

**2001 TRANSPORTATION TOMORROW SURVEY
CITY OF HAMILTON
SUMMARY BY WARDS**

**Prepared for the
Transportation Information
Steering Committee**

by the

**Data Management Group
University of Toronto
Joint Program in Transportation
April 2003**

FURTHER INFORMATION

The Transportation Tomorrow Surveys (TTS) are parts of an ongoing data collection program by the Transportation Information Steering Committee (TISC). The survey data (2001, 1996, 1991 and 1986) are currently under the care of the Data Management Group. For more information, please contact:

Data Management Group
Joint Program in Transportation
University of Toronto
35 St. George Street
Toronto, Ontario
M5S 1A4
Tel: (416) 978-7282
Fax: (416) 978-3941
Email: info@j pint.utoronto.ca
Web: www.j pint.utoronto.ca

This report was prepared for the Transportation Information Steering committee (TISC) through the direction of its technical committee, the Transportation Research and Data Management Group (TRADMAG). The committees are represented by the following agencies:

City of Hamilton
City of Toronto
GO Transit
Ministry of Transportation, Ontario
Regional Municipality of Durham
Regional Municipality of Halton
Regional Municipality of Peel
Regional Municipality of York
Toronto Transit Commission

TABLE OF CONTENTS

INTRODUCTION.....	1
Background.....	1
Purpose of this Report.....	1
THE TTS DATA.....	2
Design and Conduct of the Survey.....	2
Information Collected.....	2
Quality of the Data.....	3
REPORT CONTENTS.....	4
Overview.....	4
General Summary Tables.....	4
TRANSPORTATION TOMORROW SURVEY AREA.....	6
AREA SUMMARIES.....	7
Greater Toronto Area.....	8
City of Hamilton.....	9
Ward 1.....	10
Ward 2.....	11
Ward 3.....	12
Ward 4.....	13
Ward 5.....	14
Ward 6.....	15
Ward 7.....	16
Ward 8.....	17
Ward 9.....	18
Ward 10.....	19
Ward 11.....	20
Ward 12.....	21
Ward 13.....	22
Ward 14.....	23
Ward 15.....	24

INTRODUCTION

BACKGROUND

The 2001 Transportation Tomorrow Survey (TTS) is the largest and most comprehensive travel survey ever conducted in Ontario or perhaps anywhere in North America. The survey was conducted on behalf of 19 local, regional, provincial and transit operating agencies in the Greater Toronto Area and surrounding regions. TTS data contain detailed demographic information on all members of a surveyed household and a ledger of travel information over an entire weekday.

The 2001 survey is the fourth and the latest in a series of surveys conducted every five years. The first Transportation Tomorrow Survey, conducted in 1986, collected information for over 61,700 households in the Greater Toronto Area (GTA). The 1986 TTS was the most comprehensive travel survey in the Toronto area since the 1964 Home Interview Survey for the Metropolitan Toronto (now City of Toronto) and Region Transportation Study (MTARTS). Results of the TTS survey have been used in a wide range of studies including the development of Highway 407 and the Highway 401 expansion program.

In 1991, the second TTS was conducted as an update survey for the 1986 data. Recognizing the importance of interregional travel, the 1991 survey area was expanded to include local municipalities adjacent to the GTA boundary. Approximately 22,300 households in the GTA and 2,200 households at the fringe of the GTA were successfully interviewed. The survey captured the travel condition in the GTA after five years of active changes, with particular emphasis on areas that experienced rapid population growth between 1986 and 1991. The 1991 survey data provided a clear measure of global trends on urban travel characteristics. One of the most significant observations was the shift of urban population and employment growth from the City of Toronto to the surrounding regions and its impact on travel demand and modal choice.

The 1996 TTS expanded its focus from the GTA to include a large part of south central Ontario. It involved cooperation from twelve regional and county governments, one town, two transit operators and one provincial ministry. The survey area stretched from Peterborough County in the east to the Regional Municipality of Waterloo in the west. Based on Census information, the survey area covers 60 percent of Ontario's total population. A total of 115,200 households or five percent of all households in the survey area were successfully interviewed. The survey provides sample information on an estimated thirteen million daily trips in the survey area.

The 2001 TTS covers much of the same area as 1996 excluding the Regional Municipality of

Waterloo whilst adding larger areas of some other counties in southern Ontario. The survey involved cooperation from seven cities, eight regional and county governments, one town, two transit operators and one provincial ministry. Altogether approximately 137,000 households were successfully interviewed. The survey provides sample information on an estimated fourteen million daily trips in the survey area.

Unlike data sources such as regular traffic counts, which measure the change in magnitude of travel demand, the TTS provides information on the characteristics of these changes. As a transportation time series database, the TTS enables analysis on how factors such as flexible work hour programs, relocation of manufacturing employment, increasing female participation in the labour force, and aging population influence how people travel, how often and the purpose of their trips.

In addition to being a time series database, the 2001 TTS data alone is an important data source for transportation planning. It provides a clear description on existing travel patterns and how travel demand is influenced by current demographic and socio-economic factors. This is especially useful for areas which do not have previous travel survey data. Furthermore, because of the scope of the survey coverage, the 2001 data is also a key datum for understanding the dynamic interdependence of communities in south central Ontario.

PURPOSE OF THIS REPORT

The purpose of this report is to summarize the 2001 Transportation Tomorrow Survey data according to ward boundaries in the City of Hamilton. The summary is presented in tabular format at three levels of detail, namely, the entire Greater Toronto Area, the City of Hamilton and each of its 15 wards. The information presented includes socio-demographic and travel characteristics. In addition to presenting the magnitude of the trips coming into and leaving an area, the summary tables also describe travel characteristics such as travel purpose, trip start time, travel distance and travel mode choice.

The information presented in this report is based on Version 1.0 of the 2001 TTS database. For more historical TTS data, please refer to the fifth report in the 1996 Transportation Tomorrow Survey series, entitled, 1996, 1991 & 1986 Travel Survey Summaries for the Greater Toronto Area and the fifth report in the 2001 Transportation Tomorrow Series entitled 2001, 1996 & 1986 Travel Survey Summaries for the Greater Toronto Area.

THE TTS DATA

DESIGN AND CONDUCT OF THE SURVEY

The 2001 TTS, with approximately 137,000 household interviews, is one of the largest surveys ever undertaken anywhere. The 2001 survey covered a great part of south central Ontario and consisted of the Cities of Toronto (formerly Metropolitan Toronto), Hamilton (formerly the Regional Municipality of Hamilton-Wentworth), Barrie, Guelph, Peterborough and Kawartha Lakes (formerly the County of Victoria), the Regional Municipalities of Durham, Halton, Niagara, Peel, and York, the Town of Orangerville, the County of Simcoe and partial coverage of the Counties of Peterborough and Wellington.

The 2001 TTS was initially scheduled to be conducted over two time periods. Areas external to the GTA and Hamilton were surveyed in the fall of 2000 and the GTA and Hamilton were surveyed in the fall of 2001. However, after these first two survey periods were completed, it was noticed that apartment buildings were under-represented in the sample and a supplemental survey was done in May 2002 to correct this sample bias. There were no changes in survey methodology or questionnaire between survey periods and the three data sets are combined for all expansion and analytical processes.

A random sample of households in the survey area was selected from Bell Canada's files containing information on residential subscribers. Households with unlisted telephone numbers were not included in the sample but are believed to be uniformly distributed throughout the study area and with no obvious correlation to socio-economic status. The target was to obtain a random sample of five percent of the households in the study area. The actual sampling rate in each Forward Sortation Area (defined by the first three characters of a postal code) was reviewed to ensure a uniform distribution of sampling rates across the study area.

An advance letter was mailed to the sample households before the actual interview took place. The purpose was to introduce the survey, outline the survey process and impress upon the household the legitimacy and importance of information that would be collected in the interview.

Interviewers telephoned the households to collect travel information for the preceding weekday and recorded the data directly on computer files using a direct data entry program. As the information was entered, the program carried out spelling checks on street names, validation checks on transit route information and other checks on the consistency and completeness

of the information. The sample rates were monitored daily by sample control software to ensure even coverage of the study area during the survey period. The locations of households, places of work and school, trip origins and destinations were coded to a geographic reference system. Geographic coding enables the survey results to be studied at aggregated levels which are both flexible and accurate.

In the City of Hamilton, over 10,000 households were interviewed. With the 2001 Census count of approximately 188,000 households, the survey achieved its target of a five percent sample rate.

