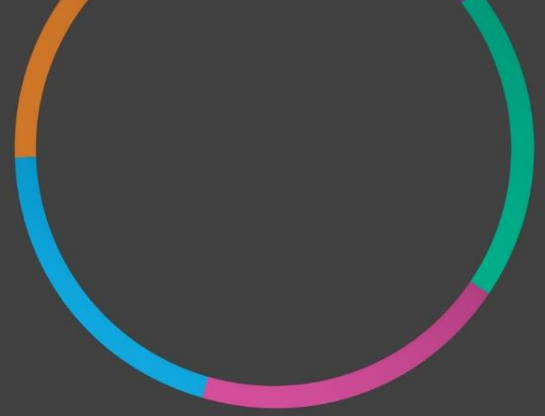




London
CANADA



Mobility Master Plan

Phase 1

Needs and Opportunities

Final Interim Report



Mobility Master Plan



Land Acknowledgement

We acknowledge that the City of London is on the traditional lands of the Anishinaabek (AUh-nish-in-ah-bek), Haudenosaunee (Ho-den-no-show-nee), Lūnaapéewak (Len-ah-pay-wuk) and Attawandaron (Add-a-won-da-run) peoples. We honour and respect the history, languages and culture of the diverse Indigenous people who call this territory home.

We acknowledge all the treaties that are specific to this area: the Two Row Wampum Belt Treaty of the Haudenosaunee Confederacy/Silver Covenant Chain; the Beaver Hunting Grounds of the Haudenosaunee NANFAN Treaty of 1701; the McKee Treaty of 1790, the London Township Treaty of 1796, the Huron Tract Treaty of 1827, with the Anishinaabeg, and the Dish with One Spoon Covenant Wampum of the Anishnaabek and Haudenosaunee.

The three Indigenous Nations that are neighbours to London are the Chippewas of the Thames First Nation; Oneida Nation of the Thames; and the Munsee-Delaware Nation who all continue to live as sovereign Nations with individual and unique languages, cultures, and customs.

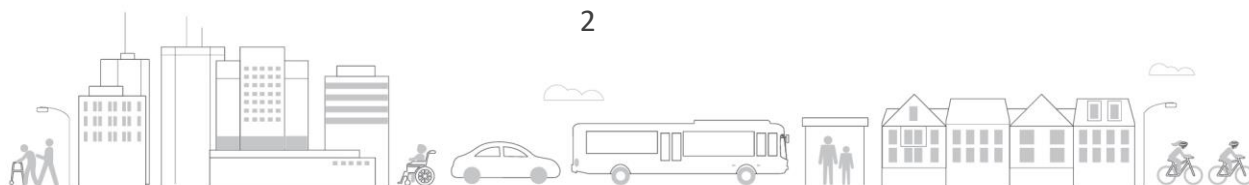
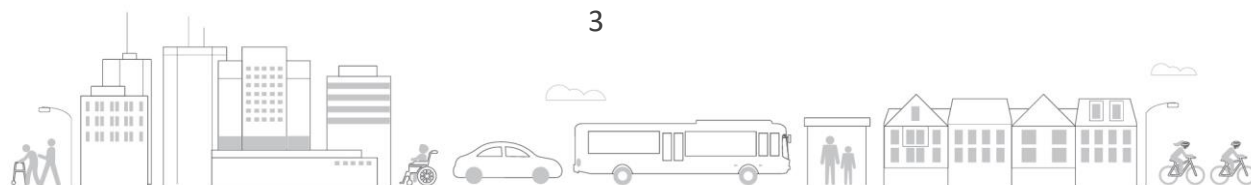


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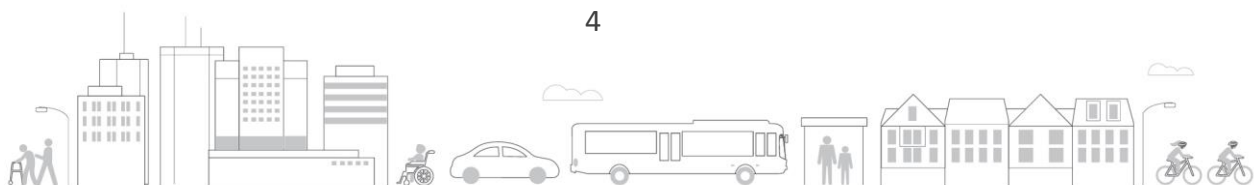


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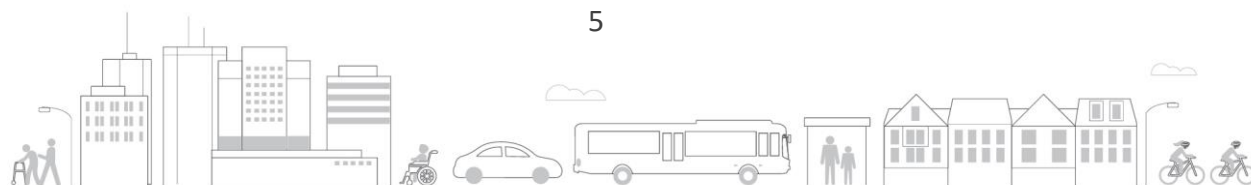


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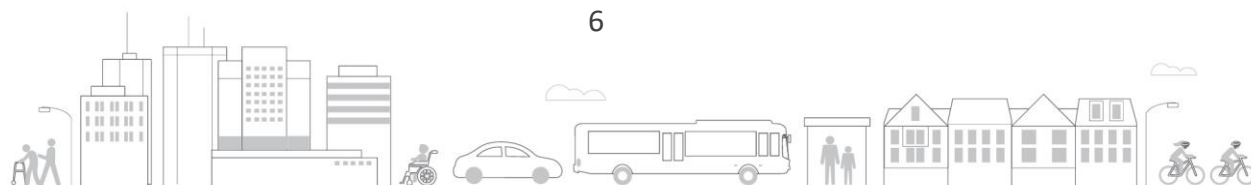


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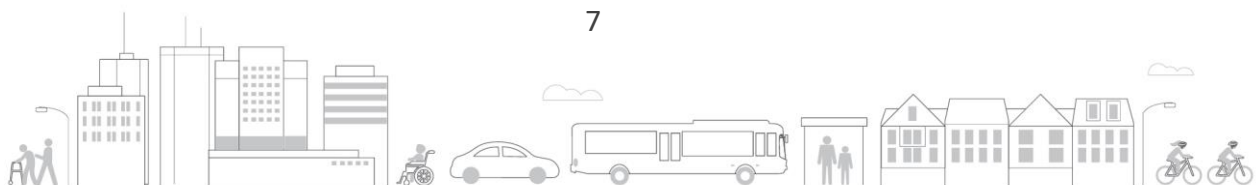
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1 Introduction

Mobility is the movement of people and goods through, and beyond, the city from one location to another **in a safe, accessible, convenient, and affordable manner**. Mobility, typically referred to as transportation, can be classified into five main types: walking, cycling, transit, movement with mobility devices, and motorized vehicle movement. Our fixed **mobility infrastructure** includes such things as streets, sidewalks, cycling lanes, rapid transit lanes and/or rails, stations, pathways, parking facilities, and the many physical features that are supplementary to, and supportive of, this infrastructure.

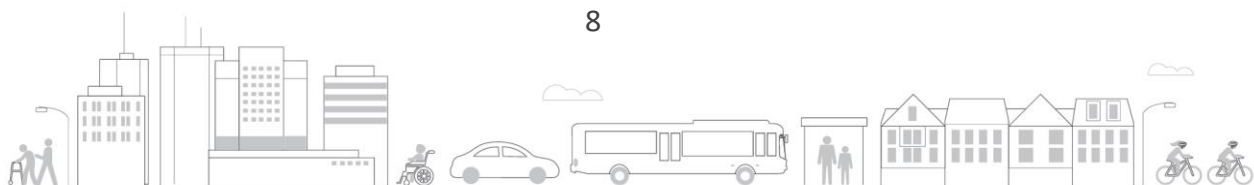
(The London Plan, 307).

The City of London (“the City”) is developing a Mobility Master Plan to prepare the mobility system for the change expected in London through to 2050. This Mobility Master Plan is an update to the 2013 *SmartMoves: A New Mobility Transportation Master Plan*. Since the previous plan, London’s rapid growth has made it one of the fastest growing municipalities in Canada and the City’s population is projected to continue to grow significantly. With this growth comes a demand for better, faster and more reliable mobility options that also have a reduced impact on the environment. This growth is occurring within the context of a Climate Emergency – a generational challenge that has wide-reaching mobility implications. The economy is also changing, and new technologies and business models are emerging that will both change mobility and be influenced by mobility decisions. Finally, the COVID-19 pandemic brought about changes in travel behaviour – some of which will likely last well into the future and influence many mobility decisions.

The Mobility Master Plan (MMP) will be a long-term strategic planning document that will guide how the City plans and prioritizes its multi-modal mobility system from now through to 2050. It will include a comprehensive set of networks policies, strategies and actions that together will move London towards its desired future.

1.1 Report Purpose

This interim report documents the first of a multi-phase study process. The purpose of this report is to outline key mobility needs and opportunities in London based on analysis of London’s land use, population, employment and mobility trends, as well as policy direction and broader societal conditions. These needs and opportunities were identified within the context of the MMP vision – a vision that emphasizes the need to reduce reliance on personal automobiles, make walking, cycling and transit the options of choice for more trips, create a more equitable city, support the economy, and support regional connectivity.



The report includes a comprehensive overview of the current mobility system in London, with a focus on identifying key trends, issues and constraints. It concludes with a summary of the key needs and opportunities identified throughout this phase of the study.

The needs identified in this report serve as important strategic directions that, along with public and stakeholder input, will be used to develop mobility network and policy solutions in later phases of this study, ultimately leading to the MMP recommendations.

1.2 Study Overview

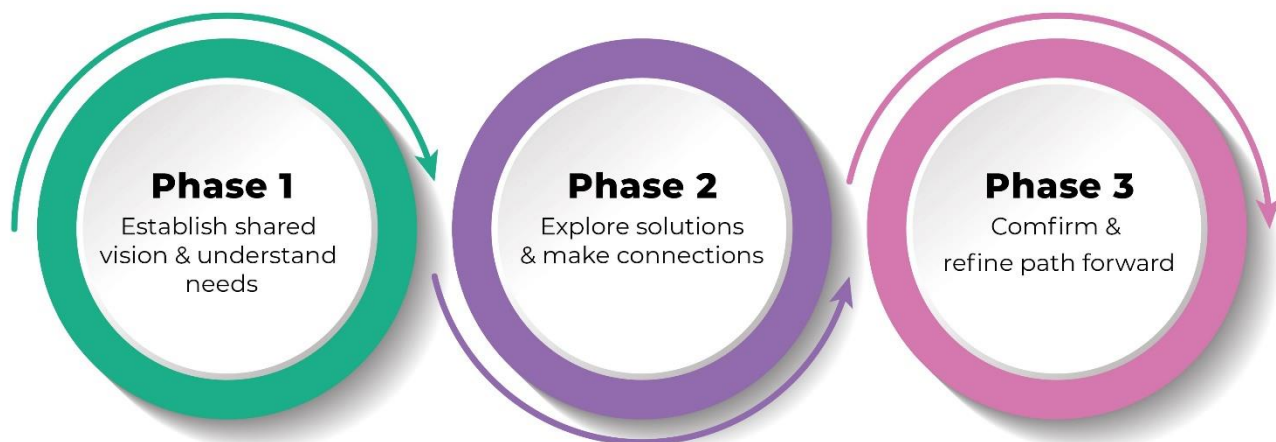
The MMP Study commenced in spring 2022 and is anticipated to be completed in 2025. The study spans three phases:

- **Phase 1** – Establish Shared Vision and Understanding of Needs.
- **Phase 2** – Explore Solutions and Make Connections.
- **Phase 3** – Confirm and Refine the Path Forward.

This report is part of Phase 1.

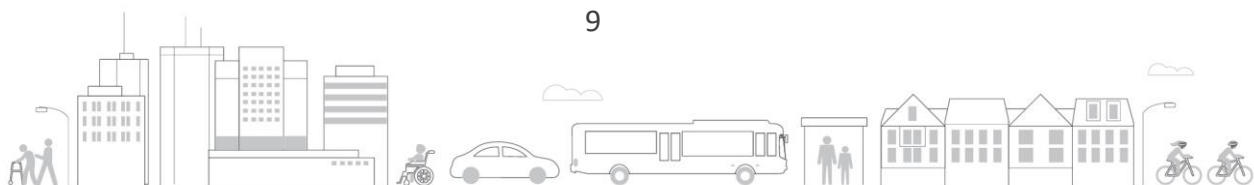
Each phase includes customized communication and engagement activities to allow for input and feedback from the public and other interested parties. The study process is summarized in Exhibit 1.1.

Exhibit 1.1: Mobility Master Plan Study Process



Municipal Class Environmental Assessment Process Compliance

The MMP adheres to the Municipal Class Environmental Assessment (MCEA) planning process for Master Plans under the Province of Ontario’s *Environmental Assessment Act (1990)*. The MCEA planning process provides a transparent approach to planning and building municipal infrastructure and is designed to predict the environmental effects of proposed initiatives before they are developed



to protect the natural, cultural, social and economic environment. The MMP follows the Master Plan approach, which requires the first two phases of the MCEA planning process.

- **MCEA Phase 1:** Identify the problem or opportunity statement (corresponding to Phase 1 of the MMP).
- **MCEA Phase 2:** Identify and evaluate alternative solutions to address the problem and establish a preferred solution (corresponding to Phases 2 and 3 of the MMP).

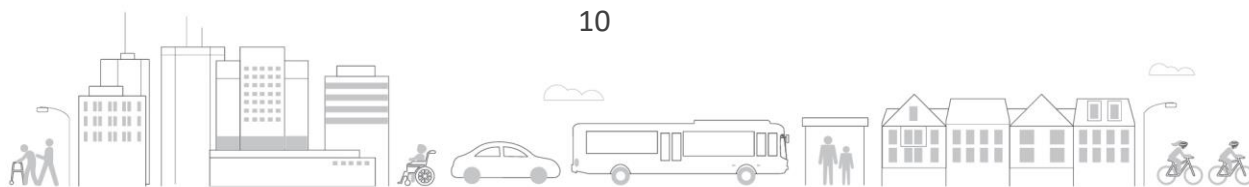
At the end of MCEA Phase 2, an MMP document will be prepared where the level of investigation, consultation and documentation can be used in support of future analysis for specific Schedule B and C projects identified within it. Schedule B projects have the potential for some adverse environmental impacts and involve a screening process and consultation with directly affected parties, whereas Schedule C projects have the potential for significant environmental impacts and involve an Environmental Study Report and extensive documentation as part of a Class Environmental Assessment (EA).

Public Engagement Process and Early Findings

Engagement with the public, Indigenous communities, community organizations and other interested parties is an essential component of the MMP Study to ensure the final recommendations align with the needs and desires of Londoners. Each phase of the study as outlined in Exhibit 1.1 includes a round of engagement.

Londoners have been engaged from the very beginning of the MMP Study. Phase 1 public engagement focused on building awareness of the study and inviting people to share their experiences with mobility in London and provide their input on the mobility vision and the guiding principles (discussed in Section 4). A range of communication and engagement activities were conducted as part of Phase 1, including the following:

- A Notice of Study Commencement was issued in April 2022, marking the initiation of the MMP Study.
- A Project Website was created to share information on the project with the community and collect feedback.
- A Project Email was created to collect feedback and coordinate engagement events.
- Ongoing social media blasts have been published across numerous social media channels, informing the public of study updates.
- A virtual Community Conversation (public meeting) hosted by the City was held in September 2022, marking the first of three City hosted Community Conversations wherein Londoners can learn about the MMP project and provide feedback.



- A series of community pop-up events held throughout summer and fall 2022 attended by Community Connectors, enabling Londoners to share their thoughts on mobility in London.
- A Mobility Feedback Form was prepared and used to gain a deeper understanding of what the community cares about, uses, has challenges with and wants out of a transportation and mobility system.

A separate Phase 1 Engagement Summary Report documents the activities conducted and the feedback collected. For the purposes of this report, Exhibit 1.2 presents selected feedback received as part of the first Community Conversation, demonstrating the breadth of perspectives, values, needs and opportunities among Londoners related to mobility. Key takeaways from Phase 1 public engagement activities are included throughout this report in “We Heard That” call-out boxes.

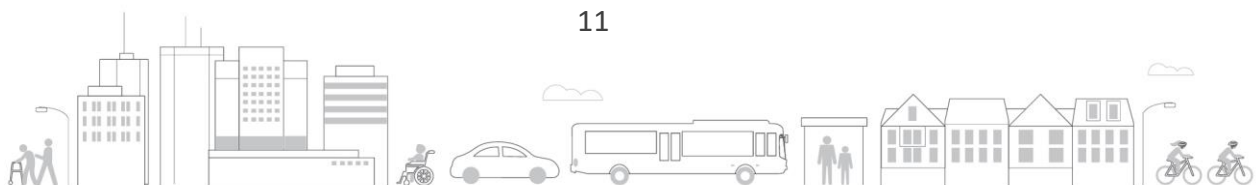


Exhibit 1.2: Sample Public Engagement Inputs to Date



Transit Access and Reliability: “London needs more buses on more-intuitive bus routes to more parts of the city. Decreasing the cost of transit and/or making it free increases accessibility to different parts of the city for low-income people and increases ridership.”



Pedestrian Connectivity: “For people with scooters and wheelchairs, moving around outside during ice and snow season is not possible. During warmer weather, there are no safe routes for people using motorized scooters or wheelchairs to use. For walking, sidewalks must be salted/sanded consistently throughout the city including residential areas, not just along major roadways.”



Cycling Connectivity: “Trying to get around via walking or biking can feel piecemeal sometimes. I like to use the paths along the Thames to get downtown from my place but it can be difficult with many paths being unpaved, ending abruptly, or not being connected to the other side of the river. Bike lanes are unprotected and don't feel safe in busy traffic on roads like Wonderland.”



Safety: “My safety feels radically different depending on the type of transportation I use. Largely I feel safe and comfortable in my car. I tend to feel safe while walking on foot. When crossing the street, I don't often feel that there are enough safe crosswalks. Finally, when I'm on my bike I feel largely unsafe.”



Road Congestion: “You need more traffic lanes to connect the north end of the city to the south end, and east to west. Most people drive. If you work in the east end near the airport there isn't even a bus option if someone wanted it. Also, with the north end being developed at this rapid rate, many people need to get from the north end to the highway and vice versa.”

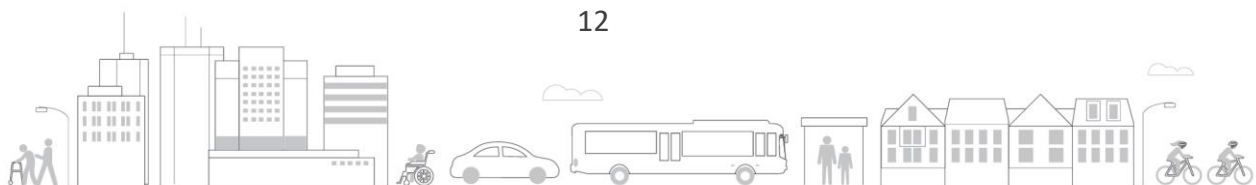


Equity: “Focus on the people who struggle most to get around our city – those who are least safe: women, racialized Londoners, people with mobility issues – build a system that gets them around safely and the rest of us will then also have safe, reliable options. Our sidewalks/street corners are terrifying. Traffic is moving fast and it's dangerous for anyone who isn't protected by being inside a vehicle.”



Access to Daily Needs: “For those who do not drive, there is a lack of viable, reliable, and affordable transportation options. It can be frustrating and confusing for those trying to access public transportation, and those who require accessible transportation often are at the mercy of availability, scheduling or high rates.”

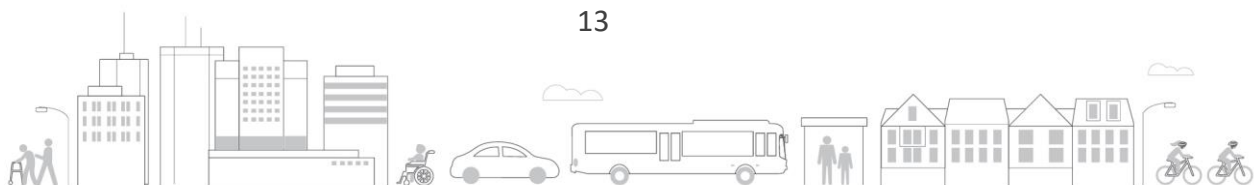
Source: Direct quotes received during engagement; wording has been simplified in some cases.



1.3 Document Structure

Following this introductory chapter, this report is structured as follows:

- **Chapter 2** presents key land use, population, employment, demographic and economic trends that influence the mobility system.
- **Chapter 3** summarizes current policy direction in London, discussing how it will shape the MMP.
- **Chapter 4** presents London’s future vision for mobility and the principles that will guide the development of solutions for the MMP.
- **Chapter 5** outlines the analysis of current mobility patterns of London residents and the implications for mobility planning.
- **Chapter 6** provides an overview of London’s existing mobility systems and infrastructure, highlighting key network needs based on current conditions.
- **Chapter 7** identifies broader trends that are anticipated to have an impact on mobility and mobility planning more broadly.
- **Chapter 8** provides an overview of four key mobility planning considerations that will influence future mobility in London. These considerations lay the foundation for developing networks and policies that will help create the change needed to achieve London’s desired future.
- **Chapter 9** pulls together the key findings from throughout the report and presents key mobility needs and opportunities in London. The opportunities will be further explored and specific solutions will be developed in subsequent phases of the study.



Summary of Key Trends and Challenges

- London is a fast-growing city that serves as the regional centre in Southwestern Ontario—this continued growth will increase overall travel demand.
- A focus on suburban development over the past decades has resulted in an overall low-density city with most homes being single detached. Recently, increased density is taking place in some areas, however, 55% of the projected growth is currently expected to continue to be accommodated in suburban locations.
- Key demographic features of London such as a large and growing immigrant population and an aging population must be planned for in London’s mobility system.
- London is a diverse economic hub, characterized by key sectors including agri-food production, manufacturing, digital media and technology, health and life sciences and professional services.

2 London’s Current and Changing Context

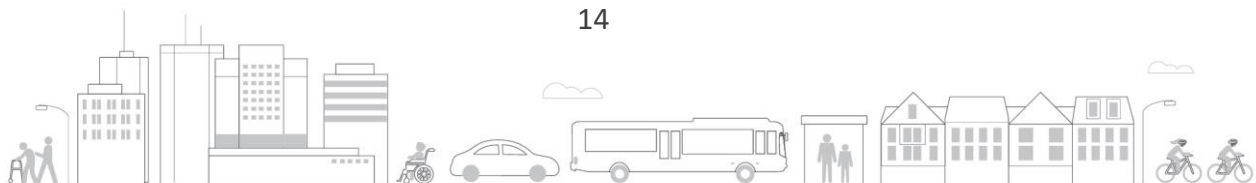
London is the major regional centre in southwestern Ontario and it is experiencing rapid change with significant mobility and overall city building implications. This includes population growth, urbanization, increasing diversity, an aging population and an expanding economy all in the context of a Climate Emergency.

This chapter presents key land use, population, employment, demographic and economic trends in London and outlines how these characteristics impact the mobility system.

2.1 London is a Geographically Large City

London measures approximately 420 square kilometres and is physically defined by several natural watercourses that comprise the Thames River Watershed. London is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron, near the geographic centre of Southwestern Ontario, midway between Toronto and Windsor.

London’s Downtown is located at the forks of the Thames River and is a vibrant city centre that features an impressive inventory of historic buildings, a pedestrian-friendly shopping district centred on Dundas Place, academic institutions, numerous hotels and conference centres and many office buildings including major satellite offices as well as company headquarters. With much of Central London and the area surrounding it being developed before 1945, these areas typically include more compact development on a grid street network which is easier to serve by walking, cycling and transit.



In contrast, lower-density residential housing and big-box retail are the dominant land uses outside of Downtown and industrial uses closer to London’s urban periphery (i.e. Built Area Boundary) help define the southern and eastern limits of London. These areas feature many wide **arterial roads** and local curvilinear streets that are less conducive to walking, cycling and transit – curvilinear streets increase travel distances and are challenging to efficiently serve by transit, while arterials with higher-speed traffic are often not inviting places for those not in a car. Finally, rural land uses (largely farming), comprise London’s southern area.

“Arterial roads” is a term used in this report to describe high-capacity roads primarily for the movement of through traffic, including the following road classes from *The London Plan*: Rapid Transit Boulevard, Main Street, Urban Thoroughfare, and Civic Boulevard.

2.2 London is Growing Faster than Most Peers

The population of London in 2021 was 437,200—that is about a 10% increase since 2016 when the population was 397,400, making London the fourth-fastest growing municipality in Canada.¹ This growth is expected to continue. London’s population is estimated to increase by 48% between 2021 and 2051 resulting in a total estimated population of approximately 647,500.² The city’s employment base is also growing, projected to increase from 197,300 to 317,500 jobs between 2021 and 2051³. This represents an average annual employment growth rate of 1.6%, which is more than three times higher than the historical average annual employment growth rate of 0.5% observed between 2001 and 2021.⁴

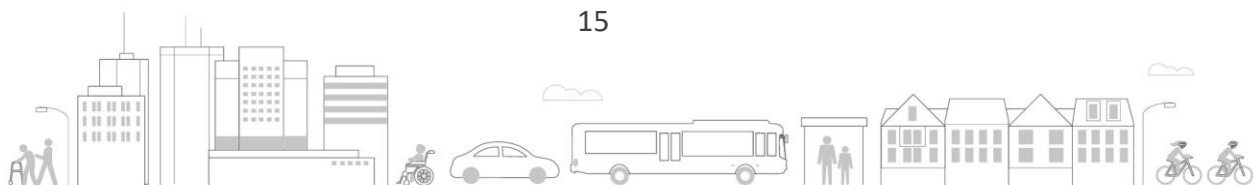
Population projections provided by the Ontario Ministry of Finance at the census division level enable a comparison of projected population among neighbouring municipalities through to 2041. As shown in Exhibit 2.1, the Middlesex census division (including London) is the second fastest growing census division in the region with a projected growth of 35% between 2021 and 2041 (second only to the Oxford census division with 37% projected growth). The projected growth in the Middlesex census

¹ Watson & Associates Economists Ltd (2022). *Population, Housing and Employment Growth Projection Study, 2021-2051, City of London. Final Draft Report* p. 27.

² Watson & Associates Economists Ltd (2022). *Population, Housing and Employment Growth Projection Study, 2021-2051, City of London. Final Draft Report* p. 50.

³ Watson & Associates Economists Ltd (2022). *Population, Housing and Employment Growth Projection Study, 2021-2051, City of London. Final Draft Report* p. 68.

⁴ Watson & Associates Economists Ltd (2022). *Population, Housing and Employment Growth Projection Study, 2021-2051, City of London. Final Draft Report* p. 4.



division exceeds both the average growth of the surrounding census divisions and the projected growth rate province wide.

This growth means that there will be a significant increase in travel demand as more people live, work, and play in London. This emphasizes the need to use existing transportation infrastructure more efficiently and introduce new infrastructure and programs strategically.

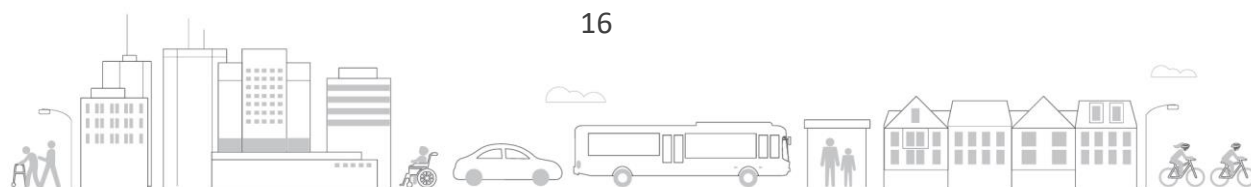
Exhibit 2.1: Projected Population Growth for Middlesex and Nearby Census Divisions, 2001 to 2041

Geography	Population ^A			Percent Change
	2021	2031	2041	2021-2041
Middlesex Census Division (including London)	515,000	608,000	693,000	35%
Ontario	14,826,000	17,121,000	19,308,000	30%
Nearby Census Divisions				
Oxford	125,000	147,000	171,000	37%
Perth	84,000	96,000	108,000	29%
Elgin	98,000	111,000	125,000	28%
Huron	64,000	72,000	80,000	25%
Lambton	133,000	138,000	144,000	8%
Chatham-Kent	108,000	110,000	114,000	6%
Peer Average	102,000	112,000	124,000	22%

^A All population values rounded to nearest 1,000.

Source: Analysis of Ministry of Finance (2022) and Government of Ontario Population Projections.

London’s population growth has outpaced the growth of surrounding counties to date and is projected to continue to do so in the future. Londoners need to be able to access destinations and goods need to move safely and efficiently in a city that will be busier, all while managing a climate emergency.



2.3 London is Simultaneously Urbanizing and Continuing to Suburbanize

The patterns of growth and development in London, like most cities in North America, has changed significantly over the past century. With the popularization of suburbs and personal automobiles, growth began taking place further from London’s centre, expanding the size of the developed land—also known as the “built area”. This growth pattern results in lower population densities and has major implications for how people travel, largely due to increased travel distances.

In London, between 2006 and 2016, approximately 75% of development occurred outside of lands that were already built-up.⁵ To limit the expansion of London’s urban boundary and encourage denser development, in 2016 *The London Plan* set an intensification target of at least 45% of new residential development within the 2016 Built Area Boundary (“Build Area Boundary”) through to 2035 (Exhibit 2.2).⁶

While *The London Plan* calls for context-sensitive intensification throughout the Built Area Boundary, there is an emphasis on intensification in the Downtown, in Transit Villages and at station locations along the Rapid Transit Corridors.⁷ These policy directions indicate that the City aims to urbanize and encourage growth in existing developed areas, while still accommodating suburban greenfield development. More information on *The London Plan* can be found in section 3.1.

⁵ Arcadis analysis of City of London data.

⁶ City of London. (2016) *The London Plan, Section 4: Our City* p.36-38. The Built-Area Boundary is defined generally as the line circumscribing all lands that were substantively built out as of 2016.

⁷ As per *The London Plan* policy number 86.

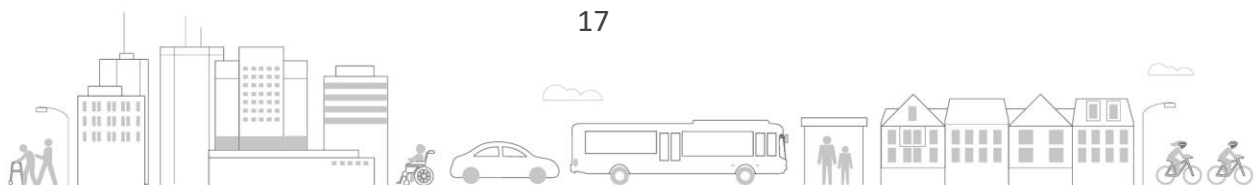
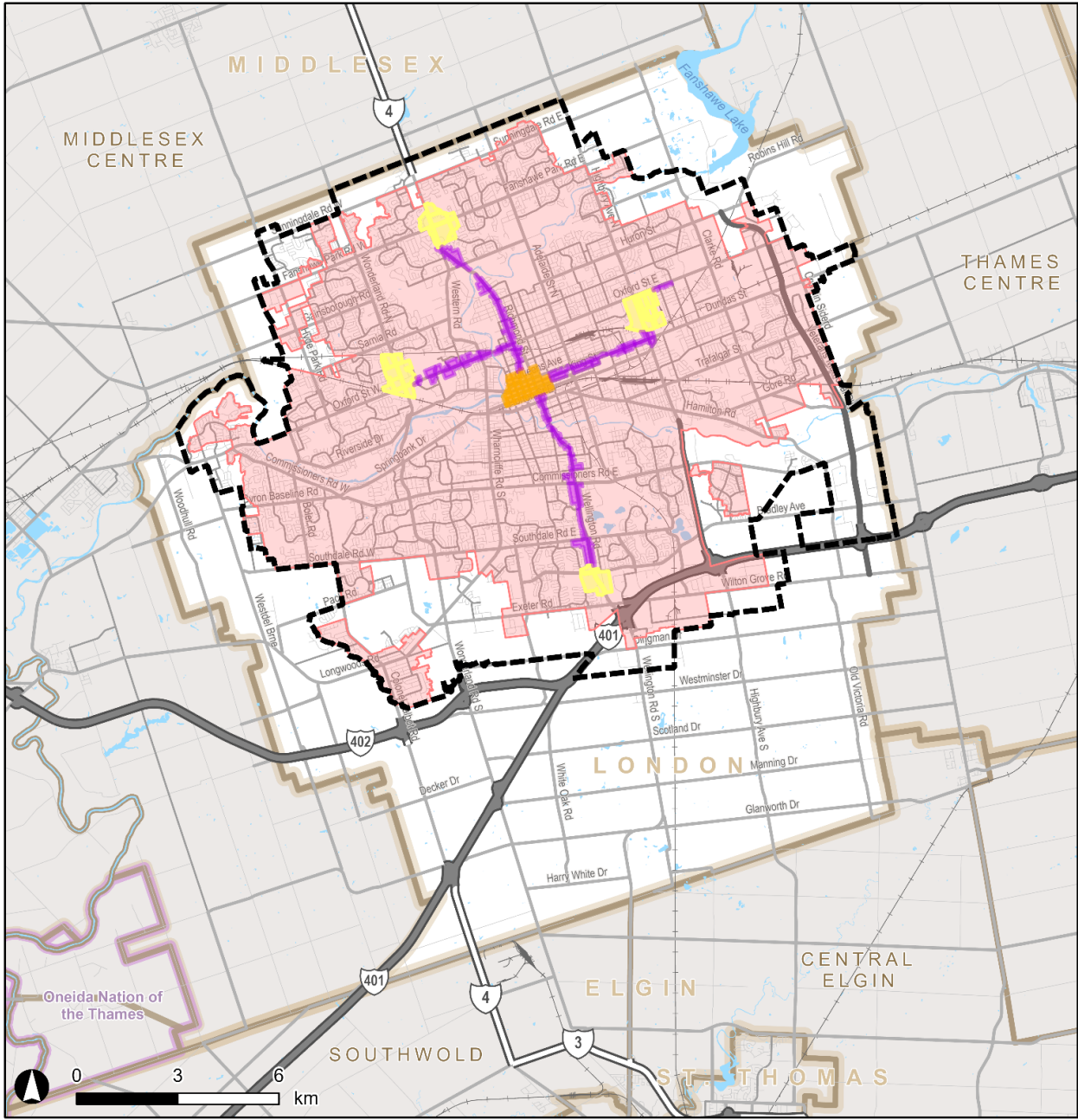


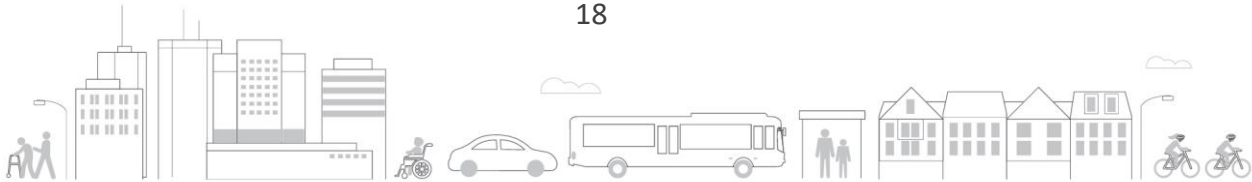
Exhibit 2.2: The London Plan Areas for Growth



Legend

- Built-Area Boundary
- Downtown
- Urban Growth Boundary
- Rapid Transit Corridor
- Transit Village
- Railway
- Provincial Freeway
- Provincial Arterial Highway

Source: City of London



London’s current population and employment distribution is shown in Exhibit 2.4. The anticipated future distribution of population and employment is shown in Exhibit 2.5. These maps present the current and projected population and employment densities according to the level of transit supportiveness as presented in Exhibit 2.3.⁸

Exhibit 2.3: Transit Supportive Densities

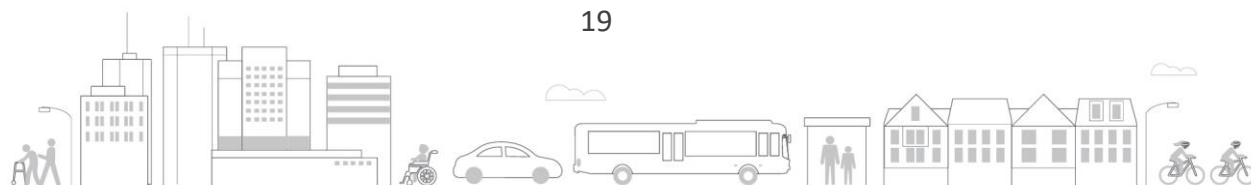
Land Use Type	Density (People and Jobs Per Hectare)	Transit Service Type(s) that these densities are most conducive to
Very High Density	More than 200	Rapid Transit (subway/LRT at headways under 5 min).
High Density Urban	100-200	Very frequent Transit (bus every 5 mins in mixed traffic). Rapid Transit (LRT/BRT in dedicated right-of-way) at higher densities.
Low Density Urban	50-100	Local Transit (bus every 30 mins). Frequent Transit (bus every 10 mins) at higher densities.
High Density Suburban	30-50	Local Transit (bus every 30 mins) in key corridors. Demand-responsive transit at lower densities connecting to hubs.
Low Density Suburban	10-30	Demand responsive transit connecting to hubs.
Very Low Density	Less than 10	No service.

Source: Metrolinx. 2017. Transit Needs and Opportunities – Background Paper for Regional Transportation Plan Review.

Key findings related to London’s current and projected future population and employment density (Exhibit 2.4 and Exhibit 2.5) include:

- The largest concentration of population and employment, both currently and projected to 2050, is Downtown.

⁸ These should be considered as guidelines for future development and should not be taken as required thresholds for certain levels of service. Providing service that exceeds these thresholds is often warranted and beneficial for growing transit ridership.



- Some other dense pockets are also projected particularly along the south, east, north and west Rapid Transit Corridors.
- There is significant population both currently and projected to 2050, in suburban and low-density areas that have less than 50 people and jobs per hectare (conducive to low frequency or on-demand transit).
- There is and will continue to be significant employment in suburban and low-density areas, including along the highway 401 corridor.
- There are limited areas in the projected 2050 population and employment densities that are conducive to frequent or rapid transit with headways of 5 minutes or less (areas with over 100 people and jobs per hectare).

Exhibit 2.6 illustrates London’s growth in population and employment per hectare between 2021 and 2050, normalizing the population growth to the size of the zone. Growth is occurring primarily in Downtown and then in the areas outside the Built Area Boundary, with some intensification also happening along the south, east, north and west Rapid Transit Corridors. This means the density of the existing inner city and suburbs is not projected to change significantly, remaining largely less than 50 people and jobs per hectare which is conducive to low frequency transit.

Higher order transit can be used as a land use planning tool to direct more growth along corridors and in mixed use centres while active mobility infrastructure can also be used to encourage more sustainable mobility for local trips, especially in denser neighbourhoods. Greenfield developments can also be denser to support higher quality transit service that is attractive to more people. Transit oriented development is an effective way of accommodating growth more sustainably while reducing car dependence. Investment in public transit and active mobility and supporting compact growth must be the primary planning focus in order to achieve the MMP vision, as accommodating growth with a focus on expanding road capacity will encourage more car use.

Accommodating growth more compactly could also result in infrastructure and operating cost savings.⁹ Denser development means that infrastructure is required to service a smaller geographic area and thus can be used more efficiently. This would also result in environmental benefits such as decreasing energy consumption, emissions and the consumption of prime agricultural land.

⁹ City of London. (2016) *The London Plan, Section 2: Our Challenge* p.4.

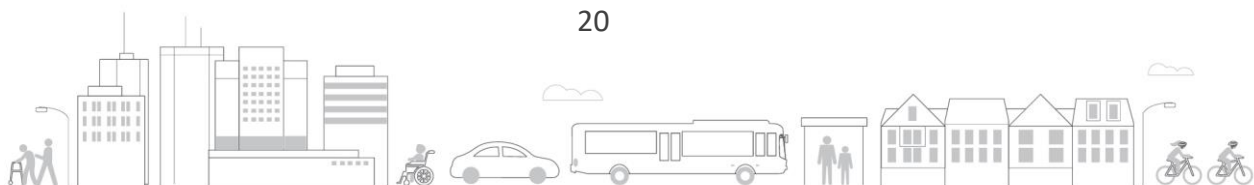
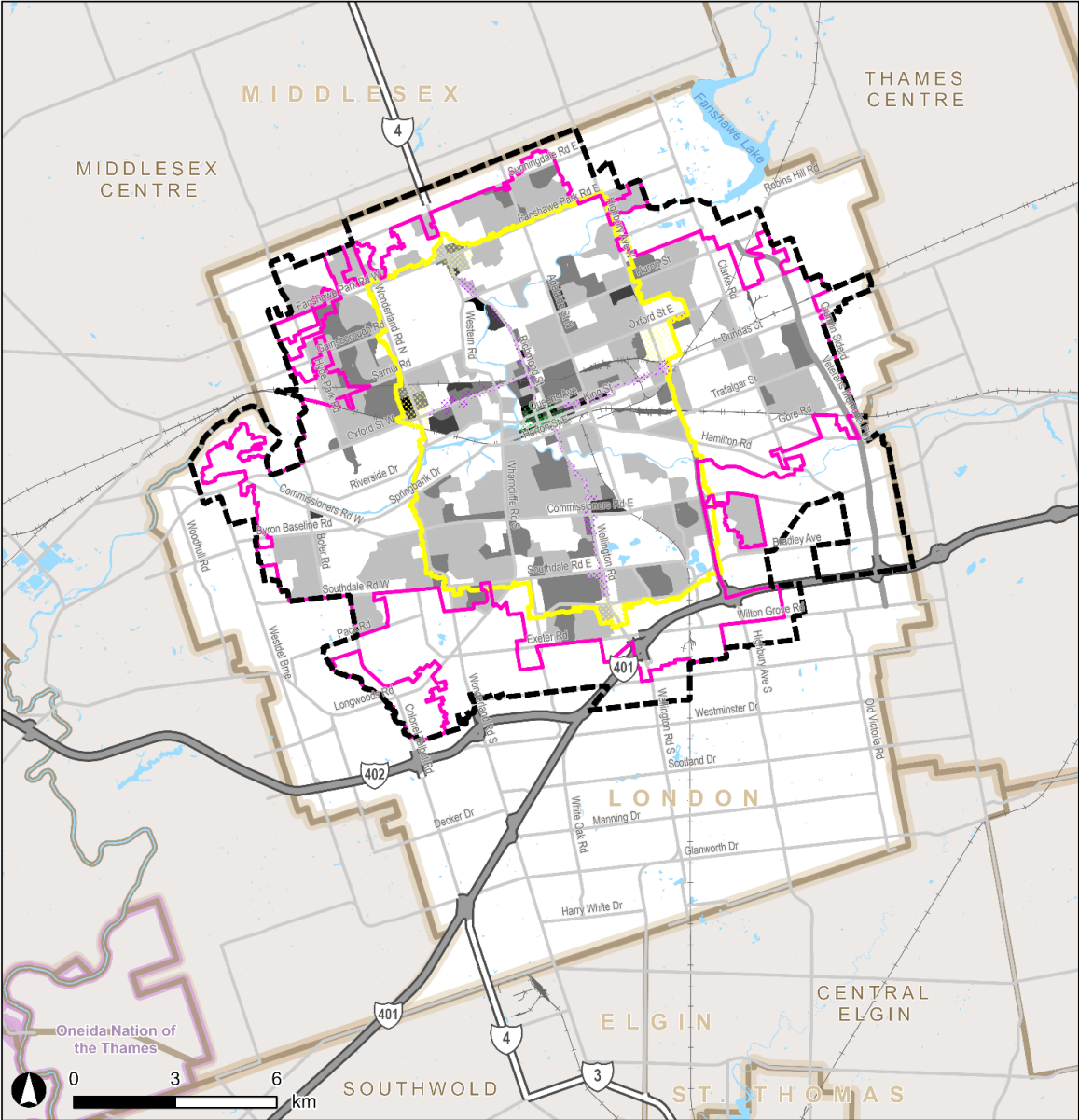


Exhibit 2.4: City of London Population and Employment Density (2021)



Legend

Urban Growth Boundary	Population & Employment Density (2021)
Built Area Boundary	Less than 30 people
Primary Transit Area	30-50 people and jobs per hectare
Downtown	50-100 people and jobs per hectare
Rapid Transit Corridor	100-200 people and jobs per hectare
Transit Village	Over 200 people and jobs per hectare

Source: City of London

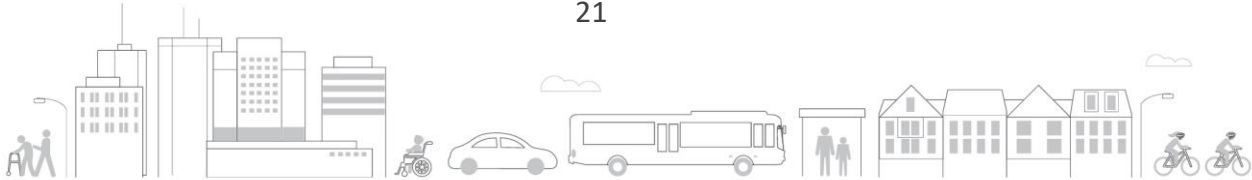
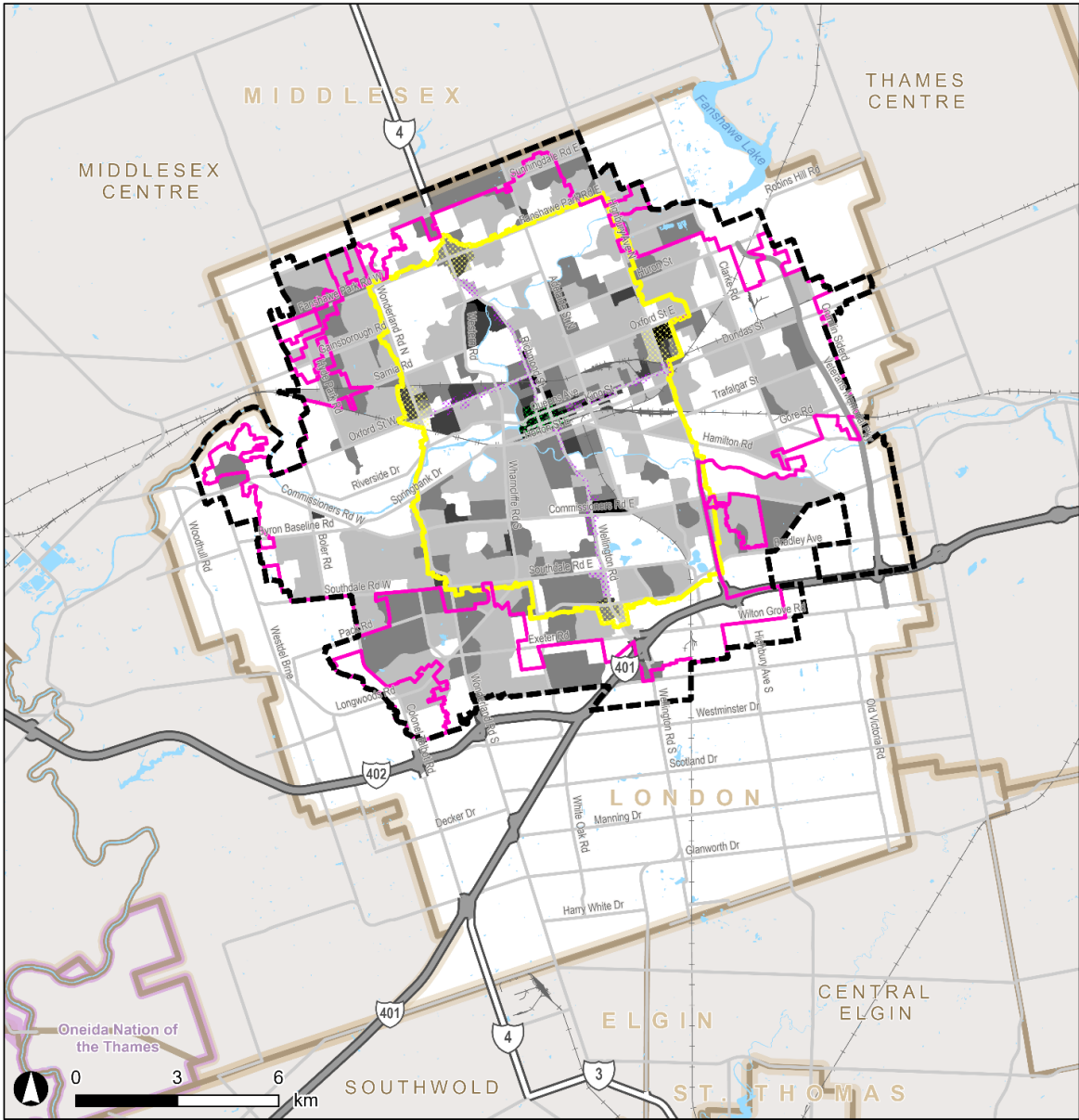


Exhibit 2.5: City of London Projected Population and Employment Density (2050)



Legend

Urban Growth Boundary	Population & Employment Density (2050)
Built Area Boundary	Under 30 people and jobs per hectare
Primary Transit Area	30-50 people and jobs per hectare
Downtown	50-100 people and jobs per hectare
Rapid Transit Corridor	100-200 people and jobs per hectare
Transit Village	Over 200 people jobs per hectare

Source: City of London

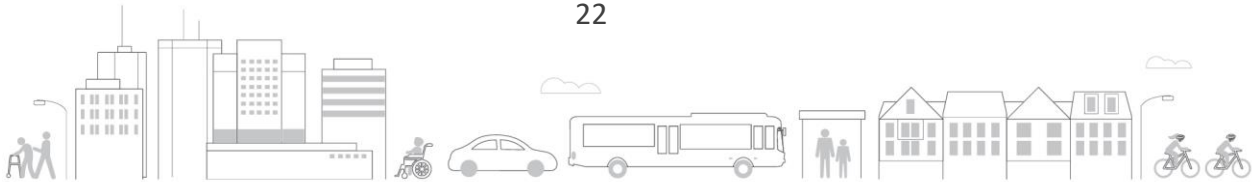
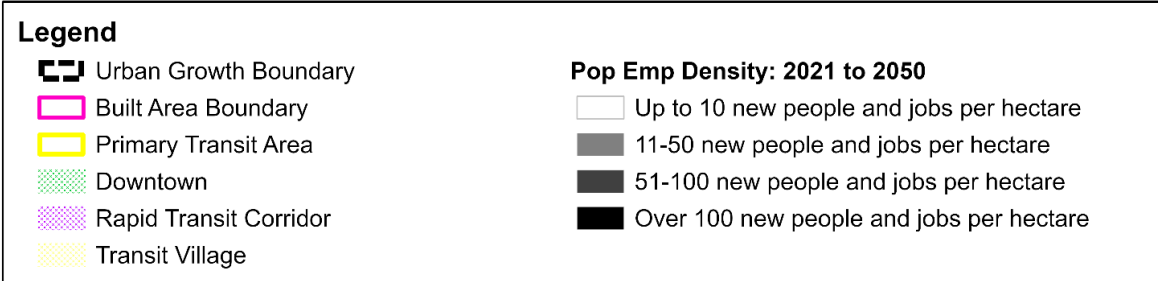
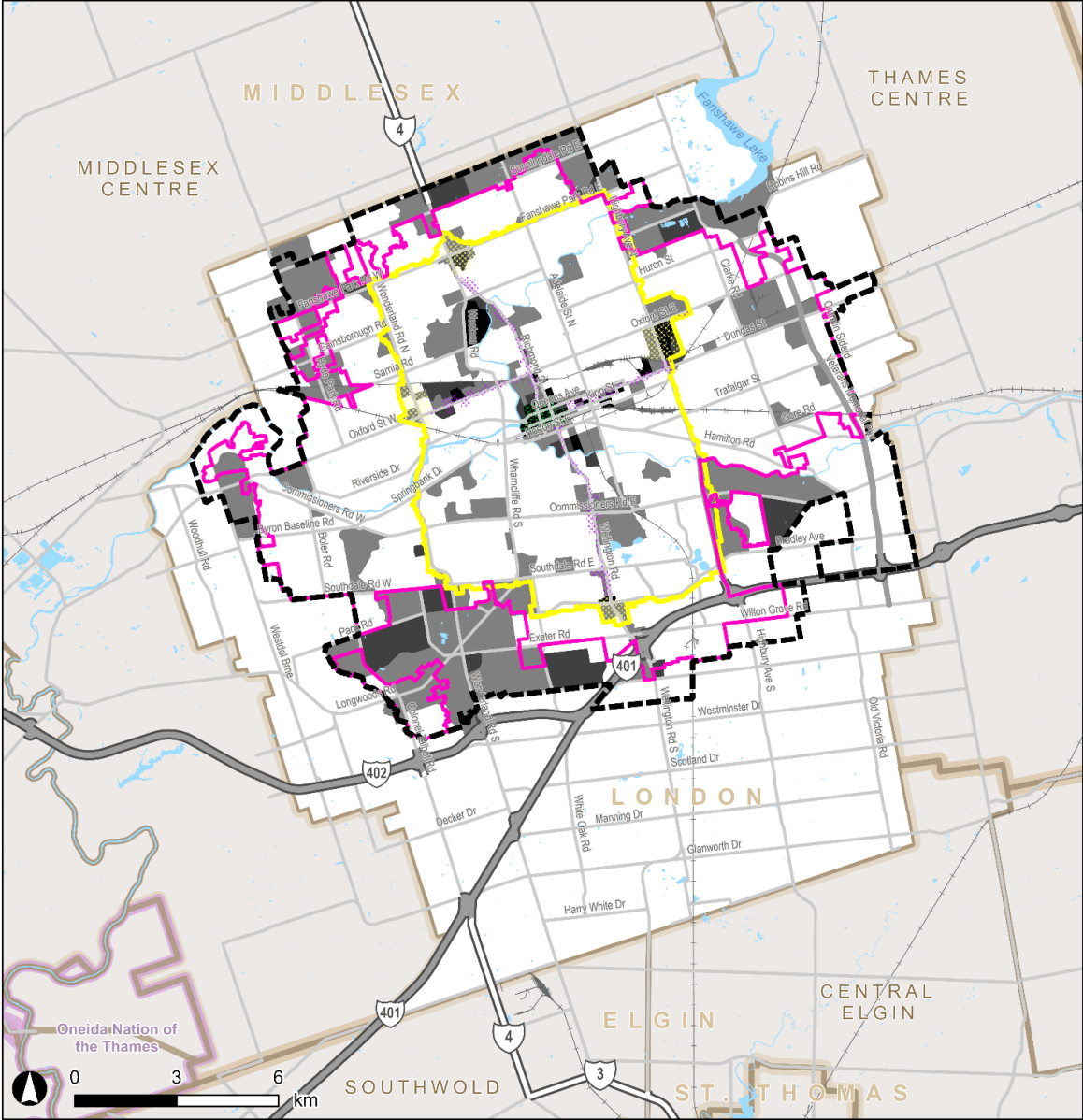
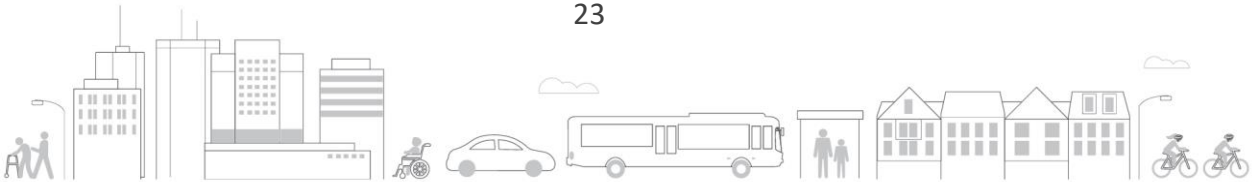


Exhibit 2.6: City of London Population and Employment Growth Density (2021-2050)



Source: City of London



London is simultaneously urbanizing and suburbanizing, with projected growth in Downtown, Transit Villages, along Rapid Transit Corridors as well as low-density areas. While this may present a challenge to increasing walking, cycling and transit, the future transportation network can help direct and manage London’s growth in a sustainable manner.

2.4 London is a Vital Regional Centre

London is a regional hub of vital employment, commercial, academic, social and recreational opportunities, as well as health care and other services that serve residents and attract people from the surrounding region. Key trip attractors include:

- **Post-secondary institutions** are important staples to the economic and social fabric of London. Most notably this includes Western University and Fanshawe College with a combined student population of almost 65,000.
- **Healthcare facilities** including University Hospital, St. Joseph’s Hospital and Victoria Hospital being supported by over one hundred biotechnology, academic and other medical institutions.

London is a single-tier municipality surrounded by Middlesex County and Elgin County as shown in Exhibit 2.7. Surrounding Indigenous communities and other municipalities include:

- The Chippewas of the Thames First Nation
- Oneida Nation of the Thames
- Munsee-Delaware Nation
- City of St. Thomas
- Woodstock
- City of Stratford

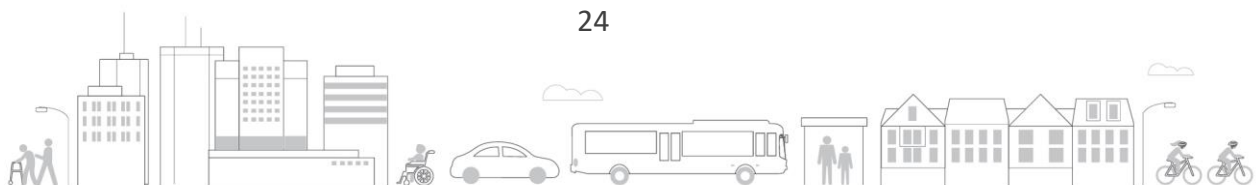
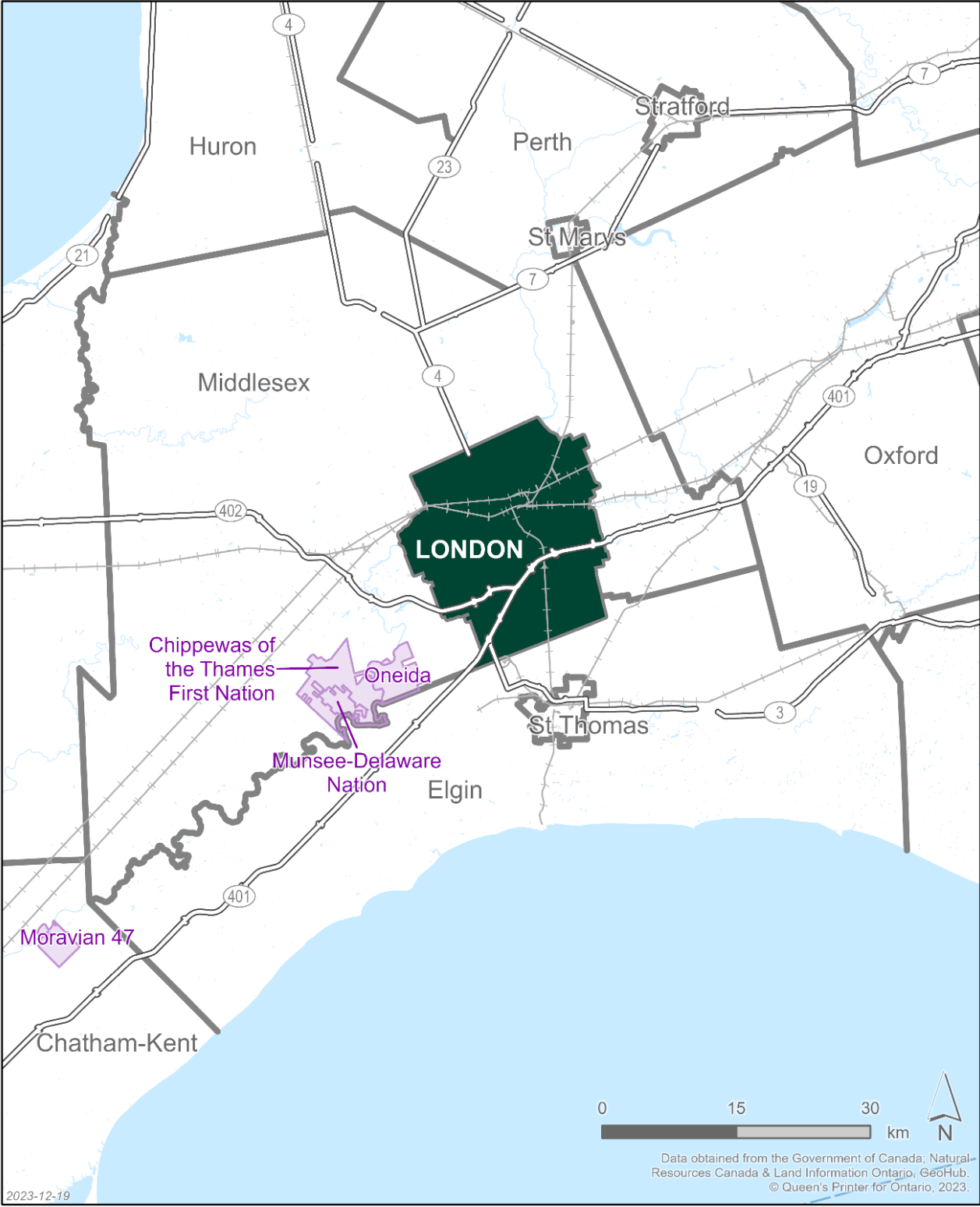
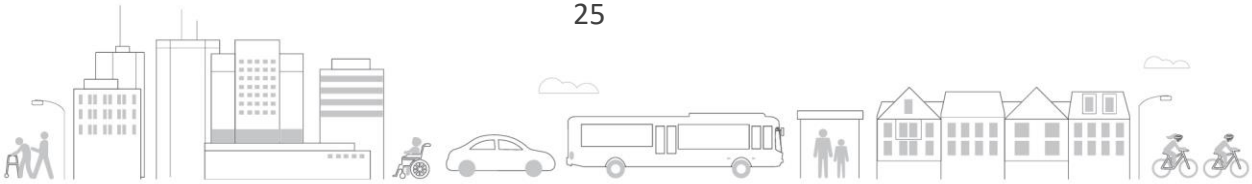


Exhibit 2.7: City of London Regional Context



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London’s location within the regional transportation system aligns with its role as a regional hub. This includes being located along provincial Highways 401 and 402, vital connections for regional, interprovincial and international travel and goods movement. Regional rail (VIA and GO Transit) and inter-municipal bus services help to position London as an important regional transit hub, serving numerous locations. London International Airport also plays a role in long-distance travel flows. **Due to its centralized location and proximity to communities across the region, the Province of Ontario has recognized the unique opportunity to leverage the City of London as a regional transportation hub.**¹⁰ Chapter 6 provides more information on these components of London’s mobility system.

London’s role as a regional hub must incorporate large employment centres such as the Volkswagen EV Battery plant and the Amazon facility emerging south of the city. While these employment areas are not located within London, Londoners are expected to work at these facilities, people from outside London are expected to use London’s mobility services/networks to access these employment areas and goods movement from these facilities is expected to take place on London’s roadways. As such, London’s mobility system will be impacted by and support these regional developments.

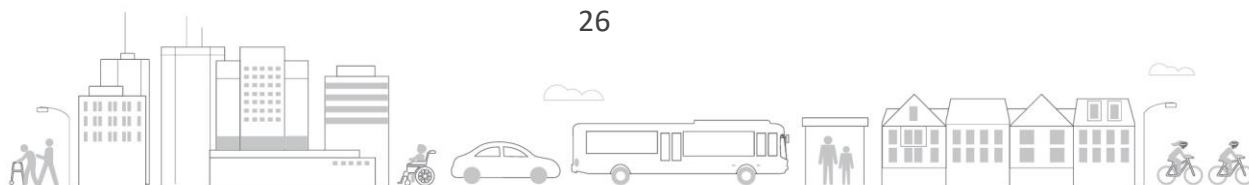
As a major regional hub, London’s mobility system accommodates regional travel demand, connecting people to the valuable services and opportunities throughout London and beyond. Regional trips are predominantly made by cars today and this will continue without the expansion/introduction of other mobility options.

London is a key regional centre for Southwestern Ontario, serving as a hub for education, healthcare, employment, retail, transportation and other services for Indigenous communities and surrounding municipalities . People travelling from outside of London need reliable alternatives to driving if trips to London, which will increase as surrounding communities grow, are going to be made using sustainable modes.

2.5 Immigration and Migration is Driving London’s Population Growth

London’s significant population growth has been driven by a combination of immigration and domestic migration. In 2021, there were nearly 84,000 Londoners who lived in a different city or town in 2016. Of these people, 53% came to London from a different Ontario city or town (intra-provincial domestic

¹⁰ MTO. *Southwestern Ontario transportation task force final report*. Retrieved from <https://www.ontario.ca/page/southwestern-ontario-transportation-task-force-final-report>



migration), while 37% came from outside of Canada (immigration).¹¹ In total, the share of immigrants in London’s population has increased from 21% in 1996¹² to 25% in 2021.¹³ London’s three major post-secondary institutions also help to attract international students, adding to the diversity of the city. The result of consistent immigration over many decades is that London is a culturally rich and diverse community.

London is also home to approximately 20,000 Indigenous Peoples. Research from Our Health Counts London, a community-based research project that gathers missing health information about Urban Indigenous Peoples, indicates that the number of Indigenous adults in London is three to four times higher than estimated by Statistics Canada due to undercounting in the national census.¹⁴

More affordable housing in comparison to Canada’s largest cities is a key contributing factor for both immigration and domestic migration.¹⁵ Combined with the business opportunities, access to healthcare, educational institutions, cultural and faith-based organizations and options for both an urban or quieter rural lifestyle, London attracts people from across Canada and around the world.

There are several considerations for the mobility system as it relates to the diversity present in London. Two key considerations include:

- **Affordability:** Analysis conducted by Child and Youth Network London in a 2020 report found that newcomers (in Canada 0-5 years), recent immigrants (in Canada 6-10 years), visible minorities and Indigenous Peoples in London are more likely to lack income to

¹¹ Statistics Canada (2021). *Census Profile, 2021 Census of Population*.

<<https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=London&GENDERlist=1,2,3&STATISTIClist=1&DGUIDlist=2021A00053539036>> Accessed November 2022.

¹² Statistics Canada (2016). *Selected trend data for London (CY), 1996, 2001 and 2006 censuses..*

<<https://www12.statcan.gc.ca/census-recensement/2006/dp-pd/92-596/P1-2.cfm?Lang=eng&T=CSD&PRCODE=35&GeoCode=39036&GEOLVL=CSD&TID=0>> Accessed December 2022.

¹³ Statistics Canada (2021). *Census Profile, 2021 Census of Population*.

