An Independent Study Commissioned by

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RESIDENTIAL AND
CIVIL
CONSTRUCTION
ALLIANCE OF
ONTARIO
Constructing Ontario's Future

Taxing Motor Gas and Diesel Fuel in the GTHA

Will This Generate Sufficient Revenue?

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By
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EXECUTIVE SUMMARY

Over the past 10 to 15 years, many organizations have sought to find ways to finance the capital costs of road/highway and transit construction. Even though a range of options is often put forward, fuel and diesel taxes typically make the short list of preferred approaches to fund transportation infrastructure because of the obvious linkages. Although this tax has a number of advantages it also has some disadvantages, not the least of which is its questionable capacity to generate sufficient revenue to provide an adequate and sustainable revenue stream. It is this concern that is addressed in this paper, with a particular emphasis on the Greater Toronto and Hamilton Area (GTHA).

There is no question that current federal and provincial fuel tax revenues (through gas tax transfers) have helped municipalities fund some of their infrastructure needs. Over the next decade or two, however, a range of factors are likely to lead to declining fuel tax revenues. This includes the continuing push for more energy-efficient vehicles, increasing reliance on electric and hybrid vehicles, the trend where younger adults (especially those living in highly urbanized areas like the GTHA) are driving less, and retiring baby boomers who are driving less than when they were younger.

While no one can predict the precise impact of increased fuel taxes on driving behaviour in the GTHA, there is a body of literature that provides us with a framework for estimating future fuel demand and, hence, future fuel tax revenues. Within the GTHA, the estimates in this paper suggest that:

- a one-cent tax will yield about $90 million per year;
- a three-cent tax, around $260 million per year;
- a five-cent tax, around $430 million to $440 million per year; and
- a ten-cent tax, around $800 million to $850 million per year.

Implementation of a regional fuel tax will increase fuel prices and reduce consumption. This will have a negative impact on provincial gas tax revenues. When the loss in provincial fuel tax revenues is subtracted from the additional revenues from a regional fuel tax, the estimates in this paper suggest that:

- a one-cent fuel tax will net from $75 million to $82 million per year;
- a three-cent tax will net from $220 million to $240 million per year;
- a five-cent tax will net from $355 million to $400 million per year; and
- a ten-cent tax will net from $660 million to $770 million per year.

Fuel tax revenues are not expected to increase by any notable amount over the next two decades, and they may, in fact, not even remain at current levels. Whether this yield will be sufficient to provide an adequate and sustainable source of revenue remains as a debatable issue. Perhaps of more importance, however, is the fact that a motor gas and diesel fuel tax is only a second-best policy for financing roads and public transit—road pricing and parking levies/taxes being a first-best policy. These instruments target those who use the roads, and they are effective and efficient in tackling congestion and many of the problems that congestion creates. Along this line, it is interesting how road pricing makes so much sense fiscally and economically yet gets dismissed so often by politicians of all stripes. Surely, it is time for politicians to stand up, lead, and defend parking levies and road pricing as fair and efficient ways of funding road expenditures and public transit rather than criticizing or dismissing them without any substantive economic or fiscal defence.

For a number of years, much has been written on options for financing operating and capital costs of roads and public transit in the Greater Toronto and Hamilton Area (GTHA). These writings and a number of conferences held on this topic have recommended a range of financing tools. One common recommendation that plays an important role is the implementation of a municipal gas and diesel fuel tax with revenues dedicated to funding roads and transit. For example, see Metrolinx's May 27, 2013 report; the Ontario Transit Investment Strategy Advisory Panel Report (December 2013); reports from the Toronto Board of Trade in 2008, 2010, and 2013; a City of Toronto report in 2012; a report by the Toronto City Summit Alliance in 2007; two reports commissioned by the Residential and Civil Construction Alliance of Ontario (Kitchen, 2008; and Kitchen and Lindsey, 2013); Transport Futures conferences on mobility pricing over the past five years; and CivicAction's one day symposium in April 2013.

A gas and diesel fuel tax, it has been argued, has a number of advantages. It is an appropriate tool for internalizing the costs of greenhouse gas emissions because emissions increase as the amount of fuel burned increases.[1] It impacts the cumulative or total distance driven, thus reducing unnecessary driving or engine idling. It reduces urban sprawl (Tanguay and Gingras, 2011). A regional gas tax would be easy to implement and administer as long as it is piggybacked onto the existing provincial tax with the province collecting the revenue and remitting the regional portion to the GTHA. It is viewed as a cheap tax to collect—U.S. studies have noted that a fuel tax costs about one cent to collect per dollar of revenue gained.[2]

Critics, on the other hand, argue that it is a blunt instrument for targeting the costs of congestion and other spillovers (externalities) that vary strongly with location, time of day, and population density. The combined costs of these externalities, according to most estimates, greatly exceed the costs of climate change (Small and Verhoef, 2007; Parry, Walls and Harrington, 2007 for U.S. estimates; and Transport Canada, 2008 for Canadian estimates). Implementing an additional fuel tax within the GTHA and not in neighbouring jurisdictions provides an incentive to fill up elsewhere, thus reducing the amount of tax revenue collected in the region. On efficiency grounds, fuel taxes score relatively poorly in terms of accountability and transparency because the tax rate is not set (at least intentionally) at levels that reflect scarcity of road capacity, and therefore does not help to identify which parts, if any, of the road network warrant expansion. Nor do drivers know what the tax is as a per cent of the total gas price, further reducing the tax's accountability and transparency. At the very best, a motor gas and diesel fuel tax is a second-best policy for financing roads and public transit (Bazel and Mintz, 2014; Parry, 2012; Kitchen and Lindsey, 2013; Kitchen, 2008)—road pricing and parking levies/taxes being a first-best policy (discussed later in this paper).

On equity grounds, it is often argued that it is regressive; that is, it takes a higher percentage of income from low-income individuals than from high-income individuals.[3] Most importantly, for the GTHA, it is unlikely to generate sufficient revenue to provide an adequate and sustainable revenue stream for financing roads and transit in the foreseeable future. Indeed, this is a major concern with local fuel tax revenues in many jurisdictions in the United States, and it is this concern that is the major theme of this report.

The current fuel tax treatment for businesses operating licenced motor vehicles is similar to the treatment under the now defunct provincial retail sales tax; that is, most businesses[4] cannot get a refund for gas and diesel fuel taxes paid in conducting their business. This leads to higher costs that, in turn, will be reflected in one or more of the following: lower profits, lower wages, or higher prices for customers.

Before estimating potential revenues from a gas tax in the GTHA, it is instructive to consider recent U.S. experience. A number of factors have led to declining fuel tax revenues in the United States. This includes the introduction of more fuel-efficient vehicles, a growing reliance on electric and hybrid vehicles (Best, 2014), younger adults (especially those living in highly urbanized areas) driving less (*Economist*, 2013; *Economist*, 2012), and retiring Baby Boomers who drive less than when they were younger. This decline in fuel tax revenues has meant that federal and state governments must rely more heavily on general fund revenues to finance roads and public transit and/or they must postpone or cancel many critical infrastructure repairs and construction projects. This shortfall of revenue and a need to improve transportation infrastructure has led an increasing number of journalists, analysts, and policymakers to the conclusion that greater reliance on road pricing (Coyne 2014; Nixon, 2014; Cramer, 2013; Bazel and Mintz, 2014; Kitchen and Lindsey, 2013) and parking charges (Grush, 2012, 2013, 2104; Klein, 2013; Kitchen and Lindsey, 2013) are necessary.

