:1 entitlement zones at approximately $36, and the maximum to utilize while maintaining an additional 5 percent of the MV for additional development incentive is approximately $34 per square-foot. This illustration also indicates that a greater portion of floor area than 15 percent could be supported for affordable housing at the 80 percent MFI level, as well as for a few other MFI categories.

Figure 18
Residual Value in 9:1 FAR Zones

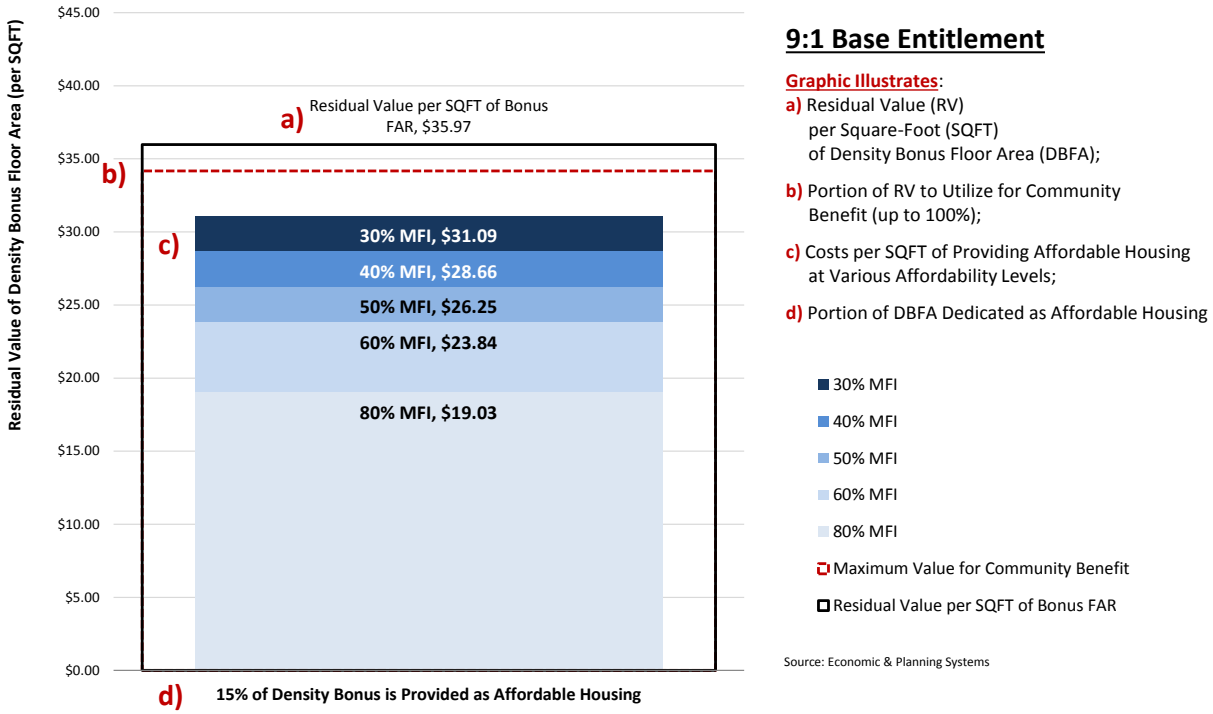
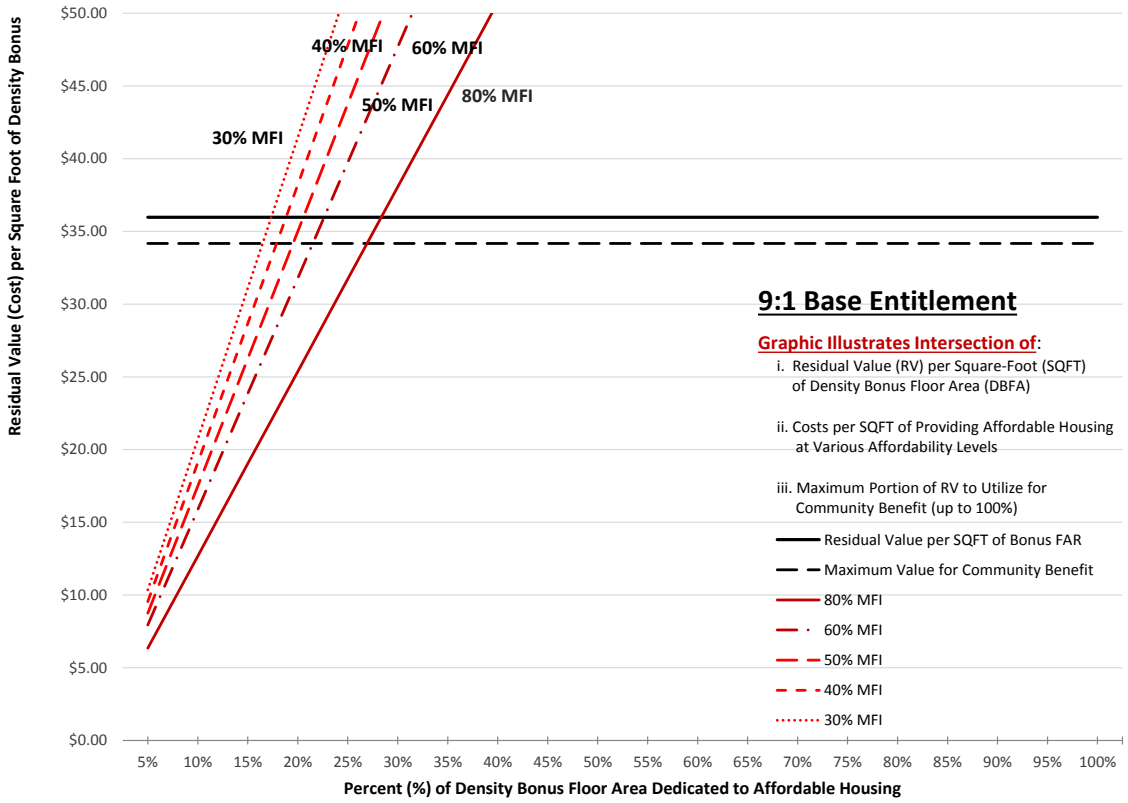


Figure 19 illustrates that for this entitlement zone:

- **80 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $25.37 per square foot, under the allowable amount net of the incentive premium at $31.08 per square foot.
- **60 percent MFI**: it is estimated that 15 percent of the bonus floor area can be utilized, costing $23.84 per square foot.
- **50 percent MFI**: it is estimated that 15 percent of the bonus floor area can be utilized, costing $26.25 per square foot.
- **40 percent MFI**: it is estimated that 15 percent of the bonus floor area can be utilized, costing $28.66 per square foot.
- **30 percent MFI**: it is estimated that 10 percent of the bonus floor area can be utilized, costing $20.73 per square foot.

Figure 19
Residual Value and Affordable Housing in 9:1 FAR Zones



12:1 Zone

The following **Figure 20** illustrates the residual value per square-foot of a density bonus offered to a development in a base entitlement zone of 12:1.Here, the maximum to utilize while maintaining an additional 5 percent of the MV for additional development incentive is approximately $33 per square-foot. As with all the other illustrations of the MV, this indicates that a greater portion of floor area than 15 percent could be supported for affordable housing at the 80 percent MFI level, as well as for a few other MFI categories.

Figure 20
Residual Value in 12:1 FAR Zones

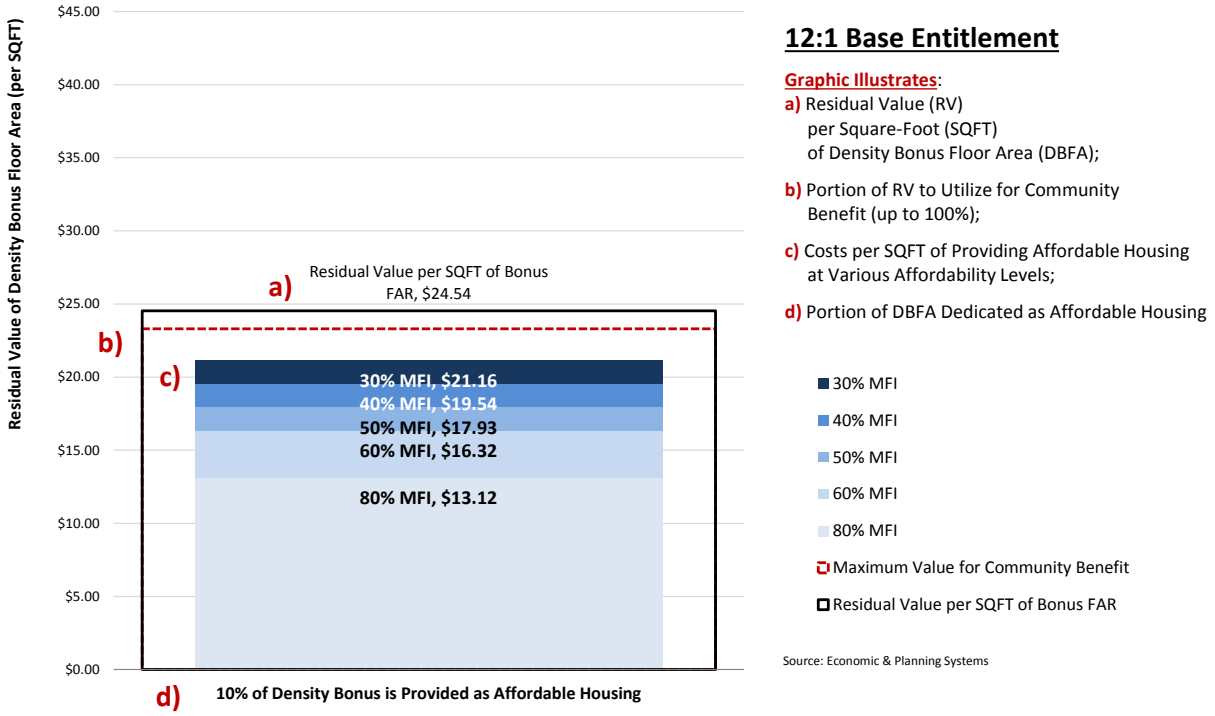
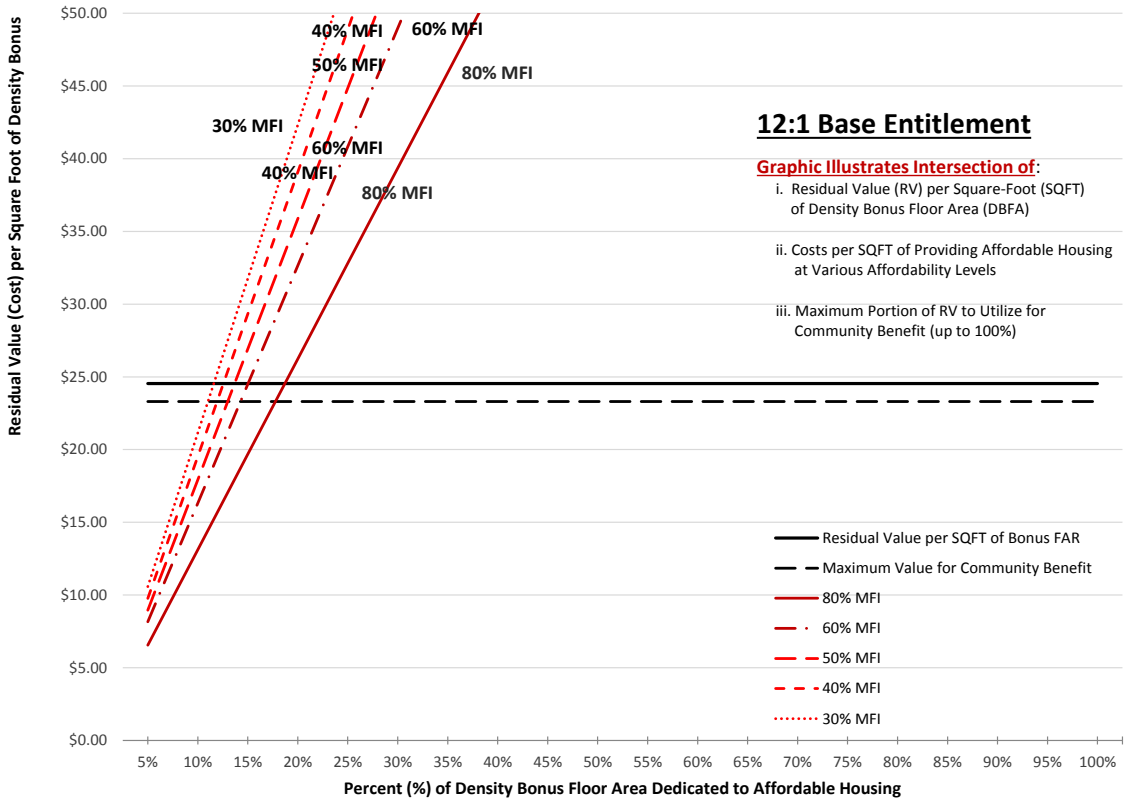


Figure 21 illustrates that for this entitlement zone:

- **80 percent MFI**: it is estimated that 25 percent of the bonus floor area can be utilized, costing $31.71 per square foot, under the allowable amount net of the incentive premium at $34.17 per square foot.
- **60 percent MFI**: it is estimated that 20 percent of the bonus floor area can be utilized, costing $31.78 per square foot.
- **50 percent MFI**: it is estimated that 15 percent of the bonus floor area can be utilized, costing $26.25 per square foot.
- **40 percent MFI**: it is estimated that 15 percent of the bonus floor area can be utilized, costing $28.66 per square foot.
- **30 percent MFI**: it is estimated that 10 percent of the bonus floor area can be utilized, costing $31.09 per square foot.

