# McCullough Research

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Principal

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To: Portland City Council

From: Robert McCullough

Subject: Review of "Economic Analysis of Proposed Changes to the Single Dwelling Zone Development Standard"

Last month, Portland's Bureau of Planning and Sustainability distributed a short seven-page study by Johnson Economics with some surprising conclusions.[1] The study is challenging to read and understand, but the gist of the study is:

> **Our analysis indicates that the proposed changes in entitlements would likely result in a lower rate of development and redevelopment in the study area, yielding less in terms of units and construction investment.** While the marginal impact would be low in percentage terms, a similar impact is expected in both the close-in as well as less urban areas. The modest increase in allowable units is more than offset by the lower allowed square footage of new development, which generally reduces the supportable land value for new development. The lower supportable land value decreases the likelihood or redevelopment on a significant number of parcels.
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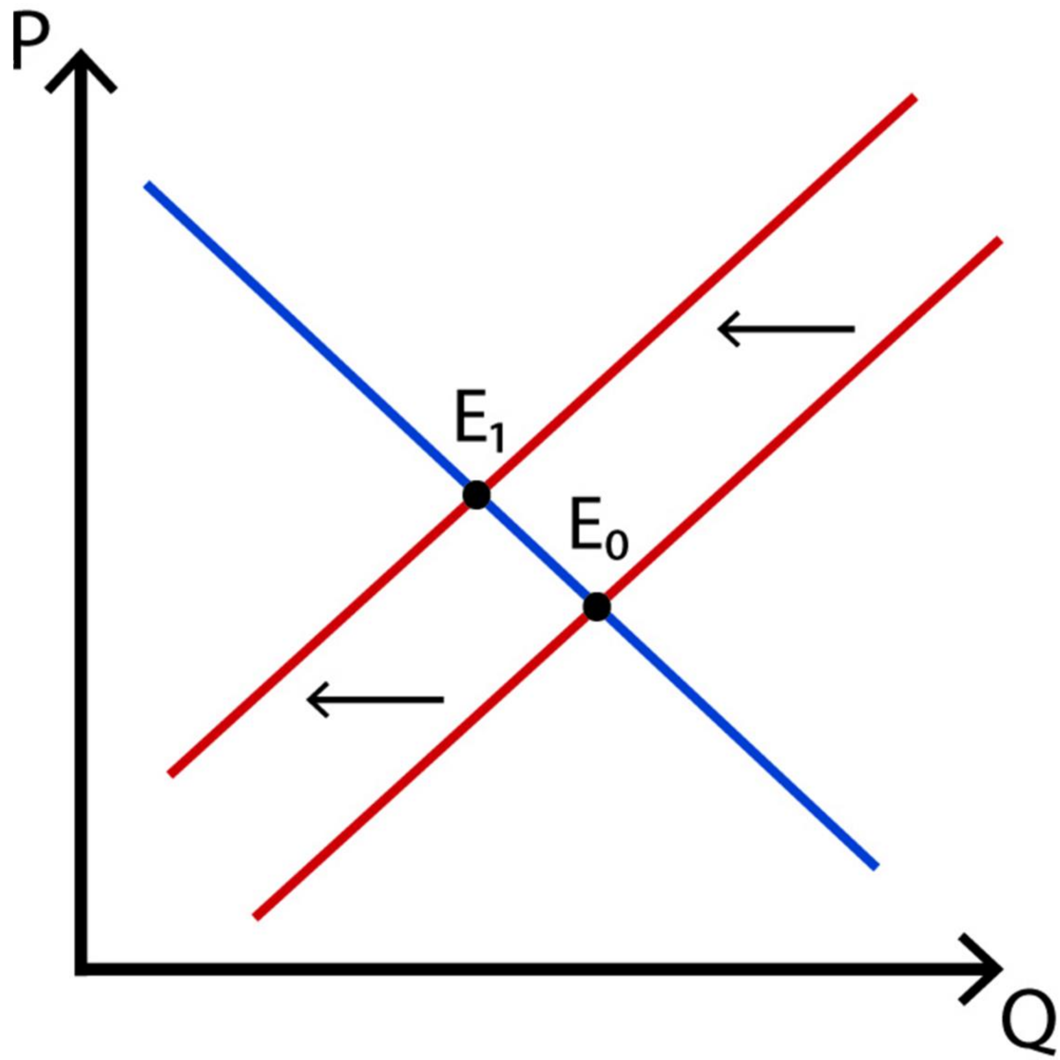
> **Sites that do redevelop under the proposed modifications would be expected to deliver units at a generally lower price point and higher unit density.**[2]

To a real estate investor and/or an economist, this is a perplexing conclusion. As a general rule, placing limitations on the supply tends to raise prices and reduce quantity. A model that reduces prices and quantities simultaneously cannot be easily reconciled with market economics.

