Bureau of Planning and Sustainability
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MEMO

DATE: December 5, 2018

TO: Planning and Sustainability Commission

FROM: Morgan Tracy, Residential Infill Project Manager
Tyler Bump, Senior Economic Planner

CC: Joe Zehnder, Director
Sandra Wood, Principal Planner

SUBJECT: Residential Infill Project Economic Analysis for the Revised Proposed Draft

On December 11, 2018 the Planning and Sustainability Commission (PSC) will discuss the revised economic analysis for the Residential Infill Project. Attached is the analysis provided by Johnson Economics. This memo summarizes the analysis and provides key findings.

Background

In April 2018, staff released the Residential Infill Project *Proposed Draft*. The *Draft* included Appendix B: *Economic Analysis of Proposed Changes to the Single Dwelling Zone Development Standards*, conducted by Johnson Economics.

The analysis was based on proposed changes to R7, R5 and R2.5 zone standards with new limitations on floor area and additional housing type allowances in the new 'a' overlay zone.

In September 2018, the PSC directed staff to revise the proposal by incrementally increasing floor area limits for additional units, allowing more housing types, in more locations in the affected zones.

In November 2018, Johnson Economics conducted an update to the *Economic Analysis of Proposed Changes to the Infill Development Standards* that reflects increases in floor area allowances and allowing more housing types in a broader geographic area consistent with direction from the PSC.

Economic Analysis Summary

Both analyses were conducted over a 20-year development horizon. The following table summarizes the results:

	Summary of Analysis Results			
	Staff Proposal, April 2018		**Revised Proposal, Sept 2018**	
$ investment	-$1.5 Billion	(-30%)	+$817 Million	(15%)
New units	+1,713	(31%)	+24,450	(179%)
Replaced units (house is replaced by 1 or more units)	-1,498	(-22%)	+117	(8%)
Total Additional Units	+215	(2%)	+24,333	(198%)
Average rent	$3,000	(-35%)	$1,800	(-56%)

Key findings:

- Increasing allowable units without increasing FARs provides a small market incentive to build an alternative to a single house (in the form of being able to offer individually lower priced, smaller units). This result is borne out in the staff's April 2018 proposal.
- Increasing FARs with the number of units provides a more significant incentive to build housing types other than a single house. This is seen in the September 2018 revised proposal.
- Staff's April 2018 proposal:
    - Significantly reduced the number of replaced units (22% reduction). This is primarily a function of lower FARs limits.
    - Provided a modest increase to the total number of units (215 total units) and reduced construction investment (by 30 percent) over the 20-year time horizon.
    - Resulting units were smaller (e.g. 1,000 sf triplex units and 1,250 sf duplex units) and consequently, less expensive in comparison to a single house (e.g. 2,500 sf).

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- The resulting rents (e.g. average of $3000 per unit) are not low enough to expect that new construction would be built as a rental product.

- The September 2018 revised proposal:

  - Significantly increases the unit production (by nearly 200 percent) and increases construction investment by 15 percent.

  - Marginally increases the number of replaced units.

  - With the housing type allowances for three and four units, the resulting unit sizes were further reduced (e.g. 1,100 sf triplex units and 875 sf fourplex units).

  - These reductions in unit size bring the average rent near to the market rate for new apartment construction (e.g. average of $1800 per unit).

About the Economic Model:

The economic analysis is based on a **predictive model** that looks at the real market value of parcels against a series of housing prototype proformas to determine the relative likelihood that a parcel will develop.

For example, when the real market value (RMV) of a parcel is less than the residual land value (RLV) of a development type, then that parcel is assumed to develop. These results are then aggregated up into a total. These results are compared against a baseline (the no change scenario). The model is especially sensitive to achievable sales/rental pricing which is a function of market conditions and specific geographies, and allowable floor area.

