

Make Way for Laneway

Providing more housing options for the Greater Toronto Area

There is a lack of housing diversity in the Greater Toronto Area. In particular, there is a short supply of affordable homes in walkable, amenity-rich urban neighbourhoods that are close to rapid transit. These desirable residential streets are comprised mostly of detached and semi-detached houses, with purchase prices and rental rates beyond the reach of most residents. Because of the declining affordability of housing in many urban neighbourhoods across the GTA, people in lower-income households are forced to move to the periphery.

Many condominiums and apartment buildings are being built in urban centres and along transit lines to provide more affordable home options in these areas. But there are other ways to provide more homes in these established neighbourhoods — and without changing the look, feel and character of these low-rise residential streets. Laneway houses, garden suites and infill townhouses are examples of small-scale housing options that can help address the affordability gap near transit.



Big benefits from small-scale housing



Townhouses on Sudbury Street are within walking distance of Exhibition GO station, as well as the King and Queen streetcars Photo: Roberta Franchuk, Pembina Institute

Small-scale housing in walkable, transit-friendly neighbourhoods can provide many benefits to residents:

- Reducing car dependence: These new housing options put more people near transit and existing amenities. This helps families get around without the need for two cars, so they can save money on transportation costs and enjoy a shorter commute.
- Getting grounded: Not everyone wants to live vertically in a high-rise or mid-rise apartment. Small-scale and infill homes allow for groundfloor living in residential neighbourhoods.
- Shopping locally: Businesses in these residential neighbourhoods need as many local customers as possible. More local customers in turn attract more businesses to the area, such as cafés and markets, making the neighbourhood more attractive and desirable.

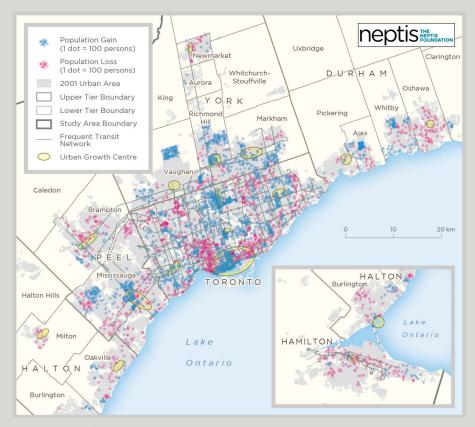
- Covering the mortgage: Many of these housing options can be built by homeowners and rented out, providing extra income to help cover mortgage costs.
- **Paying the fare:** More people living in transit-accessible neighbourhoods provides more justification for good local transit service. Higher ridership also means higher fare revenues, which can be used to improve service for an even better ride.
- Protecting our farmland: Ontario intends to accommodate much of the GTA's future growth by intensifying urban areas — while protecting the region's Greenbelt, farmland and drinking water headwaters instead of building out on the suburban fringes.

Our changing neighbourhoods

Anytime new homes are built, some people are concerned about change. This is particularly true in established neighbourhoods that are valued as stable, mature and historic. Yet the reality is that many of our established neighbourhoods are not stable: rather, they change along with demographic shifts. Some older downtown neighbourhoods are actually losing population as families age and household sizes shrink, while other neighbourhoods grow through gentrification or an influx of new families (see the sidebar for details).

New housing options in established communities cannot only increase density with affordable housing units, but in many cases they also halt population decline. The population of these established neighbourhoods needs to be maintained in order to support existing businesses and services.

The GTA has a rich history of creating secondary suites in homes, subdividing detached houses and converting house-plexes back to single-family homes when needed. Our neighbourhoods are constantly changing depending on the needs of current and future residents.



Some areas of the Greater Toronto and Hamilton Area have increased in population from 2001 to 2011, while others actually lost residents

Source: Neptis Foundation²

While the GTA and the Greater Golden Horseshoe are growing in population, recent research by the Neptis Foundation has found that some existing urban areas have in fact experienced a net loss in population.³ As a result, some well-serviced communities are actually inhabited by fewer people. In communities across Canada, demographics are changing as people age, families have fewer children and more people live alone. The average number of people per household is going down. It is therefore entirely appropriate that new housing opportunities be considered within established communities, not only to increase density with affordable housing options, but in many cases to halt population decline. A stable population is needed in these established neighbourhoods to support existing businesses and services.

