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Location Matters

Factoring location costs into homebuying decisions

January 2015

Location Matters: Factoring location costs into homebuying decisions
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January 2015

Production management: Bernard Rudny
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Introduction

Homebuyers increasingly want to live in more walkable and livable neighbourhoods. Surveys in 2012 and 2014 by the Royal Bank of Canada and the Pembina Institute found that an overwhelming majority of residents of the Greater Toronto Area (GTA) favour neighbourhoods that are walkable, close to work and accessible by rapid transit — even if living there means choosing a smaller home.

Nevertheless, 82% of respondents said that price, not preference, is the primary determinant of where they live. In urban centres like the GTA, homebuyers looking for a family-friendly home are often priced out of these preferred neighbourhoods. Instead, they are driven to car-dependent suburbs where they can afford a single-family home.

That raises questions about how homebuyers make decisions. Specifically, what happens when location-related costs are added to the "sticker price" of a home? These include expenses such as car ownership and fuel, as well as the costs of commuting such as time spent in traffic and lost wages.

This report approaches those questions through the eyes of four Toronto-area homebuyers, who have been used as case studies. Each homebuyer specified the basic criteria they wanted in a new home. We then analyzed the costs and benefits of various home locations, taking the following into consideration: home price, transportation costs, commuting times, access to rapid transit, walkability and livability. The result is a quantitative illustration of what location costs mean for homebuyers.

Cost and location factors

The goal of this report is to understand how location-related factors impact the overall costs and benefits of purchasing a home. These factors include transportation costs and time spent in traffic for both spouses in a household, as well as house size, lot size and access to amenities. This report looks more closely at the costs of where we choose to live, not just what we choose to live in.

For each homebuyer, we presented four or five different home options that matched their preferences. We identified homes in a variety of different neighbourhoods throughout the Greater Toronto Area, depending on where each homebuyer worked. We then calculated the costs and benefits associated with each home location.

Home costs

- Selling price of a home
- Closing costs such as land transfer taxes
- Mortgage costs, including interest
- Property taxes and condominium or maintenance fees, if applicable
- Harmonized sales tax and warranties for new homes

Transportation costs

- Car ownership, including insurance, registration, car loans, maintenance and parking
- Fuel costs based on the distance between home and work
- Cost of transit fares
- Non-commuting transportation costs, such as car sharing or taxis
- Cost of lost time, which is calculated based on a portion of time spent commuting and the associated lost wages
- Difference in time lost according to mode of travel[1]

Time in traffic

- Time spent commuting to and from work, for both spouses where applicable, including the impact of traffic congestion

Walkability and neighbourhood quality

- Pedestrian-friendliness of the streets, including number of lanes and volume of traffic
- Degree to which a neighbourhood is walkable, transit-friendly and bicycle-friendly
- Quantity and quality of nearby amenities
- Walk Score[2] of the address

The cost of a home location is therefore influenced by both housing costs and transportation costs. To compare relative costs for different home options, we developed a model to determine the monthly and lifetime costs of home ownership and transportation for a given location. The detailed methodology for this model is available in the Appendix.

[1] For example, it is possible to work on a computer while taking a commuter train, but not while driving a car.
[2] Walk Score is a private company that has created a walkability index which assigns scores to addresses in the United States, Canada and Australia.

Meet the homebuyers

These case studies are based on four Toronto-area homebuyers and their personal priorities.[3] The factors considered include where the homebuyers work, as well as what they're looking for in terms of their home and lifestyle. A profile of each homebuyer is presented below.

Derek and Crew: Three kids, a yard and a better commute

Derek's family wants it all: a large home with four bedrooms, a big yard and parking for two vehicles. They're also hoping to move closer to downtown Toronto — and they want it all for under $900,000. Is that possible?

Lesson learned: Getting rid of one car can make it possible.

Moving-Up Priya: Upsizing and riding the Rocket

Her family has grown to four people, so Priya wants a larger house with a yard — but they have a limited budget of $400,000 to $550,000 to work with.

Lesson learned: Taking transit can ease the cost of upsizing.

First-Timer Julie: Married with one kid and ready to buy

Julie and her husband have one child and are ready to buy their first home. She works in downtown Toronto, while he works in Markham. What are their options for a detached or semi-detached home under $600,000?

Lesson learned: Downtown Markham provides an opportunity to spend less time commuting.

Downtown Dominic: Short walk to a dream home

Dominic is single and searching for a detached or semi-detached home in Toronto's downtown core for under $850,000 so he can walk to work.

Lesson learned: Not insisting on a detached home can sweeten the deal.

[3] For more details on these case studies and how homebuyers were selected, see the Appendix.

Derek and Crew

Derek's family wants it all: a detached single-family home with four bedrooms, two bathrooms, a big yard, a parking garage for two vehicles and a finished basement. They're also hoping to move from suburban Brampton to a home closer to where they work in downtown Toronto. And they want it all for **under $900,000**. Is that possible?

Where Derek works: Spadina Avenue and Front Street

Where Derek's spouse works: Dockside Drive at Lake Ontario

What they want:

- A detached house with a yard
- Four bedrooms and two bathrooms
- A finished basement
- A garage for two vehicles
- A shorter commute

Home location options

All of the home options we found for Derek are detached or semi-detached houses with a minimum of four bedrooms and two bathrooms. They all have yards, finished basements, and are located on quiet, family-friendly side streets. All of the homes come with parking spaces, but the downtown options only have one space each.