Figure 21
Residual Value and Affordable Housing in 12:1 FAR Zones



2.3 Additional Considerations

3.2.4 Historic Preservation

The economics of historic preservation are riddled with exceptions and unique circumstances. There are a number of contextual pieces of information that are useful in framing the discussion and possibility of modifying the transfer of development rights for historic preservation. The first consideration is that the economics of the sending site differ greatly from the economics of the receiving site.

- **Sending site**: The sending site is the property with historic designation. Under an ideal set of circumstances, this site would have underutilized FAR available for transfer. The unique nature of the economics of this site become apparent when considering that the existing condition and its need for site remediation, façade-level rehabilitation, minor or major structural rehabilitation, and even seismic upgrades. Any one of these can dramatically increase or change the level of funding needed to complete the rehabilitation. Moreover, the intended reuse of the structure, whether residential or non-residential, also plays significantly into the potential costs of preservation. Furthermore, there is no formal requirement that a sending site actually use the money it receives from a receiving site.
- **Receiving site**: The economics of the receiving site, however, are not tied to the economics of the sending site. The receiving site developer, interested in the TDRs from the sending site, is only able and willing to pay as much as the residual value that the additional density will generate. Moreover, a receiving site developer may also not even be interested in the magnitude of TDRs available from a willing sending site property owner. A further complication is the current maximum distance between the sending and receiving sites for this incentive to be available.

For example, a receiving site developer is interested in acquiring an additional 16,000 square feet of floor area (as in an 8:1 entitlement zone where the base entitlement allows 80,000 square feet and a 20 percent density bonus would allow for 96,000 square feet) and the residual value is estimated at approximately $33 per square foot. If only willing to pay $30 per square-foot for the additional density, the receiving site developer would write a check to the sending site property owner for $480,000. On one hand, if the sending site had more than 16,000 square feet of unused FAR to sell, the property owner may decide to hold out. On the other hand, if the cost of the preservation efforts were more than $480,000 (which is likelier the reality in most cases), the property owner would also not be interested because it would be insufficient to cover costs.

The reality is that no reliable formula can simulate the nexus between the costs associate with a vast array of historic preservation type costs (that fluctuate widely with costly components such as structural work or seismic upgrades) and the maximum a receiving site developer is willing to pay for TDRs. A few additional considerations made by interviewees during discussion centered around additional complications:

- There is no one common "marketplace" where receiving site developers and sending site property owners can come together to "find" each other; i.e. it was mentioned that these deals have typically occurred because of pre-held connections
- There is also no single repository of information regarding the TDRs that may exist on all the historic structures that exist within the Central City

3.2.5 Open Space

The objective of creating an open space density bonus is to address the needs for open space throughout the Central City with the creation of pocket parks or "local access parks" located ¼ to ½ mile from residents. In this option, a developer would dedicate a portion of the development site to open space, but maintain it privately, rather than deed it to the City. According to staff, the City typically prefers its new parks to be 2 to 4 acres if it's going to maintain them, although smaller sizes are acceptable in high need areas without good existing park service. Visibility and the appearance of good access were also other desired elements of such open space if it's provided. In terms of ownership, while some policies result in open space being deeded to the municipality, under this option, the open space would be privately owned and maintained.

It was acknowledged early in discussions that an open space fee might be preferable given the challenges of actually dedicated a large enough portion of sites to parks. In EPS's analysis, a typical 10,000 square foot lot does not leave much if any space to be dedicated to open space. Even for a 20,000 square foot lot, where half could possibly be dedicated to open space, it was determined that such a park might actually not be visible enough.

Several conversations with City parks staff and others were conducted to assess the extent that a density bonus option could be quantified or structured in a predictable fashion. While a formulaic approach to understanding the economics of an open space density bonus is easier to estimate than that of a historic preservation density bonus, the provision and value of open space is subject to a higher degree of uncertainty and thus not possible. Several factors affect this determination:

- **Site Constraints**: The typical 10,000 square-foot lot is simply too small to practically include an onsite open space component. A 20,000 square-foot lot is also too small for inclusion of open space onsite. Even a 40,000 square-foot lot would present challenges for dedicating land for open space. Moreover, for 40,000 square-foot lots (e.g. in the Lloyd District), the available density that would be shifted in order to make space for the open space would be stacked on top of the development on the portion of the site where the vertical development occurs. In this example, if the site were zoned 9:1, a development would be entitled to 360,000 square feet of building. But on a floor plate of 20,000 square feet at the most, such a building would occupy 18 floors. It is unlikely that a developer would even consider additional density at this point.
- **Predictability**: In addition to the site constraints creating a situation in which a developer might not even choose to pursue a density bonus, there is the aspect of predictability. According to City parks staff, there is review process, called the "Qualified Public Improvement" process, by which a developer may submit plans for the open space to a review committee, which if approved goes to the Parks Director for approval. If the director approves such open space as a qualified public improvement, then the developer can receive credit against parks SDCs for a maximum of 50 percent of the value of the open space provided. In the example of a development on a 40,000 square foot lot providing 50 percent as open space, staff indicated that credits against SDCs aren't even typically granted for parks that are under one acre. Furthermore, under such a process, while not entirely discretionary, there is little predictability for a developer. Although this study is not intended to weigh in on the waiver of SDCs for parks and open space, a development seeking a density bonus by providing open space would face a similarly unpredictable process of approving or "qualifying" the open space.

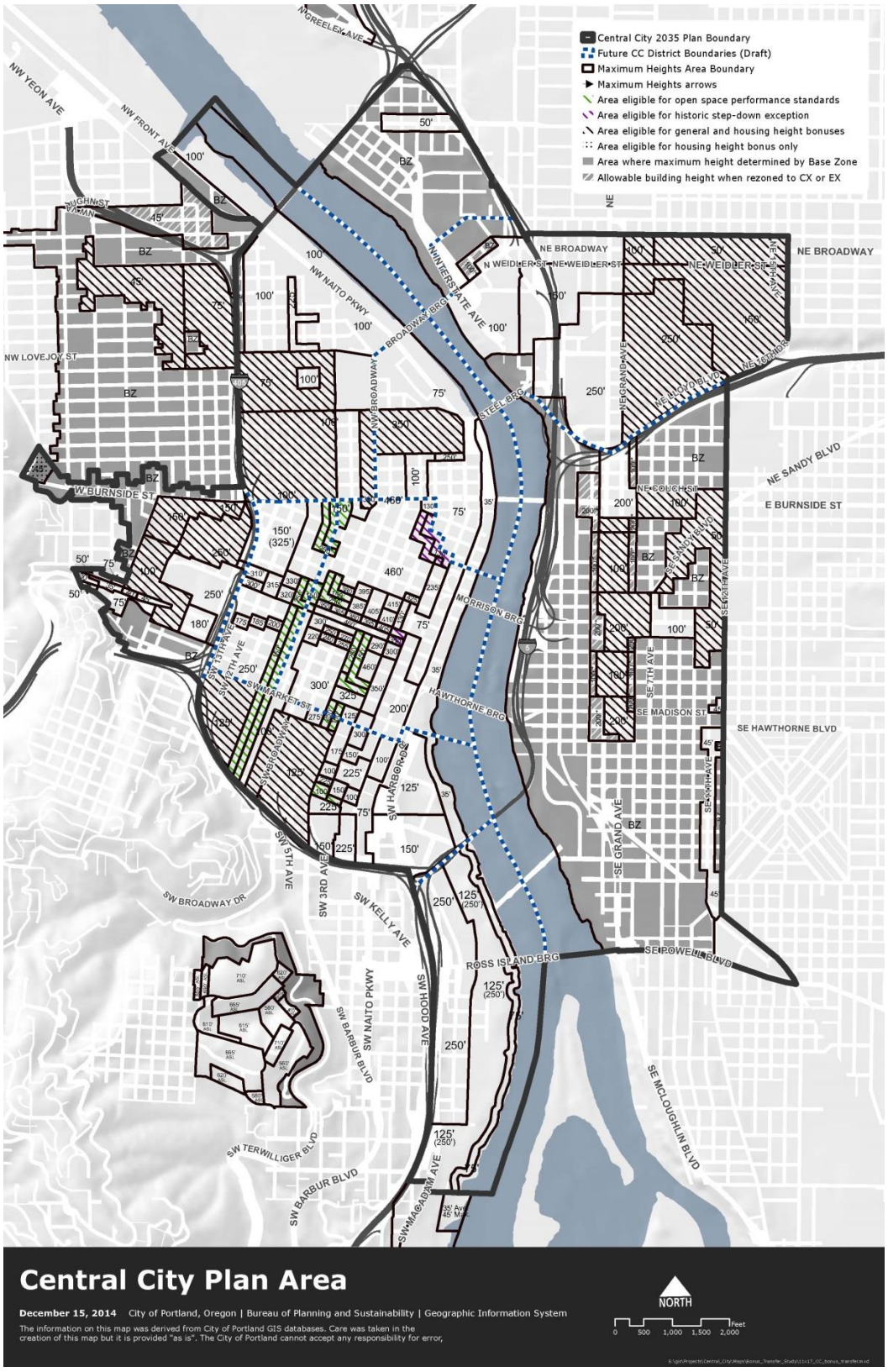
- **Level of Service Need**: Along the lines of predictability, open space is not needed in all of the Central City's subdistricts. As such, a developer could propose to provide open space but be turned down by the review committee or director because it isn't deemed valuable for the neighborhood. This adds a greater degree of uncertainty and unpredictability to the process for a developer pursuing an open space density bonus.

Through the conversations with staff, it became clear that the only quantifiable and predictable metric that could be counted on consistently was an operations and maintenance cost associated with maintaining the open space. In the end, it was determined that the most predictable density bonus option that could be offered was a cash contribution to an open space fund.

3.2.6 Height versus FAR

Maximum building height limitations vary by and within subdistricts. There are examples in the Central City where the maximum building height is 100 feet and the base FAR is 6:1. On a typical 10,000 square foot lot where the buildable area is 8,500 square feet, a development maximizing the entitlements would reach 7 floors and well over 70 feet, but a 50 percent density bonus (i.e. 30,000 square feet) would mean that the project might exceed the maximum height threshold well above 11 floors before it used all available density.

Figure 22
Central City Building Height Limits



3.2.7 Sensitivity Analysis

As with all major market inputs and assumptions, there is the possibility that, for example, the rental housing market may become overbuilt, in which case, vacancies will increase and sustainable market rental rates will level off or even drop. On the other hand, if the pace of development in the rental housing market continues to be exceeded by demand, vacancy rates will remain low or continue to decline and market rental rates will remain steady or increase.

As for construction costs, recent double-digit increases in labor costs have raised concerns for developers locally. In this case, increases in construction costs without commensurate increases in market revenues makes development feasibility more difficult. On the other hand, a leveling off or softening of construction costs and increased market revenues may stimulate development by the prospect of increased profit margins.

While each of the preceding two major inputs are collected and monitored reliably by third-party local and national entities, the value of land is a dataset more difficult to collect. The sale of land for development, piecing together information from the local assessor, or anecdotal information are the most common sources for understanding land values, but they still do not provide the type of comprehensive data that would characterize average land values for each subdistrict throughout the Central City. Nevertheless, land values have notable impact on development feasibility, though not as substantial as market revenues or construction costs.

3.0 RECOMMENDATIONS

The following recommendations are guided by the overarching goal of building a policy tool and incentive mechanism that helps the City increase its supply of affordable housing in the Central City. EPS's recommendations are based on an understanding of the successes and usage of the Central City's current density bonus and entitlement transfer programs, an understanding of the market pressures and dynamics of the Central City's subdistricts, and the findings of incentive policy best practices in comparable communities. They are further based on an analytical framework that assesses maximum supportable density under the spectrum of the Central City's common entitlement zones, and the market realities affecting development economics, such as the residual value of the density bonus, which incorporate research and input from the development community on current cost and revenue assumptions. And linking back to the overarching priorities, EPS's recommendations are structured to acknowledge market realities for transfer of development rights of historic preservation projects, as well as the economic realities of providing onsite privately-maintained public open space.

