



File Number: T01-99-14-TMP

March 17, 2014

Sarah Wells
Transportation Association of Canada
2323 St. Laurent Blvd.
Ottawa ON K1G 4J8

Dear Ms. Wells,

Re: 2014 TAC Sustainable Urban Transportation Award Nominations

The City of Ottawa believes that our recent Transportation Master Plan (TMP) would be a good candidate for the 2014 TAC Sustainable Urban Transportation Award as it substantially contributes to the development and enhancement of sustainable transportation.

Please see our attached full submission.

Yours truly,

A handwritten signature in blue ink, appearing to read 'Colin Simpson'.

Colin Simpson, MCIP, RPP
Senior Project Manager, Transportation Planning Branch
City of Ottawa

Introduction

Ottawa's 2013 Transportation Master Plan (TMP) update sets a new standard for sustainable transportation planning in Canada. The plan, unanimously approved by Ottawa City Council, sets forward aggressive targets for sustainable modes and represents a significant paradigm shift away from the traditional "predict and provide" approach to transportation planning. Although most master plans now prepared in Canada place a policy emphasis on sustainability, few go as far as to follow through from vision to action.

Like many of this country's urban areas, Ottawa is facing significant growth pressures over the next twenty years and beyond. By 2031, Ottawa's population will be nearly 25% larger than it is today, with much of the growth occurring in the city's outer suburbs. This poses significant challenges to the provision of sustainable transportation. In response to these pressures, the City's *Building a Liveable Ottawa* initiative was launched to update its Official Plan and its associated master plans. The TMP was a key part of this process, and was a driving force behind much of the land use planning undertaken as part of initiative.

In summary, Ottawa has adopted a TMP that:

- reduces per capita emissions from transit vehicles and personal vehicles;
- better ties transportation planning to land use planning;
- is affordable, because a plan is only as good as what can actually be achieved;
- designs for the peak period rather than the peak hour;
- sets aggressive targets for sustainable transportation modes and outlines the funding commitments required to achieve them; and
- shifts focus from achieving mobility to achieving accessibility;



A Sustainable Path Forward

Ottawa's TMP update is consistent with the three traditional "pillars" of sustainable transportation: social, economic, and environmental. The plan strives not only to reduce the transportation system's environmental footprint, but to do so in a manner that is affordable and that is equitable to all its users.

Planning a More Equitable Transportation System

The diverse users of Ottawa's roads often compete for the scarce resources of time, space and money; depending on location, buses may get stuck in traffic, motorists might swerve to avoid cyclists, and pedestrians could crowd onto sidewalks. In managing its road network for the greatest public benefit, the City frequently must make difficult trade-offs. To address this, the TMP update introduces a new complete streets policy that offers safety, comfort and convenience to all users regardless of their age or ability. Strong support for this new TMP policy direction has also been incorporated into the City's Official Plan.



Above: Ottawa's Main Street Renewal Project is putting into practice the concept of Complete Streets identified in the TMP

At the heart of this policy is the notion that context will drive the design of streets. In areas with high pedestrian and cycling volumes, the needs of the most vulnerable street users—pedestrians and cyclists—will be considered first. Where high demands from multiple modes exist, the City will seek to balance the needs of all users in a sustainable way. The policy has already resulted in a review of the City's road design guidelines, which will integrate current best practices to illustrate ways of rebalancing street space distribution within the right of way among the various uses.

Linking Land Use, Transportation, and Financial Planning

Land use and transportation planning are arguably two of the most important drivers of the sustainability of an urban region, and the City's *Building a Liveable Ottawa* initiative recognizes the important relationship between the two by conducting its land use planning and transportation planning concurrently. In so doing, future transportation infrastructure is located to serve the changing city, while new population and employment areas can be strategically zoned close to rapid transit stations.

However, the TMP goes a step further to ensure that economic sustainability is also a priority of the plan. The City's finance department was engaged to conduct a comprehensive assessment of how much the City can afford to spend on growth-related transportation projects over the 18 year planning horizon. The analysis considers capital, operating, maintenance and life-cycle costs and guided the recommended infrastructure phasing plans for the TMP. The result of the process is two transportation networks.

- The *Network Concept* represents the long-term vision of the plan and provides strategic direction for future updates; it is not, however, affordable to implement the complete *Network Concept* by 2031.
- The *Affordable Network* was developed by taking the highest-priority elements from the *Network Concept* and phasing them according to their ability to meet the City's sustainable transportation goals.

The *Affordable Network* provides the infrastructure required to achieve the City's sustainability targets while also ensuring that its costs will not be unduly borne on future generations.

Improving Environmental Performance

Ottawa's TMP update sets an aggressive target for environmental sustainability: by 2031, at least 50% of peak-period trips to, from, and within Ottawa will be made by sustainable modes (walking, cycling, public transit, and carpooling). The plan also specifies more detailed targets by mode and by geographic area. For example, the share of cycling trips will nearly double to 5%, while transit share within the inner suburbs will increase from 16% to 22%. While these targets are important, it is the plan's actions that will ensure the goals of the plan are actually met. Examples of these

actions include more than \$135M dollars of dedicated funding for walking and cycling projects and nearly \$2.5B of rapid transit and transit priority funding. In fact, planned investments in sustainable modes is more than triple the investment in roads.

One of the plan's particularly important initiatives to reduce Ottawa's environmental footprint is the replacement of much of its bus rapid transit (BRT) system with light rail transit (LRT). Although the BRT system has done an enviable job of building a strong ridership base over the past 30 years, the city has quite simply outgrown it. Buses now clog downtown streets for many hours a day, and the City devotes a considerable sum of operating expenses to diesel fuel for buses. Not only will the conversion to LRT reduce emissions from transit vehicles, but it is also critical to achieving mode share targets.

As a result of the plan's sustainable vision, it is projected that greenhouse gas emissions from Ottawa's transportation system will be reduced by 14% per capita by 2031. With continued efforts to shift to sustainable modes, the City is on track to reduce the overall GHG tonnage from its transportation system.

An Innovative Plan

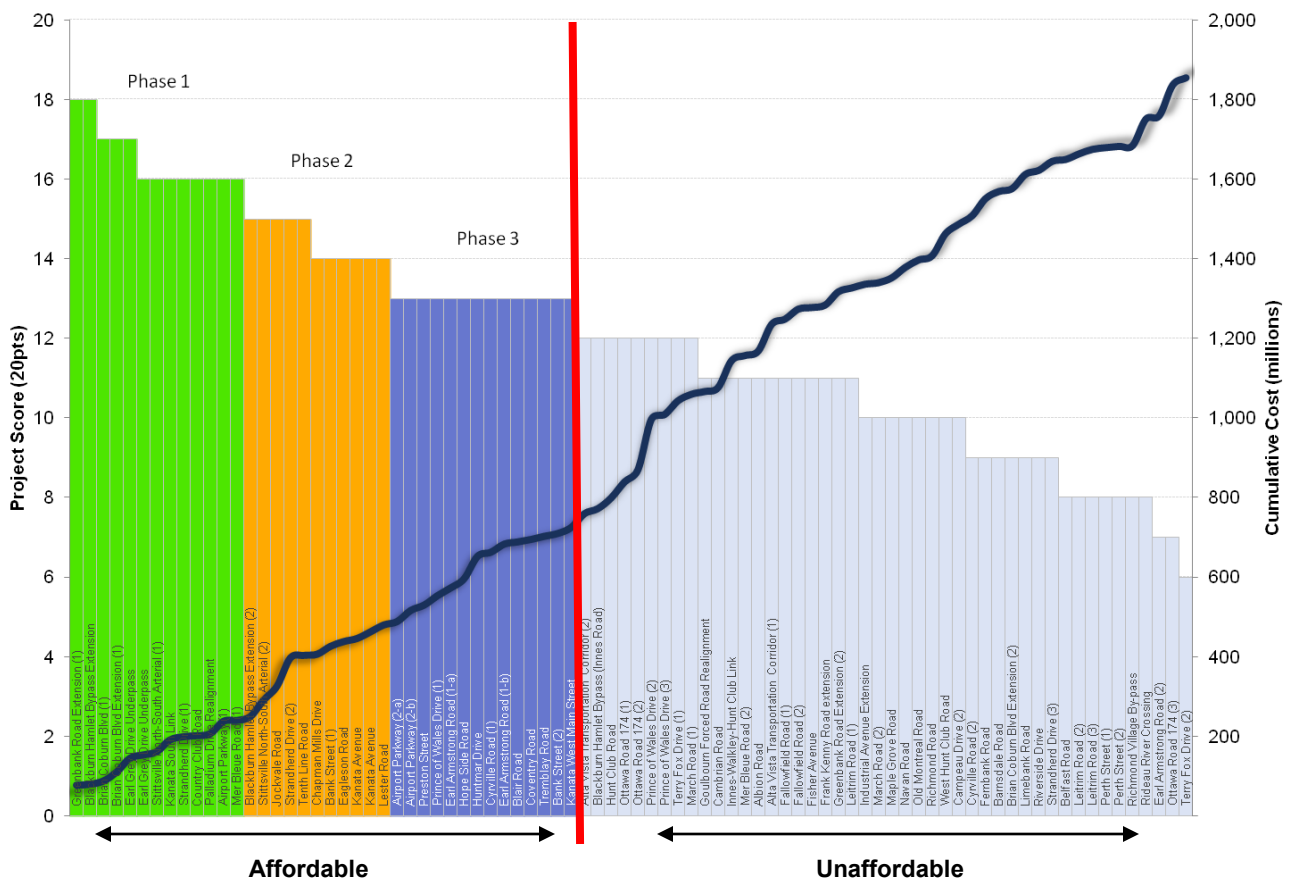
Putting Affordability at the Forefront

A plan is only as good as its execution; while a TMP may have the most noble of ambitions, it is its implementation that will determine its success. For this reason, Ottawa has taken steps to ensure that the plan it has developed for its transportation system can actually be achieved using conservative capital and operations funding assumptions. It is believed that this is one of the first TMPs in Canada to have explicitly considered affordability in this way.

How much the City can afford to invest was determined by looking at existing Council policies and existing revenue sources to establish an affordable envelope. Specifically, it was assumed that tax increases would match inflation, that the City's debt load would not be increased substantially to pay for projects, and that senior governments would contribute two-thirds of the required capital cost for rail projects.

Perhaps most importantly, affordability was assessed not only on capital cost, but on complete lifecycle cost. For transit projects, this involved an assessment of the costs to operate and maintain infrastructure, as well as to renew the fleet. For road projects, lifecycle costs included costs to resurface as well as completely rehabilitate roads over a fifty year time frame.

This process had a profound importance on the establishment of the TMP's priorities. Whereas most plans establish needs and then assign costs to meet those needs, Ottawa's approach allocated a fixed amount of money between different modes. The end result was a plan that considerably constrained the number of road projects to be built over the plan's horizon in comparison to past TMPs. As the graph below illustrates, more road projects were deemed "unaffordable" than were deemed "affordable".



Shifting the Focus from Mobility to Accessibility

Traditionally, transportation planning has sought to provide unlimited mobility for travellers. However, in reality the achievement of this goal is impossible—congestion is a reality in every major city around the world and will likely continue to be for the foreseeable future. In recognition of this, the focus of infrastructure provision in the TMP was altered from the goal of mobility to the goal of accessibility. In essence, this means that although travellers may encounter congestion during their trip, they will be able to complete the trip using the mode of their choosing.

This was achieved in two different ways. First, the transportation network was designed to accommodate demand during the 2.5-hour peak period rather than the peak hour. In so doing, infrastructure requirements were lessened. Second, the ability of a particular road project to improve accessibility was given equal consideration as the ability to reduce congestion. This resulted in fewer recommended projects whose sole purpose was to relieve congestion.

Developing Multi-Modal Levels of Service

For nearly fifty years, the Transportation Research Board's Highway Capacity Manual (HCM) has used the concept of "level of service" to describe the performance of roadways. The manual translates the magnitude of delays experienced due to congestion into discrete, easy-to-understand letter grades (A, B, C, D, E, and F)—the lower the delay, the higher the level of service. Unfortunately, the HCM's focus is exclusively on the experience of drivers and, while there has been much research in recent years to expand the approach to other modes (including HCM methodologies), there is no accepted practices for evaluating multi-modal level of service (MMLOS) at the TMP level.

As part of the Ottawa TMP, the study team reviewed MMLOS methods adopted in other jurisdictions and then conducted primary research into how levels of service could be applied to cycling, pedestrians, and transit in Ottawa. This research and its recommendations will be used to develop new City guidelines for MMLOS. These will help to facilitate the decision making process when trade-offs are required, which typically occur along main streets, downtown, and in transit-oriented development areas, mixed use centres and areas of intensification.

A Transferable Approach

Designing for the Peak Period

As part of the shift in focus from mobility to accessibility, a policy decision was made to design road capacity to accommodate the total demand experienced during the 2.5-hour peak period rather than during the peak hour. This is done in recognition of the fact that the use of hourly capacity is, in essence, arbitrary and often results in road infrastructure that is under-utilized throughout most of the day.

To accommodate this change in policy, the study team developed a peak period modelling technique that can be easily transferred to any other municipality wishing to adopt peak period design standards. Whereas the traditional approach to travel demand modelling is to simulate the *highest* hour during the day and provide sufficient capacity to meet that demand, modelling for the Ottawa TMP instead used the *average* hour within the 2.5 hour peak period. Using the average hour inherently means that the simulated demand is lower, meaning that less road infrastructure is required to meet demand. This approach could be applied in other municipalities through simple manipulations to their travel demand models.

Moving Away from “Predict and Provide”

Most importantly, it is the overarching process used in the Ottawa TMP that is transferable to other municipalities. Rather than blindly supplying infrastructure to meet forecast future demand across all modes, the Ottawa TMP instead takes an iterative approach that first determines what is affordable. From this, priorities regarding how much should be spent on each mode are informed by policy, and infrastructure projects are specified under the affordable envelopes for each mode. The impacts of this infrastructure can then be assessed using modelling techniques and can be used to inform a new iteration of the process. This process, although fundamentally different from traditional TMP methodologies, ensures that TMP goals can be achieved and is therefore an attractive alternative for other municipalities.