Getting Ottawa on Track: An Analysis of Two Light-Rail Proposals

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ABSTRACT
This policy research paper will analyze light-rail transit in Ottawa and more specifically whether two proposed light-rail transportation (LRT) projects could successfully address the city's need for faster, safer, more reliable mass transit. As the nation's capital, Ottawa's setting is unique and demands particular attention. Like other major cities, Ottawa struggles with public transportation, road congestion, urban planning, and is gradually coming to grips with the need for greenhouse gas reductions in the face of climate change. Currently, Ottawa is a world-leader in bus rapid transit (BRT), and besides a small foray into rail technology with the O-Train, the city relies exclusively on its buses. However, in light of future population and employment growth and the limitations of bus transportation, the City of Ottawa must develop an alternate transit plan to address these growing needs. After a lengthy civic debate, there is a widespread belief that light-rail technology is the best solution. The dialogue has now progressed to the location, size, scope, and other such details of an LRT system. This paper will begin with a brief overview of Ottawa's contextual setting and carefully define the specific public transit dilemma facing the city. After establishing a set of parameters for a successful Ottawa LRT system, both proposed LRT projects will be systematically evaluated based on these criteria. With this evaluation in mind, final thoughts on each plan will be laid out in order to identify whether these projects would suit Ottawa's needs. To close, several related municipal policies will be briefly discussed to ensure that Ottawa's transportation system fits well with broader city goals.

OTTAWA'S SETTING

Public transportation in Ottawa presents a unique challenge to
policy makers because of several important contextual elements. First and foremost is the city’s physical size, population dispersion, and employment geography. Since amalgamation in 2001, Ottawa’s population and area have increased dramatically. The City of Ottawa’s population forecast calls for 30 percent population growth by 2031, 68 percent of which will occur outside the ‘greenbelt’.\textsuperscript{1} The rapid expansion of Ottawa’s suburban communities has put particular strain on public transportation. East-west travel is by far the dominant traffic flow in Ottawa.\textsuperscript{2} Although most citizens commute using the automobile, Ottawa’s relatively small downtown core has already reached capacity in terms of accommodating buses. Another key factor in Ottawa’s geography is its proximity to the City of Gatineau. Separated by a provincial boundary and the Ottawa River, these municipalities are connected by several bridges that have become major thoroughfares for automobile, commercial, and public transit traffic. Regional transit is a mounting concern. Changes to the current system are necessary given the looming crisis in transportation, a city-wide goal to increase usage of public transit, and serious environmental concerns.

While Ottawa and OC Transpo may be a world-leader in BRT, due to the dedicated ‘Transitway’ network, other components have become financially, environmentally, and operationally unsustainable. Buses consume vast quantities of increasingly costly diesel fuel and require constant maintenance. Furthermore, there are important quality of life and operational concerns, such as safety and air pollution. There is also peak hour bus congestion in the downtown core that can make rush hour commuting an aggravating experience. Faced with similar problems, many other cities around the world have pursued light-rail as a viable solution.

Public transit policy in Ottawa, however, occurs in a noteworthy historical and governance context. Recently, the City of Ottawa has experienced several major setbacks in terms of light-rail policy. The fallout from the 2006 municipal election saw the cancellation of the proposed North-South light-rail project. In reneging on the project, city council was overturning 55 prior votes, and the decision cost taxpayers $1.6 million in legal fees, $800,000 for experts, and $36.7 million to settle with a lawsuit Siemens, the company who had won the bid to build and maintain the project. These expenses were on top of the already $73 million dollars in sunk costs already incurred through land acquisitions, engineering and planning\textsuperscript{3}. Furthermore, the controversial decision resulted in division and tension in city council. This highlights a larger issue in Ottawa municipal politics, where agreement on city-wide issues like transit is difficult to secure given the huge divergence between rural, suburban and inner-city
interests. The lack of cohesion among city wards, combined with the interplay with other important players like the National Capital Commission (NCC), the City of Gatineau, and both levels of higher government, make for a tricky governance context. As Stoney, Hilton & Krawchenko explain:

While its traditional governance structure is typical of many mid-large size cities in Canada, Ottawa also faces a number of specific challenges in respect of regional governance. The National Capital Region encompasses an area that includes two provinces (Ontario and Quebec) and two cities (Ottawa and Gatineau). The federal government has some role in planning and infrastructure investments, adding further to the jurisdictional fragmentation of the metro-region.