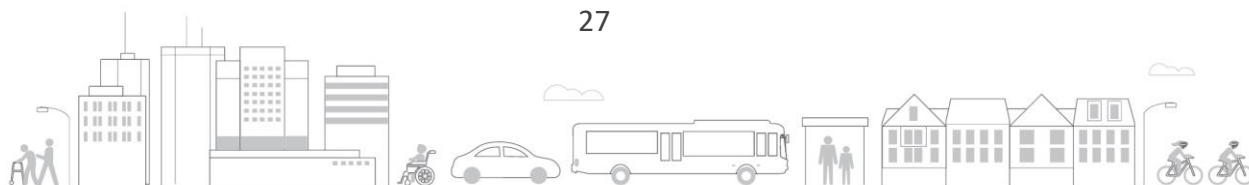
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¹⁴ Our Health Counts London. *Adult Demographics*. <<https://soahac.on.ca/wp-content/uploads/2018/09/OHC-02A-Adult-Demographics-2.pdf>>

Accessed February 2023.

¹⁵ London & Middlesex Local Immigration Partnership (2022). *London and Middlesex County, Ontario: Welcoming Communities and Welcoming Workplaces*.

<<https://london.ca/sites/default/files/2020-11/LMLIP%20Facts%20Immigrant.pdf>> Accessed December 2022.



cover basic expenses compared to the average Londoner.¹⁶ Affordable mobility options are invaluable to provide conditions for everyone to prosper in London.

- **Discrimination:** A study conducted by Western University researchers and the London & Middlesex Local Immigration Partnership¹⁷ reported that 40% of immigrants and visible minorities reported experiencing discrimination in London-Middlesex from 2018-2021 and 16% reported experiencing discrimination while using public transit. This is even higher for Indigenous Peoples, 60% of whom reported experiencing discrimination in London-Middlesex and 25% while using transit. These experiences limit the number of safe mobility options available to immigrants, visible minorities and Indigenous Peoples, impacting their ability to participate in city life.

Domestic and international migration are key drivers of London’s population growth as the city continues to diversify. There is a need for London’s mobility system to be a discrimination-free environment that safely and securely serves Londoners.

2.6 London is Aging

Similar to other Ontario municipalities, London’s population is aging as the “baby boomer” generation enters retirement age. Exhibit 2.8 shows the proportion of London residents aged fifty-five and older between 1996 and 2021. In 1996, approximately 1 in 5 Londoners were aged 55 or older. This rose to approximately 1 in 4 in 2011 and was approaching 1 in 3 in 2021.¹⁸ It is projected that 1 in 3 Londoners will be aged 55 or older by 2035.¹⁹

¹⁶ Child and Youth Network London. *Poverty Trends in London – 2020*. <

<https://www.londoncyn.ca/sites/default/files/2021-02/191218046-COL-Poverty-Trends-Report-EMAIL-WEB.pdf>> Accessed January 2023.

¹⁷ Vaswani, M. Esses, V., London & Middlesex Local Immigration Partnership (2021). *Discrimination Experienced by Immigrants, Visible Minorities, and Indigenous Peoples in London and Middlesex* p. 1, 31-32.

¹⁸ Statistics Canada (2021). *Census Profile, 2021 Census of Population*.

<<https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=London&GENDERlist=1,2,3&STATISTIClist=1&DGUIDlist=2021A00053539036>> Accessed November 2022.

¹⁹ City of London. (2016) *The London Plan, Section 2: Our Challenge* p.4.

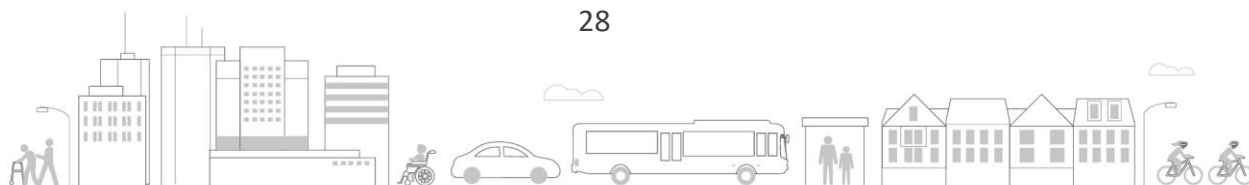
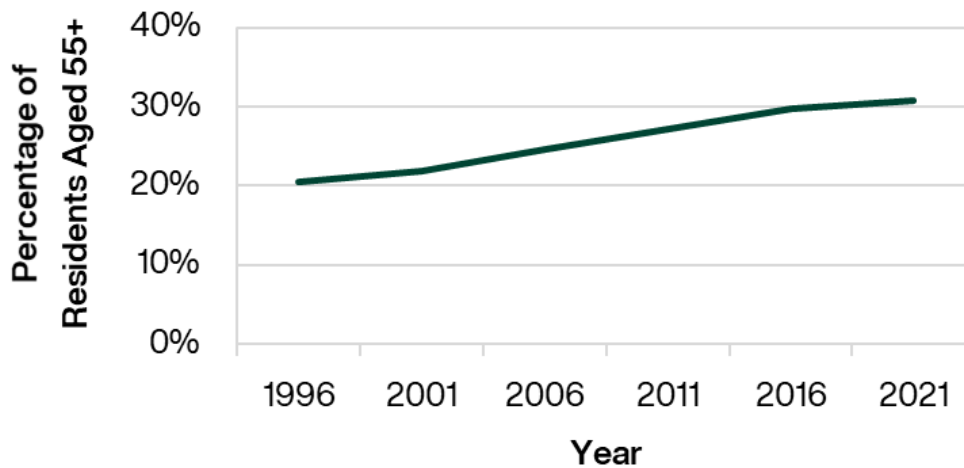


Exhibit 2.8: City of London Proportion of Residents Aged 55+ (1996-2021)



Source: Analysis of data from Statistics Canada (1996-2021); Census Profiles, 1996-2021 Census of Population.

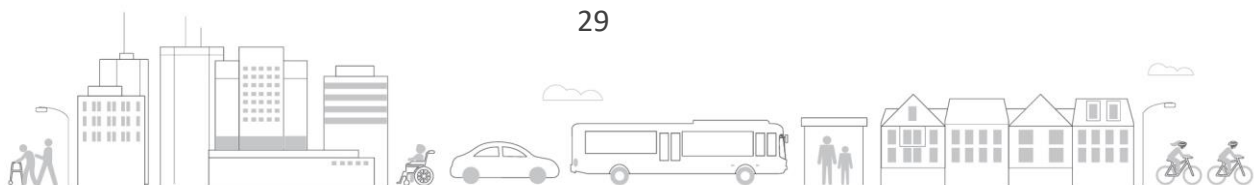
In line with London’s goal to be an age-friendly city, this emphasizes the need for a mobility system accessible to all ages and abilities. As people age, many older adults are no longer able to safely drive themselves and begin to rely on caregivers or other modes of transportation. For people who do not have access to a car or the ability to drive (regardless of age), convenient, safe and reliable active transportation and transit provides the mobility options required to travel within and outside of their neighbourhood to access services, contributing to improved independence and a higher quality of life. In London, about 13% of households currently do not have access to a car.²⁰

Further, analysis conducted by Child and Youth Network London in a 2020 report found that the number of older adults living with low income (below the CFLIM-AT threshold²¹) is increasing in both London and Ontario—in 2018, this included 8.6% of older adults in London.²² This again emphasises the essential role the mobility system has in offering affordable and accessible mobility options.

²⁰ Auto ownership statistic from analysis of London 2016 Household Travel Survey.

²¹ The Census Family Low Income After-Tax Measure (CFLIM-AT) uses census family income from tax filer data to determine low-income status.

²² Child and Youth Network London. *Poverty Trends in London – 2020*. <<https://www.londoncyn.ca/sites/default/files/2021-02/191218046-COL-Poverty-Trends-Report-EMAIL-WEB.pdf>> Accessed January 2023.



The 2016 Age Friendly Impact Assessment community survey indicates that many older adults in London are satisfied with how the mobility system meets their needs:

- 68% of respondents found public transportation physical vehicle accessibility to be “good” or “excellent”.
- 96% of respondents reported that having affordable and safe transportation is a “minor problem” or “not a problem”.
- 75% of respondents indicated that bus stops are accessible in their neighbourhood.

The 2016 survey results showed improvements across all three of these metrics compared to the 2013 survey. It is important for the MMP to build on this work to continue providing accessible mobility options for London’s aging population. It is also necessary to develop a mobility system that attracts and retains Londoners of working age to, among other things, help support London’s economy.

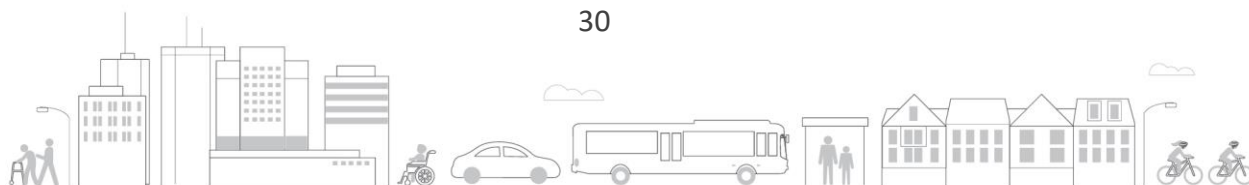
While London’s population is aging, and this is a trend being seen in many cities across Canada, the approximately 60,000 students that attend both Western University and Fanshawe College are not all accounted for in the Census. Post-secondary students have a disproportionate impact on sustainable mobility use in the city and their presence further emphasizes the need to provide mobility options for people of all ages and abilities. London has an aging population, with a growing proportion of residents who are age 55 and older, while also being home to a significant student population. There is a need for London’s mobility system to be accessible to Londoners of all ages and abilities by supporting quality and safe non-car options and enabling sustainable access to more destinations closer to home.

2.7 Affordability is a Growing Concern

The cost of living is increasing. In London, housing prices for new single-detached homes²³ have increased by 122% between 2012 and 2021.²⁴ Exacerbating this issue is the fact that many Londoners struggle to cover basic expenses—according to the 2016 census, nearly 17% of Londoners lived below

²³ This include single-detached absorbed units which have been completed and sold.

²⁴ Watson & Associates Economists Ltd (2022). *Population, Housing and Employment Growth Projection Study, 2021-2051, City of London. Preliminary Draft Report p. 21.*



the “Market Basket Measure” which means not having enough money to pay for basic needs such as food, shelter and clothing.²⁵

In addition to longer-term trends of rising costs in London and Canada more broadly, current conditions in 2022/2023 are creating urgent affordability concerns for many Canadians. In June 2022, the year-over-year rate of inflation in Ontario was recorded at 7.9% representing the highest provincial inflation rate in over thirty years.²⁶ Gas prices have also increased by approximately \$0.30/L between November 2021 and November 2022.²⁷

We Heard That:

With **costs of living rising**, Londoners are looking for **affordable travel options** that effectively meet daily travel needs.

While current trends are likely to stabilize, affordability is a critical issue, and the mobility system has a key role to play. Despite rising prices, Londoners still need to move around the city to access their daily needs and activities. There is a need for London’s mobility system to provide affordable and convenient mobility choices to ensure that all Londoners can access where they need to go, when they need to go. As sustainable mobility options have lower user-cost than operating a personal automobile²⁸, these options have a critical role to play in increasing the affordability of mobility throughout the city.

Annual costs associated with different modes of travel vary significantly:²⁸

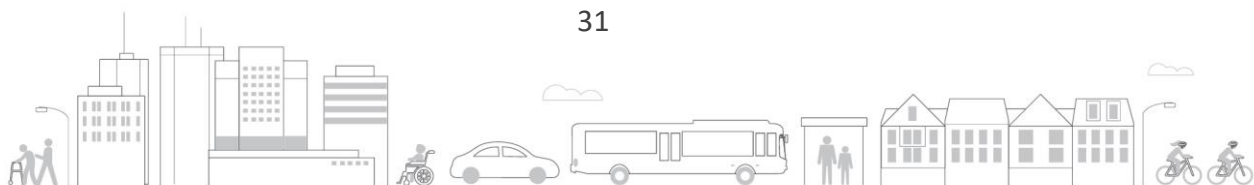
- Compact car: \$9,500/year
- Bus pass: \$1,140/year
- Bicycle: \$300/year

²⁵ London Child and Youth Network. Poverty Trends in London 2020. <https://www.londoncyn.ca/sites/default/files/2021-02/191218046-COL-Poverty-Trends-Report-EMAIL-WEB.pdf> Accessed February 2023.

²⁶ Inflation Calculator (2022). 2022 CPI and Inflation Rates for Ontario. <<https://inflationcalculator.ca/2022-cpi-and-inflation-rates-for-ontario/>>. Accessed November 2022.

²⁷ Canadian Automobile Association (2022). *Gas Prices*. <<https://www.caa.ca/gas-prices/>> Accessed November 2022.

²⁸ Report to Civic Works Committee on Mobility Master Plan 2050 Mode Share Target, October 24, 2023.



Affordability and rising prices are key concerns and can impact people’s mobility choices and therefore their ability to move around the city and beyond. There is a need for London’s mobility system to provide affordable options that enable Londoners to access the places that they need to go and reduce the costly need to own a car.

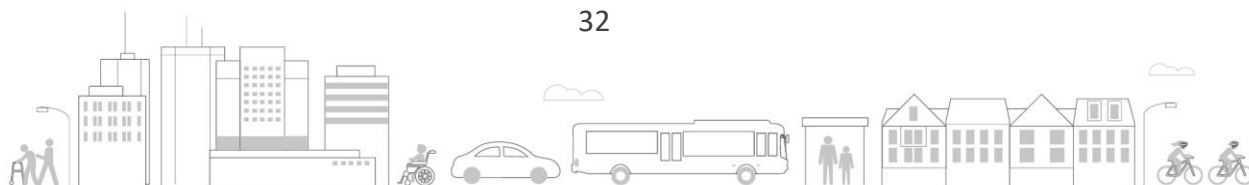
2.8 London’s Economy is Growing and Changing

Major Industries in London

London is a diverse economic hub. According to the London Economic Development Corporation, key sectors include:²⁹

- **Agri-food production** is prominent in London and the surrounding region, with 90+ companies that engage in large-scale meat processing, frozen foods production, and alcoholic beverage production.
- **Manufacturing** is a key sector that represents approximately 12% of all employment in the region. Defense and composite material-based products are key drivers in the manufacturing sector, while automotive, transportation, aerospace, sporting goods, and building product industries are also major contributors.
- **Digital media and technology** are prominent, with rapidly growing technology companies that are involved in information communication technology, software as a service, game development, e-commerce, and financial technology. London is emerging as a technology hub in Southwestern Ontario, with over 350 companies (over 9,000 employees) in the digital media and technology sector.
- **Health and life sciences** span over 100 companies and several hospitals with over 25,000 employees in total, providing biotechnology, pharmaceutical, and medical capabilities. This includes the London Health Sciences Centre as one of Canada’s largest acute-care teaching hospitals.
- **Professional services** in education, government, finance, insurance, accounting, customer service, and more combined with professional associations and 25 research and development institutions make London a regional centre for professional and business services.

²⁹ London Economic Development Corporation (2020). Key Sectors. <<https://www.ledc.com/key-sectors>> Accessed November 2022.



Major Employers In and Beyond London

Many new or expanded industrial facilities have recently opened or are under development. These include a Maple Leaf Foods facility in London, a Volkswagen electric vehicle battery manufacturing plant in St. Thomas, and an Amazon fulfillment centre between the two cities.³⁰ Together, they will hire an expected 7,000 to 8,000 workers, many of whom are likely to reside in London. Currently, there are limited transportation options to access these facilities, pushing employees to commute by personal vehicles and heightening demand along the London to St Thomas corridor.

Projected Job Growth by Sector

Looking to the future, London’s economy is anticipated to continue growing across a range of sectors, strengthening its role as a regional economic hub. Between 2021 and 2051, key trends include:

- **Commercial and institutional categories are anticipated to account for 73% of job growth.**³¹ This includes transportation, wholesale trade, retail, accommodation and food, professional, digital media and technology, and education.
- **Industry is anticipated to comprise 11% of the total anticipated job growth.** Competitively priced industrial lands amidst historically low provincial industrial vacancy rates, combined with London’s location that provides access to major North American markets, are attracting demand to the region for industrial activities.³² This includes expansion of food processing plants as well as new fulfillment centres and processing plants for large international agri-food companies such as Nestle and Maple Leaf Foods.³³

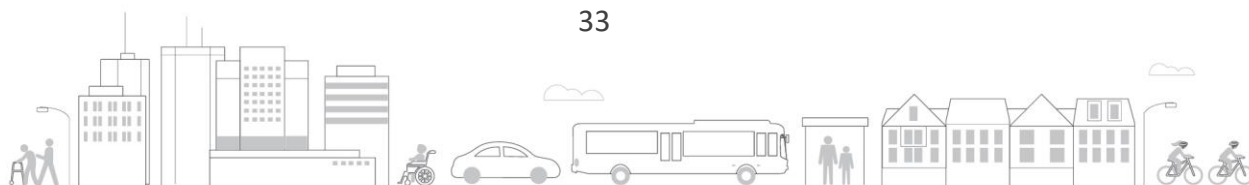
The growth in industrial activity means that London will need to support safe and efficient goods movement to and from industrial locations as well as supporting access to jobs (many of which are outside of central locations and outside of typical office hours). Providing sustainable mobility options

³⁰ City of London (2023). 2023 Industrial Land Development Strategy. <https://33ondon.ca/sites/default/files/2023-09/ILDS_May2023.pdf>

³¹ Watson & Associates Economists Ltd (2022). *Population, Housing and Employment Growth Projection Study, 2021-2051, City of London. Preliminary Draft Report* p. 4.

³² Ibid.

³³ Ontario Chamber of Commerce (2022). *2022 Ontario Economic Report. Ontario Chamber of Commerce. 6th Annual Ontario Economic Report* p. 44.



for workers in all sectors is important for maintaining and furthering a high quality of life, which in turn helps attract and retain workers/employers while providing better mobility options for everyone.

Key Impacts of COVID-19 on London’s Economy

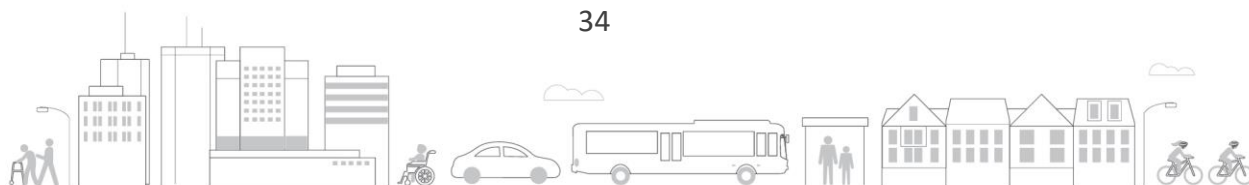
The pandemic and subsequent ongoing recovery has also resulted in the following economic impacts that effect London’s mobility system:

- **Increased demand for e-commerce.** E-commerce takes many forms including traditional package delivery and food delivery services enabled by new business models and smartphone-based apps. E-commerce can create demand for curb space, particularly in denser areas, where drivers often stop within the road right-of-way to make deliveries.
- **London’s commercial vacancy rate increased by 23% between 2020 and 2021.**³⁴ In many cases, local shops, which are typically located on more walkable main streets, have been more susceptible to closure than big box stores which often lack adequate pedestrian and cycle connections.
- **Labour market participation remains a challenge, particularly for women.** The London Community Recovery Network reported that women’s involvement in the workforce is at a 30-year low due to the pandemic with women being more severely impacted by employment losses compared to men.³⁵ Women often have different travel patterns than men, including more discretionary travel during the day and more trip-chaining (travelling to multiple destinations), which speaks to the need for a variety of quality mobility options that provide access to the city throughout the day.

London has a very diverse economy with key sectors that include agri-food production, manufacturing, digital media and technology, health and life sciences and professional services. Significant job growth is anticipated for commercial, institutional and industrial sectors. The COVID-19 pandemic has also resulted in shifting conditions that impact the economy and therefore the mobility system.

³⁴ City of London (2022). *London’s Community Recovery Framework* p. 21.

³⁵ City of London (2022). *London’s Community Recovery Framework* p. 24.



Summary of Key Trends and Challenges

- London has been strategically shifting its approach to planning and mobility with an increased focus on multi-modal travel options and better integrating land use and mobility.
- Contributing to London’s goal of net-zero greenhouse gas emissions (GHGs) by 2050 is a key part of the MMP as mobility-related activities are a major source of GHGs—this will include increasing London's walkability and residents' access to walking, cycling and transit options.
- London is committed to embedding equity in planning practices—this is key for the MMP as mobility is strongly connected to quality of life and people’s ability to prosper.
- A focus on road safety and personal security must inform mobility decisions to contribute to a mobility system that works for everyone.

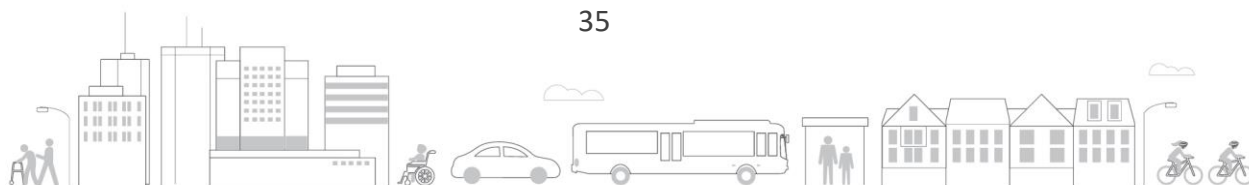
3 The City’s Shifting Planning Focus

With the publication of the City’s former Transportation Master Plan (TMP) in 2013, the City has been making a strategic shift in its approach to planning that is explicitly focused on better coordinating the way that future growth is managed. Whereas London’s growth has historically been based on outward peripheral expansion, a key objective of the former TMP was to orient transportation plans and decision making around the idea that London should grow ‘inward and upward’, fostering more intense growth in existing developed neighbourhoods to support transit and active mobility use and reduce dependency on personal automobiles to move around the city.

London is facing internal and external challenges that span climate threats, a shifting economy, safety concerns, and a rising cost of living, and the City understands that following previous models of urban expansion and meeting travel demand primarily by providing automobile capacity is both financially, environmentally, and socially unsustainable. Today, the City’s planning focus is changing to shape a built environment and a mobility system that are resilient to these challenges and that makes London an attractive place to live.

This chapter describes the overarching policy direction in London that will shape the MMP, based on existing City plans, strategies, guidelines and initiatives.

The MMP has an important role in furthering the City’s planning focus by developing policies that provide specific direction on key mobility planning needs. These policies need to be supported by specific implementation tools. In addition, the effectiveness of policies needs to be tracked with a comprehensive monitoring program, so that policies



can be added/adjusted over the planning horizon of the MMP as needed.

3.1 The City Has a New Plan to Guide and Manage Growth

The London Plan is the City’s Official Plan and provides direction on how to best manage growth. The Plan includes a wide range of strategies, policies and actions that aim to contribute to the creation of vibrant, healthy, safe and fulfilling neighbourhoods, attractive and viable mobility alternatives, and affordable housing.

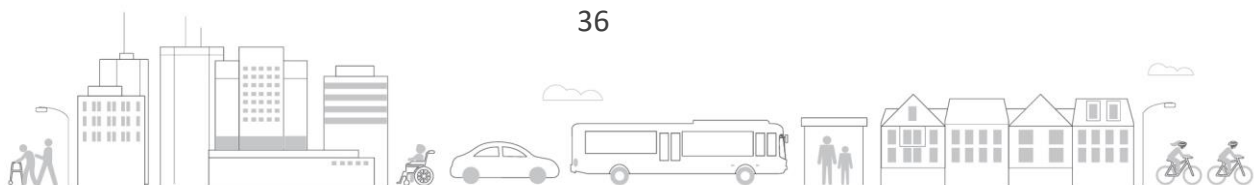
The City also established a vision for its future through *The London Plan* in 2016: **“London 2035: exciting, exceptional, connected.”**

Mobility plays a large role in attaining this vision. As such, mobility is a core focus of *The London Plan*. Specific actions listed in the Plan emphasize the inextricable link between land use and mobility and the need for a comprehensive approach to mobility infrastructure planning to support the efficient, convenient and safe movement of people, goods and services in London. *The London Plan* is defined by eight key directions, each of which are important to consider in shaping the development of the MMP. However, the following four directions explicitly encompass the importance of mobility:

- **Direction 2: Connect London to the surrounding region** by establishing better connections for motorists, transit riders and active transportation users getting to and from London through road, rail, and trail network enhancements.
- **Direction 4: Become one of the greenest cities in Canada** by promoting active mobility, transit and fuel-shifts to cleaner energy sources, taking action on climate change mitigation and adaptation.
- **Direction 5: Build a mixed-use compact city** by fostering strategic and intentional growth that focuses on high-intensity, mixed-use development along Rapid Transit Corridors and by developing more high-quality public spaces that are conducive to pedestrian activity and active transportation.
- **Direction 6: Place a new emphasis on creating attractive mobility choices** by supporting and promoting the uptake of sustainable mobility options, such as walking, cycling and transit , as a core component of safe, affordable and healthy community building.

The London Plan also outlines the City’s growth management plan, called the ‘City Structure Plan’. The City Structure Plan breaks down into five comprehensive Frameworks to guide London’s growth and change over the next 20 years. These include:

- The Growth Framework
- The Green Framework
- The Mobility Framework



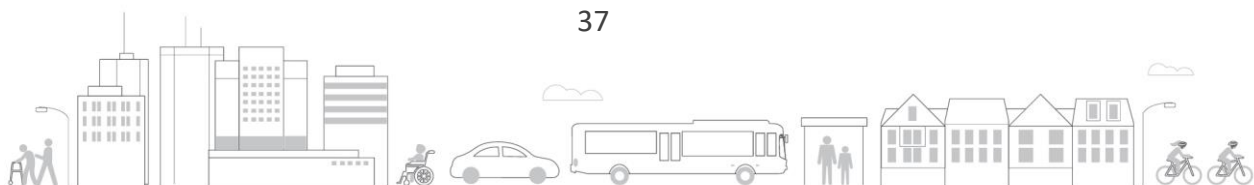
- The Economic Framework
- The Community Framework

Of the five Frameworks, those pertaining to Growth and Mobility are of particular importance to the MMP due to their roles in managing growth and establishing high-level plans to direct the movement of people, goods and services throughout London and beyond.

The **Growth Framework** includes six important growth management components with accompanying policies shown in Exhibit 3.1 and described below:

- The **Urban Growth Boundary** is the boundary outside of which no Urban Place types are permitted.
- The **Built Area Boundary** encircles land that was substantially built out as of 2016. The 45% Built Area Boundary intensification target emphasizes the focus in *The London Plan* to promote ‘inward and upward’ growth, or, intensification, to achieve a compact form of development. Of particular importance to the MMP, the most intense forms of development are directed to the Downtown, Transit Villages and at station locations along the Rapid Transit Corridors, where they can be most effective in meeting the objectives of *The London Plan*.
- The **Primary Transit Area** defined in the City Structure Plan identifies the limit of rapid transit infrastructure to 2035 and is a key focus for residential intensification and transit investment within London. Intensification is planned for the Primary Transit Area and development should be designed to be transit-oriented and well serviced by active transportation and pedestrian-oriented elements.
- **Central London** is bounded by Oxford Street, Adelaide Street and the Thames River. A high standard of urban design, infill development and intensification are promoted within Central London with the aim of supporting high-quality pedestrian, cycling and transit environments.
- Five major centres that include London’s **Downtown, Transit Villages** and **Rapid Transit Corridors** are intended to allow for intense, mixed-use neighbourhoods and business areas with centrally located Rapid Transit Stations. Each centre aims to foster connections to and from transit services, while promoting active forms of mobility.
- The **Rural-Urban Interface** are lands where a Neighbourhoods Place Type abuts both the City’s Urban Growth Boundary and the City’s municipal boundary.

The **Mobility Framework** establishes a high-level plan for moving people, goods and services through London. The Framework is comprised of four main elements, listed below, which outline key goals and functions that each serve.



- The **Rapid Transit Corridors** that make up London’s mobility network connect the Downtown to neighbourhoods, institutions and other employment nodes, centres of culture and commerce, and London’s urban areas.
- The **Rail Network and Airport** component of the Mobility Framework includes London’s freight, passenger and potential future high-speed rail, and the City’s international airport which each play an essential role in connecting London to the surrounding region and numerous cities across Canada and beyond.
- London’s **Street Network** is the backbone for movement in, across and beyond London. The Network is made up of a series of different street classifications outlined in Section 6.1, which together provide mobility corridors for automobiles, transit and active mobility.
- **Regional Mobility Connections** illustrate the important linkages between London and the surrounding region, including natural heritage connections along the Thames Valley Corridor as well as important trail and rail connections.

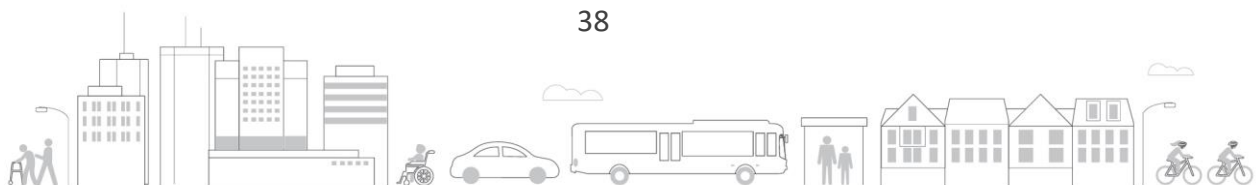
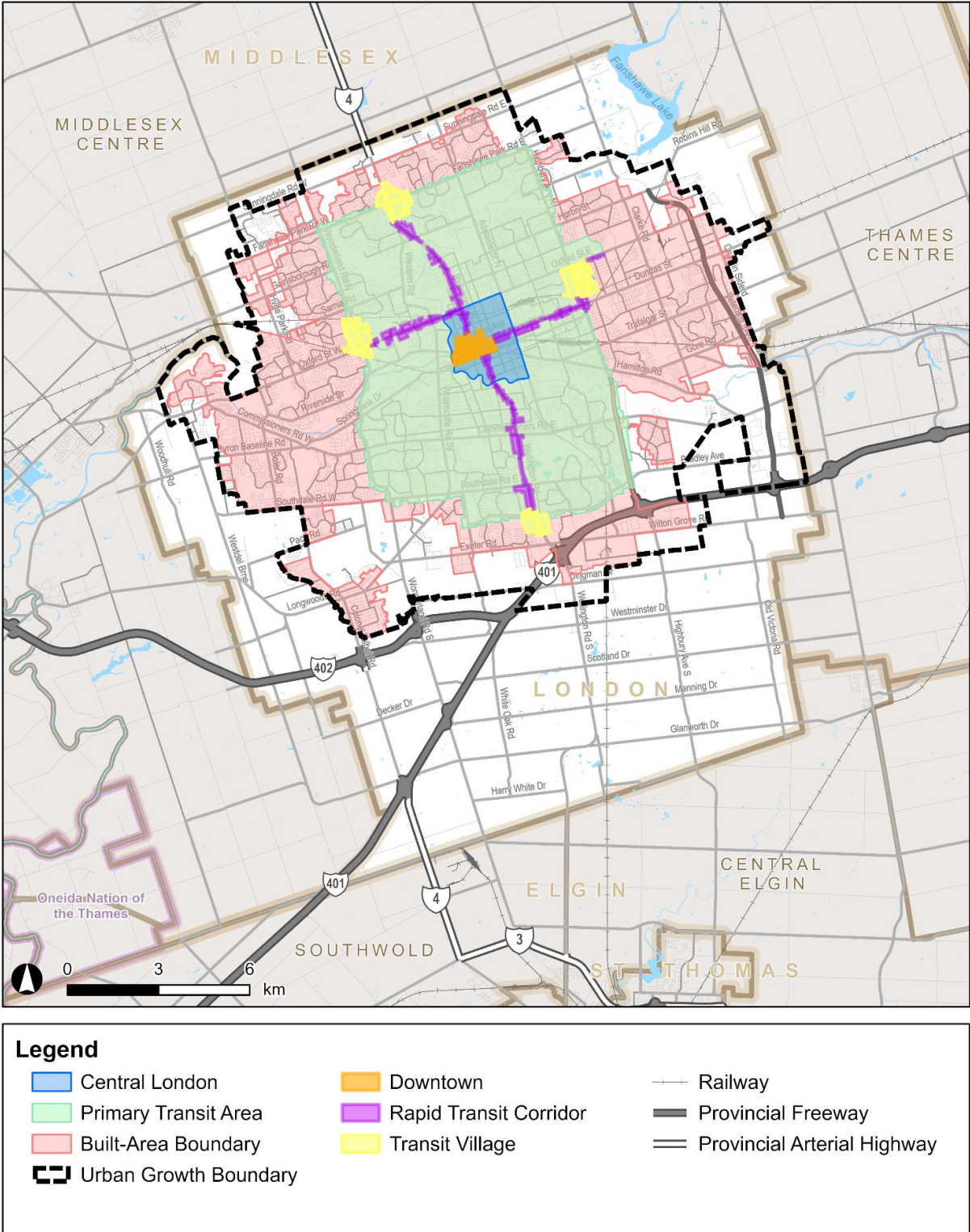
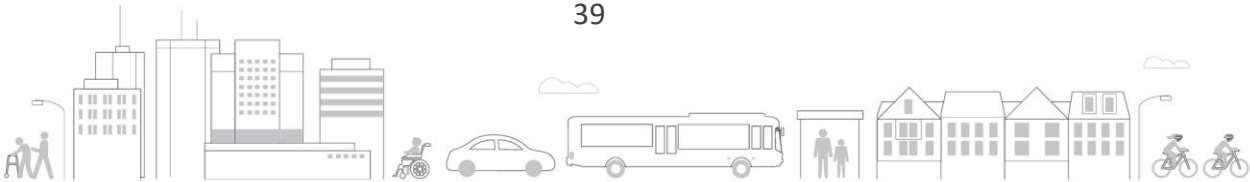


Exhibit 3.1: Components of The London Plan Growth Framework



Source: Arcadis adapted from City of London data.



The London Plan provides direction for a future transportation network that is connected and creates attractive walking, cycling and transit choices. The Growth Framework encourages growth within the Built Area Boundary, particularly Downtown, Transit Villages and at station locations along the Rapid Transit Corridors. The Mobility Framework establishes a high-level plan for people and goods movement that spans Rapid Transit Corridors, the Rail Network and Airport, London’s Street Network and Regional Mobility Connections.

3.2 The City has Committed to Addressing Climate Change

The climate is changing. As a result, London is likely to experience more extreme weather events in the coming decades. This could manifest as heat waves, extreme precipitation events, ice storms, flooding and more. There are large amounts of impervious surfaces on roads and in parking lots in London, increasing the impacts of climate change through the ‘heat island effect’ and stormwater runoff.

Transportation is a major contributor to greenhouse gas emissions (GHGs) which cause climate change. In 2019, personal automobiles produced approximately one third of London’s GHGs, while all activities related to transportation (personal vehicles, freight and fleet and transit and other) produced approximately 45% (Exhibit 3.2).

We Heard That:

Londoners want to move in sustainable ways (like walking, cycling and transit) to **mitigate and adapt to climate change impacts**.

The COVID-19 pandemic significantly reduced the amount of transportation-related energy use (e.g. fuel) in London, which was 20% lower in 2020 than in 2019. This trend has continued over COVID recovery. In 2022, fuel purchases in London were still 15% lower than in 2019. (Source: City of London)

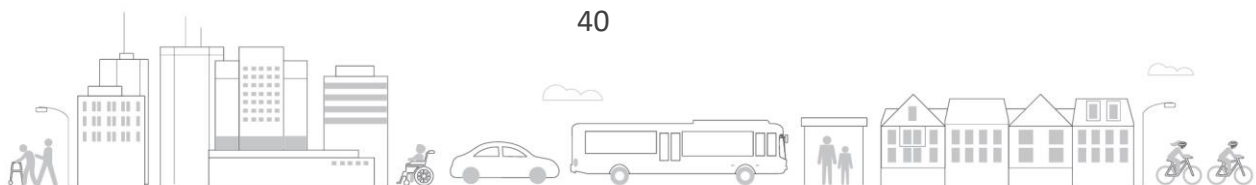
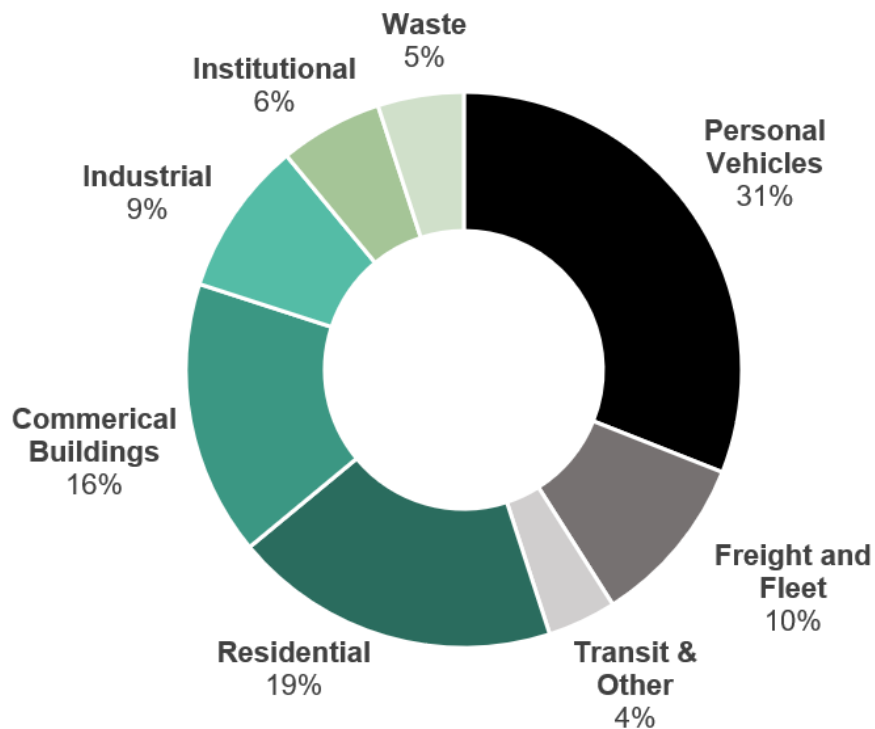


Exhibit 3.2: London’s Greenhouse Gas Emissions (2019)

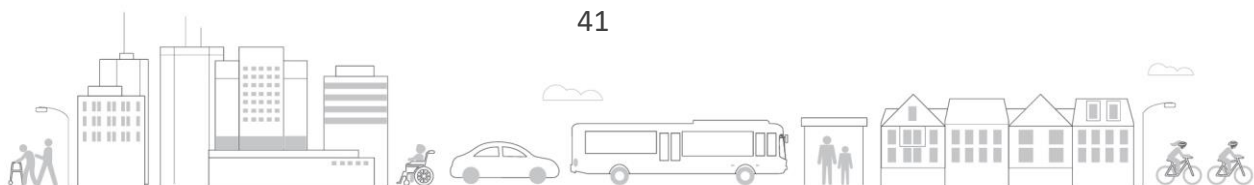


Data Source: 2019 Community Energy and Greenhouse Gas Emissions Inventory.

In 2019, London was one of the first municipalities in Canada to declare a climate emergency. Along with *The London Plan*, the *Climate Emergency Action Plan (2022)* works to guide London’s growth in a manner that prioritizes equitable access to healthy and safe mobility options within a well integrated and environmentally sustainable mobility system.

As part of the *Climate Emergency Action Plan (CEAP)*, the City set a target to achieve net-zero GHGs by 2050, with 2030 as a key community milestone target (55% reduction in total annual city-wide emissions compared to 2005). The *CEAP* outlines actions across many sectors to meet its goals, including numerous mobility and land use related initiatives. For Londoners, these actions mean:

- Promoting the development of compact, mixed-use and complete communities with everyday needs located closer to home.
- Expanding and improving walking and cycling infrastructure.
- Making transit services more convenient and reliable.
- Reducing reliance on personal vehicles.
- Reducing or eliminating fossil fuel use on all modes.

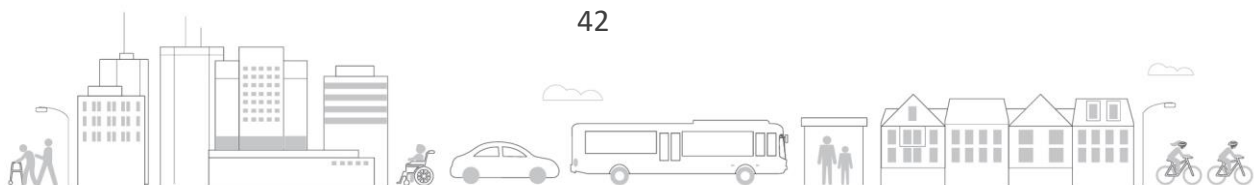


Once London declared the climate emergency, one of the tangible actions undertaken was an initial screening of current and planned major transportation projects using an interim Climate Emergency Screening Tool (CEST) customized for transportation capital projects. The results reaffirmed the City's complete streets principles and endorsed progressing projects that implemented needed infrastructure improvements for all modes. The review resulted in the suspension of two corridor widenings until a greater understanding could be achieved of the multi-modal corridor needs that may influence their geometry. The two projects are:

- The Wonderland Environmental Assessment that considers a six-lane widening of the Wonderland Road corridor from Commissioners to Sarnia Road
- The corridor widening component of the Adelaide Street North Environmental Assessment between Fanshawe Park Road and Sunningdale Road.

Both these locations already have complete streets amenities such as sidewalks, cycling facilities, streetlighting and an urban cross-section. Additionally, widening to address traffic congestion is predicted to experience a return to congestion due to induced demand while negatively impacting the streetscape and the accessibility and connectivity of other modes. These projects will be reviewed as part of the MMP.³⁶

³⁶ Staff Report to Civic Works Committee (August 31, 2021). *Outcome of Climate Lens Screening Applied to Major Transportation Projects*. <<https://pub-london.escribemeetings.com/FileStream.ashx?DocumentId=83392>>. Accessed December 2023.



Transportation is a major contributor to climate change, as transportation-related activities produce approximately 45% of London’s greenhouse gas emissions. The City has declared a climate emergency, implemented the *Climate Emergency Action Plan* and is considering the impact of current and future planned major transportation projects. Mobility plays a key role in the actions of the *CEAP*, including making walking, cycling and transit use the choice for more people for more trips, while decreasing reliance on personal vehicles and fossil fuel use.

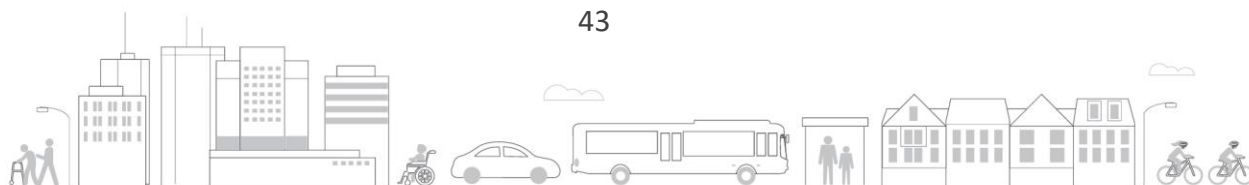
3.3 London has Set the Stage for Economic Change

London has a Plan for Directing Economic Growth

The London Plan includes an Economic Framework to drive economic development over the next twenty years. This comprehensive framework includes:

- **Downtown, Transit Villages, Rapid Transit Corridors and Shopping Areas** will be key mixed-use economic centres that feature high-quality walking, cycling and transit environments. Rapid transit supports mixed-use intensification along corridors, while pedestrian and cycling infrastructure plays a key role in vibrant downtowns and shopping areas.
- **Historical main streets** will feature measured intensification. Connected active mobility infrastructure is a key part of making walkable and cycling-friendly streets in these areas.
- **Institutions** (including educational and health care facilities) are opportunities for economic activity and attracting investment and talent. Since they are high volume trip generators and attractors, public transit connections are critical.
- **Employment lands**, largely clustered around the Highway 401 and Veterans Memorial Parkway corridors, generate significant goods movement traffic. Effective goods movement, including road as well as first and last mile infrastructure, is needed to realize the economic potential of these industrial, commercial and research areas. Employers located in employment lands also need access to workers – this means quality mobility options to connect workers to jobs.
- **Rural London** also has economic and food security importance, as some of the best agricultural land in Canada is located here.³⁷ Mobility also provides access to and connections between rural London and the areas within London’s urban boundary.

³⁷ City of London. (2016) *The London Plan, Section 1: Our Challenge* p.7.



Mobility plays a key role in supporting London’s aspirations to be an economic leader in Ontario. Quality mobility options are critical for attracting both businesses and workers — an attractive city for businesses, talent and investment, is one where residents and goods can efficiently and conveniently move around the city.

3.4 The City Seeks to Improve Equity

The City seeks to create an equitable city that meets “the needs of people of all ages, incomes and abilities, allowing for aging in place and accessibility to amenities, facilities and services”.³⁸ This includes a recognition that there are barriers and systemic practices that disadvantage groups and individuals, leading to inequitable outcomes in London. The City is currently working to increase equity through the *Anti-Racism and Anti-Oppression Framework* which will help the City embed the principles of equity and inclusion in all of its work and initiatives. The City has also participated in several studies and developed frameworks to better understand and address several aspects of equity such as:

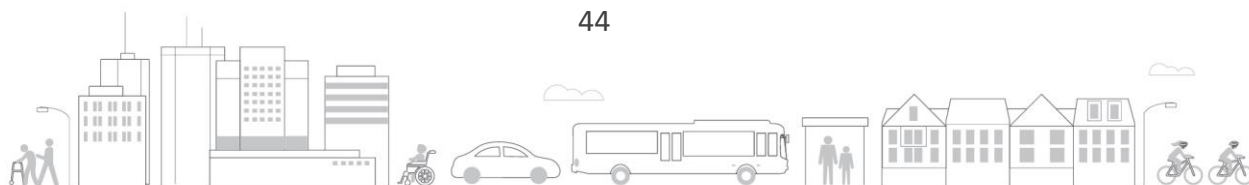
- Safe Cities London Action Plan (2021-2024).
- Age Friendly Impact Assessment (2016).
- Community Diversity and Inclusion Strategy.
- Discrimination Experienced by Immigrants, Visible Minorities, and Indigenous Peoples in London and Middlesex (2021).
- Safe Cities London Scoping Study (2020).

Findings from these studies are included throughout this report.

The Connection Between Equity and Transportation Planning

Equity in transportation planning is intended to help more people access important destinations and activities in London by encouraging equal access for everyone by narrowing disparities and removing barriers. Enabling equal outcomes requires acknowledging that people experience the city and mobility system differently.

³⁸ City of London. (2016) *The London Plan, Section 3: Our Strategy* p.26.



Equity-denied groups are “groups of people who have been historically disadvantaged and underrepresented. These groups include but are not limited to the four designated groups in Canada – women, visible minorities, Aboriginal Peoples, and people with disabilities – and people in the LGBTQ2+ community/people with diverse gender identities and sexual orientations. [Equity-denied] groups identify barriers and unequal access, and actively seek social justice and reparation.”

Adapted from Canadian Centre for Diversity and Inclusion (2022)

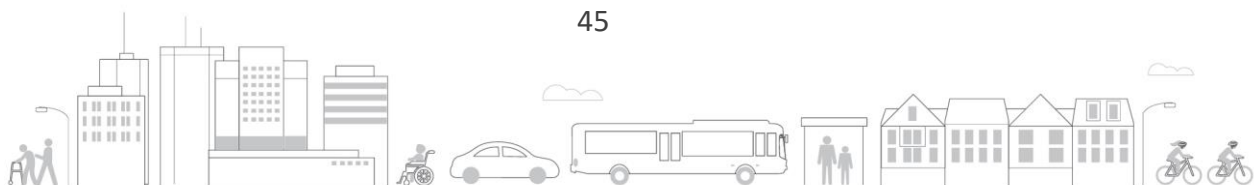
Understanding current inequalities and the needs of equity-denied groups is particularly important for transportation planning as mobility is strongly connected to quality of life. On one hand, the mobility system plays a beneficial role by connecting people to each other and to opportunities, which are key components of prosperity. On the other hand, transportation infrastructure can be unevenly distributed (e.g., high-quality cycling lanes and wide sidewalks located in affluent neighbourhoods with an absence of these facilities in equity-denied neighbourhoods, limiting quality and safe mobility options) and can play a role in creating physical barriers and other negative externalities like noise and air pollution that create community isolation and reduce health and quality of life (e.g. an arterial truck route through an equity-denied neighbourhood contributing to noise and air pollution). It is vital to

consider the powerful role that the mobility system plays in creating an equitable city, particularly when planning for policy, infrastructure and services that will shape London for decades to come.

People can experience barriers to mobility for a number of reasons such as race, gender, ability, age, language, socio-economic status and more. One notable barrier is the cost of transportation which can significantly impact what mode of transportation people use and therefore what opportunities people can access. This was highlighted in London through the 2021 PWC report entitled *Labour Market Participation in the London Economic Region* which identified the need for a personal automobile to access many labour market opportunities in London as impacting low-income residents’ ability to participate in the labour market—this is one of many contributing factors to the London Economic Region having one of the lowest labour market participation rates in Canada. That emphasises why it is vitally important to provide access to a multi-modal range of affordable travel options to contribute to an equitable city.

We Heard That:
Some areas of London are only efficiently accessible by car however, not all Londoners have access to a car—this creates barriers for many Londoners to participate in city life.

The MMP has the opportunity to build upon the City’s foundational work on equity and work to remove systematic barriers to mobility, particularly those facing underserved and equity-denied groups. This will narrow disparities in mobility and promote a mobility system where all Londoners



have access to equal results and benefits. Equitable mobility means that everyone can freely move around London to meet their needs, regardless of their income, physical ability, gender, age, racial identification, sexual orientation, or any other aspect of their identities.

An equitable London is an environment where everyone can easily get to where they need to go, when they need to go.

Understanding the needs of equity-denied populations is vital for transportation planning as mobility is strongly connected to quality of life. To achieve a more equitable city, the City is actively working to create a mobility system that provides quality access to opportunities for everyone.

3.5 The City is Fostering the Development of Complete Streets

In 2018, the City prepared its *Complete Streets Design Manual* to serve as a tool to guide the way that streets are designed in London and align street network improvements with the objectives of *The London Plan*. Complete Streets is a planning approach that plans, designs, operates, and maintains streets with the safety and needs of all road users as a central focus to provide safe travel options for people of all ages and abilities. The *Complete Streets Design Manual* is being implemented to provide streets which are designed to be safe for everyone including pedestrians, cyclists, transit users, automobiles and goods movement, and to include green infrastructure and low impact design features.³⁹

We Heard That:

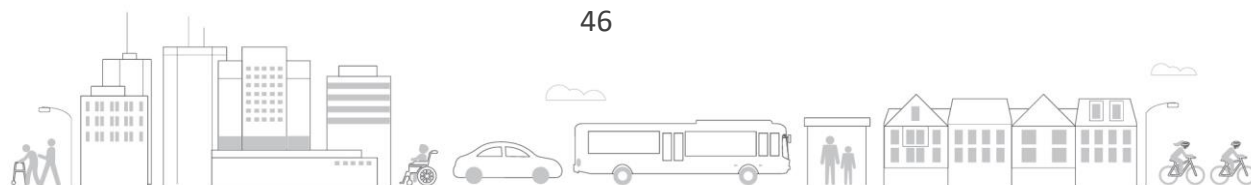
Londoners want to **walk, roll, cycle,** and take **transit** for more trips but are discouraged from doing so due to a lack of infrastructure.

Reducing reliance on personal automobiles for mobility will be of key importance in achieving several city building goals including the GHG emissions reduction targets of the *CEAP*. The adoption of Complete Streets principles is an essential step towards this, helping to align the physical design of streets with London’s new era of rapid transit and city building as directed in *The London Plan*.

The following key policy priority areas listed in the *Complete Streets Design Manual* provide the foundation for the City’s Complete Streets philosophy and will be of key consideration for the MMP in recommending infrastructure improvements:

- **Integrate complete streets design principles into the decision-making process** – All users and functions of a street should be considered whenever a street is constructed, reconstructed or rehabilitated.

³⁹ City of London. (2018). *London Complete Streets Design Manual*.



- **Consider all users and functions of a street** – Design streets for pedestrians, cyclists, transit riders, motorists, maintenance vehicles, goods movement and Emergency Medical Services, in addition to accommodating placemaking objectives. Multi-modal level of service indicators can be used to assess existing conditions and establish goals for all users and functions.
- **Strive for Vision Zero** – Use an evidence-based decision-making framework to assess, guide and improve traffic safety.
- **Create pedestrian-friendly environments** – Create neighbourhoods where residents are readily able to reach essential destinations by designing streets with sufficiently wide pedestrian clearways, frequent crossing opportunities, accessibility features, and various public realm amenities.
- **Coordinate built form decisions with transportation decisions** – The planning and design of streets aims to incorporate and be responsive to the appropriate use, intensity and form along each street classification, as set out in *The London Plan*.
- **Engage residents and other interested parties in the Complete Streets process** – The City will inform and engage residents and other interested parties on the multi-faceted nature of street design to coordinate design efforts and reflect the priorities of Londoners in the City’s Complete Streets vision.

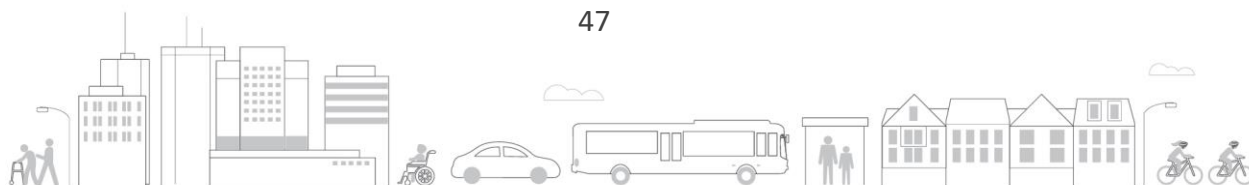
Fostering the development of Complete Streets in London is an important priority for street network enhancements in the city. Following the guidelines outlined in the *Complete Streets Design Manual*, the City’s goal is to make the street network safer and more pedestrian friendly by encompassing all the functions of a street, and the needs of all road users in the creation of new streets, or the rehabilitation of existing ones.

3.6 The City Continues to Prioritize Road Safety

Road safety for all residents and visitors is a key area of focus for the City. In 2017 the City adopted the following Vision Zero principles to work towards eliminating traffic deaths and injuries caused by vehicle crashes while creating a safe and accessible environment for all:

- No loss of life is acceptable.
- Traffic fatalities and serious injuries are preventable.
- We all make mistakes.
- We are physically vulnerable when involved in automobile collisions.

We Heard That:
 Londoners are **concerned for their safety** when walking along, crossing and riding bikes on busy streets.



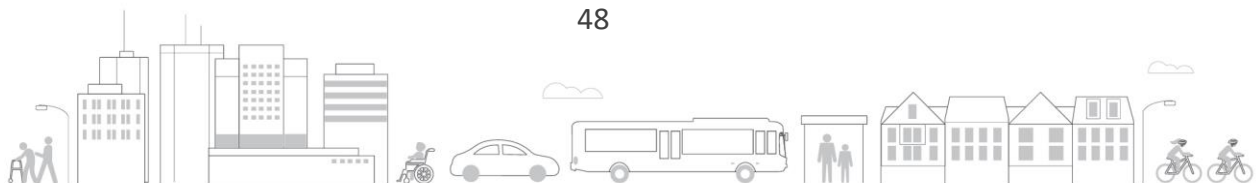
- Eliminating fatalities and serious injuries is a shared responsibility between road users and those who design and maintain our roadways.

Beyond the Vision Zero commitment, the City is actively working to improve road safety through the following policies and initiatives:

- **The London Plan** emphasizes attractive mobility choices that support safe, affordable and healthy communities. This includes the safe movement of people, goods and services throughout the city.
- **Red light cameras** were implemented in 2017 to help reduce collisions at intersections, and there are currently 10 red light cameras throughout London and Municipal Council has approved the addition of up to 10 more.
- **A pedestrian crossover program** was implemented in 2016 to improve pedestrian safety while crossing roads. Today, there are 199 pedestrian crossovers with plans to install another 27 in 2023.
- **The traffic calming policy** was updated in 2019 to pre-approve school zones for traffic calming. Currently 53 out of 101 elementary schools have speed cushions.
- **Area speed limit policies** were introduced in 2020, and approximately 80% of the neighbourhoods in London today have reduced speed limits of 40 km/hr. The remainder are scheduled to be completed in spring 2024.
- **Mind the Green** is a program that involves painting some bike lanes green as a way to enhance visibility and increase cyclist safety. Areas where potential conflicts between cyclists and motorists are more likely, such as driveway entrances, crosswalks and right turn lanes have been targeted.⁴⁰
- **Automated speed enforcement** is used in London to encourage compliance with speed limits and reduce speeding-associated collisions. Today, there are two automated speed enforcement cameras being rotated through school zones throughout London and Municipal Council has approved the addition of up to five more.

Road safety, equity (section 3.4), complete streets (section 3.5) and personal security (section 3.7) are key elements of a mobility system that prioritizes public health by improving air quality, and enabling physical activity.

⁴⁰ City of London (n.d.). *Road Safety: Mind the Green program webpage*. <<https://london.ca/living-london/roads-sidewalks-transportation/road-safety/mind-green>> Accessed December 2022.



- **Respect the Limit:** to reduce speeding in residential areas, Londoners can obtain a “Respect the Limit” sign to place on their front lawn.⁴¹
- **Connected and Autonomous Vehicle Plan** includes road safety and security actions specific to these technologies, including emergency vehicle response and safety-related data availability.

The City is actively working to prioritize road safety and reduce collisions through various policies and initiatives. Vision zero principles are a key part of road safety as the City works towards eliminating traffic deaths and injuries caused by vehicles. There is a need for the MMP to build on this existing work to further improve road safety for all users, including pedestrians and cyclists. This is a part of an overall Complete Streets approach that safely balances the needs of all users.

3.7 The City is Committed to Improving Personal Security

Personal security in the context of the MMP refers to people’s experience and/or fear of crime, discrimination and/or harassment while travelling throughout the city (e.g. on the bus, walking on the sidewalk, driving in a car, etc.). This is important for everyone in London however evidence shows that people in equity-denied groups are significantly more susceptible to these personal security threats than people who are not members of these groups.^{42,43}

Transit security in London is a key issue for many equity-denied groups including but not limited to 2SLGBTQ+ individuals, Indigenous Peoples, immigrants, visible minorities, and women. This includes security in transit, security while getting to transit and security impacted by a lack of transit. As described in Section 2.5, research conducted in London-Middlesex on experiences of discrimination found that approximately six out of ten Indigenous Peoples experienced discrimination between 2019-2021 based on factors such as skin colour, Indigenous identity, and culture and approximately four out of ten immigrants and visible minorities

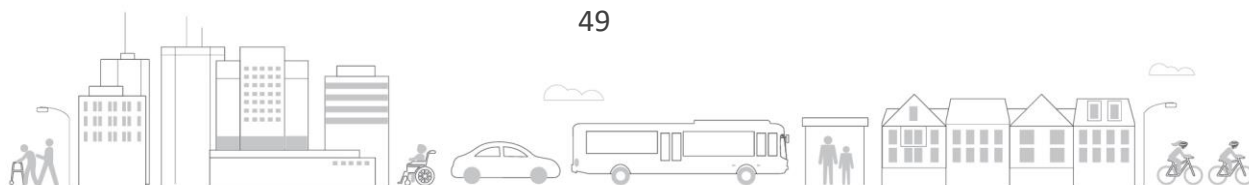
We Heard That:

Londoners have reported **feeling unsafe and experiencing discrimination** while on transit, in Central London and walking at night in areas with limited lighting.

⁴¹ City of London (n.d.). *Road Safety: Respect the Limit webpage*. <<https://london.ca/living-london/roads-sidewalks-transportation/road-safety/respect-limit#:~:text=Getting%20a%20Respect%20the%20Limit,by%20residents%20at%20City%20Hall>> Accessed December 2022.

⁴² Esses, M., & Vaswani, M (2021). *Discrimination Experienced by Immigrants, Visible Minorities, and Indigenous Peoples in London and Middlesex* p. 1.

⁴³ Anova, City of London (2021). *Safe Cities London Action Plan* p. 5.



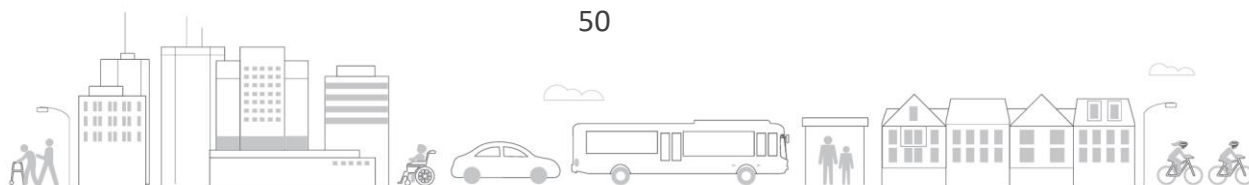
reported experiencing discrimination in London-Middlesex in the same time period.⁴⁴ These experiences limit the number of safe mobility options available to equity-denied individuals, impacting their ability to participate in city life.

The City currently has several policies and commitments to address personal security and is continuing to build on this. Policies and commitments so far include:

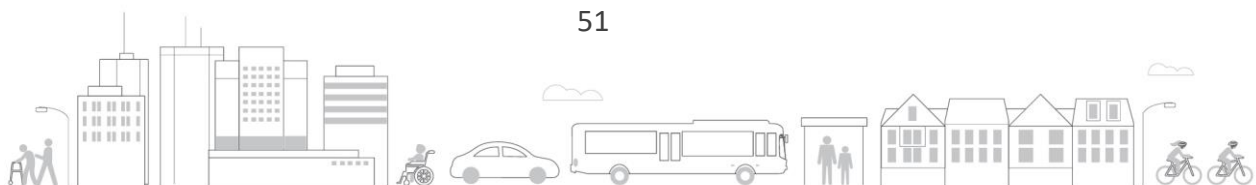
- The City’s **Anti-Racism and Anti-Oppression Policy** aims to ensure that all citizens have the right to live, work, receive services and participate in civic life free of discrimination and harassment on the basis of race.
- The **2019-2023 Strategic Plan for the City of London** identifies five strategic areas of focus, including “creating a safe London for women and girls”. The strategy includes a range of actions aimed at decreasing male violence against women and girls to advance the potential for more women and girls to live safe lives.
- The City’s commitment to support the **United Nations Women Safe Cities Initiative** as approximately one in three Canadian women report experiencing sexual assault.⁴⁵
- Further, the **Safe Cities London Action Plan: 2021-2024** outlines a call to action and a strategic framework that includes the following vision: “London is a safe city where women, girls, nonbinary and trans individuals, and survivors access public spaces and participate in public life without fear or experience of sexual violence”. The document outlines three areas of focus: social norms, policy and practice and collaboration.
- The **Core Area Action Plan (2019)** recognizes that people feel unsafe in the Core Area due to conditions such as frequent and increasing unpredictable and threatening behaviour and openly evident criminal activity. Several actions are put forward to make people feel safer in the Core Area—these challenges are complex and efforts to address them are ongoing.

⁴⁴ Esses, M., & Vaswani, M (2021). *Discrimination Experienced by Immigrants, Visible Minorities, and Indigenous Peoples in London and Middlesex* p. 1.

⁴⁵ Canadian Women’s Foundation (2022). *The Facts About Sexual Assault and Harassment* <https://canadianwomen.org/the-facts/sexual-assault-harassment/> Accessed December 2022.



The City is actively working to improve personal security with a specific focus on equity-denied groups through numerous plans, strategies and policies. This is notable for the MMP as mobility brings people into public where they are more likely to experience personal security threats—this is unacceptable and is likely to impact people’s experience using sustainable mobility options (like walking, cycling and transit) as they involve moving through public space more so than when in personal automobiles. There is further opportunity to improve personal security in transit and transportation for all Londoners through policies and actions developed as part of the MMP.



Summary of Key Trends and Challenges

- To accommodate the projected population growth, London will need to optimize the use of space allocated to mobility—this will involve increasing the use of walking, cycling and transit.
- The MMP will be guided by the mobility vision that aims to establish a mobility system that is safer, greener, faster and more affordable for Londoners.
- Five interconnected guiding principles provide a framework to guide the MMP and London's future mobility system, including the need for mobility decisions to be: Environmentally Sustainable, Financially Sustainable, Equitable, Healthy and Safe, and Integrated, Connected and Efficient.

4 Reimagining London

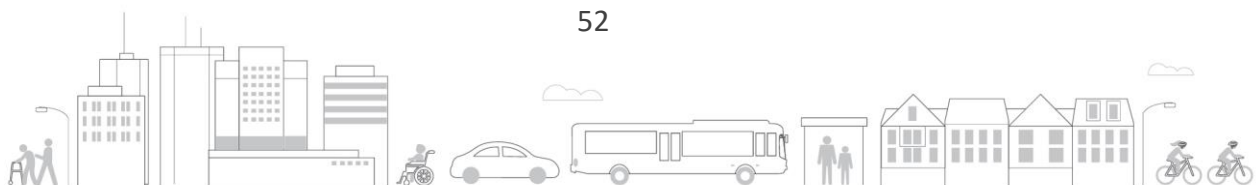
London is experiencing a period of rapid growth that is also happening amid significant change and uncertainty in the broader economic, environmental and social context.

As laid out in *The London Plan*, there is a lot at stake in the way that mobility is managed over the next 20 years. The implications of today’s trends and challenges provides the opportunity to reimagine how best to enhance the mobility of London residents, as guided by *The London Plan*. London’s mobility system is a foundational part of city-building and will play a key role in shaping the experience of living in, doing business in, and visiting the city.

This chapter outlines the mobility vision and guiding principles, developed for the MMP as a part of the foundation for reimagining the mobility system. Recommendations made throughout the MMP Study will work toward achieving the mobility vision for London, in line with the guiding principles.

4.1 London’s Vision for the Future of Mobility

The mobility vision for London was developed to help direct the MMP Study. It articulates the desired future state of London as it relates to mobility. London's future mobility system will be guided by the mobility vision and community input with the aim to contribute to the overarching objectives of both *The London Plan* and the *Climate Emergency Action Plan*.



The MMP will work towards a future defined by the following mobility vision:

By 2050, Londoners of all identities, abilities and means will have viable mobility options to allow them to move throughout the city safely and efficiently, as well as providing connectivity to the region. The movement of people and goods will be environmentally sustainable, affordable, and supportive of economic growth and development.

At its core, the mobility vision is one that aims to establish a mobility system for London that is safer, greener, faster and more affordable for Londoners, providing greater choice in accessing the city.

4.2 Guiding Principles to Achieve the Mobility Vision

The mobility vision is underpinned by five interconnected guiding principles that are associated with the priorities outlined in the mobility vision. These principles provide a clear framework for evaluating projects and informing mobility solutions in later phases of the MMP Study. The guiding principles are:



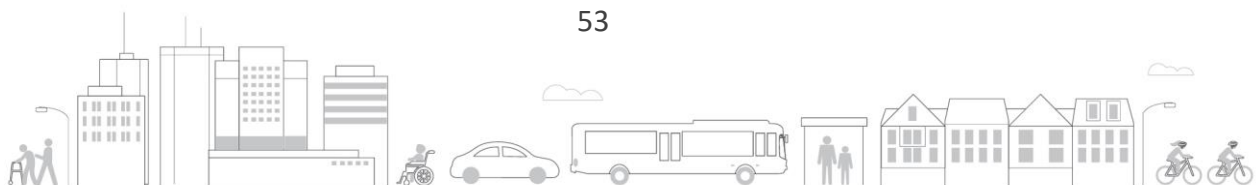
Environmentally Sustainable: This includes taking bold action to address climate change by designing a mobility system that allows people to move in ways that produce fewer GHGs and protects the natural environment. This means increasing walking, cycling and transit trips, managing travel demand and adopting new technologies (such as zero-emission vehicles). An environmentally sustainable mobility system is one that provides Londoners with attractive sustainable mobility options.



