

# Building Affordable Housing Solutions on Underutilized Land

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\* SIDE WALK LABS

# Executive Summary

## Increasing the Stock of Affordable Rental Housing Units in Underutilized Areas

### Problems

In Toronto, 62.3% of all residential zoning is limited for low-density homes, with the zone known as the Yellowbelt. Currently, this land is extremely expensive, along with generally high rental prices; increasing the impact of the affordable housing crisis.

### Recommendation

Construct laneway suites in appropriate locations along throughout Toronto and East York made from cross-laminated timber using paneled construction methods, while placing robotic furniture throughout the interior of the home.

### Outcome

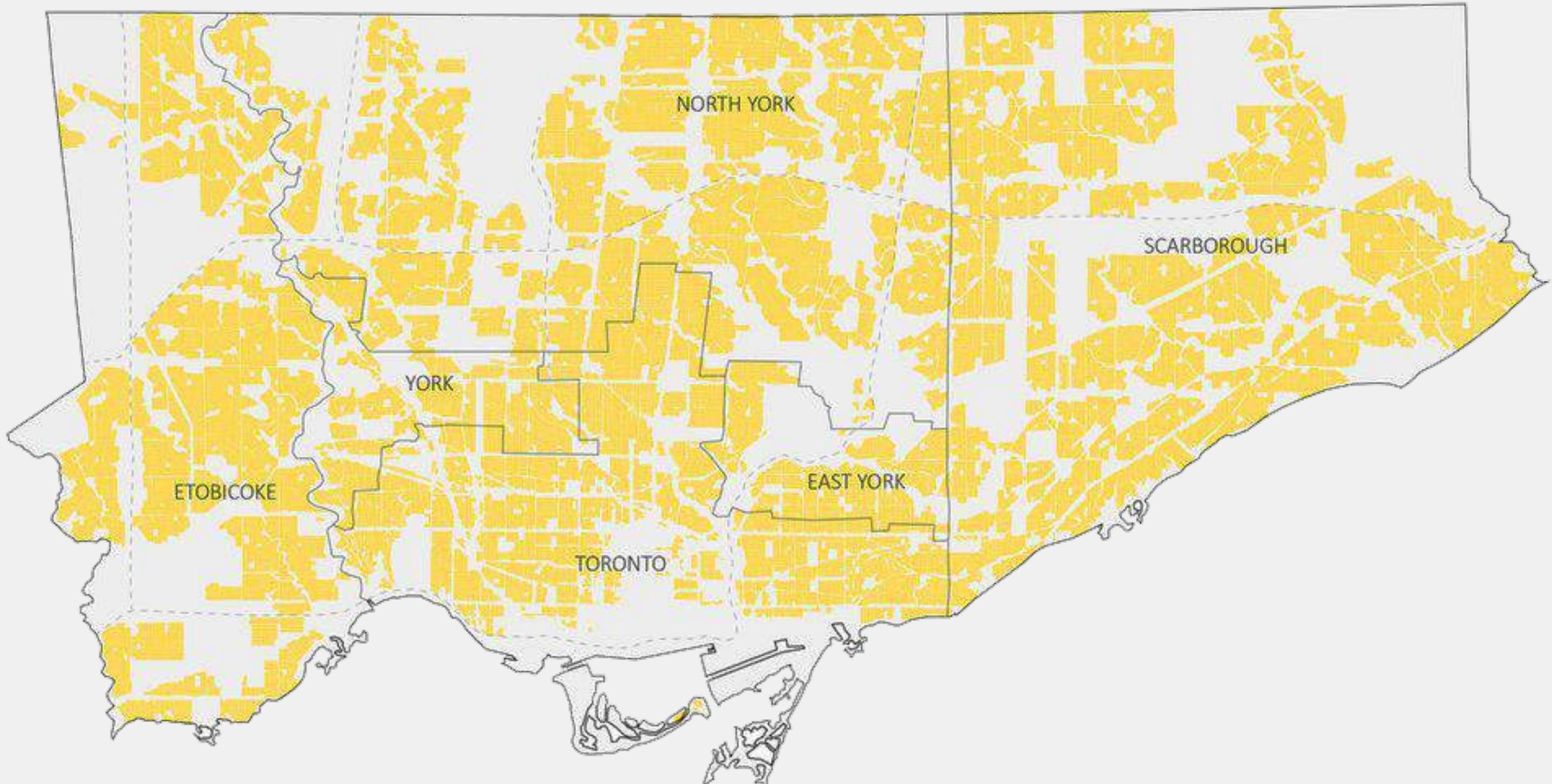
Laneway suites will be used as affordable rental accommodations for thousands of individuals in Toronto, along with a secondary income for many homeowners within Toronto's Yellowbelt.

# OBJECTIVE

What are the main problems we are solving?

## Toronto's Yellowbelt

### Limiting High-Density Building



The majority of the buildings in the Yellowbelt are single-family homes located on large lots. This was caused by cheap farmland in bought in the 1940s, which was then converted into housing.

The Yellowbelt is an area of residential land in Toronto and other surrounding regions. This land is **reserved solely for low-rise buildings**, including detached and semi-detached homes. Many residents within the Yellowbelt are **against even minor changes** to their neighborhoods, which makes it **nearly impossible** to get approval for constructing condominiums or duplexes.

**62.3%**

of all residential land in **Toronto** is a part of the Yellowbelt



# Yellowbelt Pricing Out Middle and Low-Income Families



## Current Prices

Currently, the average detached home in Toronto sells for an average of **\$1.4 million**, with a **37.9% year over year** change in sales, indicating that even though prices are increasing, demand shows no signs of decreasing.



