



DEMOGRAPHIA RESIDENTIAL LAND & REGULATION COST INDEX: 2010

Summary

In recent decades, an unprecedented variation has developed in the price of new tract housing on the fringe of US metropolitan markets. Nearly all of this difference is in costs other than site preparation and construction, which indicates rising land and regulation costs.

The first annual *Demographia Residential Land & Regulation Cost Index* estimates the price of land and regulation for new entry level houses compared to the historic norm in 11 metropolitan regions. Metropolitan regions in which land and regulation costs remain at or below normal have a *Demographia Residential Land & Regulation Cost Index* of 1.0 (see "calculation," below), while those with land and regulation costs above normal will have an *Index* above 1.0.

The *Demographia Residential Land & Regulation Cost Index* estimates the extent to which more restrictive land regulation has added to the cost of new housing in the included metropolitan regions. For example, Minneapolis-St. Paul has a *Demographia Residential Land & Regulation Cost Index* of 2.4 (see Figure 1), indicating that land and regulation costs are 2.4times the historic norm for that metropolitan region. It is estimated that more restrictive land use regulation has added from nearly \$30,000 (in Minneapolis-St. Paul) to more than \$220,000 (In San Diego) to the price of a new home.

Demographia Land & Regulation Cost Index NEW DETACHED HOUSING: 2010

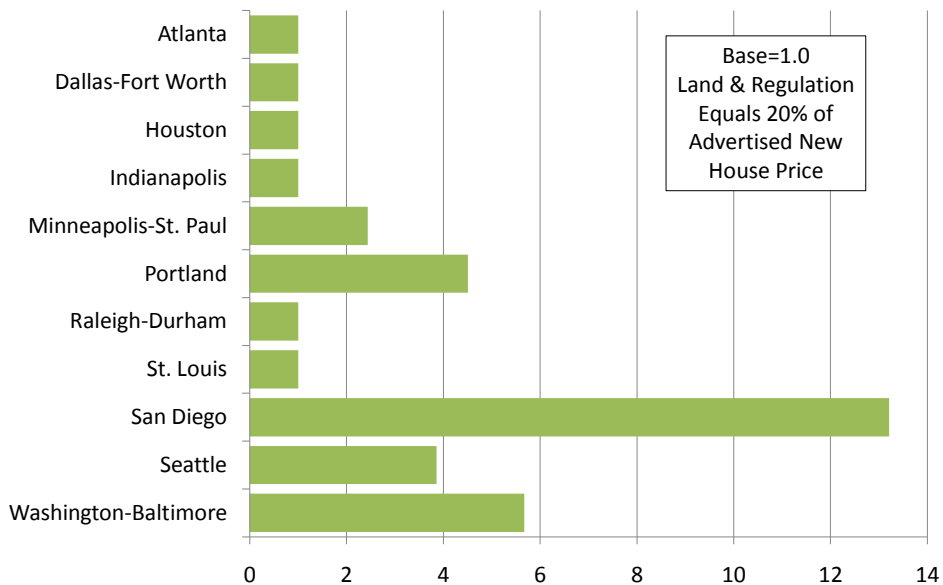


Figure 1

- Six metropolitan markets have a *Demographia Residential Land & Regulation Cost Index* of 1.0 for detached housing, indicating that non-construction costs remain within the historic industry norm (Atlanta, Dallas-Fort Worth, Houston, Indianapolis, Raleigh-Durham and St. Louis). Each of three metropolitan markets have less restrictive land use regulation.
- The other five metropolitan markets exhibit *Demographia Residential Land and Regulation Cost Indexes* of from 2.4 in Minneapolis-St. Paul to 13.2 in San Diego. The *Land and Regulation Cost Index* was 3.9 in Seattle, 4.5 in Portland and 5.7 in Washington-Baltimore. Each of these metropolitan markets has more restrictive land use regulation.

