

May 2015

Snow and Ice Control Program Citizens' Survey - 2015

Conducted for the Roads Business Unit



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THE CITY OF
CALGARY
CORPORATE SERVICES

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Executive Summary

The City of Calgary has developed a Snow and Ice Control Program to ensure that Calgary is safe for vehicle and pedestrian travel. The Program establishes priorities, standards, and levels of services for snow and ice control initiatives implemented in Calgary. Calgary Roads conducts a biennial survey of Calgarians to examine opinions about its snow and ice control services. In February 2015, another wave of the survey was conducted by telephone (both landline and cell phones) with 803 respondents. HarGroup Management Consultants Inc. was engaged to conduct and report the findings of the survey.

Key Findings

- ***A significant majority of Calgarians are satisfied with travel on Calgary roads as a result of snow and ice control services*** – Almost nine in ten respondents (88%) stated satisfaction with travel conditions due to snow and ice control services when driving or being in a vehicle on Calgary roads. As well, almost half of respondents (48%) stated that conditions for traveling on Calgary roads this winter season were better than they have observed in previous years. In both cases, these findings are significantly higher than those observed in previous survey waves.
- ***Most Calgarians acknowledge travel time during morning rush hour after winter snow storms is reasonable*** - Approximately eight in ten respondents (78%) stated that travel time during morning rush hour after winter snow storms is very or somewhat reasonable. These findings are significantly higher than those observed in previous surveys. Among those who stated that travel time after winter snow storms was unreasonable acknowledged that it is because of the severity of winter storms rather than lack of effort to provide snow and ice control services.
- ***Most Calgarians are satisfied with timing of traffic signals when snow events occur, travel conditions on bike lanes and cycle tracks, and snow clearing on residential roads*** – Almost three-quarters of respondents were satisfied with the timing of traffic signals when snow events occur (74%). Approximately six in ten respondents were satisfied with travel conditions on bike lanes (63%) and cycle tracks (62%). Over half of respondents (51%) stated satisfaction with snow clearing on residential roads.
- ***A significant majority of Calgarians are satisfied with The City's efforts to inform citizens about travel conditions*** – A significant majority of respondents (89%) stated they were satisfied with The City's efforts to inform citizens about travel conditions and those who stated very satisfied is significantly higher than previous survey waves. As well, the vast majority of respondents who use sources offered by The City of Calgary stated the information was very or somewhat helpful. It is also worth noting that while Calgarians are more likely to use traditional media sources such as radio and television to obtain information about road conditions, use of Internet-based sources such as smartphone apps and websites is increasing.
- ***Most Calgarians agree that Snow Route parking bans are effective*** – When asked about Snow Route parking bans, eight in ten respondents (84%) agreed they were effective in having snow removed quickly from Calgary roads. As well, many respondents agreed that Calgarians are reasonably notified when Snow Route parking bans are put into effect and lifted (83%) and roads that have Snow Route parking bans can be readily identified within the city (86%). All of these results reveal significant increases compared to previous survey results. Further questioning reveals that approximately one in ten Calgarians would have difficulty finding convenient parking if parking restrictions were imposed on one side of the street.

1.0 INTRODUCTION

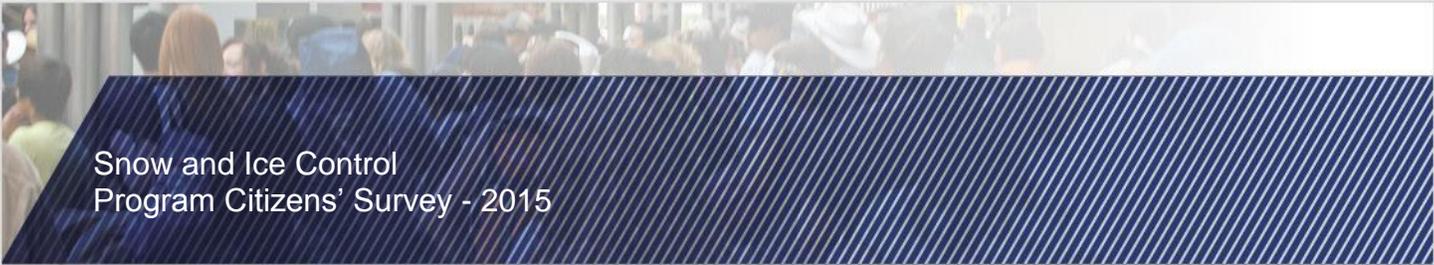
The City of Calgary Roads business unit is responsible for snow and ice control within Calgary and is committed to making Calgary safe for vehicle and pedestrian travel. To gauge' reactions to the Snow and Ice Control Program, Calgary Roads conducts a biennial surveys of Calgarians. The first survey was conducted in 2011 with two subsequent surveys being conducted in 2013 and 2015. This report presents the findings of the 2015 survey along with comparative analysis to previous survey results. HarGroup Management Consultants Inc. has been engaged to undertake all of the Snow and Ice Control Program Surveys.

The Snow and Ice Control Program establishes priorities, standards and levels of service for snow and ice control initiatives within Calgary. Policies within the program are intended to minimize economic loss to the community, reduce the inconvenience and hazards of winter conditions to motorists, cyclists and pedestrians, and facilitate the operation of Calgary Transit and Emergency Services vehicles. The Snow and Ice Program Survey examines issues associated with these policies and, through longitudinal comparative analysis, assesses changes in Calgarians' perceptions of the implementation of the program.

Research objectives established in 2011 have been used to guide the development of the Snow and Ice Control Program survey over the three survey waves. The following summary highlights the key aspects of the research objectives.

- To assess citizens' satisfaction that snow and ice control measures provide conditions which enable reasonable travel on Calgary right of ways
- To determine if Calgarians have observed changes in ability to travel in Calgary
- To determine if Calgarians have observed City of Calgary snow and ice control services being employed
- To identify patterns of travel during winter conditions
- To identify methods citizens use to become informed about travel conditions on Calgary right of ways during winter conditions
- To identify extent of impact that parking restrictions might have on Calgarians
- To assess differences in opinion among various population segments
- To assess further expectations for improvements necessary to stabilize conditions to enable reasonable travel on Calgary right of ways

HarGroup Management Consultants Inc. designed a survey instrument, in consultation with Roads representatives for the 2015 survey. A copy of the questionnaire is presented in Appendix A. It is similar to instruments used in previous surveys with slight modifications to address current issues relevant to the Snow and Ice Control Program.



Snow and Ice Control Program Citizens' Survey - 2015

The survey was conducted by telephone and administered to both landline and cell telephone numbers in Calgary.

A systematic random sampling process was employed to conduct interviews with 803 adult Calgarians for the 2015 survey. A sample size of 803 achieves an estimated margin of error of $\pm 3.5\%$ within a 95% confidence interval, for the Calgary household population. Expressed differently, if the survey were to be conducted within the same population again, in 19 surveys out of 20 the results would likely remain within $\pm 3.5\%$ of the results presented in this report. The margin of error is computed for the entire sample and analyses based on sample subsets will typically not achieve the same level of confidence. Similar sample sizes were used in previous surveys.

A profile of respondent demographic characteristics is presented in Appendix B. These data reveal that the sample is consistent with previous surveys conducted in 2011 and 2013 when weighting measures are applied.

The survey was fielded with respondents in February 2015.

The results of the survey are presented in the remaining sections of this report and are in the form of basic frequencies of survey question results. However, additional statistical procedures have also been used within the analyses to assess significance of contrasting responses or perceptions of respondents. The purpose of these analyses is to offer additional insight into the data and make possible a greater degree of certainty in statements of inference. Much of this analysis is presented in Appendix D.