A. Danforth Village

Location: Danforth Avenue and Greenwood Avenue

Type: Semi-detached, medium-sized yard, one parking space

Estimated selling price: $689,100

Commute to work: Derek takes the subway and his spouse drives

B. Roncesvalles

Location: Parkside Drive and Lakeshore Boulevard

Type: Semi-detached, medium-sized yard, one parking space

Estimated selling price: $932,500

Commute to work: Derek takes the streetcar and his spouse drives

C. Oakville

Location: Trafalgar Road and Lakeshore Boulevard

Type: Detached, large yard, two parking spaces

Estimated selling price: $881,800

Commute to work: Derek takes the GO train and his spouse drives

D. Scarborough

Location: Pharmacy Avenue and Lawrence Avenue

Type: Detached, large yard, two parking spaces

Estimated selling price: $589,400

Commute to work: Both Derek and his spouse drive

E. Thornhill

Location: John Street and Bayview Avenue

Type: Detached, large yard, three parking spaces

Estimated selling price: $692,300

Commute to work: Both Derek and his spouse drive

Monthly costs

Figure 1: Derek's monthly housing costs

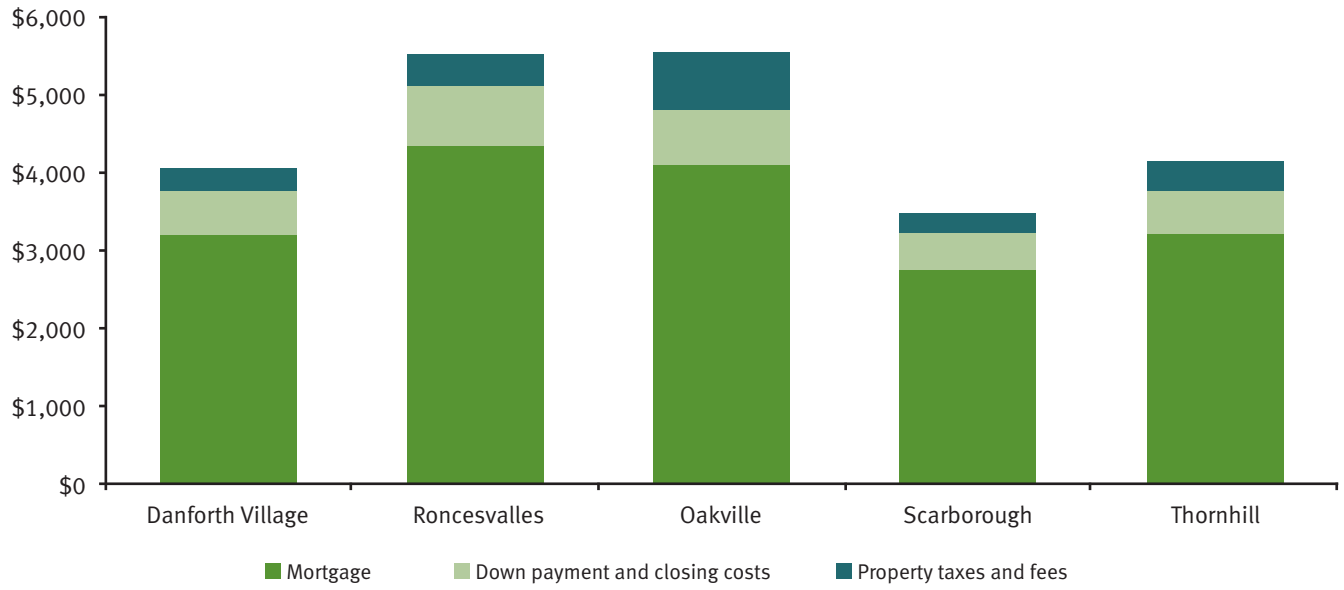


Figure 2: Derek's monthly transportation costs

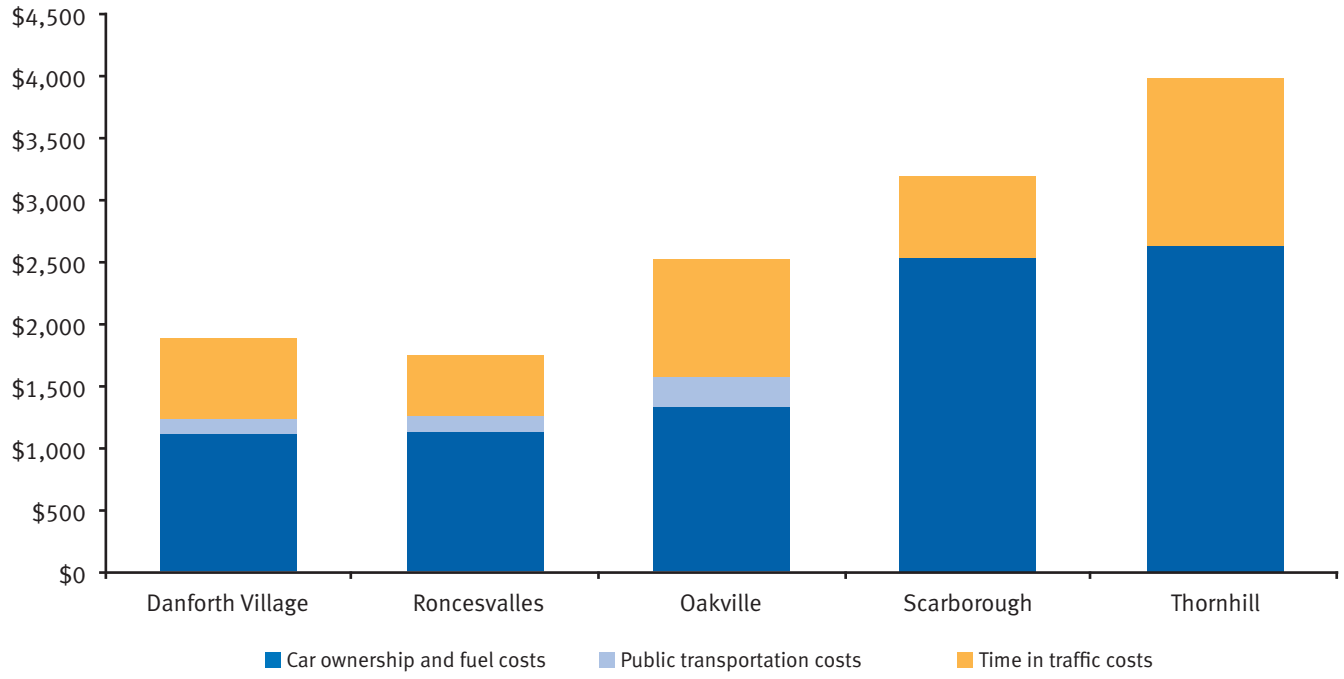
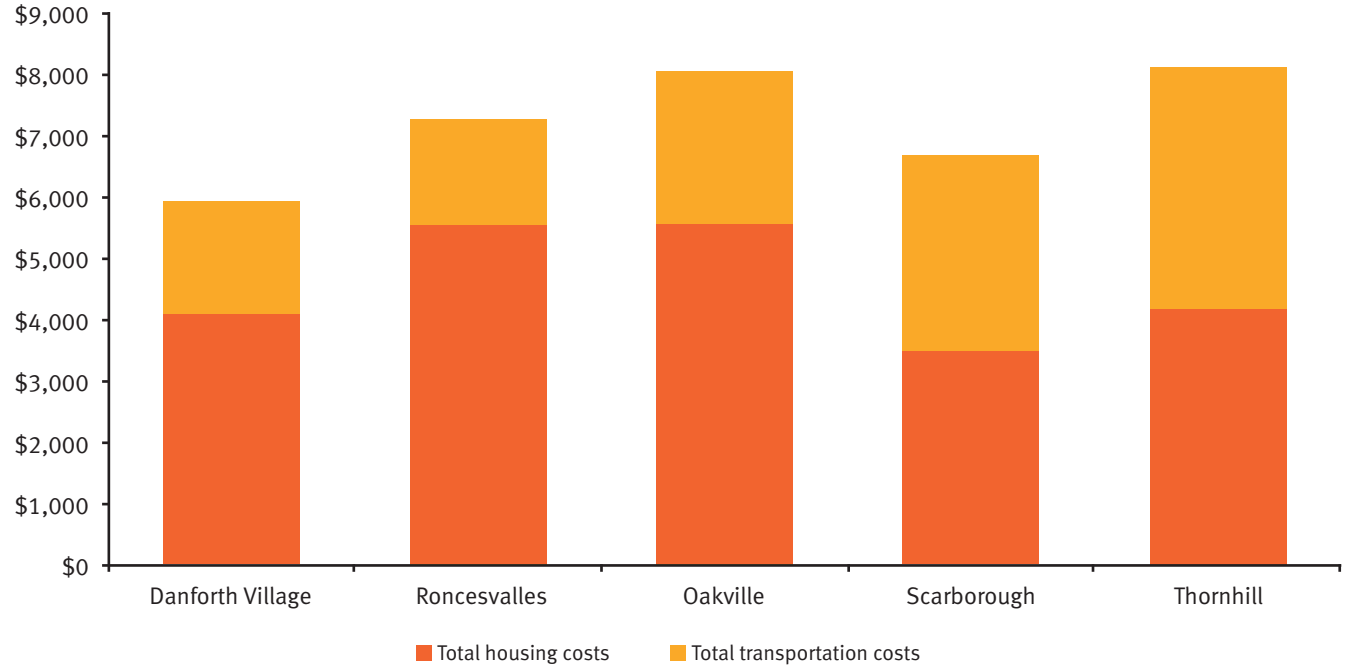


Figure 3: Derek's monthly housing and transportation costs



Commuting time and neighbourhood livability

Figure 4: Derek and his spouse's monthly combined commuting times

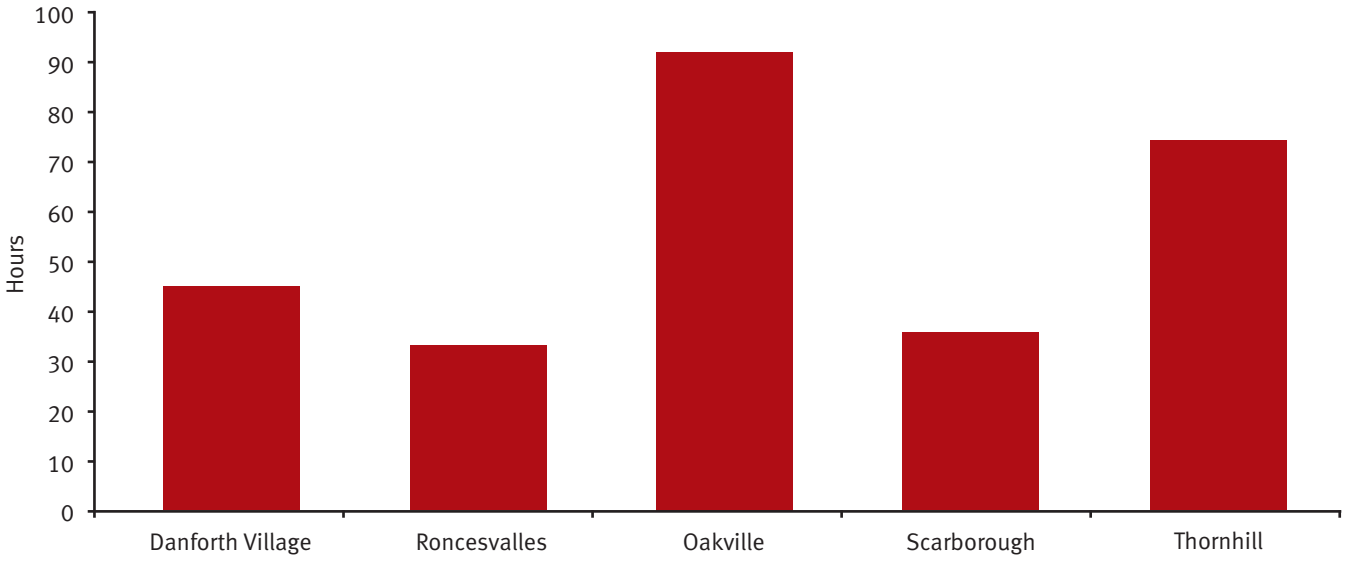


Table 1: Derek's walkability and livability ratings

Property	Walkability and livability rating	Pedestrian friendliness	Access to amenities	Access to frequent transit	Walk Score
Roncesvalles	**88**	Excellent	Excellent	Excellent	83
Oakville	**82**	Excellent	Excellent	Good	82
Danforth Village	**80**	Very good	Good	Excellent	83
Thornhill	**55**	Moderate	Moderate	Moderate	68
Scarborough	**43**	Poor	Poor	Poor	68

Discussion

Derek's family has to choose between a large house and yard or a more walkable neighbourhood that is close to work. The detached homes in suburban locations are less costly, but Derek's family would need two vehicles to get around and they would spend more time behind the wheel. Living near quality transit and giving up one car can reduce the cost of the more walkable home locations, which also come with the benefit of shorter commuting times.