Financially Sustainable: This means ensuring that mobility and its infrastructure is affordable for current and future generations. This includes a mobility system whose lifecycle costs are affordable for the City and taxpayers to build, operate and maintain in the short- and long-term, but also mobility options that are affordable for individuals to use. A financially sustainable mobility system is one where the need for costly new infrastructure is minimized and where mobility options are available to Londoners of all income levels.



Equitable: This includes identifying and removing barriers and systemic practices within the mobility system that impact people’s ability to participate in city life. For the MMP, this means recognizing diverse mobility needs, particularly for equity-denied groups and embedding equity into decision making to enable everyone to move around the city. An equitable mobility system is one that provides access to the city for all Londoners.

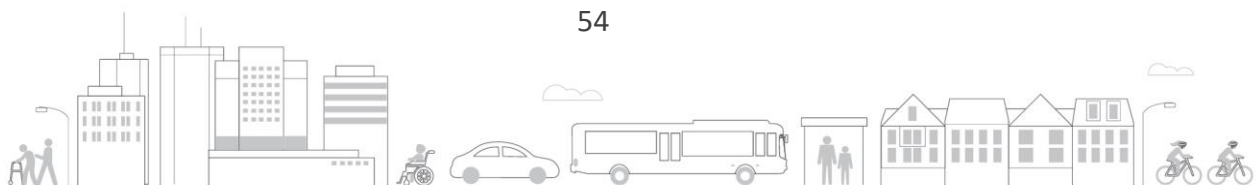




Healthy and Safe: This means promoting and protecting the physical, mental and social wellbeing of all and encouraging active living. This includes but is not limited to enabling physical activity through walking and cycling and improving road safety and personal security. A healthy and safe mobility system is one where Londoners safely move through the streets using all mobility options.



Integrated, Connected and Efficient: This means enabling better access to people and places, and the efficient movement of goods. Mobility contributes to improving access to the city through strategies such as expanding the coverage of high-quality transit throughout the city as well as completing in gaps in the sidewalk and cycling networks. A mobility network with multiple mode options also supports a denser city which brings more people closer to more destinations and supports reduced reliance on personal vehicles.



Summary of Key Trends and Challenges

- London is a multi-centred city with Central London and key educational and healthcare institutions serving as major trip attractors.
- There is significant cross-town travel in London with many trips being made between suburbs.
- Automobiles are the dominant mode of transportation for nearly all trips regardless of trip purpose, or distance.
- Walking and cycling are more common in Central London and for students, and is more common for short-distance trips under 3 km.
- Half of all trips in London in the morning peak are under 3 km including almost 40% of all car trips (as a driver or passenger)—this indicates a significant opportunity for increased active mobility.
- Walking, cycling and transit use needs to increase significantly to achieve the MMP vision.

5 Personal Mobility Patterns and Trends in London

This chapter provides an overview of mobility patterns and trends in London. Key mobility and travel patterns will be used to develop an MMP that reflects London’s needs and opportunities today and provide a foundation to build priorities and actions for the future. This analysis is presented in the following sections:

- Where are Londoners going?
- How do Londoners Travel?
- How far do Londoners travel?
- When and why do Londoners travel?

For the purposes of analysis, a superzone system was used that contains 11 zones internal to London and 4 zones external to London. Exhibit 5.1 shows the superzone system used for analysis in this chapter.

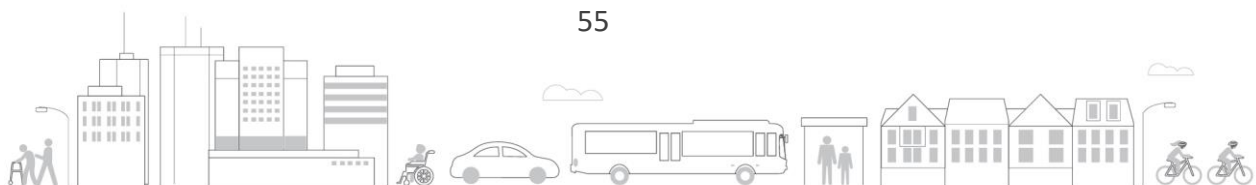
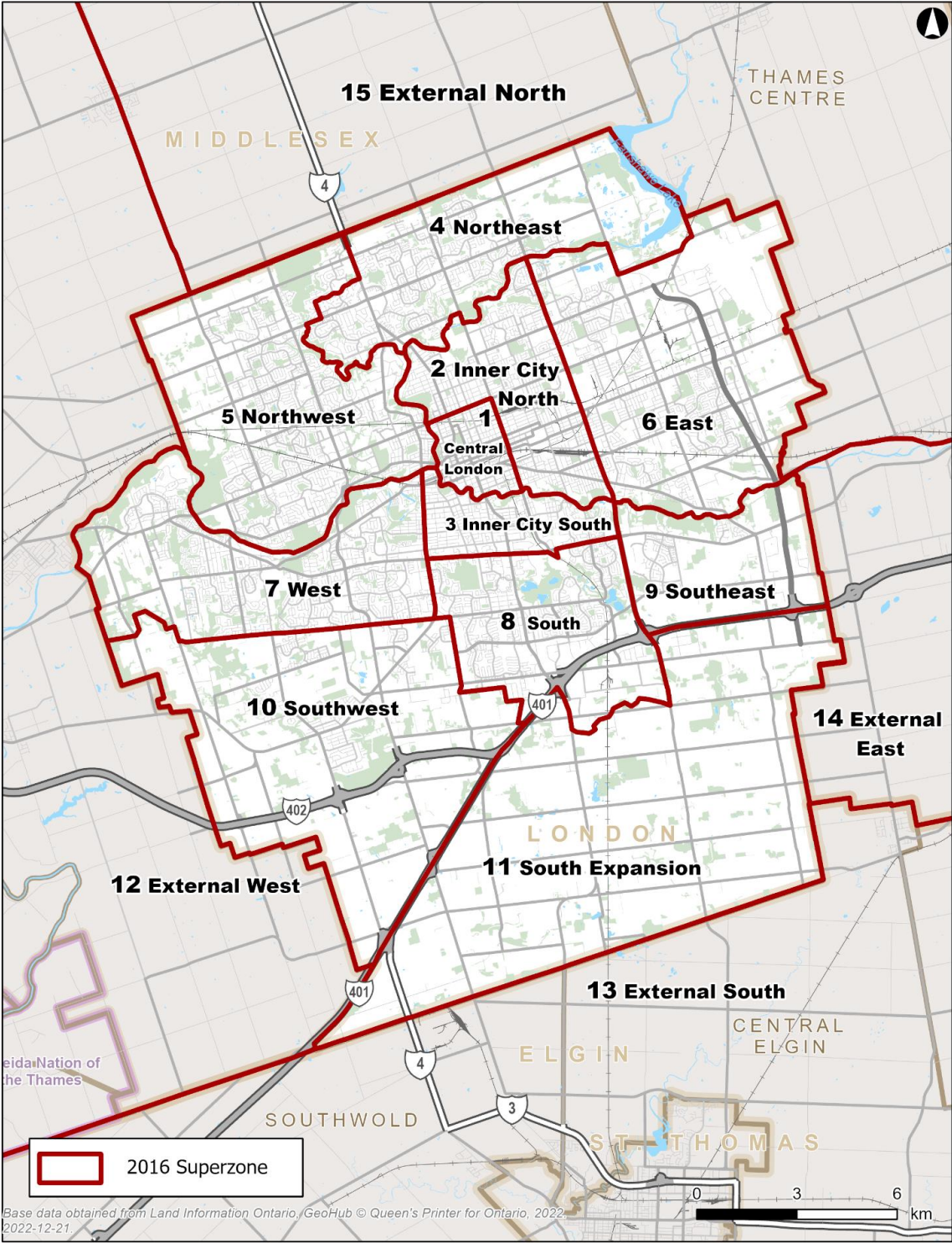
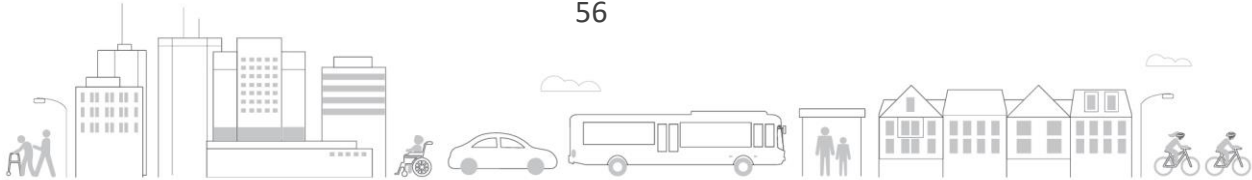


Exhibit 5.1: Zone Analysis System



Note: This is the same zone system used for the previous 2016 Household Travel survey in order to facilitate comparability.



Much of the information in this chapter is based on insights from the 2016 Household Travel Survey. Since then, travel behaviours and patterns have fluctuated in response to the onset of the COVID-19 pandemic, as well as the recovery. While this has resulted in changes, many overall travel patterns and trends are expected to be similar to pre-pandemic conditions in many ways over the long-term horizon of the MMP. However, some key changes are expected to remain. Some discussion on key impacts of COVID-19 on travel behaviours and patterns is included in this chapter and Chapter 7.

Travel forecasts developed as part of the MMP will reflect changes caused by the pandemic. The London Travel Demand Model was being updated when significant portions of this report were being written. Comprehensive insights gained from the model will be integrated into future phases of study.

It is important to note that the travel trend information presented in this chapter and in Chapter 8 reflects weekday travel, as the 2016 Household Travel Survey and model focus on weekday travel. Travel on the weekend is also important, as people travel to access many important destinations seven days per week. The MMP will be developing networks and policies to provide more travel choice throughout the entire day – not just the morning and afternoon peak periods. Making it easier to get around all day also makes it easier to get around on the weekend. The MMP will also be exploring weekend-specific actions in subsequent phases of the study.

5.1 Where are Londoners going?

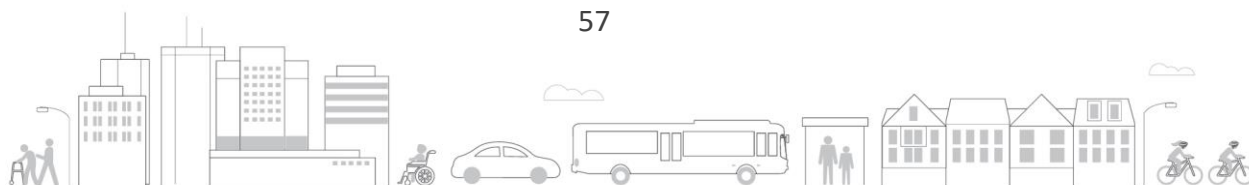
Understanding where Londoners are travelling to and from is a foundational piece of the MMP. London’s mobility system needs to both accommodate and influence these travel flows to ensure that Londoners can get to where they need to go in an efficient, convenient, and sustainable manner.

Overall Travel Flows

Exhibit 5.2 and Exhibit 5.3 show the weekday morning peak period flows of people, and the proportion of those flows made using transit, within the city and between the city and external zones respectively. This is supported by Exhibit 5.4 and Exhibit 5.5 which show major trip attractors in each zone and the proportion of trips moving between zones respectively. All these exhibits present information for the morning peak period from 7:00-9:59 A.M. Trips that do not include an origin or destination in London (i.e. trips between external zones) are not included in this analysis. Key findings related to where Londoners are travelling in the morning peak period are outlined below.

Central London is a key trip attractor

- Central London is a key hub that attracts over 37,000 weekday A.M. peak period trips, representing 16% of all trips in the morning peak period. This reflects the significant concentration of jobs in Central London as well as key trip attractors that include the London VIA rail station, Dundas Place and Citi Plaza.



- Few trips start and end within Central London (2% of all trips), while only 4% of all trips start in Central London and finish in other zones. This travel activity in the morning peak period on weekdays emphasizes that while some Londoners live and work in Central London, many Londoners live in other zones but travel to Central London for work.

London’s institutions attract high levels of travel demand

- The Northwest and East zones are major trip attractors, with the Northwest zone attracting 21% of all trips and the East zone attracting 15% of all trips in the morning peak.
- Key trip attractors in the Northwest zone include University Hospital and Western University, while key trip attractors in the East zone include Fanshawe College, London International Airport and major employers like 3M Canada and General Dynamics Land Systems.

Inner City London neighbourhoods generate and attract many trips

- Approximately 15% of all trips occur between Inner London zones (zones 2 and 3) and Outer London zones (zones 4-11). This is nearly as many trips as are destined for Central London. While there is a greater concentration of economic activities in Central London, major economic activities are also present in Inner London zones.
- While neighbourhoods in Inner London zones are typically single-detached residential homes, they feature a grid-like street network and a higher population density than most curvilinear-street suburbs. Dense grid street networks are more conducive to frequent transit service and active mobility in comparison to lower-density residential areas on curvilinear streets.

Suburb-to-suburb travel is common

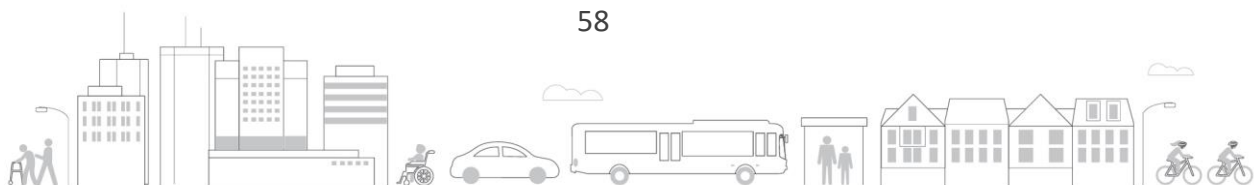
- Significant cross-town travel occurs in London with 45% of all morning peak period trips within London beginning and ending in Outer London zones (zones 4-11). This emphasizes the need for convenient walking, cycling and transit options outside of Central London in the Outer London areas.

We Heard That:

Many Londoners said they need to travel long distances, **across the city** to access jobs and daily needs.

There are many trips that begin and end in the same zone

- Approximately 34% of all trips start and end in the same zone. This is particularly evident for internal trips in the Northwest zone (9% of all trips) and internal trips in the East zone (6% of all trips). These internal trips are partly due to short-distance school and discretionary (non-work and non-school) travel, but also suggests that many Londoners



live close to many daily needs, even if many short trips are made by car. Trips distances are discussed in Section 5.3.

Transit is most popular for Central London, Northwest and East zone trips

- Areas within London that have major trip generators and receive frequent transit service tend to experience higher levels of transit use—notable locations include Central London and the Northwest and East zones that have major institutions such as post-secondary education and hospitals in the case of the Northwest and East, and a concentration of jobs in the case of Central London.

Many people move between London and the surrounding communities

- Regionally, more people travel to London than out of London in the morning peak period — 6% of trips leave London, while 9% of trips enter. This may change with significant employment expected south of the city.
- Most of the external trips into London are from the External West zone (Middlesex Centre) and External South zone (Elgin County and St. Thomas), each comprising of approximately 3% of all trips in the morning peak.
- While a slightly higher volume of regional trips are destined for the Northwest zone, trips coming from surrounding communities are largely dispersed across the city.
- Notable transit use is seen regionally between Middlesex Centre and East London, enabled by the Strathroy-Caradoc inter-municipal transit service (see Section 6.4). There is also a small amount of regional travel using the passenger rail system. However, transit mode shares are very low overall for travel to/from London with very few transit options available. Notably, there are no transit options between London and Central Elgin/St. Thomas despite reasonable levels of overall travel demand.
- According to Google Environmental Insight Explorer, trips to or from London are typically much longer distance than trips within London. This means that a lot of travel demand on London’s roads are the result of regional trips rather than internal trips, even though there are far fewer regional trips. This is particularly notable as it relates to transportation-related greenhouse gas emissions.

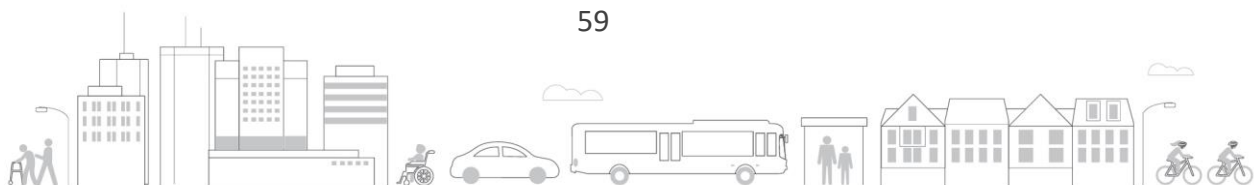
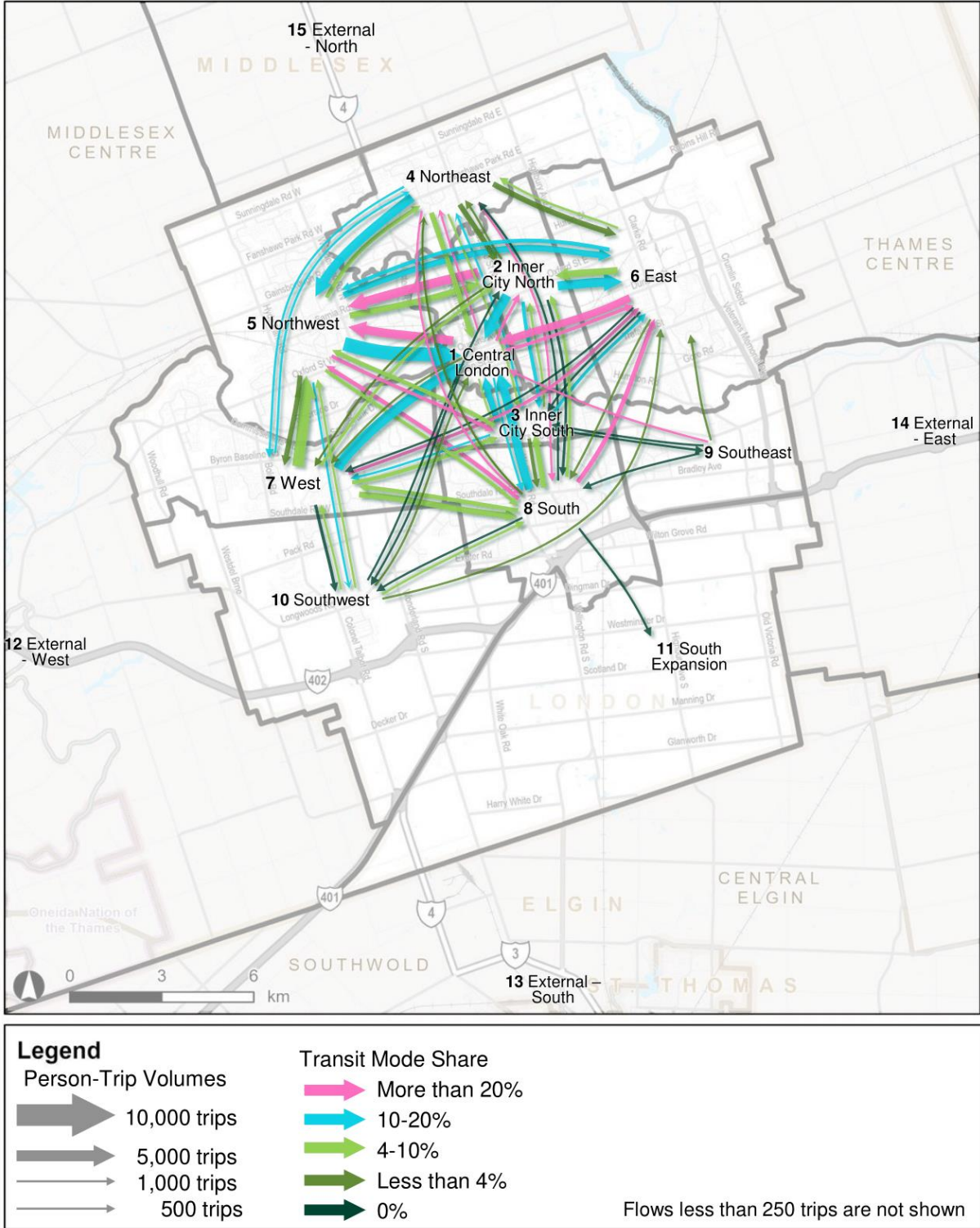


Exhibit 5.2: Internal Weekday A.M. Peak Period Trip Flows (2016)



Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.

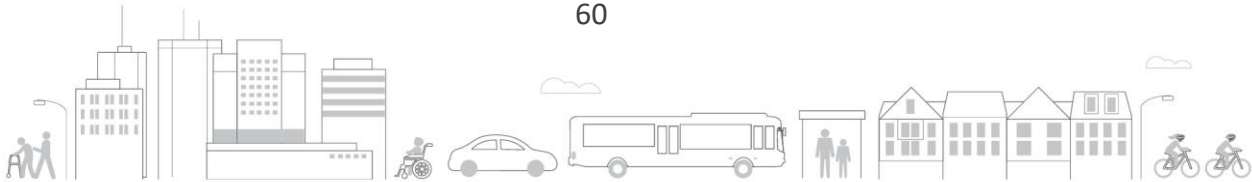
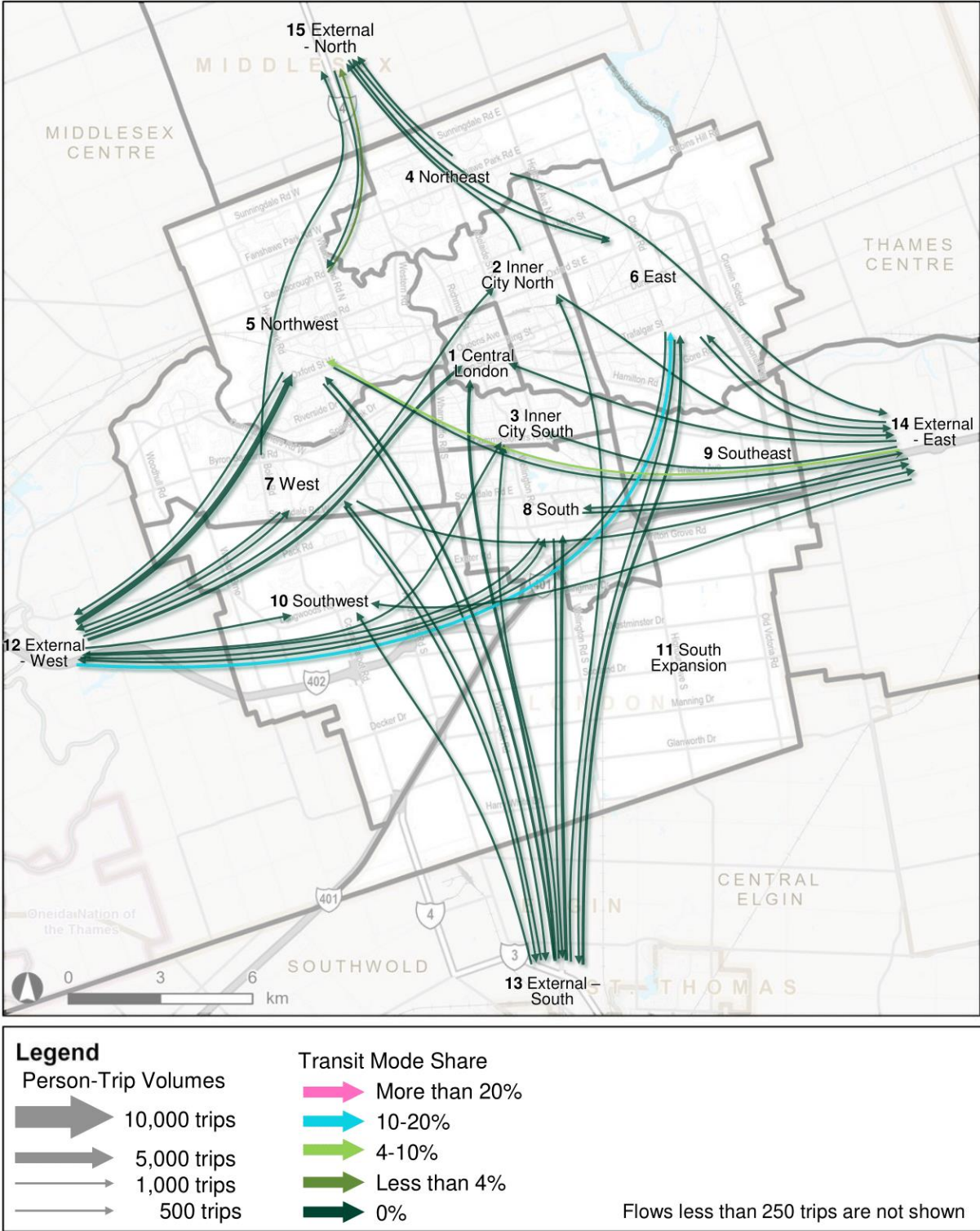


Exhibit 5.3: External Weekday A.M. Peak Period Trip Flows (2016)



Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.

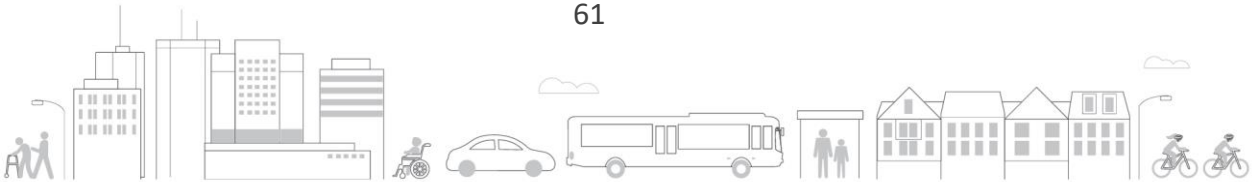


Exhibit 5.4: Top London A.M. Peak Period Person-Trip Attractors (2016)

Zone	Zone Name	Weekday A.M. Peak Trips Attracted	Trip Attractors
5	Northwest	51,100	University Hospital Western University SmartCentre London Northwest
1	Central London	37,200	London VIA rail station Central Business District Dundas Place Citi Plaza
6	East	36,400	Fanshawe College Argyle Mall London International Airport
8	South	22,800	White Oaks Mall St. Joseph’s Healthcare – Parkwood Institute Fanshawe College – London South Campus Wilton Grove Industrial Area
2	Inner City North	22,200	St. Joseph’s Hospital Kings University College
7	West	18,500	Westmount Shopping Centre
3	Inner City South	18,300	Victoria Hospital
4	Northeast	10,700	Masonville Place Mall
10	Southwest	5,600	Westwood Centre
11	South Expansion	1,700	Wilton Grove Industrial Area
9	Southeast	1,000	Citywide Sports Park Innovation Park

Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.

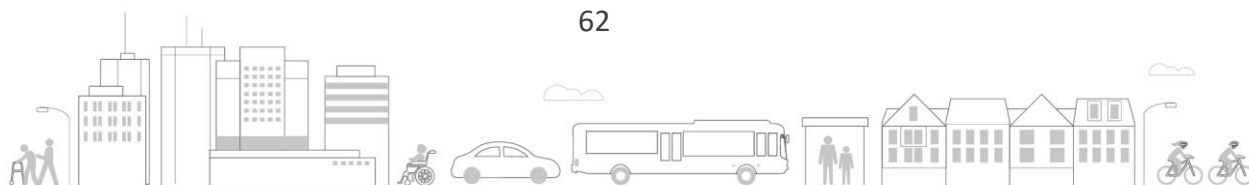


Exhibit 5.5: A.M. Percentage of Peak Period Person-Trips Origin-Destination Matrix (2016)

Origins	Destinations				Totals
	Central London (Zone 1)	Inner London (Zones 2-3)	Outer London (Zones 4-11)	External (Zones 12-15)	
Central London (Zone 1)	2%	1%	3%	0%	6%
Inner London (Zones 2-3)	3%	7%	7%	1%	18%
Outer London (Zones 4-11)	9%	8%	45%	5%	67%
External (Zones 12-15)	2%	1%	6%	N/A	9%
Total	16%	17%	62%	6%	100%

Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.; excluding external zone to external zone trips.

Note: Totals may not equal 100% due to rounding. External to external trips are excluded from this analysis.

Travel “desire lines” show increased demand on many of the city’s arterial streets

Desire lines are routes that people are likely to take if there were no modal or network performance constraints (i.e. what is the most direct route between the origin and destination). Desire line analysis looks at overall people movement, not movement per mode, based on trip origins and destinations. The desire line analysis is shown in Exhibit 5.6 with the line thickness showing the relative level of travel demand. Notable findings include:

- **Increased demand** on many of the city’s arterial streets, particularly on Oxford, Western, Fanshawe Park, Adelaide, and Wonderland north of Commissioners.
- The southern portion of Highbury Avenue, Veterans Memorial Parkway, the south part of Wonderland Road, and Wellington Road **do not receive increased demand** in the unconstrained situation.

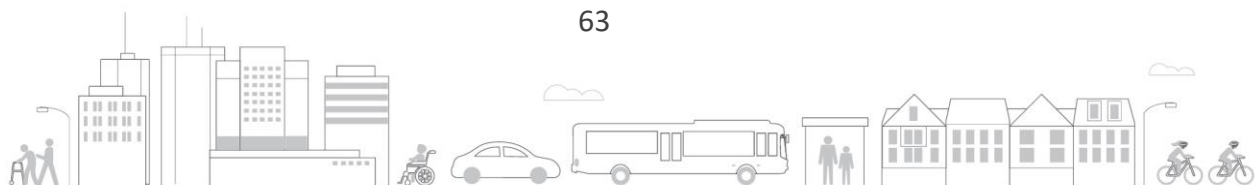
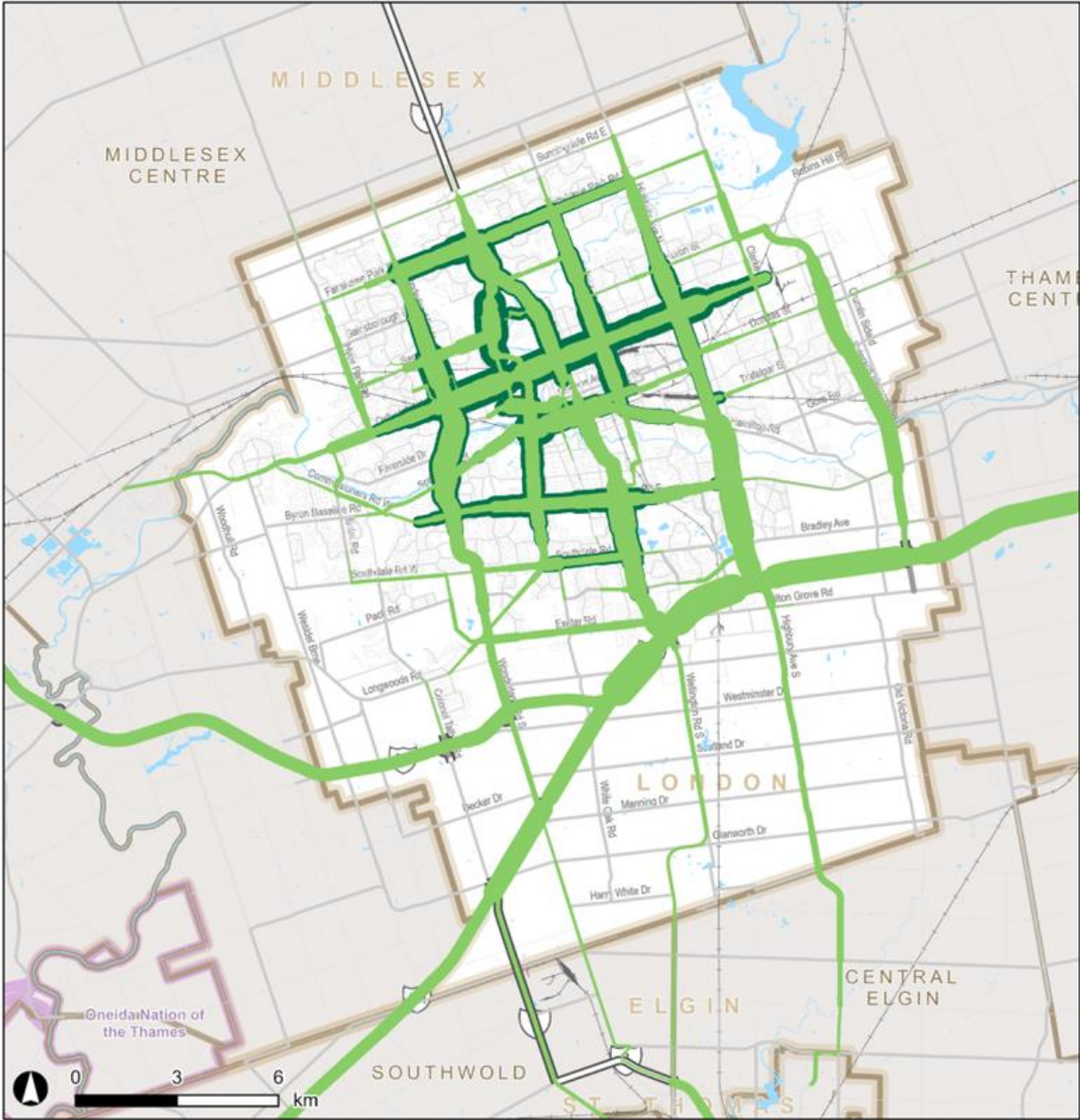


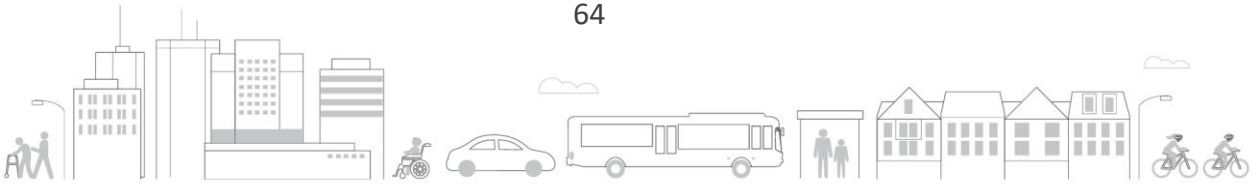
Exhibit 5.6: 2019 PM Peak Hour Travel Desire Lines



Legend

- PM Peak Hour Travel Demand
- 2019 business-as-usual travel demand
- 2019 desire lines (unconstrained travel demand)

Source: London Travel Demand Model



Post-Secondary Student Travel

Exhibit 5.7 shows the starting location for trips to London’s two major post-secondary institutions of Western University and Fanshawe College in 2016. Western University is a key trip attractor in the Northwest zone, while Fanshawe college is a key trip attractor in the East zone. Both schools are home to approximately 60,000 students combined.

While the starting locations for trips to Western University and Fanshawe College are largely concentrated around each of the campuses, people are travelling from across the city and surrounding municipalities to these major institutions. Western and Fanshawe are significant generators of transit trips and active trips.

Enrollment in London’s post-secondary institutions is likely to grow significantly through to 2050 increasing their role as major trip attractors and generators. Given that students have a higher reliance on transit and active transportation, it will be important to support a variety of high-quality mobility options to and from these locations.

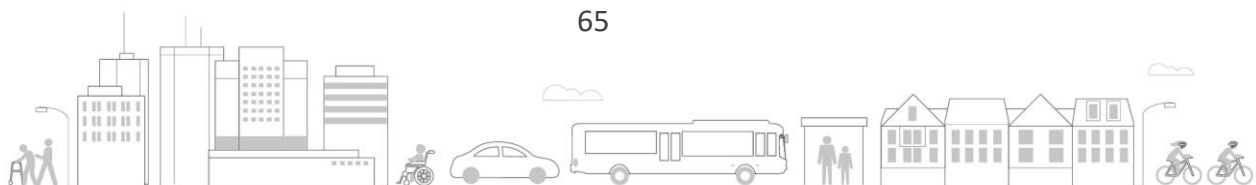
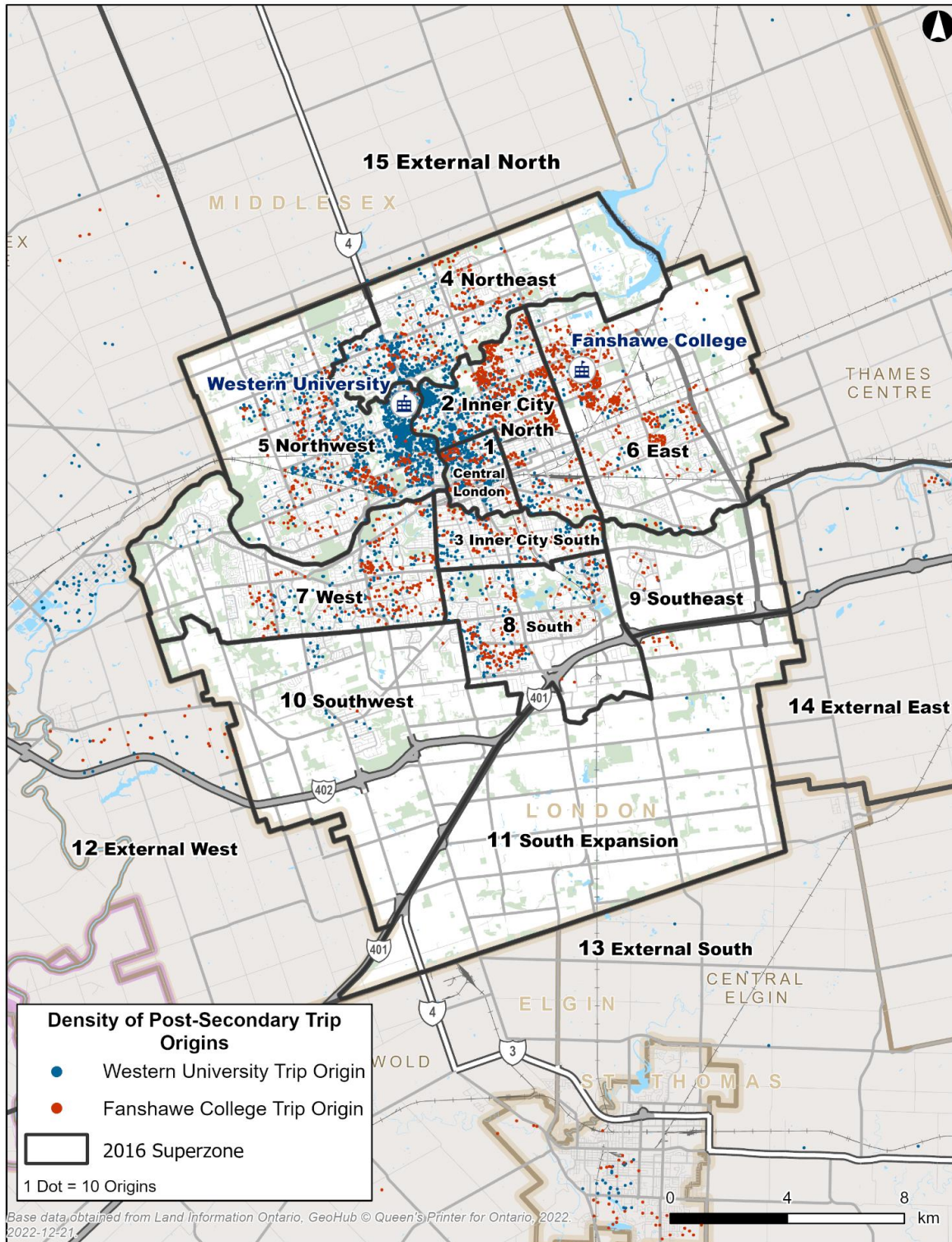
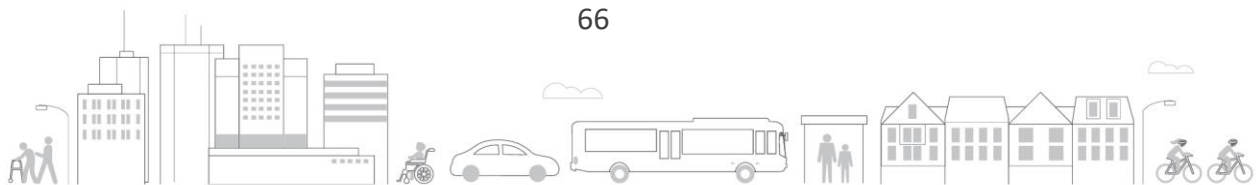


Exhibit 5.7: Daily Trip Origin Density for Western University and Fanshawe College (2016)



Source: Analysis of 2016 Household Travel Survey



Impacts of COVID-19 on Travel flows

The COVID-19 pandemic significantly impacted travel patterns. Exhibit 5.8 shows the change in movements from February 2020 to October 2022 for Middlesex County (including London) for various categories. This data was collected by Google through location tracking. The percent changes in the exhibit are compared to baseline data (median) from January 3 to February 6, 2020. While this analysis provides a snapshot of trends during the COVID-19 pandemic, long-term trends are uncertain.

Key trends travel patterns observed during the COVID-19 pandemic include:

- **Park** use significantly increased during the spring, summer and fall months (April to October), more than doubling pre-pandemic levels in June, July and August each year. This emphasizes London’s need for connected trails, pathways and bike lanes that can facilitate active mobility to/from and in parks.
- **Residential** movements remained relatively stable during the pandemic (February 2020 to October 2022) at approximately 5-20% higher than January 3 to February 6, 2020 levels.
- **Workplace** movements significantly decreased when the pandemic began due to remote work (approximately 60% lower). Workplace movements have increased since the start of the pandemic, however they remain below pre-pandemic levels (approximately 15% lower in October 2022 than January 3 to February 6, 2020 levels).
- **Retail and recreation as well as grocery and pharmacy** travel both decreased when the pandemic began (approximately 60% and 25% lower, respectively). Both categories have increased to close to pre-pandemic levels (approximately 5% lower for retail and recreation and approximately 10% higher for grocery and pharmacy).

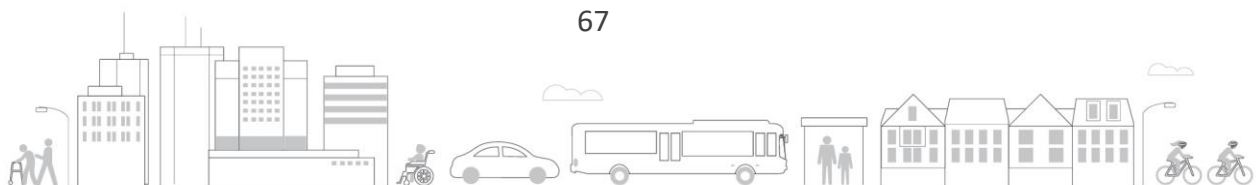
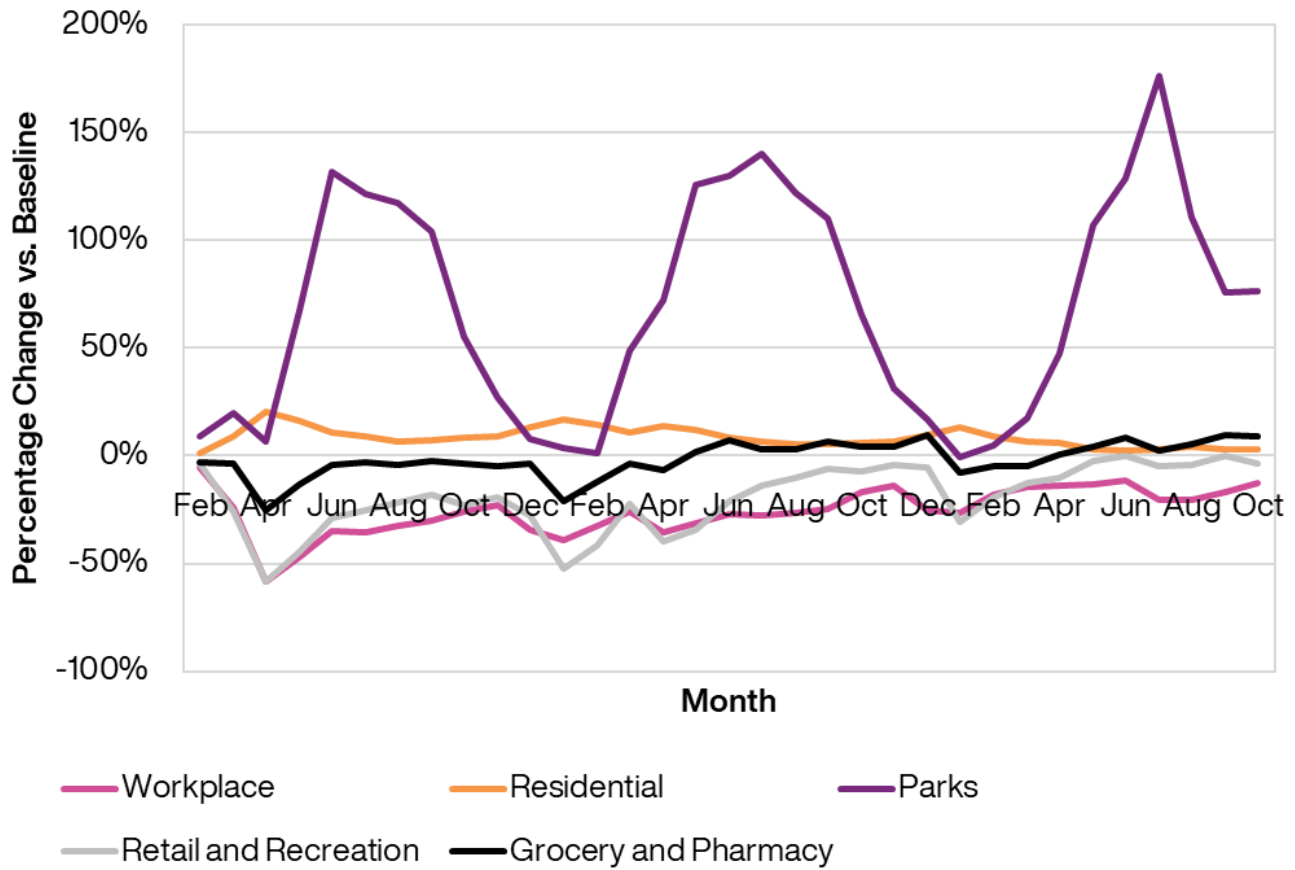


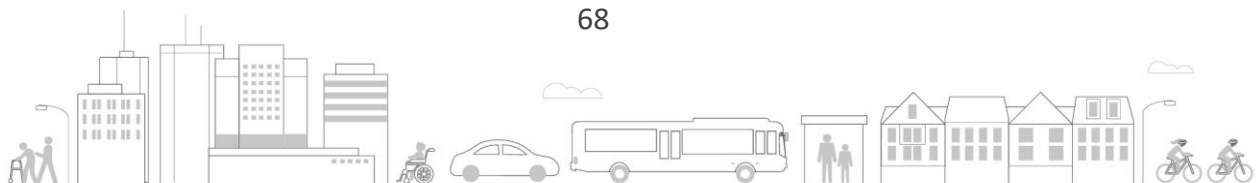
Exhibit 5.8: Middlesex County (including London) Movement Trends during the COVID-19 Pandemic (Feb 2020 – Oct 2022)



Source: Analysis of Google Community Mobility Reports (2022)

London is a multi-centred city with Central London and key educational and healthcare institutions in the Northwest and East zones serving as major trip attractors. Across the city, there is also a lot of travel taking place within neighbourhoods with over a third of all trips starting and ending within the same zone in the morning peak. Suburb to suburb travel also makes up a substantial share of morning peak travel.

While travel flows have fluctuated as a result of the COVID-19 pandemic, available information indicates demand for many types of destinations have returned to near-pre-pandemic levels— however, the use of London’s parks in the summer months has significantly increased compared to before the pandemic.



5.2 How Do Londoners Travel?

The mode of transportation that people use is influenced by numerous factors including but not limited to time, cost, convenience, availability, preference, trip purpose, weather, age, skill level, physical ability and much more.

This section discusses the mobility options that Londoners use including how these decisions change based on several of the factors noted above that influence mode use.

Overall Mode Share

Automobiles are the dominant mode of transportation in London with nearly 77% of all trips being made by drivers and auto passengers. Exhibit 5.9 shows the 2019 daily and afternoon peak period mode shares. There are no major differences between the daily and afternoon peak period shares, however, during the afternoon peak period there are fewer auto passengers and slightly more people take transit and walk.

While automobiles are the dominant mode of transportation, trends between 2009 and 2019 indicate that a shift towards more active mobility has taken place as shown in Exhibit 5.10.

While changes in transportation preferences likely contributed to this, updates to the household travel survey (the main source of information on mode use in London) likely contributed significantly to the increase.

The 2016 Household Travel Survey (used to calibrate the 2019 Travel Demand Model base year) was designed to capture a broader cross-section of the population, with a specific focus on capturing post-secondary students, compared to the 2009 survey. In addition to more focus on post-secondary students, there were also survey platform improvements to better capture more discretionary and non-home based travel. These improvements were likely able to capture more active transportation trips.⁴⁶

We Heard That:

Based on a survey of London households in 2016, **convenience** and **travel time** were the most important factors that influenced how Londoners moved.

⁴⁶ 2016 Household Travel Survey Summary Report.

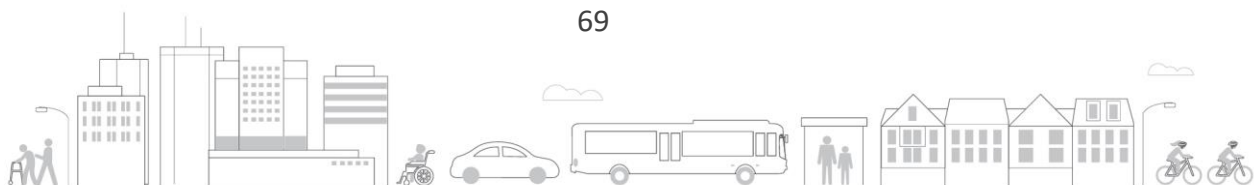
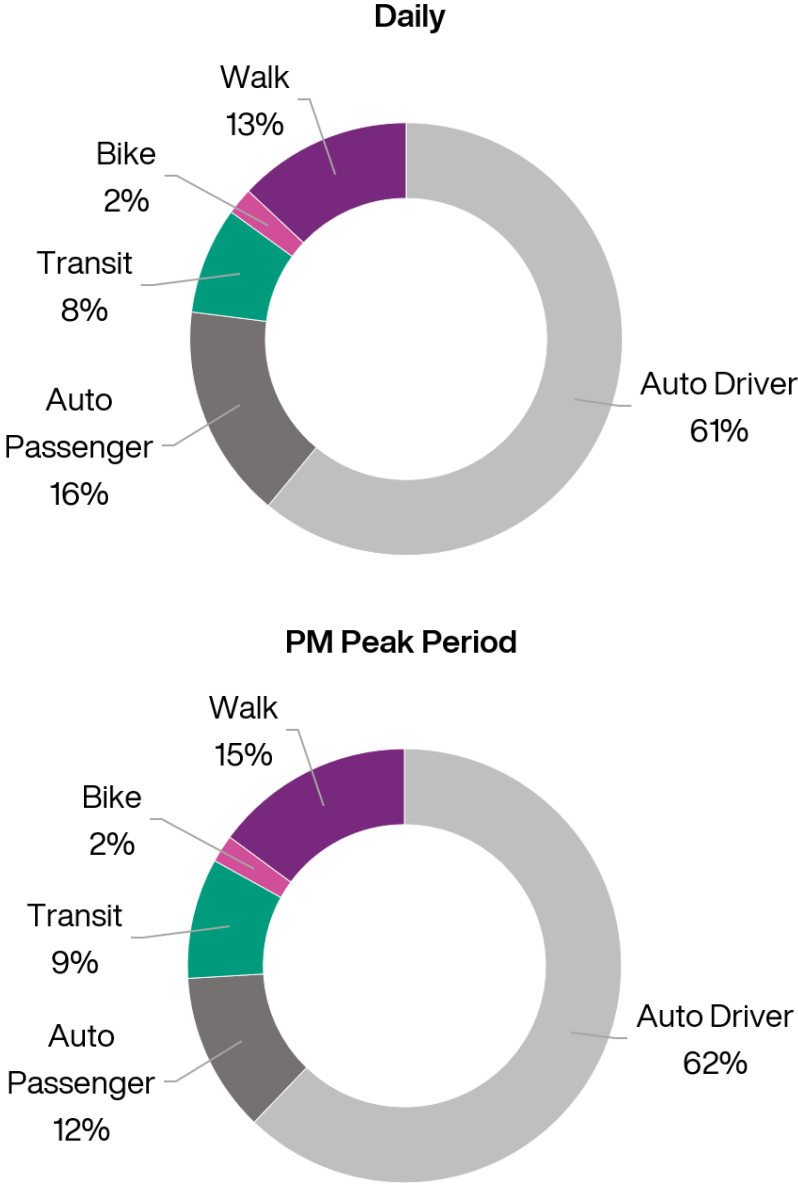


Exhibit 5.9: London Mode Share (2019)



Source: London Travel Demand Model

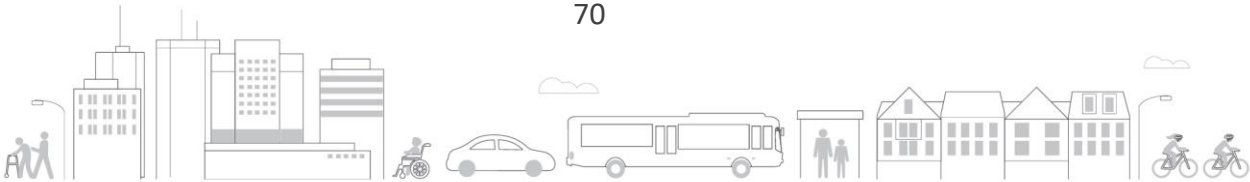


Exhibit 5.10: Daily Mode Share: London (2009 - 2019)

Mode	2009	2016	2019
Auto Driver	81%	63%	61%
Auto Passenger		14%	16%
Transit	12%	8%	8%
Walk/Cycle	8%	13%	15%

Note: Totals may not equal 100% due to rounding.

Mode Share by Location

Mode share differences are observed at different geographic scales for 2016 weekday A.M. peak period trips as shown in Exhibit 5.11, illustrating the connection between land use and transportation.

In particular, walking, cycling and transit are highly used for trips within Central London (over 60%) and used at less than half that rate for all trips within London. This reflects the dense nature of Central London which contains the highest concentration of employment per hectare as well as many commercial opportunities. Dense, mixed land-uses with many origins and destinations close together encourages more walking trips.

Conversely, regional trips to London are primarily made by automobile, reflecting the limited mobility options available for these trips.

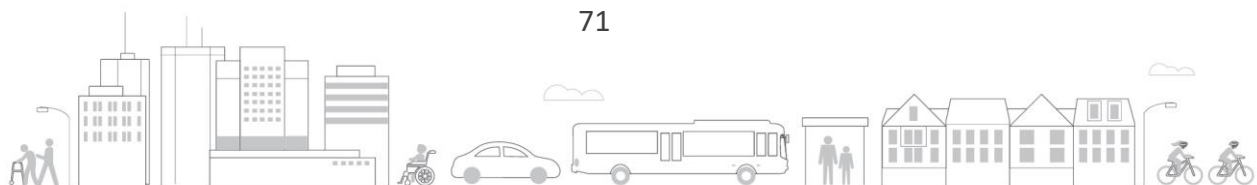
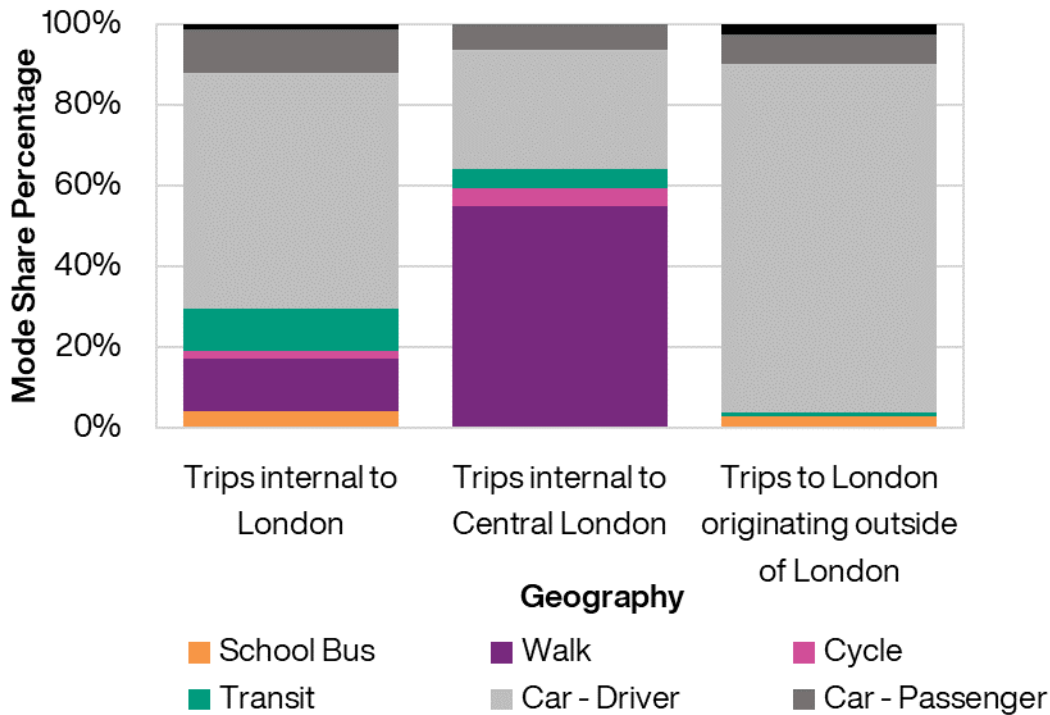


Exhibit 5.11: Mode Share for Weekday A.M. Peak Period Person-Trips (2016)



Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.

Exhibit 5.12 shows mode share by superzone location for daily weekday trips in 2019. Generally, the transit, walk, and cycle shares are highest in the inner zones, with transit shares ranging from 8-13% and walk/cycle shares ranging from 13-15%. These tend to be denser parts of the city. In the outer zones, transit mode share is approximately 5% and the walk/cycle share is approximately 8%. These are predominantly lower density locations. While there is significant population growth expected in Central London, some zones that are projected to accommodate a substantial share of planned population growth currently have lower transit, walk, and cycle mode shares. Conversely, some inner zones that have higher transit, walk, and cycle shares are projected to accommodate a small share of projected growth.

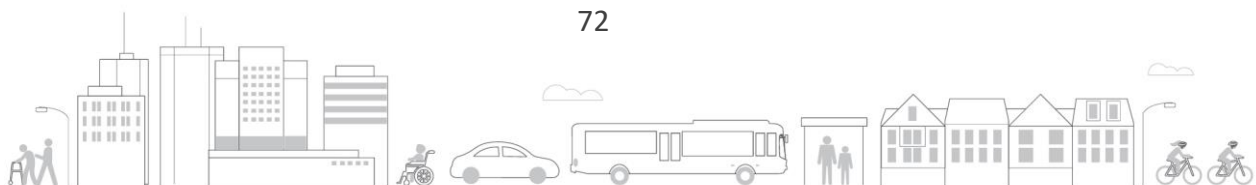


Exhibit 5.12: Mode Share by Location (2019 All Day)

Zone	Transit	Walk, Bike	Auto (Driver & Passenger)	Projected Share Of Population Growth
Central London	13%	15%	72%	13%
Northwest	11%	12%	77%	13%
Inner City North	11%	12%	77%	3%
East	10%	11%	79%	12%
Inner City South	8%	13%	80%	1%
Northeast	7%	10%	83%	11%
South	6%	10%	84%	1%
West	5%	10%	85%	8%
Southwest	3%	7%	90%	29%
Southeast	3%	6%	91%	8%
South Expansion	2%	4%	94%	0%

Mode Share by Trip Purpose

Exhibit 5.13 shows mode share by trip purpose in the 2016 morning peak period and demonstrates that trip purpose significantly influences the mode of transportation people use. Key findings include:

- The transit mode share is high for school trips at 25%—much higher than for any other trip purpose. Similarly, auto driver mode share for school trips is significantly lower than other trip purposes at 9%.⁴⁷
- Work trips have the highest auto driver mode share at nearly 80%. These trips represent a potential growth market for transit and in the case of short work trips, walking and cycling.
- Similar to the mode share by location, cycling mode share is comparable across all trip purposes around 1-2%, but is highest for school trips.

⁴⁷ School bus trips are captured in the “other” category for mode share by trip purpose (Exhibit 5.13).

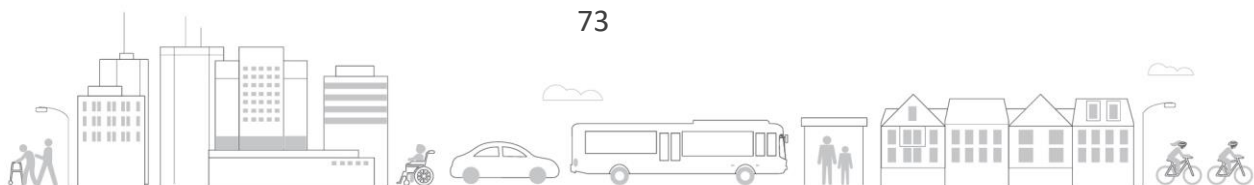
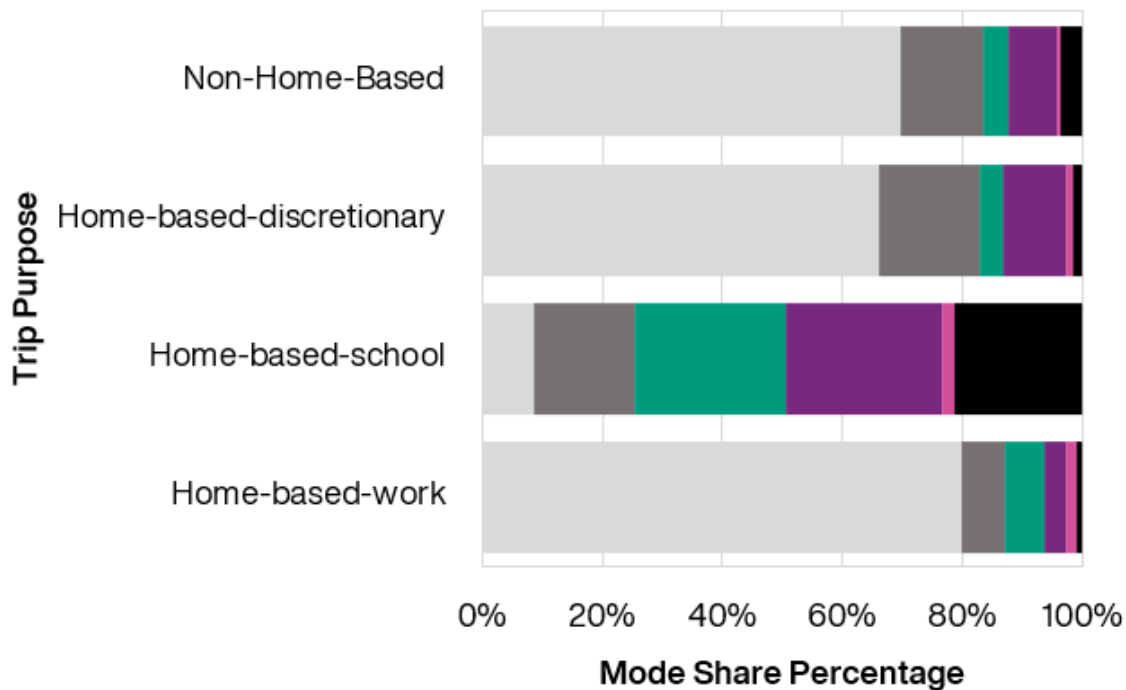


Exhibit 5.13: Mode Share by Trip Purpose (2016 Weekday A.M. Peak Period)



■ Car - Driver ■ Car - Passenger ■ Transit ■ Walk ■ Cycle ■ Other

Source: Analysis of 2016 Household Travel Survey

Mode Share by Trip Distance

Trip lengths also factor into people’s travel mode decisions. Exhibit 5.14 shows mode share by trip distance during the morning peak period in 2016. Key findings for mode share by trip distance include:

- Auto driver is the dominant mode for trips of all distances greater than 1 km.
- Walking is common for trips under 1 km (55%) and 1 to 2 km (13%) however decreases sharply for trips over 2 km.
- Transit is less frequently used for trips under 2 km, used consistently for trips between 3-12 km and used very infrequently or not at all for trips greater than 12 km.