Detailed documentation of the planning and implementation of the 2001 survey is contained in the first report of the 2001 Transportation Tomorrow Survey series, entitled, Design and Conduct of the Survey. The sample expansion procedure for this survey is described in detail in the third report of the 2001 TTS working paper series, Data Expansion.

INFORMATION COLLECTED

Through the years, the TTS has collected demographic and travel information. Demographic data were collected for the household and each member of the household. Travel information was usually for the weekday just prior to the day of the interview. The 2001 database may be summarized as follows:

Demographic Information

- Household Characteristics
 - Location of residence
 - Dwelling unit type
 - Number of persons living in the household
 - Number of vehicles available for personal use
- Person Characteristics
 - Age
 - Gender

- Employment Status
- Student status
- Possession of a driver's licence
- Possession of a transit pass
- Location of usual place of work
- Location of usual place of school
- School name
- Availability of free parking at usual place of work
- Occupation type
- Whether or not the person worked at home on the trip day (only asked if a person employed full time outside the home did not make a work trip on the survey day)

Travel Information

- Nature of trip
- Start time
- Purpose of trip
- Origin and destination points
- Means of travel
 - Travel mode
 - Detailed transit routes including boarding and alighting stations for all GO Train and subway trips

A trip is defined as a one-way movement between two locations for a single purpose. For example, a trip may be made to work, to facilitate a passenger, or to return home. The survey collected trip information for all persons of age 11 years or older over a 24-hour period. To reflect travel activities on an average work day, only trips made on Monday to Friday were recorded. The survey results indicate an approximately equal coverage of trips on each of the five weekdays.

All children between the ages of 6 and 11 were assumed to be full time students.

A comprehensive description of the contents and structures of the 2001 TTS database is contained in the first report of the 2001 TTS entitled, [Data Guide](#).

QUALITY OF THE DATA

Preliminary analysis of the 2001 survey data indicate that, as with previous years, the TTS data may be used with a high degree of confidence. With respect to peak period travel there is no

evidence of under-reporting of trips made in the a.m. peak period. Public transit trips are accurately represented through the day and any under-reporting which occurs is primarily associated with off-peak automobile trips.

TTS tends to under-represent the overall population of the survey area compared to Census data. The under-representation is most noticeable in infants and elderly persons. The exclusion of collective homes, such as hospitals and nursing homes, from the survey is likely a contributing factor in the under-representation of the elderly. The spatial distribution of persons aged 18 to 27 differ between the TTS and Census. This can be attributed to the timing and definition of the survey relative to the Census and the effect this has on the estimation of post-secondary school students.

TTS data accurately reflects the number of full-time students in most parts of the survey area. Initial comparisons with university and college enrollment data suggest that there might be some under-representation of students at McMaster, Guelph and Trent Universities.

For further discussion on the validation of the 2001 data, refer to the 2001 TTS report, [Data Validation](#).

Availability of Data

The data used in this survey was obtained from the 2001 TTS survey. This survey data and previous years' data (1986, 1991 and 1996) are currently under the care of the Data Management Group. This group is responsible for maintaining the TTS databases and allowing access to the survey data. Data is made readily available through an online data retrieval system. For more information see previous contact information.

REPORT CONTENTS

OVERVIEW

The data in this report provides demographic characteristics and travel pattern information. The data is presented by ward and summarized for the City of Hamilton and for the whole GTA. In total there are 15 wards in the City of Hamilton.

To reflect the fact that all numbers presented in this report are estimates based on expanded data, all numeric figures are rounded. Totals and subtotals are rounded to the nearest 100 and all percentages are rounded to the nearest integer. An asterisk (*) is used to denote categories that have less than four observations or survey records.

Invalid survey responses are dealt with in two ways. The response is grouped under the “other” category if one is available (travel mode, for example). Otherwise, invalid responses are distributed proportionately (based on the valid responses) between the available categories.

GENERAL SUMMARY TABLES

Demographic Characteristics

Demographic data are presented in the two tables on the top half of the page. The table on the left summarizes the data by household and the table on the right summarizes the data by person.

Household characteristics include:

- Total number of households in the area. The data expansion procedure ensures a close match with the census.
- Distribution of households by dwelling type: house, townhouse or apartment
- Distribution of households by number of residents
- Distribution of households by number of vehicles available for personal use
- A series of ratios that reflect the general characteristics of households in the area:
 - Persons - Total population divided by total number of households
 - Workers - Total number of employed persons (full-time and part-time, includes work at home) divided by total number of households

- | | |
|-----------|---|
| Drivers | - Total number of persons in possession of a driver's licence divided by the total number of households |
| Vehicles | - Total number of vehicles available for personal use divided by total number of households |
| Trips/day | - Total number of trips by persons of age 11 and over divided by total number of households |

Personal characteristics include:

- Total number of persons in private residences in the area
- Population by gender
- The percentage of persons in possession of a transit pass by gender
- The percentage of persons in possession of a valid driver's licence by gender
- The percentage of persons who are full or part-time students by gender
- Employment status by gender - full-time outside the home, part-time outside the home, and work at home, full or part-time
- The percentage of persons who made a trip to work on the survey day by employment status
- Occupation type: clerical, manufacturing, professional, or sales and service
- Median age, the age where 50 percent of the population is older and 50 percent is younger
- Distribution by age cohort
- Daily trips per person aged 11 and over

Travel Patterns

The two tables on the lower half of the page present travel pattern information in two categories, trip purpose and mode of travel. In each category, the information is summarized by trips that were made by the residents of an area and by trips with a destination in the area. Trips made by residents of an area are a measure of mobility and thus includes all trips regardless of trip origin or destination. The number of trips made to an area is a measure of the area's attractiveness and therefore include trips made by both residents and non-residents of the area. Note that trips made by residents include trips in and out of the GTA and that trips made to the area include only trips made by GTA residents.

The time periods dealt with are the 24-hour period and the 3-hour morning peak period. The morning peak period has been chosen to minimize the number of non-work trips that are included in the summary. In general, the composition of the morning peak is dominated by trips to work and school. Although, the period chosen for the morning peak is indicated as 6 to 9 a.m., the data actually comprises trips starting at 6:00 a.m. to 8:59 a.m. The reason for excluding trips starting at exactly 9:00 a.m. is that respondents tend to round off the times they reported to the nearest quarter or half hour. If data for both 6:00 a.m. and 9:00 a.m. were included the actual number of morning peak period trips would be over represented.

Trip Purpose

For trips made by the residents of an area, the home location is the link between the commuter and the area of interest. Consequently, trip purpose categories are defined as:

- Home to work and work to home (home-based work, HB-W) trips
- Home to school and school to home (home-based school, HB-S) trips
- All other home-based (home-based discretionary, HB-D) trips
- All trips where neither trip end is the home (non-home-based, N-HB)

The magnitude of the trips made to the area gives an indication of the attraction of land use in the area. The destination purposes are defined as:

- Work
- School
- Home
- Other; such as for shopping, entertainment, etc.

Mode of Travel

The travel mode categories are:

- Automobile driver
- Automobile passenger
- Local transit
- GO Train
- Walk and Bicycle
- Other, which includes motorcycle, taxi, school bus and other modes

Local transit includes all trips by public transit that do not include the use of GO Train for any part of the trip.

In general, only those walk trips to and from work or school were recorded.

