

30 St. Patrick Street, Suite 1000, Toronto, Ontario, Canada M5T 3A3 Facsimile (416) 595-7144 Telephone (416) 593-5090 e-mail: hemson@hemson.com

## **MEMORANDUM**

To: Mark Meneray

Region of Halton

From: Russell Mathew

Date: May 7, 2009

Re: Responses to Lyn Townsend's April 17<sup>th</sup>, 2009 Letter Requesting

Forecast Information

This memorandum provides the information requested by Ms. Lyn Townsend in her April 17<sup>th</sup>, 2009 letter to the Region of Halton regarding "Sustainable Halton Household Projections." The data requested are attached to this memo in a series of 15 tables. Description and explanation as necessary are grouped below in accordance with the six bullet points in the April 17<sup>th</sup>, 2009 letter.

Before addressing the specific data requests, a few general comments are appropriate. The forecasts used in the 2009 Sustainable Halton work are based on the most upto-date information available. The changes from the forecasts contained in the *Growth Outlook for the Greater Golden Horseshoe* of 2005 include updating the following data:

 2006 Census data including population, population age structure, households, housing by type, household and non-household population, as well as "special run" data on households by age of household maintainer, housing type occupancy patterns by age of household maintainer and average household size by housing type.

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- An addition of approximately 4 years in the data series on population and components from *Statistics Canada's Annual Demographic Statistics*, including births, deaths and migration by migration component.
- An addition of approximately 4 years in the data series of CMHC's local housing market statistics.
- Other demographic and market observations affecting growth and the distribution of growth within the GTAH.

All of these data have been incorporated into the new forecasts and are, collectively, responsible for many of the changes from the 2005 forecasts.

In addition to the data, it is important to understand that the nature of forecasting growth within the GTAH for planning purposes is now very different in the era of the *Growth Plan*. Whereas in the past we would have undertaken similar data updates to forecasts producing different results for, say, population in the GTAH in 2031, in the context of the *Growth Plan* we now treat as "fixed" the Schedule 3 2031 population targets for the GTAH and its component regions and single-tier municipalities. We have not, however, treated as fixed the 2011 and 2021 population targets, due primarily to the current economic recession. The dramatic 2008–09 economic situation could not have been specifically anticipated in 2005, but, faced with the reality of the near-term economic situation, it was only reasonable to make appropriate adjustment to the 2011 forecast.

While treating the 2031 populations as fixed in policy, our analysis still indicates that the 2031 population for the GTAH and for the Region of Halton provide a sound basis for long-term planning within these areas.

1. "The changes in the 2011, 2021 and 2031 population by age cohort for the GTAH"

These data are provided in Tables 1 and 2. It should be noted that the total population in 2031 is the same in both forecasts to remain consistent with the total population shown in Schedule 3 to the *Growth Plan*. The 2011 population is slightly lower than that in Schedule 3 because the 2008 forecast is taking account of a period of reduced short-term growth related to the current economic recession.

The change in the forecast age structure as a result of updating the forecasts is primarily a small increase in the population in the older age cohorts compensated by a small decline in the younger cohorts relative to the forecasts prepared in 2005.

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2. "The new assumptions reading fertility, mortality and net migration behind the new forecast by age cohort"

Fertility and mortality rates in the updated forecast are shown in Tables 3 and 4. These are nearly the same as the rates used in the 2005 forecasts but with some small adjustments to the existing fertility and mortality rates and forecast mortality rates to reflect observations from the 2006 Census and the *Annual Demographic Statistics*. The principles of the application of these rates remain the same as in 2005 forecasts, that is: constant age-specific fertility rates at the current level; and gradual declines in mortality rates in all age groups over the forecast period, consistent with long-term trends.

The net migration by component is the more variable element in demographic forecasting. Adjustments have been made to migration to reflect up-to-date data and the short-term economic situation, but remaining consistent with the 2031 population results. Because the required change to the migration assumption is very small, for convenience, the changes in migration forecast have been applied to immigration, only varying by about 3% in the current forecast relative to the 2005 forecast.

3. "Projected household headship rates by age cohort and an explanation of changes from the reference compact scenario in the *Growth Outlook for the Greater Golden Horseshoe*"

Tables 6 and 7 provide the age-specific household formation rates used in the 2005 and 2008 forecasts for 2001, 2006 and 2011 and beyond. In Table 6, 2001 are actual data based on Census special runs and in Table 7 both 2001 and 2006 are actual data based on Census special runs.