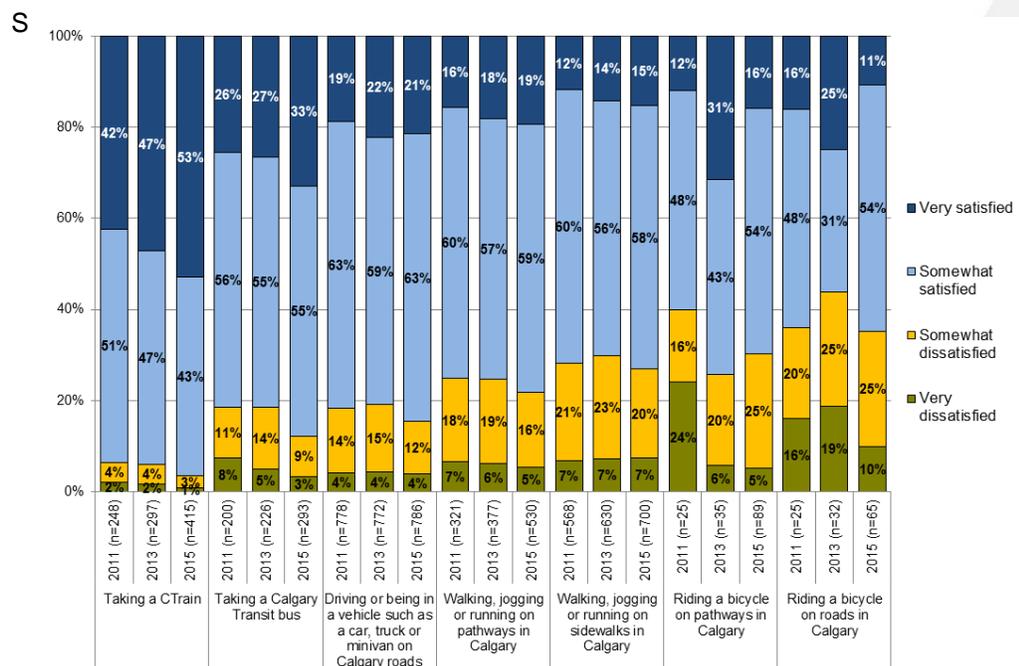
When examining survey data, it should be kept in mind that the totals presented in tables and figures may not add to 100% due to rounding of frequencies.

It is worth noting that snowfall within Calgary in 2014/15 was similar to that observed in previous years as reported by Environment Canada (see Appendix C).

2.0 SATISFACTION WITH TRAVEL DURING WINTER CONDITIONS

Various aspects of travel within Calgary are examined in the Snow and Ice Control Program Survey including driving on roads, using Transit vehicles, and using sidewalks and pathways. Respondents are asked to assess conditions for traveling in Calgary during the current winter season (e.g. since September 2014) due to snow and ice control initiatives. Data presented in Figure 2.1 show that most respondents were satisfied with travel conditions due to snow and ice control measures delivered in the city. When considering travel conditions for driving or being in a vehicle on Calgary roads, a significant majority indicated they were very or somewhat satisfied; although most of these indicated they were somewhat rather than very satisfied. Further, almost two-thirds of respondents who rode bicycles on Calgary roads during the winter season indicated satisfaction with travel conditions; again these respondents were more likely to state somewhat compared to very satisfied. Other data in the figure below suggest that respondents were also satisfied with travel conditions when using Transit services, walking, jogging, or running on pathways and sidewalks, and riding a bicycle on pathways in Calgary.

Figure 2.1: Satisfaction with Travel Conditions Due to Snow and Ice Control
(since the first snowfall the winter season)

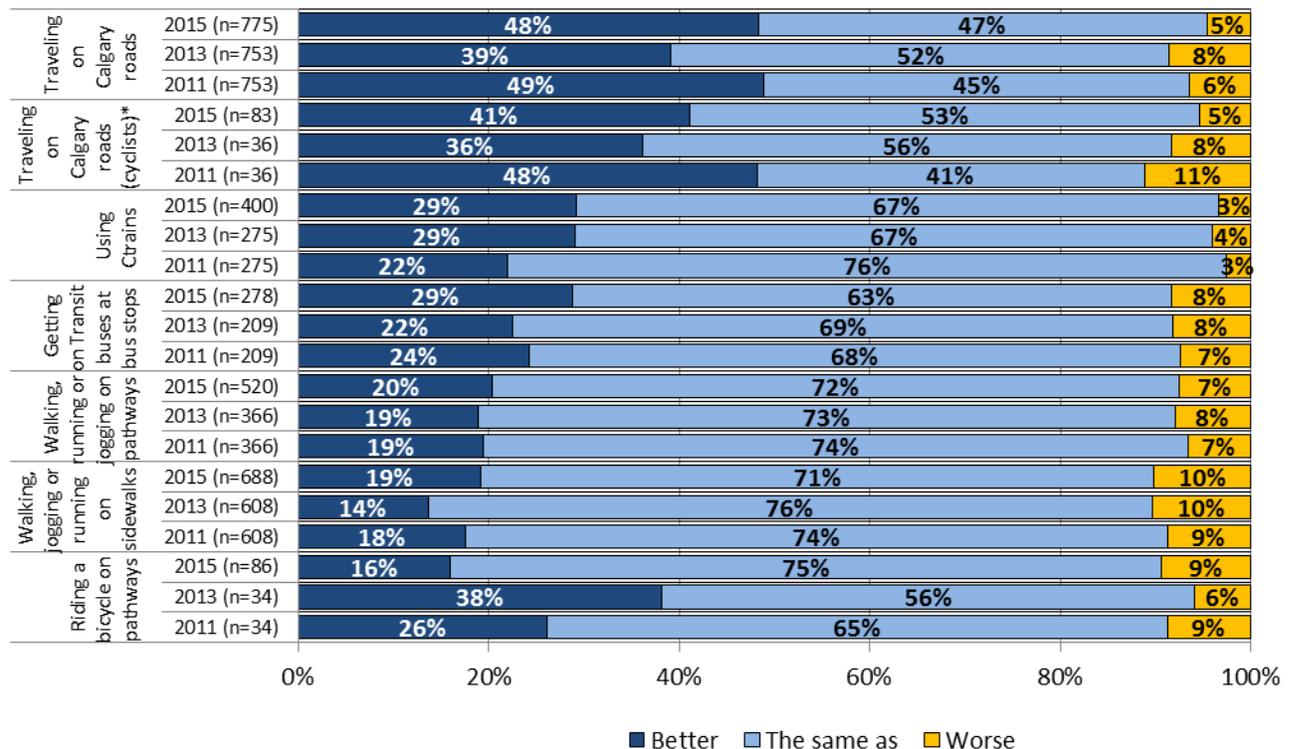


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Some differences in ratings are observed in the data presented in Figure 2.1 among the three survey waves; although the differences related to driving or being in a vehicle on Calgary roads are not statistically significant. Differences are most notable for taking Transit vehicles and riding a bicycle on pathways or roads in Calgary.

Some respondents perceived conditions had improved this winter season compared to previous years for traveling on Calgary roads, as well as other aspects of travel. Indeed, in 2015, almost half of respondents stated that conditions had improved for traveling on Calgary roads compared to previous years.