## Pricing Out Families

The current price of detached homes in the Yellowbelt are proving to be **too costly for lower income brackets to afford living in the area**, making it increasingly difficult for new families to continue living in Toronto.



## How it Stands Today

As it stands, without significant changes to the housing market, the Yellowbelt will not see much change, and continue to price out the lower income brackets.

# Toronto's High Rental Prices are Being Caused by High Demand, and Even Greater Home Prices

Condominium prices in Toronto are steadily increasing, with a **3.3% year over year increase in price**, and over a **13% year over year increase in total sales**. This has resulted in prices that are comparable to significantly larger and newer homes in other regions. In comparison to the prices in Toronto a one-bedroom apartment costs \$2,200 per month in Vancouver, \$1,430 in Montreal, and \$1,250 in Ottawa. To afford a one-bedroom apartment in Toronto, one would have to earn approximately **double the current minimum wage**.



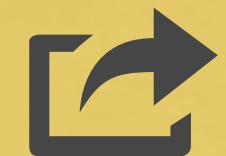
Average One-Bed. Condo Price  
**\$659,855**



Average One-Bedroom Rent  
**\$2,290**

# What's being done right now?

Currently, Toronto has found many of its own ways to deal with the Affordable Housing Crisis which has presented itself, with generally low degrees of effectiveness. Many of these solutions are limited to small numbers which are not significant enough to make a difference when it comes to the city's housing prices. Additionally, for solutions such as basement rentals, living conditions are not known for being the best, and the living space is often shared.



01  
Shared Basement Rentals  
**\$1000+/month**

There are many basement rental options across Toronto, however most of them are simply sharing rooms in a multi-room basement. This is not ideal for new couples or couples with children looking for a place to live.



02  
“Cheap” Rentals  
**<\$1800+/month**

Based off of listings obtained from the Toronto Real Estate Board, in Toronto's jurisdiction, there were **less than 25** rental listings for one bedroom apartments that were under the price of \$1800/month.



03  
New Affordable Housing Units  
**~3,700**

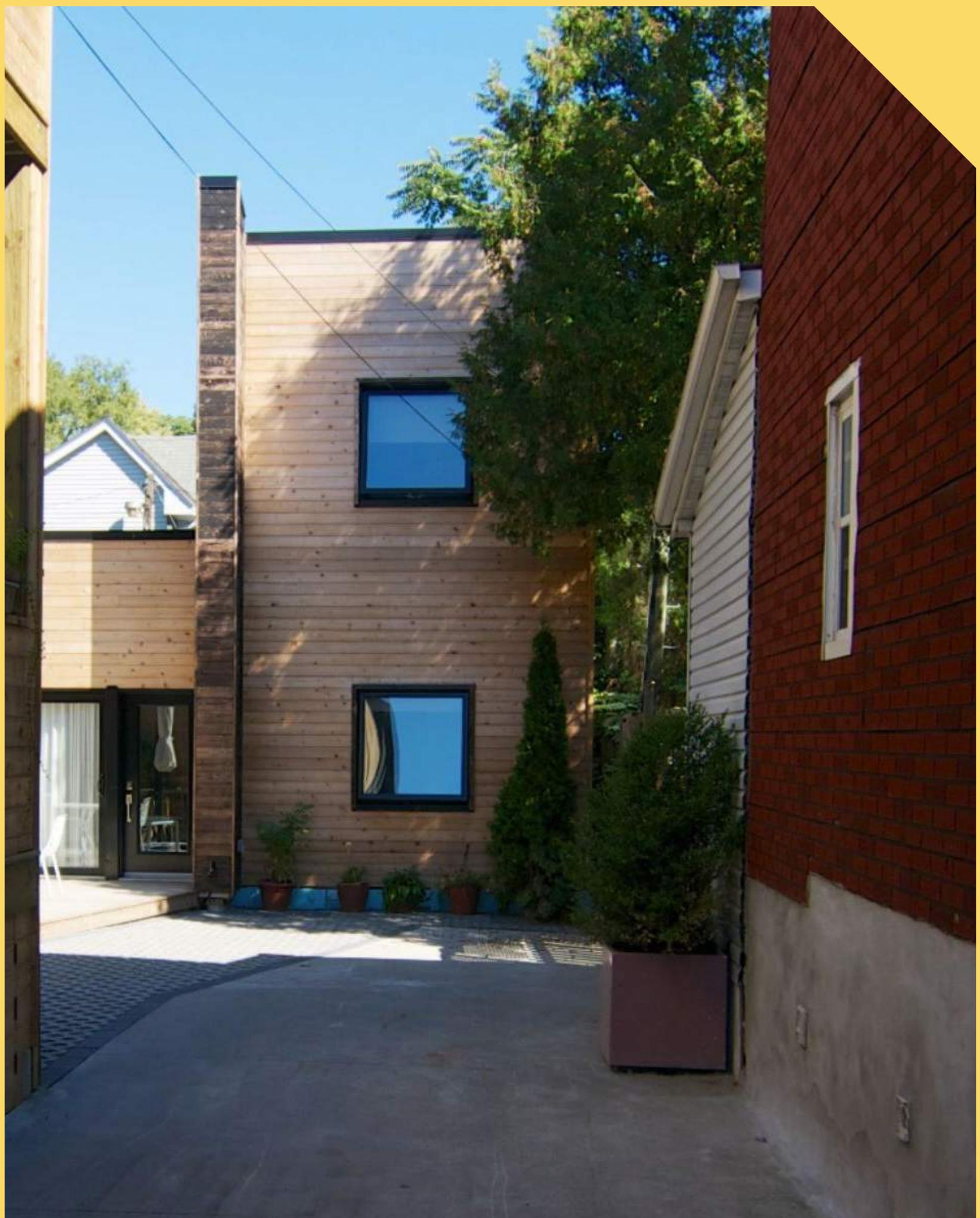
The City of Toronto has around 3,700 affordable housing units planned for construction in the near future, although the plans may easily fall through. These are targeted towards the low-income bracket, and would be reserved for the current affordable housing waitlist.