While no one can predict the precise impact of increased fuel taxes on driving behaviour in the GTHA, there is a body of literature that can provide us with some insights. The effects of fuel prices on fuel consumption, vehicle ownership, total vehicle kilometres travelled, and emissions of local pollutants and greenhouse gases have been studied extensively since the 1970s. Graham and Glaister (2002) presented a comprehensive international survey for automobile gasoline consumption. They found an average short-run price elasticity of about –0.3, and an average long-run elasticity between –0.6 and –0.8.[5] Roughly three-quarters of the short-run reduction in gasoline consumption occurred from reductions in distance driven. The remaining quarter was caused by reductions in the vehicle fleet and shifts in usage toward more fuel-efficient vehicles.

Three relatively recent North American studies presented evidence suggesting that fuel prices have larger impacts on fuel consumption and travel behaviour than the older studies indicated. Using U.S. household data and a sophisticated model of household vehicle purchase and usage decisions, Spiller and Stephens (2012) estimated a relatively large average household short-run price elasticity of –0.67; that is, a one-per-cent increase in the price of fuel leads to a decrease in the quantity purchased of two-thirds of one per cent. Price elasticities are larger for households that face higher gasoline prices, own more vehicles, and drive them greater distances. This is explained by the fact that such households devote a larger-than-average share of income to driving and, hence, are affected more acutely by higher fuel prices.

A related study by Spiller *et al*. (2012) found that gasoline-price elasticities were higher for households with better access to public transit. The authors estimated an average household short-run price elasticity of –1.23 for a sample of households that had good access to public transit; in other words, a 10-per-cent increase in fuel prices led to a 12.3-per-cent reduction in driving.

The third study by Tanguay and Gingras (2011) using Canadian data found that increases in fuel prices contributed significantly to reduced urban sprawl in the 12 largest Canadian metropolitan areas over the period of 1986 to 2006. On average, a one-per-cent increase in gasoline prices caused a 0.32-per-cent increase in population living in inner cities, and a 1.28-per-cent reduction in low-density housing units. This study also considered the impact of a number of other variables, including median household income. The results suggest that higher incomes lead to urban sprawl while higher gas prices reduce urban sprawl. Even though these two factors work in opposite directions, the authors concluded that gas prices have increased faster than household income; hence, higher gas prices have led to a reduction in urban sprawl and an increase in central density. In addition, growing frustration with highway congestion and lengthy delays in automobile travel time have led to an increased concentration of households in highly urbanized areas of the GTHA.

These studies suggest the implementation of a regional fuel tax could reduce driving in the GTHA, particularly in those parts of the region with good public transit service. Furthermore, the reductions are likely to be larger if the fuel tax revenues are invested more heavily in public transit than in roads.

ESTIMATING MOTOR GAS AND DIESEL FUEL TAX REVENUE FOR THE GTHA

Previous studies (cited earlier) estimated the revenue from a regional fuel tax using different levels of taxation (cents per litre) and arrived at a range of estimates. This report adds to that list with one notable difference—it estimates the potential yield from a GTHA-wide fuel tax at different tax levels well into the future. Estimating future revenue is important because it will indicate whether revenues will be sufficient to generate a sustainable and adequate funding stream for the next two decades or more.

The estimate is completed in a number of steps.

Step 1: The National Energy Board provides data on energy demand in Ontario for motor gas and diesel fuel from 2000 to 2035 (actual for past years and projected for future years). The demand is recorded in petajoules and is available at http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyftr/2013/ppndcs/pxndsdmnd-eng.html. These data are reproduced in columns 2 (for motor gas) and 5 (for diesel fuel) in Table 1. Conversion of petajoules into litres is described in the second footnote to Table 1. Ontario's demand in litres for motor gas is listed in Column 4 and for diesel fuel in Column 7.

Step 2: Demand data for the GTHA were estimated from the Ontario data provided in Table 1. This allocation process is described in a footnote to Table 2, and the GTHA data are reported in Table 2.

Table 1: Ontario Motor Gas & Diesel Fuel Demand Plus Provincial Motor Gas & Diesel Fuel Tax Revenue, 2000 to 2035

1	2	3	4	5	6
Year	Motor Gas Demand[1] in Petajoules	Motor Gas Demand in Litres[2] (millions)	Motor Gas Demand Per Capita in Litres	Diesel Fuel Demand[1] in Petajoules	Diesel Fuel Demand in Litres[2] (millions)
2000	491.4	14,121	1,199	204.4	5,295
2001	494.6	14,213	1,195	194.3	5,034
2002	513.6	14,759	1,225	193.9	5,023
2003	522.5	15,014	1,230	204.3	5,293
2004	533.4	15,328	1,240	209.8	5,435
2005	540.3	15,526	1,241	227.9	5,904
2006	534.3	15,353	1,212	213.3	5,526
2007	527	15,144	1,185	216.5	5,609
2008	519	14,914	1,157	215.6	5,585
2009	539	15,489	1,192	212.3	5,500
2010	547.3	15,727	1,197	226.6	5,870
2011	538.6	15,477	1,167	226.1	5,858
2012	536.5	15,417	1,141	224.1	5,806
2013	520.5	14,957	1,097	225.8	5,850
2014	526.5	15,129	1,099	230.8	5,979
2015	523.5	15,043	1,083	235	6,088
2016	521.2	14,977	1,067	238.6	6,181
2017	513.4	14,753	1,040	241.7	6,262

1 Demand in petajoules from the National Energy Board (http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyftr/2013/ppndcs/pxndsdmnd-eng.html).

2 Petajoules were converted to megajoules (1 petajoule = 1,000,000,000 megajoules) and further converted to litres (34.8 megajoules per litre for motor gasoline and 38.6 megajoules per litre for diesel fuel).

3 Motor gas tax and diesel fuel tax per litre times the number of litres.

Table 1: Ontario Motor Gas & Diesel Fuel Demand Plus Provincial Motor Gas & Diesel Fuel Tax Revenue, 2000 to 2035 (continued)

7	8	9	10	11	
Diesel Fuel Demand Per Capita in Litres	Motor Gas Tax Revenue[3] $0.147 per Litre ($million)	Motor Gas Tax Revenue Per Capita ($)	Diesel Fuel Tax Revenue[3] $0.143 per Litre ($million)	Diesel Fuel Tax Revenue Per Capita ($)	Year
450	2,019.3	171	757	64	2000
423	2,032.4	171	720	61	2001
417	2,110.5	175	718	60	2002
434	2,147.1	176	757	62	2003
440	2,191.8	177	777	63	2004
472	2,220.2	177	844	67	2005
436	2,195.5	173	790	62	2006
439	2,165.5	169	802	63	2007
433	2,132.7	165	799	62	2008
423	2,214.9	170	787	61	2009
447	2,249.0	171	839	64	2010
442	2,213.2	167	838	63	2011
430	2,204.6	163	830	61	2012
429	2,138.8	157	837	61	2013
434	2,163.5	157	855	62	2014
438	2,151.2	155	871	63	2015
440	2,141.7	153	884	63	2016
442	2,109.7	149	895	63	2017

Table 1: Ontario Motor Gas & Diesel Fuel Demand Plus Provincial Motor Gas & Diesel Fuel Tax Revenue, 2000 to 2035 (continued)