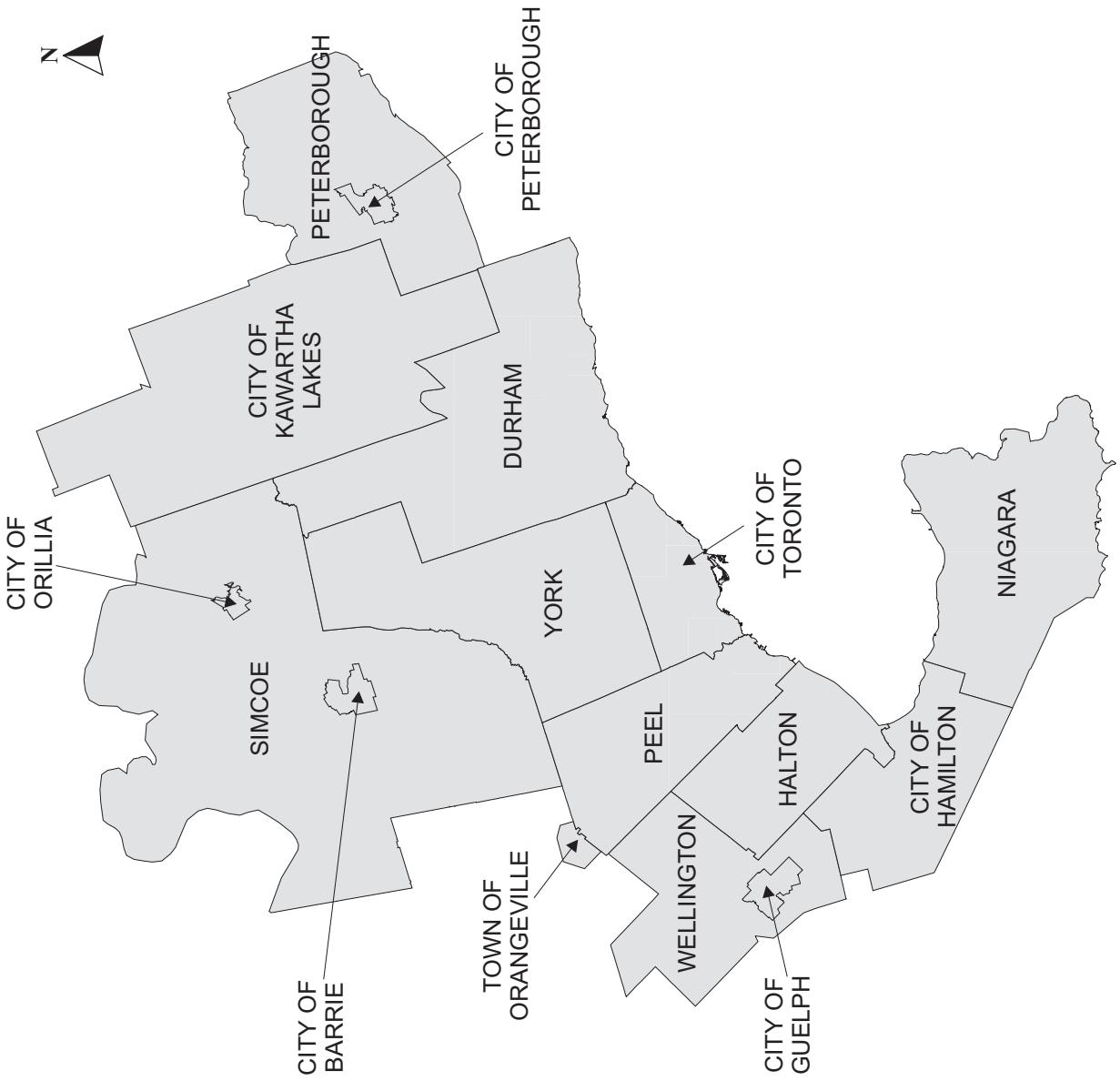
Trips Made by Residents of an Area

In addition to the travel information by trip purpose and travel mode, the summary tables also include statistics on the percentage of internal trips and median trip lengths.

The percentage of trips made entirely within an area by residents of the same area is a measure of the degree of self-containment for the area of interest. The percentages are calculated for the 24-hour period and the 3-hour morning peak period.

Median trip length is calculated as the trip distance where 50 percent of the trips are longer and 50 percent are shorter. Trip length is measured as the straight line distance between origin and destination points. The figures presented are by travel modes for the 24-hour period.

TRANSPORTATION TOMORROW SURVEY AREA



GREATER TORONTO AREA

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:						
						1,975,200
Dwelling Type	House 61%	Townhouse 5%	Apartment 34%			
Household Size (persons)	1 21%	2 30%	3 18%	4 19%	5+ 11%	
No. of Available Vehicles	0 16%	1 40%	2 34%	3 7%	4+ 2%	
Household Averages	Persons 2.7	Workers 1.4	Drivers 1.7	Vehicles 1.4	Trips/Day 5.8	

TOTAL POPULATION: 5,386,100

TOTAL POPULATION:		5,386,100					
		Employment Status					
		Transit Pass	Licensed Drivers	Student	Full time	Part time	Work at Home P/T
Male	Population 2,637,200	5%	69%	24%	47%	6%	3% 0%
Female	2,748,900	6%	59%	23%	34%	11%	1% 1%
On survey day:		Made work trip		87%	53%	39%	20%
Occupation Type		Clerical	Manufacturing	Professional	Sales & Service		
		12%	22%	45%	20%		
Age	Median	0-10 35.6	11-15 14%	16-25 7%	26-45 12%	46-64 34%	65+ 21% 12%
Daily trips/Person (age 11+):		2.5					

TOTAL POPULATION: 5,386,100

TOTAL POPULATION:		Employment Status					
		Transit Pass	Licensed Drivers	Student	Full time	Part time	Work at Home P/T
Male	Population 2,637,200	5%	69%	24%	47%	6%	3% 0%
Female	2,748,900	6%	59%	23%	34%	11%	1% 1%
		On survey day:	Made work trip		87%	53%	39% 20%
Occupation Type		Clerical	Manufacturing	Professional	Sales & Service		
		12%	22%	45%	20%		
Age	Median 35.6	0-10 14%	11-15 7%	16-25 12%	26-45 34%	46-64 21%	65+ 12%
Daily trips/Person (age 11+):	2.5						

TRAVEL PATTERNS

TRIP PURPOSE

Time Period	Trips	Trip Purpose Category			N-HB
		HB-W	HB-S	HB-D	
6 - 9 a.m.	2,684,700	52%	22%	17%	9%

Percentage of trips made within district: 6-9 a.m. = 99% 24 hours = 98%

MODE OF TRAVEL

Trips Made by Residents of the GTA

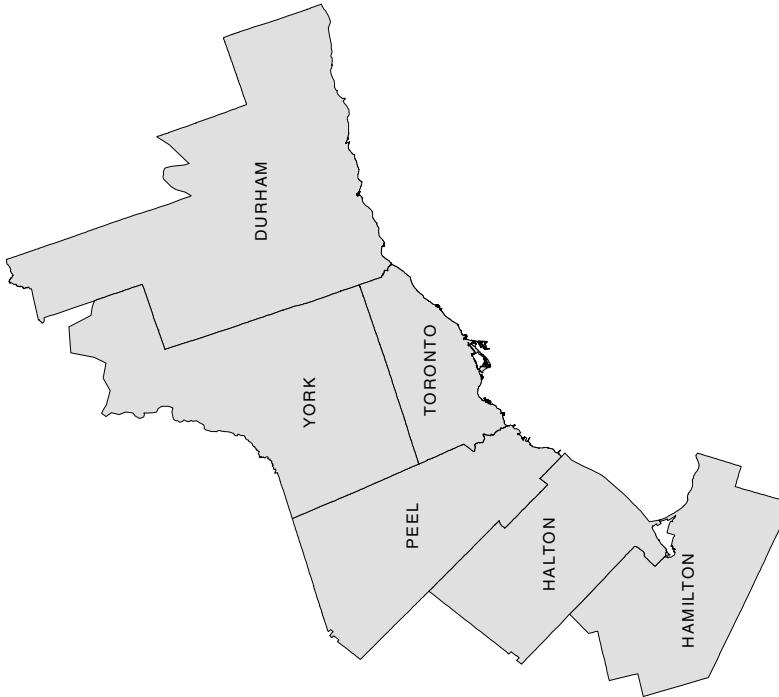
Time Period	Trips	Driver	Passng.	Total	CC	Train	& Cycle	Other
6 - 9 a.m.	2,684,700	59%	12%	14%	2%	9%		4%
24 hours	11,515,300	64%	16%	11%	1%	6%		2%
Median Trip Length: (kilometres)	5.5	3.8	5.6	29.9				

1

Daily trips/Person (age 11+): 2.5



* is used to denote categories that have less than four observations or survey records