Innovative, small-scale housing options

Condo and apartment buildings are suitable for main streets and avenues, but smaller residential streets are better served with more smallscale housing. Strategically located small-scale housing developments in an established single-family neighbourhood can provide the "invisible" population density necessary to help support local businesses and rapid transit. These developments blend into the existing scale and architectural character of an established neighbourhood better than larger buildings that are suited to busier streets.

When low-rise infill development occurs along neighbourhood streets or in laneways, it creates more housing options in established locations where only limited and more expensive options were previously provided. There are many different infill options such as secondary suites, garden suites, infill townhouses and laneway houses that can fit the needs of different neighbourhoods.

Three innovative, small-scale housing options are already present in some communities:



1. Attached secondary suites (basement and attic apartments)





2. Detached secondary suites (laneway houses, granny flats and garage suites)





3. Infill townhouses



These options should be encouraged in other neighbourhoods across the GTA, to provide a greater variety of affordable housing options. We present four solutions page to support small-scale housing in the region.









The suite spot

Adding secondary suites to homes

What are secondary suites?

A secondary suite is an additional private, self-contained dwelling located within a house that would normally accommodate only one dwelling unit. They are often called accessory suites or basement suites, or sometimes attic suites. A secondary suite has its own kitchen, bathroom and sleeping areas. However, it can share some facilities such as an entrance, yard, stairwell or laundry with the rest of the home.

Secondary suites are an important part of rental housing supply in many cities and towns. They have the added benefit of incrementally increasing densities while preserving the existing neighbourhood character and scale.

What are the benefits?

Secondary suites can be developed without requiring additional municipal service infrastructure like gas, water and electricity connections. They also require minimal construction compared to building a new dwelling.

Rents in secondary suites are often lower than those in apartments in conventional rental buildings. They provide more opportunities for low-and middle-income households to live in ground-oriented residential neighbourhoods that are well-served by transit.



Basement and attic secondary suites

Secondary suites can make it easier for first-time homebuyers to purchase a home by providing extra income and security to cover mortgage costs, or they can provide additional income for empty-nesters who no longer need a large house. They also present an opportunity for multigenerational households — with adult children, perhaps young children and aging parents in the same home — who offer benefits to each other such as security and care, all while retaining privacy.

What are the barriers?

Across Ontario, municipalities regulate residential zoning bylaws for secondary suites. In 2012, Ontario passed the Strong Communities Through Affordable Housing Act, requiring municipalities to authorize the use of a second residential unit without the possibility of appealing a decision to adopt second unit policies.

Although the province has required secondary suites policies throughout Ontario, municipal policies are inconsistent across the province. Many municipalities still maintain prohibitive barriers to secondary suites. This has slowed the expansion of secondary suites in many areas. For example, Vaughan only introduced secondary suite regulations in 2015.

Parking supply and congestion are often perceived as a problem when secondary suites are introduced into a community. These issues can be mitigated by managing the supply of municipal street parking permits, promoting car sharing and adjusting local parking standards based on transit proximity.

Allowing secondary suites could be championed as a social issue, as it constitutes "zoning for people" rather than "zoning for use." It creates more affordable housing options for a significant number of Ontarians.



A secondary suite in an existing community Photo: Roberta Franchuk, Pembina Institute