The following table lists the relevant inputs that were used in the model to conduct both analyses:

	Comparison of Relevant Economic Model Inputs	
	Staff Proposal, April 2018	**Revised Proposal, September 2018**
Floor Area Ratios*	R7 = 0.4; R5 = 0.5; R2.5 = 0.7 Corner triplex = +.15	R7 = 0.4; R5 = 0.5; R2.5 = 0.7 2nd unit = +.10 More than 2 units = +.20
Housing types**	Duplex Triplex	Duplex Triplex Fourplex
Geography	~66% of affected zones	~92% of affected zones

* The modeling did not account for bonus FARs (affordability or house retention incentives)
** Accessory dwelling units were not specifically factored in the model

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The analysis did not look specifically at **accessory dwelling unit (ADU)** potential. There are two reasons for this: First, for the purposes of evaluating the revised proposal, the model considered development costs per square foot, number of units, and total allowable square footage. Because the allowable FAR in the proposal is tied to the number and not type of units, the model made no distinction between different development configurations. In other words, it doesn't distinguish between three units in a triplex and three units in a house with two ADUs. Second, ADUs created by homeowners are largely built using home equity sources of financing and are sensitive to other factors that the model cannot readily predict.

Therefore**, the production of ADUs would be in addition to the units included in this analysis**. Current ADU projections, based on 2010-2016 trends, assume 5,000 more ADUs between 2017 and 2035, or about 280 per year. Both staff's April 2018 proposal and September 2018 revised proposal include allowances to double ADU entitlements.

We look forward to our conversation on December 11.

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JOHNSON ECONOMICS

MEMORANDUM

DATE: November 29, 2018

TO: Tyler Bump
BUREAU OF PLANNING AND SUSTAINABILITY

FROM: Jerry Johnson
JOHNSON ECONOMICS LLC

SUBJECT: Economic Analysis of Proposed Changes to the Infill Development Standards

The City of Portland Bureau of Planning and Sustainability continues to refine the Residential Infill Project, and this analysis provides an updated to previous work completed by Johnson Economics on the project from March 2018. A number of changes have been made since the previous draft standards, including changes in allowable FAR, the number of units allowed in the structure, and a change in zoning of some parcels.

The proposed change in allowed development being evaluated are as follows:

Units	Allowed Housing Type	R7	R5	R2.5
Minimum Lot Size (1-2 Units)		4,200 SF	3,000 SF	1,600 SF
1	Single Family Home	Base FAR: 0.4	Base FAR: 0.5	Base FAR: 0.7
2	Duplex or Single Family Home + ADU	Base FAR: 0.5 W/Bonus: 0.6	Base FAR: 0.6 W/Bonus: 0.7	Base FAR: 0.8 W/Bonus: 0.9
Minimum Lot Size (3+ Units)		5,000 SF	4,500 SF	3,200 SF
3	Triplex, Duplex +ADU, or House +2 ADUs	Base FAR: 0.6 W/Bonus: 0.7	Base FAR: 0.7 W/Bonus: 0.8	Base FAR: 0.9 W/Bonus: 1.0
4	Fourplex			
Current Allowed FAR		1.1 FAR	1.35 FAR	1.75 FAR

The changes allow for more units on individual parcels, and modest increases in allowed FAR as the number of units increases. The bonus FAR is available if at least one of the units is affordable at 80% MFI, or an existing home is converted to multiple units. Both of these conditions favor multi-unit development solutions for redevelopment.

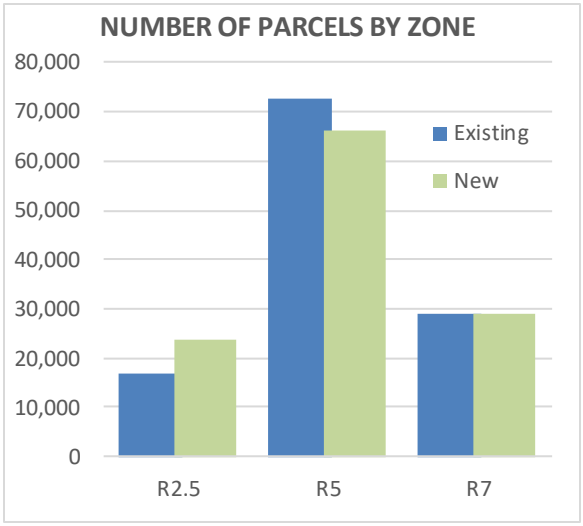
The geographic coverage for the residential infill project has also changed.

