

TO:	CHAIR AND MEMBERS STRATEGIC PRIORITIES AND POLICY COMMITTEE MEETING ON MARCH 20, 2019
FROM:	KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER
SUBJECT:	INVESTING IN CANADA INFRASTRUCTURE PROGRAM PUBLIC TRANSIT STREAM TRANSPORTATION PROJECT LIST FOR CONSIDERATION

RECOMMENDATION

That on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the list of potential projects described herein **BE CONSIDERED** for the purposes of establishing an approved list that is within London's identified allocation and would be eligible for funding under the Public Transit Stream of the Federal Investing in Canada Infrastructure Program.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

- Civic Works Committee – June 19, 2012 – London 2030 Transportation Master Plan
- Strategic Priorities and Policy Committee – June 23, 2014 – Approval of 2014 Development Charges By-Law and DC Background Study
- Planning and Environment Committee – June 13, 2016 - The London Plan
- Civic Works Committee – September 7 12, 2016 – London ON Bikes Cycling Master Plan
- Civic Works Committee – May 24, 2017 – Infrastructure Canada Phase One Investments Public Transit Infrastructure Fund Approved Projects
- Corporate Services Committee – January 23, 2018 – Corporate Asset Management Plan 2017 Review
- Civic Works Committee – March 14, 2019 – History of London's Rapid Transit Initiative

2015-19 STRATEGIC PLAN

The following report supports the Strategic Plan through the strategic focus area of *Building a Sustainable City* by implementing and enhancing safe and convenient mobility choices for transit, automobile users, pedestrians, and cyclists. This report will help inform future directions for the creation of an efficient, inclusive and sustainable transportation system.

BACKGROUND

Purpose

On February 13, 2019, Council directed staff to assemble a list of transportation projects that are both likely to be eligible provincial and federal funding and able to be delivered within the program funding window of the Investing in Canada Plan, ending in March of 2028.

The report was prepared to support the public participation meeting identified in the resolution. The report provides the list of projects for consideration for London's submission to the Public Transit Infrastructure Stream (PTIS) of the Investing in Canada Plan. The report also briefly outlines the previous planning that supports the creation and implementation of these infrastructure projects and associated financial considerations.

Investing in Canada Infrastructure Program Public Transit Stream

In March 2018, the Government of Canada and the Province of Ontario signed an Integrated Bilateral Agreement (the Agreement) to deliver up to \$7.47 B to Ontario for public transit infrastructure by March 31, 2028. The funds are distributed across Ontario based on transit ridership. London's municipal transit ridership is the fifth largest in the province resulting in an allocation of \$204.88 M. Further details of the federal program are outlined in the Canada-Ontario Integrated Bilateral Agreement.

To be eligible, projects must meet at least one of the following outcomes as stated in the Agreement with Ontario:

- improved capacity of public transit infrastructure;
- improved quality and/or safety of transit systems
- improved access to a public transit system

The Agreement also states that public transit projects and active transportation projects that connect citizens to a public transit system need to be consistent with a land-use or transportation plan or strategy.

The federal contribution to projects is not to exceed 40% with the exception of public transit rehabilitation projects that can be funded at 50%. Rehabilitation projects are limited to a maximum of 15% of Ontario's public transit allocation.

The Agreement requires Ontario to contribute at least 33% of the eligible costs of municipal projects. Earlier in 2018, the provincial Minister of Transportation identified a provincial funding commitment of \$170 M based on approval in principle of London's Rapid Transit Initiative Business Case. This commitment was reaffirmed in January 2019 by the new Provincial government.

CONTEXT

Infrastructure planning is an ongoing process guided by legislated processes, informed by public consultation, directed and approved by Council. The importance of this for transportation cannot be understated. In addition to city population growth, the average number of trips Londoners take continues to grow and is currently 3.4 per day. This

amounts to 1.63 million trips within the city in a typical day. The processes and documents that are currently guiding mobility planning in London are described below.

A report titled “History of London’s Rapid Transit Initiative” was submitted to the March 14th, 2019 special meeting of the Civic Works Committee. This report provided a comprehensive history of transportation planning in London over the past decade and a discussion of several key initiatives including:

- The London Plan,
- The Smart Moves Transportation Master Plan, and
- The Rapid Transit Master Plan (RTMP) and the Transit Project Assessment Process (TPAP).

The following sections will provide a brief background on several areas not discussed in “History of London’s Rapid Transit Initiative” that are related to the transportation project list.

Cycling Master Plan

Cycling aligns with London’s current policy framework and the Provincial Policy Statement. The London ON Bikes Cycling Master Plan was approved in 2016. The process considered policies, programs and infrastructure. The plan aligns with the province’s #CycleON Ontario Cycling Strategy.

The infrastructure recommendations in the plan aim to expand the existing cycling infrastructure network. Londoners expressed a desire for better separation from vehicular traffic on streets; the first phase of the Colborne Street cycle track is an example of an improved design for higher ridership downtown routes. Supportive infrastructure such as bicycle parking, lockups, destination infrastructure and wayfinding signage are also recommended to further encourage use of the linear infrastructure.

Asset Management

The Corporation uses robust asset management processes. The goal is to maximize benefits from coordinated lifecycle renewal investments and to optimize infrastructure asset value while minimizing lifecycle costs. The City’s State of the Infrastructure Report and Asset Management Plans have captured the cumulative backlog of required renewal investments as the “Infrastructure Gap”. In 2014, the City’s Infrastructure Gap was estimated at \$52.1 M and is forecasted to grow to \$466.1 M over 10 years. Symptoms of the infrastructure gap are watermain breaks, sewer sinkholes and pavement potholes. Efforts are underway to create a new Asset Management Plan in 2019 that will provide an update on asset conditions and investment strategies.

The City’s right-of-ways typically accommodate numerous assets, primarily transportation, sewer and water infrastructure. The coordinated renewal of the different assets leverages investments. For example, the replacement of underground water and sewer infrastructure in the same contract can lower the renewal cost for all assets. External infrastructure funding such as the Public Transit Infrastructure Stream makes a positive contribution towards the Transportation Infrastructure Gap by renewing transportation assets such as pavements, bridges, traffic signals and streetlights and creates spin-off benefits for right-of-way assets.

London Transit Five Year Plan

The London Transit Commission's 5 Year Service Plan for conventional transit covering the period 2020-2024 calls for the addition of approximately 18,000 service hours per year and 22 buses to the LTC fleet. The overarching goals of the 5 Year Service Plan are to enhance overall levels of service, explore alternative service delivery models to areas of the City that are currently un-served by public transit, improve direct connections, build on the current express route network, and improve service frequencies system wide. The areas currently identified as un-served by public transit include large, low-density industrial areas and business parks.

PROJECTS FOR CONSIDERATION

The list of London projects for consideration for submission to the Investing in Canada Infrastructure Program Public Transit Stream was developed following two criteria.

1. The first criteria was alignment with the federal program objectives. The bilateral agreement identifies the projects must meet at least one of the program outcomes of: improved capacity of public transit infrastructure, improved quality and/or safety of transit systems and improved access to public transit. In addition to transit projects, the agreement also makes reference to active transportation projects if they connect citizens to a public transit system. This is sometimes referred to first mile / last mile connectivity. Finally, the agreement also requires that projects are consistent with a land-use or transportation plan or strategy.
2. Administration applied scrutiny to the project selections with respect to the current degree of technical and financial analysis for each project. This was to minimize risk with respect to cost estimates, project implementation and the City's capital and operating budgets.

The list of projects for consideration is provided below and are categorized as transit and transit supportive streetscapes. The actual eligibility of the project is subject to review and acceptance by the provincial and federal governments. The projects are described in more detail in Appendix A.

List of Potential Projects		Estimated Cost (\$ Million)*
Transit	1. Downtown Loop	\$28.5
	2. Wellington Road Gateway	\$131.8
	3. East London Link	\$120.2
	4. North Connection	\$147.3
	5. West Connection	\$72.2
	6. Intelligent Traffic Signals (TIMMS)	\$28.0
	7. Expansion Buses	\$25.2
	8. On-Board Information Screens	\$5.0
	9. Bus Stop Amenities	\$1.1
Transit Supportive	10. Pedestrian Street Connectivity Improvements to the Transit Network	\$21.8
	11. New Sidewalks	\$11.1
	12. Adelaide Street Underpass Active Transportation Connections	\$18.9
	13. Active Transportation Improvements across Transit Route Bridges	\$31.4
	14. Dundas Place Thames Valley Parkway Active Transportation Connection	\$4.0
	15. Dundas Street Old East Village Streetscape Improvements	\$8.2
	16. Oxford Street / Wharncliffe Road Intersection Improvements	\$17.8
	17. Cycling Routes Connecting to Downtown Transit	\$7.7
	18. Cycling Routes Connecting to Transit throughout the City	\$38.7
	19. Enhanced Bike Parking	\$4.0

* Estimated costs include inflation.

Transit Projects

The transit group of projects are direct investments to the transit system and are envisioned to be eligible for PTIS funding with a high degree of confidence.

The first five projects are components of the London's Rapid Transit Initiative currently under consideration in the environmental assessment and described to the Civic Works Committee on March 14, 2019. Up to this point, the rapid transit network has been studied as a single project through the Environmental Assessment process. As that process wraps up, the engineering work, technical studies and consultation that have informed the project provide the foundation to enable exploring the plan in its

component elements. By unbundling the plan, it's possible to move forward with elements that Council may want to prioritize at this time.