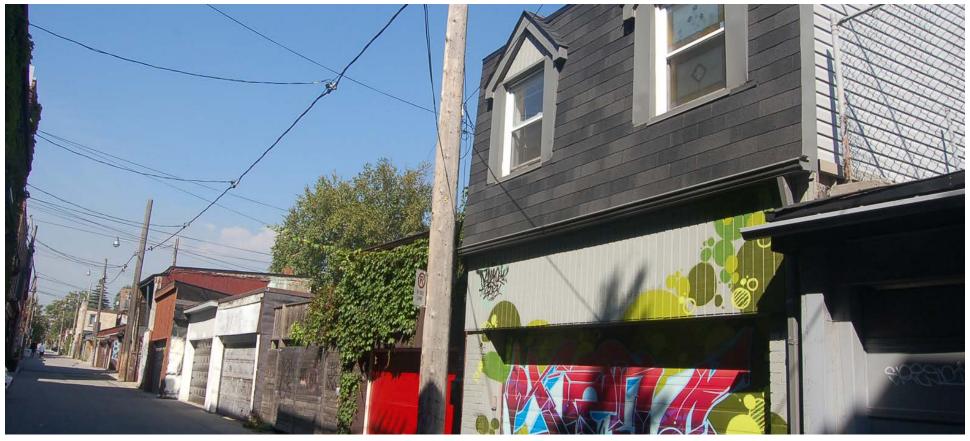
Where has it been done?

Secondary suites exist across the GTA and are supported by some municipalities in the appropriate areas. The City of Toronto considers secondary suite development an ideal form of intensification, as it increases the population of established neighbourhoods without altering the character of the community. Other municipalities like Newmarket, Pickering and Caledon implemented secondary suite bylaws before the Strong Communities Through Affordable Housing Act was introduced.

Beyond Ontario, a few home builders in Alberta and Saskatchewan advertise the building of regulation basement suites in new homes. They promote the idea that first-time homebuyers can benefit from both owning a house and renting for additional cash flow.

One-fifth of rental housing in Vancouver now consists of secondary suites, approximately 26,600 units.⁴ North Vancouver began allowing secondary suites in detached single-family dwellings in 1997. In 2013 it became the first municipality in North America to permit the development of secondary suites in duplexes, when certain conditions are met.⁵

All new communities in Calgary are now zoned for secondary suites as a permitted use. However, in existing Calgary communities, adding a secondary suite can be difficult as a zoning change or development permit may be required.



A suite above a garage in Toronto Photo: Roberta Franchuk, Pembina Institute

Where would secondary suites work in the GTA?

Existing communities

Secondary suites help the province and municipalities reach their intensification goals while increasing the stock of affordable and rental housing through incremental density increases that are essentially "invisible" within established neighbourhoods.

New communities

While a secondary suite is usually created in a dwelling designed to accommodate a single family, builders can construct new houses that already include apartments, or that have the flexibility to be easily converted. This would increase the range and mix of housing options available to individuals and families from the outset when communities are built.

Laneway living

Dwellings detached from primary residences

What are detached suites?

Laneway houses and garden suites are common examples of detached accessory units: they are secondary dwellings that are detached from the primary residence. These can be new buildings or conversions of an existing building, such as a garage or a shed.

A laneway house is a small, one- or two-storey house that is detached from the primary residence and faces a laneway or alley. Laneway houses are separate buildings, designed to function independently of the primary residence. These houses have their own entrances that front onto a laneway or alley. Laneway houses can be rented or sold through "strata" ownership, or by severing the residential parcel into two separate properties.

A garden suite is similar to a laneway house, although it may not front onto a laneway. Garden suites may also share some facilities with the main residential building, such as the yard or laundry. Garden suites are commonly designed for relatives, which is why they are often referred to as "granny flats."

Another variation of a garden suite is a **garage suite**, which is a secondary suite built above a separated garage. They are sometimes called "Fonzie flats" in reference to the *Happy Days* television sitcom.

What are the benefits?

Like detached suites, laneway houses and garden suites increase the supply of affordable, ground-oriented rental housing in established neighbourhoods. They do this without requiring major new construction or significantly changing the look of the community. They also offer



Laneway house



Garden suite or granny flat



Garage suite

opportunities for homeowners to earn rental income, sell a portion of their property or provide housing for family members.

Laneway houses and garden suites can also improve the look and safety of a laneway. Laneway houses are usually built at a much slower pace than a whole development of single-family homes. Neighbourhoods therefore will not significantly change in a short time. During the first two years of Vancouver's laneway pilot project, an average of 11 laneway house permits were approved each month⁶ and these were dispersed throughout the city.

What are the barriers?