1	2	3	4	5	6
Year	Motor Gas Demand[1] in Petajoules	Motor Gas Demand in Litres[2] (millions)	Motor Gas Demand Per Capita in Litres	Diesel Fuel Demand[1] in Petajoules	Diesel Fuel Demand in Litres[2] (millions)
2018	512.8	14,736	1,028	244.7	6,339
2019	510.6	14,672	1,013	247.3	6,407
2020	507.6	14,586	996	249.3	6,459
2021	505	14,511	979	251.4	6,513
2022	502.8	14,448	964	253.4	6,565
2023	500.9	14,394	950	255.8	6,627
2024	498.8	14,333	935	257.8	6,679
2025	497	14,282	921	260	6,736
2026	495.5	14,239	908	262.3	6,795
2027	494.6	14,213	897	264.7	6,858
2028	493.9	14,193	886	267.3	6,925
2029	493.5	14,181	876	269.4	6,979
2030	493.4	14,178	867	271.5	7,034
2031	493.5	14,181	858	273.7	7,091
2032	494.1	14,198	850	276	7,150
2033	495.4	14,236	844	278.5	7,215
2034	496.9	14,279	838	281.1	7,282
2035	498.6	14,328	833	283.5	7,345

1 Demand in petajoules from the National Energy Board (http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyftr/2013/ppndcs/pxndsdmnd-eng.html).

2 Petajoules were converted to megajoules (1 petajoule = 1,000,000,000 megajoules) and further converted to litres (34.8 megajoules per litre for motor gasoline and 38.6 megajoules per litre for diesel fuel).

3 Motor gas tax and diesel fuel tax per litre times the number of litres.

Table 1: Ontario Motor Gas & Diesel Fuel Demand Plus Provincial Motor Gas & Diesel Fuel Tax Revenue, 2000 to 2035 (continued)

7	8	9	10	11	
Diesel Fuel Demand Per Capita in Litres	Motor Gas Tax Revenue[3] $0.147 per Litre ($million)	Motor Gas Tax Revenue Per Capita ($)	Diesel Fuel Tax Revenue[3] $0.143 per Litre ($million)	Diesel Fuel Tax Per Capita ($)	Year
442	2,107.2	147	907	63	2018
442	2,098.2	145	916	63	2019
441	2,085.8	142	924	63	2020
440	2,075.1	140	931	63	2021
438	2,066.1	138	939	63	2022
437	2,058.3	136	948	63	2023
436	2,049.7	134	955	62	2024
435	2,042.3	132	963	62	2025
434	2,036.1	130	972	62	2026
433	2,032.4	128	981	62	2027
432	2,029.5	127	990	62	2028
431	2,027.9	125	998	62	2029
430	2,027.5	124	1,006	61	2030
429	2,027.9	123	1,014	61	2031
428	2,030.4	122	1,022	61	2032
428	2,035.7	121	1,032	61	2033
427	2,041.9	120	1,041	61	2034
427	2,048.8	119	1,050	61	2035

Table 2: Estimated Greater Toronto and Hamilton Area[1] Demand for Motor Gas & Diesel Fuel Plus Motor Gas & Diesel Fuel Tax Revenue, 2000 to 2035

1	2	3	4	5	6
Year	Motor Gas Demand in Petajoules	Motor Gas Demand in Litres (millions)	Motor Gas Demand Per Capita in Litres	Diesel Fuel Demand in Petajoules	Diesel Fuel Demand in Litres (millions)
2000	206.4	5,930.7	1,022	85.8	2,224.0
2001	207.7	5,969.3	1,011	81.6	2,114.1
2002	215.7	6,198.6	1,032	81.4	2,109.8
2003	219.5	6,306.0	1,032	85.8	2,223.0
2004	224.0	6,437.6	1,036	88.1	2,282.8
2005	226.9	6,520.9	1,032	95.7	2,479.7
2006	224.4	6,448.4	1,006	89.6	2,320.9
2007	221.3	6,360.3	978	90.9	2,355.7
2008	218.0	6,263.8	950	90.6	2,345.9
2009	226.4	6,505.2	970	89.2	2,310.0
2010	229.9	6,605.3	970	95.2	2,465.6
2011	226.2	6,500.3	933	95.0	2,460.2
2012	225.3	6,475.0	917	94.1	2,438.4
2013	218.6	6,281.9	878	94.8	2,456.9
2014	221.1	6,354.3	877	96.9	2,511.3
2015	219.9	6,318.1	861	98.7	2,557.0
2016	218.9	6,290.3	846	100.2	2,596.2
2017	215.6	6,196.2	822	101.5	2,629.9

1 Demand data for the GTHA are not provided separately; hence, the GTHA data were estimated from the Ontario data provided in Table 1. The allocation of the provincial portion of motor fuel and diesel fuel demand along with provincial motor gas and diesel fuel tax revenues to the GTHA follows the Conference Board of Canada's apportionment methodology (see Gill and Lawson, Conference Board of Canada, "How Much Motorists Pay for Road Infrastructure," October 2013, pp. 21-22). Ideally, one would prefer to allocate the GTHA portion on the basis of fuel consumption, but fuel consumption data are not available at the local or regional level. In its place, the allocation is based on the per cent of all motor vehicle registrations in Ontario that are in the GTHA—this is 42 per cent and it is this percentage that is applied to the provincial data to estimate the GTHA

Table 2: Estimated Greater Toronto and Hamilton Area[1] Demand for Motor Gas & Diesel Fuel Plus Motor Gas & Diesel Fuel Tax Revenue, 2000 to 2035 (continued)

7	8	9	10	11	
Diesel Fuel Demand Per Capita in Litres	Motor Gas Tax Revenue $0.147 per Litre ($million)	Motor Gas Tax Revenue Per Capita ($)	Diesel Fuel Tax Revenue $0.143 per Litre ($million)	Diesel Fuel Tax Per Capita ($)	Year
383	872	150	318	55	2000
358	877	149	302	51	2001
351	911	152	302	50	2002
364	927	152	318	52	2003
367	946	152	326	53	2004
392	959	152	355	56	2005
362	948	148	332	52	2006
362	935	144	337	52	2007
356	921	140	335	51	2008
345	956	143	330	49	2009
362	971	143	353	52	2010
353	956	137	352	50	2011
345	952	135	349	49	2012
344	923	129	351	49	2013
347	934	129	359	50	2014
348	929	127	366	50	2015
349	925	124	371	50	2016
349	911	121	376	50	2017

share. One might have used population. Here, about 50 per cent of the provincial population resides in Ontario. This number was not used, however, because vehicle ownership is lower in highly urbanized areas like the GTHA than in smaller and more disparate areas of the province. One might have also used vehicle kilometres travelled (VKT) in the GTHA as a per cent of the provincial total VKT as a proxy for apportioning the GTHA share. This has been estimated to be about 39 per cent (see Conference Board, 2013, p. 22). This was not used, however, because fuel consumption in the GTHA may be higher than in the rest of the province due to much greater traffic congestion and higher levels of stop and go traffic in the GTHA, suggesting that the portion of fuel consumption in the GTHA is actually higher than measured by the ratio of VKT.

