

Towards Sustainable Transport in Ottawa: An End to Road Construction

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Overview

Ecology Ottawa has proposed a series of environmental policy priorities for the new City Council being elected in 2010. Regarding transport, we call on candidates to commit to a halt to the steady growth of the city's road network, which serves to accommodate and encourage ever-increasing car traffic. Alongside the development of fair user fees for road space, we urge city councillors to adopt a moratorium on new road construction. This would form a crucial part of its overall stated goals of moving Ottawa towards sustainability. Dealing with transport by reducing reliance on the private automobile and shifting to public transit, cycling and walking, is one of the most important parts of making Ottawa sustainable. Currently, transport spending in the City is skewed greatly towards provision for car-drivers at the expense of other transport modes. The Council plans to spend \$1.5 billion on road construction and widening between 2008-2017¹, while the budget in 2009 for public transit was \$133m and only a fraction of spending was dedicated to cycling.* This has to radically change if councillors are serious in their statements about sustainability.

A moratorium on road-construction is a vital first step. It would send an important signal to developers and citizens that the Council is serious, and enable the finances released to be used to fund a massive expansion of cycle lanes and paths, increases in sidewalk provision, and enhanced funding for public transit. In the first instance, the moratorium would be for five years, but could become permanent.

The moratorium would have to be combined with other shifts in policy and strategy by the Council. Notably, it would have to be combined with planning practices that substantially increase density of housing in the city, as well as mixed-use neighbourhoods, to enable people to meet their needs within distances that can be walked or cycled. But the moratorium would be an important starting point for this process.

Why a moratorium on road-construction?

Road construction is directly a cause of serious environmental problems. It involves itself the consumption of large quantities of oil (the main ingredient in most forms of asphalt) as well as of hardcore which requires quarrying. It creates a hard surface which increases water run-off and reduces absorption by the soil, increasing flooding problems. It also creates run-off of toxic chemicals such as heavy metals copper and zinc into water.² An environment dominated by roads contributes much to the "urban heat island effect," where urban temperatures increase

¹ See City Council's Transportation Master Plan at:

<http://www.ottawa.ca/city_hall/master_plans/tmp/index_en.html>.

* The Council does not provide a single figure in the budget for provision for cycling. In 2009 it budgeted \$700k for 'cycling programs,' and \$50k for cycling in parts of the 'transportation demand management budget.' Cycle lane provision on regular roads comes however from another budget, for which the council does not give a breakdown of the figures. Finally, there is some budget, although no precise figure could be found, for cycle paths provision (although a large proportion of the cycle paths in the city are provided by the National Capital Commission not the City Council).

² According to Brattebo and Booth, toxic levels of both copper and zinc are found in water runoff in asphalt roads, especially during heavy rain storms. See Benjamin Brattebo and Derek Booth, "Long-term stormwater quantity and quality performance of permeable pavement systems," *Water Research*, 37, 18 (2003): 4369-4376.

compared to surrounding areas, increasing demand for air-conditioning (itself very energy-intensive).

Road construction is also a crucial element in making overall urban development unsustainable. It sets in train a dependency on car use, as it enables people to move further and further from places of work, schools, shops and other services, and friends. Car dependency locks the City into high levels of energy use, air pollution, and greenhouse gas emissions. Transport accounts for 33% of Ottawa's greenhouse gas emissions, and it is the fastest growing source of emissions (see table 1), so needs urgent attention and action to reverse this trend.

Table 1. Total Community GHG Emissions for the City of Ottawa – 1990 to 2004 (tonnes/year).

