



Edmonton Transportation Effect Report

The impact of transportation
improvements on housing in
the Edmonton area



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Edmonton Transportation Effect Report



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About the *Transportation Effect Report*

This report summarizes the relevant academic research, theories and formulas on transportation, and their impact on real estate. This is called the “transportation effect.” The report begins with a macro approach, based on REIN’s Transportation Formula, followed by an overview of pertinent studies and findings, and presents several case studies to illustrate research findings. It concludes with a micro analysis of current transportation plans in the related city.

While the transportation effect applies primarily to LRT and highway access, this report also considers future modes of transportation and transportation disrupters, as well as demographics and socioeconomics correlations with transportation, primarily with regard to LRT.

Our goal is to present an objective and research-oriented perspective of transportation and real estate, empowering investors to see how new and/or proposed transportation projects may affect their real estate portfolios and helping investors to plan for the acquisition or disposition of real estate well in advance of the full impact of transportation upgrades or completions.

For Homebuyers

For many Canadian homeowners, much of their personal net worth is tied to the value of their homes, which makes information impacting the value of real estate a very important planning tool. As with our previous reports and books, the goal of this report is not only to assist homeowners in gaining insight about how a project may affect their net worth, but also to cut through the emotions and debate that surround transportation projects.

For Investors

Whether investing in a single-family home, commercial retail plaza, multi-family apartment or condo, whether by yourself or through an investment company, or choosing to invest through a Real Estate Investment Trust (REIT) or Mortgage Investment Corporation (MIC), the formulas, the effect, the research and practical insights you find in this report will help you make informed decisions regarding your portfolio.

Since the publication of REIN’s first breakthrough transportation reports in 2009, REIN has continued to conduct research into current and proposed transportation improvements across Canada. REIN investigates the impact of transportation on real estate prices and rents, including commercial and multi-family properties.

These reports are being reviewed in 2018 to:

1. Validate and update existing transportation and housing research; and
2. Reflect current city transportation developments and plans for practical application, now.

REIN’s transportation reports show the effect LRT and highway access infrastructure can have on property prices and rents. The majority of related academic research focuses on LRT, which is a primary focus of this report. As bus transit and Bus Rapid Transit (BRT) provide fewer benefits to real estate than LRT and highway access, these are therefore only mentioned briefly.

REIN has long incorporated transportation improvements within its analysis through tools and processes such as REIN’s Property Goldmine Scorecard, which introduces the concept of a “market influencer” (see page 51 of the best-selling book, *Real Estate Investing in Canada*). What’s a market influencer you may ask? Simply put, it is a positive or negative change to market conditions that lay outside of a typical real estate cycle. These can include changes in a tax regime, to zoning, or in the case of this report, transportation. For more on our methodology, please refer to REIN’s Top Ten Towns and Cities reports, our website, and our education.

This report is not intended as an overview of all of REIN’s research and methodologies, but rather is meant to provide a comprehensive review of this one market influencer, answering the questions:

1. Why is transportation a critical factor in real estate investing?
2. How does it impact tenancy and rents? and

Caveat: While research shows there is typically and likely an impact in value tied to improved transportation (in specific locations), because multiple indicators are always at work in a real estate market and real estate cycle, a single market influencer, no matter how important, does not guarantee that transit improvements will result in increased property prices or rents for every property in every neighbourhood.

That said, let's get into the goods!

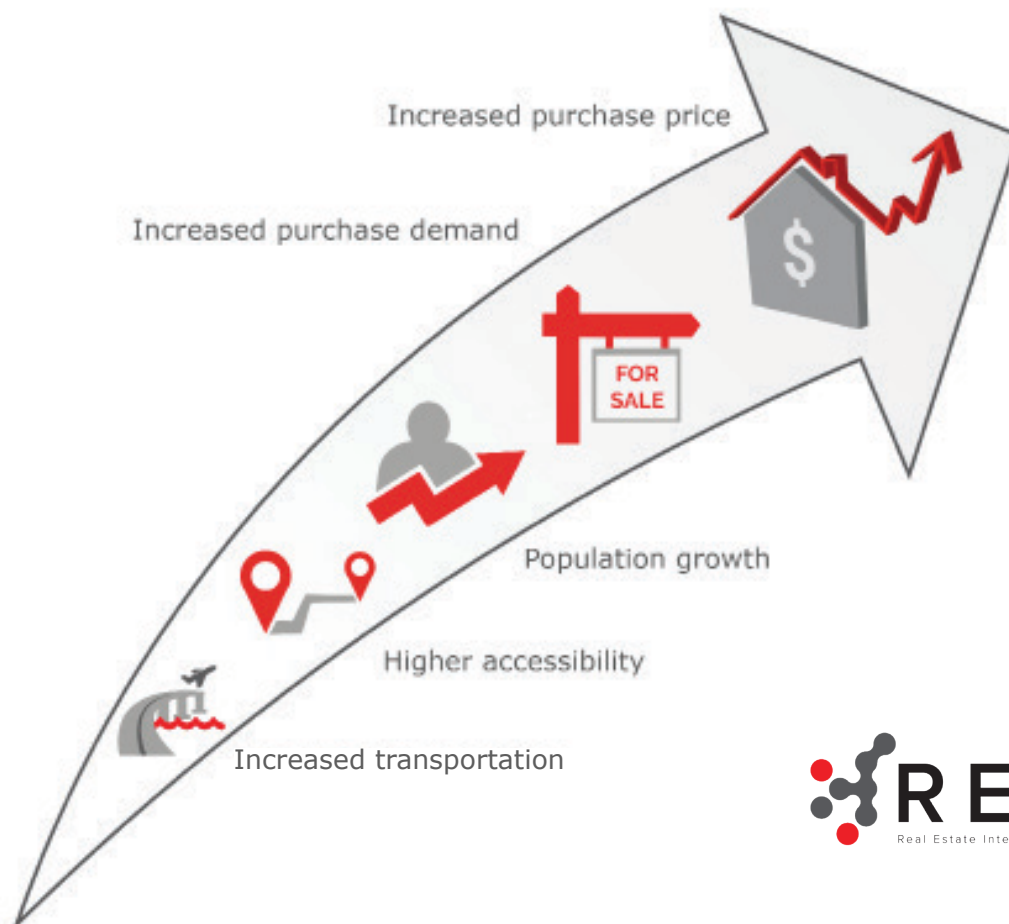
REIN's Transportation Formula

We'll start with this important overview of all transportation that impacts cities on a macro level: REIN's Transportation Formula.

Generally, all major transportation infrastructure influences property values. You can refer to Real Estate Investing in Canada, page 51, for details. Why? Because accessibility leads to population in-migration due to the improved economic health of the area. Increased population leads to an increase in demand for real estate, both housing (to rent and buy) and places to work (commercial, retail, and office). An increase in demand typically leads to an increase in values or a buffering of values in a depressed market.

This works in reverse too. The removal of critical transportation infrastructure will negatively impact the above factors,

Figure 1: REIN's Transportation Formula

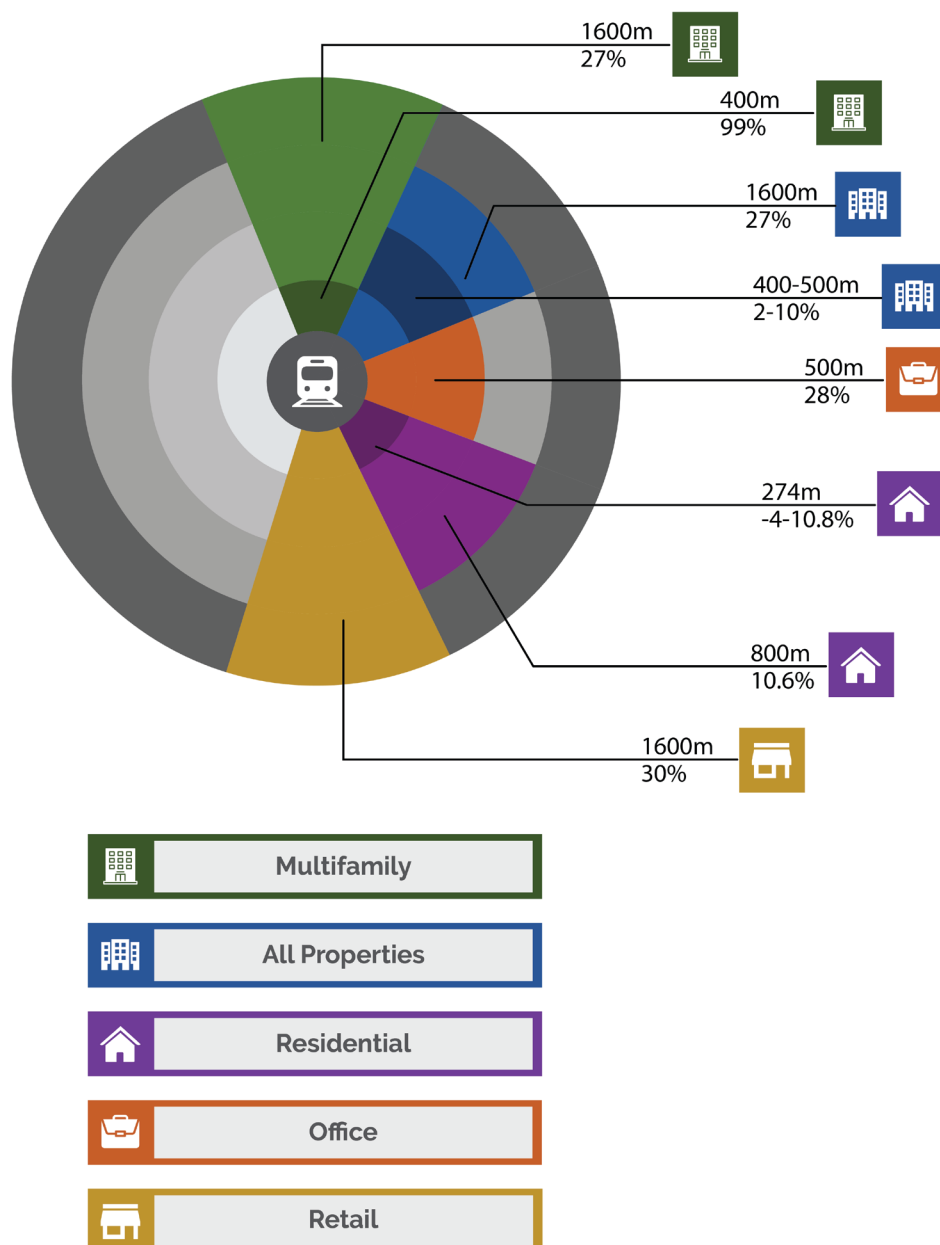


Highway vs. Rail Transit:

- Both rail transit access and accessibility to major highways, and highway improvements, prove to be major determinants of increased property values.
- The only material difference between types of access is noise levels associated with highways-Decibel levels.

This Report at a Glance (aka Figure 2. Executive Summary)

You are busy. We get it. Here's what you need to know. Then skip to the back for your city's current transportation plans so you can get this influencer working for you.



Types of Properties

REIN's transportation effect generally impacts all real estate types: residential properties, condominiums, single-family and multi-family residential to commercial office, retail and industrial. Studies show the effect does impact property types differently. Below are some highlights

Impacts on Values

- Values of real estate in neighbourhoods close to mass transit have premiums ranging between one per cent and almost 40 per cent.
- Transportation infrastructure delivers a 10 per cent to 20 per cent enhancement of real estate values within 800 metres of a station. If the market goes up everywhere, these areas will increase by about 10 per cent to 20 per cent more. If real estate values drop, these areas will drop 10 per cent to 20 per cent less.
- A 2007 meta-data analysis of 52 studies on the impact of transit developments on residential real estate prices found an average price increase of 4.2 per cent within 400 metres of a station. Accessibility to transportation ultimately creates value.
- Office space located within walking distance (500m) of rapid transit stations had lower vacancy rates by 34 per cent and a price premium of 28 per cent.
- A 2007 meta-analysis reports that, on average, there is a 12.2 per cent premium on commercial properties located within one-quarter mile (400 metres) of a commuter rail station.
- Multi-family properties were between 27 per cent and 99 per cent more valuable within 1600 metres than those beyond 1600 metres (1 mile), with the greatest premium found within 400 metres (.25 mile) of a station.
- Commuter railway stations have a consistently higher positive impact on property values, compared to light and heavy railway/Metro stations.
- At between 400 and 500 metres, prices typically increase from between 2 per cent and 10 per cent.
- Residential properties less than 274m decrease in value from 4 per cent – 10.8 per cent.¹

Other Impacts

- Residential units near an LRT tend to sell more quickly and at higher prices than comparable units not served by transit.
- The range of these effects varies depending on numerous factors, including distance to the downtown core and the median income of the neighbourhood.
- Accessibility is defined as "proximity to stations, stops, and onramps."² Do not confuse proximity to transit as being anything other than this type of access.
- Close proximity to the line or route itself has a negative influence.

Transportation and Infrastructure Construction Phases

- Transportation and infrastructure construction phases make a difference: pre-construction and construction phase values within a half mile (.8 km) of stations increased home prices by almost 20 per cent; once transit was active, those same home prices fell by almost 10 per cent for a net positive increase of 10 per cent. It can also take time once a station has opened for for an increase in demand to begin exerting upward pressure on real estate prices and rents.

Rents

- Transportation improvements deliver between 10 per cent to 46 per cent enhancement of real estate rents in proximity to a station.
- Due to the “compensation principle,” renters living closer to transportation access points are typically able to save money on transit and thus pay higher rents.

Where in a city should you look for real estate connected with transportation improvements?

This section summarizes areas most significantly impacted by transportation upgrades and the surrounding neighbourhoods most like to benefit from the transportation effect of new and/or proposed transportation (LRT and major highways) in the city under review.

Because transportation impacts are dependant on construction timelines, which is discussed in further detail herein, planned transportation projects are categorized as:

- **First Tier** (Phase - under construction)
- **Second Tier** (Phase - funded)
- **Third Tier** (Phase – planned, not funded)
- **Fourth Tier** (Phase - no finalized plans)

REIN encourages investors to watch third and fourth tier projects, but to focus attention on the first and second tiers, and largely on areas where construction has started. Transportation projects are impacted by many influencers including governments, funding, etc., so be certain it's well on its way before assuming a potential transportation project will go-ahead.

General Transportation Definitions

Transportation used to mean planes, trains and automobiles, but now it can mean many different things to different people, including transportation disrupters like Uber and car-sharing services. Definitions are offered here for clarity within the report.