While the system-wide benefits have been well documented, each component of BRT can stand alone to help improve London's transportation network. The impacts of each extend beyond transit; they represent infrastructure opportunities that will have impacts for all Londoners, whether they drive, take transit, cycle or walk. The names of the component BRT projects in the list have been revised to better emphasize the overall transportation and mobility benefits for the city and its residents.

Project 6 complements the rapid transit projects. The Intelligent Traffic Signals (Transportation Intelligent Mobility Management System (TIMMS)) project is one that has wide ranging benefits for all road users by upgrading the existing signal system to provide better coordination, response and transit priority.

Project 7 identifies future LTC bus needs for service expansion of the current system (not rapid transit).

Finally, Projects 8 and 9 identify amenity improvements to buses and bus stops to improve the quality and safety of the existing system.

Transit Supportive Projects

The transit supportive projects are improvements to existing City streets with a focus on active transportation connections to transit routes and transit operations.

Projects 10 to 13 recognize that every transit user begins their trip as a pedestrian or cyclist. The projects are focussed on active transportation improvements to facilitate first mile / last mile transit solutions and are therefore aligned with federal program objectives. Project 10 is predominantly traffic signal improvements to enable safer street crossings. Project 12, is the active transportation component of the Adelaide Street Underpass in recognition of program eligibility objectives and amounts to approximately one-third of the total project cost.

Projects 14 and 15 envision redefinition of the streetscape for two different sections of Dundas Street. These areas are transit intensive and the projects aim to facilitate all forms of mobility.

Project 16 would implement eastbound and westbound queue jump lanes on Oxford Street at the Wharncliffe Road intersection.

Finally, Projects 17 to 19 stem from the Cycling Master Plan and identify cycling infrastructure with a focus on connections to transit routes.

Projects Screened For Eligibility

As mentioned, consideration for submission to the program at this time requires a degree of analysis sufficient to adequately define project scope, cost, municipal funding and approvals as appropriate. The Transportation Growth Program includes many major road expansion projects. While these projects aim to provide improvements to all modes of transportation, their broad focus does not align them well with the federal transit program eligibility criteria and are therefore have been screened from the potential funding list. Below is a list of project that were considered in the eligibility analysis and screened out. Projects were screened out on the basis that they did not meet the program eligibility or due to a lack of appropriate project detail at this time.

List of Screened Projects		Estimated Cost (\$ Million)*
Transit	1. LTC Highbury Facility Renewal	\$171.5 M (1)
	2. LTC Replacement Buses	\$61.9 M
	3. LTC Bus Safety Barriers	\$1.1 M
Road Works	4. Southdale Road Widening	\$16.6 M (2)
	5. Wharncliffe Road Widening	\$41.4M (2)
	6. Sunningdale Road Widening	\$49.7 M (2)
	7. Wonderland Road Widening	\$164 M (2)
	8. Bradley Avenue Extensions	\$19.6M(2)
	9. Veterans Memorial Parkway Extension	\$12.4M (2)
	10. Fanshawe Park Road and Richmond Intersection Improvements	\$12.6M
	11. HOV Lanes	Unknown

* Estimated costs include inflation.

(1) The \$500 M Rapid Transit project includes a \$14.2 M contribution to this project.

(2) Value includes all widening and/or extensions related to the roadway within the next 20-year period as included in the 2019 Transportations Development Charges Study.

Financial Considerations

Funding eligibility

The federal program stipulates maximum contribution levels towards projects and detailed eligibility criteria. Depending on the nature of projects submitted, the total value of the program that leverages the full external investments provided to London would total around \$500 M.

Development Charges Implications

The Council approved budget for the rapid transit project is based on receiving a 74% contribution from the Federal and Provincial government. A large portion of the remaining municipal portion (26% of the overall cost) is funded through a combination of tax supported sources and development charges. If significant changes are made to the current transportation program, a new transportation network model would be required to determine the new project needs to service growth, followed by an updated Transportation DC Master Plan and updated Development Charges Background Study and By-law.

Tax-Supported Budget Implications

As noted above, the majority of the municipal funding supporting the current BRT capital plan comes from development charges with a much smaller portion coming from tax-supported sources. As the final transportation project list evolves, the more that it diverges from the current capital plan, the more likely it is to increase the amount of tax-supported funding that is required. In general, this is because within the Development Charges Study, Transportation projects (e.g. roads) are eligible for more Development Charges funding than their Transit Supportive (e.g. pathways) counterparts. Therefore, these Transit Supportive projects require a higher proportion of tax-supported funding to make up the difference.

Operating Cost Implications

The operating cost implications of the identified projects will also need to be considered with respect to the current budget. The operating impacts of the various projects vary depending on the nature of the project. Transit related projects, including extending transit in to the industrial areas, will have a significant impact to the LTC operating budget.

CONCLUSION

The Investing in Canada Public Transit Infrastructure Stream presents a significant opportunity for London. The program requires submissions consistent with transportation and land use plans. London transportation planning is primarily guided by the Smart Moves Transportation Master Plan. Smart Moves dovetails with The London Plan and the Cycling Master Plan. Leveraged investments from programs like the Public Transit Stream support these plans and can also benefit the infrastructure gap with lifecycle renewal benefits.

The requested project list is provided for Council consideration. The list of potential projects was developed based on the PTIS eligibility criteria and an assessment of individual project engineering and financial risk. It is noted that the City is obligated to fund a portion of the capital costs and plus all ongoing operating costs. Therefore, the selection of projects will need to consider the impact on the budget.

Acknowledgements

This report was prepared with the assistance of Alan Dunbar, Jason Davies, and Kelly Paleczny.

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Attachment: Appendix A – Project Descriptions Sheets

c: Kelly Paleczny, LTC

Appendix A
Project Fact Sheets



Draft List of Potential Public Transit Infrastructure Stream (PTIS) Transportation Projects

March 2019

london.ca



London
CANADA

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INTRODUCTION

On February 13, 2019, City Council directed staff to bring forward a list of projects that would be eligible to qualify for federal and provincial funding designated for transit improvements in London.

To be considered, projects must be able to meet at least one of the following outcomes:

- Improved capacity of public transit infrastructure
- Improved quality and/or safety of existing or future transit systems
- Improved access to a public transit system

This document contains information on 19 transportation projects that each meet at least one of these outcomes, and that would enhance transit and improve mobility for Londoners. The projects that have been identified complement one another. As well, they work toward the vision outlined in *Smart Moves 2030: London's Transportation Master Plan*, which aims to enhance all modes of transportation.

An overview of these projects will be presented at a public participation meeting scheduled for March 20, 2019. On March 25, 2019, City Council will discuss the list at a Strategic Priorities and Policy Committee meeting. On March 26, 2019, Council is expected to determine which projects from the list will be put forward for funding at this time.

It is important to note that:

- Projects forwarded by Council in March that are approved for funding by senior government will complete additional public and Council review before construction begins.
- This March 2019 funding process is not the final transit funding opportunity for London. However, it is the final opportunity to submit projects for approval this calendar year.
- While the March 2019 discussion will focus on transit, London has many other transportation needs. Planning to meet those needs will continue across the months and years ahead.

Downtown Loop

Estimated Cost: \$28.5 million

Projected Timeline: 2021 – 2023

Project Description:

With the recent construction of Dundas Place, London's first flex street, all east-west buses in the core have already been rerouted to operate along the proposed Downtown Transit Loop. This loop frames Dundas Place, circling buses along Queens Avenue, King Street, Ridout Street and Wellington Street. Existing vehicle lanes would be maintained and bus lanes would not be enclosed by concrete medians.

Constructing the Downtown Loop would formalize transit operations already in place, improving traffic capacity in general traffic lanes and revitalizing 2 km of streets surrounding Dundas Place. While rebuilding the roads, the project would address necessary underground work, including replacing aging sewers and watermains. Cycling lanes would be moved off King Street to Dundas Place, which is designed to more safely handle cycling and pedestrian traffic.

Work Required to Complete this Project:

- Reconstruct the full road width and improve the streetscape, timed with underground work to address necessary infrastructure improvements
- Install transit stations
- Convert existing curbside bus and parking lanes to continuous transit lanes
- Install smarter traffic signals to reduce intersection delays and shorten travel times, including transit signal priority, sensors and video cameras

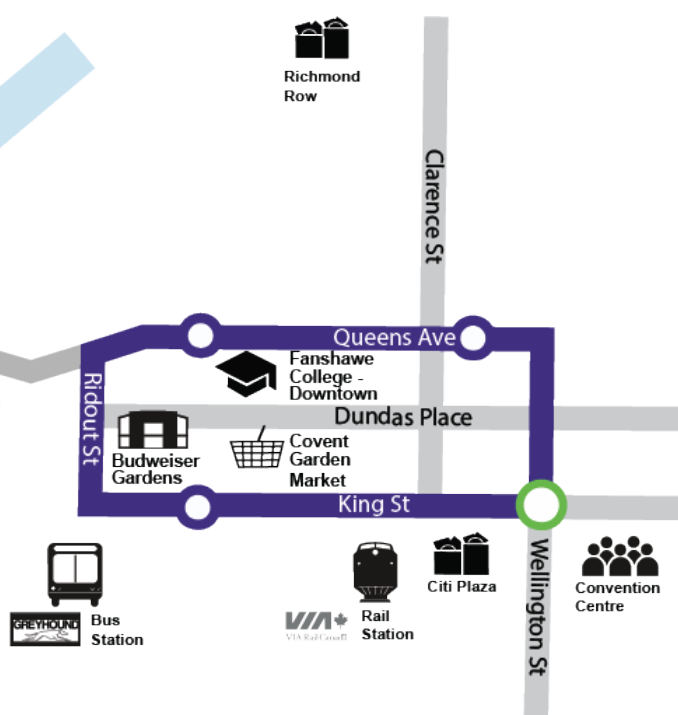
Additional Considerations:

- The Transit Project Assessment Process is expected to be complete in May 2019, so this project can progress with design and construction immediately.
- Construction would coordinate with King Street underground sewer work.
- The project team would continue to work with businesses for delivery, loading and parking solutions, which could include increasing parking on side streets.