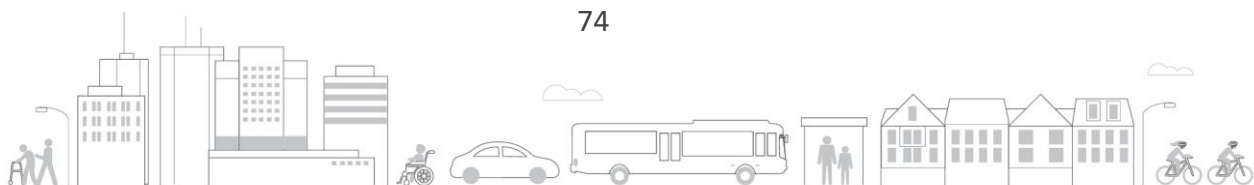
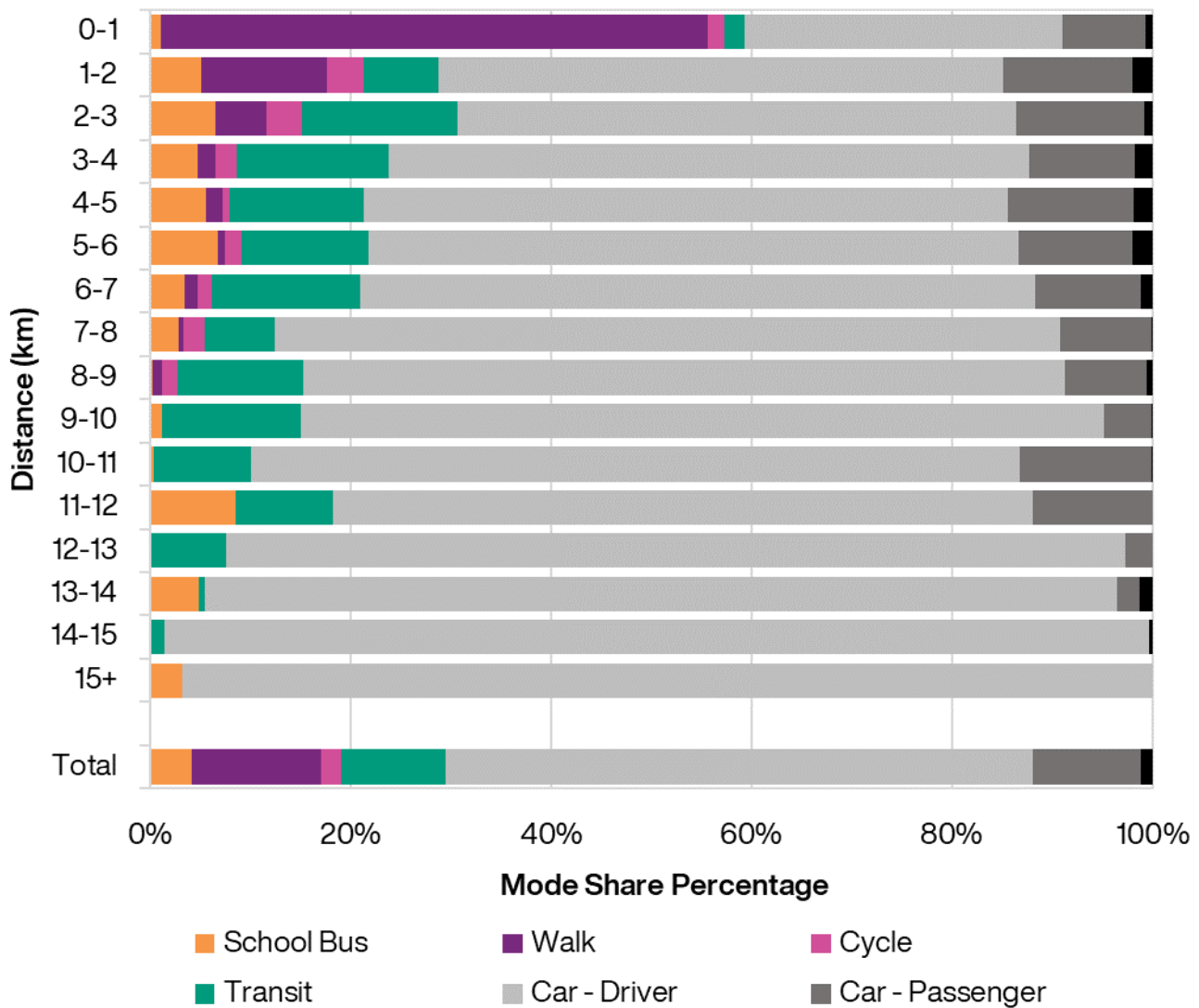


Exhibit 5.14: Weekday A.M. Peak Period Trip Length Distribution by Mode (2016)



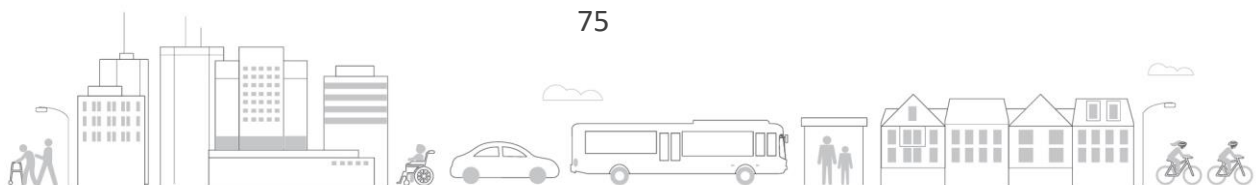
Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.

Further information on mode and travel distance is available in Section 5.3.

Mode Share by Age

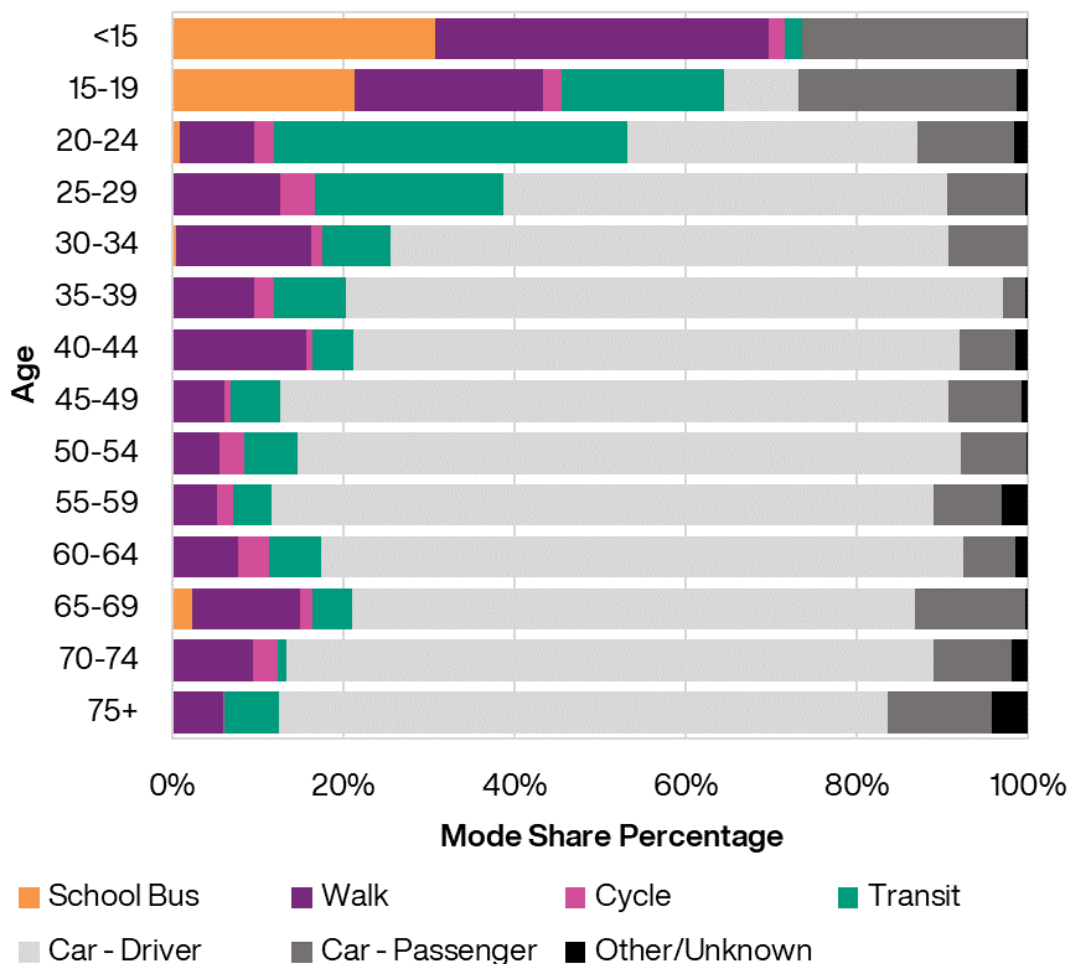
Exhibit 5.15 shows mode share by age in the morning peak period indicating that as age increases, walking, cycling and transit trips decrease. Key findings include:

- Auto driver becomes the dominant mode of transportation beginning at age 25-29 and remains that way as age increases.

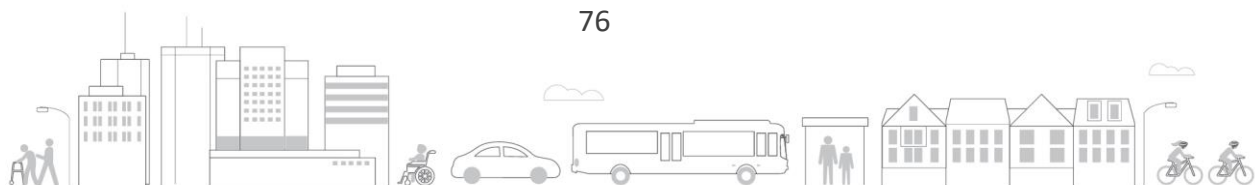


- Transit is most highly used by people aged 20-24, likely overlapping with years in post-secondary education, contributing significantly to London’s transit mode share.
- People under the age of 20 are much more likely to walk and use a school bus for trips in the morning peak period.
- Car passenger trips are significantly higher for people under the age of 19 corresponding with most people in that age cohort not having a driver’s license and relying on others for rides.
- Cycling mode share is similar across all age ranges and makes up less than 5% of the mode share for each age range.

Exhibit 5.15: Mode Share for Weekday Morning Peak Period Trips (2016)



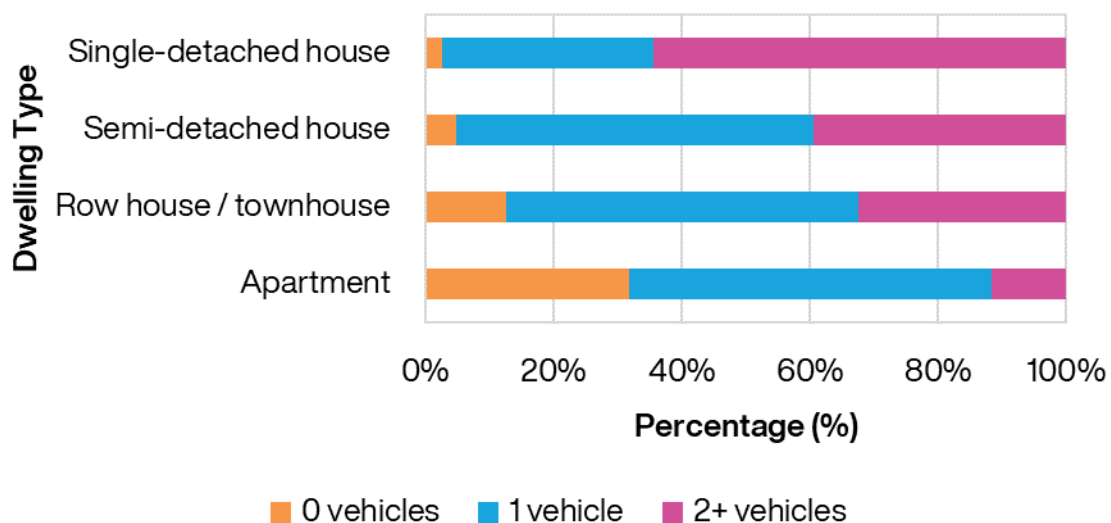
Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.



Auto Ownership by Housing Type

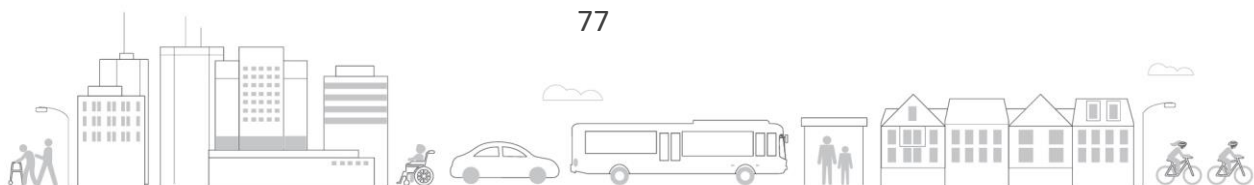
Auto ownership is typically strongly related to auto use—simply put, people who have cars tend to use them to meet most of their mobility needs. In London, as in many cities, there is also a strong relationship between housing type and auto ownership with the most-dense housing (apartments) having the lowest auto ownership rates and the least-dense housing (single-detached homes) having the highest auto ownership rates as shown in Exhibit 5.16. With 50% of London’s housing stock being single-detached homes in 2016, this is likely a contributing factor to high automobile use. Of note, 32% of apartment dwellers are zero car households, whereas 64% of single-detached homes have two or more vehicles.

Exhibit 5.16: Auto Ownership Rates by Dwelling Type (Total households, 2016)



Source: Analysis of 2016 Household Travel Survey

Auto mode share overall is dominant in London for nearly all trips regardless of trip purpose, or distance. However, walking, cycling and transit is higher in Central London and for students, and is more common for short-distance trips under 3 km. Cycling mode share remains quite low across all factors indicating a potential opportunity to shift some short-distance auto trips to cycling. Again, there is a clear relationship between land use and which mobility option people use—in London, as housing density increases, auto ownership decreases and in London’s densest area – Central London – auto use is low for internal trips.



5.3 How Far Do Londoners Travel?

As demonstrated in Section 5.2 trip distance is a key factor influencing the mobility option people use. This section provides an overview of trip distances in London, highlighting potential opportunities for mode shift.

Specifically, identifying short-distance trips under 3 km is important as those are more likely to be able to shift towards active mobility.

Exhibit 5.17 shows the distribution of weekday morning peak period trip lengths by different modes.⁴⁸ While the number of trips at each distance varies, the majority of trips are short- and medium-distance trips:

- 18% of trips are **1 km or less**.
- 46% of trips are **3 km or less**.
- 4% of trips are **10 km or more**.

The average trip length per mode is:

- Auto driver: 5.5 km
- Auto Passenger: 4.8 km
- Transit: 4.2 km
- Walking: 0.9 km
- Bicycle: 2.7 km
- Across all modes: 4.7 km

Exhibit 5.18 provides a more detailed breakdown of automobile trips by distance in the morning peak period. While active mobility options are currently used for 30% of trips 3 km and under, automobiles (driver or passenger) are still used for many short-distance trips. Almost 40% of all car trips are 3 km or less and more than 10% of all car trips are 1 km or less. This represents a significant market that could be shifted to walking, cycling and transit through increased access to sidewalks and cycling facilities, denser land use, and building a culture of active mobility.

⁴⁸ Trip distances were calculated using a straight-line distance between addresses. While this method is common for travel analysis, it can under-estimate the distance between origins and destinations along the sidewalk, cycling or road network which is often not a straight line.

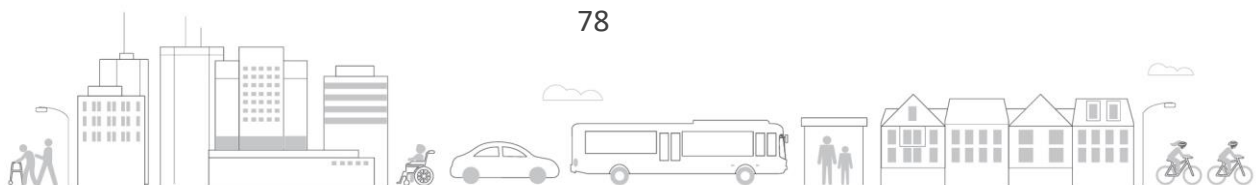
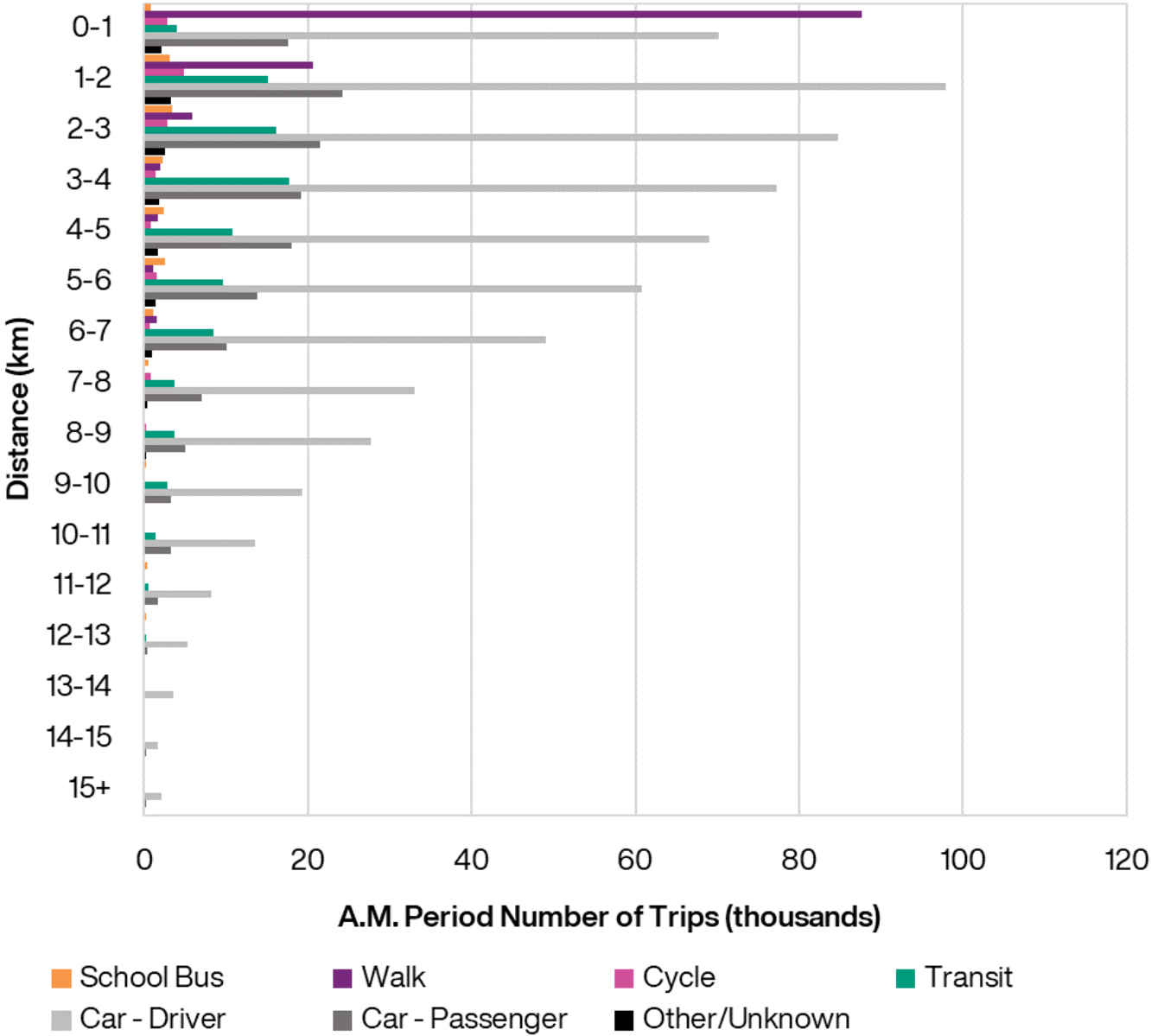


Exhibit 5.17: Weekday A.M. Peak Period Trip Length Distribution (2016)



Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.

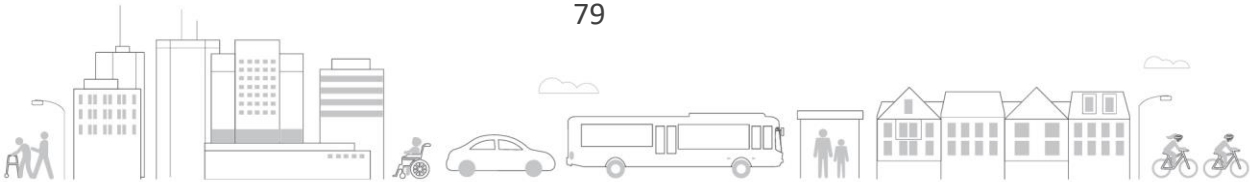
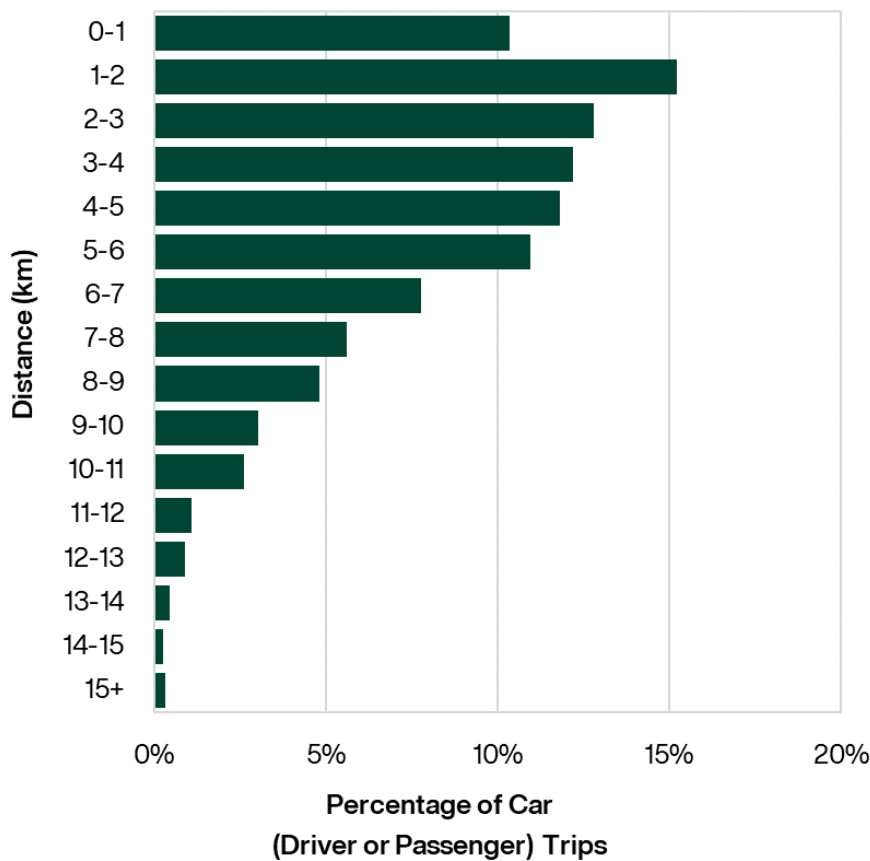


Exhibit 5.18: Weekday A.M. Peak Percentage of Car Trips (Driver or Passenger) by Distance (2016)



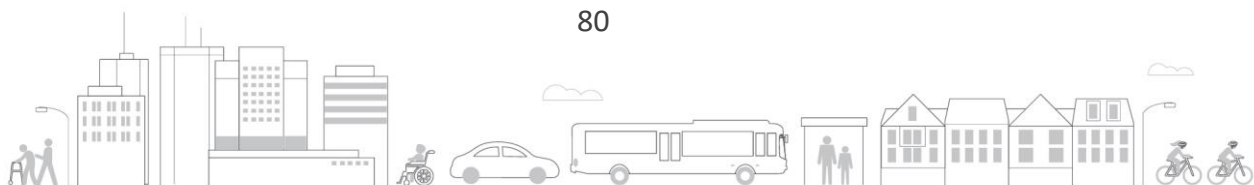
Source: Analysis of 2016 Household Travel Survey; trips beginning 7:00-9:59 A.M.

Exhibit 5.19 shows the trip length distribution for daily trips within London in 2019, highlighting that, like the 2016 morning peak period, there are many short distance trips, many of which are made by car. While the proportion of short trips highlights the potential for mode shift to active modes when paired with infrastructure investments and more compact communities, 30% of daily trips are over 7 km – these are trips that are typically best suited to transit.

Exhibit 5.19: Trip Length Distribution for Daily Trips Within London (2019)

Trip Distance	Proportion of Daily Trips
0-3 km	38%
3-7 km	32%
7-15 km	26%
15 km+	4%

Source: London Travel Demand Model



Almost half of morning peak trips in London are under 3 km. While the average auto driver trip distance is the highest at 5.5 km, almost 40% of all car trips (as a driver or passenger) are 3 km or less indicating a significant opportunity for increased active mobility. However, transit also has an important role to play for the significant share of longer distance trips.

5.4 When and Why Do Londoners Travel?

This section discusses trip purposes including:

- **Home-based-work trips:** this includes trips to work that begin at home.
- **Home-based-school trips:** this includes trips to school that begin at home.
- **Home-based discretionary trips:** this includes trips that start at home such as to the grocery store, doctors' appointments, visiting friends or family etc.
- **Non-home based trips:** This includes trips to anywhere that don't begin at home.

Exhibit 5.20 shows the number of weekday trips by time of day and trip purpose. Key findings include:

- The A.M. peak period has more trips over a shorter time period than the P.M. peak period, reflecting relatively concentrated work and school start times pre-pandemic. A discussion on shifts in work travel is included in Section 7.1.
- School trips have an earlier P.M. peak period (between 2:00 P.M. and 4:00 P.M.) compared to work trips reflecting shorter school days.
- Discretionary and non-home-based trips are more evenly distributed throughout the day, highlighting the need to provide better access to destinations throughout the day.
- Non-home-based trips have a small peak at 12:00 P.M. and again in the mid-afternoon, likely because of trips made from work or school to a non-home destination.
- Home-based-discretionary trips peak around 6:00 P.M., highlighting the many trips made outside of typical working hours.
- Approximately 45% of daily trips were made during the morning and afternoon peak periods.

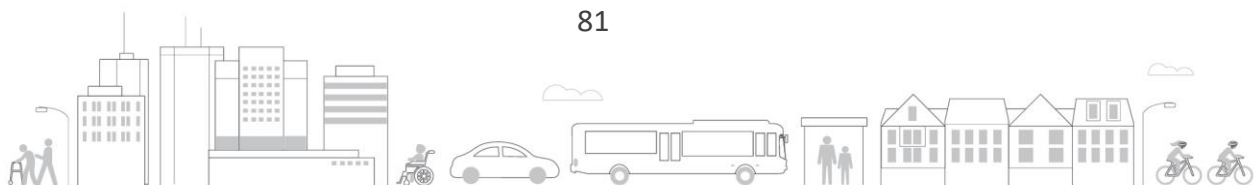
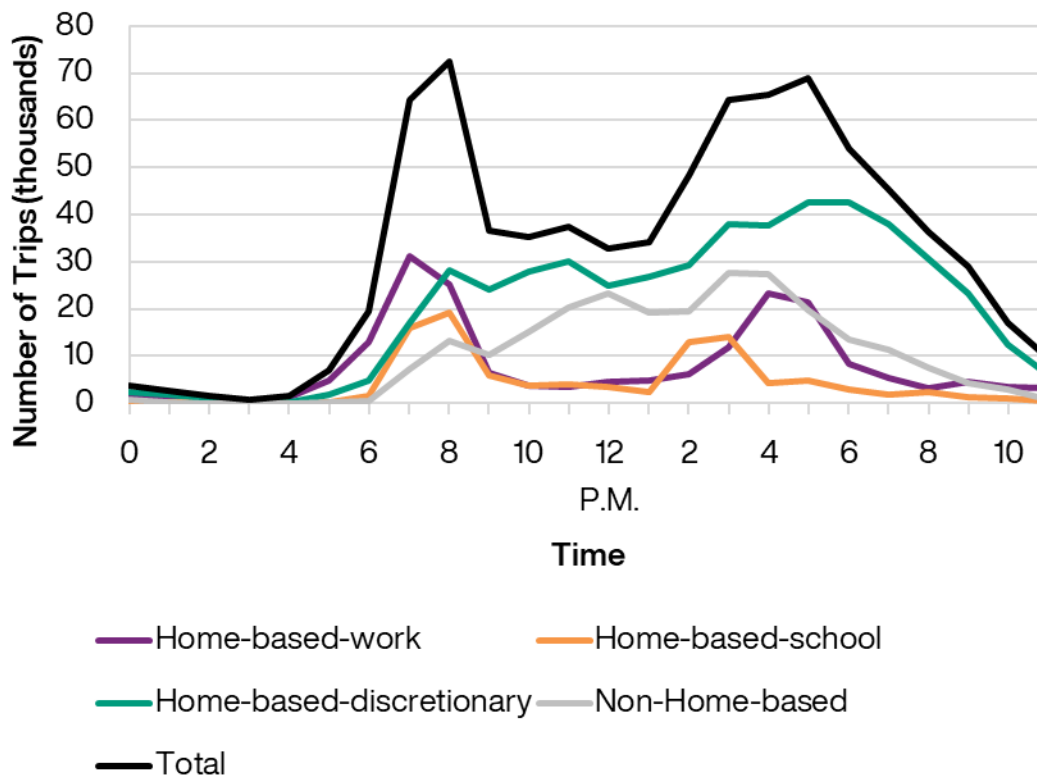


Exhibit 5.20: Weekday Trip Purpose by Time of Day (2016)

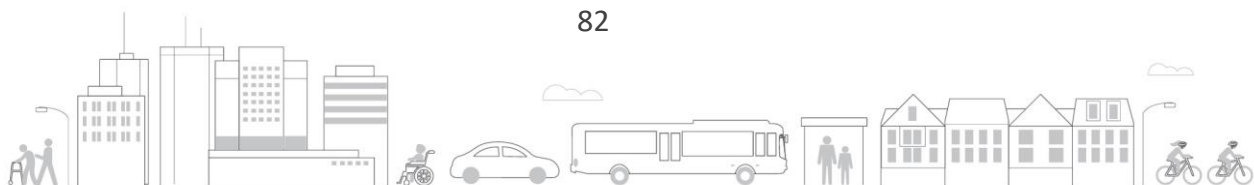


Source: Analysis of 2016 Household Travel Survey

Notably, trip distribution on weekends differs from that on weekdays. While data on weekend travel patterns in London is not available, there are typically increased discretionary trips on weekend days relative to total daily trips. These variations lead to different demands on the transportation network on Saturdays, Sundays and holidays that should be considered. For example, travel demand may be more concentrated around shopping centres or recreational destinations and the time of day when travel is highest will be different.

Cities have also observed changes in trip distribution throughout the day since COVID-19. This includes a general flattening of peak periods with travel demand more evenly spread throughout the day and week. The MMP will account for changes in trip distribution when developing future network and policy recommendations.

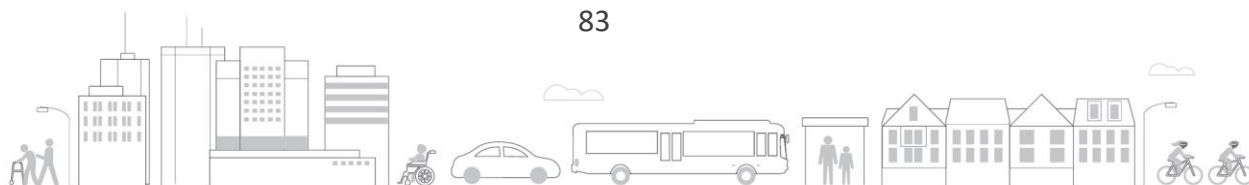
There are clear A.M. and P.M. peak demand periods, largely for trips to work and school from home between 6:00 A.M. and 9:00 A.M. and between 2:00 P.M. and 7:00 P.M. However significant travel occurs in off-peak periods, which highlights the need to provide a variety of mobility options for trips throughout the entire day.



5.5 Summary of Personal Mobility Patterns and Trends

Based on the analysis, key trends that drive mobility needs for London are described below.

- **London has multiple hubs acting as major trip attractors:** While Central London is a key hub, major institutions in the Northwest and East zones (such as University Hospital, Western University, Fanshawe College and London International Airport) attract a significant number of trips in the morning peak period and throughout the day.
- **Londoners continue to rely heavily on cars:** Automobiles are used for almost 80% of all daily trips (as a driver or a passenger).
- **Many Londoners travel to destinations relatively close to home:** 34% of all morning peak period trips start and end in the same zone—this aligns with the average trip distance in London being 4.7 km.
- **Compact urban form encourages walking, cycling and transit:** Land use significantly impacts mode choice. Walking mode share is highest in Central London, where development is compact and features mixed uses. *Automobile ownership also decreases as housing types become denser.*
- **More short trips could be made by active mobility:** in the morning peak, almost 40% of all car trips (as a driver or passenger) are 3 km or less, while over 10% of all car trips (as a driver or passenger) are 1 km or less. Trips under 3 km are often suitable for using active mobility options—there is a significant opportunity to shift some of these short-distance trips from the car to active mobility. However, transit still has an important role for the many longer distance trips.
- **There is a need to expand the market for transit:** Transit mode shares are highest for London’s neighbourhoods with key major trip generators including Central London, the Northwest and the East. Transit mode share is also particularly high for students in London. Transit use for work, discretionary and regional trips is however quite low indicating an opportunity to increase transit trips where travel demand exists.
- **Travel trends are evolving:** Since the COVID-19 pandemic and the associated rise in working from home, travel patterns have shifted with less demand during peak periods and increased off-peak travel. While long-term changes in travel behaviour because of the pandemic are uncertain, the transportation system needs to respond to these changes.



Summary of Key Trends and Challenges

- London’s mobility network is being planned to provide multi-modal options to support more mobility choice.
- The City's cycling network spans 350 kilometers comprised of protected bike facilities, bike lanes and multi-use trails, however, gaps remain, reducing connectivity.
- Municipal public transit features over 40 routes with two approved Rapid Transit projects. Inter-municipal transit options exist but are limited.
- London's street network provides for efficient movement of vehicles, however, high volumes in peak periods result in congestion—strategic initiatives are needed to address congestion in line with the MMP’s Vision.
- Goods movement is an important part of London’s economy and mobility system—needs must be balanced with plans to increase walking, cycling and transit use.

6 London’s Mobility Systems and Infrastructure

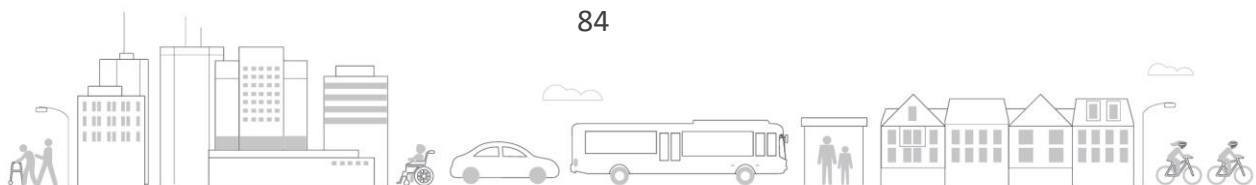
This chapter provides an overview of the existing mobility network and infrastructure in London that supports various modes. This includes active mobility, municipal and inter-municipal passenger transit services, vehicular traffic, commercial vehicles, air and passenger rail. Where available, information is also provided about the use of each mode/network. The chapter concludes with an analysis of the availability of sustainable mobility options city-wide.

Appendix A supports this chapter by providing additional information on policies and plans relevant to each mode and summarizing notable projects recently completed or currently underway.

6.1 London’s Multi-Modal Street Network

The London Plan adopts the term “street” to describe what the Planning Act would refer to as a ‘highway’ and what is often referred to as a road. A street includes the entire right-of-way and may contain, in addition to the roadway, sidewalks, bicycle lines, bicycle and pedestrian pathways and public transit rights of way (The London Plan, 2016, sec. 73).

The street network in London provides the essential infrastructure for most modes of transportation discussed in the following subsections. However, over the past several decades, London’s streets have been designed with a focus on the movement of



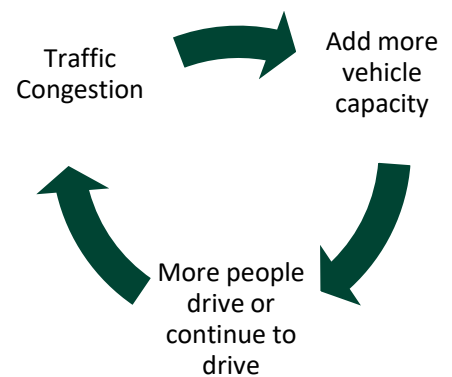
automobiles. While other modes can use the street network, city streets are not always designed to meet the needs of these modes, which can make safe, efficient and reliable mobility and access more challenging for many.

Since the development of the City’s previous transportation master plan, *The London Plan* has directed the City’s emphasis on street network improvements to be more strategic and supportive of a variety of mobility options . Guided by the City’s *Complete Streets Design Manual (2018)*, a focus has been on designs that ensure high-quality pedestrian environments, greater access to focal points identified in *The London Plan*, and the creation of streetscapes that are conducive to walking, cycling and transit.

The strategic shift in how the City approaches street network improvements is driven by a desire and need to improve sustainability, equity and quality of life. It is also driven by a recognition that it is not possible to build our way out of traffic congestion—adding more automobile capacity to address congestion leads to more automobile use, which in turn leads to more traffic congestion as shown in Exhibit 6.1.

Solutions need to be developed that involve more than just widening roads to move more cars. There is a need to look at ways to make existing corridors more efficient by increasing their people moving capacity.

Exhibit 6.1: The challenge with adding more vehicle capacity



While London’s streets have been primarily designed for the movement of people and goods by car and truck over the past several decades, the City is shifting focus towards designing streets to be supportive of a variety of quality mobility options. This helps contribute to a number of city-building goals such as those related to environmental sustainability, equity, health and safety, financial sustainability, city vibrancy and much more.

Street Classification

The London Plan outlines the 10 street classifications which describe the intended character, goals and functions of London’s streets and are to be used for the planning and design of public rights-of way. The street classifications in London are shown in Exhibit 6.2 . The street classifications include typical priority users and typical vehicle volumes as well as design standards such as street widths and ideal designs for vehicle, pedestrian, utility and development zones. A description of the different Complete Streets elements for each street classification, including specific vehicle and pedestrian zone features are listed in Exhibit 6.3.

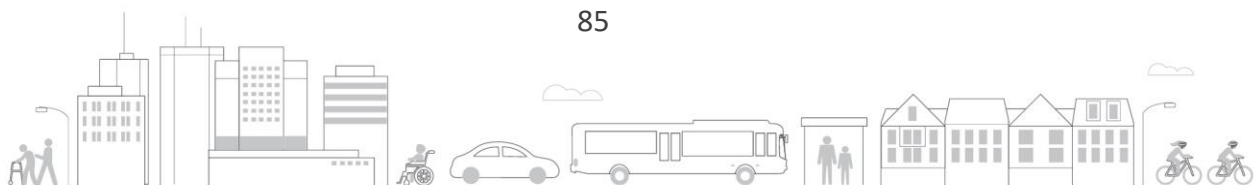
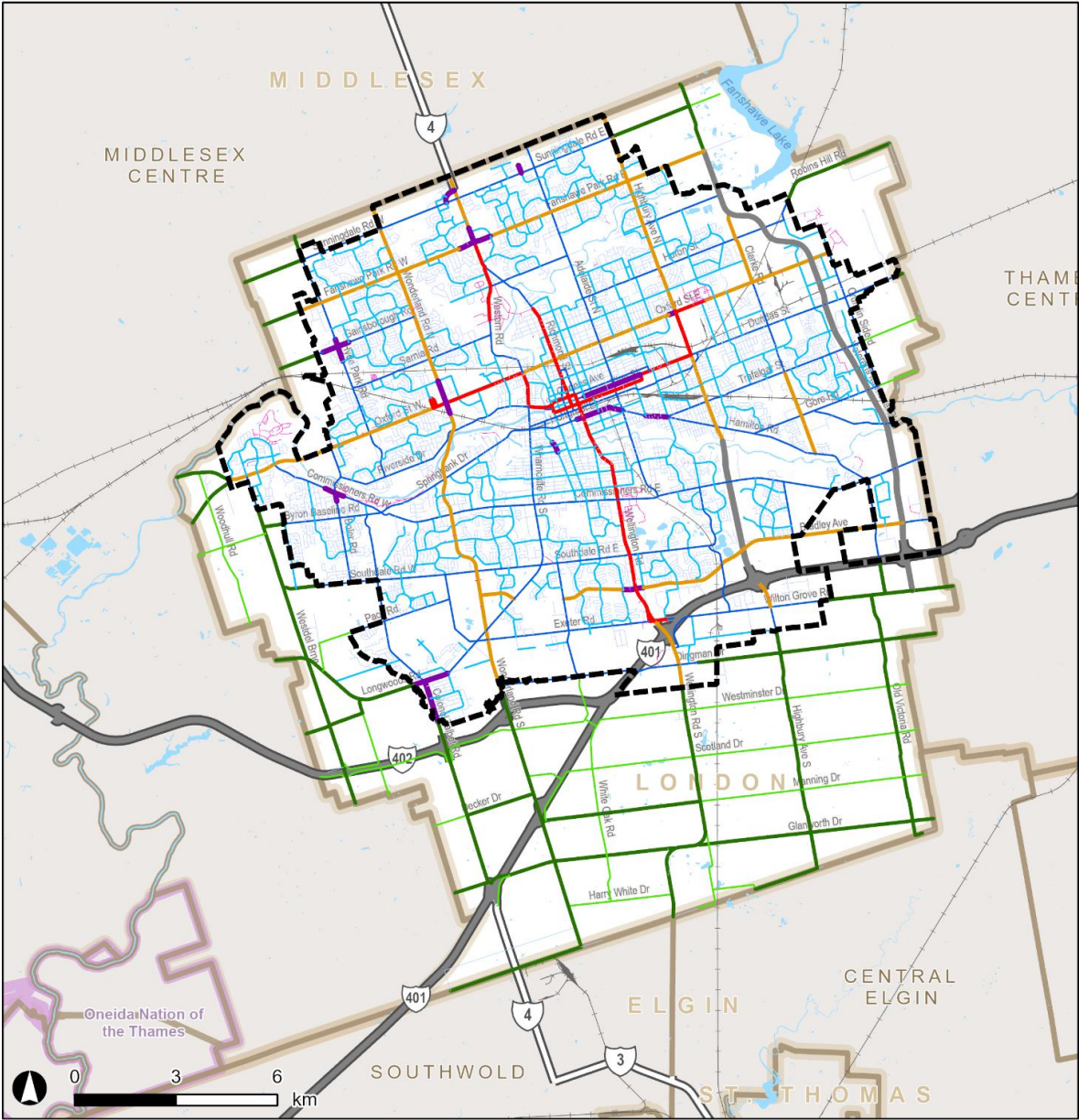


Exhibit 6.2: City of London Street Classifications (2022)



Legend		
Urban Growth Boundary	Main Street	Rural Thoroughfare
Street Classifications		
Private	Civic Boulevard	Expressway
Neighbourhood Street	Rapid Transit Boulevard	Provincial Freeway
Neighbourhood Connector	Urban Thoroughfare	Provincial Arterial Highway
	Rural Connector	

Source: London Plan

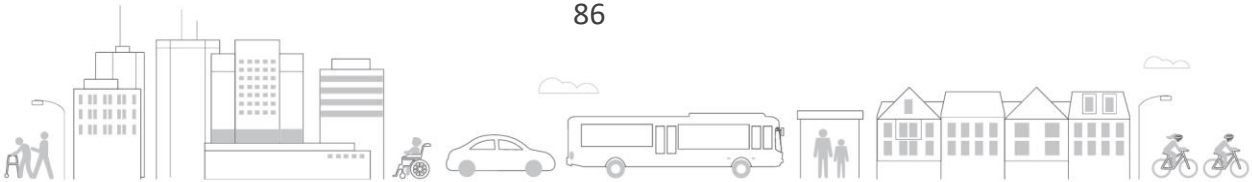
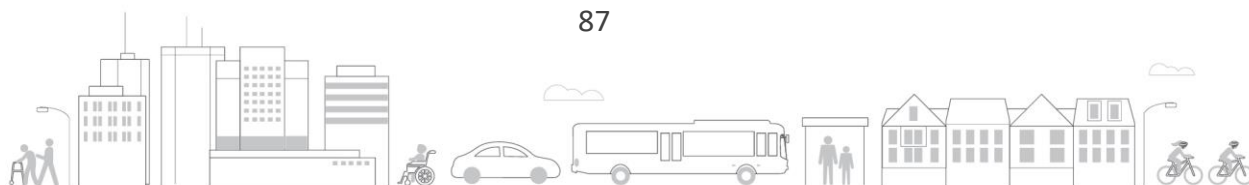


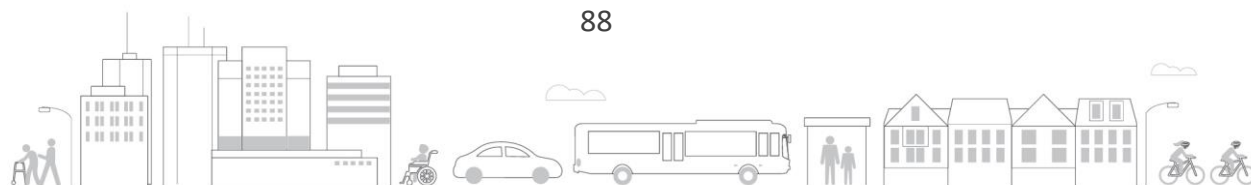
Exhibit 6.3: City of London Street Classification Descriptions

Classification	Service Function	Row	Traffic Volume	Complete Streets Considerations
Provincial Highways	Priority for vehicles and freight movement.	-	High volume of vehicular traffic.	Not applicable.
Expressways	Priority for vehicles and freight movement.	100 m	High volume of vehicular traffic.	<ul style="list-style-type: none"> • Vehicle Zone: Cycle facilities. • Pedestrian Zone: Street trees.
Arterial				•
Rapid Transit Boulevards	Priority on through movement and connection to/of transit vehicles.	50 m	High volume of pedestrian, cycle and vehicular traffic.	<ul style="list-style-type: none"> • Vehicle Zone: On-street parking; cycle facilities; left turn lanes; planted medians. • Pedestrian Zone: Sidewalks; street trees; street furniture; pedestrian-scaled lighting; landscape planters; grass boulevards; enhanced crosswalk treatments.
Urban Thoroughfares	Priority for vehicles and freight movement.	45 m	High volume of pedestrian, cycle and vehicular traffic.	<ul style="list-style-type: none"> • Vehicle Zone: On-street parking; cycle facilities; left and right turn lanes; planted medians. • Pedestrian Zone: Sidewalks; street trees; street furniture; pedestrian-scaled lighting; landscape planters.
Civic Boulevards	Priority on pedestrian, cycle and transit movements	36 m	Moves medium to high volumes of vehicular traffic.	<ul style="list-style-type: none"> • Vehicle Zone: On-street parking; cycle facilities; left and right turn lanes; planted medians. • Pedestrian Zone: Sidewalks; street trees; street furniture; pedestrian-scaled lighting; landscape planters.
Main Streets	Priority for pedestrians	45 m	Move low to medium volumes of cycle, transit	<ul style="list-style-type: none"> • Vehicle Zone: On-street parking; left turn lanes; planted median; curb extensions.



Classification	Service Function	Row	Traffic Volume	Complete Streets Considerations
			and vehicle movement.	<ul style="list-style-type: none"> • Pedestrian Zone: Street trees; street furniture; pedestrian-scaled lighting; landscape planters; enhanced crosswalk treatments.
Rural Thoroughfares	Priority on through movement of vehicles, farm equipment and freight /goods.	36 m	Medium to low volumes of farm vehicles, freight vehicles, vehicles and cycle.	<ul style="list-style-type: none"> • Vehicle Zone: Cycle facilities; left turn lanes; planted medians. • Pedestrian Zone: Street trees; enhanced crosswalk treatments.
Primary / Secondary Collector				
Neighbourhood Connectors	Priority for pedestrians	23 m	Move low to medium volumes of cycle, transit and vehicle movements.	<ul style="list-style-type: none"> • Vehicle Zone: On street parking; left turn lanes; curb extensions. • Pedestrian Zone: Street trees; pedestrian-scaled lighting; grass boulevards.
Rural Connectors	Priority on through movement of vehicles, farm equipment and freight /goods.	26 m	Medium to low volumes of farm vehicles, freight vehicles, vehicles and cycle.	<ul style="list-style-type: none"> • Vehicle Zone: Cycle facilities; left turn lanes; planted medians. • Pedestrian Zone: Street trees; enhanced crosswalk treatments.
Local				
Neighbourhood Streets	Priority for pedestrians	20 m	Move low to medium volumes of cycle, transit and vehicle movements.	<ul style="list-style-type: none"> • Vehicle Zone: On street parking; left turn lanes; curb extensions. • Pedestrian Zone: Street trees; pedestrian-scaled lighting; grass boulevards.

Source: City of London. (2016) *The London Plan*.



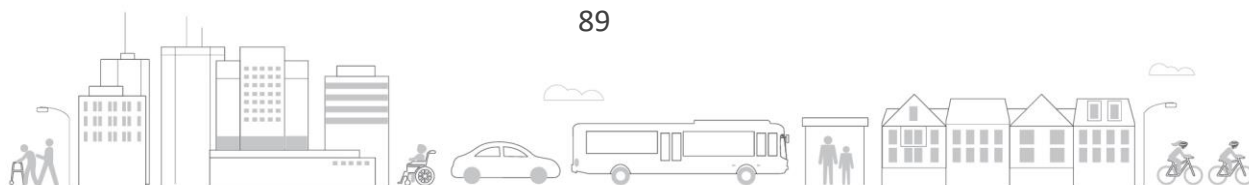
While the street classification system involves many multi-modal components, further integration with the considerations as outlined in the City’s *Complete Streets Design Manual* could support the implementation of multiple high-quality mobility options on London’s streets. Some key considerations listed in the *Complete Streets Design Manual* that could strengthen the ability of the street classification system to serve all road users include design principles for:

- **Pedestrian Realm and Place Design:** which focus on the needs of pedestrians in street environments and include design considerations to prioritize safety, accessibility and connectivity through the placement of different types of pedestrian crossings and street amenities.
- **Cycling facilities:** including typical recommended active mobility facilities for each road class and specifically linking cyclist and pedestrian volumes to the typical facilities could be considered to place more importance on active mobility facilities within the classification system.
- **Transit facilities:** which include considerations for the integration of transit features, such as different transit stops, lane markings, curb radii and intersection designs that can facilitate peoples’ access to and experience using LTC transit services on London streets. This would cover corridors beyond just the Rapid Transit Boulevards.

Additional opportunities that capture the evolving role of roadways include:

- Providing enhanced and dedicated design considerations to encompass the needs of transit vehicles beyond rapid transit corridors.
- Including curbside pickup zones, loading zones, and other temporary parking and street features to encompass the changing role of curbsides in accommodating street life, urban goods movement, micromobility and other new mobility services.

The roads classified as Rapid Transit Boulevards should also be reviewed given changes in the status of the City’s Rapid Transit plans and forthcoming MMP network recommendations.



6.2 Active Mobility

Active mobility means human-powered travel, including but not limited to walking, cycling, inline skating, skateboarding and travel with the use of mobility aids for those who need them. Transit ridership is often seen as a form of active mobility, because every transit trip involves getting to and from the bus or train. The active mobility network includes sidewalks, crosswalks, cycling lanes, designated streets and multi-use pathways to accommodate active transportation. (Adapted from The London Plan, p. 462.)

Active mobility has an important role to play in improving quality of life as part of a balanced mobility system. Walking and cycling trips have environmental benefits through reduced greenhouse gas emissions and health benefits through promoting physical activity and time outdoors. There are also equity and economic benefits that include lowering the cost of transportation for Londoners as well as reducing the cost of mobility infrastructure and contributing to vibrant local business areas. London has existing cycling and pedestrian networks that support the use of active mobility by residents and visitors, however the City is working to advance these networks.

Cycling and Trail Network

London’s cycling and trail network spans over 350 km⁴⁹ (Exhibit 6.4) and includes:

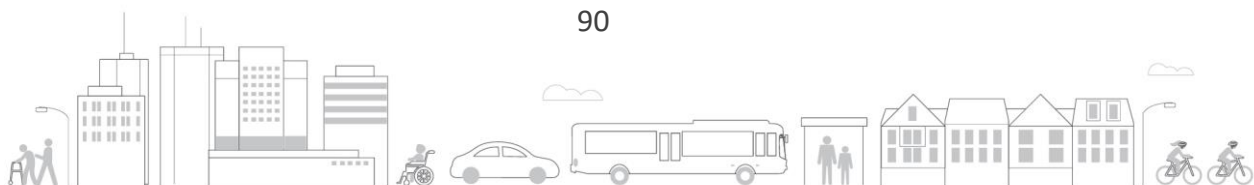
- **Protected bike facilities** that are located in the roadway or in the boulevard and offer physical separation from vehicular traffic.
- **Bike lanes** that are located in the roadway and are marked with painted lines.
- **Multi-use trails** that are off-road facilities used by both cyclists and pedestrians. This includes both additional cyclable trails and the Thames Valley Parkway.

We Heard That:

Londoners feel safer when biking on protected bike lanes and want to be able to access their destination being and feeling safe.

The cycling network serves both commuting and recreational purposes, with the Thames Valley Parkway serving as a key recreational route that also serves commuter traffic. However, there are currently gaps in London’s cycling network. Public engagement efforts demonstrated that many Londoners are discouraged from cycling due to these network gaps and the possibility of bike lanes ending before they reach their destination. A connected cycling network across

⁴⁹ City of London (2022). *Biking in London*. <<https://london.ca/cycling>> Accessed December 2022.



London will help encourage more trips to be made by cycling. Currently, 35% of Londoners live within approximately 500 metres of a protected cycling facility.

Sidewalk Network

Sidewalks play a crucial role in connecting residents to local destinations like parks, trails, grocery stores, medical centres, jobs and more. They are also an essential component of accessing transit as the vast majority of transit trips begin and/or end using the sidewalk network.

Exhibit 6.5 shows the extent of London’s sidewalk network. There are nearly 400 km of roads that do not currently have sidewalks on either side.⁵⁰ Many of the streets without sidewalks are located in suburban neighbourhoods built in the post-war era between 1950 and 1980, when street design focused primarily on vehicle movement in the context of wider roads and curvilinear streets.

The London Plan calls for all streets to have sidewalks on both sides, with very few exceptions. To address gaps in the sidewalk network, the City’s Neighbourhood Connectivity Community Engagement program reviews sidewalk options within the context of wholistic neighbourhood connectivity to identify solutions that provide the greatest benefit to all users. City staff have identified about 20 areas of London where there are opportunities to provide better connections through sidewalks. Council has directed City staff to develop **Neighbourhood Connectivity Plans** for each of these areas. These plans will involve consultation with residents in these communities, City data and input and information from agencies and partners.

⁵⁰ City Of London (2022). *Mobility Master Plan Community Conversation*. <PowerPoint Presentation> Accessed November 2022.

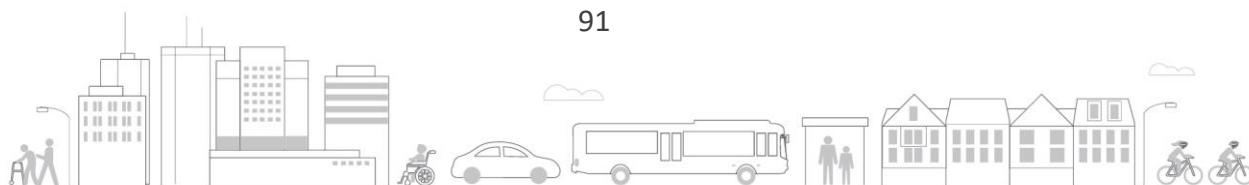
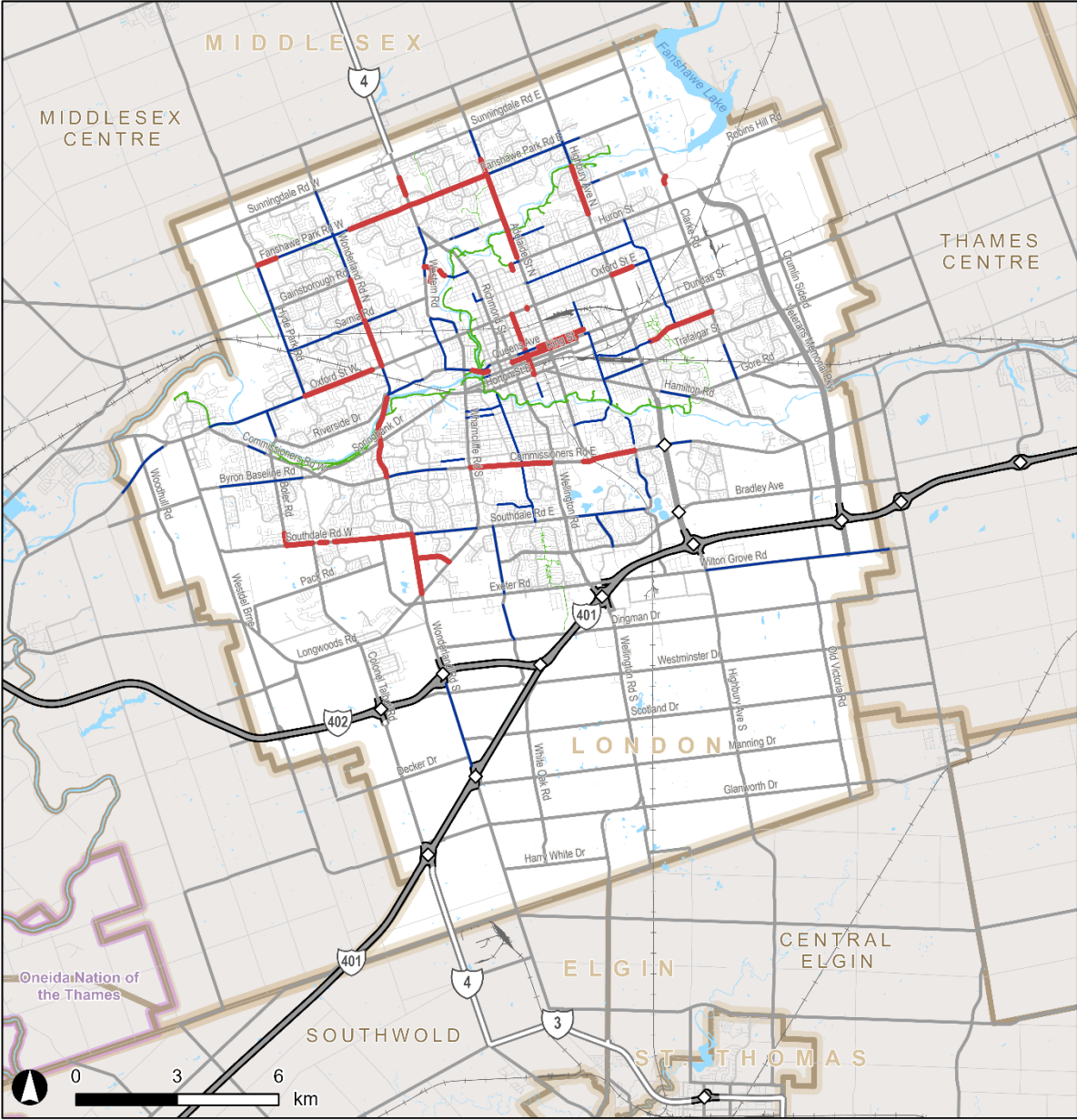


Exhibit 6.4: City of London Cycling and Trail Network



Route Type		Thames Valley Parkway	Provincial Roads	Municipal Roads
	Protected Bike Facility			
	Bike Lane			
	Additional Cyclable Trails			

Source: City of London

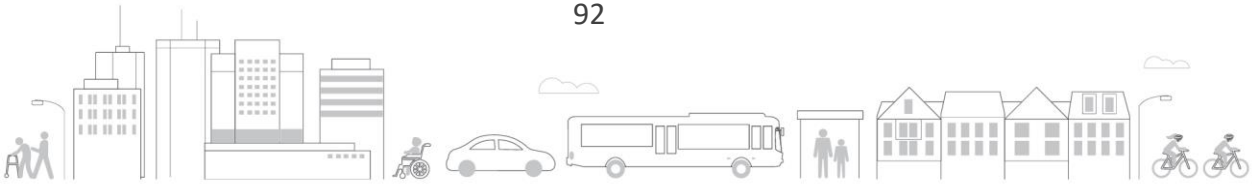
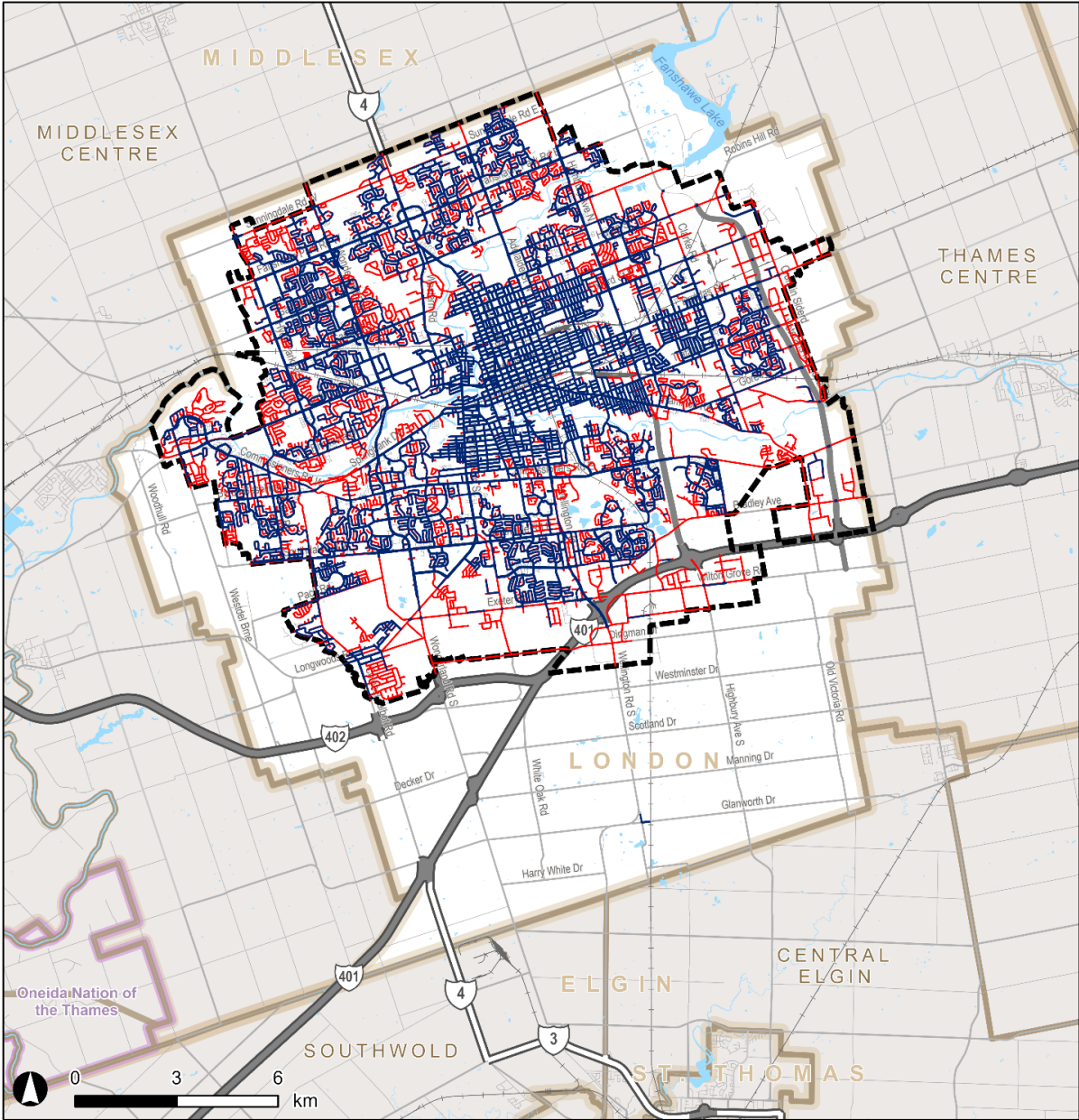


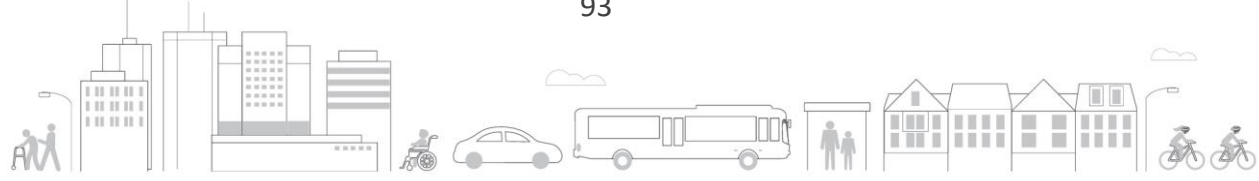
Exhibit 6.5: City of London Sidewalk Provision and Gaps



Legend

Sidewalks	Provincial Freeway
Urban and neighbourhood streets without sidewalks	Provincial Arterial Highway
Urban Growth Boundary	Expressway
	Railway

Source: City of London



Sidewalk Conditions and Experience

Beyond the availability of sidewalks, the quality of the walking experience also varies across the city. The communities in and around Central London tend to have more established pedestrian infrastructure and amenities including designs that offer shade, more frequent intersections and sidewalks on both sides of the road. Many post-war developments tend to be designed without these amenities, impacting the ability to walk/roll and the quality of the experience. These amenities can significantly improve the quality and convenience of the walking experience, as well as connecting to/from transit, and therefore lead to increased active mobility.

We Heard That:

Sidewalks can take a long time to repair, and sidewalks in poor condition pose a significant challenge to Londoners, **particularly those using mobility devices.**

Sidewalk condition and maintenance is also a key issue in London. Currently, approximately 30 km of sidewalks are in poor or very poor condition (approximately 2% of all sidewalks). Input collected from the first Community Conversation identified that steep/uneven curb ramps and uneven/cracked sidewalks can be challenging for people using mobility devices and that narrow sidewalks can lead to conflicts between pedestrians and

cyclists. These issues worsen in the winter months when snow and ice can restrict movement on sidewalks. This can lead to people getting stuck on the sidewalks, feeling isolated due to an inability to leave home, and having trouble accessing bus stops.

Cycling and Sidewalk Use

The City has an automatic data collection system for active mobility that includes thirteen counters around London, collecting volume data on pedestrians and cyclists 24 hours/day, seven days/week. Exhibit 6.6 shows the two-way monthly cycling counts of the Ridout Street and Colborne Street bike lanes in 2019 and Exhibit 6.7 shows two-way monthly people counts of various locations in London’s park system in 2019. This provides a snapshot of the seasonal variation in levels of active mobility over the course of the year.

Both pedestrian and bike lanes followed a similar trend of significant use from April to October, with peaks being recorded in the summer month of July. Despite lower use in the winter months, there is consistent demand for active mobility year-round which can be further encouraged and supported through year-round maintenance practices.