Table 2: Estimated Greater Toronto and Hamilton Area[1] Demand for Motor Gas & Diesel Fuel Plus Motor Gas & Diesel Fuel Tax Revenue, 2000 to 2035 (continued)

1	2	3	4	5	6
Year	Motor Gas Demand in Petajoules	Motor Gas Demand in Litres (millions)	Motor Gas Demand Per Capita in Litres	Diesel Fuel Demand in Petajoules	Diesel Fuel Demand in Litres (millions)
2018	215.4	6,189.0	810	102.8	2,662.5
2019	214.5	6,162.4	796	103.9	2,690.8
2020	213.2	6,126.2	780	104.7	2,712.6
2021	212.1	6,094.8	765	105.6	2,735.4
2022	211.2	6,068.3	750	106.4	2,757.2
2023	210.4	6,045.3	737	107.4	2,783.3
2024	209.5	6,020.0	723	108.3	2,805.1
2025	208.7	5,998.3	710	109.2	2,829.0
2026	208.1	5,980.2	698	110.2	2,854.0
2027	207.7	5,969.3	688	111.2	2,880.2
2028	207.4	5,960.9	678	112.3	2,908.4
2029	207.3	5,956.0	668	113.1	2,931.3
2030	207.2	5,954.8	660	114.0	2,954.1
2031	207.3	5,956.0	651	115.0	2,978.1
2032	207.5	5,963.3	644	115.9	3,003.1
2033	208.1	5,979.0	638	117.0	3,030.3
2034	208.7	5,997.1	632	118.1	3,058.6
2035	209.4	6,017.6	626	119.1	3,084.7

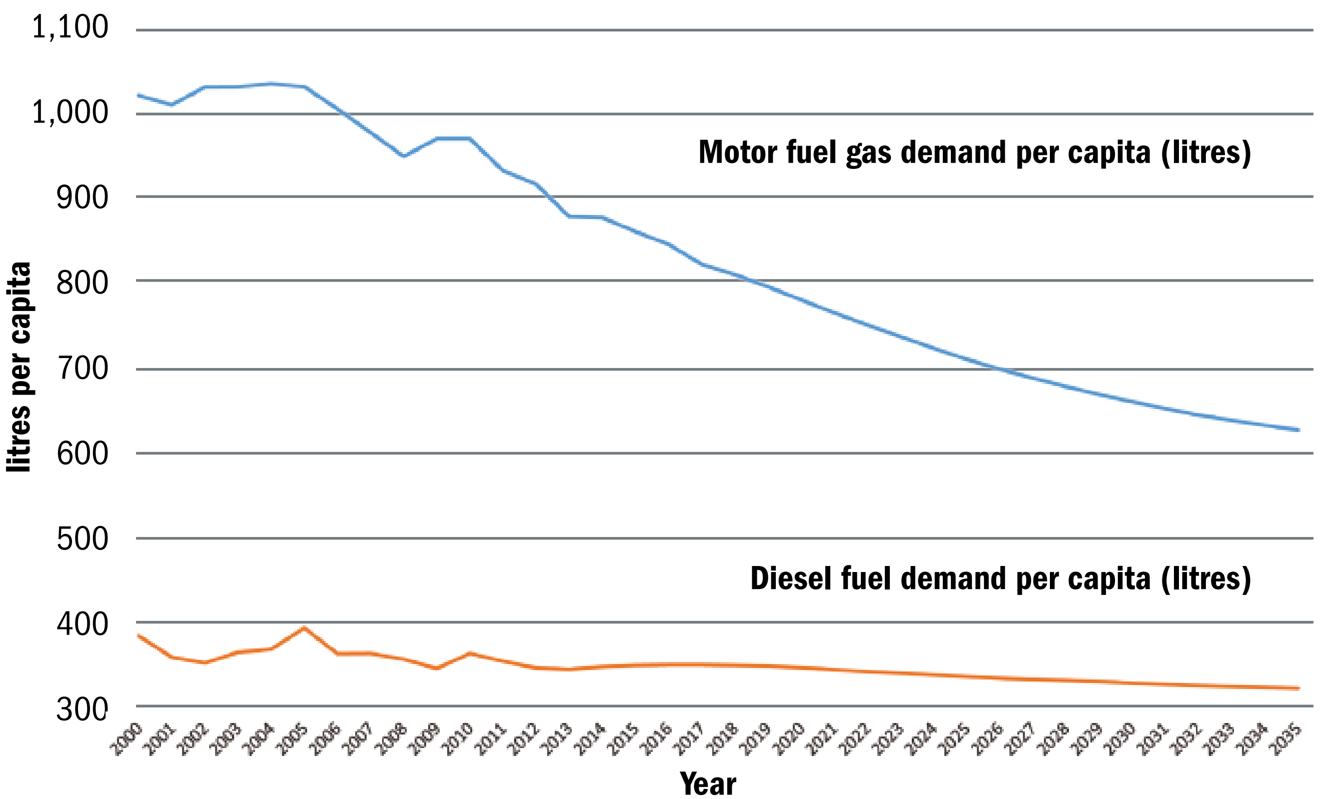
1 Demand data for the GTHA are not provided separately; hence, the GTHA data were estimated from the Ontario data provided in Table 1. The allocation of the provincial portion of motor fuel and diesel fuel demand along with provincial motor gas and diesel fuel tax revenues to the GTHA follows the Conference Board of Canada's apportionment methodology (see Gill and Lawson, Conference Board of Canada, "How Much Motorists Pay for Road Infrastructure," October 2013, pp. 21-22). Ideally, one would prefer to allocate the GTHA portion on the basis of fuel consumption, but fuel consumption data are not available at the local or regional level. In its place, the allocation is based on the per cent of all motor vehicle registrations in Ontario that are in the GTHA—this is 42 per cent and it is this percentage that is applied to the provincial data to estimate the GTHA

Table 2: **Estimated Greater Toronto and Hamilton Area[1] Demand for Motor Gas & Diesel Fuel Plus Motor Gas & Diesel Fuel Tax Revenue, 2000 to 2035 (continued)**

7	8	9	10	11	
Diesel Fuel Demand Per Capita in Litres	Motor Gas Tax Revenue $0.147 per Litre ($million)	Motor Gas Tax Revenue Per Capita ($)	Diesel Fuel Tax Revenue $0.143 per Litre ($million)	Diesel Fuel Tax Per Capita ($)	Year
349	910	119	381	50	2018
347	906	117	385	50	2019
345	901	115	388	49	2020
343	896	112	391	49	2021
341	892	110	394	49	2022
339	889	108	398	49	2023
337	885	106	401	48	2024
335	882	104	405	48	2025
333	879	103	408	48	2026
332	877	101	412	47	2027
331	876	100	416	47	2028
329	876	98	419	47	2029
327	875	97	422	47	2030
326	876	96	426	47	2031
324	877	95	429	46	2032
323	879	94	433	46	2033
322	882	93	437	46	2034
321	885	92	441	46	2035

share. One might have used population. Here, about 50 per cent of the provincial population resides in Ontario. This number was not used, however, because vehicle ownership is lower in highly urbanized areas like the GTHA than in smaller and more disparate areas of the province. One might have also used vehicle kilometres travelled (VKT) in the GTHA as a per cent of the provincial total VKT as a proxy for apportioning the GTHA share. This has been estimated to be about 39 per cent (see Conference Board, 2013, p. 22). This was not used, however, because fuel consumption in the GTHA may be higher than in the rest of the province due to much greater traffic congestion and higher levels of stop and go traffic in the GTHA, suggesting that the portion of fuel consumption in the GTHA is actually higher than measured by the ratio of VKT.