Funding Eligibility Criteria:

- ✓ Improved transit capacity
- ✓ Improved transit safety and quality
- ✓ Improved transit access

Right: Downtown Loop is shown in purple



Downtown Loop – Additional Images

Estimated Cost: \$28.5 million

Projected Timeline: 2021 – 2023



Wellington Road Gateway

Estimated Cost: \$131.8 million

Projected Timeline: 2023 – 2026

Project Description:

This busy arterial road is overdue for major safety improvements and work to address flooding, including replacing 100-year-old sewers and watermains. While rebuilding the road, Wellington Road would be widened to maintain two general lanes of traffic and remove buses from mixed traffic, with the goal of improving capacity for vehicles while increasing transit frequency and reliability. On most of the Gateway, buses would run beside a curb-height median on the left, which is a standard safety feature on most major roadways. Large concrete medians would only be included near transit stations to enhance passenger safety.

This project would enhance safety for drivers by improving the alignment of the Wellington S-curve and adding dedicated turn lanes at signalized intersections. The street would meet urban standards, including curbs, sidewalks and cycling facilities. A park-and-ride facility would be established near Highway 401 to improve connectivity with employment areas and surrounding municipalities. A transit village on Wellington Road outside of White Oaks Mall would provide an opportunity to improve transit to south London's industrial employment areas. To take advantage of environmental benefits and potentially lower operating costs, purchasing electric buses is being explored.

Work Required to Complete this Project:

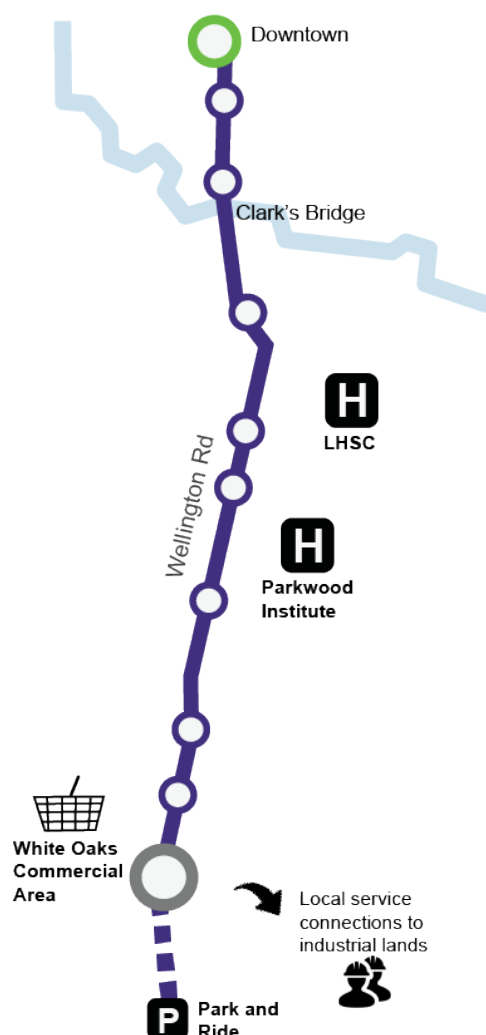
- Revitalize 6.8 km of road between Downtown and Hwy 401, including widening to establish continuous transit lanes and improving the Wellington S-curve
- Install smarter traffic signals to reduce intersection delays and shorten travel times, including transit signal priority, sensors and video cameras
- Establish park-and-ride facility near Hwy 401
- Install transit stations, including extended platforms near White Oaks Mall
- Widen Clark's Bridge for additional two traffic lanes and a multi-use path for cyclists and pedestrians

Additional Considerations:

- The Transit Project Assessment Process is nearing completion, so design and construction could progress immediately.
- Emergency services vehicles could use transit lanes to reduce response time.

Funding Eligibility Criteria:

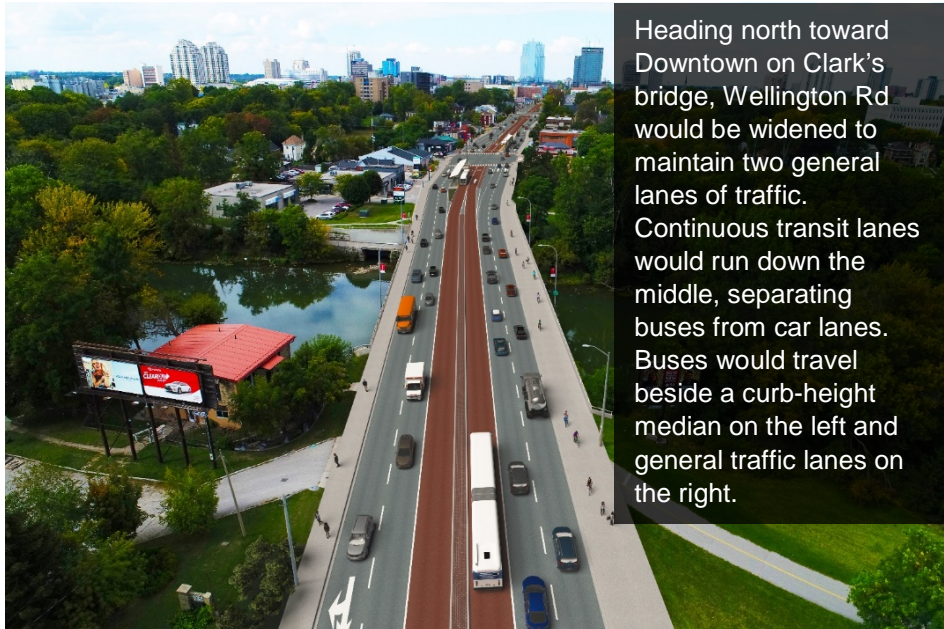
- ✓ Improved transit capacity
- ✓ Improved transit safety and quality
- ✓ Improved transit access



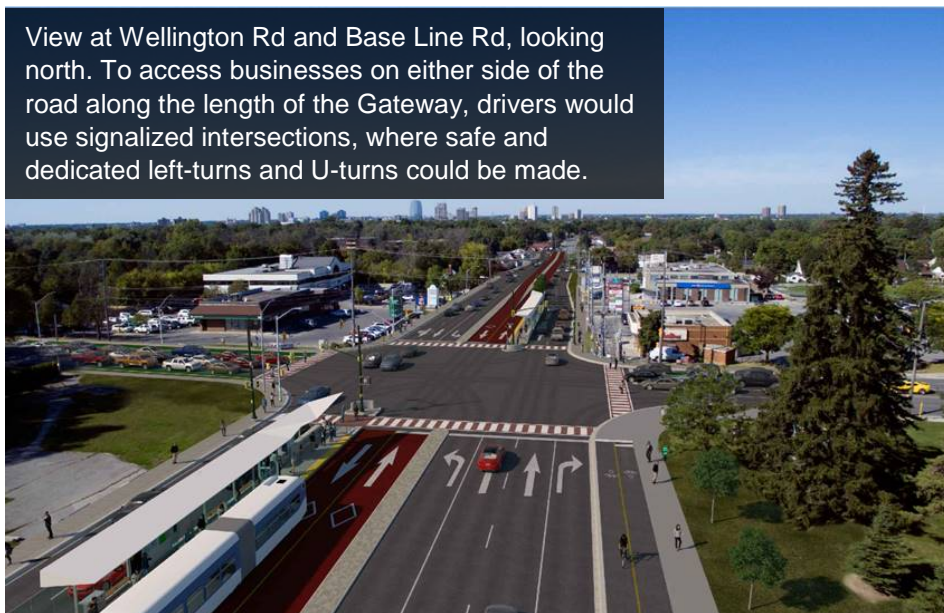
Wellington Road Gateway – Additional Images

Estimated Cost: \$131.8 million

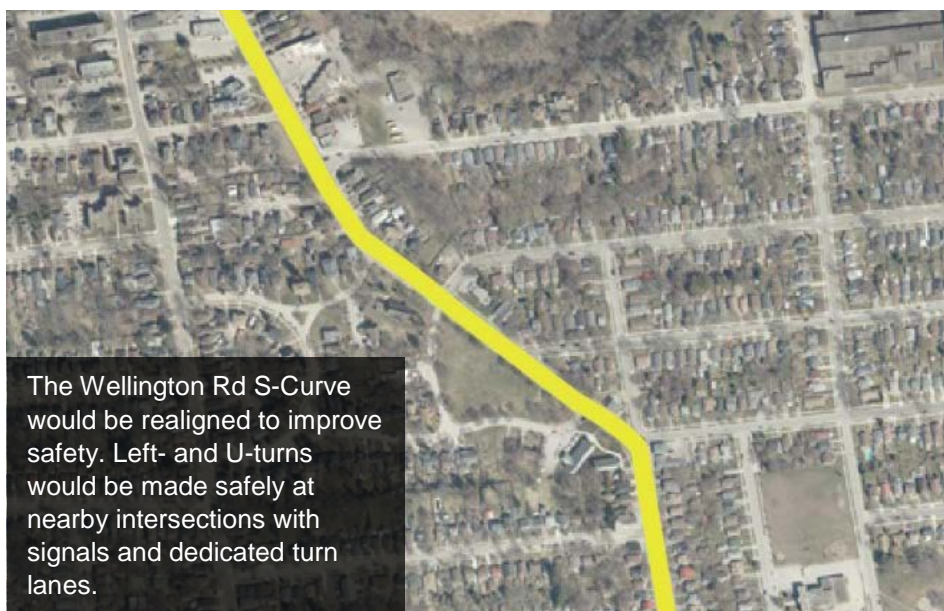
Projected Timeline: 2023 – 2026



View at Wellington Rd and Base Line Rd, looking north. To access businesses on either side of the road along the length of the Gateway, drivers would use signalized intersections, where safe and dedicated left-turns and U-turns could be made.