More restrictive land use regulation is variously referred to as "smart growth," "growth management" and other terms. More restrictive land use regulation is estimated to have added from nearly \$30,000 (in Minneapolis-St. Paul) to more than \$220,000 (In San Diego) to the price of a new home. The association between more restrictive land use regulation and higher house prices is summarized in *Annex I: Land Use Regulation: Background*.

Introduction

For decades, tract house construction costs on the urban fringe in the United States have represented 80% or more of the advertised house price. The balance of 20% or less has been for land and regulation costs¹ and will be referred to as the "land and regulation cost ratio." In metropolitan markets with less restrictive land use regulation, the historic 20% or less land price ratio remains in place.² The *Demographia Residential Land & Regulation Cost Index* assumes a 20% expected land and regulation ratio.

In some metropolitan markets, however, house prices have increased substantially more rapidly than in the rest of the nation. The greater increase in house prices and escalation of land costs above the historic 20% land and regulation cost ratio has [occurred in metropolitan markets](#) that have implemented more restrictive land use regulations. Urban growth boundaries, limits on the number of houses that can be built, large lot zoning and excessive development impact fees are examples of land use regulation strategies that increase the cost of land for building houses. These land cost increases are not the result of more rapidly rising construction costs or underlying land costs factors (See Annex I: Land Use Regulation: Background).

[Economic research](#) has associated rising residential land costs with more restrictive land use regulations (see Box: More Restrictive Land Use Regulations and Higher House Prices. Table 1 indicates some of the more important price increasing impacts of more restrictive land use regulation.

Table 1 More Restrictive Land Use Regulation: Factors that Can Drive House Prices Higher	
1..	Increases underlying land costs
2..	Increases planning and development costs
3..	Raises financing costs
4..	Encourages more expensive houses.
5..	Increases construction costs
6..	Encourages concentration of market power and land banking
7..	Encourages land and housing speculation

¹ The land and regulatory cost is the price paid by a home builder to purchase a "finished" lot for construction. This is a lot that has the necessary infrastructure installed and has regulatory approval.

² The *Demographia Residential Land & Regulation Cost Index* assumes a 20% land and regulation ratio, which produces smaller (more conservative) *Index* values than are indicated by some of the evidence. See Annex II-Methodology.

More restrictive land use regulation also creates obstacles to people buying houses, requiring them to devote more money to housing than necessary and increases their vulnerability to losses in the event of a financial downturn. This exposes mortgage lenders to increased risks of loan defaults. Finally, more restrictive land use regulation makes residential land development more political, with the potential for political contributions to make decisions more arbitrary.

The first annual *Demographia Residential Land & Regulation Cost Index* estimates cost of land and regulation for new entry level houses compared to the historic norm in 11 metropolitan markets. Each of the metropolitan regions in which house prices have risen above normal have adopted more restrictive land use regulations. Conversely, in each of the metropolitan regions in which house prices have not risen above normal levels, there is less restrictive land use regulation. During much of the Post-World War II era, all metropolitan markets had less restrictive land use regulations.

Additional Information

[Annex I: Land Use Regulation: Background](#)

[Annex II: Methodology](#)

Results: New Detached Houses

The overwhelming majority of new housing in the United States continues to be detached⁴ and is built near or on the urban fringe. For new detached homes, the *Demographia Residential Land & Regulation Cost Index* is 1.0 in six metropolitan markets (Atlanta, Dallas-Fort Worth, Houston, Indianapolis, Raleigh-Durham and St. Louis).⁵ This indicates that land use regulation is less restrictive and does not add more than normal to the price of new homes.

In the other five metropolitan markets, the land and regulation cost ratio has risen above 20%, resulting in a higher *Demographia Residential Land & Regulation Cost Index*. The *Demographia Residential Land & Regulation Cost Index* is 2.4 in Minneapolis-St. Paul, 3.9 in Seattle, 4.5 in Portland, 5.7 in Washington-Baltimore and 13.2 in San Diego. It is estimated that more restrictive land use regulation raises the price of the least expensive detached houses from nearly \$30,000 (in Minneapolis-St. Paul) to more than \$220,000 (in San Diego) than would be expected if these metropolitan markets had retained less restrictive land use regulation (Figure 4).