3.1 Density Bonus

Among the land use and entitlement incentives, the density bonus is among the most economically valuable. Its value, though, is highly dependent on the degree of market demand in excess of base entitlement, construction costs and building scale, revenues, and risk factors. The density bonus is particularly compelling where:

- Market demand exceeds base entitlement;
- The cost of building additional density does not increase substantially; or
- Anticipated revenues can increase in proportion to the increase of construction costs per square-foot of building additional density;
- The residual value of the bonus floor area is positive;
- Redevelopment pressures are strong;
- Neighborhood is supportive of greater density and/or of the public amenity that additional density could provide

Based on these realities, EPS has structured the following recommendations regarding the density bonus in the Central City. They outline:

- The extent of the density bonus that should be made available;
- How this differs from the values of density bonus "predicted" by the model;
- How the density bonus should be made available;
- How the City should think about the structuring of increments of the available density bonus;
- To what extent community benefit should utilize the residual value of the density bonus; and
- How the City should think about the prioritization of the community benefits.

3.1.1 Density Bonus

The findings of EPS's predictive model illustrate what density bonuses by entitlement zone result in positive residual value without changing revenue assumptions. As a matter of policy, however, such a system of different density bonuses would be complicated to administer. As an illustrative example, EPS recommends that the City offer a relatively uniform density bonus of up to 50 percent in all zones of the Central City, except for those zones with the highest level of base entitlement. This will give predictability to the process, rather than prescriptiveness, which the predictive model would suggest. It allows possibility that market conditions will change, making higher or lower density bonuses more or less attractive. It also allows for the possibility that some developers may have higher or lower profit margins than those used in the model.

Table 2 illustrates the additional floor area that this creates on a 10,000 square foot lot. The intent is to give developers, planning specific projects with unique circumstances and market conditions, the ability and flexibility to make project-specific determinations of the density bonus's residual value to their projects. That is, if it is found that only a smaller portion of the density bonus valuable, developers may pursue only a portion of the available density bonus.

Table 2
Recommended Density Bonus

	Base Entitlement							
	3:1	**4:1**	**5:1**	**6:1**	**8:1**	**9:1**	**12:1**	**15:1**
Site Configuration								
Lot Size (sqft)	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Building Envelope at 85% Coverage	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500
Gross Building Area (sqft)	30,000	40,000	50,000	60,000	80,000	90,000	120,000	150,000
# Floors	4	5	6	7	9	11	14	18
Density Bonus Floor Area (DFBA)								
Maximum "Supportable" DBFA	50%	50%	50%	50%	50%	50%	50%	50%
DBFA (sqft)	15,000	20,000	25,000	30,000	40,000	45,000	60,000	75,000
Additional # Floors	2	2	3	4	5	5	7	9
Gross Building Area w/ DBFA	**45,000**	**60,000**	**75,000**	**90,000**	**120,000**	**135,000**	**180,000**	**225,000**
# Floors	5	7	9	11	14	16	21	26

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-042915.xlsm]TABLE 5H - Supportable DBFA

3.2 Obtaining the Density Bonus

3.2.1 Consider a Density Bonus Available in Increments

Because the City would like to achieve multiple community benefit goals, EPS recommends that the City consider an approach similar to that of Seattle's, where a developer can obtain increments of the total available density bonus by providing different community benefits for each increment of density bonus obtained. The purpose of such a structure is to ensure that there is flexibility for the development community and assurance to the City that different community benefits are being incented in the subdistricts where they are needed. Ultimately, this approach and the increment sizes are a policy decision. The size of the increments can be any percentage the City chooses, so long as there is reason for choosing such percentages. These increments can even vary by subdistrict, given that some subdistricts have greater need for certain community benefits than others.

As an example, **Table 3** illustrates one possibility where the 1st increment of density bonus is 75 percent and obtained through the provision of affordable housing. The 2nd increment of density bonus is 25 percent and obtained through contributions to historic preservation or open space. Here, a development in a 6:1 zone, for example, obtains 22,500 square feet through the 1st increment providing affordable housing and the remaining 7,500 square feet through the 2nd increment making contributions to historic preservation or open space.

Table 3
Obtaining Increments of the Density Bonus

	Maximum Affordable Housing Bonus FAR Utilization by FAR Base						
	3:1	**4:1**	**5:1**	**6:1**	**8:1**	**9:1**	**12:1**
References							
Gross Building Area (Base)	30,000	40,000	50,000	60,000	80,000	90,000	120,000
Density Bonus (%)	50%	50%	50%	50%	50%	50%	50%
Total Available Density Bonus	15,000	20,000	25,000	30,000	40,000	45,000	60,000
Gross Building Area (w/ Bonus)	**45,000**	**60,000**	**75,000**	**90,000**	**120,000**	**135,000**	**180,000**
Portion of Density Bonus Obtained by:							
1st Increment (Affordable Housing)	75%	75%	75%	75%	75%	75%	75%
2nd Increment (Hist. Pres. / Open Spac	25%	25%	25%	25%	25%	25%	25%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Density Bonus Obtained by:							
1st Increment (Affordable Housing)	11,250	15,000	18,750	22,500	30,000	33,750	45,000
2nd Increment (Hist. Pres. / Open Spac	3,750	5,000	6,250	7,500	10,000	11,250	15,000
Total	**15,000**	**20,000**	**25,000**	**30,000**	**40,000**	**45,000**	**60,000**

Source: Economic & Planning Systems

\\EPSDC02\Proj\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-042915.xlsm]TABLE 9 - DBFA Achievement

Again, the previous example is just an illustration of how the density bonus might be split into two differently sized increments. The City, however, should be aware that the magnitude of increments as well as their order will affect developers' decisions, described as follows:

- **1) Magnitude of Increments**: The 75 percent and 25 percent increments are used for illustrative purposes. Whether 100 percent, 75 and 25 percent, 60 and 40 percent, or 50 and 50 percent, these increments should be calibrated to align with the conditions and needs of Central City's subdistricts. The size of the increment is likely to affect a developer's decision. Questions that the City should answer are: What community benefits are needed in each subdistrict? Which are most important? Here are some possible rationales for why the City might choose one of the following increment magnitudes:
    - **100 percent**: This would be appropriate in subdistricts where only one community benefit is needed.
    - **75 and 25 percent increments**: A larger first increment might be appropriate in subdistricts where one community benefit is more important than another, and a second community benefit is still a City priority. Because there is a chance that a developer would take advantage of just the 1st increment, it is recommended that this magnitude of increment be used for subdistricts with strong market demand. In this way, likelihood that a developer would take advantage of the 2nd increment increases.
    - **50 and 50 percent increments**: In subdistricts where multiple community benefits are an equal priority, it is recommended that increments be made available in more equal magnitudes.
- **2) Order of Increments**: A developer will seek as much additional floor area as is supportable within the market and is economically valuable. On the other hand, if the density bonus for a project is not supportable in the market and not as economically compelling, a developer may not seek a density bonus at all if the first increment is too large.
    - **75 and 25 percent increments**: Making the larger increment available first leaves open the possibility that the second is not utilized, unless in the context of a strong market.
    - **25 and 75 percent increments**: Making the smaller increment available first increases the likelihood that the second is utilized.

3.3 Provision of Community Benefits

The Central City's three highest priorities are the creation of affordable housing, the transfer of development rights for historic preservation, and the creation of open space. The optimal incentive program should reflect the level of priority each community benefit has for each subdistrict, and as such, it should be structured so that developers might be compelled to provide the community benefit that is a highest priority for each subdistrict. And because not all developers may have the necessary expertise to provide such community benefits, specifically affordable housing, onsite, the City should structure allow developers the alternative of making a cash contribution toward either affordable housing, historic preservation, or open space.

This section offers illustrations of how these community benefits might be prioritized. The findings and results, however, may be used more generally to calibrate the appropriate ranking or hierarchy of benefits according to the City's interests.

3.3.1 Affordable Housing Density Bonus

The Central City's highest priority is the creation of affordable housing inventory. This section outlines the elements of the portion of the density bonus that could be provided as affordable housing at various affordability levels, and illustrative estimates of the amount floor area and number of units that could be provided onsite.

3.3.1.1 Onsite Affordable Housing as Percent of Density Bonus Floor Area

One of the major findings of the economic modeling is the quantification of the intersection between the residual value and the cost of providing affordable housing at various levels of affordability. Based on this modeling, **Table 4** illustrates what portions of the density bonus floor area may be feasibly set aside for affordable housing while preserving an incentive premium (illustrated in the Table at a 5 percent incentive premium, which differs from the 5 to 15 percent used in other examples of the report), which adds additional profit to the developer's project. EPS recommends that the City use the following amounts by affordability level to guide its ultimate incentive structure.

The amounts are summarized from previous charts and identify how much of the density bonus (as a percentage) may be utilized for affordable housing on a spectrum of affordability levels. A project that chooses to provide affordable housing at 80 percent MFI, for example, could feasibly set aside between 20 and 45 percent of the density bonus floor area as affordable housing. A project that chooses to provide affordable housing at 60 percent MFI, for example, could set aside between 15 and 30 percent of the density bonus as affordable housing.[3,4]

Table 4
Onsite Affordable Housing as Percent of Density Bonus Floor Area

	SQFT of Density Bonus Allocated to Onsite Affordable Housing						
	3:1	4:1	5:1	6:1	8:1	9:1	12:1
Affordability Level							
80% MFI	45%	30%	30%	30%	20%	25%	15%
60% MFI	30%	25%	25%	20%	15%	20%	10%
50% MFI	25%	20%	20%	20%	15%	15%	10%
40% MFI	20%	20%	20%	20%	15%	15%	10%
30% MFI	20%	15%	15%	15%	10%	15%	10%

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 7 - MV Summary

[3] It should be reiterated that these amounts have been calibrated in the model so that the net cost of providing the affordable housing is optimized against the total marginal value of the density bonus. These amounts have also been calibrated with the incentive premium, as described previously.

[4] While EPS's analysis identified what portion of a density bonus may be feasibility set aside for affordable housing at 30 and 40 percent MFI, these levels of affordability are much more difficult to achieve from a programmatic standpoint – particularly at 30 percent MFI where supportive services becomes necessary. As such, 30 and 40 percent MFI are excluded from the hierarchy of density bonus options.

3.3.1.2 Onsite Affordable Housing Unit Estimates

Table 5 illustrates how much affordable housing can be created when, as in the previous example, the 1st increment of density bonus (75 percent) is obtainable by providing affordable housing. Depending on the depth of affordability, more units can be created to utilize the residual value of the density bonus.

- **3:1 Zone**: 3 to6 affordable units
- **4:1 Zone**: 3 to 5 affordable units
- **5:1 Zone**: 3 to 6 affordable units
- **6:1 Zone**: 4 to 7 affordable units
- **8:1 Zone**: 4 to 7 affordable units
- **9:1 Zone**: 6 to 10 affordable units
- **12:1 Zone**: 5 to 11 affordable units

These results illustrate the number of units in individual projects and are not estimates of Central City-wide affordable housing unit production numbers for each entitlement zone. Such estimates would require projecting the number and scale of development projects in the Central City, as well as estimating the number of projects that might be likely to seek a density bonus.

Table 5
Supportable Affordable Housing Created in DBFA

	Maximum Affordable Housing Bonus FAR Utilization by FAR Base						
	3:1	**4:1**	**5:1**	**6:1**	**8:1**	**9:1**	**12:1**
References							
Gross Building Area (Base)	30,000	40,000	50,000	60,000	80,000	90,000	120,000
Density Bonus (%)	50%	50%	50%	50%	50%	50%	25%
Total Available Density Bonus	15,000	20,000	25,000	30,000	40,000	45,000	30,000
% Obtained with Affordable Housing	75%	75%	75%	75%	75%	75%	75%
SQFT Obtained with Affordable Housing	11,250	15,000	18,750	22,500	30,000	33,750	22,500
Gross Building Area (w/ Bonus)	**45,000**	**60,000**	**75,000**	**90,000**	**120,000**	**135,000**	**150,000**
SQFT of Density Bonus Allocated to Affordable Housing							
80% MFI	45%	30%	30%	30%	20%	25%	15%
60% MFI	30%	25%	25%	20%	15%	20%	10%
50% MFI	25%	20%	20%	20%	15%	15%	10%
40% MFI	20%	20%	20%	20%	15%	15%	10%
30% MFI	20%	15%	15%	15%	10%	15%	10%
Affordable Housing (Floor Area)							
80% MFI	5,063	4,500	5,625	6,750	6,000	8,438	3,375
60% MFI	3,375	3,750	4,688	4,500	4,500	6,750	2,250
50% MFI	2,813	3,000	3,750	4,500	4,500	5,063	2,250
40% MFI	2,250	3,000	3,750	4,500	4,500	5,063	2,250
30% MFI	2,250	2,250	2,813	3,375	3,000	5,063	2,250
Affordable Housing (Units)							
80% MFI	6	5	7	8	7	10	4
60% MFI	4	5	6	5	5	8	3
50% MFI	3	4	5	5	5	6	3
40% MFI	3	4	5	5	5	6	3
30% MFI	3	3	3	4	4	6	3

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 8 - Supportable AH Units

3.3.2 Historic Preservation Density Bonus

The research on sending and receiving site economics suggests that no direct formulaic approach to a historic preservation density bonus is possible. The lack of a single repository of information on historic sites in need of historic preservation, the lack of a "marketplace" for developers to go who may be searching to obtain development rights from historic sites, the vast cost differences in rehabilitation needs of historic sites, the limitations of distance between sending and receiving sites, and, as a result, the lack of a nexus between sending and receiving sites prevents any predictive quantification of density bonuses or their value. But because the maximum willingness to pay of a receiving site developer is related to the residual value of the density bonus created on a particular receiving site, EPS recommends that the historic preservation density bonus option be related to the residual value calculations in this analysis. Such an option, though, because of the complications noted above, EPS recommends that this density bonus option be obtainable through a cash contribution option. More on how the cash contribution figures might be structured is explained below.