Figure 2.2: Conditions Compared to Previous Years



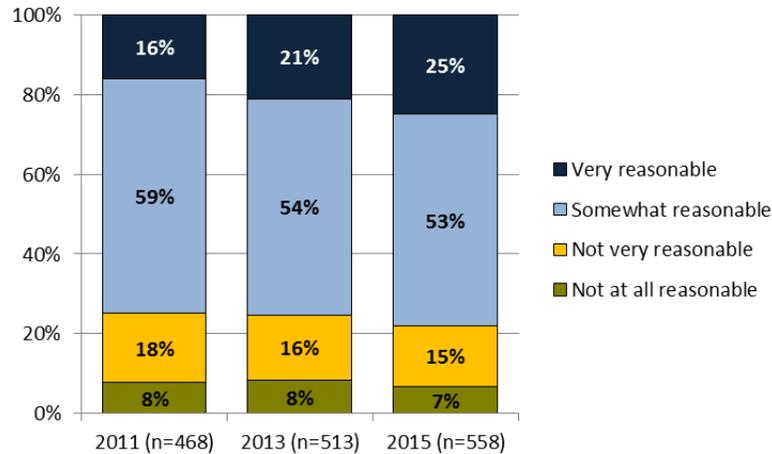
*Note: These data represent Cycling respondents who indicated they had bicycled on Calgary roads. These responses are also included in the item 'Traveling on Calgary Roads' as there was no specific question asked about traveling on Calgary roads by bicycle.

Over the three survey waves, respondents have typically perceived conditions to have been better for traveling on Calgary roads; particularly in 2011 and 2015.

Respondents who travel during rush hour periods (e.g. 6:00 am to 9:00 am and 3:00 pm to 6:00 pm) were asked about reasonableness of travel during morning rush hour when winter snow storms occur. As seen in Figure 2.3, almost eight in ten respondents

perceived travel times to be reasonable and one in four indicated that travel time was very reasonable.

Figure 2.3: Reasonableness of Travel Time During Morning Rush Hour after Winter Snow Storm



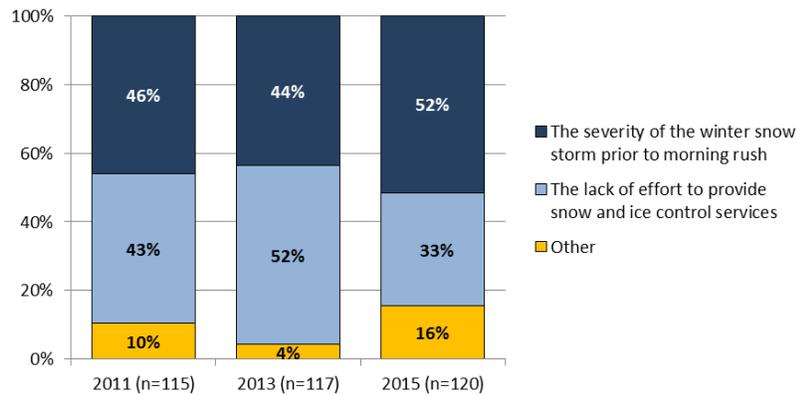
The higher ratings in 2015 for very reasonable compared to 2011 are statistically significant.

Respondents were asked about travel times during different periods to provide context to the findings above. As shown in Table 2.1, travel times were perceived to be double for respondents when there is a snow storm (40 minutes - median) compared to other times of the year (20 minutes - median). As well, the findings for 2015 are about five minutes lower (using the median response) than previous survey waves at times when there is a winter snow storm, which may have influenced more respondents to say travel time is very reasonable (Figure 2.3) in 2015 compared to previous surveys.

Commute	Average # of Minutes:		
	Mean Median		
	2011	2013	2015
When there is a winter snow storm	(n=464) 50.3 45.0	(n=508) 48.5 45.0	(n=547) 45.4 40.0
When there are winter conditions, but not snow storms	(n=467) 31.5 30.0	(n=512) 29.5 30.0	(n=551) 29.5 30.0
At other times of the year, when there are no winter conditions	(n=467) 22.5 20.0	(n=510) 22.6 20.0	(n=550) 22.1 20.0

Respondents who felt that travel time was unreasonable were asked why they held that opinion. About half of these respondents assumed the severity of the winter snow storm prior to morning rush hour was the main cause rather than the lack of effort to provide snow and ice control services (Figure 2.4).

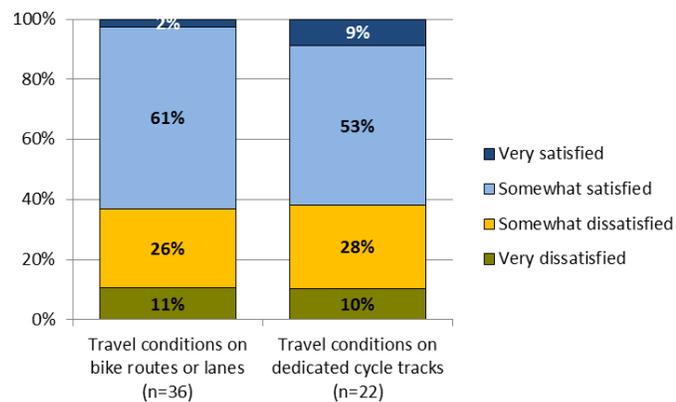
Figure 2.4: Reasons for Travel Time Being Unreasonable During Morning Rush Hour after Winter Snow Storm



The lower response about lack of effort in the 2015 results as compared to previous years are statistically significant.

Respondents who had used bike routes or lanes or dedicated cycle tracks were asked about travel conditions since the first snow fall this season. About two-thirds of these respondents indicated that they were very or somewhat satisfied with conditions; although most of these stated somewhat rather than very satisfied. Caution should be used when observing these data due to small sample sizes.

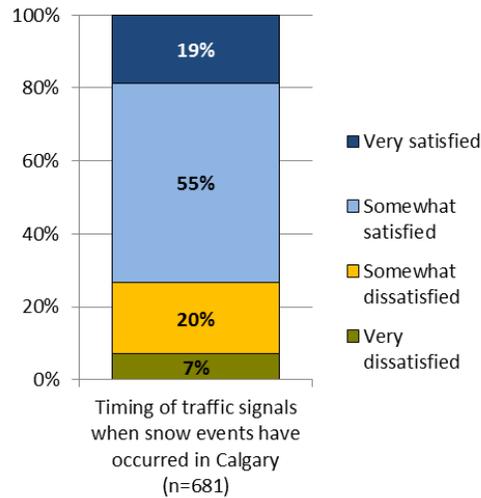
Figure 2.6: Satisfaction with Travel Conditions on Bike Lanes and Cycle Tracks¹



¹ Note: These questions were asked for the first time in the 2015 Snow and Ice Control Program Survey.

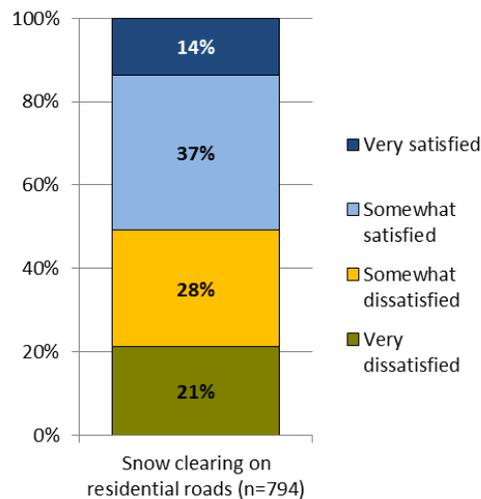
About three-quarters of respondents stated satisfaction (very or somewhat) with timing of traffic signals when snow events occur.

Figure 2.6: Satisfaction with Timing of Traffic Signals When Snow Events Occur²



Approximately half of respondents were satisfied with snow clearing on residential roads.