The 2005 forecast was based on a notion of the household formation rates increasing from the 2001 base information to 2006 and then, in smaller measure, again to 2011. This was done firstly to explain the rapid household growth of the 2001–06 period in the context of the forecast population growth. Secondly, it was done to account for a rebound in the household formation rates for young adults which had declined significantly over time due to the late 1980s affordability challenges followed by the lengthy recession and high unemployment of much of the 1990s.

The 2006 Census results indicated that the anticipated change in household formation rates did not occur, rather, the rates actually declined slightly from the 2001 level in most age groups<sup>1</sup>. Based on this new information, the household

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<sup>&</sup>lt;sup>1</sup> A number of analysts have raised concerns about how sound the 2006 Census data are with respect to the housing and housing type data, as there are significant unexplained data discontinuities

formation rates have been kept almost constant to 2011 and then constant at these 2011 rates for the remainder of the forecast period. We are now of the view that there is no current basis to adjust the household formation rates, especially among the young adults, as the current patterns have now persisted through 4 Censuses and high and low cycles of the economy.

4. "The new GTAH household forecast for 2011, 2021 and 2031"

The household forecast for the GTA is provided in Table 8. These are the direct results of the household formation rate applied to the age structure forecast.

5. "Unit type projections for the GTAH"

The unit type projections for the GTAH are shown in Table 9. This forecast is based on updated base information with the future outlook based on the same principles as the Compact Scenario in the *Growth Outlook for the Greater Golden Horseshoe*. The reader is reminded that the Compact Scenario, then as now, was not a strictly market-based forecast, but rather was based on gradual reduction in preferences for the single and semi-detached dwellings, a continuation of strong rowhouse market that has existed in the GTAH since the early 1990s and gradual increases in the market shares of apartment units over the forecast. The resulting housing mix on the growth from 2006 to 2031 is very similar between the 2005 and 2008 forecasts.

Neither the 2005 nor the 2008 forecast is intended to show a housing mix that would allow for *Growth Plan* conformity in each of the single- or upper-tier municipalities in the GTAH. Rather, the housing mix shown here is a starting point in the consideration of planning in the context of the *Growth Plan* as finally approved.

6. "The allocation of units by type to upper and single tier municipalities within the GTAH"

As described in the *Growth Outlook for the Greater Golden Horseshoe*, the population and housing modelling for the single- and upper-tier municipalities in the GTAH is based generally on the distribution of housing by type to each of the areas, then the application of an average household size to produce the population. The distribution of housing by type, rather than people, allows the forecast to take account both of real estate and development markets and of planning policy.

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between the 2001 Census and the 2006 Census. While we share many of these concerns, there is no other reasonable basis to prepare this type of forecast than to accept the Census data as published and to use the most recent available information.

Table 10 provides the housing unit allocation to Halton Region, which forms a key starting point for the analysis in Sustainable Halton Report 3.07. The note provided with this and the following tables is critical to understanding the basis of this forecast and of the targets contained in the recommended growth scenario in Sustainable Halton:

This initial allocation by unit type is an update to the Compact Scenario in the *Growth Outlook for the Greater Golden Horseshoe*. It reflects the same principles as the allocation in that work that led to the *Growth Plan* Schedule 3 2031 population. The modelled housing mix requires a further policy-based shift in Halton in order to achieve *Growth Plan* numeric targets (see Tables 10 and 11 in Sustainable Halton Report 3.07).

The forecast for Halton has been carefully considered and scrutinized through this process. Because of the way the model is constructed, however, a forecast must be prepared for each of the single- and upper-tier municipalities within the GTAH. For modelling in Halton, a *reasonable* allocation to the other parts of the GTAH is required, but need not be to the level of detail or scrutiny of the object area. For this reason, we would not typically publish the forecasts for other areas. However, in order to meet the specific data request, Tables 11 through 15 do provide the results for each of the other areas. The following note is also critical to interpreting these results:

The forecast for this single- or upper-tier municipality has been prepared only for the purpose of the GTAH-wide modelling being used in the Sustainable Halton analysis. While these results will likely be consistent, they may not be identical to other forecasts Hemson may prepare for this single- or upper-tier municipality in the past or future for a purpose other than Sustainable Halton. This forecast has not been reviewed or endorsed in any way by any single-, upper- or lower-tier municipality.

