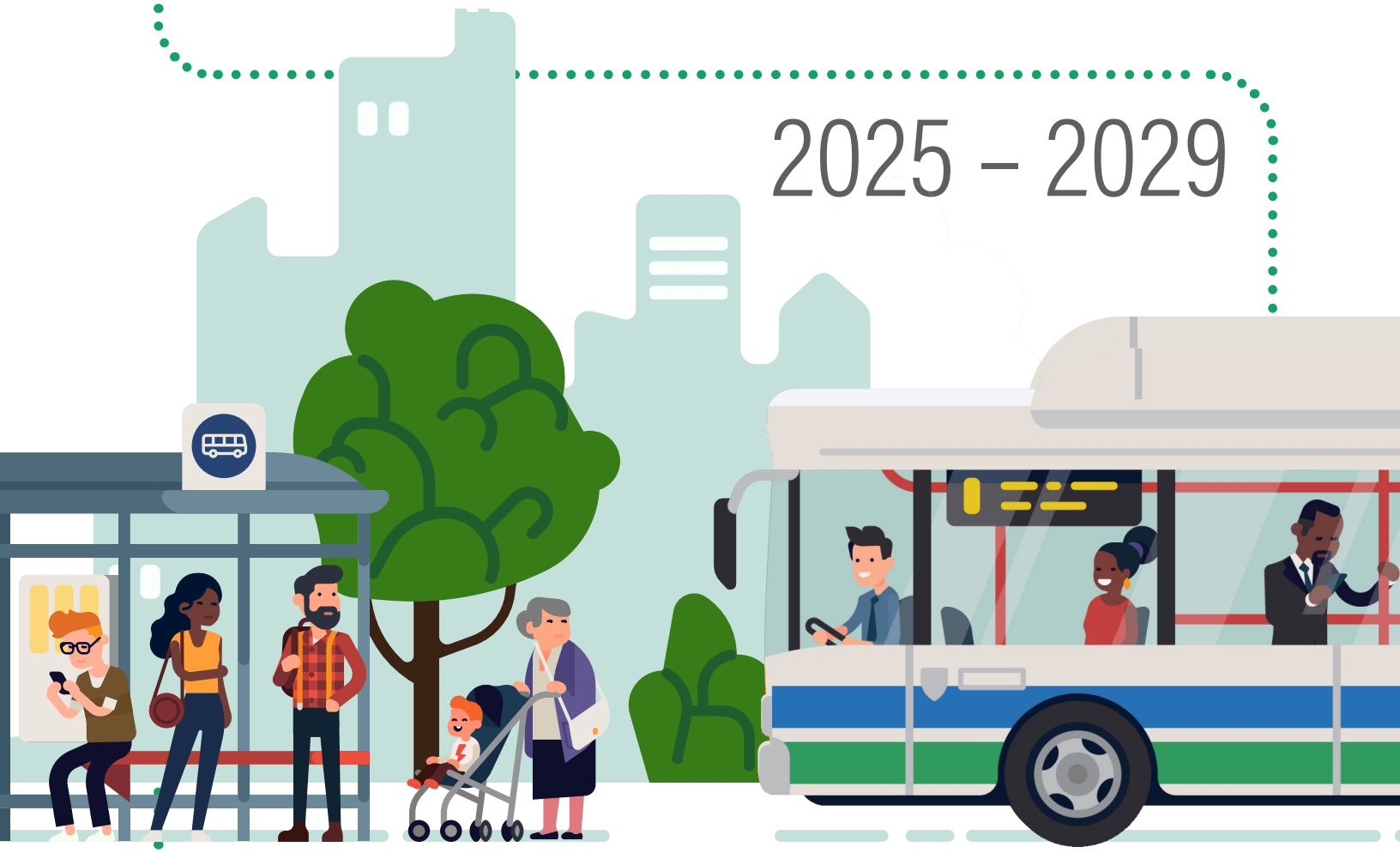
LONDON TRANSIT COMMISSION

DILLON CONSULTING

LONDON TRANSIT

Conventional Transit Service Plan

2025 – 2029



June 2024

DILLON CONSULTING

LONDON TRANSIT COMMISSION

Conventional Transit
Five Year Service Plan (2025 – 2029)

June 2024 – 23-7310

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1.0 Introduction

Dillon Consulting Limited (Dillon) was retained to develop a Five-Year Service Plan which will be used to guide service changes in London between 2025 and 2029 and build toward the long-term transit network improvements identified in the London Plan and Rapid Transit Integration Framework.

The purpose of this study was to:

- Assess the existing transit service against the key performance indicators in the service standards;
- Identify key concerns with the existing service as well as opportunities to enhance the service over the next five years;
- Continue to prepare for the implementation of Rapid Transit (RT) in London;
- Identify service improvements to enhance current performance, exceed community needs and increase ridership growth in line with the planned Mobility Master Plan transit mode share targets; and
- Confirm annual service hour requirements and fleet expansion requirements over the next five years.

The report includes a review of existing conventional services, a summary of engagement activities undertaken as a part of this project, and recommendations for network amendments over the life of the plan. For a deeper analysis and recommendations for the LTC Specialized Transit network, please see the LTC Specialized Transit Plan 2025-2029.

2.0 Conventional Transit Service Overview

London Transit operates both a conventional and a specialized transit service within the City of London. The service is operated under the London Transit Commission, which is a separate agency operating at arms length from the City. Conventional services are provided using a fleet of 40-foot standard buses and 60-foot articulated buses, operating on a fixed route, with a fixed schedule.

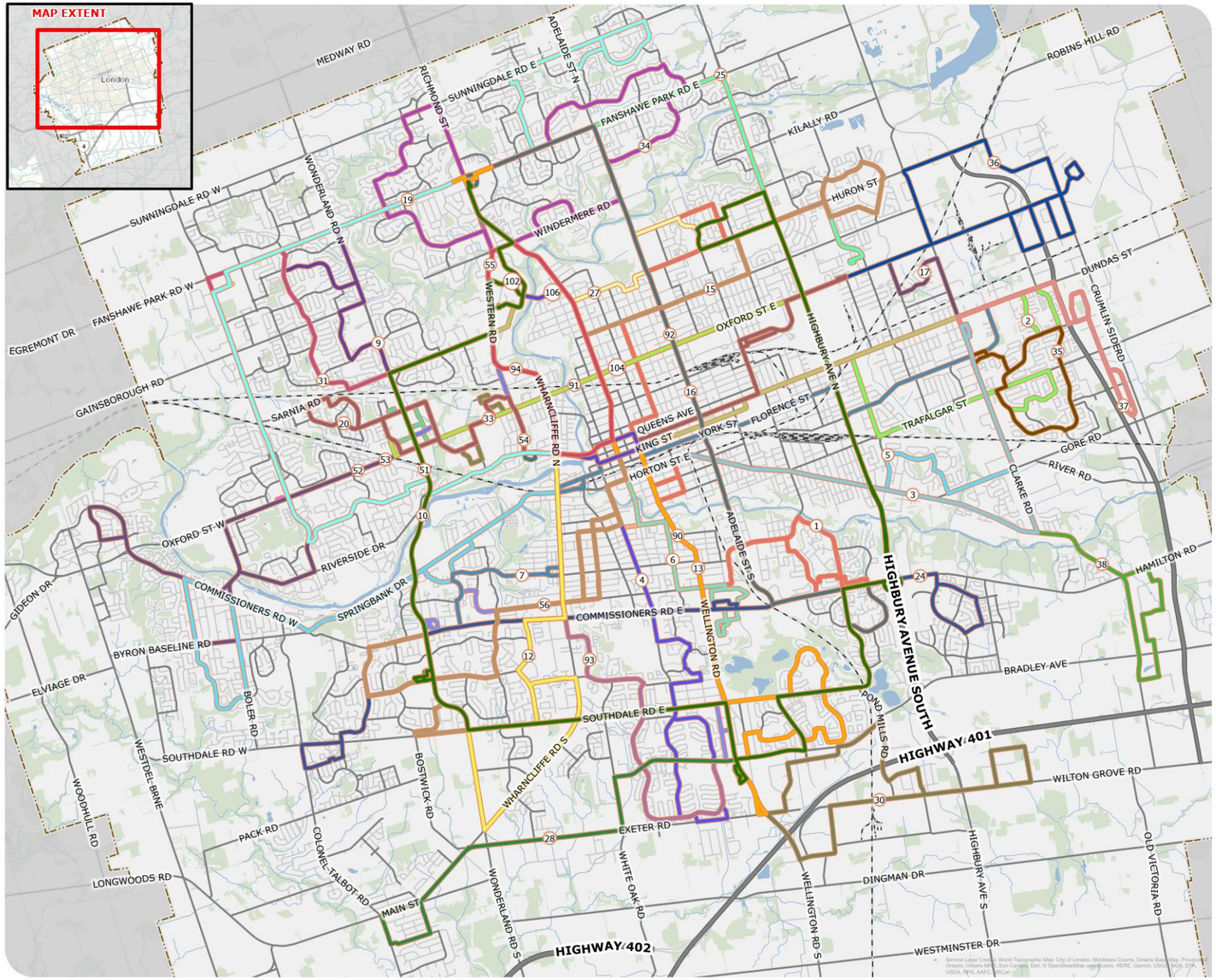
A total of 37 conventional transit routes and 6 community bus routes operate service. For planning purposes, these routes are broken into the following categories:

- Express;
- Base arterial;
- Minor arterial;
- Local;
- Industrial; and
- Community bus.

Each route classification is described further under **Section 4.1**.

The current network map is shown in **Figure 1**, and headways by route (presented in minutes) are summarized in **Table I**. The grey cells indicate periods in which a particular route is not operating. This table excludes the community buses as they only operate on one weekday each week, without regular headways.

Figure 1: London Transit Service Map (March 2024)



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LONDON TRANSIT COMMISSION
FIVE-YEAR SERVICE PLAN (2025 - 2029)

EXISTING CONVENTIONAL TRANSIT NETWORK

- LTC Bus Route
- City of London Municipal Boundary
- Railway
- Highway
- Major Road
- Local Road
- Water Feature
- Wooded Area

SCALE 1:65,000

0 0.5 1 2 km

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, LTC

MAP CREATED BY: LK
MAP CHECKED BY: JT
MAP PROJECTION: NAD 1983 UTM Zone 17N

PROJECT: 23-5710
STATUS: DRAFT
DATE: 2024-04-01

Table 1: Headways by Route (Fall/Winter 2023)

Route	1	2	3	4	5	6	7	9	10	12	13	15	16	17	19	20	24	25	27	28	30	31	33	34	35	36	37	38	90	91	92	93	94	102	104	106
WEEKDAY																																				
EARLY AM	20	15	30	40	30	35	30	17	30	30	15	20	18	20	33	20	40	30	40	40	40	48	0	40	0	30	30	40	30	0	0	27	0	0	0	0
AM PEAK	15	15	30	15	30	25	20	16	20	30	15	16	15	20	28	15	40	30	18	40	40	28	20	40	30	30	30	40	15	15	22	27	26	10	30	24
BASE	20	15	30	20	30	30	30	15	30	30	15	15	16	20	27	15	40	30	18	0	0	27	20	40	30	30	0	0	15	17	0	26	0	10	30	10
PM PEAK	16	15	30	15	30	30	20	15	20	25	15	15	15	20	30	15	40	23	17	40	40	30	20	40	30	30	30	40	15	15	25	23	23	12	30	10
EARLY EVENING	25	15	50	20	50	35	30	22	30	30	20	27	20	20	35	20	40	30	23	40	40	30	20	40	30	30	0	40	35	16	32	26	23	15	30	10
LATE EVENING	30	20	60	30	60	60	30	32	30	30	30	30	25	30	35	30	0	30	27	0	35	30	20	40	0	30	0	40	35	0	0	36	0	20	0	35
SATURDAY																																				
EARLY AM	40	30	60	30	60	35	30	30	35	30	35	35	25	40	35	45	40	30	0	0	0	25	0	40	0	0	0	0	0	0	0	0	0	0	0	0
BASE	30	15	60	30	60	35	30	32	30	30	16	30	25	40	35	30	40	30	43	0	0	25	0	40	30	0	0	0	30	0	0	36	0	0	0	0
PEAK	20	15	34	25	34	20	30	24	30	38	15	20	17	30	27	20	40	30	25	0	0	27	0	40	30	0	0	0	25	25	0	26	0	40	30	35
EARLY EVENING	30	15	60	30	60	25	30	32	30	30	20	30	20	30	40	30	40	30	45	0	0	25	0	40	30	0	0	0	25	25	0	38	0	40	30	35
LATE EVENING	30	29	60	33	60	35	30	30	35	30	30	36	28	34	40	33	0	30	40	0	0	25	0	40	0	0	0	0	0	25	0	36	0	40	0	35
SUNDAY/HOLIDAY																																				
EARLY AM	32	30	47	40	47	35	30	35	55	30	30	30	35	45	35	40	0	30	43	0	0	25	0	0	0	0	0	0	0	0	0	35	0	0	0	0
BASE AM	32	30	47	30	47	35	30	33	30	30	30	30	30	30	35	30	35	30	43	0	0	25	0	40	0	0	0	0	30	25	0	35	0	40	0	35
PEAK	25	15	47	30	47	25	30	23	30	30	30	30	20	30	35	30	40	30	32	0	0	25	0	40	30	0	0	0	20	25	0	37	0	40	0	35
EVENING	30	30	60	30	60	35	30	30	60	30	30	30	30	40	35	30	0	30	42	0	0	25	0	40	30	0	0	0	30	25	0	37	0	40	0	35

2.1 Rapid Transit

At the time of writing, London is seeing one of the biggest investments in transit infrastructure in the form of rapid transit (RT) corridors using buses in dedicated lanes. The construction and design of the RT corridors will impact the routes that operate on streets with RT service, and routes that feed into the RT, greatly improving the quality of service for transit passengers in London.

The Rapid Transit Master Plan (RTMP) was approved by Council in July 2017, using the corridors identified in **Figure 2**. The north-east route was intended to run at 5 minutes during peak hours, and the south-west route was intended to run at 10 minutes during peak hours.

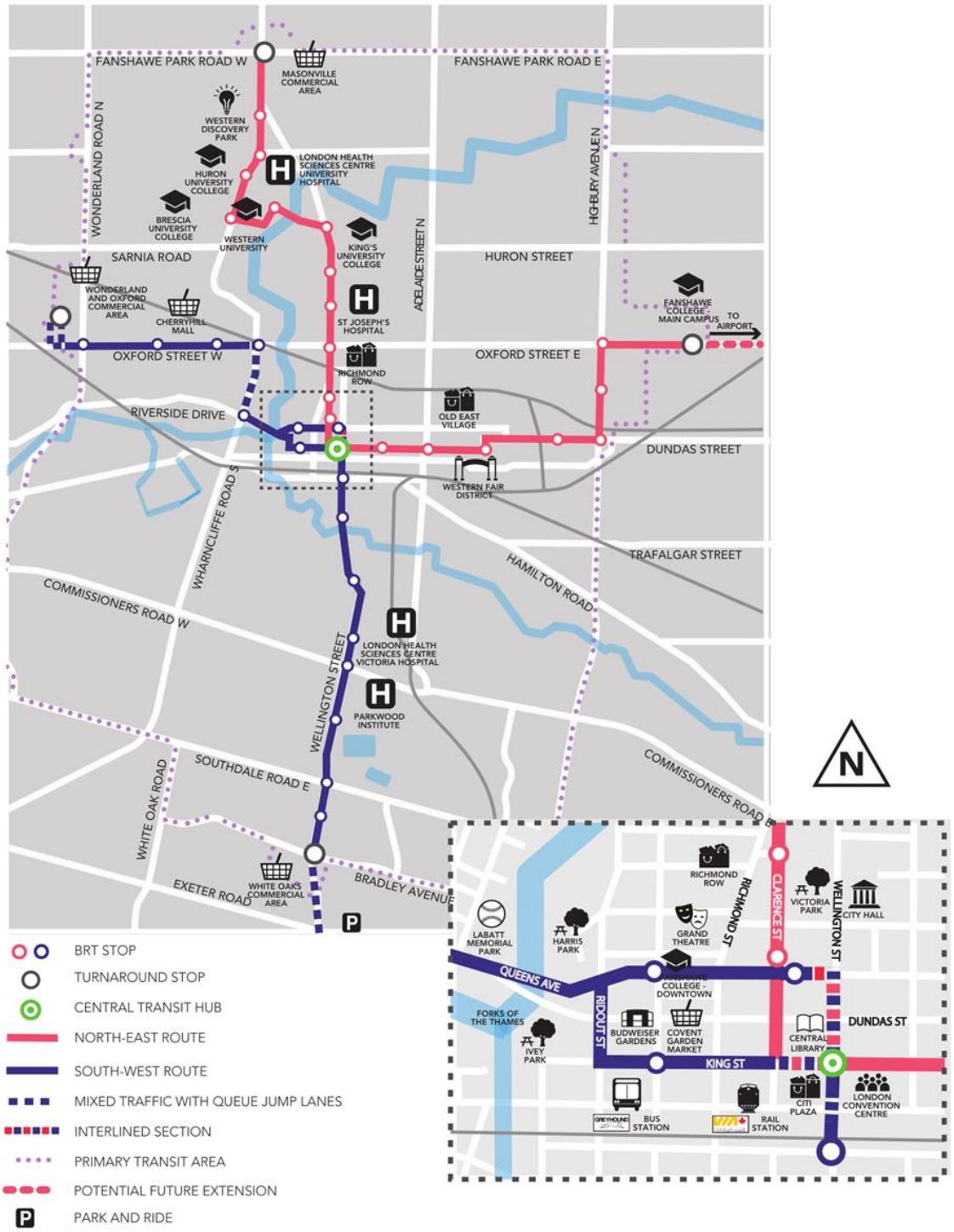
In March 2019, the City of London council chose only to apply for funding for the south, east, and downtown segments of the planned RT, and declined to pursue funding for the north and west segments. As a result, the extent of the planned RT network is as follows:

- The Downtown Loop (the downtown segment), which circles Downtown London using Queens Avenue, King Street, Ridout Street North, and Wellington Street (anticipated completion in 2024);
- The East London Link (the east segment), connecting the Downtown Loop to Fanshawe College using King Street, Dundas Street, Highbury Avenue, and Oxford Street (Phase 3 under construction as of March 2024); and
- The Wellington Gateway (the south segment), connecting the Downtown Loop to the Highway 401 Park and Ride using Wellington Road (construction began in 2023, and is currently underway).

As all three approved and funded RT segments are under construction, it is expected that these three parts will be built before 2029, and therefore will be considered as part of this plan. These segments will be serviced by two routes:

- An east-west route operating at 5 minutes during peak hours along the East London Link; and
- A north-south route operating at 10 minutes during peak hours along the Wellington Gateway.

Figure 2: Rapid Transit Corridors Approved in 2017



3.0 Market Assessment and Policy Context

There are several policies and plans which provide strategic direction to the planning and delivery London Transit services in the 2025 – 2029 horizon. The following is a list of policies and plans that were reviewed as part of this study:

- A New Mobility Master Plan for London, 2030 Transportation Master Plan: SmartMoves (2013): A long-term transportation strategy which guides transportation services to 2030;
- Rapid Transit Integration Framework (2016): A framework for changes to the transit network which support the implementation of rapid transit in London;
- London Transit Five-year Ridership Growth Strategy (2019): Outlines strategic initiatives and capital projects which support the growth of transit ridership;
- 2020-2025 London Transit Accessibility Plan (2019): Identifies strategies to address accessibility issues and regulatory accessibility requirements for transit services;
- Climate Emergency Action Plan (2022): Roadmaps how London can become a net-zero greenhouse gas (GHG) emissions community by 2050 and become more resilient to the impacts of climate change using a collaborative community-based approach;
- 2022-2026 Accessibility Plan (2022): Outlines strategies to meet current and future legislative accessibility requirements and for continuous improvement to enhance accessibility and inclusion across the City;
- The London Plan (2023): Official Plan which exists as the policy framework for planning in London;
- 2023-2027 City of London Strategic Plan (2023): Identifies City Council's vision, mission, values, and strategic areas of focus as well as the outcomes and strategies that Council is expected to deliver across their term; and,
- Mobility Master Plan Update (2023); Staff reports to the Civic Works Committee which outline updates to the development of the Mobility Master Plan, an updated transportation master plan which will guide transportation decisions to 2050.
- Mobility Master Plan Update Strategies, Mode Share Target Options and Project Evaluation Frameworks (July 2023): A staff report outlining mode share target options, strategies in development at the time of release and draft project evaluation frameworks.
- Mobility Master Plan 2050 Mode Share Target (October 2023): A staff report identifying the recommended transit mode share to 2050 to be used in the development of the Mobility Master Plan.

A review of these important policy documents identified several recurring themes which were used to inform the development of a Five-Year Transit Plan for London. These are:

- Population and Employment Growth;
- Integrated Transit and Land Use Planning;
- Transit Ridership Growth;
- Transit Efficiency and Reliability;
- Regional Transit Expansion;
- Equity and Accessibility; and
- Environmental Sustainability.

The following section summarizes the direction each of these policies provides as related to the planning and delivery of transit service and the feedback received from customers through the Voice of the Customer survey.

3.1 Population and Employment Growth

As more and more residents and businesses move into the City, transportation infrastructure must also grow to support the day-to-day movement of people. Transit is a key part of this as shared ride mobility choices reduce the need for expansive parking facilities and roadway widening. It is important to understand the rate of growth and how the City will intensify or expand in order to plan a transit service which meets the growing community's transportation needs.

The London Plan (2016) outlines the population and employment targets. London is projected to grow from 401,000 residents and 197,000 jobs in 2020/2021, to 458,000 residents and 241,000 jobs by 2035. However, recent growth in the City has significantly outpaced these projections: As of July 2023, the population of the City of London was estimated at 474,643 exceeding the 2035 projections by nearly 17,000 residents, twelve years ahead of the planned horizon. This growth is unprecedented, and is a real opportunity for the City to capitalize on opportunities presented by a rapidly growing population.

One of the strategic directions of the London Plan is to "Build a mixed-use compact city." This means infilling and intensifying existing areas within the existing Urban Growth Boundary. Based on this direction on of the plan objectives is to target 75% of the intensification within the Primary Transit Area, shown in Figure 3 below. Additionally, 45% of all future residential growth in the Built-Area Boundary will be within this area defined by Fanshawe Park Road to the north, Highbury Avenue to the east, Southdale Road and Bradley Avenue to the south and Wonderland Road to the west. The area is referred to as the primary transit area due to the high levels of transit investment expected within these bounds. Rapid Transit Corridors and Transit Villages (including Central London), identified in the Figure 4 serve as the anchors for the transit service. While only the south, downtown, and east segments of the Rapid Transit Corridors are currently planned and funded, the London Plan still identifies the north and west segments as Rapid Transit Corridors in the long term. These corridors have not been approved by Council, nor is any action to build these corridors planned at this time.

The translation of this policy to the London Transit Service Plan is:

- Focus transit investment within the Primary Transit Area, with connections to key Transit Villages and Corridors to build ridership and limit over crowding and on-time performance issues.

Figure 3: Primary Transit Area

Figure 4: Rapid Transit Corridors and Transit Villages

3.2 Integrated Transit and Land Use Planning

The design of communities and their land uses directly influence people's travel patterns. Active transportation (walking and biking) and transit become convenient, safe, and enjoyable options in compact, mixed-use communities with places to live, work and play. In less compact communities with less land use diversity, the distances between destinations can make it challenging for people to access without private vehicles. Investments in the transportation network and urban planning tools can shape and strengthen London's communities and improve the attractiveness of transit as a preferred mode choice. Forward-thinking policies that integrate both land use and transportation will help build more equitable, affordable, accessible, and vibrant communities.

London has and continues to integrate transit into planning strategies to ensure it remains at the forefront. The London Plan, in particular, directs high-density, mixed-use development in Primary Transit areas, and focuses on infill, intensification. and planning transit-oriented development. In addition, it provides direction to prepare mutually supportive land use plans and transportation plans.

3.3 Transit Ridership Growth

The Transportation Master Plan identified that supporting London's growing transportation needs by adding and widening roads is neither sustainable nor affordable. Instead, residents must be willing to shift a large number of trips to more sustainable modes of transport such as transit. To encourage this shift, the City has put in place a number of policies and directions to make transit a more attractive solution these are outlined below:

- The London Plan places emphasis on creating attractive mobility choices by investing in transit and other active mobility infrastructure.
- The City of London Strategic Plan outlines a number of strategies related to improving the quality of transit, which include implementing the Mobility Master Plan, and improving ridership and customer satisfaction by implementing the London Transit Commission's 5 Year Service Plan.
- The Mobility Master Plan Update (currently being developed) identifies a transit mode share target of 14% by 2050.

3.4 Transit Efficiency and Reliability

In order to create an attractive service, increase the transit mode share and encourage life-long transit use, transit must be efficient and reliable. Passengers need to know that their travel time will not significantly increase by using public transit and that they can trust the service to be on-time and get them where they need to be. London Transit has identified through previous work that these are two of the most important elements to residents and have developed a plan to improve these factors, some examples of this are included below:

- The current Transportation Master Plan (TMP), which will be replaced by the Mobility Master Plan upon its completion, outlined that RT corridors would be required to improve efficiency and reliability of service and achieve mode share targets.
- The Rapid Transit Integration Framework further defined how RT could effectively integrate into the rest of the network including outlining how connections should be maintained while minimizing service duplication, identifying headways, and quantifying directness of service.

3.5 Regional Transit Expansion

London is the largest City in southwestern Ontario and as such is a key destination and economic hub for neighbouring communities. Strong intercity transit networks enable individuals to conveniently move between home, work, educational institutions, recreational venues, and more. Connecting London to neighbouring communities using transit ensures that all residents have equal access to opportunities. Furthermore, broader connectivity further reduces reliance on private automobiles thereby reducing congestion within the City, as these areas grow in tandem with the City. The following are two examples of how London has considered regional connectivity in policy:

- The London Plan outlines the strategic direction to connect London with the surrounding Region. Under this strategic direction, one of the primary goals related to transit is to ensure there are strong mobility linkages to regional municipalities.
- The Strategic Plan identifies that this can be achieved by planning regional connections within secondary plans and infrastructure projects. It also indicates that park-and-rides are to be included as part of the rapid transit network encouraging multi-modal trips across the region.

3.6 Equity and Accessibility

Transit has the potential to uplift the community by providing access to grocers, jobs, healthcare, affordable housing, and social engagements supporting the mental and physical health of all residents. Creating transit solutions which consider these impacts as well as the physical and financial limitations of residents can create a system that benefits all residents. The following speak to ensuring the transit network contributes to building more equitable and accessible transportation options:

- The Strategic Plan includes a number of actions which focus on the intersection of equity and transit including supporting greater access to affordable, reliable public transit, considering the entire door-to-door transit trip for passengers when planning, designing and building infrastructure, and considering mobility poverty in transportation projects.
- The Ridership Growth Strategy identifies opportunities to teach new transit users to use transit and to review the fare strategy to remove barriers to access.
- The City of London Accessibility Plan also seeks to remove barriers and improve services for Londoners by identifying the need to have continued consultation with community groups to develop the accessible design of Bus Rapid Transit bus stops and/or shelters and to investigate opportunities to expand specialized transit service hours.

- LTC also developed an Accessibility Plan, which included a work plan outlining initiatives. Those related to accessible transit stops, integrated transit services and potential ride-hailing options that are expected to be initiated during the Business Plan horizon.

3.7 Environmental Sustainability

Environmental sustainability is at the forefront of planning for many cities as the United Nations (UN) has declared a climate emergency. The City of London followed suit and as such has put in place a plan have net-zero community greenhouse gas emissions by 2050, become more resilient to the impacts of climate change and bring the community along. Transit has an important role to play in achieving these goals as transportation network as transport accounts for nearly a quarter of global energy-related carbon-dioxide emissions. The transition of one passenger to transit has the potential to reduce carbon emissions by up to 2.2 tons annually. This is in part because shared trips reduce the fuel required for operation but also because passengers who take transit for part of their trip typically walk, ride or roll between local destinations. Some specific targets and plans have been identified by the City and LTC to support transit as a means to reduce GHG emissions, some examples are:

- The London Plan includes direction to make London one of the greenest cities in Canada by managing growth in ways that support active mobility and promoting the role of active mobility in reducing greenhouse gases.
- This direction was carried through to the strategic plan and strategies included completing and implementing the Mobility Master Plan, preparing for and adopting future transportation technologies, and implementing the Climate Emergency Action Plan.
- The Climate Emergency Action Plan identifies a number of actions specific to transit including attracting more riders to transit, advocating for regional transit services and converting the transit fleet to zero emission buses.

3.8 Customer Feedback

In 2023, LTC completed a survey called the Voice of the Customer. This represented the fourth time that customers were surveyed with a similar set of questions, the previous survey being in 2018, prior to the COVID-19 pandemic. LTC intends to complete a Voice of the Customer survey regularly going forward to better understand how passenger needs and impressions of LTC Transit service evolve over time, as a result of investment in service.

The latest survey was completed in December 2023 and represents 804 responses from transit passengers (both Conventional and Specialized). The following presents successes and opportunities identified by customers that should be considered as part of the five-year plan. It should be noted that this survey reflects the opinions of passengers using the transit service and excludes the views of non-transit users as the survey is administered on the bus and at terminals.

3.8.1 On-Time Performance

A total of 34% of participants indicated that the most important element of transit was on-time performance, and 40% of respondents indicated that it was one of the things they were least satisfied with when it came to the LTC service today. When observing the trend of passenger satisfaction for on-time performance, overall passengers are becoming less satisfied.

Passengers are unwilling to wait very long for a bus. Only 25% of respondents felt that it was acceptable to have a bus arrive more than 5 minutes beyond it's scheduled time. One solution to reducing the impact of long wait times is having real-time information available about when buses will arrive. The availability of this data can assure passengers that their bus is still on route and allow them to make appropriate decisions regarding their travel. This solution was presented as being an important aspect of transit by 10% of respondents. London Transit currently has this feature available through their website and in real-time GTFS data for third-party apps. However, the overall satisfaction of it seems to have reduced over previous years that the survey was completed. Improved provision of information could help to alleviate the impact of minor delays.

3.8.2 Frequency & Coverage

Passengers reported that frequency of service was an area where they were generally dissatisfied: Only 58% of survey respondents indicated they were satisfied with the frequency of service. By contrast, passengers were very satisfied with the level of coverage which LTC has been able to provide: The survey concluded that 86% of respondents were satisfied that there was transit service where they needed to go. LTC has been working to address the frequency concerns through their previous service plan, particularly by reducing 60-minute headways.

4.0 Transit Network Assessment

The LTC Five-Year Service Plan (2019), and the Route Structure and Service Guideline Review (2015), include service standards related to the provision of transit service. This section examines the performance of the existing network against these Commission-approved London Transit Service Standards, including an assessment of the route structure, service quality, stop activity and route level productivity, crowding and on-time performance.

Further analysis was also undertaken to understand performance at a network level, rather than on route-by-route performance. This assessment evaluates overall proximity to residents, employees and vulnerable neighborhoods, as well as access to new growth areas.

This analysis is summarized in the following pages and was used to inform and direct the development of the five-year service plan.

4.1 Observations on the Overall Route Structure

Transit in London has evolved over the past five years, continuing to move away from a hub-and-spoke type of network, more in alignment with observed travel demand. While the network still maintains a strong focus on the downtown, Western University and Fanshawe College hubs, other key transfer points at Masonville Place, Argyle Mall, Westmount Shopping Centre and White Oaks Mall are also increasing in prominence.

As Bus Rapid Transit facilities are also under construction, it's clear that there's continued focus on providing direct and reliable transit service on key corridors, while balancing the need to connect to lower frequency services in local areas.

LTC routes are categorized into one of six classifications, based on the purpose they serve within the broader network. Each classifications have their own service standards, communicating clear expectations as to the level of service passengers can expect, and the level of performance that is anticipated by LTC.

Table 2 splits each of the routes into the six route classifications that are currently defined in the updated London Transit's Service Standards. A map showing the distribution of routes by type within the LTC network can be found in Figure 5.

Table 2: Existing (2024) Routes by Service Classification

Classification	Route						
Express	90	91	92	93	94	95	
Base Arterial	2	10	13	16	17	102	104
	106						
Minor Arterial	3	4	5	6	7	12	19
	20	25	27				
Local	1	9	15	24	31	33	34
	35						
Industrial	28	30	36	37	38		
Community Bus	51	52	53	54	55	56	

4.1.1 Express Routes

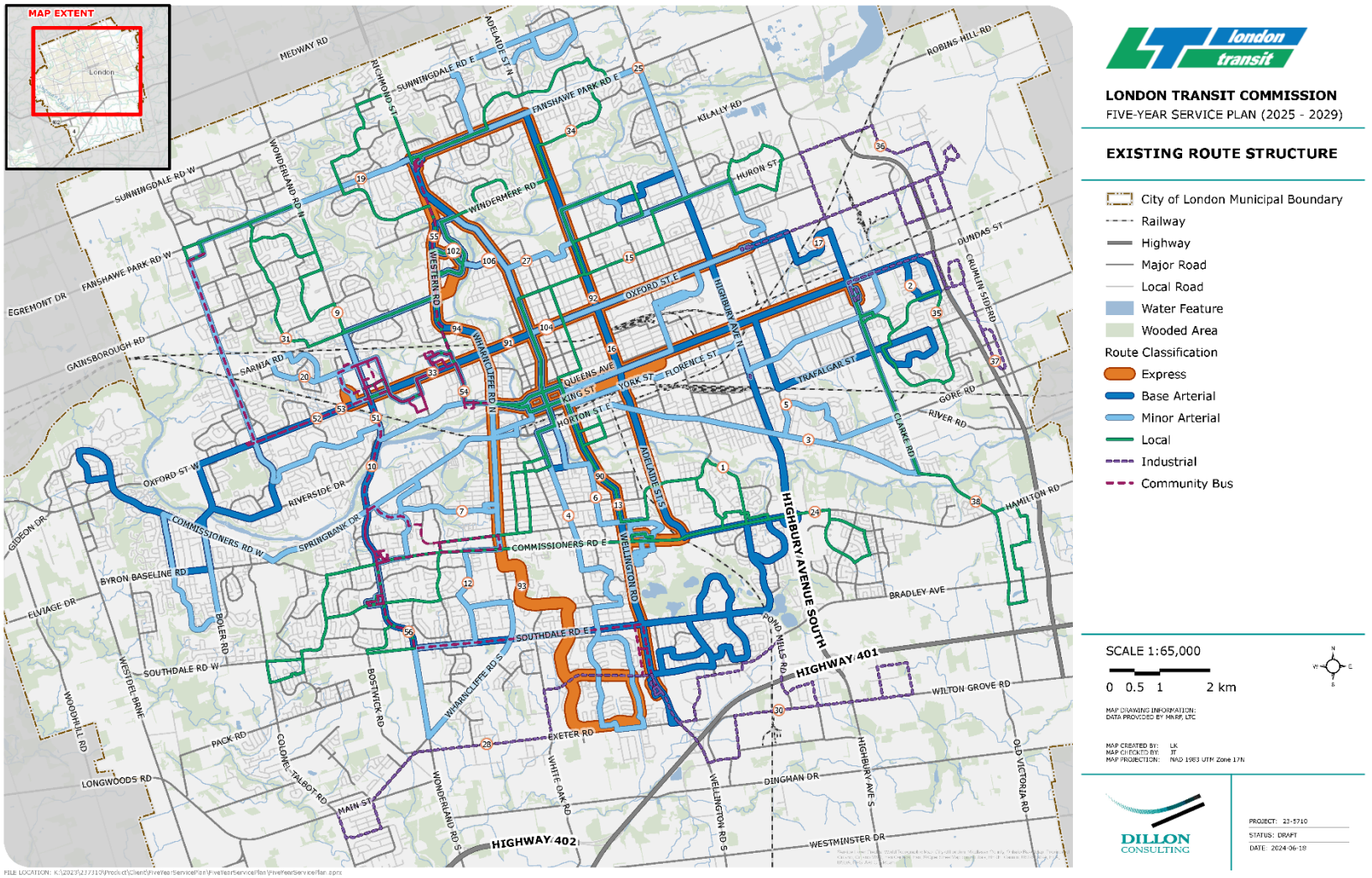
Express routes focus on providing faster and more direct service to customers by operating on major corridors (e.g., arterial roadways) and increasing the distance between stops. These services are typically designed to connect major destinations such as an employment hub or post-secondary school to high-density development and major transit terminals. Express routes are typically viewed as a precursor to bus rapid transit because the environments in which they operate have similar characteristics, and as such, they tend to operate more frequently than other route classifications. Unlike bus rapid transit, express service lacks an exclusive right-of-way, advanced technologies and branding.

London Transit currently operates six limited stop express routes:

- Route 90: Richmond St/Wellington Rd corridor between Masonville Place and White Oaks Mall;
- Route 91: Oxford Rd corridor between Fanshawe College and Wonderland Road;
- Route 92: Adelaide St corridor between Masonville Place and Victoria Hospital;
- Route 93: Wharnecliffe Rd/Western Rd corridor between White Oaks Mall and Masonville Place;
- Route 94: Dundas St corridor between Western University and Argyle Mall; and
- Route 95: Highbury Ave/Bradley Ave corridor between Fanshawe College and White Oaks Mall.

Route 90 will be replaced in part by the RT routes outlined in **Section 2.1** and Routes 94 and 95 will partially follow the same corridors as the RT routes. It is expected all impacted routes would see reduced ridership due to passengers choosing to use adjacent RT services instead.

Figure 5: London Transit Commission Route Structure



4.1.2 Arterial Routes

Arterial routes provide coverage to all major destinations in London along major arterial corridors, serving all stops with few route deviations. These routes will generally provide a higher level of service (i.e., frequency) than local routes.

There are two types or arterial routes, these include:

1. **Base Arterial Route:** Designed so that over 70% of the route operates on one or more arterial corridors providing direct two-way service connecting two or more transit villages (as defined in the London Plan) and/or major destinations. These routes are typically the highest performing routes in the system and therefore are planned with a high level of service.
2. **Minor Arterial Route:** Designed to provide direct two-way service, operating on a combination of arterial and collector road corridors and connecting one or more transit villages and/or major destinations. These routes typically attract less ridership than Base Arterial Routes and therefore are measured against a lower ridership performance standard.

There are currently eight base arterial routes and ten minor arterial routes in operation.

4.1.3 Local Routes

Local routes are designed to be feeder routes to high frequency base arterial or express routes. They provide important coverage to local neighbourhoods and activity centres on collector roadways. These routes are typically measured against a lower standard than other higher order routes, therefore productivity targets and minimum service levels are lower.

LTC currently operates eight local routes.

4.1.4 Industrial Routes

Industrial routes provide connections to and from major employment centres – typically business parks or industrial areas located on the fringe of the City. The services are tailored to match start and ending times of shift workers at these facilities with limited operating periods depending on demand and performance. The provision of service in large business parks or industrial areas can be challenging with fixed-route transit, due to the staggered shift times, low densities and the car-centric nature of such areas.

LTC currently operates five industrial routes.

4.1.5 Community Bus Routes

Community routes are circuitous in nature and designed to maximize front door connections to local destinations and activity centres. They are specifically tailored to meet the needs of seniors and persons with disabilities, providing direct connections to medical facilities, seniors' apartments and retail. Service on these routes does not have a standard set of hours or headways, by nature of how they are designed.

LTC currently operates six community routes, which each operate on one weekday per week.

4.2 Coverage and Access

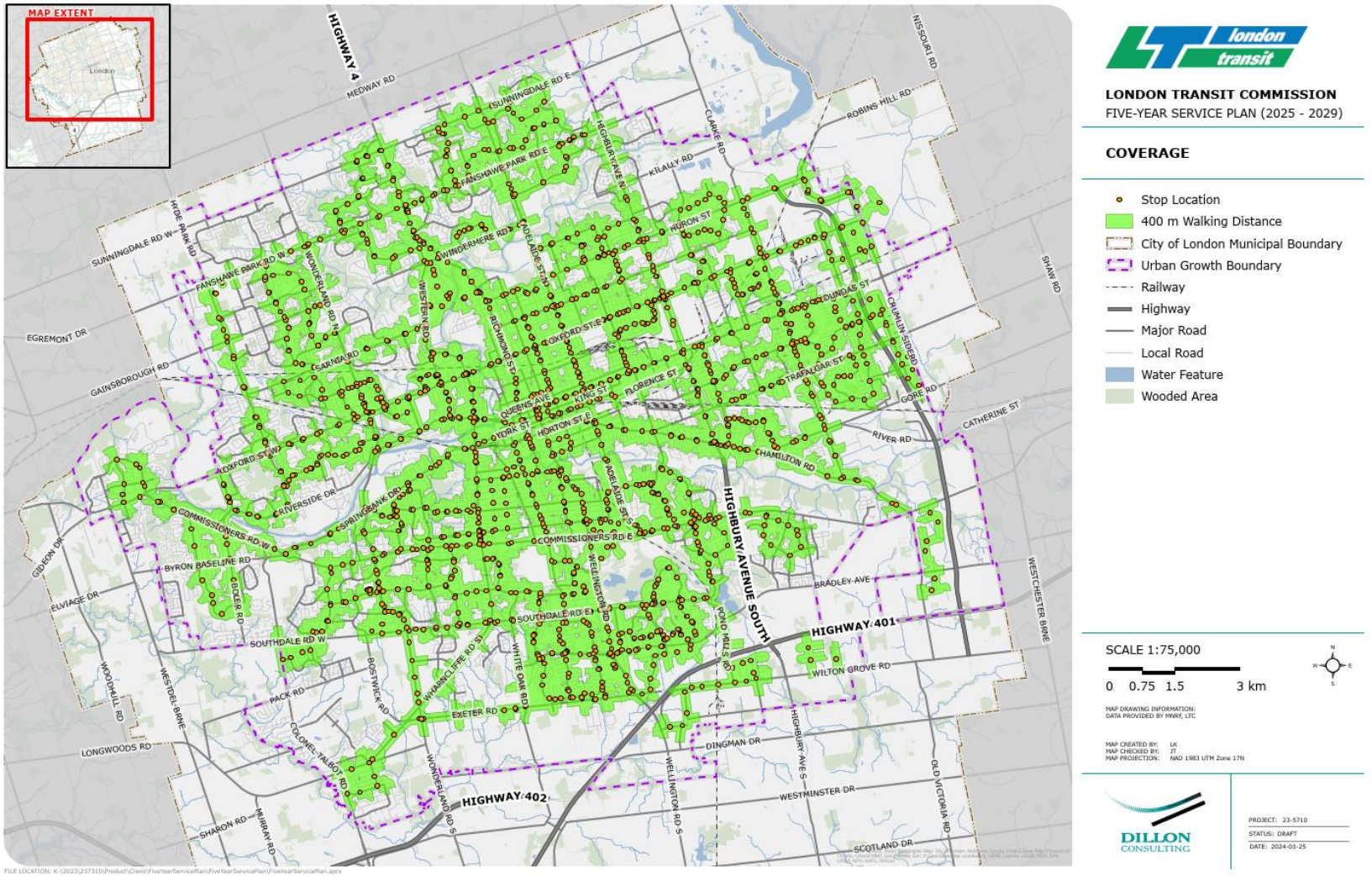
The coverage metric considers how far people need to travel between their homes or workplaces and a transit stop, as an indicator of how accessible transit is for residents.

The Route Structure and Service Guideline Review outlined that by 2030, a total of 85% of population and employment within the Urban Growth Boundary would be within 400-metre walking distance of a transit stop. As of 2024, LTC estimates approximately 88% of residents within the Urban Growth Boundary are within a 400m walking/rolling distance of a transit stop. (as shown in Figure 6).

Gaps in coverage currently exist in the following locations:

- In multiple neighbourhoods west of Wonderland Road and north of the Thames River;
- Along Killarney Road east of Highbury Avenue;
- North of Bradley Road between Highbury Avenue and Jackson Road;
- In the communities of Lambeth and Talbot Village;
- In the edges Byron; and
- North of Sarnia Road and east of Wonderland Road.

Figure 6: 400 Metre Population Coverage Under Existing Network



4.2.1 Service Levels

Service level standards define the duration and frequency of routes. The duration of service, or service span, identifies when each type of service is expected to operate over the course of the day or week. The table below shows the service span identified in the five-year service plan and compares it to the current hours of service LTC operates as of Winter 2024.