City of Ottawa	GHG (tonnes/year)		% Change
	1990	2004	1990/2004
Transportation	1,410,488	1,625,754	15%
Waste	457,770	257,669	-44%
Buildings	2,437,332	2,635,882*	8%
TOTAL	4,305,590	4,519,305	5%

*Latest floor space data available is for 1998-

(From: <http://www.ottawa.ca/calendar/ottawa/citycouncil/occ/2007/12-07/pec/ACS2007-PTE-ECO-0015.htm>)

Low-density suburban development, which extensive road-construction makes possible, also enables other unsustainable practices – enabling for example large area single family homes which consume far more resources (energy, water, and so on, as well as often good quality farmland) than denser urban buildings focused on duplexes, row housing and apartments. Cities with low-density have substantially higher emissions of various pollutants, including nitrogen oxides or sulphur dioxide that cause acid rain, carbon dioxide that is the principal gas causing climate change, or the cocktail of emissions that cause smog with its associated health effects, than do high-density cities. This is both because of transport emissions and increased energy use in single-family homes. So even the 58% of Ottawa's greenhouse gas emissions that comes from buildings is substantially affected by transport policy in the City.

The council has a series of stated aims to promote the sustainability of the City. For example in 2004 the council committed itself to reducing the City's greenhouse gas emissions by 20% by 2012 from 1990 levels, as the City's effort to help Canada meet its Kyoto Protocol commitment. This is an ambitious goal – the city's total emissions increased by 5% between 1990 and 2004. But it is also only a first step in meeting the challenge of climate change – the city's emissions will need to be reduced by 80-90% over the next 50 years if it is to play its part.³

³ The UN's Intergovernmental Panel on Climate Change, which provides the most authoritative overview of current scientific knowledge on the issue, states that to have a reasonable chance of limiting climate change to 2°C above pre-industrial levels, a target now widely regarded as necessary to avoid dangerous climate change, including by the Canadian government in its endorsement of the Copenhagen Accord in December 2009, global CO₂ emissions need to be reduced by 50-80% by 2050 over 2000 levels. Given that fairness requires rich countries that emit very heavily to reduce by more than the global average, and Canada's per capita emissions are amongst the highest in the world, this requires Canadian emissions to be reduced by over 80%. On what is required to stabilise climate, see Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report, Summary for Policymakers*,

But the current focus of transport spending on road construction takes the City in exactly the opposite direction, of continued increases in emissions. As a consequence, while the City has been able to reduce the emissions of the City Council's own operations, the overall emissions of the City have continued to rise.

But surely road-construction just reflects the growth of the City?

No. Transport planning usually does proceed on the basis of projecting growth of various things – population, car ownership, income levels, housing preference, and the like – and then extrapolates the “needs” of the population of the City in terms of roads. This is called a “predict and provide” approach. But it has been repeatedly shown that this merely sets up a self-filling prophecy. This problem is known technically as one of “induced demand.”⁴ The old adage that “if you build it, they will come” is appropriate here. Road-construction sets in train the patterns of development and locks citizens and the City into restricted choices – if you build out into the suburbs, the distances to work make cycling for the hardy and very fit only, and walking impossible. As the population ages, it becomes progressively more important to make sure that the pattern of growth doesn't “lock-in” reduced access to reduces for an aging population who are disproportionately unable to use a car.

So road-construction is a cause of our unsustainable forms of growth, not simply a response to “demand.” It doesn't therefore solve the congestion problems it is claimed to do, as traffic simply expands much further than predicted. For example, according to a study commissioned by the City, traffic on the Ottawa Airport Parkway went up by as much as 51% more than predicted, and traffic on other arterial roads was not in fact relieved.⁵ Even Transport Canada has recognised this, providing advice to municipalities to take account of these induced demand effects in their transport planning.⁶

In other words, the type of infrastructure we build will affect how the City grows and how people travel around. If we expand car-oriented spaces that make it relatively easy to drive, over distances that make other travel modes prohibitive, then we shouldn't be surprised that it is difficult to get people out of their cars and that transit still needs subsidies (of course road building is not called a subsidy to car drivers). Conversely, if we actively restrict space for cars and expand space for transit, cyclists, and increase densities so walking becomes possible, then we can expect to see a significant shift away from the car use, towards the sort of balance that we see in other parts of the world.

Geneva, Intergovernmental Panel on Climate Change, 2007, p. 20. On Canadian per capita emissions, see data available from the World Resources Institute's Climate Analysis Indicators Tool, at <http://cait.wri.org/>, and the Appendix below which summarises the data.