Figure 1: **Estimated Motor Gas Demand and Diesel Fuel Demand in the GTHA in Litres Per Capita, 2000 to 2035**



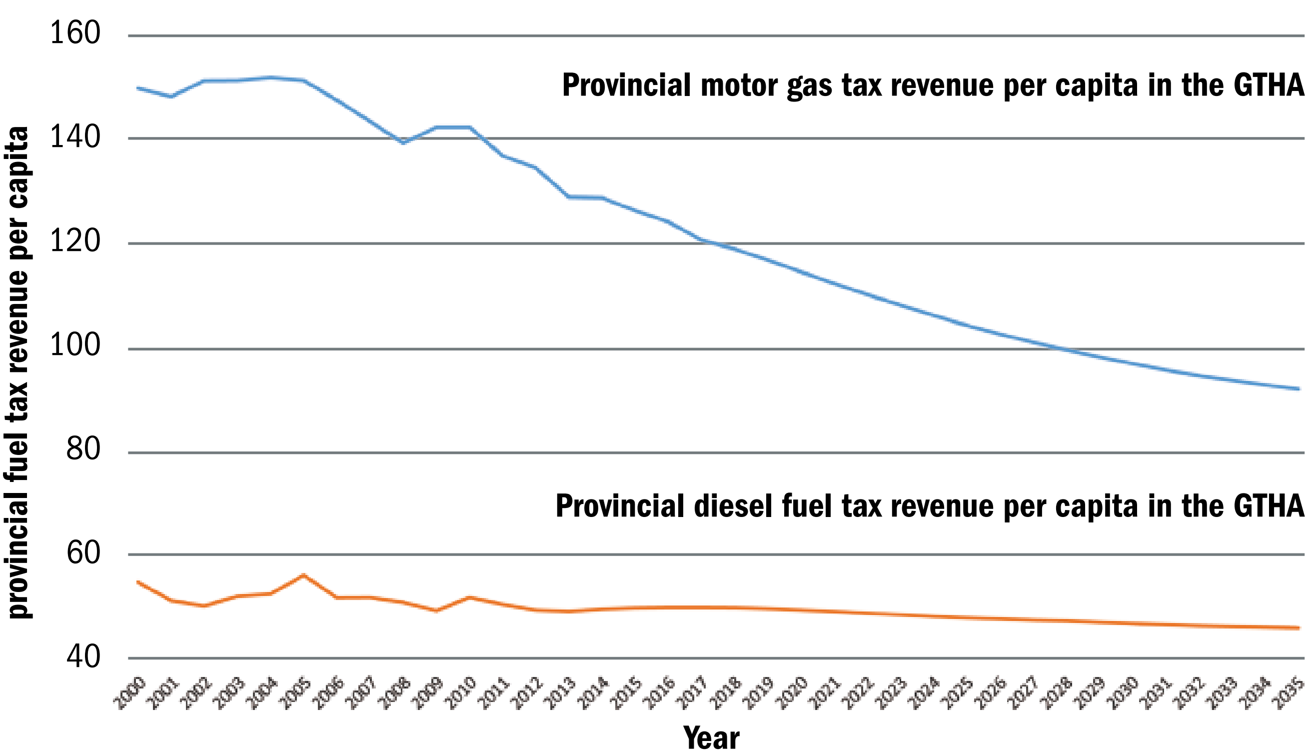
Source: Data from columns 4 and 7 in Table 2.

Figure 1 uses the data from columns 4 and 7 in Table 2 to illustrate the trend in demand per capita for both motor gas and diesel fuel in the GTHA for the years from 2000 to 2035. The per capita demand for motor gas was highest for the years from 2000 to 2006 at more than 1,000 litres per capita. Since then, the demand has fallen and is expected to continue falling until it reaches around 600 litres per capita by 2035.

The per capita demand for diesel fuel is also expected to decrease over this 36-year period, although the rate of decease is much more modest. For example, it is expected to fall from around 360 litres per capita at the beginning of the period to around 325 litres by the mid-2030s.

Step 3: Provincial motor gas and diesel fuel tax revenues for Ontario[6] were calculated for each year by multiplying the estimated demand for motor gas (Column 3 of Table 1) by $0.147per litre and the estimated demand for diesel fuel (Column 7 of Table 1) by $0.147 per litre.[7] Provincial motor gas and fuel tax revenues for the GTHA were calculated for each year by multiplying the estimated demand for motor gas (Column 3 of Table 2) by $0.147per litre and the estimated demand for diesel fuel (Column 7 of Table 2) by $0.143 per litre.

Figure 2: **Motor Gas and Diesel Fuel Tax Revenue per Capita in the GTHA at Current Fuel Tax Rates per Capita, 2000 to 2035**



Source: Data from columns 9 and 11 in Table 2.

Figure 2 illustrates the pattern of provincial motor gas and diesel fuel tax revenue per capita in the GTHA over the 36-year period at current tax rates. For 2000 to 2006, motor gas tax revenue was around $150 per capita. By the 2030s, it is expected to be in the low-$90 per capita range (estimated values for each year reported in Column 9 of Table 2). Diesel fuel tax revenue per capita in the GTHA is expected to have only a modest decline over the same period, falling from the low-$50 per capita in the early 2000s to around $46 per capita in the early 2030s (estimated values are reported in Column 11 of Table 2).

Step 4: This step estimates the revenue yield one might expect from the implementation of a regional fuel tax across the GTHA at four different levels: a one-cent regional fuel tax; a three-cent regional fuel tax; a five-cent regional fuel tax; and a 10-cent regional fuel tax. From the empirical literature on the impact of fuel taxes on purchases of motor gas and diesel fuel, there is uniform evidence that higher prices lead to lower levels of fuel consumption. What is not as uniform, however, is the actual impact of these higher prices on reduced consumption. To calculate this, this report relies upon the estimates of price elasticity of demand from a number of U.S. and Canadian studies summarized above. Reliable and credible long-run estimates range from –0.67 to –1.23. In other words, a coefficient of –0.67 means that a 10-per-cent increase in price leads to a reduction in quantity demanded of 6.7 per cent. A coefficient of –1.23 means that a 10-per-cent increase in price leads to a reduction in quantity demanded of 12.3 per cent.

Table 3 provides an estimate of the impact on volume (measured in millions of litres) purchased of motor gas and diesel fuel combined under four possible tax options and under two different price elasticity assumptions for the years from 2014 to 2035. For example:

- A one-cent fuel tax is estimated to generate around $90 million per year;
- A three-cent tax, around $260 million per year;

- A five-cent tax, around $430 million to $440 million per year depending on the year and the price elasticity; and
- A 10-cent tax, around $800 million to $850 million per year depending on the year and the price elasticity.

A point that must be made here is that there is very little variation in the revenue yield from 2014 to 2035 regardless of the option.

Step 5: In Step 4, it was pointed out that the implementation of a regional fuel tax in the GTHA would raise the price of fuel and lower the quantity consumed even though it generated new revenue for regional roads and public transit. Because higher gas and fuel prices lead to lower demand, the annual provincial fuel tax revenue will fall. Table 4 records the estimated reduction in provincial fuel tax revenues in the GTHA. Depending on the price elasticity of demand:

- a one-cent tax would lead to a reduction of $7 million to $13 million per year;
- a three-cent tax, $22 million to $41 million per year;
- a five-cent tax, $36 million to $70 million per year; and
- a 10-cent tax, $75 million to $142 million per year.