PARAMETERS FOR SUCCESSFUL LRT

There are seven broad criteria upon which light-rail proposals in Ottawa should be evaluated. These parameters have been compiled based on a review of relevant literature, including urban planning and transportation literature, official City of Ottawa documents, and professional experience in the transit planning field. While not exhaustive or mutually exclusive, the parameters outline the most important aspects of a successful LRT system. This predominantly qualitative exercise is more useful than quantitative methods such as cost-benefit analysis, given that technique’s difficulty with measuring key outcomes such as improved transit times, quality of life benefits, aesthetics, environmental effects, and urban vibrancy.

1. Financial cost

Financial concerns are a key factor in a successful light-rail project. This parameter includes construction, operational, and maintenance costs, utilizing existing infrastructure, the securing of financial aid from federal and provincial governments, as well as disruption during construction of the project. Skyrocketing expected costs can doom a project from the outset by jeopardizing financing, as well as by negatively affecting public perception of the project.

2. Increase transit ridership & mobility

Any future LRT project in Ottawa must improve the current transit system and plan for future growth. The key factors for this parameter are improved East-West travel, increased system efficiency (particularly downtown), and ability to accommodate 2031 ridership numbers predicted by the City of Ottawa.
3. **Enhance economic and environmental vitality**

The key factors in this parameter are increased efficiency and productivity, improved access to employment, recreation, and commercial locations, 'smart growth' stimulation, connection to redevelopment lands, and reduction in congestion, air, and noise pollution. Higher density, mixed use development, combined with replacing buses with light-rail vehicles will help Ottawa achieve its stated goals of reducing greenhouse gases and improving the environment.

4. **Encourage inter-modal transportation**

Integration of other forms of transportation is a key factor in the success of LRT systems. Ottawa’s project must be designed for smooth transition between bus and LRT, address the need for Park and Ride facilities, and encourage sustainable modes of transportation such as cycling and walking.

5. **Address Ottawa’s regional transit needs**

Due to Ottawa’s geographically spread-out population and close interconnectivity with surrounding communities, it is important that any LRT system improve transit within the entire National Capital Region. The key factors in this parameter are improving cross-bridge transit between Ottawa and Gatineau, and transit between the inner city and outlying communities such as Kanata, Barrhaven and Orleans.

6. **Passenger requirements**

Perhaps the most important factor for a successful LRT system is meeting passengers’ specific needs. Key variables are speed, reliability, safety, user cost, convenience, stop amenities, aesthetics, and accessibility for the disabled and elderly. Meeting these requirements is crucial to ensuring ridership.

7. **Address Tourism**

Finally, in light of Ottawa’s unique position as the nation’s capital and the importance of our tourism sector, any new LRT project should specifically address tourism by connecting key landmarks, museums, events, and neighborhoods. As witnessed in other capital cities around the world, particularly in Europe, an efficient light-rail system can
exponentially increase a city’s tourism appeal.

**CITY OF OTTAWA LRT AND DOWNTOWN OTTAWA TRANSIT TUNNEL**

**Project Overview**

The City of Ottawa is currently pursuing a new LRT project that runs from Tunney’s Pasture in the West to Blair Station in the East. The venture is the first phase of a city-wide public transportation strategy that will last until 2029. The second and third phases would extend light-rail to Riverside South and Baseline Station with an extension of the Transitway to the suburbs of Orléans, Kanata, Stittsville, and Barrhaven. The scope of this analysis is limited to the first phase of the LRT plan. With the exception of a 3.2 km tunnel under downtown, the LRT will run exclusively along existing Transitway, which will be converted from a bus way to rail corridor. Because the City of Ottawa LRT is still in the planning and design stage, many aspects of the plan have yet to be determined. As a result, evaluation of the project using the seven broad parameters involves careful research and inferences based on available information.