While the FAR reductions are significant, the current allowed size of structure for the three residential zones is likely well above what would be expected in the market, as homes in these size ranges represent a small percentage of housing stock. The revised allowable home sizes will likely restrict final home sizes below what the market may

support, particularly for single family homes, and we would expect new development to largely develop close to the new limits.

The new proposal includes a rezone of a number of parcels from R5 to R2.5, which has a significant impact on allowable density under the proposal, with fourplexes now allowed at up to 1.0 FAR on a 3,200 square foot lot.

In summary, the most recent proposed changes to the code increase allowable density in terms of units, and the FAR and bonus structure provides incentives for greater unit counts at redevelopment. The net impact is expected to be a greater proportion of redevelopment being multiple-unit properties, providing greater net unit yield and lower average price points as a result.



I. PROTOTYPES

As with our previous analyses, Johnson Economics modeled the economic feasibility of a series of prototypical development types. A total of 11 development prototypes were evaluated, five representing current zoning standards with an additional 6 under the revised standards. Under the new proposed standards, the allowable square footage is reduced due to lower allowable FAR, while the number of allowed units is increased. By allowing for multiple residential structures on the site, a developer is able to produce housing at a lower overall price point which broadens the potential market for the housing. While the lower price point will reduce market risk, these units are likely to be largely rental product.

The following are summary pro formas for these development forms. The assumed pricing levels in these examples was included as an example, with actual pricing varied based on a series of eleven discrete pricing bands identified in the study area. The number of pricing bins was reduced as the geographic coverage of the new proposal is more limited although including a greater number of parcels, with less pricing variability between areas.