⁴ See for example the large volume of literature cited at: <http://www.silurian.org/dot/induced.html>. Note that this is different to the problem of accurately predicting things like population or housing growth in particular areas, although in that, planners and developers often over-estimate projected growth in order to justify road-building.

⁵ Maxgroup Associates, *Airport Parkway Extended Traffic Impact Study*, September 1999. See a summary at: <http://www.queenswaycoalition.org/APETIS.html>.

⁶ See Transport Canada's Transdec modelling software for urban transportation cost-benefit analysis, at: <http://www.tc.gc.ca/eng/programs/surface-transdec-menu-989.htm>.

“But the roads would just clog up”

Perhaps, perhaps not. But it is worth remembering that Ottawa, like many other North American cities, has much more road space per vehicle than many cities in other parts of the world. In fact, while congestion is in some ways worse for example in European cities, journey times are not significantly longer. In a survey of large cities, it was found that the average time taken to get to work for North American cities is 26 minutes while for European cities it is 28 minutes.⁷

More importantly, we probably need to bite the bullet and accept the reality that if we are to pursue sustainability seriously, congestion *for car drivers* needs to get worse, while for *other transport modes* congestion needs to reduce. This is the basic consequence of saying we want to make it easier for people to use the bus, light rail or the bike – it needs to become easier relative to the car, and thus policy needs to be bold and accept that we need to take space away from cars and give them to buses, bikes and pedestrians, through a range of policies such as those we outline below.

But is the City allowed to stop road building?

This is an important question. Under Ontario’s Development Charges Act 1997, Councils have to put the money collected from developers for specific projects into funds reserved for specific purposes. In Ottawa’s bylaw under that act (the latest one was passed on June 24th 2009), one of the categories is “roads and related services” (public transit is a separate category). This category in fact receives the largest proportion of the overall development charges, receiving 45% in 2009.⁸ Council staff and some councillors have stated that this means that a moratorium on road-construction would in fact simply be illegal.

But there is a lot more room for manoeuvre than city planners and many councillors suggest. First, there have been some cases where road projects have been cancelled despite the argument for them being that they were required because of the development charges that had been collected. For example, in 2006, a project to widen a section of Richmond Road was cancelled after substantial public protest.

Second, and more importantly, nowhere in the Development Charges Act or in city bylaws is a “road” clearly defined. In fact, a sort of “commonsense” notion is used, that a road is a public space devoted to cars. But there is no good reason to regard this commonsense notion as set in stone. Historically, the meaning of a “road” has changed dramatically, and in the first half of the twentieth century, the meaning changed to its contemporary meanings, as rights for other non-car uses of roads (for markets, for children playing, for non-car transport uses) were stripped away by legal decision, laws, simple neglect, and the “might makes right” fact that cars make the road less safe for all other users.

⁷ Peter Newman and Jeffrey Kenworthy, *Sustainability and Cities: overcoming automobile dependence*, Island Press, Washington DC, 1999, p. 344. The North American cities chosen all have a density broadly like Ottawa’s, while the European ones are on average between 1.5 and 2 times denser.

⁸ Roads received \$174.5m in 2009, out of an overall development charges budget of \$389.5m. Transit received \$70.4m. See *Treasurer’s Statement on Development Charges for 2009*, report to Planning and Environment Committee, Ottawa City Council, 15 April 2010.

Third, building sprawling suburbs of car-centred development is expensive. The City appointed consultants during the process of amending its official plan in 2009, who showed that houses inside the greenbelt pay on average \$1035 more in taxes than the cost of providing them services, while urban houses outside the greenbelt pay \$70 less than they cost the City.⁹ A good deal of this extra cost is road construction. So reorienting the city away from car dependency would save taxpayers money and perhaps enable a reduction in the overall development charges the city takes from developers.

So the idea that we can only spend “roads and related services” on space dedicated to cars is a conventional fiction that we must challenge. It is the result of the culture of transport planning and the inertia of inherited “wisdom” which is no longer appropriate, as well as the close connections between transport planners and engineers in the city and in the main consulting firms.