**Evaluation**

1. **Financial cost**

   Construction costs for the City of Ottawa’s LRT are becoming a major stumbling block. Recently, anticipated costs were revised upwards from $1.4 billion to $2.1 billion. This is primarily due to the 3.2 km Downtown Ottawa Transit Tunnel (DOTT), which will require an estimated $743 million. Tunneling is notoriously expensive and risky and can wreak havoc with overall budgets. The Province of Ontario, which is expected to contribute one third of total expenses, and several mayoral and city council candidates, have already expressed concern over rising costs for Ottawa’s LRT. There are examples, however, of successful and on-budget transit tunnel construction projects, notably Seattle’s 2.1 km downtown bus tunnel, which cost $450 million. Despite this, the rest of the LRT project is relatively inexpensive because it utilizes the existing Transitway corridor between Tunney’s Pasture and Blair station. Besides the cost of converting the bus way to a rail corridor—which mainly involves track-laying and installation of an overhead, single-wire electrified catenary—modifications to existing transit stations will be required to
accommodate LRT. Taking advantage of existing infrastructure keeps construction costs down and is environmentally efficient. Unfortunately, the construction of the DOTT will entail serious disruption in the downtown core. This has been a source of conflict in previous multi-year light-rail projects, notably the City of Vancouver’s Canada Line where businesses and residents suffered as a result of the disorder and drop in business.

The new LRT is supposed to save $100 million in operational costs by 2019. In terms of maintenance, this particular project has unique expenses because of the tunnel. The DOTT will entail costs in terms of tunnel upkeep and other such outlay associated with underground transit. Furthermore, there are significant operational costs for an underground system resulting from elevator and escalator service, and the heating, lighting, and ventilation of platform areas.

2. Increase transit ridership & mobility

The City of Ottawa LRT follows an East-West alignment, by far the most prominent flow of commuters, and is expected to improve efficiency significantly. According to the City of Ottawa, travel times will be reduced by 15 to 30 minutes depending on where you begin your trip. There are concerns, however, that because of the depth of the tunnel, travel-time savings will be diminished downtown because of the time spent reaching deep underground station platforms. Nevertheless, Transitway passengers will benefit from this system. Unfortunately, because the LRT only reaches Tunney’s Pasture, western residents will experience less improvement. The LRT project has been designed to accommodate 2031 ridership numbers. This was the driving force behind the DOTT, as it was decided that above ground transit would not be operationally feasible given expected ridership increases and the amount of congestion already experienced downtown during peak hours.

3. Enhance economic and environmental vitality

As mentioned, public transit ventures can have a positive impact on a city’s economy and environment. Given the increased system efficiency, Ottawa’s LRT project will have a positive impact on the movement of workers, shoppers, and event-goers. While the project does not connect directly to certain areas, such as downtown Gatineau, Lansdowne Park, or anywhere South of Hurdman station, it does reach key employment districts along Ottawa’s BRT system, including Tunney’s Pasture, downtown Ottawa, St-Laurent Blvd., and Blair Road. The alignment also
reaches major institutional and commercial destinations, such as the University of Ottawa, the Rideau Centre, the government conference centre, and the National Arts Center. This LRT project also encourages ‘smart growth’ by making inner city living more attractive, and thus, potentially increasing intensification and mixed-use development. LRT systems provide real incentives for businesses to locate themselves downtown. Similarly, this light-rail system passes through sites of major revitalization at Bayview Yards and Lebreton Flats. ‘Transit-oriented development’ is expected to occur in several other locations along LRT system, in particular the areas around Lees, Hurdman, Cyrville, and Blair stations. The Rideau Center LRT station will connect to the newly constructed convention center, commercial space, government buildings, and the beginning of the historic Rideau Canal. Furthermore, the system’s construction will provide a veritable economic stimulus—it is expected to generate 16,000 jobs directly and indirectly. In terms of direct environmental benefits, the City of Ottawa’s LRT system will reduce congestion downtown by removing thousands of buses from Albert and Slater Street every day. It could also decrease congestion across the city if system-wide transit ridership increases. The elimination of buses will also reduce noise and air pollution, diesel fuel consumption, and other resources involved in the operation and maintenance of bus transit. There are, however, two important environmental downsides to the proposal. First, the construction of the DOTT will be energy and carbon-intensive. Second, as is the case for any LRT, train operation will require significant amounts of electricity, which has its own environmental footprint. Nevertheless, according to the City of Ottawa, once in operation, the LRT will entail a net greenhouse gas emissions reduction of 27 million tonnes per year.