EXAMPLE OF DEVELOPMENT PROTOTYPES, RENTAL RESIDENTIAL ANALYSIS

		Current Zoning Assumptions					New Zoning Assumptions					
		Rental_Middle_SFR	Rental_Middle_Skinny	Rental_Middle_Duplex	Rental_Middle_4-Plex_2	Rental_Middle_Triplex	Rental_Middle_SFR_2	Rental_Middle_Skinny_2	Rental_Middle_Duplex_2	Rental_Middle_4-Plex_2	Rental_2.5_4-Plex_2	Rental_Middle_Triplex_2
PROGRAM	**Property Assumptions**											
	Site Size (SF)	5,000	2,500	4,500	4,500	4,500	4,200	4,200	4,200	4,500	3,800	4,500
	Density	8.71	17.42	19.36	38.72	29.04	10.37	10.37	20.74	38.72	45.85	29.04
	Unit Count	1	1	2	4	3	1	1	2	4	4	3
	Ave Unit Size	2,000	1,850	1,710	788	990	2,100	2,940	1,260	731	713	1,050
	Efficiency Ratio	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Building Square Feet	2,750	1,850	3,420	3,150	2,970	2,100	2,940	2,520	2,925	2,850	3,150
	Stories	2	3	2	2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Bldg Footprint	1,375	617	1,710	1,575	1,485	1,050	1,470	1,260	1,463	1,425	1,575
	FAR	0.55	0.74	0.76	0.70	0.66	0.50	0.70	0.60	0.65	0.75	0.70
	Parking Ratio/Unit	1.5	1.0	1.0	0.5	1.0	1.5	1.0	1.0	0.5	1.0	1.0
	Total Parking Spaces	1.5	1.0	2.0	2.0	2	1.5	1.0	2.0	2.0	2.0	2.0
	Parking SF/Space - Surface											
	Parking SF/Space - Structure											
	Parking Spaces - Surface	-	1.0	-		-	-	1.0	-	-	-	-
	Parking Spaces - Structure	2.0	-	2.0	2.0	2.0	1.5	-	2.0	2.0	2.0	2.0
	Structured Parking %	100%	0%	100%	100%	100%	100%	0%	100%	100%	100%	100%
	Cost Assumptions											
	Base Construction Cost/SF	$185	$185	$185	$185	$185	$185	$185	$185	$185	$185	$185
	Adjustment Factor	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Construction Cost/SF	*$185*	*$185*	*$185*	*$185*	*$185*	*$185*	*$185*	*$185*	*$185*	*$185*	*$185*
	Base Parking Costs/Space	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Adjustment Factor	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Parking Cost/Space	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*
PROPERTY VALUATION	**Income Assumptions**											
	Base Income/Sf/Mo.	$1.95	$1.95	$1.95	$1.95	$1.95	$1.95	$1.95	$1.95	$1.95	$1.95	$1.95
	Adjustment Factor	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Achievable Pricing	*$1.95*	*$1.95*	*$1.95*	*$1.95*	*$1.95*	*$1.95*	*$1.95*	*$1.95*	*$1.95*	*$1.95*	*$1.95*
	Parking Charges/Space/Mo	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122	$122
	Expenses											
	Vacancy/Collection Loss	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
	Operating Expenses	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
	Adjustment Factor	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Operating Expenses	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*	*32%*
	Reserve & Replacement	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
	Valuation											
	Capitalization Rate	5.50%	5.50%	6.00%	6.00%	6.00%	5.50%	5.50%	6.00%	5.50%	5.50%	6.00%
	Adjustment Factor	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Capitalization Rate	5.50%	5.50%	6.00%	6.00%	6.00%	5.50%	5.50%	6.00%	5.50%	5.50%	6.00%
SUPPORTABLE PROPERTY VALUE	**Cost**											
	Cost/Construct w/o prkg.	$508,750	$342,250	$632,700	$582,750	$549,450	$388,500	$543,900	$466,200	$541,125	$527,250	$582,750
	Total Parking Costs	$40,000	$0	$40,000	$40,000	$40,000	$30,000	$0	$40,000	$40,000	$40,000	$40,000
	Estimated Project Cost	$548,750	$342,250	$672,700	$622,750	$589,450	$418,500	$543,900	$506,200	$581,125	$567,250	$622,750
	Income											
	Annual Base Income	$64,350	$43,290	$80,028	$73,710	$69,498	$49,140	$68,796	$58,968	$68,445	$66,690	$73,710
	Annual Parking	$2,928	$0	$2,928	$2,928	$2,928	$2,196	$0	$2,928	$2,928	$2,928	$2,928
	Gross Annual Income	$67,278	$43,290	$82,956	$76,638	$72,426	$51,336	$68,796	$61,896	$71,373	$69,618	$76,638
	Less: Vacancy & CL	$3,364	$2,165	$4,148	$3,832	$3,621	$2,567	$3,440	$3,095	$3,569	$3,481	$3,832
	Effective Gross Income	$63,914	$41,126	$78,808	$72,806	$68,805	$48,769	$65,356	$58,801	$67,804	$66,137	$72,806
	Less Expenses:											
	Operating Expenses	$20,453	$13,160	$25,219	$23,298	$22,018	$15,606	$20,914	$18,816	$21,697	$21,164	$23,298
	Reserve & Replacement	$1,917	$1,234	$2,364	$2,184	$2,064	$1,463	$1,961	$1,764	$2,034	$1,984	$2,184
	Annual NOI	$41,544	$26,732	$51,225	$47,324	$44,723	$31,700	$42,482	$38,221	$44,073	$42,989	$47,324
	Property Valuation											
	Return on Cost	7.57%	7.81%	7.61%	7.60%	7.59%	7.57%	7.81%	7.55%	7.58%	7.58%	7.60%
	Threshold Return on Cost	6.33%	6.33%	6.90%	6.90%	6.90%	6.33%	6.33%	6.90%	6.33%	6.33%	6.90%
	Residual Property Value	$108,075	$80,384	$69,696	$63,105	$58,710	$82,685	$127,745	$47,724	$115,679	$112,420	$63,105
	RPV/SF	**$21.61**	**$32.15**	**$15.49**	**$14.02**	**$13.05**	**$19.69**	**$30.42**	**$11.36**	**$25.71**	**$29.58**	**$14.02**