Finally, in each case, the single- and upper-tier housing forecasts provided do result in meeting the population targets for 2031 in Schedule 3 to the *Growth Plan*.



Table 1
Population by Age from 2005 Growth Outlook for the Greater Golden Horseshoe Forecasts
Census Population (excluding net undercoverage)

	2001	2011	2021	2031
Total	5,572,000	6,579,000	7,456,000	8,262,000
0 - 4	341,000	367,000	415,000	446,000
5 - 9	380,000	381,000	409,000	455,000
10 - 14	373,000	397,000	411,000	457,000
15 - 19	364,000	436,000	429,000	455,000
20 - 24	362,000	461,000	482,000	496,000
25 - 29	389,000	504,000	576,000	571,000
30 - 34	446,000	491,000	576,000	595,000
35 - 39	508,000	468,000	560,000	625,000
40 - 44	481,000	494,000	521,000	602,000
45 - 49	418,000	531,000	482,000	570,000
50 - 54	373,000	483,000	490,000	515,000
55 - 59	271,000	405,000	510,000	460,000
60 - 64	220,000	348,000	447,000	452,000
65 - 69	195,000	240,000	361,000	458,000
70 - 74	172,000	190,000	303,000	393,000
75 - 79	137,000	158,000	199,000	302,000
80 - 84	80,000	120,000	140,000	224,000
85 - 89	43,000	74,000	93,000	120,000
90+	21,000	32,000	51,000	64,000

Table 2
Population by Age from 2008 Update of GTAH Forecast for Sustainable Halton
Census Population (excluding net undercoverage)

	2001	2011	2021	2031
Total	5,572,000	6,532,000	7,424,000	8,262,000
0 - 4	341,000	365,000	417,000	456,000
5 - 9	380,000	376,000	407,000	463,000
10 - 14	373,000	395,000	411,000	460,000
15 - 19	364,000	432,000	425,000	453,000
20 - 24	362,000	464,000	482,000	498,000
25 - 29	389,000	487,000	575,000	570,000
30 - 34	446,000	447,000	583,000	598,000
35 - 39	508,000	458,000	545,000	627,000
40 - 44	481,000	494,000	480,000	610,000
45 - 49	418,000	537,000	473,000	557,000
50 - 54	373,000	488,000	491,000	475,000
55 - 59	271,000	408,000	516,000	453,000
60 - 64	220,000	347,000	453,000	454,000
65 - 69	195,000	244,000	365,000	465,000
70 - 74	172,000	196,000	303,000	399,000
75 - 79	137,000	160,000	204,000	306,000
80 - 84	80,000	122,000	145,000	226,000
85 - 89	43,000	77,000	96,000	124,000
90+	21,000	34,000	54,000	68,000

Table 3
Fertility Rates from 2008 Update of GTAH Forecast for Sustainable Halton

	tility Rate 01 to 2031
15 - 19 20 - 24 25 - 29 30 - 34 35 - 39 40 - 44	0.0122 0.0454 0.0927 0.1022 0.0493 0.0088
	Total Rate 1.5528