4. Encourage intermodal transportation

The proposed City of Ottawa LRT project is designed to minimize conflicts between buses and light-rail and provide an easy transition between the two modes of transit. Furthermore, at Bayview station, where the O-train meets the Transitway, city staff has recommended a ‘direct to downtown’ alignment that would see seamless transition into the East-West corridor. While the station configuration details have yet to be decided, it appears that the proposed system will have adequate intermodal configurations at the two major transfer stations: Hurdman and Blair. As part of the City’s long-term transit strategy, OC Transpo has committed to building several new park and rides in suburban communities, to further encourage transit use. As for encouragement of sustainable modes of
transportation such as cycling and walking, the DOTT will remove buses from the downtown core, decreasing intermodal conflicts. It seems likely, however, that once buses are removed from the surface, there will be an increase in automobile traffic downtown. Additionally, the City of Ottawa’s transit committee has decided to pursue low-floor LRT vehicles that would be amenable to carrying bicycles.

5. Address Ottawa’s regional transit needs

While the City of Ottawa’s LRT does facilitate travel from the suburbs, especially from Orleans and Cumberland, where Blair station provides nearby entry into the LRT system, it does not address the crucial need for improved regional transit between Ottawa and Gatineau. Even with the new LRT, La Société de Transport de l’Outaouais (STO) buses would still clog up the downtown core. This project also ignores the Rapibus, STO’s own Transitway, when considering the route design of the LRT. Ottawa is merely the biggest player in the larger National Capital Region, and interprovincial transit suffers from congestion and lack of planning.

6. Passenger requirements

It is important that the LRT system prioritizes the needs of passengers. Certainly with reduced travel times, the City of Ottawa’s LRT addresses the issue of speed and efficiency. Furthermore, underground loading areas allow for timelier boarding and alighting. Weather is a significant factor in influencing transit use, therefore underground stations may encourage ridership given Ottawa’s extreme climate. The underground platforms, however, while providing protection from the climate and motorized vehicles, also run the risk of becoming deserted spaces outside of peak hours. Additionally, some passengers might find the underground stations inconvenient because of their depth and the time needed to reach them. Ottawa’s severe climate can also inhibit the reliability of the LRT, as ice and snow can result in service disruption along the corridor. In order to mitigate this, the City can look to cities such as Moscow and Calgary for solutions. Regarding stop amenities, the City plans to integrate the downtown tunnel stations with surrounding offices, institutions, and commercial locations. This process, however, requires collaboration with businesses and investments on their part. Finally, the mobility concerns of the elderly and disabled will be addressed by low-floor LRT vehicles, which will provide easier boarding and alighting. OC Transpo, however, already experiences daily problems with elevator service.
In Transitway stations. In the DOTT stations, elderly and disabled passengers must rely exclusively on elevator and escalators. Problems may arise given the tendency of these services to break down or become soiled.