The Wellington Rd S-Curve would be realigned to improve safety. Left- and U-turns would be made safely at nearby intersections with signals and dedicated turn lanes.



Wellington Road Gateway – Additional Images

Estimated Cost: \$131.8 million

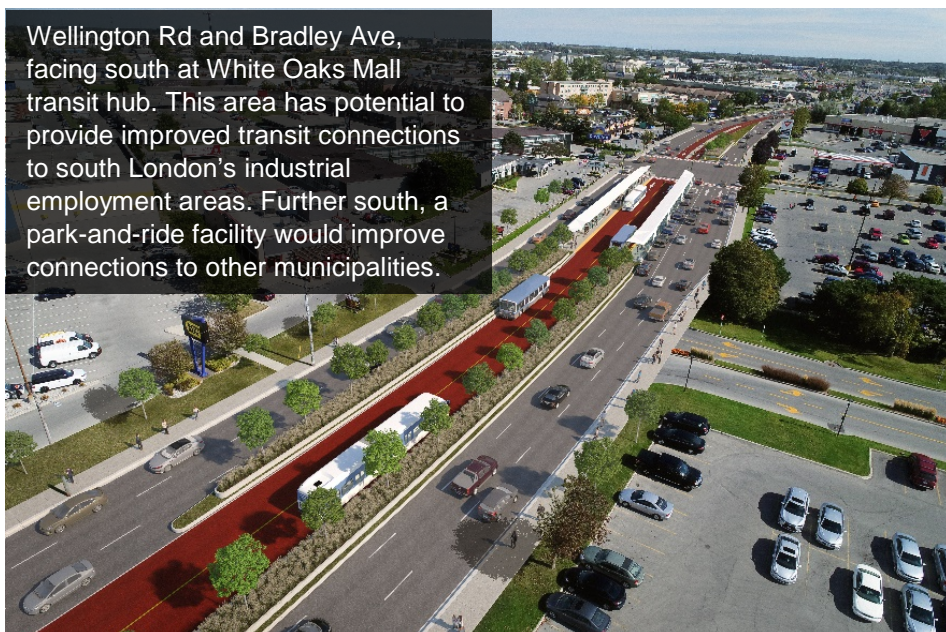
Projected Timeline: 2023 – 2026



At Wellington and Commissioners Roads, facing north, two extended bus stations would face each other, surrounded by landscaping. Further north there would be a small curb-height median, allowing drivers to access businesses by making safe, dedicated left-turns and U-turns at intersections. Multi-use paths for cycling and walking would be added.



Drivers would access businesses along Wellington Rd by making safe left-turns and U-turns in dedicated lanes at intersections.

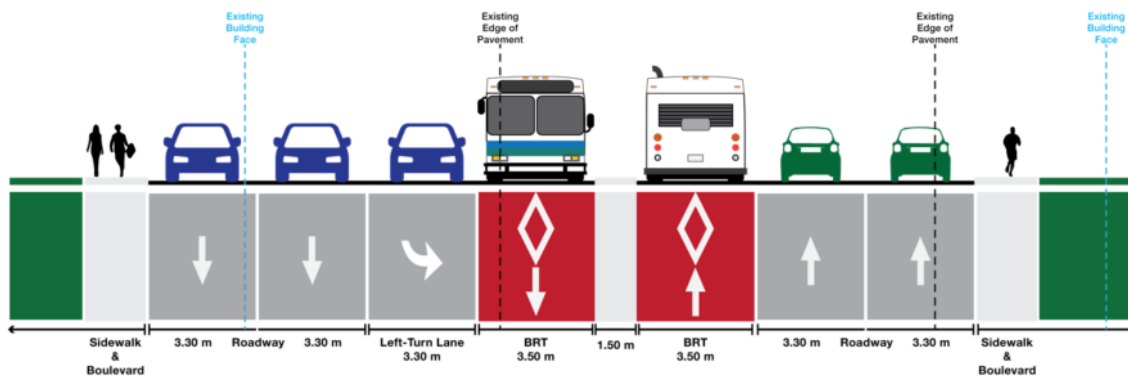


Wellington Rd and Bradley Ave, facing south at White Oaks Mall transit hub. This area has potential to provide improved transit connections to south London's industrial employment areas. Further south, a park-and-ride facility would improve connections to other municipalities.

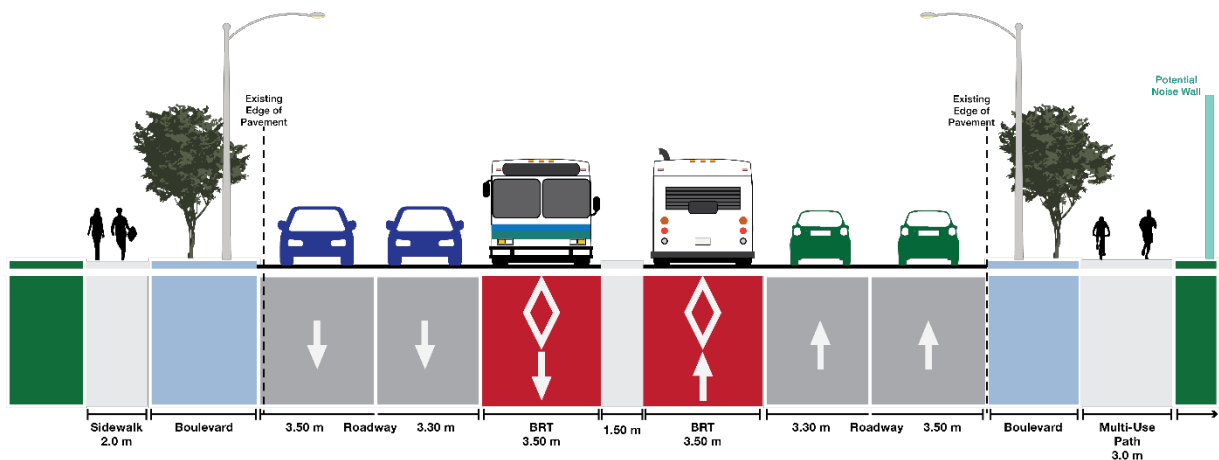
Wellington Road Gateway – Additional Images

Estimated Cost: \$131.8 million

Projected Timeline: 2023 – 2026



Above: Cross-section view of the Wellington Rd S-curve looking north, which would be realigned to improve safety. A small, curb-height median with no landscaping would run down the centre of the road and two lanes of general traffic would be maintained in both directions.



Above: Cross-section view of Wellington Rd from Base Line Rd to Bradley Ave, looking north, where there is opportunity to provide improved transit connections to south London's industrial employment areas. Two lanes of traffic would be maintained in both directions.

East London Link

Estimated Cost: \$120.2 million

Projected Timeline: 2022 – 2024

Project Description:

Connecting East London with improved transit would link Fanshawe College's eastern and downtown campuses, support revitalization of Old East Village and encourage development of the former London Psychiatric Hospital and McCormick's lands. Transit service to the London International Airport could be improved with the potential for buses to run every 15 minutes in mixed traffic along Oxford Street to the airport. There would also be an opportunity to provide a stronger link to the City's eastern industrial employment areas from a transit hub at Fanshawe College.

Buses would be removed from mixed traffic with the goal of improving capacity in general traffic lanes and increasing transit frequency and reliability. On King Street, buses would travel in curbside transit lanes. Along the rest of the corridor, they would travel in centre-running transit lanes beside a small, curb-height median on the left and general traffic lanes on the right. Large concrete barriers would only be included near transit stations to enhance passenger safety. The project would coordinate necessary underground work, including replacing aging sewers and watermains. It would add dedicated turn lanes at signalized intersections to enhance driver safety and increase capacity, and active transportation infrastructure to support cycling and walking. To take advantage of environmental benefits and potentially lower operating costs, purchasing electric buses is being explored.