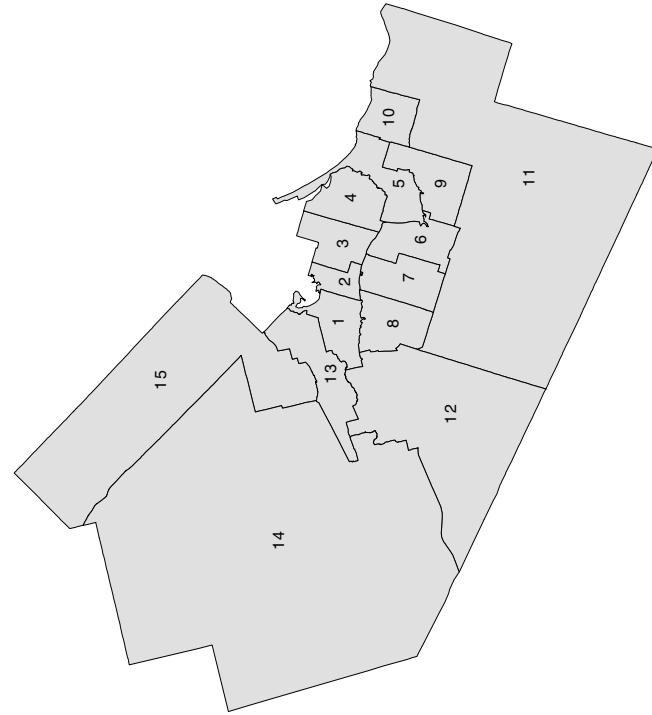


CITY OF HAMILTON

9

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				188,900	TOTAL POPULATION:				485,900				
Dwelling Type	House	Townhouse	Apartment	Male	Population 237,400	Transit Pass 4%	Licenced Drivers 70%	Student 24%	Full time 44%	Part time 6%	Work at Home F/T 2%	Work at Home P/T 0%	
Household Size (persons)	1 24%	2 33%	3 16%	4 16%	5+ 10%	Female 248,600	6%	61%	22%	28%	12%	1%	
No of Available Vehicles	0 15%	1 41%	2 35%	3 7%	4+ 2%	On survey day: Occupation Type	On survey day: Clerical 11%	On survey day: Manufacturing 28%	On survey day: Professional 40%	On survey day: Sales & Service 21%			
Household Averages	Persons 2.6	Workers 1.2	Drivers 1.7	Vehicles 1.4	Trips/Day 5.7	Age	Median 37.8	0-10 13%	11-15 7%	16-25 13%	26-45 29%	46-64 22%	65+ 16%
						Daily trips/Person (age 11+):		2.5					



TRIP PURPOSE				MODE OF TRAVEL							
Trips Made by Residents of City of Hamilton				Trips Made by Residents of City of Hamilton							
Time Period	Trips	% of 24 hr.	Trip Purpose Category	Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	222,200	20.8%	HB-W 50%	HB-S 24%	HB-D 18%	N-HB 9%	6 - 9 a.m.	222,200	64%	12%	6%
24 hours	1,070,100	29%	12%	43%	16%		24 hours	1,070,000	68%	17%	5%
						Median Trip Length: (kilometres)		4.7	3.5	3.1	59.3
Trips Made to the City of Hamilton				Trips Made to the City of Hamilton							
Time Period	Trips	% of 24 hr.	Destination Purpose	Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	191,200	19.3%	Work 46%	School 28%	Home 6%	Other 19%	6 - 9 a.m.	191,200	61%	13%	7%
24 hours	992,300	13%	7%	45%	35%		24 hours	992,300	67%	17%	6%
						Median Trip Length: (kilometres)		0%	0%	13%	7%

* is used to denote categories that have less than four observations or survey records

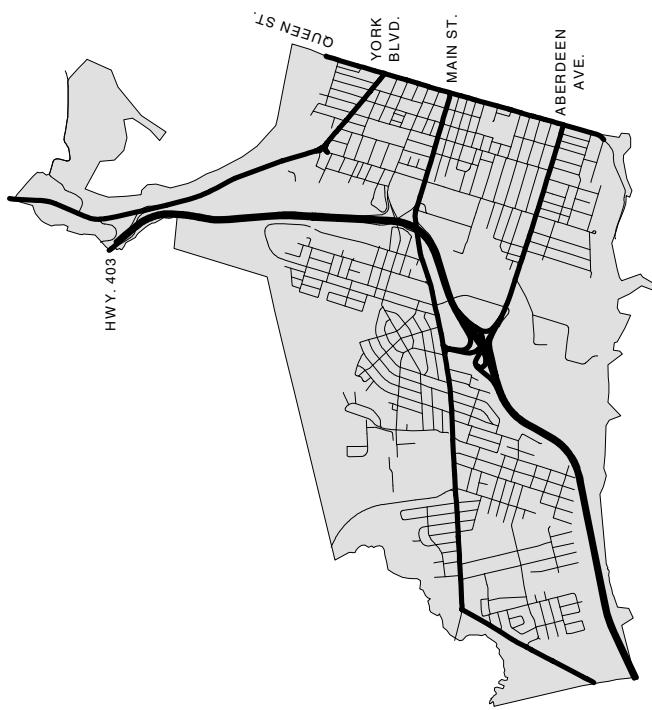


CITY OF HAMILTON - WARD 1

10

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				TOTAL POPULATION:			
Dwelling Type	House	Townhouse	Apartment	Male	Population	Transit Pass	Licenced Drivers
Household Size (persons)	1 36%	2 34%	3 13%	4 10%	5+ 7%	Female 17,700	14% 64%
No. of Available Vehicles	0 21%	1 53%	2 22%	3 3%	4+ 1%	On survey day: Made work trip	Full time 38% 28% 28%
Household Averages	Persons 2.2	Workers 1.0	Drivers 1.5	Vehicles 1.1	Trips/Day 5.0	Occupation Type Clerical 10% Median 35.8	Part time 8% 13% 41% 30% * 20%
						Age 0-10 9% 11-15 4% 16-25 20% 29% 21% 26-45 50% 46-64 20% 65+ 17%	Employment Status Full time 38% 2% Part time 8% 13% 2% Work at Home P/T 2% * 20%
						Daily trips/Person (age 11+): 2.5	



TRAVEL PATTERNS

TRIP PURPOSE Trips Made by Residents of Ward 1

Time Period	Trips	% of 24 hr.	Trip Purpose Category			Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	15,200	20.3%	HB-W 46%	HB-S 24%	HB-D 19%	N-HB 11%	6 - 9 a.m.	15,200	57%	11%	10%	1%	19%
24 hours	74,700	26%	17%	41%	16%		24 hours	74,700	59%	15%	10%	1%	14%

Percentage of trips made within district: 6-9 a.m. = 36% 24 hours = 35%

MODE OF TRAVEL Trips Made by Residents of Ward 1

Time Period	Trips	Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	21,100	6 - 9 a.m.	21,100	56%	12%	11%	0%	13%	7%
24 hours	83,700	24 hours	83,700	60%	14%	10%	0%	13%	3%

Trips Made to Ward 1

Time Period	Trips	Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	21,100	6 - 9 a.m.	21,100	56%	12%	11%	0%	13%	7%
24 hours	83,700	24 hours	83,700	60%	14%	10%	0%	13%	3%

* is used to denote categories that have less than four observations or survey records



CITY OF HAMILTON - WARD 2

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:		19,500		
Dwelling Type		House 27%	Townhouse 2%	Apartment 70%
Household Size (persons)		1 48%	2 30%	3 11% 4 7% 5+ 4%
No. of Available Vehicles		0 37%	1 48%	2 13% 3 2% 4+ *
Household Averages		Persons 1.9	Workers 0.8	Drivers 1.1 Vehicles 0.8 Trips/Day 3.6

TRAVEL PATTERNS

TRIP PURPOSE

Time Period	Trips	Trip Purpose Category				Other
		HB-W	HB-S	HB-D	N-HB	
6 - 9 a.m.	14,800	20.9%	55%	24%	15%	5%
24 hours	70,800	33%	14%	40%	14%	

Percentage of trips made within district: 6-9 a.m. = 27% 24 hours = 25%

Trips Made to Ward 2

Time Period	Trips	Destination Purpose				Other
		Work	School	Home	Other	
6 - 9 a.m.	24,900	26.9%	67%	13%	3%	16%
24 hours	92,600	24%	4%	33%	39%	

Percentage of trips made within district: 6-9 a.m. = 27% 24 hours = 25%

Trips Made to Ward 2

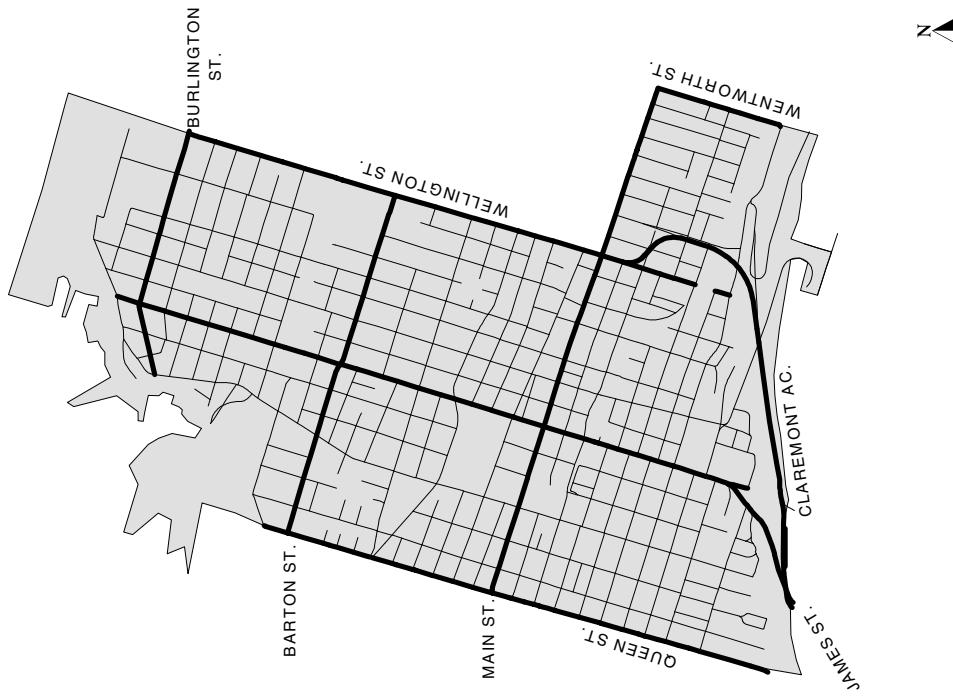
Time Period	Trips	Auto Driver	Auto Passng.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	24,900	63%	10%	12%	*	14%	1%
24 hours	92,600	60%	15%	13%	0%	10%	1%