7. Address tourism

The City of Ottawa LRT, while connecting people to major tourist destinations along the Transitway such as the National Arts Center, Rideau Centre, ByWard Market, Train Station, and Parliament, fails to reach several key locations on the Quebec side and other Ottawa south locations such as Lansdowne Park. The East-West LRT is primarily a commuter corridor. While it will bring about economic development in many ways, it does not significantly improve Ottawa’s tourism appeal.

TRANSIT OTTAWA OUTAOUAIS LRT

Project Overview

The Transit Ottawa-Outaouais (TOO) LRT tackles transit in Ottawa differently. This system has been proposed by Professor Rob Hilton of Carleton University’s School of Public Policy and Administration. Details of the project come from discussions with Professor Hilton. This proposal acknowledges the close economic, social, and physical ties between the City of Ottawa and the City of Gatineau, and addresses the need for a more sustainable and efficient regional system. Every day, thousands of people and goods cross the numerous bridges between Gatineau and Ottawa, but interprovincial transit suffers from congestion and lack of planning. The TOO LRT is a regional LRT that would see the existing O-train line extended into a transit loop connecting Ottawa and Gatineau via the Alexandria and Prince of Wales bridges. More importantly the TOO LRT does not preclude the construction of an East-West LRT system—in fact it would compliment an East-West project well—but is rather aimed at addressing inter-city transit.

The TOO project involves constructing a tunnel under the Rideau Canal using the ‘cut and cover’ technique, which is relatively inexpensive when compared with the boring method planned for the DOTT. The LRT would travel under the Rideau Canal until it reaches the locks at the Ottawa River. At this point the alignment proceeds through a bored tunnel under NCC land, arriving at grade near the National Art Gallery. The LRT would then cross the Ottawa River via the Alexandria Bridge, which was initially designed to carry trains, and enter the City of Gatineau. The route
continues northwest along Boulevard des Allumetières until it reaches Autoroute 50, at which point the LRT would link into an existing rail corridor that runs southwest through Gatineau. Traveling along this corridor, the LRT would then cross the Ottawa River via the Prince of Wales train bridge and connect with the existing O-train corridor at Bayview station. The TOO LRT could also eventually be extended south to the Ottawa International Airport via the existing O-train and C.P. rail corridor.

**Governance Overview**

Before evaluating the TOO LRT project, a detailed look at its governance framework is required. The TOO proposal addresses the need for a regional transit strategy and cooperation among all levels of government. Specifically, it involves the creation of a distinct regional transit authority, a public company or a public-private partnership (PPP). Regional transit authorities are not uncommon in Canada. In 1998, Vancouver created Translink, a regional authority to oversee all forms of transportation, and recently in Toronto, GO Transit merged with Metrolinx to create a regional entity. These authorities are responsible for planning, financing, and managing transit across entire regions, and this type of framework produces economic and practical efficiency. On the other hand, creating such an authority in Ottawa-Gatineau to oversee an interprovincial light-rail system, would be significantly harder in the Ottawa context because of the various layers of responsibility.

Currently, there is a widespread belief that interprovincial transit suffers from a lack of coordination between OC Transpo and Gatineau’s STO. Politically and jurisdictionally, however, a regional authority or the other two options are only possible if both respective Provincial governments assume a leading role in negotiating with the other levels of government and the NCC. Legally and practically, the Provinces are solely capable of creating a regional transit authority. Both Vancouver’s and Toronto’s experience demonstrates this. Provincial leadership is also vital, because local politics and squabbles over finances and jurisdictions within both municipalities present a significant barrier to forming a cohesive policy such as a regional LRT. It is highly likely that municipal officials on both sides of the border would be reluctant to pursue this proposal and relinquish responsibilities without significant pressure from the provincial and federal governments. On the other hand, the need for creating a regional body overseeing interprovincial transit is a key finding of the ‘Interprovincial Transit Strategy’, an organization established by the City
of Ottawa, the City of Gatineau, and the NCC\textsuperscript{21}.