Planes:

- Airports

Trains:

- Light Rapid Transit (LRT) examples:
 - Metro Vancouver: Sky Train
 - Calgary: C train
 - Kitchener Region LRT
 - Ottawa: O Train
- Heavy Commuter Rail, examples:
 - Metro Vancouver: West Coast Express, Via Rail
 - Greater Toronto Area and Southern Ontario: Metrolinx Go Train

Automobiles:

- Autonomous car: An autonomous car (also known as a driverless car and a self-driving car) is a vehicle that is capable of sensing its environment and navigating without human input.
 - Ride share:
 - An arrangement in which a passenger travels in a private vehicle driven by its owner, for free or for a fee, especially as arranged by means of a website or app.
 - Ride share companies are also known as transportation network companies (TNCs):
 - » An organization that pairs passengers via websites and mobile apps with drivers who provide such services. Transportation network companies are examples of the sharing economy and shared mobility.
 - » Sometimes known as a mobility service provider (MSP)
 - » Examples: Uber and Lyft
 - Car share:
 - The practice of sharing a car for regular travelling, especially for commuting
 - Companies like Zip Car and Cars2Go facilitate car sharing among commuters
- Bus: A large motor vehicle carrying passengers by road, especially one serving the public on a fixed route and for a fare.

Bus Rapid Transit (BRT)⁴

- High-quality express bus-based transit system, delivering fast, comfortable, and cost-effective services at metro-level capacities while avoiding the causes of delay that typically slow regular bus services, like being stuck in traffic and queuing to pay on board.
- Paratransit:
 - Recognized in North America as special transportation services for people with disabilities, often provided as a supplement to fixed-route bus and rail systems by public transit agencies.
- Private motor vehicle: used for the transportation of passengers, or passengers and property. In this case, it is owned and used privately.
- Transit Stops: Stops on a transit line can be as simple as a pole marker with a sheltered waiting area, seating, and a disposal/recycle bin. Basic stops can be enhanced to accommodate more riders. Stops are usually on the side of the road and are smaller in size and scale than a station. Passenger demand dictates whether the place of boarding and deboarding will be a stop or a station, although stops are usually associated with a bus.
- Transit Station: A station suggests significant permanent infrastructure, a named civic gathering spot, and often includes a building that is separated from the traffic that can handle the movement of thousands of people a day. A station can be at grade, above grade or underground. Stations generally have more amenities, such as bike storage, washrooms, ticket dispensers, elevators, and possibly parking or drop-off areas. Passenger demand dictates whether the place of boarding and deboarding will be a stop or a station, although stations are usually associated to an LRT.

Infrastructure:

- Highway: A primary road, often connecting multiple towns, also known as an expressway, interstate, or freeway.
- Bridges and tunnels on highways.
- Toll road: A user must pay to access this infrastructure.
- Designated High Occupancy Vehicle (HOV) lanes: A lane for vehicles carrying a a required minimum number of passengers, usually a minimum of two.

- Designated bike lanes: A designated lane, usually marked, that is strictly for use by cyclists.

Community Planning

- Transportation-Oriented Communities (TOCs)
 - Also called a Community Node
 - See case study: Blatchford
- Central Business District (CBD)

Into the Future: Transportation Disrupters

While fascinating, transportation disrupters like the availability of Uber, vehicle automation, and car/bike/scooter sharing services are not analyzed as part of this report. This is not to downplay the importance these technological shifts are having on our society, given they are impacting all sorts of industries. Academic research on these shifts is only just beginning to emerge. REIN will review and consider the findings as they are published for future research and analysis. The following is a brief overview of the initial findings on transportation and mobility disrupters.

Mobility Disrupters and New Transportation Concepts

Ride Share versus Public Transport

A recent paper from DePaul University researched five transportation options within Chicago. The research evaluated monetary and non-monetary trade-offs between different types of mobilities, such as LRT, bus and rideshare. The “microeconomic analysis has been made available to explore how service attributes affect choices between ridesharing and public transit.”⁵ The report found there is no financial benefit to taking a transportation network company (TNC) over public transit, given the price differential.

The researchers concluded that public transit and ride share serve different transportation needs and thus are complementary services. While there is concern that public transit use is dropping due to the rising popularity of TNCs, it is bus service that is primarily affected, as opposed to commuter rail services in urban areas.⁶

Transportation, Social Change and Employment

A 2018 article written by Shauna Brail, associate professor of urban studies at the University of Toronto, reports transformations in the ways people move themselves is changing employment. For example, automobile manufacturing is a \$3 trillion industry globally, while mobility is now valued at \$5 trillion. There is great potential for jobs to be created in industries associated with urban mobility. The 2018 report calls on cities “to address, manage and direct change through regulatory policy tools,” given disrupters facilitated by technology “such as short-term accommodation rentals and autonomous vehicles, plus new technologies that we haven’t yet begun to imagine”⁷ are just beginning to impact urban areas. The author posits that partnerships between government, private industry and academia are key to managing the social change presented by new and evolving technologies, like self-driving cars.

For example, in Innisfil, Ontario, Uber has partnered with the municipal government to provide a service that costs less than public transit. This area is a low-density environment, which would have cost the municipality approximately \$8 million were it not for the partnership. According to an August 2018 article on CityLab, since 2016 alone, 27 communities in the United States have implemented using companies like Lyft and Uber to “supplement or substitute traditional service.”⁸ Examples of how these cities are utilizing TNCs include providing free or subsidized trips to LRT stations, replacing paratransit and performing non-emergency transport to the hospital.

Autonomous, self-driving cars

The future is here so are semi-autonomous cars. Basically, the driver uses the car's semi-autonomous driving capabilities to arrive at a destination, even right into a parking stall, and even doing those pesky parallel parking jobs for you. Some automakers like Tesla have built this function into its cars. Stay tuned on how they may impact transportation trends.

There is speculation that between new technology, ride-sharing and autonomous vehicles, we are on the verge of a major disruption in vehicle ownership. According to a CBC news report in January 2018, Vancouver has more car-sharing vehicles (Evo, Modo, Zip car, and Car2Go) on the road than any other city in North America, including the oft-compared metropolis of Toronto. There are 3,000 vehicles available in Vancouver, "more than Toronto (1,650) and Montreal (2,080), and even more than U.S. cities like Seattle (1,900), Portland (1,060) and San Francisco (1,500)."⁹ Growth in car-sharing services is evident in other Metro Vancouver cities as well.

In terms of ride-share testing of semi-autonomous vehicles, on July 11, 2018 Uber suspended its automated testing program following a collision in Arizona in February 2018 that killed a pedestrian. It is believed the company will scale down its testing for the immediate future.¹⁰

From car culture to a bike culture

Professor Shauna Brail notes that in Toronto, Montreal and Vancouver, "less than 70 percent of commuters commuted in a private vehicle, choosing instead alternatives such as public transit, walking and cycling." XI Now, bikes are not a new concept. Bikes and bike lanes are a huge part of many European cultures. What's new is the introduction, adoption and expansion of this mode of transportation in Canada's biggest cities.

The use of bike lanes in a city and how this form of transportation is impacted by a city's demographics is not a key impact of the transportation effect; however, bike ridership does impact transit ridership as a whole and is reflective of a city's transportation priorities.

In July 2016, Vancouver launched its public bike share system with an inaugural 250 bikes at 23 stations. Within months that number had reached over 800 bikes at 100 stations.¹¹ Metro Vancouver's map of the stations and routes on page 26 of the *Walking and Cycling in Vancouver 2016 Report Card* illustrates that the downtown core has the greatest number of stations and is also the busiest. In 2016, 407,818 kms were covered by a Mobi bike.¹²

The 2018 investment plan for Phase 2 of Ten-Year Vision indicates Metro Vancouver has a commitment to collaborate on the exploration of new mobility concepts within its delivery model as a means of providing alternatives to private car ownership. Further, policies for automated vehicles already exist in some cities and are being developed in others. automated vehicles.¹³

Sociocultural and Demographic Influences on Transportation

As an investor in real estate, if you cannot purchase a property near a transit station, it is recommended that you purchase a property where a tenant need not commute to work. In other words, more and more, people of all walks of life and demographics are wanting to work, live and play in their neighbourhood. The rise of Transportation-Oriented Communities (TOCs) and multi-zoned developments support this (re)-emerging value (read more on this in the Community Node section of this report). Western society is undergoing significant cultural changes, and real estate investors should be aware of these changes given their impact on transportation and housing. A 2016 study noted that in cities and countries with a stronger transit culture, the positive impact on property values is even greater.

Distance Is Measured in Minutes, Not Kilometres

When people talk about their commute, they generally don't talk about the number of kilometres they drive to get to work; rather, they talk about how long the drive takes them. This stems from two separate realities of our busy society. People care about time, because time is a precious commodity in our busy lives. Research is conclusive that a lower commuting time is linked to greater personal well-being. Also, depending on where you live, roads can have variable speeds, be made more interesting through topography, and be more or less stressful depending on the number of persons using the road, all of which impact driving time. These variables in the urban landscape create a demand for properties with a reduced commute time through the availability of good transit.

In Canada, the number of people taking public transit has increased in every census. In the Community Node section of this report, you will read about entire master-planned communities being organized around transit and the idea of reaching a destination within minutes.

The Importance of Walkability

More and more, the distance to the amenities of urban life is measured in footsteps, not kilometres.¹⁵ Further proving that minutes are becoming more important than kilometres is the growing popularity of walk scores. Launched in 2007, www.walkscore.ca calculates an address's walkability by bestowing points for amenities located within a one-mile (1.6 kilometre) radius. Such amenities include schools, places of worship, stores, restaurants and parks.

Realtors are increasingly using walk scores to draw attention to their listings for sale or rent. Using an algorithm, the walk score provides a quantitative alternative to the traditional features often found in ads referring to proximity to amenities. A high walk score is a big draw for potential buyers

and renters. The option of having convenient mass transit adds value to a property. Advertising proximity to transit and amenities is a huge benefit and smart marketers are taking this free walking measure and running with it.

Suburbs Versus City Core

Suburban sprawl post World War II led to a reconfiguration of society. Living in the suburbs often means travelling a great distance from home to workplace. "In Canada, we have organized

our lives, land and economy around mobility, mostly around a model that privileges private vehicle ownership. Between 1996 and 2016 the proportion of commuters who drove to work in a

private vehicle has declined by a mere 1.2 percent, from 80.7 percent to 79.5 percent."¹⁶ The visual evidence in any downtown core clearly indicates a refocus on the urban core, facilitated through densification and infill measures.



Figure 3: 2016 Census Results. Cycling is the Fastest Growing Mode of Transportation in Canada.

The Increasing Cost of Vehicle Ownership

In 2016, Canada's combined total household spending on transportation (including insurance) was \$179.5 billion. One 2018 article estimated a private vehicle costs \$9,000 a year to keep on the road. These figures are second only to shelter in terms of major spending categories. Therefore, it should not be surprising that all cities researched in 2018 have significant transit undertakings in the works for their citizens. As environmental concerns become more compelling and prominent, congestion in cities increases commuting times, and insurance rates and gas prices climb, the demand for public transit has increased.

"Household spending for personal travel accounted for about 10 per cent of GDP"; therefore, lower-income families, Millennials with their debt, or Baby Boomers on a fixed pension may rely on transit more heavily than other groups.

Changing Demographics

Millennials represent approximately 27 per cent of the population. Millennials rent at higher rate than their parental generation, accounting for approximately 50 per cent of those who were age 30 in 2016 and living independently. Millennials are also more likely to live in apartments than Baby Boomers. This demographic has been living at home longer than prior generations but is starting to move out on their own en masse. Millennials aren't willing to give up the comfortable lifestyle they grew up with merely for the bragging rights of owning just any home. They want new homes and they want amenities. Many will choose to pay a premium to rent in the right location instead of paying the same in monthly mortgage costs for an older, outdated home. This cohort wants access to the lifestyle choices offered by social spaces.

Millennials are highly educated, but due to changing employment trends they are often involved in precarious kinds of employment (part-time, contract, on-call and self-employed), and they have large amounts of debt, which presents challenges for obtaining a mortgage.

According to Statistics Canada, there are more Millennials in large urban centres than non-census metropolitan areas, attracted by employment or educational opportunities. However, in May 2018, numbers from Statistics Canada showed that Millennials are moving out of the two most expensive cities in Canada: Vancouver and Toronto. The intraprovincial migration numbers show this cohort is moving to areas of the province where the cost of living is lower.

Baby Boomers are the second-largest generation, representing approximately 21 per cent of Canadians. This group first started entering their retirement years in 2011, yet this is only the beginning of a significant change in society. The last of the Baby Boomers will not turn 65 until 2031. The largest number of Baby Boomers are still in the 55 to 64 age range, and thus many remain in the workforce. According to the 2016 Canadian census, Baby Boomers are more likely to live in rural areas. For those staying in, or moving to, urban centres, Baby Boomers are often looking to downsize into condos as a means of freeing up the equity they have in their home to fund their retirement or help their Millennial children buy a home.

The number of people over 65 is growing five times faster than the number of children under 15, partly due to the massive Baby Boomer generation. According to the 2016 Canadian census, the number of people aged 85 and older grew at nearly four times the rate of the overall population. The centenarian population (i.e., those aged 100 and older) grew even faster, making it the fastest-growing age group between 2011 and 2016. The total population of seniors is now 17 per cent nationwide and growing, largely because people are living longer. This age group is important to real estate investors as they have different housing needs. For example, having all necessary amenities on a single level and proximity to services like health care and transportation. In the upcoming decades, many of this generation will transfer to assisted living and nursing homes. Many of the municipalities where this age group resides in numbers is found on Vancouver Island, BC.

All told, Millennials and Baby Boomers are driving the change in urban planning to that of walkability, density and mixed-use space where work and play are both at the doorstep.

Metro Vancouver is preparing to support this growing demand through several master-planned communities under construction. Examples in Burnaby are The Amazing Brentwood and The City of Lougheed developments. For a more in-depth look at Transportation-Oriented Communities and Community Nodes, read on to the next section

Transportation–Oriented Communities and Community Nodes

While not solely transportation focused, transportation is an integral component of community nodes. This style of integrated and mixed-use space appears to be the latest focus of urban planning as cities rise to meet changing urban demands, including densification, better public transit and affordable housing.

These developments are what some call innovative zoning, a trend if you will, as cities develop new hubs or nodes as full communities or micro cities within their quadrants, which are integrated into transit plans and lead to the creation of Transportation-Oriented Communities (TOCs).

The case study of Blatchford, Edmonton, is a prime example of community node development. Blatchford was once an under-utilized area that has become a thriving residential and commercial centre.