The primary barriers to constructing laneway houses are municipal zoning bylaws that forbid detached dwellings that are separate from the primary residence on a single lot. In Toronto, laneway applications are handled on a case-by-case basis. Bylaws in Mississauga[®] and Markham[®] specify that accessory dwelling units must be within a detached, semi-detached or row house — and not in a structure separate from the primary residence.

Privacy for neighbours is a common concern, as residents in a garage, garden or laneway dwelling are often closer in distance to neighbouring properties than usual.

Since most laneways in Toronto do not have service connections, laneway houses need to be serviced via connections that are located on the main street. This could be costly for developers, who would pass these costs onto the renter or homebuyer.

Ontario's building code says that low-rise housing must provide access for fire department equipment by street, private roadway or yard. This access must account for the weight of fire-fighting equipment, the location of fire hydrants, as well as the turning and parking requirements of fire vehicles. Waste collection and emergency vehicles also require access routes that are at least six metres wide. Many laneways in Toronto are too narrow to accommodate these vehicles.

Where has it been done?

Laneway developments can be found in older Toronto neighbourhoods where servicing through laneways is possible. These developments have been approved by the city on a case-by-case basis, making it a potentially long and costly process to erect a laneway house. Skey Avenue, a laneway behind Dovercourt Avenue, and Croft Street, which is west of Bathurst Street, are two examples of laneways with multiple infill projects. Row houses are currently under construction on Skey Avenue.



Vancouver's laneway housing guidelines have led to laneway development that adheres to the neighbourhood style Photo: Smallworks

Vancouver has a zoning bylaw amendment that allows for laneway houses behind almost every single detached home in the city. These laneway houses, however, are only for family or rental use. They are also limited to a maximum of 1.5 storeys (ranging from 500 to 900 square feet).

In California, Bill 1866 requires local governments to consider second-unit applications in accordance with state standards. This approach promotes accessory units in existing and future single-family lots across California. Local ordinances or programs further facilitate the development of secondary units.

Los Angeles allows for lots to be subdivided, to sell both the land and structure of a secondary dwelling.¹² In Santa Cruz, the Accessory Dwelling Unit Development Program encourages the construction of accessory units to increase the supply of affordable rental housing. The program provides house plans and a manual for how to obtain permits for building a unit. This helps ensure that units are legal and fit the design of the neighbourhood.

Seattle has made accessory dwelling units legal through a permit process. To encourage the development of more accessory dwelling units, the city removed parking and ownership requirements. This allows a single lot to have both a secondary suite and a detached accessory dwelling unit. The city also removed barriers such as height limits, setbacks, maximum square footage and minimum lot size requirements.¹³

Where would detached dwellings work?

Laneway houses and garage suites

There are over 250 kilometres of laneways across Toronto, but the development of laneway housing is limited to areas where laneways are wide enough for servicing and emergency access. West end neighbourhoods near downtown Toronto were designed for service connections and access via the laneway. Many of these laneways already have water, gas and electricity connections making laneway house service connections easier.

Some newer communities in suburban areas have been built in the "new urbanist" style that includes laneways. These could accommodate laneway dwellings. Future single-family developments could also be designed with laneways of the appropriate width that can be connected to water, electricity and sewage.

Garden suites and granny flats

Garden suites that are geared toward accommodating relatives, and share some facilities with the primary residence, could be constructed throughout the GTA in neighbourhoods with detached homes.

Municipalities could determine a minimum lot size or distance from neighbouring properties that is required for the approval of a garden suite.



Toronto has over 250 kilometres of laneways, and many in the downtown west end are suitable for laneway development

Photo: Pembina Institute

TINY HOUSES

A "tiny house" is typically defined as a dwelling that is sized to meet its occupants' needs with little excess space. A typical tiny house is about 100 to 400 square feet. These houses come in all shapes, sizes and forms, but they focus on smaller spaces and simplified living. 14 Tiny houses are a growing movement across North America as they are more affordable and energy efficient, and reduce material consumption.



Tiny houses in Portland, Oregon Photo: Boneyard Studios

While the tiny house movement is primarily made up of people choosing simpler and more affordable accommodations, there are also potential opportunities to create temporary or permanent microhousing shelters to combat homelessness in urban areas. Communities in Oregon have provided a variety of sleeping facilities in semi-permanent wooden structures, and Victoria is also investigating opportunities to create temporary shelters and microhousing.