\textbf{Evaluation}

\textit{1. Financial cost}

The TOO LRT’s construction costs are relatively small given its effectiveness at linking Ottawa and Gatineau. There are a few significant investments, however. Trenching the Rideau Canal and constructing the LRT tunnel underneath will no doubt be the most expensive aspect of the project. The prefabricated sections and cut-and-cover tunneling technique, however, will be remarkably inexpensive compared with the DOTT boring method. Additionally, this construction will provide an excellent opportunity to finally rehabilitate the Rideau Canal infrastructure, which would eliminate the need for annual repairs carried out in piecemeal fashion. The short tunnel linking the Canal to the National Art Gallery will be another significant outlay, although it travels through NCC property, facilitating land acquisition. As the Alexandria Bridge was built for rail, the only significant costs will be creating a single lane of rail traffic. On the Gatineau side, capital costs will be minimal. The middle of Boulevard des Allumetière will be converted to accommodate the LRT and intermodal bus connection. Once it reaches Autoroute 50, the LRT will use an existing rail corridor that will require upgrading to accommodate light-rail. The Prince of Wales train bridge requires rehabilitation, but it is already owned by the City of Ottawa. The TOO LRT’s use of existing infrastructure, in the way of rail bridges, corridors, and Canal route, makes it more economically and environmentally efficient. This project will also require construction of many new transit stations and will put additional pressure on the existing rail yards at Walkley Road, which currently services the O-Train.

The operational and maintenance costs for the TOO LRT will be similar to that of the City of Ottawa’s system, although the underground stations along the Rideau Canal will have lower operational costs because of their proximity to the surface.

Given the inherent intergovernmental nature of the project, provincial and federal government financing is promising. The TOO LRT could follow the lead of Vancouver’s ‘Canada line’—a joint venture between the federal government, the Province of B.C., various municipalities, the airport authority, Translink, and a private construction firm—that saw rail linking Vancouver’s downtown with the airport. Another benefit of this project is that it minimizes disruption during construction, given that the bulk of work will be occurring under the
Rideau Canal.

2. Increase transit ridership & mobility

While the TOO LRT does not improve East-West travel across Ottawa, it does facilitate passenger travel in many other ways. Commuters traveling from the East and West of Ottawa heading towards Gatineau will benefit dramatically from the TOO system. Every morning 60,000 commuters travel across the bridges linking the two cities. Furthermore, linking Gatineau and Ottawa with light-rail will remove STO and OC Transpo buses from bridge congestion and reduce traffic in both city’s downtown cores, particularly on Rideau Street, Wellington Street, and King Edward Avenue in Ottawa. Outside of peak hours, the TOO LRT may initially suffer from relatively low ridership. Economic renewal in the downtown cores, however, will lead to exponentially higher demand along the system.

3. Enhance economic and environmental vitality

The TOO proposal will link the downtown cores of both Ottawa and Gatineau and stimulate economic growth in both cities. Improved interprovincial transit and decreased cross-bridge congestion will facilitate the movement of people and goods. The TOO project reaches significant areas of employment, recreation, and commercial activity including government offices in downtown Gatineau, St. Joseph Blvd., the Museum of Civilization, Université de Québec, Carleton University, Lansdowne Park, Ottawa University, the Rideau Center, the Byward Market, and the National Gallery. The project would promote intensification in the inner city, as called for by the City of Ottawa Official Plan. The TOO proposal’s alignment also connects both cities to areas of significant redevelopment, most notably Lebreton Flats, Bayview Yards, Lansdowne Park, and future redevelopment in downtown Gatineau, particularly along the Canal near Rue Montcalm. Both Ottawa and Gatineau are targeting increased density in these areas and the TOO LRT is poised to further accelerate this urban renewal process. This system also passes through Ottawa’s Golden Triangle neighborhood, another area poised for higher density and mixed-use development in the long-term. Further south, Lansdowne Park provides a good example of how the TOO could enhance Ottawa’s economy. If implemented, it would solve the transit dilemma presented by large-scale events at Lansdowne. Event-goers from all over the National Capital Regional, including Gatineau, could reach the facility quickly and cheaply, avoiding traffic congestion and parking. Increased connectivity
will enhance the economic vibrancy of both cities. Improved transit times, system efficiency, and convenience will encourage more Ottawa and Gatineau residents to use mass transit. Reduction in automobile use, bus traffic, and greenhouse gas emissions will benefit Ottawa’s environment.