Danforth Village offers the best price point for a semi-detached house near downtown Toronto with access to rapid transit. While the house is smaller than other options, it offers access to the subway and the ability to save money by getting rid of one car. Along with saving on transportation costs and the sticker price of the house, this option saves travel time: Derek's subway ride to work would average 47 minutes and his spouse could drive to work in 18 minutes. The neighbourhood is walkable, but does not offer the same quality and quantity of amenities within walking distance as the Roncesvalles and Oakville locations.

Roncesvalles offers the most expensive home, but it is located in the most walkable neighbourhood with good amenities and the shortest commuting times. Derek's family may be able to afford this home by getting rid of one car. They would have to give up multiple parking spots and a large yard for the opportunity to live in one of Toronto's most walkable and child-friendly neighbourhoods. Located minutes from downtown, this location also provides the shortest commute: Derek would be able to ride the streetcar to work in 32 minutes, and his spouse's drive would average 16 minutes.

> Getting rid of one car can compensate for the cost of living closer to downtown. Derek's family may want to consider the livability of each location when making their decision.

Oakville offers a fully detached house within walking distance to the town centre and the GO train. It has the highest selling price of all the options, but Derek's family would enjoy a small-town feel with pedestrian-friendly streets and many amenities — including parks and schools — within walking distance. Derek's commute by GO train (including getting to the station) would be well over an hour, but it would be possible to recoup some of that time by working on the train. His spouse could drive to work in 38 minutes.

Scarborough offers a large and affordable detached house, but at the cost of walkability. The house has five bedrooms, a sizable yard and a finished basement. However, the location lacks convenient transit. Both spouses can drive to work in less than 30 minutes, but owning two cars to get to work and most other destinations increases overall costs. There are very few amenities within walking distance, and the neighbourhood streets are not pedestrian-friendly.

Thornhill offers a large and affordable detached house, but in a location that requires two cars and offers limited amenities. The house provides plenty of room for a large family and is located in a leafy neighbourhood near parks and schools. A community centre and small shopping centre are both within walking distance, but most other destinations require a car. Both spouses can drive to work in about an hour, so owning two cars and spending more time behind the wheel are the trade-offs for the larger home.

Moving-Up Priya

Priya now has a family of four and they want a bigger home, but their budget is only between **$400,000 and $550,000**. They want to live on the west side, close to both family and Priya's workplace in Mississauga, but her husband will have to commute to downtown Toronto for work.

Where Priya works: Downtown Mississauga, near Burnhamthorpe Road and Hurontario Street

Where Priya's spouse works: Downtown Toronto, near Front Street and University Avenue

What they want:

- Three bedrooms and two bathrooms
- A quiet neighbourhood with safe streets
- A finished basement
- Neighbourhood amenities, especially a good grocery store

Home location options

All of Priya's home options have a minimum of three bedrooms and two bathrooms, along with finished basements. Three are detached houses, one is a townhouse and one is located in a midrise building. All of the homes are located in quiet neighbourhoods, although their levels of walkability, access to amenities and access to transit vary greatly.

A. Port Credit

Location: Lakeshore Boulevard and John Street

Type: Detached

Estimated selling price: $695,800

Commute to work: Priya drives and her spouse takes the GO train

B. Mississauga

Location: Winston Churchill Boulevard and Britannia Road

Type: Detached

Estimated selling price: $468,900

Commute to work: Both Priya and her spouse drive

C. Milton

Location: James Snow Parkway and Louis Saint Laurent Avenue

Type: Detached

Estimated selling price: $512,900

Commute to work: Both Priya and her spouse drive

D. Etobicoke

Location: Bloor Street and Islington Avenue

Type: Townhouse

Estimated selling price: $540,600

Commute to work: Priya drives and her spouse takes the subway

E. Roncesvalles

Location: Roncesvalles Avenue and Dundas Street

Type: Midrise condo

Estimated selling price: $579,900

Commute to work: Priya drives and her spouse takes the subway or streetcar

Monthly costs

Figure 5: Priya's monthly housing costs

Figure 6: Priya's monthly transportation costs

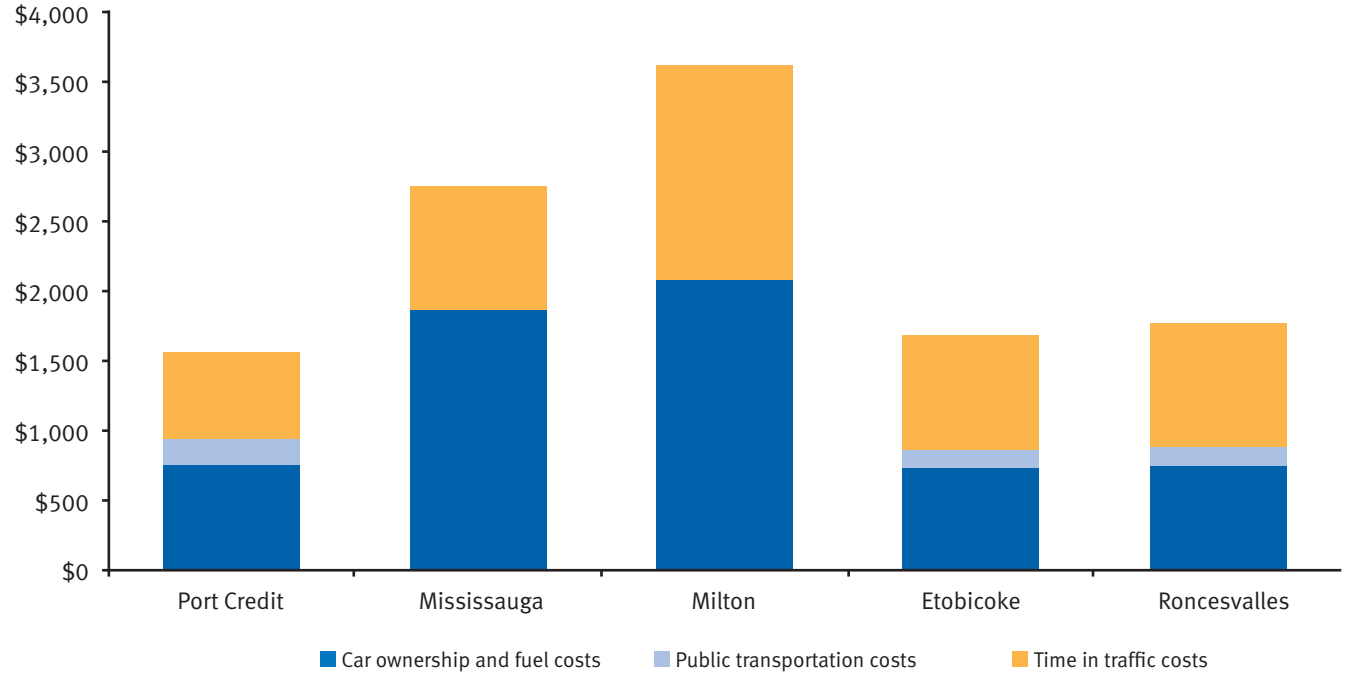
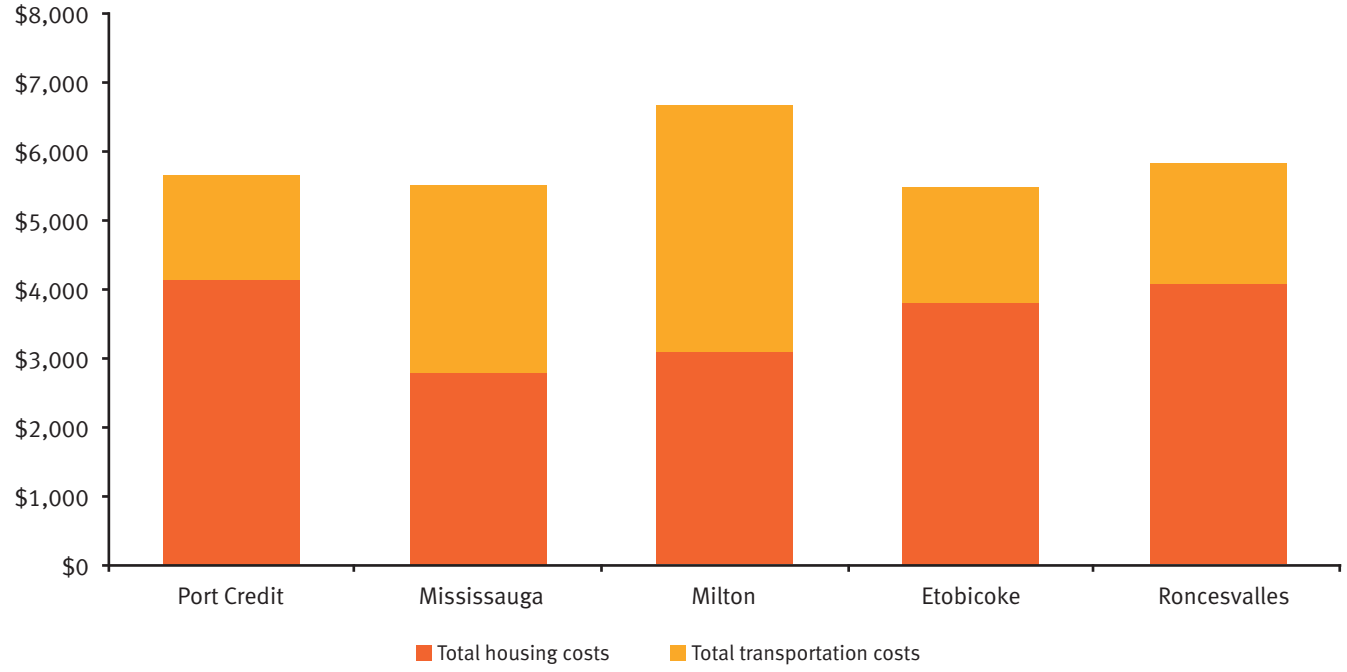