Community Node Case Study: Blatchford, Edmonton

Blatchford Summary:

- **City Quadrant:** Edmonton City Centre
- **Name of Line:** Metro Line Northwest
- **Construction/Completion Status:** Infrastructure construction underway
- **Funding Status:** Funded
- **Date of Completion:** Ongoing in phases over 25 years
- **Location:** City Centre Airport Lands
- **Type:** Mixed-use, multi-family. See <https://blatchfordedmonton.ca/>
- **Neighbourhoods to Watch** - Prince Charles, Inglewood, Prince Rupert, Spruce Avenue and Westwood



Figure 4: Site Plan for Blatchford

In Edmonton, AB, a high-density redevelopment neighbourhood is planned for Edmonton's City Centre Airport Lands. Blatchford is a mixed-use urban community with a focus on economic, environmental and social sustainability.²⁶ The development aspires to be carbon neutral, using 100 per cent renewable energy.²⁷ Of the 536-acre parcel, 80 acres will be devoted to parkland. Much like the LeBreton Flats redevelopment project in Ottawa, there is a lengthy time span of 25 years for the project to come to fruition.

Blatchford is a prime example of innovative zoning, with mixed zoning supporting multi-use communities around transportation hubs. In our review of a 2014 consultation document, there is a strong focus on making Blatchford transit integrated and walkable. The space will eventually connect to the Metro Line Northwest via its own station, located at a current ViaRail station in the eastern portion of the development. Within the plan for Blatchford's Technology and Research District there is a commitment to place the higher-density residential buildings in closest proximity to new LRT stations, which are planned to be within a five-minute walk for any resident of the community.

The process for Blatchford, which began in 2009, is in the infrastructure building phase, while builder selection is also underway for the first phase. The city aims to provide housing for 30,000 people, including seniors housing and affordable housing. According to the results from the 2014 consultation process, car-share programs and ski trails will be incorporated into this new development. "Participants embraced the concept of walkability and transportation modes that encouraged less reliance on the car. They saw this as an indicator of 'big city status,' referring to other cities (New York, Toronto, Vancouver, and cities in Europe) that, through good planning, have made it possible to live car-free."²⁸ In terms of the housing planned for the site, it will be comprised only of multi-family dwellings; there are no planned single-family homes or duplexes.

Transportation Effect: History and Research Findings

To create a report that is meaningful to the investor community, we consulted many peer-reviewed transportation research reports. Each of these reports has built on previous scholarship in the field; thus, the reviewed analysis spans decades and geographic boundaries. The research is summarized herein to determine what impact transportation improvements can have on real estate and possible reasons for such changes. The intent of this section is to demonstrate with evidence, both through current street rents and empirical research, that transportation and its infrastructure positively affect both market rents and real estate property prices.

The transportation effect on increasing property values and rents has a long history, with two key studies dating to the mid-1800s.

Academic research findings on the topic of value and rents for properties stem from the work of Von Thünen (1863), who concluded that farm values were predicated on distance to market. This has become known as the compensation

principle when discussing real estate values and transportation access. Further, the dominant factors explaining the results on property values were accessibility as measured by the distance to the central business district (CBD) and associated transportation costs.²⁹

Similarly, in 1846 London's Royal Commission on Metropolis Railway Termini conducted research to determine the impact of the city's rail access on rents in its poor working districts. The study found that weekly and monthly rents in these districts rose from 10 per cent to 25 per cent as a result of proximity to public transportation stations.²⁰

Further, the emerging sociocultural and demographic influences discussed earlier in this report surface several fundamental aspects that cause transportation to impact real estate values. Prior to exploring the latest research findings, this section summarizes some of these foundational key concepts and theories.

Difference between Light Rail and Highway Improvements

As with rail transit, particularly, light rail, accessibility to major highways and highway improvements, including tunnel and bridge infrastructure, prove to be major determinants of increased property values in all studies. Research demonstrates that as highway networks are created and existing corridors to the CBD and major employment centres are upgraded, the value of real estate in the area increases.³¹

The main difference between the rail transit findings and highway findings is merely the impact of vehicle noise from highly travelled highways. The increase in value of residential properties located in close proximity to a highway was partially offset by a reduction in price as noise levels increased. However, counter-intuitively, houses impacted by highway noise did not take any longer to sell than those farther removed.

Therefore, while many of the studies reviewed herein look at rail transit, the transportation effect applies to both rail and highway access.

Research Findings: Summary of Values, Rents and Distances

Key research findings outlined in REIN's previous transportation reports are tested and validated throughout this report in several case studies and in neighbourhood-specific data. These reports build on prior research and offer new insights to support investors even more with their investment decisions.

See Table 1 on page 16 for a summary of key research based on property type, value increases, rent increases, and distance from access to transportation infrastructure. Recall these generally apply to rail and highway access.

Compensation Principle

The compensation principle, as previously defined, suggests “reduced transportation costs allow households to spend more on housing and, in turn, bid up the rents or prices of homes located in areas with low commuting costs; this is precisely what creates the land value/density gradient.”³² In other words, real estate nearest the central business district (CBD)

is often more expensive, either to purchase or rent. As saturation occurs in the CBD and property is less, or no longer,

affordable, people begin to move to locations outside the downtown core. This is known as REIN’s Doppler Effect, and this phenomenon often results in people commuting longer distances. Therefore, access to public transportation, which is either cheaper than owning a vehicle or allows for a quicker commute, essentially gets the individual back in proximity to the CBD, which drives up the value of real estate in the immediate vicinity of the transportation amenities.

Supporting REIN’s Transportation Formula and Effect, Kilpatrick et al (2007) argue that accessibility to transportation ultimately creates value, which is realized through “proximity to stations, stops, and onramps.”³³ Do not confuse proximity to transit as being anything other than access. Multiple studies between 1996 and 2003 demonstrate “proximity to the line or route itself has a negative influence.”³⁴

Compensation Principle: Bigger effect, further from CBD

The greatest increases in property values have been found in the neighbourhoods farthest from the CBD, due to the requirement to travel and get into the CBD for work and/or play.³⁵ The farther one needs to commute for work, the more likely one is to require access to transit; thus, the more one is willing to pay to be close to such access.

Research indicates that those commuters who live in close proximity to transit save over \$1200 per year.³⁶ In other words, as a landlord, your tenant may benefit from transit savings of \$1200. The prices of real estate in areas with improved transit have not increased proportionately to the cost savings of using transit over using a car to commute. A study conducted in the 1980s found that in Metropolitan Toronto, the savings realized from living in an area that afforded a shorter commute using transit translated into a willingness to pay more for homes that delivered these time savings.³⁷

Compensation Principle: Socio–economics matter

The socio-economic status of the renter matters as well, so consider your ideal tenant profile. Bowes and Ihlanfeldt (2001) note that accessibility to transit is of more importance to lower-income families, while for higher-income families the negative aspects of a transit station dominate.³⁸ Low-income residents are more likely to rely on transit, and more likely to have to walk to the transit station; thus, the locations in the immediate vicinity of transit have higher values to this tenant.

Revitalization: Station Design Matters

Stations may also attract commercial activity, such as new retail and service opportunities that benefit the locals, even if they do not utilize transport. These amenities can also affect real estate values. The literature suggests this has much to do with general market conditions and city zoning.

Recently published research on revitalization in neighbourhoods in Washington, D.C. indicates that “revitalization of the Columbia Heights and Petworth neighborhoods was jumpstarted by the introduction of metro subway stops. The subway has had a transformative effect on these areas and has brought in new apartment buildings, restaurants, and shops.”

Bowes and Ihlanfeldt (2001) suggest station characteristics can impact whether an increase in property values can be accounted for, including whether the station has a parking lot. Home values decreased due to unsightliness and the potential increases in congestion, noise and pollution, but only within one-half of a mile (800 metres) to one mile (1600 metres) from the station. For houses beyond three miles (4.8 km) from a station, a parking lot provides a 4.7 per cent boost in average home values. The parking lot also impacts crime, increasing criminal activity in and around the parking lot, but decreasing crime further away.

The 2001 study by Bowes and Ihlanfeldt found that a parking lot at the station significantly reduced values within a quarter mile (400 metres) of the station.⁴¹ However, a 1997 article by Workman and Brod suggests that the decrease in value due to a parking lot is only present in the first several blocks; a premium becomes evident by the fifth or sixth block from the station.⁴² Thus, we see the challenges of generalizing research. So often, city specific variables appear to influence the outcome of the research on transportation and real estate values.

Property Values and Transportation: New and/or Expanded Studies

Values: Single–Family Study (2012)

A 2012 paper summarized research conducted in Montreal on 63,784 properties sold near four stations between 1992 and 2009, and found the impact of commuter rail transit on single-family property values to be:⁴³

... positive, and significant ... which decreases with distance to the nearest station. Thus, on-foot proximity to stations results in an average market premium of 1.5 per cent, 1.3 per cent and 1 per cent for houses located within 500 m (.31 mile), between 500 m (.31 mile) and 1 km (.62 mile) and between 1 and 1.5 km (.93 mile) from a station, respectively. Car accessibility also translates into a significant premium averaging 3.6 per cent of property value, with a maximum of 4.7 per cent for properties that are 9.2 minutes away from a station.

Values: Multi–Family Study (2016)

A 2016 paper researching Los Angeles transit between 2003-2004 found multi-family property values benefit from close access to rail transit stations, yet the effect is negative for single-family properties. “Keeping all other variables constant, the value of an average multi-family property within 400 m of a proposed station is more than twice the value of its counterpart located beyond 1600 m of the station.”⁴⁴ Plainly stated, multi-family properties were between 27 per cent and 99 per cent more valuable within 1600 metres than those beyond 1600 metres (1 mile), with the greatest premium found within 400 metres (.25 mile) of a station. However, the largest premiums for the multi-family properties occurred during the proposal and completion stages of the station, while a newly opened station did not appreciate as much. This study found that Park-and-Ride facilities decreased property values, likely due to the increased noise and traffic.⁴⁵

Values: LRT Extension Study (2017)

In a 2017 article, a researcher evaluated the value of an extension of a LRT line. The researcher’s analysis relied on repeat sales of homes in New Jersey. The first sale took place before the announcement of the extension, while the second sale of the same home occurred after the opening of the station three years later. The results of the study indicated “no statistically significant impact on annual house price appreciation.” The researcher found no evidence that properties closer to the station had a greater appreciation in value than properties farther away.⁴⁶ Note, though, that research was limited to a single station, and research shows that stations on the same line can experience different valuations.⁴⁷

However, the 2017 article noted above by Camins-Esakov and Vandegrift regarding the extension of an LRT line quotes multiple other academic papers. The overall findings are that “there is a primarily positive effect on housing prices with the addition of new transit options.”

Values: Highways, Bridges, and Tunnels studies

When studying four key residential areas being affected by a new major highway expansion, using over 18,800 property sales as research data, a direct correlation was determined between the increase in accessibility provided by the highway and the value of the residential property. The results showed residential property values rose by 12 per cent to 15 per cent over similar properties not impacted by the new highway.⁴⁸ This is a significant and permanent lift in values. In fact, according to one Texas study, of all types of land use, single-family residences showed one of the largest per-square-foot increases.⁴⁹

In one study, properties located in commercial–industrial areas serviced by highway improvements experienced a 16.7 per cent increase in value after the highway was opened. Research into the impacts of specific projects suggests some very pointed effects, namely, the design of the freeway is important and impacts value:

- Depressed freeways contributed the most to residential property values, yet had limited impact on commercial property values, except for those located adjacent to exit and entrance ramps
- At-grade designs had the most positive impact on commercial property values, while still providing a strong positive impact on residential values
- Elevated highways had the least impact on all land values⁵⁰

Overall, the completion or expansion of major arterial highways has a significant positive impact on accessibility and, therefore, property values. This ripples across all types of property, from single-family and multi-family residential to commercial and industrial.

When there are highway improvements in the area, research found the following:

- 12 per cent to 15 per cent increase of residential property values
- Single-family residences showed one of the largest per-square-foot increases (approximately \$35.00 per square foot)⁵¹
- Values of commercial properties located 800 meters or more from a freeway on/off ramp were valued at \$50,000 less per acre of land and \$3 per square foot of structure less than properties located in closer proximity to on-off ramps

It is important to also point out the negative findings with regards to highway improvements:

- The increase in value of residential properties located closest to the highways were partially offset by an up to 1.2 per cent reduction for every two-decibel increase in highway noise level⁵²
- Noise, pollutants from emissions and dust, and traffic delays negatively impact the sale price of land in areas immediately adjacent the construction; this price decrease ranges from \$0.05 to \$0.50 per square foot of land⁵³

Values: Distances: Meta–Data Study (2007) and Metro Vancouver Study (2007)

While evidence suggests that correlations between transportation infrastructure and characteristics and real estate values date back to the mid-1860s, the most thorough evidence is best shown in a meta-data analysis of the effect of transit developments on real estate prices by Debrezion, Pels, and Rietveld (2007). Of 73 previous studies of hedonic pricing effects of transit, they found 52 focused on residential housing prices. The overall effect for residential properties was about 4.2 per cent for the average residence within a quarter of a mile (400 m) from the station.”¹

This 2007 meta-data analysis shows that not all transportation is created equally: “Commuter railway stations have a consistently higher positive impact on the property value compared to light and heavy railway/Metro stations.”

The following is a summary of a few of the salient academic references utilized by Kilpatrick et al in their meta-data analysis:

- Voith (1993) reports an increase of 6.4 per cent for homes near Philadelphia’s train stations;
- Armstrong (1994) finds a housing price premium of 6.7 per cent for suburban Boston communities with commuter rail stations; and
- Benjamin and Sirmans (1996) report a decrease of 2.4 per cent to 2.6 per cent in housing price for every tenth of a mile (161m) away from a Washington D.C. Metro station.

Table 1: Review of Impact of Rapid Transit on Land Values in Selected North American and Australian Areas

Source	Case/Location	Impact on	Findings
Trillium 2009	North America	Single-family residential properties	Price impacts on single-family residential properties ranged from minus 10.8% in Santa Clara County to an increase of 32% in St. Louis, Missouri. Apartment rental rates increased up to 45%.
Al-Mosaind 1993	Portland light rail transit	Single family residential units within 500m of the transit line	Sold for 10% higher than properties located further away from the line
Chen et. Al 1997	Portland light rail transit	Single family properties located in the vicinity of the Portland light rail	10.5% increase in the value
Hess and Almedia 2007	Buffalo, NY light rail	Residential property within one-quarter of a mile (400m) from a light rail station	Premium between 2 to 5% of the city's median home value
Herbert Levinson et al 2003	Brisbane's Southeast Busway (Bus Rapid Transit), Australia	Property and home values within walking distance of busway stations	Property and home values grew by up to 20% and two to three times faster than property values in the surrounding area.
Trillium 2009	North America	Office properties	Price impacts range from no appreciable change in the San Francisco Bay area to a 120% rental rate increase for downtown San Jose
Jones Lang LaSalle, 2013	Metro Vancouver Area	Office properties	Office space located within 500m from a transit station in urban or suburban areas pays 10 to 30% more than comparable office space located farther away
Trillium 2009	North America	Retail Properties	The greatest variance was seen in retail properties, where the recorded price impacts range from no perceptible impact in the San Francisco Bay area to a price increase of 167% in San Diego.