As was stated in Step 4 and is repeated here, there is very little variation in the revenue yield from 2014 to 2035 regardless of the option.

Step 6: Table 5 records the net revenue impact of a regional fuel tax. This table subtracts the loss in provincial revenue calculated in Step 5 from the increased regional revenue calculated in step 4. For a tax of one cent, the net impact ranges from $74 million to $83 million depending on the price elasticity; from $216 million to $246 million for a tax of three cents; from $350 million to $404 million for a tax of five cents; and from $650 million to $780 million for a tax of 10 cents.

Table 3: **Estimated Revenue from a GTHA-Wide Motor and Diesel Fuel Tax of One, Three, Five, and Ten Cents per litre, 2014 to 2035 (in $millions)**

	One Cent		Three Cents		Five Cents		Ten Cents	
Year	Elasticity of –0.67	Elasticity of –1.23	Elasticity of –0.67	Elasticity of –1.23	Elasticity of –0.67	Elasticity of –1.23	Elasticity of –0.67	Elasticity of –1.23
2014	88	88	261	258	430	420	835	791
2015	88	88	262	258	431	420	836	792
2016	88	88	262	258	431	421	837	793
2017	88	87	260	256	429	418	831	788
2018	88	88	261	257	430	419	833	790
2019	88	88	261	257	430	419	834	790
2020	88	87	261	257	429	419	832	789
2021	88	87	260	257	429	418	831	788
2022	88	87	260	256	429	418	831	788
2023	88	87	260	256	429	418	831	788
2024	88	87	260	256	429	418	831	788
2025	88	87	260	256	429	418	831	788
2026	88	87	260	257	429	418	832	789
2027	88	88	261	257	430	419	833	790
2028	88	88	262	258	431	420	835	792
2029	88	88	262	258	432	421	837	793
2030	89	88	263	259	433	422	839	795
2031	89	88	263	260	434	423	841	798
2032	89	89	264	260	435	425	844	800
2033	90	89	266	262	437	427	848	804
2034	90	90	267	263	440	429	853	808
2035	91	90	268	264	442	431	857	813

The price elasticity of demand measures the percentage change in litres of gas and fuel consumed as a result of a price change such as that generated by a three, five, or 10-cent fuel tax. A coefficient of –0.67 means that a 10-per-cent increase in price leads to a reduction in quantity demanded of 6.75 per cent. A coefficient of –1.23 means that a 10-per-cent increase in price leads to a reduction in quantity demanded of 12.3 per cent. These elasticity coefficients were selected because they reflect the range of elasticities reported in empirical studies that have measured the price elasticity of fuel taxes.

Table 4: **Estimated Reduction in Provincial Fuel Tax Revenues in the GTHA after Implementation of a GTHA-Wide Motor and Diesel Fuel Tax per litre, 2014 to 2035 (in $millions)**

	One Cent		Three Cents		Five Cents		Ten Cents	
Year	Elasticity of −0.67	Elasticity of −1.23	Elasticity of −0.67	Elasticity of −1.23	Elasticity of −0.67	Elasticity of −1.23	Elasticity of −0.67	Elasticity of −1.23
2014	7	13	22	41	37	69	75	138
2015	7	13	22	41	37	69	75	138
2016	7	13	22	41	37	69	75	138
2017	7	13	22	41	37	68	75	138
2018	7	13	22	41	37	68	75	138
2019	7	13	22	41	37	68	75	138
2020	7	13	22	41	37	68	75	138
2021	7	13	22	41	37	68	75	138
2022	7	13	22	41	37	68	75	138
2023	7	13	22	41	37	68	75	138
2024	7	13	22	41	37	68	75	138
2025	7	13	22	41	37	68	75	138
2026	7	13	22	41	37	68	75	138
2027	7	13	22	41	37	68	75	138
2028	7	13	22	41	37	68	75	138
2029	7	13	22	41	37	69	75	138
2030	7	13	22	41	38	69	76	139
2031	7	13	22	41	38	69	76	139
2032	7	13	22	41	38	69	76	140
2033	7	13	23	41	38	70	76	140
2034	7	13	23	42	38	70	77	141
2035	7	14	23	42	38	70	77	142

Implementing a GTHA-wide motor gas and diesel fuel tax will increase the price of fuel and this will, in turn, reduce the quantity demanded of motor gas and diesel fuel. Fewer litres sold will lead to less provincial motor gas and diesel fuel tax revenue. The magnitude of the reduction will vary directly with the price elasticity of demand; the higher the price elasticity, the greater the reduction in tax revenue.

Table 5: Net Impact of Estimated Revenues from a GTHA-Wide Motor and Diesel Fuel Tax, 2014 to 2035 (in $millions)

	One Cent		Three Cents		Five Cents		Ten Cents	
Year	Elasticity of –0.67	Elasticity of –1.23	Elasticity of –0.67	Elasticity of –1.23	Elasticity of –0.67	Elasticity of –1.23	Elasticity of –0.67	Elasticity of –1.23
2014	81	75	239	217	393	351	760	653
2015	81	75	239	217	394	352	760	654
2016	81	75	240	217	394	352	761	655
2017	81	74	238	216	391	350	756	650
2018	81	74	239	216	392	351	758	652
2019	81	74	239	216	393	351	758	652
2020	81	74	238	216	392	350	757	651
2021	81	74	238	216	392	350	757	651
2022	81	74	238	216	391	350	756	650
2023	81	74	238	216	391	350	756	651
2024	81	74	238	216	391	350	756	650
2025	81	74	238	216	391	350	756	651
2026	81	74	238	216	392	350	757	651
2027	81	74	239	216	392	351	758	652
2028	81	75	239	217	393	351	760	654
2029	81	75	240	217	394	352	761	655
2030	81	75	240	218	395	353	763	657
2031	82	75	241	218	396	354	765	658
2032	82	75	242	219	398	355	768	661
2033	82	76	243	220	400	357	772	664
2034	83	76	244	221	402	359	776	667
2035	83	77	246	223	404	361	780	671

The net impact equals the revenue generated by a new GTHA-wide motor gas and diesel fuel tax (reported in Table 3) minus the loss in provincial motor gas and diesel fuel tax (reported in Table 4).

While current federal and provincial fuel tax revenues (through gas tax transfers) have helped municipalities fund some of their infrastructure needs over the past decade, the revenue capacity of fuel taxes over the next two or three decades is unlikely to be as high as most proponents have suggested. Considering the GTHA specifically, the evidence in this paper argues that a regional fuel tax may not lead to an adequate and sustainable source of revenue for funding road and transit operating and capital expenditures. Fuel tax revenues are not expected to increase and may not even remain at current levels. If this creates a revenue shortfall, other revenue sources will be required.

Both Metrolinx (2013) and the Ontario Transit Investment Strategy Advisory Panel (2013) recommended a number of tools be implemented so a heavy reliance was not placed on any one segment of the economy. The more notable included raising the provincial portion of the HST, higher provincial fuel taxes, increasing corporate income taxes, and raising development charges. None of these, however, do anything to charge those who directly use the roads for their use (Kitchen, 2008; Kitchen and Lindsey, 2013) nor do they do anything to address traffic demand management so that a reduction in congestion and an improvement in productivity may ensue. To compensate for these deficiencies and to better handle congestion, it is important that planning begin for some form of parking levies/taxes and road pricing immediately (see Kitchen and Lindsey, 2013, for a more detailed discussion).