# The Recommendation: Using Improved Laneway Suites to Increase Affordable Rental Housing

# Concept of Laneway Homes

## General Summary of Laneway Suites



**Jones Avenue Laneway House**, Constructed in 2013, one of the first Laneway Suites in Toronto

Our recommendation focuses on the use of laneway homes. **Laneway homes are smaller units built on properties which are adjacent to public laneways, sharing the lot with the main building.** They can be built on existing structures such as a garage, or from the ground up. The homes will **increase density in urban areas and provide economic incentive for the homeowners through rental income.** Laneway suites have already gained traction in Vancouver, and after recent regulation changes in Toronto, **it is now possible to build these within the Yellowbelt.**

On average, **tenants will pay less rent than with condos.** Laneway suites also improve their quality of life as tenants will be able to experience the feeling of **living in a fully detached house within a low-density neighborhood.**

# Potential for Laneway Suites in Toronto

Although there are 41,999 properties eligible for laneway suite construction, **not all of them may be suitable** for a laneway suite.

- 01** Large trees and other obstacles may prevent construction
- 02** Lot may not have enough space for a suite
- 03** People may not want to or may not have the funds for a laneway home



**41,999 properties\*** are eligible in Toronto and East York for the construction of laneway suites as of 2019, with most in the Yellowbelt.

\*47,133 are included in the entire zoning area, which also contains Scarborough, North York, and Etobicoke

# Laneway Suite Price Averages

## Toronto Laneway Suite Prices

Laneway suites in the Downtown Core can be constructed in the range of **\$250,000 to \$500,000**, based upon the owner's requirements. These typically contain **one or two bedrooms**, one and a half bathrooms, and some **kind of partial second floor**. All appliances would be included, and the area for these would be in the range of **500-700 square feet**.

## Survey results of 300+ homeowners and tenants of laneway suites in Vancouver



### Rental Prices

**81%**

of the surveyed tenants paid **\$2,000** or less for rent.



### Building Size

**86%**

of the surveyed lots were **partial 2-storey** constructions.



### Construction Prices

**73%**

of the surveyed homeowners paid **\$300,000** or less for the construction of their suite



### Low-Income Support

**54%**

of the surveyed tenants had a household income below Vancouver's **median income**,

