Negative Externalities of Density: My Neighbor's New House

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Abstract

We exploit two types of variation in residential density to identify the possible negative externalities of density on nearby units. First, the general replacement of older lower density single family homes with newer larger units on the same sites. As there is no change in zoning this analysis is not affected by the sample selection problem found in other work. In addition, we control for neighbourhood level variation in prices cross sectionally and over time. The second type of variation in is the construction of small in-fill rental properties on the back of single family properties that face on to a lane. This type of added density differs from the former redevelopment type because in addition to added structure on the lot, it also increases the number of households occupying a property. Comparing the effects of these two different forms of added density on neighbouring properties allows us to estimate the effect of structure density separate from the effect of more households. We find that both forms of density reduce the value of adjacent properties. Replacing an older property with a new redeveloped house raises the value of adjacent properties by 7 percent, reflecting the spillover benefit of having newer higher quality structures adjoining ones property. However, if a new unit raises the density from the 25th to the 75 percentile, this would offset this gain by lowering the value of an adjacent property by 2.2%. An infill laneway property lowers the value of an immediate neighbours properties by 2%, separate from the effects it has by adding structure density, which would be an additional 2% for the mean property adding the mean infill unit, so that the total effect of a laneway infill on adjacent properties is negative 4.2%.

Key words: Real Estate Externalities, Real Estate Density

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1 Introduction

Discussions of residential density are at the heart of the literature in urban economics. From capital:land substitution in the basic urban models, to the effect of housing supply on house prices, and the role of density in agglomeration externalities. Yet, with the exception of a handful of papers there has been very little study of the effects of increased structure density on those most immediately affected, a property's neighbours. In this paper we examine changes in structure density of single family units and the number of households per lot to see what effect these changes have on neighbouring properties. The contribution of the paper is in using highly detailed property data that allow us to track changes in a property's size overtime along with a policy change that gave some single family homeowner's the ability add a separate rental structure to their property's to identify the negative effects of an increase in the density of a parcel's use for residential structure on the value of it's immediate neighbours.

In the housing literature residential density is typically treated as an unambiguous benefit and an antidote to supply restrictions that increase the cost of housing. Studies of housing markets in land-constrained environments (Saiz 2010) and those on land use regulation in general finger differences across communities in constraints on residential density though zoning as an important contributor to the variation in the price of housing (Gyourko and Glaeser, 2017). Models of urban size and structure include a treatment of the negative externalities of residential density, typically as a congestion externality assumed to apply to travel, which are offset against the benefits of density through agglomeration externalities (Ahlfeldt, et. al. 2015, Brinkmann 2016, Lucas and Rossi-Hansburg 2002). In these models the effects of density are at a fairly aggregated level. This literature treats density as a feature of neighbourhoods or the city as a whole and ignores its most immediate local effects. Our contribution is to instead look at the extent to which density can have more localized negative effects. These localized effects are important as they reflect the source of opposition by local residents to increased density, that while welfare increasing on the whole, may result in more immediate negative effects for themselves (Fischel 2001).

Our analysis relies on two types of changes to density, both of which are the exercise of an element of a redevelopment option. First, the teardown and subsequent redevelopment of existing single family residences into larger and higher quality single family units. The second is the introduction in Vancouver, Canada of a policy that lets most single family homeowners add a separate infill rental unit to their properties. We examine how these two changes affect the value of adjacent properties. In the case of the first, the redevelopment results in a newer, larger property, which on net could have a positive or negative effect on adjacent unit, but with the negative effects being visual impairment and infringement, since the number of households leaving nearby does not change. With the infill unit, the effects of increased structure density, similar to those with redevelopment, are augmented with increased household density since the addition results in an additional one to two person living next door. Our analysis takes advantage of these effects to distinguish between structure and household density externalities.