Table 4
Mortality Rates from 2008 Update of GTAH Forecast for Sustainable Halton

	2006-20	)11	2011-2016		2016-2	2021	2021-	2026	2026-	2031
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	0.00095	0.00076	0.00085	0.00063	0.00077	0.00056	0.00073	0.00055	0.00073	0.00055
5 - 9	0.00008	0.00007	0.00008	0.00007	0.00008	0.00006	0.00007	0.00006	0.00007	0.00006
10 - 14	0.00010	0.00010	0.00010	0.00009	0.00009	0.00008	0.00009	0.00008	0.00009	0.00008
15 - 19	0.00030	0.00016	0.00027	0.00013	0.00024	0.00011	0.00023	0.00011	0.00023	0.00011
20 - 24	0.00039	0.00022	0.00035	0.00019	0.00032	0.00016	0.00030	0.00014	0.00030	0.00014
25 - 29	0.00054	0.00022	0.00051	0.00019	0.00048	0.00016	0.00046	0.00016	0.00046	0.00016
30 - 34	0.00071	0.00025	0.00067	0.00021	0.00063	0.00017	0.00061	0.00015	0.00061	0.00015
35 - 39	0.00104	0.00043	0.00099	0.00031	0.00091	0.00024	0.00086	0.00024	0.00086	0.00024
40 - 44	0.00134	0.00065	0.00123	0.00048	0.00112	0.00033	0.00107	0.00027	0.00107	0.00027
45 - 49	0.00204	0.00122	0.00188	0.00099	0.00172	0.00079	0.00164	0.00069	0.00164	0.00069
50 - 54	0.00323	0.00216	0.00298	0.00181	0.00273	0.00162	0.00260	0.00160	0.00260	0.00160
55 - 59	0.00557	0.00258	0.00512	0.00244	0.00469	0.00218	0.00447	0.00212	0.00447	0.00212
60 - 64	0.00886	0.00489	0.00817	0.00400	0.00747	0.00347	0.00712	0.00337	0.00712	0.00337
65 - 69	0.01531	0.00944	0.01412	0.00845	0.01291	0.00783	0.01230	0.00771	0.01230	0.00771
70 - 74	0.02493	0.01509	0.02299	0.01347	0.02102	0.01249	0.02002	0.01232	0.02002	0.01232
75 - 79	0.04592	0.02449	0.04453	0.02107	0.04317	0.01912	0.04250	0.01888	0.04250	0.01888
80 - 84	0.07634	0.04153	0.07402	0.03427	0.07176	0.02969	0.07066	0.02875	0.07066	0.02875
85 - 89	0.12202	0.07369	0.11831	0.06323	0.11470	0.05563	0.11296	0.05325	0.11296	0.05325
90+	0.19501	0.21076	0.18905	0.21711	0.18329	0.22410	0.18050	0.22791	0.18050	0.22791

Table 5
Forecast Total Annual Migrants to GTAH (in total population including Census net undercoverage)

	Immigrants	Net	Net Change,	Inter-Provincial		Intra-Provincial			Total
		Emigrants	Non-Permanent	In	Out	In	Out	Net	Net Migration
			Residents	Migrants	Migrants	Migrants	Migrants	Migrants	
2006-11	93,700	(10,900)	0	28,400	(25,800)	230,200	(249,800)	(19,500)	65,800
2011-16	91,700	(11,500)	0	29,100	(26,200)	240,800	(263,700)	(22,900)	60,100
2016-21	88,500	(11,700)	0	29,100	(26,200)	253,500	(277,600)	(24,100)	55,600
2021-26	88,500	(11,700)	0	29,100	(26,200)	265,500	(290,800)	(25,300)	54,400
2026-31	88,500	(11,700)	0	29,100	(26,200)	276,700	(303,100)	(26,400)	53,400

Table 6
Household Formation Rates from 2005 Growth Outlook for the Greater Golden Horseshoe Forecasts

Age	House	ehold Formation R	ates
	2001	2006	2011-2031
15 - 19	1.2%	1.3%	1.4%
20 - 24	11.6%	12.9%	14.0%
25 - 29	31.5%	33.5%	35.3%
30 - 34	44.3%	45.5%	46.5%
35 - 39	50.6%	50.9%	51.2%
40 - 44	53.3%	53.6%	53.8%
45 - 49	54.8%	54.9%	54.9%
50 - 54	55.8%	55.8%	55.8%
55 - 59	56.2%	56.2%	56.2%
60 - 64	55.4%	55.4%	55.4%
65 - 69	57.2%	56.8%	56.4%
70 - 74	58.5%	57.7%	57.1%
75 - 79	61.8%	61.8%	61.8%
80 - 84	60.9%	60.9%	60.9%
84 - 89	55.3%	55.3%	55.3%
90 +	40.5%	40.5%	40.5%
TOTAL	44.0%	44.3%	44.7%
			(2011 only)

Table 7
Household Formation Rates from 2008 Update of GTAH Forecast for Sustainable Halton