In the current environment, parking is inefficiently priced. On-street parking in high-demand areas tends to be priced well below its scarcity value; consequently, drivers spend a lot of time looking for a vacant spot. Excessive cruising leads to considerable traffic congestion, pollution, as well as inefficiencies and lost productivity (Grush 2013). In the United States, for example, it has been estimated that cruising for parking accounts for roughly 30 per cent of traffic in some cities at certain times of day (Shoup, 2006 and 2007; Au, 2012). Furthermore, if privately owned garage parking is overpriced as it has been argued (Arnott and Rouse, 2009), this also contributes to the stock of cars cruising for parking, thus increasing traffic-related costs.

Efficiently implemented parking levies/taxes could help reduce the volume of traffic, leading to less congestion, faster trips, fewer policing and traffic enforcement costs, and reduced demand for new and expanded roads and highways. It could also generate much-needed revenue for improving and expanding public transit. In fact, it has been argued that "underpriced parking does more to promote automobile use than good transit does to discourage it" (Grush 2013, 132). "Working tirelessly to build and promote transit that too few elect to use, struggling to find ways to have people pay for roads in ways they don't wish to pay for, and then subsidize parking ... is self-defeating," according to a leading expert on parking (Grush, 2013, 132). To overcome these concerns, there are three policies that should be considered.

First, a *commercial parking* sales tax is a special tax imposed on parking transactions. It is usually imposed as an *ad valorem* (percentage) tax that increases with parking duration, but a flat tax independent of the parking fee paid is also possible. People who park for a longer time (such as commuters) have a greater incentive to change behaviour than people who park for a shorter time (such as shoppers). The opposite is likely to be true for a flat tax because it accounts for a smaller fraction of the parking outlay for longerterm parking. If the tax is imposed in a limited geographical area, however, motorists may choose to avoid the tax by parking elsewhere; whereas if the tax covers a wide area, it is difficult to avoid.

Second, a *parking levy* is a special property tax applied to non-residential parking spaces. Parking levies can be imposed as a fixed amount per space or based on the surface area. They can be applied to all parking or limited to certain types such as surface parking, priced parking, un-priced parking, or parking in certain areas. Rates can be differentiated by the type of user. For example, lower rates can be applied on infrequently used spaces or on spaces used by carpoolers, car-sharing vehicles, or disabled persons.

Third, current pricing of on-street and *off-street parking* is also in need of reform. Off-street parking is inefficient in the sense that it does not adhere closely to marginal-cost pricing principles. Some parking lots and garages issue monthly parking passes that simplify transaction costs and provide a guaranteed parking space, but they encourage people to drive because the incremental parking cost is zero. Passes could be replaced by bulk purchases of a given number of parking hours that do not expire at a given date but rather diminish in value only when they are used (Grush, 2012).

More severe deficiencies exist for on-street parking. Conventional, mechanical parking meters are simple to operate, but they are time-consuming to service and maintain, and the costs of collection and enforcement amount to a substantial fraction of the revenues. Conventional meters also lack the flexibility to vary fees efficiently by time of day, duration of stay, and demand conditions. Time limits (such as one to two hours) are often used to encourage parking turnover, but they encourage parking search and are less efficient than variable rates (Calthrop and Proost, 2000). Time limits are also costly to enforce, and parkers incur inconvenience and stress to avoid parking tickets (Greentown Sustainable Land Use Group, 2009).

Electronic meters are now used widely, although not in Ontario. They allow hourly rates to vary by time of day and duration. To maintain high utilization rates of parking space while minimizing time spent on search, parking fees can be set to maintain a target average occupancy rate of parking spots within a defined area. To achieve this, parking fees can be set either dynamically (i.e., in real time) or adjusted periodically. Occupancy-based pricing has been successfully implemented in Redwood City and Pasadena, both in California, where they have dramatically reduced cruising for parking without causing losses to businesses. Several other cities (such as San Francisco and Los Angeles) are now providing larger-scale versions of occupancy-based pricing (Federal Highway Administration, 2012; Grush 2013).

A still-newer pricing method, *progressive pricing*, has been deployed in Albany, New York. Existing meters, similar to those used in Toronto, are programmed to permit longer stays at ever-increasing prices. This simultaneously addresses the matter of inefficient time rationing and can easily be calibrated to achieve desired turnover, increased revenue, and reduced enforcement expense (Klein, 2013). Together, *demand pricing* and *progressive pricing* can address a full spectrum of parking pricing problems. Since Toronto is about to deploy cell-pay parking, these forms of pricing could generate an immediate revenue increase—without even reprogramming the machines on the street. This would prove to be of additional value in hurrying the coming attrition of curb-side equipment (Grush 2014).

Even though efficiently set road prices offer a number of advantages[8], it did not make Metrolinx's final recommended tools[9] and was not included in the tools recommended by the Ontario Transit Investment Strategy Advisory Panel. Road prices are widely recognized as an effective travel demand management tool to internalize congestion, pollution, and other external costs of driving. More so than parking fees, they can influence all dimensions of travel choice: trip frequency, destination, travel mode, time of day or week, route, and so on. To the extent that traffic demand is managed, cost pressure on municipal budgets is also lowered because traffic-related costs will be reduced. Furthermore, if revenues are dedicated to public transit and roads, they are more likely to gain public acceptance.

A variety of road pricing schemes are in place around the world, but only two are likely to be serious candidates for implementation in cities within the GTHA. Road pricing charges are most effective if they are applied at a metropolitan or regional level where there is a greater likelihood of managing inter-municipal traffic and a greater opportunity to minimize distortions that often arise from taxes or charges that are restricted to smaller geographic areas.

One pricing possibility is a network of High Occupancy Toll (HOT) lanes. These are used in some metropolitan areas in the United States and could be used in the GTHA. A HOT lane is a variant of a High Occupancy Vehicle lane (HOV). Here, tolling is only applied to vehicles that are below a minimum occupancy requirement—typically two people (HOV2) or three people (HOV3). Tolls can vary by time of day in order to maintain high speeds on the HOT lanes. The tolled infrastructure would be new, and it would offer drivers a choice of paying for a quicker trip or using the existing toll-free lanes. HOT lanes could be applied to all of Ontario's High Occupancy Vehicle Lane Network Plan, which calls for 450-kilometres of HOV lanes to be built on 400-series highways by 2031 (Ontario Ministry of Transportation, 2007). HOT lanes could also be built on some major municipal and arterial roads and highways that go into or pass through large cities in the GTHA.

A second, larger-scale possibility is to toll 400-series highways and possibly some major arterial roads and highways that run into or through cities. This is more common than HOT lanes in most countries where road pricing is used. Tolls may be set as a flat charge or they may vary by time of day just as on Highway 407.[10] Tolling all lanes at time-varying rates is more efficient than tolling only some lanes because it is easier to control the total number of vehicles using the road as well as the distribution of traffic across lanes on the road.