Where is development happening now?

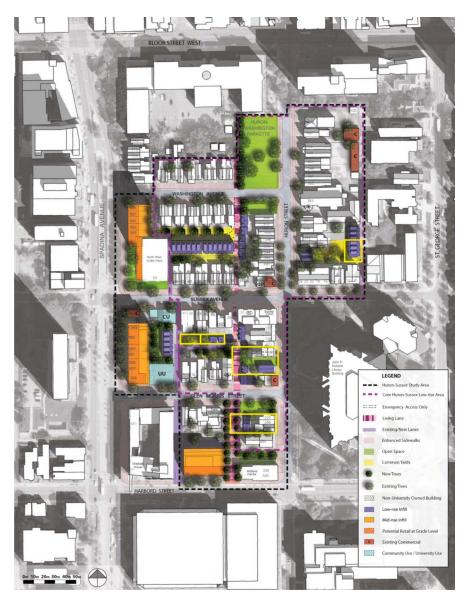
In Toronto, many individuals and organizations are working to transform laneways into vibrant, liveable spaces. A project that shows the potential of this approach is underway on the University of Toronto campus.

The Huron Sussex Neighbourhood Study re-envisions the city's traditional approach to intensification and proposes strategically located laneway houses and mid-rise buildings within a low-rise neighbourhood. This increases housing density while protecting the existing neighbourhood's scale and architectural character. The study is a joint effort between Brook McIlroy, N. Barry Lyon Consultants, the university and the local residents' association.

Following on this study, the University of Toronto is developing three laneway houses with the support of Evergreen and Earth Development. The prototyped homes are being designed by Thomas Payne Architects, with the highest standards of green design and social connectivity. The local community is engaged in the site selection process and will make important contributions to the design of the houses. The houses are targeted for completion in late 2016.

Laneway housing isn't widely used for infill development in downtown Toronto yet. However, this project could establish the Huron Sussex neighbourhood as a pilot and catalyst for future development. For laneway development to take hold across the city, it will need the support of residents, policy makers, developers, architects, planners and city builders.

Building off of their work with the University of Toronto, Evergreen will be undertaking a project-specific analysis of laneway houses in Toronto to determine the financial implications, challenges and opportunities associated with their construction. This research will also be used to inform a detailed policy review and proposals for how Toronto can update its bylaws to support laneway housing.



The University of Toronto is currently working with the local community on the site selection and development of three laneway houses

Photo: Huron Sussex Neighbourhood Planning Study

Filling spaces

Infill townhouses

What are they?

Infill townhouses are new townhouse developments that occur in established neighbourhoods and replace empty lots, brownfields, or aging and dilapidated buildings. Unlike secondary suites, infill townhouses use new or existing streets for their access and addresses. Infill townhouses are often stacked, offering more units per hectare than single detached homes on the same site.

What are the benefits?

Infill townhouses are compact and make better use of land, but still provide design characteristics that are similar to detached and semi-detached houses. These include front doors facing the street, ground-oriented access and outdoor space. Like the other options discussed in this report, infill townhouses provide more opportunities to live in established neighbourhoods that are near transit and amenities.

Townhouses can make efficient use of large or oddly shaped parcels of land, and can replace old or dilapidated buildings. As an alternative to new detached houses in greenfields, they bring new development into existing built-up areas. They also provide a buffer and transition between areas of low and medium-density housing.¹⁵

What are the barriers?

Infill townhouses have fewer barriers to development than detached secondary suites, as servicing can be done via existing or newly built streets with the appropriate characteristics.



Infill townhouses



The proposed Sherwood Park development on Keewatin Avenue west of Yonge Street is facing some opposition due to concerns about increasing densities and lower planned prices than existing homes in the immediate area

Photo: Freed Development

The main barrier to infill townhouses is opposition from residents concerned that these homes will disturb the character and make-up of their neighbourhoods. This is a barrier that can be overcome by communicating the many benefits of adding homes to an established neighbourhood, and by working closely with residents to ensure that matters like privacy are carefully addressed.