Figure 7: Priya's monthly housing and transportation costs



Commuting time and neighbourhood livability

Figure 8: Priya and her spouse's monthly combined commuting times

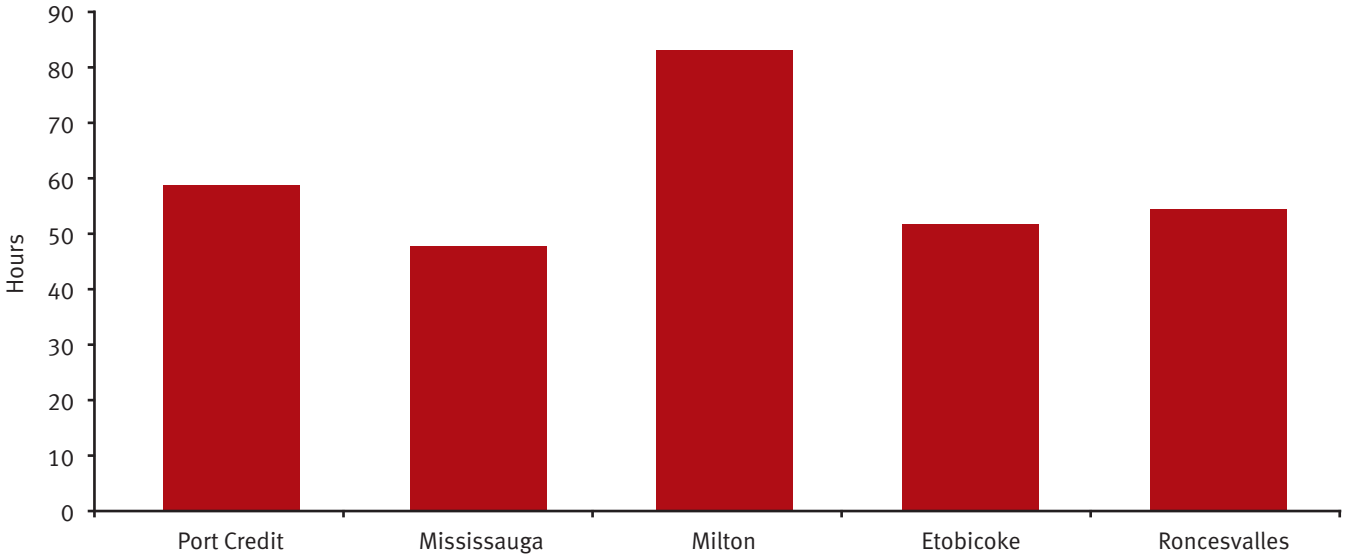


Table 2: Priya's walkability and livability ratings

Property	Walkability and livability rating	Pedestrian friendliness	Access to amenities	Access to frequent transit	Walk Score
Roncesvalles	**92**	Excellent	Excellent	Excellent	98
Port Credit	**85**	Excellent	Excellent	Good	93
Etobicoke	**63**	Moderate	Moderate	Very good	72
Mississauga	**34**	Poor	Very Poor	Poor	45
Milton	**28**	Moderate	Very Poor	Very Poor	23

Discussion

Priya and her family have a number of different options within their housing budget. They would prefer to live in a walkable neighbourhood where they are close to amenities. They can make that happen within their budget by choosing a non-detached home, by getting rid of one car and taking transit, or by doing both. Or they can opt for longer commutes and fewer amenities, but enjoy a large detached home.

The **Port Credit** home has a sticker price that's higher than Priya's home budget, but it offers the opportunity to live in a detached house in a walkable and pedestrian-friendly neighbourhood. If Priya's husband takes the GO train to work, they can get rid of one car and save on transportation costs. That will help offset the higher price of a detached house in a very walkable neighbourhood.

Suburban Mississauga offers an affordable detached house, but the family will need two vehicles to get around. That doubles their monthly costs for housing and transportation, and the neighbourhood is not walkable or pedestrian-friendly.

Milton has the most affordable home of all options, and it is a detached house. However, both Priya and her husband would have to drive to work, resulting in the most time spent behind the wheel of all the location options. The monthly cost of owning two compact cars and driving to work from this location would amount to more than the monthly costs of the house itself — and that doesn't include the costs of non-commuting car trips, which would be frequent given the lack of nearby amenities.

The monthly cost of owning two compact cars and driving them to work is more than the monthly costs of the house itself.

The **Etobicoke** home is within and the **Roncesvalles** home is slightly over Priya's budget. Both homes have mandatory maintenance fees that drive up monthly costs.[4] These locations have lower transportation costs, along with quality rapid transit and amenities within walking distance. The midrise is close to High Park and offers a family-friendly alternative to a detached house, unlike many highrise units in the downtown core.

[4] This analysis does not account for savings from not having to pay for out-of-pocket maintenance costs compared to the other home options, so the additional financial burden can't be accurately determined. Townhouse maintenance fees typically cover yard work, snow removal, roofing, fire insurance and garbage collection, along with any shared amenities. Midrise fees also typically include some utilities.

First-Timer Julie

Julie and her husband have one child and are ready to buy their first home. Julie works in downtown Toronto, but her husband works in Markham. They would like a home that has at least a small yard, be it a detached house, a semi-detached house or a townhouse. They're also looking to live in a walkable residential neighbourhood where they will be close to parks and an elementary school. What are their options for **under $600,000**?

Where Julie works: Bay Street and Wellesley Street (parking is not provided)

Where Julie's spouse works: Woodbine Avenue and Highway 7 (free parking is provided)

What they want:

- A detached or semi-detached house or townhouse with a small yard
- Three bedrooms and two bathrooms
- Walkability, with a school and parks nearby
- A quiet neighbourhood with safe streets

Home location options

All of Julie's options have a minimum of three bedrooms, or two bedrooms with another room that can be converted. Two are detached houses and two are townhouses. All of the options are within a five-minute walk of a public school.

A. Markham Village

Location: Main Street and Highway 7

Type: Detached, large yard

Estimated selling price: $619,000

Commute to work (Scenario A): Julie drives and her spouse takes the BRT[5]

Commute to work (Scenario B): Julie takes the GO train and her spouse drives

B. Markham Woodbine

Location: 16 Avenue and Woodbine Avenue

Type: Large townhouse, medium-sized yard and deck

Estimated selling price: $599,900

Commute to work (Scenario A): Julie drives and her spouse walks

Commute to work (Scenario B): Julie and her spouse both drive

C. Don Mills

Location: Don Mills Road and Steeles Avenue

Type: Townhouse, medium-sized yard and patio

Estimated selling price: $453,100

Commute to work: Both Julie and her spouse drive

D. North York

Location: Yonge Street and Finch Avenue

Type: Townhouse, shared courtyard

Estimated selling price: $413,300

Commute to work: Julie takes the subway and her spouse drives

[5] Bus rapid transit (BRT) travels in its own lane, separated from other traffic, with priority signalling and other features associated with light rail transit. York Region Transit operates the Viva BRT in Markham.