Table 3: Minimum Service Span

Operating Period	Five-year Plan Service Span
Weekday Early AM	6:00 am to 7:00 am
Weekday AM Peak	7:00 am to 9:00 am
Weekday Base	9:00 am to 2:00 pm
Weekday PM Peak	2:00 pm to 6:00 pm
Weekday Early Evening	6:00 pm to 9:00 pm
Weekday Late Evening	9:00 pm to1:00 am
Saturday Day	8:00 am to 9:00 pm
Saturday Evening	9:00 pm to 12:00 am
Sunday / Holidays	7:00 am to 11:00 pm

The Service Standards document also identifies a minimum headway target. This target communicates to customer that a particular route or route type will be guaranteed a certain level of service. The focus of these targets is on Rapid Transit, Base Arterial, Minor Arterial and Local routes. Industrial and community bus routes are focused on specific high demand periods and therefore are not subject to such targets. The maximum headways are illustrated in Table 4. Rapid Transit service standards have been defined for the future while no Rapid Transit routes currently exist; however, there are no defined frequency standards for Express routes. The existing standards also permit 60-minute headways on some route types. LTC is looking to shorten all headways to be shorter than 60 minutes, therefore, this should be modified in the final plan.

Table 4: Maximum Headway (Minutes)

Operating Period	Rapid Transit	Base Arterials	Minor Arterials	Local
Weekday Early AM	10	30	30	30
Weekday AM Peak	10	20	30	30
Weekday Base	10	30	60	60
Weekday PM Peak	10	20	30	30
Weekday Early Evening	10	30	30	30
Weekday Late Evening	15	30	60	60
Saturday Day	15	30	30	30
Saturday Evening	20	30	60	60
Sunday / Holidays	15	30	60	60

There are a number of routes which are currently not meeting the headway targets across specific periods. The tables below show the headways for each route by period, organized by route types. Those highlighted in red indicate periods where the maximum headway is exceeded, or where the service span is not being met.

Table 5: Base Arterial Headways

Route	Maximum Headway	2	10	13	16	17	102	104	106
WEEKDAY									
EARLY AM	30	15	30	15	18	20			
AM PEAK	20	15	20	15	15	20	10	30	24
BASE	30	15	30	15	16	20	10	30	10
PM PEAK	20	15	20	15	15	20	12	30	10
EARLY EVENING	30	15	30	20	20	20	15	30	10
LATE EVENING	30	20	30	30	25	30	20		35
SATURDAY									
EARLY AM	30	30	35	35	25	40			
BASE	30	15	30	16	25	40			
PEAK	30	15	30	15	17	30	40	30	35
EARLY EVENING	30	15	30	20	20	30	40	30	35
LATE EVENING	30	29	35	30	28	34	40		35
SUNDAY									
EARLY AM	30	30	55	30	35	45			
BASE AM	30	30	30	30	30	30	40		35
PEAK	30	15	30	30	20	30	40		35
EVENING	30	30	60	30	30	40	40		35

Table 6: Minor Arterial Headways

Route	Maximum Headway	3	4	5	6	7	12	19	20	25	27
WEEKDAY											
EARLY AM	30	30	40	30	35	30	30	33	20	30	40
AM PEAK	30	30	15	30	25	20	30	28	15	30	18
BASE	60	30	20	30	30	30	30	27	15	30	18
PM PEAK	30	30	15	30	30	20	25	30	15	23	17
EARLY EVENING	30	50	20	50	35	30	30	35	20	30	23
LATE EVENING	60	60	30	60	60	30	30	35	30	30	27
SATURDAY											
EARLY AM	30	60	30	60	35	30	30	35	45	30	0
BASE	30	60	30	60	35	30	30	35	30	30	43
PEAK	30	34	25	34	20	30	38	27	20	30	25
EARLY EVENING	60	60	30	60	25	30	30	40	30	30	45
LATE EVENING	60	60	33	60	35	30	30	40	33	30	40
SUNDAY											
EARLY AM	60	47	40	47	35	30	30	35	40	30	43
BASE AM	60	47	30	47	35	30	30	35	30	30	43
PEAK	60	47	30	47	25	30	30	35	30	30	32
EVENING	60	60	30	60	35	30	30	35	30	30	42

Table 7: Local Headways

Route	Maximum Headway	1	9	15	24	31	33	34	35
WEEKDAY									
EARLY AM	30	20	17	20	40	48	0	40	0
AM PEAK	30	15	16	16	40	28	20	40	30
BASE	60	20	15	15	40	27	20	40	30
PM PEAK	30	16	15	15	40	30	20	40	30
EARLY EVENING	30	25	22	27	40	30	20	40	30
LATE EVENING	60	30	32	30	40	30	20	40	0
SATURDAY									
EARLY AM	30	40	30	35	40	25	0	40	0
BASE	30	30	32	30	40	25	0	40	30
PEAK	30	20	24	20	40	27	0	40	30
EARLY EVENING	60	30	32	30	40	25	0	40	30
LATE EVENING	60	30	30	36	0	25	0	40	0
SUNDAY									
EARLY AM	60	32	35	30	0	25	0	0	0
BASE AM	60	32	33	30	35	25	0	40	0
PEAK	60	25	23	30	40	25	0	40	30
EVENING	60	30	30	30	0	25	0	40	30

4.2.1.1 Headway Standards: Peer Agency Comparison

The service standards of five peer agencies were examined to identify how London Transit's service standards are compared to the average benchmarks of Canadian transit agencies of similar sizes. These agencies include:

- Halifax Transit;
- Toronto Transit Commission (TTC);
- Grand River Transit (GRT);
- Edmonton Transit Service (ETS), and;
- Translink

It is noted that the existing public-facing GRT service standards do not provide any guidance on service headway. The remaining four agencies do provide different guidance on recommended service headways, although they do not take a consistent approach: for example, while TTC, ETS, and Translink stipulate the maximum headway of each service type only, Halifax Transit is the only agency that identifies minimum headway thresholds they strive to meet. While the service standard of each agency is not directly comparable as the definitions of route types vary, in general it can be observed that London Transit has a slightly more conservative standard guiding service level. For example, the maximum headway of Base Arterials in peak hours is 20 minutes for London Transit. Meanwhile, the maximum service headway of Corridor Routes in peak hours for Halifax Transit is 15 minutes. This is more comparable in the midday, for example, for local routes, London Transit would offer a minimum 60-minute headway in weekday base period, which is the same as Halifax Transit during the same period.

4.3 Route Level Productivity

Route productivity measures the effectiveness of the routes and services that London Transit operates, using passenger boardings per hour of revenue service delivered to assess each route. Existing ridership was collected for Fall 2023 and assessed by time of day and day of the week against the route productivity levels identified in the London Transit Service Standards document. The document identifies both:

- Minimum productivity targets: Routes that fall below this target should be considered for further review (e.g. reduction in service frequency, change in route alignment, and change in service delivery model or elimination of the route).
- Triggers for improvement: Routes that exceed this target should be considered for service improvements (e.g., increase in service frequency, addition of a tripper or change in route classification).

Table 8 illustrates the minimum productivity targets and Table 9 illustrates the Triggers for Improvement identified in the Service Standard by route typology and service span. This was used to assess whether routes that require a change in service levels to meet service standards.

Table 8: Minimum Productivity Target by Route Type (LTC Standard, Boardings per Revenue Service Hour)

Operating Period	Express	Base Arterial	Minor Arterial	Local	Industrial	Community Bus[1]
Weekday-Early AM	30	30	20	15	15	
Weekday-AM Peak	30	50	25	20	15	
Weekday-Base	30	50	25	15	15	
Weekday-PM Peak	30	50	25	20	15	
Weekday-Early Evening	30	30	20	15	15	
Weekday-Late Evening	30	30	20	15	15	
Saturday-Early AM	30	30	20	15	-	
Saturday-Base	30	30	20	15	-	
Saturday-Peak	30	30	20	15	-	
Saturday-Early Evening	30	30	20	15	-	
Saturday-Late Evening	30	30	20	15	-	
Sunday-Base AM	30	20	15	15	-	
Sunday-Peak	30	20	15	15	-	
Sunday-Evening	30	20	15	15	-	

[1] There are no service standards for community bus routes.

Table 9: Productivity Triggers for Service Improvement by Route Type (Boardings per Revenue Service Hour)

Operating Period	Express	Base Arterial	Minor Arterial	Local	Industrial	Community Bus[2]
Weekday-Early AM	40	50	30	25	20	
Weekday-AM Peak	40	75	45	40	25	
Weekday-Base	40	75	45	25	25	
Weekday-PM Peak	40	75	45	40	25	
Weekday-Early Evening	40	50	30	25	20	
Weekday-Late Evening	40	50	30	25	20	
Saturday-Early AM	40	50	30	25	-	
Saturday-Base	40	50	30	25	-	
Saturday-Peak	40	50	30	25	-	
Saturday-Early Evening	40	50	30	25	-	
Saturday-Late Evening	40	50	30	25	-	
Sunday-Base AM	40	30	25	20	-	
Sunday-Peak	40	30	25	20	-	
Sunday-Evening	40	30	25	20	-	

The existing productivity of routes are summarized below using the above productivity thresholds. Within each of the figures below, the red line represents the minimum productivity target, and the green line represents the trigger for service improvements.

Figure 7 illustrates the productivity for express routes. There are several express routes that exceed the trigger for service improvements. Route 91 is over the trigger for service improvement during weekday base, PM peak, and evening periods. Moreover, Route 91 is also exceeding the trigger during the early evening period on Saturday. Route 93 exceeds the targets between AM peak and Early evening on weekdays, as well as Saturday afternoon, into the evening, and Sunday nearly all day. Route 90 exceeds the trigger during Weekday PM Peak, Saturday peak, Sunday peak and Sunday evening. Sections of the Route 90 is expected to be replaced by RT and as such will experience increased service frequency and is expected to experience an increase in ridership.

Conversely, the two express routes which operate on weekdays only have low productivity and are operating below the minimum targets. While Route 94 looks like it has exceptionally high productivity in the early morning hours, it operates very few revenue service hours during that period and as such the boardings per revenue service hour may be misleading. Routes 92 and 94 will be considered as part of this service plan to increase ridership without decreasing the headway and making them less attractive to customers.

[2] There are no service standards for community bus routes.

Figure 8 and Figure 9 illustrate the productivity for base arterial routes. Many of these routes are under performing during weekdays (excluding PM peak and early evening periods) and early Saturday mornings. Conversely, these routes exceed the trigger for service improvement on Sunday.

Figure 10 and Figure 11 illustrate the productivity for minor arterial routes. This graph shows that Routes 4, 25 and 27 exceed the triggers for increased service for all weekday periods. In addition, Routes 3 and 20 exceed the triggers on weekday evenings. Routes 3, 4, 25 and 27 exceed the trigger during all weekend periods, except for early Saturday morning. Only one minor arterial route does not exceed the trigger for service improvement during the Sunday peak and evening period, indicating that this trigger may need to be reviewed while consideration is also given to improving service levels for passengers.

Figure 12 to Figure 13 illustrates the productivity on local routes. Routes 15, 31, 33 and 35 exceed the productivity trigger during most weekday periods. Routes 1, 9, 15 and 31 exceed the trigger for service improvement during most weekend service spans.

Industrial Routes are summarized in Figure 14. These routes exceed the productivity triggers during peak periods, with route 30 showing exceptional productivity across most periods. Industrial routes 28 and 38 are below the minimum productivity targets during two periods of the day, however only marginally and therefore no decreases to service are recommended to local routes during the week.

Figure 7: Express Routes - Productivity by Service Period (Fall 2023)

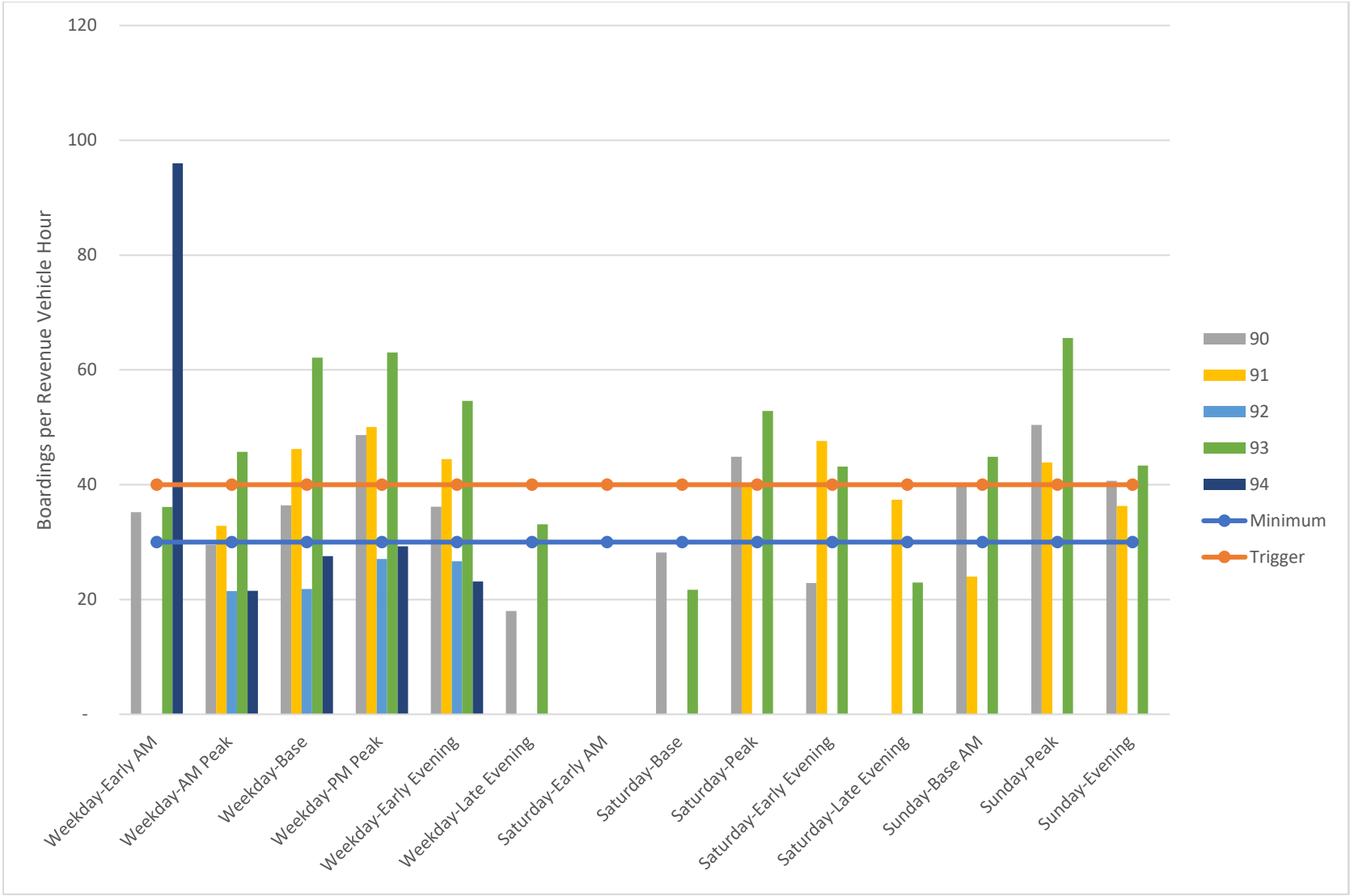


Figure 8: Base Arterial Routes - Productivity by Service Period (Fall 2023) Part I

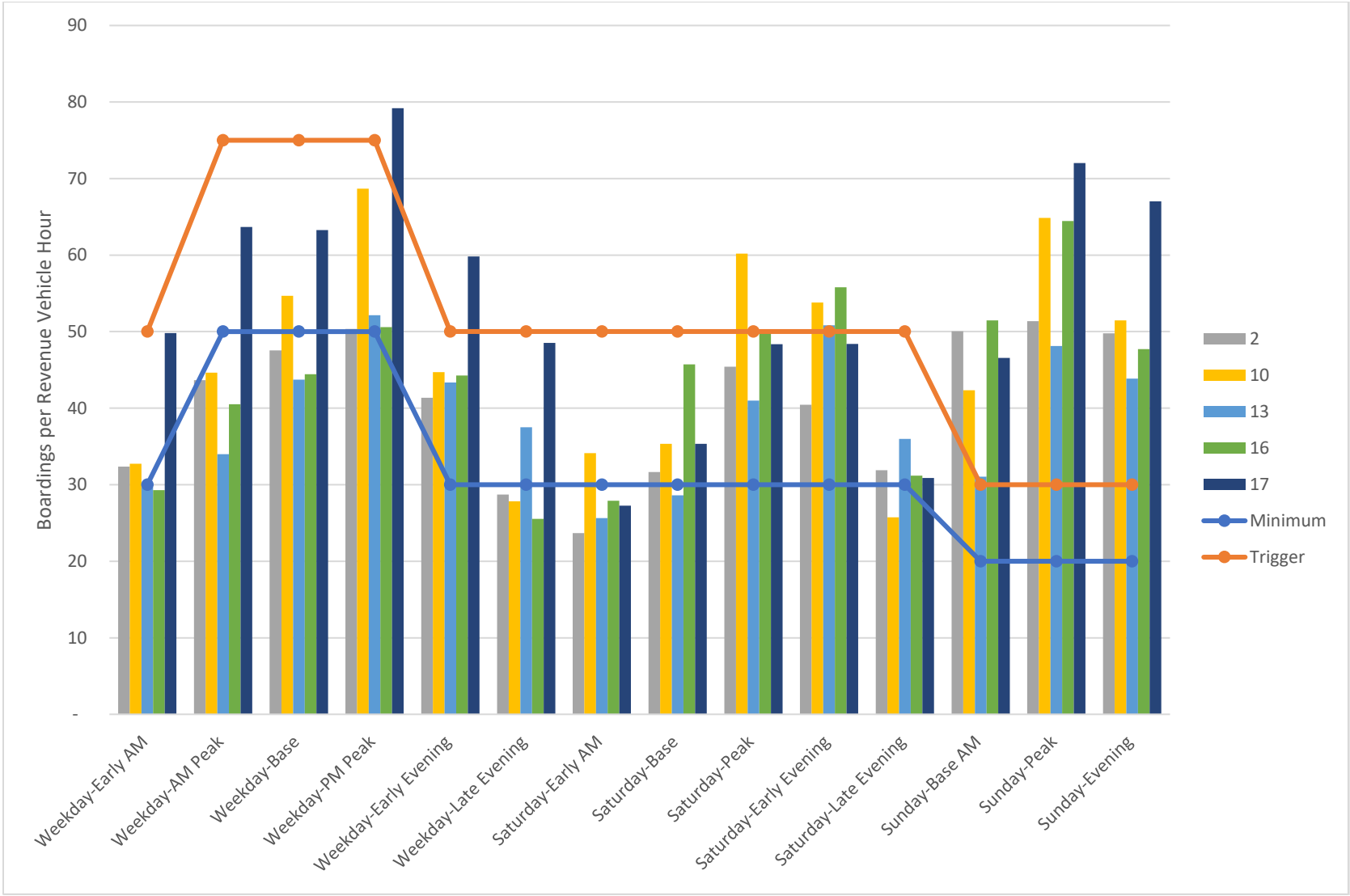


Figure 9: Base Arterial Routes - Productivity by Service Period (Fall 2023) - Part II

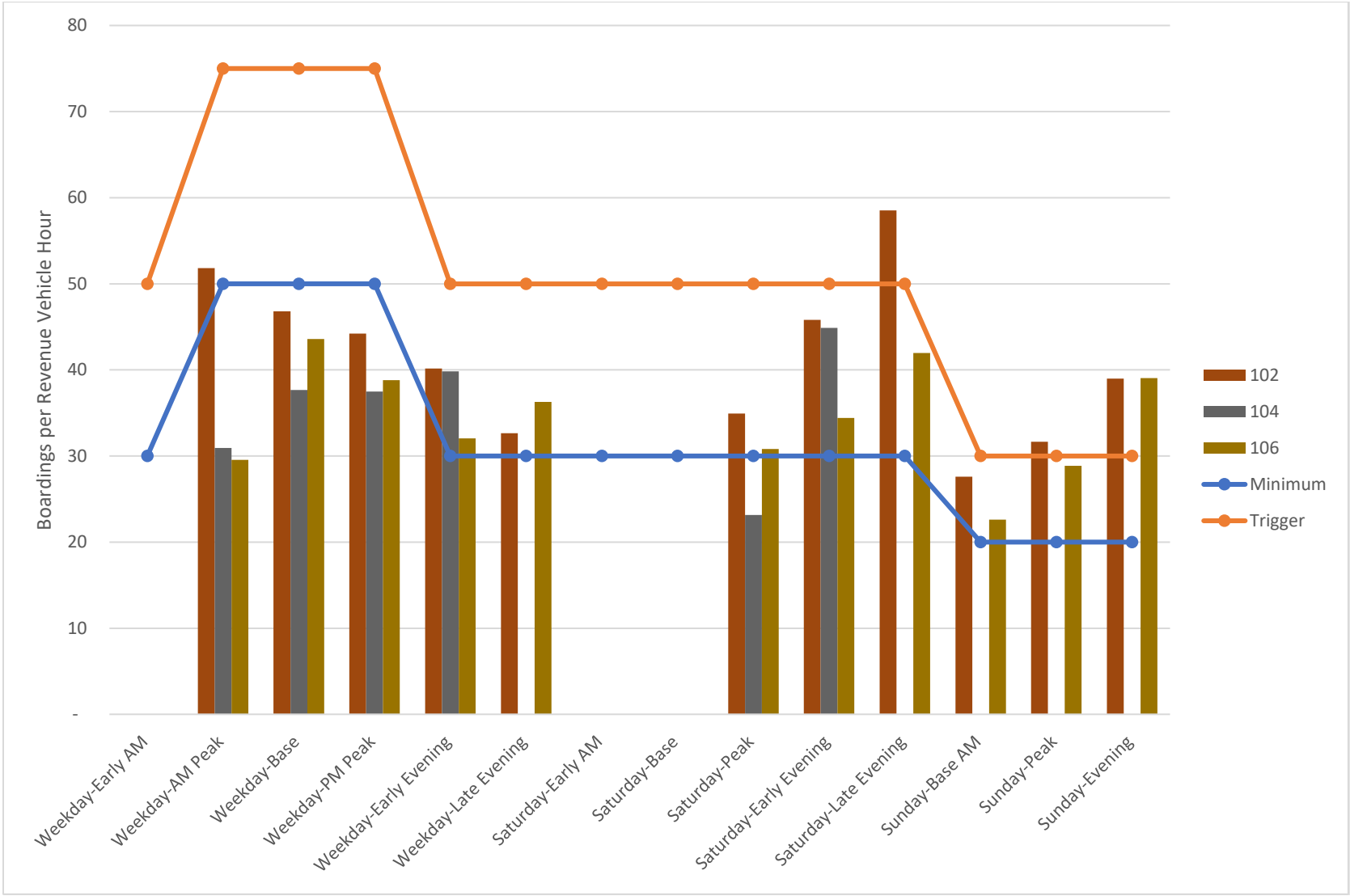


Figure 10: Minor Arterial Routes - Productivity by Service Period (Fall 2023) - Part I

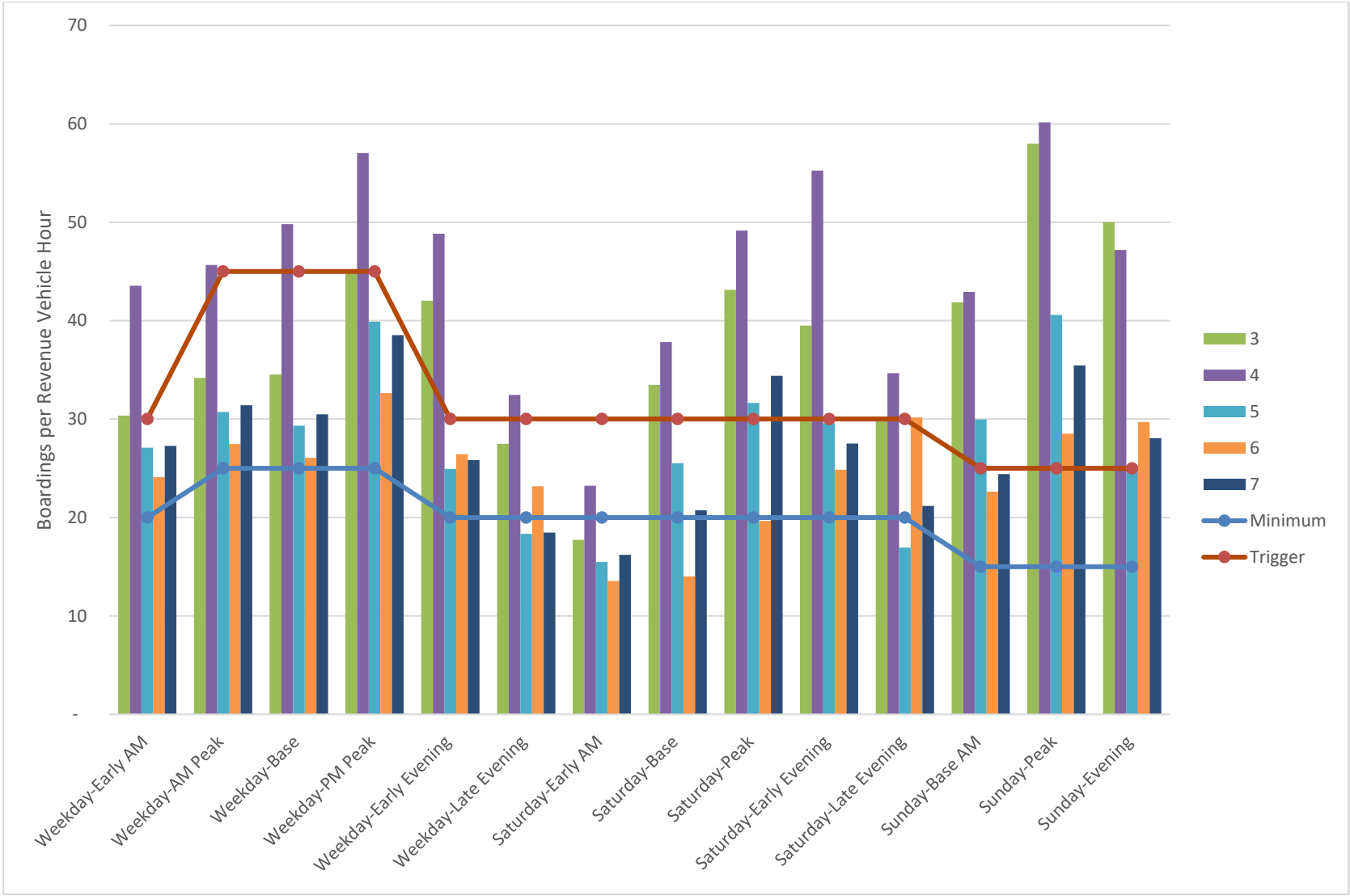


Figure 11: Minor Arterial Routes - Productivity by Service Period (Fall 2023) - Part II

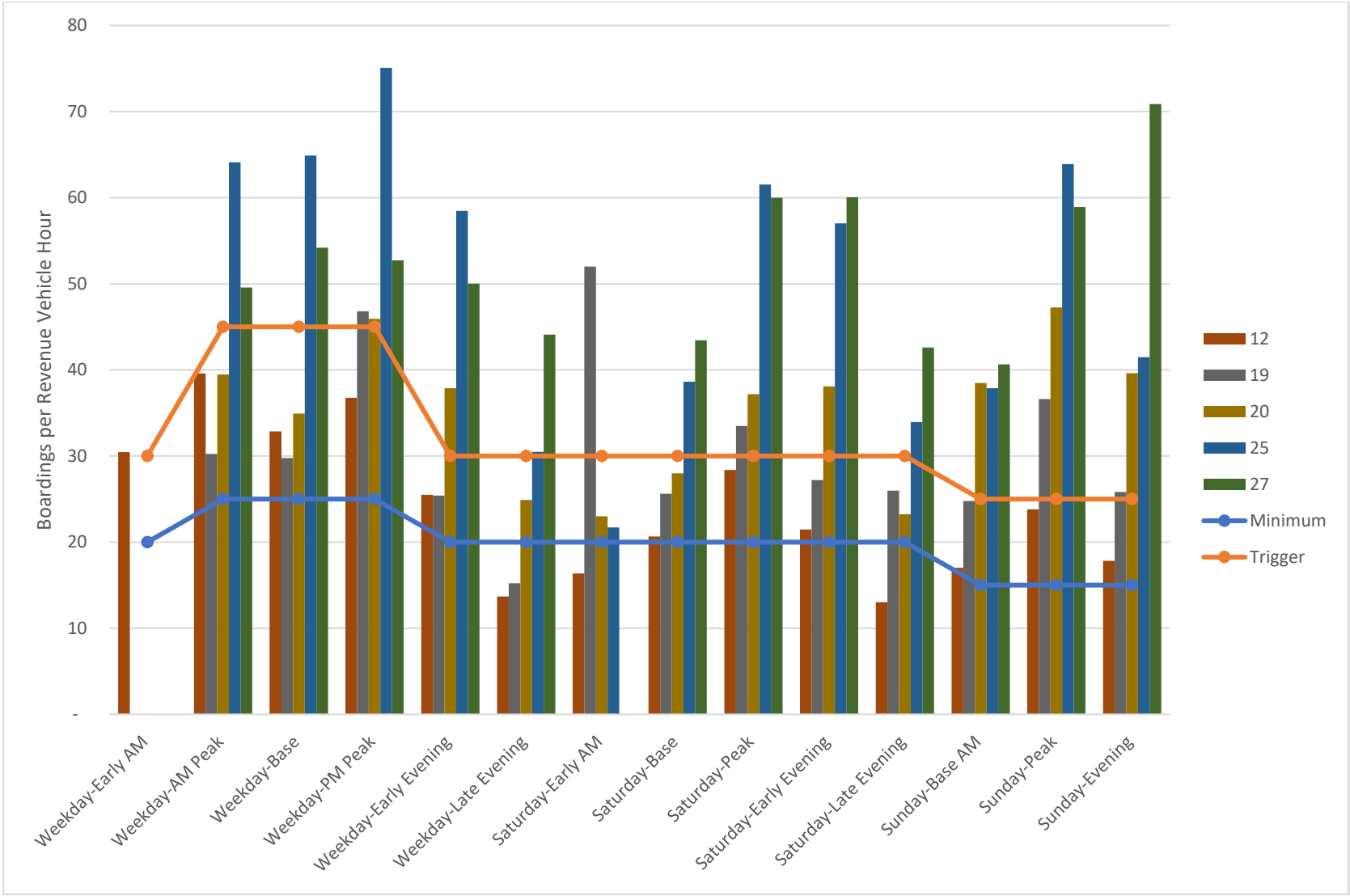


Figure 12: Local Routes - Productivity by Service Period (Fall 2023) - Part I

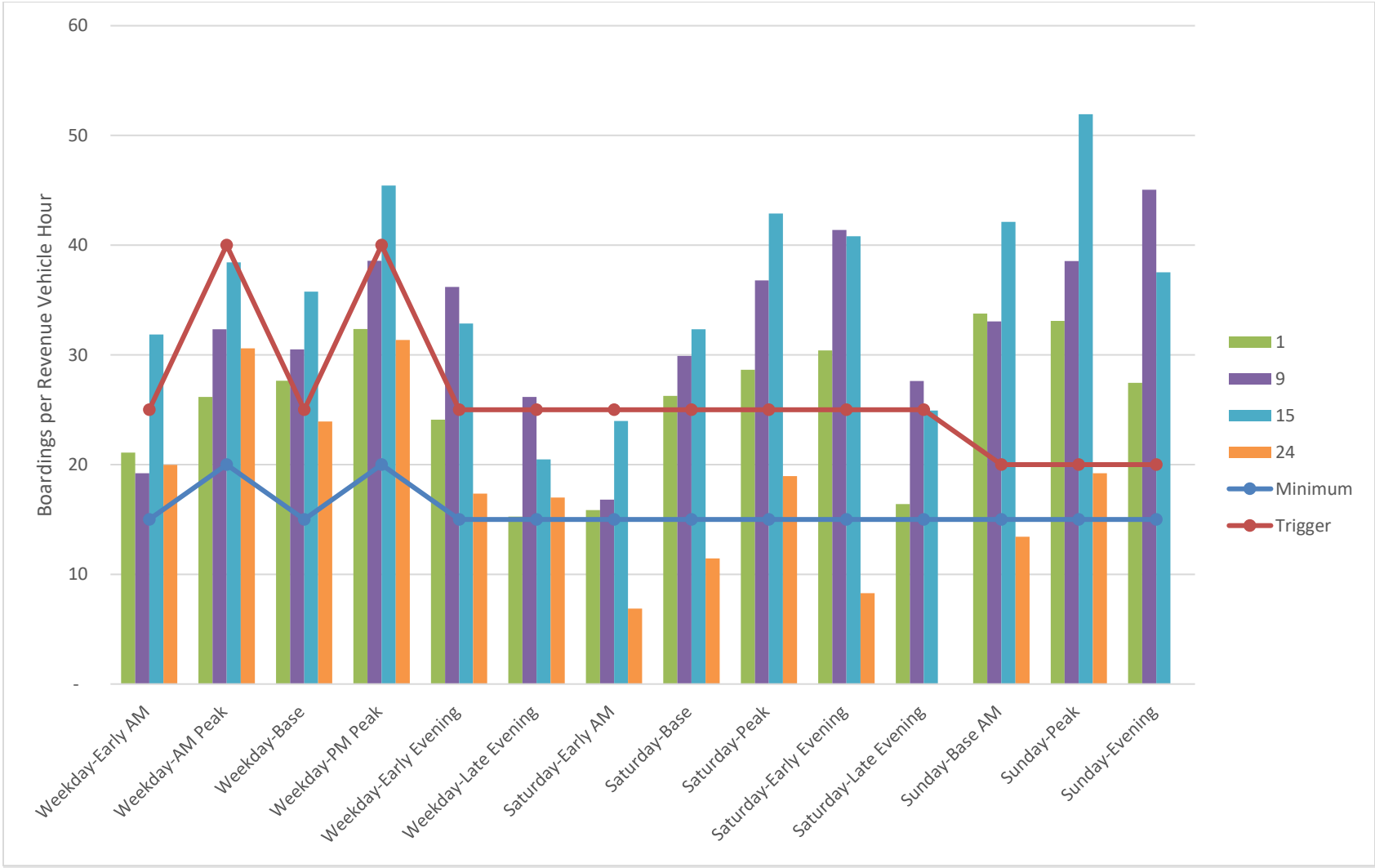


Figure 13: Local Routes - Productivity by Service Period (Fall 2023) - Part II

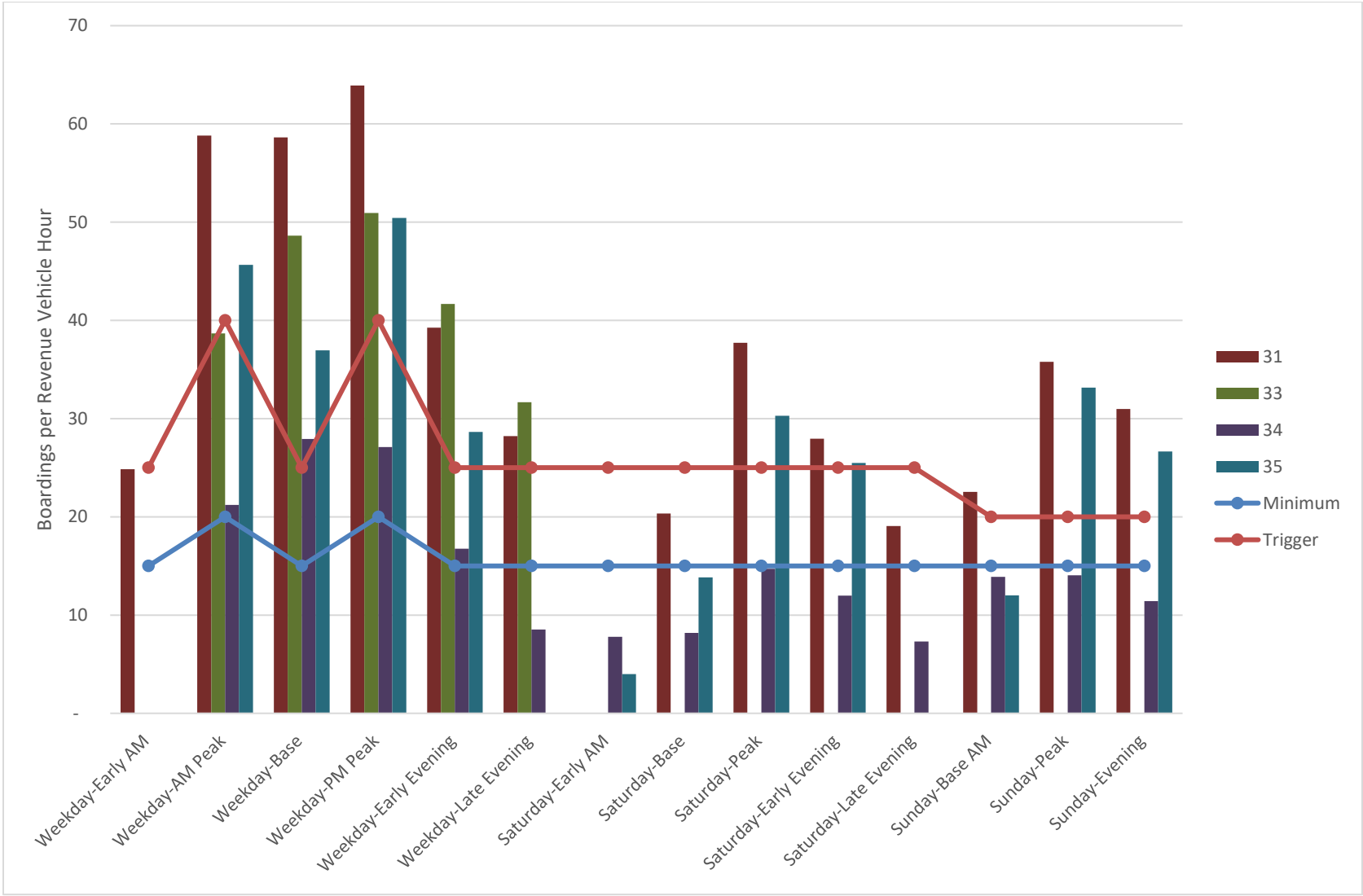
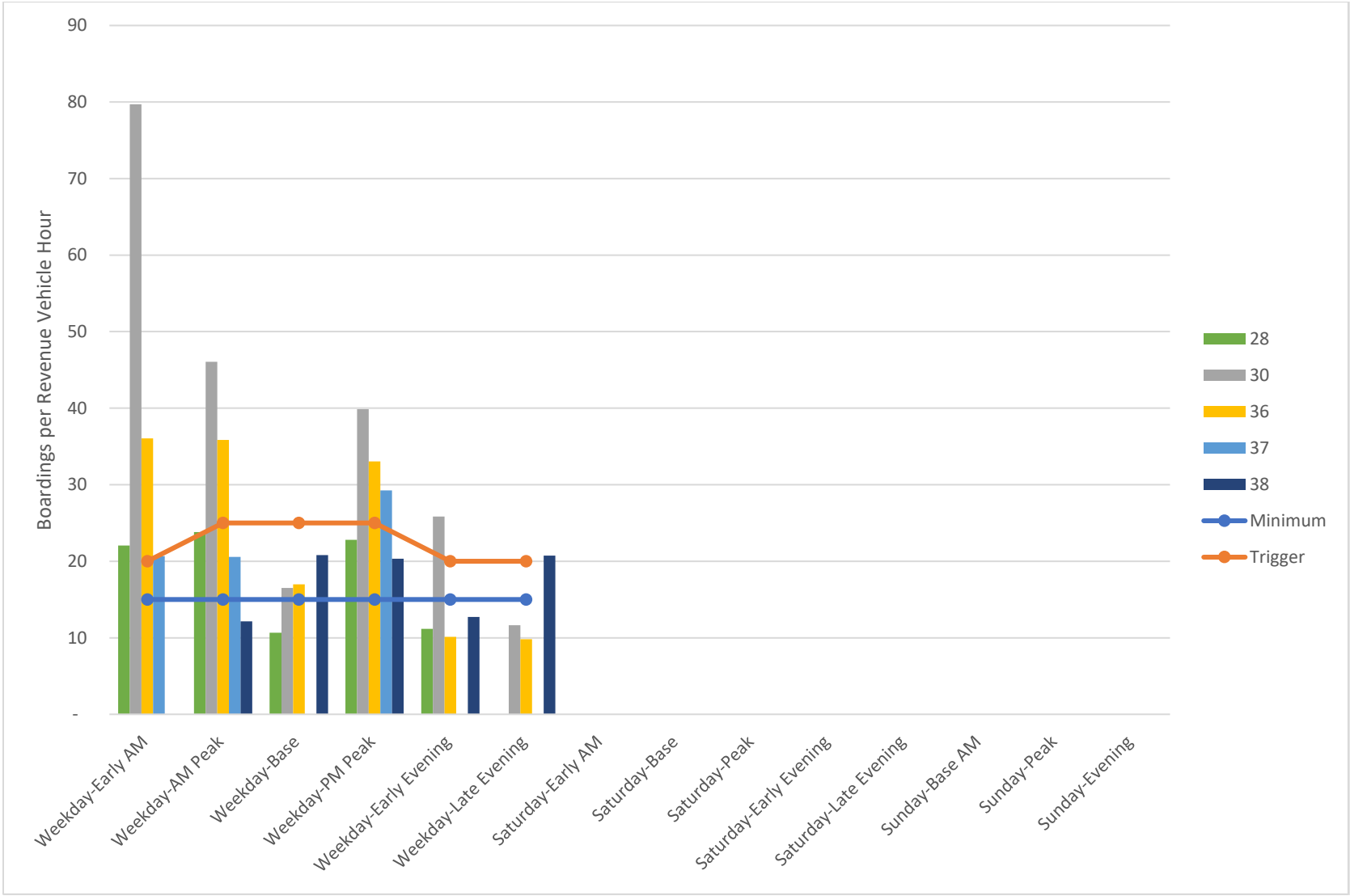


Figure 14: Industrial Routes - Productivity by Service Period (Fall 2023)



4.3.1 Route Productivity Standards: Peer Agency Comparison

All of the peer agencies discussed in section 4.2.1.1 possess a standard for route productivity, although approaches to measuring this value vary. Some agencies apply the same general productivity standards to all route types, and some provide different standards across different periods of the day/week, and some use different metrics to trigger service adjustments. Another variation identified is that some agencies only specify minimum thresholds, while others, similar to London, provide both a minimum threshold and a trigger to consider service improvements.

Low Productivity: In terms of minimum productivity targets, it is found that London Transit generally has similar minimum productivity thresholds when compared to these three peer agencies. For example, for local routes during off-peak hours, the minimum target for London Transit is 15 boardings per hour, similar to Halifax Transit which has a minimum standard of 15 boardings per hour in the midday. Similarly, the minimum productivity standards used by the TTC change depending on the service type: Local buses must have 20 boardings per hour during the peak, and 10 boardings per hour during the off-peak. TTC Express bus routes must have 40 boardings per hour during the peak, and 30 boardings per hour in the off-peak.

High Productivity: As described above, LTC has defined productivity threshold which, if consistently exceeded, would indicate that there may be a need to increase the level of service to improve passenger comfort and to improve system operation. Similar to London Transit, TTC also triggers service improvements based on a combination of vehicle crowding, and route productivity. Crowding standards are set within both the peak periods (~50 passengers on a 12-metre bus) and base periods (full seated load). When these thresholds are consistently exceeded for a period of six months over the busiest hour of a service period, headways are improved. On the other hand, if the route is not meeting minimum ridership standards, service level reductions are considered.

Of note, it was found that London Transit's thresholds for improvement are somewhat higher than those of other agencies. For example, London Transit's boardings trigger for base arterials are 75 for weekday peak hours and daytime and 50 for weekday off-peak hours, whereas the target of ETS for its Frequent Bus are 50 in peak hours and 40 for off-peak hours (50% higher, and 20% higher, respectively). This effectively means that a routes that would be considered "overperforming" in the ETS network, would likely not meet the threshold for service improvements in London.

4.4 Stop Activity

System-wide stop activity was assessed to identify where the majority of boardings and alighting's occur on the system. This was done to help identify the need to adjust service levels or change the structure of existing routes. Figure 15 illustrates the existing stop activity using data from Automatic Passenger Counts (APC) provided by LTC for Fall 2023.

The stops with the majority of passenger activity are listed below.