Figure 2.7: Satisfaction with Snow Clearing on Residential Roads³



² Note: This question was asked for the first time in the 2015 Snow and Ice Control Program Survey.

³ Note: Satisfaction with snow clearing on residential roads was asked for the first time in the 2015 Snow and Ice Control Program Survey.



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Overall, the data presented in this section of the report suggest that most respondents are satisfied with travel conditions due to snow and ice control measures provided within the city. However, some results reveal improvements in Calgarians' perceptions of snow and ice control efforts in 2015 compared to previous survey waves.

3.0 CALGARIANS' PERCEPTIONS OF VARIOUS ATTRIBUTES OF TRAVEL

Respondents were asked questions about various attributes of travel in Calgary during the current winter season. The findings of 2015 suggest that perceptions of travel among Calgarians show improvement compared to previous survey waves; particularly for travel on Calgary roads.

3.1 Travel Attributes

Figure 3.1 on the next page presents respondents' ratings of various travel attributes when using Calgary Transit, roads, pathways and sidewalks, mainly in terms of safety and reasonableness of travel times. Questions specifically asked about Calgary roads reveal that most respondents perceived travel to be reasonably safe, travel times to be reasonable, and minimal tire skidding or sliding to occur during winter conditions due to snow and ice control initiatives. To a lesser extent, respondents agreed that winter conditions are reasonable on mornings immediately after considerable snowfalls due to snow and ice control.

When comparing respondents' perceptions of travel attributes on roads to other means of travel, only attributes associated with Calgary Transit ranked higher. Attributes for pathways and sidewalks generally ranked lower in 2015 than for roads.

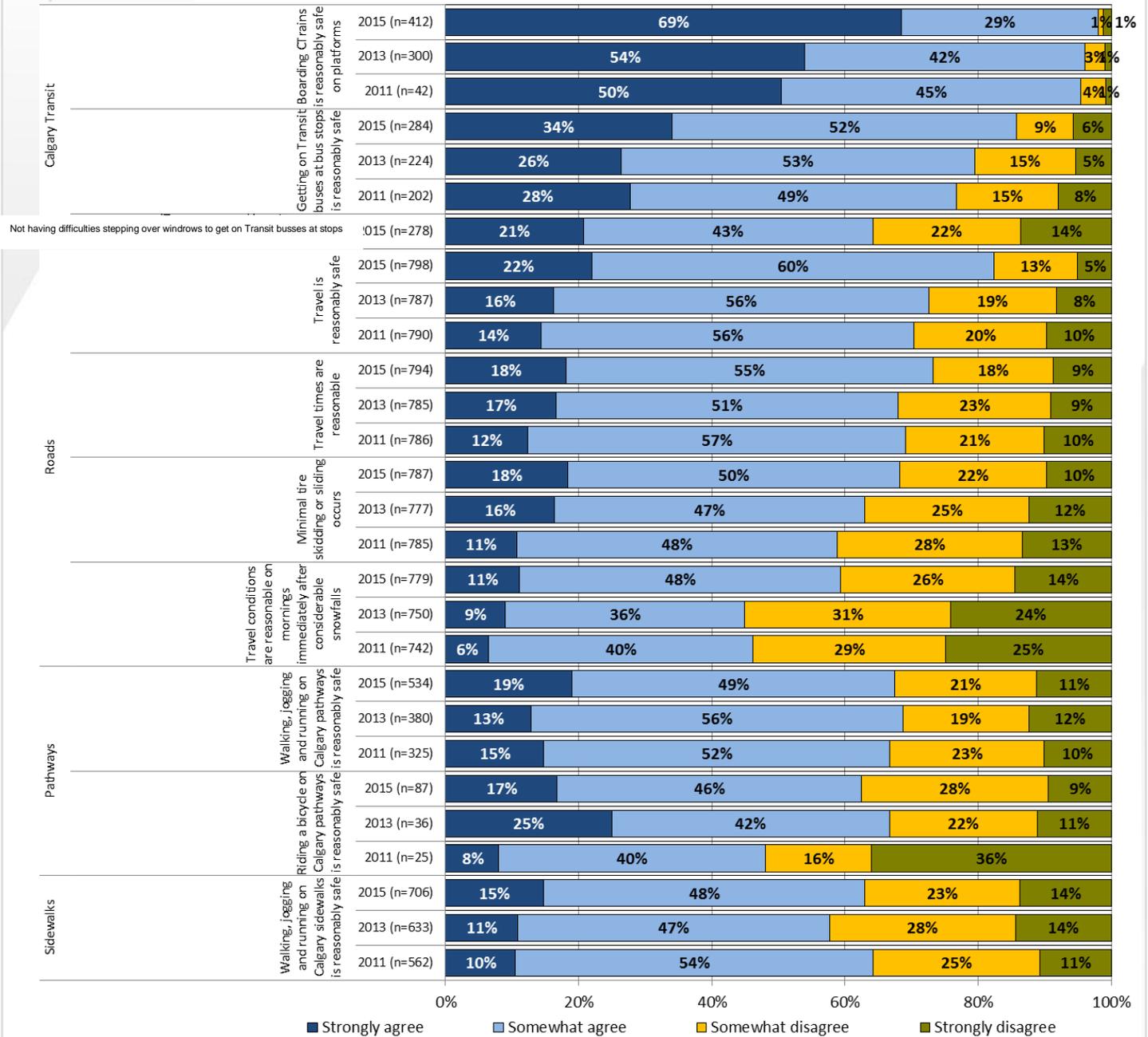
In all of the ratings related to travel attributes on roads, respondents typically stated somewhat rather than strongly agree.

It is worth noting that the ratings provided in 2015 were typically higher than those observed in the previous survey waves; particularly for travel being reasonably safe and travel conditions are reasonable on mornings after considerable snowfall.

A new question asked in 2015 examined challenges with stepping over windrows to get on Transit buses at stops. Almost two-thirds of respondents agreed that they did not have difficulties stepping over windrows at bus stops.

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Figure 3.1: Perceptions of Various Attributes of Travel during Winter Conditions
(due to snow and ice control)



Even though the above findings suggest that most respondents agreed with the above travel attributes when using Calgary roads, there were considerable portions of respondents who disagreed. For example, about one in three somewhat or strongly disagreed that minimal tire skidding or sliding occurs and travel conditions are reasonable on mornings immediately after considerable snowfall. Nonetheless, detailed analysis reveals that some of the respondents who disagreed gave ratings of satisfaction (very or somewhat) to the question about travel conditions due to snow and ice control when driving or being in a vehicle that was reported in Figure 2.1 (see Appendix D for analysis). From this analysis, it might be inferred that Calgarians on the whole acknowledge and appreciate the work that is undertaken by Calgary Roads for snow and ice control even though they recognize that the conditions are not ideal during the winter season.