Tolls can generate significant sums of revenue as noted below:

- In 2011, 407 International earned gross revenues of $675 million (net income $128.3 million) from tolls on Highway 407, with an average revenue per trip of $5.89.[11]
- Dachis (2011) estimated the revenues from two potential toll-lane schemes in the GTHA. Estimates for the scheme that includes construction of HOT lanes on the western part of the Gardiner Expressway as well as express toll lanes on the eastern part of the Gardiner Expressway and the inside express lanes on Highway 401 yielded annual gross toll revenues of $632 million. The second scheme, converting existing HOV lanes on 400 Series highways in the GTHA[12] to HOT and building out the remainder of Ontario's 450-kilometre HOV plan as HOT rather than HOV lanes, was estimated to yield gross toll revenues of $294 million.
- Hemson Consulting (2007) considered tolling the Don Valley Parkway and Gardiner Expressway. It assumed weekday tolls of $0.10/km during peak periods and $0.05/km during non-peak periods. Estimated annual revenues were $120 million if there was no traffic diversion, and $74 million with a diversion rate of 40 per cent.
- A study by the Irwin and Bevan (2010) for the Toronto City Summit Alliance considered a toll of $0.07/km on all 400- series highways in the GTHA. This plan yielded estimated revenues of $700 million per year.
- A recent City of Toronto report estimated that a charge of $0.10/km on all highways would generate $1.5 billion in annual revenues (City of Toronto, 2012).

SUMMARY

Recent studies and conferences on financing roads and public transit in the GTHA have had a common theme—implement a municipal gas and diesel fuel tax in the Region with revenues dedicated for funding roads and public transit. This tax has a number of advantages. It is a useful tool for internalizing the costs of greenhouse gas emissions. It has an impact on distance driven, thus reducing unnecessary driving or engine idling. It reduces urban sprawl. It is easy to implement and administer. It is viewed as a cheap tax to collect. It has been criticized, however, because it is a blunt instrument for targeting the costs of congestion and other spillovers. On efficiency grounds, fuel taxes score poorly in terms of accountability and transparency. On equity grounds, it is often argued it is regressive. Perhaps and importantly for the GTHA, it is unlikely to generate sufficient revenue to provide an adequate and sustainable revenue stream for financing roads and transit in the foreseeable future. It is this concern that has been addressed in this paper.

There is no question current federal and provincial fuel tax revenues (through gas tax transfers) have helped municipalities fund some of their infrastructure needs. Over the next decade or two, however, a range of factors are likely to lead to declining fuel tax revenues. This includes the continuing push for more energy efficient vehicles, increasing reliance on electric and hybrid vehicles, the trend where younger adults especially those living in highly urbanized areas like the GTHA are driving less, and retiring baby boomers who are driving less than when they were younger.

While no one can predict the precise impact of increased fuel taxes on driving behaviour in the GTHA, there is a body of literature that provides us with a framework for estimating future fuel demand and, hence, future fuel tax revenues. Within the GTHA, the estimates in this paper suggest that:

- a one-cent tax will yield about $90 million per year;
- a three-cent tax, around $260 million per year;
- a five-cent tax, around $430 million to $440 million per year; and
- a 10 cent tax around $800 million to $850 million per year.

Implementation of a regional fuel tax will increase fuel prices and reduce consumption. This will have a negative impact on provincial gas tax revenues. When the loss in provincial fuel tax revenues is subtracted from the additional revenues from a regional fuel tax, the estimates in this paper suggest that:

- a one-cent fuel tax will net from $75 million to $82 million per year;
- a three-cent tax will net from $220 million to $240 million per year;
- a five-cent tax will net from $355 million to $400 million per year; and
- a 10-cent tax will net from $660 million to $770 million per year.

Fuel tax revenues are not expected to increase by any notable amount over the next two decades and they may, in fact, not even remain at current levels. Whether this yield will be sufficient to provide an adequate and sustainable source of revenue remains as a debatable issue. Perhaps of more importance, however, is the fact that a motor gas and diesel fuel tax is really only a second-best policy for financing roads and public transit—road pricing and parking levies/taxes being a first best policy. These instruments target those who use the roads and they are effective and efficient in tackling congestion and many of the problems that congestion creates. Along this line, it is interesting how road pricing makes so much sense fiscally and economically yet gets dismissed so often by politicians of all stripes. Surely, it is time for politicians to stand up, lead, and defend parking levies and road pricing as fair and efficient ways of funding road expenditures and public transit rather than criticizing or dismissing them without any substantive economic or fiscal defence.

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1 A better effect might be secured by a carbon tax like the one in British Columbia.

2 This claim has recently been challenged by two sources. According to IBTTA (2012, p.4), the collection cost in the United States is actually 2% and rises to 7% after accounting for lapses in enforcement, fraud, and abuse. Fleming *et al*. (2012) observe that official collection-cost estimates exclude the time and costs of recording and reporting motor fuel taxes, and the time and costs incurred by tax-exempt users of recording, summarizing, and submitting rebate claims. Fraud and abuse also raise the effective collection costs. Based on rough estimates, Fleming *et al*. conclude that fraud and abuse alone increase the cost 4% to 5% of revenues.

3 If the region where the tax is implemented has a good public transit system, regressivity may be largely removed because lower-income households tend to use public transit for a larger fraction of trips than do higher-income households.

4 Groups that can ask for a refund include businesses that hold a fuel acquisition permit, members of the diplomatic corps, and visiting armed forces.

5 Elasticity is defined as the percentage change in the volume of litres consumed divided by the percentage change in the price per litre. For example, an elasticity coefficient of –0.8 means that a one-per-cent increase in the price per litre will lead to a decrease of eight-tenths of one per cent in the number of litres purchased. This elasticity concept is discussed further later in this paper.

6 Ontario's provincial fuel tax is $0.147 per litre and diesel fuel tax is $0.143 per litre.

7 For the period from 2000 to 2012, the estimates of provincial motor gas and fuel tax revenue in Table 1 differed by around one to two per cent from the revenues reported in the provincial Public Accounts. The latter reported slightly higher revenues, probably because it included motor gas and diesel fuel tax revenue from off-road usage (agriculture and mining, for example) while the former were based on estimates for transportation.

8 It is interesting how road pricing makes so much sense fiscally and economically yet gets dismissed so often by politicians (LeBlanc and Perreaux, 2014). Surely, it is time for politicians to stand up and defend road pricing as a fair and efficient way of funding road expenditures rather than criticizing or avoiding this controversial option (Coyne, 2014).

9 Metrolinx (2013) did recommend that the main revenue tools be supplemented by "High Occupancy Toll lanes on regional highways, implemented by converting existing High Occupancy Vehicle lanes, as well as expanding the network of HOV/HOT lanes to other highway corridors" (p. 78).

10 The Province of Ontario plans to implement tolls on the new 407 East which will be built, over the next few years, through the Regional Municipality of Durham.

11 http://www.dcnonl.com/article/id48825/--407-international-reports-earnings-increase-from-ontario-toll-highway.

12 HOV lanes with an occupancy requirement of at least two people (HOV2+) are operating on Highways 403, 404, 417, and the QEW (http://www.mto.gov.on.ca/english/traveller/hov/).

RESIDENTIAL AND
CIVIL
CONSTRUCTION
ALLIANCE OF
ONTARIO
Constructing Ontario's Future

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The Residential and Civil Construction Alliance of Ontario (RCCAO) is composed of management and labour groups that represents a wide spectrum of the Ontario construction industry. The RCCAO's goal is to work in cooperation with governments and related stakeholders to offer realistic solutions to a variety of challenges facing the construction industry and which also have wider societal benefits.

RCCAO has independently commissioned close to 30 reports on planning, procuring, financing, and building infrastructure, and we have submitted position papers to politicians and staff to help influence government decisions.

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