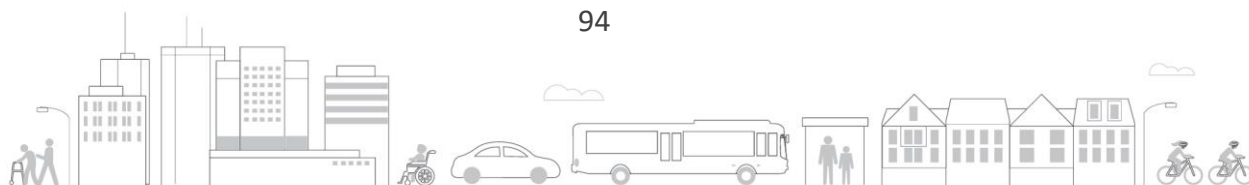
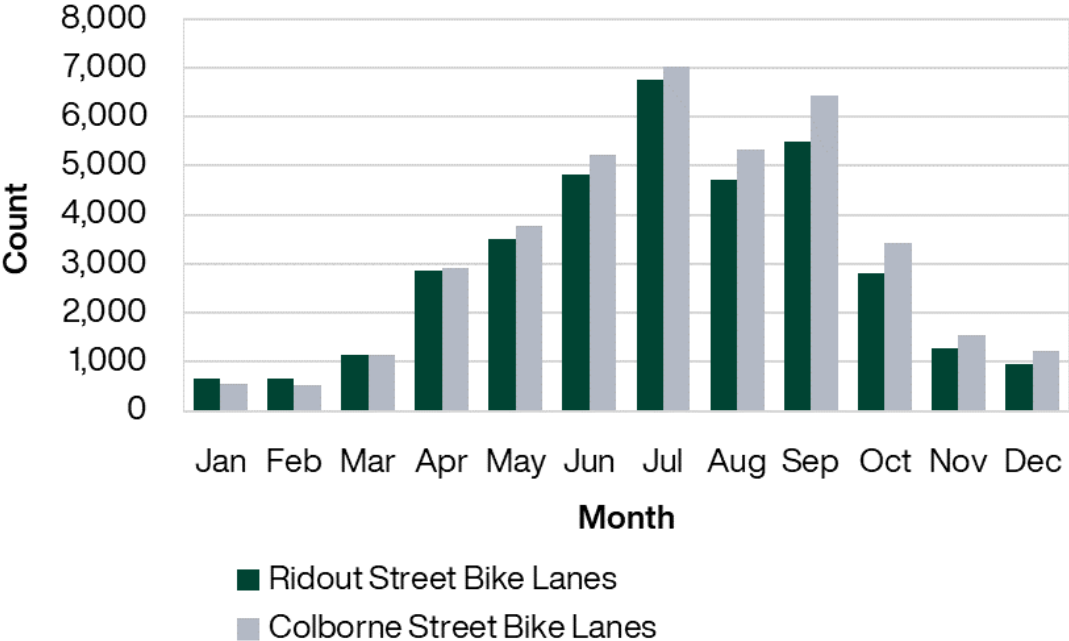


Exhibit 6.6: Ridout Street and Colborne Street Bike Lanes Monthly Counts (Two-way), (2019)



Source: Analysis of City of London data

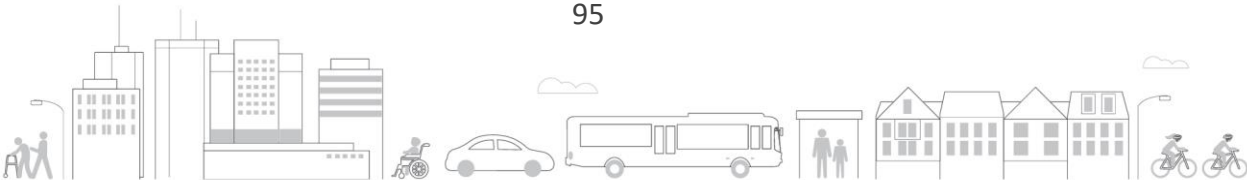
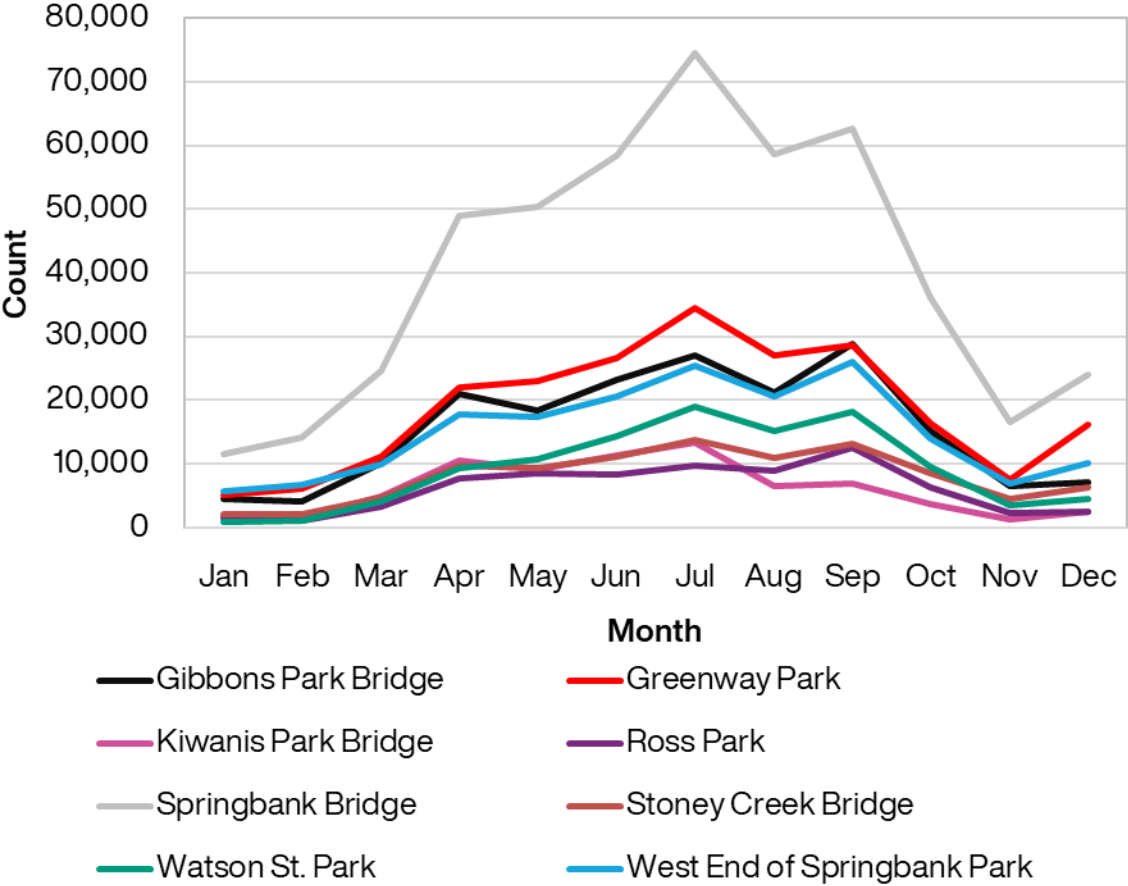


Exhibit 6.7: London Park System People Monthly Counts (Two-way), (2019)



Source: Analysis of City of London data

Travel Time Competitiveness

Exhibit 6.8 shows the ratio of auto and cycling travel times between key trip generators in London on a weekday afternoon. Travel times are similar for several origin-destination pairs. However, many of these trips are relatively long-distance and/or include sections on high-volume roads without cycling facilities that are physically separated from motor vehicle traffic. In order for people to cycle to make these trips, high-quality cycling facilities that feel safe to use are required.

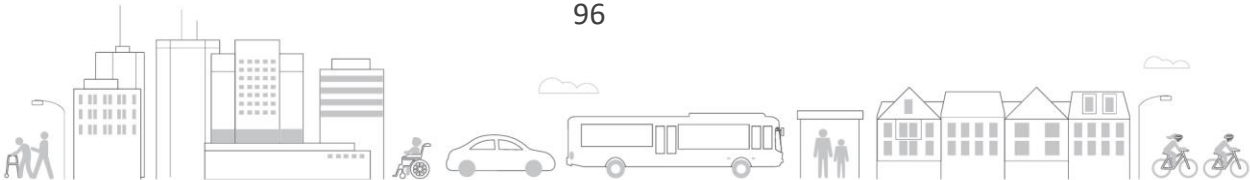


Exhibit 6.8: Cycling Travel Time Competitiveness Ratio

Origin	Destination					
	Downtown	Western	Fanshawe	Masonville	Oxford/Wonderland	White Oaks
Downtown	-	1.54	1.35	1.31	1.05	1.19
Western	1.60	-	1.58	1.67	2.00	1.18
Fanshawe	1.28	1.47	-	1.59	0.96	1.71
Masonville	1.58	2.44	1.80	-	1.10	1.28
Oxford/Wonderland	1.14	2.13	1.42	1.21	-	1.36
White Oaks	1.47	1.39	1.71	1.17	1.28	-

Source: Google Maps travel times at 4:30pm on a weekday.

Winter Maintenance

Sidewalks in London are cleared within 48 hours after snowfall ends (if 5 to 10 centimetres of snow has accumulated), bus stops are cleared 48 hours after the sidewalks are cleared, and ice on sidewalks is addressed within 48 hours after being identified.⁵¹

For the cycling network, the City clears bike lanes after various amounts of time based on the level of snowfall:⁵²

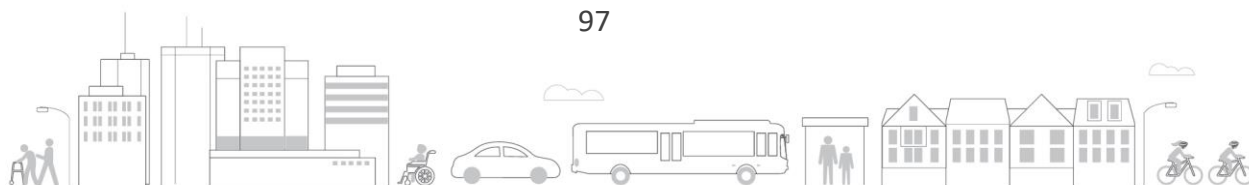
- **5 centimetres or less of snow:** bike lanes are cleared within 8 hours after the snowfall ends.
- **5 centimetres of snow:** bike lanes are cleared within 12 hours after the snowfall ends.
- **8 centimetres or more of snow:** bike lanes are cleared within 24 hours after the snowfall ends.

We Heard That:

Snowfall on sidewalks can **prevent Londoners from leaving their homes** and can cause feelings of isolation due to a lack of mobility.

⁵¹ City of London (2021). *Winter maintenance*. < <https://london.ca/living-london/roads-sidewalks-transportation/maintenance-reporting/winter-maintenance#:~:text=Crews%20use%20a%20minimal%20amount,t%20sand%20the%20entire%20road>> Accessed December 2022.

⁵² City of London (2021). *Winter maintenance*. < <https://london.ca/living-london/roads-sidewalks-transportation/maintenance-reporting/winter-maintenance#:~:text=Crews%20use%20a%20minimal%20amount,t%20sand%20the%20entire%20road>> Accessed December 2022.



The Thames Valley Parkway is cleared within 48 hours after the snowfall ends.

Recent Planning Initiatives

The *City of London Cycling Master Plan (2016)* provides the foundation for the City’s future cycling network, including key pathways, supportive programming and a recommended investment and implementation strategy. The MMP will build on *The City of London Cycling Master Plan* to create a new integrated MMP that supersedes the current TMP and *The City of London Cycling Master Plan*. More information on *The City of London Cycling Master Plan* can be found in Appendix A.

Improving active mobility infrastructure is also a key focus of the City’s ‘Renew London’ program, which lists the wide range of construction projects that aim to better connect Londoners with new roads, bridges, pathways, transit and bike lanes. In 2022 alone, 18 km of existing sidewalks were slated to be replaced in London, over 6 km of new sidewalks were built, and more than 15 km of new bike lanes were added to London’s active mobility network.⁵³

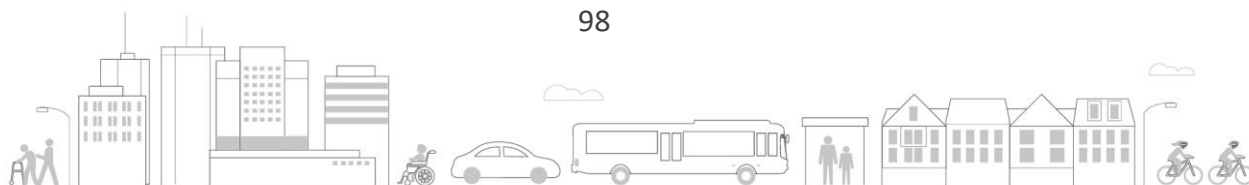
London currently has far-reaching pedestrian, cycling and trail networks that are used by many residents and visitors year-round for commuting, discretionary and recreational trips. However, gaps remain in these networks that make it difficult for people in many communities to access their destinations using active mobility options. Challenges related to the connectivity of the cycling network and the condition of the sidewalk network (particularly in the winter) were key concerns cited by Londoners in the first Community Conversation.

6.3 Municipal Passenger Transit Services

Municipal passenger transit service (referred to as transit) is public transportation that provides services within London and is provided by the London Transit Commission (LTC). The transit system is a vital part of London’s mobility system serving over 20 million trips annually before the COVID-19 pandemic.

Growing transit ridership will be a key component of increasing the people-moving capacity of the mobility system as London’s population continues to grow. Further, as a travel option that is more affordable than automobile ownership, transit plays a key role in providing an equitable transportation system that enables access to opportunities by all Londoners.

⁵³ City of London. (2022). *Renew London: London’s Top 10 Projects*. <<https://storymaps.arcgis.com/stories/628905856582466286115bd79adb9a38>> Accessed December 2022.



The existing transit network in London (shown in Exhibit 6.9) features over 40 routes that comprise of conventional service on express and local routes, accessible service on community bus routes, and specialised service. To serve Londoners, LTC has over 217 buses, 2,200 bus stop, and 400 bus shelters.

Transit service in London is largely concentrated in the urbanized area north of Highways 401 and 402 known as the Primary Transit Area and includes elements of both a coverage-based and service-based model:

- **Coverage-based** elements include routes that follow curvilinear streets in suburban areas to provide convenient transit access for much of the low-density residential development outside of the downtown core.
- **Service-based** elements include direct, grid-like routes along major arterial roads that are intended to facilitate the efficient movement of people along key corridors. This serves to connect the downtown core with other major institutions (including hospitals and post-secondary institutions) and developed areas.

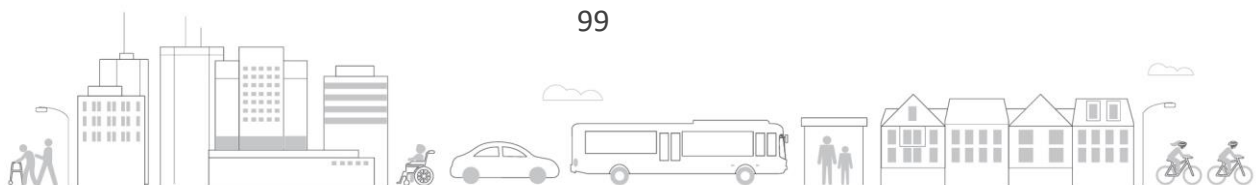
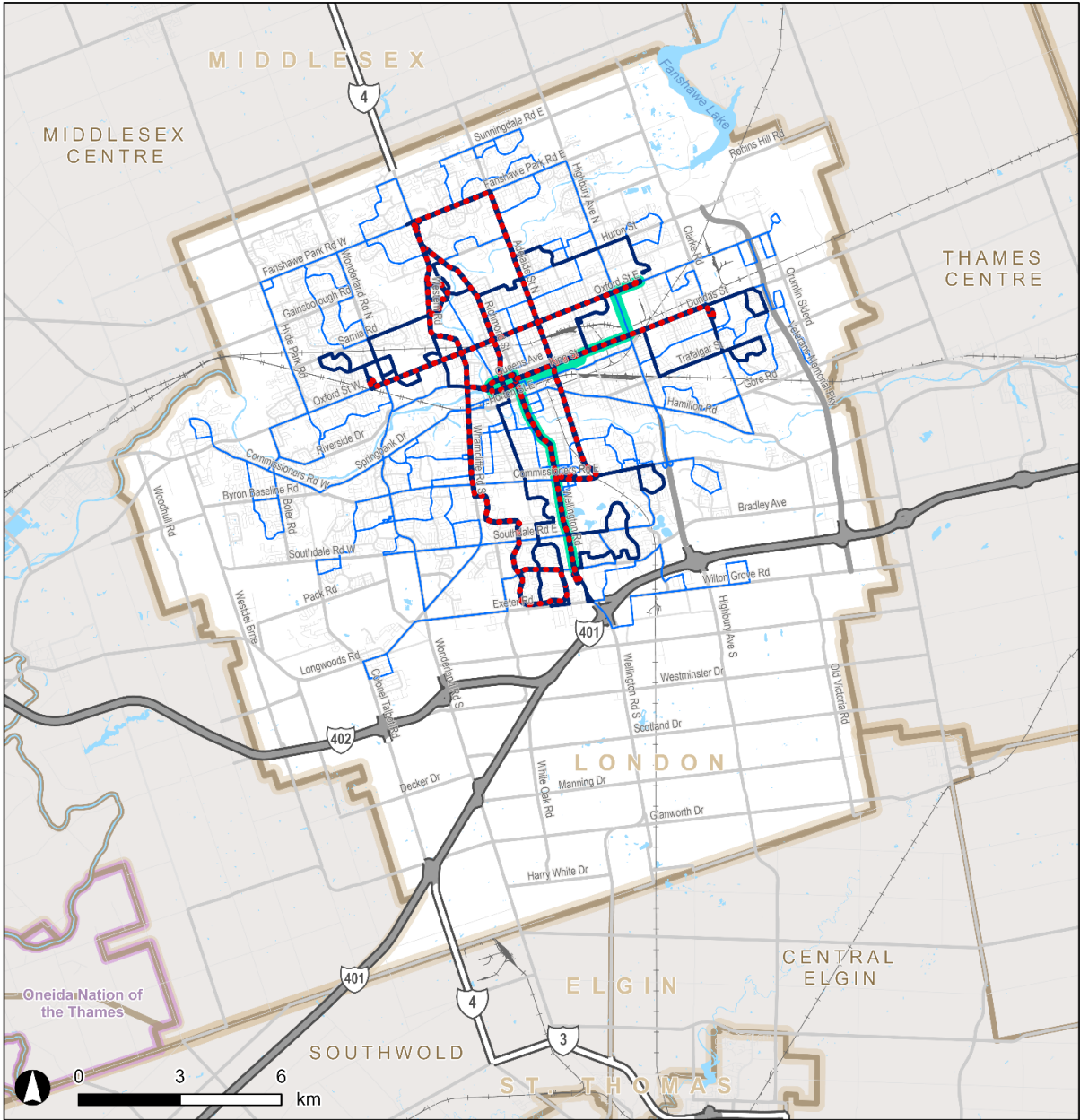


Exhibit 6.9: London Transit Service Provision (2022)



Legend

London Transit Commission Bus Routes

- - - Express Routes; Route 92
- AM peak frequency 15 minutes or less
- AM peak frequency more than 15 minutes
- Future Bus Rapid Transit

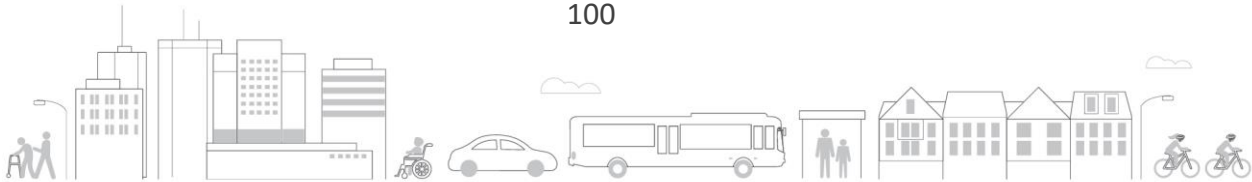
Railway

- Freeway
- Arterial Highway

Municipal Roads

- Expressway
- Arterial
- Collector
- Local/Private

Source: London Transit Commission Data



London Rapid Transit

London currently has three approved rapid transit projects including the Downtown Loop in Central London, the East London Link between Central London and Fanshawe College, and the Wellington Gateway between Central London and Highway 401. Construction has begun on segments of all three projects. This network will involve articulated buses travelling in separate lanes from automobiles. These projects also include streetscape revitalization, cycling enhancements and transit hub infrastructure. Additional information on London’s plan for Rapid Transit is included in Appendix A.

Transit Supply Trends

Transit supply refers to the amount of transit service offered and can be measured in the number of revenue vehicle hours provided annually which refers to hours that the buses are in service.

Exhibit 6.10 demonstrates changes in transit supply between 2011 and 2019 demonstrating that **the amount of service being provided is increasing** (revenue vehicle hours and revenue vehicle hours per capita). A key focus of the increased service was adding higher frequencies on high ridership routes to reduce the occurrence of “crush capacity” conditions and improve service. Increasing revenue vehicle hours inline with or greater than population growth is essential to maintaining and attracting transit ridership.

However, Exhibit 6.10 also shows that the use of each hour of service has been declining (rides per revenue vehicle hours). This is because revenue service hours have been growing faster than ridership. Some of the decline in trips per revenue vehicle hour may also be the result of initiatives to improve service quality rather than grow ridership and because of transit service extensions into new lower-density developments that yield fewer transit riders per service hour.

We Heard That:

Many Londoners expressed that **long wait and travel times for buses** makes it difficult to meet daily needs using transit.

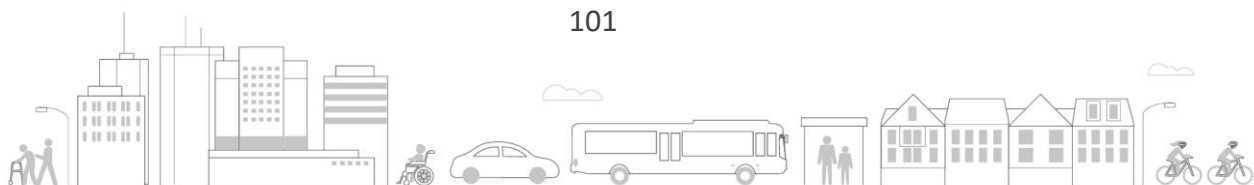
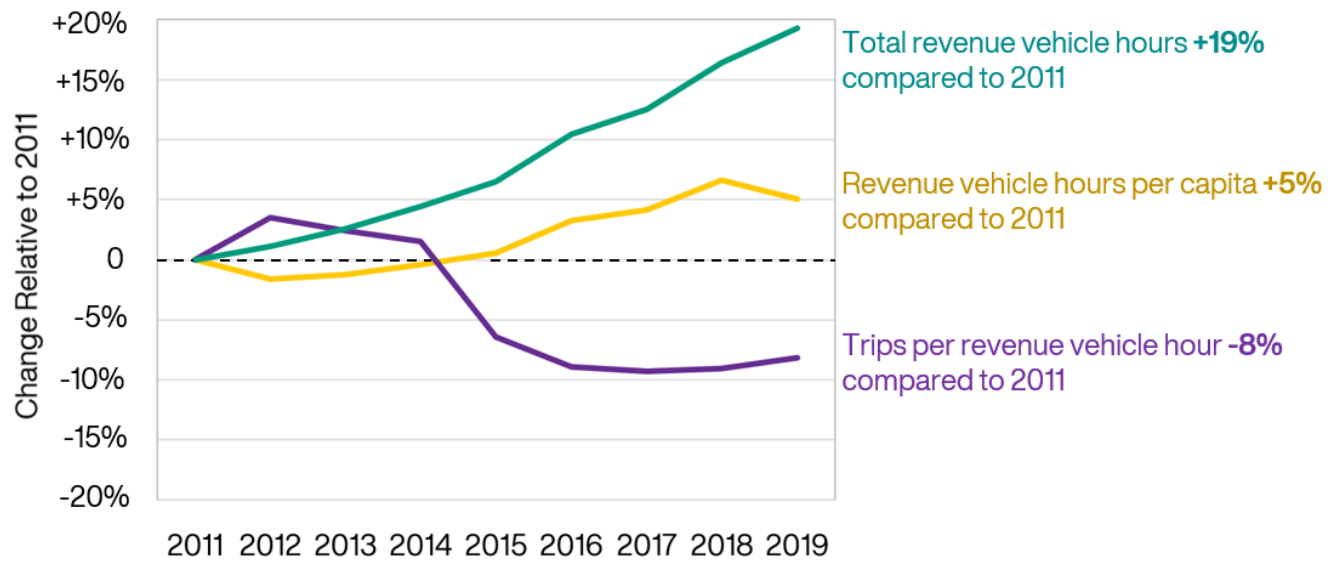


Exhibit 6.10: Changes in Transit Supply, 2011 to 2019



Source: CUTA Statistics

Note: Data from 2020 and 2021 have been excluded to illustrate trends prior to COVID-19.

Compared to peer municipalities, London provides a similar or better level of transit service for residents as shown in Exhibit 6.11. Ottawa is included for the purpose of comparing London to a larger city. Ottawa has a significantly higher service level per capita, owing to its extensive rapid transit system, and substantial peak-period transit service designed for commuting to the region’s large employment centres.

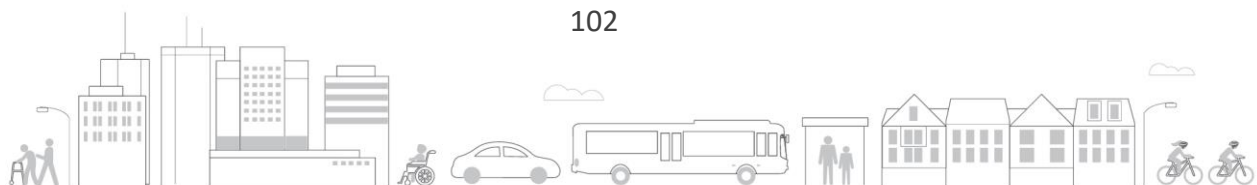
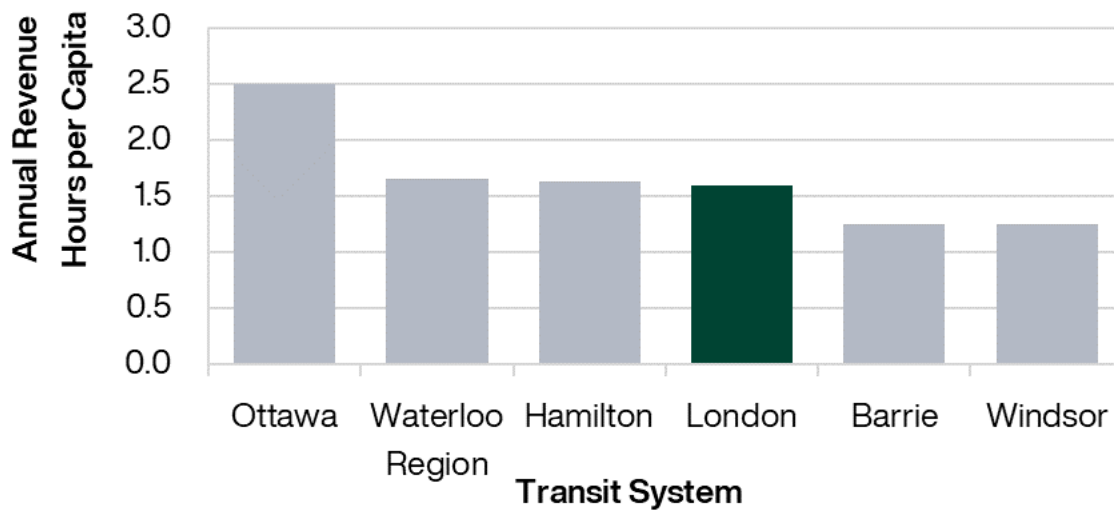


Exhibit 6.11: LTC and Peer Agency Annual Revenue Hours per Capita (2019)



Data Source: Canadian Urban Transit Agency Factbooks (2020)

Transit Demand Trends

Exhibit 6.12 shows transit demand trends between 2011 and 2019. Key findings include:

- Total **transit trips have increased** by 9% between 2011 and 2019.
- Trips per capita have decreased by 4% compared to 2011, as transit ridership is growing slower than the population.
- **A decline in ridership occurred between 2014 and 2015** of over 5%. This could partially be a result of the change to the Ontario Works transportation benefit from a complimentary monthly transit pass to a monthly stipend meaning Londoners receiving the benefit needed to pay upfront for each trip.⁵⁴
- **Total ridership continued to increase from 2015 to 2019**, with 2019 total ridership numbers exceeding the previous 2014 maximum.

We Heard That:

Londoners desire longer transit service hours and more convenient transfers between bus routes.

⁵⁴ Left Turn Right Turn (2019). *London Transit Five Year Ridership Growth Strategy. Final Report* p. 2.

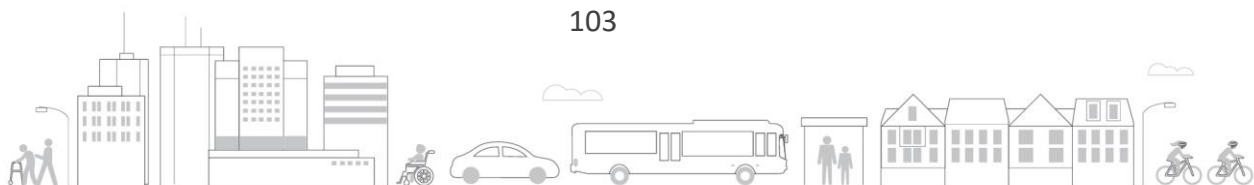
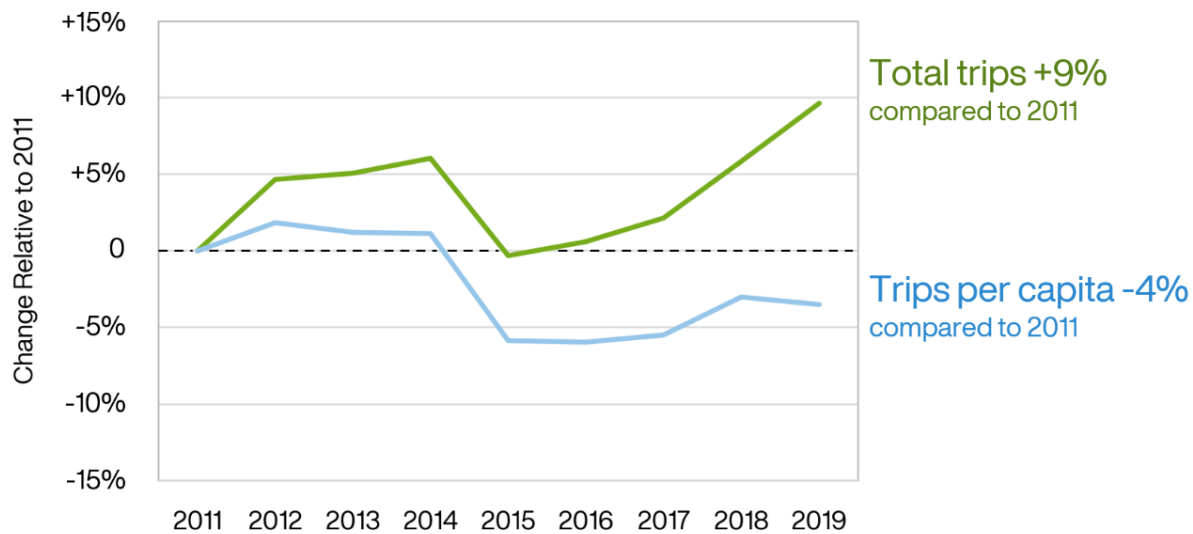


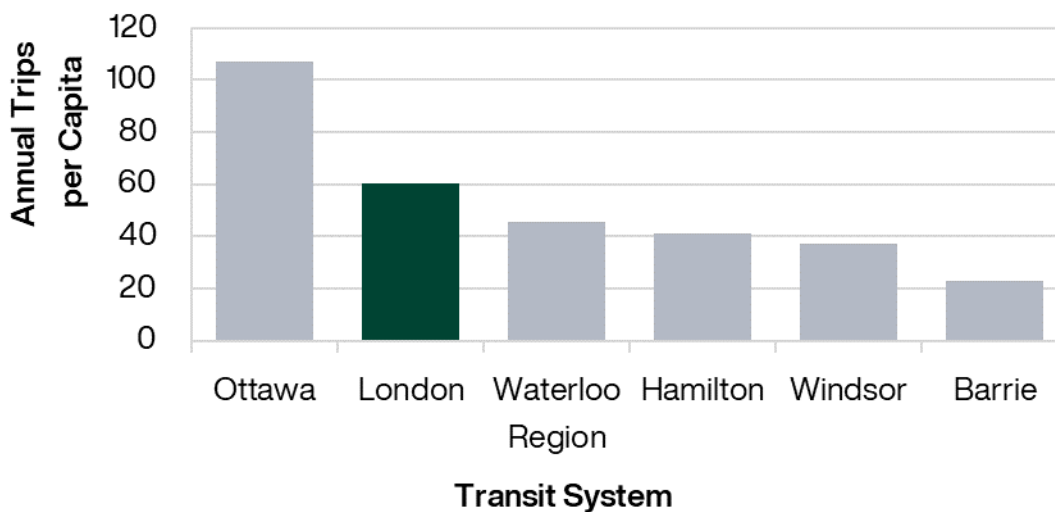
Exhibit 6.12: Historic LTC Ridership Trends (2011-2019)



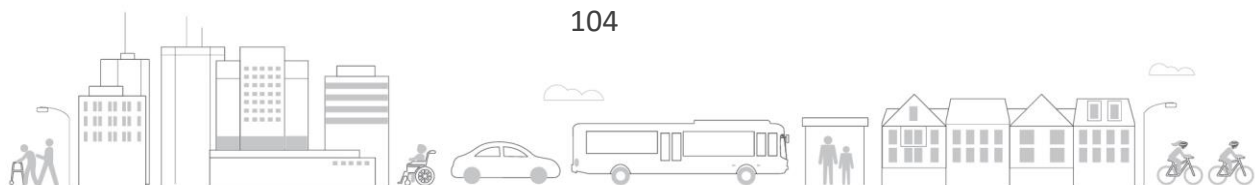
Data Source: Canadian Urban Transit Agency Factbooks (2020)

Londoners use transit at a similar or greater rate in comparison to most peer municipalities as shown in the 2019 trips per capita comparison in Exhibit 6.13. As previously stated, Ottawa has a well-established transit system, including an extensive rapid transit network and service oriented around major trip generators contributing to increased use.

Exhibit 6.13: LTC and Peer Agency Annual Trips per Capita (2019)



Data Source: Canadian Urban Transit Agency Factbooks (2020)



Top Ridership Routes

LTC has a set of seven routes that are considered top ridership routes. These routes, shown in Exhibit 6.14 and listed below meet at least four of the five following criteria:

- Top 10 ridership volume in September 2019 (pre-COVID).
- Top 10 ridership volume in Spring 2020 (peak COVID).
- Top 10 ridership volume in September 2021 (COVID recovery).
- Below average decline in ridership due to COVID.
- Above average rebound in ridership during COVID recovery.

In addition to high ridership numbers in 2019, several COVID-related data points were used in identifying these top ridership routes. This COVID-related ridership data is valuable because it helps identify routes that serve people who rely on transit and who have jobs and other responsibilities or needs that are not met close to home. The seven routes include:

- Route 2
- Route 13
- Route 10
- Route 16
- Route 17
- Route 15
- Route 20

All seven routes that met the above criteria were in the top 10 high ridership routes in all time periods. These routes form a grid network throughout the city, serving many major trip generators, including transit villages, shopping malls, hospitals, and post secondary institutions. As discussed in Chapter 8, most of these routes have substantial segments that operate on arterials that experience congestion during peak hours, meaning that the routes are slowed by traffic congestion. Network planning efforts need to account for the high demand for transit services on these routes.

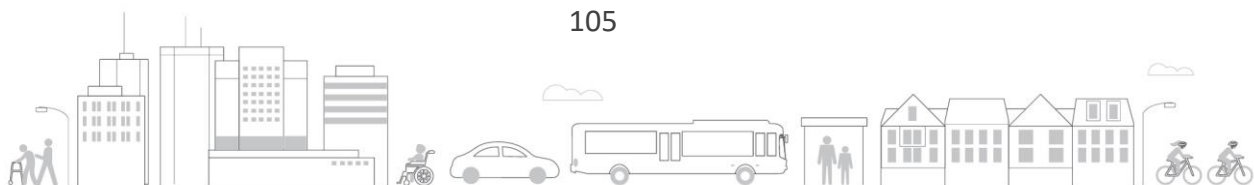
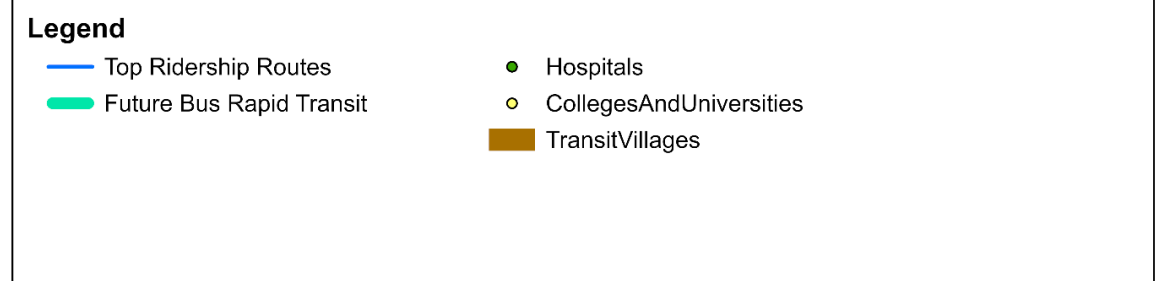
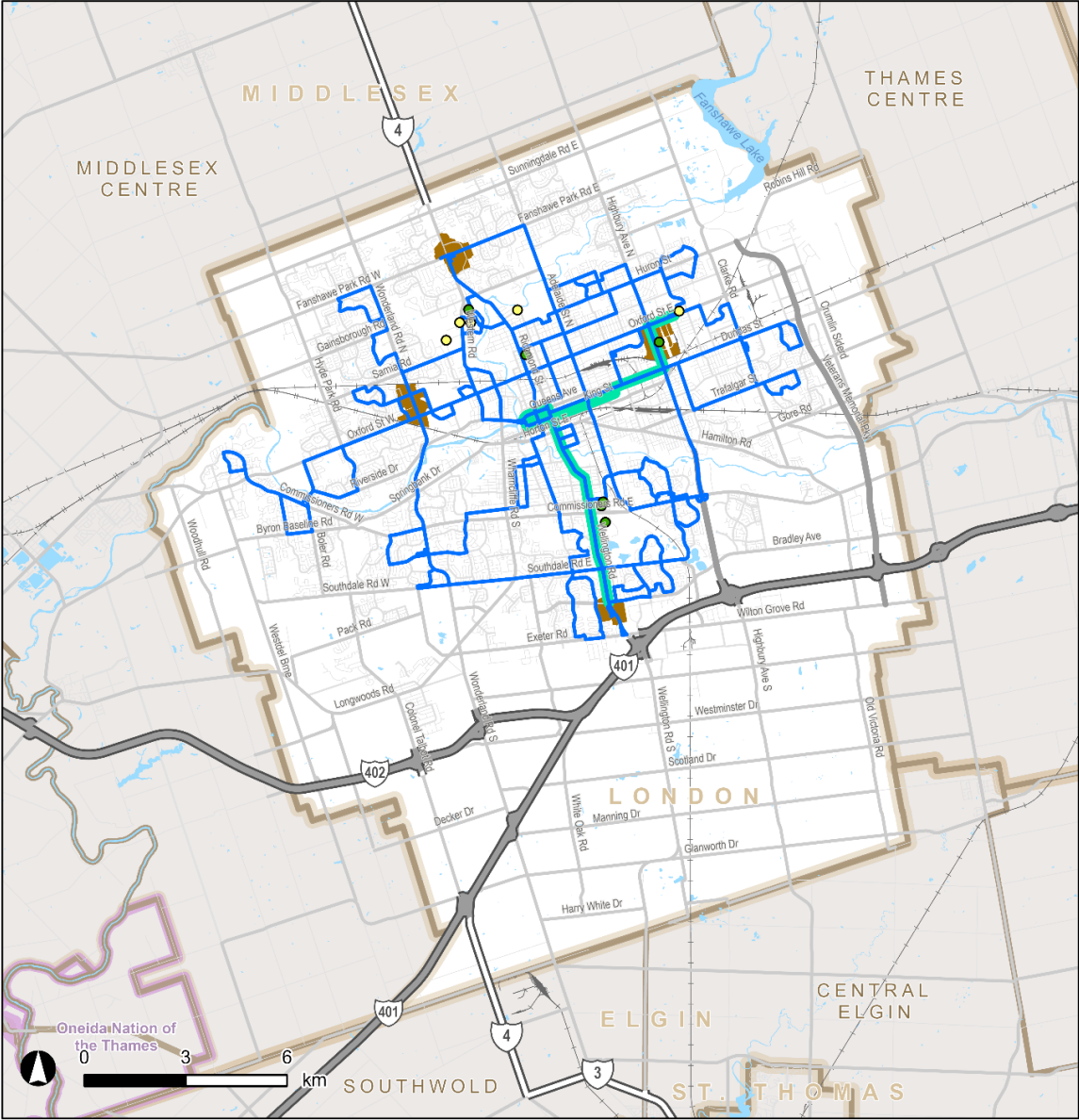
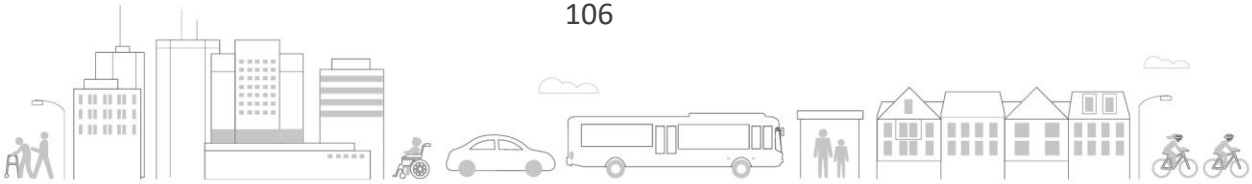


Exhibit 6.14: Top Transit Ridership Routes



Source: Arcadis Analysis of London Transit Commission Data



User Fees

London Transit Commission has a variety of fare types including for adults, students, seniors, children, youth, income-related, CNIB, tourism and park and ride. Costs also vary per fare type based on whether it is a single cash fare, a ticket bundle or a pass. Between 2008 and 2020, no fare increases took place. Fares for general adult “cash fares” from 2007 to 2024 are listed below:

- 2007 - \$2.50
- 2008 to 2019 - \$2.75
- 2020 to 2023 - \$3.00
- 2024 - \$3.50

Fare hikes were re-introduced for 2020 (prior to the onset of the COVID-19 pandemic) for a variety of reasons including significant improvements to service that warranted an increase and a change in Provincial funding.⁵⁵

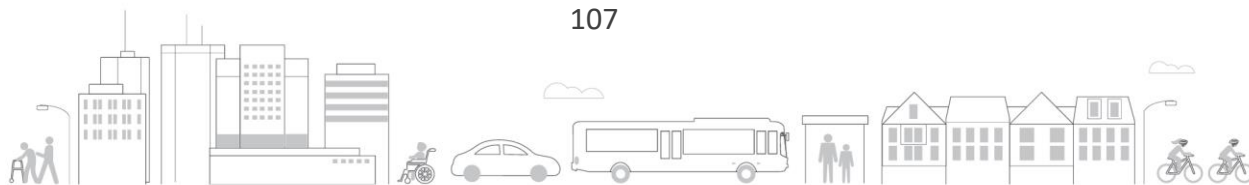
Exhibit 6.15 shows adult cash fare and “average fare” to use LTC services from 2011 to 2019. “Average fare” is a metric reported annually in the *Canadian Urban Transit Association (CUTA) Conventional Transit Statistics Report* that is calculated by dividing total revenue by the total trips.⁵⁶ This metric therefore does not represent a listed fare price, but rather the average price paid per user which is impacted by a number of factors including the proportion of use by different fare types (e.g. student, senior, low income) as well as trip-frequency discounts (e.g. each trip on a monthly pass is less expensive than regular fares).

Prior to the pandemic, the average fare in London remained stable, with only a \$0.05 increase (approximately 4% increase) in average fare between 2011 (\$1.33) and 2019 (\$1.38). This is likely due to no increases in listed fare prices between 2008 and 2020 but also relative stability in all other factors impacting this metric.

Given significant changes in travel behaviour due to the COVID-19 pandemic which impacted a number of factors that influence this metric, the average fare increased significantly in 2020 and 2021. The average annual fare increased 23% between 2019 (\$1.38) and 2020 (\$1.70) and an additional 54%

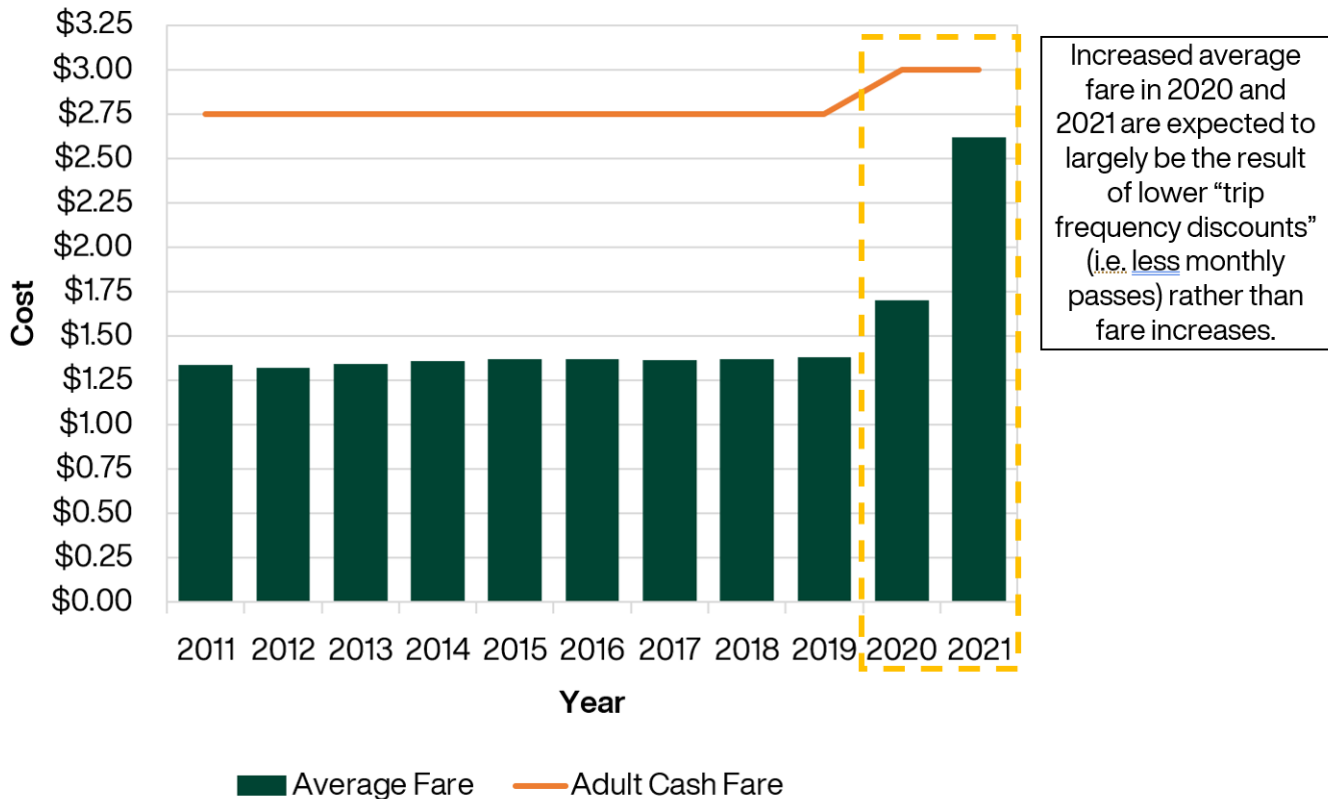
⁵⁵ CBC News. (2019, September 26). *London Transit raises fares by up to 17 per cent*. Retrieved from <https://www.cbc.ca/lite/story/1.5298067>

⁵⁶ Specifically, this is Regular Service Passenger Revenue divided by the Total Regular Service Linked Trips



to 2021 (\$2.62).⁵⁷ While listed fare prices were raised across all fare types, **this increase is expected to primarily be the result of significantly lower “trip frequency discounts” (i.e. less monthly passes).**

Exhibit 6.15: LTC Adult Cash Fare and Average Fare (2011-2021)



Data Source: Canadian Urban Transit Agency Factbooks

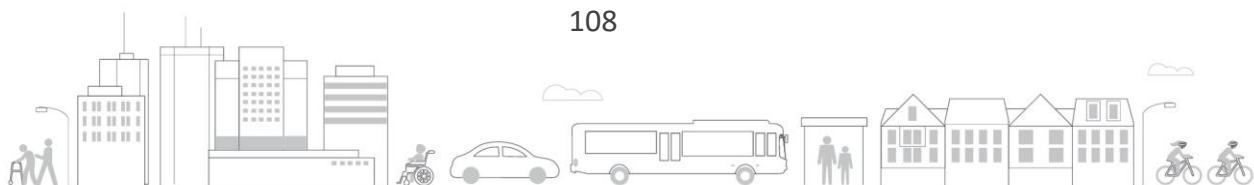
Note: “Average Fare” is calculated by dividing total revenue by the total trips and does not represent a listed fare price.

Operational Metrics

Other important indicators for transit systems relate to the cost to operate the system. Operating cost per trip for LTC is a good way to measure cost effectiveness as it relates the cost of operating the system to the number of riders using it.⁵⁸ Exhibit 6.16 shows the operational cost per trip for LTC between 2011 and 2019. **With service expansions being implemented over this time, the operating**

⁵⁷ Canadian Urban Transit Agency Factbook 2020.

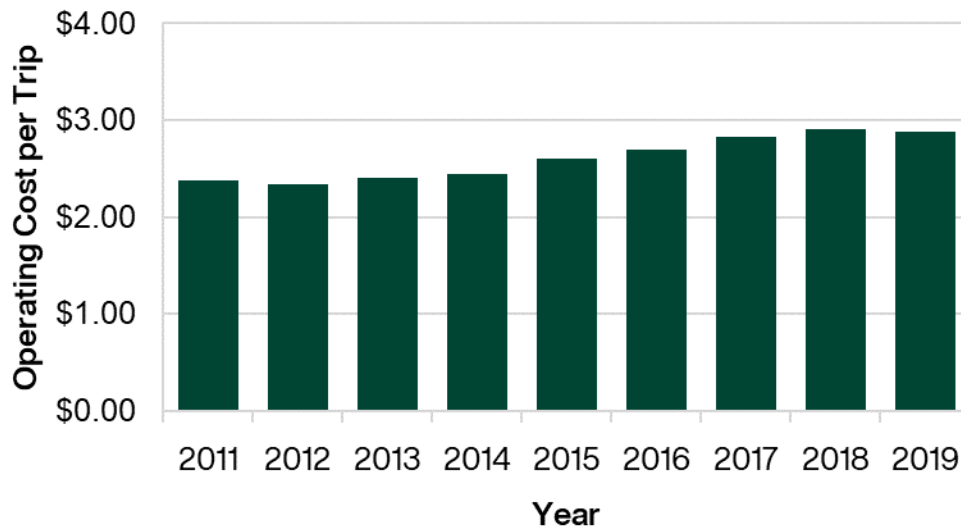
⁵⁸ Operating cost per trip is calculated as the total operating expenses divided by the total number of trips in a year.



cost per trip has increased by \$0.52 (approximately 22% increase) between 2011 (\$2.37) and 2019 (\$2.89).

Many transit agencies are unable to cover operating costs through fare revenues alone. Transit agencies often receive subsidies from municipal governments to fund the difference between operating costs and fare revenues. As shown in Exhibit 6.17, in 2019 **London had one of the lowest subsidy rates for transit services across its peers**, as revenues cover about 50% of operating costs. While this is a significant portion of the operating costs, low subsidy levels can limit the ability to make transit improvements that can attract ridership and additional revenues.

Exhibit 6.16: LTC Operating Cost per Trip (2011-2019)



Data Source: Canadian Urban Transit Agency Factbooks (2020)

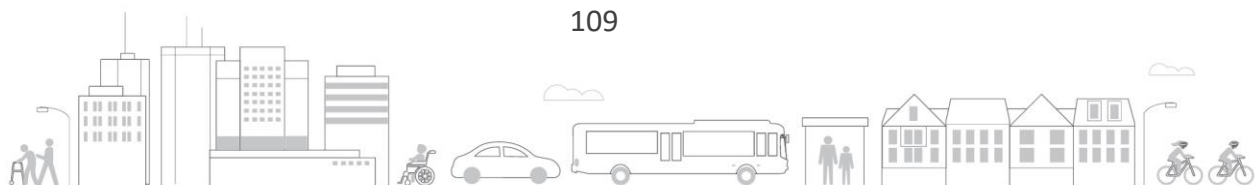
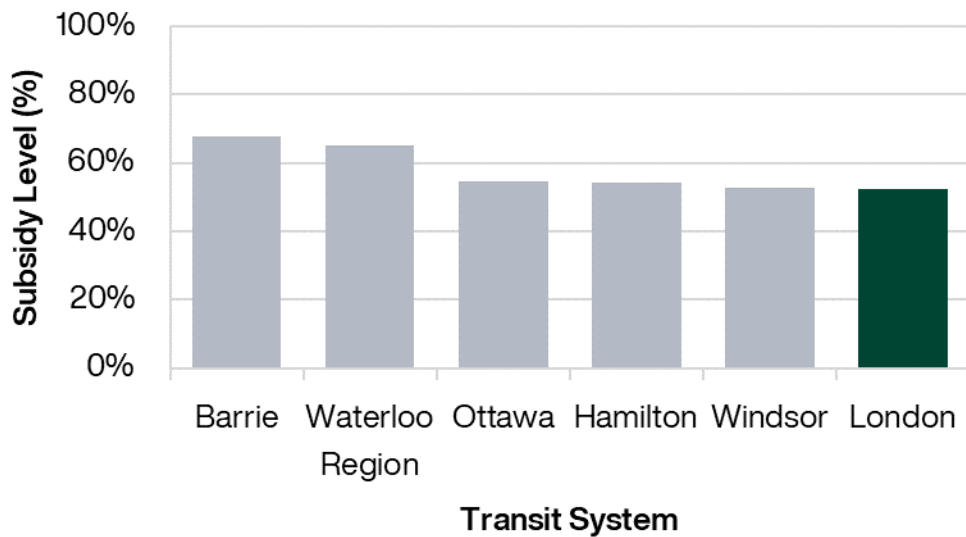


Exhibit 6.17: LTC and Peer Agency Subsidy Level (2019)



Data Source: Canadian Urban Transit Agency Factbooks (2020)

Specialized Transit Services

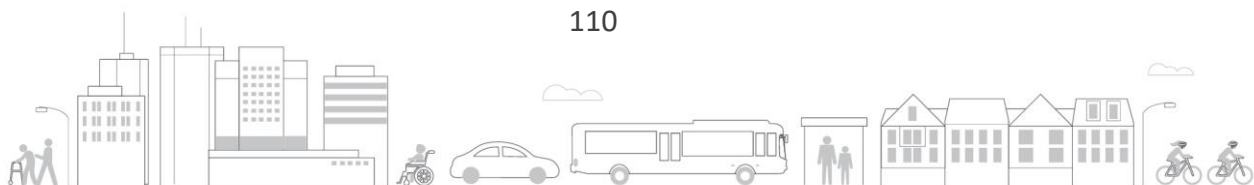
London Transit offers specialized transit service designed to meet the needs of people who have a disability that prevents them, on a regular basis, from being able to use London’s conventional transit service. These services are vital for providing mobility around and access to the city for many people.

People must apply to use this shared ride, door-to-door service. London’s specialized transit service is operated by a private contractor. Services are offered weekdays 6:00 a.m. to midnight and from 8:30 a.m. to 11:00 p.m. on weekends and holidays. Users must pre-book rides up to three days in advance by phone and services are offered on a “first come, first served” basis. Subscriptions are also available for persons who will be traveling on a regular pre-determined basis to or from a destination.

In 2019, nearly 300,000 eligible specialized passenger transit trips were served, plus nearly 35,000 support people. The cost of providing this service was \$30.79 per passenger (eligible and support persons) in 2019 for a total operating cost of about \$9.2 million. Operating costs are covered by passenger fares and funding contributions made by both the Province and City.⁵⁹

The *Accessibility for Ontarians with Disabilities Act, 2005 (AODA)* set out a requirement for Ontario to be “fully-accessible” by 2025. For transit this means ensuring the conventional transit system is fully accessible, and/or providing door-to-door specialized transit for eligible riders unable to use

⁵⁹ Canadian Urban Transit Agency Factbooks



conventional transit. Fare Equity laws require services to cost no more than those of local conventional transit services.

Travel Time Competitiveness

Exhibit 6.18 shows the ratio of auto and transit travel times between key trip generators in London on a weekday afternoon. This comparison helps indicate the attractiveness of personal automobile travel compared to existing transit services. Approximately one third of the origin-destination pairs have transit travel times that are at least twice as long as travel times by car. There are no origin destination pairs that take less time by transit. Increasing the competitiveness of transit is an important part of attracting more riders and increasing the share of transit trips made in the city.

Exhibit 6.18: Transit Travel Competitiveness Ratio

Origin	Destination					
	Downtown	Western	Fanshawe	Masonville	Oxford/Wonderland	White Oaks
Downtown		1.68	2.07	1.19	2.65	1.49
Western	2.09		1.95	2.40	3.50	1.26
Fanshawe	2.21	2.47		1.95	1.30	2.23
Masonville	1.39	1.75	1.95		1.94	1.21
Oxford/Wonderland	2.13	2.50	1.15	1.87		1.47
White Oaks	1.77	1.67	2.33	1.38	1.57	

Source: Google Maps travel times at 4:30pm on a weekday.

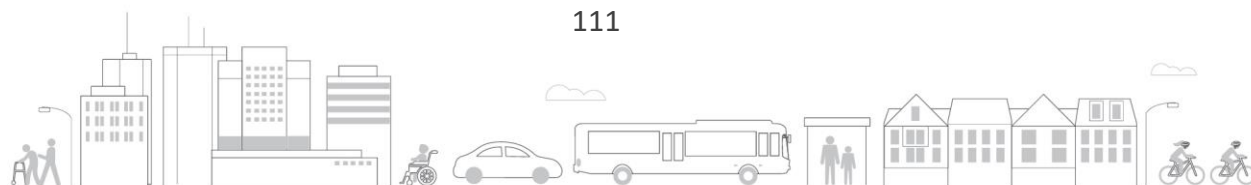
London Transit and the COVID-19 Pandemic

The COVID-19 pandemic had a significant impact on London’s transit system and ridership. Major ridership decline occurred between 2019 and 2020 at the onset of the pandemic with a 48% decrease in annual ridership.⁶⁰

However, London Transit reported that **2022 ridership had returned to approximately 90% of pre-pandemic levels on weekdays and 110% on weekends.**⁶¹ This illustrates a significant rebound in ridership and a shift in travel behaviour away from high demand in morning and evening peak periods

⁶⁰ Canadian Urban Transit Agency Factbook 2020.

⁶¹ City Of London (2022). *Mobility Master Plan Community Conversation*. <PowerPoint Presentation> Accessed November 2022.



typical of tradition 9-5 office work. These shifts in demand must be a key consideration for how transit service is provided in London.

While ridership has largely recovered, there is uncertainty about long-term travel trends that need to be monitored (see Section 7.1 for further discussion).

Other Initiatives

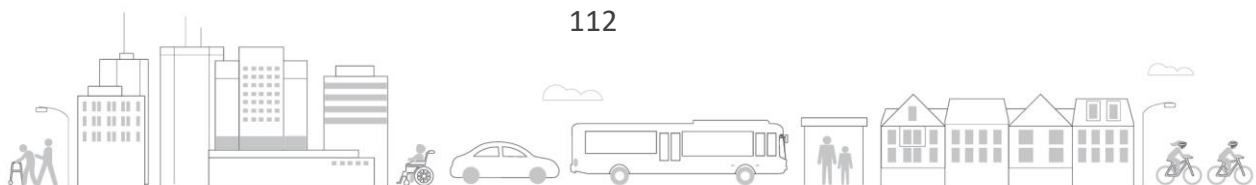
The LTC annual service plans in 2021 and 2022 called for significant improvements to the existing transit network. These improvements include adding 18,000 additional revenue service hours, new express routes, reducing maximum scheduled wait times, increased frequency of local routes, and expanded service hours.⁶²

The LTC is implementing an alternative service delivery model for Innovation Park, an industrial site in the east end of the city. This new transit service will feature a non-conventional approach that integrates elements of on-demand travel to better serve travel demand to this area. The LTC is also in the process of procuring 10 electric buses to help reduce transportation-related greenhouse gas emissions as part of the City’s overall goal of net-zero emissions by 2050.

The City is expanding transit service to meet a growing population and improve service. The LTC provides a similar or higher level of transit service compared to most peer municipalities. LTC provides critical connections throughout the city, as highlighted by the set of routes that served the most riders before COVID, during COVID, and during the COVID recovery. Despite isolated drops in ridership for a variety of reasons, long-term trends indicate steady increases in ridership. However, since ridership has not increased as fast as population growth, trips per capita have decreased.

From an operational perspective, operating costs per trip are lower than many peers, however, the level that transit service is subsidized in London is also one of the lowest among peers—this could potentially be limiting the ability to expand and improve service.

⁶² Many of these improvements have been delayed due to operator and bus shortages.



6.4 Inter-Municipal Passenger Transit Services

As discussed in Section 2.4, London is a vibrant regional centre, with many trips flowing into and out of London from surrounding municipalities. Inter-municipal transit service is transit that crosses municipal boundaries to facilitate regional travel, provided either publicly or privately. This service plays a key role in connecting external municipalities to economic, retail, healthcare, social, religious and recreational opportunities in London.

The following types of inter-municipal passenger transportation services operate to, from and within London. Specific service providers are outlined in Exhibit 6.19.

Inter-Municipal Passenger Rail

Two passenger rail operators service London:

- In October 2021, GO Transit launched a GO Train pilot service between Toronto and London. The weekday service extends service on the Kitchener GO Line and provides connections between Toronto, Brampton, Georgetown, Guelph, Kitchener, Stratford, St. Marys and London. The pilot ended on October 13, 2023.
- VIA Rail also provides connections between London and Sarnia/Windsor, and London and Toronto.

Inter-Municipal Private Bus Providers

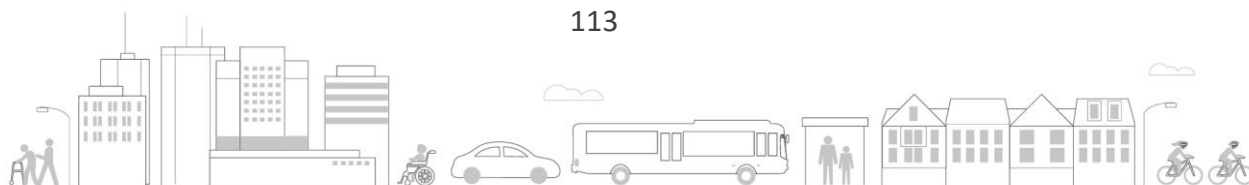
Three inter-municipal private bus providers service London:

- Megabus (Badder Bus) provides direct service between Toronto and London.
- OnEx Bus provides service between London, Kitchener and Toronto.
- FlixBus provides service between London and Toronto, and London and Windsor.

Inter-Municipal Public Bus Providers

Inter-municipal transit services are also provided by several of the municipalities surrounding London, offering connections to London (listed in Exhibit 6.19). Many of these services are funded by the Province of Ontario’s Community Transportation Grant. It is important to note that, while existing inter-municipal transit services connect many surrounding municipalities to London, these services are often infrequent and difficult to transfer between. Additionally, there is an absence of inter-municipal transit connection between London and the County of Elgin or St. Thomas, despite notable travel demand.

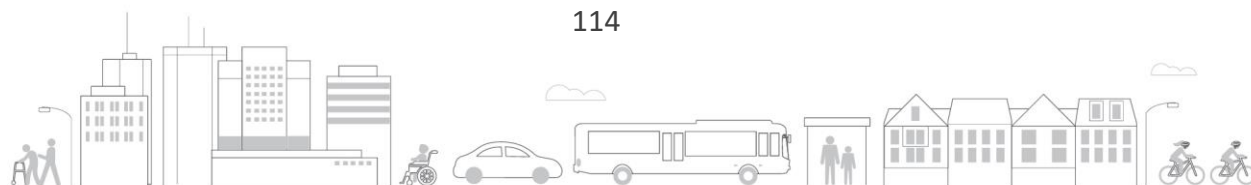
London is also one of nine member municipalities that form the Southwest Community Transit Association (SCT), a voluntary association that proposes to coordinate inter-municipal bus



transportation in Southwest Ontario, as well as develop best practices, identify economies of scale and provide a common platform to support long-term sustainable transit funding.

Exhibit 6.19: Existing Inter-Municipal Passenger Transportation Services

Service Operator	Service Type	Routes with London Terminals / Connections	Inter-Municipal Transit Service Terminal
Inter-Municipal Passenger Rail			
Go Transit (GO Rail) (This service ended October 13, 2023)	Scheduled fixed route	Toronto-Brampton-Georgetown-Acton- Guelph-Kitchener-Stratford-St. Marys-London	London VIA
VIA Rail	Scheduled fixed route	Toronto-Oakville-Aldershot-Brantford-Woodstock-Ingersoll-London-Glencoe-Chatham-Windsor Toronto-Malton-Brampton-Georgetown-Guelph-Kitchener-Stratford-St. Marys-London-Strathroy-Wyoming-Sarnia	London VIA
Inter-Municipal Bus Providers – Private*			
Megabus (Badger Bus)	Scheduled fixed route	<ul style="list-style-type: none"> • Toronto-London 	<ul style="list-style-type: none"> • Western University • Flying J Travel Center
OnEx Bus	Scheduled fixed route	<ul style="list-style-type: none"> • London-Kitchener-Toronto 	<ul style="list-style-type: none"> • London VIA • Victoria Hospital, • White Oaks Mall
FlixBus	Scheduled fixed route	<ul style="list-style-type: none"> • London-Toronto-Ottawa • Toronto-London -Windsor 	<ul style="list-style-type: none"> • London VIA • Western University
Inter-Municipal Bus Providers – Public*			
T:GO Inter-Municipal Transit	Scheduled fixed route	<ul style="list-style-type: none"> • Tillsonburg-Ingersoll-Dorchester-London 	<ul style="list-style-type: none"> • Victoria Hospital
Strathroy-Caradoc Inter-Municipal Transit	Scheduled fixed route	<ul style="list-style-type: none"> • Sarnia-Strathroy-Mount Brydges-Komoka-London 	<ul style="list-style-type: none"> • London VIA • London Airport



Service Operator	Service Type	Routes with London Terminals / Connections	Inter-Municipal Transit Service Terminal
Perth County Connect	Scheduled fixed route	<ul style="list-style-type: none"> London-St. Marys-Stratford-Shakespeare-New Hamburg-Waterloo 	<ul style="list-style-type: none"> Masonville Place Mall
Middlesex County Connect	Scheduled fixed route, on-demand (Saturday)	<ul style="list-style-type: none"> Woodstock-Ingersoll-Dorchester-London Lucan-Ilderton-London 	<ul style="list-style-type: none"> Masonville Place Mall Argyle Mall Fanshawe College
Huron Shores Area Transit	Scheduled fixed route	<ul style="list-style-type: none"> Grand Bend-London 	<ul style="list-style-type: none"> Masonville Place Mall University Hospital

* Public and private inter-municipal bus providers are new and evolving services, details are subject to change.

Provincial Planning Initiatives in Southwestern Ontario

The Province has recently completed and is currently undertaking regional transportation planning activities in southwestern Ontario including:

- *Connecting the southwest: A draft transportation plan for southwestern Ontario* released January 2020.
- *Southwestern Ontario transportation task force final report* released September 2023.
- *Southwestern Ontario Transportation Planning Study* currently underway.

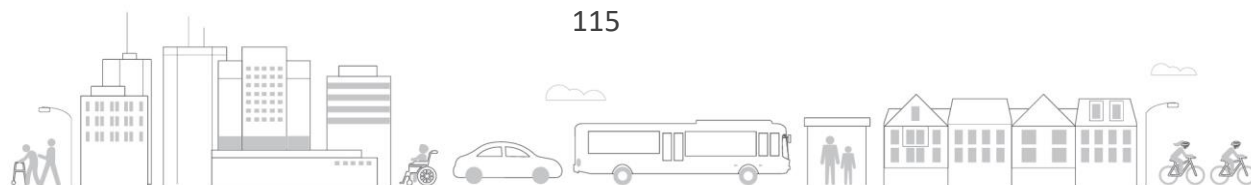
These initiatives are focused on improving regional connectivity and better integration of transportation services across the region, including for inter-municipal passenger transit services.

Notably, **they recognize the unique opportunity to leverage the City of London as a transportation hub, due to its centralized location and proximity to communities across the region.**⁶³

Mobility Hubs

Effective mobility hubs are locations where multiple mobility options converge, enabling seamless transfers between services or modes. This often includes connections between local services and

⁶³ MTO. *Southwestern Ontario transportation task force final report*. Retrieved from <https://www.ontario.ca/page/southwestern-ontario-transportation-task-force-final-report>



inter-municipal services (including multiple inter-municipal services for longer-distance trips). Additional services are often included at mobility hubs, such as micromobility, bicycle parking, park-and-rides, passenger pick-up/drop-off and customer amenities. The *Conceptual Framework for Regional Transportation in London (2021)* recommends the development of mobility hubs to improve inter-municipal travel and facilitate easier transfers.