The metropolitan markets with more restrictive regulation have an average *Demographia Residential Land & Regulation Cost Index* of 5.9 for detached housing, while the metropolitan markets with less restrictive regulation average 1.0 (see Figure 1 and Table 2).

Results: New Attached Houses

Attached housing (duplexes, townhouses and low rise condominiums) continues to account for a relatively small share of new owned housing. Moreover, a larger share of attached housing is built in "infill" areas, farther from the urban fringe, where land costs tend to be higher. This higher cost land limited the number of attached houses with costs low enough to be used in the survey. There was sufficient data for detached housing for purposes of this study in five of the metropolitan markets.

⁴ In 2006, more than 85% of new single family houses sold in the United States were detached, according to Bureau of the Census data. Detached housing represents approximately 62% of all US housing units (including multi-unit dwellings).

⁵ In each of the metropolitan markets with less restrictive regulation, the estimated construction costs were more than 80% of the house price (by using a 20% land and regulation ratio, the house construction cost was capped at 80% of the house price. See Annex II: Methodology).

St. Louis and Houston have a The *Demographia Residential Land & Regulation Cost Index* of 1.00. The land and regulation cost ratio is higher in the three other metropolitan markets. The *Demographia Residential Land & Regulation Cost Index* for attached housing is 2.4 in Minneapolis-St. Paul, 5.7 in Washington-Baltimore and 7.7 in San Diego. In each of these metropolitan markets, more restrictive land use regulations have been adopted, while St. Louis and Houston have less restrictive land use regulation (see Figure 2 and Table 2).

More restrictive land use regulation is estimated to have added from nearly \$20,000 to the price of the less expensive duplexes, townhouses and low-rise condominiums in Minneapolis-St. Paul to more than \$125,000 in San Diego (see Figure 5).

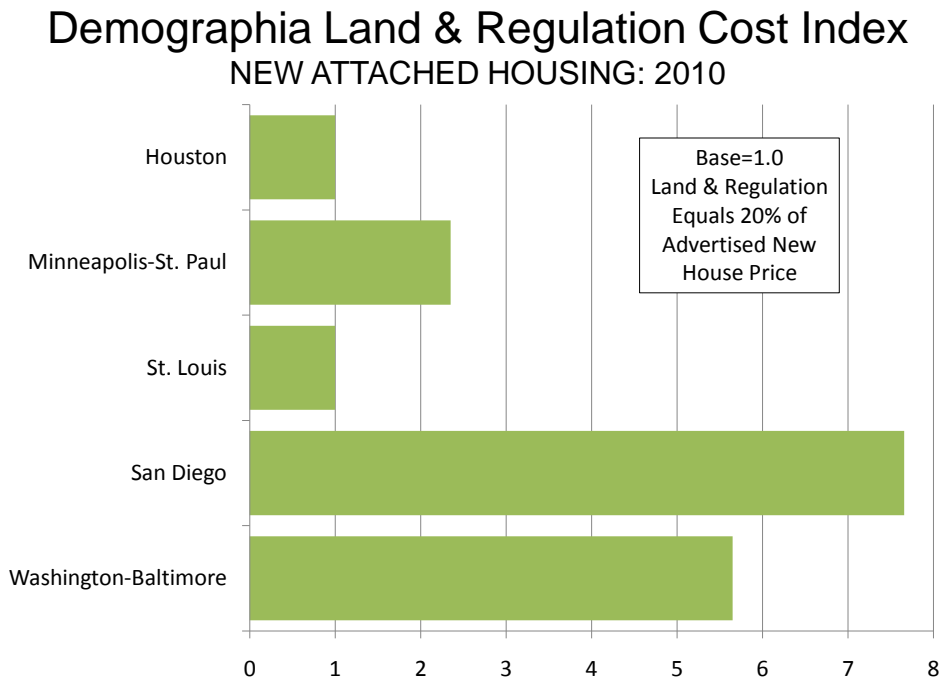


Figure 2

Significance and Uses of the *Demographia Residential Land & Regulation Cost Index*

There is increasing concern about declining housing affordability across the nation. Even after the deflation of the housing bubble, house prices in some metropolitan markets remain well above pre-bubble prices and historic affordability standards. This is illustrated by the "front-end ratio," borrowing standard, which has required mortgage payments, taxes and insurance to not exceed 28% of gross incomes. Mortgage payments alone continue to exceed 28% of gross household income for median priced houses in some metropolitan markets. Rising house prices are likely to result in lower home ownership levels in the longer run.

The *Demographia Residential Land & Regulation Cost Index* estimates the extent to which new house prices have been increased by regulatory influences. The *Demographia Residential Land & Regulation Cost Index* can be useful to:

- State and local public officials, for which the *Demographia Residential Land & Regulation Cost Index* can assist in evaluating the potential housing affordability impacts of proposed regulations, whether more restrictive or less restrictive.

- Corporate relocation and recruitment departments, for which the *Demographia Residential Land & Regulation Cost Index* can assist in identifying locations with lower costs of living and superior housing affordability, which is important in decisions about facility location and expansion decisions and in developing compensation packages.
- Regional and local civic organizations (such as chambers of commerce) and government economic development departments, for which the *Demographia Residential Land & Regulation Cost Index* can assist in identifying metropolitan housing affordability advantages or an imperative to relax land use regulations to improve housing opportunity.
- Households, for whom the *Demographia Residential Land & Regulation Cost Index* can highlight the potential to improve their quality of life by obtaining better housing value.
- Young adults, for whom the *Demographia Residential Land & Regulation Cost Index* can assist in career decisions in identifying metropolitan markets where home ownership can eventually or more quickly be achieved.

Housing Affordability: Through the Bubble and Bust

The housing affordability of the included metropolitan markets is illustrated by land use regulatory category in Figure 3. The Figure indicates the National Association of Home Builders-Wells Fargo Housing Opportunity Index for 1995, the peak of the bubble and early 2010, showing the percentage of households able to afford the median priced house. Similar affordability measures can be reviewed in the [Annual Demographia International Housing Affordability Survey](#).⁶

Future Editions

The 11 metropolitan regions included in the initial *Demographia Residential Land & Regulation Cost Index* were selected to provide a geographical and regulatory balance and because they had sufficient data from which to develop the Index. Additional areas will be added in future editions, with the intention of including all metropolitan regions with more than 1,000,000 population.

Additional metropolitan regions will be included in future editions of the *Demographia Residential Land & Regulation Cost Index*.

Calculation

The *Demographia Residential Land & Regulation Cost Index* is calculated by dividing the estimated land and regulation cost in a metropolitan region by the "normal" cost. The normal cost of land and regulation is 25% of the house construction cost, less the cost of site infrastructure construction. In a metropolitan region with normal land and regulation costs, the cost of the house will be 80% of the total house price, while the cost of the land and regulation will be 20% of the total house price. Any house price above 125% of the house construction cost is attributed to excess land and regulation cost (Figure 4). Additional calculation notes will be found in [Annex II: Methodology](#).

⁶ The 7th Annual Demographia International Housing Affordability Survey rates housing affordability in more than 270 metropolitan markets in 6 nations. The most recent data is for the third quarter of 2009. The next edition will be released in the first quarter of 2011.

Housing Affordability: Bubble & Burst

11 METROPOLITAN REGIONS IN THE INDEX

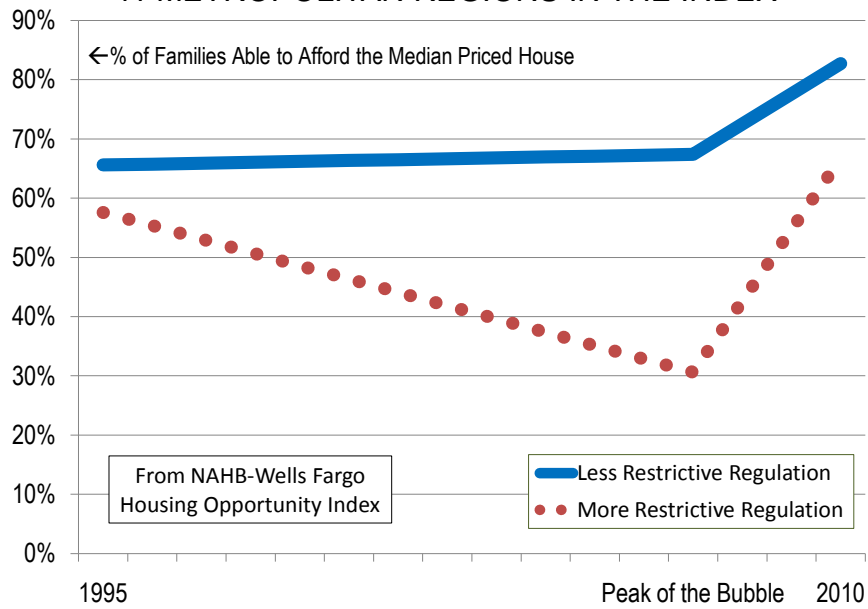


Figure 3

Residential Land & Regulation Index

CALCULATION EXAMPLES

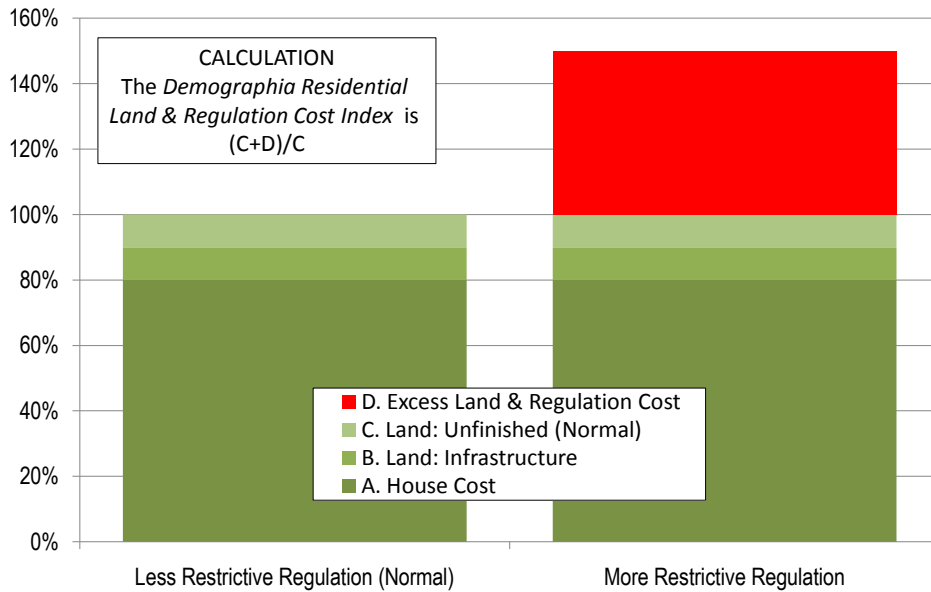


Figure 4

Box

More Restrictive Land Use Regulations and Higher House Prices

More restrictive land use regulation raises land and related costs directly, by rationing the supply of land relative to demand and by imposing excessive development impact fees.

More restrictive land use regulations can also increase house prices in less direct ways, such as by complicating the land development process, which can drive smaller developers out of business, lessen competition between developers and thus raise land costs. This can, in turn, lead to concentration of developable parcel ownership (oligopoly) by small groups of developers, who purchase the limited supply to ensure that they have future inventories to sell to home builders (out of fear that land regulating agencies will not permit sufficient new land to be opened for development, as has been noted in Australia). This practice, known as "land banking" can lead to even higher prices as the large land holders slow development of their parcels, seeking to ensure longer term returns on investment.

By making land more scarce, more restrictive land use regulation can make it more difficult to build housing on larger tracts of land, which increases prices by reducing economies of scale. As a result, the high-volume home building industry is forced more toward custom building, which is inherently more costly (a phenomenon that more restrictive land use regulation has induced in New Zealand). The higher land costs can induce builders to build more expensive houses to maintain reasonable lot price to house price ratios to obtain project financing as well as to maintain returns on investment.

These direct and indirect consequences of more restrictive land use regulation can increase the price of land, thereby increasing the price of houses.

For more information see: [Annex I: Land Use Regulation: Background](#)

Additional Information

Land Use Regulation: [Annex I: Land Use Regulation: Background](#)
Methodology: [Annex II: Methodology Notes](#)

Summary of Economic Research
[More Restrictive Land Use Regulation and Housing Affordability Losses: The Association](#)

Table 2
Demographia Residential Land & Regulation Cost Index: New 2,150 Square Foot Detached House

	(1) Excess Land & Regulation Cost (Note)	(2) Expected Raw Land and Regulation Cost	(3) Gross Actual Land and Regulation Cost (1 + 2)	(4) <i>Demographia Residential Land & Regulation Cost Index (3/2)</i>	Land Regulation Category
Metropolitan Market					
Atlanta	\$0	\$16,100	\$16,100	1.0	Less Restrictive
Dallas-Fort Worth	\$0	\$14,500	\$14,500	1.0	Less Restrictive
Houston	\$0	\$13,200	\$13,200	1.0	Less Restrictive
Indianapolis	\$0	\$13,900	\$13,900	1.0	Less Restrictive
Minneapolis-St. Paul	\$28,700	\$20,000	\$48,700	2.4	More Restrictive
Portland	\$59,300	\$16,900	\$76,200	4.5	More Restrictive
Raleigh-Durham	\$0	\$16,000	\$16,000	1.0	Less Restrictive
St. Louis	\$0	\$16,900	\$16,900	1.0	Less Restrictive
San Diego	\$221,000	\$18,100	\$239,100	13.2	More Restrictive
Seattle	\$51,400	\$18,000	\$69,400	3.9	More Restrictive
Washington-Baltimore	\$74,700	\$16,000	\$90,700	5.7	More Restrictive
Weighted Averages					
Overall	\$39,600	\$16,300	\$55,900	3.4	
Less Restrictive	\$0	\$15,100	\$15,100	1.0	
More Restrictive	\$87,000	\$17,800	\$104,800	5.9	

The *Demographia Residential Land & Regulation Cost Index* estimates the extent to which more restrictive land use regulation adds to the price of the least expensive new homes in the same metropolitan markets.

Table 3
Demographia Residential Land & Regulation Cost Index: New 1,500 Square Foot Attached House

	(1) Excess Land & Regulation Cost (Note)	(2) Expected Raw Land and Regulation Cost	(3) Gross Actual Land and Regulation Cost (1 + 2)	(4) <i>Demographia Residential Land & Regulation Cost Index (3/2)</i>	Land Regulation Category
Metropolitan Market					
Houston	\$0	\$11,900	\$11,900	1.0	Less Restrictive
Minneapolis-St. Paul	\$19,100	\$14,100	\$33,200	2.4	More Restrictive
St. Louis	\$0	\$15,600	\$15,600	1.0	Less Restrictive
San Diego	\$125,900	\$18,900	\$144,800	7.7	More Restrictive
Washington-Baltimore	\$54,900	\$11,800	\$66,700	5.7	More Restrictive
Weighted Averages					
Overall	\$40,000	\$14,500	\$54,400	3.8	
Less Restrictive	\$0	\$13,800	\$13,800	1.0	
More Restrictive	\$66,600	\$14,900	\$81,600	5.5	

The *Demographia Residential Land & Regulation Cost Index* estimates the extent to which more restrictive land use regulation adds to the price of the least expensive new homes in the same metropolitan markets.