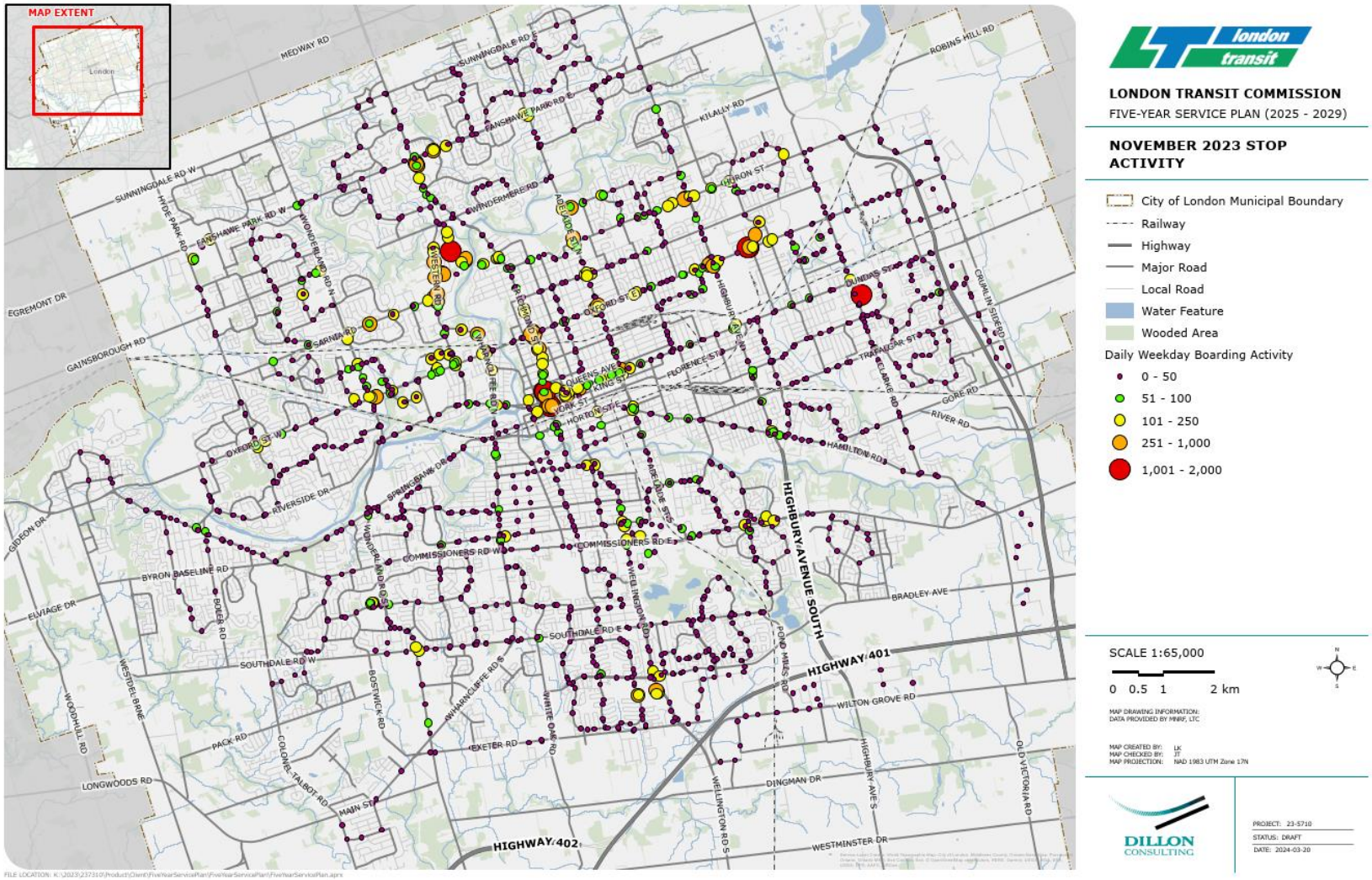
- Downtown London (along major corridors such as Richmond Street and Wellington Street);

- Western University (along Sarnia Road, Oxford Street, Western Road, Wharnecliffe Road and Wonderland Road);
- Fanshawe College (including adjacent residential areas along Huron Street, Highbury Avenue, Kipps Lane and Mornington Avenue);
- Argyle Mall (Intersection of Dundas Street and Clarke Road);
- Shopping Malls including:
    - White Oaks Mall;
    - Masonville Place;
    - Highbury Shopping Plaza and Huron Heights Plaza; and
    - Pond Mills Centre.

Areas of the city with lower levels of stop activity are identified below. Given the lower levels of boardings, these areas may be candidate areas to consider alternative delivery methods, such as on-demand service.

- Industrial areas on the east and south fringes of the City;
- Southwest London, including:
    - Lambeth;
    - Talbot Village;
    - Highland;
    - Byron (outskirts of Commissioners Road, west of Boler Road); and
    - Riverside.
- North London north of Fanshawe Park Rd including:
    - Sunningdale;
    - Fox Hollow;
    - Uplands; and
    - Stoney Creek.

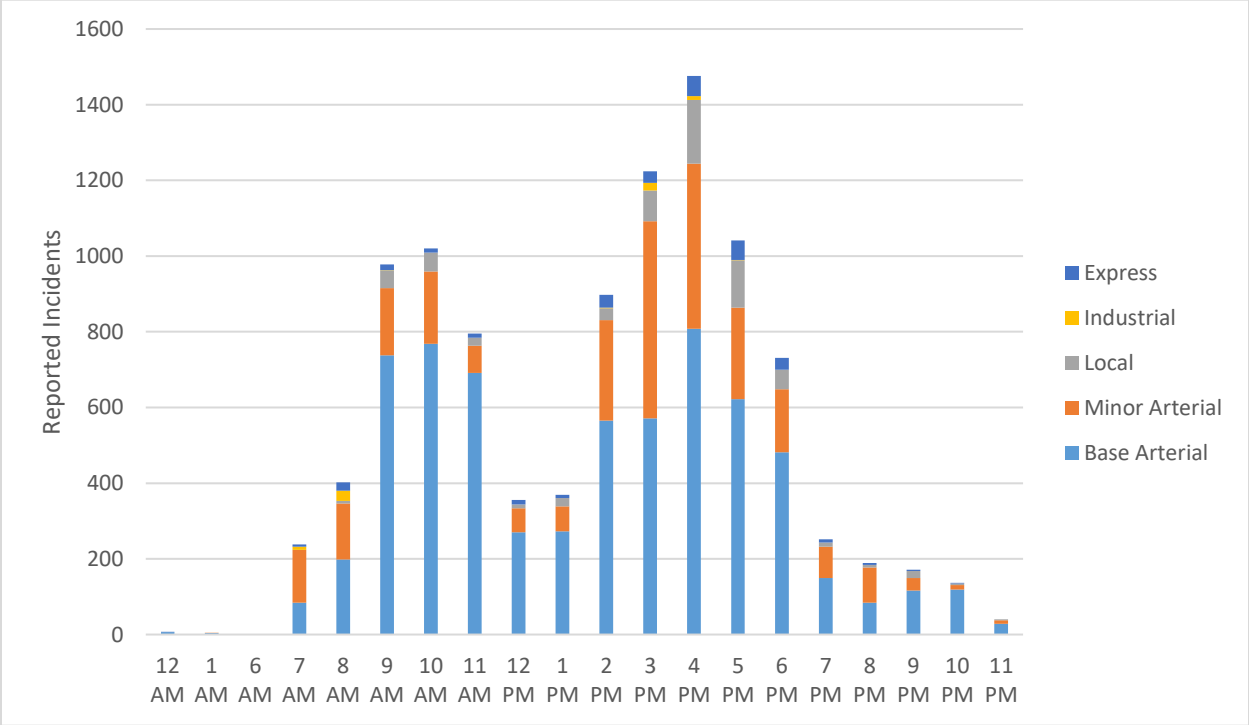
Figure 15: System Wide Stop Activity - All Day (Fall/Winter 2023)



4.5 Vehicle Crowding

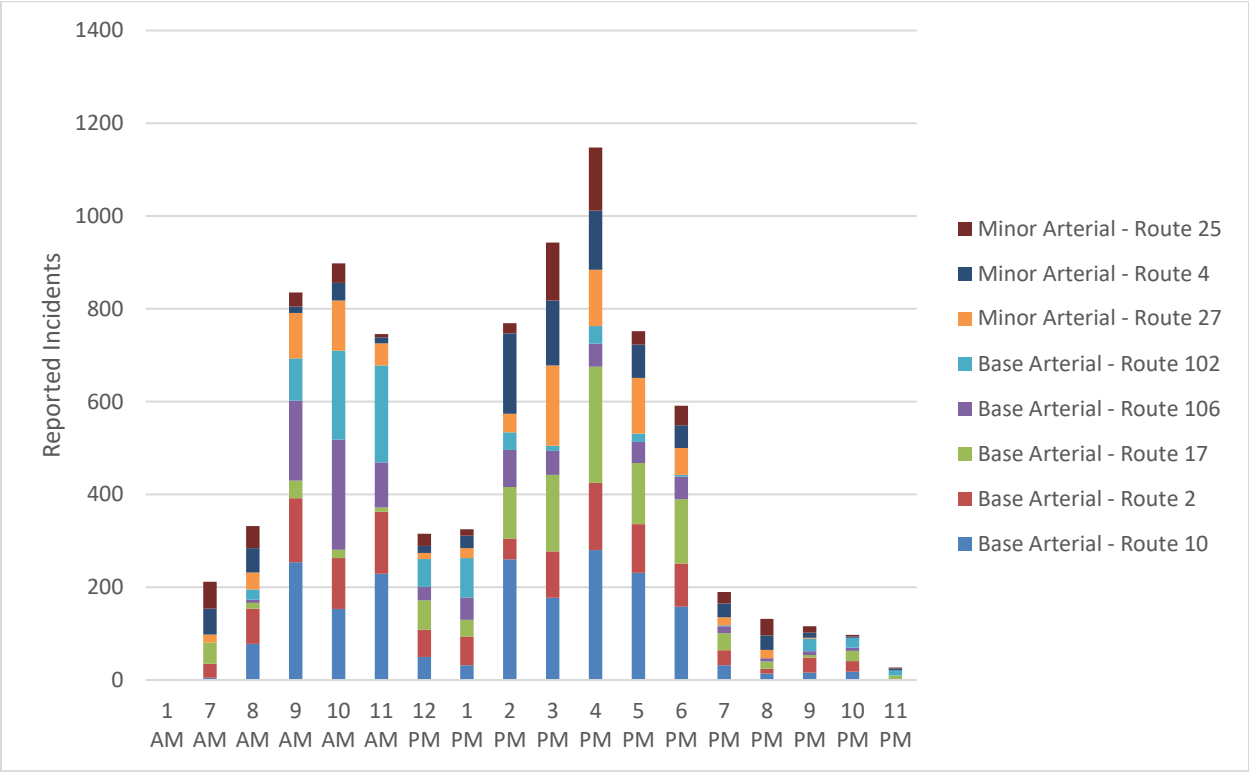
Ridership has been growing on many London Transit routes, leading to several routes experiencing significant crowding during certain times of the day. To understand the impact of crowding, reported overloads were analyzed for patterns in typical times of overloads and locations where routes become overloaded. Overloads are reported by operators when a bus exceeds its maximum capacity and additional passengers are unable to board. This is not a perfect measure of vehicle crowding, as it relies on operators reporting the bus as being too crowded and the frequency of reporting varies between operators. However, combining this information with the productivity data and stop data above provides clarity on how these overloads impact the network. Figure 16 shows the number of overloads, per route type, which were reported in 2023 and the hours these overloads were experienced. The majority of crowding occurs on base arterial routes.

Figure 16: Vehicle Crowding by Route Type (2023)



Routes 2, 4, 10, 17, 25, 27, 102 and 106 had the highest number of overloads across the whole of 2023. The number of reported overload incidents where the passenger load reflected a crowded bus for these bus routes are shown in more detail in Figure 17.

Figure 17: Vehicle Crowding on Most Crowded Routes



As part of the 2024 service plan, the frequency of Route 10 will be increased, which should reduce the impact of overloading on that route.

Perhaps unsurprisingly, the highest number of overloads per stop, were reported at stops adjacent to Western University and totalled more than 24% of all reported overloads. Route 102 in particular, experienced 9% of all reported overloads in 2023 at nine stops surrounding Western. These stops include:

- Western at Lambton SB;
- Western at Hollywood Cres NB;
- Western at Essex St NB;
- Western at Platts Lane NB;
- Western North of Phillip Aziz NB;
- Sarnia at Western WB;
- Western South of Phillip Aziz NB;
- Western at Sarnia Rd SB; and
- Huron College Western.

The overloads on this route are most frequent between 10 am and 12 pm.

4.6 On-Time Performance Issues

On-time performance issues impact the overall reliability of the service, and certainly impact customer experience. Early or late arrivals lead to missed connections, and significant frustration from a customer perspective. From an operations perspective, poor on-time performance can have a cascading impact on future trips, as operators may find it difficult to catch up once they are running behind.

On-time performance issues can occur for several reasons, including:

- Increased dwell time at stops due to high number of passenger boardings;
- Increased traffic congestion on a particular corridor;
- Increased stop activity where stops are located too close to each other (not in compliance with the Stop Spacing Guidelines), requiring many stops in a short space;
- "Scheduled lateness" (or tight scheduling) to avoid long layovers in congested locations; and
- Unscheduled detours caused by incidents, like road closures, or construction.

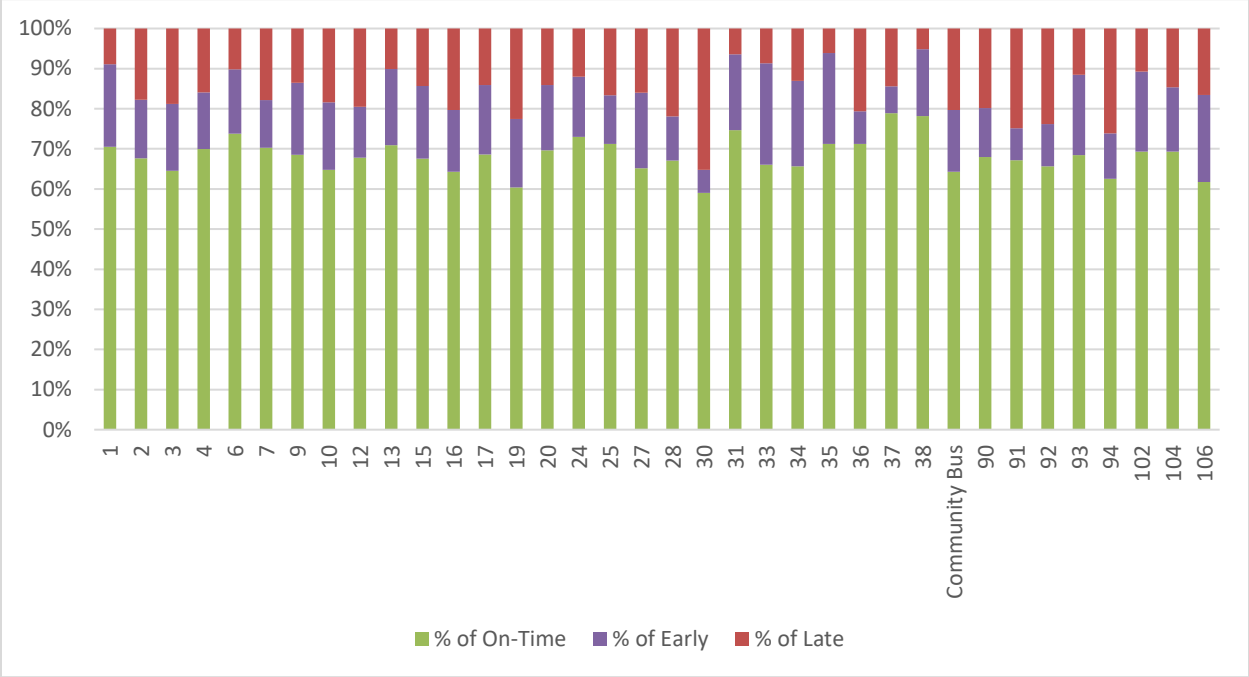
The following describes LTC's on-time performance target:

- Buses shall be no more than five minutes late departing a published timing point, 90% of the time;
- At no time will a bus depart early from a published timing point; and
- Timed bus meets at major terminals, when scheduled as such, shall provide a minimum of three (3) minutes to allow passengers to transfer between buses.

The on-time performance of routes was assessed, and Figure 18 presents the portion of instances where a route was considered to be on-time, early, or late across the whole of 2023.

Most routes arrived late at time points over 14% of the time exceeding the service standard of 10%. They were, however, early over 14% of the time as well, suggesting there is significant variability in travel time along the route, resulting in reduced reliability.

Figure 18: On-Time Performance by Route



The figure above shows that Routes 30, 94 and 91 have the highest portion of late trips. In recent years, there has been several construction-related delays on London's roadway network that have resulted in slower travel speeds or route detours. These are temporary in nature, and while they impact on-time performance, they would not warrant long-term modifications of the network. There was a significant detour of Route 30 during 2023 which was not reflected in an increased operating time, and therefore it's likely that this accounts for this performance outlier.

In addition to the impacts of late buses, there are also adverse impacts when buses arrive early. Passengers may miss trips or buses may be required to delay travel part way through a trip to avoid missing passengers, both of which are frustrating to passengers. Routes 30, 19, 106 and 94 experience the lowest on-time performance, which considers only buses which are neither late nor early. Route 19 has been identified previously as having on-time performance issues due to delays experienced along the route, particularly along Sunningdale Road near South Wenige Drive. The 2024 service plan includes the addition of one peak vehicle which will allow for additional time to be added to the route to reduce the lateness. Alternative solutions should be considered for this route to maintain service efficiency and reduce on board delays for passengers.

There is significant delay along Wharncliffe Road which can delay Routes 106 and 94. Routes 93 and 2 seem to have an extra minute in the schedule through this portion of the route at peak which could account for why the on-time performance is slightly better for these routes.

4.7 Operating and Capital Costs

Table 10 below illustrates the ridership, service hours, operating costs and revenue for London Transit conventional services between 2019 and 2023.

Table 10: Performance Indicators for London Transit

Indicators	2019	2020	2021	2022	2023
Annual Ridership	24,599,655	12,680,967	8,266,498	13,366,417	18,413,000
Annual Revenue Vehicle Hours	651,075	595,895	610,693	618,138	682,000
Passenger Revenue	$33,916,538	$21,549,292	$21,659,810	$30,032,402	$37,133,500
Total Operating Cost	$71,018,583	$67,386,572	$72,494,499	$78,739,119	$86,618,888
Ridership per Capita	60.15	30.64	19.74	31.50	41.8
Ridership per Revenue Vehicle Hour	37.78	21.28	13.54	21.62	27.0
Revenue Vehicle Hours per Capita	1.59	1.44	1.46	1.46	1.60
Average Fare	$1.38	$1.70	$2.62	$2.25	$2.02
Revenue to Cost Ratio	48.8%	33.7%	30.9%	38.9%	43%

From the above table, there is a notable reduction in ridership in 2020 as a result of COVID-19, which impacted all transit agencies in Canada. The system began to recover from the pandemic in 2022, which saw a return to higher ridership levels, and restoration of pre-COVID levels of service in 2023. The 2022/23 fiscal year also aligned a change in the methodology used for estimating ridership which aligned with the implementation of new fare technology. For these reasons, while a direct comparison of ridership between 2019 and 2022/23 is not possible, there are several indicators that the network is continuing to provide good value to passengers, and is a valued piece of the City's transportation network.

4.8 Travel Time

A travel time assessment was completed for major origin and destination pairs in the City to identify how long the trip is with London Transit relative to driving. Travel time on transit is generally longer than driving due to walk/roll to access a stop, the number of stops a route makes to pick-up and drop-off passengers, the potential need to transfer between routes, and deviations routes make from the most direct path. Generally, to be competitive, travel times on transit should be less than two times longer than driving.

To understand travel time on London Transit, six common origin-destination pairs were identified and compared for an average weekday peak and Sunday midday service. The results of the analysis are illustrated in Table 11 for the weekday afternoon peak period and in Table 12 for the Sunday midday period. Transit travel time in both tables reflects the sum of access and egress walking time, in-vehicle time, and transfers.

Table 11: Origin Destinations in London (Weekday Afternoon Peak)

Origin to Destination	Average Auto Travel Time (in minutes)	Transit Routes	Transit Headway (in minutes)[3]	Access & Egress Walk & Transfer Time (in minutes)	In-Vehicle Travel Time (in minutes)	Ratio of Transit to Auto Travel Time
London Train Station (Downtown) to Natural Sciences Centre (Western University)	16	106	15	6	26	2.0
Fanshawe College (Oxford Street) to Argyle Mall	6	17	20	6	11	2.8
Richmond at Sunnyside (Masonville) to Victoria Hospital	28	13	15	11	39	1.8
Hillcrest Public School (Ridgeview Heights) to White Oaks Mall	28	10	30	2	50	1.9
Fanshawe College (Oxford Street) to London Airport	7	36	15	3	21	3.7
White Oaks Mall to Wilton Grove Industrial Area	10	30	40	9	9	1.8

[3] Where two routes are taken to complete a trip, the headway shown reflects the headway of the first route.

Table 12: Origin Destinations in London (Sunday Midday)

Origin to Destination	Average Auto Travel Time (in minutes)	Transit Routes	Transit Headway (in minutes)	Access & Egress Walk & Transfer Time (in minutes)	In-Vehicle Transit Travel Time (in minutes)	Ratio of Transit to Auto Travel Time
London Train Station (Downtown) to Natural Sciences Centre (Western University)	16	106	45	6	21	1.7
Fanshawe College (Oxford Street) to Argyle Mall	5	17	30	3	9	2.7
Richmond at Sunnyside (Masonville) to Victoria Hospital	25	10	30	13	36	2.0
Hillcrest Public School (Ridgeview Heights) to White Oaks Mall	25	10	30	2	46	2.0
Fanshawe College (Oxford Street) to London Airport	6	N/A	N/A	52	N/A	8.7
White Oaks Mall to Wilton Grove Industrial Area	8	N/A	N/A	34[4]	N/A	4.3

From the above tables, transit as scheduled is generally competitive compared to driving during peak hours on weekdays, as four out of the six origin-destination pairs have ratios of transit to auto travel time equal to or less than two. The access and egress walk time is reasonable at 11 minutes or below for all these pairs, and passengers can travel between all these pairs on a single route without transfer. This does not however consider the impact of on time performance which can result in missed transfers and significantly longer travel times.

Travel during the midday Sunday generally has ratios of transit to automobile travel equal to or greater than 2. Travelling between Masonville Mall and White Oaks Mall would require a transfer, however the service remains relatively competitive with a ratio of 2.0 to automobile travel times. Importantly, several

[4] Note that there is currently no Sunday service in the Wilton Grove Industrial area, so the walk time is significantly longer.

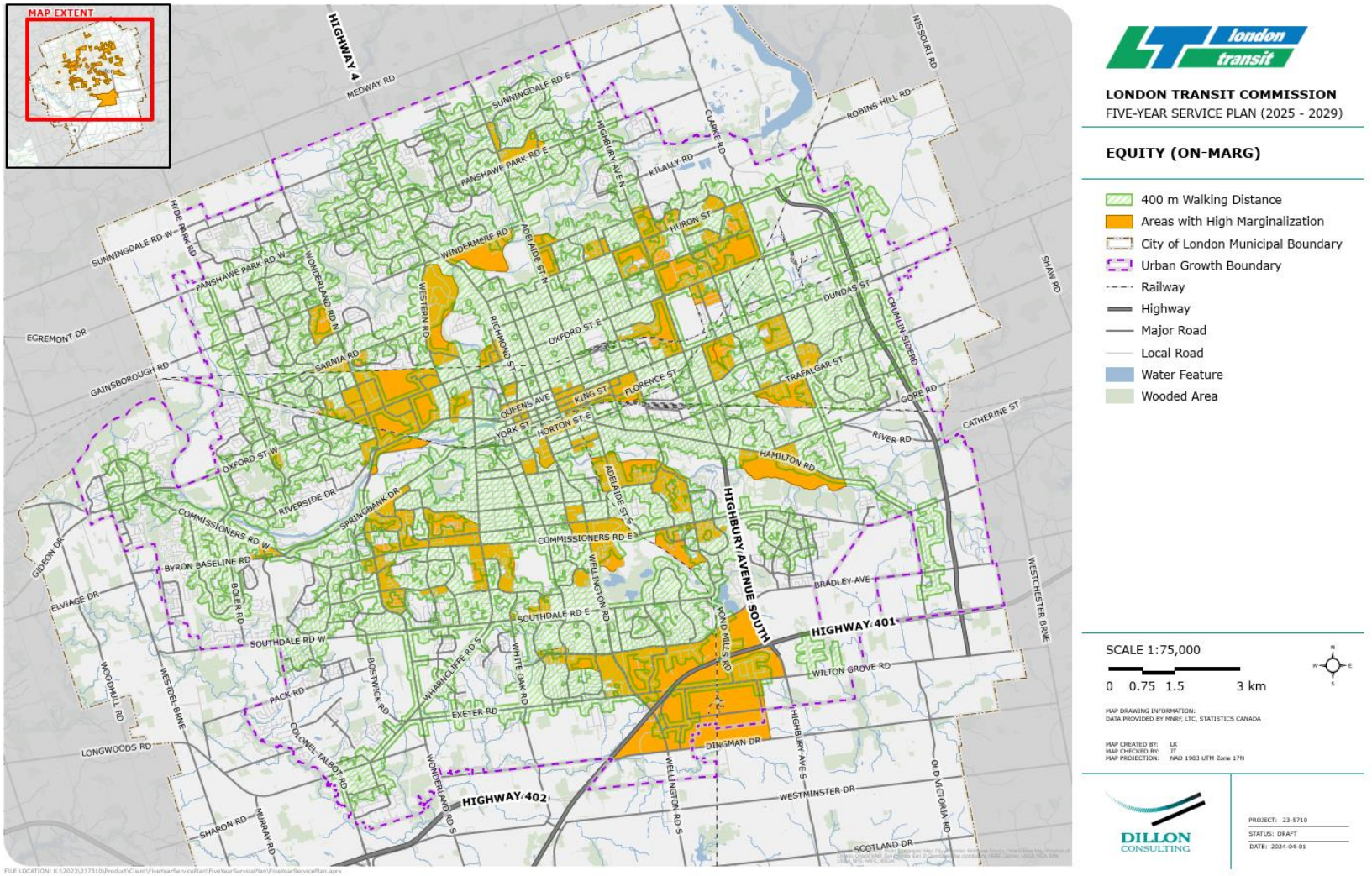
of the trips have no transit options on Sundays. This includes service to the London Airport from Fanshawe College and travel to the Wilton Grove Industrial Area. This leaves lengthy walking times of 52 minutes and 34 minutes respectively to those two destinations on Sundays.

4.9 Equity Index

While transit services all residents of London, it is important to understand how the transit system services neighbourhoods with high marginalization. The Ontario Marginalization Index (ON-Marg) is a standard tool that identifies areas with marginalization across four dimensions (households and dwellings, material resources, age and labour force, and racialized and newcomer populations).

Figure 19 overlays neighbourhoods with high marginalization in London with the existing route network. Based on this assessment, 84% of people living in neighbourhoods with high marginalization are within a 400-metre walk or roll of the existing transit network, slightly lower than the overall network access rate of 88%.

Figure 19: Coverage of High Marginalization Areas Using ON-Marg



4.10 Summary of Improvement Opportunities

The above sections outlined how well the existing service is meeting the service standards as well as other strategic priorities in the city. This is followed up by opportunities for improvement. The purpose of this assessment is to help prioritize service improvements on routes that are experiencing multiple performance-based concerns. This was a key input used in the development of a 2029 service plan, as well as the associated phasing plan.

These identified opportunities can be summarized as follows:

4.10.1 Ensure the Future is Better Aligned with Policy Direction

- Continue to improve access within 400m.
- Provide enhanced service to areas with higher densities/infill within the Transit Service Area and connected to Transit Villages and Corridors.
- Invest in high-quality service to improve mode share to support the City in achieving sustainability and GHG emission reduction goals.
- Continue to focus service on communities of need.
- Consider alternative service delivery where appropriate.

4.10.2 Future Proof the Network for RT & New Growth

- Modify routes to reflect the implementation of RT providing connections into RT corridors.
- Provide service to future growth areas and areas currently not being served.
- Focus on improvements which support the changing travel patterns post pandemic to support recovery of the ridership per revenue vehicle hour where possible.

4.10.3 Address Major Performance Issues & Review Service Standards

- Ensure reference periods (e.g. AM Peak, Early AM) are consistent across all service standards and route types.
- Improve on time performance particularly on Routes 30, 19, 106, 94 and 91. While some improvements are expected through the 2024 service plan, changes and reduction in construction, changes should be considered along Wharncliffe Road.
- Adjust routes travelling adjacent to Western University to support the high ridership. Route 102 in general does not exceed productivity thresholds but has high overloads in this section of the route and therefore the route may warrant different service models in different sections of the route.
- Reduce the travel time discrepancy between car and transit.

- In addition, the following table outlines routes which are currently not meeting the service standards during each period, these variances should be considered though the service plan. The high number of routes exceeding productivity triggers, while not experiencing overloads, suggests that there is an opportunity to consider realigning the service standards as well.

Table 13: Summary of Route Performance Weekday

Route	Service Span Below Standard	Headway Below Service Standard in at Least One Period	Does Not Meet Minimum Productivity Target in at Least One Period	Over Productivity Trigger in at Least One Period	High Number of Overloads Reported
1					
2A			X		X
2B			X		X
3		X		X	
4A		X		X	
4B		X		X	
5			X	X	
6		X		X	
7				X	
9				X	
10			X	X	X
12			X	X	
13	X	X	X		
13A		X	X	X	
15A		X		X	
15B	X	X		X	
16			X		
17A		X		X	X
17B	X	X	X	X	X
19		X	X	X	
20				X	
24	X				
25	X			X	
27	X	X		X	
28	X	X	X		
31	X	X		X	
33	X			X	
34		X	X		
35	X			X	
38	X	X	X	X	
90	N/A	N/A		X	
91	N/A	N/A		X	
92	N/A	N/A	X		
93	N/A	N/A	X	X	
94	N/A	N/A	X		
95	N/A	N/A	X		
102	X		X		
104	X	X	X		
106	X	X	X		

Table 14: Summary of Route Performance Saturday

Route	Service Span Below Standard	Headway Below Service Standard in at Least One Period	Does Not Meet Minimum Productivity Target in at Least One Period	Over Productivity Trigger in at Least One Period	High Number of Overloads Reported
1				X	
2A					
2B					
3		X		X	
4A		X		X	
4B		X		X	
5		X		X	
6					
7					
9				X	
10		X		X	X
12		X	X	X	
13		X			
13A		X			
15A		X		X	
15B		X		X	
16				X	
17A					X
17B	X				
19	X				
20				X	
24	X	X	X		
25				X	
27	X			X	
28	X				
31	X			X	
33	X				
34		X	X		
35	X			X	
38	X				
90	N/A	N/A	X		
91	N/A	N/A	X	X	
92	N/A	N/A			
93	N/A	N/A	X	X	
94	N/A	N/A			
95	N/A	N/A			
102	X	X		X	
104	X		X		
106	X	X			

Table 15: Summary of Route Performance Sunday

Route	Service Span Below Standard	Headway Below Service Standard in at Least One Period	Does Not Meet Minimum Productivity Target in at Least One Period	Over Productivity Trigger in at Least One Period	High Number of Overloads Reported
1	X			X	
2A		X		X	
2B		X		X	
3	X			X	
4A		X		X	
4B		X		X	
5	X				
6	X		X		
7	X			X	
9				X	
10		X		X	X
12	X				
13	X	X		X	
13A		X		X	
15A				X	
15B				X	
16		X		X	
17A		X		X	
17B	X				
19	X			X	
20				X	
24	X				
25	X			X	
27	X			X	
28	X				
31	X			X	
33	X				
34	X		X		
35	X			X	
38	X				
90	N/A	N/A		X	
91	N/A	N/A			
92	N/A	N/A			
93	N/A	N/A		X	
94	N/A	N/A			
95	N/A	N/A			
102	X	X		X	
104	X				
106	X	X		X	

5.0 Recommended 2029 Network

The review conducted above was used to develop a recommended 2029 service plan, which will be phased in over the five-year period from 2025-2029. The service plan builds on the existing 2024 network, with a focus on addressing existing operational concerns, building towards the new RT corridors, identifying areas of ridership growth, and adding service in areas experiencing population and employment growth.

It should be noted that due to limited resources, difficult choices needed to be made in terms of how service hours are invested over the life of the plan. This means that not all of the performance concerns or future improvement opportunities are able to be completed within this five-year plan. Additional opportunities for improvement that were not included in the five year horizon of this plan are identified at a high level in **Section 7.3.**

5.1 Route Classifications

This plan includes a new way to classify routes. Transit routes are classified by purpose, and level of service, and are a helpful tool to improve understanding of the role that each route plays in the broader transit network. Changes to LTC's existing route classifications are intended to provide clarity on how the network will change with the roll out of RT, and to provide more clarity to passengers on the level of service they can expect on individual routes.

As noted above, the primary purpose of the reclassification of routes is to prepare for the launch of RT service, are in keeping with best practice and align with the approach taken with many of LTC's peer agencies. The new route classifications are described below. All other route classifications (industrial,[5] community bus, and express[6]) will maintain the same.

5.1.1 Rapid Transit Routes

In London, Rapid Transit will be a bus-based system that mirrors many of the features of a rail system with the flexibility and cost savings associated with using over the road vehicles. London's RT network will include two routes, and will provide the highest levels of service frequency, acting as the spine of London's transit network. The design of these routes have already been determined, and were not analyzed as part of this study, but it's important to acknowledge the key role they will play in the broader transit network.

[5] Routes 30, 36, and 37
[6] Industrial Routes include routes 90 - 95

5.1.2 Core Routes

The purpose of core routes is to provide consistent, frequent, service on high demand corridors, connecting residential areas with major destinations like shopping, employment, schools, and services. What differentiates core routes from other route types is the sustained demand for transit over the course of the day, often late into the evenings, and on weekends. These routes are well positioned to support increased residential density along the corridors which will, in turn, support increases in potential ridership generated by adjacent land uses.

Core routes do not follow the same corridors as the RT, but travel primarily on arterial corridors, and provide a direct trip for passengers, ideally with very few deviations. They provide a high level of service in areas of the city where RT is not provided, but where passenger demand is high.

An existing route was considered for classification as a core route if:

- Ridership is sustained over the course of the day, week, and year;
- Ridership demand is bidirectional all day;
- The route serves a different purpose or is sufficiently separated from RT or other core routes; and
- Adjacent land use is supportive of frequent, all day transit service.

In the 2029 LTC network, core routes will include Routes 5, 10, 16, 17, 19, 24, 25, 26, 27, 102, 106, and 127.

5.1.3 Local Routes

The purpose of local routes is to connect neighbourhoods and communities to one another, to higher frequency routes like core routes or RT, and to supplement transit service on corridors which are served by RT.

Local routes provide a coverage-oriented service, ensuring access to transit for London residents, even when demand is lower. As such, they generally operate at a lower frequency than core routes.

In the 2029 LTC network, local routes will include Routes 1, 2, 3, 4, 6, 7, 8, 9, 12, 13, 15, 20, 22, 23, 31, 32, 33, 34, 35, 39, and 40.

5.1.4 Feeder Routes

Core routes and select local routes were identified as “feeders” into the RT network. Feeder routes are core or local routes that do not duplicate or compete with RT service and are oriented to connect residential and employment areas to the RT network. Under the plan, only Route 23 is identified as a local feeder route, in addition to the core routes. As ridership patterns change after RT service begins, LTC may consider reorienting other local services to better connect to the RT network. Feeder routes are intended to operate at most at twice the headway of the connecting RT route in the long term.

5.1.5 Alternative Service Delivery Zones

In some areas of the city, conventional transit service (i.e., a fixed route and predetermined schedule) will not be the most efficient or effective way to meet demand for transit service. In these locations, Alternative Service Delivery (ASD) zones have been proposed, as an opportunity to introduce new service or replace underperforming routes with a service that operates on-demand. In this model, a passenger would request a pickup at a predetermined stop and time, and the on-demand service would connect passengers to key transfer points to connect to fixed-route transit and nearby major destinations. In the 2029 network, ASD zones will include 201 (Innovation Park) and 202 (Lambeth).

5.1.6 Revised Service Standards

In addition to updating route classifications, service standards were also updated. **Table 16** identifies the proposed service standards for RT, feeder routes, local routes, and core routes before the RT is ready. While the ultimate goal is to meet feeder frequencies on all core routes and select local routes, this would be challenging to complete fully in the five-year plan. A separate service standard is therefore proposed for core routes, which applies before the start of RT service and as the primary milestone to achieve in the medium term for core service. Industrial, community bus, and express service do not have updated service standards, as they operate using service spans and frequencies that align with the specific needs of their service areas and functions.

Table 16: Revised Service Standards

Period	RT	Feeder	Core	Local
Weekday-Early AM	10	30	30	30
Weekday-AM Peak	5 or 10	10 or 20	20	30
Weekday-Base	10	20	30	30
Weekday-PM Peak	5 or 10	10 or 20	20	30
Weekday-Early Evening	10	20	30	30
Weekday-Late Evening	10	30	30	30
Saturday-Early AM	10	30	30	30
Saturday-Base	10	20	30	30
Saturday-Peak	10	20	30	30
Saturday-Early Evening	10	20	30	30
Saturday-Late Evening	10	30	30	30
Sunday-Early AM	10	30	30	30
Sunday-Base AM	10	20	30	30
Sunday-Peak	10	20	30	30
Sunday-Evening	10	30	30	30

5.2 Network Changes

Nearly all routes across the LTC network will be impacted by the changes outlined in this plan, but there are several geographic areas of the city which will see considerable structural changes to the way in which transit is delivered. These changes and more are summarized in below.

5.2.1 Argyle and Hamilton Road

5.2.1.1 Service, Issues, and Opportunities

While the existing services are well used, the important connection between the Oxford Street corridor and Argyle Mall, currently served by Route 17, would benefit from an extra layer of express service to enable cross-city connections.

Route 91 is an existing express route which provides fast and reliable service on the Oxford Street corridor between Wonderland Road and Fanshawe College. An extension of Route 91 to Argyle Mall is proposed to improve connectivity, which would also introduce transit service to Second Street. This route would need to cross two additional rail corridors, which has the potential to add scheduling delays, but this risk is balanced out by the increased access to transit service.

Presently, both Routes 3 and 5 serve the Hamilton Road corridor between Downtown and Argyle Mall. In order to improve travel times and directness, service routings between Highbury Avenue and Clarke Road will be switched between the two routes. This would allow for Route 5 to be maintained as the direct east-west connection, whereas Route 3 would maintain the local routing within the Fairmont neighbourhood. For further discussion on changes proposed for Route 5, please see the **Byron and Westmount** section.

5.2.1.2 Recommendation

- Change Route 3 to travel into the Fairmont neighbourhood, via Hale Street, Tweedsmuir Avenue, Manitoulin Drive, Montebello Drive and Gore Road.
- Adjust Route 5 to remain on Hamilton Road between Clarke Road and Highbury Avenue.
- Extend Route 91 to Argyle Mall along Second Street and Dundas Street.

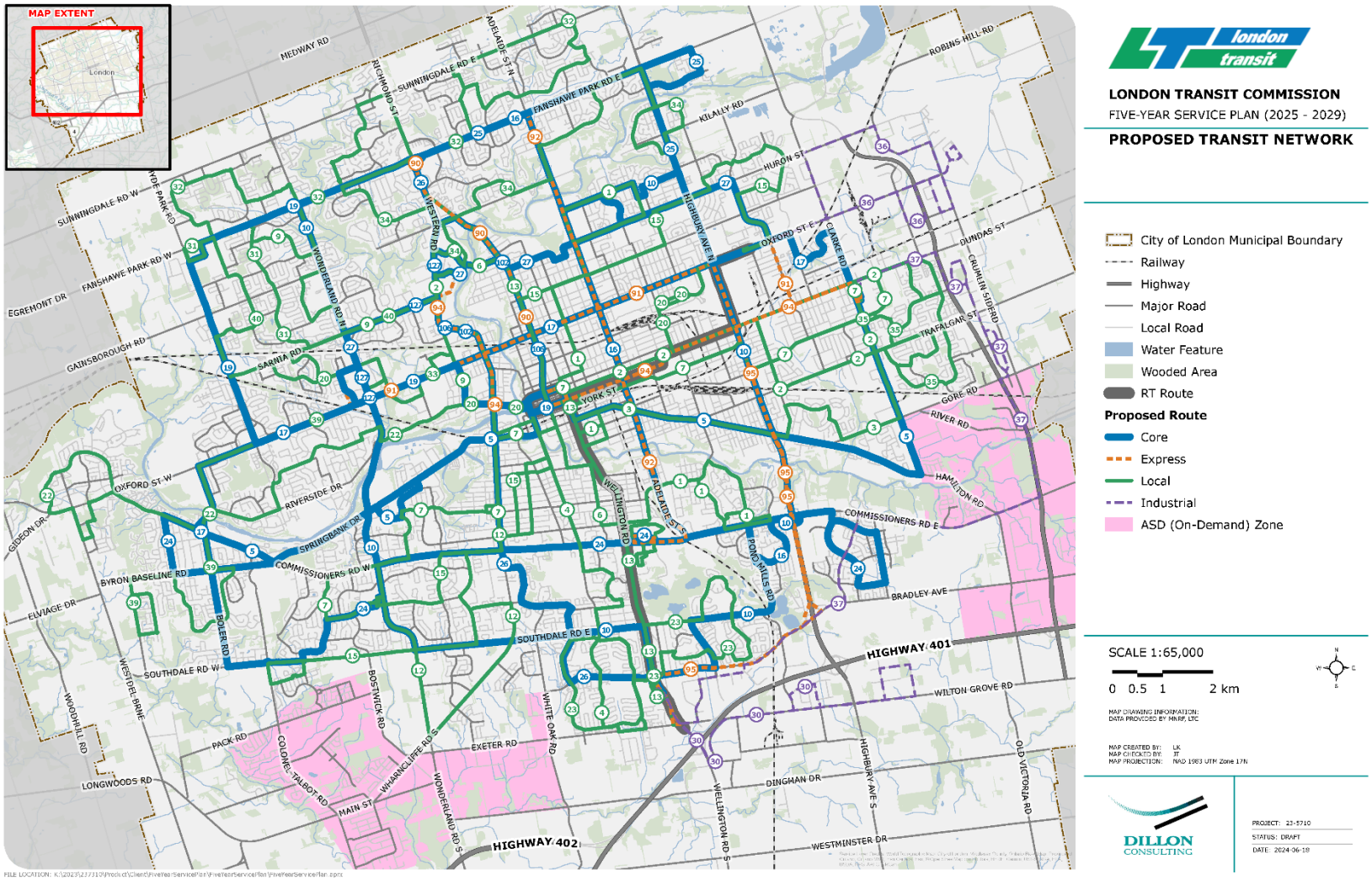


Figure 20: 2029 LTC Network

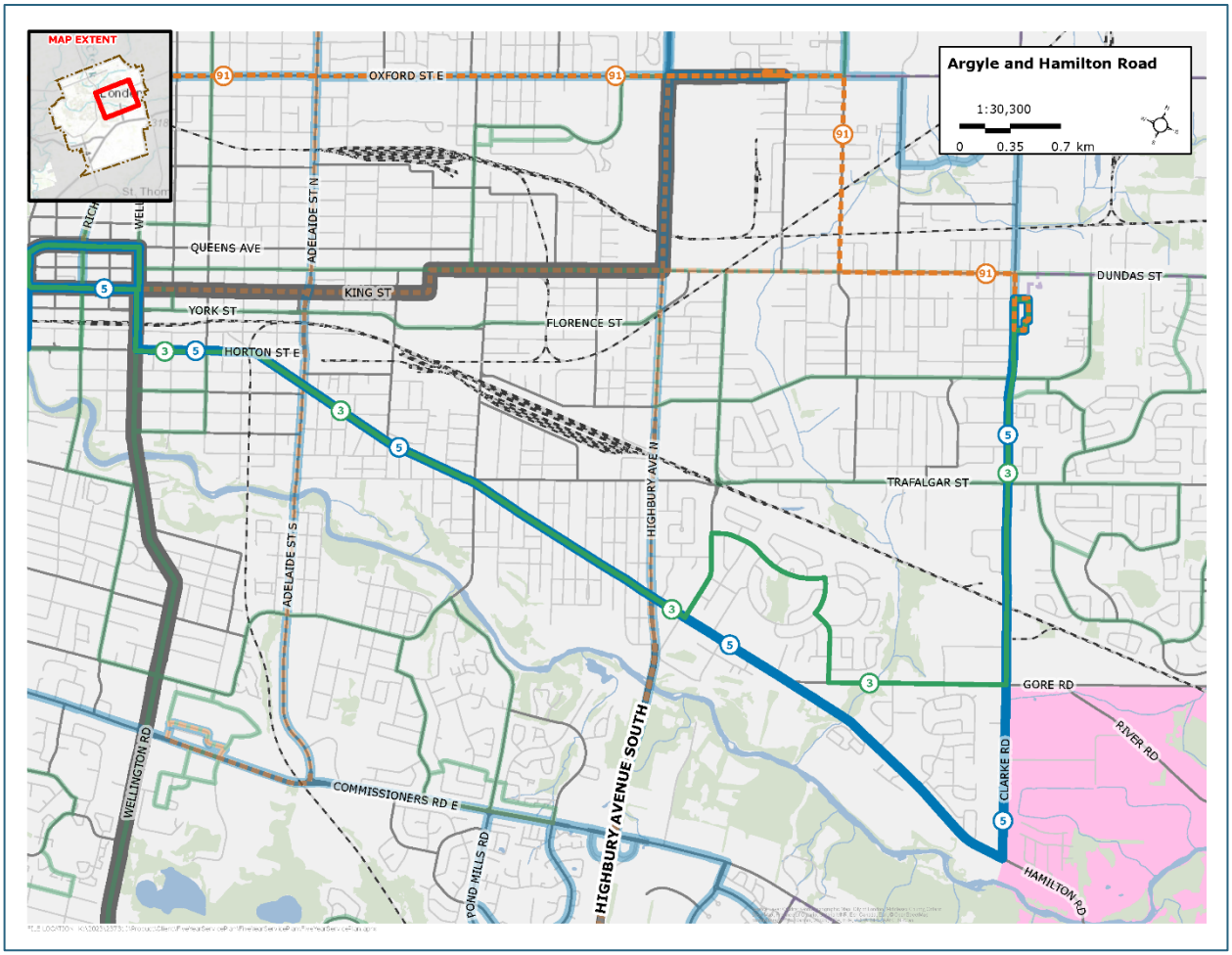


Figure 21: Proposed Service in Argyle and Hamilton Road

5.2.2 Byron and Westmount

5.2.2.1 Service, Issues, and Opportunities

The Byron and Westmount neighbourhoods are experiencing growth, and there is demand for more east-west connections needed to better connect these communities to other parts of the city, without first travelling downtown. Due to the layout and road networks of these communities, efficient route expansion is challenging. There is an opportunity to introduce a transit hub at the intersection of Boler Road at Commissioners Road to facilitate transfers amongst local routes and core routes within the Byron area, improving the efficiency of the network and reducing redundancy.