# Company Showcase

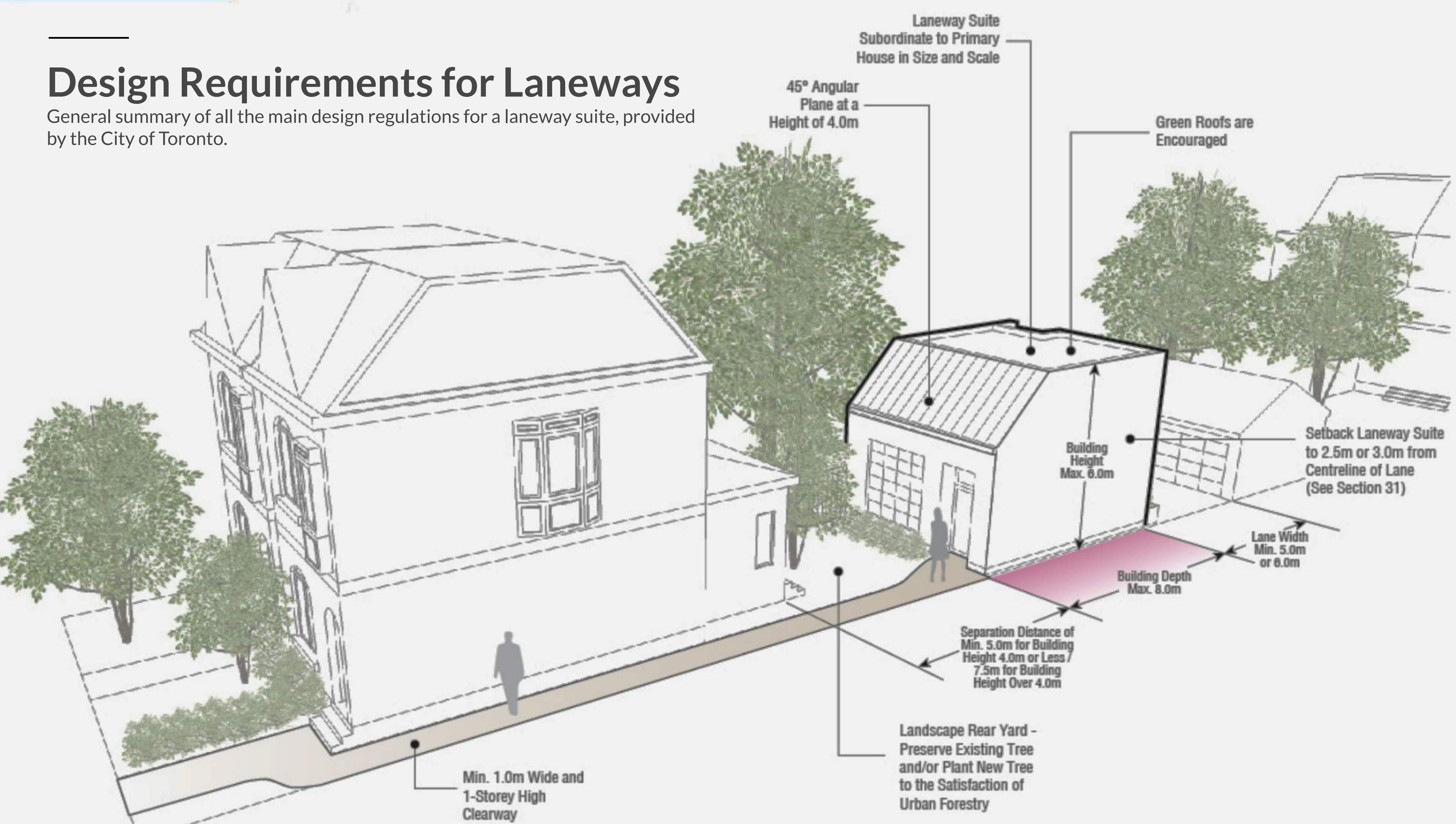


Lanescape is a full-service design-build practice. Their approach to design, approvals, and construction maintains an efficient process while ensuring the laneway suite is personal and unique. Their team is the leading authority on laneway development in Toronto, having worked closely with the City of Toronto for laneway regulations. Lanescape offers a set of many suite designs, and goes through the entire process with potential investors as well as homeowners.



# Design Requirements for Laneways

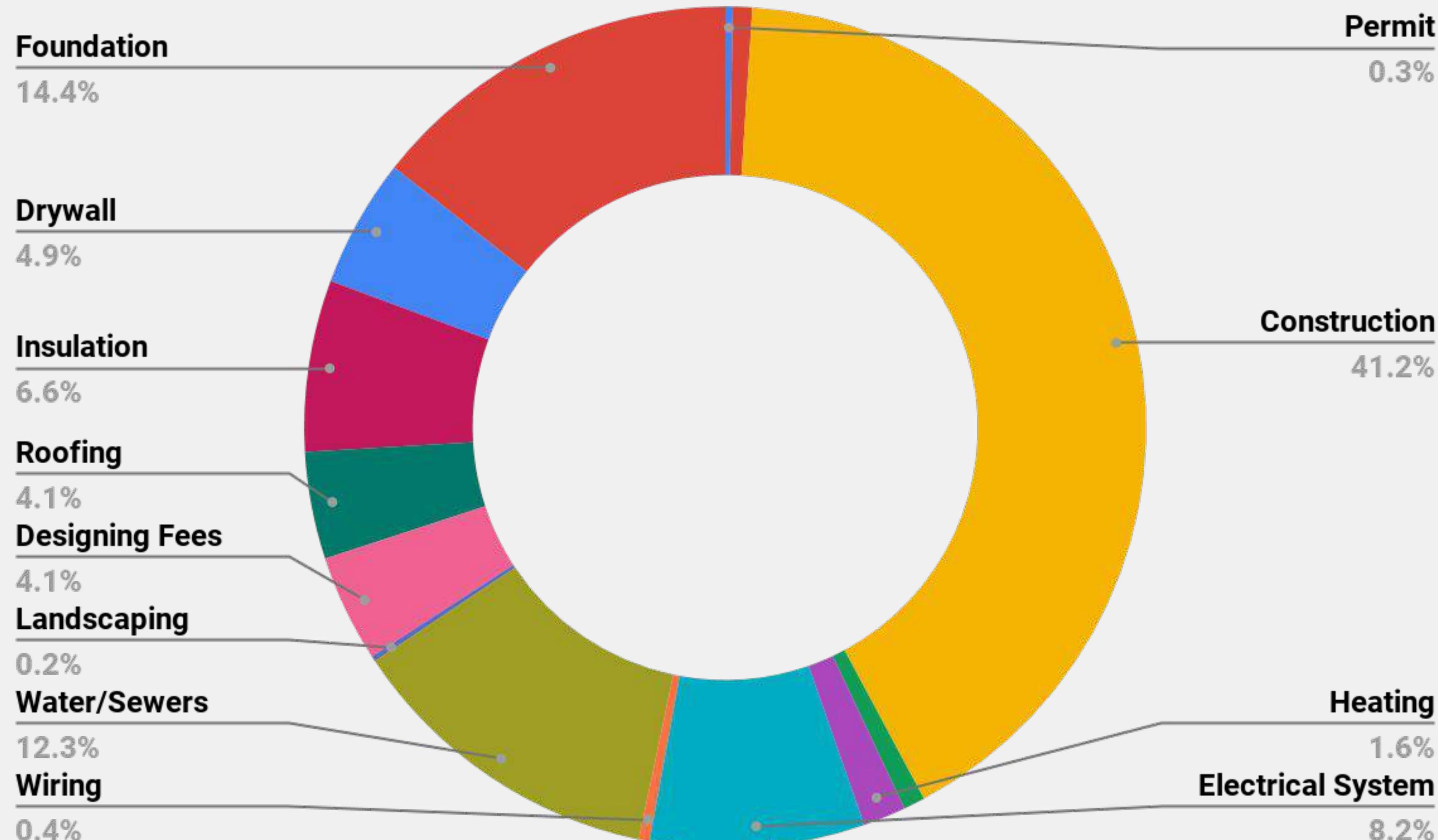
General summary of all the main design regulations for a laneway suite, provided by the City of Toronto.



# Cost Breakdown of a Laneway House

Cost breakdown for a standard 500 sq. ft, \$250,000 laneway house

(Pre-Savings)



## Electrical Systems

The 8.2% electrical systems figure is dependent on the area, and could be much lower.



## Designing

A standard design plan for a laneway suite would cost around \$10,000.