Monthly costs

Figure 9: Julie's monthly housing costs

Figure 10: Julie's monthly transportation costs

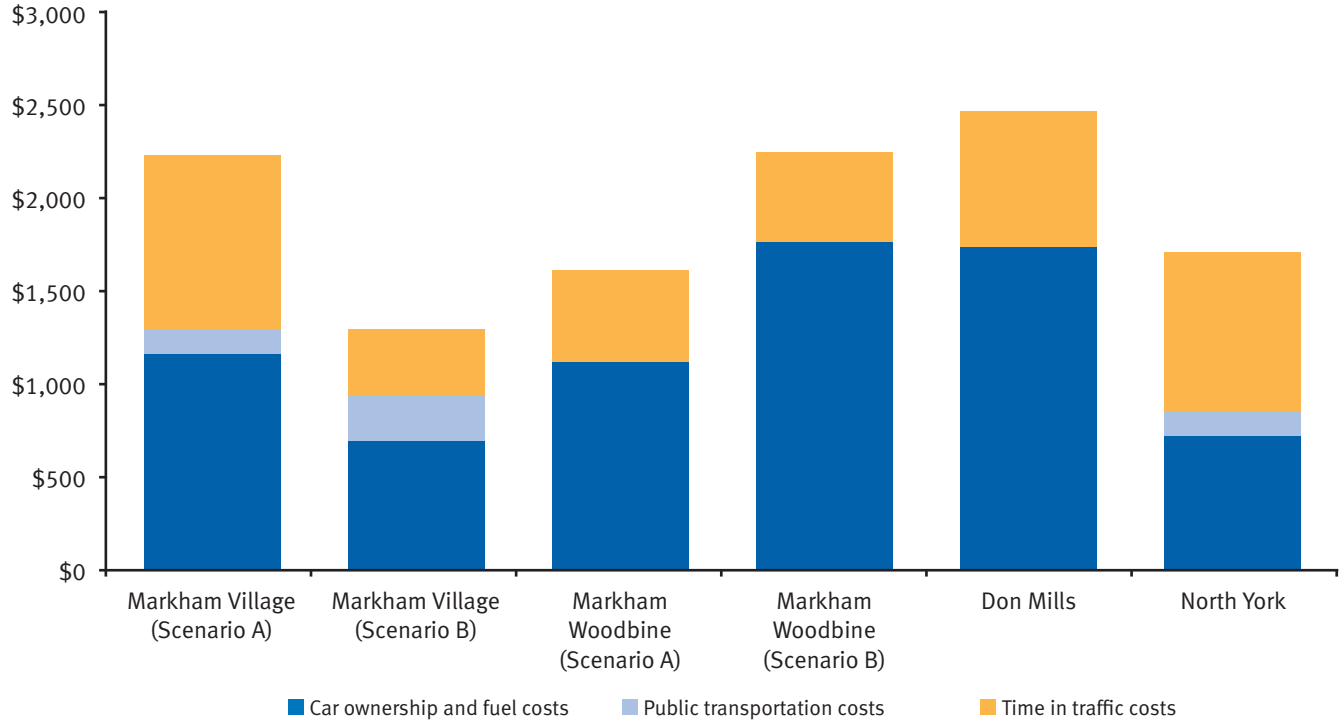
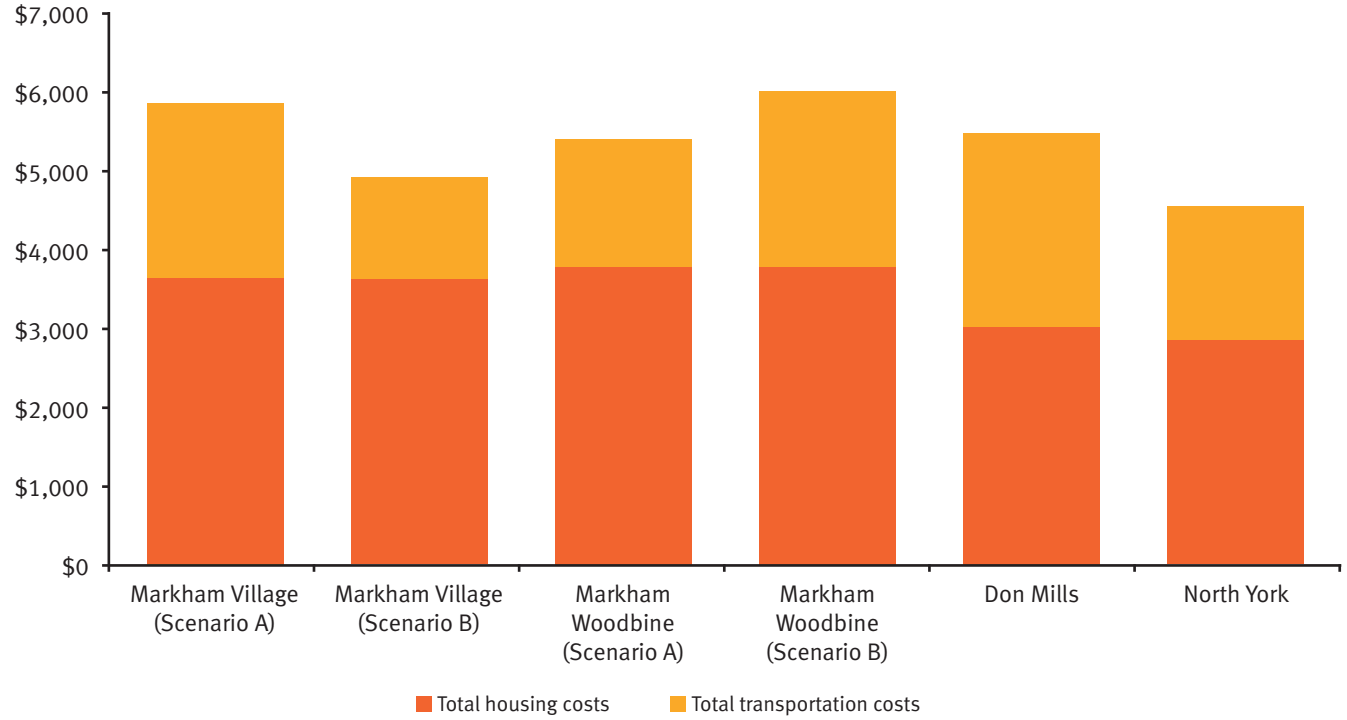


Figure 11: Julie's monthly housing and transportation costs



Commuting time and neighbourhood livability

Figure 12: Julie and her spouse's monthly combined commuting times

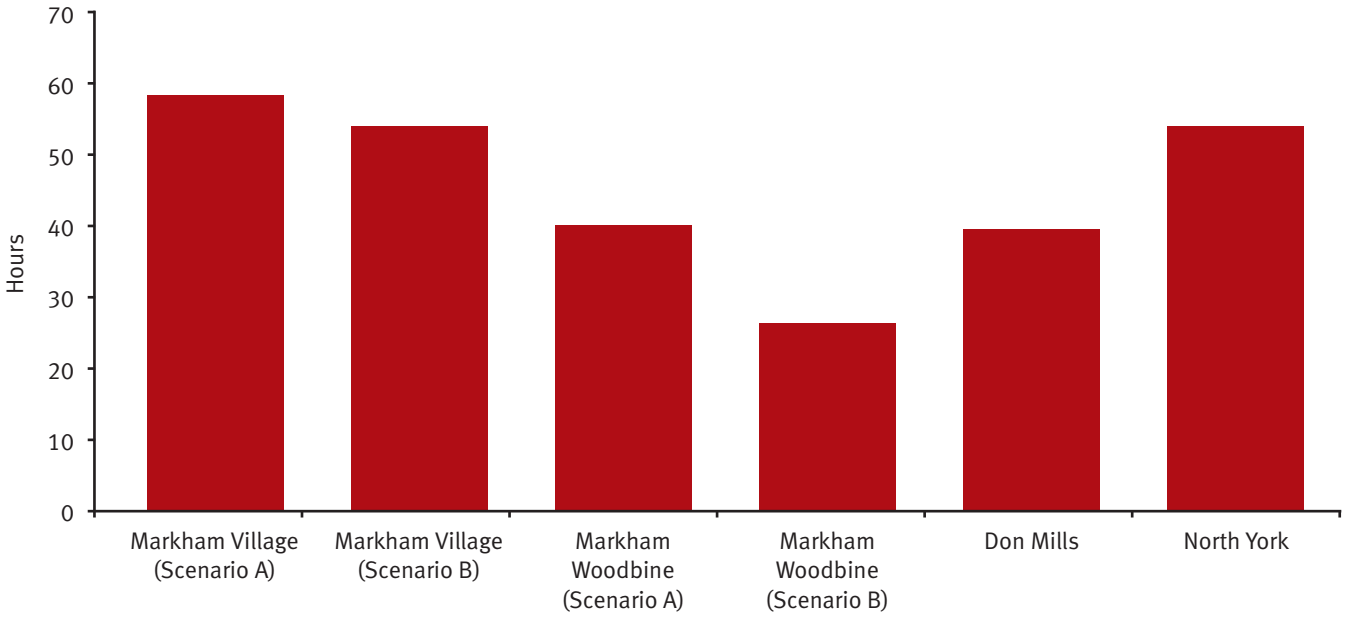


Table 3: Julie's walkability and livability ratings

Property	Walkability and livability rating	Pedestrian friendliness	Access to amenities	Access to frequent transit	Walk Score
Markham Village	**81**	Excellent	Very good	Very good	83
North York	**72**	Moderate	Moderate	Excellent	97
Don Mills	**54**	Moderate	Moderate	Moderate	67
Markham Woodbine	**49**	Poor	Moderate	Poor	70

Discussion

With one spouse working in Markham and the other working in Toronto, commuting can be a challenge. Julie's family can either choose to live close to one of these two locations, or to live somewhere in between. Living close to rapid transit would allow Julie's family to get by with one car and save on transportation costs — money they could put towards a home they love in a preferred location.