With the introduction of the hub, a number of changes to the network could take place to facilitate network improvements. Route 5 would be adjusted to end at Boler Road, with former Route 5 routing being provided other routes. An extension of Route 24 from Westmount into Byron will result in better eastward connections and more trip options for customers.

An extension of Route 24 along Commissioners Road was considered for maintaining directness, but road geometry at Snake Hill prevents a routing through this part of Commissioners Road, so an approach through Southdale Road and Boler Road was considered instead.

The west end of Route 17 is proposed to terminate at Byron and Commissioners, with customers able to transfer to local routes from this point. Existing branches of Route 17 would be removed, with their service areas replaced by other routes. The routing along Oxford Road will be preserved, improving east-west connectivity.

Complementing the proposed core routes, the local network of bus routes in Byron would be expanded to bring service to new parts of this community. This includes new Route 22, servicing the River Bend area and providing a new connection to downtown. Route 22 would operate along the former Route 19 routing to downtown, allowing for Route 19 to operate more directly along Oxford, improving service reliability. Route 39 would be introduced to serve areas that were previously served by Route 5 and would provide a key connection to St. Thomas Aquinas Catholic Secondary School.

In Westmount, the proposed extension of Route 24 would mean the removal of service in the north part of Talbot Village. This area will instead be served by Route 15, providing more direct service to the areas south of the Westmount Mall. Route 7 will be adjusted to run along the former 15B branch of Route 15. Further changes to Routes 15 and 24 are respectively described in the **East London Link** and **Summerside** sections.

5.2.2.2 Recommendation

- Terminate Route 17 at Boler Road and Commissioners Road, looping via Halls Mill Road.
- Realign Route 5 to terminate at Boler Road, looping via Commissioners Road, Boler Road and Byron Baseline Road.
- Realign Route 19 to travel via Oxford Road between Woodward Avenue and Hyde Park Road.
- Introduce new Route 22 between River Bend and Downtown, travel along the former 17B branch via Riverside Drive and the former Route 19 service along Valetta Street.
- Extend Route 24 to Byron via Southdale Road, Boler Road, Commissioners Road, Griffith Street and Byron Baseline Road.
- Introduce new Route 39 to travel between Oxford Road at Wonderland Road and the neighbourhoods on Wickerson Road. Service would travel via Griffith Street south of Byron Baseline Road, looping via Tibet Butler Boulevard and Ironwood Road.
- Extend Route 7 to loop via Viscount Road, Cranbrook Road and Commissioners Road.
- Extend Route 15 to Talbot Village via Wonderland Road and Southdale Road. Service would loop in Talbot Village via Tillmann Road and Raleigh Boulevard.

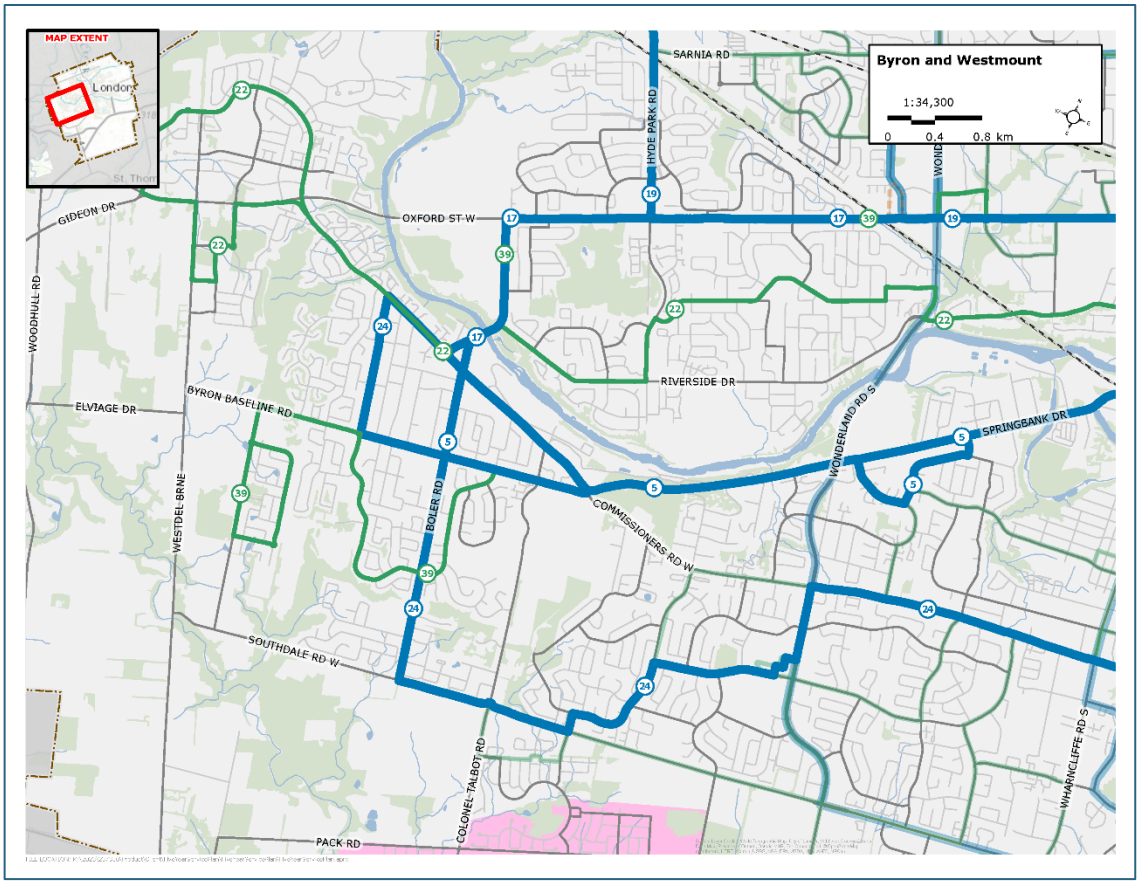


Figure 22: Proposed Service Changes in Byron and Westmount

5.2.3 East London Link RT

5.2.3.1 Description of Service and Issues

In 2028, the East London Link RT project is expected to be completed. The primary goal of changes in this area is to efficiently preserve and expand service along this corridor while improving local connections to the planned RT.

Routes serving Fanshawe College would be consolidated to remove duplication of services and simplify travel between downtown and Fanshawe College. Route 104 would be removed and the northern end of Route 4 would be shortened to the Downtown Loop, with service between downtown and Fanshawe College provided by the East London Link RT. Service south of downtown along Route 4 would remain.

All other routes that service Fanshawe College would be adjusted to directly serve the future RT terminal at the south end of the campus. This change will simplify routings and stops for riders travelling to and from the college. Furthermore, Route 15 would be adjusted to operate two-way service in the Huron Heights area, with new connections to downtown and the south end of the city.

5.2.3.2 Recommendation

- Shorten Route 4 to terminate at the Downtown Loop.
- Remove Route 104 to eliminate duplication of service between Fanshawe College and downtown London.
- Terminate all bus routes serving Fanshawe College at the future RT station on Oxford Street to facilitate transfers.
- Extend Route 15 to terminate at the future Fanshawe College RT station, providing two-way service in Huron Heights via Webster Street, Bentley Drive, Sandford Street, Chippewa Drive, Oakville Avenue, Huron Street, Sorrel Road, Beckworth Avenue, Sandford Street and Oxford Street.

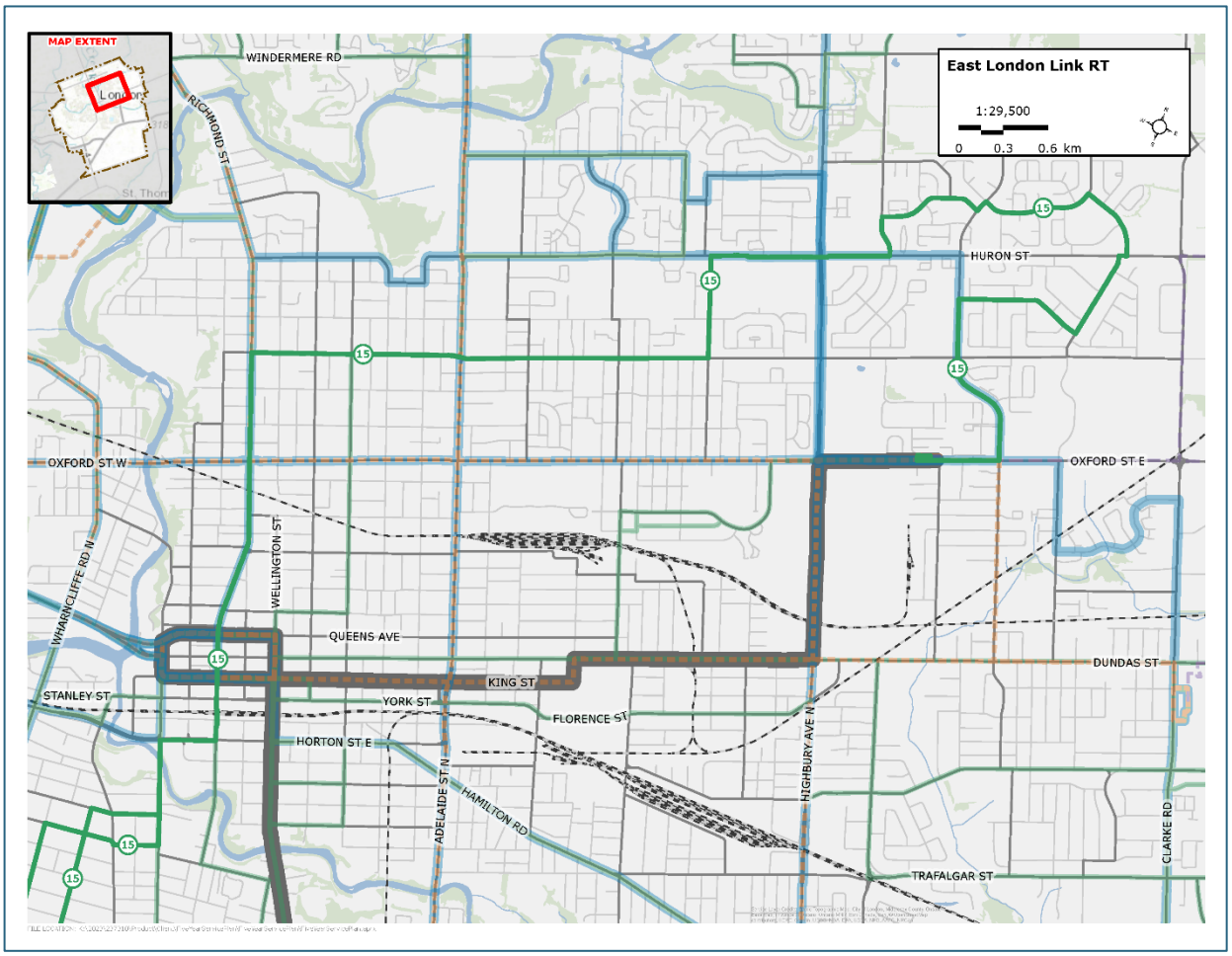


Figure 23: Proposed Service Changes near East London Link RT

5.2.4 Innovation Park and Summerside

The Summerside neighbourhood is currently serviced as the terminus of Route 24.

5.2.4.1 Service, Issues, and Opportunities

In recent years, routing changes within the Innovation Park area have been introduced in order to better expand coverage to this important employment hub. The proposed changes to this area will simplify the design of the network in order to better serve customer's needs. The Summerside neighbourhood has also expanded southward, westward, and eastward, filling in toward the Urban Growth Boundary. Route 24 currently operates in a one-way loop in the older (north-central) part of the neighbourhood. No service is currently provided in the newer areas of the neighbourhood, and many of these roads will not be assumed by the City until near the end of the service plan period.

Route 37 currently stops in the industrial park south of the airport. An extension to White Oaks Mall would provide this route with additional functions to connect White Oaks Mall, Argyle Mall, the industrial areas, and the developing neighbourhoods along Commissioners Road in the east end. With Route 37 taking the northern routing of Route 30, Route 30 is proposed to be adjusted to provide coverage south of Highway 401, maintaining a more direct connection between the Wilton Grove Industrial Area and the White Oaks Mall transfer hub. These direct routings to employment areas will be further complemented by the addition of an ASD in this area. Route 38 would also be replaced by ASD, since the combination of ASD and Route 5 would duplicate what Route 38 previously offered.

The Route 37 extension represents an opportunity to further expand service in the Summerside community, with new peak-hour connections to employment areas and the rest of the network via White Oaks Mall. In the short-term, Jackson Road and Bradley Road would be viable corridors for this service. Once other neighbourhood roads are assumed by the City and available for transit service, the terminal loop on Route 24 could be extended to Jackson Road and Evans Boulevard to improve coverage. At the same time, Route 37 could be shifted westward to travel on Chelton Road, bisecting the new larger Route 24 loop, to providing direct connections to White Oaks Mall and Argyle Mall through the industrial areas.

5.2.4.2 Recommendation

- Adjust Route 30 to operate between White Oaks Mall and Cheese Factory Road, serving Wilton Grove Road.
- Extend Route 37 to White Oaks Mall via Commissioners, Jackson Road, and Bradley Road in the short term.
- Redirect Route 37 via Commissioners, Chelton Road, and Bradley Road after the City assumes the new roads in Summerside.
- Extend the Route 24 terminal loop to travel along Reardon Boulevard, Jackson Road, Evans Boulevard, and Meadowgate Boulevard after the City assumes the new roads in Summerside.
- Remove Route 38 and replace service with larger ASD zone.

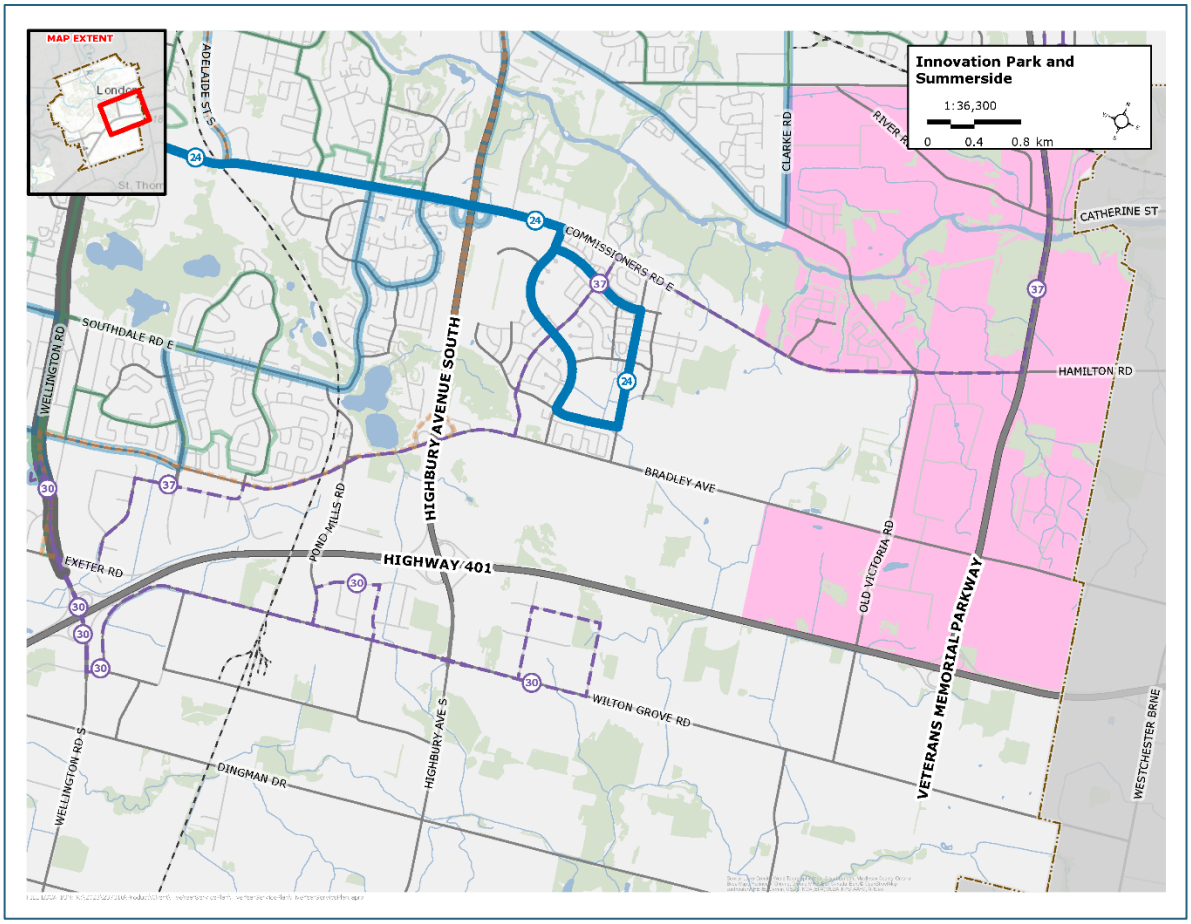


Figure 24: Proposed Service Changes in Innovation Park and Summerside

5.2.5 Lambeth

5.2.5.1 Service, Issues, and Opportunities

Route 28 has consistently had difficulty in attracting ridership, despite changes to the route. In order to better align demand with the level of service, Route 28 will be replaced with an ASD, with an on-demand travel zone covering most of Lambeth and Talbot Village. This would expand service to new areas, improving local and city-wide connections for of these communities residents. Trips could be made within the ASD zone, and passengers could also connect to other LTC services at White Oaks Mall and Westmount Shopping Centre.

5.2.5.2 Recommendation

- Replace Route 28 with larger ASD zone.

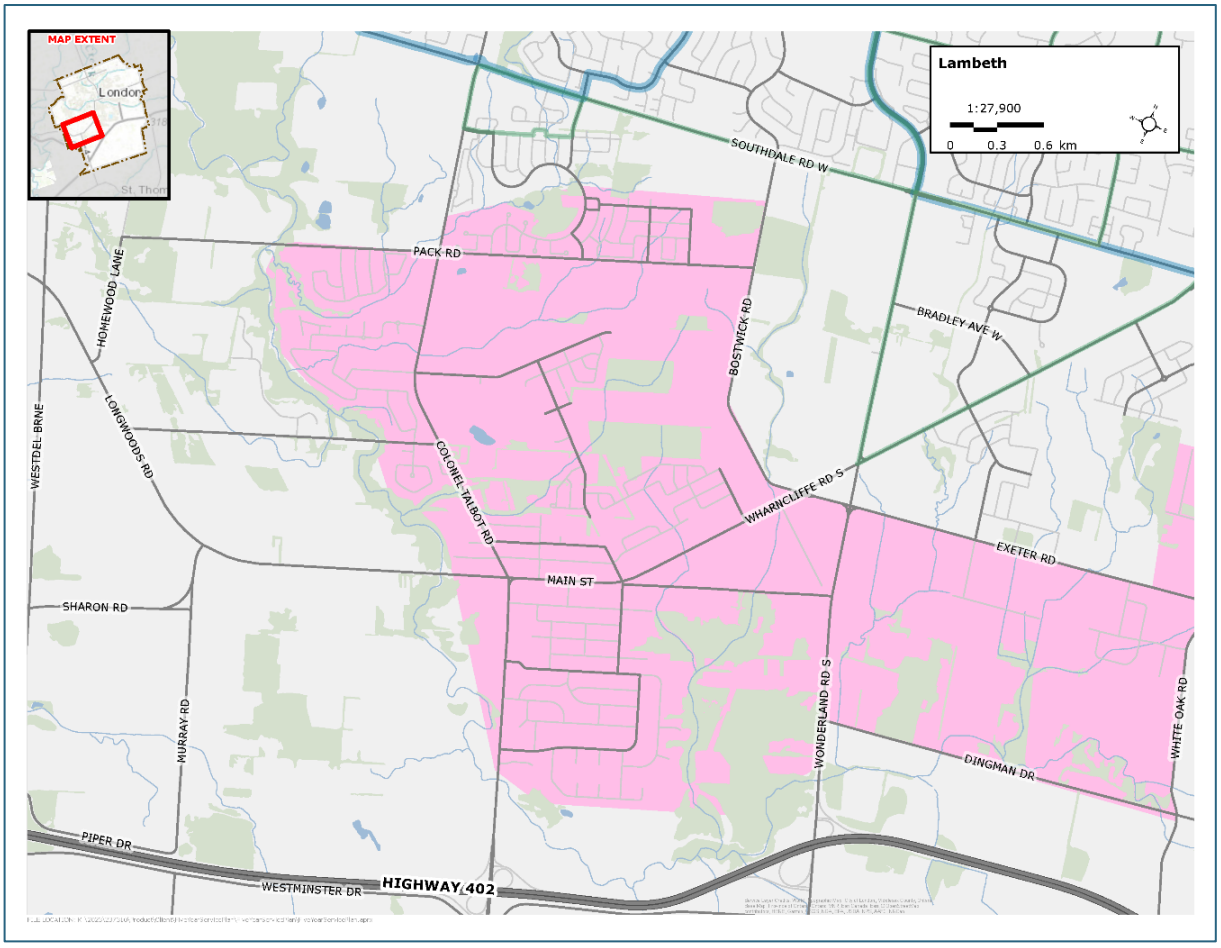


Figure 25: Proposed Service Changes in Lambeth

5.2.6 North London

5.2.6.1 Service, Issues, and Opportunities

Route 19 has had reliability issues due in part to its design, particularly due to the length of the route and deviations into neighbourhoods. This operation and other routing adjustments are proposed in order to improve reliability and route directness.

Service east of Masonville Mall would be operated by the new Route 32, with local service along Valetta Street being operated by Route 22 (see **Byron and Westmount** section for more information).

To improve service in the new Cedar Hollow community, Route 25 would be modified. This route currently performs well, largely thanks to its direct routing. Feedback was expressed by Cedar Hollow residents for a direct connection to Fanshawe College, and so a branched service is proposed with some buses continuing along the present routing and some buses entering into the neighbourhood.

Route 34 would be adjusted so as not to overlap with other proposed services, providing a local route between Highbury Avenue and Fanshawe Park Road, and Masonville Mall via Western University. Route 32 would take over the north end of the current Route 34, providing new services in Fox Hollow, with connections to important destinations including Walmart, No Frills and the rest of the LTC network at Masonville Mall.

5.2.6.2 Recommendations

- Realign Route 19 from Valetta Street to Oxford Avenue.
- Split the portion of Route 19 east of Masonville Mall into new Route 32 with routing along Grenfell Drive to service parts of existing Route 34.
- Extend Route 32 to Walmart at Fanshawe Park Road and Hyde Park Road through existing Route 34 routing north of Fanshawe Park Road and new routing in Fox Hollow along Buroak Drive and Medway Park Drive.
- Add branch to Route 25 to service Cedar Hollow along Fanshawe Park Road, Cedarhollow Boulevard, and Killarney Road to increase local connections to Fanshawe College.
- Remove parts of Route 34 north of Fanshawe Park Road, terminating the west end at Masonville Mall.

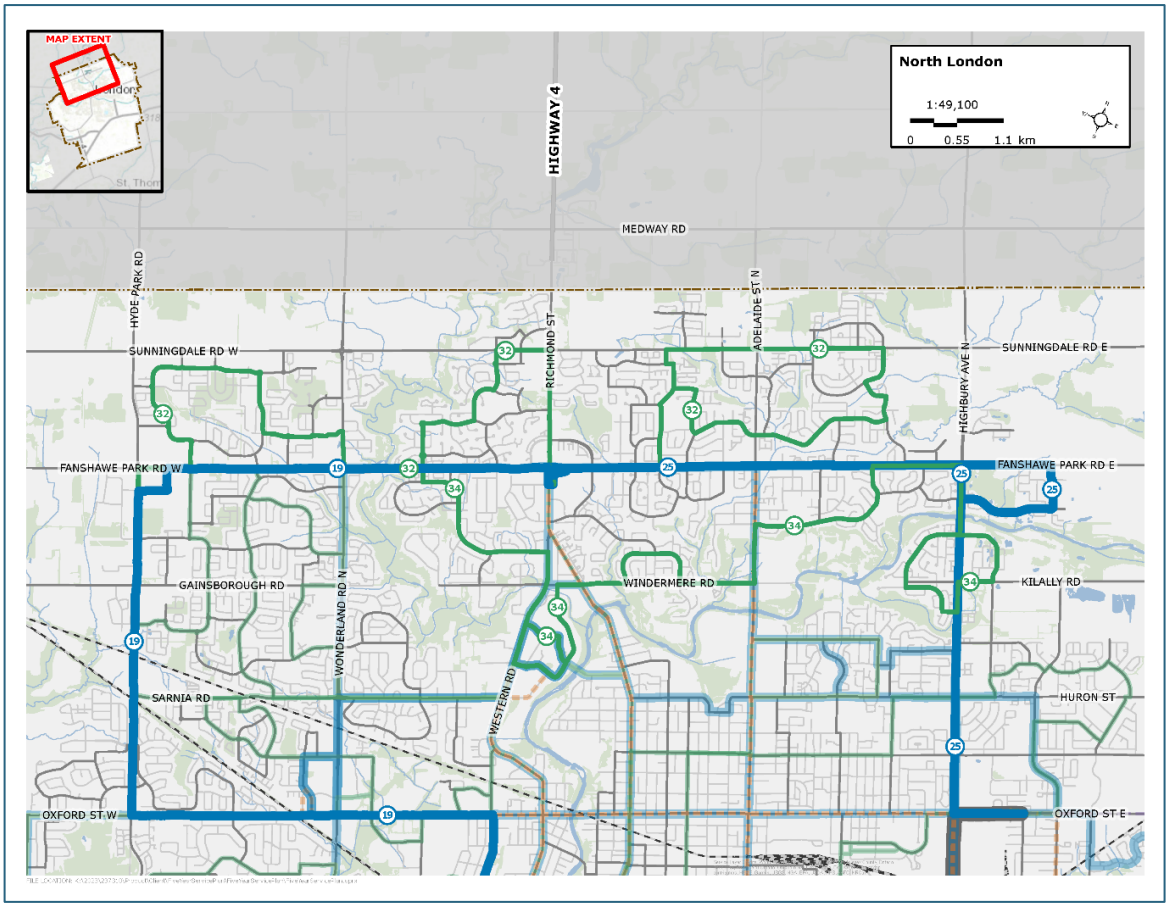


Figure 26: Proposed Service Changes in North London

5.2.7 Wellington Gateway RT (South)

5.2.7.1 Service, Issues, and Opportunities

Expected to be completed in 2029, the Wellington Gateway RT will result in route adjustments to better serve the improved corridor. Services in this area will be changed to improve local connections and create a more robust area network to complement the wider system.

Route 13 currently operates along the planned RT alignment and is proposed to be straightened to serve as a local version of the RT service. More frequent stops would be provided by Route 13 in order to maintain accessibility and coverage.

The existing Route 93 is an express route that operates between White Oaks Mall and Masonville Mall; however, there is no base service provided along this route's alignment in Cleardale and along Jalna Boulevard. To improve local service in this area, this will be replaced by a new Route 26. This will connect to RT and the wider LTC network at White Oaks Mall.

The new Route 23 will provide service in areas covered previously by the Route 93 and Route 13A.

Route 90 will no longer operate south of Downtown as the service will be replaced by the RT.

5.2.7.2 Recommendation

- Adjust routes to most efficiently serve the future Wellington Gateway RT, with duplicate services removed.
- Route 13 shall become the local variant of the RT service, with more frequent stops to maintain accessibility to residents and businesses. 13A branch should be replaced by new proposed Route 23.
- Route 93 would be replaced by new Route 26, which would travel between Masonville Mall and White Oaks Mall via Wharncliffe Road, Highview Avenue, Ferndale Avenue, Dundalk Drive, Jalna Boulevard and Bradley Avenue.
- New Route 23 should provide a local feeder service to the RT at White Oaks Mall, travelling along local roads both east and west of Wellington Road, replacing portions of Routes 93 and 13A.
- Route 90 would be truncated to end Downtown, as service south along Wellington Road will be provided by RT service.

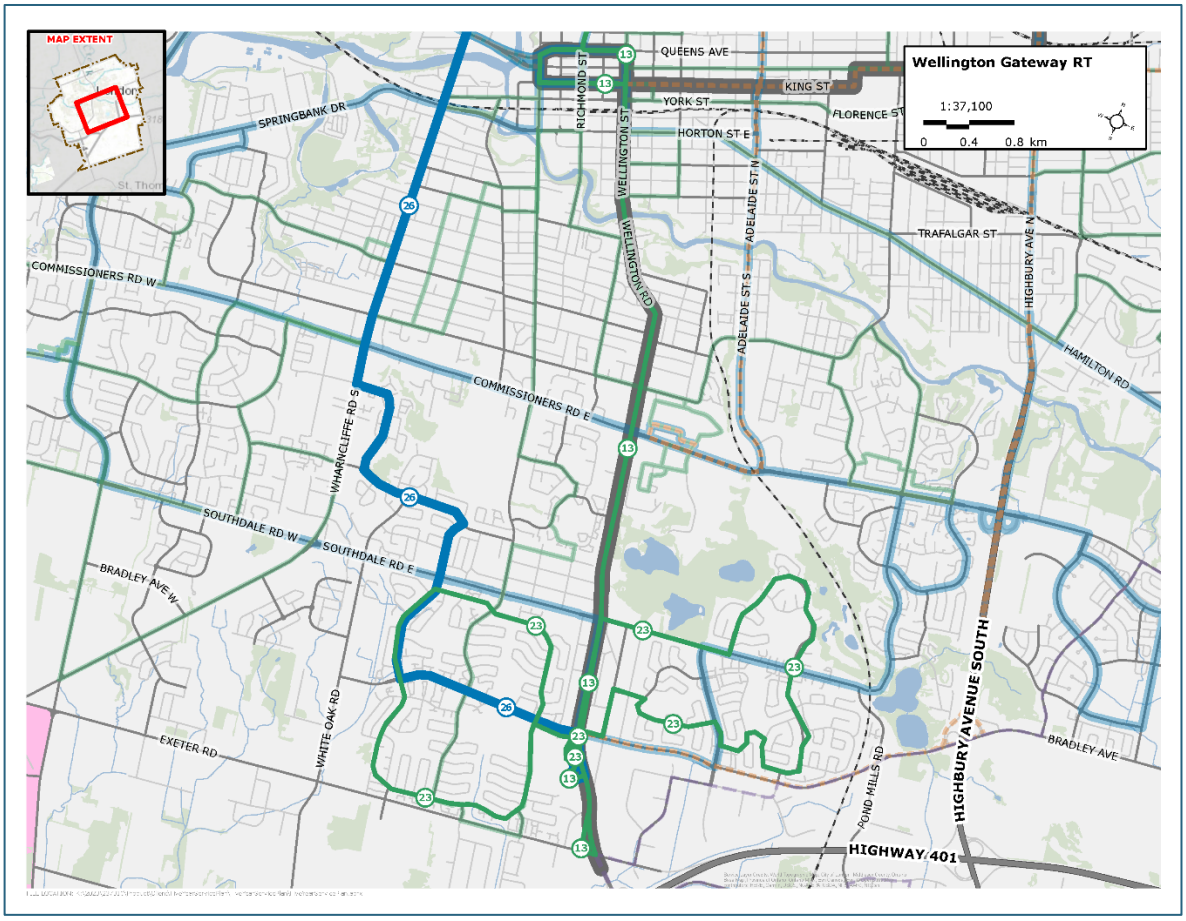


Figure 27: Proposed Service Changes near Wellington Gateway RT

5.2.8 West London

5.2.8.1 Service, Issues, and Opportunities

Presently, the majority of service in West London is provided by local, circuitous routes. Structural changes to the network in this part of the city will work to improve connectivity and enhance coverage of the network.

It is proposed for Route 10 to become a primary corridor service in this area via Wonderland Road. This would improve connections to the rest of the network, reduce walking distances to bus stops and provide more reliable service in this area.

Route 40 would be introduced in order to maintain connections between Wonderland Road and Western University along Sarnia Road. Furthermore, Route 40 would expand service in the Hyde Park Road area.

Route 27 should be monitored for frequency improvements, as future ridership levels associated with RT implementation may warrant such a change. A short-turn of Route 27 would cover the frequency losses due to the change in Route 10, enabling good connections to Masonville Mall, north Wonderland, and Western University from the Oxford and Wonderland Transit Village.

Improved connections to core routes like Route 19 would result in improved travel options for individuals in this area, and new service coverage will mean better access to employment and recreational activities.

5.2.8.2 Recommendation

- Modify Route 10 to continue north along Wonderland Road to Fanshawe Park Road and terminate at Masonville Mall.
- Introduce new Route 40 between West London and Western University. Service would operate via Sarnia Road, Hyde Park Road, and Coronation Drive to Hyde Park Power Centre.
- Ridership of Route 27 should be monitored for frequency improvements.
- Introduce a short-turn of Route 27 (Route 127) during the fall-winter schedule to accommodate additional transfers from Oxford and Wonderland to Western University.

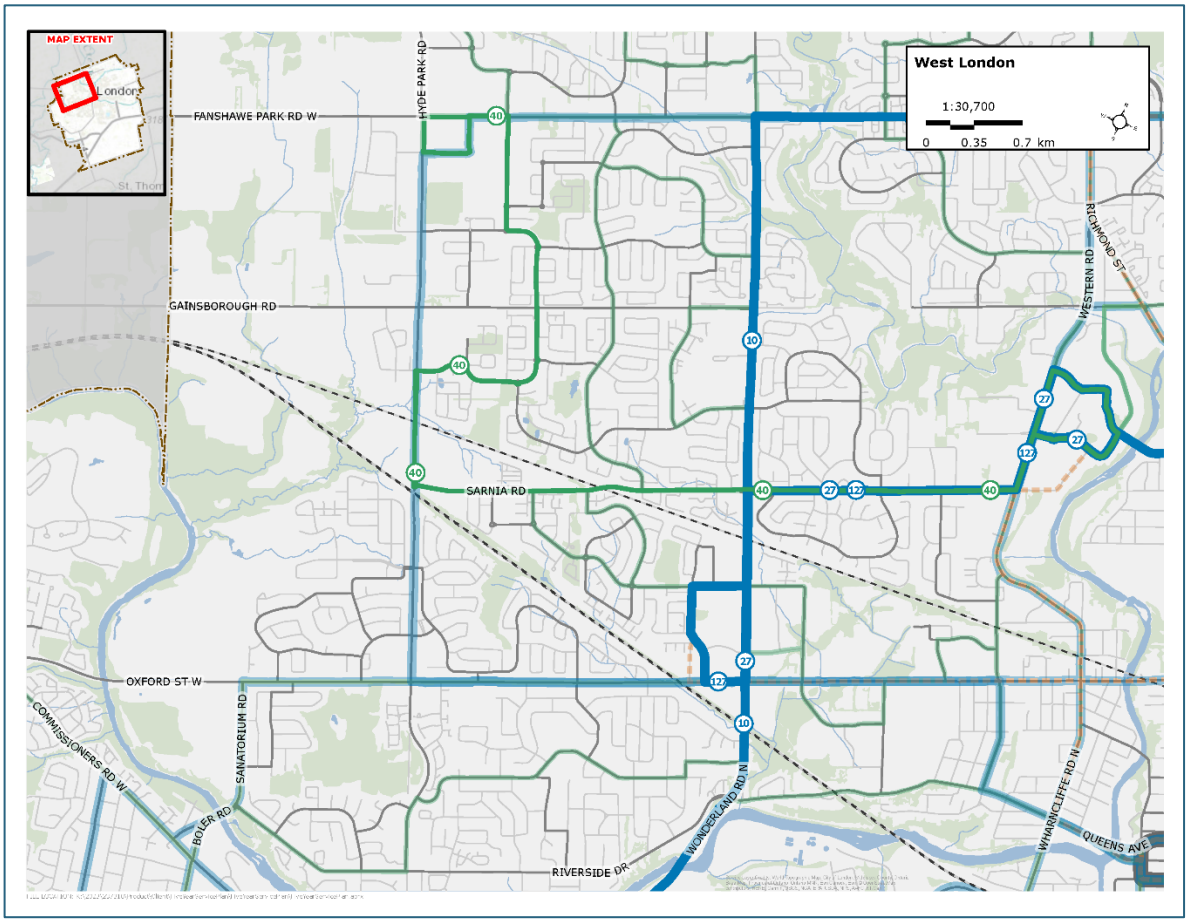


Figure 28: Proposed Service Changes in West London

5.3 Frequency and Service Hour Changes

In addition to the structural changes to the transit network, there are a number of recommended changes to the span of service and frequency of a number of routes across the network. For the purposes of this plan, proposed changes to either the span of service or the frequency of its operation fall into one of the following categories:

1. Changes to align with Service Standards: Changes to meet the minimum service standards for length of service day, or service frequency; or
2. Demand Based Frequency Change: A change made to the service frequency to address passenger overloads, and where the productivity trigger was exceeded, thus warranting additional service.

As this plan also recommends increases to the minimum level of service described by all service types, there are a number of routes which would previously have met the Service Standards, but no longer will once the new standards are in place. As a result, there are a significant number of routes earmarked for frequency or span changes in order to meet the Standard. These changes to service will be explored in greater detail in Section 7.0.

The routes with recommended changes to frequency and service hours in the 5-year plan include:

- Route 1
- Route 3
- Route 4
- Route 5
- Route 6
- Route 7
- Route 9
- Route 10
- Route 13
- Route 16
- Route 17
- Route 19
- Route 20
- Route 25
- Route 26
- Route 27
- Route 31
- Route 32
- Route 33
- Route 102
- Route 106

6.0 Community Feedback

Engagement for this project is an important component to ensure the Plan reflects the needs of system riders and interested parties. Consultation activities were conducted to present the draft conventional service plan, and gather feedback from residents, riders, and interested parties regarding the proposed changes.

A public open house was held at the Central Public Library downtown London on May 28, 2024, running from 2:00 - 4:00pm and 6:00 - 8:00pm. Twenty-four individuals participated in the open house, which featured several informative project boards and a comment sheet for gathering feedback.

Additional pop-up engagement events took place on May 24 at the Covent Garden Market in the early afternoon on the morning of May 29 at the Cherry Hill Mall. Approximately 40 members of the public attended these pop-ups, and a variety of feedback was collected. A virtual engagement session was held on May 14, 2024, in a joint meeting with the Accessible Public Transit Advisory Committee, which was attended by 25 members of the public.

To supplement the engagement events, an online survey was made available to residents for providing their feedback. The survey was hosted by Survey Monkey and was available through the LTC website between May 9th and June 7th 2024. Overall, there were 1157 completed responses to the online survey. The survey was designed to encourage input from specialized and conventional transit service users, as well as those who do not currently use transit in London. Respondents were encouraged to share their feedback on a variety of topics, including requests for improved service in specific areas of the city, what respondents valued most about bus service, what non-riders primary concerns were regarding using LTC services, and feedback regarding the draft service plan. Many responses shared common themes of wanting more frequent, reliable and convenient bus service. Table 17 includes a summarized version of key feedback deliverables as they are applicable to the scope of this plan. For further detail, please see the complete Engagement Report**.**

Table 17: Feedback Themes

Feedback Theme	Comments
Safety when using LTC	Numerous comments were received expressing concerns for safety on board busses and at bus stops. This covered several topics, including physical design and placement of bus shelters, use of London Transit service at night, and antisocial behaviour from other patrons on board buses.
Customer Service and Public Opinion	Given the improvements detailed in the five-year service plan, customers are expected to experience a reduction in waiting times, increased capacity along busy routes, and increasingly robust service provided across the LTC service area. This should consequently improve customer opinion of the service.
Bus Reliability	Bus reliability across the LTC system is being directly addressed within this plan. This includes run-time adjustments, robust route design practices to mitigate delay hotspots, and taking advantage of planned rapid transit infrastructure.
Service frequency	Minimum service standards are being introduced to ensure that most routes operate continually to more conveniently service neighbourhoods across the city. Reducing wait times is a key component of this plan, especially along high-demand corridors.
Trip Planning	Many comments were received regarding issues faced by customers when planning their trip on LTC. These issues stem not only from service reliability but also from communication shortcomings such as confusing detour information, incorrect or outdated GTFS information in trip planning apps, and complicated information at bus stops.
Bus Route Improvements	Several bus routes will see routing and service improvements leading to more intuitive and direct trips. See Engagement Report for more detailed route feedback, including specific comments received about existing and propose LTC services.
Improved Connections	New areas of London will be serviced by improved bus routes, complementing the programmed Rapid Transit project scheduled for completion in 2027. Improved connections will also come from standardized hours of service, more transfer opportunities and more direct routes.
Specialized Transit Feedback	Feedback regarding specialized transit has been included within the Engagement Report**.** The London Transit Specialized Service plan also includes a brief summary of feedback received during consultation.

7.0 Five-Year Phasing Plan

The following section presents the order in which service changes should be made as well as overall service hour and fleet requirements.

7.1 Implementation Strategy

A five-year phasing plan was developed to distribute the service improvements noted in **Section 5.0** over a five-year period, adding approximately 18,000 of revenue vehicle hours annually. The phasing plan was based on similar principles to the phasing plan developed in the 2020-2024 Five-Year Service Plan:

- Pairing service improvements together by route to minimize the number of times a route is impacted over the life of the plan;
- Pairing service improvements for routes that interline together;
- Prioritizing service changes that have the greatest impact to customer experience and operational needs such as crowding and on-time performance;
- Prioritizing improvements that help improve equity of service to vulnerable neighbourhoods and service growing areas of the City; and
- Distributing service improvements so that service hours and peak vehicle requirements are not onerous during a single year.

Tables 16 through **20** on the following pages summarize the phase-in of each of the outlines by year, between 2025 and 2029, with an estimated service hours required for each change.

7.1.1 New Service Areas

Where appropriate, some of these tables also identify potential service improvements in geographic areas of the City which are not currently served by transit. These areas have been called out separately as “new service areas,” as they may have the potential to be funded via assessment growth funding through a request to the City of London through the annual budgeting process, rather than for the previously budgeted 18,000 expansion service hours. These are recommended for implementation in the respective year noted below only if additional funding can be obtained, and it is not recommended that new service areas displace investment intended for other changes identified for that year.

Table 18: Implementation Strategy - 2025 (Year 1)

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description

Route 10	✓	✓		• Re-route service along Wonderland Road North and Fanshawe Park Road – terminate service at Masonville Place.
				• Increase headway from:
				  • 35 to 30 during Saturday-Early AM
				  • 35 to 30 during Saturday-Late Evening
				  • 55 to 30 during Sunday-Early AM

New Route 127	✓		✓	• Introduce Route 127 – Oxford & Wonderland – Natural Science as a short-turn of Route 27 at the following headways and periods during fall and winter period:
				  • 30 during Weekday-Early AM, Saturday-Early AM, Saturday-Early Evening, Saturday-Late Evening, and Sunday-Evening
				  • 20 during Weekday-Late Evening, Saturday-Base, Saturday-Peak, Saturday-Early Evening, Sunday-Base AM, and Sunday-Peak
				  • 15 during Weekday-Early Evening
				  • 12 during Weekday-PM Peak
				  • 10 during Weekday-AM Peak and Weekday-Base
				• Seasonal service to accommodate post-secondary students, and will not operate during the summer.