4. **Encourage intermodal transportation**

The TOO LRT concentrates on linking the downtown cores of Ottawa and Gatineau, and provides an efficient loop system that other modes of transit can link into. It encourages intermodal transportation in several ways. The wide Boulevard des Allumetières will function as a transfer point between STO busses and the LRT, removing STO busses from downtown Ottawa. Similarly, transfer stations at Bayview and Rideau Centre would provide transfer points to the existing OC Transpo bus system (or an East-West LRT). The TOO LRT would also stimulate demand for park and ride service from Quebec residents living in outlying communities, as well as residents in Ottawa’s growing Riverside South area. It is also likely that the TOO LRT would encourage cycling and walking. Given a low floor vehicle, passengers could bring their bicycle on the LRT and alight in Quebec near the southern entrance of Gatineau Park, a popular hiking, cycling, and skiing destination. The TOO LRT also connects to the many NCC pathways. Finally, the TOO LRT stations along the Rideau Canal tunnel allow for passage under the canal for walkers, cyclists, and skaters, linking neighborhoods and eliminating the need to build more pedestrian bridges, such as the Corkstown footbridge.

5. **Address Ottawa’s regional transit needs**

The TOO LRT addresses regional transit between Ottawa and Gatineau specifically. It would dramatically improve interprovincial transit and congestion. While it does little to improve transit from Ottawa’s eastern and western communities, it would benefit suburban residents—in Orleans for example—who work in Gatineau. Additionally, the TOO LRT facilitates transit from areas south of downtown Ottawa.

6. **Passenger requirements**

The TOO LRT provides a relatively fast route through Gatineau’s downtown into Ottawa. One concern is that the alignment skirts some of Gatineau’s central employment areas. Depending on their exact location, some commuters might have to walk five to ten minutes to reach the LRT. Nevertheless, during peak hours it would still draw high ridership. This
system entails similar safety, aesthetic, and accessibility factors as the City of Ottawa’s LRT with several exceptions. The TOO LRT must navigate across mixed traffic in several locations, most notably as it approaches the Alexandria Bridge near the National Gallery and along Boulevard des Allumetières. This will need to be carefully choreographed in order to ensure safety. Stations along the TOO LRT tunnel section will be closer to the surface and more accessible than stations in the DOTT. Also, the reliability of the TOO LRT during winter will benefit from over one third of the route traveling underground, protected from snow and ice.

7. Address tourism

The TOO LRT reaches many of the NCR’s important tourist destinations. First and foremost, this proposal improves transit along the historic Rideau Canal. Station entrances to the tunnel system will be set back so as not to interfere with sightlines and the Canal’s UNESCO heritage status. The LRT also passes by museums and attractions, including Lansdowne Park, the Museum of Civilization, the National Arts Centre, the National Art Gallery, and Parliament. The proposal would also see light-rail reach a host of commercial districts, including the ByWard market, parts of downtown Hull, Elgin Street, Bank Street, and Rideau Centre. Finally, if the TOO LRT were extended to the airport, Ottawa would become only the second Canadian city after Vancouver to link their airport to the downtown core by light-rail.