Markham Village offers the highest sticker price of the four home options, but the potential transportation savings make it feasible. The home is located in the centre of the pedestrian-friendly village of Markham, with many amenities and a lively sidewalk culture. The house is also within walking distance of both the GO train and the Viva BRT along Highway 7, so either Julie or her spouse could take transit, and they could get rid of one household vehicle. The model considers two transportation scenarios:

Scenario A: Julie drives to work and her spouse takes the BRT

Scenario B: Julie takes the GO train to work and her spouse drives

Since Julie has the longer commute and would have to pay for parking downtown, it is more cost-effective for her to take the GO train to work while her husband drives 16 minutes to work. Scenario B therefore results in the lowest transportation costs of all of the possible home options.

Living and working in Markham offers shorter commute times, lower transportation costs and an affordable home in a walkable neighbourhood.

Markham Woodbine offers a large and affordable townhouse with five bedrooms and three bathrooms. The monthly housing costs are slightly higher than the Markham Village option because of maintenance fees.[6]

Although it is also located in Markham, this option doesn't offer the same level of walkability or transit access as the Markham Village option. The main streets in this area are less pedestrian-friendly, and few amenities are within walking distance. However, the location would allow Julie's spouse to walk to work, which would create potential savings and commuting flexibility. The model considers two transportation scenarios:

Scenario A: Julie drives to work and her spouse walks

Scenario B: Both Julie and her spouse drive to work

These two scenarios offer the shortest commuting times of all the home location options. Owning two cars would give this location the highest overall costs, but with very short commuting times — Julie's husband could drive to work in just over two minutes. If the family got rid of one car, Julie's husband could walk to work in just under 20 minutes and they could save up to $10,000 per year.

[6] This analysis does not account for savings from not having to pay for out-of-pocket maintenance costs compared to the other home options, so the additional financial burden can't be accurately determined. Townhouse maintenance fees typically cover yard work, snow removal, roofing, fire insurance and garbage collection, along with any shared amenities.

Don Mills offers an affordable townhouse in a leafy neighbourhood. The mandatory maintenance fees again make the home appear more expensive. Transit is not frequent or rapid for this location, so both spouses would need a car, which would drive up their overall costs.

North York offers a townhouse with the lowest overall monthly transportation and housing costs, even with maintenance fees factored in. The sticker price of the house is lower than the others, and its proximity to the subway lowers transportation costs. There are also many amenities nearby, although they are along a busy section of Yonge Street that is not very pedestrian-friendly. Being located between the two workplaces actually results in the highest combined commute times for Julie and her spouse.

Downtown Dominic

Dominic is single and is searching for a detached or semi-detached house in Toronto's downtown core for **under $850,000**. He wants to walk to work and enjoy the time he saves by not commuting over long distances.

Dominic already knows that the money he saves by giving up a car and not taking transit can help him afford a more expensive home. Our model looked at both walkable and car-dependent but cheaper locations to illustrate this point.

Where Dominic works: Dundas Street and Jarvis Street

What Dominic wants:

- A detached or semi-detached house
- A short walk to work so he doesn't need a car
- Three bedrooms and two bathrooms
- A newly renovated home with a modern kitchen and hardwood floors
- A walkable neighbourhood with plentiful amenities and street life

Home location options

All of Dominic's home options are newly renovated and have at least three bedrooms, two bathrooms, a modern kitchen and hardwood floors. One is a townhouse, while the others are detached or semi-detached houses.

A. Downtown

Location: Queen Street and River Street

Type: Townhouse

Estimated selling price: $703,700

Commute to work: 21-minute walk

B. Riverdale

Location: Riverdale Avenue and Logan Avenue

Type: Semi-detached

Estimated selling price: $831,500

Commute to work: 38-minute walk or 22-minute streetcar ride

C. East End

Location: Coxwell Avenue and Gerrard Street

Type: Detached

Estimated selling price: $838,800

Commute to work: 25-minute streetcar ride

D. East York

Location: Mortimer Avenue and Donlands Avenue

Type: Semi-detached

Estimated selling price: $687,300

Commute to work: 28-minute subway and bus ride or 30-minute bicycle ride

E. Scarborough

Location: Pharmacy Avenue and Lawrence Avenue

Type: Detached

Estimated selling price: $618,800

Transportation to work: 33-minute drive

Monthly costs

Figure 13: Dominic's monthly housing costs

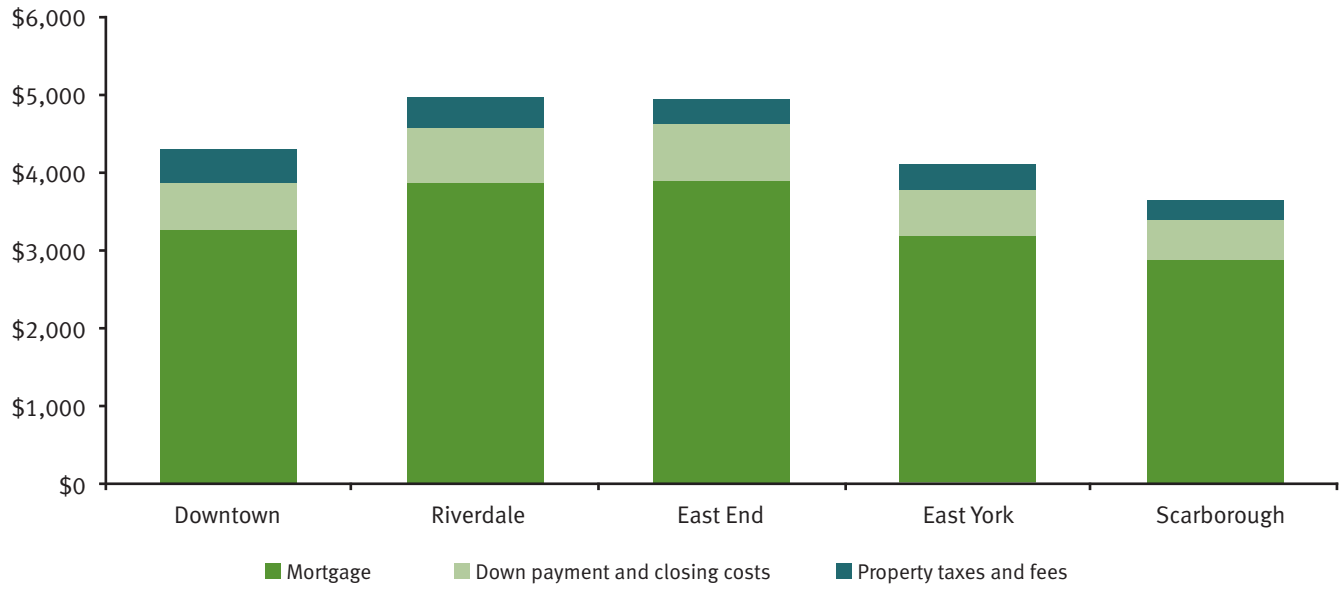
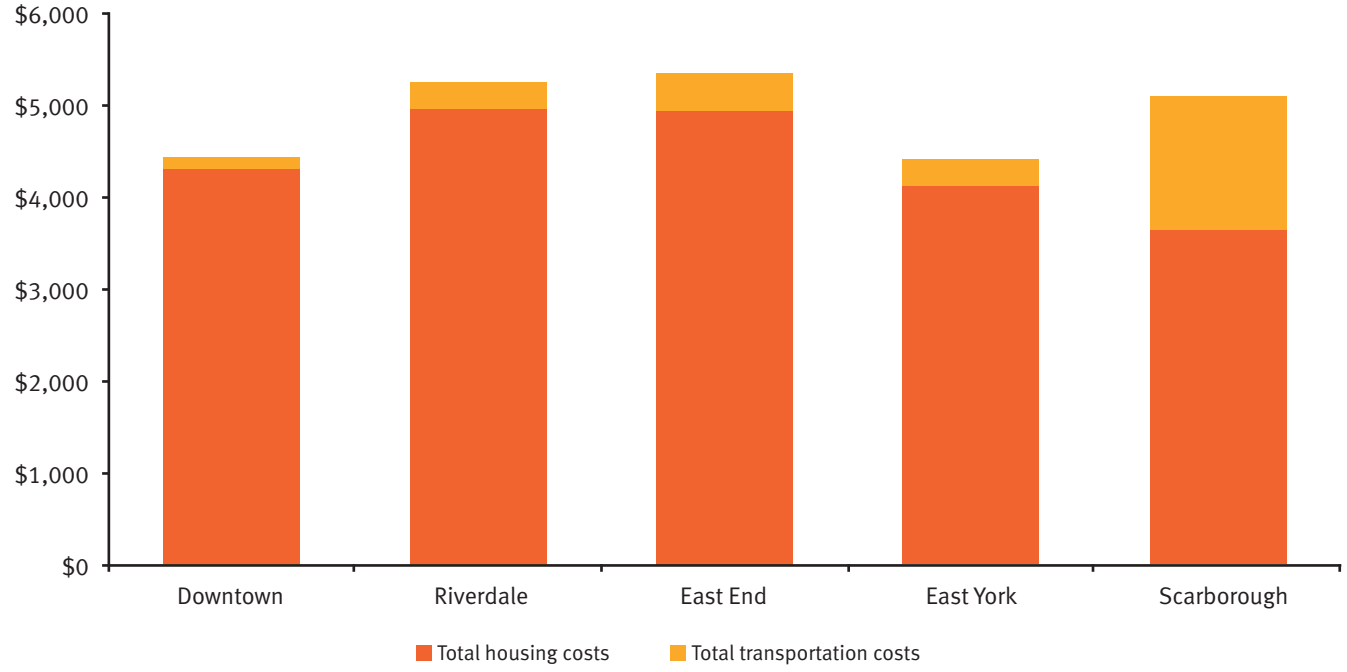