Time Period	Trips	Driver	Auto	Passng.	Local	Transit	Train	GO	Walk	& Cycle	Other
6 - 9 a.m.	24,900	63%	10%	12%	*	*	14%			1%	

MODE OF TRAVEL

		Auto Driver		Auto Passng.		Local Transit		GO Train		Walk & Cycle		Other	
49%		11%		15%		2%		21%		2%		2%	
55%		15%		14%		1%		13%		2%		2%	
3.6		3.4		2.6		58.7							
		Auto Driver		Auto Passng.		Local Transit		GO Train		Walk & Cycle		Other	
63%		10%		12%		*		14%		1%		1%	
60%		15%		13%		0%		10%		1%		1%	

* is used to denote categories
observations or survey records

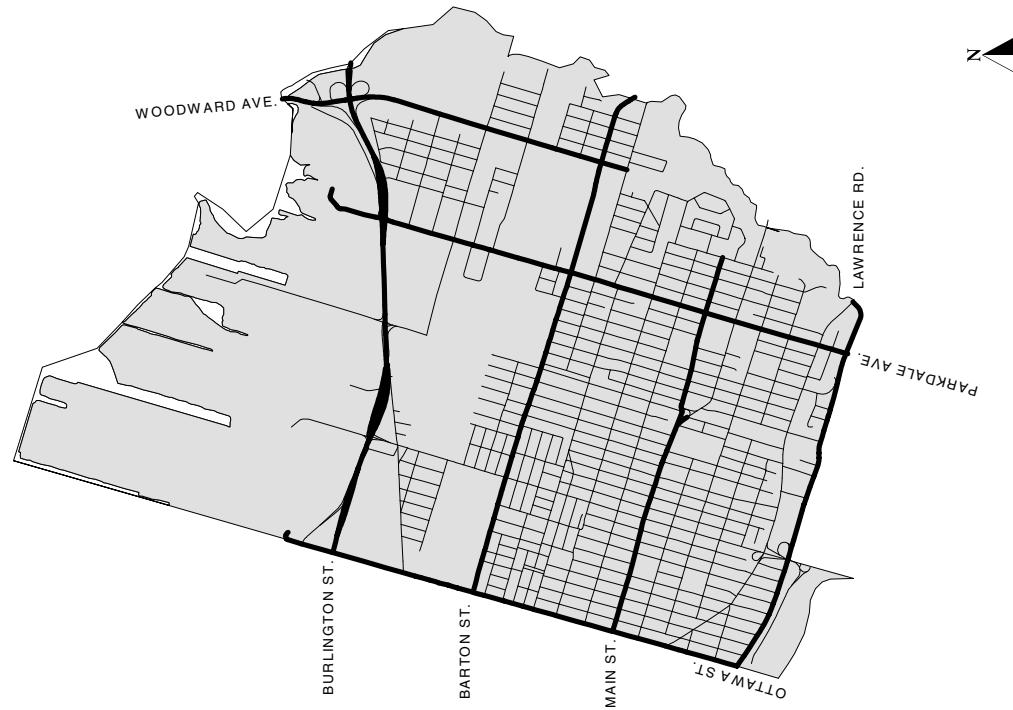


CITY OF HAMILTON - WARD 4

13

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				15,000	TOTAL POPULATION:	36,800	
Dwelling Type	House	Townhouse	Apartment	84% 3% 13%	Male	Population	Transit Pass
Household Size (persons)	1	2	3	4	Female	18,500	Licenced Drivers
	26%	36%	16%	15%		6%	57%
				5+		5%	22%
No. of Available Vehicles	0	1	2	3	Occupation Type	Student	Full time
	16%	45%	32%	5%		69%	46%
				4+	On survey day:	28%	5%
Household Averages	Persons	Workers	Drivers	Vehicles	Made work trip	28%	1%
	2.5	1.1	1.5	1.3		11%	*
					Clerical	40%	*
					Manufacturing	27%	*
					Professional	21%	*
					Sales & Service		*
					Age	Median	Full time
						39.2	Part time
						12%	Work at Home P/T
						6%	5%
						12%	1%
						30%	*
						23%	*
						26-45	*
						46-64	*
						65+	*
							*
					Daily trips/Person (age 11+):		
						2.4	



* is used to denote categories that have less than four observations or survey records



CITY OF HAMILTON - WARD 5

14

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				15,300	TOTAL POPULATION:				39,500
Dwelling Type	House	Townhouse	Apartment		Male	Population	Transit Pass	Licenced Drivers	Employment Status
	49%	10%	40%				3%	71%	Full time Part time Work at Home P/T
Household Size (persons)	1 22%	2 35%	3 16%	4 17%	5+ 9%			19%	44% 5% 1% *
No. of Available Vehicles	0 15%	1 46%	2 31%	3 7%	4+ 2%				
Household Averages	Persons 2.6	Workers 1.1	Drivers 1.6	Vehicles 1.4	Trips/Day 5.1				

TRAVEL PATTERNS

TRIP PURPOSE Trips Made by Residents of Ward 5

Time Period	Trips	% of 24 hr.	Trip Purpose Category	HB-W	HB-S	HB-D	N-HB
6 - 9 a.m.	15,200	19.4%		55%	23%	15%	7%
24 hours	78,300	32%		30%	10%	44%	14%

Percentage of trips made within district: 6-9 a.m. = 31% 24 hours = 29%

MODE OF TRAVEL Trips Made by Residents of Ward 5

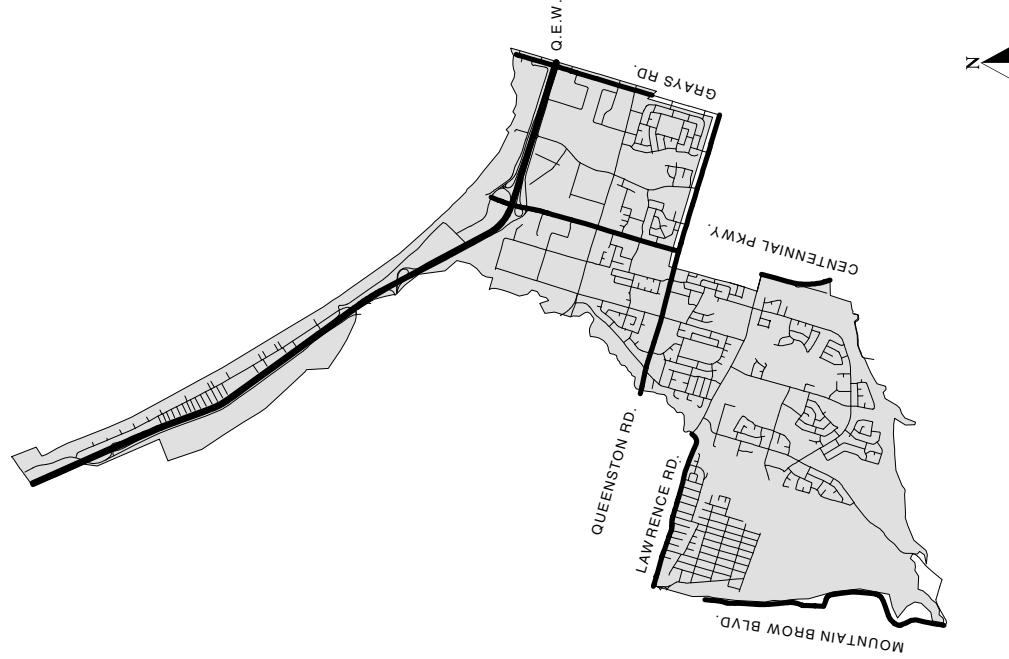
Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	15,200	65%	13%	5%	1%	13%	3%
24 hours	78,300	67%	18%	5%	0%	7%	2%

Median Trip Length:
(kilometres)

Trips Made to Ward 5

Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	15,300	60%	15%	5%	*	13%	7%
24 hours	81,600	67%	19%	5%	0%	7%	2%

* is used to denote categories that have less than four observations or survey records



CITY OF HAMILTON - WARD 6

15

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				15,400	TOTAL POPULATION:				39,700
Dwelling Type	House	Townhouse	Apartment		Male	Population	Transit Pass	Licenced Drivers	Employment Status
	70%	8%	22%				3%	68%	Full time 42% Part time 5% Work at Home P/T 2%
Household Size (persons)	1	2	3	4	5+				*
No. of Available Vehicles	0	1	2	3	4+				
	12%	49%	31%	6%	1%				
Household Averages	Persons	Workers	Drivers	Vehicles	Trips/Day				
	2.6	1.2	1.7	1.4	5.9				

TRIP PURPOSE									
Trips Made by Residents of Ward 6									
Time Period		Trips		Trip Purpose Category		Trips Made by Residents of Ward 6			
Time Period	6 - 9 a.m.	Trips	% of 24 hr.	HB-W	HB-S	HB-D	N-HB	Time Period	Trips
	6 - 9 a.m.	18,200	19.9%	44%	26%	20%	9%	6 - 9 a.m.	18,200
	24 hours	91,600	27%	12%	45%	16%		24 hours	91,600

Percentage of trips made within district: 6-9 a.m. = 26% 24 hours = 26%

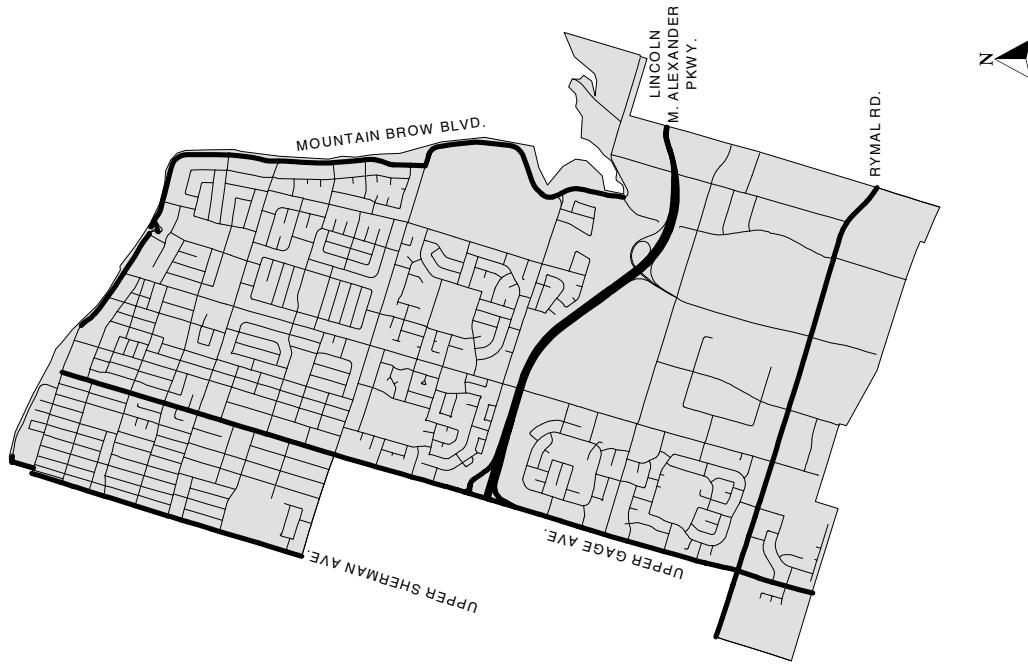
TRAVEL PATTERNS

MODE OF TRAVEL									
Trips Made by Residents of Ward 6									
Time Period		Trips		Mode of Travel				Other	
Time Period	6 - 9 a.m.	Trips		Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
	6 - 9 a.m.	11,200		63%	15%	7%	1%	12%	3%
	24 hours	74,700							

Median Trip Length: (kilometres)

TRIPS MADE TO WARD 6									
Time Period		Trips		Destination Purpose				Other	
Time Period	6 - 9 a.m.	Trips		Work	School	Home	Other	Time Period	Trips
	6 - 9 a.m.	11,200		40%	27%	10%	23%	6 - 9 a.m.	11,200
	24 hours	74,700		9%	4%	51%	36%	24 hours	74,700

* is used to denote categories that have less than four observations or survey records



CITY OF HAMILTON - WARD 7

16

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				21,000
Dwelling Type	House	Townhouse	Apartment	
	76%	6%	18%	
Household Size (persons)	1 22%	2 32%	3 17%	4 19%
No. of Available Vehicles	0 12%	1 43%	2 36%	3 7%
Household Averages	Persons 2.7	Workers 1.3	Drivers 1.7	Vehicles 1.4
				Trips/Day 6.1

TOTAL POPULATION:				56,500
Employment Status				
Male	Population 27,000	Transit Pass 3%	Licenced Drivers 70%	Student 24%
Female	29,500	5%	59%	23%
On survey day:	Made work trip			
Occupation Type	Clerical 12%	Manufacturing 27%	Professional 37%	Sales & Service 23%
Age	Median 37.5	0-10 14%	11-15 7%	16-25 12%
				29% 21% 26-64 16%
Daily trips/Person (age 11+):	2.6			

TRAVEL PATTERNS

TRIP PURPOSE Trips Made by Residents of Ward 7

Time Period	Trips	% of 24 hr.	Trip Purpose Category	HB-W	HB-S	HB-D	N-HB
6 - 9 a.m.	26,700	20.8%		46%	24%	21%	9%
24 hours	128,200	28%	11%	45%	16%	24 hours	24 hours = 32%

Percentage of trips made within district: 6-9 a.m. = 30% 24 hours = 32%

MODE OF TRAVEL Trips Made by Residents of Ward 7

Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	26,700	65%	14%	7%	1%	9%	5%
24 hours	128,200	68%	18%	6%	0%	5%	3%

Trips Made to Ward 7

Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	19,600	55%	16%	7%	*	15%	8%
24 hours	125,700	66%	20%	6%	0%	5%	3%

* is used to denote categories that have less than four observations or survey records



CITY OF HAMILTON - WARD 8

17

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				16,100
Dwelling Type	House	Townhouse	Apartment	
	77%	12%	11%	
Household Size (persons)	1 17%	2 33%	3 19%	4 18%
No. of Available Vehicles	0 8%	1 39%	2 41%	3 10%
Household Averages	Persons 2.8	Workers 1.3	Drivers 1.9	Vehicles 1.6
				Trips/Day 6.3



* is used to denote categories that have less than four observations or survey records

TOTAL POPULATION:				44,800
Employment Status				
Male	Population 22,100	Transit Pass 4%	Licenced Drivers 70%	Student 24%
Female	22,600	6%	64%	23%
On survey day:	Made work trip			
Occupation Type	Clerical 12%	Manufacturing 23%	Professional 46%	Sales & Service 20%
Age	Median 38.4	0-10 14%	11-15 7%	16-25 12%
				26-45 28%
				46-64 22%
				65+ 16%
Daily trips/Person (age 11+):	2.6			

TRAVEL PATTERNS

TRIP PURPOSE

Trips Made by Residents of Ward 8

Time Period	Trips	% of 24 hr.	Trip Purpose Category			Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	21,800	21.5%	HB-W 49%	HB-S 24%	N-HB 18%	6 - 9 a.m.	21,800	66%	13%	6%	1%	11%	3%
24 hours	101,500	29%	12%	44%	15%	24 hours	101,500	70%	17%	5%	1%	6%	2%
								Median Trip Length: (kilometres)	3.9	3.1	3.3	62.7	

Percentage of trips made within district: 6-9 a.m. = 34% 24 hours = 27%

Trips Made to Ward 8

Time Period	Trips	% of 24 hr.	Destination Purpose			Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	18,400	20.6%	Work 25%	School 48%	Home 6%	6 - 9 a.m.	18,400	52%	18%	10%	*	13%	6%
24 hours	89,200	7%	14%	48%	31%	24 hours	89,200	66%	18%	6%	0%	7%	2%