3.3.3 Open Space Density Bonus

As with the historic preservation density bonus, EPS's research also suggests that no formulaic approach to an open space density bonus can be made. Among the most significant challenges with respect to this community benefit is the uncertainty surrounding the process of approval or qualification for privately-maintained public open space. Although the point of comparison here is the process by which a developer-provided park proceeds through the "qualified public improvement" process to obtain a 50 percent credit against SDCs, EPS interprets this as an indication of the type of process that a developer would go through to qualify open space created in pursuit of a density bonus. Furthermore, because the amount of land that the City would deem a valuable contribution to the inventory or "local access parks" or pocket parks exceeds even the entirety of a typical 10,000 square foot lot, and because even the provision of a ¼ acre park on a 20,000 square foot site may not be sufficient for the Central City's open space goals, EPS recommends again that this density bonus option be made available through a cash contribution option. That is, developers can make a payment to an Open Space Fund that the City may use within the Central City for the provision of open space amenities, land acquisition, or anything that fulfills the goals of a particular subdistrict. More on how this cash contribution is estimated is explained below.

3.3.4 Cash Contributions

The City has indicated that cash contributions to affordable housing or historic preservation or open space are the second priority. This option is typically made available in incentive programs such as this as well as mandatory programs like inclusionary programs. The option allows for a situation where some developers do not have the expertise providing, marketing, selling or leasing, and operating affordable housing. In the case of the historic preservation density bonus, even if developers had connections within the community to property owners of historic sites, those property owners may not have enough density to sell, may be asking too much for the development rights, or the receiving site developer may not be willing to pay as much. In the case of the privately-maintained open space, a project may not have a sufficient amount of land area to provide open space. In each of these cases, a cash contribution means that the developer may still contribute indirectly to the provision of a community benefit.

In the following section, possible cash contribution amounts are estimated in the two illustrative examples of how the various community benefits may be organized to create a hierarchy of

priorities. In general, the cash contributions, like the affordable housing be depth of affordability, are set using a range of incentive premiums. The range of incentive premiums are tiered, as will be illustrated below, in such a way that the most profitable option is the City's highest priority, and the cash contribution (the City's lower priority) is set as the least profitable. In this way, based on EPS's calculations with current market assumptions and inputs, a developer is compelled to provide, for example, onsite affordable housing at the City's highest priority affordability level.

3.3.5 Residual Value Structure

Table 6 illustrates two basic options for the utilization of the residual value of the density bonus: 1) utilization of 100 percent of density bonus through provision of affordable housing at 60 percent MFI; or 2) utilization of 100 percent of density bonus through payment of a cash contribution in place of affordable housing. It is intended that the table serve as a guide for understanding which elements must be considered in the structuring of a compelling density bonus program in subdistricts where affordable housing may or may not be the highest priority, or in subdistricts where it is the only priority. It should also be noted that this residual value analysis also assumes that 10 percent of the net leasable floor area in the structure is non-residential.

The incentive premium or net additional profit associated with providing housing at 60 percent MFI is set to at least 15 percent of the residual value, showing in line 50. The net "cost" of providing this benefit onsite is shown in line 36, whereas the cost of making a cash contribution instead of building affordable housing onsite is estimated in the following line 37. Some descriptions of **Table 6** are as follows:

- **Gross Building Area (Line 5)**: lot size is 10,000 square feet with base entitlements
- **Units in Structure (Line 6)**: estimated residential units in building with base entitlements
- **Development costs (Line 7)**: hard and soft costs, excluding land costs
- **Rental Rates, Base (Line 8)**: these are the rental rates under the base entitlement scenario that generally result in a feasible project given all other assumptions
- **Development Costs + Expected Profit (Line 11)**: all development costs, including land, as well as respective levels of expected profit, as illustrated previously
- **Residual Value (Base) (Line 13)**: interpreted as either additional supportable land value or profit
- **Density Bonus (Line 17)**: an illustration of a relatively uniform 50 percent density bonus with the exception of 12:1 and 15:1 zones where the available density bonus could be 25 percent
- **Additional Units (Line 19)**: An estimate of the number of residential units that would occupy this density bonus floor area, less common area, etc.
- **Development Costs (Line 20)**: these are the development costs associated with a higher building code category and high construction costs per square-foot
- **Rental Rates, w/ Density Bonus (Line 21)**: these are rental rates adjusted to the same degree as where costs are increased to meet building code requirements
- **Residual Value, Density Bonus (Line 26)**: estimated residual value of the density bonus alone, netting out revenues at market-rate and all development costs, as well as respective levels of expected profit
- **Portion of Density Bonus to Housing at 60 percent MFI (Line 30)**: these percentages are calibrated in the model not to exceed cut into the incentive premiums (shown here reflecting 15 percent)

- **Units of Affordable Housing at 60 percent MFI (Line 32)**: it is important to note that these are unit counts by project; raising the affordability level to 80 percent MFI would increase the number of estimated units of affordable housing
- **Residual Value Utilized for Affordable Housing (Line 36)**: this is the total net "cost" of providing the affordable housing, as described in the methodology section; it is the difference between the residual value of the project with a density bonus at market-rates and a project with a density bonus that provides the community benefit.
- **Cash Contribution Alternative (Line 38)**: this value is intentionally higher than the net cost to provide housing, and, as illustrated here, is calibrated to leave exactly a 5 percent incentive premium, whereas the construction of units is calibrated to as close to the 15 percent incentive premium as possible
- **Net Additional Profit (Line 52)**; this is the additional financial value as a result of a project taking advantage of the density bonus; in these examples, it increases the overall project's base level return by 1 to 2 percentage points

Table 6
100 Percent Affordable Housing Density Bonus or Cash Contribution

		Base Entitlement						
[1]		**3:1**	**4:1**	**5:1**	**6:1**	**8:1**	**9:1**	**12:1**
[2]								
[3]								
[4]	**Base Entitlements**							
[5]	Gross Building Area	30,000	40,000	50,000	60,000	80,000	90,000	120,000
[6]	Total Units in Structure	25	34	42	50	67	76	101
[7]	Development Costs / SQFT (Excl. Land)	$156.23	$155.93	$155.75	$184.00	$206.39	$207.78	$207.67
[8]	Rental Rates, Base	$2.25	$2.15	$2.05	$2.50	$2.90	$2.90	$3.00
[9]								
[10]	**Residual Value, Base**							
[11]	Development Costs + Expected Profit	$6,540,104	$8,322,902	$10,105,699	$14,190,881	$21,253,533	$24,072,000	$32,842,741
[12]	Total Revenues	$6,534,060	$8,412,334	$10,140,734	$14,192,171	$21,320,868	$23,985,977	$32,880,543
[13]	**Residual Value, Base**	**-$6,043**	**$89,432**	**$35,034**	**$1,290**	**$67,336**	**-$86,023**	**$37,801**
[14]								
[15]								
[16]	**Density Bonus**							
[17]	Density Bonus (as % of Base Entitlement)	50%	50%	50%	50%	50%	50%	25%
[18]	Total Available Density Bonus	15,000	20,000	25,000	30,000	40,000	45,000	30,000
[19]	Additional Units	15	19	24	29	39	44	29
[20]	Development Costs / SQFT (Excl. Land)	$155.83	$183.82	$190.74	$206.21	$207.47	$207.47	$207.51
[21]	Rental Rates, w/ Density Bonus	$2.25	$2.60	$2.65	$2.90	$2.95	$2.95	$3.00
[22]								
[23]	**Residual Value, Density Bonus**							
[24]	Development Costs + Expected Profit	$2,674,197	$5,510,466	$7,495,855	$8,646,860	$9,893,516	$10,983,902	$7,570,825
[25]	Total Revenues	$3,178,830	$6,193,724	$8,412,470	$9,845,464	$11,202,323	$12,602,613	$8,306,880
[26]	**Residual Value, Density Bonus**	**$504,633**	**$683,258**	**$916,615**	**$1,198,604**	**$1,308,806**	**$1,618,711**	**$736,055**
[27]	per SQFT	$33.64	$34.16	$36.66	$39.95	$32.72	$35.97	$24.54
[28]								
[29]	**Usage of Density Bonus**							
[30]	Portion of Density Bonus to Housing at 60% MFI	25%	20%	20%	20%	15%	15%	10%
[31]	Floor Area for Affordable Housing	3,750	4,000	5,000	6,000	6,000	6,750	3,000
[32]	Units of Affordable Housing at 60% MFI	5	5	6	7	7	8	4
[33]	as % of Total Units	13%	9%	9%	9%	7%	7%	3%
[34]								
[35]	**Provision of Community Benefit:**							
[36]	Residual Value Utilized for Affordable Housing	$368,495	$514,347	$664,591	$927,457	$953,447	$1,072,628	$489,718
[37]	per SQFT	$24.57	$25.72	$26.58	$30.92	$23.84	$23.84	$16.32
[38]	Cash Contribution Alternative	$479,401	$649,095	$870,785	$1,138,674	$1,243,366	$1,537,775	$699,252
[39]	per SQFT	$31.96	$32.45	$34.83	$37.96	$31.08	$34.17	$23.31
[40]								
[41]								
[42]	**Project w/ Density Bonus & Onsite Housing**							
[43]	Gross Building Area	45,000	60,000	75,000	90,000	120,000	135,000	150,000
[44]	Total Units in Structure	40	53	66	80	106	119	130
[45]	Affordable Units at 60% MFI	5	5	6	7	7	8	4
[46]	Development Costs / SQFT (Excl. Land)	$155.83	$183.82	$190.74	$206.21	$207.47	$207.47	$207.51
[47]	Rental Rates / SQFT	$2.25	$2.60	$2.65	$2.90	$2.95	$2.95	$3.00
[48]								
[49]	**Residual Value**							
[50]	Development Costs + Expected Profit	$9,214,301	$13,833,368	$17,601,554	$22,837,741	$31,147,049	$35,055,902	$40,413,567
[51]	Total Revenues	$9,344,395	$14,091,711	$17,888,613	$23,110,178	$31,569,744	$35,515,962	$40,697,704
[52]	**Net Additional Profit**	**$130,094**	**$258,344**	**$287,059**	**$272,437**	**$422,695**	**$460,060**	**$284,138**
[53]	as % of Residual Value	26%	38%	31%	23%	32%	28%	39%
[54]	Base Profit (%)	15%	15%	15%	15%	18%	18%	22%
[55]	Total Profit (%) w/ Density Bonus & Housing	17%	17%	17%	16%	20%	20%	23%

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 11

The critical assumption to the structure of the previous table is the level of incentive premium offered. As explained previously, this incentive premium is a portion of the residual value per square foot of the density bonus that is preserved as additional economic value (profit) to motivate a developer into selecting a respective density bonus option.

Below, **Table 7** illustrates the range of "costs" per square-foot of cash contributions that are calibrated to different degrees of incentive premium. The purpose is to illustrate different incentive premiums and identify how cash contribution amounts can be calibrated with a variety of different community benefits by subdistrict. EPS suggests that the City consider which density bonus options it wishes to prioritize and set the incentive premium and associated cash contribution options accordingly. It would be recommended that the higher incentive premiums be used for the higher priority community benefits by subdistrict, and that the lower incentive premiums be used for the lower priority community benefits and/or cash contributions.

Table 7
Cash Contribution Matrix

		Base Entitlement						
[1]		3:1	4:1	5:1	6:1	8:1	9:1	12:1
[2]								
[3]								
[4]	**Cash Contributions by Incentive Premium Levels**							
[5]	**per SQFT**							
[6]	15% Incentive Premium	$28.60	$29.04	$31.16	$33.96	$27.81	$30.58	$20.85
[7]	10% Incentive Premium	$30.28	$30.75	$33.00	$35.96	$29.45	$32.37	$22.08
[8]	5% Incentive Premium	$31.96	$32.45	$34.83	$37.96	$31.08	$34.17	$23.31
[9]	**Total**							
[10]	15% Incentive Premium	$428,938	$580,769	$779,123	$1,018,813	$1,112,485	$1,375,904	$625,647
[11]	10% Incentive Premium	$454,170	$614,932	$824,954	$1,078,744	$1,177,926	$1,456,840	$662,449
[12]	5% Incentive Premium	$479,401	$649,095	$870,785	$1,138,674	$1,243,366	$1,537,775	$699,252
[13]								
[14]	**Net Additional Profit**							
[15]	15% Incentive Premium	$75,695	$102,489	$137,492	$179,791	$196,321	$242,807	$110,408
[16]	10% Incentive Premium	$50,463	$68,326	$91,662	$119,860	$130,881	$161,871	$73,605
[17]	5% Incentive Premium	$25,232	$34,163	$45,831	$59,930	$65,440	$80,936	$36,803
[18]								
[19]	**per unit / cash contribution**							
[20]	15% Incentive Premium	$85,788	$116,154	$129,854	$145,545	$158,926	$171,988	$156,412
[21]	10% Incentive Premium	$90,834	$122,986	$137,492	$154,106	$168,275	$182,105	$165,612
[22]	5% Incentive Premium	$95,880	$129,819	$145,131	$162,668	$177,624	$192,222	$174,813

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 12

3.3.6 Frequency of Update

EPS recommends that the City take the approach of monitoring the performance of the incentive program during its first few years, or at least long enough that a number of projects have worked through the development review process and opted to utilize the density bonus. At a minimum, the City could update dollar values (i.e. the cash contribution amounts) on an annual basis either inflating them by the Bureau of Labor Statistics' Producer Price Index or using the model and updating major cost and revenue factors.