In the chart below, the supply curve is shifted left towards the origin. This reflects the RIPSAC proposal that will restrict allowable floor space in new construction.

[1] Economic Analysis of Proposed Changes to the Single Dwelling Zone Development Standard, Jerry Johnson, October 17, 2016.
[2] Ibid., page 7. Emphasis supplied. Typographic errors have not been corrected from the original text.

As the supply curve contracts, the new equilibrium price is increased and the quantity supplied is decreased. This chart has been a staple of introductory economics courses since it was introduced in 1890 by Professor Alfred Marshall.




To understand how this study achieved such an unusual result requires a very careful reading of the seven-page report.

Such a reading identifies the following important issues with the report:

1. The report only considers rental units.[3]
2. The only RIPSAC variable considered was allowable square footage.[4]
3. The assumptions have some very surprising values. For example, the required rate of return on homes is 227% of the return required on rentals.[5]
4. The results are based on a simple profitability calculation that assumes the critical inputs and then derives a residual land value.[6]
5. The basic model is not well explained or documented.[7]
6. The model does not include market price changes.[8]
7. The table on page 2 has minor computational errors and is inconsistent with the similar table in the appendix.[9]

In general, this appears to have been prepared hastily and without a thorough review of the issues facing Portland.

First, the high required rate of return on homes will have had a significant impact on the rate of "redevelopment" – a term that would seem to be synonymous with demolition of existing homes.[10] The assumption that developers view homes as more than twice as risky as rentals is both pivotal and inexplicable. And, of course, the assumption that home construction is more risky will drive the result that demolitions will be reduced.

[3] Ibid., page 2.
[4] Ibid., page 4.
[5] Ibid., page 2. The term used in the report is "Threshold Yield Rate" which is not defined in the report. It is defined in a previous report for the City of Eugene (October 29, 2008) as "Threshold Returns – The return on investment necessary to induce development can change quickly, and reflects broad financial trends as well as a more localized assessment of risk. Reducing the threshold returns necessary can significantly increase viability, while an increase in those same rates would decrease viability."
[6] Ibid., page 5. Terminology in the report changes to "Residual Property Value" later in their report: "Residual Property Value reflects the maximum supportable acquisition value of the property under an assumed development program."
[7] Ibid., page 5. The assumptions would appear to be large and are not documented in the report: "Key inputs in the "production" model are those that impact revenues, costs, return parameters and site entitlements. The production component of the model can be broken up into three primary categories that are determinative of final development form: achievable pricing, cost to develop, and threshold returns. The marginal impacts associated with proposed change in entitlements are incorporated into a broader modeling framework designed to translate shifts in these inputs into associated patterns of investment."
[8] Ibid., pages 6 and 7. See the third title line in the results tables: "No Pricing Changes."
[9] Ibid., pages 2 and page 9 in the appendix.
[10] Ibid., page 4. The report states "This would be reflected in generally lower residual land values associate with redevelopment options. The anticipated impact would be a lower rate of redevelopment, and at lower values."

Second, there seems to be no consideration of the reduction in affordable housing demolished in the course of “redevelopment.” Our review of recent demolitions in Eastmoreland indicates that replacement homes are 158% more expensive than the homes they replace.[11] There is nothing mysterious about the mathematics of demolition – older and smaller homes are the first selected for demolition, reducing the affordable strata of homes in older neighborhoods and reducing economic and ethnic diversity.

Third, the undocumented production model seemingly has no recognition of the dramatic change in demand for homes closer to the urban core. The shift in demand has been discussed extensively in the economic literature.[12] In Portland, our estimate of the premium for proximity to the urban core has increased from $33,000/mile in 2011 to $55,000/mile in 2016.[13]

In sum, it would appear that this hasty effort will have little if any relevance to the RIPSAC recommendations and should be given little weight in policy deliberations.

[11] See “How inclusive is the current wave of demolitions?”, Robert McCullough, October 6, 2016.
[12] See, for example, “Local House Price Dynamics: New Indices and Stylized Facts”, Federal Housing Finance Agency, Alexander Bogin, William Doerner, and William Larson, June 2016.
[13] “Why are house prices so high in the Portland Metropolitan Area?”. Robert McCullough, September 5, 2016. The values have been adjusted for inflation and are in current dollars.