3.2 *Observed Changes to Ability to Travel on Calgary Roads*

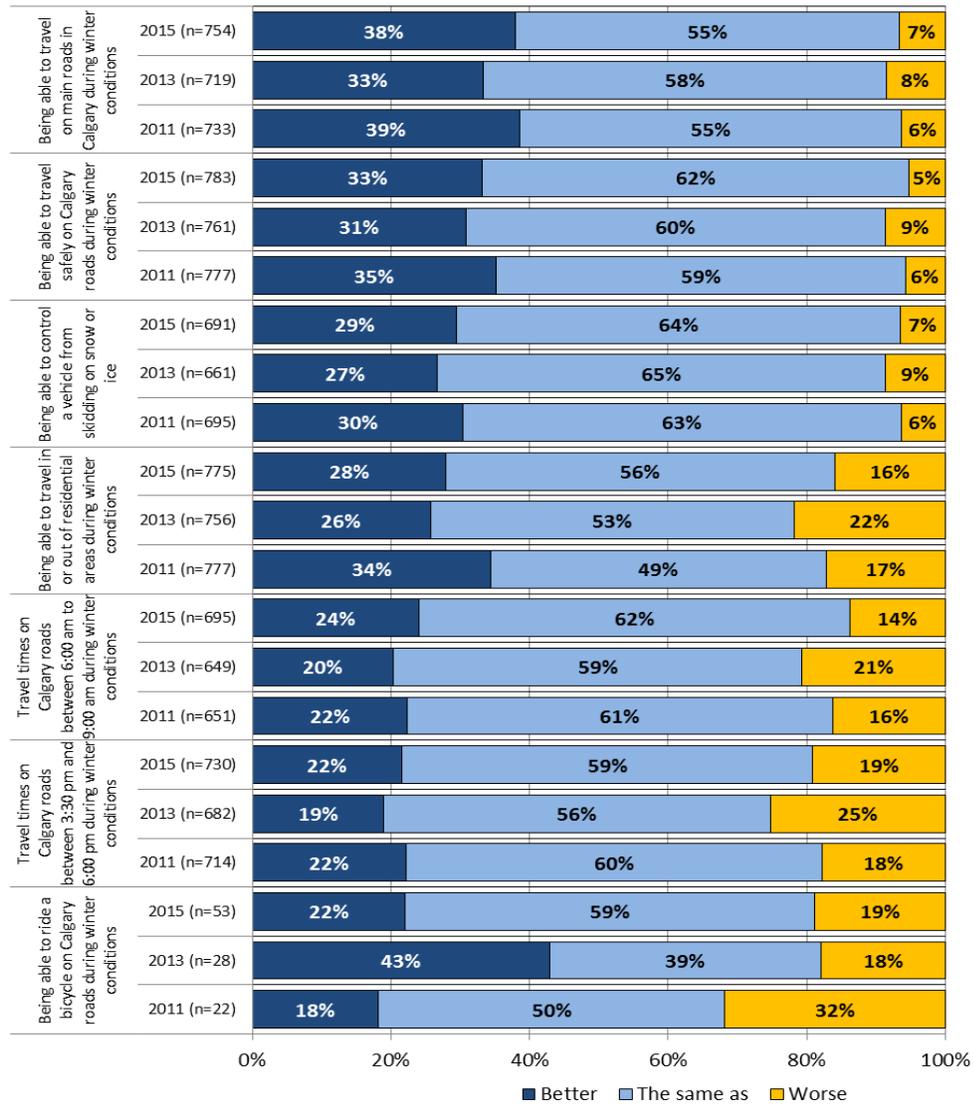
Respondents were asked about changes they may have observed in their ability to travel on Calgary roads since the first snowfall compared to winter conditions in previous years. Table 3.1 on the next page shows that the most common response was that respondents had not observed any changes. Even so, the most common compliments or improvements suggested were more snow clearance, faster response and safer driving conditions, while concerns or challenges were more difficult to get in and out of residential areas. Interestingly, the compliments or improvements offered by respondents overall were not as common in 2015. Rather, respondents were more likely to state that they perceived there was less snow this winter season compared to previous years, even though data from Environment Canada suggests snowfall was similar (see Appendix C).

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Table 3.1: Observed Changes in Ability to Travel on Calgary Roads (since the first snowfall compared to winter conditions in previous years)						
Changes Observed		% of Respondents				
		2011 (n=771)	2013 (n=735)		2013 (n=786)	
Compliments/Improvements	More snow clearance	30	69	24	47	8
	They are clearing the streets more quickly, the response time is faster	3		3		5
	Safer driving conditions	7		4		4
	Residential areas - easier to travel or get in and out of	11		5		3
	Better traffic flow/travel time improved generally	8		6		2
	There is more sanding	3		2		1
	Better traffic flow/travel time improved during rush hours/peak travel times	2		1		1
	Implementing of snow routes	0		<1		1
	There is more plowing	2		0		1
	Less skidding/sliding	2		2		<1
Concerns/Challenges	Residential areas - more difficult to travel or get in and out of	4	15	5	24	4
	Worse traffic flow/travel time worsened generally	3		5		3
	Driving conditions less safe	1		3		2
	Less snow clearance	2		6		1
	Worse traffic flow/travel time worsened during rush hour	2		1		1
	Have to shovel windrows from plowing	<1		1		1
	There is less clearing of roads/not clearing roads quickly enough	<1		<1		1
	There is less sanding	<1		0		1
	More skidding/sliding	2		2		<1
	Implementing of snow route	0		<1		<1
	They clear less of the street (narrower clearance)	1		0		<1
There are snow piles on the side of the roads	1	0	0			
Nothing/no changes/it is the same	43	43	49	49	51	51
Less snow	0	0	0	0	13	13
Use snow tires now	0	0	0	0	1	1
Other	2	2	0	0	2	2
Number of responses		984		885		855

Specific circumstances were posed to respondents to determine if they had observed changes when traveling on roads this winter compared to previous years. Figure 3.2 on the next page shows that some respondents observed improvements to traveling on roads this winter season compared to previous years. Most notable were respondents who recognized improvements to being able to travel on main roads and being able to travel safely on Calgary roads generally. For some circumstances, however, respondents were just as likely to suggest deteriorating changes as they were improvements, such as for travel times during afternoon rush hour and being able to ride a bike on Calgary roads.

Figure 3.2: Changes Perceived to Specific Circumstances
(since the first snowfall compared to winter conditions in previous years)



For the most part, the results among the three survey waves are similar except for being able to ride a bicycle on Calgary roads; although the sample size for this particular circumstance is small and may not be as reliable as findings about other circumstances.

4.0 CHANGES IN TRAVEL BEHAVIOUR

About seven in ten respondents (71%)⁴ stated they regularly travel or commute in Calgary during rush hour periods. Questions were posed to these respondents to determine if they change their travel behaviors because of winter snow storms.

Table 4.1 shows the typical methods of travel used among respondents and if they change their methods when winter storms occur. For the most part, respondents do not change their travel methods when storms occur. However, among those who do, they usually become passengers in a vehicle rather than driving themselves or take Transit instead of driving or being a passenger.

Table 4.1: Methods of Travel During Rush Hour

Typical Method of Travel	Change to Method of Travel % of Respondents (2011 n=478; 2013 n=515; 2015 n=566)																	
	Do Not Change			Drive/ Passenger in Vehicle			Take Calgary Transit			Walk, jog or run			Other			Total		
	'11	'13	'15	'11	'13	'15	'11	'13	'15	'11	'13	'15	'11	'13	'15	'11	'13	'15
Drive/Passenger in Vehicle	71	67	64	6	6	5	3	3	5	0	0	0	2	0	2	82	77	77
Take Calgary Transit	11	15	11	2	2	5	1	2	1	0	0	0	1	0	1	15	19	18
Other	1	1	3	1	0	0	0	1	1	0	1	0	0	0	0	3	4	5
Total	83	83	78	9	8	11	4	6	7	1	2	1	3	1	2	100	100	100

The patterns of change that are observed above have been consistent over the three survey waves.

The most common reasons stated among respondents for changing methods of travel were to avoid being delayed or stuck in traffic, concerns about safety, and to avoid driving because roads are too dangerous.

⁴ Note: 65% in 2013 and 60% in 2011.

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Table 4.2: Reasons for Change to Different Modes of Travel

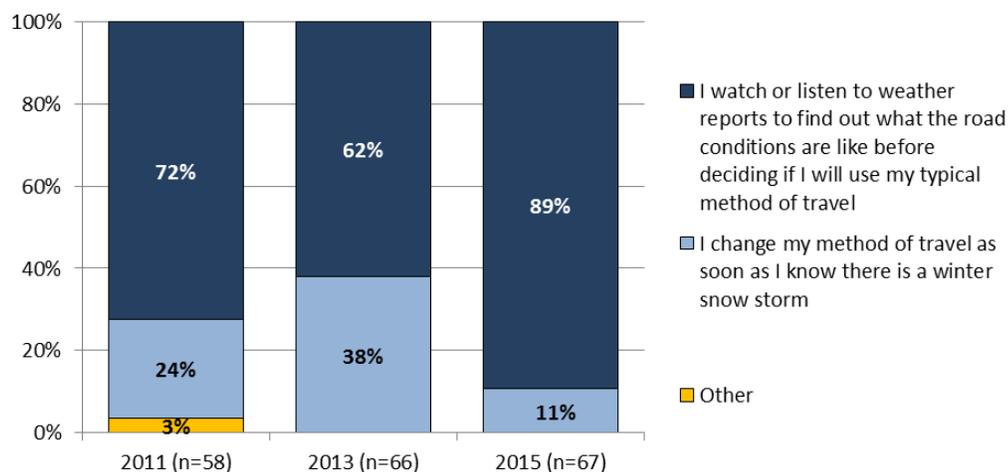
Reasons	% of Responses											
	Drive/Passenger in Vehicle			Take Calgary Transit			Walk, jog or run			Other		
	2011 (n=29)	2013 (n=38)	2015 (n=70)	2011 (n=17)	2013 (n=25)	2015 (n=40)	2011 (n=6)	2013 (n=9)	2015 (n=4)	2011 (n=11)	2013 (n=4)	2015 (n=6)
To avoid being delayed/to get to destination faster	17	40	19	24	23	28	0	36	0	18	50	0
Want to avoid being stuck in traffic	14	25	19	12	19	3	0	9	0	9	50	17
Roads too dangerous/safety	3	13	31	29	23	8	17	36	25	9	0	17
It is too cold/the alternative is warmer	3	2	1	12	10	10	17	0	0	0	0	0
Transit not reliable/too slow	21	10	3	0	0	40	50	18	0	27	0	17
Road conditions poor	14	3	13	6	3	5	17	0	0	18	0	0
Pathways/sidewalks too dangerous	3	0	0	0	7	3	0	0	50	0	0	17
Prefer to be a passenger	3	3	7	0	0	3	0	0	0	0	0	0
Transit more reliable/easier	0	0	4	18	16	0	0	0	0	0	0	17
There is too much snow at bus stops	3	0	0	0	0	0	0	0	0	0	0	17
Other	17	3	3	0	0	1	0	0	25	18	0	0
Total	100	100	100	100	100	100	100	100	100	100	100	100

Differences are observed among the survey waves; however the data are small for all the items examined and, as such, differences should be observed with caution.

Most respondents (55% in 2015, 75% in 2013, and 72% in 2011) who had changed their method of travel as a result of winter snow storms do so regularly. In other words, they change their method of travel almost every time there is a winter snow storm.

Data presented in Figure 4.1 shows that most respondents listen to weather reports before deciding to change their usual method of travel (Figure 4.1).

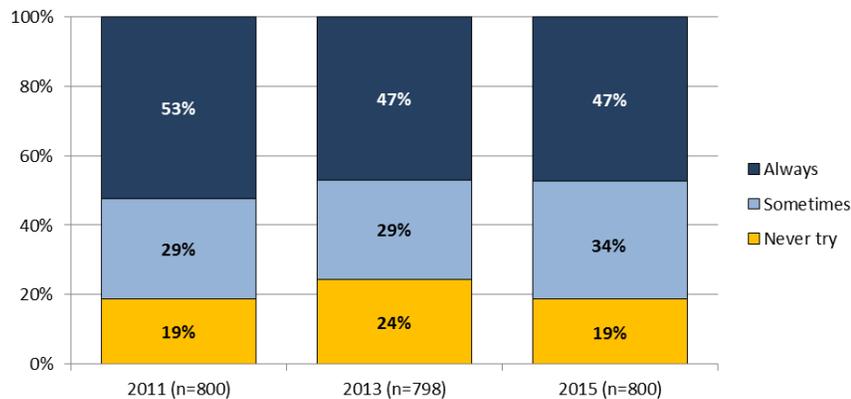
Figure 4.1: When Decision is Made to Change Method of Travel



5.0 COMMUNICATIONS

Obtaining information about the weather and travel conditions before traveling commonly occurs among many respondents. For example, approximately half of respondents always and about a third sometimes try to find out what travel conditions are going to be before traveling during winter conditions.

Figure 5.1: Checking Travel Conditions before Traveling



As can be seen in Table 5.1 on the next page, the most common methods used to become aware of travel conditions in Calgary are radio news/weather reports, television news/weather reports, The Weather Network TV Channel and smartphone apps. It is worth noting that these data represent unprompted responses.

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Table 5.1: Methods of Finding Out about Travel Conditions in Calgary (Unaided Responses)

Source of information	% of Respondents		
	2011 (n=689)	2013 (n=650)	2015 (n=649)
Radio news/weather reports	52	39	40
TV news/weather reports	45	35	32
The Weather Network TV Channel	24	23	12
Smart phone application	2	5	12
The Weather Network website/app*	4	13	10
Other websites	3	3	9
Google	0	2	8
The City of Calgary's website (not specified webpage)	5	3	4
TV/radio/newspaper websites	1	0	4
Word of mouth (family, friends, co-workers, etc.)	3	3	3
AMA website	3	3	3
Looking out the window/going outside	1	3	3
Twitter	0	1	3
TAR Traffic Advisory Radio FM 106.5	1	2	1
The real time road conditions map on City of Calgary webs	<1	2	1
The City of Calgary's Travelers Information Website	3	1	1
Other government websites	1	0	1
Environment Canada website	1	0	1
Social media (facebook, other – not Twitter)	0	0	1
Newspaper	1	1	<1
Call The City 3-1-1	<1	<1	<1
Alberta 511	0	0	<1
Call for recorded message (other than AMA)	<1	0	<1
Other	3	0	2
Number of responses	1,093	905	978

*Note: In 2011, the pre-coded response was simply The Weather Network website, while in 2013 the app was added.

When considering all of the sources of information presented above, there is evidence to suggest that Calgarians are moving more toward Internet-based sources such as smartphone apps and websites than other sources (Table 5.2 – see Appendix D for details).

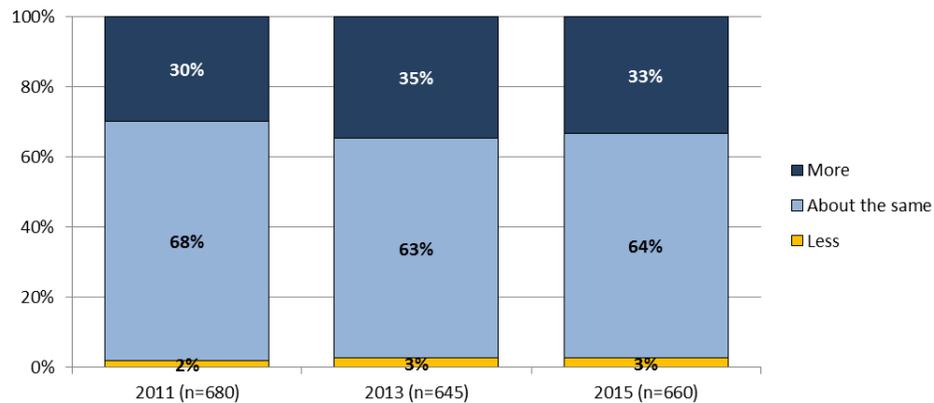
Table 5.2: Traditional and Internet-Based Methods of Information About Travel Conditions in Calgary (Unaided Responses)
(Analysis involving data from Table 5.1)

Source of Information	Sum of %'s		
	2011 (n=689)	2013 (n=650)	2015 (n=649)
Traditional Methods	123	100	85
Internet-Based	23	33	58
Other	5	6	7
Number of responses	1,093	905	978

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About a third respondents perceived that The City of Calgary has provided more information to Calgarians about winter travel conditions this winter season compared to previous years (Figure 5.2).

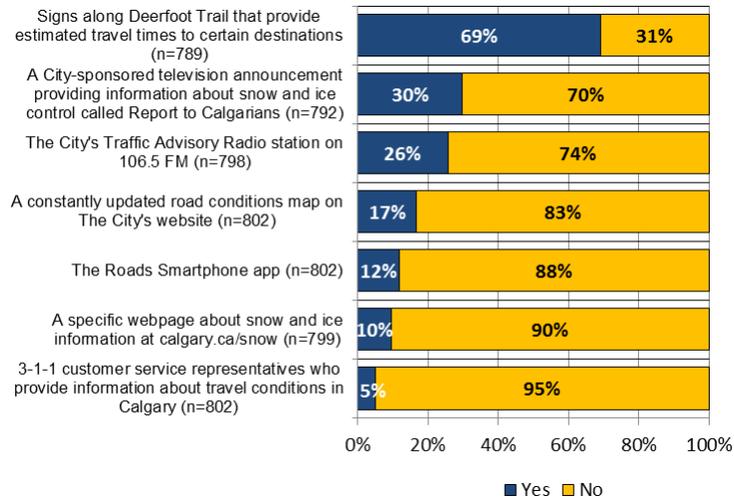
Figure 5.2: The City of Calgary has Provided Information about Winter Travel Conditions



The findings among the three survey waves are similar.

The City of Calgary uses various methods to inform Calgarians about winter travel conditions. Respondents were asked specifically if they used these methods. Figure 5.3 shows that the method most commonly used by respondents was signs along Deerfoot Trail that provide travel times to certain destinations and The City's website. To a much lesser extent, respondents indicated they use the Report to Calgarians, TAR 106.5 FM, and other methods.

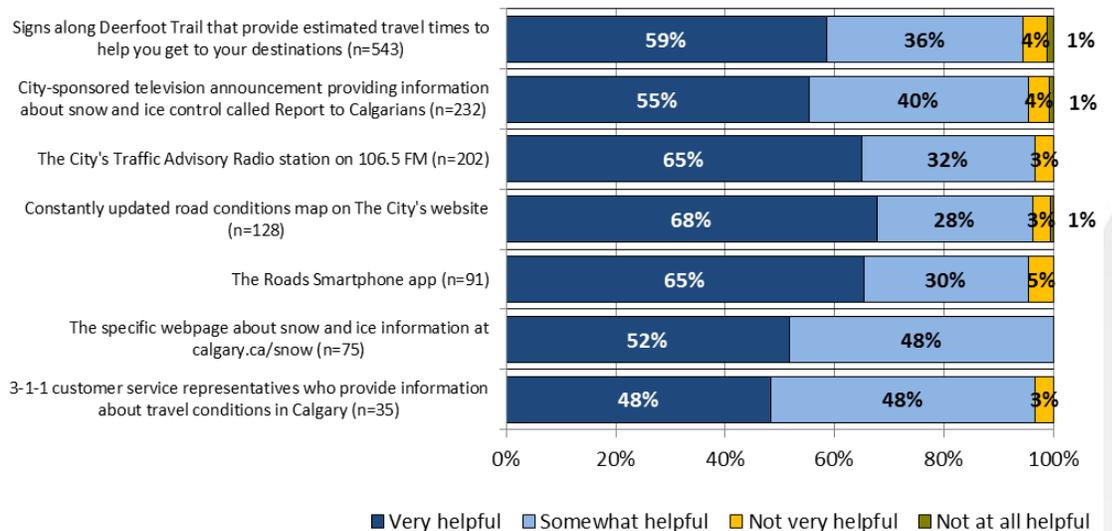
Figure 5.4: Use of Calgary Information Initiatives (Aided Responses)



Snow and Ice Control Program Citizens' Survey - 2015

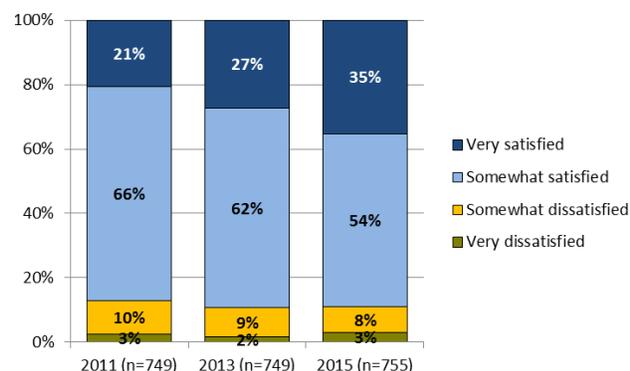
Respondents who used the various information sources offered by The City were asked about effectiveness (helpfulness) of what is obtained. Data presented in Figure 5.4 shows that all of the sources of information were helpful to those who used them; especially TAR 106,5 FM, the Roads Conditions Map, and the Roads Smartphone app based on those who stated very helpful.

Figure 5.5: Helpfulness of Information Sources
(Ordered based on presentation in Figure 5.4)



When asked about satisfaction with efforts of The City to inform Calgarians about travel conditions, a significant majority stated that they were very or somewhat satisfied (Figure 5.6).

Figure 5.6: Satisfaction with The City's Efforts to Inform Citizens about Travel Conditions