So the core of the issue is not so much whether we build transport infrastructure, but what type we build. Development charge monies should instead be regarded as available for any projects which increase the ability of Ottawa’s citizens to get to services they need. And if sustainability is to be the main goal, this should therefore be focused on reducing car use.

Using “roads” money to pursue sustainability

So what might we spend that roads-dedicated money coming from development charges on instead of yet more space for cars? Here are just a few examples of possible ways to use this money to transform the city to make it more sustainable, more liveable, and less car-dependent:

- Funding a radically enhanced cycle network. The city already has a cycle network plan, which itself could be improved. The goal should be that anyone capable of cycling should be able to cycle safely throughout the whole city. For journeys under 5km, the goal should be to make these journeys as quick as the same journey made by cars. Where elements of this network are in cycle lanes rather than separated paths, they should take priority where there are space conflicts with cars, avoiding the dangers produced by cycle lanes stopping, a factor in recent high-profile cycling deaths and injuries on Sussex Ave for example.
- An important, and relatively cheap and cost-efficient, part of this strategy would be to create a series of cut-offs on existing roads that in effect create arterial roads for cyclists but for car-users they become solely residential roads. This involves a barrier that lets cyclists through but prevents cars. Long cycle-friendly routes can be created by simple projects in this way.
- Fund an investment in sidewalks to make it so that no-one has to share their neighbourhood with cars while walking.
- Round the Rideau Canal and the Ottawa River, as well as across major roads and the Transitway, a significant expansion of pedestrian and cycle bridges. The recent construction of the bridge over the Canal from Somerset St to the University of Ottawa

⁹ Hemson Consulting Ltd, *Comparative Municipal Fiscal Impact Analysis*, report prepared for the City of Ottawa, January 2009. See Appendix II for the full figures.

Transitway station, and the proposed bridge across the Canal further south near Lansdowne Park are perfect examples of how such monies could be used to create enhanced transport networks in the city without increasing car-dependence, in fact making it more efficient to do many journeys on foot or bike than by car.

- Increasing the number of bus lanes on major arterial routes considerably. Where possible, the segregation of bus lanes from car-oriented lanes should be done with physical barriers to prevent cars from accessing bus lanes. This should start with obvious routes like Carling Avenue where one lane can readily be devoted to buses, but should be done on the basis that the goal is to make bus journeys quicker and more convenient, *even if this increases* congestion for car users or reduces parking space on arterial routes. Where this is already done, as in the case of the 417 from Kanata, buses are routinely full, with standing room only.
- Prioritise spending on maintenance, including snow removal on cycle routes and sidewalks. Develop plans to make cycle routes easily navigable even in the winter (many cyclists are put off cycling in winter not so much by the cold as by the poor quality of the surfaces).
- Create neighbourhood-level pedestrian and cycle plans. This would involve looking at where people live and where they are trying to go at the scale of the neighbourhood. Where are the transit hubs? What services are within 5 km? What are the barriers to movement? (For example, eight lanes of traffic between houses and neighbourhood grocery store).
- Pedestrian and cycling bridges over the Queensway, 416, and other major highways.
- Pedestrian and cycling bridges over the Ottawa River, or segregated lanes on existing bridges.
- Secure and covered bike parking at Transitway stops. Increased bike parking throughout the city.
- Redesign existing roads to make it safer for cyclists and pedestrians. For example, decrease turning radii on street corners. Corners are usually built so that cars can turn at high speeds. This is obviously dangerous for pedestrians and cyclists. It also forces the pedestrians to walk further, thus acting as a disincentive.
- Close some streets in the Byward Market and other popular areas in the city to non-local traffic.

Joined-up policies

Changing the City's spending priorities will be an important component in reorienting Ottawa towards a sustainable and healthy transport system. But it will need to be complemented by other policies that go in the same direction. Chief of these is in the planning system, which needs to get much more rigorous in promoting high-density, walkable neighbourhoods rather than sprawling suburbs. But other policies are also important, such as decreasing the speed of cars on many roads, increasing the promotion and take-up of car share schemes like Vrtucar, using parking fees to create incentives to use other transport modes, and so on.