The City should also pay attention to a few market indicators that contribute significantly to the results of EPS's model, such as:

- Significant changes to construction labor or materials costs
- Changes in land values
- Changes in market rate revenues assumptions, such as rental rates and lease rates

In the event that these assumptions change substantially, EPS recommends that the City rerun the model with an updated and recalibrated set of assumptions. This level of effort, however, is not anticipated to be necessary every year.

3.3.7 Additional Considerations

Outside of these recommendations regarding the structure of the density bonus options, the City may wish to consider or further assess the merits and feasibility of a few related aspects raised during the process of EPS's research, analysis, and discussions with staff and stakeholders:

- Height versus density. EPS recommends that the City assemble its own geospatial data to assess to what extent and where potential mismatches in height and FAR may exist throughout the City. A few questions to answer could be: 1) where these mismatches exist; 2) in which base entitlement zones they commonly occur in; and 3) to what extent there are mismatches.
- Use of an expanded MULTE program as a complementary incentive
- Relaxing or expanding the distance between sending and receiving sites, related to the transfer of development rights for historic preservation
- The establishment of a "marketplace" of information for developers to identify suitable partnerships for historic preservation TDRs
- The establishment of a City protocol surrounding historic preservation TDRs, the marketplace, and the orchestration of developers and owners of historic properties in need of rehabilitation or preservation
- The establishment of a City liaison to assist developers seeking to obtain density bonuses through affordable housing that may have concerns surrounding the marketing, management or operations of such units

Appendix A:
Supporting Information

Supporting Tables

Table A1
Hard Costs Only per Square-Foot by Scale of Building

		Hard Costs / Gross Square Foot (including parking)		
	Floors	Stick	Heavy Timber / Light Gauge Steel	Concrete or Steel
Podium w/	3	$110	$125	
	4	$110	$125	
	5	$110	$125	
	6	$110	$125	
Low-rise	7	$125	$125	
	8	$130	$130	$130
	9	$135	$135	$135
Mid-rise	10	$145	$145	$145
	11		$145	$145
	12		$145	$145
	13			$145
	14			$145
	15			$145
	16			$145
	17			$145
	18			$145
	19			$145
High-Rise	20			$155
	21			$155
	22			$155
	23			$155
	24			$155
	25			$155
	26			$155
	27			$155
	28			$155

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-032715.xlsm]TABLE 1- Inputs

Table A2
Non-Ramped Soft Costs Only per Square-Foot by Scale of Building

	as % of Hard Costs
Architectural & Engineering	6.0%
Development Fees & Admin.	5.0%
Permits, Fees, & Entitlement	14.0%
Construction Loan Interest (Cost of Carry)	Varies
Insurance (Base = 2%, w/ Condos = 4%)	2.0%
Legal	1.0%
Marketing	0.0%
Market Rate Units	1.0%
MPDUs	1.0%
Cost of Sale	1.0%
Contingency	5.0%
Total (Excluding Const. Loan Interest)	**36.0%**

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-032715.xlsm]TABLE 1- Inputs

Table A3
Residual Value and Cost of Providing Affordable Housing in 3:1 Base FAR

	Cost of the Affordable Bonus @ % of Bonus Floor Area									
	5%	**10%**	**15%**	**20%**	**25%**	**30%**	**35%**	**40%**	**45%**	**50%**
Residual Value per SQFT of Bonus FAR	$33.64	$33.64	$33.64	$33.64	$33.64	$33.64	$33.64	$33.64	$33.64	$33.64
Less: Incentive to Developer to Build	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Maximum Value for Community Benefit	**$31.96**	**$31.96**	**$31.96**	**$31.96**	**$31.96**	**$31.96**	**$31.96**	**$31.96**	**$31.96**	**$31.96**
Affordable Housing Provided at % AMI										
80% MFI	$3.31	$6.62	$9.93	$13.24	$16.55	$19.86	$23.17	$26.48	$29.80	$33.11
60% MFI	$4.91	$9.83	$14.74	$19.65	$24.57	$29.48	$34.39	$39.31	$44.22	$49.13
50% MFI	$5.72	$11.44	$17.15	$22.87	$28.59	$34.31	$40.02	$45.74	$51.46	$57.18
40% MFI	$6.52	$13.04	$19.57	$26.09	$32.61	$39.13	$45.66	$52.18	$58.70	$65.22
30% MFI	$7.33	$14.67	$22.00	$29.33	$36.66	$44.00	$51.33	$58.66	$66.00	$73.33

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 7a - MV 3to1

Table A4
Residual Value and Cost of Providing Affordable Housing in 4:1 Base FAR

	Cost of the Affordable Bonus @ % of Bonus Floor Area									
	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Residual Value per SQFT of Bonus FAR	$34.16	$34.16	$34.16	$34.16	$34.16	$34.16	$34.16	$34.16	$34.16	$34.16
Less: Incentive to Developer to Build	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Maximum Value for Community Benefit	**$32.45**	**$32.45**	**$32.45**	**$32.45**	**$32.45**	**$32.45**	**$32.45**	**$32.45**	**$32.45**	**$32.45**
Affordable Housing Provided at % AMI										
80% MFI	$4.83	$9.65	$14.48	$19.31	$24.13	$28.96	$33.79	$38.61	$43.44	$48.27
60% MFI	$6.43	$12.86	$19.29	$25.72	$32.15	$38.58	$45.01	$51.43	$57.86	$64.29
50% MFI	$7.23	$14.47	$21.70	$28.94	$36.17	$43.40	$50.64	$57.87	$65.10	$72.34
40% MFI	$8.04	$16.08	$24.11	$32.15	$40.19	$48.23	$56.27	$64.31	$72.34	$80.38
30% MFI	$8.85	$17.70	$26.55	$35.40	$44.24	$53.09	$61.94	$70.79	$79.64	$88.49

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 7b - MV 4to1

Table A5
Residual Value and Cost of Providing Affordable Housing in 5:1 Base FAR

	Cost of the Affordable Bonus @ % of Bonus Floor Area									
	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Residual Value per SQFT of Bonus FAR	$36.66	$36.66	$36.66	$36.66	$36.66	$36.66	$36.66	$36.66	$36.66	$36.66
Less: Incentive to Developer to Build	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Maximum Value for Community Benefit	**$34.83**	**$34.83**	**$34.83**	**$34.83**	**$34.83**	**$34.83**	**$34.83**	**$34.83**	**$34.83**	**$34.83**
Affordable Housing Provided at % AMI										
80% MFI	$5.04	$10.09	$15.13	$20.17	$25.22	$30.26	$35.30	$40.35	$45.39	$50.43
60% MFI	$6.65	$13.29	$19.94	$26.58	$33.23	$39.88	$46.52	$53.17	$59.81	$66.46
50% MFI	$7.45	$14.90	$22.35	$29.80	$37.25	$44.70	$52.15	$59.60	$67.05	$74.50
40% MFI	$8.25	$16.51	$24.76	$33.02	$41.27	$49.53	$57.78	$66.04	$74.29	$82.55
30% MFI	$9.07	$18.13	$27.20	$36.26	$45.33	$54.39	$63.46	$72.52	$81.59	$90.65

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 7c - MV 5to1

Table A6
Residual Value and Cost of Providing Affordable Housing in 6:1 Base FAR

	Cost of the Affordable Bonus @ % of Bonus Floor Area									
	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Residual Value per SQFT of Bonus FAR	$39.95	$39.95	$39.95	$39.95	$39.95	$39.95	$39.95	$39.95	$39.95	$39.95
Less: Incentive to Developer to Build	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Maximum Value for Community Benefit	**$37.96**	**$37.96**	**$37.96**	**$37.96**	**$37.96**	**$37.96**	**$37.96**	**$37.96**	**$37.96**	**$37.96**
Affordable Housing Provided at % AMI										
80% MFI	$6.13	$12.25	$18.38	$24.50	$30.63	$36.76	$42.88	$49.01	$55.14	$61.26
60% MFI	$7.73	$15.46	$23.19	$30.92	$38.64	$46.37	$54.10	$61.83	$69.56	$77.29
50% MFI	$8.53	$17.07	$25.60	$34.13	$42.67	$51.20	$59.73	$68.27	$76.80	$85.33
40% MFI	$9.34	$18.68	$28.01	$37.35	$46.69	$56.03	$65.36	$74.70	$84.04	$93.38
30% MFI	$10.15	$20.30	$30.44	$40.59	$50.74	$60.89	$71.04	$81.19	$91.33	$101.48

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 7d - MV 6to1

Table A7
Residual Value and Cost of Providing Affordable Housing in 8:1 Base FAR

	Cost of the Affordable Bonus @ % of Bonus Floor Area									
	5%	**10%**	**15%**	**20%**	**25%**	**30%**	**35%**	**40%**	**45%**	**50%**
Residual Value per SQFT of Bonus FAR	$32.72	$32.72	$32.72	$32.72	$32.72	$32.72	$32.72	$32.72	$32.72	$32.72
Less: Incentive to Developer to Build	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Maximum Value for Community Benefit	**$31.08**	**$31.08**	**$31.08**	**$31.08**	**$31.08**	**$31.08**	**$31.08**	**$31.08**	**$31.08**	**$31.08**
Affordable Housing Provided at % AMI										
80% MFI	$6.34	$12.69	$19.03	$25.37	$31.71	$38.06	$44.40	$50.74	$57.08	$63.43
60% MFI	$7.95	$15.89	$23.84	$31.78	$39.73	$47.67	$55.62	$63.56	$71.51	$79.45
50% MFI	$8.75	$17.50	$26.25	$35.00	$43.75	$52.50	$61.25	$70.00	$78.75	$87.50
40% MFI	$9.55	$19.11	$28.66	$38.22	$47.77	$57.33	$66.88	$76.43	$85.99	$95.54
30% MFI	$10.36	$20.73	$31.09	$41.46	$51.82	$62.19	$72.55	$82.92	$93.28	$103.65

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 7e - MV 8to1

Table A8
Residual Value and Cost of Providing Affordable Housing in 9:1 Base FAR

	Cost of the Affordable Bonus @ % of Bonus Floor Area									
	5%	**10%**	**15%**	**20%**	**25%**	**30%**	**35%**	**40%**	**45%**	**50%**
Residual Value per SQFT of Bonus FAR	$35.97	$35.97	$35.97	$35.97	$35.97	$35.97	$35.97	$35.97	$35.97	$35.97
Less: Incentive to Developer to Build	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Maximum Value for Community Benefit	**$34.17**	**$34.17**	**$34.17**	**$34.17**	**$34.17**	**$34.17**	**$34.17**	**$34.17**	**$34.17**	**$34.17**
Affordable Housing Provided at % AMI										
80% MFI	$6.34	$12.69	$19.03	$25.37	$31.71	$38.06	$44.40	$50.74	$57.08	$63.43
60% MFI	$7.95	$15.89	$23.84	$31.78	$39.73	$47.67	$55.62	$63.56	$71.51	$79.45
50% MFI	$8.75	$17.50	$26.25	$35.00	$43.75	$52.50	$61.25	$70.00	$78.75	$87.50
40% MFI	$9.55	$19.11	$28.66	$38.22	$47.77	$57.33	$66.88	$76.43	$85.99	$95.54
30% MFI	$10.36	$20.73	$31.09	$41.46	$51.82	$62.19	$72.55	$82.92	$93.28	$103.65

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 7f - MV 9to1

Table A9
Residual Value and Cost of Providing Affordable Housing in 12:1 Base FAR

	Cost of the Affordable Bonus @ % of Bonus Floor Area									
	5%	**10%**	**15%**	**20%**	**25%**	**30%**	**35%**	**40%**	**45%**	**50%**
Residual Value per SQFT of Bonus FAR	$24.54	$24.54	$24.54	$24.54	$24.54	$24.54	$24.54	$24.54	$24.54	$24.54
Less: Incentive to Developer to Build	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Maximum Value for Community Benefit	**$23.31**	**$23.31**	**$23.31**	**$23.31**	**$23.31**	**$23.31**	**$23.31**	**$23.31**	**$23.31**	**$23.31**
Affordable Housing Provided at % AMI										
80% MFI	$6.56	$13.12	$19.68	$26.24	$32.80	$39.36	$45.91	$52.47	$59.03	$65.59
60% MFI	$8.16	$16.32	$24.49	$32.65	$40.81	$48.97	$57.13	$65.30	$73.46	$81.62
50% MFI	$8.97	$17.93	$26.90	$35.87	$44.83	$53.80	$62.76	$71.73	$80.70	$89.66
40% MFI	$9.77	$19.54	$29.31	$39.08	$48.85	$58.63	$68.40	$78.17	$87.94	$97.71
30% MFI	$10.58	$21.16	$31.74	$42.33	$52.91	$63.49	$74.07	$84.65	$95.23	$105.81

Source: Economic & Planning Systems

H:\143069-Portland OR Bonus Density Analysis\Models\[143069-Model-052915.xlsm]TABLE 7g - MV 12to1

Appendix B:
Case Study Research

Case Studies

Anaheim, CA

The City of Anaheim established a voluntary incentive program to encourage the development of very low, low, and moderate income housing or senior housing. The program applies on a citywide basis to residential development (not non-residential) and offers three tiers of density bonus incentives in exchange for the construction of varying percentages of affordable housing.

Portland Comparability

Anaheim has a smaller population, housing unit and employment base, by nearly 50 percent. Its market is slightly more affluent (except for per capita income) than Portland's, and housing costs are generally higher. The correlation coefficient indicates less similarity to Portland than other case study cities, but the weighted percentage difference indicates that Anaheim is only 4 percent different.

Table B1
Anaheim, CA Comparability

	Portland, OR	Anaheim, CA	Similarity (Difference) Metrics
Basic			
Population	603,650	343,241	-43%
Employment	313,933	156,616	-50%
Incomes			
Median Household Income	$52,158	$55,464	6%
Mean Household Income	$72,186	$73,270	2%
Housing			
Housing Units	265,196	104,826	-60%
Occupied Units	248,698	98,156	-61%
Owner-occupied	53%	45%	-15%
Renter-occupied	47%	55%	17%
Housing Costs			
Median Gross Rent	$905	$1,307	44%
Median Home Value	$268,800	$377,500	40%
Median Monthly Owner Costs	$1,717	$2,228	30%
Similarity Metrics			
Correlation [Note 1]	---	---	0.86
Weighted % +/- [Note 2]	---	---	4%

[**Note 1**]: Defined as a number between 0 and 1. A number closer to 1 indicates higher correlation of data sets.

[**Note 2**]: A percentage closer to 0 indicates greater similarity to Portland. This metric weights incomes and housing costs as a reflection of the importance these variables play in assessing the similarities of housing markets.

Source: U.S. Census; Bureau of Labor Statistics; Economic & Planning Systems

\\EPSDC02\Proj\143069-Portland OR Bonus Density Analysis\Data\[143069-Demographics.xlsx]Anaheim

Density Bonus and Affordable Rental Housing Program

All developments with more than 5 units may apply for a density bonus under this program. Condominium conversions, a unique scenario by comparison to the density bonus and affordable housing provisions for new developments spelled out below, are also eligible for a density bonus, where applicants agree to set aside at least 33 percent as affordable housing at 50 percent MFI. The percentage of density bonus allowable is scaled according to the level of affordable housing provided, ranging generally from 20 to 35 percent density bonus. Units must remain affordable for a period of 55 years (although state law requires 30 years). The City does not have a fee in-lieu of provide affordable housing.

- Providing 5 to 11 percent very low income housing: density bonus of 20 to 35 percent
- Providing 10 to 20 percent low income housing: density bonus of 20 to 35 percent
- Providing 10 to 40 percent moderate income housing: density bonus of 20 to 35 percent
- Providing 10 to 30 percent transfer of land: density bonus of 15 to 35 percent
- Providing a child care facility within a residential project makes an applicant eligible to obtain an additional density bonus equal to the amount of child care space provided

The City grants different levels of incentives to developments that provide affordable housing. It grants fee deferrals for projects, as well as:

- Tier 1: increased lot coverage, decreased tree size requirement, reduction of interior lot line setback, reduction of building separation setback
- Tier 2: reduction in ROW dedication or improvements, increased maximum building height, density bonus greater than 35 percent, decreased parking ratios, mixed use zoning, or other regulatory incentives
- The City also makes available an Equivalent Financial Incentive in lieu of granting a density bonus or additional incentive. The value of this incentive is equal to the land cost per dwelling unit savings that result from the density bonus and additional incentives, supported by an independent analysis of the applicant's project

Overall Performance

Before the City had created its multifamily affordable housing (MFAH) ordinance in 2005, it already had a density bonus provision on its books. The motivation for the City's recent rewrite of its incentive program was to further incent the construction of multifamily units. Concurrently, state law was also being rewritten to incent multifamily construction, e.g. through the reduction of parking requirements. The City combined its existing density bonus program with the MFAH ordinance with a mandate from an affordable housing strategic plan. The result was the density bonus ordinance (DBO) that is in effect today. The DBO streamlined some of the land use-based incentives, such as the procedure for getting a variance on setback requirements. Under the previous structure, an applicant would have to apply for two variances (side and front setbacks), but under the revised structure, just one application would be necessary. In terms of additional incentives, the fee deferral is seen as having high economic value, especially for projects of scale.

According to City staff, since 2005 the DBO has helped to created more than 1,200 new units of rental, 900 units of for-sale housing, and 150 rehab units, leveraging other affordable housing resources (such as tax credits). The DBO also allowed density bonuses for transfers of land to the City, though this option has not been utilized. Density bonuses are also granted and subsequently the affordable housing requirement is available for condo conversions, but this also

has not happened. Density bonuses are also available to developments that provide child care facilities, but this has just happened once. According to staff, the market conditions and demand for child care facilities, in particular, have not made the option relevant. More relevant, however, is that developments are generally not maxing out the density in areas where the City would like to encourage it.

Staff also indicated that there had been no development community problems with the affordability terms in the DBO. Although state law requires an affordability term of 30 years, developers had a comfort level with the 55-year term in part because of lower underwriting requirements. Staff have also indicated that no non-residential development has come forward seeking a density bonus. As a result, there is no motivation at the moment to expand the DBO to non-residential development. There is, however, interest in exploring the use of financing incentives (but are prohibited by California law from using TIF).

Arlington County, VA

Since inception (in 2001), Arlington County has actively sought to enhance and improve upon its incentive policies affecting residential and non-residential development. The County has two core elements of its incentive program: one that incents green building and the other which incents affordable housing. In addition to these community benefits, the County also incents historic preservation through transfers of development rights.

The County has carefully worked through policy and land use planning processes to ensure that these policies can be implemented effectively within the context of their form-based code (FBC). Its commercial FBC was adopted in 2003, followed by adoption in 2013 of FBC with a comprehensive menu of tools to preserve affordable housing.

Portland Comparability

As a point of comparison to a few key economic and demographic measures of Portland, the table to the right summarizes basic statistics reflective of the size, economic health, and housing market conditions. The correlation coefficient indicates a simple comparison between the two city's statistics. The weighted percent indicates that, because incomes and housing costs are weighted, Arlington's characteristics are 71 percent different than Portland's.

Table B2
Arlington County, VA Comparability

	Portland, OR	Arlington County, VA	Similarity (Difference) Metrics
Basic			
Population	603,650	221,045	-63%
Employment	313,933	141,213	-55%
Incomes			
Median Household Income	$52,158	$100,474	93%
Mean Household Income	$72,186	$127,539	77%
Housing			
Housing Units	265,196	107,734	-59%
Occupied Units	248,698	95,369	-62%
Owner-occupied	53%	42%	-21%
Renter-occupied	47%	58%	24%
Housing Costs			
Median Gross Rent	$905	$1,713	89%
Median Home Value	$268,800	$580,400	116%
Median Monthly Owner Costs	$1,717	$2,623	53%
Similarity Metrics			
Correlation [Note 1]	---	---	0.58
Weighted % +/- [Note 2]	---	---	71%

[**Note 1**]: Defined as a number between 0 and 1. A number closer to 1 indicates higher correlation of data sets.

[**Note 2**]: A percentage closer to 0 indicates greater similarity to Portland. This metric weights incomes and housing costs as a reflection of the importance these variables play in assessing the similarities of housing markets.

Source: U.S. Census; Bureau of Labor Statistics; Economic & Planning Systems

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Affordable Dwelling Unit Program

Arlington County's ADU program is characterized as voluntary for by-right zoning applications, but mandatory for development applications that apply through the Special Exception Site Plan (SESP), i.e., for greater density or a change of land use. The ADU program is similar to inclusionary housing (zoning) ordinances in that it places a "set-aside" requirement on development applications (through the SESP) that exceed 1.0 FAR. The ADU requirements may be satisfied by providing either for-sale or rental units at 60 percent MFI for a term of no less than 30 years. For applications that exceed the 1.0 threshold, the affordable dwelling unit requirements are:

- On-Site: 5 percent of the gross floor area above 1.0 FAR
- Off-Site Nearby: 7.5 percent of the gross floor area above 1.0 FAR
- Off-Site Elsewhere: 10 percent of the gross floor area above 1.0 FAR

Cash contributions may also be made in lieu of affordable units that correspond to the level of density that is requested in the development application. In general, staff indicate that the fee in-lieu rates result in fees per unit of between $70,000 and $100,000. It should be noted that the following fees per square foot are assessed to the entire building floor area.

- Up to 1.0 FAR: $1.84 per square-foot
- 1.0 to 3.0 FAR: $4.91 per square-foot
- 3.0 FAR and higher: $9.83 per square-foot

Another aspect of the density bonus program as it applies to non-residential development is a developer's option to provide contributions toward library, fire, or school facilities. The County has recently been encouraging development to provide contributions to school facilities because

growth and demand for school enrollment has exceeded recent demographic forecasts. (It is important to note that the County does not currently have development impact fees, whereby developments contribute a set amount per square-foot of non-residential square feet to different capital facilities' needs.)

Green Building Density Bonus Program

The County instituted its initial green building density bonus program in 1999. The program provides additional density to development that meets different levels of LEED certification, as follows:

- LEED Silver: 0.25 FAR
- LEED Gold: 0.35 FAR
- LEED Platinum: 0.45 FAR

Overall Performance

This section details the overall performance of Arlington County' various density bonus and incentive programs, not just the incentive program. Disaggregating the unit production and success of the individual programs was not possible with the data available. Revenues from developer contributions are one of several sources to the Housing Trust Fund (HTF). Loan repayments and annual General Fund contributions (recently $8 million) fund this resource. The HTF is used for a variety of gap financing purposes, including: buying down rental units to 40, 50, or 60 percent MFI, and sometime in combination with 9 percent low-income housing tax credit (LIHTC) projects. To date, the TDR option has been used 5 times, including 3 times for affordable housing purposes. Since inception of the program, the County's developer contributions have totaled the following and been used to rehabilitate, acquire, or construct the following number of units:

- Affordable projects: For projects seeking base level entitlements (i.e. those not triggering the density bonus incentive) between December 2005 and December 2014, 14 onsite units have been received to date through the Affordable Housing Ordinance; according to staff an additional 20 onsite units are likely to be contributed through residential projects in the planning process. It is also likely that up to an additional 122 units (or cash contributions of $12.4 million could be made based on developments in the pipeline). For projects seeking entitlements above the base, i.e. for bonus density applications, special planning districts, general land use plan changes, or special affordable housing protection district projects, an additional 59 onsite units have been produced since December 2005.
- Developer contributions: For projects seeking base level entitlements (i.e. those not triggering the density bonus incentive), since December 2005 (up to December 2014), $15.2 million in cash contributions have been received by the County for the Affordable Housing Incentive Fund. For projects seeking entitlements above the base, i.e. for bonus density applications, special planning districts, general land use plan changes, or special affordable housing protection district projects, an additional $8.2 million in cash contributions have been made since December 2005. It is also likely that up to an additional 240 units (or cash contributions of $8.9 million could be made based on developments in the pipeline).

Austin, TX

The City of Austin has 12 different density bonus programs, each with different requirements, different community benefits, each with different overlays, and each with different levels of affordability. Although the City is actively engaged in progressive and comprehensive planning processes, each of the density bonus programs were adopted in different years over the past 15 years such that there is no cohesive strategy to achieving community benefit through the provision of density bonus. The City's Downtown program, for example, was structured to be a predictable system grounded in an understanding of development economics and that results in desired community benefits. The City went through a comprehensive planning and evaluation process to structure its program, including developer and stakeholder interviews and surveys, which also included a pro forma modeling exercise to identify the impacts to development of the proposed program elements. The problem is, though, that there are too many density bonus programs. According to staff, there is tremendous inconsistency between the different programs, and they have created immense unpredictability for the development community.

Another complication is the existence of a land use loophole, whereby a developer can apply for a Central Urban Redevelopment (CURE) zoning designation in the downtown area and several commercial corridors along Interstate 35. The CURE designation permits developments to obtain additional entitlements for a very limited public benefit, but effectively is a loophole allowing developers to skirt the policy structures of the density bonus programs. When the Downtown Density Bonus Program was adopted in 2013, though, CURE was modified so that it couldn't be accessed to modify maximum FAR or height within the downtown area, but CURE can still be used in other areas of the City as a loophole around density bonus programs in other districts, particularly in TOD areas where the density bonus tool is an otherwise very value option.

Portland Comparability

Both metrics of similarity indicate that the City of Austin is a more comparable community demographically and economically than Arlington County, for example. The correlation coefficient is 0.98, indicating a very strong similarity among the various attributes, and the weighted percent above or below Portland's attributes is just 5 percent, indicating very little difference between the communities, particularly as they relate to incomes and housing market conditions.

Table B3
Austin, TX Comparability

	Portland, OR	Austin, TX	Similarity (Difference) Metrics
Basic			
Population	603,650	842,595	40%
Employment	313,933	458,474	46%
Incomes			
Median Household Income	$52,158	$52,453	1%
Mean Household Income	$72,186	$76,287	6%
Housing			
Housing Units	265,196	360,518	36%
Occupied Units	248,698	330,838	33%
Owner-occupied	53%	45%	-16%
Renter-occupied	47%	55%	18%
Housing Costs			
Median Gross Rent	$905	$974	8%
Median Home Value	$268,800	$222,100	-17%
Median Monthly Owner Costs	$1,717	$1,665	-3%
Similarity Metrics			
Correlation [Note 1]	---	---	0.99
Weighted % +/- [Note 2]	---	---	5%

[**Note 1**]: Defined as a number between 0 and 1. A number closer to 1 indicates higher correlation of data sets.

[**Note 2**]: A percentage closer to 0 indicates greater similarity to Portland. This metric weights incomes and housing costs as a reflection of the importance these variables play in assessing the similarities of housing markets.

Source: U.S. Census; Bureau of Labor Statistics; Economic & Planning Systems

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Downtown Density Bonus Program

All development projects must first fulfill "gatekeeper requirements", such as submittal of design plans that include schematic-level building elevations; substantial compliance with the Design Commission's Urban Design Guidelines; and a commitment to construct Great Streets streetscape improvements. After these basic requirements are met, a development may apply for a density bonus on the conditions as applies to the following:

Residential Development

- At least 50 percent of the bonused floor area must be affordable housing
- The housing may be provided on-site
- Alternatively, the developer may pay a fee in lieu of $10 per square-foot for the gross additional floor area above base FAR
- Less than 50 percent may also be provided in various community benefits, defined below

Non-Residential Development

- 50 percent of the base FAR is automatically bonused, acknowledged as an employment or tourism public benefit
- 50 percent may be provided in various community benefits, defined below

Community Benefits

The following are examples of desired community benefits from the Rainey District in Austin. Each is granted a density bonus according to the benefit in some ratio of community benefit floor area to density bonus granted.

- Family-friendly housing: 150 square-feet bonus for each 3rd bedroom constructed
- Child-care/Elderly care: 2 square-feet bonus for each 1 square foot provided
- Live music/Cultural uses: 2 square-feet bonus for each 1 square foot provided
- Historic preservation: purchase of TDR from warehouse district; alternatively, if restoration cannot be completed, a fee is paid to the Historic Preservation Fund
- Sustainability: 25 percent of base FAR bonused for 3-star energy rating; 40 percent for 4-star; 50 percent for 5-star rating
- Publicly accessible open space: 5 square-feet bonus for each 1 square foot provided; alternatively, if open space cannot be provided, a fee is paid to the Open Space Fund
- Unspecified: most interestingly, the program allows for creativity; the City will grant density administratively to a development that proposes some other undefined community benefit

Overall Performance

This section details the overall performance of a few of Austin's density bonus programs. As mentioned previously, there are too many different density bonus programs in the City, which has resulted in an environment of unpredictability. The existence of the CURE designation loophole has created unintended consequences beyond those created by the inconsistency between the different density bonus programs throughout the City. According to staff, the most successful districts have been the University Neighborhood Overlay, where there is a mandatory 10 percent affordable housing set aside requirement in addition to a cash contribution. The fee, however, was set arbitrarily to $1 per square foot, not based on any economic analysis (a study had been completed in 2010 that recommended a fee of $10 per square feet, but the City Council voted against it and recommended the $1 per square foot). The following is an overview of the affordable unit production and cash contributions made to affordable housing in the City across its spectrum of 12 density bonus programs. While they have been adopted at various points over the past 15 years, their production numbers reveal modest (except for the SMART housing) production of affordable housing units, most of which are at 80 percent MFI.

- Affordable projects: According to staff research, only 4 of the City's 12 density bonus programs have produced units. In TOD districts, approximately 146 units have been created since 2009 when the ordinance was adopted (approximately 30 units per year) with another 158 potentially in the pipeline. Within the University Neighborhood Overlay (UNO) district, approximately 490 units have been built onsite (though this is a mandatory program) and another 136 are anticipated in the pipeline. In Vertical Mixed Use districts, approximately 148 units have been built onsite since 2010 with another 218 in the pipeline. As for the City's SMART housing (safe, mixed-income, accessible, reasonably-priced, and transit-oriented) districts, there are have more than 12,000 units produced since 2000. This program has been successful because it offers development fee waivers of 25 to 100 percent and expedited review, however, not because it offers density bonuses.
- Developer contributions: In the UNO district, approximately $1.6 million in cash contributions has been generated, and through the Downtown Density Bonus, approximately $1.3 million has been generated since 2013 when it was adopted – City staff anticipate substantially more fees to be generated this year.

Chicago, IL

The City of Chicago has both voluntary and mandatory programs. Like other incentive programs or ordinances, its Downtown Density Bonus Program applies to both residential and non-residential development, and its Affordable Requirements Ordinance, which is analogous to an inclusionary housing (zoning) ordinance, applies just to residential (for-sale and rental) developments.

Portland Comparability

While a larger population and employment base, the income and housing market condition statistics are much more closely aligned with Portland than Arlington County, but not to the same degree of correlation as Austin. The correlation coefficient is 0.94, indicating a strong similarity among the various attributes, and the weighted percent above Portland's attributes is 48 percent, indicating some difference between the communities, particularly as they relate to incomes and housing market conditions.

Table B4
Chicago, IL Comparability

	Portland, OR	Chicago, IL	Similarity (Difference) Metrics
Basic			
Population	603,650	2,714,844	350%
Employment	313,933	1,247,305	297%
Incomes			
Median Household Income	$52,158	$45,214	-13%
Mean Household Income	$72,186	$69,516	-4%
Housing			
Housing Units	265,196	1,189,074	348%
Occupied Units	248,698	1,032,074	315%
Owner-occupied	53%	44%	-16%
Renter-occupied	47%	56%	19%
Housing Costs			
Median Gross Rent	$905	$920	2%
Median Home Value	$268,800	$211,700	-21%
Median Monthly Owner Costs	$1,717	$1,824	6%
Similarity Metrics			
Correlation [Note 1]	---	---	0.94
Weighted % +/- [Note 2]	---	---	48%

[**Note 1**]: Defined as a number between 0 and 1. A number closer to 1 indicates higher correlation of data sets.

[**Note 2**]: A percentage closer to 0 indicates greater similarity to Portland. This metric weights incomes and housing costs as a reflection of the importance these variables play in assessing the similarities of housing markets.

Source: U.S. Census; Bureau of Labor Statistics; Economic & Planning Systems

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Downtown Density Bonus Program

The City's density bonus program is intended to incent the provision of affordable housing or other community/public benefits that, according to its ordinance, improve the quality of life for its residents, employees and visitors. The program grants bonus ranging from 20 to 30 percent of the base FAR or an additional 2 to 3 FAR for various community benefits. The specific density bonuses corresponding to the benefits provided.

- Affordable housing may be provided onsite, either rental at 60 percent MFI or for-sale housing at 100 percent MFI, and remain affordable for a duration of at least 30 years. The

units must also be dispersed through the project, have a similar exterior appearance to the market rate units, though they may have different interior finishes, and the overall mix of affordable unit types must be proportional to the overall mix of market rate unit types.

- Alternatively, a developer may be a fee in-lieu of building affordable housing = (each square foot of bonus floor area) x (80 percent) x (median cost of land per buildable square foot)
- Green roofs = (area of roof landscaping in excess of 50 percent of net roof area ÷ lot area) x (0.3 FAR) x (base FAR)
- Adopt-a-landmark = (each square foot of bonus floor area) x (80 percent) x (median cost of land per buildable square foot)
- Parks and plazas = (area of park/plaza space ÷ lot area) x (1.0 FAR) x (base FAR)
- Riverwalk = (setback exceeding ordinance ÷ lot area) x (1.0 FAR) x (base FAR)
- Winter gardens = (area of winter garden ÷ lot area) x (1.0 FAR) x (base FAR)

Overall Performance

This section details the overall performance of Chicago's two main programs, not just its incentive program. Disaggregating the unit production and success of the individual programs was not possible with the data available. According to City of Chicago staff, the motivation for the recent revamp of its ARO specifically was to respond to the housing market turnaround and eliminate what it perceived as a "loophole" for developers to avoid contributing to the affordable housing fund through the granting of density bonus downtown. In the latter case, the way in which the original policies were written, developers were effectively able to take a density bonus downtown and pay the fee in-lieu of affordable housing for it, but they would avoid contributing units or fees (which at the time were higher) for the ARO. The result was that residential developments downtown would end up paying a lower fee in-lieu of affordable housing than elsewhere in the City. In the City's rewrite, the fees in-lieu have been equalized so that a development in this case would pay the higher of the two possible fees (typically the ARO fee in-lieu).

The City has also determined that it will break the City into 3 distinct zones, by which the fees in-lieu will be calibrated, but the City has not yet completed this effort. The rewrite also has opened up the options to build offsite within the same "zone" or at least within 2 miles of the subject property.

Since adoption, the density bonus program has been very successful at incentivizing the construction of community benefits, such as parks, plazas, winter gardens, etc., but has produced few affordable units, although it has generated a substantial amount of revenue for the City's affordable housing fund. Generally, non-residential developers do not select affordable housing density bonuses and, so, do not contribute to that community priority. Additionally, there have been few new residential developments in the City since the recession, meaning that the weak performance of Chicago's affordable housing policies is indicative of the market, not necessarily its policy structure.

- Affordable projects: 5 units created through the incentive ordinance (it had been previously stated in the 2007 study that 34 units had been created, but the developer pulled out of the requirement and paid the fee in-lieu instead)
- Developer contributions: Fee in-lieu payments are based on the median value of land per buildable square-foot, which are currently ranging between $22 and $43 per square foot.

- Funds leveraged to accomplish: 60 percent goes to preservation and construction and 40 percent goes to rental assistance. Under the new ordinance structure, the split will change to 50-50.

Denver, CO

The City of Denver established an Inclusionary Housing Ordinance, a mandatory program, in 2002 and modified it in 2014 to increase the incentive developers have to construct affordable housing units as opposed to paying a cash in-lieu. The IHO requires for-sale residential projects of 30 units or more to set aside 10 percent of the units as affordable. The ordinance does not apply, however to rental projects, because of state statute prohibiting rent control, like California. In 2010, the City adopted citywide form-based zoning, which has affected the effectiveness of the IHO's incentive structures.

Portland Comparability

The City of Denver is the most comparable city of all the six comparable cities to Portland. Its population, number of housing units and vacancy rate, and employment are comparable in magnitude, and its economic and housing market statistics are very similar to Portland's. Median and mean household incomes are very similar, and the housing market cost statistics are very comparable. As of 2010, the year which these statistics represent, rents and median home values were also very similar. Accordingly, the correlation coefficient is 1.00 and the degree of difference is 0 percent when weighting the income and housing market cost statistics.

Table B5
Denver, CO Comparability

	Portland, OR	Denver, CO	Similarity (Difference) Metrics
Basic			
Population	603,650	634,265	5%
Employment	313,933	334,303	6%
Incomes			
Median Household Income	$52,158	$50,488	-3%
Mean Household Income	$72,186	$74,611	3%
Housing			
Housing Units	265,196	288,191	9%
Occupied Units	248,698	270,439	9%
Owner-occupied	53%	48%	-10%
Renter-occupied	47%	52%	12%
Housing Costs			
Median Gross Rent	$905	$872	-4%
Median Home Value	$268,800	$251,200	-7%
Median Monthly Owner Costs	$1,717	$1,498	-13%
Similarity Metrics			
Correlation [Note 1]	---	---	1.00
Weighted % +/- [Note 2]	---	---	0%

[**Note 1**]: Defined as a number between 0 and 1. A number closer to 1 indicates higher correlation of data sets.

[**Note 2**]: A percentage closer to 0 indicates greater similarity to Portland. This metric weights incomes and housing costs as a reflection of the importance these variables play in assessing the similarities of housing markets.

Source: U.S. Census; Bureau of Labor Statistics; Economic & Planning Systems

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Inclusionary Housing Ordinance

As a mandatory program, the City's ordinance is focused on creating affordable housing units primarily onsite. Units must be affordable to 80 percent MFI, and are to be deed-restricted as

permanently affordable. The IHO allows for units to be built offsite and directs applicants to sites near transit. Developers may also pay a cash in-lieu of building affordable housing into a fund, which is used to build, acquire, rehabilitate, and generally preserve affordable housing. In terms of incentive and applicability, the IHO has recently been modified to reflect different levels of market need for affordable housing according to two key metrics – housing costs by neighborhood and proximity to fixed-rail transit. As a result, the City's neighborhoods are each scored low, medium, and high, according to the relative appropriateness of incentivizing affordable housing by neighborhoods. To accomplish this, the cash incentive and cash in-lieu payment amounts are tiered by zone using economic modeling to equalize the decision-making process between an applicant choosing whether to build units or pay a fee. The structure is as follows:

- Low zones: cash incentive is $2,500 per affordable unit built; CIL payment is 25 percent of the sales price of an affordable unit (approximately $48,400)
- Medium zones: cash incentive = $6,500 per unit; CIL = 50 percent ($96,800)
- High zones: cash incentive = $25,000; CIL = 70 percent ($135,500)

Overall Performance

Motivation for the recent rewrite of the City's IHO was to increase its effectiveness at producing affordable units and to increase the attractiveness of building units on site, rather than seeing a majority of developments opt to pay the CIL. The motivation to identify different zones of need throughout the City was to provide a structure by which it could be more easily determined where throughout the City affordable housing would be better built and incented. The rewrite improved the alternative satisfaction options, as well, including the inclusion of a third-party developer ombudsman funded externally that would serve as a go-between for the developer and the City to communicate necessary possibilities and requirements. It was also the intent of the City to ensure that at least 50 percent of the revenues generated by any future CIL payments made by developments downtown would be held for exclusive use on affordable projects downtown.

The modified IHO has not yet been tested in the market for effectiveness, but as the market for multi-family for-sale project construction improves, it is hoped that more units will be built under the ordinance than beforehand.

- Affordable projects: more than 1,100 units have been built since 2002
- Developer contributions: approximately $7 million
- Funds leveraged to accomplish: construction, buy down of affordability levels, rehab

Seattle, WA

In a market that has been increasingly pricing out portions of its workforce, the City of Seattle established its affordable housing incentive program to produce affordable units. Incentive zoning is a land use tool that enables developers to obtain extra floor area when they provide affordable housing and, in some zones of the City, other public amenities. Any affordable housing provided is intended to address the needs of moderate-wage workers (between 60 and 80% of area median income).

Applied first to new commercial development in Downtown in 2001, incentive zoning granted developers additional density for a project that provided affordable units or paid a fee in-lieu. In

2006, the program was expanded to apply to residential developments in downtown, as well. Through its evolution, various zones have been added throughout the City with mid-rise zones scattered north and south of downtown in urban centers and along corridors, whereas the high-rise and similar zones are concentrated in and around downtown. At different scales of development, the program is applied in varying degrees. In high-rise zones, participating developments choosing not to build units can make a cash in-lieu payment to the City. In mid-rise zones, however, developers are generally required to provide affordable units on-site and are not given the cash in-lieu option.

Portland Comparability

Seattle's population and employment base, like Denver's, is similar to Portland's in order of magnitude. Using the 2010 Census statistics indicates that its market is a bit more affluent and pricier than Portland's. While the correlation coefficient is 0.98, indicating strong similarities among the many attributes, the weighted degree of difference shows that Seattle's income and housing market costs are generally about 28 percent higher than Portland's.

Table B6
Seattle, WA Comparability

	Portland, OR	Seattle, WA	Similarity (Difference) Metrics
Basic			
Population	603,650	634,541	5%
Employment	313,933	371,305	18%
Incomes			
Median Household Income	$52,158	$64,473	24%
Mean Household Income	$72,186	$89,972	25%
Housing			
Housing Units	265,196	309,612	17%
Occupied Units	248,698	289,790	17%
Owner-occupied	53%	46%	-14%
Renter-occupied	47%	54%	15%
Housing Costs			
Median Gross Rent	$905	$1,072	18%
Median Home Value	$268,800	$415,800	55%
Median Monthly Owner Costs	$1,717	$2,218	29%
Similarity Metrics			
Correlation [Note 1]	---	---	0.99
Weighted % +/- [Note 2]	---	---	28%

[**Note 1**]: Defined as a number between 0 and 1. A number closer to 1 indicates higher correlation of data sets.

[**Note 2**]: A percentage closer to 0 indicates greater similarity to Portland. This metric weights incomes and housing costs as a reflection of the importance these variables play in assessing the similarities of housing markets.

Source: U.S. Census; Bureau of Labor Statistics; Economic & Planning Systems

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Incentive Zoning Ordinance

The City's program specifics vary by zone. In general, it seeks to provide a density or height incentive to achieve a variety of community benefits: childcare facilities or affordable housing and some other kind of community benefit, such as onsite open space or a transfer of development rights. Residential developers seeking additional floor area in IZ-eligible zones with maximum height limits less than 85 feet must include a small percentage of units as housing affordable to households with incomes up to 80 percent MFI (rental) or 100 percent MFI (ownership) and affordable for a duration of at least 50 years.

- The first increment of bonus FAR must be earned through LEED Silver certification.
- To obtain a density bonus in a residential development, 60 percent of the bonus may be gained by providing affordable housing and 40 percent through other benefits.
    - A developer has the option of either providing 14 percent (or 8 percent if provided at no greater than 50 percent MFI) of the total bonus floor area earned as affordable housing or paying a flat fee of $25 per square foot
- To obtain a density bonus in a non-residential development, 75 percent of the bonus may be gained by providing affordable housing and child care benefits and 25 percent through other benefits (e.g. Landmark TDR/TDP, Open Space TDR/TDP, bonuses for on-site amenities)
    - Either 15.6 percent of the bonus floor area must be housing or the payment of a fee in-lieu
- Child care facilities may be met by providing a facility onsite equal to 0.000127 of a child care slot for each non-residential square foot of bonus floor area or by paying $3.25 per gross square foot of extra floor area.

Overall Performance

In terms of performance of the incentive program, the City primarily gets developer contributions, but would prefer more construction of units, though the contributions allow the City to leverage funds to build units elsewhere, which they have done. A few of the non-housing benefits that have been realized include approximately 2 million square feet of TDR for historic properties (560,000 since 2001), open space (e.g. Olympic Sculpture Park), major performing arts theaters (Benaroya Hall), and regional farms and forests (totaling approximately $20 million in efforts). There have also been contributions of approximately 10,000 square feet of privately-maintained open space since 2001, $1.5 million in childcare facility contributions, one childcare facility constructed, and 3 blocks of green street improvements. The housing performance statistics are:

- Affordable projects: as the incentive ordinance applies to non-residential development (since 2001), 106 units have been built; as it applies to residential development (which didn't take effect until 2006), since there have been no condominium projects since then, 0 units have been built
- Developer contributions: a total of $50.6 million has been generated by fees in-lieu
- Funds leveraged to accomplish: these funds have been leveraged to produce 1,520 units, including leverage from other sources

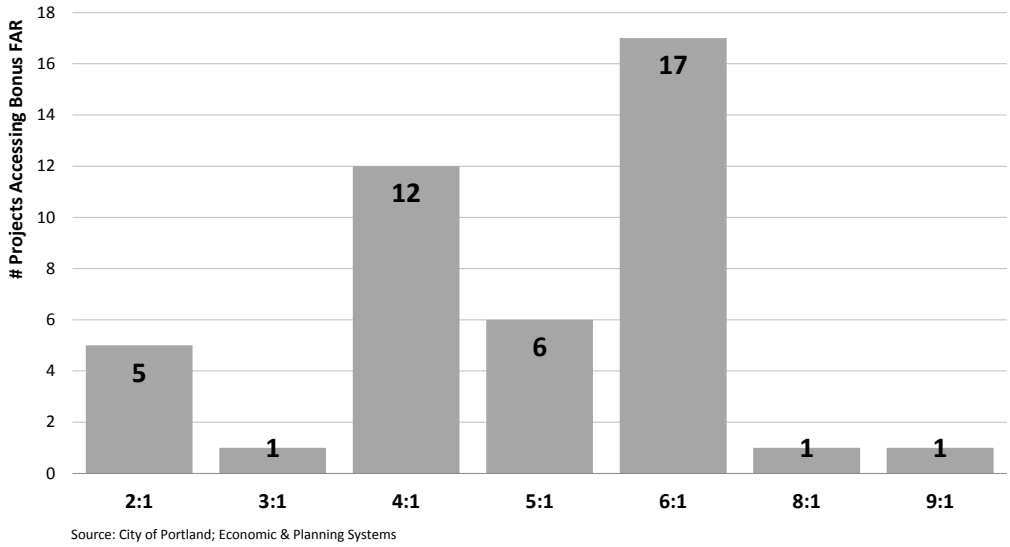
Portland

This section briefly presents a few metrics of the historical usage of the Central City's density bonus tools since 2005.

Usage by Zone

According to data from the City, there have been 43 projects since 2005 that have taken advantage of the density bonus program. Of those, 29 (or 68 percent) have been in 4:1 and 6:1 areas, and 11 (or 26 percent) have been in areas with 2:1 or 5:1 zones.

Figure B1
Number of Projects Accessing Additional FAR

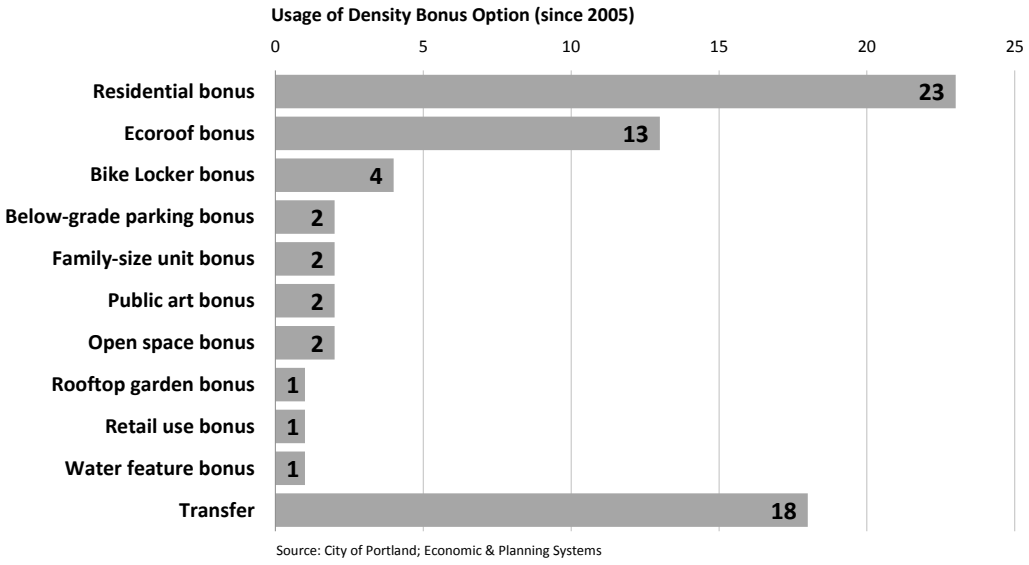


Source: City of Portland; Economic & Planning Systems

Usage by Bonus Option

Figure 2 illustrates that the residential bonus is used most frequently, being used 33 percent of the time. The major problem with this option is that it only benefits the City in that it creates residential units in the Central City, not necessarily affordable ones. Non-residential projects seeking additional FAR tend to prefer the transfer option, eco-roof option, and the bike locker option, respectively.

Figure B2
Tools for Additional FAR



Source: City of Portland; Economic & Planning Systems

Lessons Learned

All communities with incentive program were affected by recession, such that affordable housing production was quite minimal, as opposed to programs generating substantial sums through their cash contribution options. There is also considerable variation in the magnitude of production for communities with multiple housing or incentive structures, but lower magnitudes in communities with just one tool. Moreover, communities with permanent or alternative funding sources are also able to leverage not only federal but local funds to generate affordable housing. As an example, Seattle voters have successfully approved multiple time-limited housing property tax levies over the past 30 years, which the City has leverage with its other housing policies, programs, and funding sources to produce many thousands of units. As another example, the City of Austin, though it has admittedly too many disparate density bonus programs, has an effective program that uses development fee waivers as incentives to leverage the production of affordable housing.

Overall, most programs have generated revenues through in-lieu fees, and they have been most effective where demand is strong, especially where zoning and incentive policy have been carefully integrated. And where there has been effective community benefit production, it has generally been more effectively generated through non-residential performance, especially where they are amenities such as bike lockers, green building, plaza space, or fountains that carry tangible economic value in terms of revenue-generation for the end-user. In terms of affordable housing, however, residential programs are typically the most successful at producing units, but there is uniformity among the cities' experiences that suggests development communities are typically averse to the integration of affordable and market rate housing, primarily for reasons that they typically lack the expertise to properly execute such a development program – i.e. market, sell or lease, and maintain or operate. And in terms of cash contributions or fees in lieu of providing community benefits, many communities align the cash contribution amounts to the

costs of providing the actual community benefit, but others, motivated by political pressures or will, intentionally establish fees well below what is economically appropriate (e.g. Austin).