EXAMPLE OF DEVELOPMENT PROTOTYPES, OWNERSHIP RESIDENTIAL ANALYSIS

		Current Zoning Assumptions					New Zoning Assumptions					
		Condo_Middle_SFR	Condo_Middle_Skinny	Condo_Middle_Duplex	Condo_Middle_4-Plex_2	Condo_Middle_Triplex	Condo_Middle_SFR_2	Condo_Middle_Skinny_2	Condo_Middle_Duplex_2	Condo_Middle_4-Plex_2	Condo_2.5_4-Plex_2	Condo_Middle_Triplex_2
PROGRAM	**Property Assumptions**											
	Site Size (SF)	5,000	2,500	4,500	4,500	4,500	4,200	4,200	4,200	4,500	3,800	4,500
	Density	9	17	19	39	29	10	10	21	39	46	29
	Unit Count	1	1	2	4	3	1	1	2	4	4	3
	Ave Unit Size	2,000	1,850	1,710	788	990	2,100	2,940	1,260	731	713	1,050
	Building Square Feet	2,750	1,850	3,420	3,150	2,970	2,100	2,940	2,520	2,925	2,850	3,150
	Stories	2	3	2	2	2	2	2	2	2	2	2
	Bldg Footprint	1,375	617	1,710	1,575	1,485	1,050	1,470	1,260	1,463	1,463	1,575
	FAR	0.55	0.74	0.76	0.70	0.66	0.50	0.70	0.60	0.65	0.75	0.70
	Parking Ratio/Unit	1.50	1.00	1.00	0.50	1.00	1.50	1.00	1.00	0.50	1.00	1.00
	Total Parking Spaces	2	1	2	2	2	2	1	2	2	2	2
	Parking SF/Space - Surface	350	350	350	350	350	350	350	350	350	350	350
	Parking SF/Space - Structure	350	350	375	350	375	350	350	-	-		-
	Parking Spaces - Surface	-	1	-	-	-	-	1	-	-		-
	Parking Spaces - Structure	2	-	2	2	2	2	-	2	2	2	2
	Structured Parking %	100%	0%	100%	100%	100%	100%	0%	100%	100%	100%	100%
	Cost Assumptions											
	Base Construction Cost/SF	$204	$204	$204	$204	$204	$204	$204	$204	$204	$204	$204
	Adjustment Factor	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Construction Cost/SF	*$204*	*$204*	*$204*	*$204*	*$204*	*$204*	*$204*	*$204*	*$204*	*$204*	*$204*
	Base Parking Costs/Space	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Adjustment Factor	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Parking Cost/Space	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*
INCOME	**Income Assumptions**											
	Sales Price/SF	$278	$278	$278	$278	$278	$278	$278	$278	$278	$278	$278
	Adjustment Factor	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
	Achievable Pricing	*$278*	*$278*	*$278*	*$278*	*$278*	*$278*	*$278*	*$278*	*$278*	*$278*	*$278*
	Parking Charges/Space	$21,875	$21,875	$21,875	$21,875	$21,875	$21,875	$21,875	$21,875	$21,875	$21,875	$21,875
	Expenses											
	Sales Commission	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
SUPPORTABLE PROPERTY VALUE	**Cost**											
	Cost/Construct w/o prkg.	$559,625	$376,475	$695,970	$641,025	$604,395	$427,350	$598,290	$512,820	$595,238	$579,975	$641,025
	Total Parking Costs	$40,000	$0	$40,000	$40,000	$40,000	$30,000	$0	$40,000	$40,000	$40,000	$40,000
	Estimated Project Cost	$599,625	$376,475	$735,970	$681,025	$644,395	$457,350	$598,290	$552,820	$635,238	$619,975	$681,025
	Income											
	Gross Income - Units	$763,620	$513,708	$949,666	$874,692	$824,710	$583,128	$816,379	$699,754	$812,214	$791,388	$874,692
	Gross Income - Parking	$43,750	$0	$43,750	$43,750	$43,750	$32,813	$0	$43,750	$43,750	$43,750	$43,750
	Gross Sales Income	$807,370	$513,708	$993,416	$918,442	$868,460	$615,941	$816,379	$743,504	$855,964	$835,138	$918,442
	Less: Commission	($32,295)	($20,548)	($39,737)	($36,738)	($34,738)	($24,638)	($32,655)	($29,740)	($34,239)	($33,406)	($36,738)
	Effective Gross Income	$775,075	$493,160	$953,679	$881,704	$833,721	$591,303	$783,724	$713,763	$821,725	$801,732	$881,704
	Property Valuation											
	Return on Sales	29.26%	30.99%	29.58%	29.47%	29.38%	29.29%	30.99%	29.11%	29.36%	29.32%	29.47%
	Threshold Return on Cost	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
	Residual Property Value	$74,353	$52,360	$93,316	$85,674	$80,580	$56,826	$83,209	$67,844	$79,306	$77,184	$85,674
	RPV/SF	**$14.87**	**$20.94**	**$20.74**	**$19.04**	**$17.91**	**$13.53**	**$19.81**	**$16.15**	**$17.62**	**$20.31**	**$19.04**

II. Predictive Development Modeling

Description of Model

Johnson Economics used a predictive development model, which is designed to estimate the marginal impact of changes in the development environment on the expected magnitude and character of development. The model is designed to predict the magnitude and form of likely development or redevelopment activity over an assumed time frame. The primary approach used to predict likely development patterns is the relationship between the supportable residual land value for prospective uses and the current value of the property (including land as well as improvements, if any). The underlying assumption is that when the value of a property for new development is high relative to the current value of the property, it will be more likely to see development or redevelopment over a defined time-period.

The model evaluates the likelihood of development at the parcel level, although the results are expressed in aggregated geographies. What the model solves for is probabilities to redevelop as well as anticipated development forms, and the results reflect the expected value of development/redevelopment activity. The model will not indicate that a specific parcel will or won't redevelop, rather, it will indicate the probability of that occurrence as well as predict the likely form of development.

Pricing Gradients

The analysis used the achievable pricing gradients developed in our March 2018 work. While these have not been changed, we recognize that pricing has continued to trend upwards for ownership housing product, while rental housing product has seen less escalation.

The model was broken down into eleven separate pricing bins, which have similar achievable price points. The table to the right shows the pricing bins, the number of parcels in that bin, as well as the average residential rent per square foot and the average sales price per square foot in that bin. A total of 118,528 parcels were evaluated, which represented all parcels zoned either R7, R5, or R2.5 in the study area. The average achievable rent assumption was $1.91 per square foot, while the average achievable sales price was $273 per square foot.

Pricing Bin	# of Parcels	Residential Rent/SF	Sales Price/SF
1	7,525	$1.47	$209
2	19,516	$1.54	$219
3	8,776	$1.64	$234
4	6,889	$1.75	$249
5	11,326	$1.85	$263
6	17,059	$1.95	$278
7	15,700	$2.05	$292
8	13,824	$2.17	$309
9	13,043	$2.32	$330
10	4,570	$2.61	$372
11	300	$2.72	$387
Total/Avg.	118,528	$1.91	$273

Model Output

Our predictive development model was run for two scenarios, reflecting current and proposed development standards. The results showed an expected aggregate increase in the level of construction investment but yielding a sharply higher number of predicted new residential units in the study area. The output reflects a modest increase in the level of redevelopment, but a greater unit density, expected net unit yield, and lower price point per unit on properties that do redevelop.

The predicted net development yield from residential development/redevelopment in the study area was 12,281 units over the next twenty years under the current zoning, increasing to 36,614 units under the proposed new zoning. The construction of these units will entail the loss of existing residential capacity (demolition of existing structures where present), which is reflected in the net unit estimates. The impact on rental residential pricing was highly significant, with average rents dropping by 56% as compared to the default scenario (current zoning), which reflects a change in unit size as opposed to reduced rents per square foot.

SUMMARY OF PREDICTED DEVELOPMENT ACTIVITY WITH PROPOSED MODIFICATIONS IN ZONING CODES

20 Year Study Period , No Pricing Changes

	Predicted Development Yield				
	Construction Investment	New Units	Replaced Units	Net Units	Average Rent
BASELINE					
New Construction	$5,233,460,967	13,665	(1,384)	12,281	$4,159
NEW ZONING					
New Construction	$6,105,186,215	38,115	(1,501)	36,614	$1,823
NET IMPACT					
Total	**$871,725,248**	**24,450**	**-117**	**24,333**	**-$2,336**
% Change	17%	179%	8%	198%	-56%

The number of new units predicted is quite high, and market support for that many units in these configurations may limit the study area's ability to support this level and type of development over a planning period.

When output is broken down by pricing bin, the impact on pricing is spread broadly, with redevelopment favoring higher density solutions providing smaller units at lower price points. As with our previous analysis, the lowest priced neighborhoods have no predicted redevelopment under either the baseline or new zoning scenario.

SUMMARY OF RENTAL ANALYSIS RESULTS AT THE PRICING BIN LEVEL

Pricing Bin	# of Parcels	Residential Rent/SF	Sales Price/SF	Baseline		New Zoning		Net Change		
				Units	Avg. Rent	Units	Avg. Rent	Units	Avg. Rent	% Price
1	7,525	$1.47	$209	0	$0	0	$0	0	$0	0%
2	19,516	$1.54	$219	0	$0	0	$0	0	$0	0%
3	8,776	$1.64	$234	235	$3,178	641	$1,683	406	($1,496)	-47%
4	6,889	$1.75	$249	192	$3,396	537	$1,799	345	($1,597)	-47%
5	11,326	$1.85	$263	331	$3,618	1,001	$1,902	670	($1,715)	-47%
6	17,059	$1.95	$278	567	$3,854	2,396	$1,758	1,829	($2,096)	-54%
7	15,700	$2.05	$292	1,639	$4,008	6,280	$1,873	4,641	($2,135)	-53%
8	13,824	$2.17	$309	1,179	$4,224	5,381	$1,667	4,202	($2,557)	-61%
9	13,043	$2.32	$330	5,755	$4,046	13,467	$1,777	7,712	($2,269)	-56%
10	4,570	$2.61	$372	3,685	$4,568	8,213	$1,977	4,528	($2,590)	-57%
11	300	$2.72	$387	82	$4,679	199	$2,082	117	($2,598)	-56%
Total/Avg.	118,528	$1.91	$273	13,665	$4,159	38,115	$1,823	24,450	($2,336)	-56%

Under the assumptions used, rental residential largely outbid ownership residential solutions in the current pricing environment. Over the study period, the relationship between rental and ownership residential units will likely change, with ownership units shifting to the highest and best use solution.

III. SUMMARY

Our analysis indicates that the proposed changes in entitlements would likely result in a modest increase in redevelopment activity in terms of construction investment but yield a significantly higher number of units through the development of multi-unit development forms.

The predicted marginal increase in unit capacity associated with the changes is significant, but the level of development may be limited by market factors and demand. The large number of units in a multi-unit configuration are likely to be disproportionately rental, and the market for this type of rental unit as well as investors interested in holding these types of income properties is limited. Nonetheless, our analysis indicates that the proposed changes will support an increase in residential yield as well as a reduction in average pricing for new units under the proposed changes.

Ownership Residential

Ownership residential solutions under the proposed new codes would be expected to be limited, particularly for multiple-unit development projects. This is due to challenges in developing condominium units in the current environment. While smaller condominium units would likely be well received by the market due to their lower price point, few developers are interested in producing and selling condominiums. This is largely attributable to construction defect litigation risk, in which purchasers can sue the developer and members of his team (architects, contractors, product manufacturers).

Construction defects can range from complex foundation and framing issues which threaten the structural integrity of buildings, to aesthetic issues such as improperly painted surfaces and deteriorating wood trim around windows and doors. In the State of Oregon, there is a ten-year statute of limitations on construction defect claims. As condominium developments have homeowner's associations (HOA), the suits typically use the HOA as a class to

pursue to the claim. Pursuit of these claims was widespread during the last cycle, during which a large number of new condominium units were constructed.

Insurance rates have climbed significantly for condominium construction, which is typically carried by the developer as well as members of the team. Due to the vagaries of this type of litigation, developers and contractors now must buy 10-year trailing insurance before they commence construction, as that is the period during which can be sued. This additional insurance adds significantly to the cost of construction.

These factors have largely deterred developers from initiating new condominium projects due to concern regarding the cost, risk, and time burden entailed by construction defect litigation. If one was to be built, the costs associated with the cost of insurance and increased risk would need to be reflected in higher pricing. One way to reduce this risk is to sell units with fee-simple ownership of the property, where the unit includes the underlying land. This type of ownership is typically found in townhomes. While generating a lower density yield than three- and four-plex solutions, this type of development would likely be favored by a developer looking to construct and sell ownership residential units. While our model may indicate a multi-unit plex solution as representing the highest and best use from a return perspective, townhome development entails less risk and may be a more favored program solution for ownership residential.