Work Required to Complete this Project:

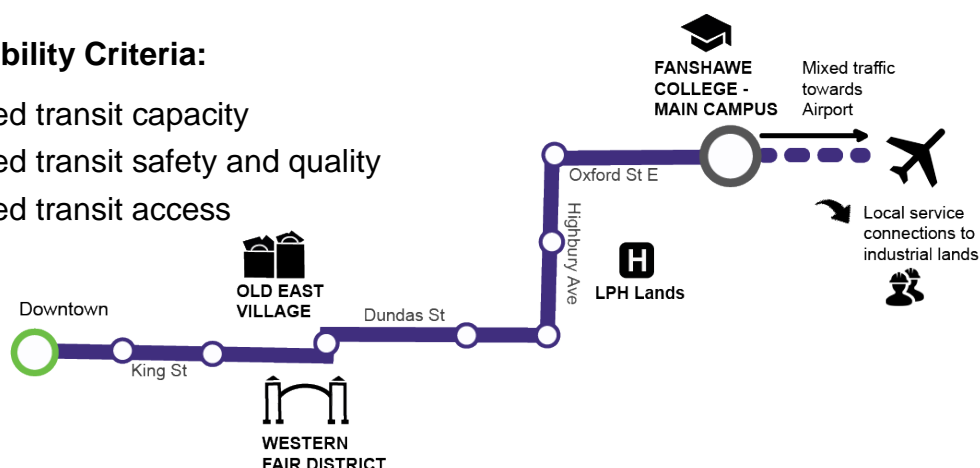
- Revitalize 6.3 km of road, from Downtown to Fanshawe College, while completing necessary underground work on sewers and watermains
- Install transit stations
- Widen Highbury Bridge, Highbury Avenue and Oxford Street to establish continuous transit lanes. Install transit lanes on King and Dundas Streets.
- Install smarter traffic signals to reduce intersection delays and shorten travel times, including transit signal priority, sensors and video

Additional Considerations:

- The Transit Project Assessment Process is nearing completion, so design and construction could progress immediately.
- Emergency services vehicles could use transit lanes to reduce response time.
- Potential for some buses to serve London International Airport in mixed traffic.

Funding Eligibility Criteria:

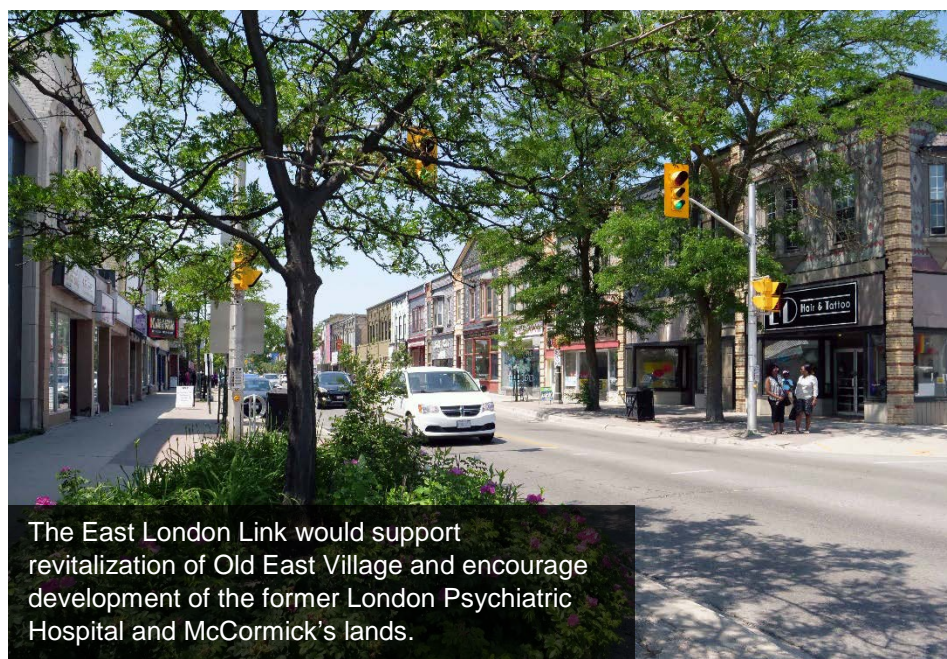
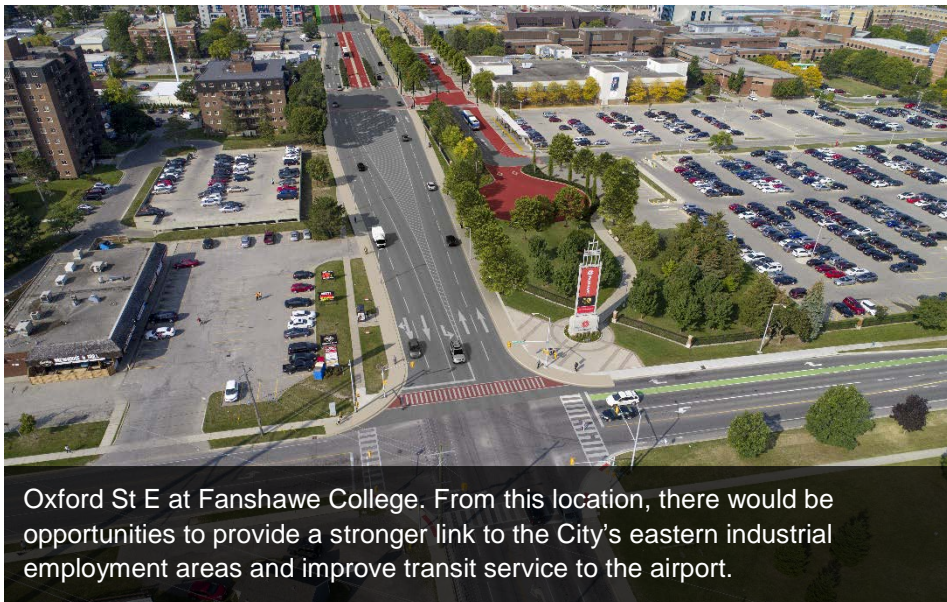
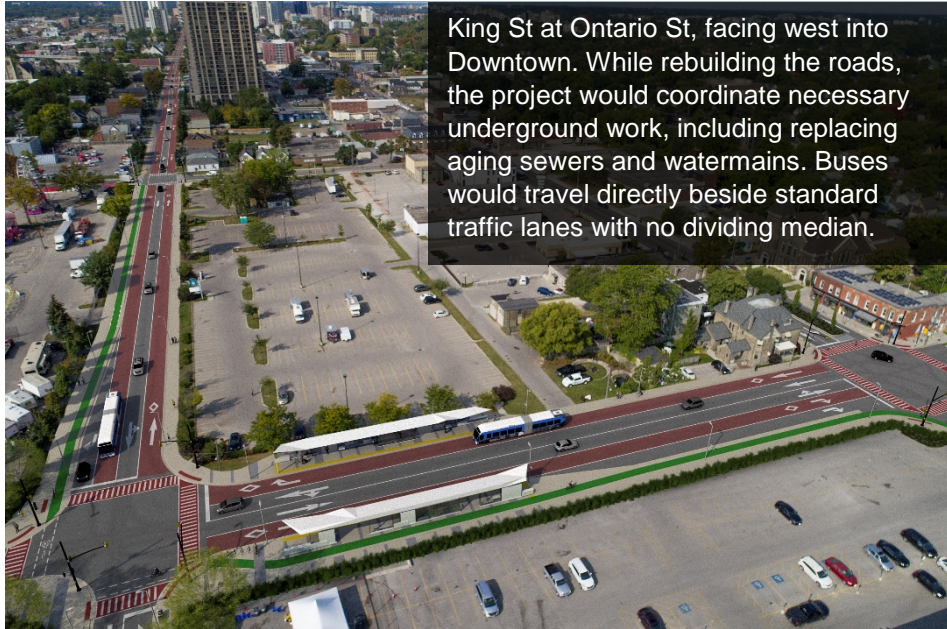
- ✓ Improved transit capacity
- ✓ Improved transit safety and quality
- ✓ Improved transit access



East London Link – Additional Images

Estimated Cost: \$120.2 million

Projected Timeline: 2022 – 2024



North Connection

Estimated Cost: \$147.3 million

Projected Timeline: 2024 – 2027

Project Description:

This project would revitalize 6.4 km of roads connecting London's Downtown to two hospitals, Western University and the Masonville transit village – a corridor that already serves as a major transit spine. The project would redesign a stretch of Richmond Street that does not function optimally now due to a high number of obstructions in general traffic lanes for drivers, including stop and start conflicts with buses and left- and right-turning vehicles.

Proposed continuous transit lanes would take buses out of mixed traffic, supporting vehicle traffic flow while minimizing impacts on the neighbourhood. Dedicated left- and right-turn lanes and extended right-turn lane/bus bays would be added to improve traffic flow and safety for drivers and support local buses on the route. As a result, vehicular traffic in the single through lane would experience fewer obstructions than the existing two lanes today. To take advantage of environmental benefits and potentially lower operating costs, purchasing electric buses is being explored.

Work Required to Complete this Project:

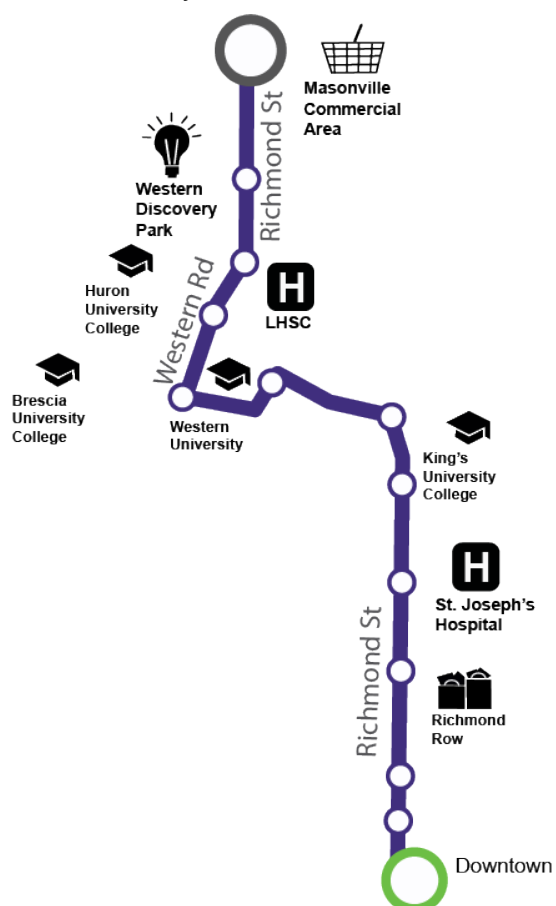
- Revitalize 6.4 km of roads that connect employees and students between Downtown, Western University, two hospitals and Masonville shopping area
- Introduce continuous transit lanes
- Create dedicated left- and right-turn lanes, and extended right-turn lane bus bays to improve traffic flow in the through lane and support local buses
- Install transit stations, including an expanded transit terminal at Masonville
- Coordinate necessary underground infrastructure improvements
- Install smarter traffic signals to reduce intersection delays and shorten travel times, including transit signal priority, sensors and video cameras

Additional Considerations:

- The Transit Project Assessment Process is nearing completion, so design and construction could progress immediately.
- Emergency services vehicles could use transit lanes to reduce response time.