While London is a key economic centre in Southwestern Ontario, it does not currently have well-defined mobility hubs with all the previously mentioned services and features. As shown in Exhibit 6.20, there are 11 inter-municipal transit service terminals with varying levels of connection with local transit services. These locations include the Masonville Place Mall, University Hospital, Western University, London Airport, Fanshaw College, Argyle Mall, London VIA Rail Station, Victoria Hospital,

White Oaks Mall, Wellington Petro-Canada and the Flying J Travel Center.

We Heard That:

Londoners desire additional services (such as bike parking) at transit service terminals to make it easier to transfer between modes.

There is an opportunity to upgrade some of these transit service terminals to mobility hubs to promote inter-municipal travel and improve transfers between transit services and modes. This is particularly relevant for the downtown mobility hub around the London VIA Rail station and Masonville Place Mall transit terminal, which have both been identified in the *Conceptual Framework for Regional Transportation in London* as transportation hubs where improved inter-municipal connectivity is desired.

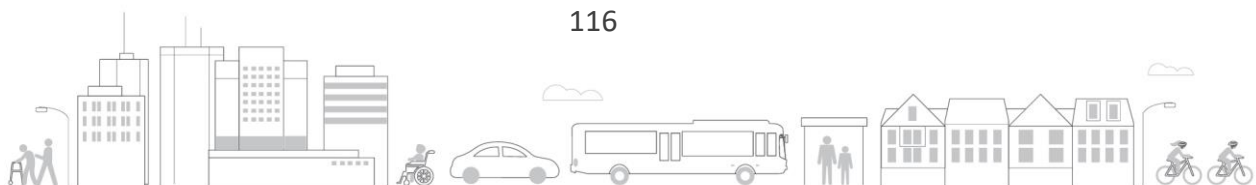
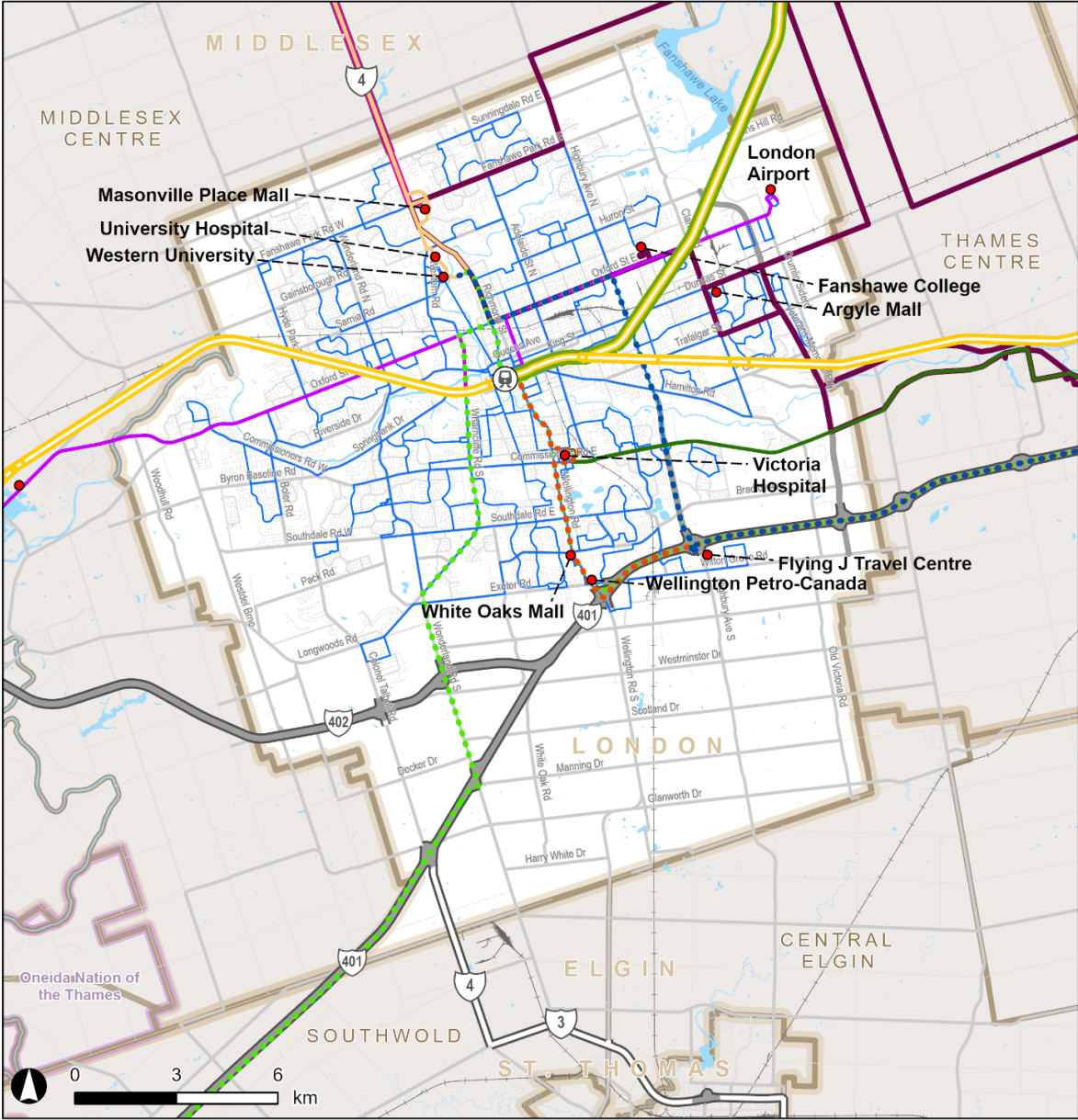
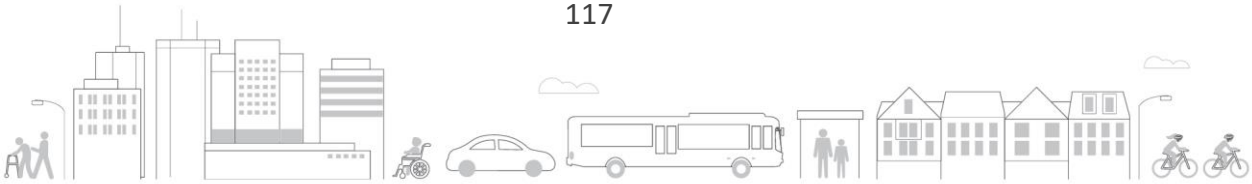


Exhibit 6.20: London Transit and Inter-Municipal Service Provision (2022)



Legend

- Inter-Municipal Transit Service Terminal
- Ⓜ London VIA Station
- London Transit
- Regional Passenger Rail**
 - GO Rail & VIA Rail
 - VIA Rail
- Regional Bus Providers**
 - Megabus
 - OnEx
 - FlixBus
- T:GO Transit (Tillsonburg)**
- Strathroy-Caradoc Inter-Municipal Transit**
- Perth County Connect**
- Middlesex County Connect**
- Huron Shores Transit**



London is a regional centre with inter-municipal transit services that span passenger rail, private bus and public bus. These provide service to surrounding municipalities and other areas throughout the province. However, London lacks a primary mobility hub, with many of the inter-municipal services bringing people to different locations around the city—this makes connections between services and with local municipal transit difficult. There is an opportunity to upgrade London’s transit terminals to mobility hubs to improve inter-municipal travel and facilitate easier transfers.

6.5 Vehicular Traffic

The City’s street network and associated right-of-way represents a significant amount of public space and is the backbone of the London’s mobility network. In total, the City’s street network comprises 3,746 lane kilometres of roads, classified into six categories based on their traffic volume and characteristics.⁶⁴

While the City is committed to ensuring that streets are safe and encompassing of the needs of all road users including pedestrians, cyclists, and transit riders, among others, automobiles and trucks are expected to remain an essential part of the mobility system over the horizon of this study for both people and goods movement. Providing for efficient and safe automobile and truck movement, while providing ample space and safe infrastructure for other modes, is an important priority for the City and a key goal of the MMP.

Traffic Volumes and Congestion

Many arterial streets and Neighbourhood Connectors in London see high daily volumes of traffic. Exhibit 6.21 shows the average annual daily traffic (AADT) counts of the City’s street network from 2016 which indicates the volume of vehicles. Some of London’s streets with the highest volumes of daily traffic include:

- Wonderland Road North in northwest London.
- Oxford Street primarily between Wonderland Road and Highbury Avenue.
- Adelaide Street North.
- Wellington Road near the Victoria and Children’s Hospital.

⁶⁴ City of London (2023). *City of London Corporate Asset Management Plan* < <https://london.ca/sites/default/files/2023-10/Corporate%20Asset%20Management%20Plan%202023.pdf>> Accessed December 2023.

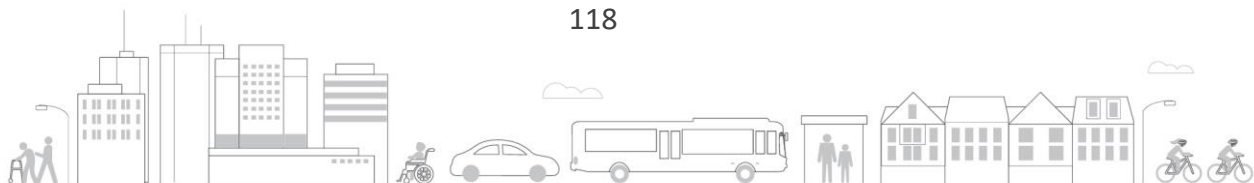


Exhibit 6.22 shows the volume to capacity ratio on the existing road network, indicating levels of congestion experienced during the afternoon peak hour in 2019. Many, but not all of the corridors that experience high volumes, also experience congestion in the peak hour. This is most notable on Oxford Street, Wonderland Road and parts of Wellington Road, Adelaide Street North, Wharncliffe Road South and Highbury Avenue. Most of the roads experiencing peak period congestion are already 4 lanes.

Importantly, the afternoon peak period tends to be the timeframe where the highest amount of travel takes place across modes—for automobiles, this results in congestion during this period. However, the congestion as presented in Exhibit 6.22 occurs for a short period of time (usually less than 1 hour) and many of these corridors likely do not experience congestion throughout other times in the day.

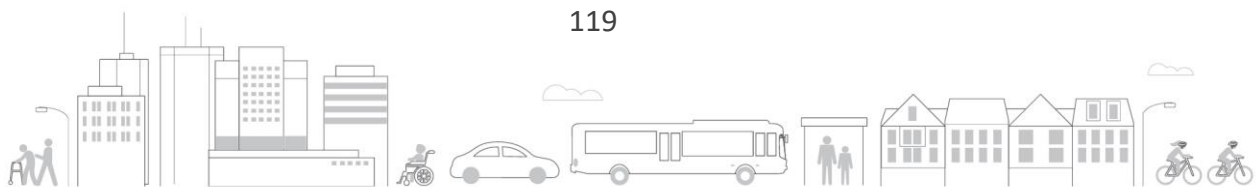
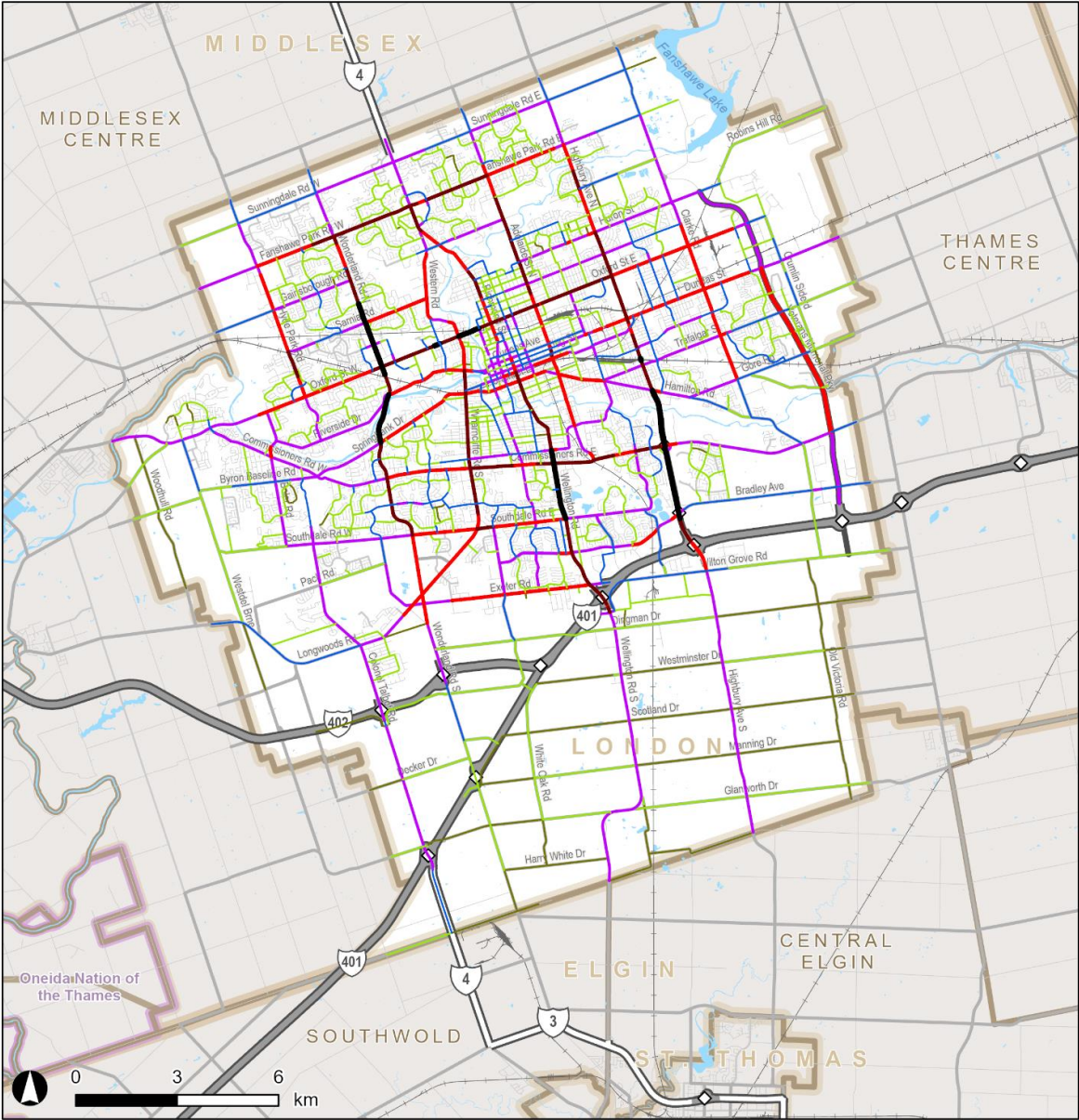


Exhibit 6.21: AADT on London’s Road Network (2016)



Legend			
Volume Counts		◇ Interchanges	Municipal Roads
— Less than 1,000	— 20,000 - 29,999	—+— Railway	— Expressway
— 1,000 - 4,999	— 30,000 - 39,999	Provincial Roads	— Arterial
— 5,000 - 9,999	— 40,000 or more	— Freeway	— Collector
— 10,000 - 19,999	— No Data	— Arterial Highway	— Local/Private

Source: London Travel Demand Model.

Note: Wonderland Rd South volumes are much higher since new 2017 Hwy 401 interchange.

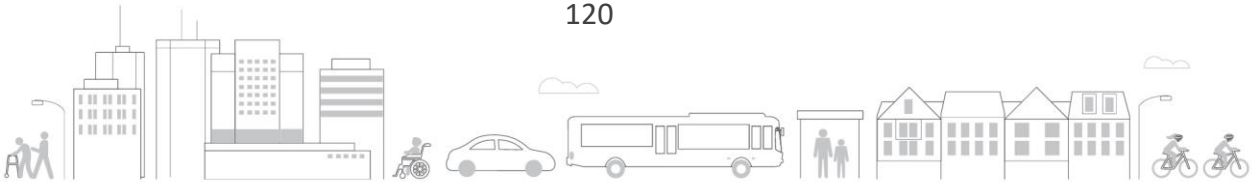
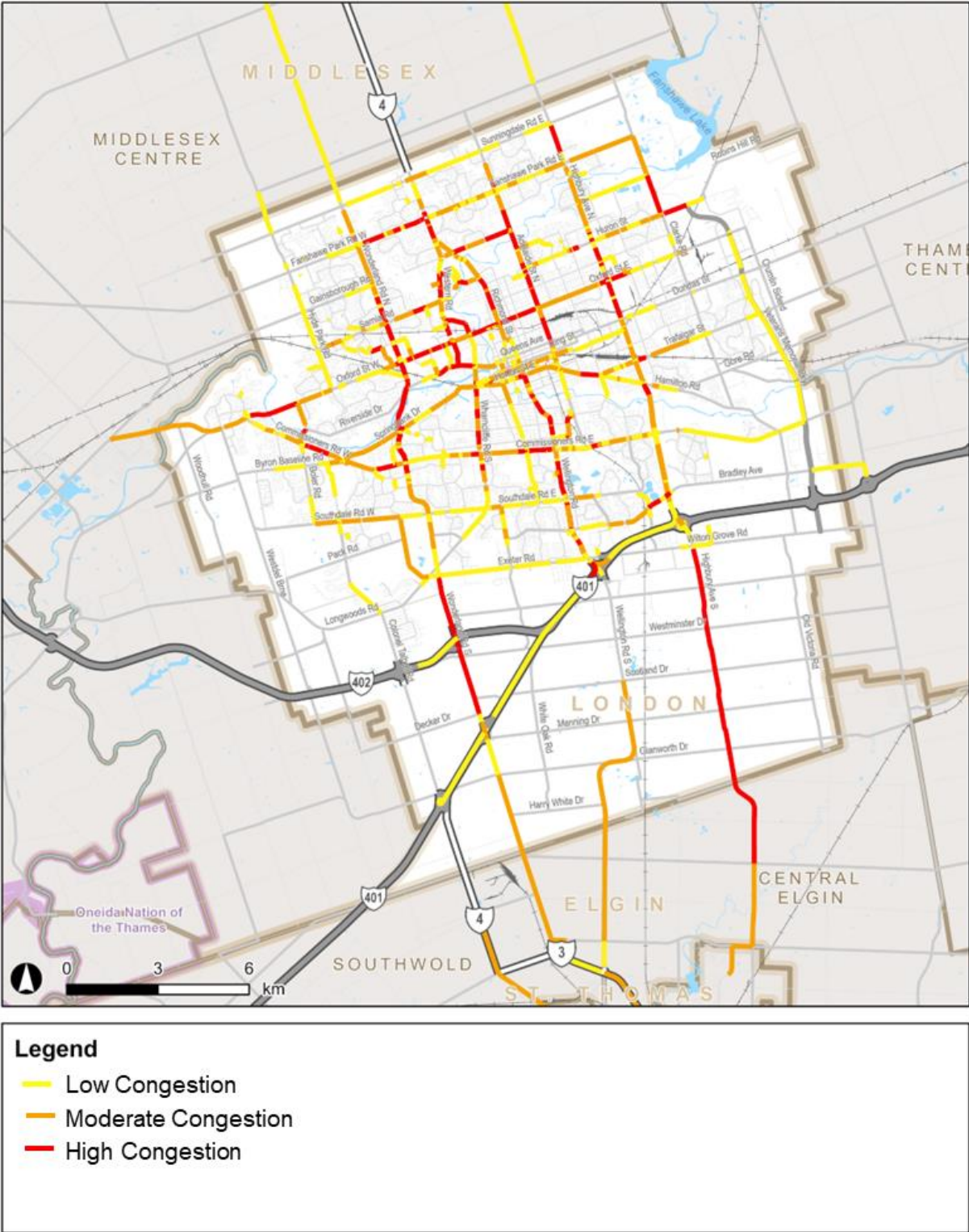
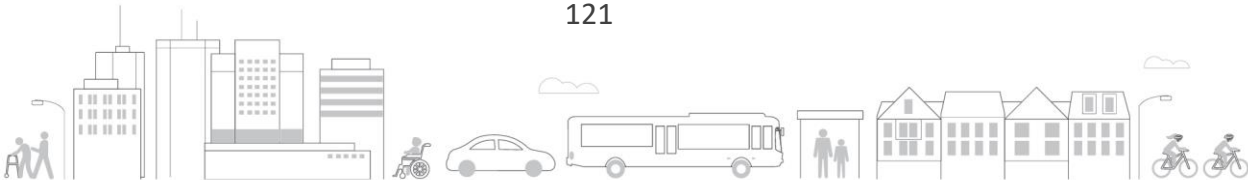


Exhibit 6.22: Volume vs. Capacity on London's Road Network (Afternoon Peak Hour, 2019)



Source: London Travel Demand Model



Addressing Vehicular Performance

While adding automobile capacity is one option to improve congestion, as discussed in Section 6.1, it is widely recognized that cities cannot build their way out of traffic congestion as adding more automobile capacity typically leads to increased driving and an ultimate return of traffic congestion.

This is also called **induced travel demand** which is where additional transportation capacity encourages new vehicular trips that were not made prior to the new infrastructure being built. This does not mean that no automobile capacity should be added, however, it does mean that other solutions should be explored and new capacity should be added very strategically to not worsen London’s congestion challenges by encouraging more driving.

The London Plan states that streets that experience a Level of Service (LOS) of “E” (i.e. significant traffic delays) during the peak hour should be reviewed for traffic capacity, and traffic congestion and travel times are also commonly cited challenges experienced by Londoners. There are many other options to address traffic congestion other than road widenings including but not limited to street re-designs, operational and technological improvements, traffic signal timing adjustments, land use initiatives, improving the competitiveness of walking, cycling and transit options and incentives to use active mobility and transit for more trips so that people do not need to drive, and even removing automobile capacity in certain circumstances. Many of these options better utilize existing space and have additional benefits including avoiding the need for expensive new major infrastructure, increasing the vibrancy of city spaces and increasing health and safety and household financial savings through reduced automobile use.

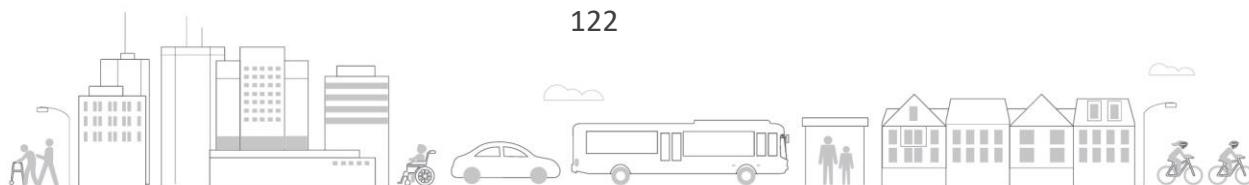
Given the need to address auto congestion and travel times strategically, inputs such as AADT and volume-to-capacity ratio should be used as one of many tools to inform mobility decisions. They can help guide road needs assessments including access management, capacity needs including number of lanes and intersection spacing and control, road classification, and input to active transportation needs and facility-type assessment.

Posted Speeds

Exhibit 6.23 displays the posted speeds along all of London’s roadways. Almost all non-arterial streets in Central London and the city’s Primary Transit Area have maximum speed limits of 40 km or less. Streets closer to the periphery of the Built Area Boundary, particularly in the southern portions, tend

We Heard That:

Congestion is a **key challenge** and **cause of frustration** for Londoners, particularly during the morning and evening rush hours.



to have higher speed limits even in residential neighbourhoods. Arterial streets located beyond the City's Built Area Boundary typically range between maximum speeds of 70 and 80 km per hour.

As discussed in Section 3.6, road safety is a key priority for the City and there are several initiatives, including traffic calming and automated speed enforcement, that are aiming to reduce speeding throughout the city.

Many of London's arterial roads have high levels of congestion. There is a need to manage congestion, however, solutions other than road widenings and new roads should be prioritized to make more efficient use of London's mobility network. New capacity should be added very strategically to avoid promoting induced vehicular demand.

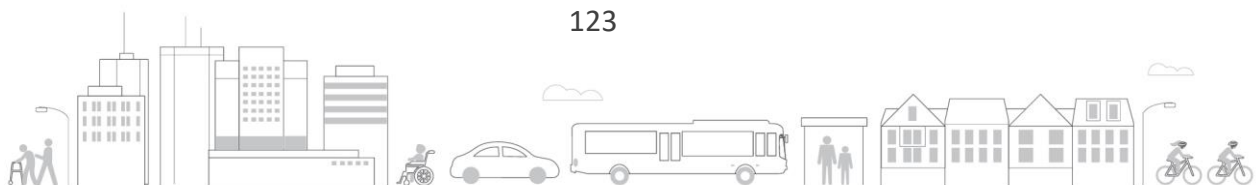
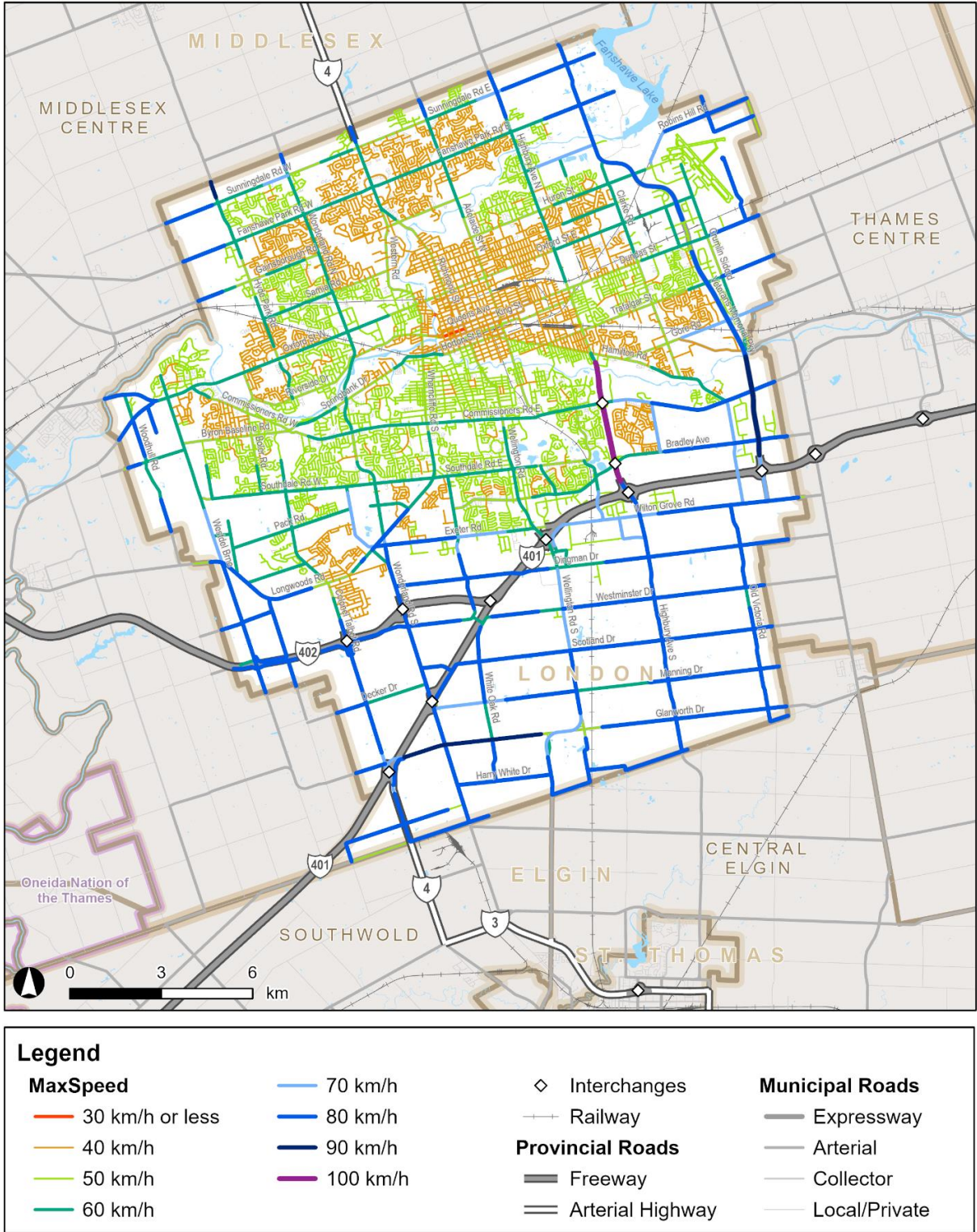
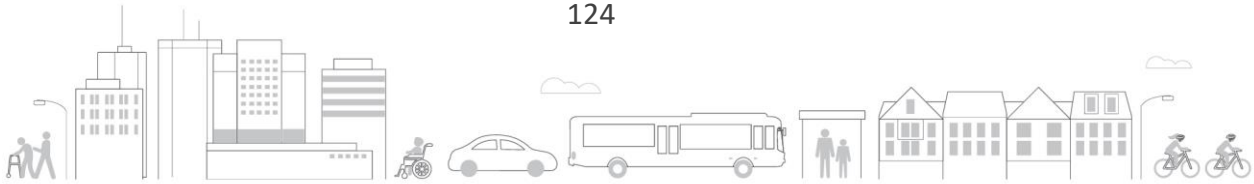


Exhibit 6.23: Current London Road Network – Posted Speeds⁶⁵



Source: City of London Data



6.6 Commercial Vehicles

The safe, efficient and reliable movement of goods is an important role of the mobility network and is essential to the ongoing economic vitality of the London. As directed by *The London Plan*, an important focus of the MMP will be advancing initiatives to support the movement of goods and services.

Developing Complete Streets means considering all modes of transportation, and that includes balancing the movement of goods by truck with other modes of mobility. Trucks require special consideration due to their size, weight and potential safety and environmental impacts. Similarly, in light of the growth of e-commerce, cities will increasingly be challenged to accommodate urban goods movement and deliveries alongside priorities to support other modes. As London intensifies, managing truck traffic will become increasingly challenging, meaning comprehensive strategies and supporting policies will be needed to continually maintain a high quality of life for residents, while supporting the City’s economy.

The City’s current truck route network is shown in Exhibit 6.24. It is important to note that despite restrictions on some streets, trucks may travel on a restricted street to reach a final destination as long as they take the shortest path to and from the designated truck route.

We Heard That:

Trucks and delivery vehicles sometimes interfere with pedestrians, cyclists and automobiles on the street.

⁶⁵ 40 km/h speed limits are planned for all residential neighbourhoods. This is scheduled to be completed in 2024.

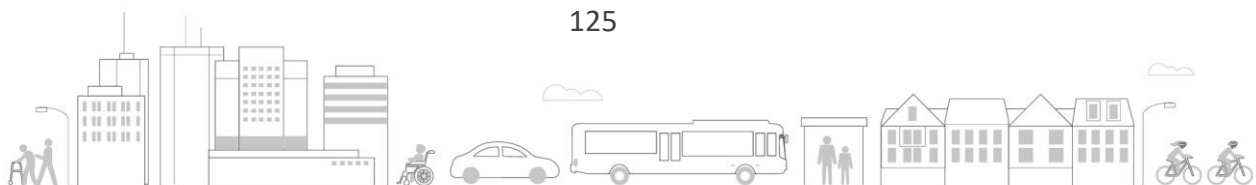
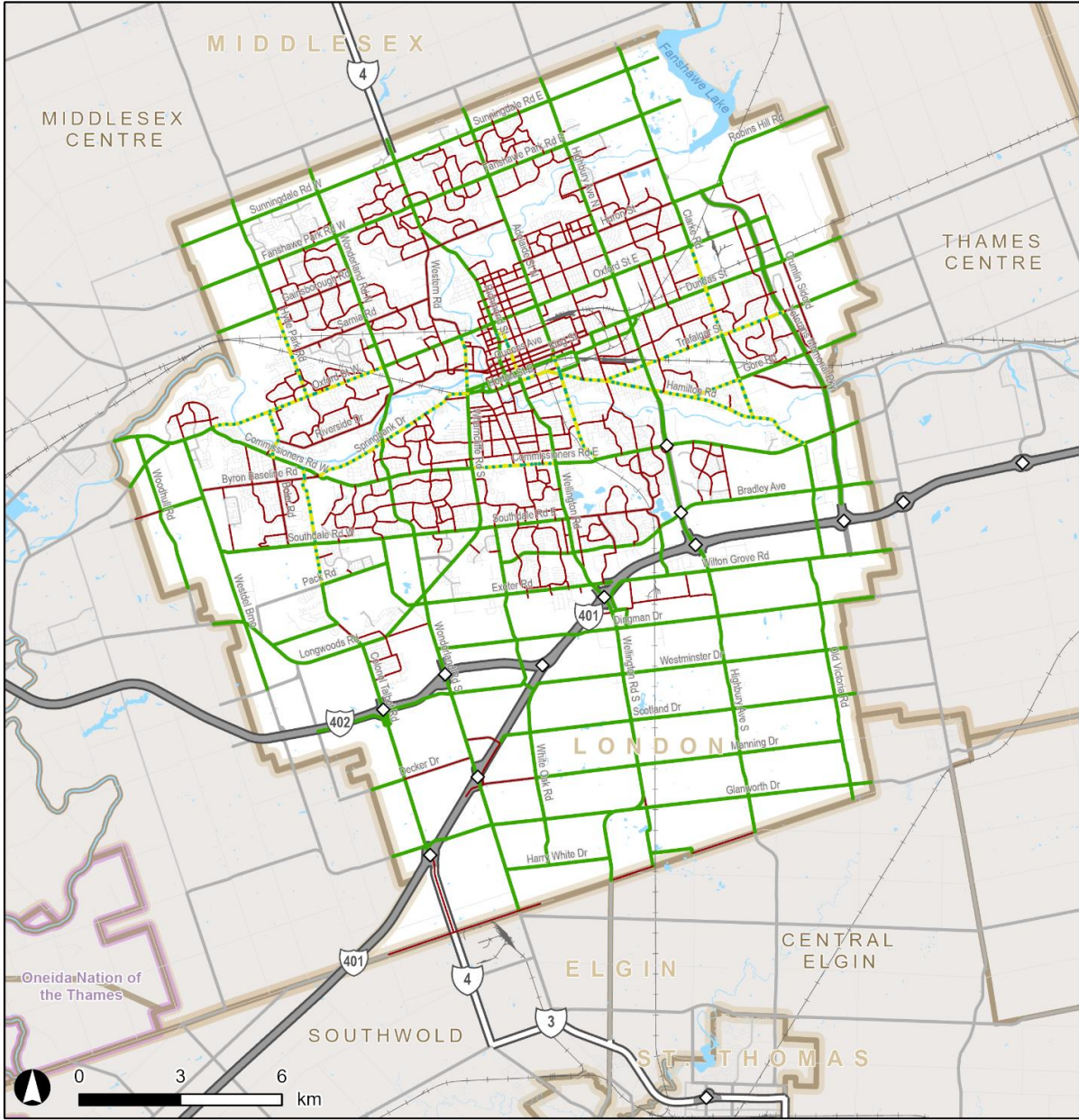


Exhibit 6.24: City of London Truck Route Network



Legend		
Truck Routes Permitted	◇ Interchanges	Municipal Roads
— Heavy Trucks Permitted 24h	—+— Railway	— Expressway
- - - Heavy Trucks Permitted 7 am to 6 pm	Provincial Roads	— Arterial
— Heavy Trucks Prohibited	— Freeway	— Collector
— No Data	— Arterial Highway	— Local/Private

Source: City of London



Exhibit 6.25 shows truck volume index⁶⁶ along roads in London, representing approximate daily medium and heavy truck movements to, from, within and through the city.

Major goods movement generators in London include the industrial areas in the east and south parts of the city near the urban periphery. Important truck corridors in London that will likely see increased truck volumes include:

- **The Wilton Grove Industrial area** in the southeast corner of London’s Built Area, which sees approximately 90,000 truck trips per day, and will likely see increased truck volumes due to the future opening of a new Maple Leaf processing facility on Wilton Grove Road.
- **Highbury Avenue** in East London, south from Highway 401, and north from Highway 401 to Fanshaw Park Road.
- **Dundas Street** in East London, particularly between Highbury Avenue North and Veterans Memorial Parkway.
- **Veterans Memorial Parkway** extending north from Highway 401, including London International Airport and the surrounding industrial areas/parks that feature manufacturers like 3M Canada and General Dynamic Land Systems.

The MMP will consider planned development in London’s industrial areas and the associated commercial vehicle movement requirements to ensure that the surrounding road network is capable of accommodating these vehicles, while also being mindful of the fact that workers need a variety of mobility options to access jobs. Projects related to Provincial assets such as Highway 401 interchanges and Highway 4 will be considered as part of the MMP but will not be evaluated as they are out of the City’s jurisdiction. It is important to consider them due to their mobility role particularly for goods movement given new and expected facilities such as the Volkswagen EV battery plant and the Amazon facility in Elgin County, south of London. Options to potentially shift some urban goods movement to other modes of transportation, such as cargo-bikes, will also be explored.

⁶⁶ A volume index reflects relative volumes and not absolute volumes.

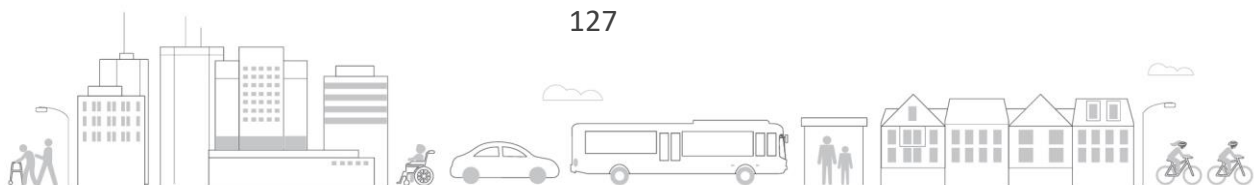
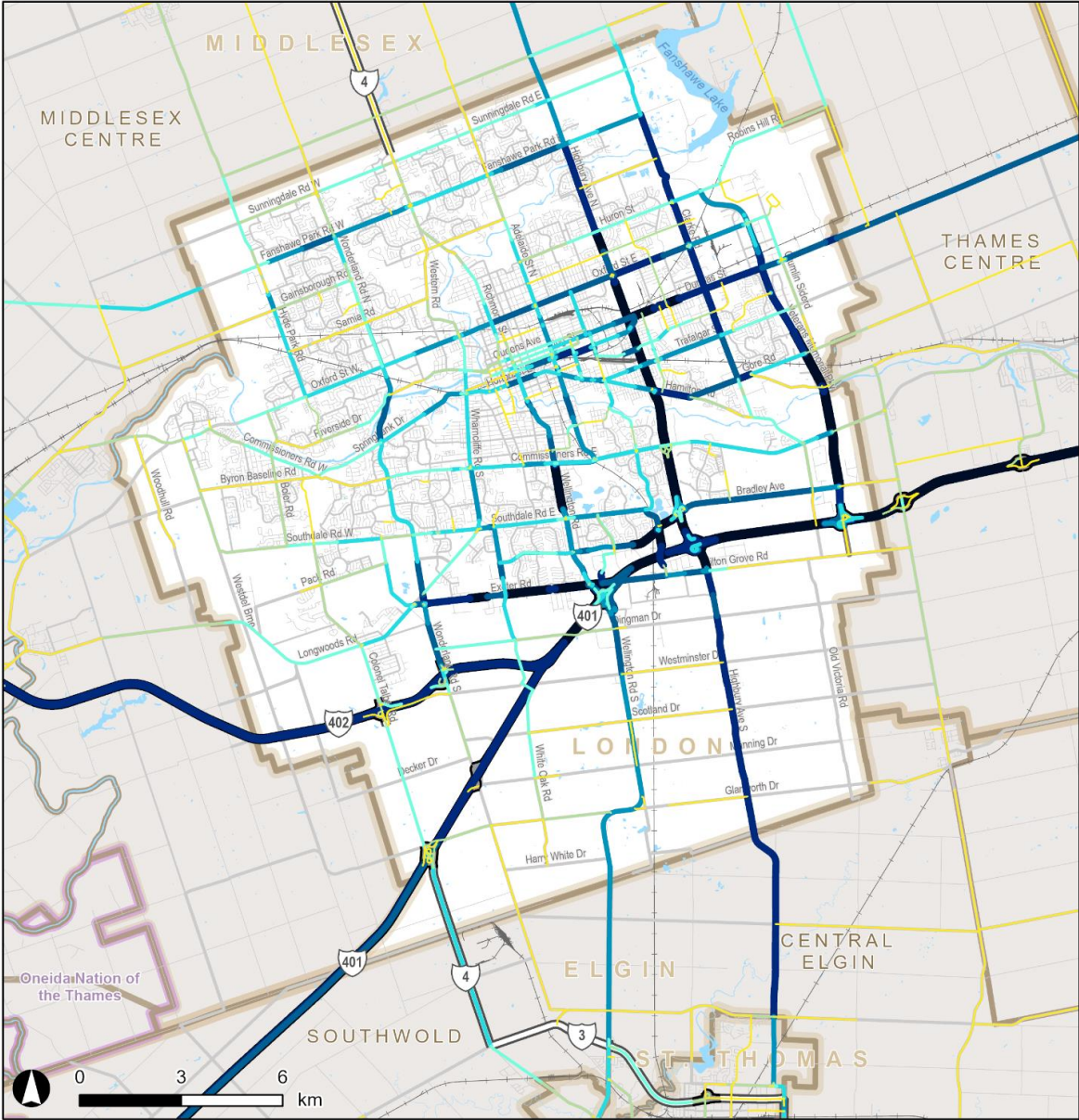
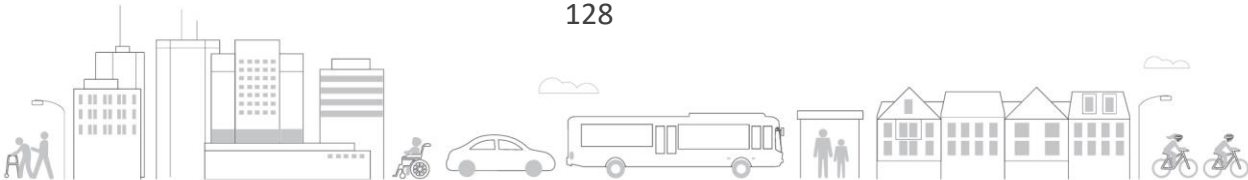


Exhibit 6.25: City of London Truck Volumes (2019)



Truck Volume Index		Municipal Roads		Provincial Roads	
less than 1,000	15,000 to <20,000	Expressway	Freeway	Arterial Highway	
1,000 to <2,500	20,000 to <30,000	Arterial		Railway	
2,500 to <5,000	30,000 or more	Collector			
5,000 to <10,000		Local/Private			
10,000 to <15,000					

Source: Analysis of Streetlight mobile device data to/from identified London industry zones.



Goods movement is key to London’s economic vitality, and essential for serving London’s growing population and increasing use of e-commerce . There are major goods movement generators in the east and south areas of London near the urban periphery and along Highways 401 and 402. Other key truck corridors include Highbury Avenue, Dundas Street, and Veterans Memorial Parkway. Special consideration should be given to commercial vehicles in the development of Complete Streets due to their size, weight and potential safety and environmental impacts.

6.7 Freight Rail

As well as supporting passenger services, London’s rail network is also used to support the movement of freight. Canada’s two main Class 1 Railway companies, the Canadian National Railway (CN) and the Canadian Pacific Kansas City Railway (CPKC) each have rail yards in London and operate key freight corridors that pass-through London, as listed below:

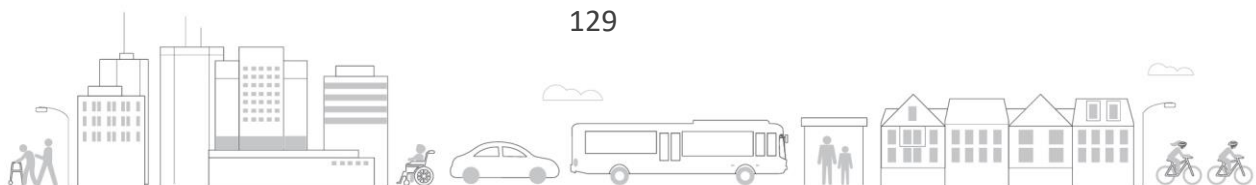
- CN’s primary freight corridor runs from its Toronto Yard (MacMillan Yard in Vaughan) through Brampton, Georgetown, Burlington, Brantford, London and onward to Sarnia with connections to Port Huron, Michigan via CN’s St. Clair River Tunnel. All trackage is owned and operated by CN. CN also has a main freight connection from London to Windsor.
- CPKC’s primary freight corridor runs from its Agincourt Yard in Scarborough through Toronto, Mississauga, Milton, Cambridge, and London onward to Windsor with connections to Detroit via the Michigan Central Railway Tunnel.

The City’s previous transportation master plan included the need to encourage the efficient movement of freight and support the greater use of freight by rail as one of the Plan’s guiding principles.⁶⁷

London’s rail yards are also generators of truck traffic and the road network adjacent to these facilities should account for the needs of trucks.

Freight rail in London is well established with both the Canadian National Railway and the Canadian Pacific Railway having rail yards in the city. The needs of these facilities and the trucks that serve them need to be accounted for in mobility planning decisions.

⁶⁷ City of London (2013). *2030 Transportation Master Plan: Smart Moves* p. 1-8.



6.8 Air

The London International Airport is an important element of the city’s mobility network, and a vital component of both London and southwestern Ontario’s economic vitality. The airport served nearly 680,000 passengers in 2019 as shown in Exhibit 6.26.

London International Airport is the only National Airport System (NAS) airport in southwestern Ontario. NAS Airports are owned by Transport Canada and leased to Canadian airport authorities, and include larger airports such as those serving national, provincial and territorial capitals, as well as airports that offer local, regional or remote service.

As shown in Exhibit 6.26 London International Airport saw significant growth between 2015 and 2019 with a 40% increase in total annual commercial passengers (enplaned and deplaned). During this time, service expanded from six destinations on three airlines in 2015 to 16 destinations on five airlines in 2019.⁶⁸ New destinations are primarily leisure focused with many destinations outside of Canada being seasonal.

Exhibit 6.26: Annual Air Passenger Traffic (2015 to 2019)

Airport	2015	2016	2017	2018	2019
London Airport	477,584	508,647	513,278	530,341	670,899

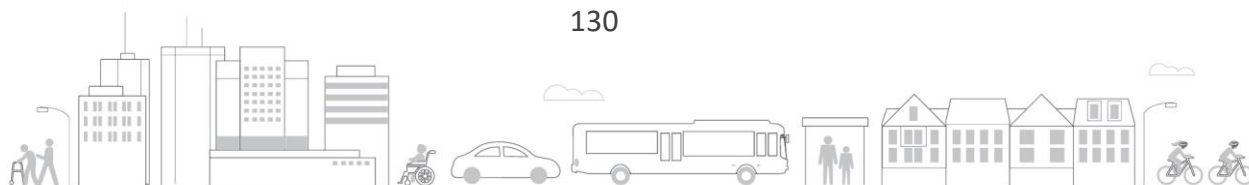
Source: Statistics Canada, CANSIM Table 401-004. 2015 data from [Air Carrier Traffic and Canadian Airports – 2015](#).

According to the Greater London International Airport Authority, the airport is financially self-sustaining, meaning it does not receive any financial subsidy or benefit from any level of government to sustain its operation. Approximately 1,200 people are employed at the airport and 50 businesses are located at or near the Airport.⁶⁹

The London International Airport is an important component of London’s and southwestern Ontario’s economic vitality. As a local hub for passenger air travel and goods movement, the airport is a key element of London’s mobility system. Similarly, the Airport and surrounding airport area is a large source of employment for London residents and residents of adjacent municipalities.

⁶⁸ Greater London International Airport Authority (2019). Passport: Annual Report. <https://www.flylondon.ca/_files/ugd/635a39_a9d9da95258e493a87724f9b72523569.pdf> Accessed December 2022.

⁶⁹ London Airport (n.d.) Our Impact [webpage]. <<https://www.flylondon.ca/our-impact>> Accessed December 2022.



6.9 Mobility Choice

Providing widely available and improved walking, cycling and transit options and making them the options of choice for more trips more often is key to reducing reliance on private cars. This is also essential for addressing transportation equity—as discussed in Section 3.4, a 2021 study by PWC and the City that examined labour market participation in the London Economic Region found that a lack of mobility options is associated with low labour market participation.⁷⁰ This is particularly evident for low-income respondents and respondents without a post-secondary education, who reported a lack of mobility options as the biggest barrier to labour market participation.

Exhibit 6.27 presents an analysis of the availability of mobility options within 500 m at the Dissemination Area (DA) level. The analysis included:

- Municipal transit service.
- Frequent municipal transit service (15 minute or less frequency).
- Designated cycling facilities.
- Protected cycling facilities.

Sidewalks were excluded from this analysis due to their relative ubiquity across the City when a 500m buffer is considered. This does not mean there are not gaps in the sidewalk network (as discussed in section 6.2) nor that they are not vital to improving mobility options, however their granularity makes them unsuitable for this specific analysis.

Each DA received one point for each of the mobility options included in this analysis. The results of this analysis indicate that the availability of transit, cycling, walking and rolling options is not evenly distributed across London. Key findings include:

- Central London, East London, South London, the Adelaide Street corridor, Western University, and Masonville have multiple mobility options.
- Areas around the periphery of the city have fewer options, including the industrial areas south of Highway 401/402.
- Overall, 31% of London’s population lives within approximately 500 m of four transit and cycling options while 21% have access to only two options.

⁷⁰ PWC, City of London (2021). *Labour market participation in the London Economic Region*. <<https://london.ca/sites/default/files/2021-08/Labour%20Market%20Participation%20in%20the%20London%20Economic%20Region%20PwC%20Report%20%28AODA%29.pdf>> Accessed December 2022.

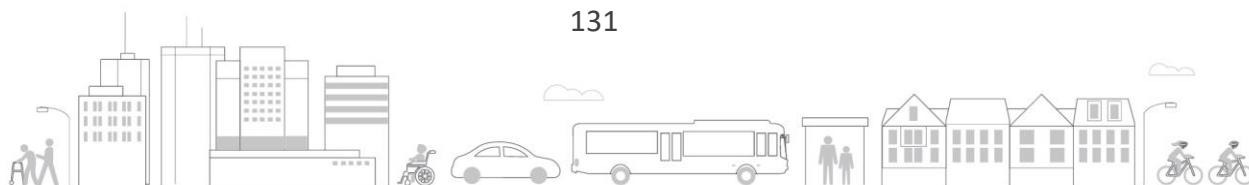
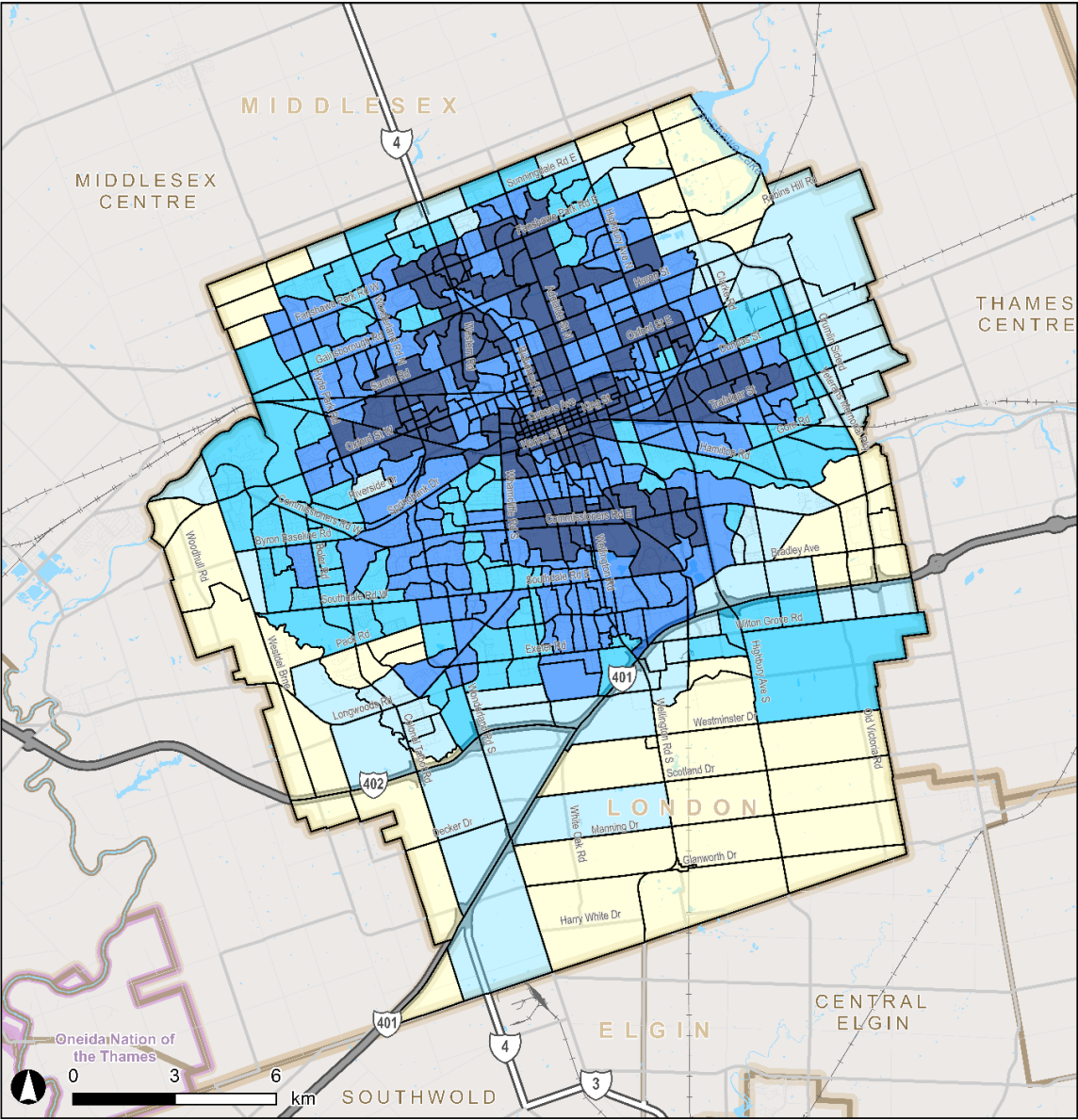


Exhibit 6.27: Sustainable Mobility Choice Index



Legend

Mobility Choice Index

- 0
- 1
- 2
- 3
- 4

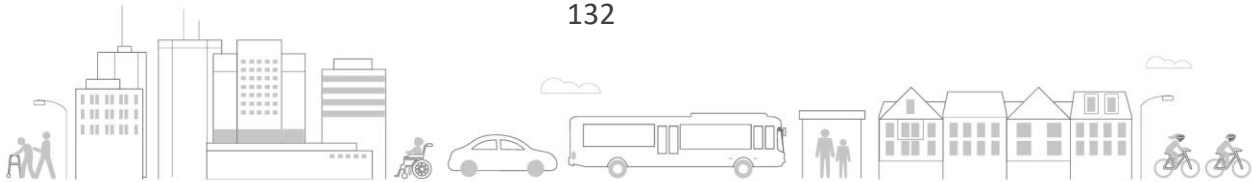
Provincial Roads

- Freeway
- Arterial Highway

Mobility options assessed:

- Municipal transit service within 500 m
- Municipal transit service <15 min frequency within 500 m
- Designated cycling facilities within 500 m
- Protected bike facility within 500 m

Source: Arcadis Analysis of City of London Data



Transportation Demand Management

Transportation Demand Management (TDM) is the use of policies, programs, services and products that influence whether, why, when, where and how people travel. TDM strategies seek to increase the efficiency of a transportation system by influencing travel behaviour.

TDM is critical for moving towards a London where far more people choose to not drive alone and a London where people who already do not drive alone have a better experience.

The London Plan, the City’s Official Plan adopted in 2016, in addition to specific sections on Transit, Active Mobility, and Parking, has a section in its City Building Policies covering TDM, consisting of four primary policies.

The first two of these policies are related to parking, describing that:

1. *“Municipal commuter parking facilities will be established at strategic locations, to connect with other mobility choices and service surrounding communities”; and*
2. *“Commuter parking facilities integrated with transit will be directed to Transit Villages and transit station areas. These facilities will be designed to fit within the context of the surrounding area and should, where possible, be incorporated with other structures/buildings in the area”.*

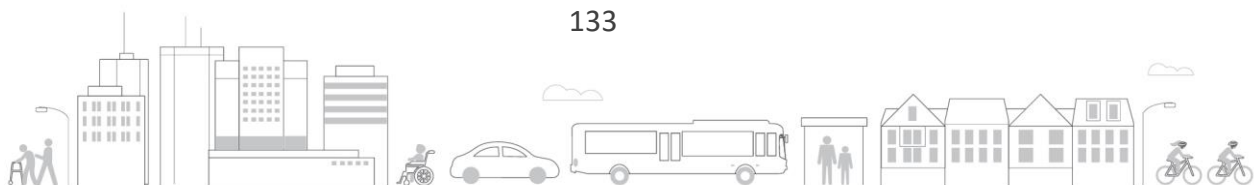
The third strategy relates more to other sustainable transportation modes, stating:

3. *“Improvements to the mobility network will be planned with an emphasis on active mobility, improved transit services, and Transportation Demand Management (TDM) targets.”*

The fourth strategy is mostly related to incorporating TDM into the development process, stating:

4. *“A Transportation Demand Management Program may be provided as part of a complete planning and development application in support of lowered parking requirements or a Bonus Zone. The Transportation Demand Management Program may:

 - a. *“Be integrated with required transportation impact assessments submitted to support the proposed development.”;*
 - b. *“Identify design and/or programmatic means to reduce single occupancy vehicle uses.”;*
 - c. *“Identify the roles and responsibilities of the property owner with respect to each recommended program and its implementation.”;* and
 - d. *“Identify the operational and financial roles and responsibilities of the property owner including, but not limited to, program development, implementation, and ongoing management operations of the transportation demand management plan and/or program.”**



The City has made progress in working towards realizing these policies, while others require more continued work in order to achieve the City’s TDM goals. Initiatives implemented by the City include:

- Two municipal park & ride sites, approximately 2km from the Downtown Core, with a transit pass included in the monthly cost of parking (\$70). This is competitive with the current cost of a monthly parking pass and monthly transit pass.
- Discounted transit passes for youth and income-limited users.
- Carshare service provided by Communauto, with vehicles located at a mix of public and private parking lots, with parking spaces paid for by Communauto.
- A pilot project of eighteen secure bike lockers in Downtown London.
- Updated By-laws to allow personal e-scooter and cargo e-bike use.
- Updated parking By-laws to remove parking minimums along Rapid Transit Corridors and halve parking minimums elsewhere.

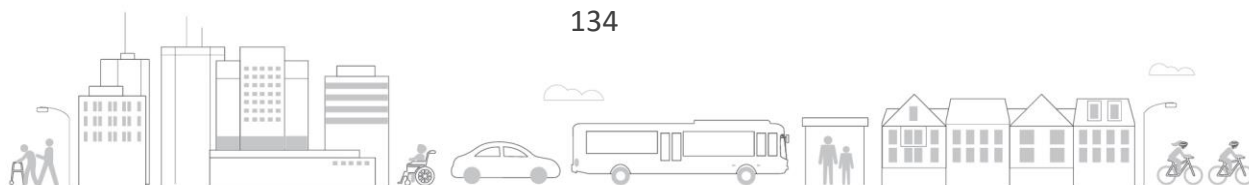
The City previously operated employer-focused TDM initiatives under the Business Travel Wise Program, working with local employers to provide a carpool matching service and other TDM initiatives. The City’s employer-focused TDM initiatives are evolving into the development of London’s first Transportation Management Association. The goal is to launch in 2023.

The City had also tendered RFPs for launching bike share systems in 2020 and 2022. However, these were ultimately cancelled, the former due to extenuating pandemic circumstances and the latter due to no compliant bids being received. The City is developing a micromobility services business case, including bike share services, for inclusion in the 2024-2027 municipal Multi-Year Budget process.

The MMP recognizes the important role that TDM will play in advancing the MMP Vision and Guiding Principles and will be considering the need for new infrastructure within the context of TDM playing a significant role in London’s future mobility system.

The availability and quality of sustainable mobility infrastructure and services is a key factor that influences the use of sustainable mobility options like walking, cycling and transit. Further, a lack of mobility options is a key barrier to labour market participation in London which increases inequities, impacts quality of life and damages London’s economic prosperity. Walking, cycling and transit options are unevenly distributed in London, with a high concentration in Central London and inner London and a lower concentration along the periphery and south of highways 401 and 402.

Transportation demand management is a critical aspect of encouraging more sustainable mobility choice – infrastructure alone is not enough.



Summary of Key Trends and Challenges

- New trends will increasingly affect mobility planning in London and influence how Londoners move around and beyond the city.
- The COVID-19 pandemic has shifted travel behaviour meaning London's mobility system must adapt to changing travel patterns and times.
- Increased e-commerce activity in London means the mobility system must be equipped to accommodate increases in long- and short-range goods movement and increasing demands on curb space.
- London must be prepared to regulate new and emerging transportation technologies and support implementation where appropriate.
- Shared mobility systems and vehicle electrification can help London achieve its net-zero emissions target.

7 Broader Trends Affecting Mobility

Looking forward to the year 2050, several factors will influence the shape of the mobility system and travel demand including working from home, e-commerce, and emerging technologies and new mobility.

7.1 Increasing Work-at-Home Rates

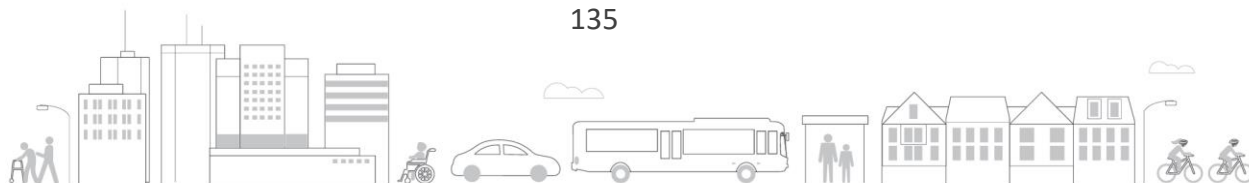
The COVID-19 pandemic caused a significant shift in work and travel behaviour. At the onset of the pandemic, government regulations and corporate policies across Canada resulted in increased work-at-home (remote work) rates as part of an effort to protect the population's health and safety. In 2016, approximately 4% of Canadian employees (aged 15-69) worked mostly at home. This rose to approximately 32% of Canadian employees (aged 15-69) in January 2021.⁷¹ Despite the easing of restrictions, elevated work-from-home rates compared to pre-pandemic are continuing and are expected to continue will into the future.

However, **not everyone can work from home**. Exhibit 7.1 shows the 2020 percentage of Canadian employees working from home in various industries and London's workforce distribution (2016) across various sectors indicating clear sectoral differences:

- Sectors that had high rates of working-from-home (over 60% of national employees) include educational services, professional and technical services, financial activities, and information,

⁷¹ Government of Ontario (2021). *The Future of Work in Ontario*.

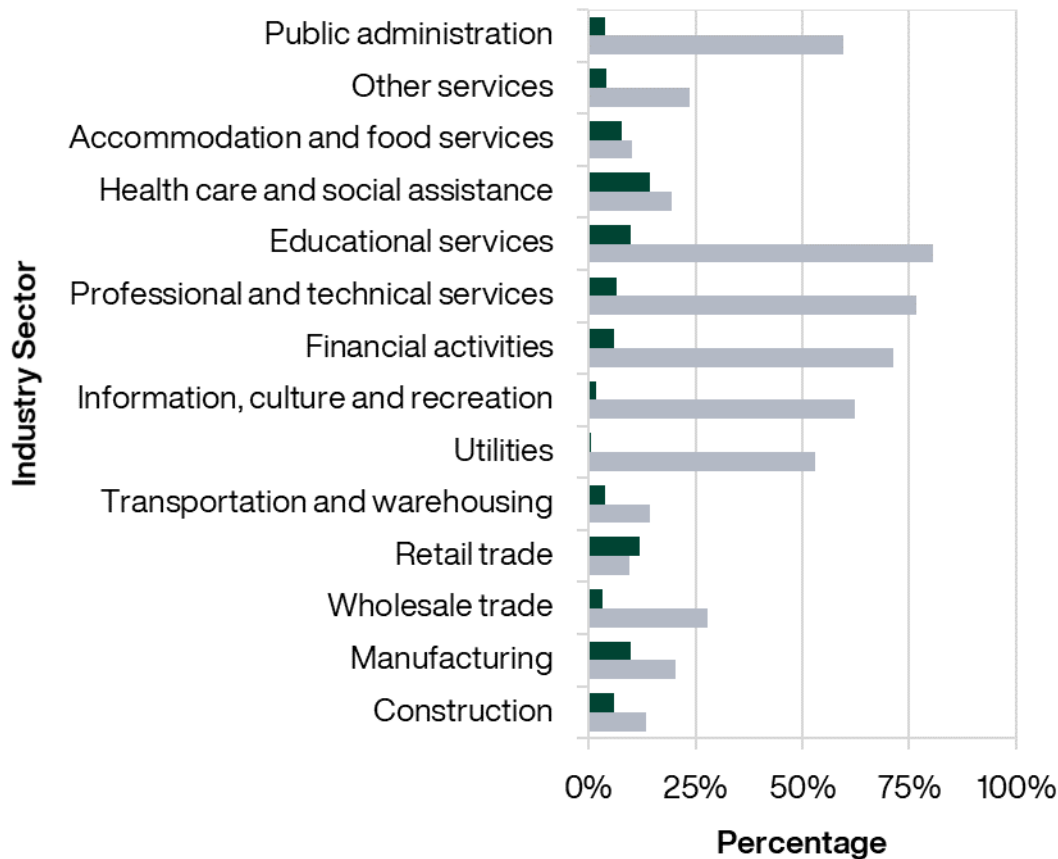
<<https://www.ontario.ca/document/future-work-ontario>> Accessed November 2022.



culture and recreation, reflecting the fact that this type of work is generally easier to perform remotely.

- Sectors that had low rates of working from home (less than 20% of national employees) include health care and social assistance, transportation and warehousing, construction, accommodation and food services, and retail trade.

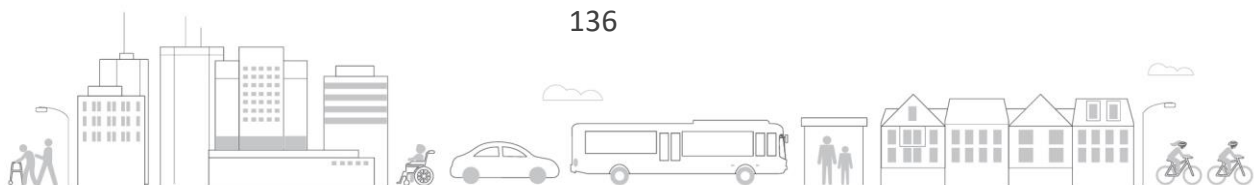
Exhibit 7.1: Proportion of National Employees Working from Home (2020) and Proportion of London Working Population by Industry (2016)



■ London Percentage of Working Population (2016)

■ National Percentage of Employees Working from Home (2020)

Source: Statistics Canada (2016). Census Profile, 2016 Census. Statistics Canada. (2022). Economic and Social Reports. Working from home during the COVID-19 pandemic: How rates in Canada and the United States Compare.



The increase in working from home also has land-use implications. London’s downtown office vacancy rate rose from 18.5% in 2020 to 28% in 2022 (a 51% increase).⁷²

There is uncertainty about the future of work in the post-pandemic era with a lack of consensus on the extent to which remote work will continue. A Brookfield Institute report (2021) stated that 17% of businesses intend to continue providing remote work options while 29% of businesses intend to require workers to return on-site in the post-pandemic era.⁷³ A 2021 Ernst & Young global survey indicated that 90% of employees want flexibility in where and when they work.⁷⁴

In London, current trends indicate that it is likely many people will continue to work remotely in the future, however, many Londoners have already returned, will return or will continue to work in person.

Based on observed changes in travel behaviour during the COVID recovery so far, some expected long-term trends resulting from increased work-from-home include:

- Decreased travel in the morning and afternoon peak periods.
- Increased travel throughout the day outside of the morning and afternoon. peak periods.
- Increased local trips using active mobility.

These trends have the potential to improve the use of existing road infrastructure throughout the day, potentially decreasing the overall number of kilometers travelled using automobiles. This will help London’s efforts to achieve net-zero greenhouse gas emissions by 2050. However, it is important for London’s mobility network to serve all users. This includes facilitating a return to pre-pandemic travel patterns for those who are not able to work remotely, while also supporting new travel patterns.

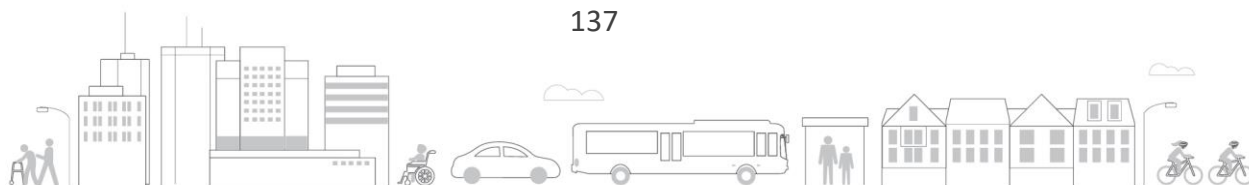
7.2 Increasing E-Commerce

E-commerce (e.g. online shopping, grocery delivery, food delivery, etc.) in Canada has been growing over time, with e-commerce as a percentage of total sales growing from 1.6% to 4.2% between 2012 and 2019. Spurred by public health restrictions due to COVID-19, this grew significantly from 4.2% in

⁷² CBRE (2022). *2022 Canada Real Estate Market Outlook* p. 46.

⁷³ Brookfield Institute for Innovation + Entrepreneurship (2021). *Remote Work in Canada* p.5.

⁷⁴ Ernst & Young Global (2021). *More than half of employees globally would quit their jobs if not provided post-pandemic flexibility, EY survey finds.* <
https://www.ey.com/en_gl/news/2021/05/more-than-half-of-employees-globally-would-quit-their-jobs-if-not-provided-post-pandemic-flexibility-ey-survey-finds> Accessed December 2022.



2019 to 7.8% in 2020.⁷⁵ While this growth slowed in 2022 as the pandemic recovery continued, overall e-commerce growth is still expected to continue. In 2022, there were over 27 million e-commerce users in Canada, representing approximately 75% of the population. This is expected to grow to nearly 78% by 2025.⁷⁶

This growth in e-commerce will increase the demand for both long-and short-range goods movement:

- **Increased long-range goods movement** involves demand on planes, trains and trucks. There is a need to ensure adequate capacity for London’s goods movement facilities including the rail corridor, London International Airport and Highways 401 and 402.
- **Increased short-range goods movement** involves demands that span last-mile delivery, off-site loading, truck movements within the city, and demand for curb space (particularly in high density areas). London’s complete streets approach needs to include these goods movement and curbside management considerations to balance goods movement and people flows. There is also an opportunity to replace some truck and van trips for short-range goods movement with smaller vehicles like cargo bikes.

7.3 Emerging Technologies and New Mobility

In recent years, new technology and business models have introduced a variety of travel options and altered the way existing mobility options are used. “New mobility” refers to these technologies and business models, which broadly has resulted in increased involvement from the private sector in the delivery of transportation services.

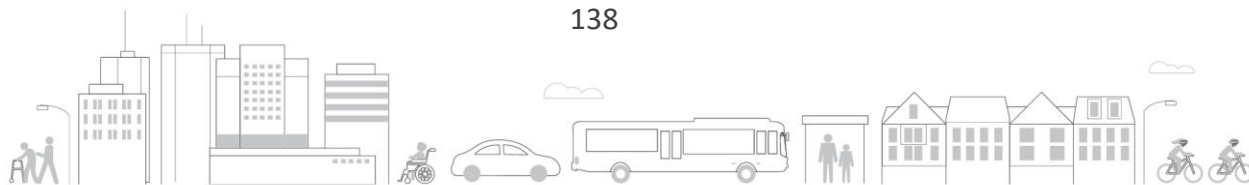
New mobility can improve transportation efficiency through the application of technology. At the same time, new challenges emerge that require action from the City to ensure transportation services are delivered in a way that aligns with the broad range of city building objectives such as sustainability and equity.

This section identifies some new and emerging mobility technologies and trends that are either present in, or may affect future transportation planning decisions including:

- Electrification.

⁷⁵ Statistics Canada (2022). *Retail trade, total sales and e-commerce sales*. <<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2010006501>> Accessed November 2022.

⁷⁶ International Trade Administration (2022). *Canada – Country Commercial Guide*. <<https://www.trade.gov/country-commercial-guides/canada-ecommerce>> Accessed November 2022.



- Sharing.
- Mobility as a Service.
- Big Data.
- Connected and automated vehicles.

The discussion on these technologies focuses on the current state of each technology and what the City’s role could be as each technology becomes more widespread.

Electrification

There is a significant shift towards electric vehicles (EVs) by both governments and auto manufacturers around the world, driven primarily by the need to eliminate greenhouse gas emissions from transportation. In Canada, the Federal government has announced it will require 100% of car and passenger truck sales to be zero-emission by 2035.

Key benefits of EVs include:

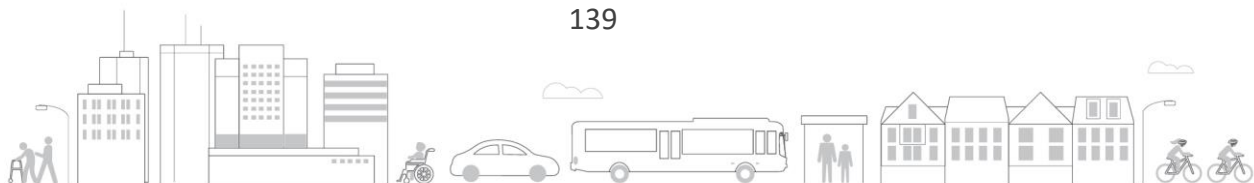
- Eliminating direct tail-pipe emissions from vehicles towards meeting London’s emission reduction targets (as discussed in Section 3.2).
- Significantly lower operating cost when compared to gas or diesel engines (the cost of electricity is typically lower than fossil fuels).
- Less expensive maintenance for an electric motor compared to internal combustion engines.

These benefits are particularly advantageous for vehicles that operate nearly continuously, like buses. The cost of maintaining and operating an electric bus is up to 40% lower than a comparable diesel model, though procurement cost of buses and supporting charging infrastructure is higher.⁷⁷

For personal vehicles, while auto manufacturers have been heavily investing in EVs and the cost of manufacturing has declined significantly over the past decades, private EVs are still generally premium vehicles.⁷⁸ Complex market forces and government initiatives will dictate EV adoption by private vehicle owners, but the City can make the transition easier by building on its existing municipal charging infrastructure, considering implementing requirements for EV charging such as in new

⁷⁷ Argonne National Laboratory. (2021). *Comprehensive Total Cost of Ownership Quantification for Vehicles with Different Size Classes and Powertrains* p.92.

⁷⁸ McKinsey & Co. (2019). *Making Electric Vehicles Profitable*.



development and existing commercial properties, and accelerating its transit electrification commitments.

Electric Micromobility

In addition to cars, trucks, and buses, electrification of micromobility is making active transportation more accessible. Electric bikes and scooters are popular due to the reduced amount of effort required to make trips using these modes. E-bikes and e-scooters make longer distance active trips possible and make shorter distance trips less strenuous. In the US, e-bikes outsold EVs in 2021, and London is already home to at least four specialized e-bike retailers, suggesting a growing local market.⁷⁹ Continuing to build dedicated cycling facilities will support users shifting to e-bikes and e-scooters.

The City has also joined the Province of Ontario’s pilot program to permit the use of cargo e-bikes and is currently working on developing a process to regulate the use of commercial cargo e-bikes. Cargo e-bikes can play an important role in replacing trucks and vans for short-range goods movement, particularly in denser areas like Downtown.

We Heard That:

Londoners who use electric bikes say they can **cycle farther distances in shorter amounts of time** and that it encourages them to cycle more often.

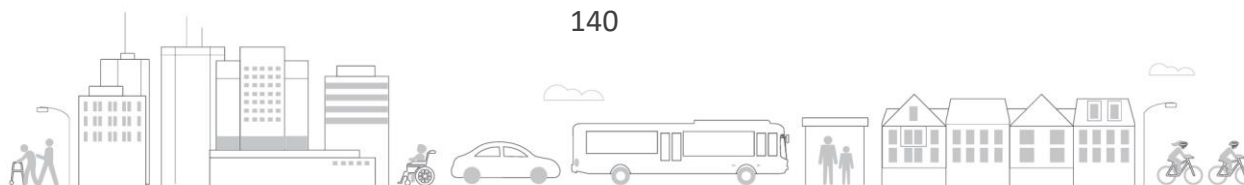
Transitioning to Zero Emissions Vehicles

While the City is planning a future that relies less on personal vehicles, driving or riding in a vehicle will remain an essential mobility option for the coming decades. As a result, advancing policies so the City can support the shift to EVs and zero-emission vehicles (ZEVs) more broadly is an important part of London’s climate action, meaning it will be essential that the MMP include strategies to facilitate the transition.

Notably, the average age of a vehicle on London’s roads today is around seven years old and the average vehicle in Canada last about 13 years. This means that almost all of the fossil-fuel vehicles purchased in 2023 will still be on the road in 2030.

Actions identified in the *CEAP* outline the City’s plans to review options to encourage or mandate the installation of EV charging infrastructure in new developments. To date, EV charging stations have been installed at most major London community centres through an innovative land lease agreement

⁷⁹ New York Times (2021). *The Popularity of E-Bikes Isn’t Slowing Down.* <<https://www.nytimes.com/2021/11/08/business/e-bikes-urban-transit.html>> Accessed November 2022.



with an EV charging service provider.⁸⁰ Similarly, three curbside EV charging stations were installed by London Hydro in 2019 as part of the Zero Emission Vehicle Infrastructure Program led by Natural Resources Canada.⁸¹ To curb emissions even further, London Transit is also transitioning all buses to be zero-emission.

ZEV uptake must be done in combination with increased walking, cycling and transit use, however, as a continued dependence on private vehicles will further challenges related to road safety, public health, congestion, environmental impact and creating vibrant city spaces among others. The MMP will support London’s transition to ZEVs, while prioritizing walkability, active mobility in general and transit, aiming to reduce reliance on personal vehicles overall.

Shared Mobility

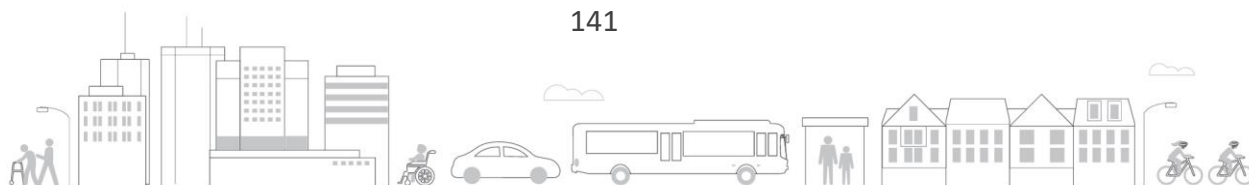
In the context of mobility, sharing can take many forms. Broadly, it refers to a business model where users do not own the vehicle but rather “rent” it, enabling multiple travellers to use the same vehicle as needed. Sharing is attractive to users as it provides access to mobility options without having to own them, they only pay for it while they are using it, and it transfers the risk and responsibility of ownership from the user to the service operator and its subcontractors.

In London, car sharing, ride hailing, and ride sharing/carpooling are currently available forms of shared mobility:

- **Car sharing** involves a single vehicle that can be operated by different users. This is similar to vehicle rentals but scaled to allow hourly or minute-by-minute rentals, typically accessed through a smartphone. Car sharing is available through private provider Communauto.
- **Ride hailing** is similar to traditional taxis where a driver transports passengers in a vehicle for payment of a fare with the transaction being facilitated through an app on a smartphone. UberX is an example of this service in London.
- **Ride sharing/carpooling** is similar to ride hailing however it involves a single operator driving multiple passengers who may not know each other and may be travelling to different destinations. UberPool is an example of this service in London.

⁸⁰ City of London (2022). *Climate Action Emergency Action Plan* p. A-28.

⁸¹ CBC (2019). London to plug into additional electric vehicle charging stations. <<https://www.cbc.ca/news/canada/london/london-to-plug-into-additional-electric-vehicle-charging-stations-1.4578229>> Accessed November 2022.



The City is also considering launching a **shared micromobility system** that would involve bikes and e-bikes being available for rent around the city.⁸²

Sharing of all forms gives travellers more choice and can help reduce car ownership.⁸³ Car owners tend to have a high propensity to use their own vehicles, even when faster or cheaper options exist. If residents feel assured that they can maintain mobility through a combination of shared and public modes, they may be more likely to reduce the number of cars in their household or forego car ownership altogether. This should be done with caution though as sometimes unintended outcomes are possible such as increased total vehicle kilometers travelled in some Cities that have ride hailing services. The City should create policies that encourage shared modes to complement rather than compete with transit.

Mobility as a Service

As components of the mobility system become more technology-enabled and the number of service providers grows, an opportunity emerges to offer mobility—the ability to travel from origin to destination—as a service, rather than selling vehicles or rides on individual modes of transportation. This is called “Mobility as a Service” or MaaS.

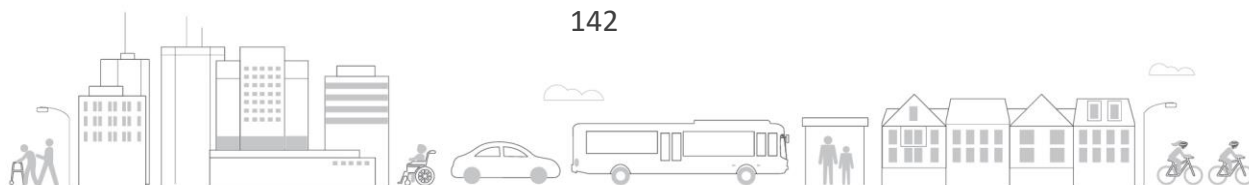
MaaS typically includes a single platform, often with a subscription, to manage trips across all modes. The platform would be designed to provide users with options and costs across public and private-sector services of all modes for the user to pick the optimal option for them and for that specific trip. Ticketing, trip booking and payment processing are all handled by the platform minimizing logistics for the user.

Early forms of MaaS are already widely used in Canada in the form of journey planners like Google Maps, Apple Maps and OpenTripPlanner. These software platforms have some of the functionality of a full MaaS platform including providing route options across multiple modes and in some cases, assistance with booking services. Internationally, residents of Helsinki, Finland have been able to access a full MaaS platform since 2016 on the Whim app. Whim integrates the city’s public transit, bike share, taxis and car rentals, fully unifying payment for all services and offering options to either pay per trip or purchase a monthly pass.

Full MaaS platform have the potential to facilitate a car-light lifestyle or eliminate the need to purchase a vehicle as shared access to one can be easily obtained when needed through the platform. MaaS

⁸² City of London (2022) Participation in Provincial E-scooter Pilot (Staff Report to Civil Works Committee) <<https://pub-london.escribemeetings.com/filestream.ashx?DocumentId=93277>> Accessed December 2022.

⁸³ Metro Vancouver (2014). *The Metro Vancouver Car Share Study* p. ii.



does not provide the services itself, but rather facilitates the use of services that are available. As such, in order to enable a future where MaaS is possible, the City and other service providers need to work towards enabling a mobility system with multiple mobility options in a collaborative manner that avoids “walled gardens” where providers block access via a different app.

Big Data

Data is already widespread in transportation, is valuable in mobility planning and operations, and is critical to all emerging mobility technologies. Big data refers to extremely large data sets (typically collected passively through use of internet-connected devices such as smartphones) that may be analyzed to reveal trends and patterns related to human behaviour.

Increasingly, traditional manual surveys, traffic counts, and travel time runs are being augmented and sometimes replaced by passive data collection techniques resulting in big data sets. For example, the proliferation of smartphones has allowed for private firms to infer travel patterns without relying on roadside sensors or surveys. These have expanded the range of data options available to planners to analyze and make informed decisions on mobility systems. However, this data has limitations. In particular, it does not capture travel patterns of those without access to a smartphone and does not reveal information about important factors such as trip purpose.

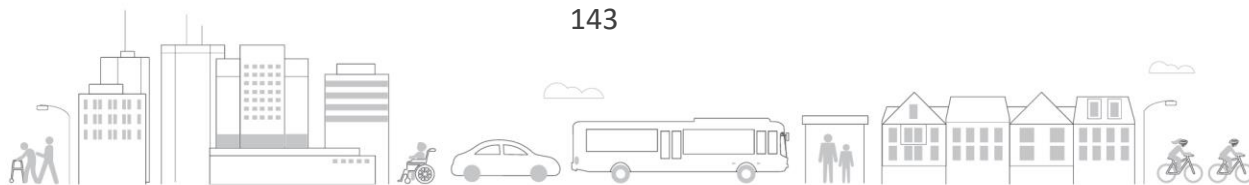
As private companies expand their scope of services across several mobility options, they develop a detailed picture on how their users live, work, and travel. However, the data collected by private companies is often not accessible to public entities—some municipalities have experienced challenges obtaining reliable, disaggregate data from private operators, and often specialized data analytics skills are required to interpret large volumes of passively collected data.

The City should ensure its internal data analytics capacity is sufficient to understand and work with this data.

Connected and Automated Vehicles

Connected and automated vehicles (CAVs) are vehicles that have the necessary sensors, communications and artificial intelligence software to make driving decisions without human input. The City takes a progressive approach to CAVs. City Council approved an extensive *Connected and Automated Vehicle Plan* in June 2023. In recognition of the disruptive nature of CAVs, the Plan provides eight strategic areas of focus to support CAV deployment in a way that aligns with City objectives:

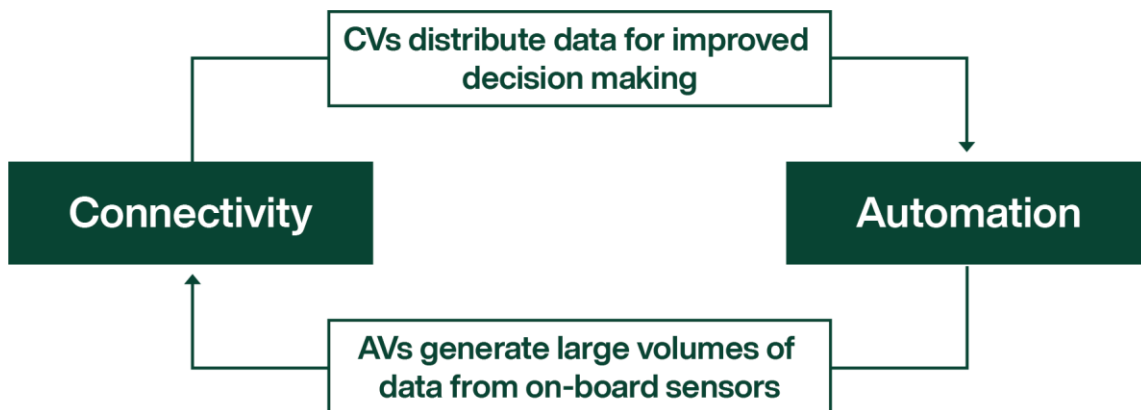
- Road Safety and Security: Ensure CAV deployment helps prevent collisions and improve emergency response.
- Mobility Integration and Efficiency: Capitalize on increased ability for real-time traffic management and other performance gains.



- Environmental Sustainability: Support sustainable use practices to minimize environmental impacts across CAV lifecycles.
- Social Equity and Health: Prioritize accessibility, social equity, and health and safety.
- Data Privacy, Security, and Governance: Enhance data privacy and use collected data appropriately.
- Land Use and Urban Form: Prepare for land use, growth, and development impacts of CAVs and support the approved London Plan.
- Economic Sustainability: Retain and attract industries, investment, and employment in CAV sectors.
- City Fleet and Services: Integrate CAVs and related systems into City fleets and services.

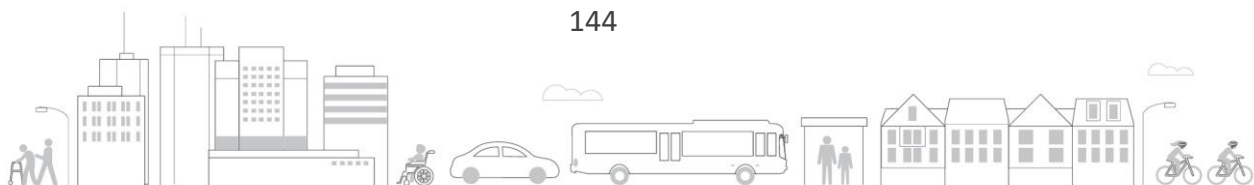
Although connected vehicles (CV) are not necessarily automated and automated vehicles (AV) are not necessarily connected, the two sets of technologies are frequently integrated together in practical operations. The ideal relationship between connectivity and automation is shown in Exhibit 7.2. CV and AV technologies are at different stages of development and have different implications for London and its residents and businesses.

Exhibit 7.2: Ideal Relationship Between Vehicle Connectivity and Automation



Connectivity

Connectivity refers to the wireless communication systems that allow people, vehicles and infrastructure to exchange information in real-time. Today, consumer-focused connected applications



are widespread, including applications like smartphone apps that rely on GPS and cellular data to help users plan trips and book rides with ride-hailing, shared micromobility⁸⁴ and micro-transit.

In London, connectivity is extensively used by transit. Buses already broadcast real-time information data, which is pushed to users through trip planning tools. Following direction from the *London Transit Five Year Ridership Growth Strategy (2019)*, the City is also investing in transit signal priority technology at traffic signals, which requires wireless communications between buses and signal controllers. The same technology can be used to give signal priority to emergency vehicles.

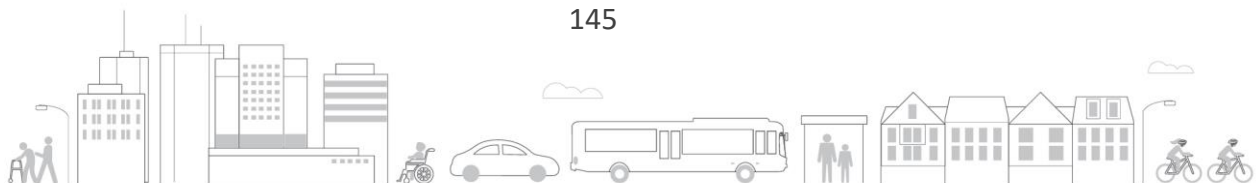
Applications for connected private vehicles are being piloted in other jurisdictions. These CV applications require technology installed roadside (called Road-side Units) and in vehicles. Data collected by vehicles (e.g. their position, heading, acceleration and braking) can be broadcasted to other vehicles and Road-side Units. Likewise, Road-side Units can broadcast information to vehicles such as signal phasing and timing or traveller information messages which, similar to variable message signs, carry messages of the City's choosing. This can be useful for travel advisories related to work zones, planned and unplanned events, and emergencies.

Automation

Automation refers to the use of sensors and computer analytics to assess a vehicle's environment and perform varying degrees of driving tasks. In the long-term vision for automated vehicles (AV), a passenger simply provides the destination and the AV makes all decisions required to make the journey. In practice, automation exists on a spectrum, where vehicles become progressively more automated depending on what is required of the operator. The Society of Automation Engineers (SAE) 5-level ranking is commonly used to distinguish between levels of automation:

- Driver support
 - Level 0: No Automation – No automated features.
 - Level 1: Driver Assistance – Driver support features such as steering or brake/acceleration.

⁸⁴ Micromobility is a general term used to describe a range of light vehicles that can be used for personal transportation, such as bicycles, e-bicycles, e-scooters and other adaptive mobility devices. With the growth of shared-micromobility systems, such as bikeshare or shared e-scooter systems, various micromobility options have become increasingly integrated into transit systems either through direct partnerships with transit operators or as alternative transportation services. Different micromobility modes are often accessed through the use of a mobility application.



- Level 2: Partial Automation – Similar driver support features as Level 1, but the driver may utilise multiple features simultaneously.
- Automated driving
 - Level 3: *Conditional Automation* – The vehicle manages most safety-critical driving functions under limited conditions.
 - Level 4: *High Automation* – The vehicle is capable of performing all driving functions under certain conditions.
 - Level 5: *Full Automation* – The vehicle is capable of being driverless, meaning full-time automated driving in all conditions.

Many automakers include AV features like dynamic cruise control, lane-keep assist, and automatic parking, which are now often standard features in many car brands. These features are increasingly combined to provide SAE Level 2 automation. More advanced AV functions are being furthered by conventional automakers and technology-specific companies. SAE Level 3 is recognized as a “gap” level of automation between driver support and automated driving, with particular safety challenges. Levels 3 and above are likely to be the most transformational stages of automation.

Smaller scale automated vehicles, often referred to as micro utility devices (MUD) are also being developed. MUDs have a wide range of applications, including parcel delivery, snow clearing and road servicing, and road scanning. They often operate on sidewalks, competing for space and creating conflicts with pedestrians. Due to these challenges, some cities have banned the use of MUDs on sidewalks and/or bike lanes, pending further policy or regulatory developments at a provincial level. An example parcel delivery MUD is shown in Exhibit 7.3.

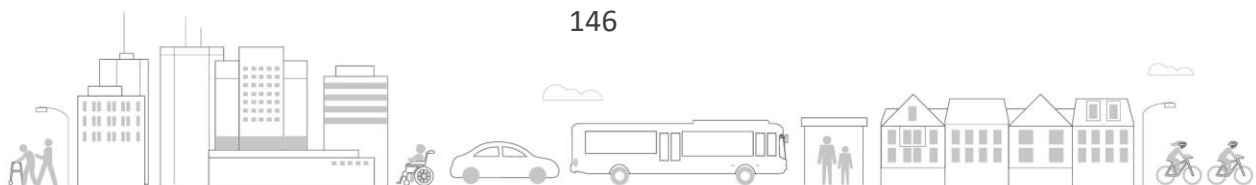
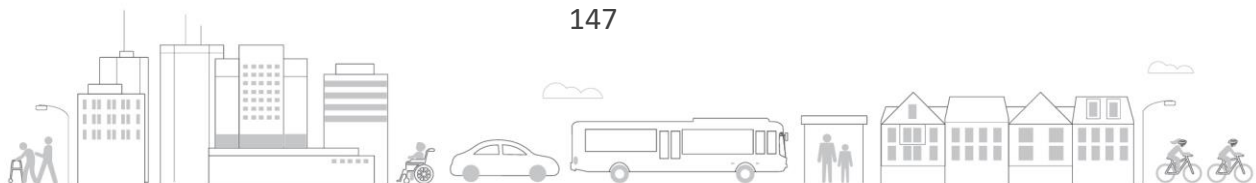


Exhibit 7.3: Starship Technologies Micro-Utility Devices



Source: HAL333 own work, CC BY-SA 4.0 Wikimedia Commons

AV research is already taking place in London through the Ontario Vehicle Innovation Network (OVIN). London and Windsor are jointly OVIN’s southwestern Regional Technology Development Site. Through OVIN, research in AV cybersecurity and cross-border technology is being undertaken in the two cities, facilitated in London by the City, the London Economic Development Corporation, Western University, Fanshawe College, and TechAlliance.



8 Future Mobility Planning Considerations

The significant expected growth in London’s population and employment brings with it both challenges and opportunities. More people and jobs will create more demand for mobility which puts more pressure on the transportation network. More people and jobs, when accommodated in a transit supportive land use, also creates the opportunity to increase sustainable mobility use. However, significant intervention will be required to manage London’s growth in a way that aligns with the vision and key directions outlined in *The London Plan*, furthers the MMP vision and helps manage London’s Climate Emergency. This chapter provides an overview of four key mobility planning considerations that will influence future mobility in London to lay the foundation for developing networks and policies that help create the change needed to achieve London’s desired future.

London is Densifying but Planned Land Use Distribution May Challenge Sustainable Mobility Use

As discussed in Section 2.3, London is expected to both urbanize and suburbanize with planned growth both in the existing 2016 Built Area and outside of the 2016 Built Area in suburban locations. In particular, growth is expected Downtown, along the South and East RT corridors, and in areas outside of the Built Area Boundary, particularly in the southwest and north. As planned, however, density in much of the inner city (outside of Downtown) and suburbs will not change significantly from today. This means that there are limited areas in the planned 2050 land use distribution that are conducive to frequent or rapid transit, which is generally best supported with population densities of over 100 people and jobs per hectare. Lower densities are also less conducive to active mobility.

Mode share is heavily dependent on the location of people and jobs throughout London. Suburban residents and residents in lower density areas in general tend to travel by car more. The current planned distribution of London’s population and jobs will present challenges for increasing the share of trips made by transit and active mobility. Potential opportunities to make London’s land use more supportive of transit and active mobility are discussed in Chapter 9 of this report.

Transit Speed and Reliability Will Worsen Without Further Investment and Initiatives

Quality transit service is a significant factor in encouraging more people to use transit. Today, transit travel time is not competitive with car travel with many key origin-destination pairs having transit travel times that are more than double the time it takes to reach the destination by car. Furthermore, LTC’s top ridership routes that form a grid across London operate on some of the city’s most congested arterials, as shown in Exhibit 8.1.

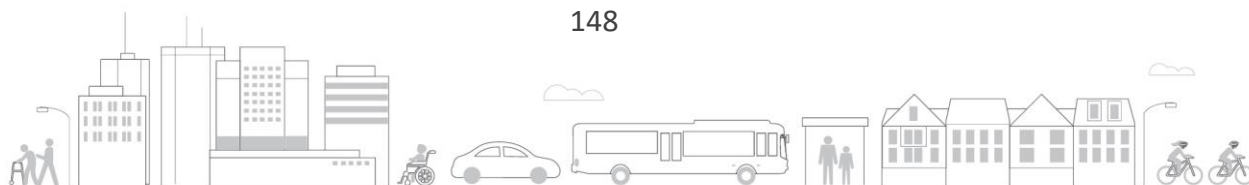
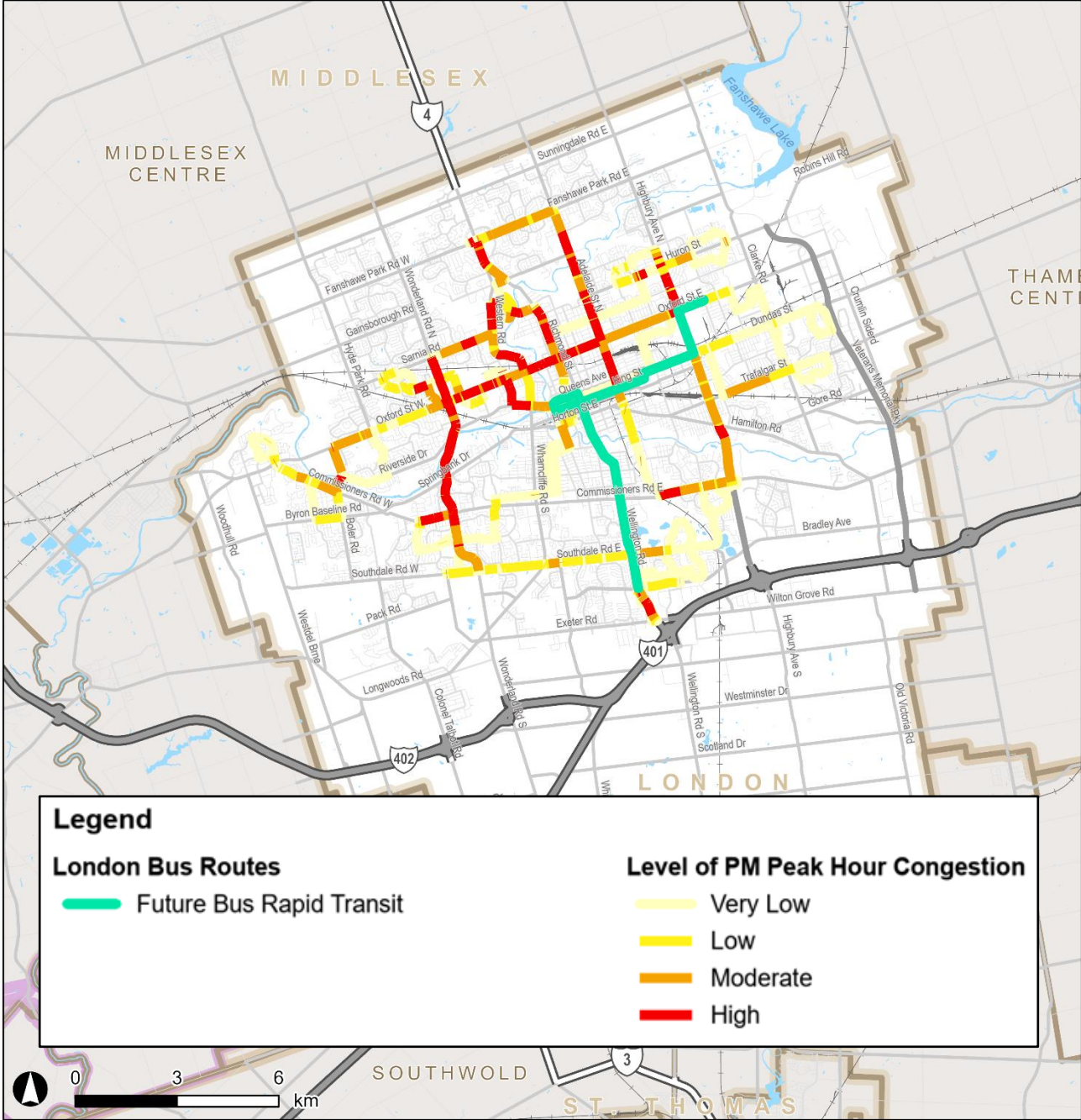
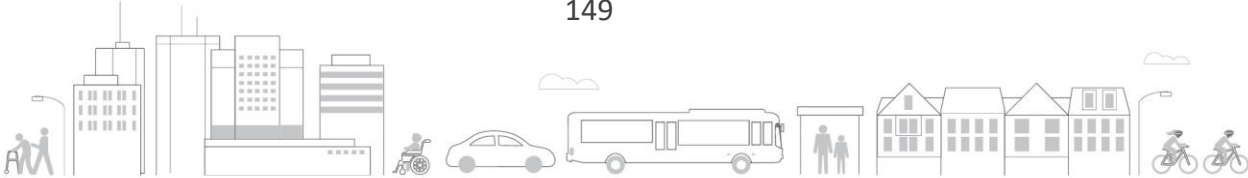


Exhibit 8.1: 2019 Congestion on High Ridership LTC Routes



Source: London Travel Demand Model

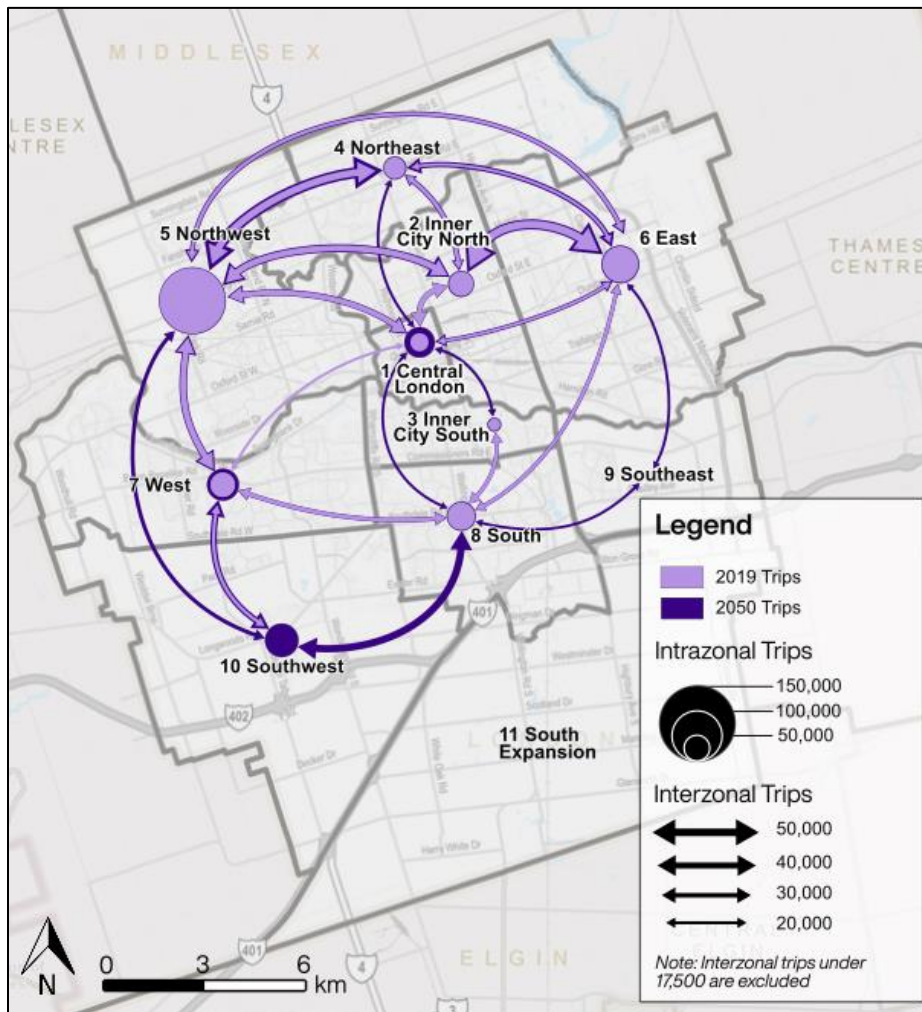
With population growth continuing, this congestion is projected to increase with corresponding delays to transit operations. Transit speed and reliability, and therefore the attractiveness of the service, will not improve in the future without interventions to increase the travel time competitiveness of transit



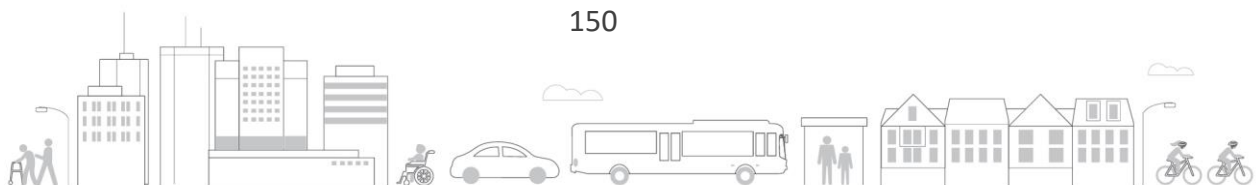
city-wide. Interventions include both capital investments in transit priority measures to increase the speed and reliability of service, in addition to operating investments to provide frequent service (which reduces wait times and is more convenient). These investments will be essential to promote transit ridership growth and increase the transit mode share. Potential opportunities to make transit faster, more reliable, and more convenient are discussed in Chapter 9 of this report.

The dispersed nature of travel in London is also projected to continue – dispersed travel is generally best served by a grid transit network. Exhibit 8.2 demonstrates that key travel patterns today are expected to continue with significant travel demand between non-downtown destinations and a significant volume of trips destined for Northwest and East zones. In 2050 there is also projected to be an increase in trips to, from, and within the southwest given the expected population and employment increases in that part of the city.

Exhibit 8.2: 2019 and 2050 High-Demand Origin-Destination Pairs (All-day Bi-directional)



Source: London Travel Demand Model



Future Mode Shift Requires a Significant Increase in Transit and Active Trips

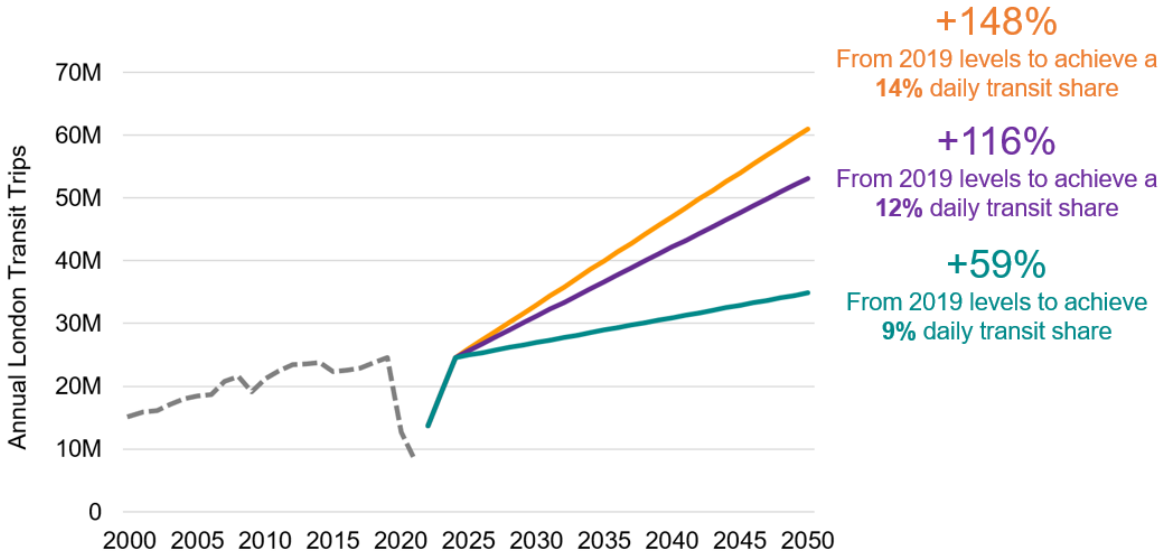
Under a Business-as-Usual scenario (a scenario where current trends, investment levels, and planned land use distribution are in place), the transit and active mobility share will only increase marginally with current planned investments in Rapid Transit and planned increases in density along transit corridors and Downtown, as shown in Exhibit 8.3. This points to the challenge of increasing transit and active mobility the context of significant population growth in a city that may still have substantial lower density areas. This is in part because the increase in the number of trips made using transit and active mobility will have to significantly outpace population growth to see a substantial rise in the share of trips made by transit and active mobility. Exhibit 8.4 shows the increase in the number of trips required to achieve a 9% transit mode share (currently projected for 2050 as shown in Exhibit 8.3), increase the share to 12%, and increase the share to 14%.

Exhibit 8.3: 2050 Projected Business-as-usual Mode Share

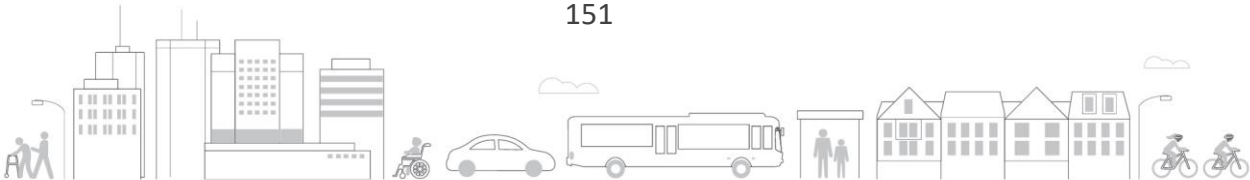
Mode	2050 BAU – Option 1	
	Peak Period	Daily
Auto Drivers	61%	59%
Auto Passengers	12%	16%
Transit	9%	9%
Active (Walk, Cycle, etc.)	17%	16%

Source: London Travel Demand Model

Exhibit 8.4: Transit Ridership Required to Achieve Various Transit Mode Share



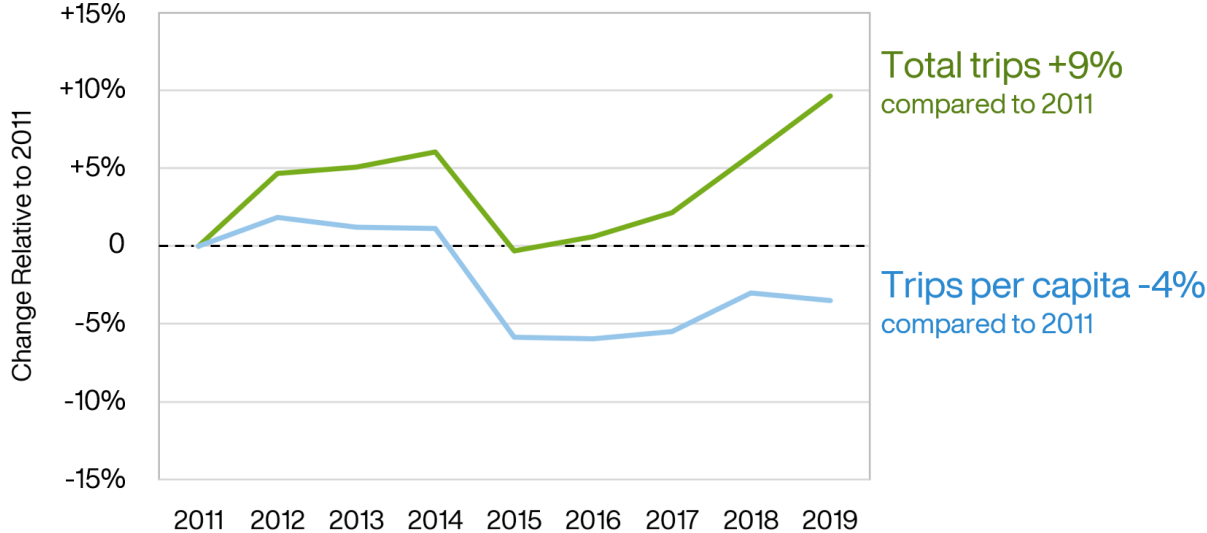
Source: CUTA Statistics; London Travel Demand Model



Note: This forecast assumes annual transit ridership recovers to 2019 levels by 2024.

London’s population has been growing faster than transit ridership, which has led to a decline in transit trips per capita and a decline in the share of trips made by transit. However, the number of total transit trips in the past ten years has been increasing, as shown in Exhibit 8.5.

Exhibit 8.5: Changes in Transit Demand, 2011 to 2019



Source: CUTA Statistics

Note: Data from 2020 and 2021 have been excluded to illustrate trends prior to COVID-19.

Exhibit 8.6 shows the increase in the number of trips required to achieve the 2050 BAU active mobility share and to increase the share to 18% or 20%.

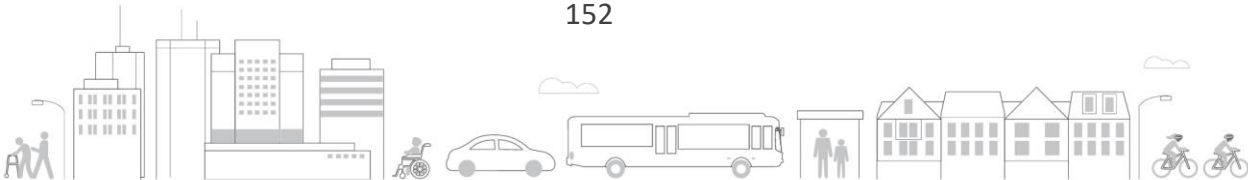
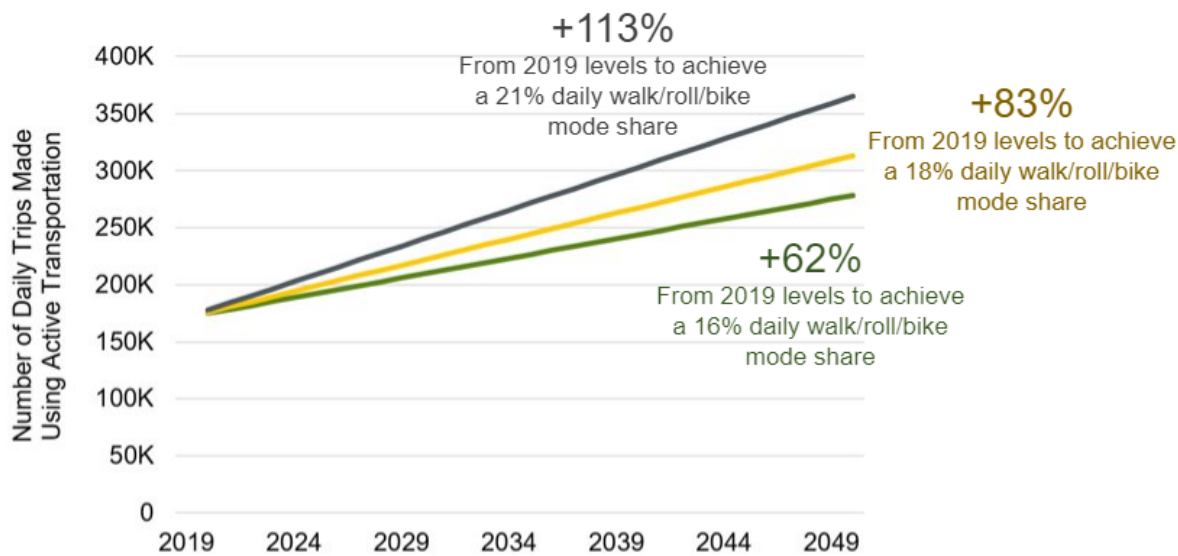


Exhibit 8.6: Active Mobility Daily Trips Required to Achieve Various Mode Shifts



Source: London Travel Demand Model

Note: Historic trends are not presented on this chart as there is no consistent source of historic data on daily trips made by active transportation.

These exhibits highlight that increasing the share of trips made using active mobility requires a significant number of people to shift to these modes. In the case of transit, the trend of declining mode share and trips per capita will need to be reversed. Potential opportunities to increase transit and active mobility use are discussed in Chapter 9 of this report.

Peak Period Road Congestion is Projected to Increase in the Future Requiring Targeted Management

Under the same business-as usual scenario described above, traffic congestion will increase significantly in London during peak periods. During these times, the movement of goods will be slower, travel times for driving and conventional transit will be longer, and contributions to GHG emissions will be higher (until significant adoption of Zero Emission Vehicles occurs). The road network performance presented in Exhibit 8.7 projects significant peak period congestion on London’s arterial road network—furthermore, most of the future congestion is on arterials that are already four lanes. To address congestion in the long term and contribute to London’s desired future, solutions other than significant road widening will be needed.

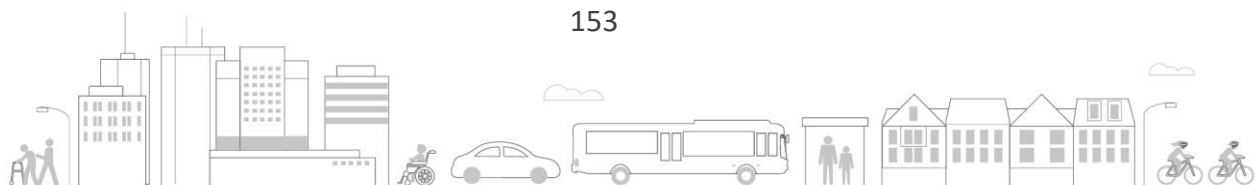
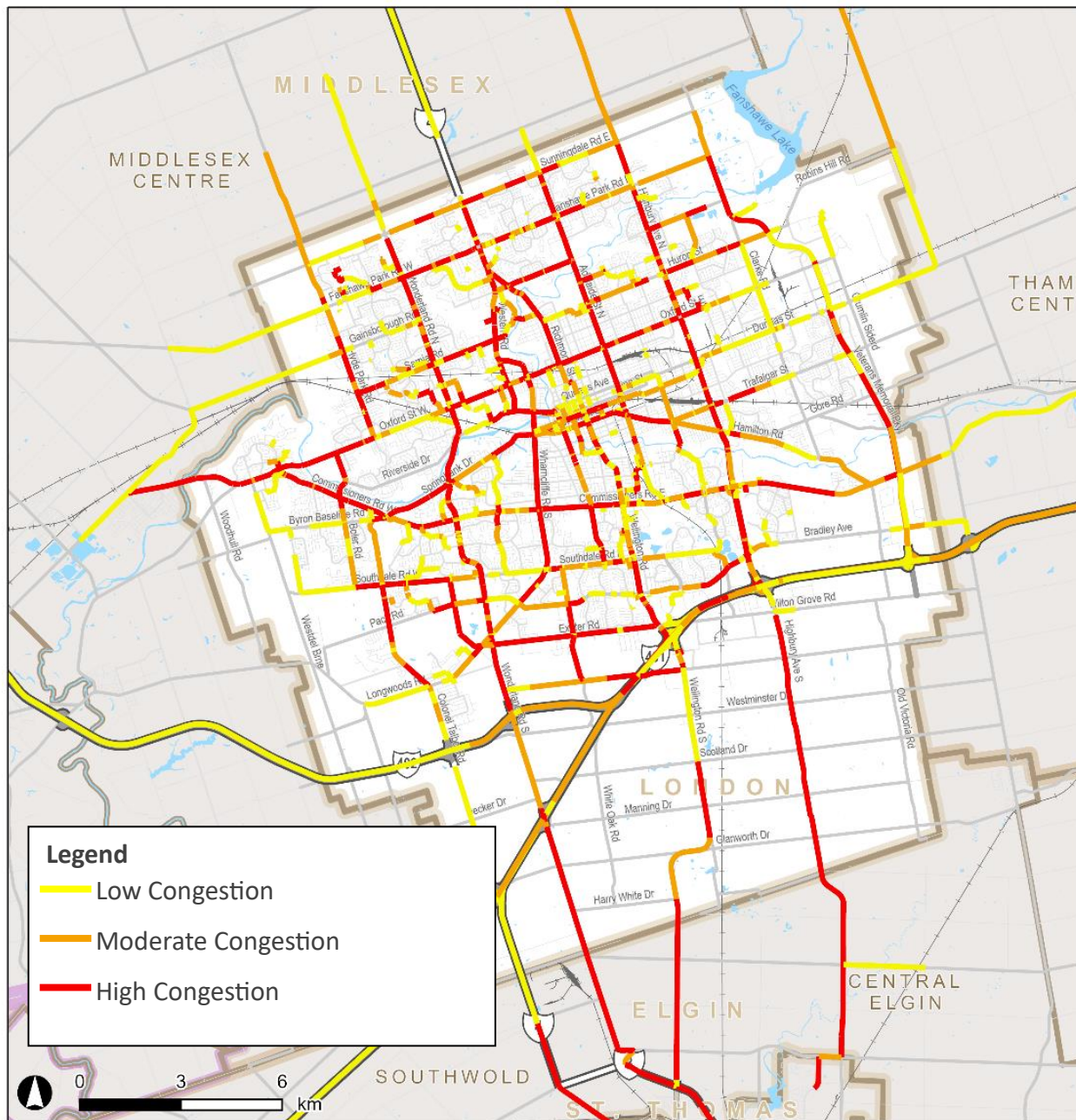
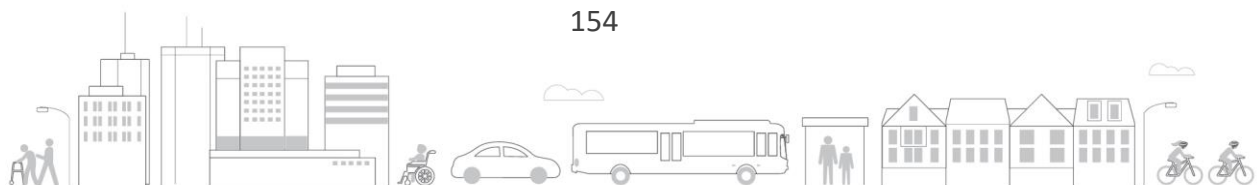


Exhibit 8.7: Projected 2050 PM Peak Hour Congestion, Business-As-Usual Scenario



Source: London Travel Demand Model

However, this congestion also means that even with investments in transit priority and walking and cycling, some targeted road network expansions and solutions to manage congestion hot spots will be needed in the future, even when planning for a higher sustainable mode share than today. Potential opportunities to manage road congestion are discussed in Chapter 9 of this report.



9 Mobility Needs and Opportunities

London is comprised of a mixture of lower density neighbourhoods that currently have a high reliance on cars for mobility, and some higher density areas that see more transit and active mode use. With London’s population and employment continuing to grow, the City will have to manage increasing travel demand through to 2050, largely within the same space currently allocated to mobility in London. This growth is also occurring within the context of climate change impacting the economy, eco systems and communities—a massive challenge that mobility plays a large role in.

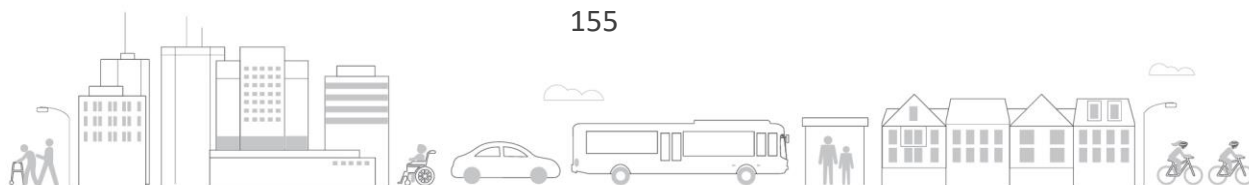
To achieve London’s mobility vision, contribute to the vision and key directions outlined in *The London Plan*, and take action on the Climate Emergency, there is an overarching need for improvements to the mobility network to focus on reducing reliance on personal automobiles and increasing the viability and use of walking, cycling and transit to meet mobility needs.

This aligns with a planning paradigm shift occurring in London and across Canada which has a greater recognition of how more walking, cycling and transit options advance the full spectrum of city building objectives. In London, a greater focus on enabling these more sustainable mobility options would contribute to all MMP guiding principles.

While reducing reliance on automobiles will be a key focus of the MMP, driving or riding in a vehicle is expected to remain an essential mobility option throughout the 2050 horizon of the MMP. In particular, local and regional industry and goods movement will continue to need a reliable road network in support of London’s economic prosperity. As such, the MMP will explore opportunities across all modes in a manner that aligns with the guiding principles.

Within the broader context of needing to shift the mobility system towards increased viability and use of walking, cycling and transit, this chapter outlines specific needs and opportunities identified through this phase of the study. This chapter is organized around eight key needs with a description and discussion on opportunities included for each. The needs serve as important Areas of Focus that will inform all policies and actions developed for the MMP. The eight Areas of Focus are:

1. **Use the Mobility System to Support London’s Desired Future Land Use**
2. **Make Transit the Option of Choice for More Trips**
3. **Make Walking and Cycling Attractive Mobility Options to Meet Daily Travel Needs**
4. **Manage Road Capacity at Key Locations**
5. **Support London’s Role as a Regional Hub**
6. **Put People First on London’s Streets**
7. **Provide a Mobility System that Enables More Equitable Participation in City Life**
8. **Prepare for Change**



Notably, all of the MMP guiding principles relate to every Area of Focus outlined in this chapter. Likewise, while individual opportunities may have a greater emphasis on some guiding principles, the solutions put forward in the MMP to address these needs must advance the full suite of MMP principles.

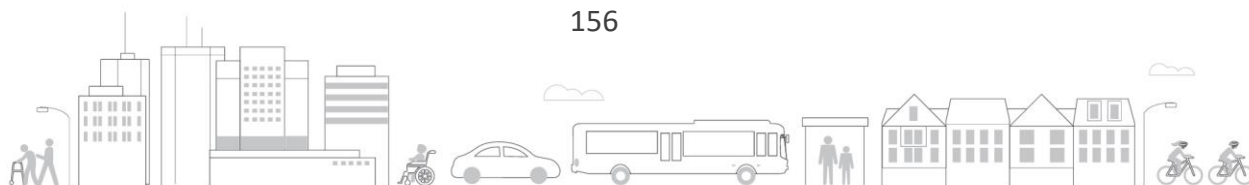
The needs and opportunities described in this chapter represent a starting point for the MMP—these will be expanded upon and refined in the next phase of work. Phase 2 includes exploring solutions and making connections which involves creating long lists of more detailed potential policies, actions and infrastructure projects and then evaluating them to determine which ones to put forward in the final MMP.

9.1 Use the Mobility System to Support London’s Desired Future Land Use

The London Plan describes the inextricable relationship between land use planning and mobility—where homes, businesses, services, and jobs are located impacts where and how people travel around London. In turn, where mobility services like rapid transit lines or new roadways are provided influences where new homes, businesses, services, and jobs choose to locate and the use, intensity and form of development that can be supported on a corridor. In this way, the mobility system is essential to achieving London’s desired land use as defined in *The London Plan*.

Higher-density development and mixed-use areas that combine residential, commercial, and other land uses are key components of achieving land uses and a transportation network that are supportive of each other. This integration leads to shorter travel distances—when combined with reliable public transit service, dedicated bike lanes, and a network of sidewalks and pathways, this makes accessing destinations without an automobile more feasible and enjoyable. Given the significant greenhouse gas emissions from vehicles, these types of walkable and complete neighbourhoods where Londoners daily needs are nearby and can be accessed without a car are a key component of London’s *Climate Emergency Action Plan*.

While London currently has some areas with higher population densities, such as Downtown, White Oaks, West London and some other pockets around the city, much of the city is comprised of low-density residential land uses. Between 2006 and 2016, approximately three quarters of population growth occurred in greenfield lands based on the 2006 Built Area boundary, expanding the area of the city and potentially requiring people to travel further distances to get to their destinations. With a current intensification target of 45% of all new dwellings being built within the Built Area Boundary, London’s future land use will continue to be a mix of both lower-and higher-density areas. As such, the MMP needs to explore opportunities that advance the mobility vision within both of these contexts and points in between. To do this, some opportunities that will be considered in the next phase of the MMP include:



- Developing policy and networks to support compact greenfield developments that enable transit and active mobility use (e.g. road networks that maximize connectivity and provide multimodal options).
- Identifying transit, pedestrian and cycling projects that enable and support increased density at key nodes and along corridors within the existing Built Area Boundary.
- Exploring zoning adjustments and land use development standards for greenfield and infill development to encourage multimodal travel (e.g. lower parking requirements, cycling facilities and amenities, increased density allowances etc.).
- Incentivizing re-development of surface parking lots downtown to contribute to London’s desired future land use and mobility system.

9.2 Make Transit the Option of Choice for More Trips

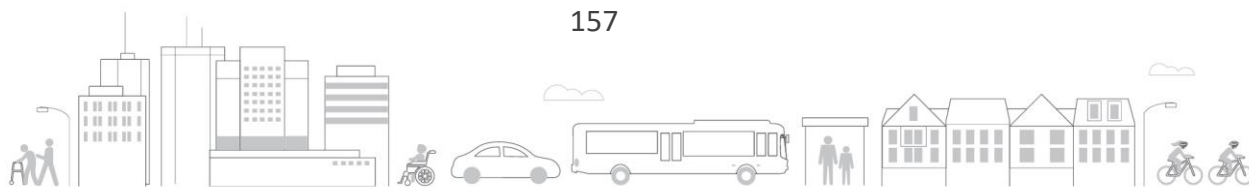
London Transit plays an essential role in London’s mobility system, serving over 20 million trips annually prior to the COVID-19 pandemic. Despite decreases in ridership at the onset of the pandemic, in 2022 ridership had returned to approximately 90% of pre-pandemic levels on weekdays and 110% on weekends. This significant recovery demonstrates the continued role and a further opportunity for growth. The Rapid Transit system, planned for implementation shortly will build on this momentum.

Despite this, many limitations remain. This includes but is not limited to very long travel times for cross-city trips compared to automobile travel, infrequent service on many routes, no service to some areas such as some employment lands and residential neighbourhoods and limited operating hours that do not align with work schedules outside of the “9-to-5” routine.

These limitations create challenges for people that already rely on transit to meet their daily travel needs and prevent other residents from choosing to use transit. Further, limitations in transit service can push people to stretch household budgets by purchasing a car to meet travel needs where transit is not an available or viable option. As a result, less than 8% of all trips made in London per day use transit.

Expanding and improving transit service to make it a viable and attractive mobility option for more trips in London will be a key component of moving more people efficiently as London’s population continues to grow. As a more affordable mobility option compared to automobile ownership that involves physical activity and is more environmentally sustainable, it also advances a wide range of mobility and broader city building directions. To make transit the option of choice for more trips, some opportunities that will be considered in the next phase of the MMP include:

- Identifying initiatives to improve the speed and reliability of transit services such as rapid transit or transit priority features, increasing the travel time competitiveness of transit particularly for high-demand origin-destination pairs.



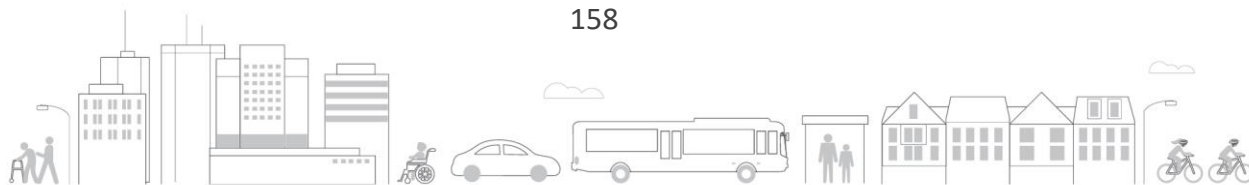
- Exploring network improvements to expand coverage and better serve the growing trend of suburb-to-suburb travel.
- Capitalizing on projected population and employment growth by encouraging development that promotes transit use.
- Supporting the adaptation of London Transit services to changes in travel behaviour as a result of COVID-19 (i.e. increased off-peak demand).
- Providing options for first- and last-mile connections to improve access to transit services.
- Encouraging increased transit ridership among those with regular access to car.
- Developing parking management policies and other Transportation Demand Management policies to encourage increased transit use.
- Exploring alternative transit service delivery models for connections to employment areas (e.g. on demand service, shuttles)

9.3 Make Walking and Cycling Attractive Mobility Options to Meet Daily Travel Needs

Active mobility has an important role to play in London’s future mobility system as environmentally sustainable, affordable and healthy travel options. London’s current system offers many opportunities for active mobility through the sidewalk network and cycling and trail network. However, gaps in these networks persist that make the viability of active mobility vary across the city. As a result, many Londoners do not have the option to choose to use active mobility options comfortably, to meet daily needs. This is particularly the case in neighbourhoods in the periphery of the city, many of which are anticipated to experience population growth in the coming decades.

Nearly half of all trips in London are 3 km or less and automobiles remain the dominant mode of travel even for these short-distanced trips. Many of these shorter trips are well-suited to active mobility options. Providing choice is a key aspect of increasing the use of active mobility options—Londoners cannot use mobility options that are not available. Safe, secure and high-quality options also matter—mobility options that do not feel safe or comfortable will be less attractive to Londoners, impeding freedom to move around the city. To make walking and cycling attractive mobility options, some opportunities that will be considered in the next phase of the MMP include:

- Planning networks that support both neighbourhood and cross-city active mobility for people of all ages and abilities in all communities (e.g. cycling lanes, safe intersections, adequate sidewalk space).



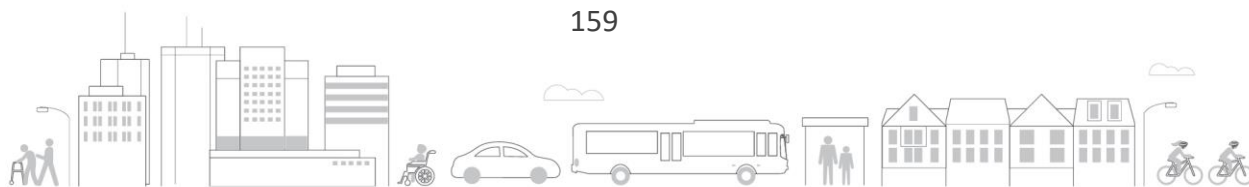
- Incentivizing the use of active modes for short-distance trips.
- Expanding programming efforts that help educate people on the opportunities for and benefits of active mobility in London.
- Reviewing Road Classification and Complete Streets guidance to ensure walking and cycling are adequately incorporated.
- Developing policies that provide the necessary support for active mobility including policies that provide amenities such as bike parking and street furniture to create places that people can and want to travel to by active means.
- Continuing to pursue a shared micromobility system (e.g. bike share)
- Recommending interventions that reduce travel distances for active modes such as neighbourhood short-cuts.
- Improving connectivity of active transportation facilities city-wide and specifically at key destinations such as rapid transit stations, schools, employment hubs, community centres, libraries and other community hubs.

9.4 Manage Road Capacity at Key Locations

London’s street network is comprehensive, enabling mobility of both people and goods to all areas of the city. Despite an expected decrease in reliance on automobiles, a key function of the road network continues to be the efficient movement of vehicles including personal, freight, and service vehicles. This is particularly important for goods movement throughout London whether it’s for trucks delivering food to grocery stores, packages to residents or freight to and from London’s industrial/manufacturing businesses—all things that support London’s economic prosperity and require a reliable road network. However, congestion remains an issue on the arterial road network and this will continue with projected population and employment growth. In addition to slowing goods moving in London, delay caused by congestion makes access to jobs and services more challenging for those that need to drive, and for people using transit.

Given the overarching need to increase mobility by non-automobile options, the MMP aims to minimize the use of new road capacity to address congestion. Significant improvements in traffic operations can be achieved through numerous other operational, technological and design initiatives. By strategically focussing new capacity towards meeting the needs of new developments and then augmenting the existing and robust road network through targeted initiatives at key locations, London can improve conditions while minimizing the need for new major infrastructure. Some opportunities that will be considered in the next phase of the MMP include:

- Identifying initiatives that maximize the use and efficiency of the existing road network.



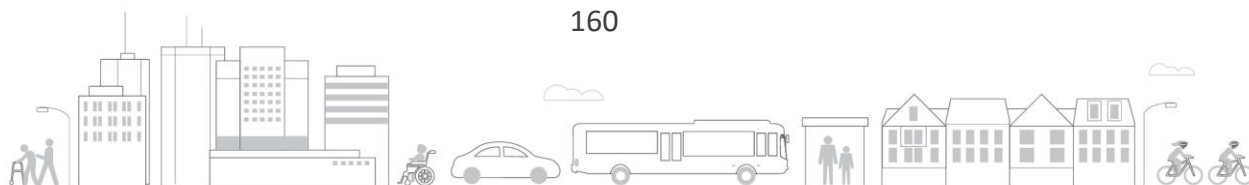
- Identifying multi-modal opportunities to address congestion on key arterials.
- Exploring technological improvements to improve traffic operations.
- Increasing the people-moving capacity of the network by allocating more road space for sustainable modes like walking, cycling and transit.
- Developing targeted solutions for goods movement that consider the needs of all modes.
- Incorporating goods movement and economic development considerations into the development of network recommendations.
- Managing curb space through interventions such as designated loading areas, time of day restrictions, communications and trip planning tools, etc.

9.5 Support London’s Role as a Regional Hub

London’s services, opportunities and amenities serve local residents but also the many communities that surround London, contributing to the City’s economic prosperity. In the morning peak period, nearly 10% of all trips in London originate from outside of the city. As a regional hub that is home to healthcare, post-secondary, employment, recreation and entertainment opportunities, people from these surrounding communities create travel demand on London’s streets. As such, the land use and mobility options of these surrounding communities have an impact on London’s mobility system. Potential improvements to passenger rail in Southwestern Ontario will further London’s role as a regional hub and provide more connectivity to the rest of the province for London residents and people across southwestern Ontario. London’s role as a regional hub also involves facilitating access to major regional employers outside the City such as the Volkswagen EV Battery Plant and the Amazon facility as these employment areas continue to grow.

While some inter-municipal transit options exist, these are limited meaning most of the travel demand coming from outside of London is vehicle demand. The mobility system has a role to play in maintaining and strengthening London’s role as a regional hub and providing access to these essential services. Some opportunities that will be considered in the next phase of the MMP include:

- Working with neighbouring municipalities and MTO to provide more inter-municipal mobility options to both improve access to important services in the city such as healthcare and reduce vehicle kilometres travelled in London.
- Identifying surrounding communities with travel demand to London where new or enhanced transit service could be feasible.
- Exploring park-and-ride facilities that cater to connecting regional travellers to London Transit Service.
- Identifying cross-boundary cycling facilities to enable regional active transportation.



- Strengthening London as a mobility hub that connects regional travellers to local or regional tourism destinations.
- Supporting the planning and development of potential improvements to passenger rail service in Southwestern Ontario.

9.6 Put People First on London’s Streets

London’s streets are the backbone of the mobility network, providing far-reaching access to every corner of the city. London’s street space is also in high demand. Not only does it host the majority of the mobility system across all travel options, but it is also a key part of the city’s public space, providing opportunities to exercise, relax on a patio, shop, access businesses and services and more.

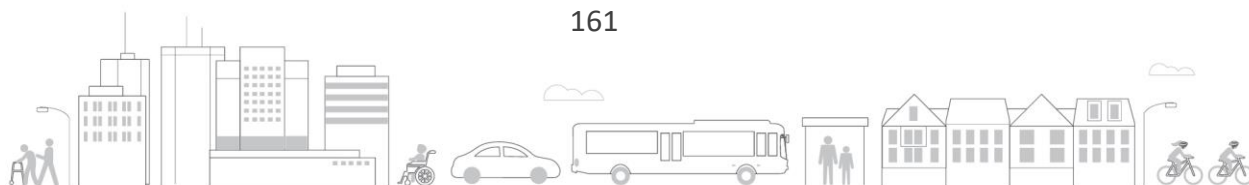
Over the past several decades, many of London’s streets have been primarily designed to serve the movement of vehicles—this has made safe, convenient and comfortable mobility and access challenging for people moving by other modes. To accommodate growing travel demand and to improve efficiency, safety, sustainability and equity, the design of London’s streets needs to focus on people, rather than vehicles. This includes moving people by safe and space-efficient mobility options, but also hosting people - making streets a place to be, not just to move through. To do this, some opportunities that will be considered in the next phase of the MMP include:

- Identifying mechanisms within City planning policies and processes to consistently implement multi-modal mobility services and accelerate the implementation of Complete Streets.
- Prioritizing mobility options that optimize the people-moving capacity of London’s streets.
- Prioritizing road safety and personal security in the planning, design, implementation and operation of London’s mobility networks.
- Integrating consideration of non-mobility-related functions of London’s streets into mobility decisions.

9.7 Provide a Mobility System that Enables More Equitable Participation in City Life

The mobility system is critical for providing access to daily needs and enabling full participation in city life. As such, an equitable city needs a mobility system that works for everyone. However, many Londoners face barriers to accessing the city.

Barriers can take many forms and can include, but are not limited to, not living close to or being able to afford to live close to quality reliable mobility options, not being able to afford mobility options



required to access destinations, a lack of mobility options that enable easy access to daily needs, and not feeling safe while moving around the city.

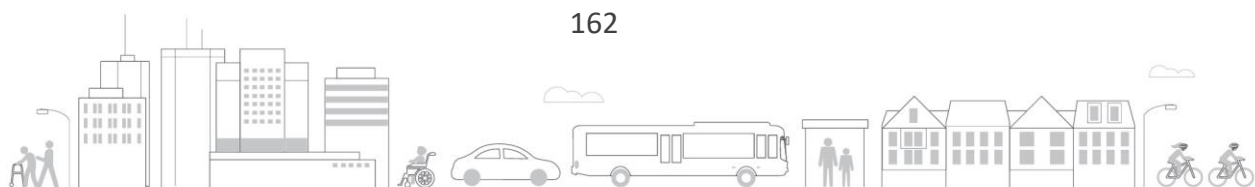
The MMP is incorporating equity at its core and will seek numerous opportunities to use the mobility system to achieve a more equitable city. This includes both the MMP development process and the recommendations which will be the first step in setting London up for an equitable mobility system in the future. Comprehensive actions/policies to increase mobility equity in London will be used and explored including but not limited to:

- Planning for the diversity of mobility needs in London by embedding equity considerations into the network and policy development process (e.g. varying trip times, purposes, circumstances, and experiences).
- Continuing to implement a robust consultation process throughout the MMP development to encourage input from many different perspectives.
- Developing policy standards for consultation on mobility-related projects (including design consultations) to capture diverse perspectives throughout the planning and implementation of mobility projects.
- Prioritizing capital projects based on equity-related factors.
- Exploring policies designed to provide affordable housing near transit.
- Incorporating personal security into mobility network design policy.
- Reviewing maintenance practices to identify changes that advance mobility equity.
- Developing data collection processes to better understand the mobility experiences of all Londoners.

9.8 Prepare for Change

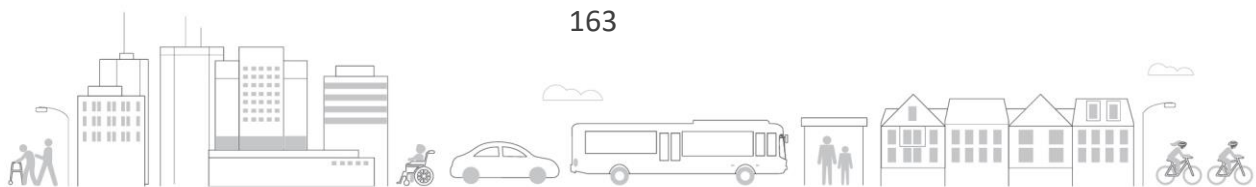
Since London’s last transportation master plan in 2013, a lot has changed. Likewise, broad societal changes are expected to continue over the coming decades. While there are always uncertainties involved in long-term planning, there are some prominent trends right now that provide some indication of what London should be prepared for in the future. Climate change, the continued recovery from the COVID-19 pandemic and the emergence of new technologies impacting mobility are some of the major trends that have been and will continue to impact mobility in London. In particular, with personal vehicles making up 31% of all greenhouse gas emissions in London in 2019, the mobility system has a large role to play in both meeting the 2050 net-zero emissions target and becoming more resilient to increasingly extreme weather.

As such, some opportunities that will be considered in the next phase of the MMP include:



- Developing a data collection program to understand changes in travel behaviour as the recovery from COVID-19 continues.
- Building infrastructure that is resilient to the changing climate and minimizes impacts on eco systems (e.g. stormwater runoff).
- Leveraging new technologies to reduce greenhouse gas emissions from mobility.
- Conducting sensitivity analyses to understand how recommendations would need to change if future conditions are not as expected.

Identifying process to evaluate and, where appropriate, implement new technologies to support the advancement of the mobility vision.



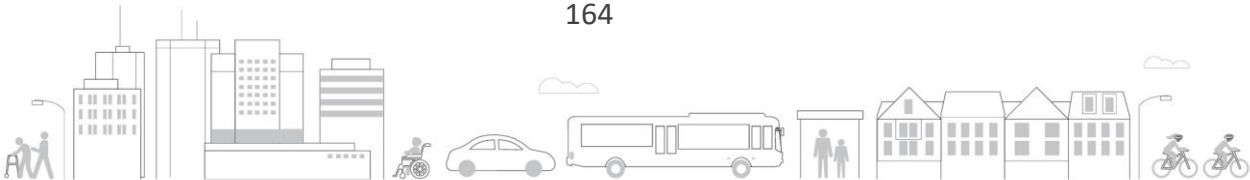
Appendix A: Mode-specific Policies and Current Projects

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A. Mode-Specific Policies and Current Projects

This appendix supports the mobility network descriptions presented in Chapter 6 by outlining relevant existing policy context specific to each mode/network and relevant plans for each mode within the jurisdiction of the City of London. This appendix contains the following sections:

- Multi-modal Streets
- Active Mobility
- Municipal Passenger Transit Services
- Vehicular Traffic

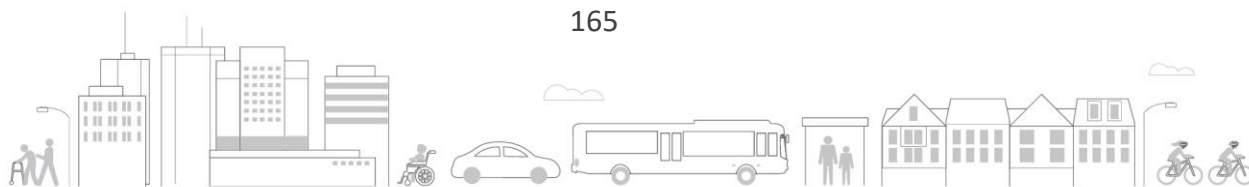
A.1 Multi-Modal Streets

Most modes discussed in the following sections rely on the street network. Historically, this network has been designed primarily for automobiles and trucks. To encourage more active transportation and transit use, streets must be redesigned to include infrastructure for these modes. *The London Plan* provides the high-level vision for multi-modal streets, which is further detailed in the *London Complete Streets Design Manual*. The *Manual* provides guidance on balancing the needs of pedestrians, cyclists, transit riders, and motorists to create safer, more sustainable streets, including key policy priority areas, design principles, and specific street elements. Several elements included in the *Manual* are discussed in the relevant mode-specific sections of this Appendix.

The London Plan (2016)

Specific policies in *The London Plan* to support multi-modal streets include:

- The City's street network will be designed to ensure high-quality pedestrian environments, maximized convenience for mobility, access to focal points and to support the planned vision for the place type (5, 211).
- [...] To ensure connectivity and integration with existing and planned neighbourhoods, new neighbourhood street networks will generally be designed to have connections to existing and future neighbourhoods. (5, 212).
- Street patterns will be easy and safe to navigate by walking, rolling and cycling and will be supportive of transit services. (5, 213).

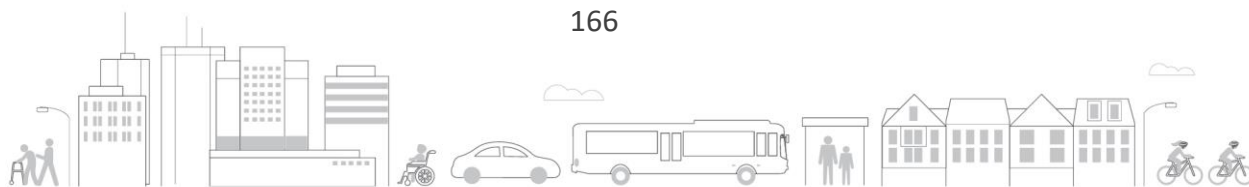


- Neighbourhood street networks and block sizes will be designed to ensure connectivity and support transit and active mobility. Infrastructure and amenities to support transit and active mobility will be incorporated. (5, 217).
- Neighbourhood street networks will support the delivery of emergency services. (5, 219).
- Street design standards will be adopted to reflect pedestrian, cycling and transit priorities within neighbourhoods. (5, 223).
- Green mobility will be promoted by establishing a city structure that supports rapid transit, transit-oriented design, active mobility, transportation demand management, intensification, and cycling infrastructure throughout the city. (5, 724)

Complete Streets Design Manual (2018)

The following key policy priority areas listed in the *Complete Streets Design Manual* provide the foundation for the City's Complete Streets philosophy and will be of key consideration for the MMP in recommending infrastructure improvements:

- **Integrate complete streets design principles into the decision-making process** – All users and functions of a street should be considered whenever a street is constructed, reconstructed or rehabilitated.
- **Consider all users and functions of a street** – Design streets for pedestrians, cyclists, transit riders, motorists, maintenance vehicles, goods movement and Emergency Medical Services, in addition to accommodating placemaking objectives. Multi-modal level of service indicators can be used to assess existing conditions and establish goals for all users and functions.
- **Strive for Vision Zero** – Use an evidence-based decision-making framework to assess, guide and improve traffic safety.
- **Create pedestrian-friendly environments** – Create neighbourhoods where residents are readily able to reach essential destinations by designing streets with sufficiently wide pedestrian clearways, frequent crossing opportunities, accessibility features, and various public realm amenities.
- **Coordinate built form decisions with transportation decisions** – The planning and design of streets aims to incorporate and be responsive to the appropriate use, intensity and form along each street classification, as set out in *The London Plan*.
- **Engage residents and other interested parties in the Complete Streets process** – The City will inform and engage residents and other interested parties on the multi-faceted



nature of street design to coordinate design efforts and reflect the priorities of Londoners in the City’s Complete Streets vision.

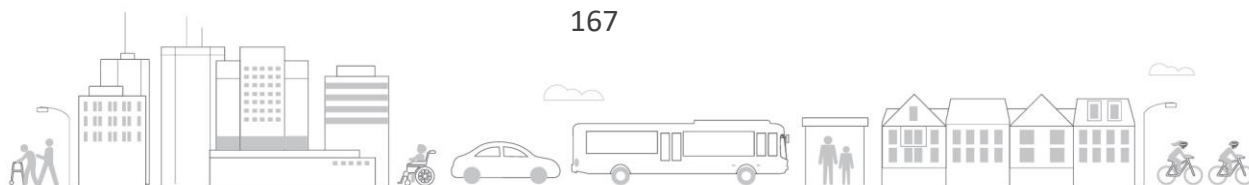
2023-2027 Strategic Plan (2023)

The *2023 Strategic Plan* includes targeted initiatives that aim to ensure Londoners of all identities, abilities and means can move around the city safely and easily. The Expected Results focus heavily on non-automobile mobility options including several strategies to increase transit use, availability and satisfaction, better connectivity for active transportation options, improved intercity transit connections and road safety. Strategic Areas of Focus include:

- Reconciliations, Equity, Accessibility, and Inclusion
- Housing and Homelessness
- Wellbeing and Safety
- Safe London for Woman, Girls, and Gender-Diverse and Trans People
- Economic Growth, Culture and Prosperity
- Mobility and Transportation
- Climate Action and Sustainable Growth
- Well-Run City

A.2 Active Mobility

Active mobility, including walking, cycling, and rolling, has an important role to play in improving quality of life as part of a balanced mobility system. Active mobility is included as a key component in multiple City plans and policies that emphasize the importance of including active mobility in planning decisions as well as helping to guide network design. Policies supporting cycling and trails are found in the *City of London Cycling Master Plan*, *Core Area Action Plan*, *The London Plan*, and the *London Complete Streets Design Manual*. Sidewalks are a component of the latter two plans. London’s existing cycling and pedestrian networks are being expanded in multiple ongoing and recent projects, discussed at the end of this section.



Cycling and Trails - Current Plans and Policies

City of London Cycling Master Plan (2016)

The *City of London Cycling Master Plan* provides a blueprint for the future of the City's cycling network.⁸⁵ The Plan builds on the City's ongoing efforts to expand safe cycling and pathway infrastructure by setting the direction for cycling investments and outlining a comprehensive network and implementation strategy leading up to 2031.

The Plan advances six core objectives related to cycling that underscore the City's emphasis on active transportation as a key mode in its mobility network, as follows:

- **Connectivity:** Investments should build on the existing system and identify improvements on and off-road.
- **Consistency:** Infrastructure and plans to support cycling should provide consistent design guidance that builds on best practices.
- **Comfort:** Facilities to support cycling should be considered comfortable for and by cyclists of different skill levels.
- **Maintenance:** Cycling facilities should be maintained through recommended practices and to an appropriate level of service.
- **Prioritization:** Improvements to the cycling network should be prioritized for strategic implementation.
- **Promotion:** Interest and awareness of cycling city-wide should be increased through concerted promotional and educational opportunities.

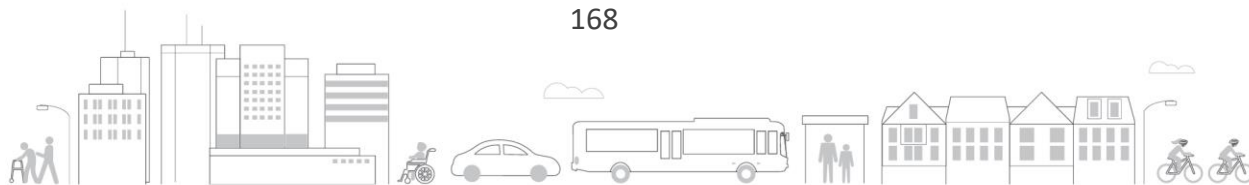
As part of the Plan, a series of key actions are outlined that include both ongoing and proposed strategies, initiatives and plans that collectively aim to contribute to London's growing cycling network.

Core Area Action Plan (2019)

The *Core Area Action Plan* outlines a wide range of actions that aim to improve planning decisions in London's Core Area, which encompasses Richmond Row, the Downtown and Old East Village. A key action outlined in the Plan is to 'continue to improve cycling infrastructure in the Core Area'⁸⁶, connecting its constituent areas with convenient and safe cycling infrastructure, including a quality network of protected bicycle lanes and secure lock-up facilities. The Plan suggests that a future bike

⁸⁵ City of London (2016). *London ON Bikes: The City of London Cycling Master Plan*.

⁸⁶ City of London (2019). *The City of London Core Action Plan* p. 37.

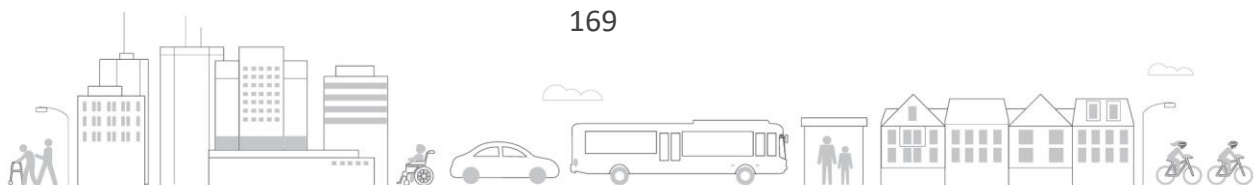


share network could provide important benefits to London residents, visitors and workers in accessing parts of the Core Area more effectively and with greater convenience, enhancing its business environment. City staff are still exploring options to introduce such a bike share program for London.

The London Plan (2016)

The following select policies from *The London Plan* stress the inclusion of cycling facilities in many new and existing developments. Other policies in the active mobility section of the plan describe the scope of the *Cycling Master Plan*, which is discussed in more detail above.

- Adequate bicycle parking facilities will be required for all development to encourage cycling as a viable form of transportation. Covered and secure forms of bicycle parking should be incorporated into multi-unit residential, large-scale commercial or retail, institutional, and recreational developments. (5, 280)
- Active mobility features will be incorporated into the design of new neighbourhoods and, where possible, enhanced in existing neighbourhoods to ensure connections to the street and transit system. (5, 348)
- All public works within the Primary Transit Area will be designed to support a high-quality pedestrian and cycling environment. A heightened standard of maintenance should be applied to active mobility infrastructure within the Primary Transit Area. (5, 351)
- A *Cycling Master Plan* may be prepared, in accordance with *Ontario's Cycling Strategy*, to establish a plan that connects key origins and destinations through a complete network of cycling infrastructure for commuting by bicycle and another complete network for recreational cycling. Where possible and appropriate, there will be overlap between these two networks. (5, 352)
- All street reconstruction and/or street widenings will incorporate cycling or cycling-related infrastructure where identified by the *Cycling Master Plan*. (5, 358)
- A maintenance program will be established for a winter cycling network as identified in the *Cycling Master Plan*. (5, 360)



London Complete Streets Design Manual (2019)

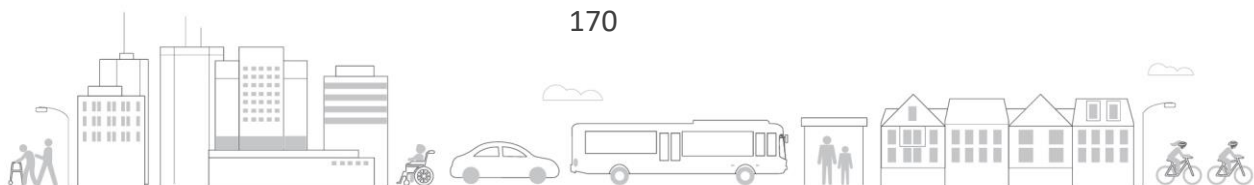
The *London Complete Streets Design Manual* includes a Cycling Facility Design section which outlines the range of cycling facilities and other features such as parking, wayfinding, and intersections. The selection of appropriate facility types is guided by the following principles:⁸⁷

- **Make context-sensitive design decisions:** The most appropriate cycling facility type and design features for a street vary based on motor vehicle speeds, motor vehicle volumes, cyclist volumes, surrounding land uses, motor vehicle parking demand, intersection and driveway frequency, and intersection control. Cyclist characteristics such as age and ability are also important considerations, and facilities in close proximity to schools, retirement centres, and similar land uses should consider the particular needs of the anticipated users.
- **Provide continuity and guidance:** Pavement markings and signage should be used to provide cyclists with intuitive guidance for their correct path of travel. This guidance should mark a continuous path for cyclists along a corridor, including at intersection approaches and crossings to reduce the potential for conflict between users. Where multi-use trails outside the ROW intersect with cycling facilities or provide an alternative route, the design of on-street facilities should consider how to best integrate these facilities into the network.
- **Prioritize vulnerable users:** (...) Prioritizing vulnerable users means providing separation between motor vehicles and pedestrians and cyclists where appropriate and designing intersections to mitigate conflicts between these users.
- **Provide convenient cycling-supportive facilities:** In order to make cycling a viable mode of transportation, bicycle parking must be available, conveniently located, and reasonably secure at the trip origin and destination, which in many cases may involve bicycle parking within the street right-of-way.

Cycling and Trails - Recent and Ongoing Projects

The City is making important strides to build more active mobility infrastructure to support the mobility of pedestrians, cyclists and those who roll. Several core projects that will add new cycling infrastructure to London’s active transportation network are underway or recently completed:

⁸⁷ More information can be found on page 33 of the Complete Streets Design Manual.



- As part of the **Downtown Loop** RT project, new in-boulevard bike lanes are being added on Rideout Street between Fullarton and King Street. Similarly, road enhancements are being made on Queens Avenue and on the Victoria Street Bridge to create better surfaces and separations to accommodate bicycle traffic, pedestrians and support improved connectivity.
- Both the **East London Link** and the **Wellington Gateway RT** projects will see the development of active transportation infrastructure to support cycling, walking and rolling, including the addition of a multi-use path on Clark's bridge to improve safety for cyclists and pedestrians.
- The **Dundas Street Thames Valley Parkway Connection** was completed in 2021 and improved the link for pedestrians and cyclists between the Thames Valley Parkway and Downtown, making it easier to reach existing transit routes as well as planned rapid transit stops in the area.

In addition to the projects noted above, the City's Cycling Master Plan contains a comprehensive set of recommended projects shown in

Exhibit A.1.

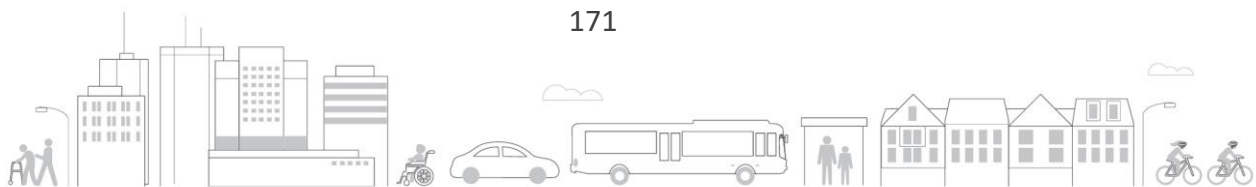
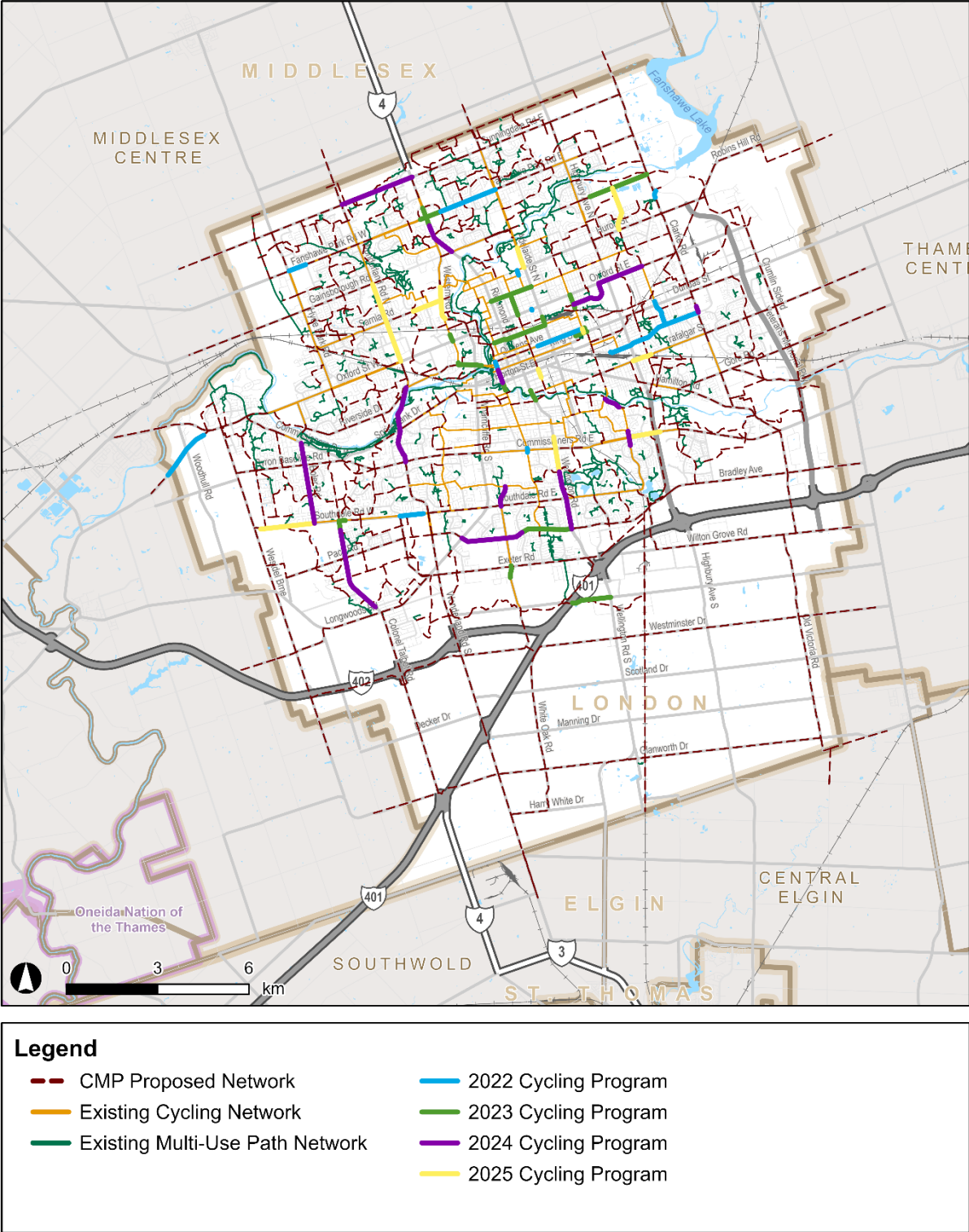
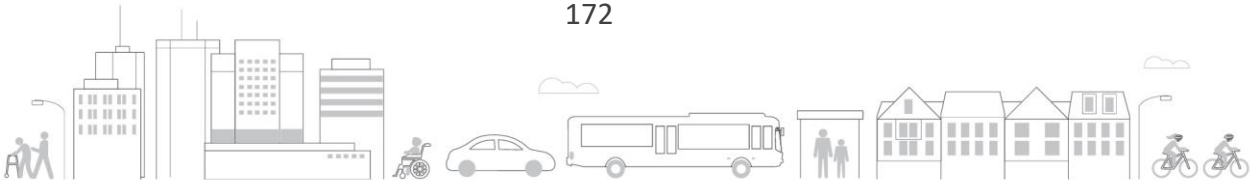


Exhibit A.1: Cycling Master Plan and Cycling Program Projects



Source: City of London



Sidewalks - Current Plans and Policies

Considerations for the development and rehabilitation of sidewalks in London are primarily outlined in *The London Plan* and the *Complete Streets Design Manual*.

The London Plan (2016)

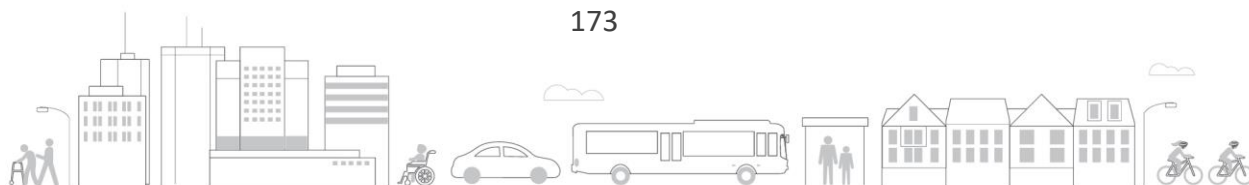
Multiple policies in *The London Plan* underscore the importance of sidewalks as key elements of London’s overall mobility network in supporting pedestrian activity. The following select policies emphasize this goal, including the role that sidewalks play in fostering Complete Streets in London:⁸⁸

- To support walkability, sidewalks shall be located on both sides of all streets (with possible exceptions). (5, 349)
- A coordinated approach will be taken during the planning and design of streetscape improvements, including the coordination of signage, sidewalks, cycling pathways (...) and adjacent public spaces as applicable. (5, 222)
- Neighbourhood streets and all infrastructure will be planned and designed to enhance safety (...) providing sidewalks of sufficient width to support planned levels of activity. (5, 228)
- Large public facility sites should be designed to support walking, rolling and cycling by using building orientation, location of entrances, clearly marked pedestrian pathways, wide sidewalks and general site layout to reinforce pedestrian and cycling safety and easy navigation. (5, 433)
- (...) the City will be designed to provide infrastructure such as sidewalks, bicycle lanes and pathways, to locate amenities within neighbourhoods so that they are accessible, and to achieve levels of density and connectivity that minimize travel distances between destinations. (5, 698)

Neighbourhood Connectivity Plans

City staff have identified about 20 areas of London where there are opportunities to provide better connections through sidewalks. Council has directed City staff to develop Neighbourhood Connectivity Plans for each of these areas. These plans will involve consultation with residents in these communities, City data and input and information from agencies and partners and will identify tailored solutions to each neighbourhood that provide the greatest benefit to all users.

⁸⁸ City of London. (2016) *The London Plan, Section 5: City Building Policies*.



London Complete Streets Design Manual (2019)

The *London Complete Streets Design Manual* outlines design features pertinent to sidewalk construction and rehabilitation in London, including material, dimensions, location, connectivity and other street features, such as street furniture and trees. Overarching design principles for the pedestrian realm include:

- **Prioritize safety:** (...) Street design should provide designated crossing facilities where crossing desire lines are observed. On streets with high volume and high speed motor vehicle traffic, the pedestrian clearway should be set back from any adjacent motor vehicle lane. Providing dedicated cycling facilities can increase safety for pedestrians. (p. 28)
- **Provide connectivity:** As the slowest mode of transportation, pedestrians have the greatest sensitivity to route directness. Where the street pattern limits connectivity, pedestrian connections should be provided. Intersections that do not accommodate pedestrian crossings on all legs are discouraged. (p. 28)

Sidewalks – Recent and Ongoing Projects

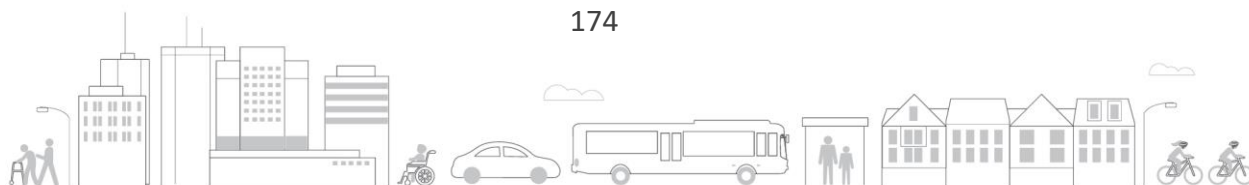
In the New Sidewalk Program, the City annually identifies high-priority areas and develops a sidewalk plan. In 2022, seven areas were prioritized as part of the Program:

- **Griffith Street** between Byron Baseline and Commissioners Road
- **Kenmore Place** between Melsandra Avenue and Kipps Lane
- **Norman Avenue** between Griffith Avenue, Reynolds Road and Stephen Street
- **Reynolds Road** and Norman Avenue
- **Stephen Street** between Baseline Road and Springbank Avenue
- **Trafalgar Street** between Ascot Street and Hudson Drive

New sidewalks are identified through a resident driven process and selected based on a priority rating framework that encompasses different factors including the daily vehicle traffic and pedestrian visibility, adjacent land use, expected pedestrian usage, and proximity to amenities such as schools, community facilities or transit services.

New, improved or replacement sidewalks have also been included in many other road reconstruction or rehabilitation projects. Some of these projects include:

- Audrey Avenue Road Construction
- Brydges, Muir and Swinyard Street Reconstruction



- Burlington Gate and Shelborne Street Road Reconstruction
- Burlington Street and Paymaster Avenue Reconstruction
- Southdale Road West and Botswich Road Improvements
- Churchill Avenue and Manitoba Street Road Reconstruction
- Denlaw Road Reconstruction
- Victoria Street Reconstruction
- Wychwood Place Road Reconstruction

A.3 Municipal Passenger Transit Services

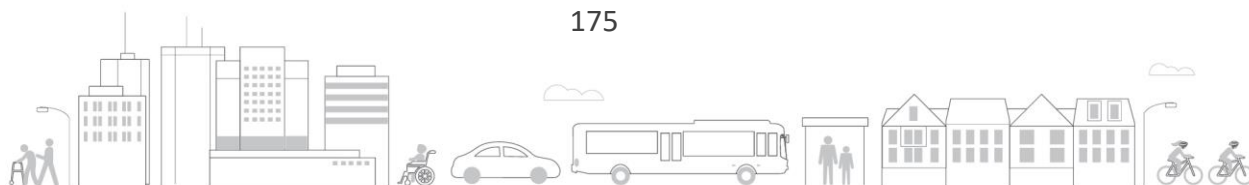
Public transportation in London is provided by the London Transit Commission (LTC). The transit network is a vital part of London’s mobility system and is set to expand in upcoming years. Following the overarching objectives in *The London Plan*, LTC has developed numerous plans to guide this expansion and improve transit services, with actions over the next five years and into the long-term. Implementation has also begun on three major transit projects underway in London.

Current Plans and Policies

The London Plan (2016)

The London Plan lays out the objectives and priorities of London’s transit system and accompanying considerations for land-use and street design. Selected policies illustrating the planned role of transit include:

- Street networks should be designed to support connections to transit and other neighbourhood amenities within a ten minute walk. (5, 218)
- Through the plans and actions we take to design and build our mobility infrastructure, we will (...) utilize rapid transit services to strategically promote and stimulate intensification and support our growth management policies (...) plan for development (use, intensity and form) that is conducive to the efficient operation and increased usage of public transit, [and] provide strong linkages between key origins and destinations within our city including the Downtown, Transit Villages, employment areas, major institutions, and major open spaces. (5, 313)
- The highest level of transit service will be provided within the Primary Transit Area. (5, 338)



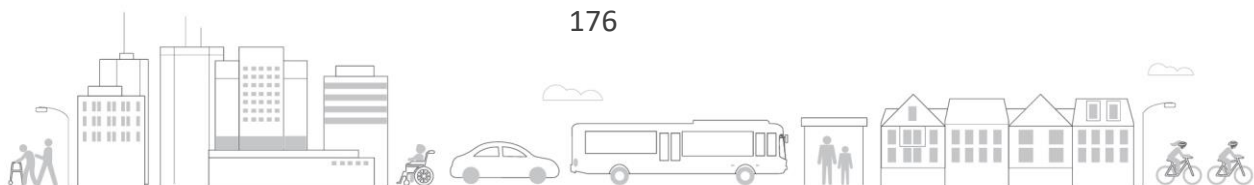
- The rapid transit network will connect the Transit Villages and major activity generators, including many of our educational and health care institutions, with the Downtown. (5, 340)
- The rapid transit system will be designed to attract and stimulate intensification, urban regeneration and economic development. (5, 341)
- Planned rapid transit corridors within London will be protected from encroachment, in conformity with the Our Tools part of this Plan. (5, 344)
- Transit stations will be identified on Map 3 - Street Classifications. The areas surrounding these stations will have a high standard of design to support mobility choices and the built form will be transit-oriented consistent with the applicable place type. (5, 345)
- [Street classifications include] Rapid Transit Boulevard, [with] priority [for] through movement and connection to/of transit vehicles. (5, 371)
- Improvements to civic infrastructure to facilitate infill and intensification will be identified and a coordinated plan will be prepared. It will be a high priority to plan civic infrastructure to accommodate infill and intensification, growth and development within the Downtown, Main Street, Transit Village, and Rapid Transit and Urban Corridor Place Types and the Primary Transit Area. (5, 453)

London Transit Accessibility Framework, 2020 – 2025 (2019)

The *London Transit Accessibility Framework* is a five-year plan that sets out specific strategies to address local accessibility issues and regulatory requirements between 2020 and 2025. The LTC is committed to building an effective, efficient and fully accessible public transit system for all customers. The Plan outlines a series of initiatives that are being or will be undertaken by LTC, in concert with stakeholders and other partners, to improve the accessibility of its transit services.

London Transit Five-Year Service Plan Framework 2020-2024

The LTC Five-Year Service Plan Framework - 2020-2024 recommended six strategic directions to address concerns highlighted by customers, transit staff, and bus operators, and identified



opportunities to enhance service, grow ridership and prepare for the introduction of RT corridors.⁸⁹ These strategic directions include:

- **Enhance the Overall Levels of Service** by investing in improvements to frequency, reliability and travel times of bus routes, making transit more attractive to London residents.
- **Explore Alternative Service Delivery Models in New Communities** to increase ridership in parts of London that are unserved due to low ridership potential for conventional transit service, such as large low-density industrial areas and business parks. This includes the Alternative Service Delivery pilot to Innovation Park.
- **Improve Direct Connections** between major destinations.
- **Build on the Express Route Network** to increase ridership through improved service levels and enhanced connectivity to other key routes.
- **Eliminate 60 Minute Headways** by continuing to improve the frequency of these routes.
- **Minimize Impacts on Existing Passengers** by reducing disruptions caused by changes in service and minimizing route changes that may negatively impact riders' established travel routines.

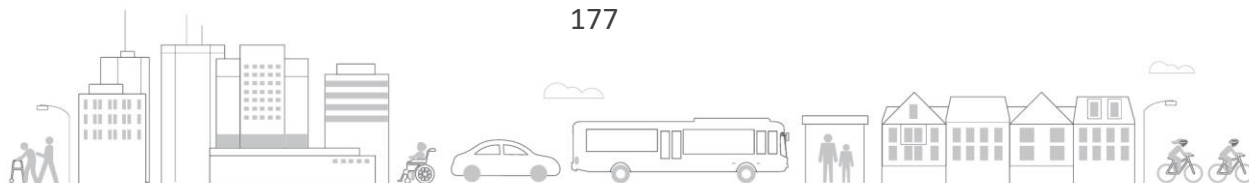
London Transit Five Year Ridership Growth Strategy (2019)

The *London Transit Commission Five Year Ridership Growth Strategy (2019)* is LTC’s overarching plan to grow overall ridership in alignment with other strategic objectives of the organization. The strategy drew on insights from recent LTC and City of London initiatives aimed at promoting public transit use to recommend projects and a prioritisation schedule to increase ridership between 2020 to 2025.

The list of recommendations is prioritized into Short Term (0-2 year), Medium Term (3-5 years) and Long Term (beyond 5 years) recommendations, each with high-level proposed actions; overall impact assessments on ridership, revenue and strategic objectives,; estimated timeline; and cost.

Short Term Recommendations include projects with a one- to two-year timeframe. Select projects included:

⁸⁹ London Transit Commission (2019). London Transit Five-Year Service Plan Framework 2020-2024. <<https://www.londontransit.ca/staff-report-2-re-five-year-conventional-service-plan-framework-2020-2024>> Accessed December 2022.



- **Community Bus Expansion:** Exploring the feasibility for the expansion of a Community Bus program in the Westmount Area of London, including Monday-to-Friday services to multiple destinations in London.
- **Expand Hours of Service:** Beginning services on select LTC routes an hour earlier in the morning.
- **Real Time Information Expansion:** Improving real time information at stops for riders to be better informed of service alerts and delays when planning their commutes. The recommendation involves installing additional real-time information signage at bus stops.

Medium Term Recommendations include projects with a three-to-five-year implementation timeframe. Select projects included:

- **New Express Service:** Exploring the possibility of introducing, and measuring the potential impact of, two new Express Service routes.
- **Downtown Parking Price Management:** Exploring price increases to Downtown parking as a potential initiative to positively affect transit ridership.
- **Transit Signal Priority:** Implementing Transit Signal Priority (TSP) along major arterials to improve transit travel times of all buses. The project involved identifying 125 intersections in London where TSP can provide travel time benefits to vehicles.

The sole **Long Term Recommendation**, having an implementation timeframe greater than five years, was building a **Bus Rapid Transit System** as a partnership between the City of London and the London Transit Commission. The network would use articulated buses in dedicated rights of way and included North, West, East, and South routes . Only the South and East routes received approval.

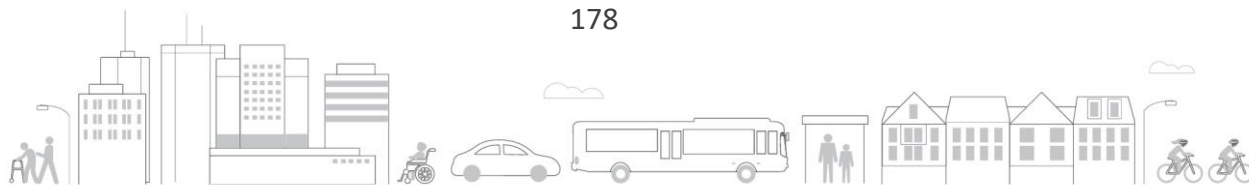
London Transit Zero Emission Bus Implementation Strategy (2022)

Since 2020, LTC staff have been advancing plans to transition to a zero-emission conventional bus fleet. LTC has conducted a Fleet Electrification Analysis Study and multiple Business Case analyses.

Recent and Ongoing Projects

Three major transit projects are currently planned in London which will enhance residents’ mobility by making transit more reliable and efficient.

The **Downtown Loop** is a four-stage project and the first of London’s new rapid transit projects. Phase 1 of the project was completed in 2021 and involved the installation of a bus-only lane on King Street between Ridout and Wellington Street. Phases 2 and 3 of the project will expand the loop to new road segments and add additional curbside bus-only lanes and enhanced rapid transit stops.

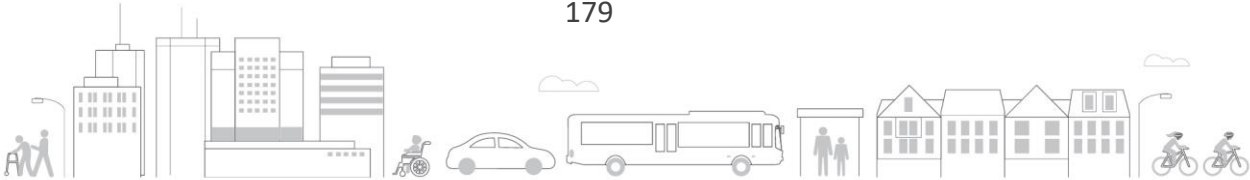


The project involves significant streetscape revitalizations, cycling enhancements and the construction of new RT stations and stops. To support pedestrian safety, new streetlights, traffic signal updates and crosswalks will be constructed. A map of the Downtown Loop is shown in Exhibit A.2.

Exhibit A.2: Downtown Loop and Construction Phases



Source: City of London



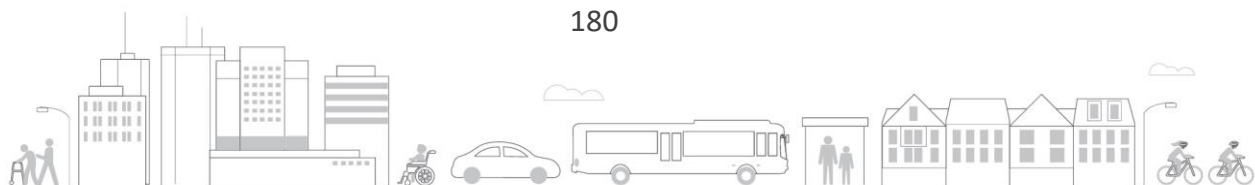
The **East London Link** is a multi-year project that will revitalize more than 6 km of road from Downtown to Fanshawe College through the addition of transportation projects and transit improvements. The East London Link will see the addition of new bus stations and streetscape changes to support transit operations and to create a more inviting pedestrian realm. The project will meet the Downtown Loop at Wellington Street, contributing to London's increasingly connected transit network in the future. The project commenced in 2022 and is anticipated to be completed by 2025. A map of the East London Link is shown in Exhibit A.3.

Exhibit A.3: East London Link



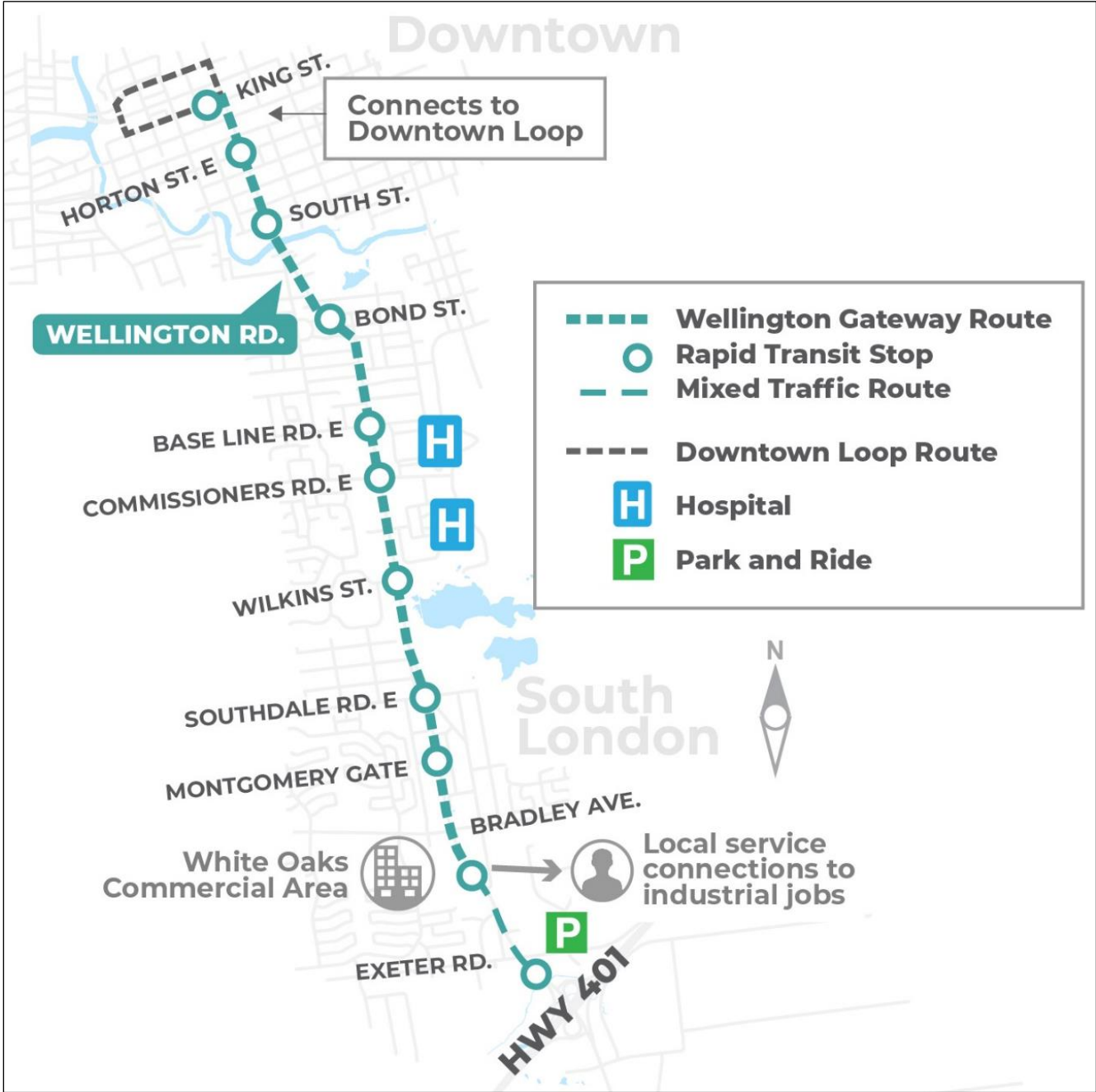
Source: The City of London

The **Wellington Gateway** is a rapid transit project that will include the installation of continuous, transit-only lanes along a 6 km stretch of roadway between Downtown and Highway 401. The project is slated for construction between 2023 and 2027 and will set the stage for more frequent and reliable transit. As well as widening Wellington Street, the project will see the construction of a transit hub near White Oaks Mall and the installation of a park-and-ride lot near Highway 401 to strengthen

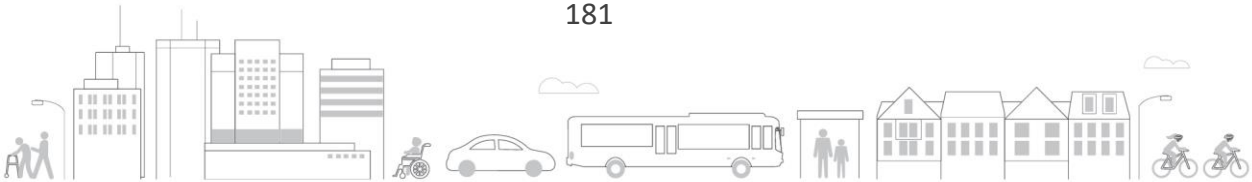


connections to neighboring municipalities, support the uptake of carpooling, and improve transit to South London's industrial employment areas. A map of the project is shown in Exhibit A.4.

Exhibit A.4: Wellington Gateway



Source: City of London



A.4 Vehicular Traffic and Goods Movement

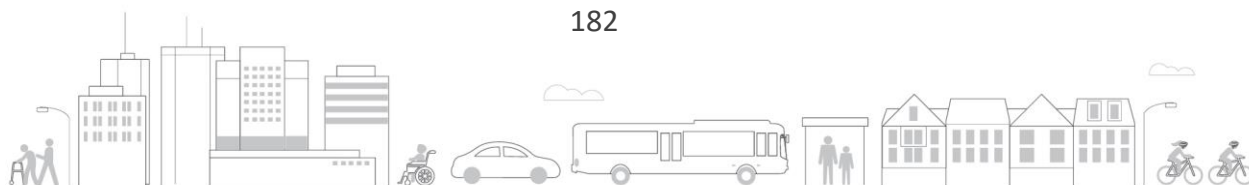
Automobiles and trucks are expected to remain an essential part of the mobility system through the horizon of this study for the movement of both people and goods. As streets are redesigned to provide space and safe infrastructure for other modes, supporting the efficiency and safety of automobiles and trucks remains a priority. The City has numerous plans and policies relating to vehicular traffic and a wide range of road network improvement projects are planned and underway. Provincial plans are also summarized below, given the important role of the Province in managing and building provincial road infrastructure in and around London.

Current Plans and Policies

The London Plan (2016)

The London Plan outlines a range of policies that relate to managing vehicular traffic. In addition to the policies listed in the Multi-Modal Streets section, the following policies define the range of service functions for the different road classifications that make up London’s street network and emphasize traffic calming measures, reflecting the City’s prioritization of pedestrian movement:

- The paved portion of streets within neighbourhoods should be as narrow as possible, while meeting required design standards, to calm traffic and emphasize the priority of the pedestrian environment. Street rights-of-way should be of adequate size to accommodate all services within an efficient space and allow sufficient room for street tree planting and the long-term growth of mature trees. (5, 224)
- Curb extensions, narrow streets, and on-street parking may be used, among other techniques, for traffic calming. (5,225)
- Through the plans and actions we take to design and build our mobility infrastructure, we will (...) support the efficient, safe and convenient movement of goods and services. (5, 313)
- Investments in new and existing mobility infrastructure will support the safe and efficient movement of goods to national and international ports. (5, 319)
- The City will establish the upper limit of Level of Service (LOS) “E” during the peak hour period on all streets, excluding Neighbourhood Connectors and Neighbourhood Streets. Streets that do not meet these conditions should be reviewed for traffic capacity as per the Transportation Master Plan. (5, 326)
- Streets are classified into ten types based on intended character, goals, and functions. These types inform planning, expected traffic volumes, street widths, and other design features. (5, 370-373)



London Complete Streets Design Manual (2019)

The City’s *Complete Streets Design Manual* outlines important design principles for motor vehicles and vehicular traffic that are of key importance to the MMP in the development of new roads designed to accommodate vehicular traffic. These include:

- **Select an appropriate design speed:** Desired speeds for motor vehicle traffic should be selected to discourage inappropriately high travel speeds. (p. 46)
- **Consider induced demand when determining capacity:** A level of congestion should be accepted, and efforts should be made to provide alternatives to single-occupant vehicle travel instead of increasing roadway capacity. (p. 46)

Core Area Action Plan (2019)

The *Core Area Action Plan* includes an action to ‘undertake a safety blitz for aggressive driving in the Core Area’ of London, in response to engagement with Londoners who reported concerns with unsafe driving in the Core Area.⁹⁰

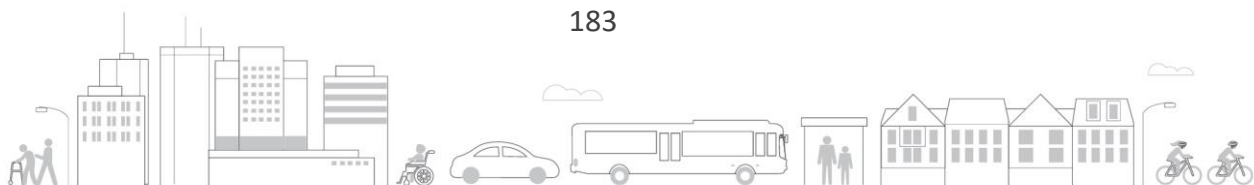
Recent and Ongoing Projects

Transportation Intelligent Mobility Management System

The goal of this project is to improve network-efficiency without adding lane capacity. This project will reduce intersection delays, manage incidents, ensure shorter travel times for transit users and drivers, and prepare London’s mobility system for the future by installing transit signal priority and other traffic signal improvements – such as sensors and video cameras – along major corridors. This project includes:

- Upgrading to a high-bandwidth intersection communication network
- Purchasing all necessary equipment
- Upgrading traffic signal management system for improved transit signal priority
- Implementing GPS-based transit signal priority to improve transit reliability
- Installing video cameras along key corridors
- Measuring travel time along key corridors
- Building the Transportation Management Centre

⁹⁰ City of London (2019). *Core Area Action Plan* p. 27.



Upgrades to existing technology includes enabling video streaming and enhanced sensors from intersections and will build capacity for future systems (for example, connected and automated vehicles). The project includes an upcoming Transportation Management Centre (TMC) where staff can adjust signal timings to improve traffic flow, and when needed, co-ordinate with emergency operations, in real time. The TMC will share data with the transit management centre and other emergency services.

This project is scheduled to run from 2019 to 2027.

Climate Emergency Screening Tool for Major Transportation Projects

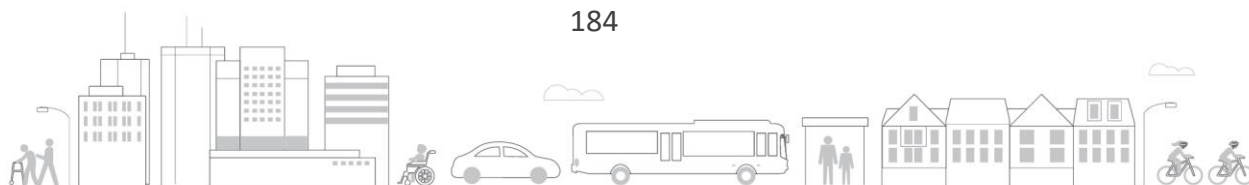
Following the declaration of a climate emergency, the City of London developed a Climate Lens Process including a Climate Emergency Screening Tool (CEST) for transportation Capital Projects. The customized CEST is used to guide the screening of transportation projects and programs for key climate emergency issues and opportunities for improvement. Key questions relating to climate change mitigation (reduction of greenhouse gasses emitted) and adaptation (reduction of risks and improvement of resilience to climate change impacts) are provided to direct the assessment in several key areas. An initial screening of current and planned major transportation capital projects was also initiated.

The results reaffirmed the City's complete streets principles and endorsed progressing projects that implemented needed infrastructure improvements for all modes. The review resulted in the suspension of two corridor widenings until a greater understanding is achieved of the multi-modal corridor needs that may influence their geometry. The two projects are:

- The Wonderland Environmental Assessment that considers a six-lane widening of the Wonderland Road corridor from Commissioners to Sarnia Road
- The corridor widening component of the Adelaide Street North Environmental Assessment between Fanshawe Park Road and Sunningdale Road.

Both these locations already have complete streets amenities such as sidewalks, cycling facilities, streetlighting and an urban cross-section. Additionally, widening to address traffic congestion is predicted to experience a return to congestion due to induced demand while negatively impacting the streetscape and the accessibility and connectivity of other modes. These projects will be reviewed as part of the MMP.⁹¹

⁹¹ Staff Report to Civic Works Committee. August 31, 2021. *Outcome of Climate Lens Screening Applied to Major Transportation Projects*. Retrieved from <https://pub-london.escribemeetings.com/FileStream.ashx?DocumentId=83392> Accessed December 2023.



Infrastructure Projects

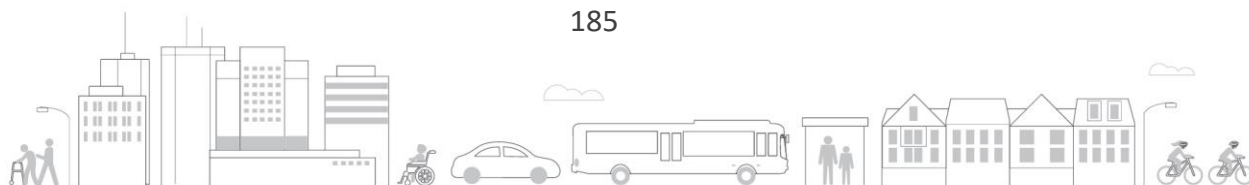
A wide range of infrastructure construction projects are ongoing or planned in London under the City’s ‘Renew London’ initiative. In total, the City is investing \$190 million on projects that will make London’s roads safer for all, improve traffic flow and encourage more emissions-free travel.⁹²

The City’s various ongoing or planned projects include major and minor roadworks, bridge rehabilitations, stormwater improvement construction work, and transit projects. The following select projects represent important improvements to support vehicular traffic in London, some of which were featured in the City’s annual ‘Top 10 Projects’ list of the biggest construction projects in London.

- **Adelaide Street North Underpass:** An ongoing project that began construction in April 2022 and is anticipated to be completed in late 2024. The project will see the reconstruction of Adelaide Street from Central Avenue to McMahan Street and will involve the construction of a new underpass at the Canadian Pacific Rail tracks. Intersection improvements, new active mobility connections, and a wide multi-use path on both sides of Adelaide Street North will be developed to provide improved pedestrian, cyclist and transit user amenities. The project will improve vehicular traffic and road user safety by eliminating the at-grade crossing, reducing cut-through traffic in nearby neighbourhoods, and integrating better active mobility infrastructure to support cyclist and pedestrian activity.⁹³
- **Southdale Road West:** An ongoing project that was initially identified in the former TMP as needing improvements to address future growth and accommodate all roadway users, including pedestrians, cyclists and those who roll. It will include reconstruction of the road and the addition of new traffic lanes, line paintings, sidewalks, and bike paths.⁹⁴
- **Brydges Street:** This completed project began construction in 2021. The project involves the reconstruction of Brydges Street from Egerton Street to Highbury Avenue North, all of Muir Street and all of Swinyard Street. The project is being completed in two separate

⁹³ City of London. (2021) Renew London: London’s Top 10 Projects. <<https://storymaps.arcgis.com/stories/628905856582466286115bd79adb9a38>> Accessed December 2022.

⁹⁴ City of London. (2021) Renew London: Southdale Road West Project Webpage. <<https://getinvolved.london.ca/southdale>> Accessed December 2022.



phases and will result in total road resurfacing, the elimination of on-street parking on Brydges Street from Egerton Street to Highbury Avenue North, the construction of new sidewalks and concrete curbs, and the addition of two new on-road bike lanes.⁹⁵

- **Victoria Bridge Replacement** - is an ongoing bridge reconstruction project on Ridout Street South over the Thames River. The bridge will be replaced with a new 'through arch' structure that will provide a widened deck surface to better accommodate bicycle traffic and pedestrians and improve connectivity with the Thames Valley Parkway.⁹⁶

Province of Ontario

The Ontario government implements provincial highway improvements through the Ontario Highways Program. For 2022-2025, there are various highway improvement projects planned for provincial Highways 401 and 402 that run through the southern part of London. This work includes bridge replacement, resurfacing, interchange improvements, adding concrete median barriers, culvert replacements and lane widenings.⁹⁷

Connecting the Southwest: A Draft Transportation Plan for Southwestern Ontario identifies an action to explore establishing an innovation corridor on Highway 401 between London and Tilbury. Traffic management products, such as pavement markings, could be tested on-highway in this corridor.⁹⁸

⁹⁵ City of London. (2021) Renew London: Brydges Street Project Webpage. <<https://london.ca/projects/brydges-street>> Accessed December 2022.

⁹⁶ City of London. (2021) Renew London: Victoria Bridge Replacement Project Webpage. <<https://getinvolved.london.ca/victoriabridge>> Accessed December 2022.

⁹⁷ Ministry of Transportation (2022). *Ontario’s highway programs*. <<https://www.ontario.ca/page/ontarios-highway-programs>> Accessed December 2022.

⁹⁸ Ministry of Transportation (2020). *Connecting the Southwest: A Draft Transportation Plan for Southwestern Ontario*. <<https://www.ontario.ca/page/connecting-southwest-draft-transportation-plan-southwestern-ontario>> Accessed December 2022.