CITY OF HAMILTON - WARD 9

18

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				8,700	TOTAL POPULATION:				25,100	Employment Status					
Dwelling Type	House	Townhouse	Apartment	Male	Population	Transit Pass	Licenced Drivers	Student	Full time	Part time	Work at Home P/T	Full time	Part time	Work at Home P/T	
Household Size (persons)	1 18%	2 27%	3 18%	4 24%	5+ 12%	Female 12,800	4% 65%	27% 31%	31% 13%	1% 1%	1% 1%	Male 12,300	2% 70%	27% 45%	6% 2%
No. of Available Vehicles	0 7%	1 34%	2 44%	3 11%	4+ 4%	Occupation Type Age	On survey day: Clerical Median 36.2	Made work trip Manufacturing 25%	Professional 39%	Sales & Service 26%	*				
Household Averages	Persons 2.9	Workers 1.5	Drivers 2.0	Vehicles 1.7	Trips/Day 6.7										



* is used to denote categories that have less than four observations or survey records

TRAVEL PATTERNS

TRIP PURPOSE				MODE OF TRAVEL			
Trips Made by Residents of Ward 9				Trips Made by Residents of Ward 9			
Time Period	Trips	% of 24 hr.	Trip Purpose Category	Time Period	Trips	Auto Driver	Auto Passing.
6 - 9 a.m.	13,000	22.4%	HB-W 48%	6 - 9 a.m.	13,000	68%	11%
24 hours	58,000	29%	HB-S 27%	24 hours	58,000	72%	1% 16% 2% 0% 5% 5%
Percentage of trips made within district: 6-9 a.m. = 25% 24 hours = 20%				Median Trip Length: (kilometres)			
Trips Made to Ward 9				Trips Made to Ward 9			
Time Period	Trips	% of 24 hr.	Destination Purpose	Time Period	Trips	Auto Driver	Auto Passing.
6 - 9 a.m.	6,900	14.9%	Work 27%	6 - 9 a.m.	6,900	55%	12%
24 hours	46,200	7%	School 38%	24 hours	46,200	70%	1% 17% 2% * 7% 5%

CITY OF HAMILTON - WARD 10

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:						8,300
Dwelling Type	House 80%	Townhouse 8%	Apartment 12%			
Household Size (persons)	1 13%	2 34%	3 20%	4 23%	5+ 11%	
No. of Available Vehicles	0 4%	1 31%	2 46%	3 14%	4+ 5%	
Household Averages	Persons 2.9	Workers 1.5	Drivers 2.1	Vehicles 1.9	Trips/Day 6.7	

TOTAL POPULATION: 24,200

TRAVEL PATTERNS

TRIP PURPOSE

Time Period	Trips	% of 24 hr.	Trip Purpose Category			
			HB-W	HB-S	HB-D	N-HB
6 - 9 a.m.	11,800	21.0%	49%	25%	18%	9%
24 hours	56,200		29%	12%	43%	15%

Percentage of trips made within district: 6-9 a.m. = 24% 24 hours = 19%

Trips Made to Ward 10						
Time Period	Trips	% of 24 hr.	Destination Purpose			
			Work	School	Home	Other
6 - 9 a.m.	8,400	20.4%	54%	25%	7%	13%
24 hours	41,100		16%	6%	58%	21%

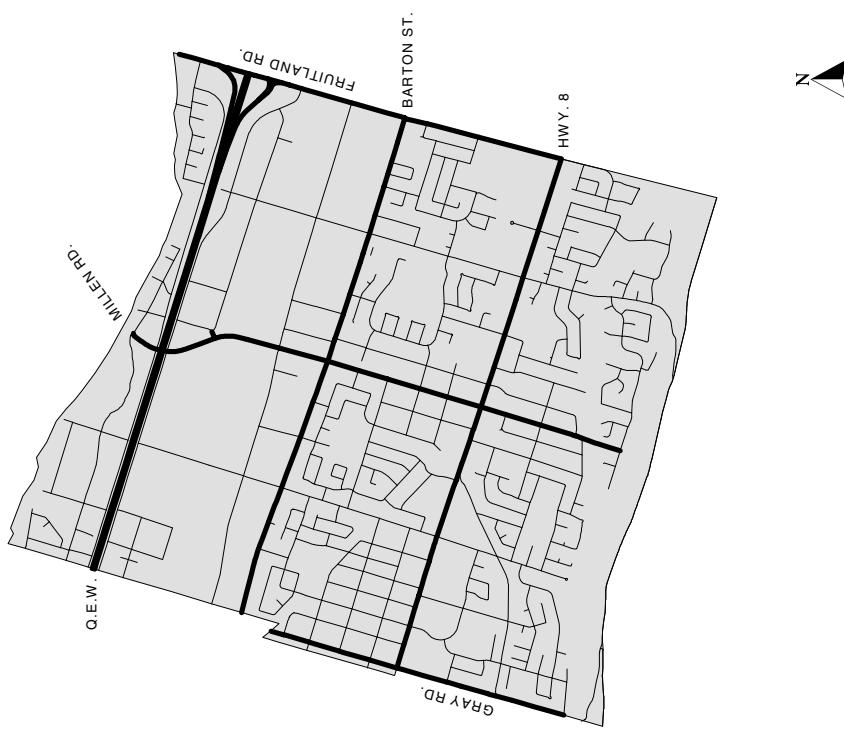
Percentage of trips made within district: 6-9 a.m. = 24% 24 hours = 19%

MODE OF TRAVEL

MODE OF TRAVEL						
Trips Made by Residents of Ward 10						
Time Period	Trips	Auto Driver	Auto Passng.	Local Transit	GO Train	Walk & Cycle
6 - 9 a.m.	11,800	70%	12%	3%	1%	5%
24 hours	56,200	72%	19%	2%	1%	4%
Median Trip Length: (kilometres)		5	3.8	8.4	54.6	

Trips Made to Ward 10						
Time Period	Trips	Auto Driver	Auto Passng.	Local Transit	GO Train	Walk & Cycle
6 - 9 a.m.	8,400	65%	14%	2%	*	12%
24 hours	41,100	72%	17%	2%	0%	6%

Daily trips/Person (age 11+): 2.6



* is used to denote categories that have less than four observations or survey records

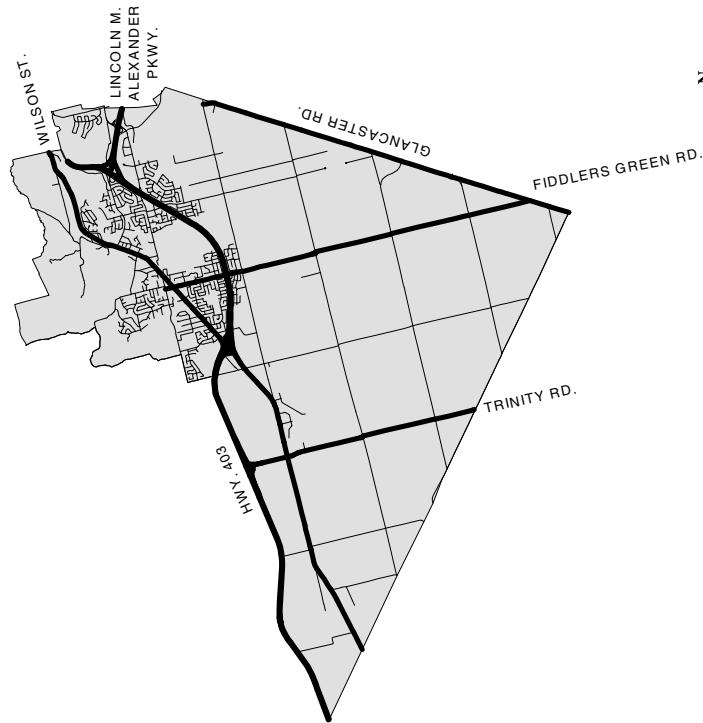


CITY OF HAMILTON - WARD 12

21

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				8,500	TOTAL POPULATION:				24,400	Employment Status						
Dwelling Type	House	Townhouse	Apartment	Male	Population	Transit Pass	Licenced Drivers	Student	Full time	Part time	Work at Home P/T	Full time	Part time	Work at Home P/T		
Household Size (persons)	1 13%	2 38%	3 14%	4 22%	5+ 13%	Female 12,300	1% 71%	25%	27%	15%	3%	Male 12,100	2% 75%	46% 27%	4% * * *	
No. of Available Vehicles	0 2%	1 24%	2 57%	3 12%	4+ 5%	Occupation Type On survey day: Made work trip	10% 15%	Manufacturing Professional	80%	56%	51%	Age Median 40.0	12% 0-10	10% 11-15	26-45 16-25 28% 28%	17% 15% 65+
Household Averages	Persons 2.9	Workers 1.5	Drivers 2.1	Vehicles 2.0	Trips/Day 7.3	Daily trips/Person (age 11+): 2.9										



TRAVEL PATTERNS

TRIP PURPOSE				MODE OF TRAVEL							
Trips Made by Residents of Ward 12				Trips Made by Residents of Ward 12							
Time Period	Trips	% of 24 hr.	Trip Purpose Category	Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	12,900	21.0%	HB-W 47%	HB-S 28%	HB-D 17%	N-HB 8%	6 - 9 a.m.	12,900	12%	1%	3%
24 hours	61,400	27%	13%	44%	17%	24 hours	61,400	75%	16%	0%	2%
Percentage of trips made within district: 6-9 a.m. = 33% 24 hours = 37%				Median Trip Length: (kilometres)							
Trips Made to Ward 12				Trips Made to Ward 12							
Time Period	Trips	% of 24 hr.	Destination Purpose	Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	8,500	14.5%	Work 36%	6 - 9 a.m.	8,500	62%	17%	*	*	4%	17%
24 hours	58,500	9%	School 33%	24 hours	58,500	73%	18%	1%	*	2%	6%

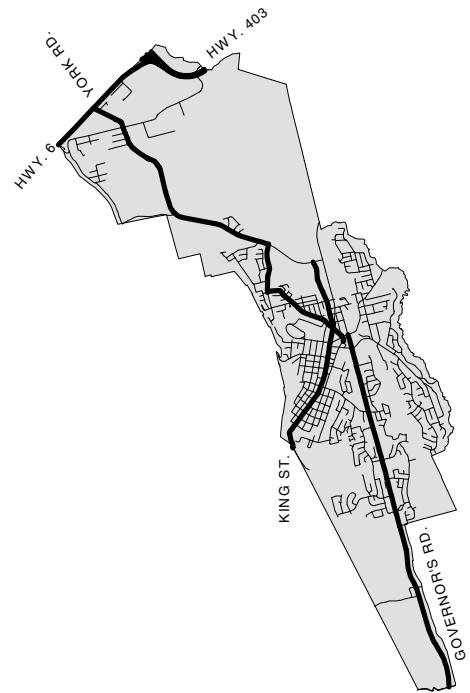
* is used to denote categories that have less than four observations or survey records

CITY OF HAMILTON - WARD 13

22

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:				TOTAL POPULATION:			
Dwelling Type	House	Townhouse	Apartment	Male	Population	Transit Pass	Licenced Drivers
	72%	7%	21%			2%	73%
Household Size (persons)	1 23%	2 35%	3 16%	4 17%	5+ 9%		
No. of Available Vehicles	0 7%	1 39%	2 43%	3 9%	4+ 3%		
Household Averages	Persons 2.6	Workers 1.3	Drivers 1.9	Vehicles 1.6	Trips/Day 6.0		



* is used to denote categories that have less than four observations or survey records



University of Toronto
Joint Program in Transportation
Data Management Group

TRAVEL PATTERNS

TRIP PURPOSE				MODE OF TRAVEL							
Trips Made by Residents of Ward 13				Trips Made by Residents of Ward 13							
Time Period	Trips	% of 24 hr.	Trip Purpose Category	Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	12,300	20.8%	HB-W 50%	HB-S 22%	HB-D 19%	N-HB 9%	6 - 9 a.m.	12,300	71%	10%	2%
24 hours	59,100	28%	11%	44%	17%						
Percentage of trips made within district: 6-9 a.m. = 35% 24 hours = 34%				Median Trip Length: (kilometres)						63.2	
Trips Made to Ward 13				Trips Made to Ward 13							
Time Period	Trips	% of 24 hr.	Destination Purpose	Time Period	Trips	Auto Driver	Auto Passing.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	7,400	15.3%	Work 32%	School 34%	Home 8%	Other 26%	6 - 9 a.m.	7,400	57%	15%	2%
24 hours	48,500	9%	6%	51%	35%						

CITY OF HAMILTON - WARD 14

DEMOGRAPHIC CHARACTERISTICS

TOTAL NUMBER OF HOUSEHOLDS:		4,600			
Dwelling Type	House 95%	Townhouse 2%	Apartment 3%		
Household Size (persons)	1 11%	2 37%	3 19%	4 16%	5+ 17%
No. of Available Vehicles	0 *	1 23%	2 51%	3 19%	4+ 7%
Household Averages	Persons 3.0	Workers 1.7	Drivers 2.2	Vehicles 2.1	Trips/Day 6.9

TRAVEL PATTERNS

TRIP PURPOSE

Time Period	Trips	% of 24 hr.	Trip Purpose Category			
			HB-W	HB-S	HB-D	N-HB
6 - 9 a.m.	7,500	23.4%	50%	26%	14%	10%
24 hours	32,100	30%	12%	40%	40%	17%

Percentage of trips made within district: 6-9 a.m. = 14% 24 hours = 11%

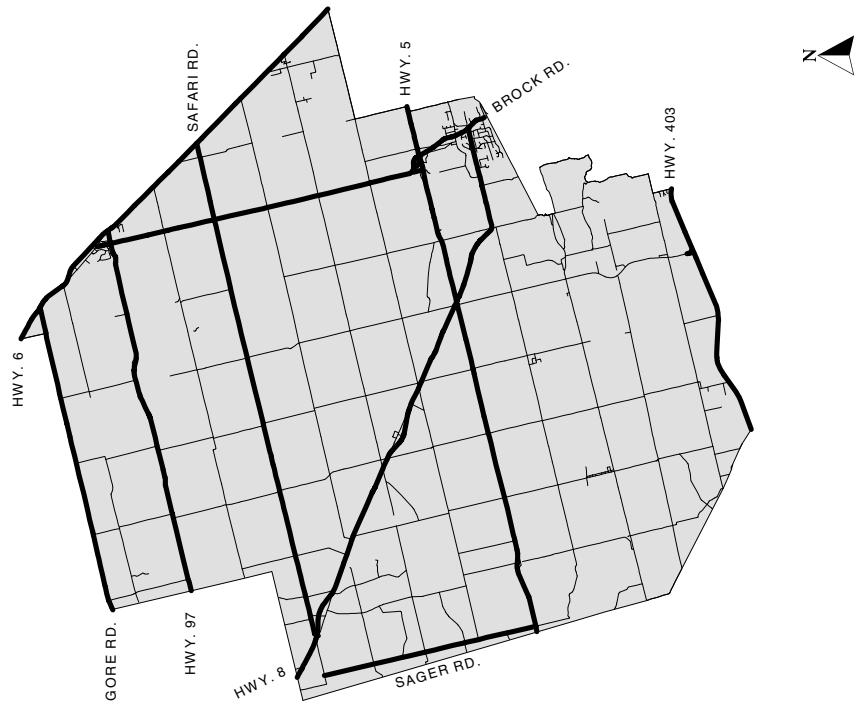
Trips Made to Ward 14						
Time Period	Trips	% of 24 hr.	Destination Purpose			
			Work	School	Home	Other
6 - 9 a.m.	2,600	12.9%	53%	22%	9%	16%
24 hours	20,200	9%	3%	65%	22%	22%

卷之三

TOTAL POPULATION:		14,000				Employment Status			
	Population	Transit Pass	Licenced Drivers	Student	Full time	Part time	Work at Home F/T	P/T	
Male	7,000	1%	77%	22%	47%	7%	8%	*	
Female	7,000	*	70%	24%	27%	15%	3%	2%	
		On survey day:	Made work trip		86%	48%	18%	*	
Occupation Type	Clerical	Manufacturing	Professional		Sales & Service		17%		
	8%	32%	42%						
Age	Median	0-10	11-15	16-25	26-45	46-64	65+		
	39.0	13%	9%	13%	25%	29%	11%		
Daily trips/Person (age 11+):	2.6								

MODE OF TRAVEL

<u>Time Period</u>	<u>Trips</u>	Auto Driver	Auto Passng.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	7,500	69%	11%	*	*	1%	19%
24 hours	32,100	74%	16%	0%	0%	0%	9%
Median Trip Length: (kilometres)		12.5	11.5	6	63.5		
Trips Made to Ward 14							
<u>Time Period</u>	<u>Trips</u>	Auto Driver	Auto Passng.	Local Transit	GO Train	Walk & Cycle	Other
6 - 9 a.m.	2,600	69%	7%	*	*	*	21%
24 hours	20,200	73%	16%	0%	*	1%	10%



* is used to denote categories that have less than four observations or survey records