Table 1 above references a study commissioned by Metro Vancouver's TransLink that compares studies on the impact of 12 rail projects (including both heavy rail and light rail) on property values throughout North America. The study concluded that "the relative increase in accessibility provided by the new transit investment is the primary factor in increasing property values."⁵⁴ To summarize the contents of Table 1, at between 400 and 500 metres, prices increased from between 2 per cent to 10 per cent, while other studies reported increases up to 32 per cent for properties at an uncalculated distance from the station.

Jones Lang LaSalle (2013) found that residential units near LRT tend to sell more quickly and achieve higher prices than comparable units not served by transit.

Therefore, past studies conducted across North America have found the values of real estate in neighbourhoods close to mass transit had premiums ranging between 1 per cent and almost 40 per cent, but the range of these effects varies depending on numerous factors, including distance to the downtown and the median income of the neighbourhood.⁵⁵

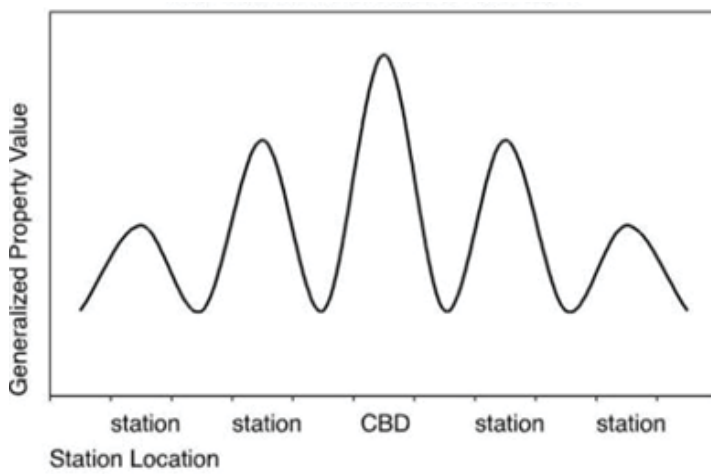


Figure 5: Peaks and Valleys of Property Values at Rail Stations in Relation to the CBD

by Jones Lang LaSalle (2013). In the first quarter of 2013, office space located within walking distance (500m) of rapid transit stations had lower vacancy rates by 34 per cent and a price premium of 28 per cent, relative to comparable office space beyond 500 metres. While changes were made viable by the increased access provided by rapid transit, a substantial portion of the increase was due to zoning changes.⁵⁸

Values of commercial properties located 800 metres (.5 mile) or more away from a freeway off/onramp were valued lower than properties located closer to the access point, proving once again that accessibility and visibility is key. A 2007 meta-analysis reports that, on average, there is a 12.2 per cent premium on commercial properties located within one-quarter mile (400 metres) of a commuter rail station.

The positive effects of proximity to passenger rail transit appear to be limited to homes located within a one-half mile (0.8 km) radius of stations.⁵⁶ Even announcements of improvements that will shorten and ease commutes have resulted, historically, in higher-valued housing developments in comparison to new developments located a greater distance from these opportunities.

As detailed in Figure 4, the property values nearest to the stations had a dramatic increase in their average value. This effect was maximized in a zone of 500 to 800 meters surrounding each station. One study on the impact of the Los Angeles Metro Rail system revealed that properties located within one-quarter mile (400 metres) of a rail station enjoyed a value premium of \$31 per square foot.⁵⁷

Values and Distances: Commercial Property

Successful examples of land value premiums for the commercial sector in Canada includes Metro Vancouver's rapid transit stations as established by an empirical study

Values and Distances: A case study of distances to stations, community nodes, and property values at Lincoln Station, Coquitlam, BC

Lincoln Station Summary:

- **City Quadrant:** City Centre - North Coquitlam neighbourhood
- **Name of Line:** Millennium Line Evergreen Extension
- **Construction/Completion Status:** Complete
- **Funding Status:** N/A
- **Date of Completion:** Opened December 2, 2016
- **Location:** Across from Coquitlam Centre Mall on Pinetree Way Street
- **Type:** LRT
- **Neighbourhoods to Watch:** Oxford Heights and Harbour Village

Figure 6: The Location of Lincoln Station on the Evergreen Line.

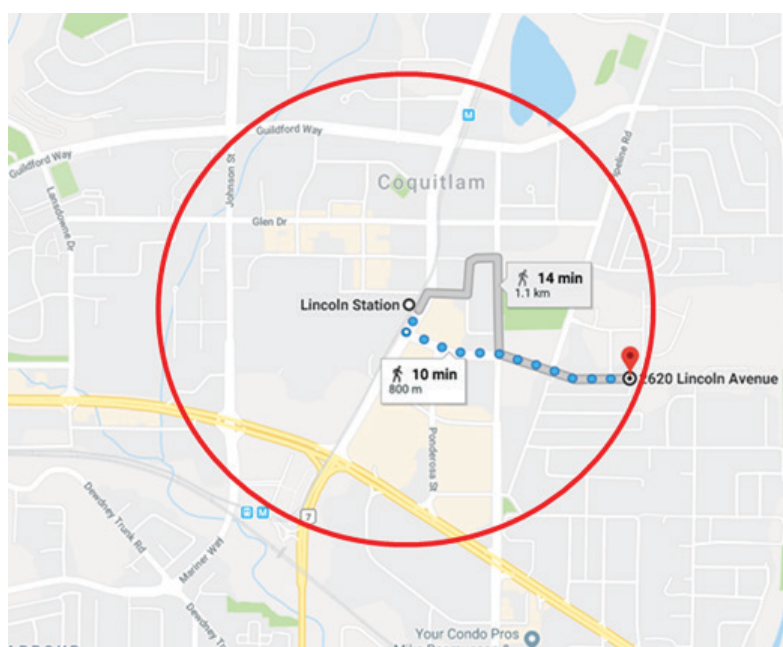


Figure 7: 800 metre Circumference Around Lincoln Station

The red circle on the map demonstrates the approximate space covered within 800 metres and/or a 10-minute walk from Lincoln Station. This North Coquitlam neighbourhood is a more expensive area than the rest of Coquitlam, and the numbers show this neighbourhood has been such for the last three years, but not at the 5 or 10-year mark. This specific neighbourhood has a median apartment price almost \$48,000 higher over the rest of Coquitlam and has been between 1 per cent and 5 per cent more expensive in each of the last three years.

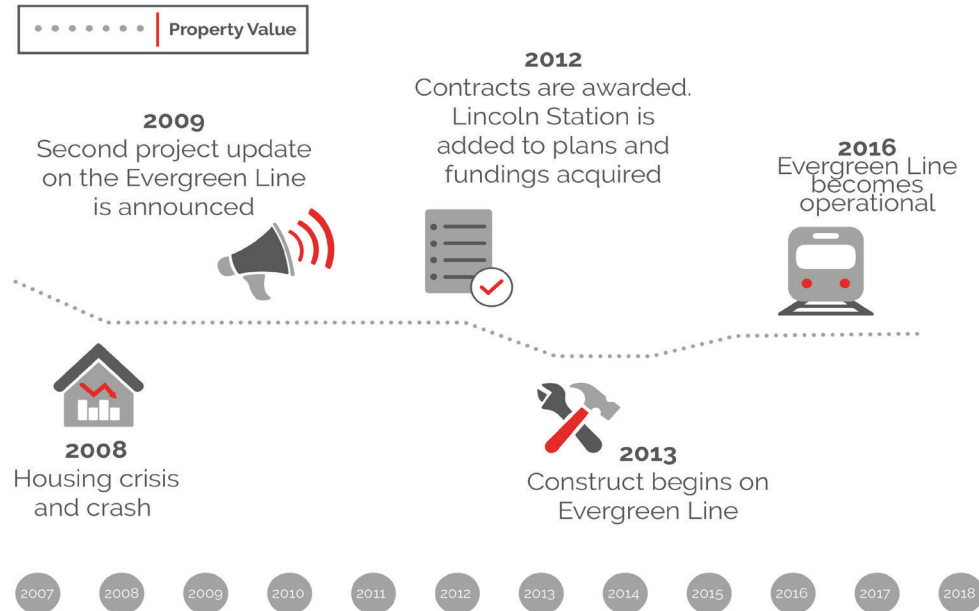


Table 2: Apartment Price Comparison for Lincoln Station

North Coquitlam	Then (2014 — 2015)	Now (2018)
Rental Rates (2-bedroom apartment):		
City Average	\$643 (1990)	\$2492
Neighbourhood	N/A	\$2298
Average Condo Prices:		
City Average	\$258,300	\$537,000
Neighbourhood	\$256,700	\$538,100

To determine the numbers in the table above, the following sources were used:

- The average Coquitlam condo price in July 2018 has been gathered from Zolo.
- The average Coquitlam condo price in January 2014 has been obtained from the Real Estate Board of Greater Vancouver.⁵⁹
- The Faith Wilson Group Realtor website provided the benchmark apartment price for the neighbourhood as of July 2018 and for January 2015.⁶⁰
- Canada Mortgage and Housing Corporation (CMHC) provided the average 1990 rental rates for the Tri-Cities area for a two-bedroom apartment.
- The average rental rate for a two-bedroom apartment for both Coquitlam and the neighbourhood on July 13, 2018 came from listings on Padmapper.⁶¹

Values: Construction Phases

Classical economic theory posits that when a transportation infrastructure is initially built, large parcels of land that previously had poor accessibility—or none—are suddenly considered underpriced.⁶² This results in a rapid correction in the market, driving up the value of the land. Development is usually quick and the impact significant. Additionally, improvements to existing highways showed a positive increase to land prices, although to a lesser degree.

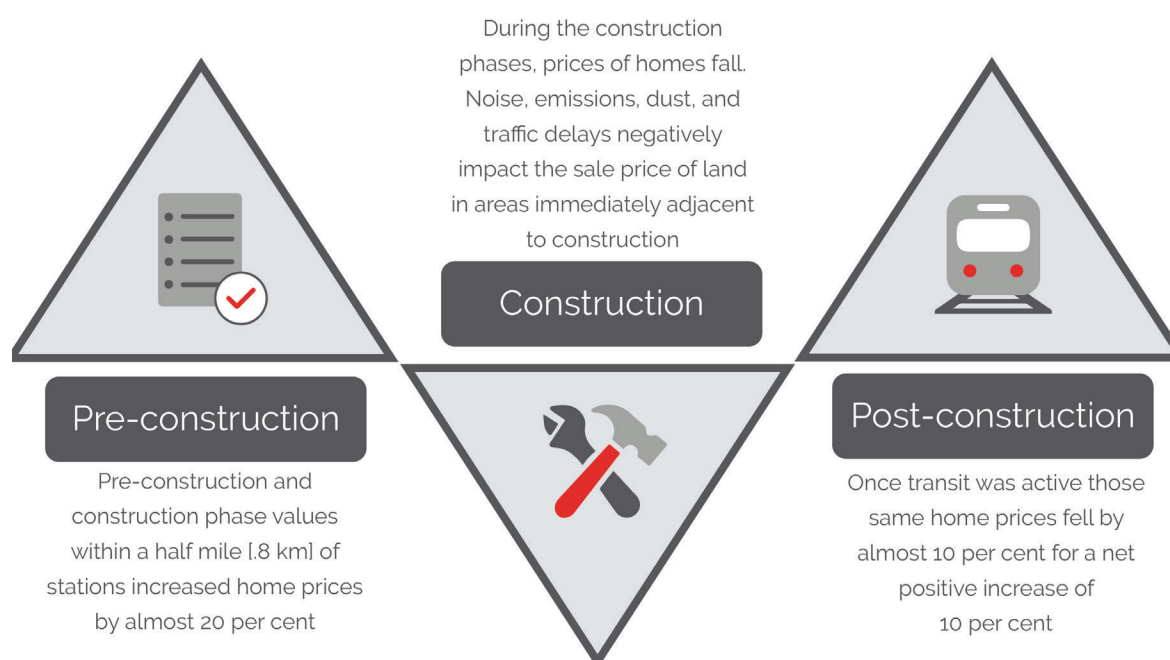
Further, Kilpatrick et al (2007) determined that time can create variations in house prices relative to the construction phase of transit. Studies of Chicago's Midway line published in 1995 and 2004 found that pre-construction and construction phase values within a half mile (9.8 km) of stations increased home prices by almost 20 per cent; yet, once transit was active those same home prices fell by almost 10 per cent for a net positive increase of 10 per cent.⁶³

However, during the construction phases, prices of homes fall.⁶⁴ Noise, emissions, dust, and traffic delays negatively impact the sale price of land in areas immediately adjacent to construction. In fact, one study showed that values did not reach pre-construction levels again for five years post-construction.⁶⁵

As we like to emphasize, anything can happen in this sector. Transportation projects are impacted by many influencers including governments, funding, etc., so be certain a project is well underway before acting. And that's why REIN encourages you to consider focussing on areas where construction has started. Focus your acquisitions on tier one, watch tier two closely, and follow along for updates for tiers three and four to guide you in the future.

- **First Tier** (Phase - under construction)
- **Second Tier** (Phase - funded)
- **Third Tier** (Phase – planned, not funded)
- **Fourth Tier** (Phase - no finalized plans)

Figure 9: Values During Construction Phases



Values: Construction Phases – A case study of transportation construction phase values in Ottawa, ON

ON – Rideau Station on the Confederation Line

The Confederation Line in Ottawa is a new east-west line that connect to the existing north-south Trillium Line.

This area performed as research suggests. Real estate prices increased roughly 39 per cent since the announcement of the LRT, compared to Ottawa's overall gain of 37 per cent between 2008 and 2017, a premium of 2 per cent.⁶⁶ There was a spike in prices when the announcement came the LRT would move forward, based on the anticipated benefits the LRT would bring. However, the lengthy construction phase with its noise, inconvenience and air pollutants dampened the enthusiasm for living in the area and prices dropped and/or stagnated. Based on research and experience, over the next two years we can watch this area and expect to see values increase roughly 10 per cent over other areas of Ottawa without access to the LRT.

Figure 10: A Case Study of Construction Phase Values

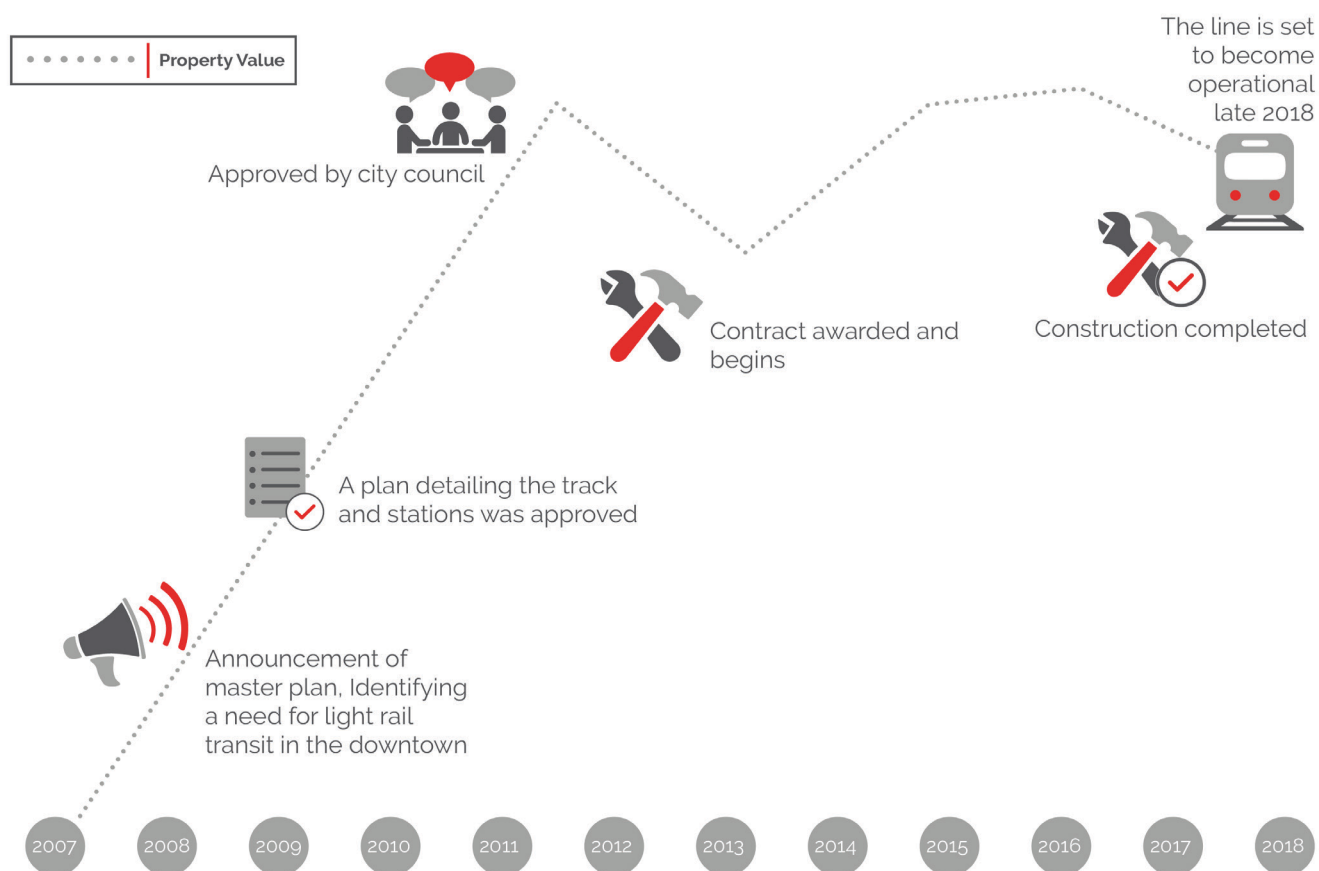
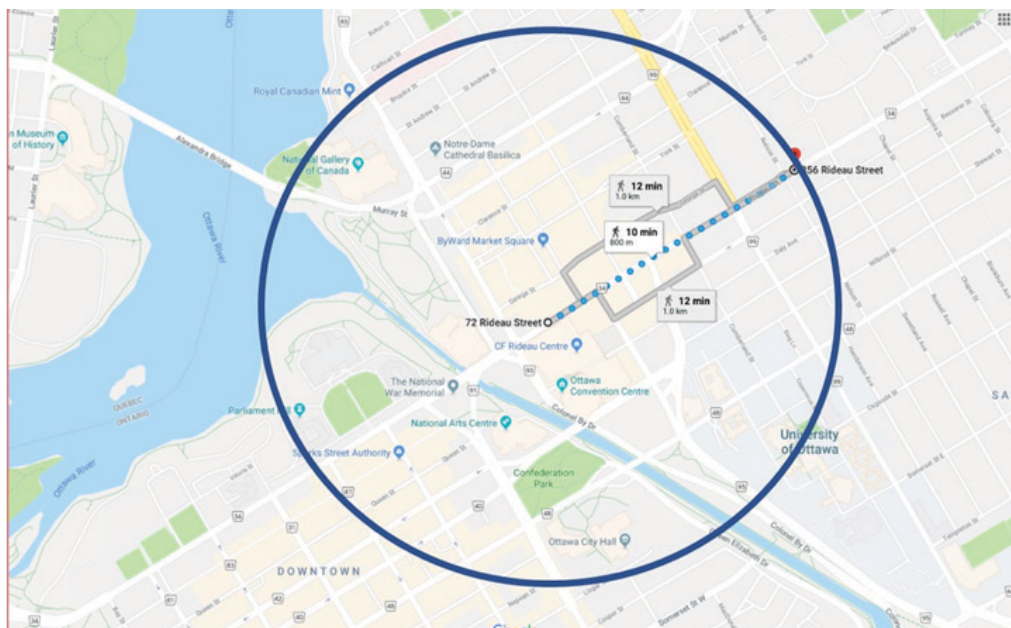


Figure 11: 800 metres Around the New Rideau Station



Rideau Station Summary:

- **City Quadrant:** City Centre
- **Name of Line:** Confederation Line
- **Construction/Completion Status:** Complete
- **Funding Status:** N/A
- **Date of Completion:** Opening late 2018
- **Location:** Rideau Centre on Rideau Street
- **Type:** LRT with underground station
- **Neighbourhoods to Watch:** Byward Market, Lowertown, University of Ottawa and downtown

Table 3: Apartment and Home Price Comparisons for Rideau Station

BYWARD MARKET	Then (2005–2007)	Now (2017–2018)
Rental Rates 2–bedroom apartment:		
City Average	\$962	\$1234
Neighbourhood	\$1800 - \$2800	\$1600 - \$4800
Single0–Family Housing Prices:		
City Average	\$225,000	\$386,300
Neighbourhood	\$279,539	\$507,219

To determine the numbers in the table above, the following sources were used:

- The MLS HPI tool has been used to determine the city average price in Ottawa in January 2005 and in May 2018
- Realtors' websites have been used to obtain average current list prices, as well as the historical 2005 average price for the neighbourhood
- Canada Mortgage and Housing Corporation (CMHC) provided the April 2007 and October 2017 average city-wide rental rates for a two-bedroom apartment⁶⁷
- MLS statistics between January 1, 2007 and December 31, 2007 provided the spread of historical rents for a two-bedroom unit in the Byward Market area
- MLS provided the spread of two-bedroom rental prices as of July 3, 2018 for the Byward Market area

Rents and Transportation — New and/or expanded studies

McMillen and McDonald (2004) report that rent rates will not be impacted prior to construction given the “speculative benefits of future accessibility do little for the renter.”

A 1996 study reports that distance from a metro station has an adverse and inverse effect on rent. Specifically, for every one-tenth of a mile (161m) increase in distance away from the station, rent decreased by about 2.50 per cent.⁶⁹

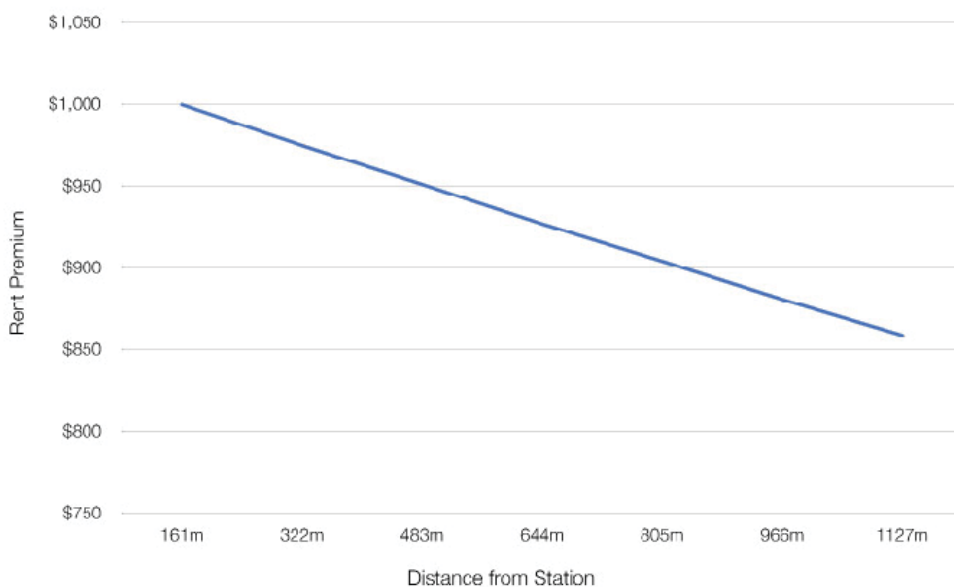
A study in San Francisco focused on the effects of LRT and rental rates in nearby housing. The report found the following:

- Apartment units within one-square kilometer (.62 mile) rented at a 10 per cent premium
- Two-bedroom apartment units rented higher at a 16 per cent premium

Prior to the 2012 opening of Los Angeles' Expo LRT extension, rental prices began to rise in the area. The key finding was the rents were rising by as much as 45.71 per cent, as demand to live near transit, especially in a highly congested city, grew.⁷⁰

In New Jersey. Like San Francisco, homes within a 500 to 800 metre (.31 to .50 mile) radius of a station saw the highest increases in rent, which slowly tapered off the farther the property was from the LRT station. Property values were assessed at a premium in neighbourhoods closest to stations, even when the study factored in house size, number of bedrooms, nearby parks and average crime rate in the area⁷¹

Figure 12: Rent Premium Based on Distance from Station



Values and Rents:

The No-Go Zone: Proximity to stations is key, but not too close

Overall, the transportation effect shows that property values and rents increase with certain proximity to transportation access. However, while there are positive impacts on property values, there are some detractors of living close to a transit station, such as accessibility for criminal activity or other unintended side effects like noise.⁷²

Due to these factors, some discussion exists suggesting that being too close to a station, for residential properties, may be detrimental to values and rents. While inconclusive, one may wish to consider this and include a buffer of about 60 metres for residential properties near stations. Some studies show that being too close to a station or access point can hurt residential property values, it is reported that residential properties within 274m decrease in value from four per cent to eight per cent.⁷³

Reverse proof: What happens to values and rents when transit disappears?

Recently the impact of transportation effect has been validated, once again, but this time with reverse proof. That means, when transportation access was removed, the transportation effect worked in reverse, with a reduction in rents and property values.

In one New York neighbourhood in North Brooklyn, a portion of its LRT, the L train, is being decommissioned. According to a 2018 *StreetEasy Market Report* "one quarter of rentals in North Brooklyn offered a discount in February 2018, the most of any Brooklyn submarket."⁷⁴ The report states that while sales prices for homes in the neighbourhood rose 3.3 per cent year-over-year, days on market also increased substantially to a median of 108 days. According to a senior economist with StreetEasy: "Now that any new leases will bleed into the timeframe when the shutdown of the L Train occurs in April 2019, landlords are becoming more liberal with incentives such as discounts to ensure they attract tenants. Renters should consider the reality of limited transportation to these areas, but there are bargains to be found if public transportation isn't needed."⁷⁵

The conclusion? A lack of transit accessibility results in lower rent and lower property prices.

Figure 13: Edmonton's Future LRT



Edmonton Overview and Insight

According to Statistics Canada, between 2005 and 2015 the Edmonton Census Metropolitan Area (CMA) grew by 31 per cent, only 1 per cent behind Calgary, AB, the fastest-growing CMA in our nation during that time frame. CMAs generally grow at 2.5 times the rate of rural communities, and the influx of international migration is almost six times higher.⁷⁶ In 2016, the population of the Edmonton CMA was 1,321,426, which represents a change of 13.9 per cent from 2011.⁷⁷ According to the city, Edmonton is the fifth-largest Canadian municipality.⁷⁸ Edmonton's transit documents indicate the city predicts that its population will surpass 1 million, while the region will grow to about 1.6 million by 2040. Further, Edmonton had the second youngest CMA in Canada, meaning a significant portion of the workforce has many years of working, and thus commuting, ahead of them.

Suburban sprawl post World War II led to a reconfiguration of society. Many of us commute long distances between home and workplace. The City of Edmonton estimates that 77 per cent of commuters use a car as their primary mode of transportation. As environmental concerns become more widespread, and insurance rates and gas prices climb in some areas of our country, the demand for public transit will continue to increase. In 2016, Canada's combined total household spending on transportation (including insurance) was \$179.5 billion, which was second only to shelter in terms of major spending categories.

The average commuting time of an Edmontonian is one half-hour.⁷⁹ According to the 2016 Census, just over 11 per cent of Edmonton's population took public transit to work, slightly less than the national average.⁸⁰ Statistics Canada reports that as of 2016, 80 per cent of Edmontonians get to work in a vehicle, while approximately 6 per cent bike, walk or use other methods of transportation.⁸¹ What that actually translates to is "about 2.5 million trips on a typical fall weekday. Currently, over 75 per cent of these trips are made in an auto."⁸² By 2022 the city hopes to see a 2 per cent reduction in automobile trips and a .5 per cent increase in carpooling.⁸³ Given the size of urban sprawl due to the lack of geographical constraints, Edmonton has a car culture. The city planners acknowledge that it will take years for changes in travel behaviour to occur.

A study of the effects of transportation infrastructure on housing values in Edmonton was first undertaken in 2009, the last study being completed in 2015. With frequent changes to Edmonton's transportation, more current analysis is required to update diligent real estate investors. This report focuses on answers to two very important questions that will have a direct financial impact on tens of thousands of Edmonton residents. These questions are:

1. How will housing LRT projects affect residential real estate values in specific Edmonton neighbourhoods?
2. How will highway improvements affect property values in Edmonton?

The City of Edmonton has ambitious plans to improve access to public transportation in order to both increase ridership and to serve Edmonton's growing population. Reviewing the city's transportation documents illuminates significant plans to extend LRT service throughout the city by 2040.

Edmonton was the first city in North America with a population of less than 1 million to build an LRT. In fact, the existing line has been operational since 1978. While progress has been made, currently the LRT consists of two lines and 18 stations with 24.3 kilometres of track; however, the tracks largely parallel each other and provide insufficient coverage to a geographically large city. The following section highlights a number of Edmonton's subsequent studies, strategies and reports supporting urban planning and the role of transportation in the city.

Transportation Master Plan

In 1999, the Edmonton City Council approved its Transportation Master Plan that included a recommendation to expand LRT to all sectors of the city by 2040. However, *The Way We Move* is an update and replacement to the original document.⁸⁴

The Way We Move Transportation Master Plan, 2009

In September 2009, the city of Edmonton revealed *The Way We Move*, its new transportation master plan.⁸⁵ The report suggests Edmontonians have one of the highest vehicle dependencies in Canada. Between 1994 and 2005, the average number of kilometers that an automobile in the city traveled increased by 32 per cent.⁸⁶ This means that Edmontonians are not only are spending more time in their cars, but are driving longer distances, and these factors contribute to increasing congestion. While the report recommends changes, it acknowledges the foundational role of roads in the transportation system. Roads move people, goods and services in the city, and roads represent one of the largest public infrastructure investments. Given that roads serve as the backbone to a city's infrastructure, they remain important even as changes occur in transportation to get people out of their cars. Therefore, the report encourages a shift from single-passenger vehicles to an increase in the use of public transit, and from building outward to urban planning that includes upward densification measures. Edmonton intends to move away from the current auto-oriented transportation preference to a more holistic, interconnected and multi-modal transportation system. *The Way We Move* illustrates Edmonton's belief that integrated planning including community building around effective transit will assist in compacting the cityscape into an efficient urban space.⁸⁷

Increases in traffic congestion levels are expected to continue, particularly during peak periods as the city transitions to a large metropolitan area.⁸⁸ However, the city's strategies for combating congestion do not necessarily include building new roads. Rather, the focus is on optimizing the existing road system, while promoting transit and active transportation modes that include walking and biking as well as managing existing roads more efficiently and strategically, resulting in additional roadway capacity.⁸⁹ *The Way We Move* identified financial and community restraints, making it neither feasible nor desirable to continue either building or expanding roads to alleviate congestion.⁹⁰

The City of Edmonton believes that reliance on cars and increased suburban development will lead to increased car trip lengths, though the number of trips themselves will not change. Further, the road congestion interferes with the efficient movement of people, goods and emergency responders, all of which has led to an outcry for more roadways. Not only does the city believe building more roads with taxpayers' dollars is fiscally irresponsible and environmentally unsustainable, but there are health risks associated with depending on automobiles.⁹¹

2017 Transit Strategy Report

Edmonton's *Transit Strategy* report, released in 2017, utilized *The Way We Move* along with other Edmonton transit studies and reviews to create and outline an implementation plan for transit. In keeping with their stated priorities, the city is committed to making significant improvements to the transit system in order to realize its expressed goal of making public transportation the preferred choice of the citizens.⁹² Therefore, one guiding principle of Edmonton's Transit Strategy is to develop network transit options and services in the outlying suburban areas that will help people reach the city core, post-secondary institutions, major employment sites, and major shopping/mixed-use areas.⁹³ This development will include an urban-style LRT that will eventually extend into each quadrant of the city and connect to a central area circulator LRT.⁹⁴

Of the many goals outlined, the following are key:

- LRT expansions:
 - The future LRT network as identified on the following pages is a fundamental component of the overall transit network
 - City Council has approved an LRT Network Plan
- By area (residents' feedback during public consultation shows inconsistent market feedback throughout the city; therefore, neighbourhood transit needs vary)
 - Inner areas: A frequent transit network will enable spontaneous travel and support residents' trust in transit this is a lifestyle option for them
 - Outer areas: Transit to become a competitive commuter option through the implementation of Rapid Bus Routes and transit priority measures that provide speed and reliability.⁹⁵
- Roadways and urban planning:
 - Industrial developments to be placed in proximity to movement corridors, reducing goods and services traffic through residential areas.⁹⁶
 - The key corridors named for the flow of goods and services are:
 1. Outer Ring Road – Anthony Henday Drive
 2. Inner Ring Road – Consists of Yellowhead Trail, 170 Street, 75 St / Wayne Gretzky Drive and Whitemud Drive
 3. Highway Connectors – Gateway Boulevard, Calgary Trail, QEII Highway and others
 4. Roadways and urban planning
- Bus:
 - A new bus strategy will be implemented over the next 10 years
 - Precursor BRT may be implemented in areas of the city prior to the implementation of LRT
 - The Bus Network Redesign will be the priority and Edmontonians will be invited to refine the new bus network in 2018:
- 5. It is anticipated that the new bus network will be rolled out in 2020.⁹⁷
- 6. In 2019, Phase 3, or the 10 implementation of the decided routes and signage, is expected to occur.

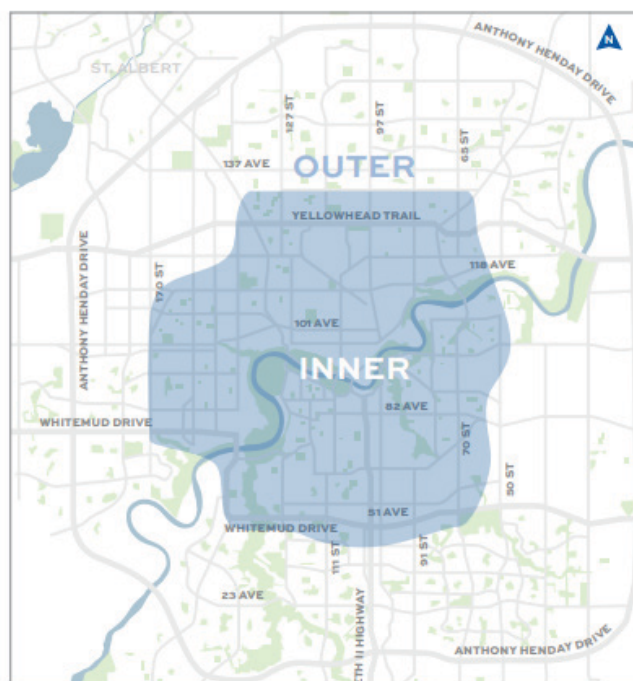


Figure 14: What Edmonton Considers the Inner and Outer Transit Areas

These reports and plans, as well as actions and execution, demonstrate Edmonton's commitment to transportation. Efficient and compact urban planning supported by efficient transportation are priorities.

Edmonton's LRT Today and Tomorrow

Edmonton's LRT system opened in 1978 and ran along the Canadian National Railway (CN) right-of-way from Belvedere to Central Station. Refer to Figure 11 below for current LRT configuration.

The Capital Line runs from the Clareview Station in the northeast, southwest to the Century Park Station at 23rd Avenue and 111th Street. The Metro Line added 3.3 km in 2015 by deviating off the Capital Line at Churchill Station and running northwest. As indicated in Figure 6, the lines parallel each other and share stations between Churchill and Century Park. These three new stations on the Metro Line provide access to Grant MacEwan, the Northern Alberta Institute of Technology and the Royal Alex Hospital.

Free commuter parking is available at the Clareview, Belvedere, Stadium and Century Park Stations; however, there are other park-and-ride sites. Nonetheless, the city's website advises there has been a reduction in the number of free sites at Century Park. As of June 1, 2018, there are 221 free stalls, which is approximately 25 per cent of the total stalls available.

The Metro Line was the first of several planned extensions that will eventually reach the city's limits near St. Albert. The master plan states Edmonton will work with outlying communities to ensure integration occurs between community transit plans, including future park-and-ride facilities.

Impact of Rail and Highway.

This section provides an overview of the transit plans for Edmonton. Given the research and Transportation Effect primarily impact rail and highway, these are the areas of interest reported herein.

While this report outlines many significant transportation plans, many are in the planning phase, with construction spanning the next 20 years. However, one line is currently under construction, while another is funded and expected to break ground within the next year. Further, the LRT plans for the city are significant and extend into each quadrant of the city. Thus, a transportation-focused investor has significant opportunity in this city to plan and research investment properties within 800 metres of a station in almost every area of the city.

Ultimately, the goal of future transit is to integrate transit and land use to create high density, walkable community nodes around major transit facilities. See A Community Node Case Study: Blatchford, Edmonton, AB as an illustration.

The map below offers a conceptual guideline for Edmonton's overall transit picture come 2040:

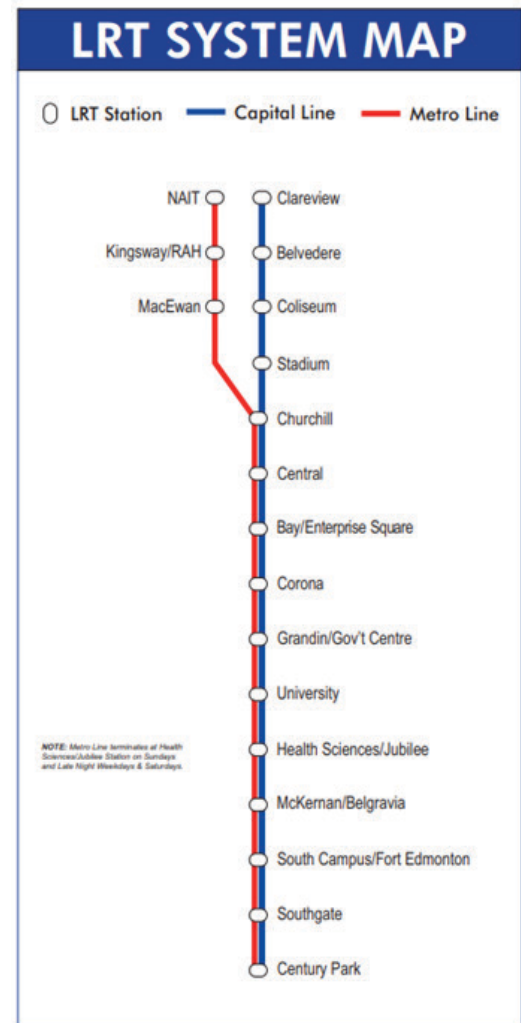


Figure 15: Map of Edmonton's Current LRT System

Figure 16: The Potential Build-Out of Edmonton's Ultimate LRT Network

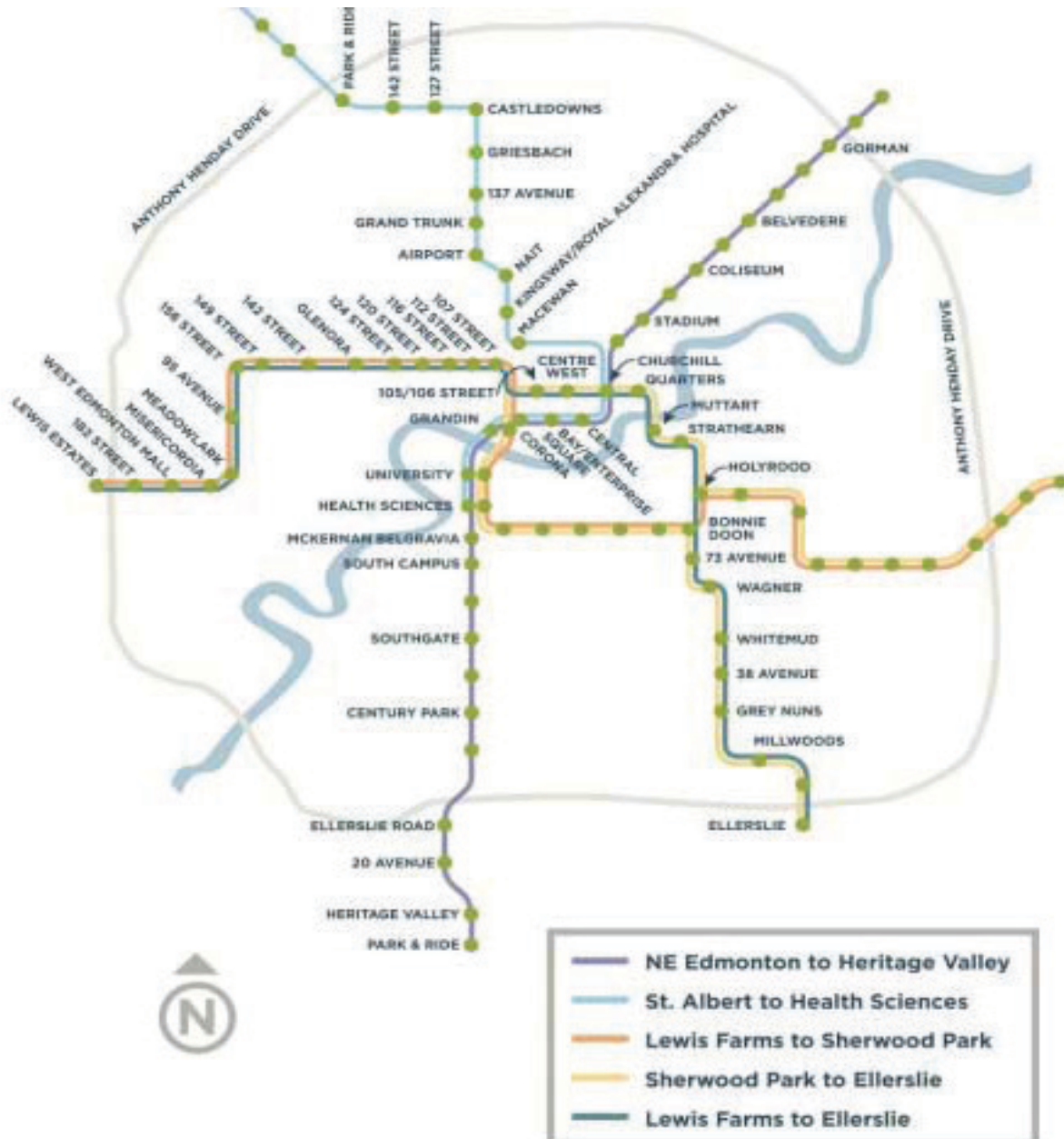


Figure illustrates the potential build out of Edmonton's ultimate LRT network.

First Tier (under construction): Millwoods Park, Tawa, Kameyosek, Lee Ridge, Hillview, Greenview, Michaels Park, Argyll, Mill Creek Ravine South, King Edward Park, Avonmore, Idylwyld, Bonnie Doon, Holyrood, Strathearn, Cloverdale, Boyle Street, Horse Hill, Heritage Valley, Jagare Ridge and Downtown

Second Tier (funded and awaiting construction): Oliver, Queen Mary Park, Westmount, Glenora, Grovenor, Canora, West Jasper Place, Jasper Place, Sherwood, Jasper Park, Meadowland Park, Lynnwood, Elmwood, Summerlea, Thorncliff, Belmead and Aldergrove

Third Tier (approved by city council): Kirkness, Fraser, Skyrattler, Kehweewin, MacEwan, Jagre Ridge, Callaghan, Allard, Creekwood Chappelle, Blatchford, Lauderdale, Calder, Kensington, Rosslyn, Carlisle, Griesbach, Westwood, Caernarvon, Oxford, Cumberland, Carlton, Grand Trunk and Castledowns

Fourth Tier (no finalized plans): Bonnie Doon, Strathcona, Garneau, the University Area, Oliver, Bulyea Heights, Rhatigan Ridge, Falconer Heights, Carter Crest, Leger, Haddow, and Downtown

You can refer to the colour-coded LRT map of Edmonton above to locate these neighbourhoods.

There are several areas of the city that could be impacted by more than one line, including Bonnie Doon, where the Valley Line will potentially meet the Centre Line, if constructed. This could provide greater financial reward for an investor as the rental pool that utilizes LRT could be significantly increased given the generous city coverage provided by multiple lines.

Under Construction

Valley Line Southeast

- **City Quadrant:** Southeast
- **Name of Line:** The Valley Line
- **Construction/Completion Status:** First half of the line is under construction
- **Funding Status:** Funded
- **Date of Completion:** Opening in 2020
- **Location:** Between 102 Street downtown and Mill Woods Town Centre
- **Type:** Low-floor urban LRT
- **Neighbourhoods to Watch:** Millwoods Park, Tawa, Kameyosek, Lee Ridge, Hillview, Greenview, Michaels Park, Argyll, Mill Creek Ravine South, King Edward Park, Avonmore, Idylwyld, Bonnie Doon, Holyrood, Strathearn, Cloverdale, Boyle Street and Downtown

The Valley Line LRT is a 27-km low-floor urban line that will operate between Mill Woods in southeast Edmonton and Lewis Farms in west Edmonton. The project is being built in two stages. Once completed, 28 new stops will have been added, although only three are true stations given it is a street-level train. Sixteen of those 28 stops will be on the West Line. Travel time for the entire 27-km line will be around 60 minutes. It will take about 30 minutes to go from the Lewis Farms Transit Centre to downtown Edmonton, and then another 30 minutes from downtown Edmonton to Mill Woods Town Centre.

The City of Edmonton estimates that approximately 100,000 passengers will use the route every day when the entire line is operational.⁹⁸ In most cases, there will be no crossing arms, fences, or gates separating the LRT cars from road traffic. The Southeast to West LRT will not physically connect to Edmonton's existing LRT network, but commuters will have direct access to the existing LRT system via a transfer at Churchill Station. Proposed stops and station sizes have been determined based on projected ridership.

The Southeast is currently under construction between 102 Street downtown and Mill Woods Town Centre. The new line is expected to open to the public by the end of 2020. According to a city council member, the south section is being built all at once.

Funded

Valley Line West

- **City Quadrant:** West
- **Name of Line:** The Valley Line
- **Construction/Completion Status:** Planning and Preliminary Engineering
- **Funding Status:** Funded
- **Date of Completion:** Breaking ground in 2019. Second half of the line.
- **Location:** Between 102 Street downtown and Lewis Farms Transit Centre
- **Type:** Low-floor urban LRT
- **Neighbourhoods to Watch:** Oliver, Queen Mary Park, Glenora, Grovenor, Canora, west Jasper Place, Jasper Place, Sherwood, Jasper Park, Meadowland Park, Lynnwood, Elmwood, Summerlea, Thorncliff, Belmead and Aldergrove

Edmonton's Transit Strategy states the planning and preliminary engineering for the West leg of the line is underway after receiving funding in 2016 from the Government of Canada to update a preliminary design created in 2013. In the spring of 2018, the provincial government announced it would provide \$1.5 billion for Edmonton's newest LRT route. Reportedly, the city is expecting to break ground next year on this portion of track.⁹⁹ The names of the stops for the West Line have also been released and were selected to indicate the geographic location to support passengers finding their way.¹⁰⁰

Reports suggest at least one council member wants to see the West Line built in phases over five years so the stretch from 124 Street to downtown could be opened first, then from 142 Street to 124 Street as the line makes its way west. By phasing the build, the first part of the line could open as early as 2020.¹⁰¹

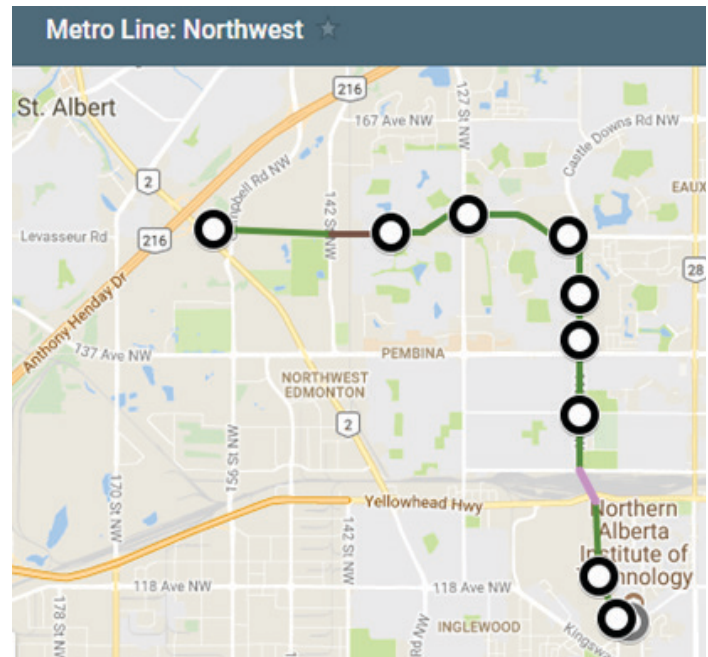
The City of Edmonton has ambitious plans for improving public transportation to serve Edmonton's growing population. A visit to the city's transportation website shows several extensions and expansions planned for service by 2040. An extension is an addition to an existing LRT line, while an expansion is the creation of an entirely new LRT line. Given that research indicates commercial and residential properties increase in value within 800 metres (.5 mile) of a light rail station, as a homeowner, business owner or real estate investor it is prudent to know where the intended extensions and stations will be. The planned routes provide about 40km of LRT track..

Metro Line (NAIT to City Limits)

- **City Quadrant:** Northwest
- **Name of Line:** Metro Line Northwest
- **Construction/Completion Status:** Phase 1 is funded; Phase 2 is at the concept stage
- **Funding Status:** Phase 1 is funded
- **Date of Completion:** Phase 1 is expected to progress to procurement by late 2018 and construction is projected to begin in 2020. The line is being built in two stages and is projected to have nine stops.
- **Location:** Phase 1 – NAIT to Blatchford, and Phase 2 – Blatchford to Campbell Road
- **Type:** High-floor train, mostly street level, combining urban and suburban-style LRT
- **Neighbourhoods to Watch:** Blatchford (see below), Lauderdale, Calder, Kensington, Rosslyn, Carlisle, Griesbach, Westwood, Caernarvon, Oxford, Cumberland, Grand Trunk, Castledowns and Carlton

The City of Edmonton plans to continue the Metro Line from NAIT all the way to St. Albert, eventually travelling northwest to a future park-and-ride site planned at the city limits. This will be built in two phases, adding approximately 11 kms of track. Following an extensive corridor evaluation process, 113A Street was approved by City Council as the future northwest LRT route on July 7, 2010. This extension will serve an estimated 45,000 passengers daily upon its completion and give St. Albert residents quick and easy access to downtown Edmonton. This is an exciting project that will increase real estate values in northwest Edmonton, including Grand Trunk, Castledowns and Griesbach. An update on Edmonton city's website suggests that while the line overall is in its concept phase, public engagement and planning and preliminary engineering for the extension to St. Albert are underway.

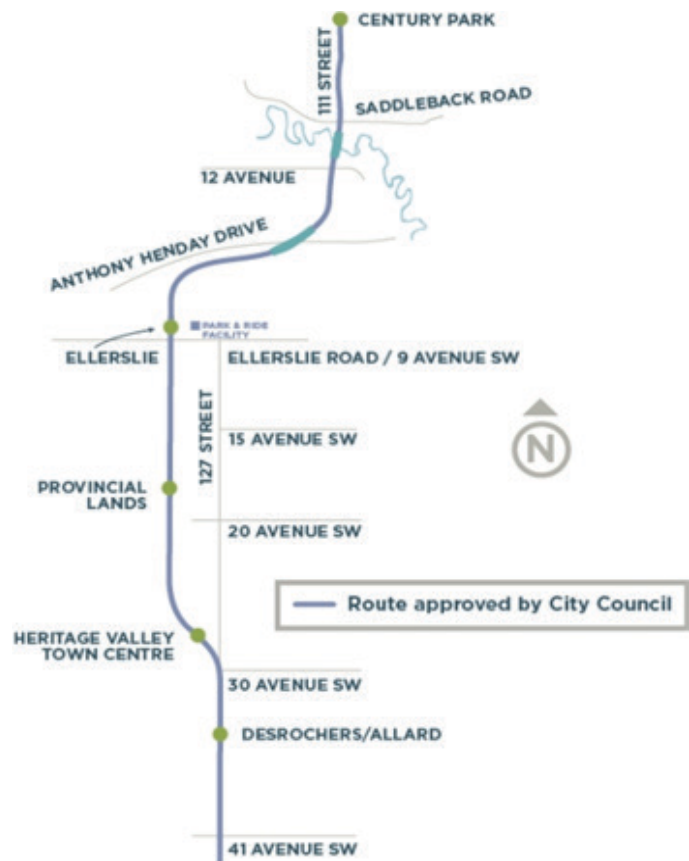
Figure 17: Planned Metro Line Extension



Capital Line South (Century Park to Heritage Valley)

- **City Quadrant:** Southwest
- **Name of Line:** Extension of the Capital Line
- **Construction/Completion Status:** Preliminary engineering completed
- **Funding Status:** N/A
- **Date of Completion:** Unknown. Involves build of four new stations.
- **Location:** From Century Park on 111th Street south to Ellerslie Road
- **Type:** High-floor urban LRT
- **Neighbourhoods to Watch:** Skyrattler, Kehweewin, MacEwan, Jagre Ridge, Callaghan, Allard, Heritage Valley, Chappelle Gardens and Creekwood Chappelle

Figure 18: Planned Capital Line Extension



Edmonton's City Council has approved a concept plan to extend the Capital Line south from Century Park to the city limits. Preliminary engineering on the high-floor 4.5-km (2.8 mile) extension to Ellerslie Road was completed in 2010, but construction on the project has yet to begin. Additional preliminary engineering was conducted in June 2017. From the concept drawings, the extension includes four new stations:

1. Ellerslie Station on Ellerslie Road near 9th Avenue, which includes a combined LRT station, transit centre and a park-and-ride facility on Ellerslie Road, between 127th Street and 135th Street;
2. Provincial Lands Station, near 20th Avenue SW and 127th Street
3. Heritage Valley Town Centre Station, near 30th Avenue SW and 127th Street
4. Desrochers/Allard Station on 127th Street.¹⁰²

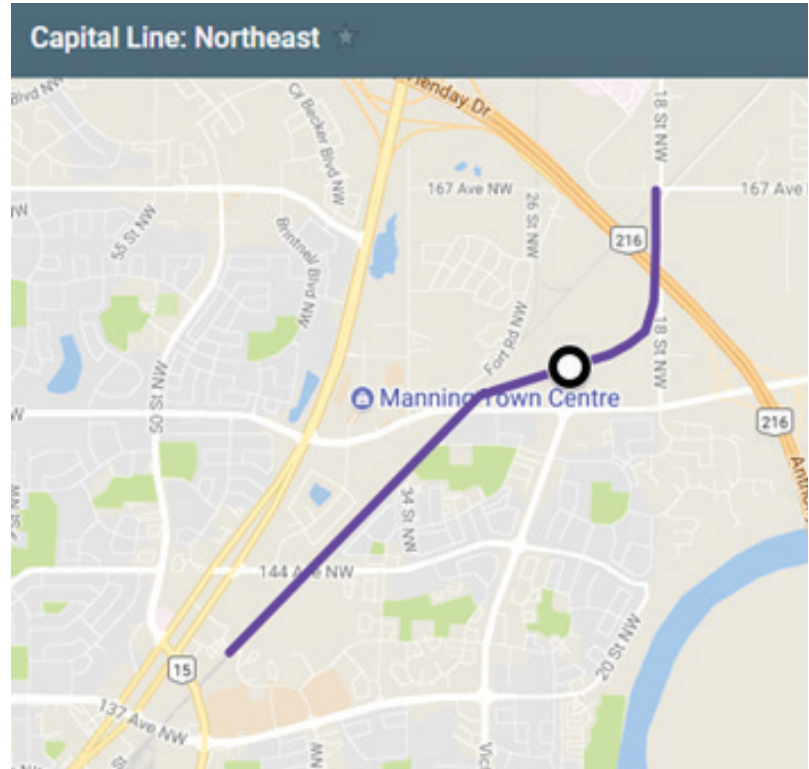
A fifth station may be added adjacent to Twin Brooks.¹⁰³ This extension is part of the city's vision to expand LRT service to all sectors of Edmonton by 2040.

Capital Line Northeast (Clareview to Gorman)

- **City Quadrant:** Northeast
- **Name of Line:** Extension of the Capital Line
- **Construction/Completion Status:** Preliminary engineering design phase
- **Funding Status:** Awaiting funding
- **Date of Completion:** N/A
- **Location:** From Clareview Station to Gorman. Includes one new station in Gorman Industrial Park.
- **Type:** N/A
- **Neighbourhoods to Watch:** Kirkness and Fraser

Preliminary assessments for an extension of the Capital Line from Clareview Station to Gorman were completed in 2010. The 2.9-km (1.8 mile) extension would be constructed on the east side of the existing CN right-of-way, with at-grade LRT crossings at 144th Avenue and 153rd Avenue. The new Gorman Station would also include a Transit Centre north of 153rd Avenue. The project is currently in the design phase. Homes in Kirkness and Fraser as well as the Ebbers Industrial area and Gorman Industrial west and east should experience an increase in property values.

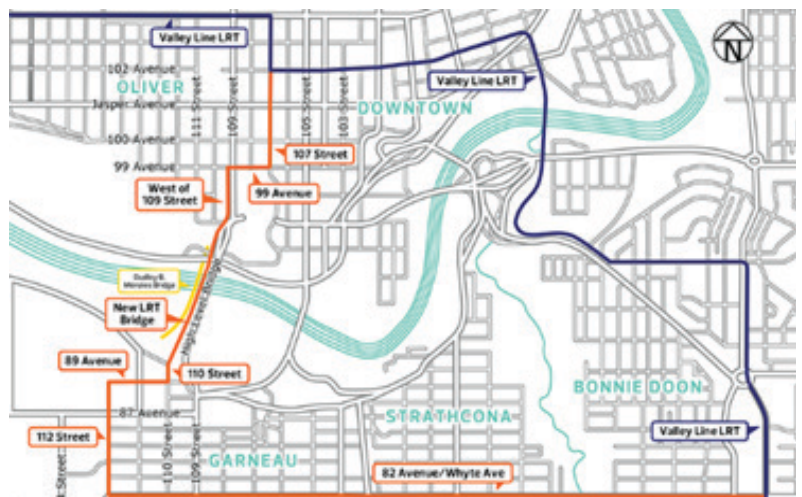
Figure 19: Planned Capital Line Extension



Centre Line (connecting two sections of the Valley Line LRT)

- **City Quadrant:** Downtown and Whyte Avenue
- **Name of Line:** Centre Line
- **Construction/Completion Status:** Study and consultation phase
- **Funding Status:** N/A
- **Date of Completion:** Concept plan to be presented to city council in early 2019
- **Location:** Whyte Avenue, north on 112th, 110th and 107th Streets. Connecting the SE and west portions of the Valley Line.
- **Type:** Low-floor, urban style
- **Neighbourhoods to Watch:** Bonnie Doon, Strathcona, Garneau, the University Area, Oliver and Downtown

Figure 20: Concept Plan for the Centre Line



Since the last REIN Transportation Effect Report for Edmonton in 2014, a new downtown circulator route has been proposed: the Centre Line is currently being studied as part of the planning phase.¹⁰⁴ The central route will provide seamless connections between Downtown, the Alberta Legislature, the University of Alberta, Strathcona, Bonnie Doon, east Edmonton and the wider LRT network. The plan calls for a low-floor urban-style LRT that operates at street-level in dedicated lanes. Traffic signals will control the flow of traffic through intersections. The line features frequent sidewalk-level stops and can fit seamlessly into communities. This line will be the same style as the Valley Line currently under construction in the southeast. The line is intended to connect with the Valley Line in east Edmonton and will cross the river to connect again just west of downtown.¹⁰⁵ In the graphic on page 35 (Figure 19) the Centre Line is illustrated in Orange.

None of the proposed LRT line extensions or new routes has been given construction start dates. It is important to monitor the buzz around the creation and expansion of transportation projects in the city. Transportation proposals are never certain until the ground is broken, and can be impacted by politics, big business expansions, world events and advances in science and technology.

Edmonton's Non-LRT Future Transportation Plans

Major Road and Highway Improvements in Edmonton

Northwest

No projects planned.

Northeast

- **City Quadrant:** Northeast
- **Name of Road:** Manning Drive
- **Construction/Completion Status:** Preparatory construction has begun
- **Funding Status:** N/A
- **Date of Completion:** Construction started in 2017.
- **Location:** N/A
- **Type:** Free-flow corridor with accesses via interchanges. Will have a flyover at the intersection of 18 Street and Highway 15.
- **Neighbourhood to Watch:** Horse Hill

Manning Drive connects Fort Saskatchewan, Gibbons and the Alberta Industrial Heartland to Edmonton's city core. This area of the city is expected to experience significant growth over the next few years, given bylaw amendments to create and develop the Edmonton Energy and Technology Park. This route is an important commuter and goods movement corridor in Edmonton's northeast.

Southeast

No projects planned.

Southwest

- **City Quadrant:** Southwest
- **Name of Road:** Terwillegar Drive between Whitemud Drive and Anthony Henday Drive
- **Construction/Completion Status:** Concept and Planning Study Phase
- **Funding Status:** Unknown
- **Date of Completion:** Unknown
- **Location:** N/A
- **Type:** Converted to a freeway. Interchanges and overpasses will provide access.
- **Neighbourhoods to Watch:** Bulyea Heights, Rhatigan Ridge, Falconer Heights, Carter Crest, Leger and Haddow

Travel demand on Terwillegar Drive has exceeded capacity. For this reason, as well as the roadway's importance as both a north-south city route and potential connector to a future freeway to Leduc, the city plans to configure the drive into a free-flow freeway, as was the original intent of the road's design.¹⁰⁶ A January 2018 update from the city indicates the concept plan has interchanges at Terwillegar Drive/Whitemud Drive, 23rd Avenue, Rabbit Hill Road and 40th Avenue/Bulyea Road, as well as an overpass at Haddow Drive. An August 2018 update on the city's website indicates another round of public engagement will begin this fall as the city continues to explore its options.¹⁰⁷

- **City Quadrant:** Southwest
- **Name of Road:** 135th Street
- **Construction/Completion Status:** Construction underway in summer 2018
- **Funding Status:** Funded
- **Date of Completion:** Expected completion Fall 2019
- **Location:** See Figure 13 below
- **Type:** N/A
- **Neighbourhoods to Watch:** Heritage Valley, Jagare Ridge

The city will build 135th Street to replace 127th Street as a major arterial connection to Anthony Henday Drive in southwest Edmonton. It will also provide transit and park-and-ride access from Anthony Henday Drive to the new Heritage Valley Park and Ride.¹⁰⁸



Figure 21: Terwillegar Drive Freeway Conversion

Inner Ring Road

The Way We Move mentions the development of an inner ring road. The road's intended purpose is to cater to cross-town movements at a higher standard than is currently experienced within Edmonton city limits. The inner ring road would be a minimum of six lanes with a posted speed limit of at least 70 km per hour and would be more free-flowing than current conditions permit. The roadways mentioned as part of the inner ring road are:

- Yellowhead Trail
- 75 Street/Wayne Gretzky Drive
- Whitemud Drive
- 170th Street

The city of Edmonton has multiple road projects in the planning and design phase, including upgrades and widening of streets. The reader is encouraged to conduct further investigation at www.edmonton.ca > road projects > design & planning.

Bus and Bus Rapid Transit (BRT)

Edmonton's transit overhaul includes a bus network redesign, currently in the consultation phase. As this document goes to print, the next wave of consultations with the public will occur in Phase 2. This redesign is the first major action from the 2017 transit strategy that will guide the city's decisions and actions over the next 10 years. It is anticipated the new bus network will come into effect in 2020. The focus in the next phase of service will include more regular service on major routes, while the trade-off may mean fewer stops and a longer walk to a stop for other transit users.

Edmonton's transit strategy indicates that during the development of the LRT, a precursor BRT may be implemented in some segments prior to construction in order to provide a high level of service while ridership levels increase.

Conclusion

Implementation plans for Edmonton's The Way We Move and The Way We Grow were developed concurrently, to recognize that land use and transportation are interconnected. For example, there is a reference in The Way We Move to a stated intention in The Way We Grow of encouraging a minimum of 25 per cent of new housing growth to be in the downtown and mature neighbourhoods, and around LRT stations and transit centres.¹⁰⁹

It is easy to see how the inner and outer ring roads, and LRT expansions and extensions, will be increasingly important to the city's residents. With industrial and residential growth corridors beyond the perimeter of the city proper, the ring road is essential for business, both for companies and their employees. As funding becomes available for more transportation initiatives, Edmonton is set to remain a great place to work, play, live and invest!

As cities continue to increase in size due to suburban sprawl, and populations continue to grow, governments of all levels are continuously working to upgrade their infrastructure in order to accommodate these changes, the latest focus of which is densification around transit areas. For example, as noted in the Top Ten Towns and Cities report for Ontario, released earlier in 2018, the Growth Plan for the Greater Golden Horseshoe area of Ontario names 25 urban growth centres that now have minimum density targets for both persons and jobs, per hectare, along specific transit corridors. As a real estate investor, it is crucial that you pay attention to what is happening in your investment area and look for areas that are bound to see improvements. These changes and updates don't happen overnight, so it is vital you follow announcements, plans and actual construction starts.

There are several ways you can update a REIN Transportation Effects Report with the most recent information on the identified projects. First, a city's transit website will provide the best information about current projects given it is usually the most accurate and reliable. You can also follow these agencies on social media for timely and accessible updates. Additionally, you can refer to local news sources, city council documents, and the economic development section of a city's website.

You can also subscribe to our research email list to ensure that you receive updates to this report as they are published by emailing: info@REINCanada.com and asking to be added to the list. And please connect with us on social media by following our Facebook Page – Real Estate Investment Network.

Please Note: Not ALL properties in these regions will make for great investments, so make sure you complete your diligence on all properties before you purchase

¹ 1994 Landis and 1994 Landis et al

² Kilpatrick, J. A., Throupe, R. L., Carruthers, J. I., & Krause, A. (2007). The Impact of Transit Corridors on Residential Property Values. *Journal Of Real Estate Research*, 29(3), 303-320.

³³ Kilpatrick, J. A., Throupe, R. L., Carruthers, J. I., & Krause, A. (2007). The Impact of Transit Corridors on Residential Property Values. *Journal Of Real Estate Research*, 29(3), 303-320.

⁴ <https://www.itdp.org/library/standards-and-guides/the-bus-rapid-transit-standard/what-is-brt/>

⁵ [https://las.depaul.edu/centers-and-institutes/chaddick-institute-for-metropolitan-development/research-and-publications/Documents/Uber per cent20Economics_Live.pdf](https://las.depaul.edu/centers-and-institutes/chaddick-institute-for-metropolitan-development/research-and-publications/Documents/Uber%20per%20cent20Economics_Live.pdf)

⁶ [https://las.depaul.edu/centers-and-institutes/chaddick-institute-for-metropolitan-development/research-and-publications/Documents/Uber per cent20Economics_Live.pdf](https://las.depaul.edu/centers-and-institutes/chaddick-institute-for-metropolitan-development/research-and-publications/Documents/Uber%20per%20cent20Economics_Live.pdf)

⁷ <http://policyoptions.irpp.org/magazines/july-2018/how-partnerships-can-help-cities-cope-with-technological-disruption/>

⁸ https://www.citylab.com/transportation/2018/08/where-ride-hailing-and-transit-go-hand-in-hand/566651/?utm_source=nl_link1_080318&utm_medium=silverid=NDc3Mzc1MDUzNzE1S0&utm_source=citylab-daily&silverid=NDc3Mzc1MDUzNzE1S0

⁹ <http://www.cbc.ca/news/canada/british-columbia/vancouver-car-share-car2go-evo-1.4504926>

¹⁰ <https://www.citylab.com/transportation/2018/07/uber-just-fired-its-pittsburgh-av-drivers/564947/>

¹¹ <https://vancouver.ca/files/cov/walking-cycling-in-vancouver-2016-report-card.pdf>

¹² <https://vancouver.ca/files/cov/walking-cycling-in-vancouver-2016-report-card.pdf>

¹³ <https://www.translink.ca/Plans-and-Projects/TransLink-Tomorrow-2/Plans-and-Strategies.aspx>

¹⁴ Zhong, H., & Li, W. (2016). Rail transit investment and property values: An old tale retold. *Transport Policy*, 51(Transit Investment and Land Development. Edited by Xinyu (Jason) Cao and Qisheng Pan & Shared Use Mobility Innovations. Edited by Susan Shaheen), 33-48. doi:10.1016/j.tranpol.2016.05.007

¹⁵ <https://www.theglobeandmail.com/real-estate/article-walkable-housing-slowly-making-inroads-in-calgary-and-edmonton/>

¹⁶ <http://policyoptions.irpp.org/magazines/july-2018/how-partnerships-can-help-cities-cope-with-technological-disruption/>

¹⁷ <https://www.environicsanalytics.com/en-ca/resources/blogs/ea-blog/2016/01/22/millennials-the-generation-du-jour>

¹⁸ <https://www150.statcan.gc.ca/n1/daily-quotidien/171025/dq171025c-eng.htm>

¹⁹ <https://www150.statcan.gc.ca/n1/daily-quotidien/171025/dq171025c-eng.htm>

²⁰ https://www.huffingtonpost.ca/2018/05/14/millennials-leaving-toronto-vancouver-statistics-canada-data-shows_a_23434284/

²¹ <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016003/98-200-x2016003-eng.cfm>

²² <http://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016003/98-200-x2016003-eng.cfm>

²³ <http://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016003/98-200-x2016003-eng.cfm>

²⁴ <https://www150.statcan.gc.ca/n1/daily-quotidien/170927/dq170927d-eng.htm>

²⁵ <http://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016004/98-200-x2016004-eng.cfm>

²⁶ https://www.edmonton.ca/projects_plans/blatchford.aspx

²⁷ <https://blatchfordedmonton.ca/about/>

²⁸ https://www.edmonton.ca/documents/PDF/Blatchford_Public_Engagement_September_2014.pdf

²⁹ Debrezion, G., Pels, E. & Rietveld, P. *J Real Estate Finan Econ* (2007) 35: 161.

<https://doi.org/10.1007/s11146-007-9032-z>

³⁰ Kilpatrick, J. A., Throupe, R. L., Carruthers, J. I., & Krause, A. (2007). The Impact of Transit Corridors on Residential Property Values. *Journal Of Real Estate Research*, 29(3), 303-320.

- ³¹ Siethoff, B. & K. Kockelman. (2002). Property Values and Highway Expansions: An Investigation of Timing, Size, Locations, and Use Effects. Transportation Research Board, 81st Annual Meeting, Washington, D.C.
- ³² Kilpatrick, J. A., Throupe, R. L., Carruthers, J. I., & Krause, A. (2007). The Impact of Transit Corridors on Residential Property Values. *Journal Of Real Estate Research*, 29(3), 303-320.
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- ³⁶ Baum-Snow, N. & M.E. Kahn. (2000). "The Effects of New Public Projects to expand Urban Rail Transit" in *Journal of Public Economics*, Vol. 77, pp. 241-263.
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- ³⁸ Kilpatrick, J. A., Throupe, R. L., Carruthers, J. I., & Krause, A. (2007). The Impact of Transit Corridors on Residential Property Values. *Journal Of Real Estate Research*, 29(3), 303
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