Table 19: Implementation Strategy - 2026 (Year 2)

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description
Route 4		✓		• 4A and 4B branched headways improved from 80 to 60 during Weekday-Early AM
Route 25	✓	✓		• Service rerouted around Fanshawe College. • Each branch to have 60 minute headways; combined headway of 30 minutes. During Weekday-Peak Periods, each branch operates every 40 minutes, with a combined headway of 20 minutes. No other changes to combined headway. • Longer service span in Weekday-Late Evening, Saturday-Late Evening, Sunday-Early AM
Route 30	✓			• Adjust route to improve service to the industrial areas north of Highway 401.
Route 31		✓		• Increase headway from 48 to 30 during Weekday-Early AM. • Longer service span in Weekday-Late Evening, Saturday-Early AM, Saturday-Late Evening, Sunday-Early AM
Route 33		✓		• Introduce Weekday-Early AM service every 30 minutes. • Longer service span in Weekday-Late Evening
Route 38 / 201	✓			• Introduce Alternative Service Delivery Route 201 Innovation Park (on-demand zone) • Remove Route 38
Route 91	✓			• Extend Route 91 to Argyle Mall

Route 102		✓	✓	• Introduce service during the following periods:
				  • 30 during Weekday-Early AM, Saturday-Early AM, Sunday-Early AM
				  • 20 during Saturday-Base
				• Improve headways from:
				  • 40 to 20 during Saturday-Peak, Saturday-Early Evening, Sunday-Base AM, and Sunday-Peak

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description

Route 106		✓	✓	• Introduce service during the following periods:
				  • 30 during Weekday-Early AM, Saturday-Early AM, Saturday-Base, Sunday-Early AM
				• Improve headways from:
				  • 24 to 10 during Weekday-AM Peak
				  • 35 to 30 during Saturday-Late Evening and Sunday-Evening
				  • 35 to 20 during Saturday-Peak, Saturday-Early Evening, Sunday-Base AM, and Sunday-Peak

New service area: Add Route 25A branch to Cedar Hollow all day				
New service area: Extend Route 37 to White Oaks Mall through Summerside				
New service area: Introduce Route 40 – Alumni Hall – Hyde Park Power Centre through Hyde Park Road and Coronation Drive with headways and periods: • 40 during Weekday-Base, Weekday-Late Evening, Saturday-Early Evening, Saturday-Late Evening, and Sundays • 30 during Weekday-Early AM, Weekday-AM Peak, Weekday-Early Evening, Saturday-Early AM, Saturday-Base, Saturday-Peak				

Table 20: Implemenation Strategy - 2027 (Year 3)

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description

Route 6		✓		• Improve headways:
				  • 35 to 30 during Weekday-Early Evening, Saturday-Early AM and Saturday-Base.
				  • 60 to 40 during Weekday-Late Evening.
				• Longer service span in Weekday-Late Evening, Saturday-Late Evening, Sunday-Early AM

Route 7	✓	✓		• Adjust routing near the Westmount Mall to replace branch Route 15 • Longer service span in Weekday-Late Evening, Saturday-Late Evening, Sunday-Early AM
Route 15	✓			• Remove service to the northwest and south of Westmount Mall. New service will be introduced to Fanshawe serving Southdale and Raleigh. • Update headways for remaining route to match previous combined branch headways (e.g. 40 per branch to 20 combined)
Route 28 / 202	✓			• Introduce Alternative Service Delivery Route 202 Lambeth (on-demand zone) • Replace route with ASD in all time periods.

Table 21: Implementation Strategy - 2028 (Year 4)

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description
Route 1		✓		• Increase headway from 40 to 30 during Saturday-Early AM. • Longer service span in Weekday-Late Evening, Saturday-Late Evening, Sunday-Early AM

Route 3	✓	✓		• Adjust service along the Hamilton Road corridor, serving present Route 5 alignment in this area.
				• Improve headways:
				  • 47-60 to 40 all day Sunday
				  • 34-60 to 30 during Saturday daytime periods
				  • 60 to 40 during Saturday-Early Evening and Saturday-Late Evening.
				• Longer service span in Weekday-Late Evening, Saturday-Late Evening, Sunday-Early AM, and Sunday-Evening

Route 4	✓		✓	• Adjust eastern terminus to downtown. Remove service east of downtown after introducing RT • Improve Weekday-AM Peak and Weekday-PM Peak service to every 20 minutes combined frequency, from 30 minutes combined.
Route 5	✓			• Adjust service along the Hamilton Road corridor, serving present Route 3 alignment in this area.
Route 17	✓	✓	✓	• Remove 17B branch, replacing with Route 22. • Shorten 17A branch, replacing with Route 24 extension. • Improve headways on remaining 17A branch (now 17) to match previously combined headways on weekdays (40 per branch to 20 combined), plus: • 20 combined headway to 15 during Weekday-AM Peak and Weekday-PM Peak

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description
				• 40 to 30 during Saturday-Early AM, Saturday-Base, and Sunday-Evening • 45 to 30 during Sunday-Early AM
New Route 22	✓			• New route serving Riverview and Valetta areas via Byron, replacing portions of routes 17 and 19. • Initial headways as follows: • Every 30 minutes Weekdays, except evenings every 38 minutes. • Every 35 minutes Saturday-Early AM and base service. • Every 27 minutes during Saturday Peak. • Every 40 minutes Saturday Evenings. • Every 35 minutes all day Sunday.
Route 24	✓			• Extend route to Boler Road and Commissioners Road, covering some of former route 5 and 17 alignments
Route 27		✓		• Introduce 30 minute headways all weekend from existing 32-45 minutes. • Improve service to every 30 minutes Weekday-Early AM from every 40 minutes. • Increasing service spans every day across multiple periods
Route 39	✓			• New route connecting southern areas of Byron to Oxford and Wonderland, replacing parts of routes 5 and 17, with the following headways: • 40 during Weekday-Base, Weekday-Late Evening, Saturday-Early Evening, Saturday-Late Evening, and Sundays

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description
				• 30 during Weekday-Early AM, Weekday-AM Peak, Weekday-Early Evening, Saturday-Early AM, Saturday-Base, Saturday-Peak
Route 104	✓			• Remove route to prevent service duplication with East London Link RT.
New service area: Extension of Route 22 through Kains Road and Upperpoint Boulevard.				
New service area: Extension of Route 39 through Byron Baseline Road, Wickerson Road, Tibet Butler Boulevard, and Ironwood Road.				

Table 22: Implementation Strategy - 2029 (Year 5)

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description

Route 5		✓		• Improve headways from:
				  • 30 to 20 during Weekday-AM Peak and Weekday-PM Peak.
				  • 34-60 to 30 during all Saturday and Sunday periods
				• Longer service span in Weekday-Late Evening, Saturday-Late Evening, Sunday-Early AM

Route 9		✓		• Improve headway from 32 to 30 during Saturday-Base • Longer service span in Saturday-Late Evening
Route 13	✓	✓		• Remove 13A loop to mirror RT service south of downtown, replaced with 23 • Improve headways to match combined frequency on remaining 13 (e.g., 30 to 15 during Weekday-Early AM) • Longer service span in Weekday-Early AM and Sunday-Early AM
Route 16		✓		• Improve headways from 35 to 30 during Sunday-Early AM

Route 19	✓	✓		• Reroute from Valetta to Oxford to improve directness, and terminate at Masonville Mall
				• Improve headways from:
				  • 30 to 20 during Weekday-AM Peak and Weekday-PM Peak.
				  • 38 to 30 during Weekday-Early Evening and Weekday-Late Evening
				  • 35 to 30 during Saturday-Early AM, Saturday-Base, and all Sunday periods

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description
				• 40 to 30 during Saturday-Early Evening and Saturday-Late Evening
Route 20		✓		• Improve headways from 45 to 30 during Saturday-Early AM
New Route 22		✓		• Longer service spans during multiple time periods
New Route 23	✓			• New route serving Jalna Boulevard and 13A routing, feeding Wellington Gateway RT at White Oaks Mall, with initial headways: • 30 during Weekday-Early AM, Weekday-AM Peak, Weekday-Base, Weekday-PM Peak, Saturday-Peak • 40 during Weekday-Early Evening and Weekday-Late Evening, Saturday-Early AM and Sundays • 32 during Saturday-Base
Route 26	✓	✓		• Conversion from Route 93 with more direct routing west of White Oaks Mall • Improve headways: • 27 to 20 during Weekday-AM Peak and Weekday-PM Peak • 36 to 30 during Weekday-Late Evening • 35-37 to 30 during Sunday periods • Introduce service during Saturday-Early AM every 30 minutes
New Route 32	✓	✓		• New route serving north London with initial headways: • 30 during Weekday-Early AM, Weekday-AM Peak, Weekday-Base, Weekday-PM Peak

Route	Change to Route Alignment / New Route	Minimum Service Standard Changes	Demand Based Frequency Change	Description
				• 38 during Weekday-Early Evening and Weekday-Late Evening • 35 during Saturday-Early AM and Saturday-Base, and Sundays • 40 during Saturday-Early Evening and Saturday-Late Evening • 27 during Saturday-Peak
Route 34	✓			• Split Route 34, with Route 32 replacing the western portion.
New Route 39		✓		• Longer service spans during Weekday-Late Evening, Saturday-Late Evening, and Sunday-Early AM
Route 90	✓			• Remove Route 90 service south of Downtown London to not duplicate RT.
New service area: Headway adjustments for Route 22 allocated to extended portion				
New service area: Headway adjustments for Route 39 allocated to extended portion				

7.2 Service Hours and Fleet Summary

Based on the modifications presented in the previous tables, the proposed revenue service hours and peak fleet expansion vehicles are summarized by year in **Table 21** below.

It should also be noted that the table below does not reflect any additional non-revenue service hours that should be accounted for to allow buses the appropriate time to travel between the London Transit garage and the beginning and end of revenue service. This should be added to the overall financial plan when estimating budget impacts.

The expansion of peak vehicles required also does not reflect additional spare vehicles that are required to maintain a healthy spare ratio. This will also need to be added to the capital plan during the budgeting process. Expansion vehicles calculations are also estimates before scheduling considerations, which do not consider interlining and other operational efficiencies, and may slightly differ from actual vehicles required to sufficiently provide service.

As with the previous tables identifying service changes, new service areas are considered in addition to the plan based on the success of realizing assessment growth funding, and are listed at the end of the table to avoid conflating base hours needed and additional hours that may be realized through assessment growth.

Table 23: Annual Service Hour and Fleet Summary

Route	*Alignment Changes / New Route*	*Minimum Service Standard*	*Demand-Based Frequency*	*Annual Revenue Hour Increase*	*Peak Expansion Vehicles Required*
Year 1 (2025)					
Route 10	✓	✓		10,628	+4
Route 127	✓		✓	7,885	+5
			Subtotal	**18,513**	**+9**
Year 2 (2026)					
Route 4		✓		463	
Route 25		✓		1,436	+2
Route 30	✓			0	
Route 31		✓		1,873	
Route 33		✓		1,464	

Route	Alignment Changes / New Route	Minimum Service Standard	Demand-Based Frequency	Annual Revenue Hour Increase	Peak Expansion Vehicles Required
Route 37[7]	✓			2,321	+3
Route 38	✓			(3,464)	-2
Route 91	✓			5,699	+3
Route 102		✓	✓	2,792	
Route 106		✓	✓	2,396	+2
Route 201	✓			3,464	+2
Subtotal				**18,443**	**+10**
Year 3 (2027)					
Route 6		✓		1,457	
Route 7	✓	✓		3,741	+1
Route 15	✓			13,157	+6
Route 28	✓			(3,138)	-2
Route 202	✓			3,138	+2
Subtotal				**18,354**	**+7**
Year 4 (2028)					
Route 1	✓			713	
Route 3	✓	✓		2,081	
Route 4	✓		✓	(7,712)	-1
Route 5	✓			(2,101)	-1
Route 17	✓	✓	✓	526	+3
Route 22	✓			11,781	+4

[7] Hours and vehicles for Route 37 are contingent on assessment growth for the middle portion of the route. If assessment growth is not realized, hours may be allocated to the Innovation Park ASD to account for longer trips needed.

Route	Alignment Changes / New Route	Minimum Service Standard	Demand-Based Frequency	Annual Revenue Hour Increase	Peak Expansion Vehicles Required
Route 24	✓			3,773	+2
Route 27		✓		3,442	
Route 39	✓			10,784	+3
Route 104	✓			(4,432)	-4
Subtotal				**18,856**	**+6**
Year 5 (2029)					
Route 5		✓		6,330	+4
Route 9		✓		47	
Route 13	✓	✓		109	
Route 16		✓		62	
Route 19	✓	✓		(2,174)	+1
Route 20		✓		104	
Route 22		✓		1,023	
Route 23	✓			7,939	+3
Route 26	✓	✓		4,620	+3
Route 32	✓	✓		12,872	+4
Route 34	✓			(3,810)	-1
Route 39		✓		224	
Route 90	✓			(8,855)	-5
Subtotal				**18,490**	**+9**
Grand Total				***92,657***	***+41***
New service area: Route 22				1,796	***+1***
New service area: Route 25A				3,100	***+1***
New service area: Route 32				5,618	**+2**

Route	Alignment Changes / New Route	Minimum Service Standard	Demand-Based Frequency	Annual Revenue Hour Increase	Peak Expansion Vehicles Required
New service area: Route 37				1,143	**+2**
New service area: Route 39				2,561	**+1**
New service area: Route 40				14,574	**+5**
Grand Total (including Assessment Growth)				***121,449***	**+53**

* all peak vehicle requirements are standard buses unless otherwise noted.
** Alternative Service Delivery areas assumed use of dedicated vehicles. If non-dedicated vehicles are used, this may reduce revenue service hours and peak vehicle requirements.

7.3 Deferred Improvements

Included below is an outline of improvements to the LTC bus network that are recommended, but require resources beyond those permitted by the budget approved for the five year horizon of this plan. These changes, while important, have been deprioritized from the recommended improvements within the plan due to available funding, and should be considered as resources become available.

The deferred improvements can be categorized into three different groups: changes to bring routes within minimum service standards; changes to bring routes within maximum 30-minute headways; changed to improve feeder frequencies to new RT services.

7.3.1 Minimum Service Standard Adherence Improvements

In prioritizing routes to receive service standard improvements, overloads were a key performance factor (i.e. those routes with observed patterns of passenger overloads were priorities for investment). Generally, routes with fewer instances of overcrowding were deprioritized from receiving these further headway improvements with the limited hours available in the plan horizon.

Routes 12, 24, 28, 35, 37, and 38 had no instances of overloads recorded. Should ridership patterns change to require more urgent frequency changes on these routes, this would be require a trade-off with the items indicated in the plan. Some changes are proposed for these routes in the service plan, namely:

- Routes 28 and 38 will be replaced with alternative service delivery zones, in order to most efficiently use available resources;
- Route 34 routing will be adjusted, to improve attractiveness of the route and better serve areas in north London; and
- Route 37 will be extended to increase ridership and connectivity in southeast London.

By deprioritizing these routes, other services with the immediate and pressing service needs will be able to be urgently addressed within the financial scope of this plan.

7.3.2 Maximum 30-minute Headway Improvements

All 60-minute headways have been removed from the network, except for on branches along a route, where the combined headways of the branches are designed to be below 60 minutes. However, because of available resources over the plan horizon, some routes will remain longer than the desired 30-minute headway maximum. Under the service plan, some routes will have a maximum headway of 40 minutes, with the ultimate goal of every route being within a 30-minute headway. Further reducing headways from 40 minutes to 30 minutes is identified as a deferred change under this plan as service hours allow.

Reductions to 40-minute headways act as a milestone toward a more frequent base network, and will still considerably improve the availability of bus services across the city with available resources.

7.3.3 Rapid Transit Feeder Service Improvements

Core routes and local Route 23 have been identified as feeders for the incoming RT routes. Eventually, these routes will have improved frequencies, to best complement the RT network and frequently serve areas of the city that are not planned to have rapid transit in the future. Generally, this would mean maximum headways that are twice that of the RT service (i.e., if the RT service operates every 10 minutes, the feeder would operate every 20 minutes.). However, due to limited resources, these further frequency improvements are currently outside of the scope of this plan. This will be crucial for LTC to consider as hours allow, to best take advantage of the RT infrastructure and services, and to pull people from other parts of London into the RT network for trips along those routes.

LTC may also consider monitoring other routes to continue to build out the feeder system as RT develops. As RT and core route ridership is monitored during and after the service plan, local routes should also be reviewed to ensure that these services are not duplicating service along RT corridors, particularly for end-to-end trips in London.

Table 24: Deferred Service Plan Hours

Route	Min Service Standard	Max 30 Minute Headways	RT Feeder Frequency	Annual Revenue Hour Increase
Route 1		✓		62
Route 3		✓		1,180
Route 4		✓		59
Route 5			✓	6,377
Route 6		✓		946
Route 9		✓		369
Route 10			✓	28,169
Route 12	✓			743
Route 13		✓		46
Route 15		✓		283
Route 16			✓	4,880
Route 17			✓	8,245
Route 19			✓	6,563
Route 20		✓		153
Route 22		✓		1,365
Route 23		✓	✓	3,866
Route 24	✓		✓	16,312
Route 25			✓	8,687
Route 26			✓	3,348
Route 27			✓	5,985
Route 30		✓		1,518
Route 32		✓		1,231
Route 34	✓	✓		5,908
Route 35	✓	✓		2,125
Route 39		✓		569
Route 90		✓		188
Route 92		✓		201
Subtotal				**109,378**
New service area: Route 22 max 30 min headways				191
New service area: Route 32 max 30 min headways				537
New service area: Route 39 max 30 min headways				132
New service area: Route 40 max 30 min headways				2,169
Grand Total				***115,408***

8.0 Recommendations for Further Study

Though this service plan does identify a series of priorities for implementation beyond the scope of the five year period between 2025 and 2029, several items were identified as opportunities for further study in the coming years. These include:

- **Consideration for the implementation of a new express route between Masonville Place to Argyle Mall via Fanshawe College:** The observed demand between these three nodes in the transit network was notably high, and anticipated to grow in the coming years. It is recommended that this pattern be monitored through the role out of RT, and considered in the next five year service plan.
- **Complete a Plan for Future Employment Lands:** As noted above, London is one of the fastest growing municipalities in Canada, and with that residential development pressure has come a welcome increase in the development of employment lands. With the unique set of challenges associated with providing high quality transit service in industrial lands, it is recommended that LTC complete a study focused on service design and delivery in existing and planned employment lands in the City of London.
- **Consideration for Upgrade to Feeder Routes:** With the roll out of rapid transit service, it is likely that passenger trip patterns are likely to evolve considerably. It is recommended that LTC closely monitor changes in ridership patterns and identify candidate routes to be upgraded to feeder status, thus increasing the level of service to better feed the rapid transit network.

Appendix A

Policy Review

DILLON CONSULTING

Integrated Transit and Land Use Planning

The design of communities and their land uses directly influence people's travel patterns. Active transportation (walking and biking) and transit become convenient, safe, and enjoyable options in compact, mixed-use communities with places to live, work and play. In less compact communities with less land use diversity, the distances between destinations can make it challenging for people to access without private vehicles. Investments in the transportation network and urban planning tools can shape and strengthen London's communities, and improve the attractiveness of transit as a preferred mode choice. Integrating forward-thinking policies that integrate both land use and transportation will help build more equitable, affordable, accessible, and vibrant communities.

London has and continues to integrate transit into planning strategies to ensure it remains at the forefront examples of this are included here:

The London Plan

The London plan includes eight key directions which define the approach to making London "exciting, exceptional and connected". The direction which focuses on integrated transit and land use planning the is the direction to build a mixed-use compact city. The following are relevant actions outlined within this direction:

- Implement a city structure plan that focuses high-intensity, mixed-use development to strategic locations - along rapid transit corridors and within the Primary Transit Area.
- Plan for infill and intensification of various types and forms to take advantage of existing services and facilities and to reduce our need to grow outward.

This is further emphasized in the direction to place emphasis on creating attractive mobility choices which includes the actions to:

- Link land use and transportation plans to ensure they are integrated and mutually supportive.
- Establish a high-quality rapid transit system in London and strategically use it to create an incentive for development along rapid transit corridors and at transit villages and stations.
- Focus intense, mixed-use development to centres that will support and be served by rapid transit integrated with walking and cycling.
- Dependent upon context, require, promote, and encourage transit-oriented development forms.
- Utilize a grid, or modified grid, system of streets in neighbourhoods to maximize connectivity and ease of mobility.

The plan also identifies that a Growth Management Implementation Strategy will be adopted to align development management policies with infrastructure growth, including transit infrastructure.

2023-2027 City of London Strategic Plan

The current London City Council has outlined a number of outcomes, and strategies to achieve these outcomes across their term. One of these outcomes is to have a well-planned and growing community. The strategy in place to achieve these outcomes is to target new housing development to capitalize on investments in new servicing, Rapid Transit, and the Core. That is that they will focus on achieving intensification targets in areas where transit investment already exists or is planned, limiting outward expansion.

Transit Ridership Growth

While population and employment growth will play a factor in increasing the number of people taking transit, London is also striving to increase the number of trips existing residents are taking by transit,. To do so, the City has put in place a number of policies and directions to make transit a more attractive solution and increase the overall transit mode share, a measure of the portion of all daily trips taken by transit, these are outlined below.

The London Plan

One of the eight key directions in the London Plan which focuses on transit ridership growth is the direction to place a new emphasis on creating attractive mobility choices. This direction includes the action to invest in transit and other active mobility infrastructure.

City of London Strategic Plan

The City of London Strategic Plan outlines a number of strategies related to improving the quality of transit, which include:

- Building infrastructure that provides safe, integrated, connected, reliable, and efficient transportation choices;
- Completing and implementing the Mobility Master Plan to increase access to sustainable mobility options;
- Improving ridership and customer satisfaction by implementing the London Transit Commission's 5 Year Service Plan, supporting the implementation of the London Transit Commission Ridership Growth Strategy initiatives, support transit rider survey initiatives and implementing London's Rapid Transit Corridors to improve reliability for current and future transit; and
- Supporting the implementation of Alternative Service Delivery options to areas of the City not currently served by transit.

Mobility Master Plan Update

The City of London's Mobility Master Plan (MMP), is currently undergoing an update. As identified in the Strategic Plan this will help to provide direction to improve the quality of sustainable transportation options including transit. The following summarizes the work completed to date which impacts the focus of this plan:

- The MMP establishes the 2050 transit mode share target of 32.5% where the transit revenue hours will need to be slightly more than double compared to 2019.
- It is anticipated that the MMP will outline a project evaluation framework expected to include the following criteria:
  - Integrated, connected and efficient;
  - Environmentally sustainable;
  - Equitable health and safety;
  - Cost score
    - Financially sustainable
- Short and long term transit project recommendations to 2050 will be identified including:
  - Rapid transit;
  - Transit priority corridors;
  - Isolated priority measures; and,
  - Inter-regional transit links.
- Three phases of engagement were completed to ensure that the final recommendations of the plan aligned with the desires and needs of Londoners. Key takeaways related to transit include:
  - Improve routing and scheduling to better support trips leaving downtown;
  - Improve service reliability and service frequencies;
  - Provide more direct routes to reduce the need for transfers for bus trips; and,
  - Provide rapid transit or dedicated bus lanes to reduce slow moving buses.

Transit Efficiency and Reliability

In order to increase the transit mode share and encourage life-long transit use, transit must be efficient and reliable. Passengers need to know that their travel time will not significantly increase by using public transit and that they can trust the service to be on-time and get them where they need to be. London has identified through previous work that these are two of the most important elements to residents and have developed a plan to improve these factors, some examples of this are included below.

2030 Transportation Master Plan: Smartmoves

The current Transportation Master Plan (TMP), which will be replaced by the Mobility Master Plan upon its completion, was focused on providing more efficient and reliable travel choices to residents to encourage a shift from cars to more sustainable mobility choices. The goal was to shift the transit mode share from 12.5% to 20% city-wide by 2030. In order to achieve this target, the plan focused on the implementation of rapid transit and a staged implementation by adding express services along the RT corridors as infrastructure changes were implemented.

RT Network Integration Framework

The approach to RT in London has evolved since the initial development of the 2030 TMP. In 2018 the Rapid Transit Integration Framework Report was written which introduced six service design principles to guide how local routes and RT service should interact:

1. Ability to maintain connections: If more than two local connections are no longer conveniently made by redirecting a local route to RT, then the existing route alignment may be worth preserving.
2. Ability to meet policy-based headways: Frequencies of local routes must be no less than twice the frequency of the RT route during peak periods, weekday midday service, and shopping hours on weekends. For local routes with lower projected ridership, headways should be adjusted based on demand and meeting minimum productivity standards.
3. Directness of service (travel time): Routes should generally only be redirected to RT if the travel time does not increase by more than 10 percent or 5 minutes from end-to-end.
4. Minimize duplication with RT: When it is necessary to operate local service on the same alignment as a RT route, the local route should operate in mixed-traffic lanes to avoid slowdowns at the RT stations.
5. Ability to maintain effective operations: Any change to a route should maintain effective operations and integration with the entire network.
6. Explore alternative service delivery models for low-demand areas: Two sets of criteria were developed for implementing alternative service delivery:
    - 6.1. The cost of alternative service should not exceed the cost of operating conventional fixed-route service, the removal of fixed-route service should not disconnect two fixed-route services, and the productivity of the existing fixed-route service must be less than 50% of the minimum productivity target for most consecutive periods.
    - 6.2. For areas of new growth, alternative service delivery should be explored if the planned development is low-density, and is located on the fringe of the urban area.

Regional Transit Expansion

London is the largest City in southwestern Ontario and as such is a key destination and economic hub for neighbouring communities. Connecting these communities using transit seeks to expand connectivity across the region and reduce congestion within the City, as these areas grow in tandem with the City.

The London Plan

The London Plan outlines the strategic direction to connect London with the surrounding Region. Under this strategic direction, one of the primary goals related to transit is to ensure there are strong mobility linkages to regional municipalities.

City of London Strategic Plan

One of the strategies which are included under the outcome that Londoners of all identities, abilities and means can move throughout the city safely and efficiently is to improve intercity transit connections with neighbouring communities. To do so regional connections will be planned for within secondary plans and infrastructure projects and park-and-rides are to be included as part of the rapid transit network.

Equity and Accessibility

Transit has the potential to uplift the community by providing access to grocers, jobs, healthcare, affordable housing, and social engagements supporting the mental and physical health of all residents. Creating transit solutions which consider these impacts as well as the physical and financial limitations of residents can create a system that benefits all residents. The following speaks to ensuring the transit network contributes to building more equitable and accessible transportation options:

2023-2027 City of London Strategic Plan

The Strategic Plan includes two outcomes which focus on the intersection of equity and transit. These include the outcomes that London is an affordable and supportive community for individuals and families and that Londoners of all identities, abilities and means can move throughout the city safely and efficiently. The specific strategies which have been outlined to lead this direction are:

- Providing, enhancing, and promoting access to municipal subsidy programs, including public transit.
- Supporting greater access to affordable, reliable public transit and paratransit through the implementation of the London Transit Commission's 5 Year Service Plans, including growth hours.
- Considering the entire door-to-door transit trip for passengers including the provision of sidewalks and snow clearing to access these facilities.

- Designing and building infrastructure that maximizes rider safety for all transportation modes.

Applying the Equity Tool considering mobility poverty in transportation projects.

- Collaborate with community partners to improve modes of mobility.

London Transit Ridership Growth Strategy

The LTC identified opportunities to improve the equity and accessibility of transit services in the Ridership Growth Strategy and outlined the following actions:

- Revamping the Get On Board program which helps new users to learn about how to use transit; and,
- Conducting a comprehensive fare strategy review to investigate several fare initiatives to balance revenue generation and social equity concerns.

2022-2026 City of London Accessibility Plan

The City of London Accessibility Plan seeks to remove barriers and improve services for Londoners. Some identified opportunities within the plan included:

- Continued consultation with community groups on developing the accessible design of constructing Rapid Transit Stations and/or shelters (which is now being completed).
- Investigating opportunities to provide accessible taxi services when paratransit services are not operating.

2020-2025 London Transit Accessibility Plan

London Transit developed an Accessibility Plan which included a work plan outlining initiatives that would be undertaken between 2020 and 2025. The following initiatives will be addressed during the 2024 to 2027 Business Plan horizon:

- Public Consultation on Temporary Disruption Policy
- Accessible Transit Stops and Connecting Sidewalks
- Integrated Services
- Assessment of Ride Hailing Options

Environmental Sustainability

Transit has an important role to play in improving the sustainability and resiliency of the transportation network. Some specific targets and plans have been identified by the City and LTC to further support transit as a means to reduce GHG emissions, these include:

The London Plan

One of the values of the London plan is to think sustainably, and as such one of the main directions of the plan is to become one of the greenest cities in Canada. The plan outlines the need to manage growth in ways that support active mobility and to promote the role of active mobility in reducing greenhouse gases. Transit can play a key role in supporting active mobility as all transit users use active mobility modes for a portion of their trip. In addition, transit can reduce carbon emissions by replacing multiple automobile trips with a single bus trip.

2023-2027 City of London Strategic Plan

This direction was carried through to the strategic plan and the following transit strategies were identified:

- Complete and implement the Mobility Master Plan;
- Be ready for future transportation technologies, including connected and automated vehicles;
- Continue to support the London Transit Commission's Zero Emission Bus Fleet Implementation Framework; and,
- Implement the Climate Emergency Action Plan with a focus on actions up to 2027 that will contribute towards achieving 2030 emissions reduction targets.

Climate Emergency Action Plan

The City of London declared a climate emergency and as such has put in place a plan have net-zero community greenhouse gas emissions by 2050, become more resilient to the impacts of climate change and bring the community along. The Climate Emergency Action Plan includes ten areas of focus one of which includes transforming transportation and mobility, the key actions related to transit which are outlined for this area of focus are as follows:

- Continue the development of the Mobility Master Plan.
- Continue to implement priority rapid transit projects as per Council direction and Investing in Canada Infrastructure Program funding.
- Continue to support the annual service improvements to the conventional and specialized transit services.
- Review and provide options for integrating micro-mobility (e.g., bike share) services for first/last mile travel on public and/or private property.

- Develop and promote programs to retain existing riders and attract new riders to public transit.
- Support development of gateway parking and transit connection(s) (e.g., Park and Ride).
- Advocate for a regional transportation system that supports London as a regional transit hub and provides frequent and reliable connections to the Greater Toronto Area, Waterloo Region and Windsor-Detroit.
- Establish a Transportation Management Association (TMA) for London employers to support and encourage employees to commute by walk/bike, transit, carpool, and support remote work options.
- Develop a plan to convert 100% of LTC's bus fleet to zero emission vehicles, based on CUTRIC study results, LTC approval and City approval.

Zero-Emission Bus Implementation Strategy

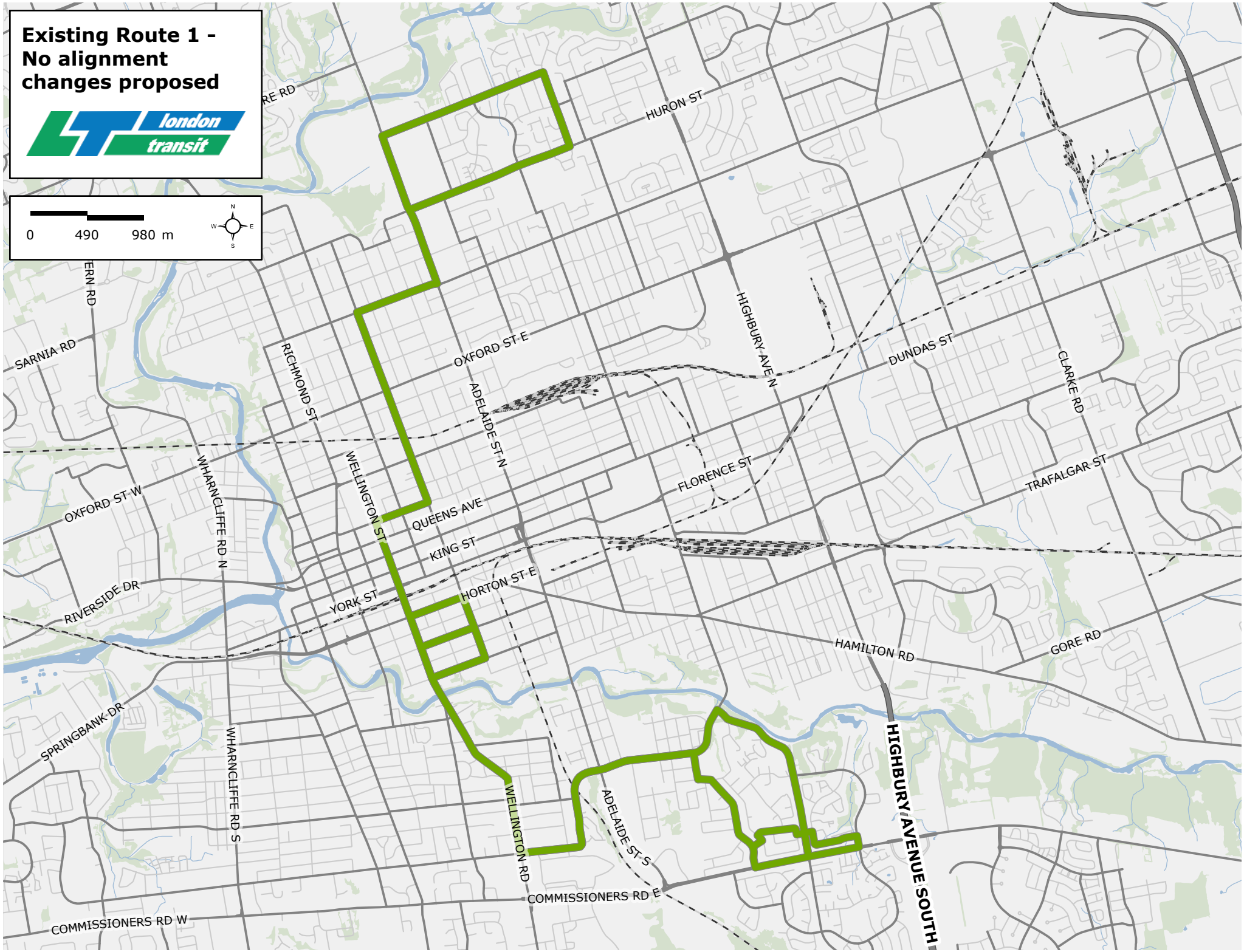
As part of moving toward zero emissions, the current policy direction is to convert the fleet to battery-electric buses. 17 buses are targeted to be replaced annually, and will require related upgrades to facility infrastructure to facilitate the growth in storage space required and electric infrastructure.

The LTC Zero Emission Bus Fleet Implementation Strategy sets out a two-phased approach to attain the goal of a zero-emission transit fleet. The first phase is to procure a mini-fleet (up to 10) of battery electric buses as well as both depot and opportunity chargers to allow for the testing of the vehicles and chargers in the London environment. This process is currently underway, with the buses anticipated to be available for service in late 2025/early 2026. During this testing period, the buses will be utilized on various routes in order to ensure data is collected from all operating conditions.

Subsequent to the testing period, and dependant upon the outcomes, London Transit will being to introduce zero-emission bus technology into the annual bus replacement program. While a detailed route review has been conducted to assess which routes could be served with battery electric buses, this review will need to be updated with the data gathered during the testing period with the mini fleet.

Appendix B

Individual Route Maps



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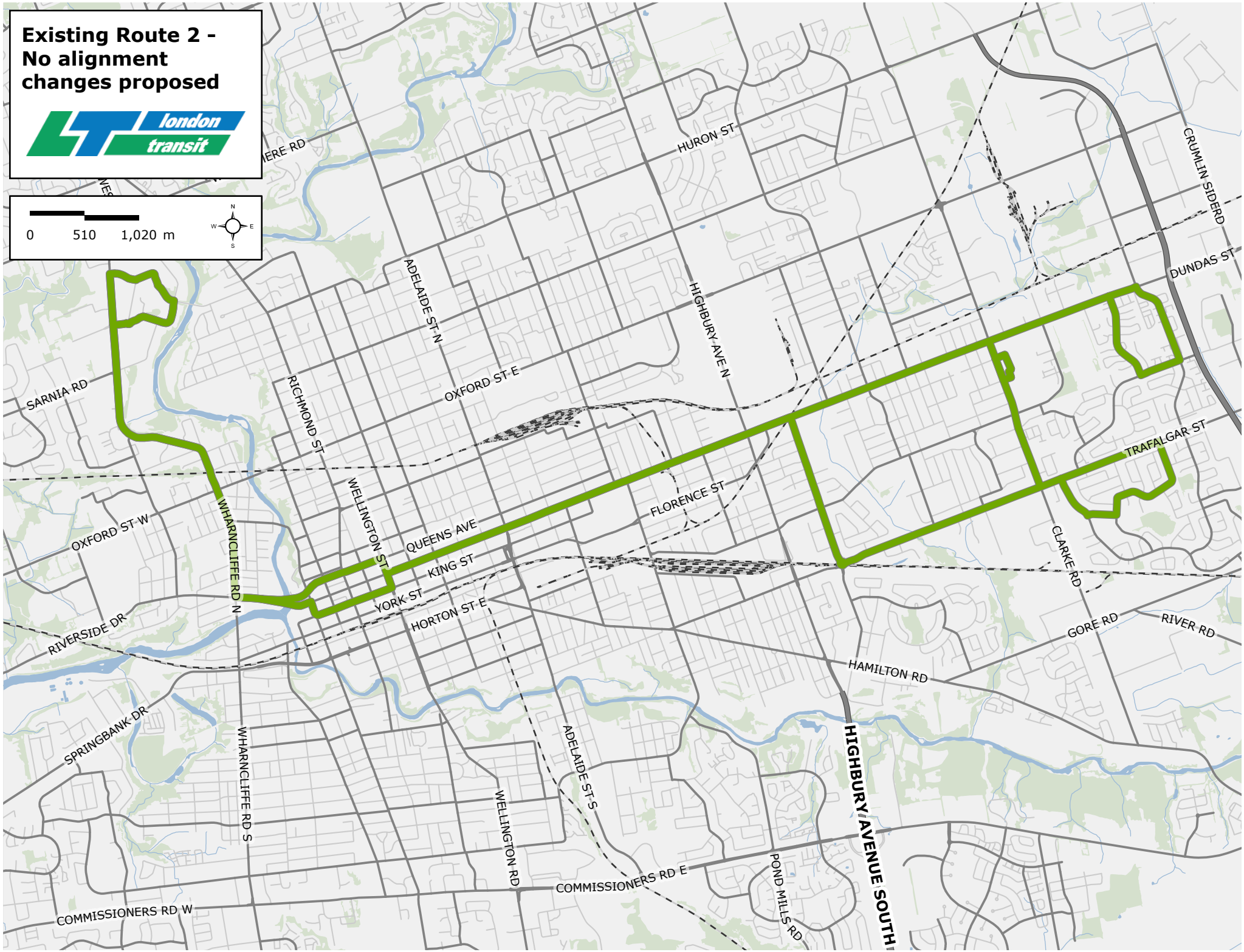

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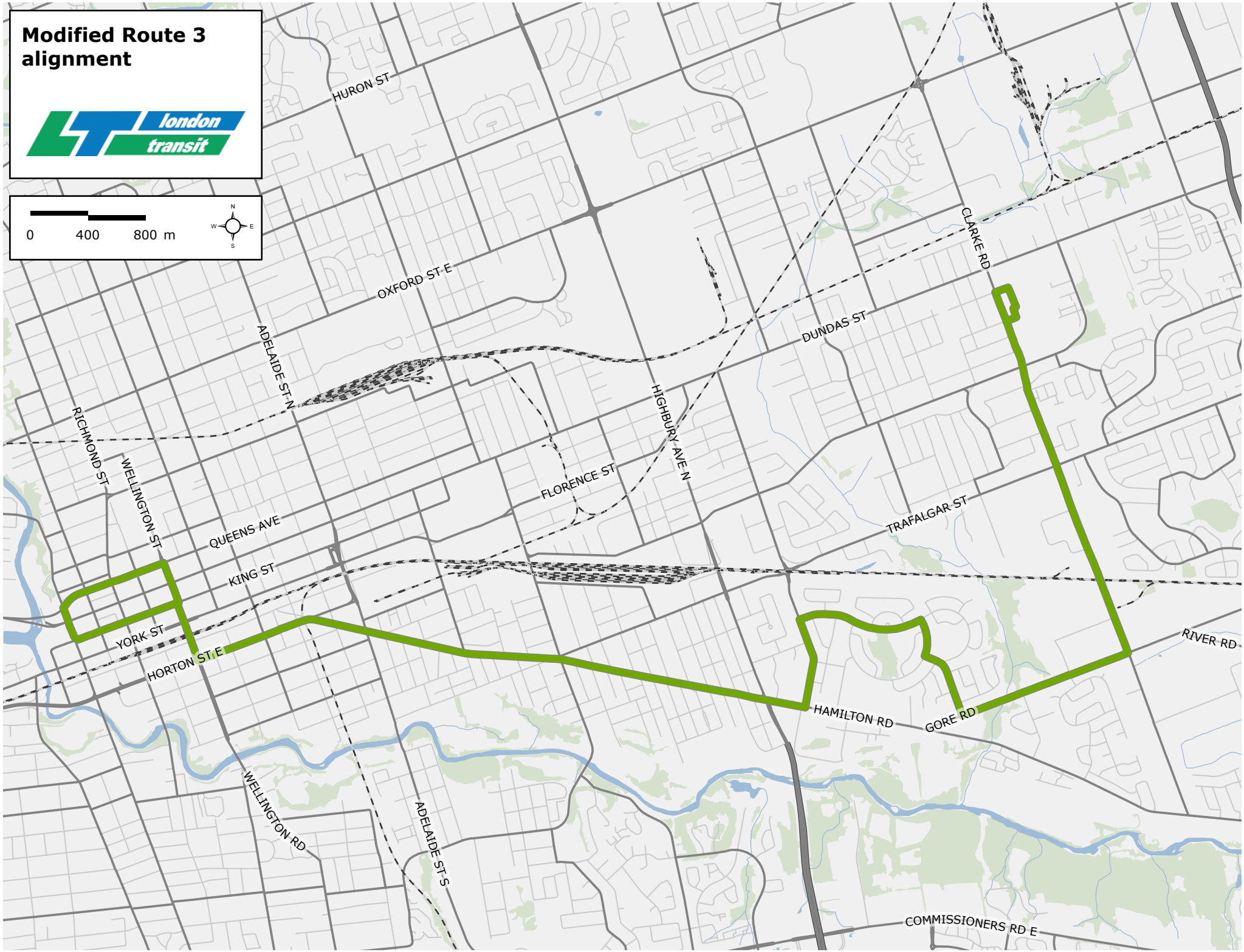

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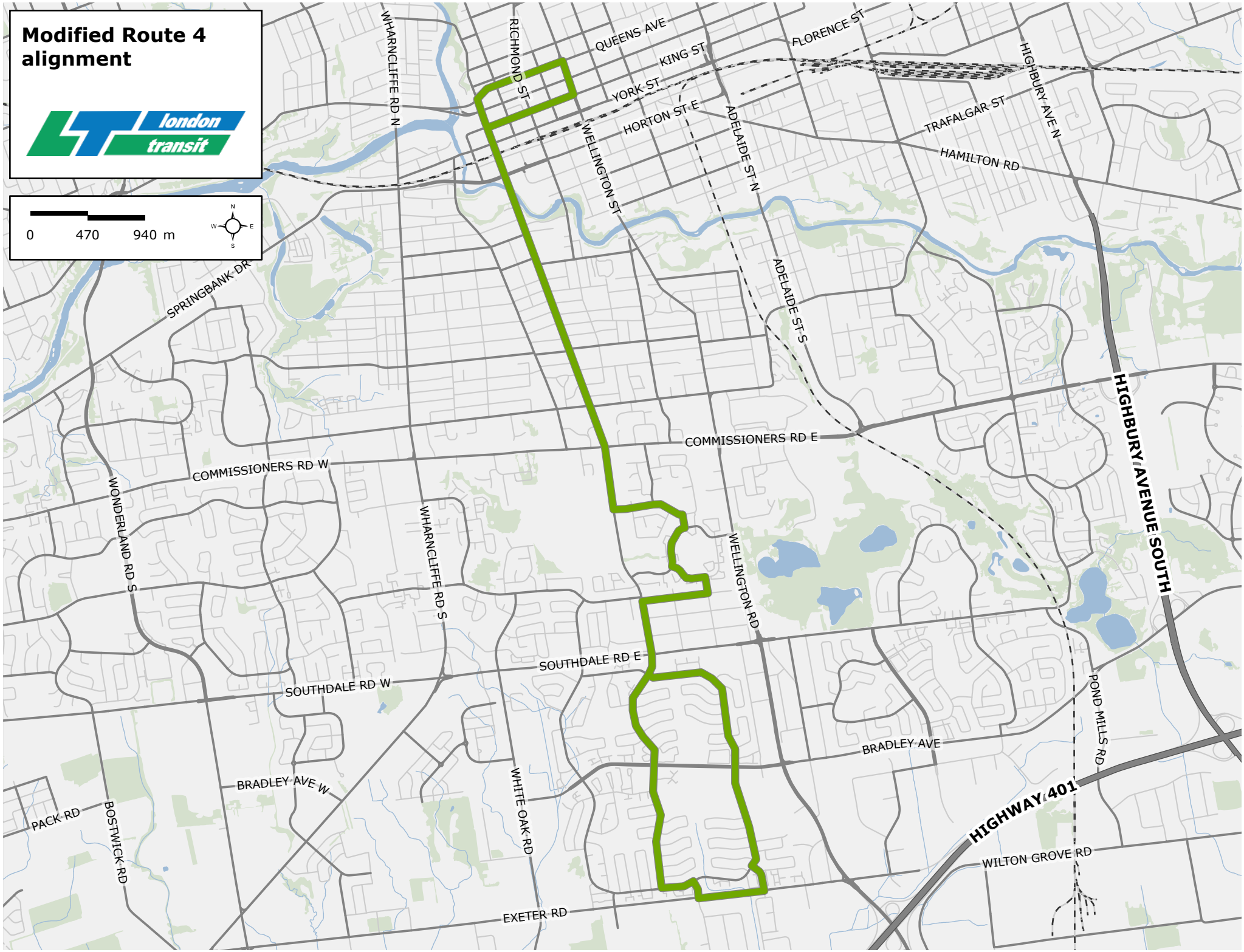

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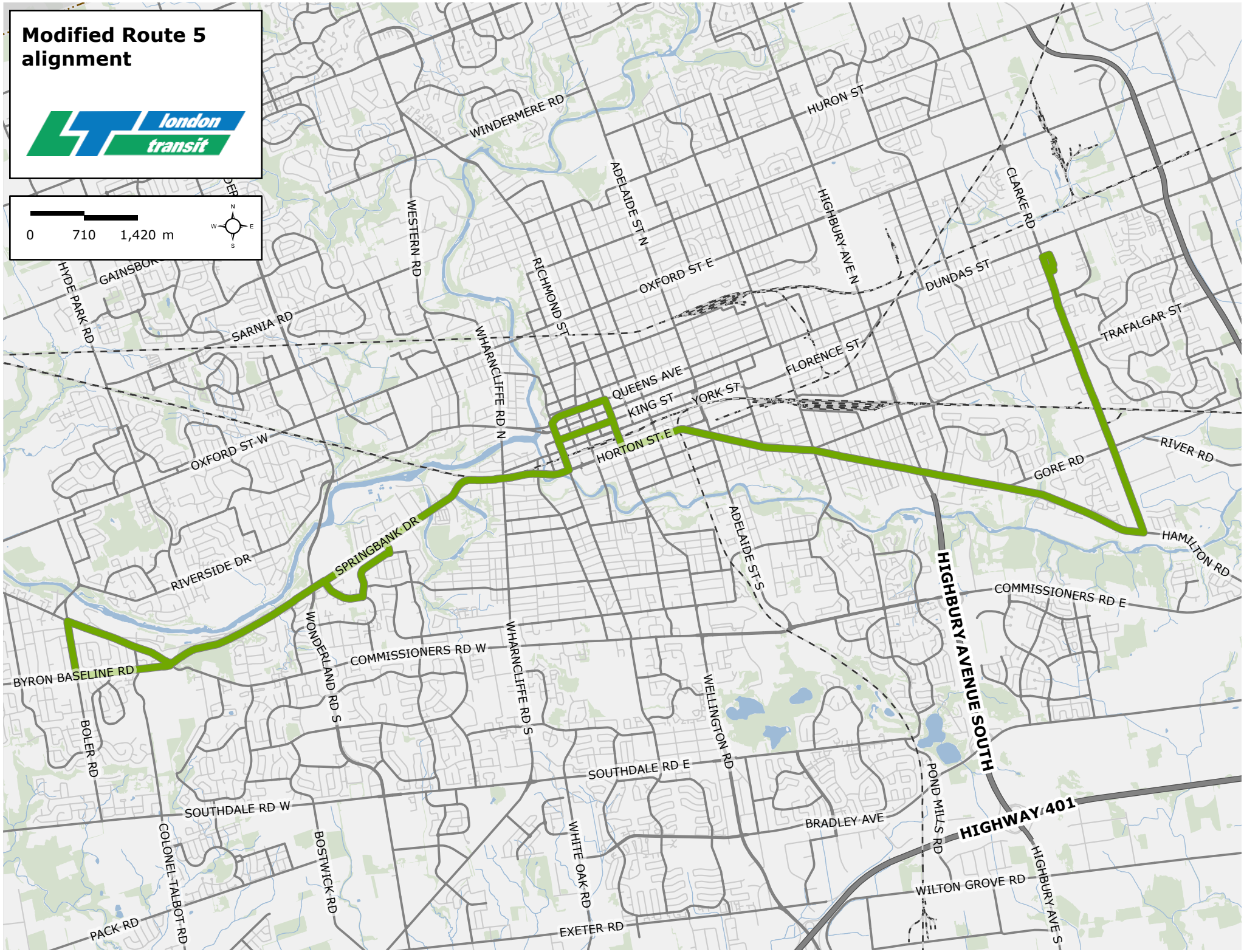

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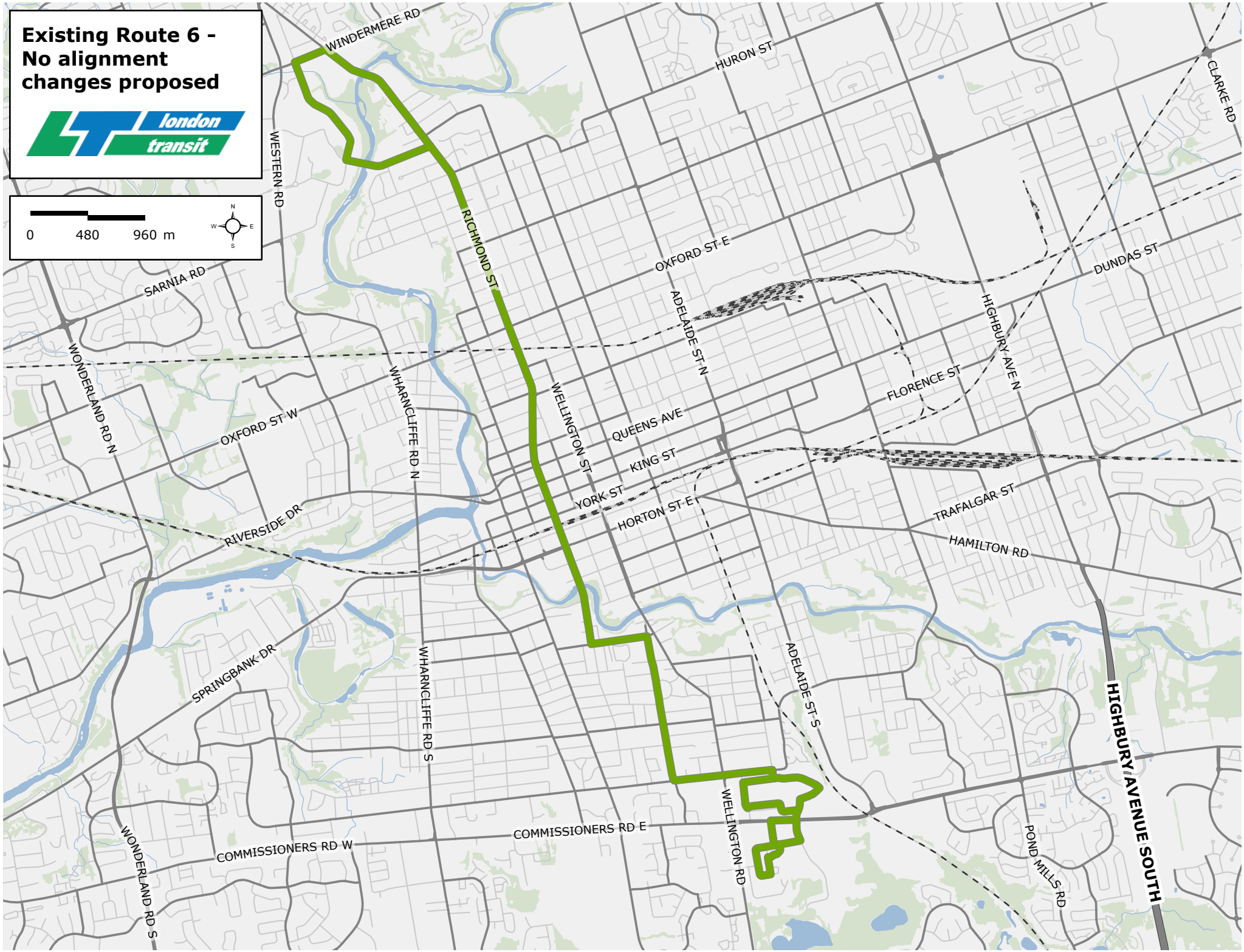

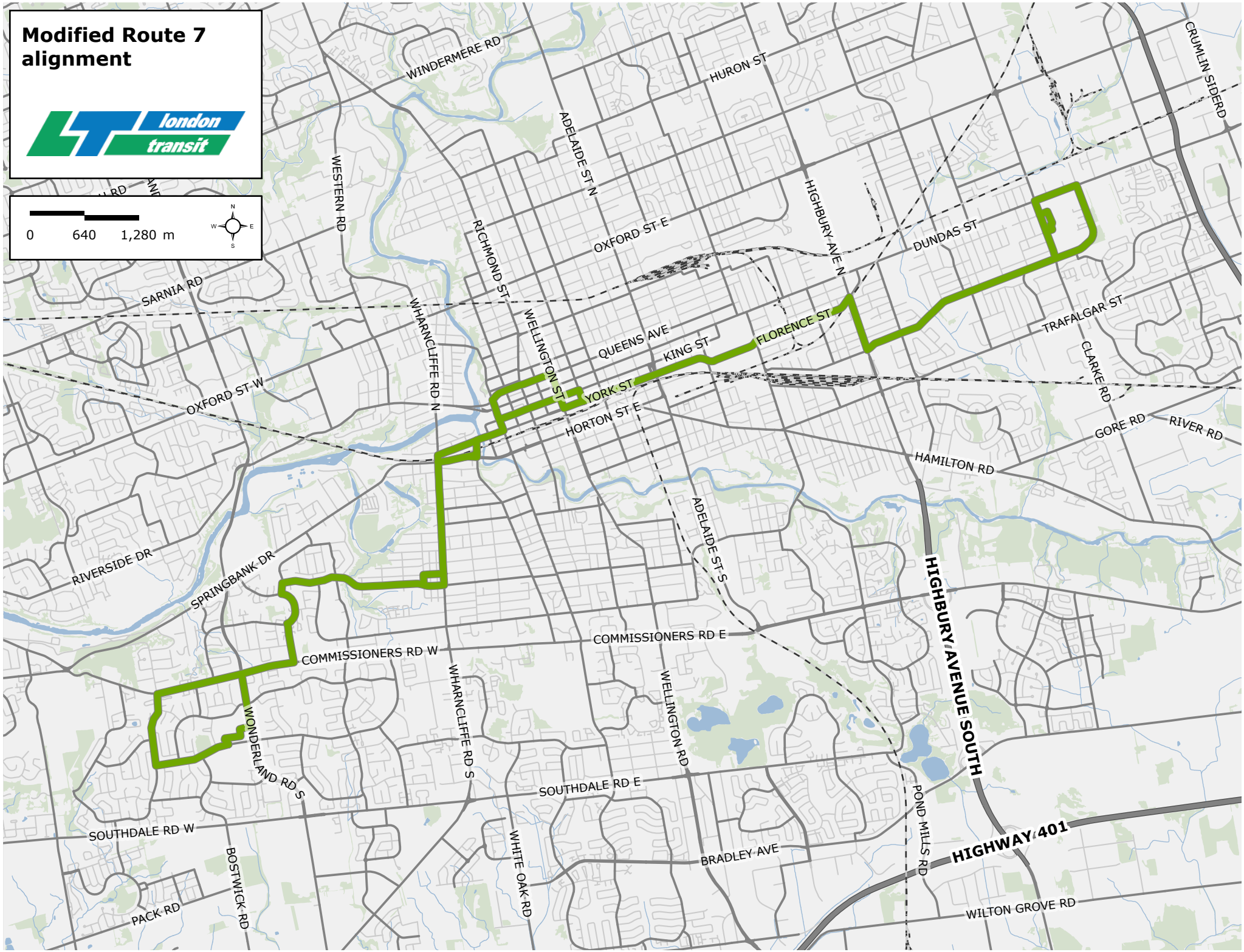

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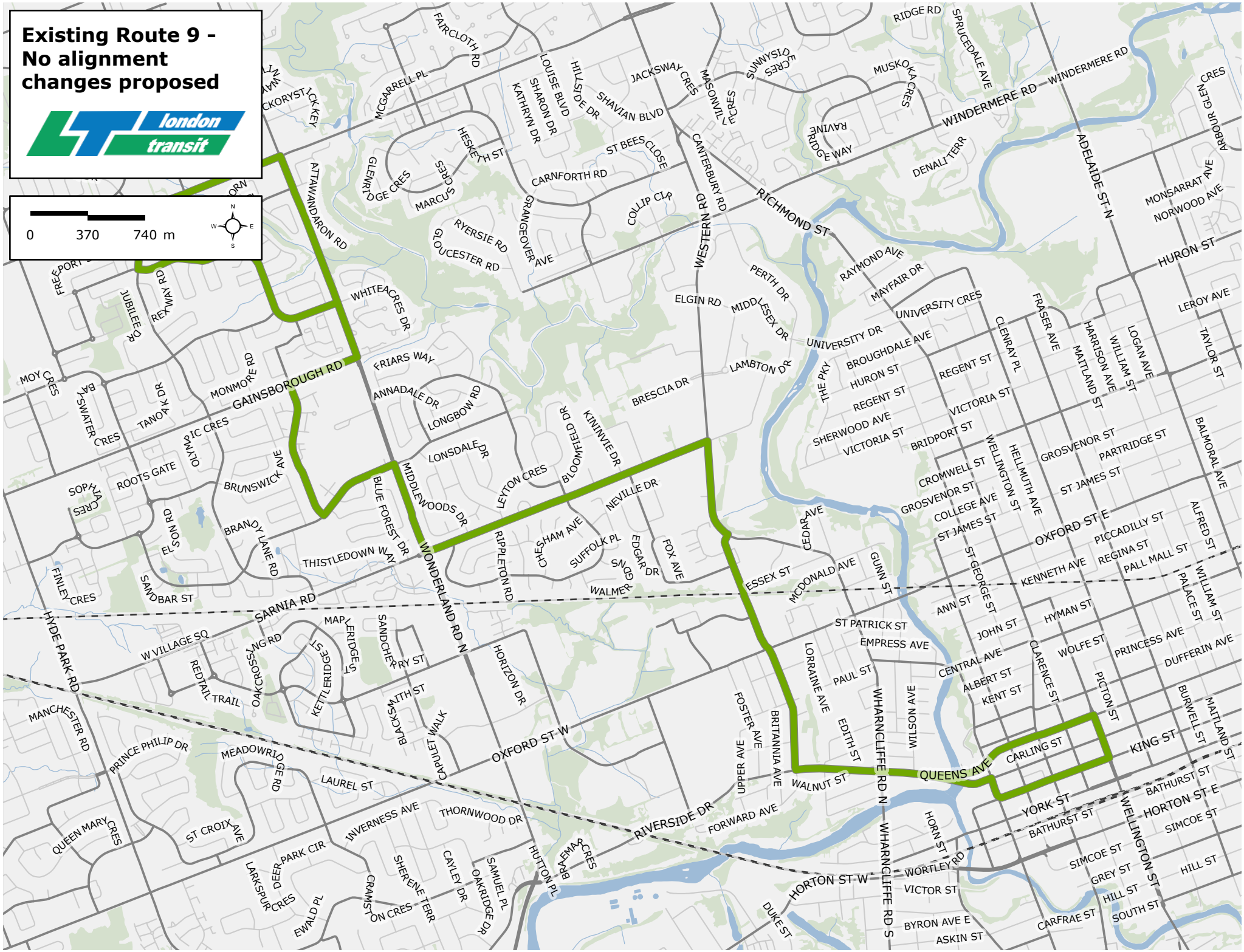

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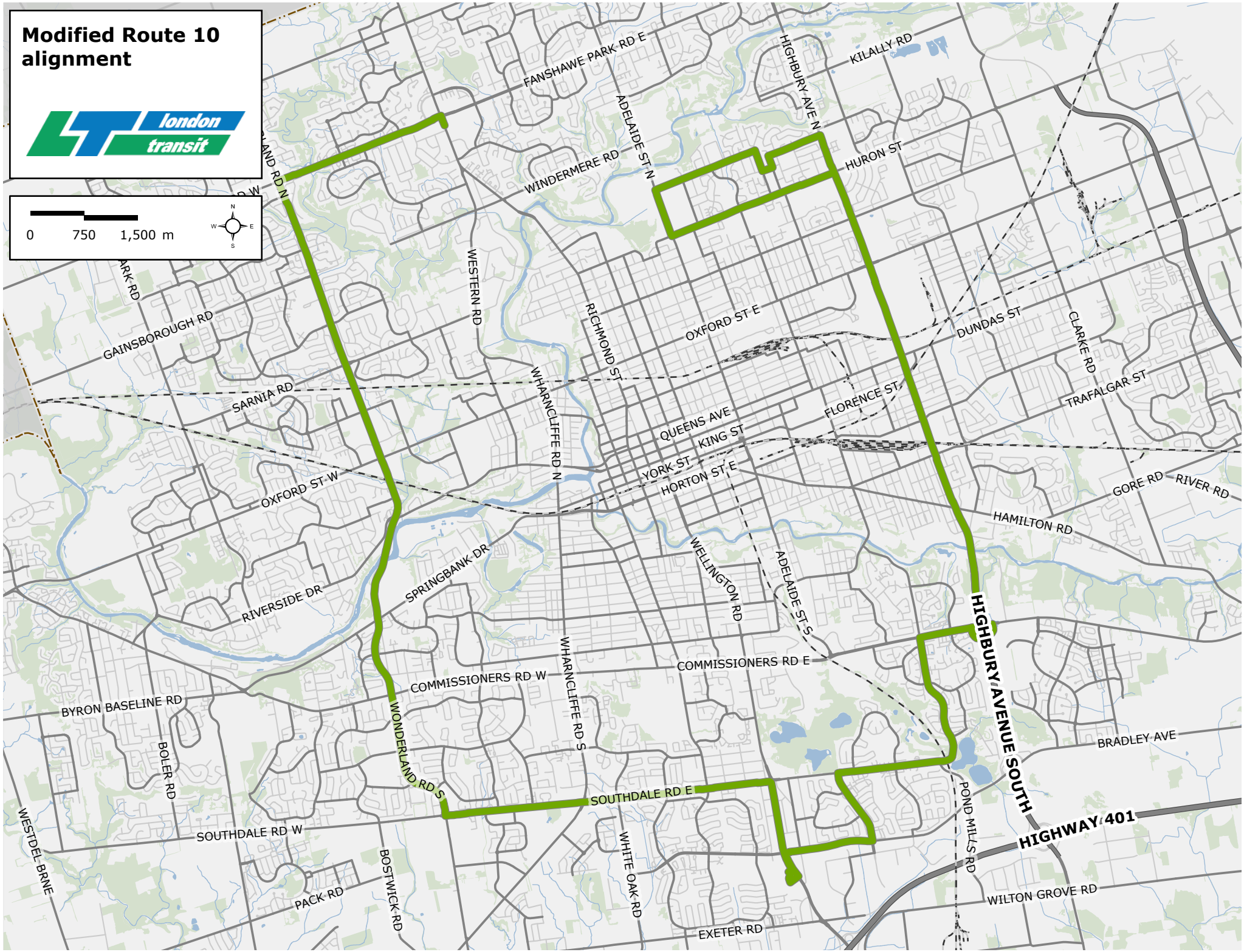

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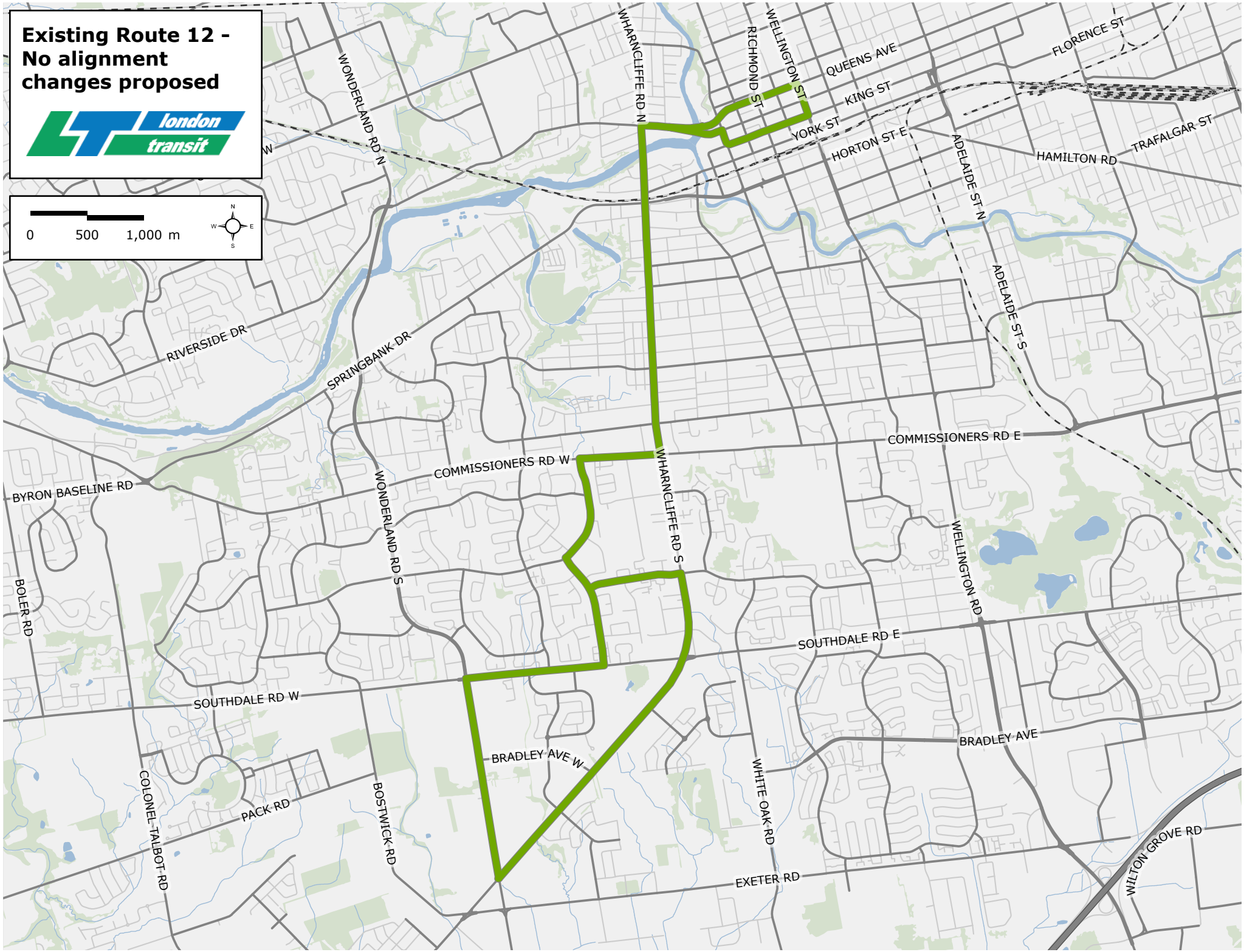

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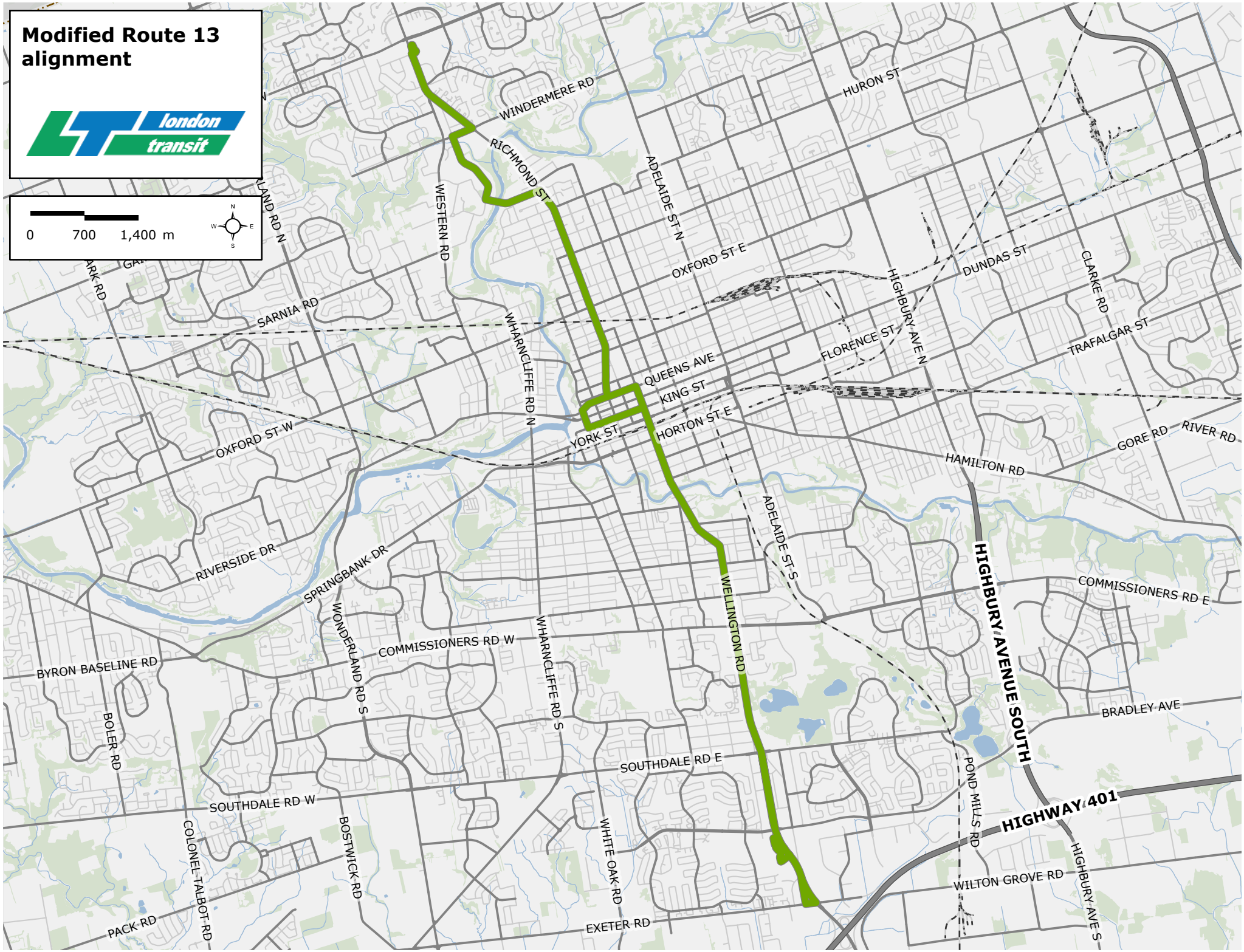

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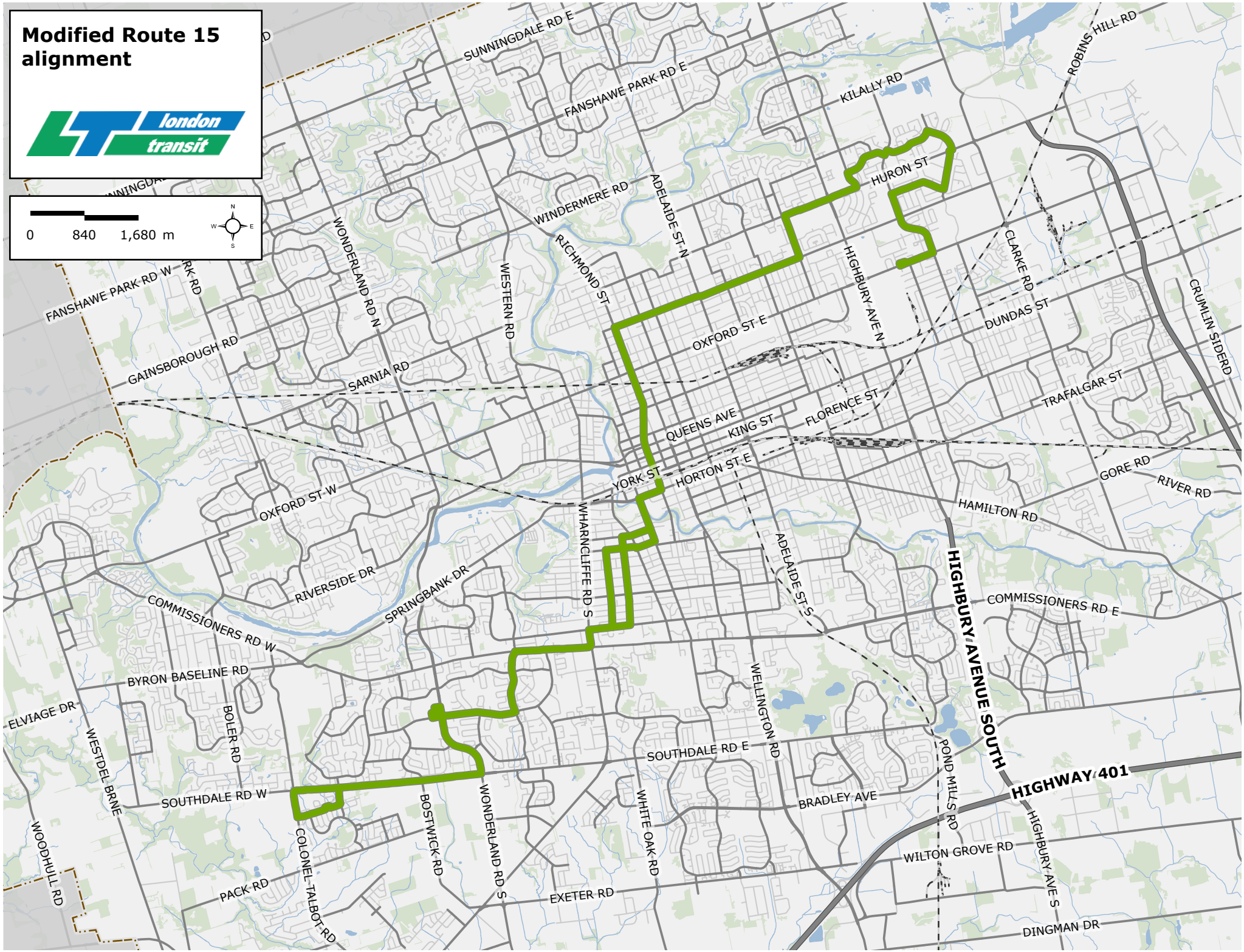

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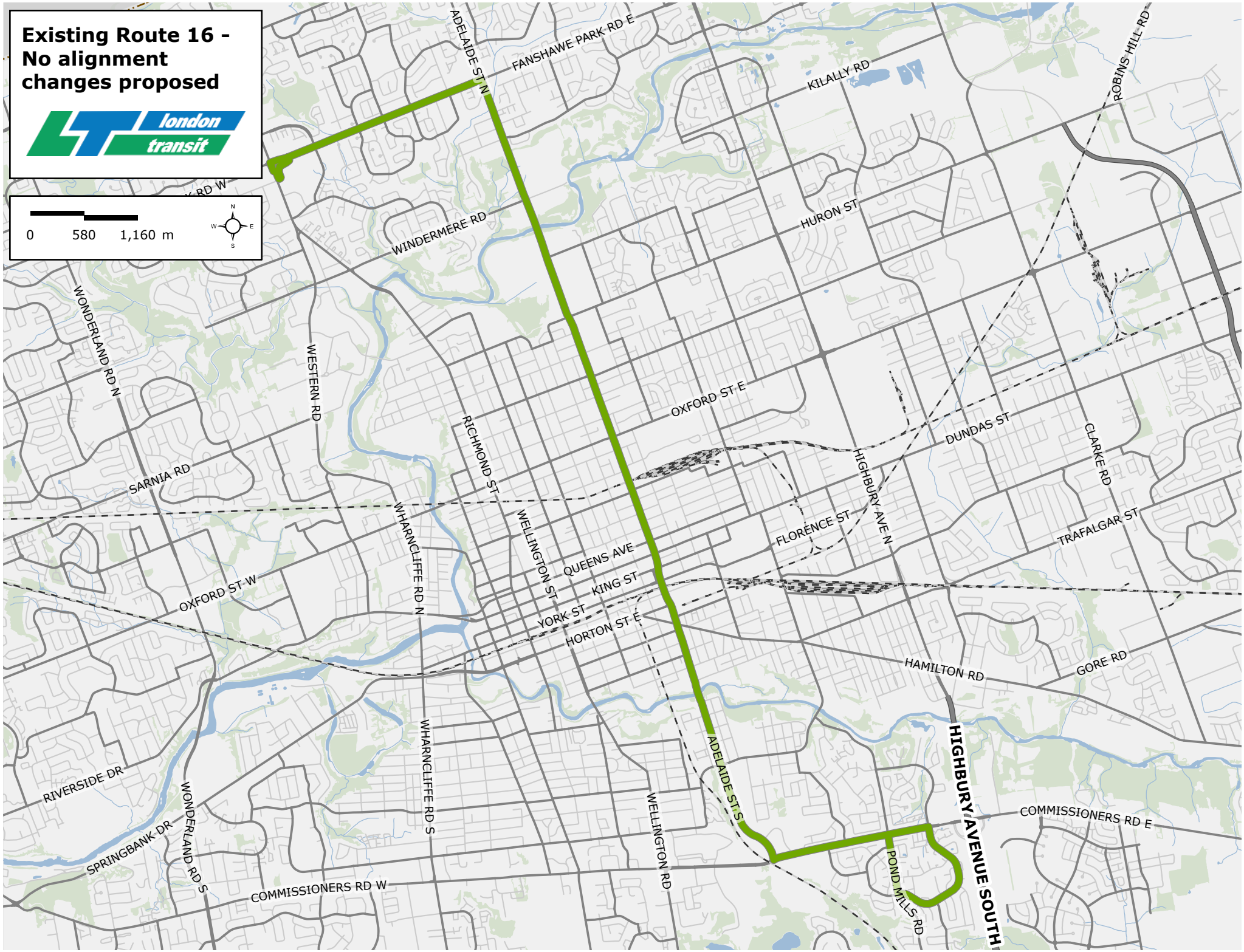

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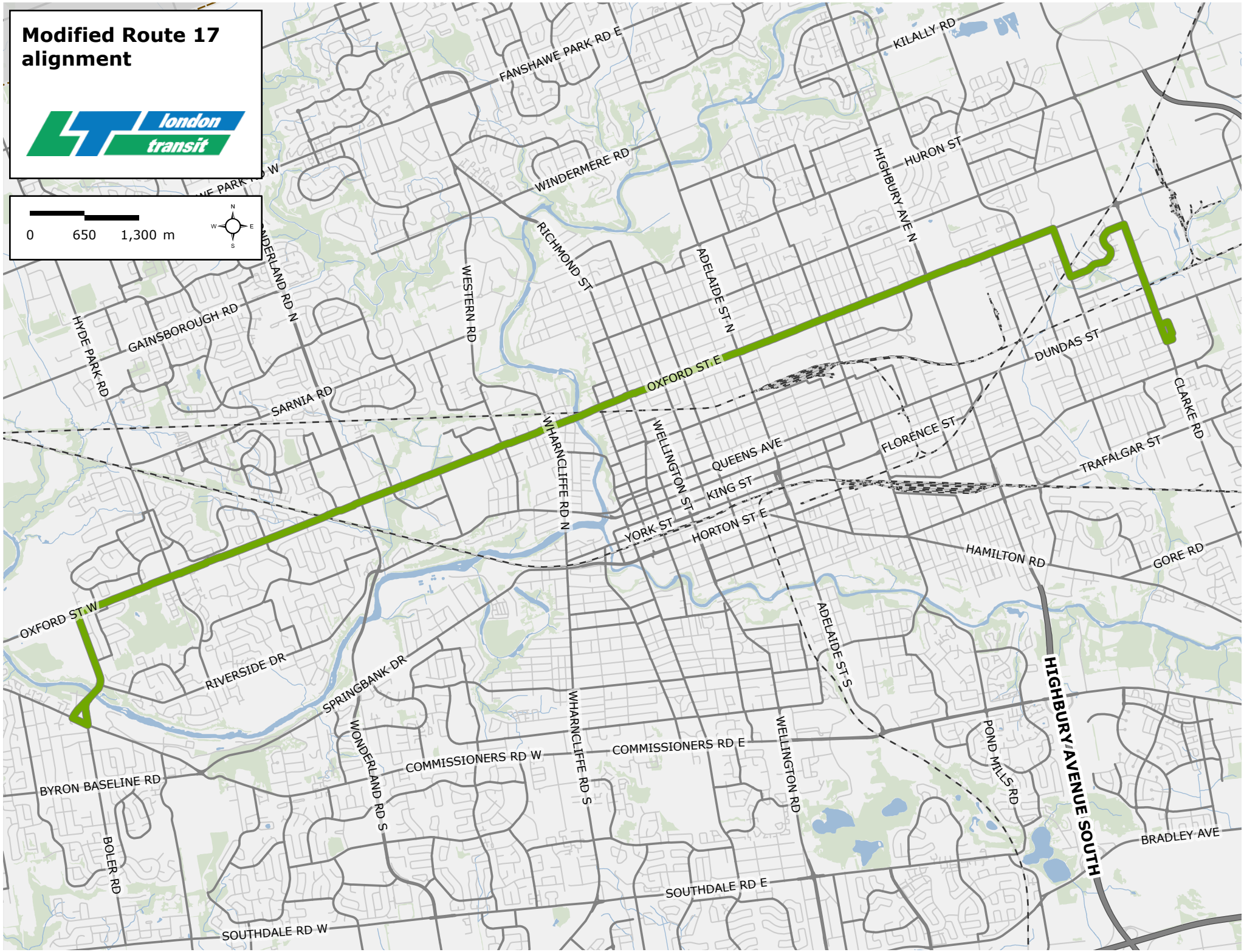

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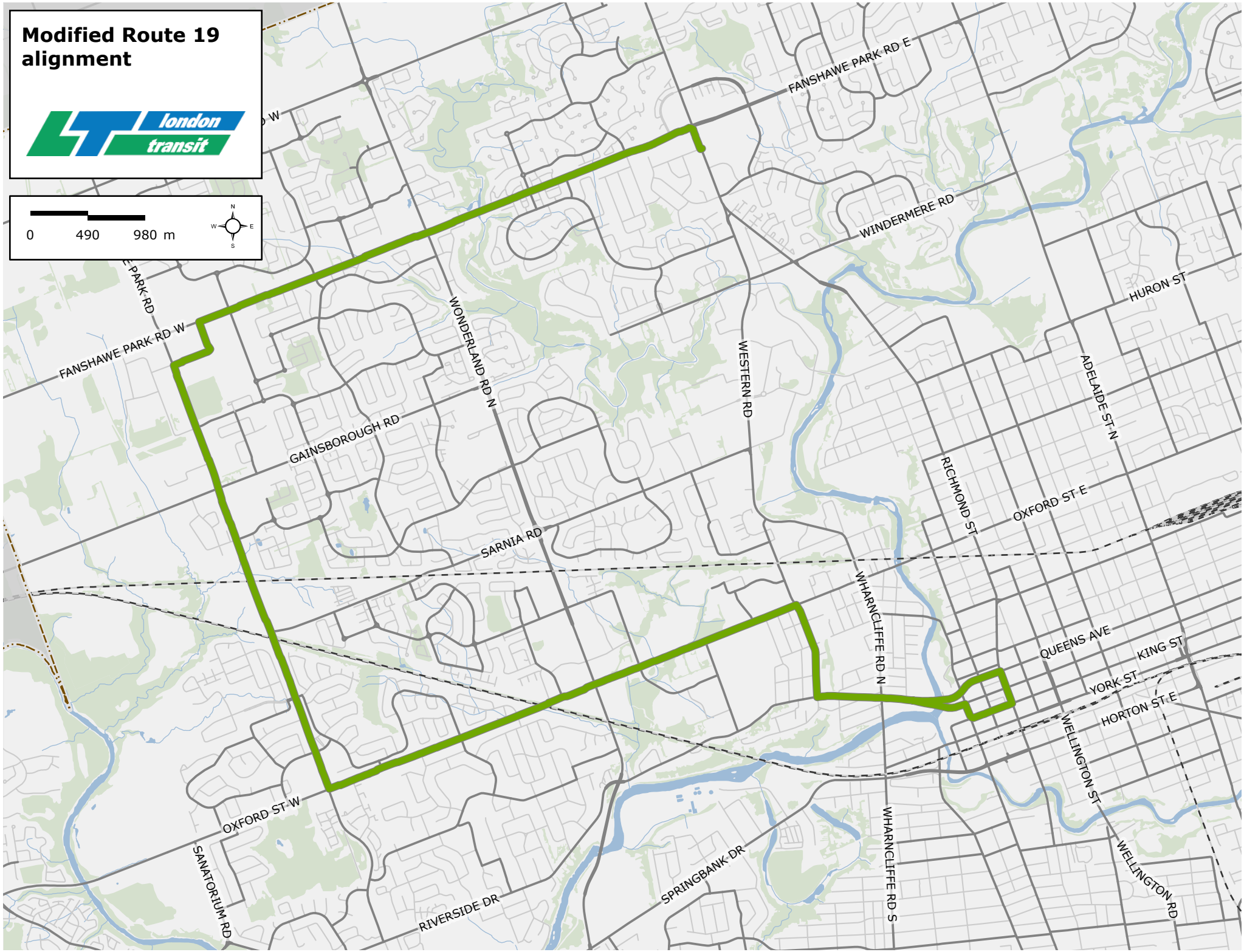

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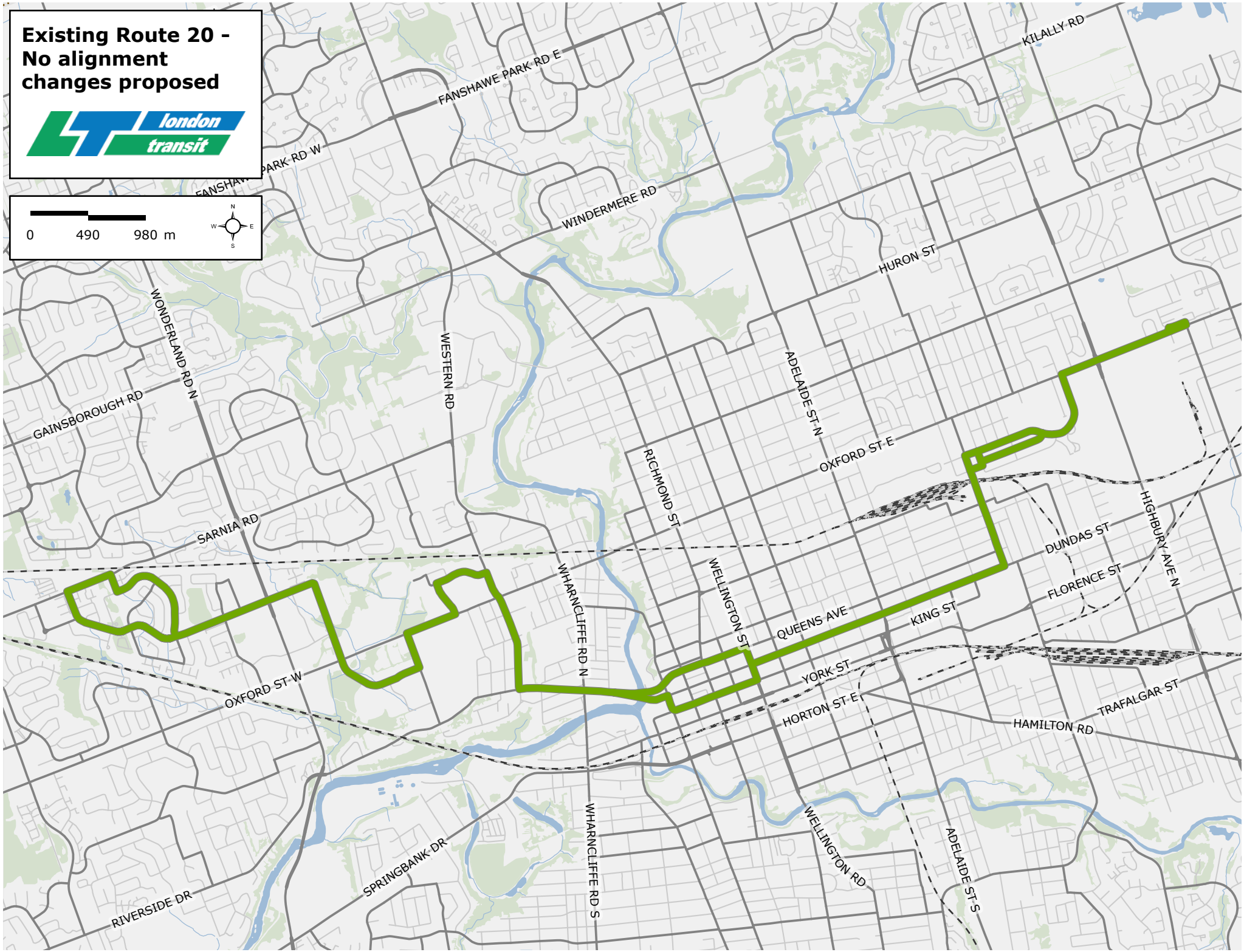