## Construction

Construction makes almost 50% of the total cost



# Current Incentives for Building Laneway Suites

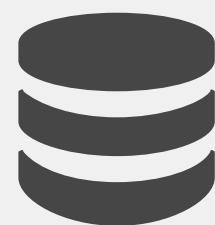
Laneway suites can be quite beneficial for homeowners with extra land in their backyards.

## Why care?

Laneway suites are a great investment for homeowners within the Yellowbelt, while also increasing Toronto's dedicated rental stock.

However, they are a large investment, so there need to be ways of

01



### Affordable Laneway Suites Pilot Program

The program provides a **forgivable loan of up to \$50,000** for eligible property owners. The only requirement for the loan is that the rent falls under the affordable housing guidelines.

02



### Secondary Source of Rental Income

Homeowners will have a **second stream of revenue** apart from their primary job, constantly getting rent. The startup cost is also significantly lower than with buying a completely different home.

03



### Alternate Property to Live in

Some homeowners may choose to **rent out their main property** for a higher value and live in the laneway home. This option is especially **attractive to older individuals** who may no longer need the space of a detached home.

# Proposed Plan for Sidewalk Labs to Incentivize Construction

## Return on Investment

01

### 11 years

Assuming a \$225,000 construction cost (after the implementation of our improvements), the Return on Investment time for the property would be 11 years, assuming \$1700/month rent prices.

02

## Rental Split

### 80:20

Sidewalk Labs could take 80% of the rental income of the property for a predetermined period of time until construction costs would be recouped.

As it is up to the homeowners to construct laneway suites, the concern of affordability in construction starts to become more prevalent.

We propose that Sidewalk Labs should partner with designing and building companies specialized in laneway suites such as Landscape to incentivize construction.

Our model would involve Sidewalk Labs funding a specific proportion of the construction in exchange for the majority of the property's rental income for a set time period. The proportion paid for up-front by Sidewalk Labs would be dependent on the preferences of the homeowner, and they would always have the opportunity of paying a fixed fee to "buy out" the property.

This system would allow more people to construct laneway suites on their properties. Based upon rough estimates, we believe that this would be a significant enough incentive to encourage the construction of **approximately 30,000 laneway suites in Toronto**.

If the owner was to pay 50% of the up-front cost for the home's construction, and have SWL cover the rest, it would only take **7 years for Sidewalk Labs to recoup construction costs** assuming an **80:20 rental income division** between Sidewalk Labs and the homeowner. After this period is over, the homeowner could then earn 95% of rental income, and give the remaining 5% to Sidewalk Labs.

# Why should someone live in a Laneway Home?

## Reduced Rent Prices

In comparison to one-bedroom apartments and similar accommodations in square footage, rent will be **up to about \$500 cheaper** than the average condominium price in Toronto.

## Calm Neighborhoods

As laneway suites are typically located in low-density neighborhoods, tenants will be able to stay within Toronto while avoiding the noise and chaos that is often associated with higher density areas.

## Detached Living Space

Laneway suites are completely detached units, which gives them a natural advantage over condominiums and other living arrangements considered to be affordable.

## Good for Small Families

As laneway suites are larger on average than the typical anything in the same price range, they are very good for couples or families with young children.

## Sense of Community

Being located in low-density areas, the tenants will be able to have a better sense of community as they will be located in a more tightly knit neighborhood.

## Modern Housing

The current stock of laneway suites in Toronto is fairly low, with **less than 100 units currently built**. All new suites built will have modern facilities and appliances, which can be seen as a huge positive point in comparison to older rental properties.

A large white truck with a black cab is parked on a dirt surface. Its flatbed trailer is filled with numerous wooden panels, some labeled 'M1B', 'M2', and 'M3'. The background shows a line of trees under a clear sky.

# Potential Improvements to Laneway Homes: Robotic Furniture and Panelized Construction

# Implementing Robotic Furniture in Laneway Homes

## Control your Space

45% of the tenants surveyed in Vancouver said storage space was an issue. To combat this, we propose the use of robotic furniture.