We find that both forms of density reduce the value of adjacent properties, but there are important differences. Redevelopment itself has positive effects as older more rundown units are replaced with higher quality structure: replacing an older property with a new redeveloped house raises the value of adjacent properties by 7 percent. However, this is offset by the density effect, so at the median density the aggregate positive effect is approximately 1.3 percent, $C18,500 at the mean property value. An infill laneway property lowers the value of an immediate neighbours properties by 2 percent irrespective of size, and then another 1.4 percent from the added density, assuming median infill size and median lot size. This work does put some magnitudes on the effects of density on a property's most immediate neighbours, and perhaps most critically quantifies why local residents are so vociferous in their opposition to local government initiatives to change zoning to allow higher densities. In a context analogous to the backlash to trade, the local negative effects of density are perceived to outweigh the aggregate benefits to welfare through agglomeration and sustainability.

2 Literature

That density would have effects is not surprising. Turner, Haughwout, and van der Klaauw (2014) disaggreahte the different ways zoning restrictions effect property values; own-lot, external, and supply effects. Our focus is on the second of these, which is sparse compared with the analysis of the larger supply question. Strange (1991), presents a theoretical model that categorizes the different ways density effects properties both within and across neighbourhoods. Critically, he allows for direct effects on nearby properties and indirect effects as increases in density in one area can induce wholesale zoning changes in individual neighbourhoods or across a city. An older empirical literature studies the effects of zoning and density changes on neighbours. Paper such as Sagelyn and Sternlieb (1972) and Stull (1975) find that multi-family properties in single family neighbourhoods lower values of the nearby single family units. In contrast work by Crecine, et. al. (1967), Reuter (1973), Maser, et. al. (1977), and Mark and Goldberg (1986) do not find that proximity, from a sample of properties a given distance from the location of density, has an effect on house prices. Our contribution is to help separate the effects of density from increased population, to look at newly built properties, and to avoid some of the sample selection problems that effect these other works by looking at changes in density that occur within the existing zoning for newly built structures.

Part of our identification comes from the teardown of older single family homes and their replacement with newer larger single family homes. Other papers study this phenomenon. Wheaton (1982) among others included redevelopment formally in their models of urban form and change. Helsley and Rosenthal (1994) were the first to explicitly study the phenomenon as an empirical event, using these units to extract estimates of urban land values. Menace (1996), Helms (2003), and Dye and McMillen (2007) all estimate models to predict which units are torndown, looking at both unit and neighbourhood characteristics. This form of redevelopment option exercise is studied by Clapp and Salavi (2010), Clapp, et. al. (2012), and McMillen and O'Sulliven (2013), who attempt to estimate both the option exercise decision and the option value. Our work is different in that we look to what the redevelopment mean for the values of adjacent properties.

3 Data

We combine transaction data from Vancouver, Canada for single family houses with property roll data. This allows us to identify the characteristics of immediately adjacent properties, even if they do not transact. For the period of 2009-2016 we end uf with approximately 142,000 transactions of single family units where the units are in single family zoning, the adjacent properties are all single family units, and we now the size and age of the neighbouring structure at the time of each sale. In total, 5.4 percent (7,600 transactions) have a neighbour that is less than three years old. The units have a median size of 3,160 square feet and a structure density (floor area or space ratio) of 0.67, compared to 2,200 and 0.52 for all transactions.

Renovations are essentially the only source of new single family construction in Vancouver. With a few exceptions of subdivided lots, the overwhelming number of new single family properties in Vancouver are a replacement of an existing single family unit. Supply constraints and redevelopment in the city and metro area mean that the share of households in single family units has been dropping steadily since 1981, and that in the city and the metro area, the aggregate number of single detached houses dropped, despite a growing population. In this analysis we draw on data from nearly the whole city. We use transactions from 23 of the city's 30 neighbourhoods, limiting inclusion to those with single family transactions on property zoned for single family use drops 7 neighbourhoods that in aggregate have 138 properties zoned for single family. Of these 5 neighbourhoods are in the downtown core and the single family units are unusual heritage preservation outliers. Our transaction count for older properties (three years and older) runs between 1,886 and 11,282 per neighbourhood, with a median of 5,950. For new properties (two years and fewer), the count per neighbourhood runs from 33 to 850, with a median of 266 (just one neighbourhood with fewer than 115 and one with more than 626). The correlation between to these two counts is 0.66. So while, the distribution is not perfectly uniform, the redevelopment phenomenon occurs throughout the city.