Figure 14: Dominic's monthly transportation costs

Figure 15: Dominic's monthly housing and transportation costs



Commuting time and neighbourhood livability

Figure 16: Dominic's monthly commuting times

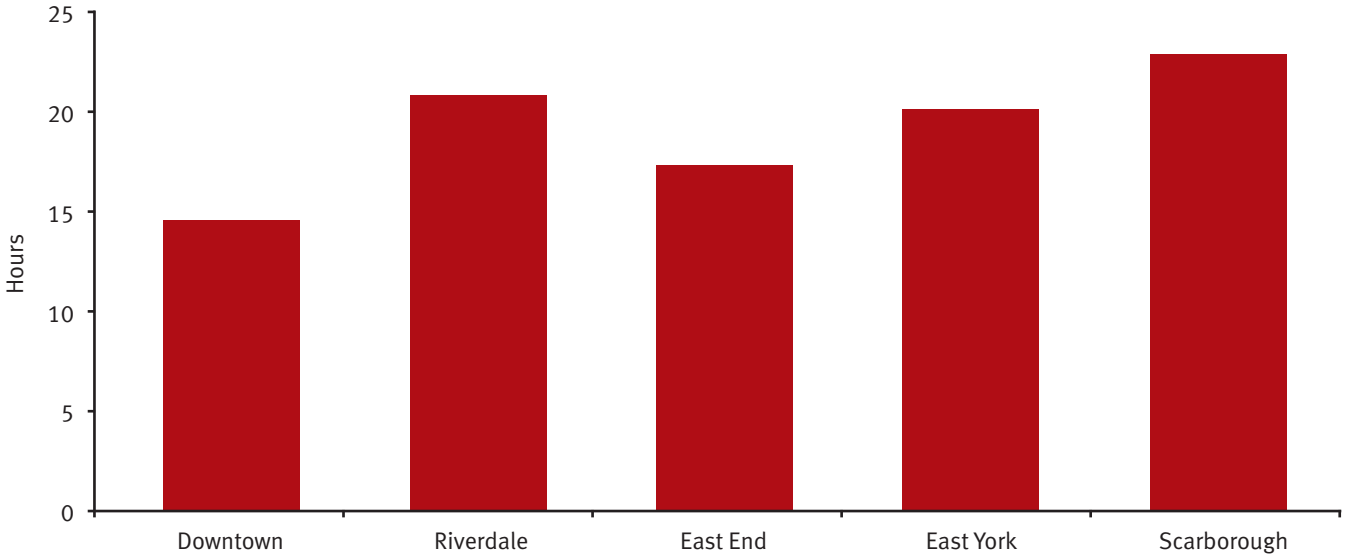


Table 4: Dominic's walkability and livability ratings

Property	Walkability and livability rating	Pedestrian friendliness	Access to amenities	Access to frequent transit	Walk Score
Downtown	**87**	Excellent	Very good	Excellent	87
Riverdale	**85**	Excellent	Very good	Excellent	88
East End	**77**	Very good	Good	Very good	83
East York	**76**	Very good	Good	Very good	83
Scarborough	**41**	Poor	Poor	Poor	60

Discussion

Dominic's dream of living in a home that's close to work is achievable. His savings from not owning a car or paying for a transit pass can compensate for the higher sticker price of his preferred location. However, he may want to consider a townhouse, since he would need to go farther from his downtown work location to find a detached or semi-detached house within his budget.

Letting go of the detached house dream, opting for a townhouse instead, can save money while increasing walkability.

The **Downtown** home offers a relatively short walk, free from congestion or transit delays, which meets Dominic's goal of spending less time commuting. However, he would have to let go of his dream of a detached house: there were no detached or semi-detached houses on the market within short walking distance of Dominic's workplace at the time of analysis. The townhouse is nevertheless large and modern, meeting Dominic's other criteria.

Riverdale offers the most expensive home, a semi-detached house that costs $130,000 more than the townhouse. This was the closest semi-detached home available at the time of our analysis. Dominic could still enjoy a longer walk to work, 38 minutes each way. On days with poor weather or when he's in a rush, he could take the streetcar to work in just over 20 minutes. This analysis therefore assumes that he would walk half the time and take transit the other half.[7]

The **East End** offers a fully detached house in a desirable downtown neighbourhood, but it comes at a premium. The selling price is the highest of all the options considered. It is likely too far for Dominic to walk to work. However, he would be a few steps from two streetcar routes, each of which would take him there in less than 30 minutes.

East York offers a less central neighbourhood but a more affordable home, while still being connected to transit. It's too far from downtown to walk, but cycling is an attractive option as it's close to the Don Valley trail. When the weather is poor, Dominic could take transit instead, as the house is within a 10-minute walk of the subway.

Scarborough is included in this analysis to illustrate how much cheaper a detached home is farther from the city centre. However, Dominic would have to drive to work. Factoring in the costs, having a car would negate the savings, giving this option the same monthly cost as the downtown locations. Apart from being unable to walk to work, Dominic would also be in a less walkable neighbourhood. The location offers little in the way of street culture and is not a pedestrian-friendly environment. There is heavy traffic on multi-lane roads, and a car is needed to reach most amenities.

[7] For the Riverdale and East York homes, the model assumes Dominic would commute on transit half the time and walk or cycle on other days. For the other homes, the model assumes Dominic would only use one mode of transportation when commuting.

Appendix: Methodology

This analysis modelled home purchase and transportation costs based on a range of available data and assumptions. The various factors were then combined to present a more comprehensive picture of the costs associated with purchasing different residential properties. The model data for individual homes and homebuyers is available from the Pembina Institute upon request.

Client data collection

Twelve RBC clients who were looking to purchase homes in the Greater Toronto Area completed a questionnaire, which provided the information that formed the basis of our assessments. Four of those homebuyers were chosen to illustrate a range of family types. In three cases, their names were changed to protect their privacy. The information collected included:

a) Location where they work, and where they will likely work for the next 10 to 20 years

b) Location where their spouse or partner works, and where they will likely work for the next 10 to 20 years

c) Number of children now or expected

d) Where they live now

e) Where they would like to live and why

f) Most important attributes of a home, including number of rooms, number of bathrooms, yard and type of home (detached, townhouse, etc.)

g) Things they do not want in a home

h) Most important attributes in terms of home location, including access and proximity to parks, schools, rapid transit, work location, as well as walkability and commuting time

i) Size and length of mortgage they can afford, as well as the total home price they can afford

j) How they currently get to work

k) Number and types of vehicles they own

Home options

The information and preferences collected from each client were used to identify four or five home options using the online public version of the Multiple Listing Service (MLS). For each client, we selected options that represent a variety of housing and transportation characteristics. These range from homes that enable many trips to be taken by transit, walking or biking, to those that require most trips to be taken by car.

Model inputs

The information and preferences provided by each client, along with additional data provided by MLS and other online sources, provided the basis for the inputs into the housing and transportation cost model. The inputs were as follows, using data collected in August 2014:

Housing

- **Asking price:** The asking price for the home as taken from the MLS property listing. Together with the MLS district and unit type (below), the asking price was used to estimate the final sale price of the home.
- **MLS district:** The district assigned by the MLS for categorizing property listings and aggregating property sales data for reporting purposes.
- **Unit type:** The type of housing structure. Categories in the case study may include detached homes, semi-detached homes, attached rowhouses and townhouses, condominium townhouses and condominium apartments.
- **Assessed value:** The valuation of the property for the purposes of calculating property tax. While the assessed value reflects recent sales data for the property's neighbourhood, it typically differs from the actual sale price of a specific home, sometimes significantly. In part, this difference reflects Ontario's four-year property assessment cycle, with current assessments reflecting a property's value as of January 1, 2012.

Sale price

To calculate mortgage costs and some closing costs, it was first necessary to determine the final sale price of the home.