### Optimized Space

Transforms the furniture to the function that you need at that time



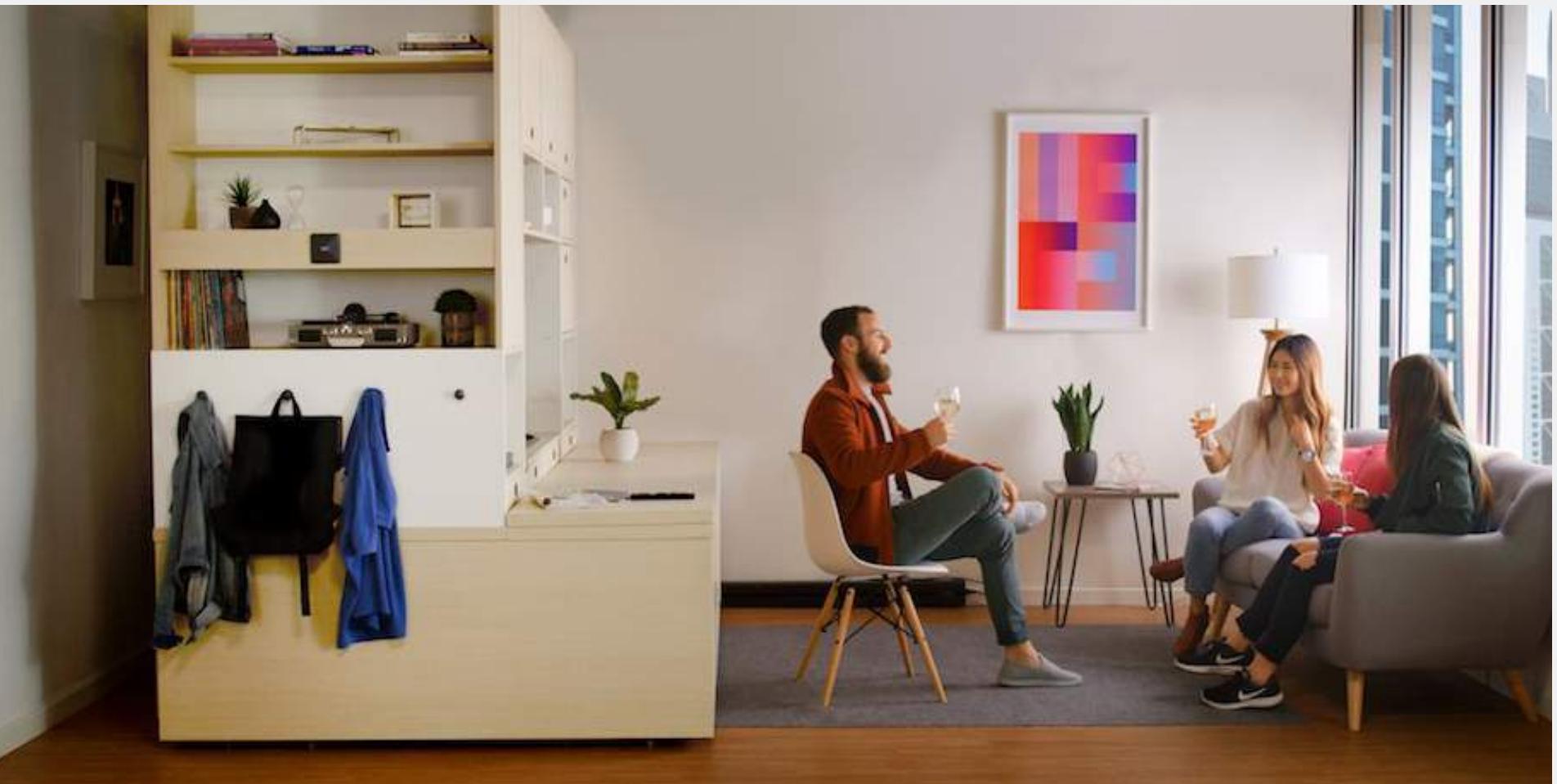
### Convenient

The system retracts on wheels to provide more living space that can transform a living room into a bedroom or walk-in closet

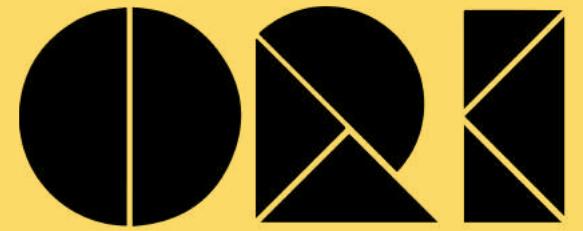


### Personalized

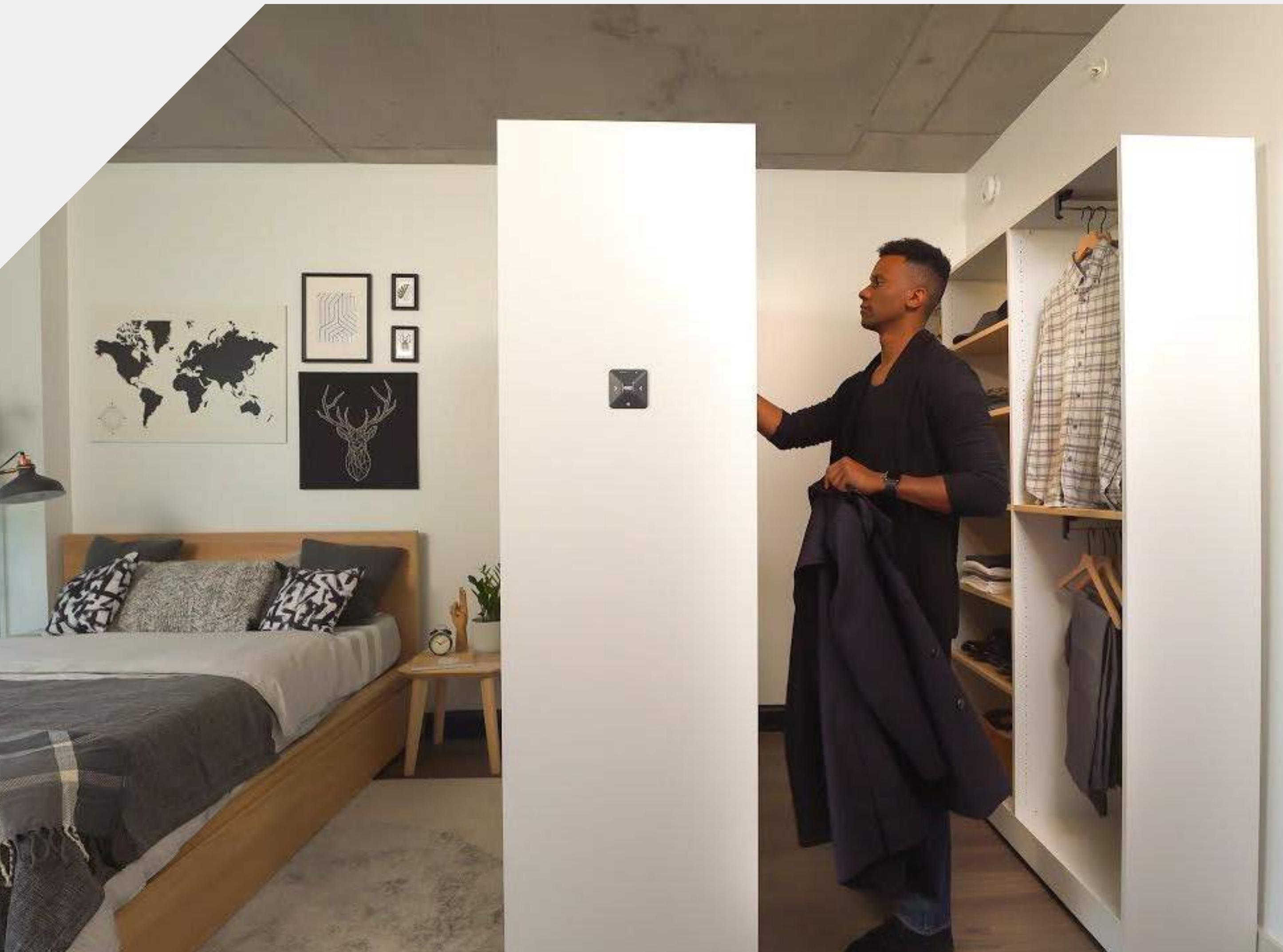
The robotic element involves the system creating a map of the space using machine learning the first few times it moves across the floor. This allows the system to build up a picture of the room



# Company Showcase



Ori is a company which strives to create urban spaces that are versatile and vibrant, flexible and responsive. They believe that technology would allow residents to be more efficient with their space. Their robotic interiors adapts to the homeowner's space and optimizes it. They have developed a robotic closet, suite and bed.



# Ori Studio Suite

49% of surveyed tenants had two people living in a single laneway house. The Ori Studio Slim provides an all in one furniture solution.



## Multi Usage

Closet, dining area, living area, bed and storage space

1

## Safe

Obstacle protection, manual power-loss mode, safety certified

4

## Optimize Space

Expands the total usable floor space up to 128 square feet

2

## Cost Savings

Partial reduction in square footage could cover the cost of the Ori Studio Slim and produce additional savings of approximately \$7,500.

3

# Ori Pocket Closet

The Ori Pocket Closet is an ideal solution to optimizing space and storing items that aren't frequently used.

**Multi Usage**  
8 square feet of office space  
12 square feet of closet/dressing space



## Optimize Space

Expands to reveal storage and contracts to give you back your living space. Expands the total usable floor space up to 40 square feet

## Better Quality of Life

Allows for better organization and cleanliness of your space. Can also be used as a space to store other things.

The Ori Pocket Closet would not provide direct savings in terms of cost, but could significantly increase usable space within a laneway suite if required.

# Panelized Construction: Reducing Costs & Maintaining Quality

Panelized construction primarily uses **prefabricated wooden panels and beams for construction**. In relation to Sidewalk Labs, we can use **cross-laminated timber** to increase structural stability as well. Through the use of panelized construction, the assembly process for a home can be reduced to a process of just a few hours, **greatly reducing labor costs**. Additionally, an important consideration with panelized construction is transportation, as wooden panels can **easily be brought into small spaces** such as low-density neighborhoods. The relatively tight spaces do not permit a fully modular construction method, although panelized construction is the next best alternative.

Cons. Price Reduced by  
**16%**



Waste Reduced by  
**76%**



Reducing Error Costs by  
**25%**



Hours of Labor Reduced by  
**>10%**



Panelized construction can reduce the materials cost of building by up to 16% through more efficient materials usage. This does not include construction of the suite's foundation

Using prefabricated parts can significantly reduce waste produced at the site of construction, and panelized construction can result in waste 76% lower than a typical site.

Faulty workmanship is a significant part of a construction project's error costs, and panelized construction can reduce the error cost on average by 25%.

Panelized construction makes the building process much faster, and when implemented with laneway suites, hours of labor could be reduced by more than 10%..



# THE OUTCOME

What can we expect in the future?

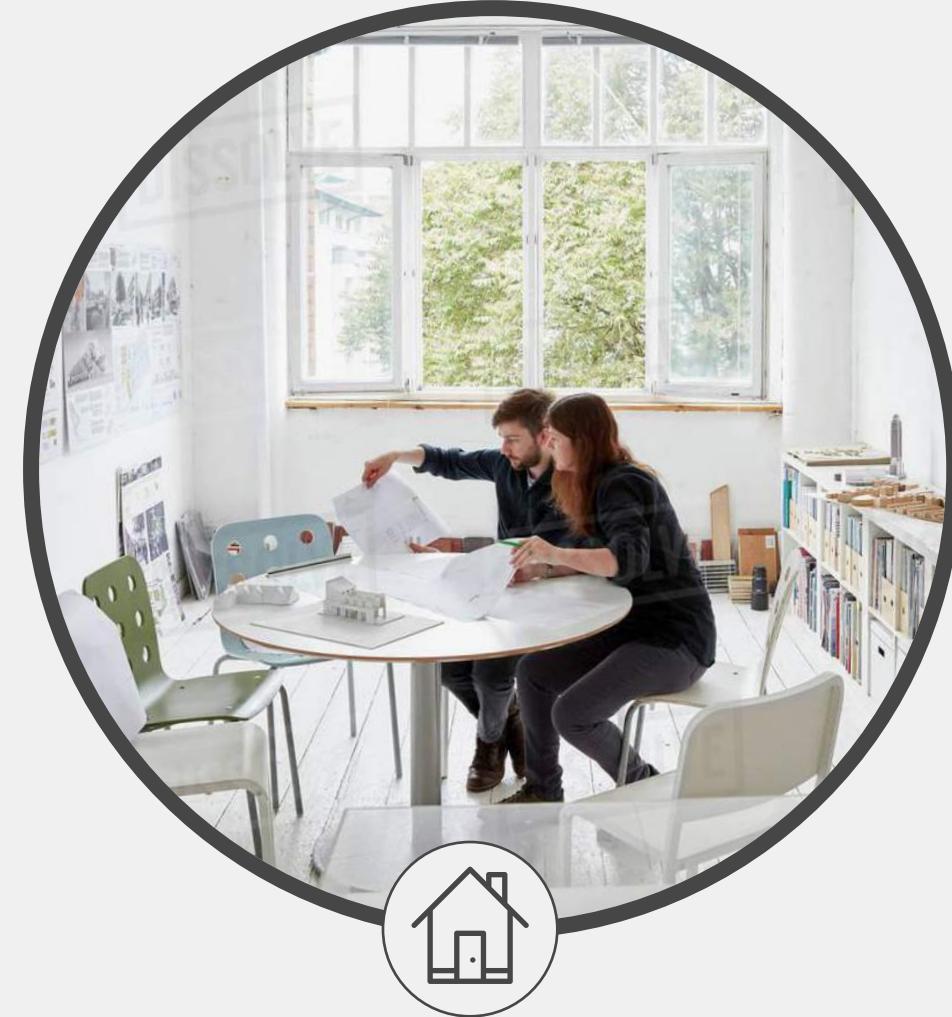
# The BIG Numbers, as We've Calculated Them

25



**\$1700**

would be the monthly rent  
price of a one bedroom  
laneway suite, in comparison  
to an average \$2,290 per  
month for condominiums.



**\$225,000**

would be the price for  
constructing a laneway home  
(post-improvements),  
compared with \$250,000  
pre-improvements



**80,000**

new people could find a place  
to stay within the Yellowbelt,  
one of the most stagnant  
regions in Toronto in terms of  
population growth.

# Laneway Housing Provides Affordable Housing While Maintaining High Quality of Living

Pairing laneway housing with panelized construction and robotic furniture not only reduces the initial capital cost, but it also provides a good environment for families, partners, and individuals to reside in.



## Optimizing Space

Using robotic furniture, we're able to "create more space" by **optimizing the use of space**, leading to **greater satisfaction and a better quality of life**. We are also capitalizing on underutilized space throughout Toronto's Yellowbelt.



## The Cost and Savings

A 500 square-foot unit would cost approximately **\$225,000**. It includes everything from the designing process to the finishing process. Panelized construction allows us to **reduce labor costs by 10%** and robotic furniture would allow us to **save approximately \$7,500**.



## The Current Standards

Laneway houses are **usually around \$300,000** but can **range from \$250,000-\$500,000** depending on the owner's requirements. Units that are custom designed and/or occupy more space will result in a higher cost.

# Understanding the Impact of Laneway Housing

## Provides Opportunities

Provides affordable living practices **for up to 80,000 people** in one of the most densely populated metropolitan areas in North America. It builds the foundation to a mix of housing practices that are required to meet projected requirements of current and future residents.

01



## Sustainable Solution

It builds sustainable and resilient communities that enhance health and social well-being by ensuring opportunities exist locally for employment, while also maintaining appropriate levels of public health and safety.

02

## Builds Community

These suites encourage a sense of place in communities by promoting the use of recreation, parks and open space. It would also promote the use of transportation choices that would increase the use of sustainable transit (bikes, buses, train).

03

## Competitive Pricing

Renting our proposed laneway houses in Toronto would cost **approximately \$1,700 per month**. This is a huge decrease from the current cost of living in Toronto, which is an estimated **\$2,290 per month for renting a one bedroom condo/apartment**.

04

# Our Unanswered Questions

## How do we increase the severability of laneway suites?

1

As it stands, it is currently impossible to buy your own laneway suite, unless you are constructing it on your own property. This makes it so one will only ever have the option of renting it out, and when it comes to selling the property, the main property and the laneway suite will be a part of one singular lot. Increasing severability may provide some serious benefits, however the proper action to carry this out is unknown.

## What will the response of the general population be?

2

Understanding that Toronto is a very diverse city, will the general public support or oppose our recommendation? What are the micro-impacts of laneway housing between a few parties? We interviewed and talked to Torontians, but our surveyed results don't fully represent Toronto, especially the communities which laneway houses would be implemented in.

## What legal rules/regulations may influence or affect laneway houses in the future?

3

Considering that laneway housing is fairly a new concept, what new rules and regulations may be implemented that would affect laneway houses? Legal advancements may occur in the future that would affect laneway houses which we cannot foresee. Our team created our recommendation based on current existing laws in regards to laneway housing not accounting the future.

We'd like to personally thank Sidewalk Labs for giving us this amazing opportunity to recommend a potential solution to combat Toronto's affordable housing crisis. Throughout this experience, we gained an incredible amount of knowledge about new technologies and innovations within the housing market. Thank you for this great learning opportunity. We hope to apply this knowledge to our projects in the future.

We hope our recommendation greatly impacts Sidewalk Labs' decision in regards to tackling this challenge. We hope to see the company succeed and provide affordable housing in Toronto while maintaining the quality of life.

Thank you so much for the incredible opportunity. We can't wait to see what Sidewalk Labs becomes in the future! Feel free to contact us any time via email or LinkedIn if you have any questions or comments in regards to our recommendation. We would love to hear from you!

Ryan, Vedaant & Jasper

## On a More Personal Note...



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