Where has it been done?

In the GTA, some townhouses are being developed on lots that previously had detached houses. However, it is more common to find infill townhouse projects on land that was previously zoned for non-residential use. These lots offer larger plots of land for developers to construct a larger number of townhouses.

Where would it work?

There are opportunities across the GTA to introduce infill townhouses. Instead of building out, we can build within our existing neighbourhoods. Seattle has developed a "Housing Affordability and Livability Agenda" that recommends allowing a broader mix of low-density housing types within traditional single-family areas. The broader mix of housing they propose would include small low dwellings, cottages, courtyard housing, row housing, duplexes and staked flats.

In single-family residential neighbourhoods with some dilapidated or substandard homes, infill townhouses are a great way to rejuvenate a street and increase housing supply.

Infill townhouses are also suitable on lots within a residential neighbourhood with low-rise commercial properties that need to be replaced, or vacant lots that may have had a former commercial land use. These vacant lots should be within or adjacent to a residential neighbourhood.



On Shaw Street in Toronto's west end, 37 townhouses bring gentle density to an older neighbourbood

Photo: Nithya Vijayakumar, Pembina Institute



A development of 14 townhouse units has been proposed to replace these three houses on Churchill Avenue in North York

Photo: Google



The Leslieville Lofts replaces a surface parking lot and brings life to Verral Avenue

Photo: Google



Photo: Google

ADAPTIVE REUSE

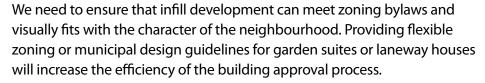
Adaptive reuse is an important component of neighbourhood revitalization, where older buildings are repurposed for new uses. Many established communities feature older commercial, industrial or institutional buildings that are under-used or vacant. These buildings can be reinvigorated through residential conversion. Adaptive reuse projects can make positive contributions to transform streets, neighborhoods and districts. They add urban vitality and richness, and bring relevance and meaning to older buildings that have outlived their original purposes. 16

This type of intensification is very popular in the Greater Golden Horseshoe. New projects like the Schoolhouse condominiums in Toronto's Annex, or the Riverbank Lofts in Cambridge, show the demand for creative infill housing. These types of conversions breathe new life into older buildings, and help support local business and transit. While they are not typically as affordable as secondary suites or laneway houses, they do increase the overall supply of housing options in existing communities and help address the demand for intensification.

Solutions for smallscale housing

Cities across North America have implemented policies and programs to encourage infill in single-family neighbourhoods. In the GTA, the main obstacles to small-scale and infill housing are zoning bylaws, service vehicle limitations and parking problems. Here are four solutions to address those problems:

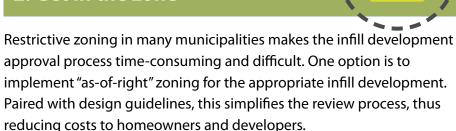
1. Design for success



Laneway houses and other detached dwellings are currently approved on a case-by-case basis. By clearly communicating municipal design requirements and expectations, the approval process can be streamlined. Design guidelines would also address concerns about privacy, shading and whether a structure integrates well with the rest of a neighbourhood's built form.

Homeowners often avoid getting a permit for a new or upgraded secondary suite because the process of dealing with municipal inspectors is too time-consuming and costly. Guidelines from municipalities would reduce the time needed to review and approve new or upgraded secondary units. This will prevent the proliferation of illegal secondary suites and allow more building permit applications to be approved.

2. Get in the zone



The provincial government could adjust rules that would allow for as-of-right secondary suites across Ontario when specific conditions are met, such as compliance with the building code and fire code. Zoning could also be made more flexible to allow a broader range of low-rise housing types in established communities, including flexibility on height, density and setback requirements.

3. Service smaller spaces

The main obstacle to increasing housing in our laneways is that many laneways are not wide enough to accommodate the vehicles that handle fire emergencies and waste collection. The good news is that Toronto already has a fleet of small trucks for fire emergencies and waste collection for the communities on the Toronto Islands. This is an innovative example of municipal service vehicles being appropriately sized to service a community. Toronto and other municipalities could consider a range of service vehicles for different types of communities to service laneway houses.