FINAL THOUGHTS ON EACH PROPOSAL

This paper has evaluated the City of Ottawa’s LRT project, which would dramatically improve key East-West travel across the city. While the project meets many of the criteria for a successful light-rail system, there are serious concerns surrounding the construction of the Downtown Ottawa Transit Tunnel. Before embarking on such a costly venture, the City may want to rethink the DOTT and pursue a surface option downtown. The City of Ottawa rejected a surface option because of operational concerns—the biggest issue being decreased reliability and speed due to intermodal conflicts—and physical constraints downtown arising from the long platform lengths required to accommodate forecasted peak-hour ridership. There are, however, creative solutions that would overcome these barriers. One possible solution would be transforming Albert and Slater Streets into transit-only corridors with two lanes for public transit, wide sidewalks, and dedicated cycling lanes. Not only would this save millions of dollars, but the construction of this promenade
would also result in more vigorous downtown revitalization. Analyses of other LRT systems around the world suggest that economic spin-offs are higher when light-rail is located above ground.\textsuperscript{24} This type of urban planning is directly in line with adopted City of Ottawa policies, as it prioritizes public transit, walking, and cycling, and fosters a livelier urban core.

The TOO LRT acknowledges Ottawa and Gatineau’s shared future. It ameliorates interprovincial transit, fosters economic development between and within Ottawa and Gatineau’s downtown cores, and compliments an East-West commuter system. The Interprovincial Transit Strategy’s Consultation Report details the main problems facing transit between Ottawa and Gatineau. Remarkably, the TOO LRT speaks directly to the key findings regarding governance, user experience, operations, and planning,\textsuperscript{25} and proposes a creative and effective solution. The proposal meets much of the evaluation criteria and would no doubt dramatically improve the NCR’s transit situation, especially if implemented in tandem with an East-West LRT. The major difficulty in implementing the TOO LRT will be the tricky political negotiations involved in establishing a regional transit authority. Despite the findings of the Interprovincial Transit Strategy, local actors may be reluctant, and successful negotiations would depend on the leadership at the Provincial level and the NCC. Conflicts with Parks Canada over the Rideau Canal’s UNESCO World Heritage designation are also likely. The TOO LRT project’s ‘trenching and tunneling’ of the Canal might face strong opposition.

\textbf{CONCLUSION}

No matter what light-rail transit policy the City of Ottawa pursues, there are four crucial policy matters to consider. First, investments in LRT must be complimented with targeted urban planning policy. This entails the promotion of transit-oriented development, intensification, and curbing urban sprawl. Second, once the city has invested in an effective LRT system, they must consider serious action to diminish automobile usage. The benefits of automobile reduction are far-ranging and well-documented.\textsuperscript{26} Specific policies range from the vague ‘disincentives’ stipulated in municipal policy,\textsuperscript{27} to more concrete schemes of parking reduction or congestion-charging. Cost-benefit analysis of such policies has proven their merit in Western Europe.\textsuperscript{28} Third, a key aspect to ensuring a successful LRT system is a strategic marketing policy. European transit systems have successfully increased ridership through a number of creative
campaigns, including exhortation through advertisements, outreach to institutions, simplified fare structures, and even transit sweepstakes. Finally, officials must be diligent in the planning and presentation of the LRT system. Learning from the mistakes of Ottawa’s failed North-South LRT, politicians should avoid the pitfall of ‘mono-issue’ presentation, where proponents take an inflexible approach, touting a single plan and refuse to compromise. This is an antagonistic approach that divides stakeholders and creates opposition. Officials must frame the LRT from a ‘multi-issue’ approach, portraying the project as a way of tackling various urban problems, be it congestion, economic development, environmental decay, tourism, or prestige. This practice builds consensus and unites. Including citizens and stakeholders in a meaningful way throughout the process will also accomplish this and legitimize the final outcome.

Given expected population growth in the National Capital Region, and the need to foster sustainable development in the context of climate change, an effective light-rail system is key to Ottawa’s future. As Canada’s fourth largest city, the site of federal Parliament, an important destination for tourism, and a growing urban center, Ottawa’s new LRT system must stand out as a shining example of successful public policy.
NOTES


9 Ibid.


17 Ibid.


23 McCormick Rankin Corporation. “Development of a Downtown Transit Solution and Network Implications.” Transportation Master Plan: Infrastructure Requirement Study,
REFERENCES


McCormick Rankin Corporation. “Development of a Downtown Transit Solution and Network Implications.” Transportation Master Plan:


