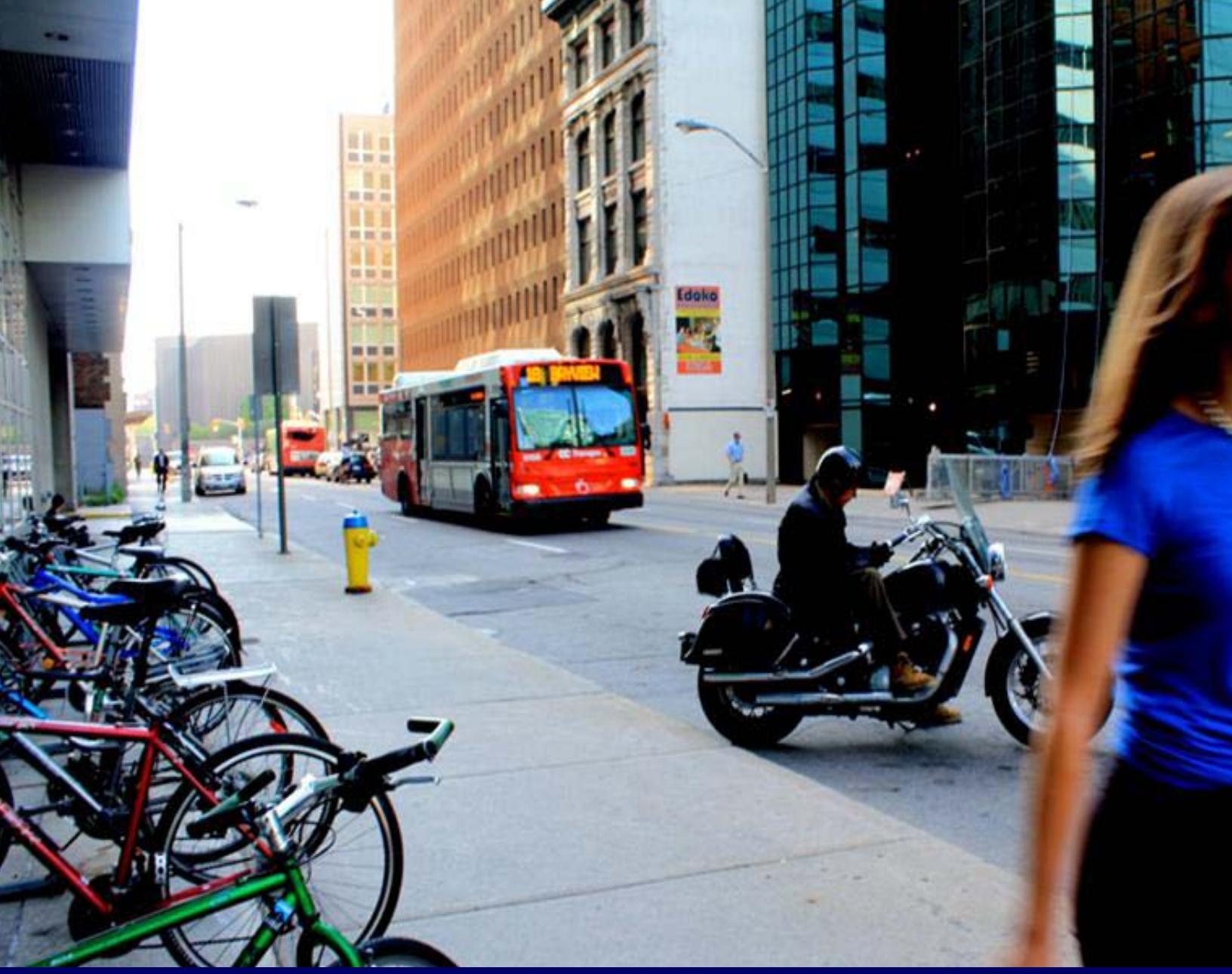

City of Ottawa
Transportation System Management Strategy

Public Focus Groups and Expert Consultation Report

Submitted September 2010

OTTAWA | TORONTO | VANCOUVER | MONTREAL | HALIFAX | CALGARY | BUFFALO WWW.NANOSRESEARCH.COM

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Background

Like many things in life, the journey is as important as the destination.

Our transportation system is a central part of the day-to-day journey of Ottawa residents and plays a critical role in our quality of life, personal productivity and economic prosperity.

Although the City of Ottawa is already considered a leading North American jurisdiction in terms of transportation system management, it is preparing to plan for an even stronger future. In order to best plan and anticipate future long-term needs, two broad information perspectives were identified as positive contributors to the strategic planning process. The first perspective included placing Ottawa residents at the centre of the transportation experience and understanding their views, concerns and expectations in terms of our transportation system and their personal journey. Second, in order to identify trends, opportunities and expected challenges, the perspectives of key Canadian and International thought-leaders in transportation and technology were sought. Together these two perspectives marry the practical needs special to Ottawa and an understanding of the possible future transportation journey.

As part of a broader planning process for the City's Transportation System Management Strategy, the City of Ottawa retained Nanos Research to collect input from Ottawa residents and key thought-leaders.

The goals of the project were twofold:

- to capture the "Ottawa Transportation Experience"; and,
- to better understand transportation needs in the long term.

Included in this report is a series of stand-alone documents which detail the respective findings of the building blocks of the engagement including: a detailed analysis of the findings of the thought-leader research; an examination of the travel diaries; and, a report on the focus group research.

Project Methodology

A three-phased research methodology was developed. Phase 1 included conducting a series of interviews among transportation and technology experts. The list of experts was created jointly between Nanos and the City of Ottawa. Phase 2 included recruiting residents from a diversity of transportation profiles (drivers, cyclists, public transit users and pedestrians) and having residents complete travel diaries. Phase 3 involved bringing the recruited residents who completed the travel diaries into a focus group setting to further explore their views on transportation system in the City of Ottawa.

Phase 1 – Thought-leader Outreach

Comprised of in-depth interviews (mostly by telephone) from transportation and technology thought leaders a consistent series of prompts were developed for the interviews which took anywhere from between 30 to 60 minutes. The interviews included two Nanos Analysts (one to conduct the interview and the other to take notes) as well as a representative from the City of Ottawa's project team. The Thought-leader Outreach engaged the following individuals:

- Dr. Baher Abdulhai, Canada Research Chair in Information and Technology Services and Director, ITS Centre, University of Toronto (Toronto, Canada);
- Eran Gartner, President of Systems Division, Bombardier Transportation (Berlin, Germany);
- Keenan Kitasaka, Manager, Intelligent Transportation Systems, Translink (Vancouver, Canada);
- David Lively, Chief, Office of System Management Planning, CalTrans (Sacramento, USA);
- Ralph Menzano, Executive Director, Transportation Division, Oracle (Philadelphia, USA);
- Dr. Eric J. Miller, Director, Cities Centre and Professor, University of Toronto (Toronto, Canada);
- Ben Plowden, Director, Better Routes and Places, Transport for London (London, UK); and,
- Nancy Schepers, Deputy City Manager, Infrastructure Services and Community Sustainability, City of Ottawa (Ottawa, Canada).

Phases 2 and 3 – Travel Diaries and Focus Groups

Sixty-four (64) Ottawa residents were randomly recruited to complete travel diaries and to participate in focus group discussions. An additional 18 individuals completed the travel diaries. A total of 744 trips were logged by participants in the study.

The four transportation mode profiles created by Nanos were: drivers, cyclists, pedestrians and public transit users. Two groups were conducted with each profile (eight groups in total) with one group being primarily comprised of Baby Boomers and the other group comprised of Gen X and Gen Y-ers. The purpose of the generational component was to understand possible

generational differences in the views of participants. The groups included a mix of men and women and Anglophones and Francophones. An analysis of the travel diaries and the discussions was completed by Nanos Research.

The diary and focus group responses are reflective of the travel experience of participants during the summer. Readers should note that the volume of traffic associated with this seasonal time period is typically lower than in other seasons and therefore, responses may not represent the difficulties associated with travel in each of the modal choices or reflect the general network and road conditions of other seasons.

Readers should note that the diary and focus group exercise should not be considered projectable to the Ottawa populace because of the size of the samples and the nature of qualitative research. The objective was to understand broad perceptions within transportation profile groups.

Key Findings

The research and outreach conducted by Nanos suggests that the City of Ottawa is in a strong position in terms of preparation for the future transportation needs of the city and that the situation should be considered more one of evolution than revolution. The challenges relate to elevating the traveler experience to an even higher level and encouraging shifts in behavior that are financially and environmentally sustainable in the long run.

Challenges identified by residents were primarily related to construction and detours with congestion being a secondary factor that negatively influenced the travel experience. This suggested that the system in itself was perceived to work well but that it could be stronger in terms of managing information related to construction and detours. This should be considered a top immediate priority in terms of travel information for the City of Ottawa. With a car-centric system, it will be important to ensure that accessible and real-time travel information includes travel mode alternatives such as public transit, cycling and walking.

Transportation system travel information will be a critical element to the future travel experience in the city with very high expectations from residents in terms of the availability of real-time access to travel information for automobiles, public transit, cyclists and pedestrians. Residents used multiple modes to get around the city, and the integration of travel information for wayfinding was seen as key to attaining an even higher level of satisfaction with their travel experience. There will be an expectation that in the longer term, the City's travel information strategy will include a combination of push (applications/email) and pull (website) technology to get timely information in the hands of residents. This could include enhanced trip planning, RSS and SMS feeds, Smartphone applications and an enhanced travel information portal. During the focus groups, it was clear that the current travel information on the City of Ottawa website was seen as a positive step forward but that there was little awareness because of its positioning on the City portal. A key immediate action for consideration by the City should be to better market the current information and to provide it in an easily accessible, higher profile position on the City of Ottawa website. Also of note, information integration should also include the availability of parking as the end point in the travel experience.

The research also suggested that there were expectations that the modal split will evolve over time as a result of the economic pressures (the price of gasoline) and infrastructure pressures (the capacity of the current system to work well). Residents expect that, in the long run, cars will continue to be a major mode but that the dominance will diminish in favour of public transit, cycling and walking.

To follow are the key findings of the travel diaries, the focus groups and the thought-leader outreach. The travel diaries provide a snapshot of the Ottawa traveler today. The focus groups of residents provide an understanding of the needs and expectations of Ottawa travelers into the future as well as opportunities for the City of Ottawa to consider. The thought-leader outreach identifies key forces that will likely shape the future of our transportation system.

The Travel Diaries

An analysis of the travel diaries provides a glimpse into the current journey through Ottawa's transportation system. The travel diary data suggests that residents were generally satisfied with their trips in terms of the experience, and that automobiles yielded a time advantage for the distance travelled. This should not be surprising considering the fact that much of the urban development in Ottawa, like many North American cities, is geared toward the automobile. Automobile travelers cited convenience, time and the ability to transport goods as key advantages, while those who used public transit cited necessity and convenience.

Regardless of the transportation mode, convenience was an important factor that led to the choice of a particular mode. For the minority of trips that did encounter a challenge or travel issue, construction and detours were cited as the most frequent problem among those travelling by automobile, bicycle or walking. For those travelling by public transit, making bus transfers and insufficient travel information were more likely to be cited as problems. Congestion was more likely to be a negative factor for those travelling by automobile (but still noticeably less of a problem than construction/detours).

Overall, the key takeaway from the travel diaries on the current experience is that residents are generally satisfied and that construction/detours, not congestion, is the most common challenge that would have an impact on one's travel experience in Ottawa. This suggests that the transportation system was considered to be working well but that issues related to how it manages construction/detours currently have a negative impact on the travel experience, more so than general congestion. With a utilitarian traveler driven by convenience, any barriers to that convenience will have a significant negative impact on the travel experience. Of note, focus on the travel information management available to the public related to construction and detours will help those that travel by automobile, cyclists and walkers and could help positively drive the travel experience to an even higher level.

In terms of what residents expected from the system, it centres on sharing more travel information to make better informed travel decisions within the City of Ottawa.

Travel Diaries at a Glance

- **Residents Generally Satisfied** – The 82 individuals who completed travel diaries for 744 trips were generally satisfied with the experience of their trip (rating of 4.14 on a 5-point scale where 1 was a very poor experience and 5 was a very good experience). Cyclists were comparatively more satisfied with their trip experiences (4.35 out of 5) while public transit users and those using assistive mobility devices were comparatively less satisfied with their trip experiences (3.85 and 3.57, respectively). Automobile drivers (4.18), pedestrians (4.16) and automobile passengers were generally satisfied (4.08) with their trip experiences.

- **Distance and Time** – Not surprisingly those who walked travelled the shortest distances (2.7 kilometers on average) while those that were automobile passengers travelled the furthest distance (16.0 kilometers on average). Participants who primarily drove travelled 14.2 kilometers on average while those using public transit said they travelled, on average, 11.8 kilometers. Cyclists indicated they travelled 6.2 kilometers on average. Of note, trips as driver of an automobile, although they did not register the shortest distance, registered the shortest travel time (automobile trip 18.8 minutes on average compared to 20.3 for a bicycle trip, 20.8 for a walking trip and 33.4 for a public transit trip).
- **The Utilitarian Traveler** – With convenience as an important determinant in terms of mode choice for automobile drivers (27%), those taking public transit (27%), pedestrians (23%) and cyclists (22%), ensuring that the journey has the fewest unanticipated disruptions will be key to an optimal travel experience. With the exception of convenience, cyclists and pedestrians also cited exercise/health as factors influencing their choice (23% and 14% respectively). Also of note, those individuals in the study who travelled predominantly by public transit were more likely to cite necessity (16%).
- **Current Sources of Traveler Information** – Weather reports were the most frequently consulted sources of information across modes (automobile 31%, bicycle 72%, walking 62%), although public transit users and persons using an assistive mobility device were comparatively more likely to check a public transit schedule (55% and 100%, respectively). Of note, weather reports were more likely to be consulted when a trip was for a work related purpose (55%) or leisure purpose (52%). Other frequently consulted sources of information were maps. Participants were also comparatively more likely to check the internet for information over television, radio, smart phone applications, the newspaper, GPS or other sources.
- **Construction/Detours outpace Congestion as Challenges** - Nineteen percent of the 744 trips logged in the diaries encountered a challenge or a travel issue. The most common travel issue encountered related to construction or detours (automobile 50%, bicycle 53%, pedestrians 39%). However, among public transit users only 3% cited construction or detours as a travel issue. Public transit users were more likely to cite bus transfers (23%) and perceived insufficient travel information (20%) as key challenges encountered during their trip.

For more detailed information on the findings of the travel diaries, please refer to Page 12 which has the full report for this phase of the research.

The Focus Groups

The focus groups provided a setting to discuss future priorities and possible solutions that could improve the travel experience. All participants in the focus groups generally expected that by 2020 a shift to a more environmentally sustainable modal split would occur with a decrease in the proportionate share of driving and an increase in public transit and other alternatives to the car. There was an expectation that in the future the incidence of single traveler vehicles would decline.

Many of the challenges related to the different modes had to do with infrastructure. For cyclists and pedestrians, the infrastructure challenges related to an original urban design geared to automobiles. For automobiles, challenges related to construction events were frequently cited by participants, while transit challenges primarily related to capacity, wayfinding and service. However, a series of solutions were identified by the research participants that could help shape the long-term transportation system management strategy in terms of improving the transportation journey in Ottawa.

Opportunities to Enhance the Travel Journey

- **Overcoming Distance and Enhancing Wayfinding for Pedestrians** – Technology enabled travel information through either a website or through a Smartphone was seen as an expected reality. A number of participants already used Google Maps for walking directions and there was the belief that a travel information technology platform could include not just wayfinding recommendations and distance estimation but also local shopping along planned routes.
- **Better Leveraging Pedestrian Infrastructure** – Participants in the focus groups preferred to see detailed online maps of paths and sidewalks for the City of Ottawa to allow for greater planning in terms of personal pedestrian travel within the City.
- **Ensuring Pedestrian Safety** – This took a number of forms including increasing the number of crossing signals and also improving lighting, along key paths, with 'smart lights' using motion sensors that would turn on when a person was on a pedestrian path.
- **Managing the Risks of Cycling** – To help effectively manage the relationship between cars and cyclists sharing the road, a number of solutions were proposed by participants, including having advanced lights for cyclists at target intersections to avoid being cut off, through to using reflective paint or lane edge reflectors when laying out bike lanes.
- **Preparing for Mobile Technology for Cyclists** – Participants expected mobile technology through Smartphones to be developed which would link to a GPS and help guide cyclists through the cyclist path system using audio prompts.

- **Enabling Perception of Greater Control in Public Transit through Travel Information** – Enabling a greater real-time understanding of the transit system would likely have a major psychological impact on the travel journey for public transit users. Participants expected to be able to get real-time travel information either online, at transit stations or on their mobile devices so as to best plan their travel and to optimize mode selected and route. In terms of intermodal travel using bicycle and public transit, real time information on which buses had bicycle racks would also improve the travel experience.
- **Optimizing the Driving Experience through Real-time Travel Information** – With the proliferation of on-board GPS systems in automobiles, there was an expectation that real-time traffic information should be integrated with route planning in order to overcome traffic congestion and construction. Likewise, the greater use of electronic signage would be another means of managing the travel experience. Also of note, real-time information on parking availability was seen as a very important part of the travel experience for motorists. As a result, there was an expectation that route planning (with information on congestion and construction integrated) would also include the real-time availability of parking at the end of the journey.

For more detailed information the findings of the focus group research, please refer to Page 30 which has the full report for this phase of the research.

Trends and Forces that will Shape our Transportation Future

Many of the views shared by the diversity of thought-leaders as part of the outreach were echoed in the focus group section. There was an expectation that real-time travel information for each mode of transportation would be the norm and that it would likely, in the longer term, help facilitate multimodal trips and also diminish reliance on the automobile, although it would still be a very important mode for urban transportation. The key forces driving change and innovation related to technology (in terms of real-time travel information), economics (in terms of the expected increased cost to operate automobiles and maintain roads), through to the environment (and the desire to have a transportation system as sustainable as possible). The experts consulted identified a series of trends, and possible solutions.

- **Facing the Economic Crunch** – One key thread of input that emerged was the perceived long-term unsustainability of the costs to operate automobiles on the same scale in terms of the cost of fuel and the cost to maintain expensive automobile road infrastructure. Restrictions on single passenger automobile travelers and automobile sharing (either through a co-operative or fractional ownership) were seen as likely trends in the future which would emerge in response to diminished cost advantage of automobiles and diminished advantage

in terms of future road capacity. The cost borne by municipal government to maintain a road system was also identified as a key financial force that would put pressures on future governments and taxpayers.

- **Influencing the Behaviour of Travelers** – In practical terms, urban planning decisions have a significant impact in encouraging modal transportation choices. By building more roads, one encourages transportation by automobile. A number of the experts noted that once modal targets were set, practical public policy choices should be made to encourage priority modes over other modes.
- **Integration of Multiple Travel Systems through Smartcards** – A number of the experts consulted cited "smart" electronic ticketing as a key opportunity to integrate services and improve efficiency. Many of the examples included multi-mode systems (i.e., bus, subway, and rail) where one could easily transfer and minimize transfer time. Smartcards were also expected to eventually include loyalty programs for transit users with customized fares based on usage patterns of the traveler.
- **Real-time Travel Information and Commercialization Opportunities** – Numerous examples emerged, similar to those identified in the focus groups, that related to the use of real-time information and GPS technology on the web, on a Smartphone or transportation hub to help improve control and the travel experience. This also included the possible use of 5-1-1 hotline service that consolidates transportation information, traffic and weather. Of note, there was an expectation of an increasing level of commercialization of the real-time information in terms of integrating shopping, dining and lifestyle opportunities with the travel information.
- **Beware of Long-term Technology Solutions** – Because of the rapidity of change in terms of Internet, Smartphone and application development, opinions were expressed that time horizons for real-time travel technology solutions should be shorter than usual (three to five years) in order to have agile travel information systems. Likewise, the market was seen as a more nimble mechanism to staying on the cutting edge in terms of travel information technology. Controlled partnerships with third party technology solution developers in the private sector were seen as a means to lessen the burden on municipalities to create the perfect application for their data.

For more in-depth information the findings of the thought-leader outreach, please refer to Page 56 which has the full report for this phase of the research.

DETAILED TRAVEL DIARY ANALYSIS

Travel Diary Methodology

Prior to participating in the focus groups, individuals recruited for the groups were asked to complete travel diaries documenting two days of traveling around the City of Ottawa. The goal of these diaries was to capture "a day in the life of one's transportation journey."Participants were mailed a spiral-bound booklet that included several copies of the same travel diary questionnaire, as well as detailed instructions on how to complete the two-day diary as well as examples of properly completed diary entries. Participants were then asked to select two days (preferably one working day and one leisure day) and to fill out a travel diary questionnaire after completing each trip. At the end of their chosen two days, participants were asked to log their trip information online. Booklets were collected by Nanos Research analysts at focus group sessions. The online and paper logs were checked and reconciled by Nanos analysts who followed up with participants to confirm details.

The diary results capture the travel experience of participants during the summer. Readers should note that the volume of traffic associated with this seasonal time period is typically lower than in other seasons and therefore, responses may not represent the difficulties associated with travel in each of the modal choices or reflect the general network and road conditions of other seasons.

Readers should note that the findings of the diaries cannot be projected to the populace or to a group but do provide an understanding of the potential context and nuance of opinion. Ten percent of data collection was validated as part of the firm's quality and data integrity procedures. This research project was completed in accordance with the standards of, and registered with, the Marketing Research and Intelligence Association of which Nanos is a Corporate Gold Seal member.

Summary

An analysis of the travel diaries provides a glimpse into the participants' journeys through Ottawa's transportation system. The travel diary data suggests that residents were generally satisfied but that construction/detours, not congestion, is the most common challenge that impacts the travel experience in Ottawa. This suggested that the transportation system is considered to be working well but that issues related to how it manages construction/detours, currently have a negative impact on the travel experience, more so than general congestion. With a utilitarian traveler driven by convenience, any barriers to that convenience will have a significant negative impact on the travel experience. Of note, focus on the travel information management available to the public related to construction and detours will help those that travel by automobile, cyclists and walkers and could help positively drive the travel experience to an even higher level.

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- **Distance and Time** – Not surprisingly those who walked travelled the shortest distances (2.7 kilometers on average) while those that were automobile passengers travelled the furthest distance (16.0 kilometers on average). Participants who primarily drove travelled 14.2 kilometers on average while those using public transit said they travelled, on average, 11.8 kilometers. Cyclists indicated they travelled 6.2 kilometers on average. Of note, trips as driver of an automobile, although they did not register the shortest distance, registered the shortest travel time (automobile trip 18.8 minutes on average compared to 20.3 for a bicycle trip, 20.8 for a walking trip and 33.4 for a public transit trip).
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For detailed tabulations on the findings of the travel diaries, please refer to Appendix A.

Trip Satisfaction

At the end of each trip, participants were asked to rate their experience out of 5, with 1 being very poor and 5 being very good. Of the 744 trips logged, ratings were consistently positive, for a mean trip rating of 4.14 out of 5. There were no significant variations in mean trip ratings based on purpose of trips, although work and school related trips were rated slightly below the average.

Please rate your overall experience of your trip as 1 – very poor, 2 – poor, 3 – neither good nor poor, 4 – good, 5 – very good:
(Source: Nanos Research, August 2010)

Purpose	Number of Trips	Mean trip rating (Out of 5)
Other (ex. Banking, Exercise, Church, Dog Walking, Errands)	57	4.35
Pickup/Drop off	49	4.35
Leisure	132	4.22
Shopping	157	4.14
Medical	24	4.13
Return home	237	4.11
Work or related	83	3.88
School	5	3.80
Total	744	4.14

Participants aged 45 and over were marginally more likely to have positive trip ratings (4.25 out of 5) than those in the 18 to 44 age group (4 out of 5).

Please rate your overall experience of your trip as 1 – very poor, 2 – poor, 3 – neither good nor poor, 4 – good, 5 – very good:
(Source: Nanos Research, August 2010)

Age	Number of Trips	Mean trip rating (Out of 5)
18 to 44	323	4.00
45+	421	4.25
Total	744	4.14

When viewing the average trip rating by mode, satisfaction was comparatively among cycling trips (4.35 out of 5) and comparatively lower on public transit trips (3.85 out of 5) and on trips requiring an assistive mobility device such as a wheelchair (3.57 out of 5). Automobile trips as a driver and walking trips were also fairly highly rated (average of 4.18 out of 5 and 4.16 out of 5, respectively).

Please rate your overall experience of your trip as 1 – very poor, 2 – poor, 3 – neither good nor poor, 4 – good, 5 – very good:
(Source: Nanos Research, August 2010)

Mode	Number of Trips	Mean trip rating (Out of 5)
Bicycle	75	4.35
Automobile driver	358	4.18
Walking	171	4.16
Automobile passenger	49	4.08
Public transit	99	3.85
Assistive mobility device (ex. wheelchair)	7	3.57

Average Trip Distance

The average distance for all trips taken by participants was 10.3 kilometres, with an average trip length being approximately 21.5 minutes. On average, work-related trips were 10.6 kilometres and 23.2 minutes in length, while trips for returning home were 9.4 kilometres on average and 20.1 minutes in duration. The average distance of a shopping trip was 6.8 kilometres and comparatively shorter in travel duration (15 minutes on average), while trips for leisure purpose were generally longer in distance (15.9 kilometres) and in duration (27.7 minutes).

Purpose of Trip	Average Distance in Kilometres	Average Number of Minutes
Work or related	10.58 km	23.15 minutes
School	10.80 km	15.00 minutes
Shopping	6.79 km	15.03 minutes
Leisure	15.89 km	27.69 minutes
Medical	10.02 km	23.58 minutes
Pickup/Drop off	9.16 km	18.18 minutes
Return home	9.40 km	20.11 minutes
Other (ex. Banking, Exercise, Church, Dog Walking, Errands)	11.41 km	31.18 minutes
Total	10.30 km	21.52 minutes

Unsurprisingly, automobile drivers generally had a longer distance to travel on trips compared to other modes, with an average of 14.2 kilometres, and an average time of 19 minutes per trip. Similarly, trips taken by an automobile passenger were comparatively longer in distance than for other modes, with an average of 16 kilometres and 29 minutes.

Trips taken on public transit averaged a distance of 11.8 kilometres and were comparatively longer than trips taken by others modes, for average trip duration of 33.4 minutes. Walking and bike trips were generally shorter in distance (2.7 kilometres and 6.2 kilometres, respectively) and marginally longer than automobile trips (20.8 minutes and 20.3 minutes, respectively).

Mode	Average Distance in Kilometres	Average Number of Minutes
Automobile driver	14.20 km	18.80 minutes
Automobile passenger	16.04 km	29.14 minutes
Public transit	11.82 km	33.35 minutes
Bicycle	6.23 km	20.32 minutes
Walking	2.68 km	20.84 minutes
Assistive mobility device (ex. wheelchair)	5.20 km	14.86 minutes

Purpose of Trips

Participants were asked to indicate the purpose of each trip they took throughout the course of two days. Of note, one in every five trips was for shopping (21%), while 18% were for leisure and 11% were work related. Readers should note that the diaries were fielded during the end of July which may have correlated with a greater number of leisure activities for some participants. One third of the trips were for returning home (32%).

What was the purpose of your trip today?
*** Age Crosstabulation**

Purpose		18 to 44 years old (n=323)	45+ years old (n=421)	Total (n=744)
Work or related	% within age	15%	8%	11%
School	% within age	2%	0%	1%
Shopping	% within age	17%	24%	21%
Leisure	% within age	23%	14%	18%
Medical	% within age	2%	4%	3%
Pickup/Drop off	% within age	3%	9%	7%
Return home	% within age	31%	32%	32%
Other (ex. Banking, Exercise, Church, Dog Walking, Errands)	% within age	7%	9%	8%

Shopping related trips were comparatively more likely among those in the 45 and over age group (24%) than in the 18 to 44 year old age group (17%). Leisure trips, however, were comparatively more frequently mentioned in the 18 to 44 year old group (23% compared to 14% of trips in the 45 and over age groups). Work related trips were comparatively more frequent among 18 to 44 year olds (15%) than the 45 and over age group (8%). Among both age groups, nearly one in three trips was for returning home.

Factors for Choosing Mode

On each trip, participants were asked, unprompted, to describe the factors that led them to choose their particular mode of transportation. Convenience was frequently mentioned across modes.

Automobile drivers chose to drive based on convenience (27%), being already in their car (15%), because they viewed it as faster (14%), and because they needed the car for transporting goods or groceries (13%). Among automobile passengers, the most common factors for choosing this mode were necessity (18%), being already in the car (14%) and because it was faster (14%).

Public transit users as also frequently cited convenience (27%), necessity (16%) and affordability (14%) as the factors which influenced their mode choice, whereas cyclists were comparatively more likely to view exercise and health (23%) as a factor for mode selection, followed by convenience (22%) and because biking was faster (16%). Among pedestrians, the most common factors for choosing to walk were convenience (23%), proximity to their destination (22%) and exercise and health (14%). For participants who travelled using an assistive mobility device, the top factors for choosing this mode were convenience (18%), proximity (18%) and because it was faster (18%).

The key drivers for mode choice are shaded in grey in the table below.

What are the factors that led you to choose that mode of transportation for your trip?
(Source: Nanos Research, August 2010)

Rank	Factors	Auto driver (n=496)	Auto passenger (n=57)	Public transit (n=147)	Bicycle (n=117)	Walking (n=237)	Assistive mobility device (n=11)	Total trips (n=1065)
1	Convenience (easy, comfort)	27%	4%	27%	22%	23%	18%	257
2	Faster/Time constraints	14%	14%	8%	16%	3%	18%	116
3	Proximity/Distance	7%	5%	12%	3%	22%	18%	115
4	Already in Car/Already on Road/Already had bike	15%	14%	5%	6%	5%	0%	109
5	Transporting goods/groceries	13%	11%	2%	2%	2%	0%	80
6	Necessity/no other choice	6%	18%	16%	2%	4%	9%	77
7	Exercise/Health	0%	0%	1%	23%	14%	0%	64
8	Multiple trips	7%	9%	0%	0%	1%	0%	41
9	Affordability/cost	1%	0%	14%	4%	3%	9%	39
10	Other responses (less than 3%each, of total trips)	9%	27%	16%	21%	23%	27%	167

Information Sources Consulted

Participants were asked whether they consulted any information source to help prepare for their trip and were prompted on various types of sources such as a map, weather report, transit schedule, traffic report/road conditions, or others. Participants who answered "yes" were then asked to specify where they had gone to find this information.

Across modes, weather reports were consulted comparatively more often that other sources of information. For auto drivers who consulted information sources, they most frequently consulted weather reports (31%), maps (30%) and traffic reports (26%). For public transit users, over half consulted a transit schedule (55%), while 28% consulted the weather report. For bicyclists, the weather report was consulted seven out of ten times (72%), followed by maps (14%). Similarly, pedestrians primarily consulted a weather report (62%), followed by maps (16%) and transit schedules (14%).

Did you consult any of the following information sources to help you prepare for your trip?
(Source: Nanos Research, August 2010)

Source		Auto driver (n=78)	Auto passenger (n=8)	Public transit (n=71)	Bicycle (n=29)	Walking (n=50)	Assistive mobility device (n=1)	Total trips (n=237)
Map	% within mode	30%	38%	14%	14%	16%	0%	48
Weather report	% within mode	31%	25%	28%	72%	62%	0%	98
Transit schedule	% within mode	1%	0%	55%	7%	14%	100%	50
Traffic report	% within mode	26%	13%	3%	3%	6%	0%	27
Other	% within mode	13%	25%	0%	3%	2%	0%	14

Among those who consulted information in advance, those aged 18 to 44 were comparatively more likely to have consulted a weather report (51%) or a transit schedule (18%), while those aged 45 and over frequently consulted weather reports (33%) or a map (25%) in preparation. Traffic reports were consulted 11% of trips for the 18 to 44 age group and 13% of trips taken by those aged 45 and over.

Did you consult any of the following information sources to help you prepare for your trip?
(Source: Nanos Research, August 2010)

Source		18 to 44 (n=114)	45+ (n=100)	Total (n=214)
Map	% within age	16%	25%	43
Weather report	% within age	51%	33%	91
Transit schedule	% within age	18%	20%	41
Traffic report	% within age	11%	13%	25
Other	% within age	4%	9%	14

Weather reports were the predominant sources consulted across purposes. Maps were frequently consulted for shopping trips (28%), for pickup/drop off trips (47%), medical trips (25%), and leisure trips (22%).

Of note, for trips with a medical purpose and for trips returning home, the primary sources consulted were transit schedules (42% of those traveling for a medical purpose; 36% of those returning home).

Traffic reports were more likely to be consulted for trips returning home (21%), for school (25%) or for some other purpose such as an errand or banking trip, exercise-related trip, etc. (24%).

Did you consult any of the following information sources to help you prepare for your trip?
(Source: Nanos Research, August 2010)

Source	Work or related (n=51)	School (n=4)	Shopping (n=29)	Leisure (n=58)	Medical (n=12)	Pickup/ drop off (n=15)	Return home (n=28)	Other (ex. Banking, Exercise, Church, Dog Walking, Errands) (n=17)	Total (n=214)
Map	14%	0%	28%	22%	25%	47%	18%	0%	**43**
Weather report	55%	75%	31%	52%	25%	13%	21%	59%	**91**
Transit schedule	16%	0%	14%	16%	42%	13%	36%	18%	**41**
Traffic report	14%	25%	10%	3%	8%	7%	21%	24%	**25**
Other	2%	0%	17%	7%	0%	20%	4%	0%	**14**

When asked where they had gone to find this information, participants were comparatively more likely to check the internet than television, radio, smart phone applications, the newspaper, GPS or other sources.

The top websites consulted, by mode, were as follows:

Where did you go to find this information?
Which website?
(Source: Nanos Research, August 2010)

Website		Auto driver (n=28)	Auto passenger (n=3)	Public transit (n=33)	Bicycle (n=11)	Walking (n=23)	Total trips (n=98)
OC Transpo website	% within mode	0%	0%	55%	9%	26%	25
Google Maps	% within mode	54%	33%	12%	0%	13%	23
Weather Network website	% within mode	14%	0%	24%	36%	30%	23
Environment Canada/ weatheroffice.ec.gc.ca	% within mode	11%	33%	3%	36%	22%	14
Map Quest	% within mode	7%	0%	0%	0%	9%	4
Store/destination website	% within mode	7%	0%	0%	9%	0%	3
Taxi	% within mode	0%	33%	0%	0%	0%	1
NCC website	% within mode	0%	0%	0%	9%	0%	1
Other responses (less than 4% each, by mode)	% within mode	7%	0%	6%	0%	0%	4

Among the minority of individuals who did consult a source for a trip, the OC Transpo website was comparatively more likely to be consulted for public transit trips (55% among those that traveled by public transit), as was the Weather Network website (24% of public transit trips). For auto drivers, Google Maps was comparatively the most frequently consulted website (54%), although the Weather Network and Environment Canada's Weather Office website were also consulted (14% and 11%, respectively). Bicyclists more frequently consulted the Weather Network and Environment Canada's website by auto drivers (36% each), while pedestrians consulted weather sites like the Weather Network (30%) and Environment Canada's website (22%), and OC Transpo's website (26%).

The websites consulted, categorized by age group, were as follows:

Where did you go to find this information?
Which website?
(Source: Nanos Research, August 2010)

Website		18 to 44 (n=65)	45+ (n=23)	Total (n=88)
Google maps	% within age	17%	48%	22
OC Transpo	% within age	22%	22%	19
Weather Network	% within age	29%	0%	19
Environment Canada/weatheroffice.ec.gc.ca	% within age	17%	13%	14
Map Quest	% within age	2%	13%	4
Store/destination website	% within age	3%	4%	3
STO.ca	% within age	3%	0%	2
Other (less than 2 responses each, of total)	% within age	8%	0%	5

Those aged 18 to 44 were comparatively more likely than the 45 plus age group to consult weather sites such as the Weather Network's website (29%) or Environment Canada's Weather Office website (17%). In contrast, those aged 45 and over group consulted online weather sites (Environment Canada) in only 13% of cases. The 45 years of age and over age group were comparatively more like than the 18 to 44 year group to consult Google Maps (48%) as well as Map Quest (13%) for their trips. An equal amount of both age groups consulted OC Transpo's website (22% each). Other internet sources consulted include store or destination websites (4% of those aged 45 and over; 3% of those aged 18 to 44) or the STO.ca website (3% of those aged 18 to 44).

Challenges Encountered

For the majority of trips (81%), participants did not encounter any challenges that affected their trip, while one in five trips (19%) did encounter issues. For automobile drivers, cyclists and pedestrians, the primary challenges for those that had encountered a problem had to do with construction and detours (50% of trips taken as driver, 53% of trips taken on bicycle, and 39% of trips as pedestrians). For automobile trips, traffic congestion was also frequently mentioned (32%). For public transit trips, challenges were related to transferring (23%) and insufficient travel information at bus stops (20%). In addition to construction and detours, dangerous driving or disregard for others was a challenge faced by cyclists (16%). For those travelling using an assistive mobility device, having wheelchair accessible travel was the primary challenge (83%).

Did you encounter any challenges or travel issues which affected your trip?
If Yes, please describe the challenges or travel issues you encountered (What happened? Where?) [Open-ended]
Multiple Responses Accepted
(Source: Nanos Research, August 2010)

Response		Auto driver (n=60)	Auto passenger (n=11)	Public transit (n=30)	Bicycle (n=19)	Walking (n=23)	Assistive mobility device (n=6)	Total (n=149)
Construction and detours	% in mode	50%	18%	3%	53%	39%	0%	52
Traffic congestion	% in mode	32%	27%	10%	0%	0%	0%	25
Insufficient travel information	% in mode	2%	0%	20%	0%	9%	0%	9
Bus transfers	% in mode	0%	0%	23%	0%	4%	0%	8
Wheelchair accessible travel	% in mode	0%	0%	10%	0%	0%	83%	8
Hard to find parking	% in mode	5%	27%	0%	5%	0%	0%	7
Other delays (non-construction ex: bridge up)	% in mode	5%	0%	3%	0%	9%	0%	6
Exceptional circumstance (ex: found Blackberry on the road)	% in mode	2%	0%	0%	5%	9%	0%	4
Dangerous driving/ disregard for others	% in mode	2%	0%	0%	16%	0%	0%	4
Other responses (less than 3 responses each, of total)	% in mode	3%	27%	30%	21%	30%	17%	26

In both age groups, construction and detours were the most frequently cited challenge they encountered (35% of response among those aged 18 to 44, 37% of responses among of those aged 45 and over). Traffic congestion was also frequently cited both groups, although comparatively more often in the 18 to 44 age group (22%) than in the 45 and over group (15%) Those aged 45 and over were comparatively more likely to encounter challenges related to a lack of sufficient travel information (10%) and issues with bus transfers (8%) than those aged 18 to 44. Wheelchair accessible travel challenges were comparatively more likely to be an issue for those over 45 years of age. Challenges related to dangerous driving or the perception that drivers had disregard for others were more common among the 18 to 44 age group (5%) than the 45 and over group (1%).

Did you encounter any challenges or travel issues which affected your trip?
If Yes, please describe the challenges or travel issues you encountered (What happened? Where?) [Open-ended]
(Source: Nanos Research, August 2010)

Responses		18 to 44 (n=58)	45+ (n=83)	Total (n=141)
Construction and detours	% within age	35%	37%	51
Traffic congestion	% within age	22%	15%	25
Insufficient travel information	% within age	0%	10%	8
Bus transfers	% within age	0%	8%	7
Hard to find parking	% within age	2%	7%	7
Wheelchair accessible travel	% within age	0%	6%	5
Other delays (non-construction ex: bridge up)	% within age	2%	5%	5
Exceptional circumstance (ex: found Blackberry on the road)	% within age	3%	2%	4
Dangerous driving/ disregard for others	% within age	5%	1%	4
Other (less than 3 responses each)	% within age	31%	8%	25

Information to Improve Trip Experience

Participants were asked whether there was any information or service they could have received which would have made their trip better. For nine in ten trips (91%) logged by participants, participants did not feel there was other information or services they could have received which would have made their trip better. For nine percent of trips, participants indicated there was information that would have been helpful to them.

Information that was among the most frequently mentioned by participants were complete traffic reports/maps with up to date information on construction and detours (50% of automobile drivers and 50% of pedestrians described this information as something which would have made their trip better). Automobile passengers were comparatively more likely to see a need for road signs with up to date information on traffic (60%) as well as traffic reports (40%). Public transit users were comparatively more likely to indicate they would have benefitted from more specific, real-time bus schedules (28%) or improved service from bus drivers such as calling out all stops (22%). Cyclists were comparatively more likely to indicate they could have benefitted from improved access to bike lanes or paths (82%). Participants travelling using an assistive mobility device were comparatively more likely to indicate they would have benefitted from improved service from bus drivers (67%).

Do you think there is any information or service that you could have received which would have made your trip better?
If Yes, Please describe. [Open-ended]
(Source: Nanos Research, August 2010)

Response		Auto driver (n=20)	Auto passenger (n=5)	Public transit (n=18)	Bicycle (n=11)	Walking (n=10)	Assistive mobility device (n=6)	Total (n=70)
Traffic report/maps with up to date information on traffic congestion/construction/detours	% in mode	50%	40%	17%	0%	50%	0%	20
Improving access to bike lanes/ paths	% in mode	0%	0%	0%	82%	0%	0%	9
Improved service from bus drivers (ex: calling out stops/ driving skills)	% in mode	0%	0%	22%	0%	0%	67%	8
Efficient road signs with up to date information on traffic	% in mode	15%	60%	0%	0%	10%	0%	7
More specific bus schedule information from OC Transpo (ex: real time information at stops)	% in mode	5%	0%	28%	0%	10%	0%	7
Other (less than 4 responses each, of total)	% in mode	30%	0%	34%	18%	30%	33%	19

Among those aged 18 to 44, improving access to bike lanes was mentioned in 32% of cases, while in comparison, those aged 45 and over mentioned improving access to bike lanes in 3% of cases. Of note, one in four of responses in both age groups mentioned traffic reports or maps with up to date information about congestion/construction/detours as something they could have received to improve their trip experience (24% of those aged 18 to 44, 28% of those 45 and over). Road signs with up to date information on traffic was mentioned comparatively more among the 45 and over group (14%), although this was also mentioned among those aged 18 to 44 in 8% of cases. The 45 years and older group were comparatively more likely to cite more specific or timely bus schedule information from OC Transpo at bus stops (14%) and improved bus driver service where drivers would call out stops, for example (11%).

Do you think there is any information or service that you could have received which would have made your trip better?
If Yes, Please describe. [Open-ended]
(Source: Nanos Research, August 2010)

Responses		18 to 44 (n=25)	45+ (n=36)	Total (n=61)
Traffic report/maps with up to date information on traffic congestion/construction/detours	% within age	24%	28%	16
Improving access to bike lanes/ paths	% within age	32%	3%	9
Efficient road signs with up to date information on traffic	% within age	8%	14%	7
More specific bus schedule information from OC Transpo (ex: real time information at stops)	% within age	4%	14%	6
Improved service from bus drivers (ex: calling out stops/ driving skills)	% within age	0%	11%	4
Other responses (less than 4 responses each, of total)	% within age	32%	31%	19

DETAILED FOCUS GROUP REPORT

Focus Group Methodology

Eight focus group discussions were conducted in Ottawa between August 9th and August 12th, 2010. The eight groups were split into four profiles based on transportation mode: drivers, cyclists, pedestrians, and public transit users. Each night, two sessions were conducted among participants who regularly used that night's transportation mode as a means of getting around Ottawa.

In addition to the four transportation profiles, a generational sub-profile was also implemented. On each night, the first group was conducted among residents who were Baby Boomers and older (those born before 1965), while the second group was conducted among residents from Generation X and Generation Y (those born in 1965 and later).

Each group contained eight participants for a total of 64 participants for all eight groups. The sessions included a mix of primarily English speaking and bilingual participants. There was also a mix of male and female participants. Each session of eight participants was 90 minutes in duration and was conducted in English.

The objectives of the focus groups were to identify and understand residents' views on the future of transportation in the City of Ottawa, the key challenges residents face while getting around the city and how future innovations in information technology could be used to overcome these challenges. The same moderator's guide was used for all groups and all participants were asked to comment on getting around Ottawa using all four modes of transportation.

Readers should note that the volume of traffic associated with this seasonal time period (summer) is typically lower than in other seasons and therefore, feedback may not represent the difficulties associated with travel in each of the modal choices or reflect the general network and road conditions of other seasons.

Readers should note that the findings of qualitative research cannot be projected to the populace or to a group but do provide an understanding of the potential context and nuance of opinion. This research project was completed in accordance with the standards of, and registered with, the Marketing Research and Intelligence Association of which Nanos is a Corporate Gold Seal member.

Participant Transportation Profiles

Although participants were recruited to represent a specific mode of transportation, the majority of participants were multi-modal travelers. The following table gives the total breakdown for all participants based on how often they use each mode of transportation.

For the following modes of transportation, please tell me whether you use them regularly, occasionally or never as a way of getting around the city.

Transportation Mode	Regularly	Occasionally	Never
Walking	52	10	2
Cycling	24	20	20
Taking public transit	23	22	19
Driving	38	16	10

The vast majority of participants, regardless of their transportation profiles, supported the City promoting a wider use of more sustainable modes of transportation. Only a small minority of participants from the drivers group said that nothing could be done to make them consider changing their behaviour and adopting more sustainable modes of transportation. These participants believed that sustainable modes of transportation could not give them the flexibility they needed to fulfill their daily activities.

Summary

The focus groups provided a setting to discuss future priorities and possible solutions that could improve the travel experience. All participants in the focus groups generally expected that by 2020 a shift to a more environmentally sustainable modal split would occur with a decrease in the proportionate share of driving and an increase in public transit and other alternatives to the car. There was an expectation that in the future the incidence of single traveler vehicles would decline.

Focus testing showed that there were a diversity of views and ideas on how to improve transportation in Ottawa. Many of the challenges related to the different modes had to do with infrastructure. For cyclists and pedestrians, the infrastructure challenges related to an original urban design geared to automobiles. For automobiles, challenges related to the perceived need for more infrastructure was cited, while for transit challenges primarily related to capacity, wayfinding and service. However, a series of solutions were identified by the research participants that could help shape the long-term transportation system management strategy in terms of improving the transportation journey in Ottawa.

To follow is a summary of the focus group results.

Views on the future of sustainable transportation in Ottawa – Nearly all participants valued a wider use of more sustainable modes of transportation and the majority of participants believed that in the next 10 years there would be more of a shift away from single occupancy vehicles.

Key differences between the two generational sub-profiles – Participants from the Baby Boomer and older groups were comparatively less likely to come up with a variety of innovative information technology solutions to overcome the City's transportation challenges than participants from the Generation X & Y groups.

Participants believed that information technology was best suited to overcome challenges for motorists – Many participants believed that the challenges that drivers encounter are often the most easily overcome by information technology and that this trend will continue as more and more vehicles on the road become equipped with onboard navigation systems.

The major challenges to cycling in Ottawa were not easily overcome using technology according to participants –The most common challenge identified for cyclists in Ottawa was the lack of a comprehensive city bike path system. Participants had difficulty finding an information technology solution for this challenge, since in their view this was, at its root, a challenge caused by infrastructure.

Reliability was seen as a primary challenge to transit users – real-time information was the perceived solution – Participants cited the lack of control over the amount of time it could potentially take to get to a destination as the primary hindrance to using public transit. This lack of control is linked to having static transit schedules and the lack of knowledge as to whether a bus has already come by a bus stop. Participants believed having real-time information about routes was the key to giving more control to transit users.

Awareness and usage of Interactive Traffic Map – The vast majority of participants, 57 out of 64, were unaware of the existence of the City of Ottawa's Interactive Traffic Map prior to the focus group discussion, while nearly all participants said they would use the service now that they were aware.

View on the Interactive Traffic Map –The majority of participants said that they would like to have all their information regarding traveling available in one place. Many of them believed that the Interactive Traffic Map had the potential to be a "one stop shop" getting around Ottawa. Participants gave several suggestions for additional pieces of real-time information that could be added to the Interactive Traffic Map including: OC Transpo routes and bus positions, colour- coded roads based on levels of congestion, the progress of snow plows and the ability to plan a trip using any mode, among others.

Views on mobile applications using the Interactive Traffic Map – Participants were in favour of using the information provided by the City on the Interactive Traffic Map through mobile applications, however, participants were divided on whether the City should develop these applications or if they should rely on third parties to develop the applications. Those who preferred for the City to wait for third parties to develop applications believed that an open data approach would be more customer oriented, while those who preferred that the City develop applications generally believed that third parties might not be interested given Ottawa's population size and therefore local government had a role to play.

How to shift behaviour towards more sustainable modes of transportation – Participants were asked to come up with ways the city could encourage residents to shift their behaviour away from single occupancy vehicles towards more sustainable modes of transportation. The most frequent suggestions given by participants were implementing incentives for using sustainable transportation, disincentives to driving, making sustainable modes more convenient, making driving less convenient and using social marketing to encourage more sustainable modes.

Travel Diary Component

In advance of the focus group sessions, each participant was required to select two days in his or her week and log all trips and travel experiences around the City of Ottawa. The key findings of the travel diaries were as follows. For further details on findings or the methodology, please refer to the Travel Diary Analysis (Page 12) or Appendix A for detailed tabulations.

- **Residents Generally Satisfied** – The 82 individuals who completed travel diaries for 744 trips were generally satisfied with the experience of their trip (rating of 4.14 on a 5-point scale where 1 was a very poor experience and 5 was a very good experience). Cyclists were comparatively more satisfied with their trip experiences (4.35 out of 5) while public transit users and those using assistive mobility devices were comparatively less satisfied with their trip experiences (3.85 and 3.57, respectively). Automobile drivers (4.18), pedestrians (4.16) and automobile passengers were generally satisfied (4.08) with their trip experiences.
- **Distance and Time** – Not surprisingly those who walked travelled the shortest distances (2.7 kilometers on average) while those that were automobile passengers travelled the furthest distance (16.0 kilometers on average). Participants who primarily drove travelled 14.2 kilometers on average while those using public transit said they travelled, on average, 11.8 kilometers. Cyclists indicated they travelled 6.2 kilometers on average. Of note, trips as driver of an automobile, although they did not register the shortest distance, registered the shortest travel time (automobile trip 18.8 minutes on average compared to 20.3 for a bicycle trip, 20.8 for a walking trip and 33.4 for a public transit trip).
- **The Utilitarian Traveler** – With convenience as an important determinant in terms of mode choice for automobile drivers (27%), those taking public transit (27%), pedestrians (23%) and cyclists (22%), ensuring that the journey has the fewest unanticipated disruptions will be key to an optimal travel experience. With the exception of convenience, cyclists and pedestrians also cited exercise/health as factors influencing their choice (23% and 14% respectively). Also of note, those individuals in the study who travelled predominantly by public transit were more likely to cite necessity (16%).
- **Current Sources of Traveler Information** – Weather reports were the most frequently consulted sources of information across modes (automobile 31%, bicycle 72%, walking 62%), although public transit users and persons using an assistive mobility device were comparatively more likely to check a public transit schedule (55% and 100%, respectively). Of note, weather reports were more likely to be consulted when a trip was for a work related purpose (55%) or leisure purpose (52%). Other frequently consulted sources of information were maps. Participants were also comparatively more likely to check the internet for information over television, radio, smart phone applications, the newspaper, GPS or other sources.

- **Construction/Detours outpace Congestion as Challenges** - Nineteen percent of the 744 trips logged in the diaries encountered a challenge or a travel issue. The most common travel issue encountered related to construction or detours (automobile 50%, bicycle 53%, pedestrians 39%). However, among public transit users only 3% cited construction or detours as a travel issue. Public transit users were more likely to cite bus transfers (23%) and perceived insufficient travel information (20%) as key challenges encountered during their trip.

Group Wisdom - Ottawa's Future Modal Split

In order to identify whether participants believed that residents should be shifting towards more sustainable forms of transportation and whether Ottawa will make progress towards it in the next 10 years, participants were presented with the modal split for Ottawa from the most recent census. They were then asked to indicate their ideal modal split and predict what they believed the modal split would be in 2020.

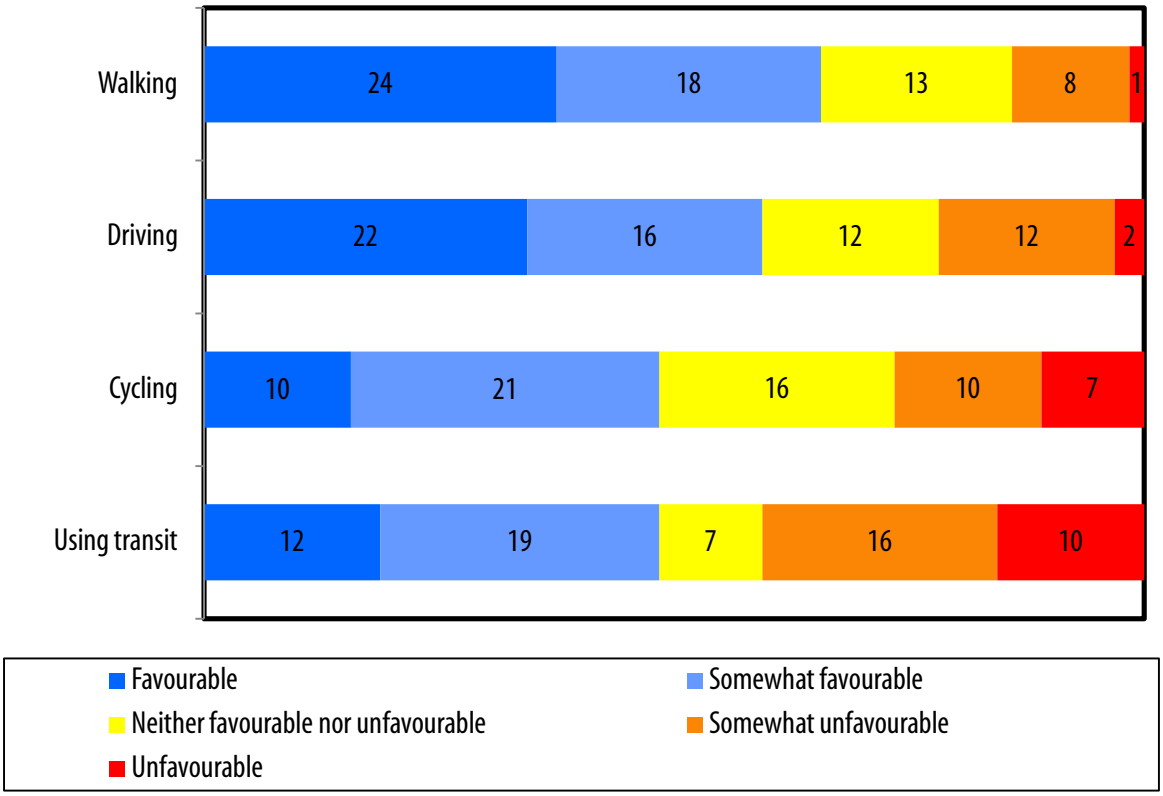
	Ottawa during the 2006 census (%)	Focus Group Ideal Modal Split			Ottawa's Modal Split in 2020		
		All (%)	Gen X & Y (%)	Baby Boomers (%)	All (%)	Gen X & Y (%)	Baby Boomers (%)
Vehicle driver	60	26.0	23.8	28.2	43.5	46.0	41.1
Public transit	22	36.6	35.4	37.8	31.2	30.3	32.1
Walked	8	14.5	15.8	13.2	9.9	10.1	9.8
Vehicle passenger	8	10.2	10.2	10.2	8.5	8.2	8.7
Bicycle	2	11.2	13.0	9.5	6.2	5.1	7.2
Other	1	1.6	1.9	1.3	1.0	0.9	1.2

- Nearly all participants valued a wider use of more sustainable modes of transportation.
- Most participants believed that the 2020 modal split would be worse than their ideal.
- Most participants predicted a drop in the use of single occupancy vehicles.
- Participants from Generations X & Y, were comparatively more likely to value more sustainable modes of transportation than Baby Boomers and older.
- Baby Boomer and older participants were comparatively more optimistic about seeing a decrease in single occupancy vehicle use.

Impressions of Modes in Ottawa

Participants were asked to rate their personal impressions of the four modes of transportation as a means of getting around Ottawa.

Please rate your impression of four primary modes of transportation as a way for you to get around the City of Ottawa.



Walking was the most preferred mode of transportation by participants, while public transit was comparatively viewed less favourably as a way of getting around Ottawa.

Information Sources

Participants were also asked what information sources they regularly consulted when they were planning to go somewhere in the City of Ottawa.

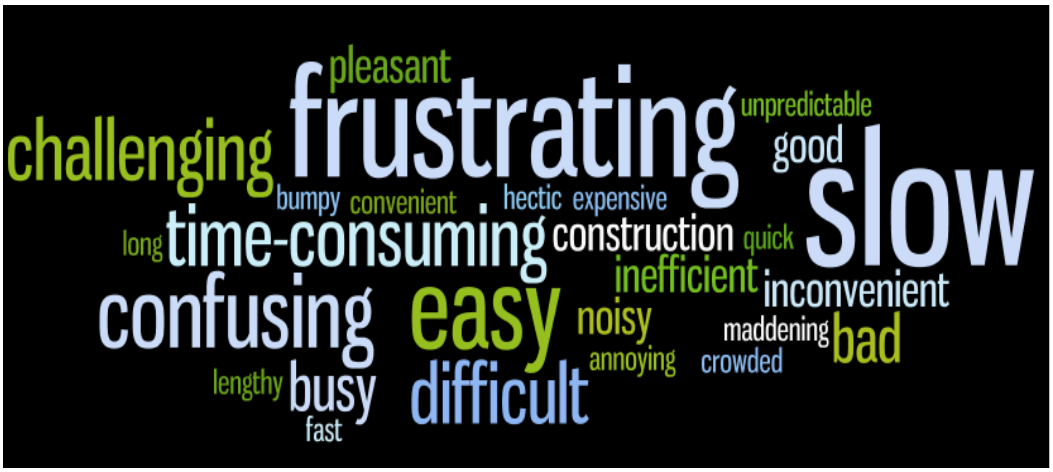
The most commonly used information sources were Google Maps, the OC Transpo website, the Weather Network (both the television channel and the website), Environment Canada's weather website, various radio stations and MapQuest.

Perception of Getting Around Ottawa vs. Ideal City – Word Clouds

A word cloud is a visual representation of words used by participants based on their frequency.

Getting Around Ottawa Today

Participants were asked to list three words that describe what it is like to get around Ottawa. The following word cloud is based on their responses. Only words which were used more than once are included in the word cloud.



Getting Around the Ideal City

Participants were asked to list three words that describe what it would be like to get around the ideal city. The following word cloud is based on their responses. Only words which were used more than once are included in the word cloud.

The Purpose of the Travel Experience Section

For each mode of transportation, participants were asked to identify some of the key challenges residents experience when trying to get around Ottawa.

After participants had identified several challenges they were asked how information technology could play a role in overcoming those challenges. Participants were encouraged to think into the future, at least 10 years, and based on what they knew about the way technological innovation were moving, to think of ways they believed technological advances could positively impact the way people get around Ottawa.

How Age Impacted Views on Improving Travel Experience

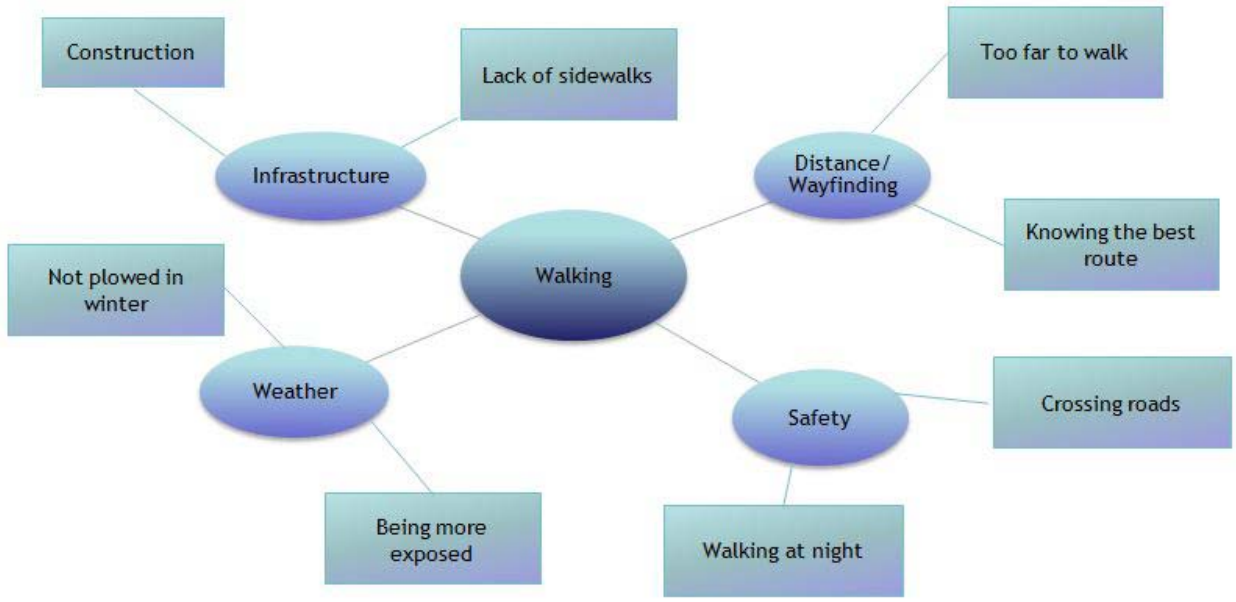
Not surprisingly, participants from the Generation X & Y groups were comparatively more likely to come up with a variety of innovative information technology solutions to overcome the challenges than participants from the Baby Boomer and older group.

There were several participants from the Baby Boomer and older group who were quite tech savvy, however there were others who did not use technology at all when planning their travels around the city.

When considering what information channels to use, it is important to recognize that a large portion of the population continues to rely on more traditional sources of information to plan their travels.

Key Challenges for Pedestrians in Ottawa

The key challenges, identified by participants, to getting around the City of Ottawa as a pedestrian can be grouped into four categories: safety challenges, infrastructure challenges, weather challenges and distance/wayfinding challenges.



Proposed Solutions to Walking Challenges

Participants were able to suggest potential information technology solutions for nearly all the challenges that pedestrians face while trying to get around the city.

Wayfinding and Distance Challenges

A. It is difficult to walk in some areas of the city because of the distance between origins and destinations

Proposed Information Solution: Participants believed that, as information technology improved, they would be able to input a product into a mobile device and this application would be able to tell them the nearest store or business which they could walk to. This would make walking more convenient around Ottawa.

B. Knowing the best route to take as a pedestrian

Proposed Information Solution 1: Several participants expressed the desire to have interactive touch screen kiosks at key activity centres which would provide information on the surrounding area and the best routes to take as a pedestrian.

Proposed Information Solution 2: Participants believed that interactive travel planning applications could be used to provide them with the quickest routes for walking. Some participants said that they regularly used Google Maps walking directions as a means of planning their trips; however they also said that the service could still be improved in terms of providing the quickest route.

Infrastructure Challenges

A. Lack of sidewalks for pedestrians

Proposed Information Solution: Participants said that they would like to have a detailed online map of where there are sidewalks or paths in the city so they could plan their routes accordingly.

Safety Challenges

A. Crossing roads

Proposed Information Solution 1: Participants supported having more crossing signals which included a countdown timer being installed across the city.

Proposed Information Solution 2: Some participants believed it should be possible to create a "smart crosswalk", which would be able to visually notify motorists when there were pedestrians in or approaching a crosswalk by using motion sensors.

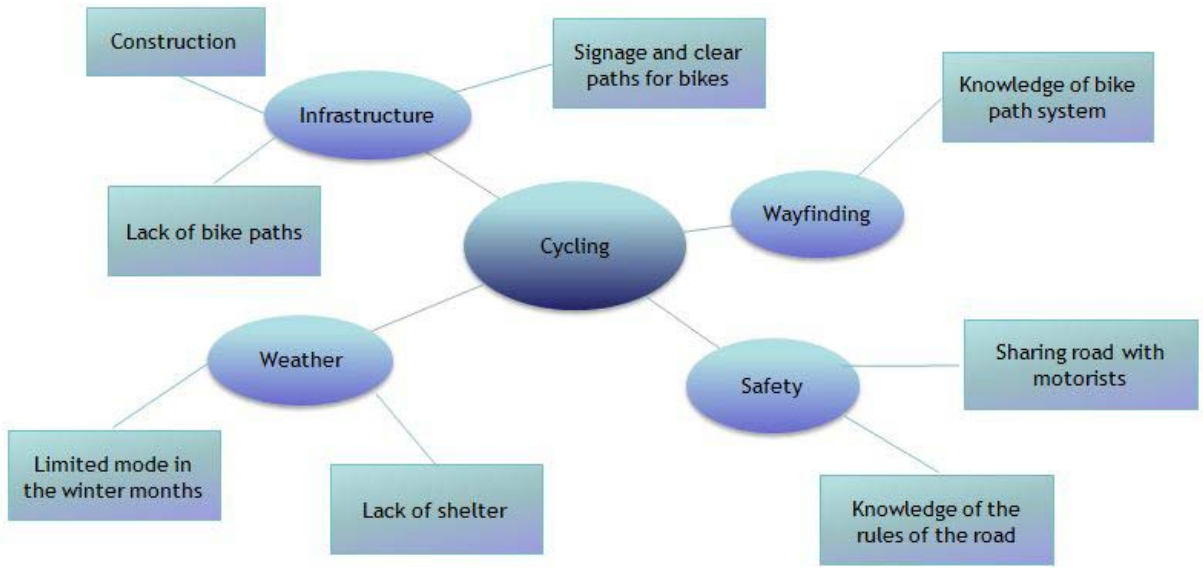
B. Walking at night

Proposed Information Solution 1: Some participants felt that not feeling secure walking at night was a major obstacle to increasing walking as a mode of transportation. They suggested using "alert kiosks" similar to those found on university campuses in areas across the city.

Proposed Information Solution 2: Participants also believed that areas along paths that are dark at night should have "smart lights" with motion sensors which would turn on as people walked by.

Key Challenges for Cyclists in Ottawa

The key challenges identified by participants for getting around the City of Ottawa as a cyclist can be grouped into the same four categories as those for pedestrians: safety challenges, infrastructure challenges, weather challenges and wayfinding challenges.



Proposed Solutions to Cycling Challenges

The most common challenge identified for cyclists in Ottawa was the lack of a comprehensive city bike path system. Participants had difficulty finding an information technology solution for this challenge, since in their view this was, at its root, a challenge caused by infrastructure. Other cycling challenges which participants had difficulty finding information technology solutions for were weather challenges.

It should also be noted that bike sharing programs (such as the Bixi Bike program), which were directed towards residents to use, were mentioned by many participants as a means of making cycling a more widely used mode of transportation.

Safety Challenges

A. Sharing the road with motorists

Proposed Information Solution: One solution to make cycling safer in Ottawa which was suggested by participants was to provide them with an advanced light at some intersections, allowing them to avoid the danger of being cut off by a vehicle making a right hand turn

Infrastructure Challenges

A. Signage and bike lanes which were difficult for both cyclists and motorists to see

Proposed Information Solution: Participants believed that signage and paths for cyclists could be laid out in a way which could make them more visible to both cyclists and motorists. This could be done by using different coloured signage for cyclists or using reflective paint or lane edge reflectors when laying out bike lanes.

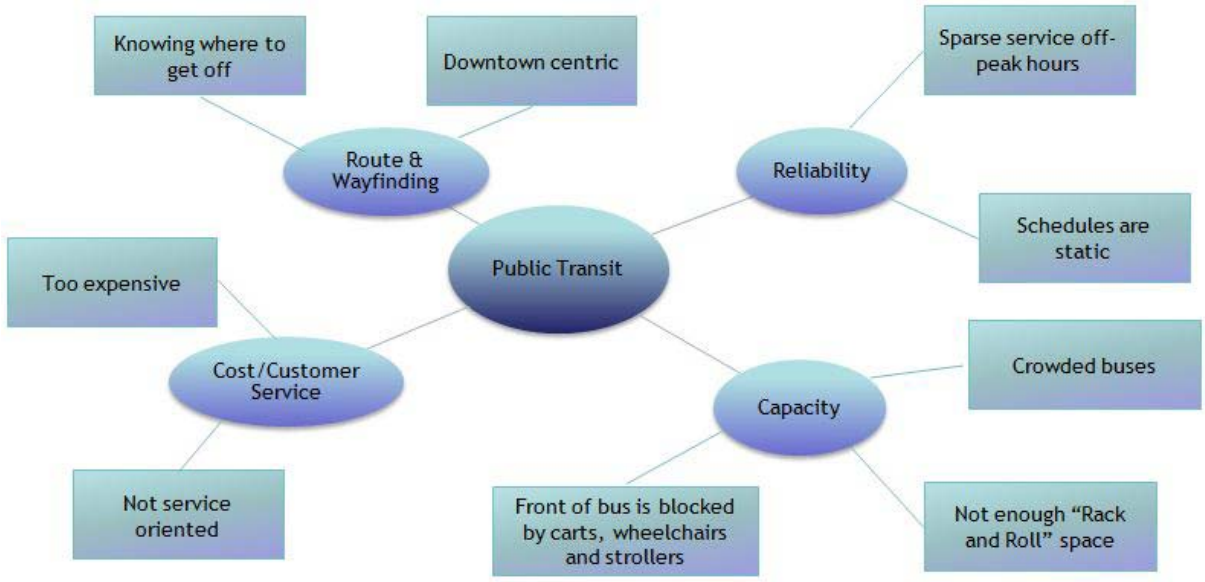
Wayfinding Challenges

A. Lack of knowledge surrounding the bike path system

Proposed Information Solution: Some participants believed that, as mobile technology solutions become more widely used by the population, it will become more common for them to be used with bicycles. Participants said that the City's bike path map could be loaded into a GPS or Smartphone, which would guide cyclists through the path system.

Key Challenges for Transit Users in Ottawa

The key challenges identified by participants to getting around the City of Ottawa as a transit user can be grouped into four categories: capacity challenges, route and wayfinding challenges, cost and service challenges, and reliability challenges.



Proposed Solutions to Transit Challenges

The main challenge to transit usage in Ottawa identified by participants was reliability. Participants cited the lack of control over the amount of time it could potentially take to get to a destination as the primary hindrance to using public transit. Participants believed that even though the current transit system may not be ideal, having real-time information about routes would give much more control and peace of mind to transit users.

Reliability Challenges

A. Static schedules and sparse service during off peak hours

Proposed Information Solution 1: The primary solution provided by participants for using information technology to make bus service more reliable was to provide transit users with real-time information. Participants believed that they should be able to view an interactive map of the city, either from home, on screens at transit stations or on their mobile devices, which included information on where every bus was on their route and a real-time arrival boards indicating when the next bus would be showing up. This would provide participants with the ability to determine which route was the best for them. Participants said that this would also overcome the challenge of the system being downtown-centric, because even though service outside

of the core would be more sparse, having real-time information would allow users to know if they have missed a bus and should find alternate means of getting to their destination.

Capacity Challenges

A. Not enough "Rack and Roll" space

Proposed Information Solution: Some participants complained that there was only space for two bicycles on OC Transpo's bicycle racks and they believed that information about which buses have bicycle racks should also be provided in real-time.

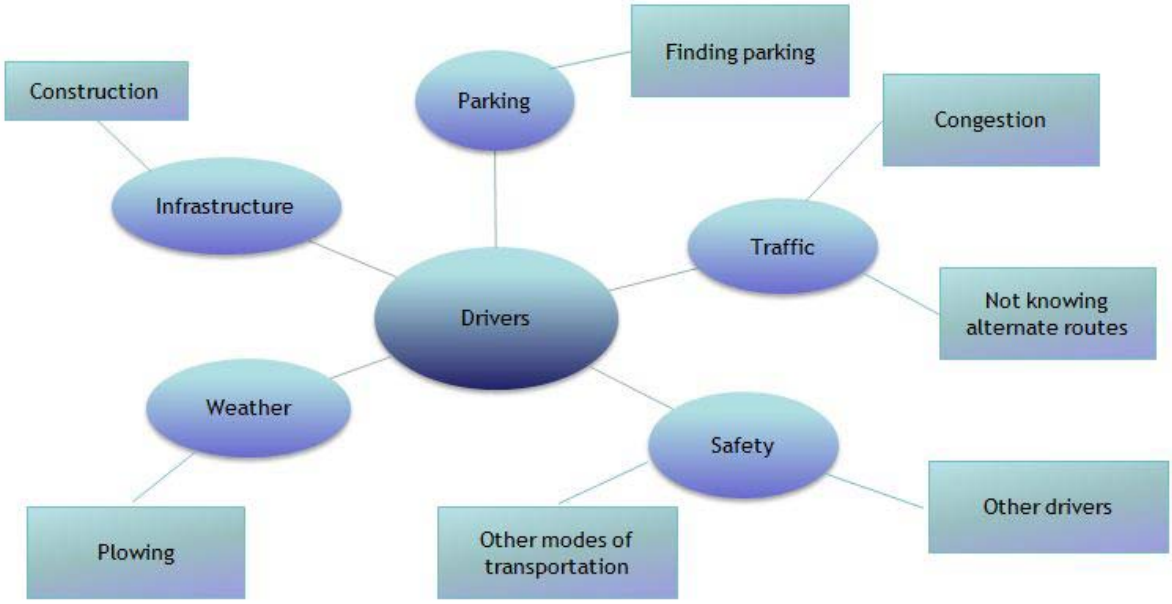
Wayfinding Challenges

A. Not knowing where to get off the bus

Proposed Information Solution: Many participants believed that it was necessary for buses to call out stops and that this should be done automatically, using GPS systems.

Key Challenges for Drivers in Ottawa

The key challenges identified by participants to getting around the City of Ottawa as a driver can be grouped into five categories: safety challenges, infrastructure challenges, weather challenges, parking challenges and traffic challenges.



Proposed Solutions to Driving Challenges

Many participants believed that the challenges that drivers encounter are often most easily overcome by information technology and that this trend will continue as more and more vehicles on the road become equipped with onboard navigation systems.

Traffic Challenges

A. Congestion

Proposed Information Solution 1: Many participants suggested in car solutions to congestion, believing that real-time information, which would be fed to an onboard navigation system, was the key to overcoming traffic congestion. Having information before approaching a traffic back-up would allow motorists to respond before it was too late.

Proposed Information Solution 2: Other participants suggested information solutions which were outside of the vehicle. Particularly electric information signs on roadways informing motorists about possible challenges ahead and providing alternate routes.

Parking Challenges

A. Not knowing where there is available parking

Proposed Information Solution: Participants believed that, since the city is shifting to a pay-and-display model, there should be real-time information about which parking spaces are available. Participants believed that this information could be sent directly to motorists who are looking for parking spaces via onboard navigation systems or mobile devices and notify them of spaces that are available.

Participants proposed a number of solutions which could be used to overcome challenges which impact more than one mode of transportation. The following suggestions apply to more than one mode of transportation.

Weather Challenges

Not knowing what roads are plowed

Proposed Information Solution: Many participants expressed a desire to know, in real-time, when streets were being plowed and where the roads had already been plowed. Participants believed that this would be feasible using GPS units on the City of Ottawa snow plows which could be relayed to an interactive map in real-time. As the plows moved through the streets they could highlight the interactive map on streets that have been plowed.

Proposed solution applied to: Walking, Cycling and Driving

Information Challenges

Not knowing where construction is happening

Proposed Information Solution: Construction was a challenge that affected several modes of transportation. Participants expressed the desire to know ahead of time where construction was happening and how it could potentially impact their travels. Participants suggested that, if they were able to sign up for a route which they took regularly, then they would be able to receive automatic notifications if there was construction happening along their route.

Proposed solution applied to: Walking, Cycling and Driving

Safety Challenges

Not knowing the rules of the road

Proposed Information Solution: Some participants believed that the City should explore more social marketing and education campaigns in order to make travel safer in the city.

Proposed solution applied to: Walking, Cycling and Driving

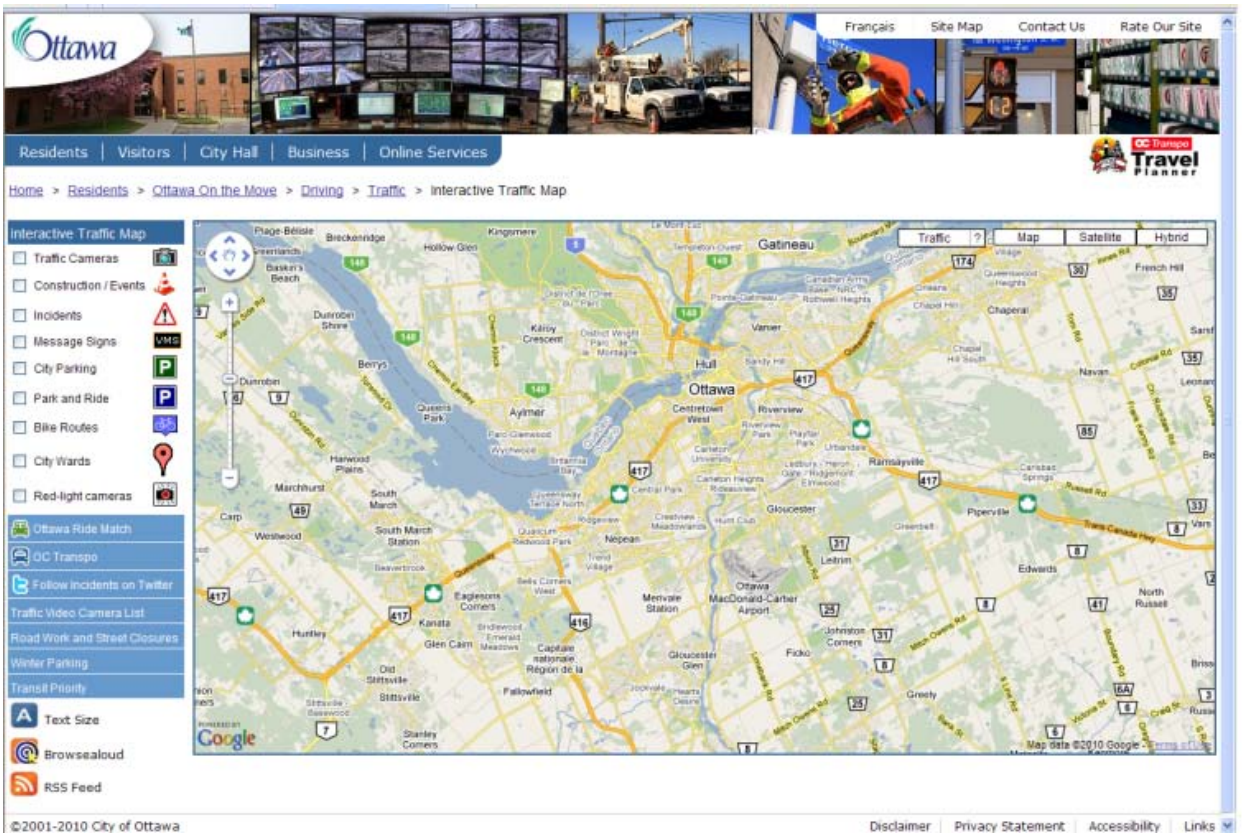
Global Leaders in Providing Information to Travelers

Participants were asked if they any had any experiences from another city, where information was passed to travelers which enhanced the way they got around a city. The following table provides a summary of the cities which participants considered to be leaders in providing information to travelers, by mode of transportation. The cities are in order from most commonly given response to least commonly given response.

Walking	Cycling	Public Transit	Driving
Toronto	Copenhagen	Toronto	Los Angeles
New York	Amsterdam	Gatineau	London, UK
London, UK	Montreal	New York	Boston
Vienna	New York	London, UK	Paris
Zurich	London, UK	Berlin	Toronto
San Francisco	Seattle	Rome	Vancouver
Las Vegas	Atlanta	Edmonton	Montreal
Saint John's, NF	Portland	Calgary	Melbourne
Taiwan	Washington DC	Tokyo	Singapore
	Bruges		Washington DC
	Hamburg		
	Berlin		
	Tokyo		
	Denver		

Interactive Traffic Map Testing

Using a projector and a laptop, participants were shown the City of Ottawa's Interactive Traffic Map. The moderator clicked and activated all nine layers of the map individually. Participants were then asked to complete a questionnaire individually before discussing their impressions of the map with the group.

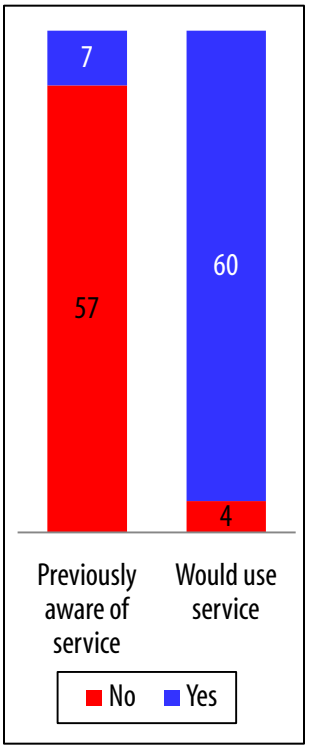


Views on the City of Ottawa's Interactive Traffic Map

Awareness and Usage

The majority of participants were unaware of the existence of the City of Ottawa's Interactive Traffic Map prior to the focus group discussion, while nearly all participants said they would use the service.

Many participants were "pleasantly surprised" by the amount of information that was already available to them.



Most Useful Information on the Interactive Traffic Map

Participants were asked to identify which layer of the interactive map would be the most useful to them. The most commonly identified helpful map layers were the "Construction/Events", "Bike Routes" and "Traffic Cameras" layers.

How the City Should Leverage the Information

Many participants believed that the City should do more publicity on the Interactive Traffic Map. Some suggested ways of advertising the site were buying ads on local radio and in local papers, putting flyers in City tax or water bills, putting ads on the sides of buses, and using social media like Facebook or Twitter. Participants also suggested putting the Interactive Traffic Map on a prominent place on the City website.

Views on Creating Applications Using Information from the Interactive Traffic Map

Participants were divided on whether the City of Ottawa should create their own applications or whether they should rely on third parties to develop applications.

Those who preferred for the City to wait for third parties to develop applications believed that an open data approach would be more customer oriented, while those who preferred that the City develop applications generally believed that third parties might not be interested given Ottawa's population size and therefore local government had a role to play.

Additional Information for the Interactive Traffic Map

The majority of participants said that they would like to have all their information regarding traveling available in one place and that the Interactive Traffic Map had the potential to be that source. The following list represents the most commonly articulated suggestions for additional pieces of information that could be added to the Interactive Traffic Map:

- Colour coded roads at a glance based on the various levels of congestion
- Route planning using any mode of transportation, as well as interest in multi-modal route options
- Subscribing to a specific route and receiving real-time notifications when something happens along the route that may cause delays
- Mapping OC Transpo routes with real-time information on where buses are along a route
- Special events (ex. Ottawa Senators Games, parades or music festivals) and their real-time impact on traffic
- Mapping of real-time plowing status during winter months
- Weather information
- Real-time information on the number of parking spaces in City Parking and Park and Ride locations
- Mapping with information on parking rules on each street
- The ability to provide input on congestion and incidences in real-time using a mobile device

Many participants believed the Interactive Traffic Map should be more than just a traffic map, but instead should be "one stop shop" for interactively mapping all City of Ottawa services.

Some participants also believed that the Interactive Map could be linked to commercial businesses and cultural institutions. Some examples of these that participants believed could be helpful were museums, hotels, shopping centres and gas stations.

Participants were asked to come up with ways the City could encourage residents to shift their behaviour away from single occupancy vehicles towards more sustainable modes of transportation.

Incentives and Disincentives

Participants believed that one of the key ways to change behaviour was to provide people with incentives to use sustainable transportation and disincentives to use automobiles. Two frequently articulated financial incentives suggested by participants were tax credits and making public transit cheaper. Participants suggested a number of disincentives including implementing taxes on vehicle or road usage.

Convenience and Inconvenience

Participants believed that another key way to change behaviour was to make using sustainable modes more convenient, while at the same time making automobiles less convenient. Most participants believed that convenience/inconvenience was something that was more influenced by the planning of the transportation system as opposed to its operation. Some ways to make sustainable transportation more convenient were building a better transit system, creating more bike lanes, implementing a city bike sharing program, while lane reductions and congestion were the primary suggestions for making driving less convenient.

Social Marketing

Participants believed that the City should explore campaigns that explain the benefits, both economic and social, to using sustainable modes of transportation.

DETAILED THOUGHT-LEADER OUTREACH REPORT

Thought-Leader Outreach Methodology

In order to gain insight into key issues and innovations that could influence the future of transportation system management in Ottawa, a global elite consultation was conducted with leaders who are experienced in and have knowledge of the fields of transportation, engineering, planning and technology. These interviews took place between July and August 2010 and were conducted by Nanos Research analysts by means of in-depth telephone and in-person interviews for participants in Ottawa. This initiative was part of a broader research project for the City of Ottawa.

The overall objective was to help frame long term Transportation System Management strategy in Ottawa to ensure that the City of Ottawa can anticipate, meet and exceed the needs of residents.

Potential participants were identified by the City of Ottawa and Nanos Research. Initial outreach was done by the City of Ottawa to inform potential participants of the objectives of the project and the process for the interviews. Nanos Research analysts then coordinated a convenient time for the interviews. Each interview was conducted by one Nanos analyst while a second analyst acted as a note-taker. At least one representative from the City of Ottawa's project team sat in on the interview to observe and to ensure that the City garnered the maximum value from the elite outreach. The interviews ranged from 30 to 60 minutes in length, depending on the feedback and availability of the participant.

Interviews were conducted with the following individuals (listed in alphabetical order):

- Dr. Baher Abdulhai, Canada Research Chair in ITS and Director, Toronto ITS Centre, University of Toronto (Toronto, Canada)
- Eran Gartner, President of Systems Division, Bombardier Transportation (Berlin, Germany)
- Keenan Kitasaka, Manager, Intelligent Transportation Systems, TransLink (Vancouver, Canada)
- David Lively, Chief, Office of System Management Planning, Caltrans (Sacramento, USA)
- Ralph Menzano, Executive Director, Transportation Division, Oracle (Philadelphia, USA)
- Dr. Eric J. Miller, Director, Cities Centre, and Professor, University of Toronto (Toronto, Canada)
- Ben Plowden, Director, Better Routes and Places, Transport for London (London, UK)
- Nancy Schepers, Deputy City Manager, Infrastructure Services and Community Sustainability, City of Ottawa (Ottawa, Canada)

For more detailed biographies on participants, please refer to Appendix B.

Summary

Overall, a key finding from the thought leader consultation centred on an emerging trend in the travel experience, where the expectation of real-time travel information for each mode of transportation will be the norm and that real-time information would likely, in the longer term, help facilitate multimodal trips and also diminish reliance on the automobile, although it would still be a very important mode for urban transportation. The key forces driving change and innovation related to technology (in terms of real-time travel information), economics (in terms of the expected increased cost to operate automobiles and maintain roads), through to the environment (and the desire to have a transportation system as sustainable as possible). The experts consulted identified a series of trends, and possible solutions.

- **Facing the Economic Crunch** – One key thread of input that emerged was the perceived long-term unsustainability of the costs to operate automobiles on the same scale in terms of the cost of fuel and the cost to maintain expensive automobile road infrastructure. Restrictions on single passenger automobile travelers and automobile sharing (either through a co-operative or fractional ownership) were seen as likely trends in the future which would emerge in response to diminished cost advantage of automobiles and diminished advantage in terms of future road capacity. The cost borne by municipal government to maintain a road system was also identified as a key financial force that would put pressures on future governments and taxpayers.
- **Influencing the Behaviour of Travelers** – In practical terms, urban planning decisions have a significant impact in encouraging modal transportation choices. By building more roads, one encourages transportation by automobile. A number of the experts noted that once modal targets were set, practical public policy choices should be made to encourage priority modes over other modes.
- **Integration of Multiple Travel Systems through Smartcards** – A number of the experts consulted cited "smart" electronic ticketing as a key opportunity to integrate services and improve efficiency. Many of the examples included multi-mode systems (i.e., bus, subway, and rail) where one could easily transfer and minimize transfer time. Smartcards were also expected to eventually include loyalty programs for transit users with customized fares based on usage patterns of the traveler.
- **Real-time Travel Information and Commercialization Opportunities** – Numerous examples emerged, similar to those identified in the focus groups, which related to the use of real-time information and GPS technology on the web, on a Smartphone or transportation hub to help improve control and the travel experience. This also included the possible use of 5-1-1 hotline service that consolidates transportation information, traffic and weather. Of note, there was an expectation of an increasing level of commercialization of the real-time information in terms of integrating shopping, dining and lifestyle opportunities with the travel information.

- **Beware of Long-term Technology Solutions** – Because of the rapidity of change in terms of Internet, Smartphone and application development, opinions were expressed that time horizons for real-time travel technology solutions should be shorter than usual (three to five years) in order to have agile travel information systems. Likewise, the market was seen as a more nimble mechanism to staying on the cutting edge in terms of travel information technology. Controlled partnerships with third party technology solution developers in the private sector were seen as a means to lessen the burden on municipalities to create the perfect application for their data.

To follow is a summary of key findings related to each discussion thread.

Participants were asked what kind of traveler information they thought the traveling public needed to move around a city more easily or efficiently. The key thread to all of the discussions was the need for the public to know the best way to get there.

Accessible, real-time information will help the public make route and modal decisions. Many of the participants felt that having real-time traffic information that was accessible from home and from mobile communications devices was something the public needs to move around a city more efficiently. Likewise, real-time transit information would also benefit the public, as the biggest issue with transit is usually the public's perception of the reliability of service and punctuality. Information technology is very valuable to those using public transportation as it can help alleviate the fears of being stranded or late. To that end, another important aspect to collecting this information is to also supply accurate data (that would affect all users of the road or transit-ways) through commonly used applications like Google Maps. In addition to providing this information through portable devices, if high-frequency services are not financially feasible in particular areas, real-time information on next arrivals that is also accessible from home will allow people to plan their trip in advance.

The traveling public will need and expect sophisticated route planning technology that is multi-modal. There was a particular emphasis on reliable, real-time data that would speak to a 'whole system' view. That is, the information needed by users applies to the entire journey experience – real-time parking availability, real-time transit information, next arrivals, transfer points, detours, shopping, restaurants, construction, incidents – and how changes to some of these elements could impact the whole experience of getting from origin to destination. One participant had an analogy for the importance of this information for drivers: "An air traffic controller would never allow an airplane to take off until there is a confirmed 'parking space' at the destination. The same information should be provided for drivers." Another participant highlighted the need for real-time information that applied to other modes:

> "When we think of the real-time data we tend to think of road users. People should be able to know in real-time when the next bus is coming and should have access to information on routes, trips, best travel options, duration of trips, the costs, etc."

Overall, many of those consulted indicated that while they did not believe technology would dramatically impact the reasons people travel around a city, information technology had a role to play in shifting their travel patterns.

Personal mobility devices are a recent technological advance that has been adopted on a worldwide scale. The evolution of telecommunications technology affected the operating environment for the private and public sector in a relatively short amount of time. It has provided an opening to develop a number of applications for various services. The advent of Smartphones that have WiFi or Bluetooth or built-in navigational capabilities like GPS provides a host of opportunities for the public to access information, as well as for providers to offer new services without significant capital investment.

Cell phones could be used as a complement to traditional detection methods of collecting information on the status of the road network. A couple of participants described their city's experiences using cell phones and GPS as a probe to collect real-time data on the road network. Information about car speed, direction and location is transmitted anonymously to a control centre. The data can then be extracted and used by traffic operators to better understand the status of traffic and travel times or the patterns of road users. While this technology is still in the early stages of use, the approach has been found to be a positive and cost-effective way to collect traffic information and will likely be developed further. It is also a way to potentially provide real-time road information back to the public.

Advances in geographic positioning systems (GPS) and geographic information system (GIS) have also improved the way people get around a city. An integration of these two systems could allow for dynamic information of the roads, and information on travel patterns. In ten years, many cars will be equipped with some form of intelligent vehicle technology. Cars could transmit information to a server for traffic operators using onboard diagnostics, such as fuel consumption, emissions, etc. on a second-by-second basis. If fee-for-use model is implemented on roadways, this kind of information could be used to determine road pricing if that was a public policy choice considered by the city.

With respect to enhancing the public transit experience, the development of contactless "smart" electronic ticketing has provided new opportunities for integrating services and improving efficiency. For example, in London, the Oyster system of ticketing has allowed transit users to "load up" their Oyster card through credit cards and online purchases. Moreover, this technology is a first step at integrating multiple travel systems, by allowing users to travel on the Tube and the rail lines. This method of ticketing has been a hugely important innovation for the City of London. A similar integrated tickets system is being adopted in Hong Kong. Vancouver is also considering this kind of system for its buses and the SkyTrain as it would decrease travel times for travelers and dwell times at stops. In addition to improving efficiency by decreasing travel times, the data collected through smart-card systems could provide the ability to initiate loyalty programs for transit users, with customization for fares and routes based on usage patterns.

When asked to describe how they imagined people's transportation needs would change over the next ten years and why, there were several common views related to data management and finding ways to accommodate all modes of transportation in a sustainable way.

Travel data management will become increasingly important to improve the travel experience. The pervasiveness of sophisticated communications technologies, such as the iPhone, will continually influence the expectation for mobile, instantaneous and personalized information to improve the travel experience. This would be expected across all modes. The public will hold information technology to a higher standard and citizen services will change as a result. The expectation will be for information technology to provide a seamless, practical complement to everyday activities. To that end, most participants emphasized that activities will stay the same – going to school, going to work, going shopping, etc., – but mobile technology will play a greater role in planning these activities. As a result of this expectation, public and private sector models for acquiring and distributing data will likely be further developed. Furthermore, data management specialists who can administer this volume of data across various applications will become more important for municipal operations.

Increased commercialization was seen as a growing trend. Some of those consulted believed that market and business principles would play a greater role in government policies related to certain activities. An example that was used by a number of participants, as a way to improve the traveler experience, was that the integration of information about transportation activities with shopping or other activities people normally do (for example, a route would be designed on a mobile device or personal computer with that person's preferences in mind – shops they are or could be interested in would be highlighted along that route, as well as locations for other city services or amenities). People could be enticed to choose public transit, cycling and walking more often if they were aware of how the journey would allow them to easily combine their regular travel with other activities. This could also lead to potential new revenue streams for a city.

Greater mode transfer from cars to public transit would be likely based on cost. Several of those consulted believed that it was likely that discretionary income for the majority of people would decrease, and the cost of automobiles and fuel would be unaffordable for a number of residents. Demand for public transit will likely increase as a result and the supply will have to meet that demand. There may also be a higher demand for convenient ways to take multi-modal journeys, with a greater emphasis on amenities like park-and-ride locations, or space for bikes on buses and trains.

Alternate modes of transportation will be important for managing carbon emissions and automobile congestion. While cars will continue to be prevalent, it is expected that more energy-efficient vehicles would be used. However, the electrification of the automobile was seen as a key development that would pose new challenges for municipalities. On one hand, it would result in fewer emissions, but on the other hand, congestion would not be alleviated by electric cars. As one participant said, "The question that has to be asked when addressing the issue of congestion is not where people are going (i.e. point A to point B) but where they are expected to move in the future." Many participants felt that a host of reasons (cost,

environmental concerns, changing demographics) would necessitate greater use of alternate modes of transportation and that encouraging alternatives, through means like marketing and infrastructure adjustments, could contribute to making alternate modes a preferred option in the minds of people trying to get around the city.

Each participant was asked whether there were any technologies or approaches that were no longer meeting the needs of people getting around a city and were likely to obsolesce based on not meeting those needs.

It was generally agreed upon that carbon-based vehicles would not obsolesce in the near future, although many thought the single-occupancy vehicle would see a decline as it no longer provides a significant advantage for travelers, primarily in terms of cost and potentially in terms of road capacity. Others felt that in ten years time, there will at the very least be more electric motors in vehicles, although these could still be cost-prohibitive for the majority of people.

Travel data information is in high demand and more is needed. A couple of participants emphasized that a broad range of robust, intelligent technologies are needed to assess the road network in a timely fashion, and a greater importance should be placed improving data infrastructure throughout the city. While there are costs associated with installing detection technologies like fiber optic systems, there are various implications associated with having to "catch up" ten years down the line, as one participant noted. Another consideration mentioned by one of the participants was to strike a balance between having both technologically robust solutions and those that are more easily updated: "It is important to invest in information systems that allow for a renewal three to five years into the future. They should spend a little less here and think of information technologies constantly evolving. Although it is an infrastructure investment, the attitude should be that these technologies will evolve – they simply are not all built to last."

Urban Challenges for Transportation

When asked to describe what the primary challenges were for urban cities in terms of transportation, answers varied considerably based on the participants' background and experiences. In general, the transportation challenges identified revolved around infrastructure, sustainability and finding ways to encourage alternate modes of transportation.

The existing car-centric infrastructure was seen as a challenge for enticing people to use other modes, as most road information caters to vehicles. Finding ways to accommodate all modes within the existing infrastructure can be very problematic. Most major activity centres such as shopping malls have been set up to have highway or arterial road access which can make it difficult for non-drivers to access without careful planning or having a relatively short distance to go. Safety and space for pedestrians and cyclists is therefore also a concern as the road network was designed to move vehicles more efficiently. One participant said that these groups (cyclists and pedestrians) need to be informed of route changes the same way that vehicles are because their journeys are affected in the most significant ways in instances of road closures, incidents, or construction. Targeted information designed to guide pedestrians or cyclists to safe crossings or access points could be useful.

Encouraging sustainable modes of transportation like public transit is also a challenge due to the demand exceeding the supply of infrastructure. Most cities want to reduce automobile congestion and need to find ways to reduce the public's dependency on single-occupancy vehicles. Making public transit or ride sharing the most attractive option for reducing that dependency relies on better infrastructure support overall (through investments in transit, expanding the transit network, maintaining the efficiency of entire transit network, state-of-the-art bus or train vehicles with ample space, moving away from 'fixed' schedules to real-time information, promoting transit as the less expensive option or the safest option).

There is constant pressure to manage an ever-evolving set of competing functions for a finite amount of space. Updating some assets or services, which could improve multi-modal travel networks, may be difficult due to a lack of space or the political will to make investments in transit or other modes of sustainable transportation. Furthermore, as one participant noted, this challenge is also complicated in that all city roads essentially have two competing, and occasionally complementary, functions of providing both link functions (i.e. traffic flow or people flow) and place functions (i.e. a public space, commercial space, historical significance). There are trade-offs to privileging one over the other or when there are interruptions to either.

What Other Cities Do Well

Participants were asked to share their views on what some of the challenges were for a medium or large-sized city in making traveler information technologies available to the greatest number of people. They were also prompted on which cities worldwide they felt were leaders in providing information technologies to the traveling public.

One challenge for making information available to the greatest number of people is related to marketing. Branding the city's information technology so that the public is aware how to obtain the information that is available to them is a pivotal piece in adapting to the new telecommunications environment. People rely on mobile tools to get information more than ever before and it is no longer only automobile drivers who expect updates (via radio, for example). Several cities have opted to market their available traveler information through easily accessed services like a dedicated website or an N-1-1 hotline number. Many North American cities, including San Francisco and New York City, have implemented a 5-1-1 hotline telephone number that consolidates transportation and traffic information, as well as weather conditions. In addition, this particular number is nationally standardized for traveler information. Using a telephone number to share this information has been successful for these cities in that the telephone number is simple to use and it satisfies multiple constituencies within a city. It is accessible to people who do not have internet access or mobile or smart phones. Furthermore, it provides information that affects all modal travelers. In Vancouver, they have opted to use a website to consolidate traveler information. The website Travelsmart2010 was originally marketed during the 2010 Olympics as a way to help visitors navigate around the city, but it has now become the default source for regional traveler information. This website was to some extent a repackaged version of a previous tool Vancouver's TransLink had developed called iMove. As a way to capitalize on the public awareness that developed for TravelSmart during the Olympics, many tools and functions from iMove will now be migrated over to the TravelSmart site.

Understanding how to package data in a way that is accessible to the public was seen as a challenge that most medium or large sized cities faced but one that can be addressed in a variety of ways. One way to do this is to provide a service such as a short dial hotline as mentioned above, or to provide other "opt-in" services such as SMS messaging or email notification on route information, an approach currently being used in London, UK. Many participants believed that if the data was openly provided, the private sector or third parties would take it upon themselves to develop user-friendly, accessible and creative applications for this data. To highlight how public agencies can benefit from providing open data, one participant used the example of a high-school aged boy in Seoul who addressed the challenge of the lack of integrated information between the various transit and traffic agencies in the city by integrating their shared data to create a sophisticated iPhone application. These kinds of 'openings' for the private sector or third parties developers can take the burden off public agencies to create that perfect application for their data.

On more than one occasion, the following cities or general locations were mentioned by participants as leaders in providing information to the traveling public:

Where	What they do well
London, United Kingdom	• Satellite positioning on their transit network • SMS messaging and email notifications on route • Make use of vehicle and in-house information technology as much as possible • Supplying more and more open data for app developers • Managing a built-up infrastructure
Paris, France	• Managing a built-up infrastructure
San Francisco/ California in general	• 5-1-1 consolidated transportation hotline • Route planning information for various modes
Tokyo / Japan in general	• Dynamic GPS devices that inform on road and traffic conditions • Transit system information
Portland	• Multi-modal information systems • Use transport apps and push traffic information through SMS or social media
Vancouver	• Multi-modal infrastructure and information systems • Coordinate between multiple agencies to improve ITS initiatives
Europe in general	• Infrastructure and information systems for various modes • More emphasis on transit or other sustainable modes (but infrastructure and city planning have necessitated this in some cases) • Use real-time information on parking in many places • Interactive tools like information kiosks – tourism/multiple languages influence use of easy to use navigation or information tools
Other cities mentioned: Hong Kong, Seoul, Miami, Seattle, Washington DC, New York City, Toronto, Chicago, Singapore, Taipei, Amsterdam, Sweden (in general).	

Appendix A
Detailed Travel Diary Tabulations

Statistics

		Approx. distance:	Number of minutes for trip:
N	Valid	742	744
	No response	2	0
Mean		10.2990 km	21.5222 minutes

Approx. distance by Purpose

What was the purpose of your trip today?	Mean	N
Work or related	10.5777 km	83
School	10.8000 km	5
Shopping	6.7939 km	157
Leisure	15.8890 km	132
Medical	10.0167 km	24
Pickup/Drop off	9.1561 km	49
Return home	9.3975 km	236
Other (ex. Banking, Exercise, Church, Dog Walking, Errands)	11.4116 km	56
Total	10.2990 km	742

Approx. distance by Mode

Which mode(s) of transportation did you use for your trip?	Number of trips	Mean Distance (km)
Automobile driver	358	14.2010 km
Automobile passenger	49	16.0408 km
Public transit	97	11.8188 km
Bicycle	75	6.2267 km
Walking	171	2.6801 km
Assistive mobility device (ex. wheelchair)	5	5.1980 km

Number of minutes for trip: * What was the purpose of your trip today?

Number of minutes for trip:

What was the purpose of your trip today?	Mean	N
Work or related	23.1506 minutes	83
School	15.0000 minutes	5
Shopping	15.0318 minutes	157
Leisure	27.6894 minutes	132
Medical	23.5833 minutes	24
Pickup/Drop off	18.1837 minutes	49
Return home	20.1139 minutes	237
Other (ex. Banking, Exercise, Church, Dog Walking, Errands)	31.1754 minutes	57
Total	21.5222 minutes	744

Number of minutes for trip: * Automobile driver

Number of minutes for trip:

Automobile driver	Mean	N
Total	18.7975 minutes	358

Number of minutes for trip: * Automobile passenger

Number of minutes for trip:

Automobile passenger	Mean	N	Std. Deviation
Total	29.1429 minutes	49	48.28431 minutes

Number of minutes for trip: * Public transit

Number of minutes for trip:

Public transit	Mean	N	Std. Deviation
Total	33.3535 minutes	99	27.24017 minutes

Number of minutes for trip: * Bicycle

Number of minutes for trip:

Bicycle	Mean	N	Std. Deviation
Total	20.3200 minutes	75	15.78158 minutes

Number of minutes for trip: * Walking

Number of minutes for trip:

Walking	Mean	N	Std. Deviation
Total	20.8421 minutes	171	18.69456 minutes

Number of minutes for trip: * Assistive mobility device (ex. wheelchair)

Number of minutes for trip:

Assistive mobility device (ex. wheelchair)	Mean	N	Std. Deviation
Total	14.8571 minutes	7	19.78576 minutes

What was the purpose of your trip today?

	Frequency	Percent	Valid Percent
Return home	237	31.9	31.9
Shopping	157	21.1	21.1
Leisure	132	17.7	17.7
Work or related	83	11.2	11.2
Other	57	7.7	7.7
Pickup/Drop off	49	6.6	6.6
Medical	24	3.2	3.2
School	5	.7	.7
Total	**744**	**100.0**	**100.0**

What was the purpose of your trip today?
*** Age Crosstabulation**

			Age		Total
			18 to 44	45+	
What was the purpose of your trip today?	Work or related	Count	49	34	**83**
		Column %	15.2%	8.1%	**11.2%**
	School	Count	5	0	**5**
		Column %	1.5%	.0%	**.7%**
	Shopping	Count	56	101	**157**
		Column %	17.3%	24.0%	**21.1%**
	Leisure	Count	74	58	**132**
		Column %	22.9%	13.8%	**17.7%**
	Medical	Count	7	17	**24**
		Column %	2.2%	4.0%	**3.2%**
	Pickup/Drop off	Count	10	39	**49**
		Column %	3.1%	9.3%	**6.6%**
	Return home	Count	101	136	**237**
		Column %	31.3%	32.3%	**31.9%**
	Other	Count	21	36	**57**
		Column %	6.5%	8.6%	**7.7%**
Total		Count	**323**	**421**	**744**
		Column %	**100.0%**	**100.0%**	**100.0%**

Did you consult any of the following information sources to help you prepare for your trip?
Source Frequencies

		Responses		
		N	Percent	Percent of Cases
Source	Map	43	20.1%	24.7%
	Weather report	91	42.5%	52.3%
	Transit schedule	41	19.2%	23.6%
	Traffic report	25	11.7%	14.4%
	Other	14	6.5%	8.0%
Total		214	100.0%	123.0%

Mode Frequencies
(Multiple Responses)

		Responses		
		N	Percent	Percent of Cases
Mode	Auto driver	358	47.2%	48.6%
	Auto passenger	49	6.5%	6.6%
	Public transit	99	13.0%	13.4%
	Bicycle	75	9.9%	10.2%
	Walking	171	22.5%	23.2%
	Assistive mobility device	7	.9%	.9%
Total		759	100.0%	103.0%

What are the factors that led you to choose that mode of transportation for your trip? [Multiple responses]
Crosstabulation by Mode

		Mode - auto driver	Mode - Auto passenger	Mode - Public transit	Mode - Bicycle	Mode - Walking	Mode - Assistive mobility device	Total
Convenience (easy, comfort)	Count	132	2	40	26	55	2	257
	% within mode	26.60%	3.50%	27.20%	22.00%	23.20%	18.20%	
Faster/Time constraints	Count	68	8	11	19	8	2	116
	% within mode	13.70%	14.00%	7.50%	16.10%	3.40%	18.20%	
Proximity/Distance	Count	36	3	17	4	53	2	115
	% within mode	7.30%	5.30%	11.60%	3.40%	22.40%	18.20%	
Already in Car/Already on Road/Already had bike	Count	75	8	8	7	11	0	109
	% within mode	15.10%	14.00%	5.40%	5.90%	4.60%	0.00%	
Transporting goods/groceries/parcels	Count	65	6	3	2	4	0	80
	% within mode	13.10%	10.50%	2.00%	1.70%	1.70%	0.00%	
Necessity/only choice/no other choice	Count	31	10	23	2	10	1	77
	% within mode	6.30%	17.50%	15.60%	1.70%	4.20%	9.10%	
Exercise/Health/ fresh air/recreation	Count	2	0	1	27	34	0	64
	% within mode	0.40%	0.00%	0.70%	22.90%	14.30%	0.00%	
Multiple trips	Count	34	5	0	0	2	0	41
	% within mode	6.90%	8.80%	0.00%	0.00%	0.80%	0.00%	
Affordability/cost related/economy	Count	6	0	21	5	6	1	39
	% within mode	1.20%	0.00%	14.30%	4.20%	2.50%	9.10%	
Weather	Count	3	0	5	9	9	1	27
	% within mode	0.60%	0.00%	3.40%	7.60%	3.80%	9.10%	
Preference/Enjoyment	Count	2	0	1	13	10	0	26
	% within mode	0.40%	0.00%	0.70%	11.00%	4.20%	0.00%	
Child related	Count	17	1	0	0	3	0	21
	% within mode	3.40%	1.80%	0.00%	0.00%	1.30%	0.00%	
Carpooling/shared rides	Count	3	8	0	0	2	0	13
	% within mode	0.60%	14.00%	0.00%	0.00%	0.80%	0.00%	
No bus access	Count	6	1	0	2	4	0	13
	% within mode	1.20%	1.80%	0.00%	1.70%	1.70%	0.00%	

Lack of confidence in Public Transit	Count	4	1	1	0	7	0	13
	% within mode	0.80%	1.80%	0.70%	0.00%	3.00%	0.00%	
Walking dog	Count	0	0	0	0	9	0	9
	% within mode	0.00%	0.00%	0.00%	0.00%	3.80%	0.00%	
Habit/regular mode	Count	3	1	3	0	1	0	8
	% within mode	0.60%	1.80%	2.00%	0.00%	0.40%	0.00%	
Avoiding Traffic/Congestion related	Count	0	0	4	1	3	0	8
	% within mode	0.00%	0.00%	2.70%	0.80%	1.30%	0.00%	
Park and Ride/Between bus routes	Count	2	0	3	0	2	0	7
	% within mode	0.40%	0.00%	2.00%	0.00%	0.80%	0.00%	
Efficiency	Count	3	2	0	0	1	0	6
	% within mode	0.60%	3.50%	0.00%	0.00%	0.40%	0.00%	
Medical related	Count	2	1	1	0	1	1	6
	% within mode	0.40%	1.80%	0.70%	0.00%	0.40%	9.10%	
Reliability	Count	0	0	3	0	0	1	4
	% within mode	0.00%	0.00%	2.00%	0.00%	0.00%	9.10%	
Familiarity with Public Transit	Count	2	0	1	0	0	0	3
	% within mode	0.40%	0.00%	0.70%	0.00%	0.00%	0.00%	
Lack of parking	Count	0	0	1	0	1	0	2
	% within mode	0.00%	0.00%	0.70%	0.00%	0.40%	0.00%	
Environment	Count	0	0	0	0	1	0	1
	% within mode	0.00%	0.00%	0.00%	0.00%	0.40%	0.00%	
Total	Count	496	57	147	117	237	11	1065
	% within mode							

What are the factors that led you to choose that mode of transportation for your trip? [Multiple responses]
Crosstabulation by Age

		Age		Total
		18 to 44	45+	
Convenience (Close to destination, easy, comfort)	Count	91	160	251
	% within age	20.30%	27.00%	
Proximity/Distance	Count	61	51	112
	% within age	13.60%	8.60%	
Faster/Time constraints	Count	48	62	110
	% within age	10.70%	10.50%	
Already in Car/Already on Road/Already had car/already had bike	Count	46	62	108
	% within age	10.20%	10.50%	
Transporting goods/groceries/parcels	Count	30	49	79
	% within age	6.70%	8.30%	
Necessity/only choice/no other choice	Count	24	51	75
	% within age	5.30%	8.60%	
Exercise/Health/ fresh air/recreation	Count	36	30	66
	% within age	8.00%	5.10%	
Multiple trips	Count	14	27	41
	% within age	3.10%	4.60%	
Affordability/cost related/economy	Count	20	15	35
	% within age	4.50%	2.50%	
Weather	Count	15	11	26
	% within age	3.30%	1.90%	
Preference/Enjoyment	Count	14	12	26
	% within age	3.10%	2.00%	
Lack of confidence in Public Transit	Count	7	6	13
	% within age	1.60%	1.00%	
Child related	Count	11	10	21
	% within age	2.40%	1.70%	
Carpooling/shared rides	Count	5	8	13
	% within age	1.10%	1.40%	
No bus	Count	5	7	12
	% within age	1.10%	1.20%	
Walking dog	Count	1	8	9
	% within age	0.20%	1.40%	
Avoiding Traffic/Congestion related	Count	4	4	8
	% within age	0.90%	0.70%	
Habit/regular mode	Count	5	4	9
	% within age	1.10%	0.70%	
Medical related (Ex. cast)	Count	3	4	7
	% within age	0.70%	0.70%	
Park and ride/between bus routes	Count	3	3	6
	% within age	0.70%	0.50%	
Efficiency	Count	1	5	6
	% within age	0.20%	0.80%	
Reliability	Count	2	1	3
	% within age	0.40%	0.20%	
Lack of parking	Count	2	0	2
	% within age	0.40%	0.00%	
Familiarity with Public Transit	Count	0	2	2
	% within age	0.00%	0.30%	
Environment	Count	1	0	1
	% within age	0.20%	0.00%	
Total	Count	449	592	1041
	% within age			

Did you consult any of the following information sources to help you prepare for your trip?
(All Information Sources * Mode Crosstabulation)

Source		Mode						Total
		Auto driver	Auto passenger	Public transit	Bicycle	Walking	Assistive mobility device	
Map	Count	23	3	10	4	8	0	48
	% within mode	29.5%	37.5%	14.1%	13.8%	16.0%	.0%	
Weather report	Count	24	2	20	21	31	0	98
	% within mode	30.8%	25.0%	28.2%	72.4%	62.0%	.0%	
Transit schedule	Count	1	0	39	2	7	1	50
	% within mode	1.3%	.0%	54.9%	6.9%	14.0%	100.0%	
Traffic report	Count	20	1	2	1	3	0	27
	% within mode	25.6%	12.5%	2.8%	3.4%	6.0%	.0%	
Other	Count	10	2	0	1	1	0	14
	% within mode	12.8%	25.0%	.0%	3.4%	2.0%	.0%	
Total	Count	78	8	71	29	50	1	237

Did you consult any of the following information sources to help you prepare for your trip?
(All Information Sources * Purpose Crosstabulation)

Source		Work or related	School	Shopping	Leisure	Medical	Pickup/ drop off	Return home	Other	Total
Map	Count	7	0	8	13	3	7	5	0	43
	Percent	13.7%	0.0%	27.6%	22.4%	25.0%	46.7%	17.9%	0.0%	
Weather report	Count	28	3	9	30	3	2	6	10	91
	Percent	54.9%	75.0%	31.0%	51.7%	25.0%	13.3%	21.4%	58.8%	
Transit schedule	Count	8	0	4	9	5	2	10	3	41
	Percent	15.7%	0.0%	13.8%	15.5%	41.7%	13.3%	35.7%	17.6%	
Traffic schedule	Count	7	1	3	2	1	1	6	4	25
	Percent	13.7%	25.0%	10.3%	3.4%	8.3%	6.7%	21.4%	23.5%	
Other	Count	1	0	5	4	0	3	1	0	14
	Percent	2.0%	0.0%	17.2%	6.9%	0.0%	20.0%	3.6%	0.0%	
Total		51	4	29	58	12	15	28	17	214

Did you consult any of the following information sources to help you prepare for your trip?
(All Information Sources* Age Crosstabulation)

		Age		Total
		18 to 44	45+	
Map	Count	18	25	43
	% within age	15.8%	25.0%	
Weather report	Count	58	33	91
	% within age	50.9%	33.0%	
Transit schedule	Count	21	20	41
	% within age	18.4%	20.0%	
Traffic report	Count	12	13	25
	% within age	10.5%	13.0%	
Other	Count	5	9	14
	% within age	4.4%	9.0%	
Total	Count	114	100	214
	% within age			

Where did you go to find this information?
TV * Mode

		Television Source by Mode				Total
		Auto driver	Public transit	Bicycle	Walking	
The Weather Network (Channel 21)	Count	7	4	2	8	21
	% within mode	87.50%	66.70%	100.00%	80.00%	
The Weather Channel (Rogers 23)	Count	0	2	0	0	2
	% within mode	0.00%	33.30%	0.00%	0.00%	
Channel 7	Count	0	0	0	1	1
	% within mode	0.00%	0.00%	0.00%	10.00%	
Rogers Weather On Demand	Count	0	0	0	1	1
	% within mode	0.00%	0.00%	0.00%	10.00%	
CTV Ottawa	Count	1	0	0	0	1
	% within mode	12.50%	0.00%	0.00%	0.00%	
Total	Count	8	6	2	10	26
	% within mode					

Where did you go to find this information?
TV * Purpose

		What was the purpose of your trip today?						Total
		Work or related	Shopping	Leisure	Medical	Return home	Other	
The Weather Network (Channel 21)	Count	4	2	9	1	0	3	19
	% within purpose	66.7%	50.0%	100.0%	100.0%	.0%	100.0%	
The Weather Channel (Rogers 23)	Count	0	1	0	0	1	0	2
	% within purpose	.0%	25.0%	.0%	.0%	100.0%	.0%	
Channel 7	Count	0	1	0	0	0	0	1
	% within purpose	.0%	25.0%	.0%	.0%	.0%	.0%	
Rogers Weather On Demand	Count	1	0	0	0	0	0	1
	% within purpose	16.7%	.0%	.0%	.0%	.0%	.0%	
CTV Ottawa	Count	1	0	0	0	0	0	1
	% within purpose	16.7%	.0%	.0%	.0%	.0%	.0%	
Total	Count	6	4	9	1	1	3	24
	% within purpose							

Where did you go to find this information?
TV * Age Crosstabulation

		Age		Total
		18 to 44	45+	
The Weather Network (Channel 21)	Count	9	10	19
	% within age	90.0%	71.4%	
The Weather Channel (Rogers 23)	Count	0	2	2
	% within age	.0%	14.3%	
Channel 7	Count	0	1	1
	% within age	.0%	7.1%	
Rogers Weather On Demand	Count	1	0	1
	% within age	10.0%	.0%	
CTV Ottawa	Count	0	1	1
	% within age	.0%	7.1%	
Total	Count	10	14	24
	% within age			

Where did you go to find this information?
Radio *Mode Crosstabulation

		Radio Source By Mode					Total
		Auto driver	Auto passenger	Public transit	Bicycle	Walking	
CBC Radio	Count	6	0	5	1	2	14
	% within mode	19.40%	0.00%	100.00%	12.50%	25.00%	
CFRA	Count	11	1	0	4	3	19
	% within mode	35.50%	100.00%	0.00%	50.00%	37.50%	
Hot 88.9	Count	0	0	0	0	1	1
	% within mode	0.00%	0.00%	0.00%	0.00%	12.50%	
Magic 100	Count	3	0	0	0	0	3
	% within mode	9.70%	0.00%	0.00%	0.00%	0.00%	
Live 88.5	Count	3	0	0	1	1	5
	% within mode	9.70%	0.00%	0.00%	12.50%	12.50%	
99.7	Count	2	0	0	0	0	2
	% within mode	6.50%	0.00%	0.00%	0.00%	0.00%	
Virgin Rock 106.9	Count	0	0	0	2	1	3
	% within mode	0.00%	0.00%	0.00%	25.00%	12.50%	
CHRI 99.1 FM	Count	5	0	0	0	0	5
	% within mode	16.10%	0.00%	0.00%	0.00%	0.00%	
Y101	Count	1	0	0	0	0	1
	% within mode	3.20%	0.00%	0.00%	0.00%	0.00%	
Total	Count	31	1	5	8	8	53
	% within mode						

Where did you go to find this information?
Radio *Purpose Crosstabulation

		What was the purpose of your trip today?								Total
		Work or related	School	Shopping	Leisure	Medical	Pickup/Drop off	Return home	Other	
CBC Radio	Count	3	0	1	3	0	3	2	1	13
	% within purpose	25.0%	.0%	14.3%	60.0%	.0%	75.0%	18.2%	16.7%	
CFRA	Count	3	0	2	2	0	0	5	4	16
	% within purpose	25.0%	.0%	28.6%	40.0%	.0%	.0%	45.5%	66.7%	
Hot 88.9	Count	1	0	0	0	0	0	0	0	1
	% within purpose	8.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	
Magic 100	Count	0	2	1	0	0	0	0	0	3
	% within purpose	.0%	100.0%	14.3%	.0%	.0%	.0%	.0%	.0%	
Live 88.5	Count	2	0	1	0	0	0	2	0	5
	% within purpose	16.7%	.0%	14.3%	.0%	.0%	.0%	18.2%	.0%	
99.7	Count	1	0	0	0	0	0	1	0	2
	% within purpose	8.3%	.0%	.0%	.0%	.0%	.0%	9.1%	.0%	
Virgin Rock 106.9	Count	2	0	0	0	0	1	0	0	3
	% within purpose	16.7%	.0%	.0%	.0%	.0%	25.0%	.0%	.0%	
CHRI 99.1 FM	Count	0	0	1	0	2	0	1	1	5
	% within purpose	.0%	.0%	14.3%	.0%	100.0%	.0%	9.1%	16.7%	
Y101	Count	0	0	1	0	0	0	0	0	1
	% within purpose	.0%	.0%	14.3%	.0%	.0%	.0%	.0%	.0%	
Total	Count	12	2	7	5	2	4	11	6	49
	% within purpose									

Where did you go to find this information?
Radio *Age Crosstabulation

		Age		Total
		18 to 44	45+	
CBC Radio	Count	6	7	13
	% within age	26.1%	26.9%	
CFRA	Count	6	10	16
	% within age	26.1%	38.5%	
Hot 88.9	Count	1	0	1
	% within age	4.3%	.0%	
Magic 100	Count	2	1	3
	% within age	8.7%	3.8%	
Live 88.5	Count	5	0	5
	% within age	21.7%	.0%	
99.7	Count	0	2	2
	% within age	.0%	7.7%	
Virgin Rock 106.9	Count	3	0	3
	% within age	13.0%	.0%	
CHRI 99.1 FM	Count	0	5	5
	% within age	.0%	19.2%	
Y101	Count	0	1	1
	% within age	.0%	3.8%	
Total	Count	23	26	49
	% within age			

Where did you go to find this information?
Application * Mode Crosstabulation

		Smart Phone Application By Mode				
		Auto driver	Public transit	Bicycle	Walking	Total
Google maps	Count	0	1	1	0	2
	% within mode	0.00%	50.00%	100.00%	0.00%	
Apple Safari	Count	1	0	0	0	1
	% within mode	16.70%	0.00%	0.00%	0.00%	
iTouch	Count	1	0	0	1	2
	% within mode	16.70%	0.00%	0.00%	20.00%	
Weather Eye (by Weather Network)	Count	3	0	0	2	5
	% within mode	50.00%	0.00%	0.00%	40.00%	
BB Weather Channel	Count	0	1	0	1	2
	% within mode	0.00%	50.00%	0.00%	20.00%	
iPhone default/ Standard	Count	1	0	0	1	2
	% within mode	16.70%	0.00%	0.00%	20.00%	
Total	Count	6	2	1	5	14
	% within mode					

Where did you go to find this information?
Application * Purpose Crosstabulation

		What was the purpose of your trip today?						Total
		Work or related	School	Shopping	Leisure	Return home	Other	
Google maps	Count	0	0	0	1	0	0	1
	% within Q1	.0%	.0%	.0%	50.0%	.0%	.0%	
Apple Safari	Count	0	0	1	0	0	0	1
	% within Q1	.0%	.0%	100.0%	.0%	.0%	.0%	
iTouch	Count	0	0	0	0	2	0	2
	% within Q1	.0%	.0%	.0%	.0%	40.0%	.0%	
Weather Eye (by Weather Network)	Count	1	0	0	0	3	1	5
	% within purpose	50.0%	.0%	.0%	.0%	60. 0%	100.0%	.0%
BB Weather Channel	Count	1	0	0	0	0	0	1
	% within Q1	50.0%	.0%	.0%	.0%	.0%	.0%	
iPhone default/ Standard	Count	0	1	0	1	0	0	2
	% within Q1	.0%	100.0%	.0%	50.0%	.0%	.0%	
Total	Count	2	1	1	2	5	1	12
	% within Q1							

Where did you go to find this information?
Application * Age Crosstabulation

		Age		Total
		18 to 44	45+	
Google maps	Count	1	0	1
	% within age	11.1%	.0%	
Apple Safari	Count	0	1	1
	% within age	.0%	33.3%	
iTouch	Count	0	2	2
	% within age	.0%	66.7%	
Weather Eye (by Weather Network)	Count	5	0	5
	% within age	55.5%	0.0%	
BB Weather Channel	Count	1	0	1
	% within age	11.1%	.0%	
iPhone default/ Standard	Count	2	0	2
	% within age	22.2%	.0%	
Total	Count	9	3	12
	% within age			

Where did you go to find this information?
Newspaper * Mode Crosstabulation

		Newspaper Source		
		By Mode		
		Auto driver	Auto passenger	Total
Xpress	Count	0	1	1
	% within mode	0.00%	100.00%	
Ottawa Citizen	Count	2	0	2
	% within mode	66.70%	0.00%	
Ottawa Sun	Count	1	0	1
	% within mode	33.30%	0.00%	
	Count	3	1	4
	% within mode			

Where did you go to find this information?
Newspaper * Purpose Crosstabulation

		What was the purpose of your trip today?				Total
		Work or related	Shopping	Leisure	Pickup/Drop off	
Xpress	Count	0	0	1	0	1
	% within purpose	.0%	.0%	100.0%	.0%	
Ottawa Citizen	Count	0	1	0	1	2
	% within purpose	.0%	100.0%	.0%	100.0%	
Ottawa Sun	Count	1	0	0	0	1
	% within purpose	100.0%	.0%	.0%	.0%	
Total	Count	1	1	1	1	4
	% within purpose					

Where did you go to find this information?
Newspaper * Age Crosstabulation

		Age		Total
		18 to 44	45+	
Xpress	Count	1	0	1
	% within age	100.0%	.0%	
Ottawa Citizen	Count	0	2	2
	% within age	.0%	66.7%	
Ottawa Sun	Count	0	1	1
	% within age	.0%	33.3%	
Total	Count	1	3	4
	% within age			

Where did you go to find this information?
Website * Mode Crosstabulation

		Internet Site Source By Mode					
		Auto driver	Auto passenger	Public transit	Bicycle	Walking	Total
Google maps	Count	15	1	4	0	3	23
	% within mode	53.60%	33.30%	12.10%	0.00%	13.00%	
Taxi	Count	0	1	0	0	0	1
	% within mode	0.00%	33.30%	0.00%	0.00%	0.00%	
Map Quest	Count	2	0	0	0	2	4
	% within mode	7.10%	0.00%	0.00%	0.00%	8.70%	
OC Transpo	Count	0	0	18	1	6	25
	% within mode	0.00%	0.00%	54.50%	9.10%	26.10%	
NCC	Count	0	0	0	1	0	1
	% within mode	0.00%	0.00%	0.00%	9.10%	0.00%	
Environment Canada/ weatheroffice.ec.gc.ca	Count	3	1	1	4	5	14
	% within mode	10.70%	33.30%	3.00%	36.40%	21.70%	
Weather Network	Count	4	0	8	4	7	23
	% within mode	14.30%	0.00%	24.20%	36.40%	30.40%	
STO.ca	Count	0	0	2	0	0	2
	% within mode	0.00%	0.00%	6.10%	0.00%	0.00%	
ALC.com	Count	1	0	0	0	0	1
	% within mode	3.60%	0.00%	0.00%	0.00%	0.00%	
Google	Count	1	0	0	0	0	1
	% within mode	3.60%	0.00%	0.00%	0.00%	0.00%	
Store/destination website	Count	2	0	0	1	0	3
	% within mode	7.10%	0.00%	0.00%	9.10%	0.00%	
Total	Count	28	3	33	11	23	98
	% within mode						

Where did you go to find this information?
Website *Purpose Crosstabulation

		What was the purpose of your trip today?								Total
		Work or related	School	Shopping	Leisure	Medical	Pickup/Drop off	Return home	Other	
Google maps	Count	4	0	6	7	2	1	2	0	22
	% within purpose	22.2%	.0%	60.0%	28.0%	25.0%	50.0%	10.5%	.0%	
Taxi	Count	1	0	0	0	0	0	0	0	1
	% within purpose	5.6%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	
Map Quest	Count	0	0	1	1	0	1	1	0	4
	% within purpose	.0%	.0%	10.0%	4.0%	.0%	50.0%	5.3%	.0%	
OC Transpo	Count	4	0	0	3	5	0	6	1	19
	% within purpose	22.2%	.0%	.0%	12.0%	62.5%	.0%	31.6%	25.0%	
NCC	Count	0	0	0	1	0	0	0	0	1
	% within purpose	.0%	.0%	.0%	4.0%	.0%	.0%	.0%	.0%	
Environment Canada/weatheroffice.ec.gc.ca	Count	3	0	0	7	1	0	1	2	14
	% within purpose	16.7%	.0%	.0%	28.0%	12.5%	.0%	5.3%	50.0%	
Weather Network	Count	5	2	1	5	0	0	6	0	19
	% within purpose	27.8%	100.0%	10.0%	20.0%	.0%	.0%	31.6%	.0%	
Ottawa Sun	Count	0	0	0	0	0	0	1	0	1
	% within purpose	.0%	.0%	.0%	.0%	.0%	.0%	5.3%	.0%	
STO.ca	Count	1	0	0	0	0	0	1	0	2
	% within purpose	5.6%	.0%	.0%	.0%	.0%	.0%	5.3%	.0%	
ALC.com	Count	0	0	0	0	0	0	0	1	1
	% within purpose	.0%	.0%	.0%	.0%	.0%	.0%	.0%	25.0%	
Google	Count	0	0	1	0	0	0	0	0	1
	% within purpose	.0%	.0%	10.0%	.0%	.0%	.0%	.0%	.0%	
Store/destination website	Count	0	0	1	1	0	0	1	0	3
	% within purpose	.0%	.0%	10.0%	4.0%	.0%	.0%	5.3%	.0%	
Total	Count	18	2	10	25	8	2	19	4	88
	% within purpose									

Where did you go to find this information?
Website * Age Crosstabulation

		Age		Total
		18 to 44	45+	
Google maps	Count	11	11	22
	% within age	16.9%	47.8%	
Taxi	Count	1	0	1
	% within age	1.5%	.0%	
Map Quest	Count	1	3	4
	% within age	1.5%	13.0%	
OC Transpo	Count	14	5	19
	% within age	21.5%	21.7%	
NCC	Count	1	0	1
	% within age	1.5%	.0%	
Environment Canada/weatheroffice.ec.gc.ca	Count	11	3	14
	% within age	16.9%	13.0%	
Weather Network	Count	19	0	19
	% within age	29.2%	.0%	
Ottawa Sun	Count	1	0	1
	% within age	1.5%	.0%	
STO.ca	Count	2	0	2
	% within age	3.1%	.0%	
ALC.com	Count	1	0	1
	% within age	1.5%	.0%	
Google	Count	1	0	1
	% within age	1.5%	.0%	
Store/destination website	Count	2	1	3
	% within age	3.1%	4.3%	
Total	Count	65	23	88
	% within age			

Where did you go to find this information?
Other * Mode Crosstabulation

		Other Information Source						
		By Mode						Total
		Auto driver	Auto passenger	Public transit	Bicycle	Walking	Assistive mobility device	
City map/ paper map	Count	4	0	0	1	0	0	5
	% within mode	44.40%	0.00%	0.00%	25.00%	0.00%	0.00%	
OC Transpo map/ paper schedule	Count	0	0	2	0	1	0	3
	% within mode	0.00%	0.00%	7.70%	0.00%	16.70%	0.00%	
OC Transpo call center (560-1000)	Count	0	0	1	0	0	0	1
	% within mode	0.00%	0.00%	3.80%	0.00%	0.00%	0.00%	
Home phone to call for info	Count	2	0	0	0	0	0	2
	% within mode	22.20%	0.00%	0.00%	0.00%	0.00%	0.00%	
Had previous knowledge	Count	1	0	0	0	0	0	1
	% within mode	11.10%	0.00%	0.00%	0.00%	0.00%	0.00%	
Yellow Pages	Count	1	0	0	0	0	0	1
	% within mode	11.10%	0.00%	0.00%	0.00%	0.00%	0.00%	
Received information in the mail	Count	1	1	23	3	4	1	33
	% within mode	11.10%	100.00%	88.50%	75.00%	66.70%	100.00%	
Looked outside	Count	0	0	0	0	1	0	1
	% within mode	0.00%	0.00%	0.00%	0.00%	16.70%	0.00%	
Total	Count	9	1	26	4	6	1	47
	% within mode							

Where did you go to find this information?
Other * Purpose Crosstabulation

		What was the purpose of your trip today?							Total
		Work or related	Shopping	Leisure	Medical	Pickup/Drop off	Return home	Other	
City map/ paper map	Count	1	0	3	0	1	0	0	5
	% within purpose	16.7%	.0%	27.3%	.0%	12.5%	.0%	.0%	
OC Transpo map/ paper schedule	Count	3	5	3	0	2	3	1	17
	% within purpose	50.0%	62.5%	27.3%	.0%	25.0%	60.0%	100.0%	
OC Transpo call center (560-1000)	Count	0	0	3	0	2	1	0	6
	% within purpose	.0%	.0%	27.3%	.0%	25.0%	20.0%	.0%	
Home phone to call for info	Count	2	2	0	0	1	1	0	6
	% within purpose	33.3%	25.0%	.0%	.0%	12.5%	20.0%	.0%	
Had previous knowledge	Count	0	0	1	1	1	0	0	3
	% within purpose	.0%	.0%	9.1%	100.0%	12.5%	.0%	.0%	
Yellow Pages	Count	0	0	0	0	1	0	0	1
	% within purpose	.0%	.0%	.0%	.0%	12.5%	.0%	.0%	
Received information in the mail	Count	0	1	0	0	0	0	0	1
	% within purpose	.0%	12.5%	.0%	.0%	.0%	.0%	.0%	
Looked outside	Count	0	0	1	0	0	0	0	1
	% within purpose	.0%	.0%	9.1%	.0%	.0%	.0%	.0%	
Total	Count	6	8	11	1	8	5	1	40
	% within purpose								

Where did you go to find this information?
Other *Age Crosstabulation

		Age		Total
		18 to 44	45+	
City map/ paper map	Count	0	5	5
	% within age	.0%	17.2%	
OC Transpo map/ paper schedule	Count	4	13	17
	% within age	36.4%	44.8%	
OC Transpo call center (560-1000)	Count	3	3	6
	% within age	27.3%	10.3%	
Home phone to call for info	Count	2	4	6
	% within age	18.2%	13.8%	
Had previous knowledge	Count	1	2	3
	% within age	9.1%	6.9%	
Yellow Pages	Count	0	1	1
	% within age	.0%	3.4%	
Received information in the mail	Count	0	1	1
	% within age	.0%	3.4%	
Looked outside	Count	1	0	1
	% within age	9.1%	.0%	
Total	Count	11	29	40
	% within age			

Did you encounter any challenges or travel issues which affected your trip?

		Frequency	Percent	Valid Percent
Valid	Yes	139	18.7	18.7
	No	605	81.3	81.3
	Total	**744**	**100.0**	**100.0**

[If Yes] Please describe the challenges or travel issues you encountered. (What happened? Where?) [Open-ended]
***Mode Crosstabulation**

		Mode						Total
		Auto driver	Auto passenger	Public transit	Bicycle	Walking	Assistivemobility device	
Construction + detours	Count	30	2	1	10	9	0	52
	% within mode	50.00%	18.20%	3.30%	52.60%	39.10%	0.00%	
Traffic	Count	19	3	3	0	0	0	25
	% within mode	31.70%	27.30%	10.00%	0.00%	0.00%	0.00%	
Non sufficient travel information	Count	1	0	6	0	2	0	9
	% within mode	1.70%	0.00%	20.00%	0.00%	8.70%	0.00%	
Bus transfers	Count	0	0	7	0	1	0	8
	% within mode	0.00%	0.00%	23.30%	0.00%	4.30%	0.00%	
Wheelchair accessible travel	Count	0	0	3	0	0	5	8
	% within mode	0.00%	0.00%	10.00%	0.00%	0.00%	83.30%	
Hard to find parking	Count	3	3	0	1	0	0	7
	% within mode	5.00%	27.30%	0.00%	5.30%	0.00%	0.00%	
Other delays (non-construction ex: bridge up)	Count	3	0	1	0	2	0	6
	% within mode	5.00%	0.00%	3.30%	0.00%	8.70%	0.00%	
Exceptional circumstance (ex: found blackberry on the road-	Count	1	0	0	1	2	0	4
	% within mode	1.70%	0.00%	0.00%	5.30%	8.70%	0.00%	
Dangerous driving/ disregard for others	Count	1	0	0	3	0	0	4
	% within mode	1.70%	0.00%	0.00%	15.80%	0.00%	0.00%	
Street confusion/ got lost	Count	2	0	1	0	0	0	3
	% within mode	3.30%	0.00%	3.30%	0.00%	0.00%	0.00%	
Weather	Count	0	0	0	0	3	0	3
	% within mode	0.00%	0.00%	0.00%	0.00%	13.00%	0.00%	
Uncomfortable bus environment	Count	0	0	2	0	0	1	3
	% within mode	0.00%	0.00%	6.70%	0.00%	0.00%	16.70%	
Finding a cab	Count	0	1	1	0	0	0	2
	% within mode	0.00%	9.10%	3.30%	0.00%	0.00%	0.00%	
No convenient bike lanes/ paths	Count	0	0	0	2	0	0	2
	% within mode	0.00%	0.00%	0.00%	10.50%	0.00%	0.00%	
Finding local store that sells bus tickets	Count	0	0	1	0	1	0	2
	% within mode	0.00%	0.00%	3.30%	0.00%	4.30%	0.00%	
Non sufficient sidewalks/ cross ways	Count	0	0	0	0	2	0	2
	% within mode	0.00%	0.00%	0.00%	0.00%	8.70%	0.00%	
Late buses	Count	0	0	2	0	0	0	2
	% within mode	0.00%	0.00%	6.70%	0.00%	0.00%	0.00%	
Hard to bike on the road due to traffic	Count	0	0	0	1	0	0	1
	% within mode	0.00%	0.00%	0.00%	5.30%	0.00%	0.00%	
Biking on the sidewalk	Count	0	0	0	0	1	0	1
	% within mode	0.00%	0.00%	0.00%	0.00%	4.30%	0.00%	
Poor bike path conditions	Count	0	0	0	1	0	0	1
	% within mode	0.00%	0.00%	0.00%	5.30%	0.00%	0.00%	
Infrequent buses	Count	0	0	1	0	0	0	1
	% within mode	0.00%	0.00%	3.30%	0.00%	0.00%	0.00%	
Taxi too expensive	Count	0	1	0	0	0	0	1
	% within mode	0.00%	9.10%	0.00%	0.00%	0.00%	0.00%	
Bus didn't stop	Count	0	0	1	0	0	0	1
	% within mode	0.00%	0.00%	3.30%	0.00%	0.00%	0.00%	
Bus driver's attitude	Count	0	1	0	0	0	0	1
	% within mode	0.00%	9.10%	0.00%	0.00%	0.00%	0.00%	
Total	Count	60	11	30	19	23	6	149
	% within mode							

[If Yes] Please describe the challenges or travel issues you encountered. (What happened? Where?) [Open-ended]
***Age Crosstabulation**

		Age		Total
		18 to 44	45+	
Construction and detours	Count	20	31	51
	% within age	34.50%	37.30%	
Traffic	Count	13	12	25
	% within age	22.40%	14.50%	
Insufficient travel information	Count	0	8	8
	% within age	0.00%	9.60%	
Bus transfers	Count	0	7	7
	% within age	0.00%	8.40%	
Hard to find parking	Count	1	6	7
	% within age	1.70%	7.20%	
Delays (non-construction ex: bridge up)	Count	1	4	5
	% within age	1.70%	4.80%	
Wheelchair accessible travel	Count	0	5	5
	% within age	0.00%	6.00%	
Exceptional circumstance (ex: found blackberry on the road-	Count	2	2	4
	% within age	3.40%	2.40%	
Dangerous driving/ disregard for others	Count	3	1	4
	% within age	5.20%	1.20%	
Street confusion/ got lost	Count	2	1	3
	% within age	3.40%	1.20%	
Weather	Count	2	1	3
	% within age	3.40%	1.20%	
Finding a cab	Count	2	0	2
	% within age	3.40%	0.00%	
In sufficient sidewalks/ cross ways	Count	2	0	2
	% within age	3.40%	0.00%	
Late buses	Count	2	0	2
	% within age	3.40%	0.00%	
No convenient bikelanes/ paths	Count	1	1	2
	% within age	1.70%	1.20%	
Uncomfortable bus environment	Count	1	1	2
	% within age	1.70%	1.20%	
Biking on the sidewalk	Count	1	0	1
	% within age	1.70%	0.00%	
Bus didn't stop	Count	1	0	1
	% within age	1.70%	0.00%	
Bus driver's attitude	Count	0	1	1
	% within age	0.00%	1.20%	
Hard to bike on the road due to traffic	Count	1	0	1
	% within age	1.70%	0.00%	
Problems with cab drivers	Count	0	1	1
	% within age	0.00%	1.20%	
Poor bike path conditions	Count	1	0	1
	% within age	1.70%	0.00%	
Finding local store that sells bus tickets	Count	1	0	1
	% within age	1.70%	0.00%	
Infrequent buses	Count	0	1	1
	% within age	0.00%	1.20%	
Taxi too expensive	Count	1	0	1
	% within age	1.70%	0.00%	
Total	Count	58	83	141
	% within age			

Do you think there is any information or service that you could have received which would have made your trip better?

		Frequency	Percent	Valid Percent
Valid	Yes	64	8.6	8.6
	No	680	91.4	91.4
	Total	**744**	**100.0**	**100.0**

Do you think there is any information or service that you could have received which would have made your trip better? * Age Crosstabulation

			Age		Total
			18 to 44	45+	
Do you think there is any information or service that you could have received which would have made your trip better?	Yes	Count	27	37	**64**
		Column %	8.4%	8.8%	**8.6%**
	No	Count	296	384	**680**
		Column %	91.6%	91.2%	**91.4%**
Total		Count	**323**	**421**	**744**
		Column %	**100.0%**	**100.0%**	**100.0%**

[If Yes] Please describe
[Mode Crosstabulation]

		Mode						Total
		Auto driver	Auto passenger	Public transit	Bicycle	Walking	Assistive mobility device	
Traffic report/maps with up to date information on traffic congestion/ construction/detours	Count	10	2	3	0	5	0	20
	% within mode	50.00%	40.00%	16.70%	0.00%	50.00%	0.00%	
Improving Bike lanes/ paths to make them more accessible/	Count	0	0	0	9	0	0	9
	% within mode	0.00%	0.00%	0.00%	81.80%	0.00%	0.00%	
Improved bus drivers (ex: calling out stops/ driving skills)	Count	0	0	4	0	0	4	8
	% within mode	0.00%	0.00%	22.20%	0.00%	0.00%	66.70%	
Efficient road signs with up to date information on traffic/	Count	3	3	0	0	1	0	7
	% within mode	15.00%	60.00%	0.00%	0.00%	10.00%	0.00%	
More specific bus schedule information from OC Transpo (ex: real time information at stops)	Count	1	0	5	0	1	0	7
	% within mode	5.00%	0.00%	27.80%	0.00%	10.00%	0.00%	
Light Rail System	Count	0	0	1	1	0	1	3
	% within mode	0.00%	0.00%	5.60%	9.10%	0.00%	16.70%	
Information on local gas stations with the best prices	Count	2	0	0	0	0	0	2
	% within mode	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Different/ more bus route options	Count	1	0	1	0	0	0	2
	% within mode	5.00%	0.00%	5.60%	0.00%	0.00%	0.00%	
A change in bus schedules	Count	0	0	2	0	0	0	2
	% within mode	0.00%	0.00%	11.10%	0.00%	0.00%	0.00%	
Information on street parking/ parking lots	Count	1	0	0	0	1	0	2
	% within mode	5.00%	0.00%	0.00%	0.00%	10.00%	0.00%	
More 'stop' signals on bus in accessible places	Count	0	0	1	0	0	0	1
	% within mode	0.00%	0.00%	5.60%	0.00%	0.00%	0.00%	
Other modes of transportation	Count	0	0	0	0	1	0	1
	% within mode	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	
More frequent weekend bus trips	Count	0	0	1	0	0	0	1
	% within mode	0.00%	0.00%	5.60%	0.00%	0.00%	0.00%	
Report on pathway conditions	Count	0	0	0	1	0	0	1
	% within mode	0.00%	0.00%	0.00%	9.10%	0.00%	0.00%	
Need more traffic signs (ex: stop signs)	Count	0	0	0	0	1	0	1
	% within mode	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	
Improved sidewalks	Count	0	0	0	0	0	1	1
	% within mode	0.00%	0.00%	0.00%	0.00%	0.00%	16.70%	
Effort to try not to interrupt traffic during peak hours	Count	1	0	0	0	0	0	1
	% within mode	5.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Knowing the schedule for construction sites (start and completion)	Count	1	0	0	0	0	0	1
	% within mode	5.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Total	Count	20	5	18	11	10	6	70
	% within mode							

Do you think there is any information or service that you could have received which would have made your trip better? *Purpose Crosstabulation

			What was the purpose of your trip today?								Total
			Work or related	School	Shopping	Leisure	Medical	Pickup/Drop off	Return home	Other	
Do you think there is any information or service that you could have received which would have made your trip better?	Yes	Count	11	0	12	8	3	1	21	8	**64**
		Column %	13.3%	.0%	7.6%	6.1%	12.5%	2.0%	8.9%	14.0%	**8.6%**
	No	Count	72	5	145	124	21	48	216	49	**680**
		Column %	86.7%	100.0%	92.4%	93.9%	87.5%	98.0%	91.1%	86.0%	**91.4%**
Total		Count	**83**	**5**	**157**	**132**	**24**	**49**	**237**	**57**	**744**
		Column %	**100.0%**	**100.0%**	**100.0%**	**100.0 %**	**100.0%**	**100.0%**	**100.0 %**	**100.0 %**	**100.0%**

Do you think there is any information or service that you could have received which would have made your trip better? *Age Crosstabulation

		Age		
		18 to 44 (n=25)	45+ (n=36)	Total (n=61)
Traffic report/maps with up to date information on traffic congestion/construction/detours	% within age	24.0%	27.8%	16
Improving access to bike lanes/ paths	% within age	32.0%	2.8%	9
Efficient road signs with up to date information on traffic	% within age	8.0%	13.9%	7
More specific bus schedule information from OC Transpo (ex: real time information at stops)	% within age	4.0%	13.9%	6
Improved service from bus drivers (ex: calling out stops/ driving skills)	% within age	0.0%	11.1%	4
Light Rail System	% within age	0.0%	8.3%	3
Information on local gas stations with the best prices	% within age	0.0%	5.6%	2
Different/ more bus route options	% within age	4.0%	2.8%	2
A change in bus schedules	% within age	0.0%	5.6%	2
Information on street parking/ parking lots	% within age	4.0%	2.8%	2
Accessible bus stop-signals evenly spread out throughout the bus	% within age	4.00%	0.00%	1
Other mode of transportation	% within age	4.00%	0.00%	1
More frequent weekend bus trips	% within age	4.00%	0.00%	1
Report on pathway conditions	% within age	4.00%	0.00%	1
Need more traffic signs (ex: stop signs)	% within age	4.00%	0.00%	1
Improved sidewalks	% within age	0.00%	2.80%	1
effort to try not to interrupt traffic during peak hours	% within age	0.00%	2.80%	1
Knowing the schedule for construction sites (when it will be	% within age	4.00%	0.00%	1

Please rate your overall experience of your trip as 1 – very poor, 2 – poor, 3 – neither good nor poor, 4 – good, 5 – very good: * What was the purpose of your trip today? Crosstabulation

What was the purpose of your trip today?	Mean (Out of 5)	N
Work or related	3.8795	83
School	3.8000	5
Shopping	4.1401	157
Leisure	4.2197	132
Medical	4.1250	24
Pickup/Drop off	4.3469	49
Return home	4.1055	237
Other	4.3509	57
Total	4.1411	744

Please rate your overall experience of your trip as 1 – very poor, 2 – poor, 3 – neither good nor poor, 4 – good, 5 – very good: * Age Crosstabulation

Age	Mean	N
18 to 44	3.9969	323
45+	4.2518	421
Total	4.1411	744

Please rate your overall experience of your trip as 1 – very poor, 2 – poor, 3 – neither good nor poor, 4 – good, 5 – very good: *Mode Crosstabulation

*** Automobile driver**

Automobile driver	Mean	N
Yes	4.1788	358
Total	4.1788	358

Please rate your overall experience of your trip as:
*** Automobile passenger**

Automobile passenger	Mean	N
Yes	4.0816	49
Total	4.0816	49

Please rate your overall experience of your trip as:
*** Public transit**

Public transit	Mean	N
Yes	3.8485	99
Total	3.8485	99

Please rate your overall experience of your trip as: * Bicycle

Bicycle	Mean	N
Yes	4.3467	75
Total	4.3467	75

Please rate your overall experience of your trip as: * Walking

Walking	Mean	N
Yes	4.1579	171
Total	4.1579	171

Please rate your overall experience of your trip as: * Assistive mobility device (ex. wheelchair)

Assistive mobility device (ex. wheelchair)	Mean	N
Yes	3.5714	7
Total	3.5714	7

Please rate your overall experience of your trip as
Why do you have that opinion?

		Modes						Total
		Auto driver	Auto passenger	Public transit	Bicycle	Walking	Assistive mobility device	
Average trip/No issues	Count	86	14	14	20	41	0	175
	% within mode	24.90%	31.80%	14.40%	26.70%	25.50%	0.00%	
Efficient/ convenient/ quick- no delays	Count	85	8	12	9	24	0	138
	% within mode	24.60%	18.20%	12.40%	12.00%	14.90%	0.00%	
Light traffic	Count	105	8	2	7	4	0	126
	% within mode	30.40%	18.20%	2.10%	9.30%	2.50%	0.00%	
Enjoyable experience	Count	15	1	5	14	38	0	73
	% within mode	4.30%	2.30%	5.20%	18.70%	23.60%	0.00%	
Weather	Count	2	0	3	10	34	2	51
	% within mode	0.60%	0.00%	3.10%	13.30%	21.10%	33.30%	
Good bus service (ex: on time, quick)	Count	1	1	31	2	4	1	40
	% within mode	0.30%	2.30%	32.00%	2.70%	2.50%	16.70%	
Slow traffic	Count	12	5	3	0	2	0	22
	% within mode	3.50%	11.40%	3.10%	0.00%	1.20%	0.00%	
Construction	Count	14	1	0	3	1	0	19
	% within mode	4.10%	2.30%	0.00%	4.00%	0.60%	0.00%	
Delay on road (ex: detour)	Count	8	1	3	0	1	0	13
	% within mode	2.30%	2.30%	3.10%	0.00%	0.60%	0.00%	
Bus is slow/ unreliable	Count	0	0	12	0	0	0	12
	% within mode	0.00%	0.00%	12.40%	0.00%	0.00%	0.00%	
Crowded bus/ need better design	Count	2	0	8	0	0	1	11
	% within mode	0.60%	0.00%	8.20%	0.00%	0.00%	16.70%	
Took longer than expected	Count	3	1	1	1	3	0	9
	% within mode	0.90%	2.30%	1.00%	1.30%	1.90%	0.00%	
Easy parking	Count	8	0	0	0	0	0	8
	% within mode	2.30%	0.00%	0.00%	0.00%	0.00%	0.00%	
Attitude of drivers (bus/taxi)	Count	1	1	3	2	0	1	8
	% within mode	0.30%	2.30%	3.10%	2.70%	0.00%	16.70%	
Not travel-related/Other circumstance (tired)	Count	3	3	0	0	2	0	8
	% within mode	0.90%	6.80%	0.00%	0.00%	1.20%	0.00%	
Busy streets downtown/ pedestrian traffic	Count	0	0	0	2	2	0	4
	% within mode	0.00%	0.00%	0.00%	2.70%	1.20%	0.00%	
Poor sidewalk conditions/ Wider sidewalks	Count	0	0	0	0	2	1	3
	% within mode	0.00%	0.00%	0.00%	0.00%	1.20%	16.70%	
Exercise	Count	0	0	0	0	3	0	3
	% within mode	0.00%	0.00%	0.00%	0.00%	1.90%	0.00%	
Dangerous biking conditions	Count	0	0	0	3	0	0	3
	% within mode	0.00%	0.00%	0.00%	4.00%	0.00%	0.00%	
Accessible biking to destination	Count	0	0	0	2	0	0	2
	% within mode	0.00%	0.00%	0.00%	2.70%	0.00%	0.00%	
Total	Count	345	44	97	75	161	6	728
	% within mode							

AUTUMN

During the autumn which mode of transportation do you use the most as your primary means of getting around the city? * Automobile driver Crosstabulation

			Automobile Driver Yes	Total
During the autumn which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	28	**28**
		Column %	73.70%	**73.70%**
	Automobile passenger	Count	1	**1**
		Column %	2.60%	**2.60%**
	Public transit	Count	3	**3**
		Column %	7.90%	**7.90%**
	Bicycle	Count	3	**3**
		Column %	7.90%	**7.90%**
	Walking	Count	3	**3**
		Column %	7.90%	**7.90%**
Total		Count	**38**	**38**
		Column %	**100.00%**	**100.00%**

During the autumn which mode of transportation do you use the most as your primary means of getting around the city? * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
During the autumn which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	3	**3**
		Column %	75.00%	**75.00%**
	Public transit	Count	1	**1**
		Column %	25.00%	**25.00%**
Total		Count	**4**	**4**
		Column %	**100.00%**	**100.00%**

During the autumn which mode of transportation do you use the most as your primary means of getting around the city? * Public transit Crosstabulation

			Public transit	Total
			Yes	
During the autumn which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	2	**2**
		Column %	10.00%	**10.00%**
	Public transit	Count	16	**16**
		Column %	80.00%	**80.00%**
	Walking	Count	2	**2**
		Column %	10.00%	**10.00%**
Total		Count	**20**	**20**
		Column %	**100.00%**	**100.00%**

During the autumn which mode of transportation do you use the most as your primary means of getting around the city? * Bicycle crosstabulation

			Bicycle	Total
			Yes	
During the autumn which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	1	**1**
		Column %	10.00%	**10.00%**
	Public transit	Count	1	**1**
		Column %	10.00%	**10.00%**
	Bicycle	Count	7	**7**
		Column %	70.00%	**70.00%**
	Walking	Count	1	**1**
		Column %	10.00%	**10.00%**
Total		Count	**10**	**10**
		Column %	**100.00%**	**100.00%**

During the autumn which mode of transportation do you use the most as your primary means of getting around the city? * Walking crosstabulation

			Walking	Total
			Yes	
During the autumn which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	3	**3**
		Column %	23.10%	**23.10%**
	Public transit	Count	3	**3**
		Column %	23.10%	**23.10%**
	Walking	Count	7	**7**
		Column %	53.80%	**53.80%**
Total		Count	**13**	**13**
		Column %	**100.00%**	**100.00%**

During the autumn which mode of transportation do you use the most as your primary means of getting around the city? * Assistive mobility device (ex. Wheelchair) crosstabulation

			Assistive mobility device (ex. Wheelchair)	Total
			Yes	
	Public transit	Count	1	**1**
		Column %	100.00%	**100.00%**
Total		Count	**1**	**1**
		Column %	**100.00%**	**100.00%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city? Car * Age Crosstabulation

			Age		Total
			18 to 44	45+	
Car	Regularly	Count	17	30	**47**
		Column %	44.70%	68.20%	**57.30%**
	Occasionally	Count	13	11	**24**
		Column %	34.20%	25.00%	**29.30%**
	Never	Count	8	3	**11**
		Column %	21.10%	6.80%	**13.40%**
Total		Count	**38**	**44**	**82**
		Column %	**100.00%**	**100.00%**	**100.00%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
Car	Regularly	Count	34	**34**
		Column %	89.5%	**89.5%**
	Occasionally	Count	4	**4**
		Column %	10.5%	**10.5%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
Car	Regularly	Count	3	**3**
		Column %	75.0%	**75.0%**
	Occasionally	Count	1	**1**
		Column %	25.0%	**25.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Public transit Crosstabulation

			Public transit	Total
			Yes	
Car	Regularly	Count	4	**4**
		Column %	20.0%	**20.0%**
	Occasionally	Count	9	**9**
		Column %	45.0%	**45.0%**
	Never	Count	7	**7**
		Column %	35.0%	**35.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
Car	Regularly	Count	3	**3**
		Column %	30.0%	**30.0%**
	Occasionally	Count	5	**5**
		Column %	50.0%	**50.0%**
	Never	Count	2	**2**
		Column %	20.0%	**20.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Walking Crosstabulation

			Walking	Total
			Yes	
Car	Regularly	Count	6	**6**
		Column %	46.2%	**46.2%**
	Occasionally	Count	5	**5**
		Column %	38.5%	**38.5%**
	Never	Count	2	**2**
		Column %	15.4%	**15.4%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
Car	Occasionally	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Age Crosstabulation

			Age		Total
			18 to 44	45+	
Transit	Regularly	Count	15	11	**26**
		Column %	39.5%	25.6%	**32.1%**
	Occasionally	Count	11	21	**32**
		Column %	28.9%	48.8%	**39.5%**
	Never	Count	12	11	**23**
		Column %	31.6%	25.6%	**28.4%**
Total		Count	**38**	**43**	**81**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
Transit	Regularly	Count	3	**3**
		Column %	8.1%	**8.1%**
	Occasionally	Count	17	**17**
		Column %	45.9%	**45.9%**
	Never	Count	17	**17**
		Column %	45.9%	**45.9%**
Total		Count	**37**	**37**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
Transit	Regularly	Count	1	**1**
		Column %	25.0%	**25.0%**
	Occasionally	Count	1	**1**
		Column %	25.0%	**25.0%**
	Never	Count	2	**2**
		Column %	50.0%	**50.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Public transit Crosstabulation

			Public transit	Total
			Yes	
Transit	Regularly	Count	18	**18**
		Column %	90.0%	**90.0%**
	Occasionally	Count	2	**2**
		Column %	10.0%	**10.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
Transit	Regularly	Count	1	**1**
		Column %	10.0%	**10.0%**
	Occasionally	Count	7	**7**
		Column %	70.0%	**70.0%**
	Never	Count	2	**2**
		Column %	20.0%	**20.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Walking Crosstabulation

			Walking	Total
			Yes	
Transit	Regularly	Count	4	**4**
		Column %	30.8%	**30.8%**
	Occasionally	Count	7	**7**
		Column %	53.8%	**53.8%**
	Never	Count	2	**2**
		Column %	15.4%	**15.4%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
Transit	Regularly	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Age Crosstabulation

			Age		Total
			18 to 44	45+	
bicycle	Regularly	Count	12	6	**18**
		Column %	31.6%	13.6%	**22.0%**
	Occasionally	Count	16	19	**35**
		Column %	42.1%	43.2%	**42.7%**
	Never	Count	10	19	**29**
		Column %	26.3%	43.2%	**35.4%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
bicycle	Regularly	Count	6	**6**
		Column %	15.8%	**15.8%**
	Occasionally	Count	20	**20**
		Column %	52.6%	**52.6%**
	Never	Count	12	**12**
		Column %	31.6%	**31.6%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
bicycle	Regularly	Count	1	**1**
		Column %	25.0%	**25.0%**
	Occasionally	Count	2	**2**
		Column %	50.0%	**50.0%**
	Never	Count	1	**1**
		Column %	25.0%	**25.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Public transit Crosstabulation

			Public transit	Total
			Yes	
bicycle	Regularly	Count	3	**3**
		Column %	15.0%	**15.0%**
	Occasionally	Count	8	**8**
		Column %	40.0%	**40.0%**
	Never	Count	9	**9**
		Column %	45.0%	**45.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
bicycle	Regularly	Count	8	**8**
		Column %	80.0%	**80.0%**
	Occasionally	Count	2	**2**
		Column %	20.0%	**20.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Walking Crosstabulation

			Walking	Total
			Yes	
bicycle	Occasionally	Count	5	**5**
		Column %	38.5%	**38.5%**
	Never	Count	8	**8**
		Column %	61.5%	**61.5%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
bicycle	Never	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Age Crosstabulation

			Age		Total
			18 to 44	45+	
as a pedestrian	Regularly	Count	24	20	**44**
		Column %	63.2%	45.5%	**53.7%**
	Occasionally	Count	12	21	**33**
		Column %	31.6%	47.7%	**40.2%**
	Never	Count	2	3	**5**
		Column %	5.3%	6.8%	**6.1%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
as a pedestrian	Regularly	Count	14	**14**
		Column %	36.8%	**36.8%**
	Occasionally	Count	21	**21**
		Column %	55.3%	**55.3%**
	Never	Count	3	**3**
		Column %	7.9%	**7.9%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
as a pedestrian	Regularly	Count	1	**1**
		Column %	25.0%	**25.0%**
	Occasionally	Count	2	**2**
		Column %	50.0%	**50.0%**
	Never	Count	1	**1**
		Column %	25.0%	**25.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Public transit Crosstabulation

			Public transit	Total
			Yes	
as a pedestrian	Regularly	Count	14	**14**
		Column %	70.0%	**70.0%**
	Occasionally	Count	6	**6**
		Column %	30.0%	**30.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
as a pedestrian	Regularly	Count	5	**5**
		Column %	50.0%	**50.0%**
	Occasionally	Count	4	**4**
		Column %	40.0%	**40.0%**
	Never	Count	1	**1**
		Column %	10.0%	**10.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Walking Crosstabulation

			Walking	Total
			Yes	
as a pedestrian	Regularly	Count	12	**12**
		Column %	92.3%	**92.3%**
	Occasionally	Count	1	**1**
		Column %	7.7%	**7.7%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the autumn, how often do you use the following modes of transportation as a primary means of getting around the city? As a pedestrian * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
as a pedestrian	Regularly	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

WINTER

During the winter which mode of transportation do you use the most as your primary means of getting around the city? * Age Crosstabulation

			Age		Total
			18 to 44	45+	
During the winter which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	13	26	**39**
		Column %	34.2%	59.1%	**47.6%**
	Automobile passenger	Count	0	2	**2**
		Column %	.0%	4.5%	**2.4%**
	Public transit	Count	17	10	**27**
		Column %	44.7%	22.7%	**32.9%**
	Bicycle	Count	1	0	**1**
		Column %	2.6%	.0%	**1.2%**
	Walking	Count	7	5	**12**
		Column %	18.4%	11.4%	**14.6%**
	Other	Count	0	1	**1**
		Column %	.0%	2.3%	**1.2%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the winter which mode of transportation do you use the most as your primary means of getting around the city? * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
During the winter which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	31	**31**
		Column %	81.6%	**81.6%**
	Automobile passenger	Count	1	**1**
		Column %	2.6%	**2.6%**
	Public transit	Count	4	**4**
		Column %	10.5%	**10.5%**
	Walking	Count	2	**2**
		Column %	5.3%	**5.3%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the winter which mode of transportation do you use the most as your primary means of getting around the city? * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
During the winter which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	3	**3**
		Column %	75.0%	**75.0%**
	Public transit	Count	1	**1**
		Column %	25.0%	**25.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the winter which mode of transportation do you use the most as your primary means of getting around the city? * Public transit Crosstabulation

			Public transit	Total
			Yes	
During the winter which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	1	**1**
		Column %	5.0%	**5.0%**
	Public transit	Count	17	**17**
		Column %	85.0%	**85.0%**
	Walking	Count	2	**2**
		Column %	10.0%	**10.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the winter which mode of transportation do you use the most as your primary means of getting around the city? * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
During the winter which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	1	**1**
		Column %	10.0%	**10.0%**
	Public transit	Count	4	**4**
		Column %	40.0%	**40.0%**
	Bicycle	Count	1	**1**
		Column %	10.0%	**10.0%**
	Walking	Count	4	**4**
		Column %	40.0%	**40.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the winter which mode of transportation do you use the most as your primary means of getting around the city? * Walking Crosstabulation

			Walking	Total
			Yes	
During the winter which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	4	**4**
		Column %	30.8%	**30.8%**
	Automobile passenger	Count	1	**1**
		Column %	7.7%	**7.7%**
	Public transit	Count	3	**3**
		Column %	23.1%	**23.1%**
	Walking	Count	5	**5**
		Column %	38.5%	**38.5%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the winter which mode of transportation do you use the most as your primary means of getting around the city? * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
During the winter which mode of transportation do you use the most as your primary means of getting around the city?	Other	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Age Crosstabulation

			Age		Total
			18 to 44	45+	
Car	Regularly	Count	19	31	**50**
		Column %	50.0%	70.5%	**61.0%**
	Occasionally	Count	13	11	**24**
		Column %	34.2%	25.0%	**29.3%**
	Never	Count	6	2	**8**
		Column %	15.8%	4.5%	**9.8%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
Car	Regularly	Count	35	**35**
		Column %	92.1%	**92.1%**
	Occasionally	Count	3	**3**
		Column %	7.9%	**7.9%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
Car	Regularly	Count	3	**3**
		Column %	75.0%	**75.0%**
	Occasionally	Count	1	**1**
		Column %	25.0%	**25.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Public transit Crosstabulation

			Public transit	Total
			Yes	
Car	Regularly	Count	4	**4**
		Column %	20.0%	**20.0%**
	Occasionally	Count	11	**11**
		Column %	55.0%	**55.0%**
	Never	Count	5	**5**
		Column %	25.0%	**25.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
Car	Regularly	Count	4	**4**
		Column %	40.0%	**40.0%**
	Occasionally	Count	5	**5**
		Column %	50.0%	**50.0%**
	Never	Count	1	**1**
		Column %	10.0%	**10.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Walking Crosstabulation

			Walking	Total
			Yes	
Car	Regularly	Count	7	**7**
		Column %	53.8%	**53.8%**
	Occasionally	Count	4	**4**
		Column %	30.8%	**30.8%**
	Never	Count	2	**2**
		Column %	15.4%	**15.4%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
Car	Occasionally	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Age Crosstabulation

			Age		Total
			18 to 44	45+	
Transit	Regularly	Count	19	12	**31**
		Column %	50.0%	27.3%	**37.8%**
	Occasionally	Count	8	21	**29**
		Column %	21.1%	47.7%	**35.4%**
	Never	Count	11	11	**22**
		Column %	28.9%	25.0%	**26.8%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
Transit	Regularly	Count	5	**5**
		Column %	13.2%	**13.2%**
	Occasionally	Count	16	**16**
		Column %	42.1%	**42.1%**
	Never	Count	17	**17**
		Column %	44.7%	**44.7%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
Transit	Regularly	Count	2	**2**
		Column %	50.0%	**50.0%**
	Never	Count	2	**2**
		Column %	50.0%	**50.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Public transit Crosstabulation

			Public transit	Total
			Yes	
Transit	Regularly	Count	18	**18**
		Column %	90.0%	**90.0%**
	Occasionally	Count	2	**2**
		Column %	10.0%	**10.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
Transit	Regularly	Count	4	**4**
		Column %	40.0%	**40.0%**
	Occasionally	Count	5	**5**
		Column %	50.0%	**50.0%**
	Never	Count	1	**1**
		Column %	10.0%	**10.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Walking Crosstabulation

			Walking	Total
			Yes	
Transit	Regularly	Count	3	**3**
		Column %	23.1%	**23.1%**
	Occasionally	Count	8	**8**
		Column %	61.5%	**61.5%**
	Never	Count	2	**2**
		Column %	15.4%	**15.4%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
Transit	Regularly	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Age Crosstabulation

			Age		Total
			18 to 44	45+	
bicycle	Regularly	Count	1	1	**2**
		Column %	2.6%	2.3%	**2.4%**
	Occasionally	Count	3	2	**5**
		Column %	7.9%	4.5%	**6.1%**
	Never	Count	34	41	**75**
		Column %	89.5%	93.2%	**91.5%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
bicycle	Occasionally	Count	1	**1**
		Column %	2.6%	**2.6%**
	Never	Count	37	**37**
		Column %	97.4%	**97.4%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
bicycle	Never	Count	4	**4**
		Column %	100.0%	**100.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Public transit Crosstabulation

			Public transit	Total
			Yes	
bicycle	Regularly	Count	1	**1**
		Column %	5.0%	**5.0%**
	Never	Count	19	**19**
		Column %	95.0%	**95.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
bicycle	Regularly	Count	1	**1**
		Column %	10.0%	**10.0%**
	Occasionally	Count	3	**3**
		Column %	30.0%	**30.0%**
	Never	Count	6	**6**
		Column %	60.0%	**60.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Walking Crosstabulation

			Walking	Total
			Yes	
bicycle	Occasionally	Count	1	**1**
		Column %	7.7%	**7.7%**
	Never	Count	12	**12**
		Column %	92.3%	**92.3%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
bicycle	Never	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Age Crosstabulation

			Age		Total
			18 to 44	45+	
as a pedestrian	Regularly	Count	17	16	**33**
		Column %	44.7%	36.4%	**40.2%**
	Occasionally	Count	17	22	**39**
		Column %	44.7%	50.0%	**47.6%**
	Never	Count	4	6	**10**
		Column %	10.5%	13.6%	**12.2%**
Total		Count	**38**	**44**	**82**
	Column %		**100.0%**	**100.0%**	

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
as a pedestrian	Regularly	Count	9	**9**
		Column %	23.7%	**23.7%**
	Occasionally	Count	22	**22**
		Column %	57.9%	**57.9%**
	Never	Count	7	**7**
		Column %	18.4%	**18.4%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city? As a pedestrian * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
as a pedestrian	Regularly	Count	1	**1**
		Column %	25.0%	**25.0%**
	Occasionally	Count	2	**2**
		Column %	50.0%	**50.0%**
	Never	Count	1	**1**
		Column %	25.0%	**25.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city? As a pedestrian * Public transit Crosstabulation

			Public transit	Total
			Yes	
as a pedestrian	Regularly	Count	10	**10**
		Column %	50.0%	**50.0%**
	Occasionally	Count	10	**10**
		Column %	50.0%	**50.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
as a pedestrian	Regularly	Count	7	**7**
		Column %	70.0%	**70.0%**
	Occasionally	Count	2	**2**
		Column %	20.0%	**20.0%**
	Never	Count	1	**1**
		Column %	10.0%	**10.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Walking Crosstabulation

			Walking	Total
			Yes	
as a pedestrian	Regularly	Count	8	**8**
		Column %	61.5%	**61.5%**
	Occasionally	Count	5	**5**
		Column %	38.5%	**38.5%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the winter, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
as a pedestrian	Never	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

SPRING

During the spring which mode of transportation do you use the most as your primary means of getting around the city? * Age Crosstabulation

			Age		Total
			18 to 44	45+	
During the spring which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	13	23	**36**
		Column %	34.2%	52.3%	**43.9%**
	Automobile passenger	Count	0	1	**1**
		Column %	.0%	2.3%	**1.2%**
	Public transit	Count	12	10	**22**
		Column %	31.6%	22.7%	**26.8%**
	Bicycle	Count	7	2	**9**
		Column %	18.4%	4.5%	**11.0%**
	Walking	Count	6	8	**14**
		Column %	15.8%	18.2%	**17.1%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the spring which mode of transportation do you use the most as your primary means of getting around the city? * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
During the spring which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	28	**28**
		Column %	73.7%	**73.7%**
	Automobile passenger	Count	1	**1**
		Column %	2.6%	**2.6%**
	Public transit	Count	3	**3**
		Column %	7.9%	**7.9%**
	Bicycle	Count	2	**2**
		Column %	5.3%	**5.3%**
	Walking	Count	4	**4**
		Column %	10.5%	**10.5%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the spring which mode of transportation do you use the most as your primary means of getting around the city? * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
During the spring which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	3	**3**
		Column %	75.0%	**75.0%**
	Public transit	Count	1	**1**
		Column %	25.0%	**25.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the spring which mode of transportation do you use the most as your primary means of getting around the city? * Public transit Crosstabulation

			Public transit	Total
			Yes	
During the spring which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	2	**2**
		Column %	10.0%	**10.0%**
	Public transit	Count	16	**16**
		Column %	80.0%	**80.0%**
	Walking	Count	2	**2**
		Column %	10.0%	**10.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the spring which mode of transportation do you use the most as your primary means of getting around the city? * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
During the spring which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	1	**1**
		Column %	10.0%	**10.0%**
	Public transit	Count	1	**1**
		Column %	10.0%	**10.0%**
	Bicycle	Count	7	**7**
		Column %	70.0%	**70.0%**
	Walking	Count	1	**1**
		Column %	10.0%	**10.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the spring which mode of transportation do you use the most as your primary means of getting around the city? * Walking Crosstabulation

			Walking	Total
			Yes	
During the spring which mode of transportation do you use the most as your primary means of getting around the city?	Automobile driver	Count	4	**4**
		Column %	30.8%	**30.8%**
	Public transit	Count	1	**1**
		Column %	7.7%	**7.7%**
	Walking	Count	8	**8**
		Column %	61.5%	**61.5%**
Total		Count	**13**	**13**
	Column %		**100.0%**	**100.0%**

During the spring which mode of transportation do you use the most as your primary means of getting around the city? * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
During the spring which mode of transportation do you use the most as your primary means of getting around the city?	Public transit	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city? Car * Automobile driver Crosstabulation

				Automobile driver	Total
				Yes	
Car	Regularly	Count		33	**33**
		Column %		86.8%	**86.8%**
	Occasionally	Count		5	**5**
		Column %		13.2%	**13.2%**
Total		Count		**38**	**38**
	Column %		**100.0%**		**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city? Car * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
Car	Regularly	Count	4	**4**
		Column %	100.0%	**100.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Public transit Crosstabulation

			Public transit	Total
			Yes	
Car	Regularly	Count	4	**4**
		Column %	20.0%	**20.0%**
	Occasionally	Count	11	**11**
		Column %	55.0%	**55.0%**
	Never	Count	5	**5**
		Column %	25.0%	**25.0%**
Total		Count	**20**	**20**
	Column %		**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
Car	Regularly	Count	3	**3**
		Column %	30.0%	**30.0%**
	Occasionally	Count	6	**6**
		Column %	60.0%	**60.0%**
	Never	Count	1	**1**
		Column %	10.0%	**10.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Walking Crosstabulation

			Walking	Total
			Yes	
Car	Regularly	Count	5	**5**
		Column %	38.5%	**38.5%**
	Occasionally	Count	6	**6**
		Column %	46.2%	**46.2%**
	Never	Count	2	**2**
		Column %	15.4%	**15.4%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Car * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
Car	Occasionally	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Age Crosstabulation

			Age		Total
			18 to 44	45+	
Transit	Regularly	Count	14	12	**26**
		Column %	36.8%	27.3%	**31.7%**
	Occasionally	Count	12	19	**31**
		Column %	31.6%	43.2%	**37.8%**
	Never	Count	12	13	**25**
		Column %	31.6%	29.5%	**30.5%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the SPRING how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
Transit	Regularly	Count	4	**4**
		Column %	10.5%	**10.5%**
	Occasionally	Count	15	**15**
		Column %	39.5%	**39.5%**
	Never	Count	19	**19**
		Column %	50.0%	**50.0%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
Transit	Regularly	Count	1	**1**
		Column %	25.0%	**25.0%**
	Occasionally	Count	1	**1**
		Column %	25.0%	**25.0%**
	Never	Count	2	**2**
		Column %	50.0%	**50.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Public transit Crosstabulation

			Public transit	Total
			Yes	
Transit	Regularly	Count	18	**18**
		Column %	90.0%	**90.0%**
	Occasionally	Count	2	**2**
		Column %	10.0%	**10.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
Transit	Regularly	Count	1	**1**
		Column %	10.0%	**10.0%**
	Occasionally	Count	7	**7**
		Column %	70.0%	**70.0%**
	Never	Count	2	**2**
		Column %	20.0%	**20.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Walking Crosstabulation

			Walking	Total
			Yes	
Transit	Regularly	Count	3	**3**
		Column %	23.1%	**23.1%**
	Occasionally	Count	8	**8**
		Column %	61.5%	**61.5%**
	Never	Count	2	**2**
		Column %	15.4%	**15.4%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Transit * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
Transit	Regularly	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Age Crosstabulation

			Age		Total
			18 to 44	45+	
Bicycle	Regularly	Count	11	7	**18**
		Column %	28.9%	15.9%	**22.0%**
	Occasionally	Count	16	19	**35**
		Column %	42.1%	43.2%	**42.7%**
	Never	Count	11	18	**29**
		Column %	28.9%	40.9%	**35.4%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
Bicycle	Regularly	Count	7	**7**
		Column %	18.4%	**18.4%**
	Occasionally	Count	20	**20**
		Column %	52.6%	**52.6%**
	Never	Count	11	**11**
		Column %	28.9%	**28.9%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the SPRING, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
Bicycle	Regularly	Count	1	**1**
		Column %	25.0%	**25.0%**
	Occasionally	Count	3	**3**
		Column %	75.0%	**75.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Public transit Crosstabulation

			Public transit	Total
			Yes	
Bicycle	Regularly	Count	3	**3**
		Column %	15.0%	**15.0%**
	Occasionally	Count	6	**6**
		Column %	30.0%	**30.0%**
	Never	Count	11	**11**
		Column %	55.0%	**55.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
Bicycle	Regularly	Count	7	**7**
		Column %	70.0%	**70.0%**
	Occasionally	Count	3	**3**
		Column %	30.0%	**30.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Walking Crosstabulation

			Walking	Total
			Yes	
Bicycle	Regularly	Count	1	**1**
		Column %	7.7%	**7.7%**
	Occasionally	Count	4	**4**
		Column %	30.8%	**30.8%**
	Never	Count	8	**8**
		Column %	61.5%	**61.5%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
Bicycle * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
bicycle	Never	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Age Crosstabulation

			Age		Total
			18 to 44	45+	
as a pedestrian	Regularly	Count	22	21	**43**
		Column %	57.9%	47.7%	**52.4%**
	Occasionally	Count	14	19	**33**
		Column %	36.8%	43.2%	**40.2%**
	Never	Count	2	4	**6**
		Column %	5.3%	9.1%	**7.3%**
Total		Count	**38**	**44**	**82**
		Column %	**100.0%**	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Automobile driver Crosstabulation

			Automobile driver	Total
			Yes	
as a pedestrian	Regularly	Count	12	**12**
		Column %	31.6%	**31.6%**
	Occasionally	Count	21	**21**
		Column %	55.3%	**55.3%**
	Never	Count	5	**5**
		Column %	13.2%	**13.2%**
Total		Count	**38**	**38**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Automobile passenger Crosstabulation

			Automobile passenger	Total
			Yes	
as a pedestrian	Regularly	Count	1	**1**
		Column %	25.0%	**25.0%**
	Occasionally	Count	3	**3**
		Column %	75.0%	**75.0%**
Total		Count	**4**	**4**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Public transit Crosstabulation

			Public transit	Total
			Yes	
as a pedestrian	Regularly	Count	15	**15**
		Column %	75.0%	**75.0%**
	Occasionally	Count	5	**5**
		Column %	25.0%	**25.0%**
Total		Count	**20**	**20**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Bicycle Crosstabulation

			Bicycle	Total
			Yes	
as a pedestrian	Regularly	Count	5	**5**
		Column %	50.0%	**50.0%**
	Occasionally	Count	4	**4**
		Column %	40.0%	**40.0%**
	Never	Count	1	**1**
		Column %	10.0%	**10.0%**
Total		Count	**10**	**10**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Walking Crosstabulation

			Walking	Total
			Yes	
as a pedestrian	Regularly	Count	12	**12**
		Column %	92.3%	**92.3%**
	Occasionally	Count	1	**1**
		Column %	7.7%	**7.7%**
Total		Count	**13**	**13**
		Column %	**100.0%**	**100.0%**

During the spring, how often do you use the following modes of transportation as a primary means of getting around the city?
As a pedestrian * Assistive mobility device (ex. wheelchair) Crosstabulation

			Assistive mobility device (ex. wheelchair)	Total
			Yes	
as a pedestrian	Regularly	Count	1	**1**
		Column %	100.0%	**100.0%**
Total		Count	**1**	**1**
		Column %	**100.0%**	**100.0%**

Appendix B
Thought-Leader Bios

Interviews were conducted with the following individuals (listed in alphabetical order):

- **Dr. Baher Abdulhai – Canada Research Chair in ITS and Director, Toronto ITS Centre, University of Toronto (Toronto, Canada)**

  Dr. Abdulhai holds a Bachelor of Civil Engineering, a Masters in Construction Management of Roads, and a Ph.D. in Transportation Engineering from the University of California. His current main focus at the University of Toronto is on advanced traffic management systems. They use the largest transportation network model ever built to capture the entire freeway system in the GTA, including all of the highways, freeways and information on which roads have traffic during peak hours. They have also used this model to build a comprehensive system for emergency response optimization in the GTA. He is also currently working on building an online wiki-type system for transportation stakeholders to share data, software, hardware, applications and expertise.

- **Eran Gartner – President of Systems Division, Bombardier Transportation (Berlin, Germany)**

  Since 2001, Mr. Gartner has worked in various senior capacities at Bombardier, and for the last two years, he has been the President of the Systems Division at Bombardier in Berlin. He has worked on complete transit lines for city projects and has gained a wealth of experience working inside cities and airports formulating transportation solutions. His work requires a significant use of marketing. His father was a professor of Civil and Transportation Engineering. The subject matter of transportation engineering and planning is dear to him as a result. He studied mechanical engineering at Cornell University. He also attended business school and has worked in the field of transportation and business for eighteen years.

- **Keenan Kitasaka – Manager, Intelligent Transportation Systems, TransLink (Vancouver, Canada)**

  Mr. Kitasaka worked for Transport Canada at the Vancouver International Airport for six to seven years. Following this, he worked for the BC Ministry of Transportation and Highways where he was the Senior Traffic Management Engineer for about eight years. From this position, he moved on to TransLink, Vancouver's regional transportation authority, and has been working at the Manager of TransLinks' Intelligent Transportation Systems since February 2000. Mr. Kitasaka serves on various committees in TransLink and in other organizations. He was an ITS Canada Board Director for four years and remains actively involved in ITS Canada committees.

- **David Lively – Chief, Office of System Management Planning, CalTrans (Sacramento, USA)**

  Mr. Lively oversees the development and operation of Caltrans' travel information systems. This includes highway and inter–city rail information reaching travelers via the Department's telephone and internet, and through data feeds to commercial/media information service providers. David is the state-wide coordinator for advanced traveler information systems, where the sustainability of public sector "511" systems is a current issue. Mr. Lively has served on ITS America and AASHTO standards committees for Advanced Traveler Information Systems' (ATIS) message sets, location referencing, Dedicated Short Range Communications (DSRC) message content; and on TRB panels addressing quality in traveler information systems and to develop TransXML schema. Other topical interests include consumer privacy issues, public sector services marketing strategies, automotive/human factors engineering, and the implications of transportation on land use and economy.

- **Ralph Menzano – Executive Director, Transportation Division, Oracle (Philadelphia, USA)**

  Mr. Menzano is Industry Director, Transportation for Oracle. At Oracle, Mr. Menzano's role is to develop and implement the company's national strategy in addressing the transportation vertical, which encompasses airports, seaports, highway authorities, and transit agencies. Prior to this, he was chief information officer (CIO) for the Southeastern Pennsylvania Transportation Authority (SEPTA) in Philadelphia—a $1.7 billion, 10,000-employee, 750,000-passenger-per-day agency. His responsibilities included directing information technology and network strategies enterprise wide. He is also the Chair of the American Public Transportation Association's (APTA) Information Technology Committee

- **Dr. Eric J. Miller – Director, Cities Centre, and Professor, University of Toronto (Toronto, Canada)**

  Dr. Miller is the Director of the University of Toronto's Cities Centre, a multi-disciplinary research institute that aims to encourage and facilitate research on cities and on a wide range of urban policy issues, both in Canada and abroad. Dr. Miller is the former Director of the Urban Transportation Research and Advancement Centre within the University of Toronto, Department of Civil Engineering, where he has been a professor since 1983. He is the past Chair of the International Association for Travel Behaviour Research, and he also serves on a number of committees for transportation research in Canada and the US.

- **Ben Plowden, Director, Better Routes and Places, Transport for London (London, UK)**

  Mr. Plowden is the Direct of Transport for London's (TfL) Better Routes and Places department. He is responsible for delivering integrated transport programs across London to support sustainable travel. This includes cycling and walking, road safety, bus priority, public realm improvements, smarter travel and freight. He was previously Director of TfL's Smarter Travel Unit and joined TfL in July 2002. Prior to this, he ran a charity called Living Streets, making improvement for the public realm and particularly focused on opportunities for walking in cities

- **Nancy Schepers – Deputy City Manager, Infrastructure Services and Community Sustainability, City of Ottawa (Ottawa, Canada)**

  Ms. Schepers is a Deputy City Manager for the City of Ottawa, responsible for Infrastructure Services and Community Sustainability. Prior to working at the City of Ottawa, Ms. Schepers worked in transportation across all levels of government. She worked at the provincial Ministry of Transportation and dealt with highway design, traffic management and operations. This was followed by work for the municipal government where she dealt with capital construction. In the federal government, she was the Director General at Environmental Affairs for Transport Canada, where she did policy work with a focus on climate change and visions for the future of transit. She also managed the development of grant programs aimed at municipalities towards changing the use of systems (and marketing these systems as environmentally friendly options). She worked on the InfraGuide, which articulated high-level guidelines on what sustainable infrastructure was and managing the demand for it.