4. Park less, ride more

A major benefit of small scale and infill housing is the potential to create more homes near transit. Increasing transit ridership and reducing dependence on cars should be a goal when planning these developments.

Off-street parking requirements — such as creating driveways or expensive underground parking — should be relaxed for infill housing near transit, to encourage residents to use transit instead of owning a car. Parking requirements for secondary suites vary between municipalities. However, most require an additional off-street parking space if more than one secondary suite exists and on-street parking is not available.

Another concern is the effect of second units on on-street parking availability. In neighbourhoods where garages or driveways are not common, residents rely on on-street parking for their vehicles.

Most municipalities in the GTA already limit the number of permits available in each neighbourhood to ensure residents are able to find a place to park in their designated zone. If the permit supply is maintained then there should be no concern about more vehicles in the neighbourhood. Municipalities can provide different tiers of permits, limiting where and when residents can park on the street.

Developers and municipalities could also work with private sector carsharing companies to increase their fleets in neighbourhoods that are promoting infill, which would limit the need for more parking.







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Endnotes

- Samira Behrooz, Informing the Informal: Visualizing Laneway Housing and Increased Density in Toronto (Master's Thesis, Ryerson University, 2014), 54. http://digital.library.ryerson.ca/islandora/object/RULA%3A2840
- ² Marcy Burchfield and Anna Kramer, *Growing Pains: Understanding the New Reality of Population and Dwelling Patterns in the Toronto and Vancouver Regions* (Neptis Foundation, 2015). http://www.neptis.org/sites/default/files/growing_pains/growingpains_neptisreport_final.pdf
- ³ Ibid, 14.
- ⁴ Canada Mortgage and Housing Corporation, "Permitting Secondary Suites." https://www.cmhc-schl. gc.ca/en/inpr/afhoce/afhoce/afhostcast/afhoid/pore/pesesu/
- Small Housing BC, Small Houses: Innovations in Small-scale Living from North America (2015), 53. http://www.smallhousingbc.org/wp-content/uploads/2015/03/SMHT_1stEdition_Feb2015.pdf
- ⁶ City of Vancouver, *Laneway Housing Monitoring Report Update* (2010), 1. http://vancouver.ca/files/cov/mar-10-monitoring-update.pdf
- ⁷ Toronto Zoning By-law 438-86 does not permit residences that do not have street frontage or that are erected in the rear of another building.
- ⁸ City of Mississauga, *Second Unit Zoning By-law*. http://www6.mississauga.ca/onlinemaps/planbldg/ HousingChoices/OfficialSecondUnitZoningBy-law0158-2013.pdf
- City of Markham, *Markham's Proposed Policy for Second Suites* (June 2008), 1. http://www.markham.ca/wps/wcm/connect/markhampublic/4c0a481c-6275-45d1-bc9c-4d11c69bbfd5/secondsuite_faq_080606.pdf?MOD=AJPERES&CACHEID=4c0a481c-6275-45d1-bc9c-4d11c69bbfd5
- ¹⁰ Government of Ontario, Building Code Act, S. 3.2.5.4 (1992).
- ¹¹ The Laneway Project, *Toronto Laneway Manua*l. http://static1.squarespace.com/static/5420dd38e4b0968055cfdb19/t/548d9adde4b087dc74cdb86b/1418566365091/Toronto+Laneway+Manual+V.1.0.pdf
- 12 Only allowed in multi-family or commercially zoned areas. Single family detached residential neighbourhoods are well protected and would not support this type of densification in Los Angeles.
- ¹³ Seattle Housing Affordability and Livability Agenda, *Final Advisory Committee Recommendations to Mayor Edward B. Murray and the Seattle City Council* (2015), 8. http://murray.seattle.gov/wp-content/uploads/2015/07/HALA_Report_2015.pdf
- ¹⁴ Small Houses, 53.
- ¹⁵ Ibid.
- ¹⁶ Perkins and Will, "Adaptive Reuse." http://perkinswill.com/service/adaptive-reuse