Age	House	ehold Formation R	lates
	2001	2006	2011-2031
15 - 19	1.2%	1.2%	1.2%
20 - 24	11.6%	11.2%	11.3%
25 - 29	31.5%	29.9%	29.9%
30 - 34	44.3%	43.8%	43.9%
35 - 39	50.6%	49.6%	49.6%
40 - 44	53.3%	53.4%	53.4%
45 - 49	54.8%	55.3%	55.3%
50 - 54	55.8%	56.1%	56.2%
55 - 59	56.2%	56.1%	56.1%
60 - 64	55.4%	55.6%	55.7%
65 - 69	57.2%	55.6%	55.6%
70 - 74	58.5%	56.2%	56.2%
75 - 79	61.8%	61.3%	61.3%
80 - 84	60.9%	59.3%	59.3%
84 - 89	55.3%	54.6%	54.6%
90 +	40.5%	40.2%	40.2%
TOTAL	44.0%	43.8%	43.7%
			(2011 only)

Table 8
GTAH Household Forecast from 2008 Update of GTAH Forecast for Sustainable Halton

GTAH Households						
2006	2,160,000					
2011	2,356,000					
2016	2,553,000					
2021	2,751,000					
2026	2,941,000					
2031	3,112,000					

Table 9
GTAH Occupied Housing Unit Forecast by Type from 2008 Update of GTAH Forecast for Sustainable Halton

GTAH Occi	upied Unit Growth by	Structure Type		
	Single-Semi	Row	Apartment	Total
2006-11	86,000	32,000	78,000	196,000
2011-16	90,000	35,000	73,000	198,000
2016-21	91,000	35,000	71,000	198,000
2021-26	88,000	37,000	65,000	190,000
2026-31	78,000	38,000	55,000	171,000

Table 10
Region of Halton Occupied Housing Unit Forecast by Type from 2008 Update of GTAH Forecast for Sustainable Halton

Region of H	alton Initial Occupied	Housing Unit Grov	vth		Note:	This initial allocation by unit type is an update
	Single-Semi	Row	Apts.	All Units		to the Compact Scenario in the Growth Outlook
						for the Greater Golden Horseshoe. It reflects the
2006-11	12,600	6,500	2,300	21,500		same principles as the allocation in that work that
2011-16	14,900	7,100	3,600	25,600		led to the Growth Plan Schedule 3 2031 population.
2016-21	16,500	7,100	3,600	27,200		The modelled housing mix requires a further
2021-26	16,600	7,400	3,500	27,500		policy-based shift in Halton in order to achieve
2026-31	14,700	7,600	3,600	25,900		Growth Plan numeric targets (see Tables 10 and 11
						in Sustainable Halton Report 3.07).

Table 11
City of Toronto Occupied Housing Unit Forecast by Type from 2008 Update of GTAH Forecast for Sustainable Halton

city of for	onto Initial Occupied He	busing offic Growt			Note 1:	This initial allocation by unit type is an update
	Single-Semi	Row	Apts.	All Units		to the Compact Scenario in the Growth Outlook
						for the Greater Golden Horseshoe. It reflects the
2006-11	6,600	4,900	54,600	66,000		same principles as the allocation in that work that
2011-16	6,200	5,300	43,500	55,100		led to the Growth Plan Schedule 3 2031 population.
2016-21	5,600	5,000	40,700	51,200		The modelled housing mix may require a further
2021-26	4,700	5,000	35,500	45,200		policy-based shift in order to achieve Growth Plan
2026-31	3,400	4,900	28,700	37,000		or other municipal planning policies.
Note 2:		•				l-wide modelling being used in
						ot be identical to other forecasts
	Hemson may prepare	of the City of Toro	nto in the past or f	uture for a purpose	other tha	n Sustainable Halton. This forecast has
		of the City of Toro	nto in the past or f	uture for a purpose		n Sustainable Halton. This forecast has

Table 12
Region of Peel Occupied Housing Unit Forecast by Type from 2008 Update of GTAH Forecast for Sustainable Halton

		using Unit Growth			Note 1:	This initial allocation by unit type is an update
	Single-Semi	Row	Apts.	All Units		to the Compact Scenario in the Growth Outlook
						for the Greater Golden Horseshoe. It reflects the
006-11	21,800	5,200	10,100	37,200		same principles as the allocation in that work that
011-16	19,100	6,000	9,400	34,500		led to the Growth Plan Schedule 3 2031 population.
016-21	15,200	5,800	9,300	30,300		The modelled housing mix may require a further
021-26	14,500	5,900	8,700	29,200		policy-based shift in order to achieve Growth Plan
026-31	12,500	5,900	7,400	25,900		or other municipal planning policies.
lote 2:	The forecast for the Re	egion of Peel has b	een prepared only	for the purpose o	f the GTAH-	wide modelling being used in
	the Sustainable Halton	analysis. While the	nese results, will lik	ely be consistent.	they may n	ot be identical to other forecasts
		,		,	, ,	n Sustainable Halton. This forecast has