- **For new homes:** the sale price in the model is the same as the asking price. This reflects the fact that new homes are typically sold by home builders at advertised prices.
- **For resale homes**: the model simulated the resale bidding process by applying a factor to the asking price based on the ratio of the average sale price to the list price published in the Toronto Real Estate Board's Market Watch. This ratio is specific to the MLS district and housing unit type in which the home is located, and therefore takes into account the varying levels of market interest and activity for different neighbourhoods and housing types. To smooth out the impact of month-to-month price and sales volatility in certain areas, the model used a three-month average that was weighted based on monthly sales volume.

Transportation

- **Work location:** The address or nearest intersection of the workplace for the homebuyer, and for their spouse or partner where applicable.
- **Travel time:** The one-way time estimate from the home to the workplace of the home purchaser for each travel method. This estimate was based on a calculation provided by Walk Score, which includes a rush hour congestion factor for trips by automobile. While Google Maps is also capable of providing travel time, it does so based on current real-time conditions rather than applying generalized assumptions as is the case with Walk Score; therefore, Google Maps is less suitable for modelling purposes.

- **GO fare:** For commuters who ride GO Transit, this is the cost of a 40-ride Presto monthly pass from the GO station nearest to the home to the GO station nearest to the workplace. With the Presto pass, there is no charge for any rides beyond the first 40 each month.
- **Local transit supplement:** For commuters who ride GO Transit, this represents any co-fares for the use of local transit services that connect to the GO system.
- **Vehicle category:** The type of automobile driven by the homebuyer and their spouse or partner, where applicable. The categories include compact, midsize and sport utility vehicles.
- **Travel distance:** The one-way travel distance in kilometres from the home to the workplaces of the homebuyer and spouse or partner, as calculated by Walk Score. This was only required for calculating travel costs associated with automobile travel.
- **Residential parking:** This indicates whether the home lacks adequate on-site parking. In this event, it is necessary to pay for an on-street parking permit.

Calculation of housing costs

To calculate total home ownership costs, the model calculated and added together the costs of the mortgage, property taxes, fees, property insurance and closing costs. Maintenance and utilities were not included as they can be highly specific to individual homes, and are difficult to determine without acquiring idiosyncratic data for each home.

Mortgage

The mortgage cost was calculated based on the sale price, as described above, and the following assumptions:

- 20% down payment
- 25-year amortization period
- Five-year term with a fixed interest rate
- Monthly payments with semi-annual compounding
- Interest rate of 4.1% annually for the first five-year term, rising to 5.5% for the remaining four terms to reflect the short- and long-term outlook for mortgage borrowing rates
- Monthly payments calculated as a weighted average of the short- and long-term rates over the amortization period

Closing costs

The following closing costs are incurred at the time of home purchase. In the model, they were added to the monthly housing costs by spreading them over 25 years, so they would align with the amortization of the mortgage:

- Down payment of 20% of the home sale price
- Provincial land transfer tax
- City of Toronto land transfer tax, for Toronto homes only

- Harmonized sales tax (HST), for new homes only, incorporating the partial rebate on the provincial portion
- Tarion warranty, for new homes only
- Additional 2.5% of the sale price for miscellaneous closing costs

Property taxes and fees

Property taxes were calculated based on the assessed value and the current applicable municipal and education tax rates for the municipality where the home was located. Where applicable, municipal rates included both lower- and upper-tier municipality rates. If the assessed value was not currently available, as is often the case with a new home, the sale price was used instead.

Applicable condominium or other maintenance fees, where known, were also included in this cost.

Insurance

Home insurance was calculated for a typical home in each municipality based on quotes from Kanetix, using the following assumptions:

- $1,000 deductible
- $1,000,000 liability
- Contents, all risk
- No alarm
- 1980 construction date

Calculation of transportation costs

Transportation costs depend greatly on car ownership and the travel method used for commuting to work. The model calculated the individual transportation costs described below for each commuter with each home option. These costs were then added together to provide the total transportation cost.

Private car costs

For commuters who were going to use a vehicle, the total costs of operating the vehicle included the following:

- Per-kilometre costs for fuel, maintenance and tires
- Fixed costs for insurance, depreciation, vehicle registration, financing and parking

The per-kilometre costs were calculated by applying per kilometer rates to mileage.[8] Mileage consists of both base mileage and commuting mileage. We assumed a fixed base mileage of 8,422 kilometres.[9]

Commuting mileage was based on the one-way distance to the workplace from the home, which was extrapolated with the assumption of a two-way daily trip taken five days a week, 50 weeks a year. If the home purchaser was going to own a vehicle but was not going to use it to commute to work, the commuting mileage was set to zero.

[8] Rates based on Canadian Automobile Association, *Driving Costs: Beyond the price tag* (2013), http://www.caa.ca/driving-costs/.
[9] Based on data from Natural Resources Canada, *2009 Canadian Vehicle Survey Summary Report (2009)*, http://oee.nrcan.gc.ca/publications/statistics/cvs09/introduction.cfm; University of Toronto, "Transportation Tomorrow Survey," survey data, 2009, http://www.dmg.utoronto.ca/transportationtomorrowsurvey/.

The annual vehicle registration fee was set at $100, which included the $10 vehicle permit and $90 licence plate sticker fee applicable in southern Ontario.[10] Fixed costs for insurance and depreciation were also based on Canadian Automobile Association data.[11]

Financing costs for car loans were based on the vehicle price with a five-year term and a 6% annual interest rate, compounded monthly.

If workplace parking was not available, we assumed a cost of $316.40 per month, based on data from Colliers International.[12]

If a home lacked sufficient on-site parking, the cost of a residential parking permit was set at $14.04 per month plus HST for the first space and $35.13 plus HST for a second space, based on the City of Toronto's current on-street parking rates.[13]

Public transit costs

For commuters who were going to take public transit to work, commuting costs were calculated as follows:

- For Toronto Transit Commission riders, we assumed a monthly Metropass fare of $133.75 and a downtown express supplement of $38.50, where applicable.
- For GO Transit riders, we assumed the inputted monthly fare, along with a co-fare of between $0.65 and $0.75 per ride if a local transit system was going to be used to make a connection.

Alternative travel costs

For commuters who were not going to own a car or commute by public transit (e.g. those who were going to walk or cycle to work), we assumed alternative travel costs of $97 per month. This figure was calculated based on informal polling by the Pembina Institute and includes:

- $22.50 per month for car sharing
- $32 per month for taxis
- $42.50 per month for public transit fares

We assumed that commuters who were going to take transit to work were going to purchase a monthly transit pass, which they could then use for non-commuting travel.

[10] Service Ontario, "Register a vehicle," September 3, 2014, http://www.ontario.ca/driving-and-roads/vehicle-registration-platespermits.
[11] Canadian Automobile Association, *Driving Costs*.
[12] Colliers International, "Paying More at the Parking Lot – Parking Rates in Canada Continue to Climb According to Real Estate Firm Colliers International," news release, October 2, 2012, https://www.collierscanada.com/en/News/2012/Parking%20Survey%202012.
[13] City of Toronto, "Permit Parking," http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=bec6a84c9f6e1410VgnVCM10000071d60f89RCRD&vgnextchannel=cd4c4074781e1410VgnVCM10000071d60f89RCRD.

Travel time costs

To place a value on the time that would be spent commuting, we used a method that ranks the perceived value of time based on the mode of transportation.[14] To do this, the factors listed below were applied to the average 2011 Ontario family income, which has been converted to an hourly rate, and the total travel time.

Mode	Time cost factor
Driving	50%
Passenger in car	35%
Bike	10%
Walk	10%
TTC	35%
GO train	10%

Sensitivity analysis

Most costs will fluctuate over time due to inflation, home markets, the price of energy and other factors. As our purpose is to conduct a relative comparison of costs when purchasing different homes, these factors have been treated as static over time. Attempting to account for changing costs would require many additional assumptions and increase the level of uncertainty, resulting in a less useful comparison. The one exception to this static approach is mortgage interest rates: our assumptions reflect the longer-term outlook for borrowing costs from RBC Economics.

Despite this limitation of the model, it can be reasonably assumed that rising energy costs favour homes in more location-efficient neighbourhoods. This is because of the relatively low — or in some cases negligible — energy costs for non-automotive forms of travel, as well as the lower heating and cooling requirements associated with smaller living spaces and multi-family dwelling units that share common walls.

Walkability and livability index

A walkability and livability index was developed to provide a more granular analysis of neighbourhood factors that are not captured simply by Walk Score. These include:

- **Pedestrian friendliness:** Are there sidewalks? How wide and busy are the streets that people walk along or across to reach amenities?
- **Access to amenities:** The proximity, quality and quantity of amenities nearby.
- **Access to frequent transit:** How close and easy is it to walk to rapid transit or commuter rail with frequent service?
- **Walk Score:** The score provided by Walk Score's website for the address is factored into the index.[15]

The first three factors were evaluated on a six-point scale ranging from very poor to excellent. These ratings were then converted to numerical scores on a 100-point scale. The final score is an average of the four factors on a 100-point scale.

[14] Adapted from Victoria Transport Policy Institute, *Transportation Cost and Benefit Analysis II* – Travel Time Costs (2013), www.vtpi.org/tca/tca0502.pdf.
[15] The score for a given address can be calculated using Walk Score's website: http://www.walkscore.com.