Funding Eligibility Criteria:

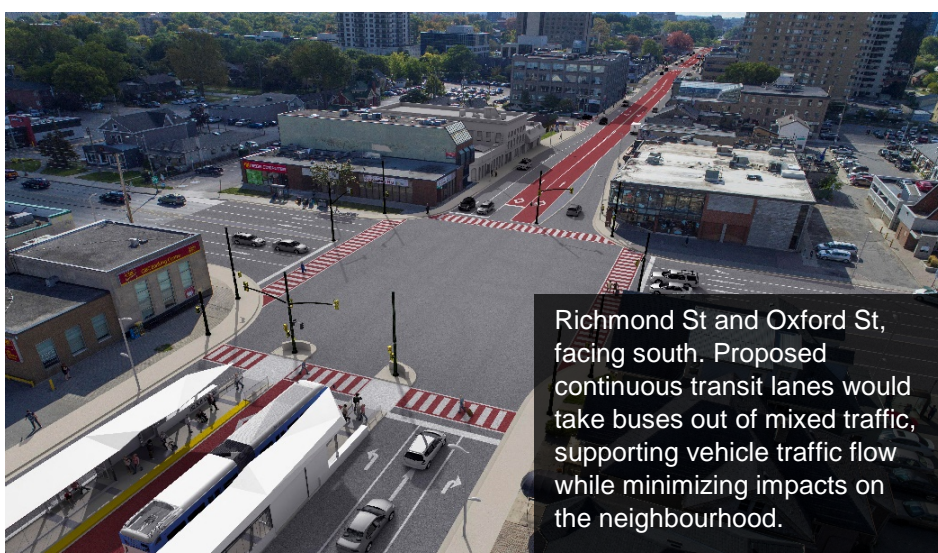
- ✓ Improved transit capacity
- ✓ Improved transit safety and quality
- ✓ Improved transit access



North Connection – Additional Images

Estimated Cost: \$147.3 million

Projected Timeline: 2024 – 2027



West Connection

Estimated Cost: \$72.2 million

Projected Timeline: 2025 – 2028

Project Description:

This project would address a number of opportunities to enhance travel along Oxford Street, which currently serves as a major east-west transit spine with express and local routes. Along the majority of the route, from Downtown to west of Wonderland Road, the project would install continuous transit lanes, with the goal of improving capacity in general traffic lanes and increasing transit frequency and reliability.

Dedicated turn lanes would be added at signalized intersections to enhance safety for drivers. While rebuilding the roads, the project would coordinate necessary underground work, including replacing and upgrading aging sewers and watermains. To take advantage of environmental benefits and potentially lower operating costs, purchasing electric buses is being explored.

Work Required to Complete this Project:

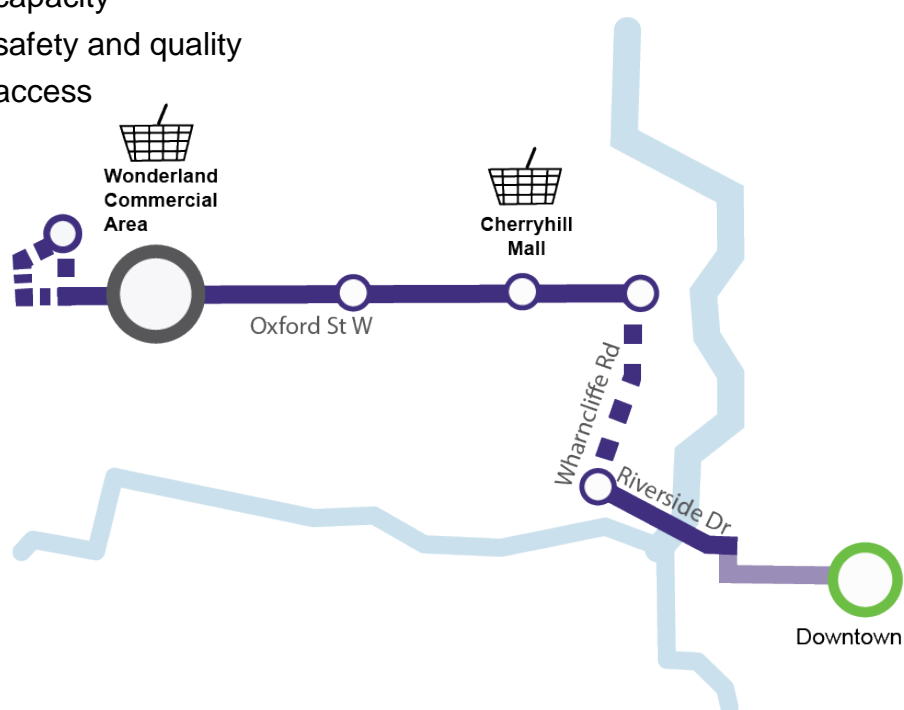
- Revitalize 4.4 km of roadway from Downtown to west of Wonderland Road
- Widen the road to establish continuous transit-only lanes, with the exception of 1.5 km on Wharncliffe to protect heritage
- Coordinate necessary underground infrastructure improvements
- Install smarter traffic signals to reduce intersection delays and shorten travel times, including transit signal priority, sensors and video cameras
- Install transit stations

Additional Considerations:

- The Transit Project Assessment Process is nearing completion, so design and construction could progress immediately.
- Emergency services vehicles could use transit lanes to reduce response time.

Funding Eligibility Criteria:

- ✓ Improved transit capacity
- ✓ Improved transit safety and quality
- ✓ Improved transit access



West Connection – Additional Images

Estimated Cost: \$72.2 million

Projected Timeline: 2025 – 2028



Oxford St W and Wonderland Rd, looking west. Two traffic lanes would be maintained in each direction, supporting traffic flow and providing a convenient transit link to Wonderland commercial area.



Queen St Bridge, facing east to Downtown. Two lanes of traffic would be maintained westbound across the bridge, with no median. Continuous transit lanes across the bridge and through Downtown would eliminate buses merging at Queen and Talbot Streets.

Intelligent Traffic Signals

Estimated Cost: \$28.0 million*

Projected Timeline: 2019 – 2027

Project Description:

This project is also known as the Transportation Intelligent Mobility Management System (TIMMS). The goals of this project are to reduce intersection delays, ensure shorter travel times for transit users and drivers and prepare London's transportation network for the future by installing transit signal priority and other traffic signal improvements – such as sensors and video cameras – along major corridors.

Upgrades to existing technology would enable video streaming and enhanced sensors from intersections and build capacity for future systems (for example, connected and autonomous vehicles). The project would include a Transportation Management Centre (TMC) where staff could adjust signal timings to improve traffic flow, and when needed, co-ordinate with emergency operations, in real time. The TMC would share data with the transit management centre.

Work Required to Complete this Project:

- Upgrade to a high-bandwidth intersection communication network
- Purchase all necessary equipment
- Upgrade traffic signal management system for improved transit signal priority
- Implement GPS-based transit signal priority to improve transit reliability
- Install video camera and travel time monitoring equipment along key corridors
- Build TMC

Additional Considerations:

- In 2018, the planning process for this project began, and in 2019, the City of London procured a high-bandwidth communication system.
- Detailed designs for the future systems are underway to support construction starting in 2019.
- Initial operations would begin in 2020 with expansion in following years.

Funding Eligibility Criteria:

- ✓ Improved transit capacity
- ✓ Improved transit safety and quality

*Project cost includes \$15.0 million overlap with rapid transit projects.



Expansion Buses

Estimated Cost: \$25.2 million

Projected Timeline: 2020 – 2028

Project Description:

The London Transit Commission's Five-Year Service Plan sets out changes intended to enhance overall transit service in the city, including improving direct connections and service frequencies, building on the express route network and assessing alternative service delivery options to industrial employment areas.

To achieve this, the 2020 to 2024 Service Plan calls for the addition of 22 buses to the LTC fleet during that period. Beyond that, it is currently estimated that an additional nine expansion buses will be required for the period of 2025 to 2028. This estimate is subject to change with completion of the next Five-Year Service Plan, which is scheduled for 2024.

Work Required to Complete this Project:

- Order buses on an annual basis, based on the requirements in each respective year. Annual requirements would include consideration of the mix of 40-foot and 60-foot buses.

Additional Considerations:

- Detailed expansion plans have not been completed beyond 2024, so the requirement of nine expansion buses is an estimate only. Given that 22 expansion buses were required for the preceding five-year period, this estimate is likely to be low.
- This estimate was developed in coordination with current long-term planning. Changes to the rapid transit initiative may drive the need for more expansion buses to continue to grow the transit service in response to demands of Londoners.