Conclusions

There are many other examples that the City could develop as part of thinking about a proper vision for a sustainable Ottawa. The core of that vision is of a City where walking, cycling and public transit become the dominant ways of getting around, with cars being in effect put back in their place – as a useful servant rather than the bad master they currently are.

A moratorium on road construction – by which we understand on the building of space oriented towards cars – is not going to create this sustainable Ottawa on its own. It has to be combined in particular with a radical reorientation of the planning system towards creating a high-density city. But it is an important imaginative step that Councillors can make to enable us to build a more positive vision.

Appendix

Top twenty CO₂ emitters on a per capita basis, 2006

Country	MtCO ₂ e	Rank	% of World Total	Metric tons CO ₂ e Per Person	Rank
Qatar	46.1	(61)	0.16%	46.0	(1)
United Arab Emirates	116.9	(35)	0.41%	27.5	(2)
Bahrain	20.1	(81)	0.07%	27.2	(3)
Kuwait	69.4	(46)	0.24%	26.7	(4)
Luxembourg	11.6	(93)	0.04%	24.5	(5)
Trinidad & Tobago	29.8	(73)	0.10%	22.5	(6)
United States of America	5,770.8	(2)	20.25%	19.3	(7)
Australia	399.3	(14)	1.40%	19.3	(8)
Canada	549.7	(8)	1.93%	16.8	(9)
Brunei*	5.9	(112)	0.02%	15.5	(10)
Saudi Arabia	353.6	(19)	1.24%	14.9	(11)
Finland	67.7	(47)	0.24%	12.9	(12)
Oman	33.4	(70)	0.12%	12.5	(13)
Taiwan*	279.9	(23)	0.98%	12.2	(14)
Kazakhstan	184.1	(26)	0.65%	12.0	(15)
Czech Republic	123.1	(33)	0.43%	12.0	(16)
Estonia	15.5	(86)	0.05%	11.5	(17)
Belgium	121.3	(34)	0.43%	11.5	(18)
Russian Federation	1,614.4	(4)	5.67%	11.3	(19)
Ireland	47.4	(59)	0.17%	11.1	(20)

Note: Of countries above Canada in this list, one is Luxembourg whose overall emissions are tiny, five are major oil producing countries, and two are medium (Australia) or large (US) industrialised countries.

Top 20 CO₂ emitters in absolute terms, 2006

Country	MtCO ₂ e	Rank	% of World Total	Metric tons CO ₂ e Per Person	Rank
China	6,206.6	(1)	21.78%	4.7	(66)
United States of	5,770.8	(2)	20.25%	19.3	(7)

America					
European Union (27)	4,119.1	(3)	14.46%	8.4	(36)
Russian Federation	1,614.4	(4)	5.67%	11.3	(19)
India	1,331.1	(5)	4.67%	1.2	(121)
Japan	1,247.6	(6)	4.38%	9.8	(27)
Germany	842.3	(7)	2.96%	10.2	(25)
Canada	549.7	(8)	1.93%	16.8	(9)
United Kingdom	545.4	(9)	1.91%	9.0	(32)
Korea (South)	503.5	(10)	1.77%	10.4	(23)
Iran	472.2	(11)	1.66%	6.7	(48)
Italy	471.9	(12)	1.66%	8.0	(41)
Mexico	441.2	(13)	1.55%	4.2	(71)
Australia	399.3	(14)	1.40%	19.3	(8)
France	388.6	(15)	1.36%	6.3	(51)
Indonesia	360.4	(16)	1.26%	1.6	(110)
Brazil	355.5	(17)	1.25%	1.9	(106)
Spain	354.6	(18)	1.24%	8.0	(40)
Saudi Arabia	353.6	(19)	1.24%	14.9	(11)
South Africa	348.4	(20)	1.22%	7.4	(43)

Source: World Resources Institute, Climate Analysis Indicators Tool. Available at <http://cait.wri.org/>.