The other data we use are the construction of in-fill laneway units. These units must be rental properties.they cannot have their own title. They are limited in size and built form. They are fairly high quality, with construction costs of $C200,000 to $C300,000 for a 300 - 800 square foot unit, this excludes land costs. High planning and building code requirements mean their per square foot cost is more than that for an actual house. Following the legalization of this type of infill in mid-2008, 1,759 were built between 2009 and 2015. Our transaction count of units with laneways is 2,567 of our total transactions of 142,448. These too are districted across the city, the correlation of neighbourbood sales of units with laneways to total neighbourhood sales is 0.77.

4 Laneway Announcement effect

Over our period of analysis, there were no changes in zoning that changed the rules regarding the teardown and replacement of an existing single family home with a second single family home. In addition our analysis will include neighbourhood - year dummies along with a citywide set of year-month dummies to control both all general and neighbourhood variation in price levels. The decision to redevelop becomes an individual property owner or buyer's decision as function of unit characteristics. The identification comes form the difference between properties adjacent to those that are redeveloped versus those that are not. In the data we define new as any property less than three years old to allow for a large enough window to have transactions.

We exploit two announcements related to the ability of homeowners to add a laneway house to their property to identify the value of the option to build. The first announcement was in July, 2008, when properties in the primary single-family zoning, SR-1, became eligible for a laneway house, subject to certain restrictions discussed below. Four years later, in July, 2013, the City of Vancouver extended this eligibility to all remaining single-family zoning designations. In addition to being with the appropriate zoning designation, a property needs to satisfy the following conditions to be eligible for a laneway house:

1. The property needs to back on a lane or another street. Properties that have no lane or street separating them from the property behind are not eligible to build a laneway house. This restriction applies even for corner lots, which in theory have the necessary access for fire and other services. For this reason, we identify all properties for which the lot polygon border is NOT within 4 meters of a laneway as ineligible.

2. The requirements for cite coverage and access imply that properties with either of these characteristics are not eligible for a laneway house:

- Lot is less than 110 ft deep OR narrower than 25 ft
- Lot is BOTH less than 33 ft wide and less than 122 ft deep

3. The total site coverage of the main house and the laneway cannot exceed 40% of the property area. This restriction is particularly binding for properties known as "Vancouver special" because of their size and location within the lot. To identify these properties, we apply the following filters:

- Property built between 1963 and 1986, and
- One story with full basement, and
- Floor area exceeds 1500 sq. ft., and
- Floor area to lot size ¿ .5, and
- Lot size is less than 9000 sq. ft.,
- But allow laneways for large lots which exceed 148 x 36 feet.

Our identification strategy is based on the difference in price appreciation for properties that are eligible and not eligible for a laneway house around each of the announcement dates. In efficient markets, this difference captures the option value to build a laneway and thus substantially increase the FSR of the property.

Specifically, we estimate the following differene-in-difference equation for all transactions subject to the zoning change:

$$p = \beta_0 + \beta_1 Characteristics + \beta_2 \sum I(\text{Property in neighbourhood i at time t}) + \beta_3 Eligible + \beta_4 postannouncement + \beta_5 Eligible * postannouncement \quad (1)$$

where p is the log - transaction price of property, "Characteristics" captures available property characteristics, "Eligible" is an indicator variable whether the property meets the laneway requirements listed above, and "postAnnouncemnet" is an indicator variable that takes the value of one for transactions after the announcement date. We estimate Equation 1 for properties within the zoning that changed: SR-1 to SR-7.

This methodology has two main threats to identification. First, it is conceivable that some other event differentially affected properties that are eligible for a laneway house. For instance, the value of backing onto a lane may have changed for a different reason. However, such a change would have to be perfectly contemporaneous with the laneway announcements.

Second, the changes were not a total surprise, it is conceivable that they were anticipated and reflected in prices before the announcement. However, both changes were highly contested in passionate debates, and in our view the outcomes of the final votes were not at all certain. Moreover, if the price impact took effect before the announcement, then our results would be biased downward, below the true effect of the announcement, thus making it possible that we do not detect an effect that was real, but never detect an effect that did not exist.

5 Laneway Option Exercise effect

In this section we investigate the impact of actually building a laneway house on a property that is already eligible. This is the impact of exercising the option to build. Specifically, we estimate the following model:

$$p = \beta_0 + \beta_1 Characteristics + \beta_2 \sum I(\text{Property in neighbourhood i at time t}) + \beta_3 (hasLaneway) \tag{2}$$

where "has laneway" is an indicator variable if the property has a laneway at the time of transaction and all other variables are defined as above. We restrict this estimation only to properties eligible for a laneway house at that time. This includes all SR-1 properties up to 2013, and then properties in all SR zoning after 2013.

While the above equation is rather straightforward, its estimation presents a difficulty. About 55% of all laneway houses were build as part of re-developing the entire property. Therefore, we need to carefully separate the effects of a laneway from the effects of property redevelopment. We do this in two alternative ways:

- We include an indicator for a newly built unit as one of the property characteristics.
- We restrict the sample only to new builds, which contain both new builds with and without laneway houses.

6 Effect on the neighbours

Building a laneway house represent a significant increase in density both in terms of site coverage and in terms of additional residents and cars. With this in mind, we investigate the effect of building a laneway house on the neighbours. For each laneway built, we identify the immediate neighbours on each side. This identifies the properties most impacted by the newly built laneway house. To estimate the impact on the neighbours, we estimate the following model:

$$\begin{aligned} p = \beta_0 + \beta_1 \text{Characteristics } + \beta_2 \sum I(\text{Property in neighbourhood i month t}) + \\ \beta_3(\text{Has laneway}) + \beta_4(\text{Neighbour has laneway}) + \beta_4(\text{Neighbour characteristics}) \end{aligned} \tag{3}$$

The neighbour characteristics we consider are floor area, lot area, and age. The parameter β_4 estimates the effects of a neighbouring laneway above and beyond the total floor area and age of the neighbours.

7 Results

8 References

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VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Lot size 000sf	244,530.000	5.255	2.482	1.761	43.560
Finished area 000sf	244,530.000	2.454	1.039	0.514	10.355
Number of bedrooms	244,516.000	4.411	1.361	1.000	23.000
Number of full bathrooms	244,516.000	2.329	1.318	0.000	10.000
Number of partial bathrooms	244,516.000	0.869	0.898	0.000	8.000
Dummy, =1 if has multi-car garage	244,530.000	0.487	0.500	0.000	1.000
Dummy, =1 if has single car garage	244,530.000	0.268	0.443	0.000	1.000
Property has a Laneway unit	244,530.000	0.017	0.128	0.000	1.000
Dummy, =1 if parcel re-zoned for laneway July 28 2008	244,530.000	0.944	0.230	0.000	1.000
Dummy, =1 if parcel newly re-zoned for laneway July 2013	244,530.000	0.056	0.230	0.000	1.000
lnP	244,530.000	13.917	0.844	0.000	16.799
Age - renovation adjusted	244,530.000	32.665	20.638	0.000	111.000

Table 1
The table reports summary statistics of the full sample.

VARIABLES	(1) +/- 6 mos	(2) +/- 9 mos	(3) +/- 12 mos
1.postJuly2008	-0.345***	-0.223***	0.164***
	(-5.30)	(-3.35)	(3.27)
1.laneok1	-0.118***	-0.118***	-0.067***
	(-5.65)	(-6.28)	(-4.38)
1.postJuly20081.laneok1	0.117***	0.024	0.006
	(3.62)	(0.99)	(0.30)
Lot size 000sf	0.051***	0.051***	0.051***
	(11.80)	(15.52)	(19.08)
Lot size squared	-0.000**	-0.000***	-0.001***
	(-2.41)	(-3.30)	(-7.65)
Finished area 000sf	0.185***	0.161***	0.130***
	(14.16)	(16.25)	(16.28)
Finished area squared	-0.009***	-0.005***	-0.001
	(-5.40)	(-3.80)	(-0.53)
Number of bedrooms	-0.029***	-0.028***	-0.031***
	(-11.37)	(-14.26)	(-19.49)
Number of full bathrooms	-0.006	-0.003	0.001
	(-1.41)	(-1.02)	(0.49)
Number of partial bathrooms	-0.007	-0.008**	-0.001
	(-1.60)	(-2.25)	(-0.32)
Dummy, =1 if has multi-car garage	0.044***	0.034***	0.031***
	(5.67)	(5.47)	(6.30)
Dummy, =1 if has single car garage	0.020***	0.017***	0.016***
	(2.79)	(3.05)	(3.34)
Age - renovation adjusted	-0.015***	-0.013***	-0.013***
	(-23.90)	(-28.01)	(-35.21)
Age Squared	0.000***	0.000***	0.000***
	(15.89)	(19.03)	(22.64)
Newly built	-0.015	0.017	0.025***
	(-1.01)	(1.58)	(2.95)
Constant	14.106***	14.166***	13.873***
	(286.22)	(234.61)	(377.26)
Observations	19,239	31,249	45,152
R-squared	0.685	0.682	0.687
Neighborhood/time effects	Yes	Yes	Yes

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2
The table reports the estimation of Equation 1 for the 2008 announcement based on zone classification alone. The coefficient on the n term post-July 2008 * laneok1 reports the announcement effect on properties with zoning that allowed laneway houses as of July, 2008 versus properties with zoning that did not. The interaction term is positive and strogly significant at +/- 6 months of announcement.

VARIABLES	(1) +/- 6 mos	(2) +/- 9 mos	(3) +/- 12 mos
1.postJuly2008	-0.247***	-0.225***	0.165***
	(-4.34)	(-3.58)	(3.46)
1.laneReallyOK	0.040***	0.029***	0.010
	(4.19)	(3.69)	(1.45)
1.postJuly20081.laneReallyOK	0.045***	0.021**	0.017**
	(3.32)	(2.01)	(2.03)
Lot size 000sf	0.045***	0.043***	0.048***
	(9.57)	(12.21)	(16.55)
Lot size squared	-0.000	-0.000	-0.001***
	(-1.32)	(-1.55)	(-6.61)
Finished area 000sf	0.165***	0.141***	0.117***
	(12.02)	(13.51)	(13.94)
Finished area squared	-0.006***	-0.001	0.002
	(-3.52)	(-1.01)	(1.35)
Number of bedrooms	-0.028***	-0.025***	-0.029***
	(-10.63)	(-12.46)	(-18.21)
Number of full bathrooms	-0.006	-0.005	0.002
	(-1.45)	(-1.47)	(0.58)
Number of partial bathrooms	-0.011**	-0.011***	-0.001
	(-2.37)	(-3.11)	(-0.38)
Dummy, =1 if has multi-car garage	0.055***	0.038***	0.032***
	(6.95)	(6.07)	(6.37)
Dummy, =1 if has single car garage	0.038***	0.022***	0.021***
	(5.25)	(4.03)	(4.49)
Age - renovation adjusted	-0.013***	-0.012***	-0.012***
	(-21.09)	(-24.80)	(-32.06)
Age Squared	0.000***	0.000***	0.000***
	(12.14)	(15.54)	(19.44)
Newly built	0.003	0.033***	0.043***
	(0.24)	(3.13)	(5.27)
Constant	13.980***	14.057***	13.804***
	(305.53)	(241.21)	(402.46)
Observations	18,185	29,486	42,606
R-squared	0.689	0.681	0.688
Neighborhood/time effects	Yes	Yes	Yes

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3

The table reports the estimation of Equation 1 for the 2008 announcement by limiting the sample to only zoning that allowed laneway houses as of July, 2008. The variation in eligibility is based on whether a property meets the minimum requirements for a laneway house or not. Specifically, the property needs to meet certain minimum size restrictions and have access to a lane. The coefficient on the interaction term post-July 2008 * laneReallyOK captures the announcement effect on properties that became eligible for a laneway on July, 2008 and meet the minimum requirements for a laneway versus properties that do not meet the minimum requirements.

VARIABLES	(1) +/- 6 mos	(2) +/- 9 mos	(3) +/- 12 mos
1.postJuly2013	0.212***	0.064	0.187**
	(6.51)	(1.13)	(2.49)
1.laneok2	0.097***	0.083***	0.049***
	(7.29)	(6.41)	(4.20)
1.postJuly20131.laneok2	0.006	-0.012	0.015
	(0.32)	(-0.71)	(1.04)
Lot size 000sf	0.138***	0.108***	0.112***
	(22.86)	(44.13)	(50.64)
Lot size squared	-0.004***	-0.002***	-0.002***
	(-10.11)	(-20.91)	(-22.59)
Finished area 000sf	0.029**	0.064***	0.064***
	(2.41)	(7.10)	(8.21)
Finished area squared	0.001	-0.001	-0.001
	(0.37)	(-1.12)	(-1.19)
Number of bedrooms	-0.010***	-0.011***	-0.010***
	(-5.70)	(-7.21)	(-7.97)
Number of full bathrooms	0.008***	0.001	-0.005**
	(3.04)	(0.31)	(-2.45)
Number of partial bathrooms	0.006*	0.002	-0.001
	(1.91)	(0.63)	(-0.41)
Dummy, =1 if has multi-car garage	-0.005	0.001	0.012***
	(-0.83)	(0.22)	(2.76)
Dummy, =1 if has single car garage	0.022***	0.022***	0.022***
	(3.98)	(4.86)	(5.67)
Age - renovation adjusted	-0.014***	-0.014***	-0.015***
	(-31.93)	(-40.19)	(-47.95)
Age Squared	0.000***	0.000***	0.000***
	(20.50)	(27.63)	(34.27)
Newly built	0.056***	0.046***	0.042***
	(7.02)	(6.94)	(7.22)
Constant	14.091***	14.232***	14.125***
	(512.02)	(299.16)	(208.06)
Observations	29,571	43,279	56,667
R-squared	0.759	0.753	0.759
Neighborhood/time effects	Yes	Yes	Yes

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4

The table reports the estimation of Equation 1 for the 2013 announcement. The coefficient on the interaction term post-July 2013 * laneok2 reports the announcement effect on properties that became eligible for a laneway on July, 2013.

VARIABLES	(1) +/- 6 mos	(2) +/- 9 mos	(3) +/- 12 mos
1.postJuly2013	0.353***	-0.148**	0.161**
	(9.25)	(-2.39)	(1.99)
1.laneReallyOK	-0.089***	-0.099***	-0.116***
	(-3.81)	(-4.28)	(-4.16)
1.postJuly20131.laneReallyOK	0.182***	0.070**	0.045
	(4.14)	(2.09)	(1.19)
Lot size 000sf	0.162***	0.190***	0.202***
	(8.96)	(10.61)	(11.36)
Lot size squared	-0.004***	-0.005***	-0.005***
	(-4.27)	(-5.39)	(-5.69)
Finished area 000sf	0.105***	0.092**	0.090***
	(2.82)	(2.57)	(2.74)
Finished area squared	-0.009**	-0.003	-0.008**
	(-2.23)	(-0.81)	(-2.15)
Number of bedrooms	-0.067***	-0.057***	-0.047***
	(-9.82)	(-9.21)	(-8.31)
Number of full bathrooms	-0.001	-0.029***	-0.024***
	(-0.09)	(-2.93)	(-3.00)
Number of partial bathrooms	0.006	-0.037***	-0.008
	(0.44)	(-3.27)	(-0.88)
Dummy, =1 if has multi-car garage	-0.042*	-0.027	-0.027
	(-1.81)	(-1.41)	(-1.49)
Dummy, =1 if has single car garage	0.056***	0.037**	0.016
	(2.73)	(2.15)	(0.91)
Age - renovation adjusted	-0.016***	-0.018***	-0.019***
	(-11.60)	(-14.20)	(-16.39)
Age Squared	0.000***	0.000***	0.000***
	(6.20)	(9.48)	(11.13)
Newly built	0.061*	0.115***	0.088***
	(1.88)	(3.98)	(3.62)
Constant	15.466***	14.393***	13.874***
	(165.59)	(151.25)	(143.87)
Observations	1,626	2,412	3,124
R-squared	0.906	0.892	0.899
Neighborhood/time effects	Yes	Yes	Yes

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5

The table reports the estimation of Equation 1 for the 2013 announcement by limiting the sample to only zoning that allowed laneway houses as of July, 2013. The variation in eligibility is based on whether a property meets the minimum requirements for a laneway house or not. Specifically, the property needs to meet certain minimum size restrictions and have access to a lane. The coefficient on the interaction term post-July 2013 * laneReallyOK captures the announcement effect on properties that became eligible for a laneway on July, 2013 and meet the minimum requirements for a laneway versus properties that do not meet the minimum requirements.

VARIABLES	(1) Full sample	(2) Restricted sample	(3) Multi-garage or laneway	(4) Restrictions 2 and 3	(5) New builds only
Property has a Laneway unit	0.058***	0.061***	0.086***	0.078***	0.062**
	(9.00)	(8.06)	(6.60)	(5.02)	(2.19)
Dummy, = 1 if laneway suitble	0.009***				
	(3.98)				
Lot size 000sf	0.099***	0.112***	0.092***	0.065**	0.065
	(82.52)	(6.29)	(53.31)	(2.50)	(0.77)
Lot size squared	-0.002***	-0.002	-0.002***	0.003	0.010
	(-41.14)	(-0.92)	(-29.57)	(1.21)	(1.01)
Finished area 000sf	0.088***	-0.004	0.116***	0.027	0.122*
	(21.98)	(-0.44)	(20.18)	(1.51)	(1.96)
Finished area squared	-0.003***	0.016***	-0.006***	0.008**	-0.026**
	(-5.31)	(7.34)	(-8.95)	(2.04)	(-2.16)
Number of bedrooms	-0.015***	-0.013***	-0.017***	-0.019***	-0.013***
	(-21.45)	(-14.13)	(-18.56)	(-14.92)	(-3.82)
Number of full bathrooms	-0.007***	-0.010***	0.000	0.001	0.040***
	(-6.02)	(-6.56)	(0.22)	(0.49)	(6.58)
Number of partial bathrooms	-0.002*	-0.008***	0.011***	0.009***	0.051***
	(-1.85)	(-4.80)	(6.80)	(3.93)	(8.48)
Dummy, =1 if has multi-car garage	0.007***	0.001			0.048
	(3.23)	(0.21)			(1.36)
Dummy, =1 if has single car garage	0.017***	0.015***	-0.054***	-0.029*	-0.019
	(8.20)	(5.19)	(-3.68)	(-1.70)	(-0.63)
Age - renovation adjusted	-0.014***	-0.014***	-0.015***	-0.013***	0.068***
	(-86.83)	(-65.06)	(-61.95)	(-41.27)	(14.09)
Age Squared	0.000***	0.000***	0.000***	0.000***	-0.008***
	(60.99)	(43.45)	(43.26)	(25.67)	(-15.27)
Newly built	0.029***	0.001	0.030***	0.013***	
	(8.82)	(0.15)	(8.20)	(2.76)	
Constant	13.700***	13.594***	13.840***	13.802***	13.556***
	(512.76)	(266.80)	(429.63)	(208.43)	(85.67)
Observations	199,663	105,441	99,122	51,063	6,520
R-squared	0.764	0.687	0.780	0.699	0.874
Neighborhood/time effects	Yes	Yes	Yes	Yes	Yes

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6

The table reports the impact of having a laneway unit using Equation 2 We report the estimates for the full sample, a sample restricted to properties that meet the laneway requirements and have lot width between 25 and 48 feet and length less than 148 feet, a sample restricted only to properties that have a laneway unit or a multi-garage, and a sample that meets the two latter restrictions. The presence of a laneway unit is positive and significant for all sample specifications considered.

VARIABLES	(1) Log-price	(2) Less than 20 years old	(3) More than 20 years old
Property has a Laneway unit	0.059***	-0.039***	0.111***
	(8.23)	(-3.36)	(12.69)
Dummy, = 1 if laneway suitble	0.006**	-0.009*	0.005
	(2.54)	(-1.91)	(1.49)
Post-2009 adjacent laneway	-0.020**	-0.020*	-0.025**
	(-2.26)	(-1.67)	(-2.04)
Average total neighbor floor area 000 sqf	0.051***	0.036***	0.054***
	(15.86)	(7.22)	(13.76)
Average total neighbor FSR	-0.076***	-0.018	-0.088***
	(-4.19)	(-0.62)	(-4.00)
Either neighbor is a newbuild	0.069***	0.139***	0.060*
	(2.90)	(4.36)	(1.69)
Newbuild neighbor X Neighbor FSR	-0.117***	-0.203***	-0.105*
	(-3.07)	(-3.92)	(-1.87)
Lot size 000sf	0.093***	0.052***	0.096***
	(45.62)	(13.64)	(38.64)
Lot size squared	-0.002***	-0.001***	-0.002***
	(-29.84)	(-8.20)	(-22.40)
Finished area 000sf	0.072***	0.222***	0.053***
	(15.59)	(25.28)	(8.96)
Finished area squared	-0.002***	-0.012***	-0.002**
	(-3.12)	(-11.18)	(-2.42)
Number of bedrooms	-0.016***	-0.011***	-0.009***
	(-18.83)	(-8.82)	(-7.99)
Number of full bathrooms	-0.009***	-0.009***	-0.013***
	(-7.37)	(-5.04)	(-7.50)
Number of partial bathrooms	-0.004***	0.009***	-0.014***
	(-2.79)	(4.11)	(-8.07)
Dummy, =1 if has multi-car garage	0.004*	-0.005	0.002
	(1.70)	(-0.84)	(0.71)
Dummy, =1 if has single car garage	0.018***	0.002	0.018***
	(7.63)	(0.35)	(7.15)
Age - renovation adjusted	-0.015***	0.009***	-0.014***
	(-77.27)	(8.52)	(-39.26)
Age Squared	0.000***	-0.001***	0.000***
	(53.82)	(-19.92)	(30.43)
Newly built	0.034***	0.060***	
	(9.09)	(14.08)	
Constant	13.669***	13.584***	13.512***
	(645.20)	(469.24)	(423.93)
Observations	142,434	45,959	99,887
R-squared	0.759	0.791	0.740
Neighborhood/time effects	Yes	Yes	Yes

Robust t-statistics in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7

The table reports the estimation of Equation 3, which includes the presence of a neighbouring laneway unit. We offer two specifications, one using neighbour's FSR measures, and one using neighbour's total floor area measures. We also include an interaction term for newly built neighbours and their FSR or size.