Table 13
Region of York Occupied Housing Unit Forecast by Type from 2008 Update of GTAH Forecast for Sustainable Halton

itegion or i	York Initial Occupied Housing Unit Growth					This initial allocation by unit type is an update		
	Single-Semi	Row	Apts.	All Units		to the Compact Scenario in the Growth Outlook		
	26,100 26,900 25,500 23,700	7,300 8,200 8,000 8,300	8,200 8,700 8,600 7,700	41,600 43,800 42,000 39,800		for the Greater Golden Horseshoe. It reflects the same principles as the allocation in that work that led to the Growth Plan Schedule 3 2031 population. The modelled housing mix may require a further policy-based shift in order to achieve Growth Plan		
2006-11								
2011-16								
2016-21								
2021-26								
2026-31	21,000	8,500	6,600	36,100		or other municipal planning policies.		
Note 2:	The forecast for the Re	egion of York has b	een prepared only	for the purpose o	f the GTAH	-wide modelling being used in		
	the Sustainable Haltor	n analysis. While th	nese results will lik	cely be consistent,	they may n	not be identical to other forecasts		
	Hemson may prepare	of the Region of Yo	ork in the past or fu	uture for a purpose	e other than	n Sustainable Halton. This forecast has		
	not been reviewed or endorsed in any way by the Region of York or any of its local municipalities.							

Table 14
Region of Durham Occupied Housing Unit Forecast by Type from 2008 Update of GTAH Forecast for Sustainable Halton

Region of	n of Durham Initial Occupied Housing Unit Growth					This initial allocation by unit type is an update			
	Single-Semi	Row	Apts.	All Units		to the Compact Scenario in the Growth Outlook			
						for the Greater Golden Horseshoe. It reflects the			
2006-11	13,700	4,400	1,600	19,700		same principles as the allocation in that work that			
2011-16	17,100	5,300	4,400	26,800		led to the Growth Plan Schedule 3 2031 population.			
2016-21	21,700	6,000	5,000	32,700		The modelled housing mix may require a further			
2021-26	22,100	6,700	4,800	33,600		policy-based shift in order to achieve Growth Plan			
2026-31	20,600	7,200	4,700	32,500		or other municipal planning policies.			
Note 2:						AH-wide modelling being used in			
	the Sustainable Halton analysis. While these results will likely be consistent, they may not be identical to other forecasts								
	Hemson may prepare of the Region of Durham in the past or future for a purpose other than Sustainable Halton. This forecast has								
	not been reviewed or endorsed in any way by the Region of Durham or any of its local municipalities.								

Table 15
City of Hamilton Occupied Housing Unit Forecast by Type from 2008 Update of GTAH Forecast for Sustainable Halton

City of Ha	ty of Hamilton Initial Occupied Housing Unit Growth					This initial allocation by unit type is an update		
	Single-Semi	Row	Apts.	All Units		to the Compact Scenario in the Growth Outlook		
						for the Greater Golden Horseshoe. It reflects the		
2006-11	5,000	3,300	1,200	9,500		same principles as the allocation in that work that		
2011-16	5,600	3,500	2,900	12,000		led to the Growth Plan Schedule 3 2031 population.		
2016-21	6,500	3,500	4,300	14,300		The modelled housing mix may require a further		
2021-26	6,600	3,700	4,200	14,500		policy-based shift in order to achieve Growth Plan		
2026-31	6,200	3,800	4,100	14,100		or other municipal planning policies.		
Note 2:	The forecast for the City of Hamilton has been prepared only for the purpose of the GTAH-wide modelling being used in the Sustainable Halton analysis. While these results will likely be consistent, they may not be identical to other forecasts Hemson may prepare of the City of Hamilton in the past or future for a purpose other than Sustainable Halton. This forecast has not been reviewed or endorsed in any way by the City of Hamilton.							