Funding Eligibility Criteria:

- ✓ Improved transit capacity
- ✓ Improved transit access



On-Board Information Screens

Estimated Cost: \$5.0 million

Projected Timeline: 2020 – 2023

Project Description:

The project would enhance the ability to communicate important information to riders on London Transit buses, improving accessibility and comfort through the installation of on-board LED information screens with the ability to display still messaging and video. The screens would be used to display upcoming stops in real time, as well as public service announcements and messaging about detours and other changes to service and routes. The system would have potential to include third-party advertising, which could provide a revenue stream to offset the operating costs.

Work required to complete this project:

- Issue a Request for Proposal for the supply and implementation of the system including on-board hardware and supporting software

Additional Considerations:

- The system would require cellular data access for each bus which would cost about \$150,000 per year.

Funding Eligibility Criteria:

- ✓ Improved transit safety and quality



Bus Stop Amenities

Estimated Cost: \$1.1 million

Projected Timeline: 2020 – 2023

Project Description:

This project would allow the London Transit Commission to improve select bus stops with shelters or lighting. The Commission would purchase 60 bus shelters and install them across the city, responding to long-standing requests that cannot be completed with current available funding. To improve transit rider safety, 150 solar-powered lights would be installed at bus stop locations where lighting and/or safety concerns have been identified.

Work Required to Complete this Project:

- Order and install shelters over the 3-year period, with concrete pads to be created prior to shelter installation
- Order and install lights over the 3-year period
- All proposed shelter locations are subject to City of London approval, and depending on location, some locations may require encroachment agreements where there is a need for the shelter/pad to be on private property.

Additional Considerations:

- The Commission's current shelter contract program allows three shelters to be added per year, with the contractor receiving advertising rights in exchange for adding three shelters, performing annual maintenance and cleaning.
- Proceeding with additional shelters would result in additional operating costs for the Commission, estimated at approximately \$70,000 per year for maintenance and cleaning of additional shelters the existing contract would not cover.
- Proceeding with the lighting portion of this project would be subject to the results of a pilot project where lighting will be installed at four stops in Spring 2019.
- This project has not been debated/discussed by the Commission.

Funding Eligibility Criteria:

- ✓ Improved transit safety and quality
- ✓ Improved transit access



Pedestrian Street Connectivity Improvements to the Transit Network

Estimated Cost: \$21.8 million

Projected Timeline: 2019 – 2027

Project Description:

Helping pedestrians and cyclists get to transit stops is the goal of this project, which would improve street crossings for vulnerable road users at a number of London's signalized intersections. Improvements would include the upgrade of traffic signals with features designed to help make intersections safer and improve access to transit. Features of this project include the implementation of audible pedestrian signals, pedestrian crossovers, intersection pedestrian signals, tactile plates for the visually impaired and bicycle detectors.

Work Required to Complete this Project:

- Identify priority locations for the equipment at London's traffic signals
- Traffic studies, as needed, to assist in the prioritization of the locations
- Acquire traffic signal equipment
- Purchase and install the equipment with construction of supportive infrastructure

Additional Considerations:

- Additional consultation with the Accessibility Advisory Committee would be needed to finalize the priority locations for audible pedestrian signals.
- City staff has identified several locations for pedestrian crossovers and intersection pedestrian signals.
- The Cycling Master Plan would help identify bike detection locations.

Funding Eligibility Criteria:

- ✓ Improved transit access



New Sidewalks

Estimated Cost: \$11.1 million

Projected Timeline: 2020 – 2028

Project Description:

This project would include constructing new sidewalks to improve safety and comfort for pedestrians coming from and going to transit stops. The project would also include stop improvements as well as other amenities on transit routes across the city. New sidewalks would improve connectivity, mobility and safety to the transit stops and routes, as well as provide an opportunity to increase transit ridership.

Work Required to Complete this Project:

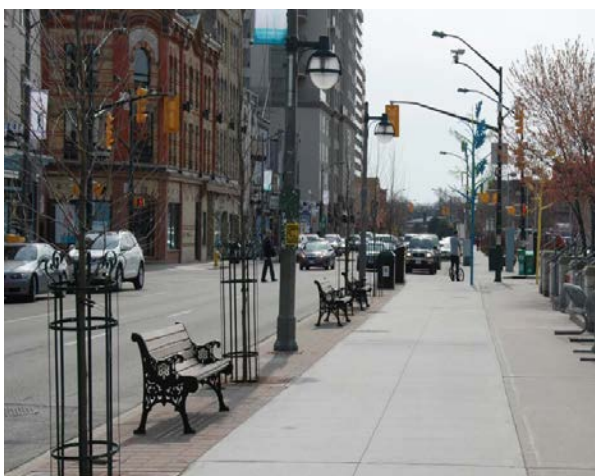
- Construct sidewalks, including transit stop improvements and other amenities
- Install any required signage

Additional Considerations:

- These projects are in early stages of initiation. Prioritization would be assisted by the existing New Sidewalk program and through consultation with the Transportation Advisory Committee.
- Throughout the design, the City would consult with the public and incorporate feedback into the project.

Funding Eligibility Criteria:

- ✓ Improved transit access



Adelaide Street Underpass Active Transportation Connections

Estimated Cost: \$18.9 million

Projected Timeline: 2021 – 2022

Project Description:

This project would implement 1.2 km of new facilities for cyclists and pedestrians on Adelaide Street and Central Avenue. Multi-use paths on both sides of Adelaide Street at the Canadian Pacific Rail (CPR) underpass and cycling lane connections on Central Avenue would give pedestrians and cyclists opportunities to connect to transit along this corridor.

Work Required to Complete this Project:

- Purchase the property required for the project
- Construct active transportation connections, including wide, multi-use paths on both sides of the roadway in conjunction with a larger new railway underpass project designed to improve route reliability, efficiency and safety for everyone crossing the railway

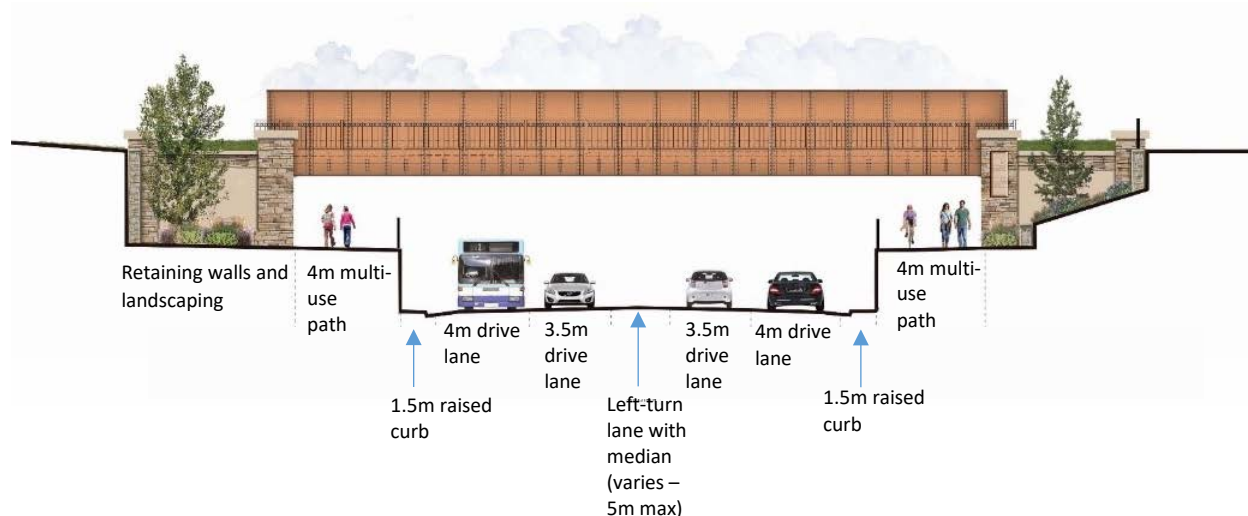
Additional Considerations:

- The Environmental Assessment for this project is complete and the detailed design phase and property acquisition for the project is currently underway, with construction planned to take place in 2021/2022.
- The identified project cost reflects only the active transportation component of the larger project cost and equates to approximately 1/3 of the total.

Funding Eligibility Criteria:

- ✓ Improved transit safety and quality
- ✓ Improved transit access

Cross-section view of the underpass, looking north, which features multi-use paths on both sides to connect cyclists and pedestrians to transit.



Adelaide Street Underpass Active Transportation Enhancements – Additional Images

Estimated Cost: \$18.9 million

Projected Timeline: 2021 – 2022

Looking southbound down Adelaide St toward Central Ave, paths for cyclists and pedestrians make it easier and safer to access transit on either side of the railway tracks.



View at Adelaide St and Central Ave. 1.2 km of new facilities for cyclists and pedestrians would be added to improve access to transit.

Active Transportation Improvements across Transit Route Bridges

Estimated Cost: \$31.4 million

Projected Timeline: 2020 – 2028

Project Description:

While London's bridges form important links across rivers and railways, some are narrow and do not provide a lot of space between vehicles and pedestrians or cyclists. The project includes coordinating bridge replacements or rehabilitations with additional construction to support active transportation improvements across those bridges (such as adding sidewalks and cycle lanes or widening existing ones).