Estimated Land & Regulation Costs

NEW DETACHED HOUSING: 2010

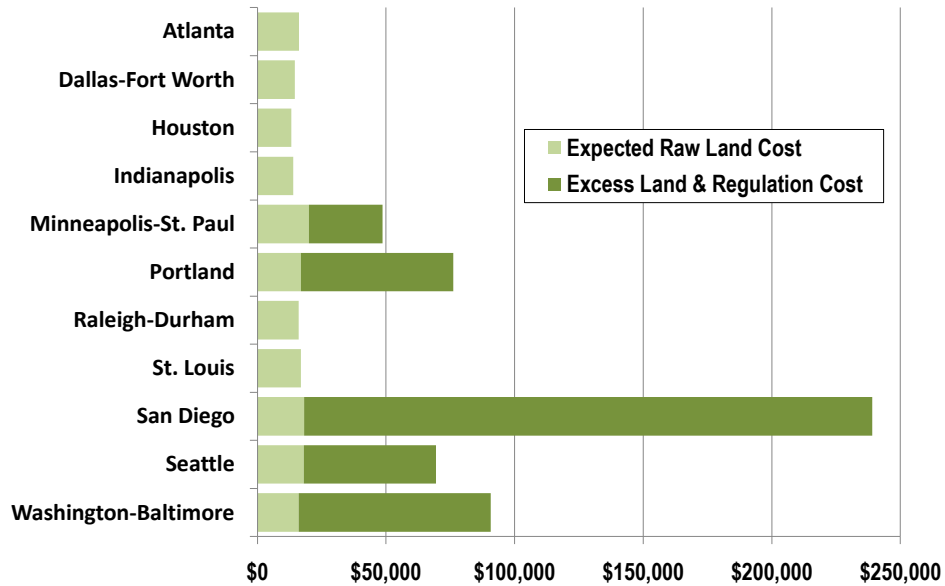


Figure 5

Estimated Land & Regulation Costs

NEW ATTACHED HOUSING: 2010

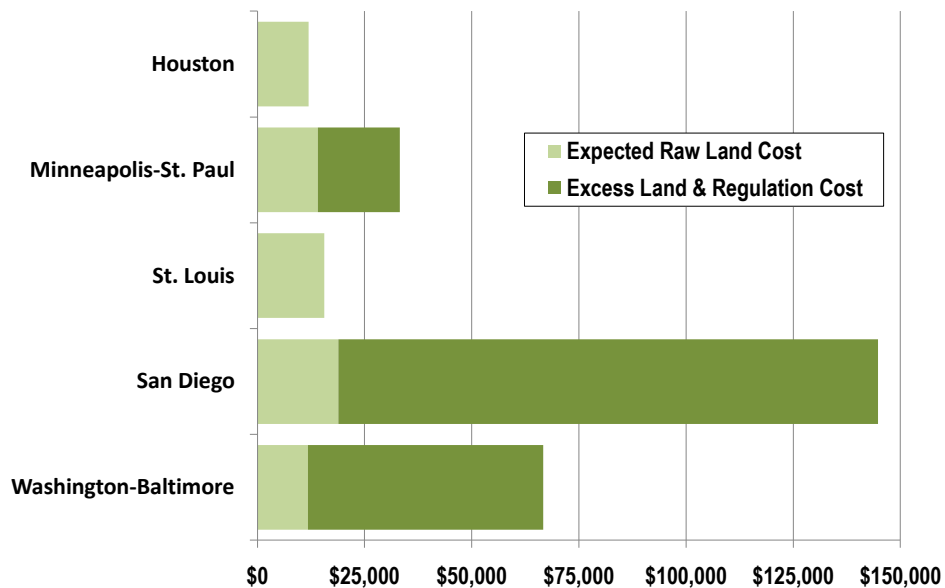


Figure 6