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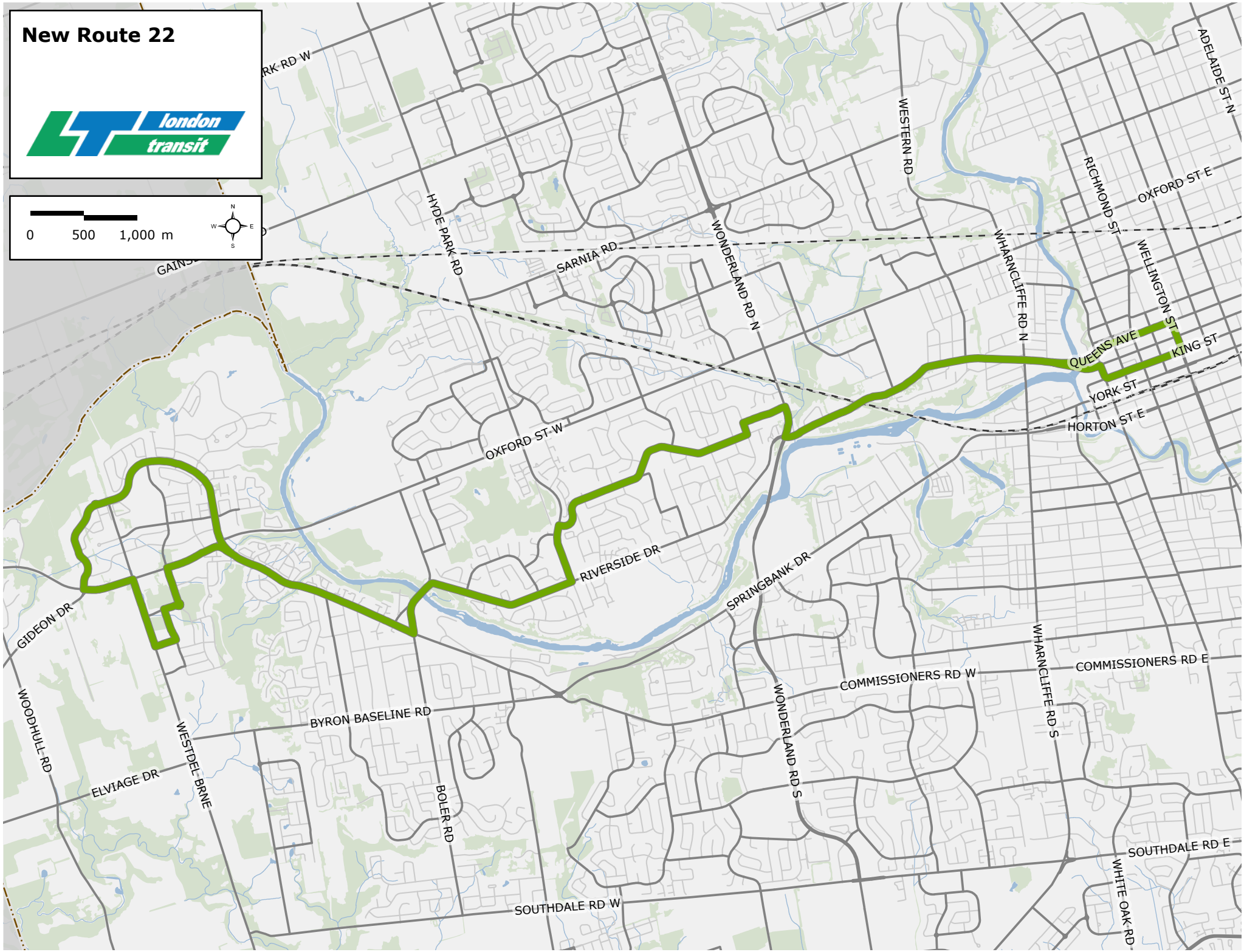

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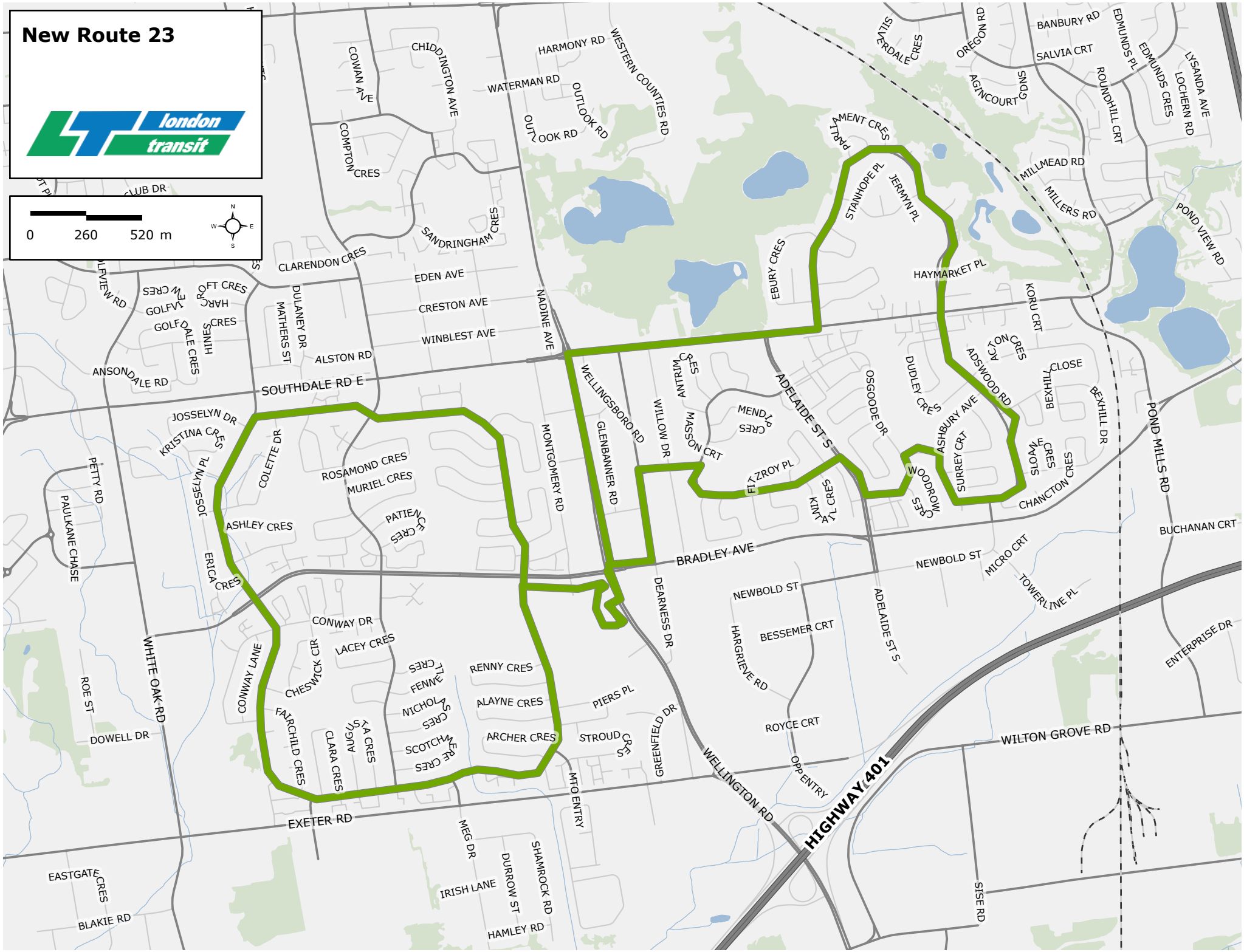

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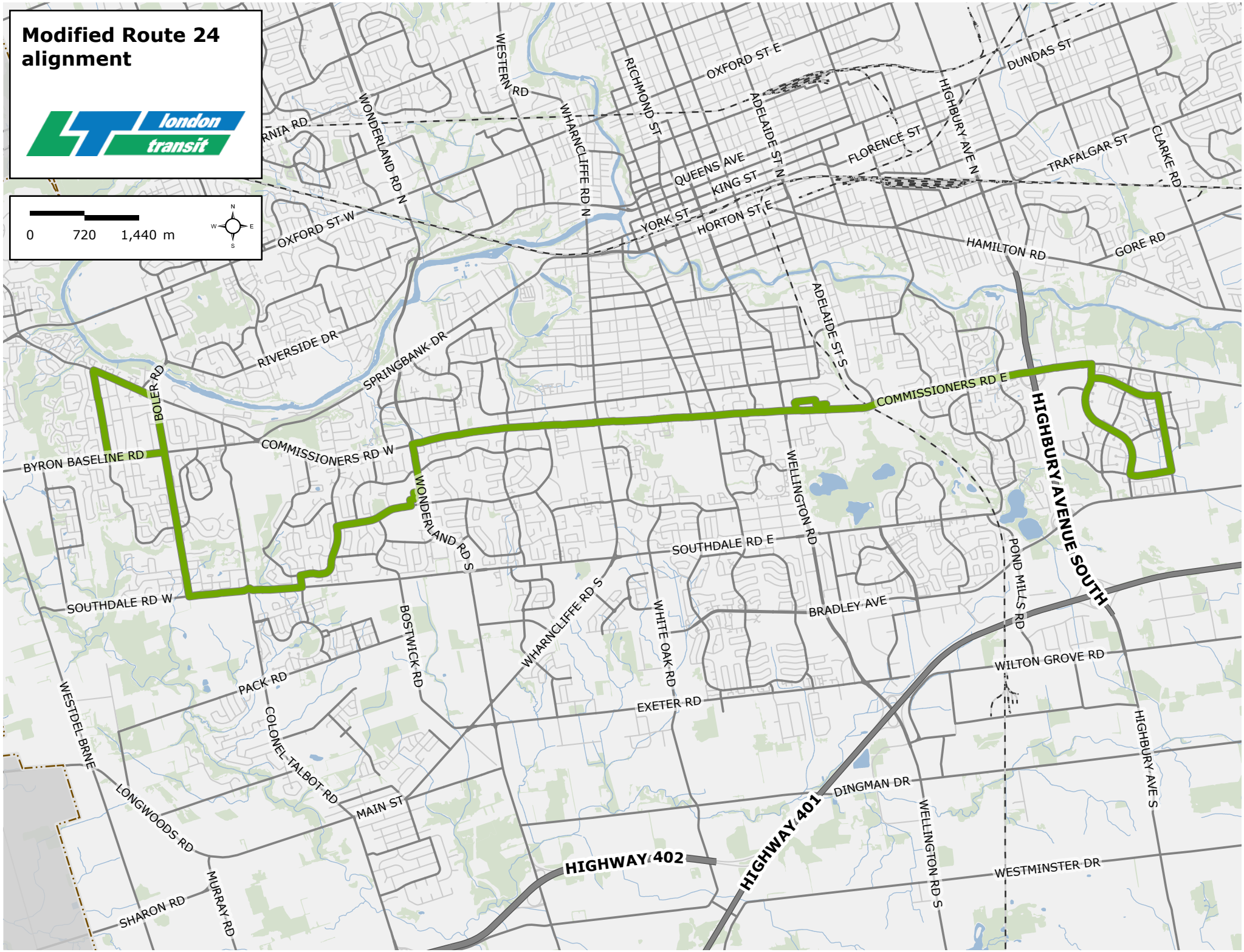

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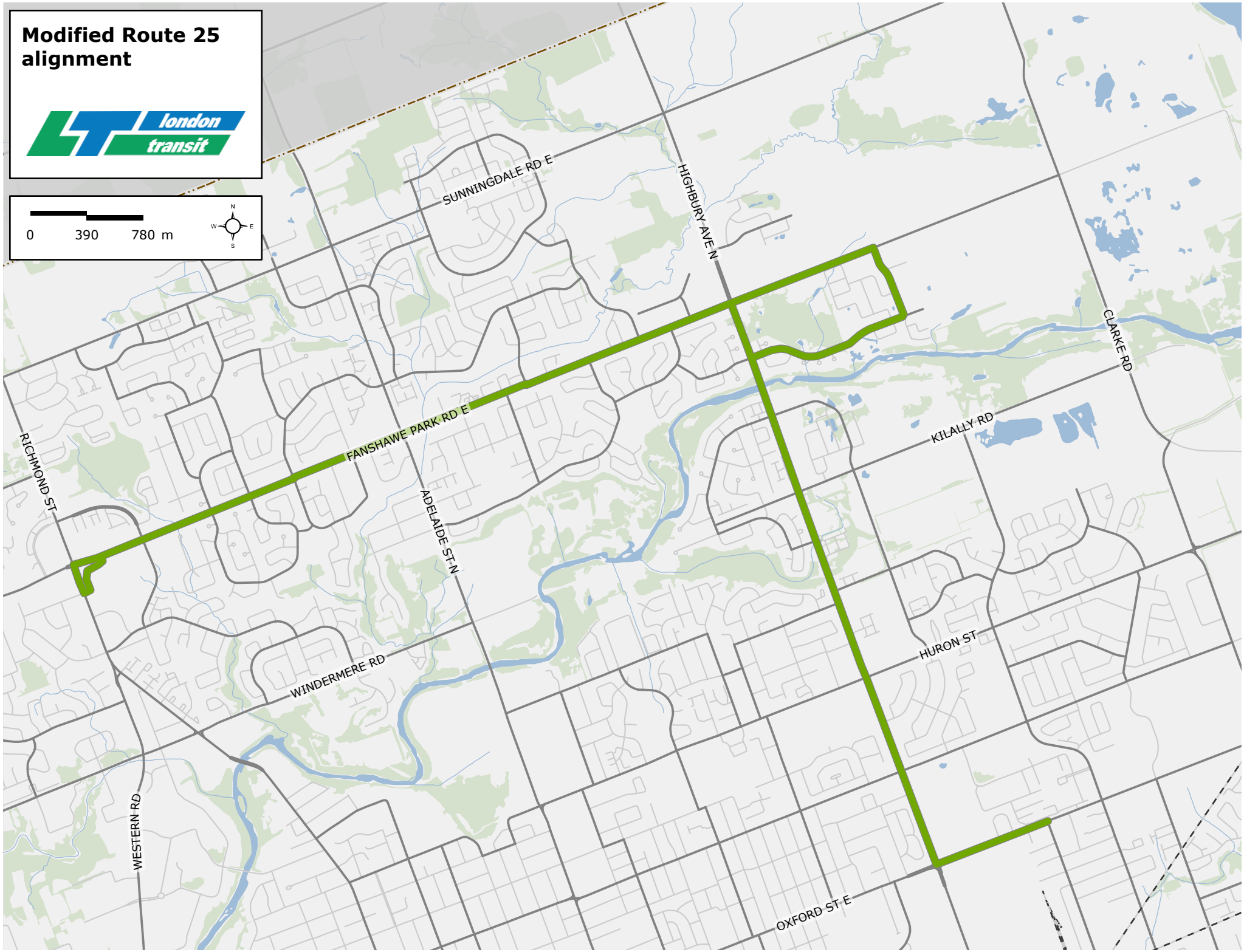

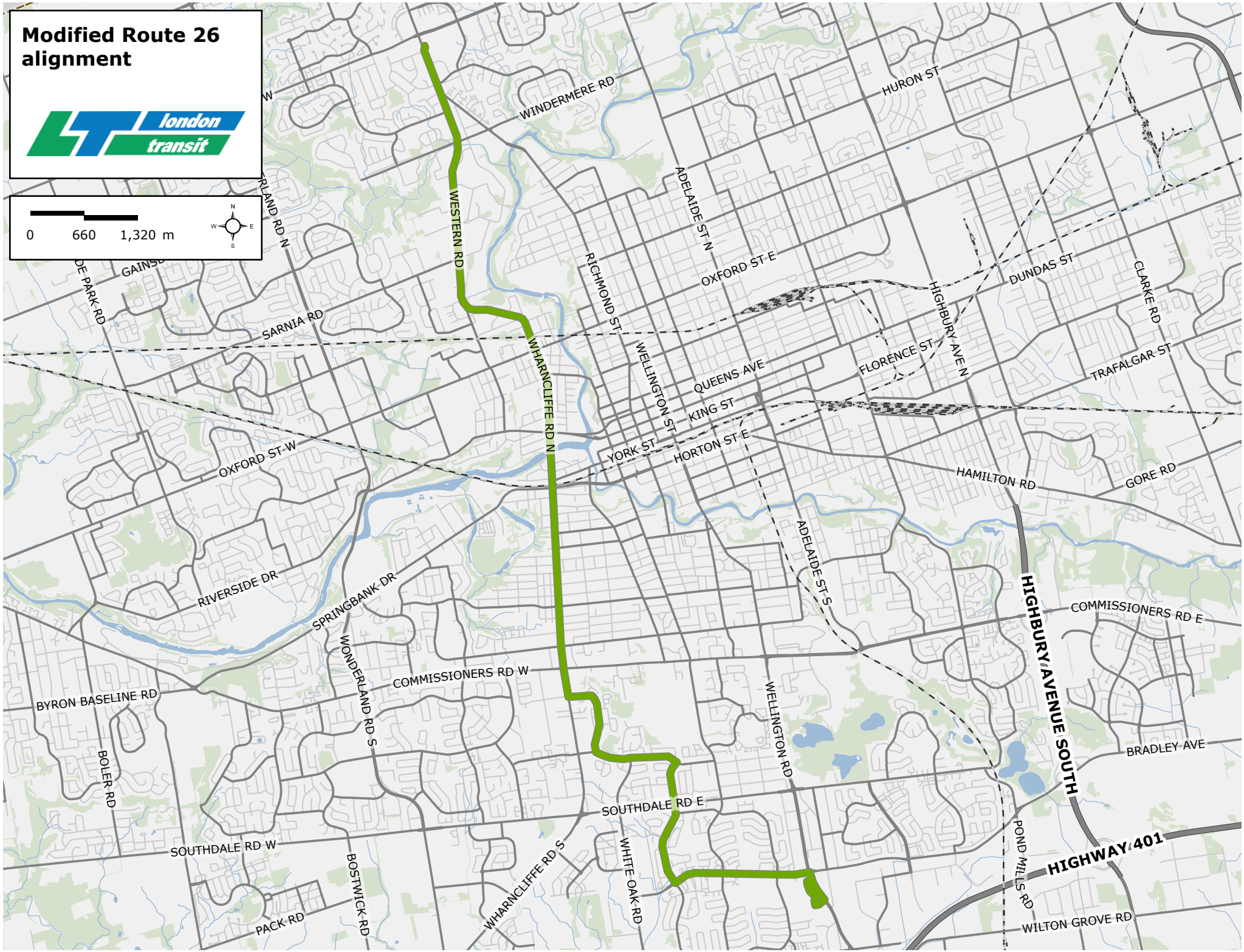

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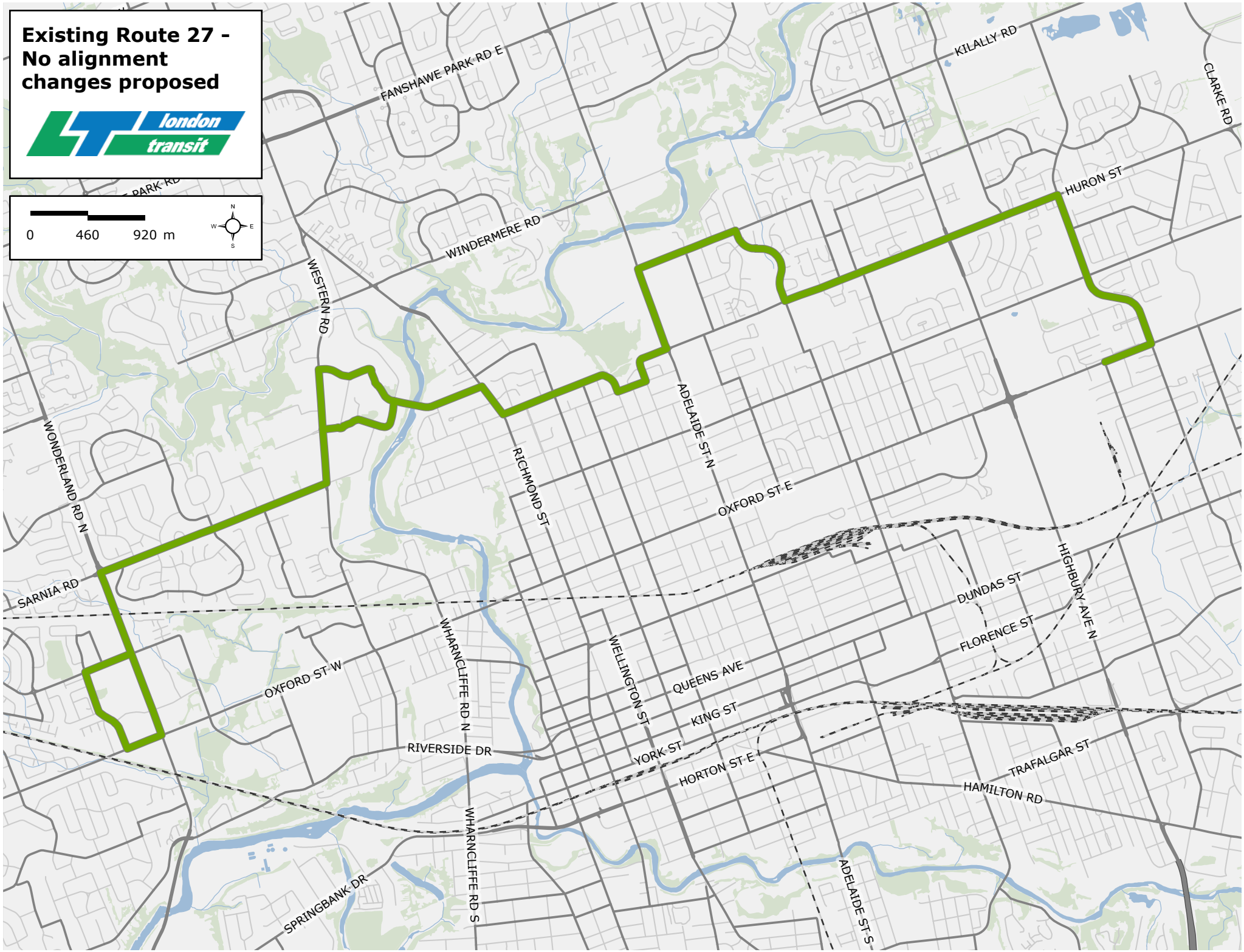

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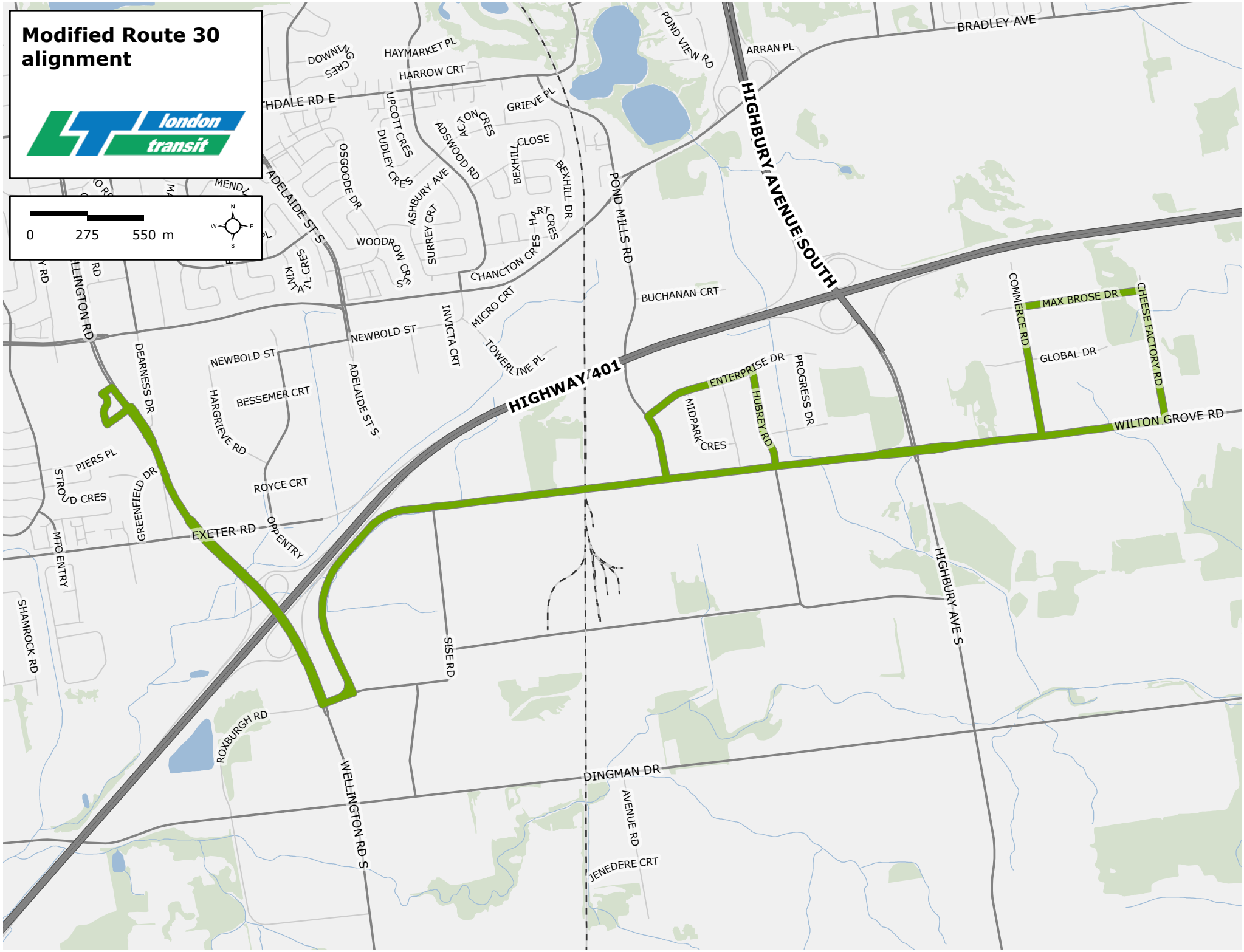

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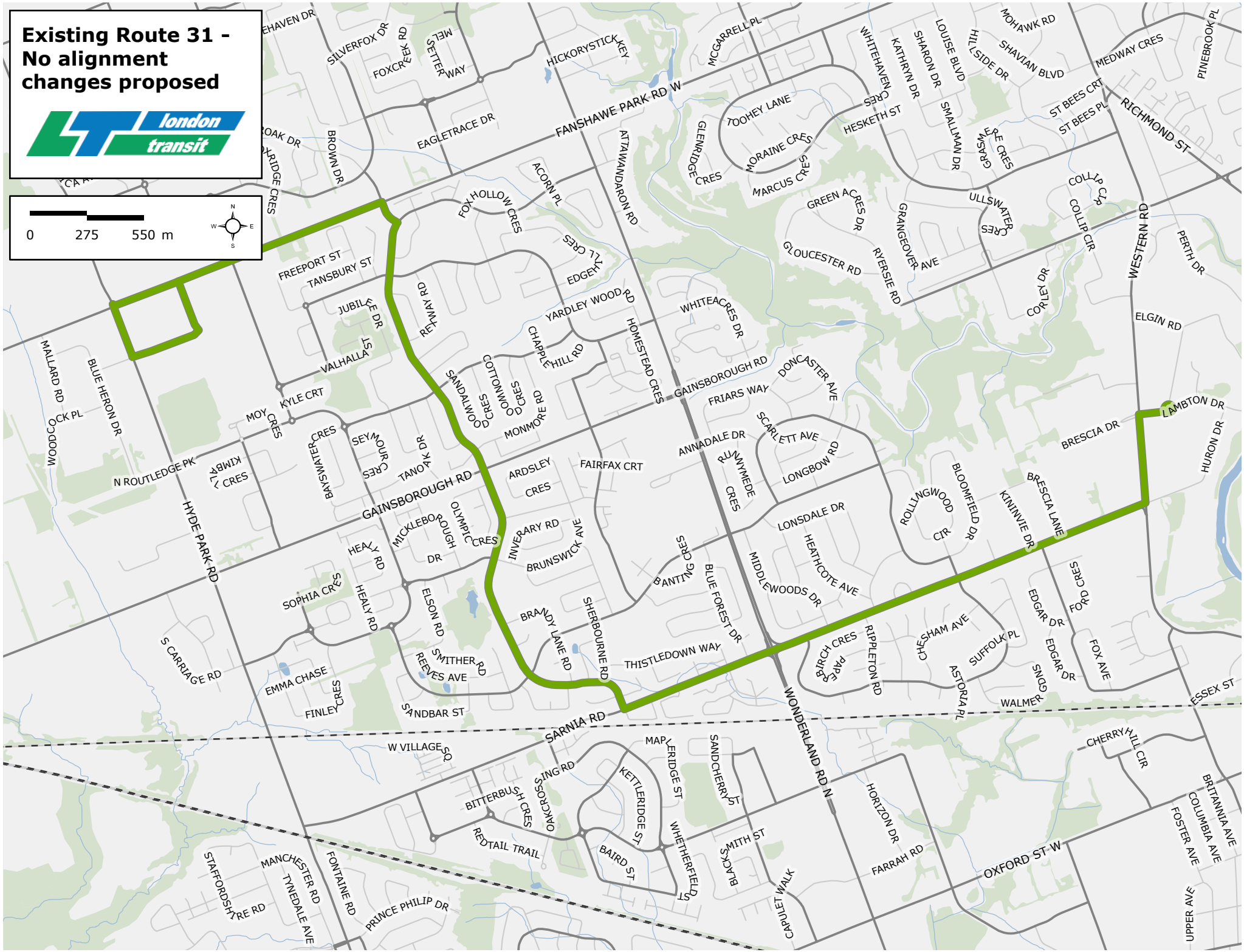

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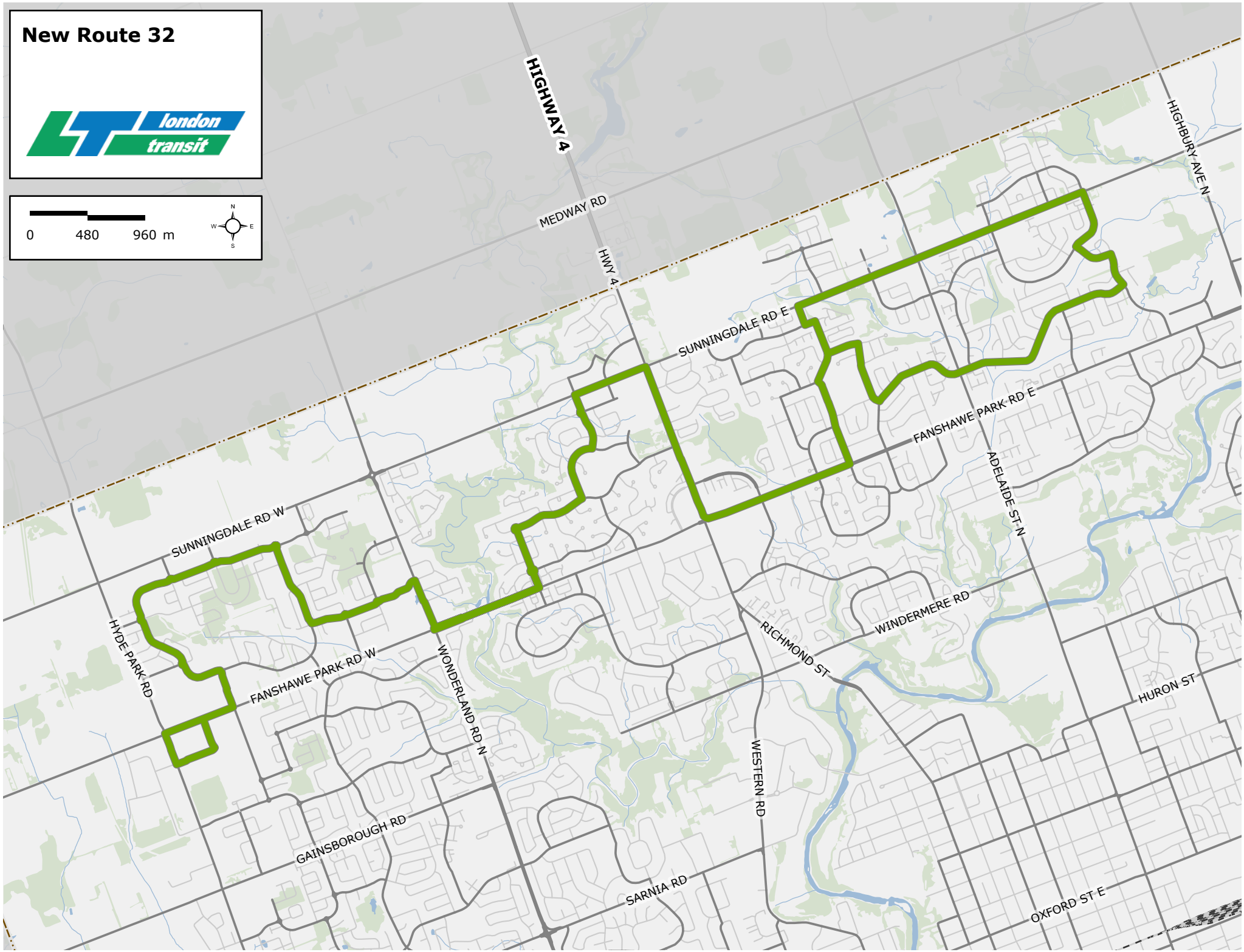

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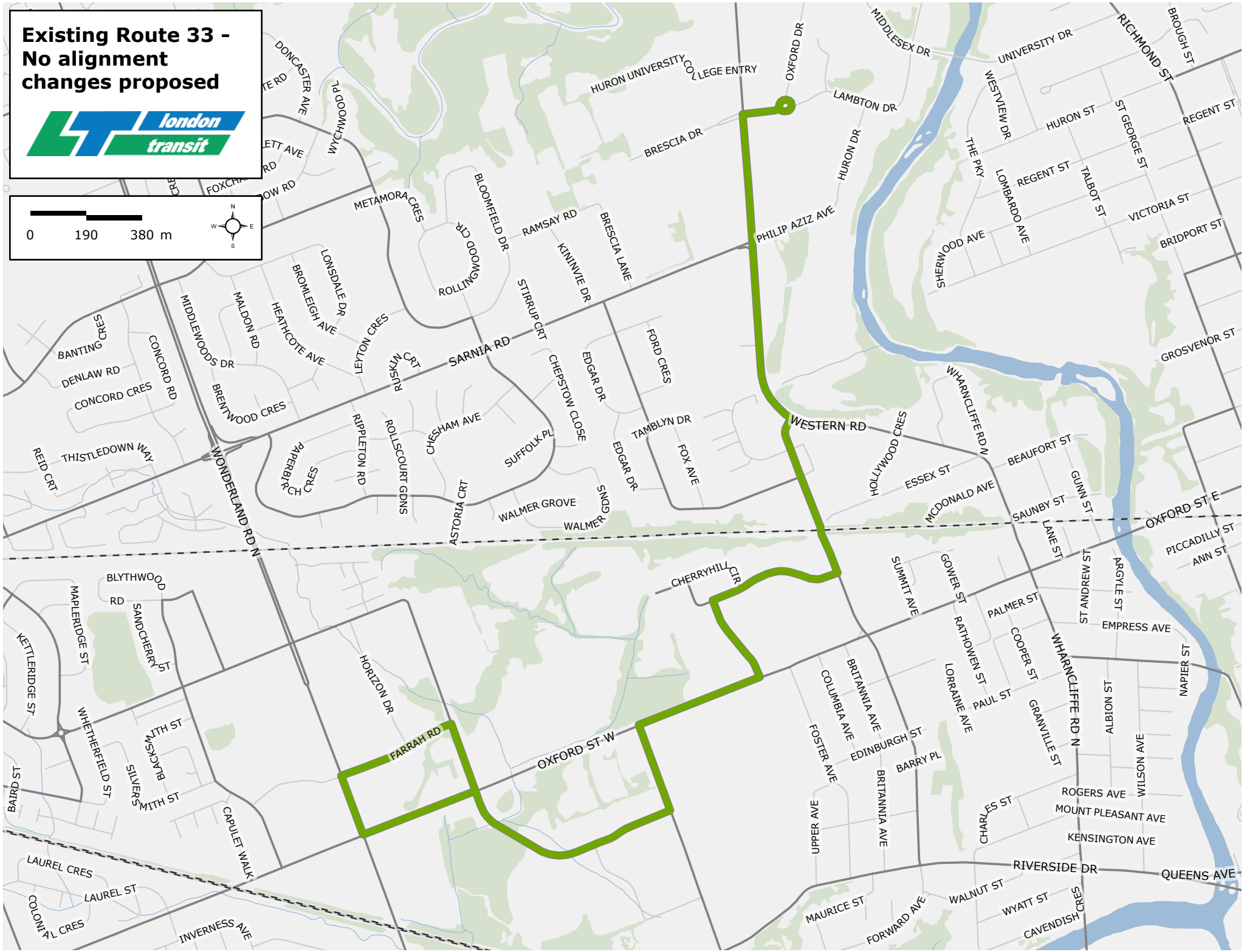

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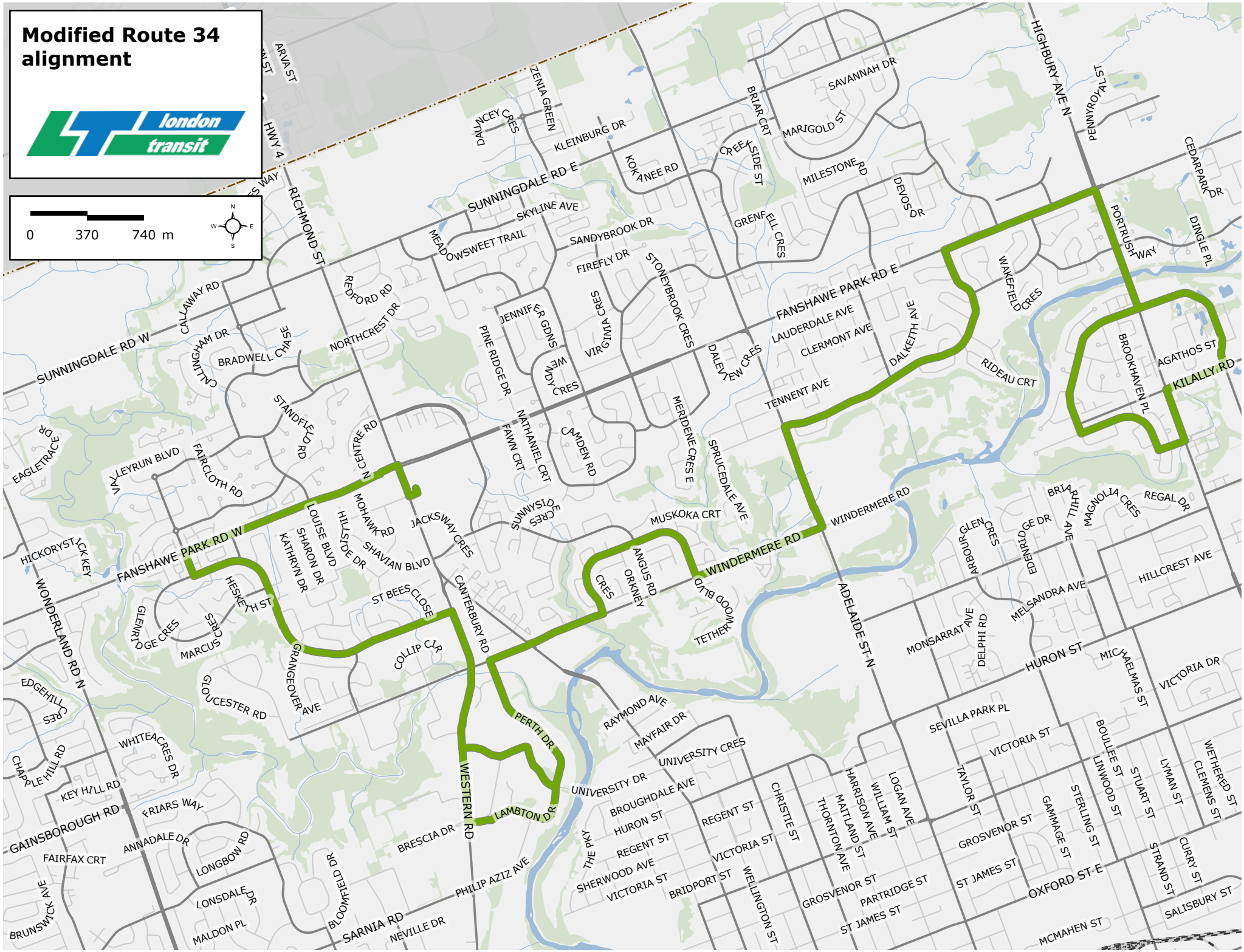

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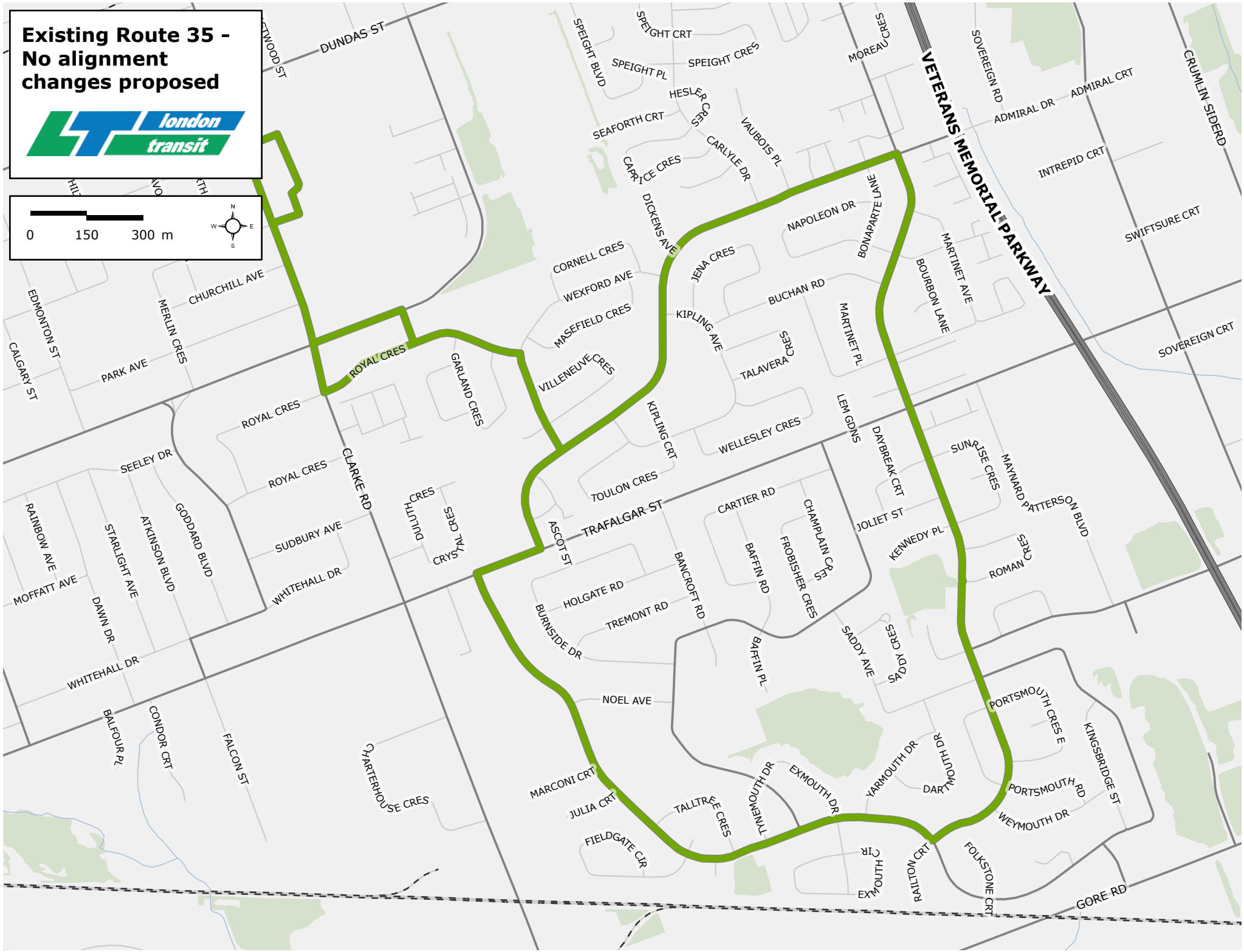