All of the bridge structures are located along transit routes, and provide transit connections for pedestrians and cyclists commuting to and from employment, schools and residential lands. It would also include other enhancements to the structures. Proposed structures include: Victoria Bridge (Ridout Street), Wharnccliffe Road, Kensington Bridge (Riverside Drive), Queens Avenue Bridge, Boler Road Bridge, Clark's Bridge, Dundas Street Bridge and Vauxhaul Bridge. Widening of the structure would be necessary to create the width required for pedestrian and cycling activities.

Work Required to Complete this Project:

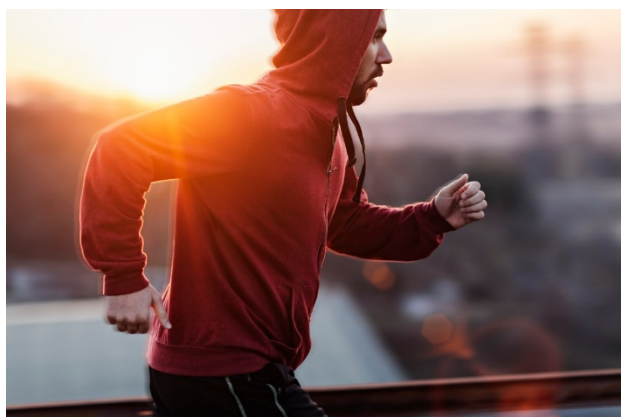
- Work would be done in coordination with planned rehabilitation or replacement of these bridge structures in coming years, as part of the annual bridge lifecycle renewal program to keep bridges safe and functional

Additional Considerations:

- Some bridge projects require Environmental Assessments to be completed.
- Structures typically require a structural review to ensure the additional width can be accommodated.
- The identified cost is not the entire cost of improvements; the costs included for this project represent only the additional cost to create better active transportation space on the bridges while they undergo lifecycle renewal rehabilitation.

Funding Eligibility Criteria:

- ✓ Improved transit access



Dundas Place Thames Valley Parkway Active Transportation Connection

Estimated Cost: \$4.0 million

Projected Timeline: 2021 – 2022

Project Description:

The proposed Downtown Loop and active transportation priority corridors would require improved connections to the Thames Valley Parkway (TVP). An area where there's a break in sidewalk and cycling infrastructure is between Ivey Park and Dundas Place. This project would slightly shift the alignment of Dundas Street to create space for improved sidewalks and a continuous connection in the cycling network on Dundas Street between the Thames Valley Parkway and Ridout Street. This project would connect key destinations and facilitate connections to the transit system.

Work Required to Complete this Project:

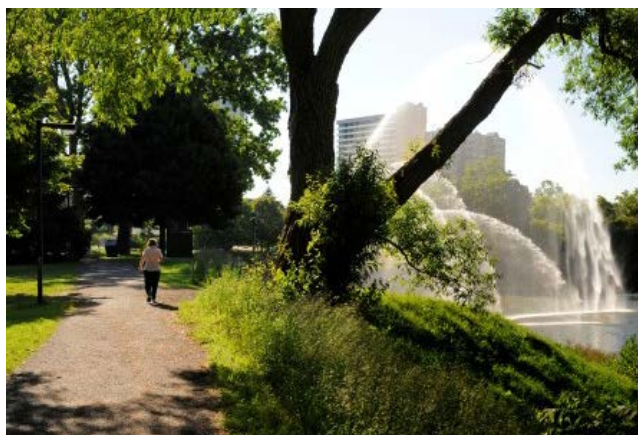
- Reconstruct a short section of Dundas Street to accommodate cycling improvements and better sidewalks between Dundas Place and TVP
- Resurface asphalt and pavement markings
- Install signage and beautify streetscape

Additional Considerations:

- The project is in initiation stage, meaning further consultation would be required along with regulatory and budget approvals.
- This project would support Dundas Place and the proposed Downtown east-west Bikeway.

Funding Eligibility Criteria:

- ✓ Improved transit access



Dundas Street Old East Village Streetscape Improvements

Estimated Cost: \$8.2 million

Projected Timeline: 2020 – 2022

Project Description:

Dundas Street East between Adelaide and Ontario Streets in Old East Village (OEV) is a dense commercial area with high transit ridership. To help provide a safe, pedestrian-friendly environment with access to transit connections, this project would improve the streetscape while simultaneously addressing necessary underground work, including replacing and upgrading utilities, aging sewers and watermains.

Wider boulevards and trees would be added, along with active transportation amenities and enhanced pedestrian street lighting on north-south connections. These enhancements would improve safety while facilitating better access between Dundas Street, the proposed rapid transit corridor on King Street and recently upgraded park-and-ride parking in the OEV.

Work Required to Complete this Project:

- Construct a new Dundas Street streetscape, in coordination with necessary underground infrastructure upgrades (watermains, storm and sanitary sewers)
- Add urban design components, including trees

Additional Considerations:

- Community consultation would be required and essential to the project.
- The design of the streetscape would be informed by the current secondary plan and bikeway assessment.
- Improving north-south transit-friendly connections would require further assessment.

Funding Eligibility Criteria:

- ✓ Improved transit access



Design rendering of Dundas St between Colborne St and William St, from the Old East Village Secondary Plan.

Oxford Street / Wharncliffe Road Intersection Improvements

Estimated Cost: \$17.8 million

Projected Timeline: 2025 – 2027

Project Description:

The intersection of Oxford Street and Wharncliffe Road often creates a traffic bottleneck, causing heavy delays at peak times. This project would add eastbound and westbound queue jump lanes on Oxford Street. A queue jump lane is a dedicated bus lane leading up to a signalized intersection that separates the bus from the traffic and provides traffic signal priority for bus merging. Queue jump lanes can improve transit reliability and facilitate better traffic flow.

Work Required to Complete this Project:

- Acquire the property required for the project
- Reconstruct the intersection with additional lanes on Oxford Street
- Implement a more intelligent traffic signal system for transit signal priority
- Review and rationalize transit stop locations

Additional Considerations:

- This work is the second phase of the improvements identified in the Western / Wharncliffe Road Environmental Assessment. The first phase included the recently completed rail underpass and road improvements north of Oxford Street.

Funding Eligibility Criteria:

- ✓ Improved transit capacity
- ✓ Improved transit safety and quality



Current intersection view of Oxford St and Wharncliffe Rd. By adding east- and west-bound queue jump lanes on Oxford, this project would give buses a “head-start” over other vehicles, enabling more reliable transit and smooth traffic flow.

Cycling Routes Connecting to Downtown Transit

Estimated Cost: \$7.7 million

Projected Timeline: 2020 – 2028

Project Description:

With multiple modes of transportation travelling through London’s core, constructing 4.3 km of separated/buffered cycling routes to transit corridors would create safer, more comfortable cycling connections in London’s downtown. This project would install separated cycling routes, including cycle tracks, through London’s downtown to improve connectivity to transit stops, including on the following streets: Colborne Street between Dufferin Avenue and Oxford Street, Colborne Street between Horton Street and Grey Street, and the east-west Bikeway on Dundas Street and Queens Avenue.

Work Required to Complete this Project:

- Install concrete curbs and flexible bollards (barriers) for separated bike lanes
- Work on curbs and sidewalks at intersections
- Improve traffic signals
- Mark pavement and install signage

Additional Considerations:

- The project is in initiation stage, meaning further consultation would be required along with regulatory and budget approvals.
- This project aligns with the goals and objectives of the London ON Bikes Cycling Master Plan.
- Details of the primary east-west route are subject to the outcomes of the current East-West Bikeway Assessment.

Funding Eligibility Criteria:

- ✓ Improved transit safety and quality
- ✓ Improved transit access



Cycling Routes Connecting to Transit throughout the City

Estimated Cost: \$38.7 million

Projected Timeline: 2020 – 2028

Project Description:

This project would provide safe connections to transit for cyclists travelling throughout the city by installing about 30 km of cycling routes. Constructing these lanes would support active transportation by creating dedicated spaces for cyclists to get to transit stops. Streets that are currently being considered include Central Avenue from Ontario Street to Ridout Street North, Oxford Street East from Second Street to Clarke Road, Clarke Road from Huron Street to Charter House Crescent and Southdale Road from Wellington Road to Wharncliffe Road South.

Work Required to Complete this Project:

- Install approximately 30 km of cycle lanes
- Work on curbs and sidewalks at intersections
- Improve traffic signals
- Mark pavement and install signage

Additional Considerations:

- The routes in this project have been identified by the London ON Bikes Cycling Master Plan.

Funding Eligibility Criteria:

- ✓ Improved transit safety and quality
- ✓ Improved transit access



Enhanced Bike Parking

Estimated Cost: \$4.0 million

Projected Timeline: 2020 – 2028

Project Description:

This project would put secure bike-parking stations in downtown London and at locations in neighbourhoods along transit lines. This would address the need for higher-order (secure, weather-protected) bicycle parking in London's downtown and along transit routes. This would also encourage active transportation and connections to a well-served transit route, with the goal of making cyclists' commutes more convenient and seamless.

Work Required to Complete this Project:

- Select locations for parking
- Renovate space if needed
- Determine technology to access bike parking and lockers in each location
- Select bike racks system

Additional Considerations:

- The City has been exploring opportunities for a downtown bike parking station for several years. This has included discussions with a major property management company and a Downtown London BIA survey to employees.
- The City is in the early stages of developing a Transportation Management Association (TMA) for employers in central London, including Downtown.
- Bike parking was included in the Downtown Parking Strategy.

Funding Eligibility Criteria:

- ✓ Improved transit safety and quality
- ✓ Improved transit access