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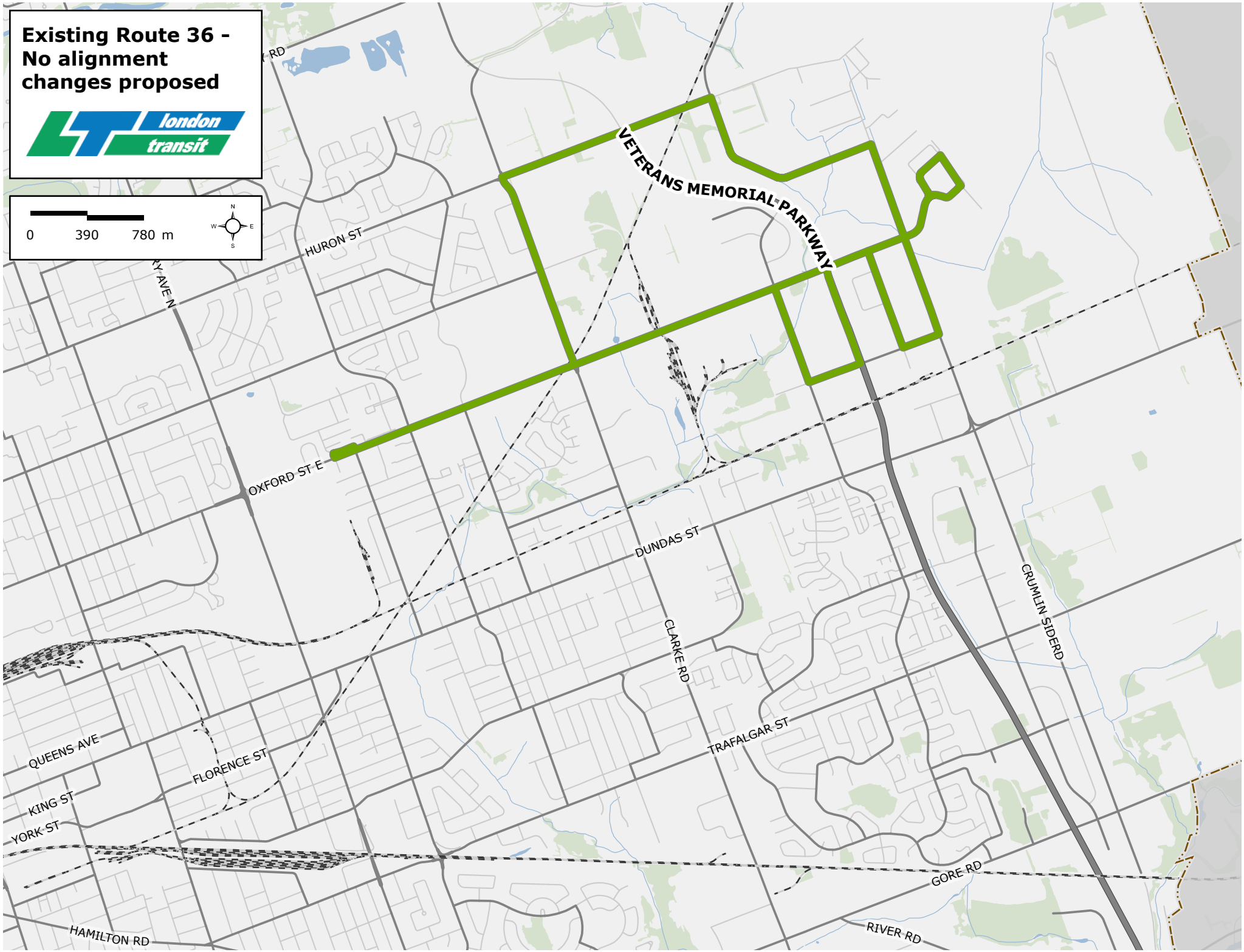

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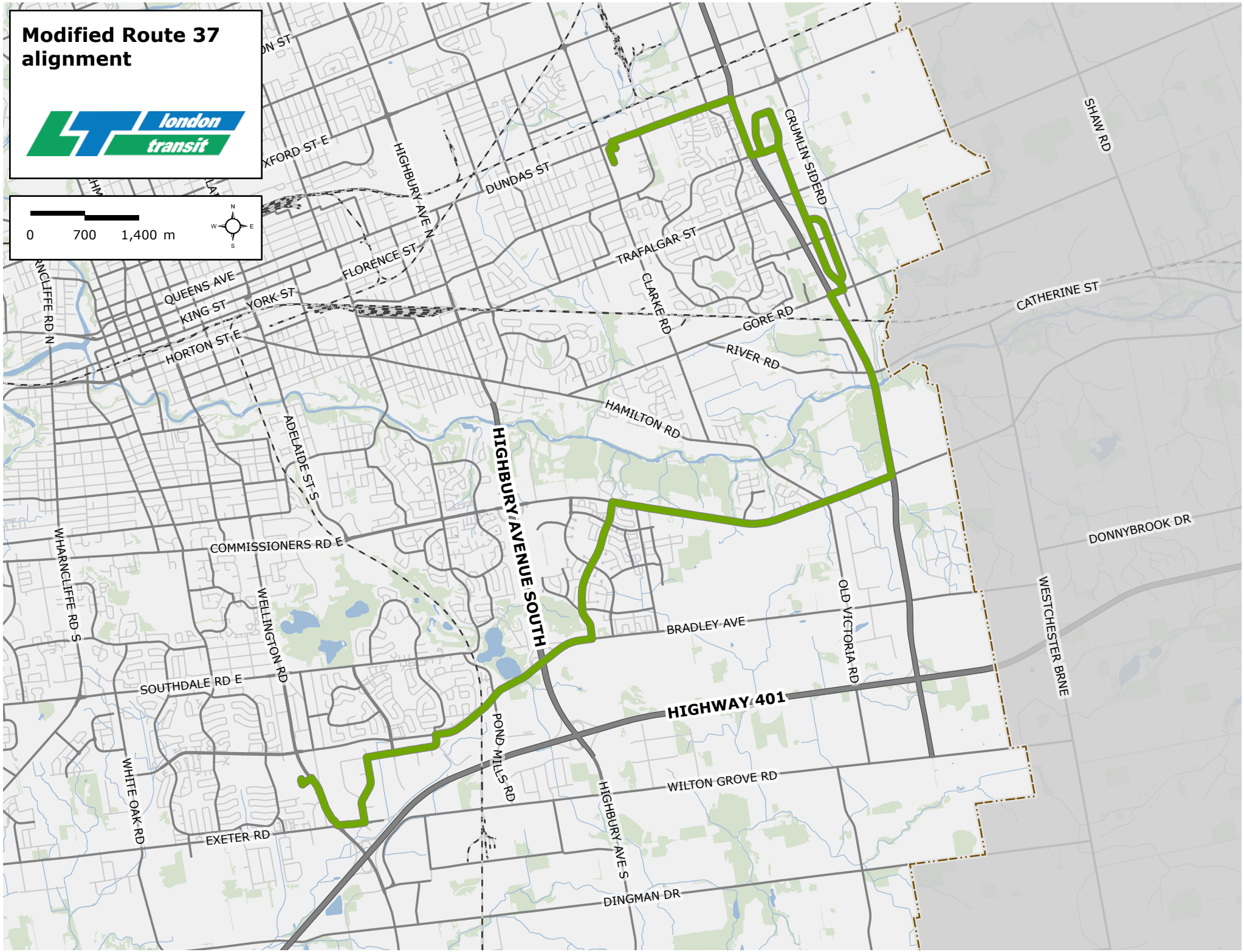

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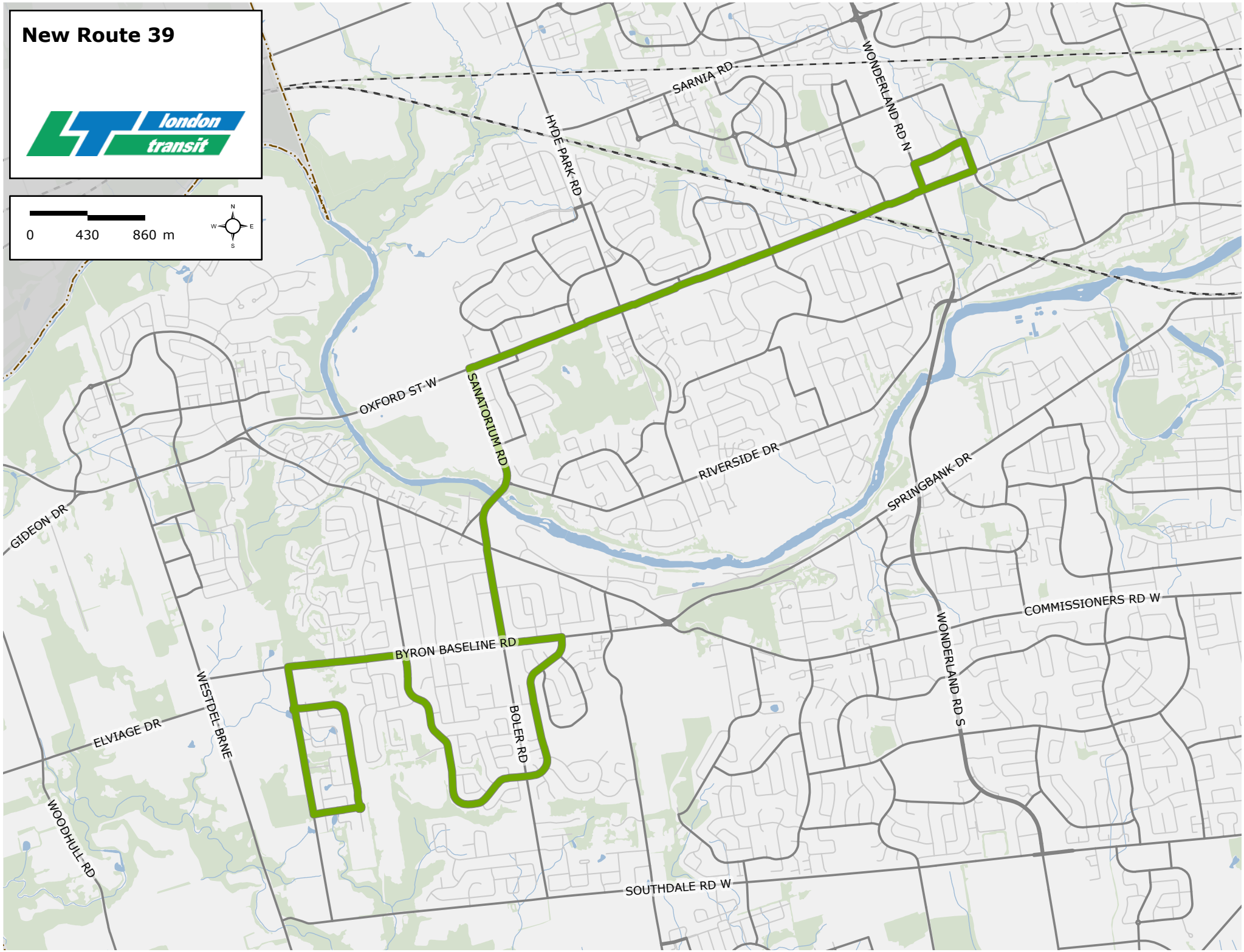

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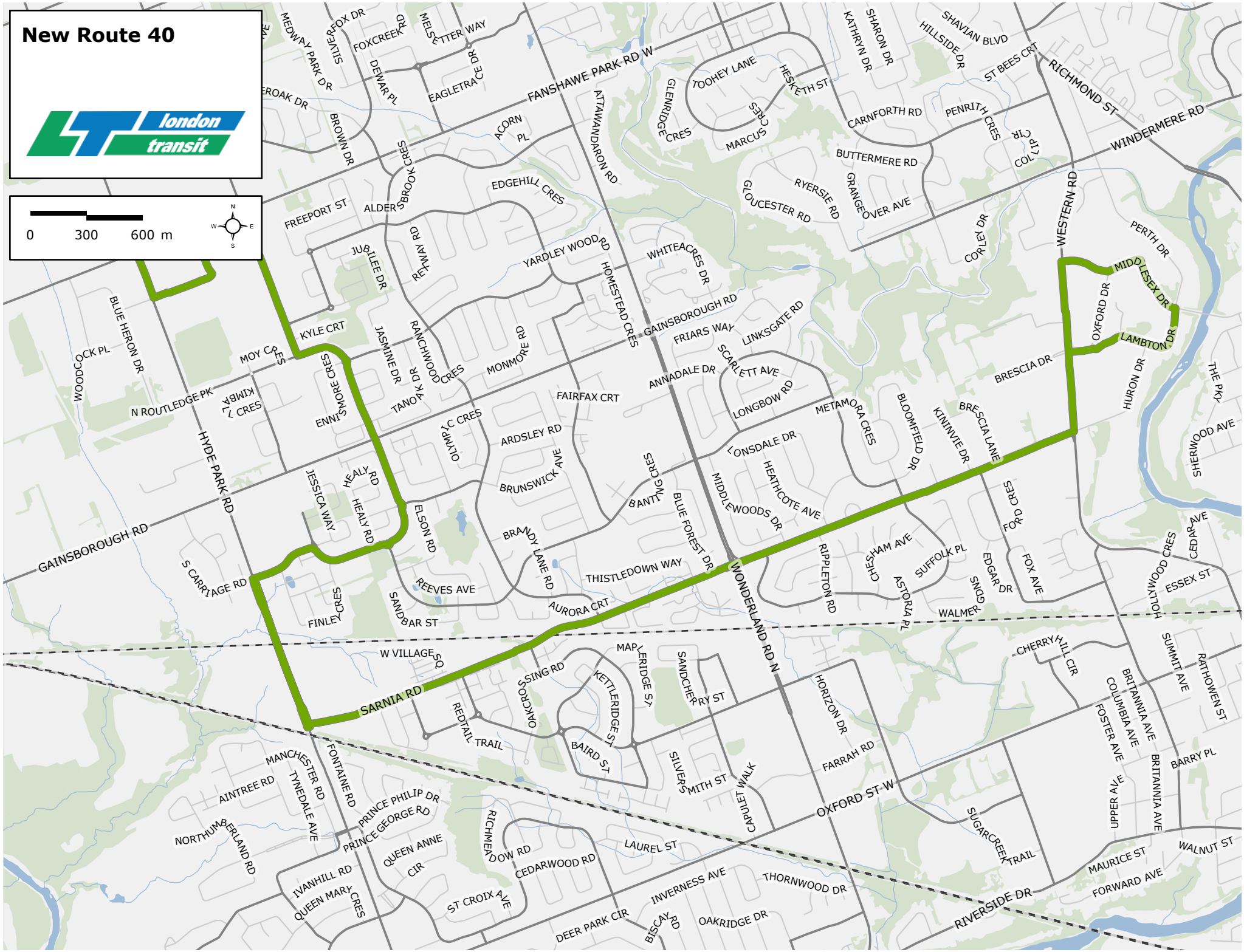

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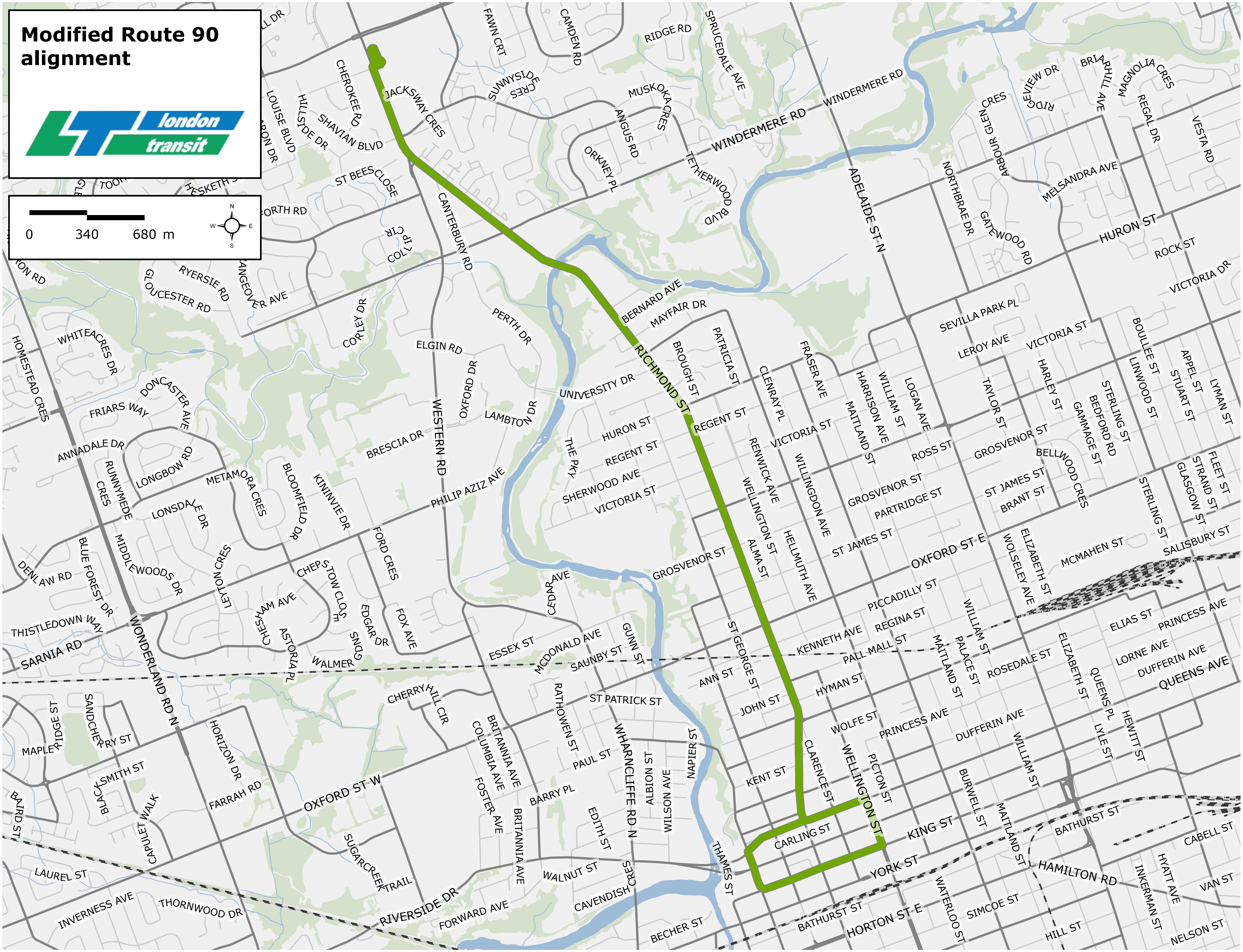
Modified Route 90 alignment



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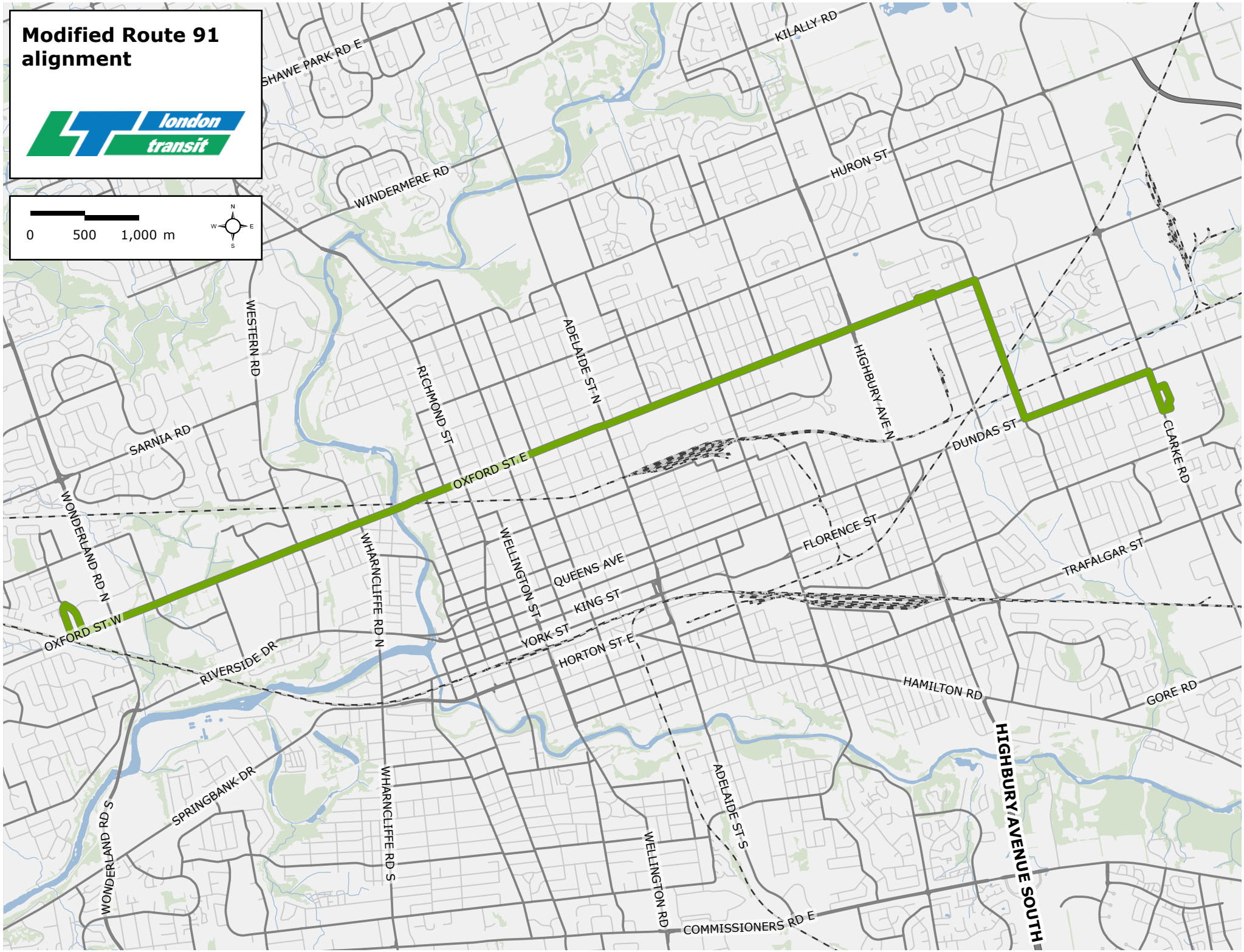

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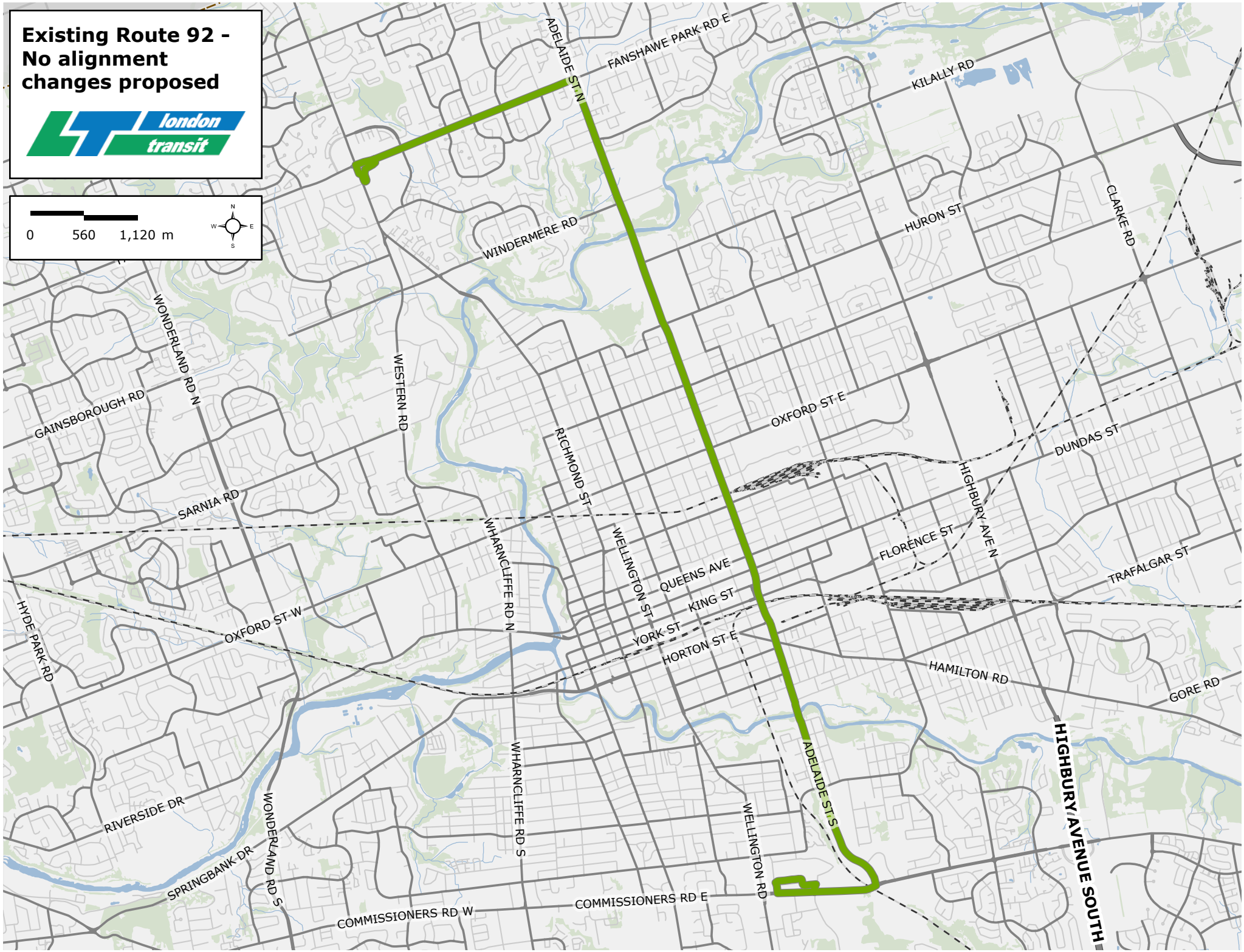

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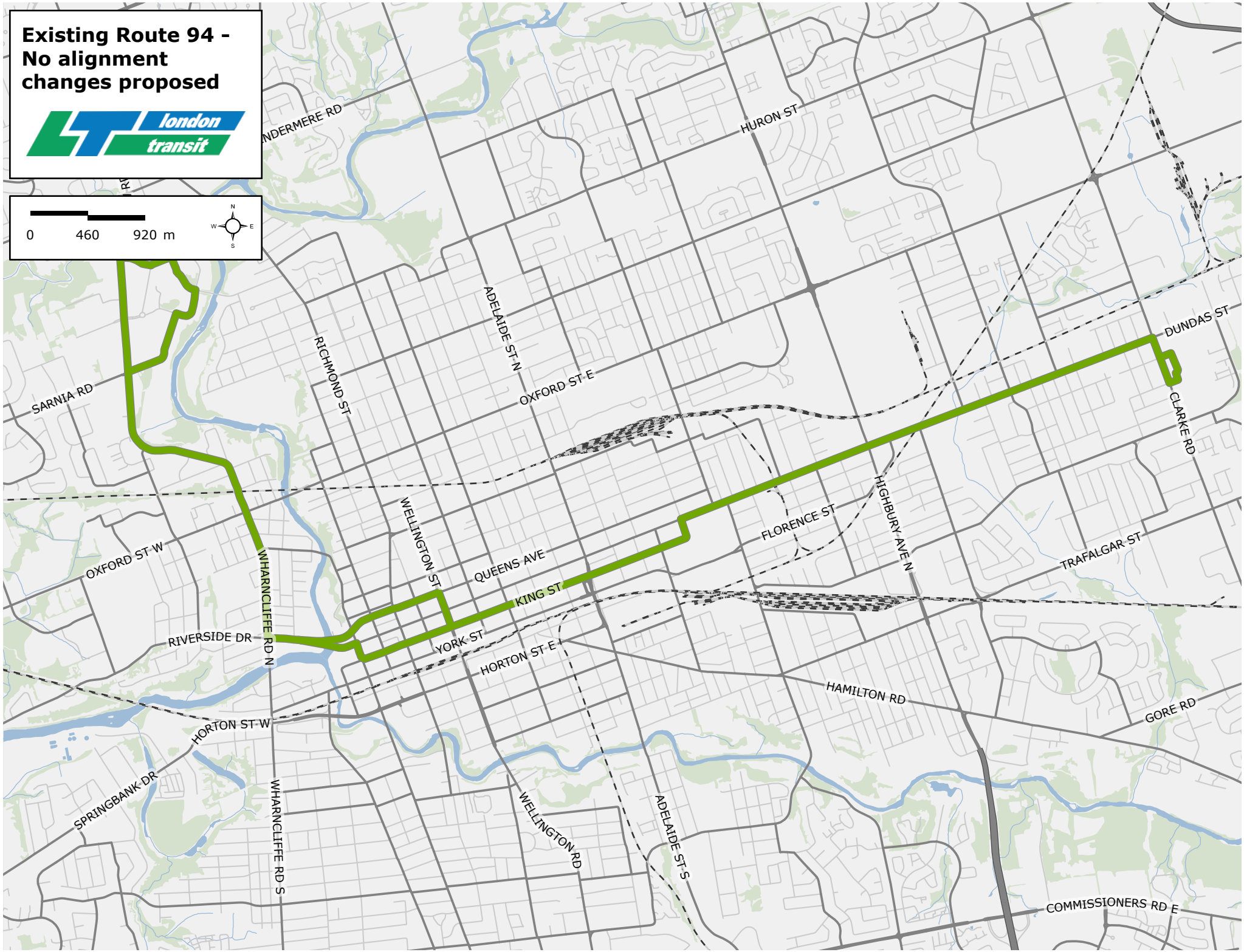

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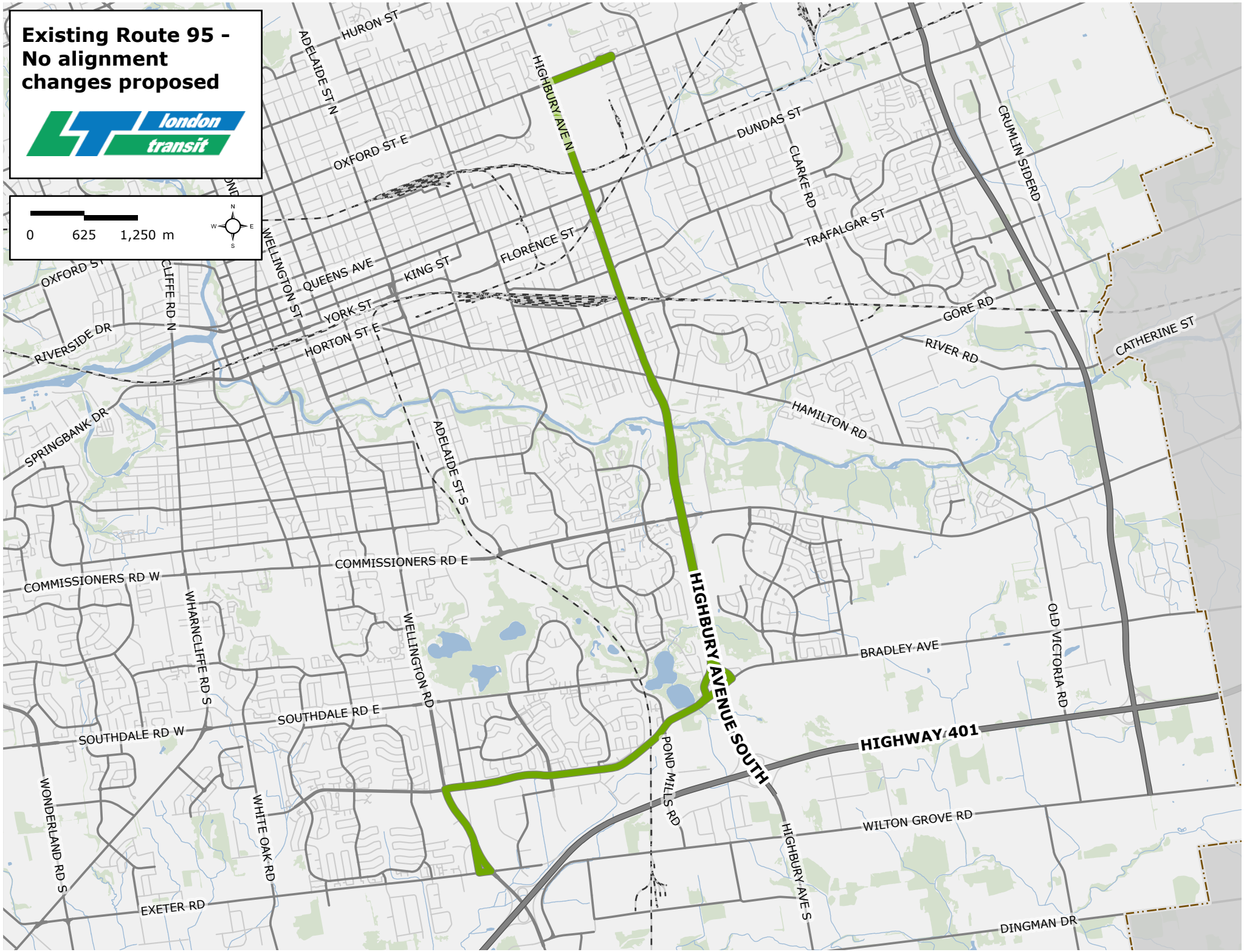

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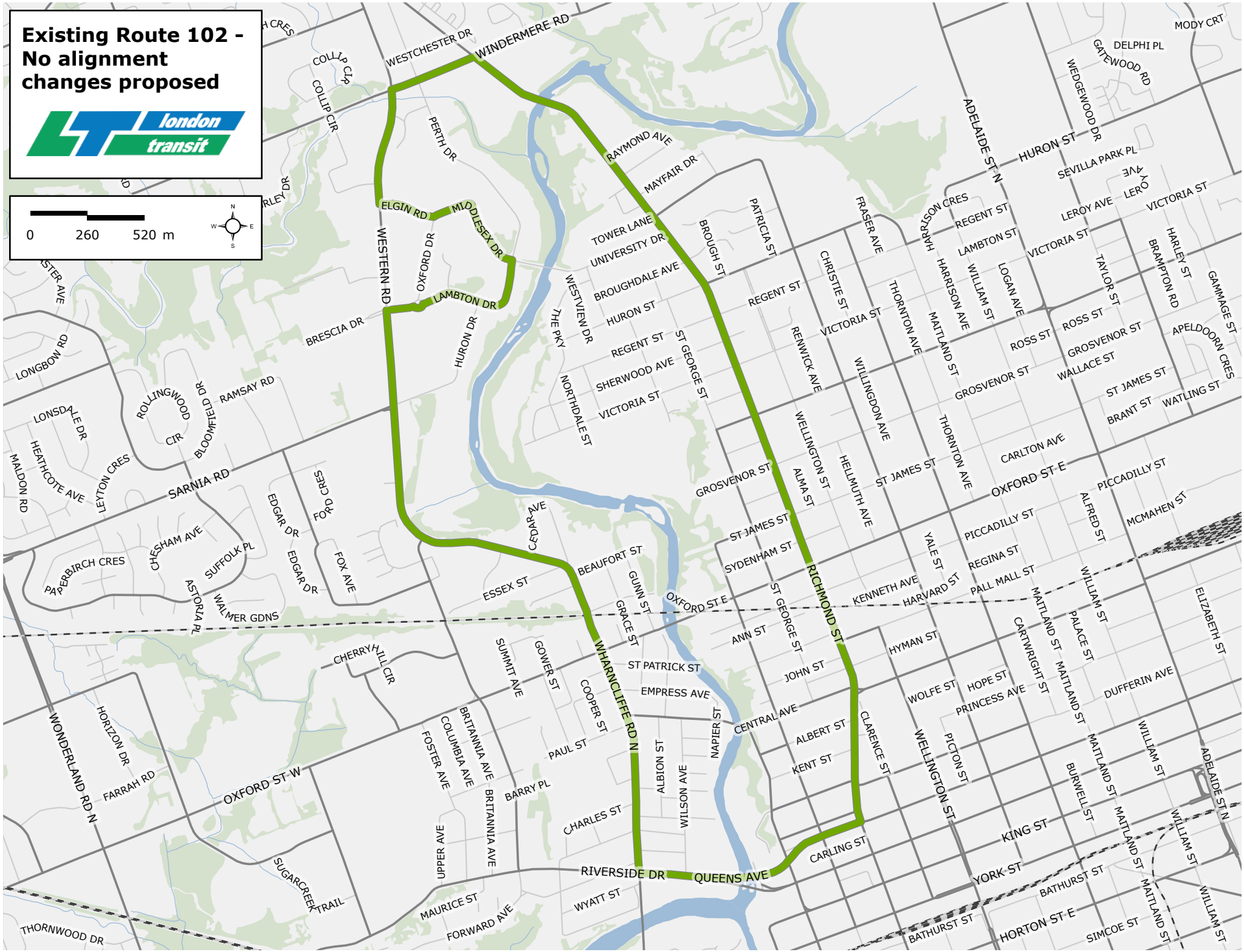

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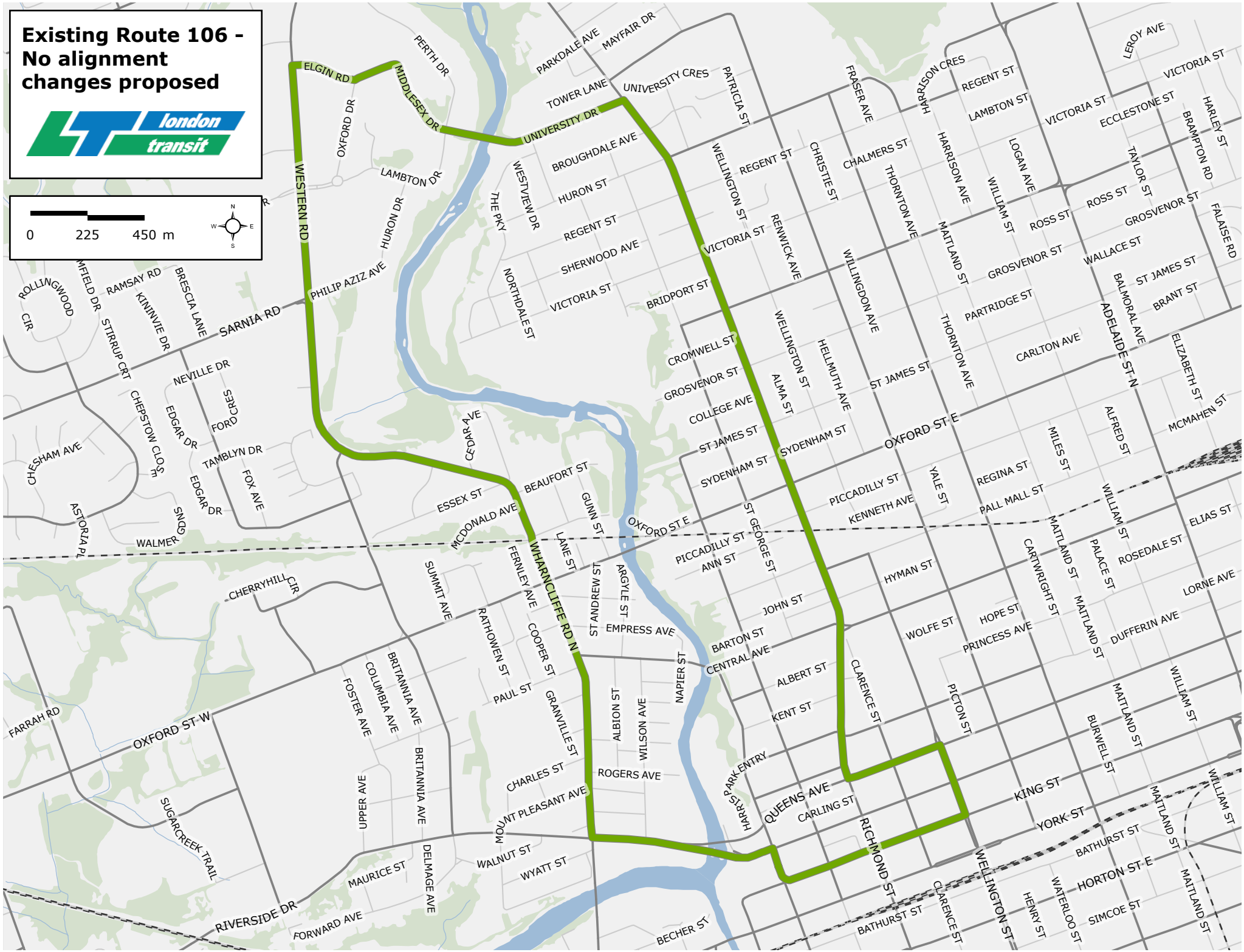

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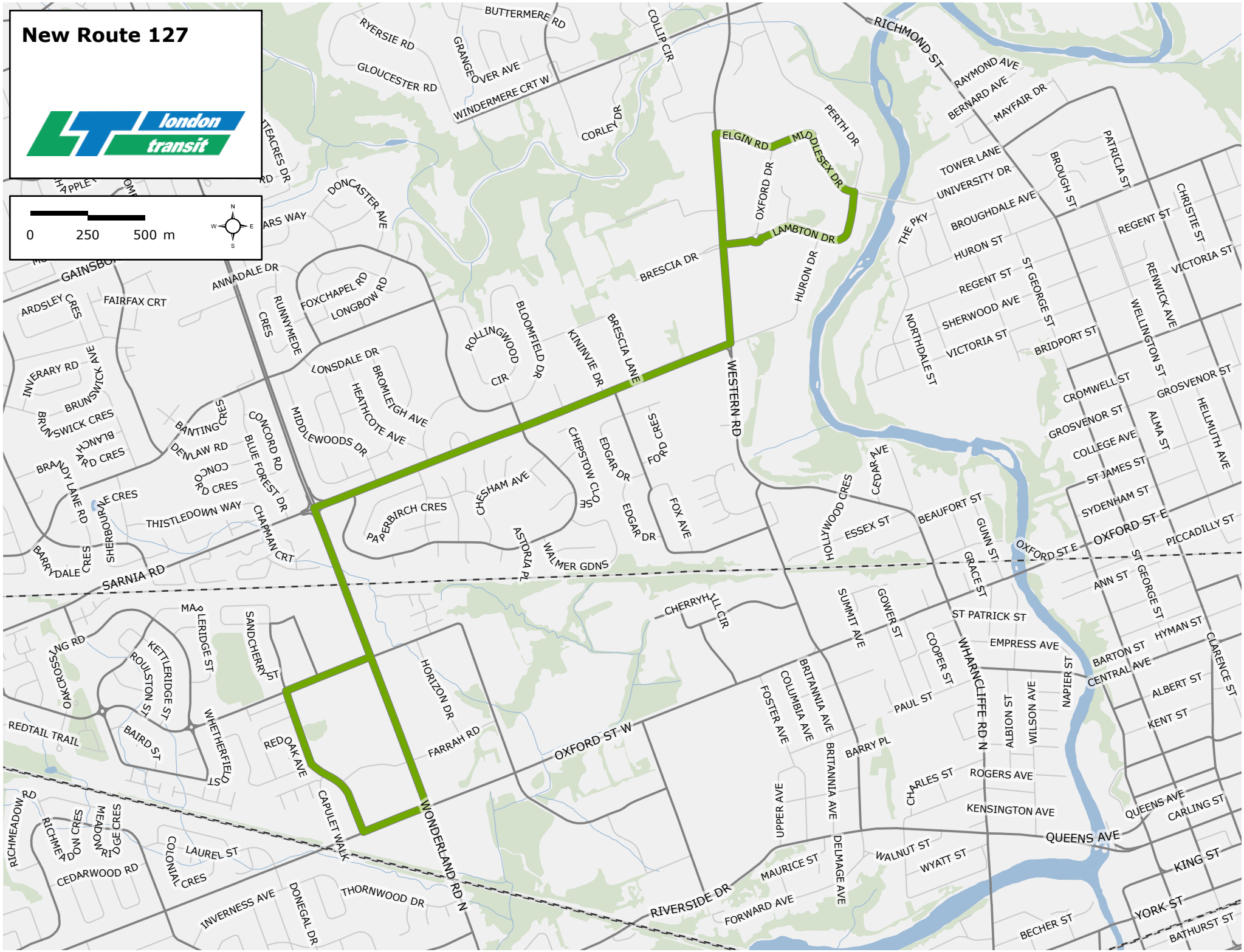

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