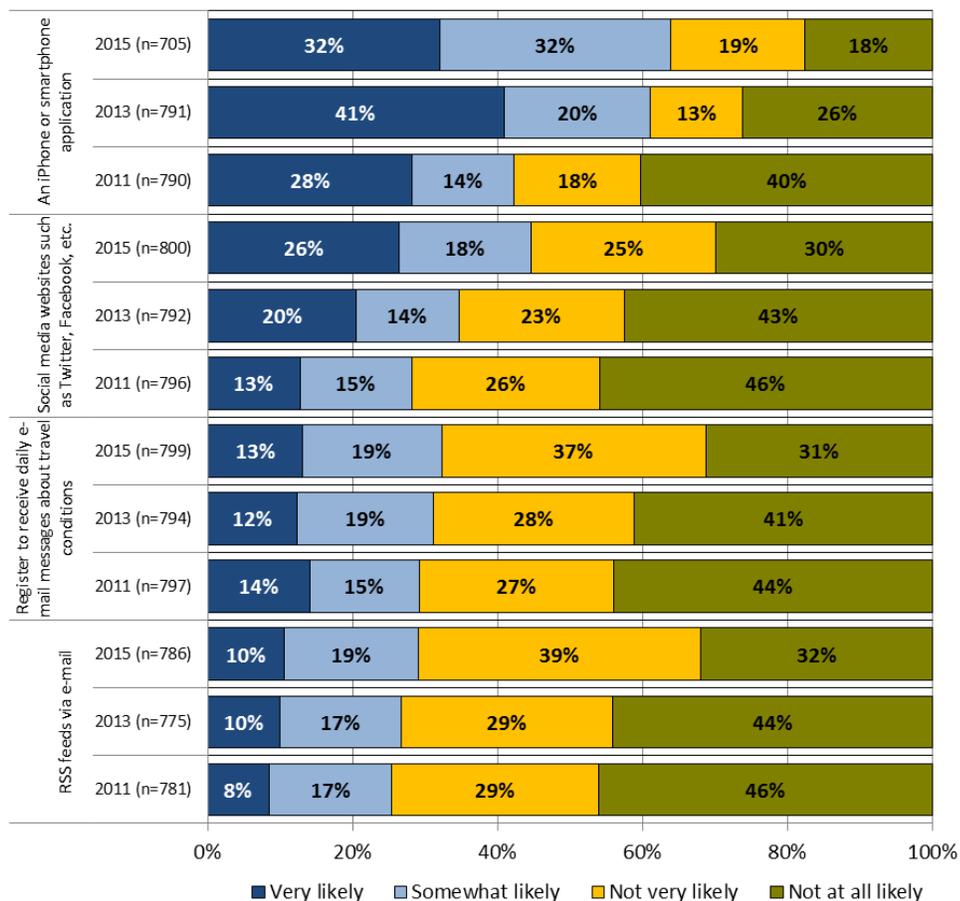


Snow and Ice Control Program Citizens' Survey - 2015

The proportion of respondents who stated they were very satisfied with The City's efforts is significantly higher in 2015 compared to the previous survey waves.

Figure 5.7 presents data about respondents' likelihood of using various types of information sources, mainly new kinds of sources, to find out about travel conditions in Calgary. Of the sources examined in the survey, a smartphone app was most popular, followed closely by social media websites. Other sources of information also appealed to some respondents, but not as many as the sources just mentioned.

Figure 5.7: Likelihood of Using Various Sources of Information



The appeal of the smartphone app and social media have increased over the three survey waves.

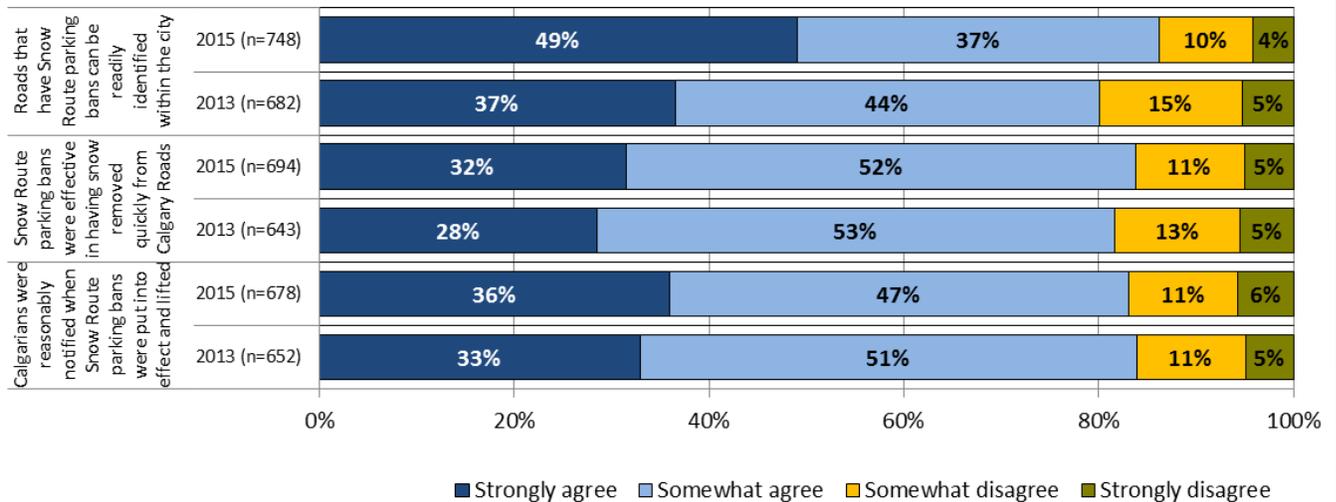
6.0 SNOW ROUTE PARKING BANS

Calgary Roads implements parking bans that temporarily restrict parking during Snow Events (snowfall of five or more centimetres that requires a street to be cleared of snow and ice) on roads designated as Snow Routes (e.g. major roadways, collector roads and most bus lanes). Signs are located on Snow Routes to identify roads where vehicles must be removed when parking bans are declared by The City (see Snow Route sign to the right). Calgaryans are notified about parking bans through traditional media (e.g. radio, television, etc.), The City's website, and social media (e.g. Twitter, Facebook, etc.).



Respondents were asked about effectiveness, notification and identification of the parking bans. Figure 6.1 shows a significant majority of respondents strongly or somewhat agreed that roads that have Snow Route parking bans can be readily identified, the bans were effective in having snow removed quickly from Calgary roads and Calgaryans are reasonably notified when Snow Route parking bans are in effect and lifted. Indeed, about eight in ten respondents agreed (strongly or somewhat) with these assertions.

Figure 6.1: Opinions about Snow Route Parking Bans



The findings suggest that opinions about Snow Route parking bans is improving, especially for roads being readily identified and bans being effective in having snow removed, especially when considering data that were gathered in the Calgary Roads 2012 Annual Survey (see Appendix D).

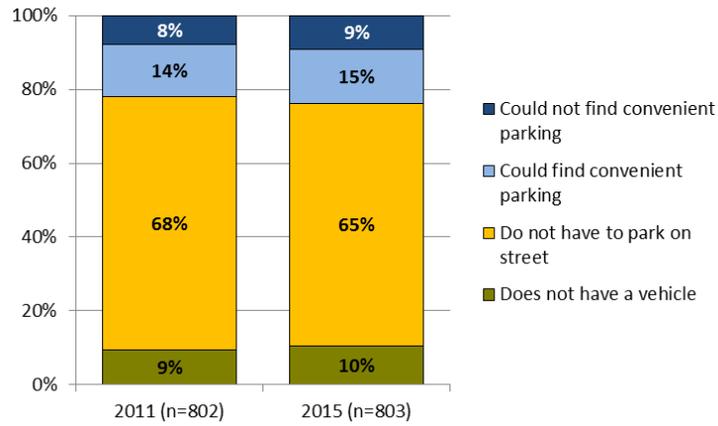
Snow and Ice Control Program Citizens' Survey - 2015

To gain further understanding of the findings, respondents who had not agreed with the statements posed to them were asked why. Table 6.1 shows that the common reasons included needing to be informed more effectively about parking bans and the Snow Route signs being difficult to see. Other reasons included snow not being removed in a timely manner during parking bans and residents not following parking bans. Interestingly, the reason of not enough signage posted was commonly expressed in 2013, but not so much in 2015.

Reasons	% of Respondents	
	2013 (n=187)	2015 (n=226)
Need to be informed more effectively about parking bans	38	37
Snow Route signs are hard to see/obstructed/too small	23	21
Snow was not removed in a timely fashion during parking bans	11	15
No reason in particular	7	11
Residents are not following the parking bans	8	10
Snow Routes are generally ineffective	5	6
Cars were being ticketed/towed	4	2
Parking bans are not enforced (not towing/ticketing)	4	2
Not enough signage (for Snow Routes) posted	13	1
There is nowhere to park during parking bans	5	1
Parking bans occur too early in the morning	4	1
Parking bans don't occur early enough	4	1
Parking bans should be put into effect more often	1	<1
Snow Routes are in improper areas	1	<1
Parking bans are for too long a time period	1	<1
Not as much snow this year	0	<1
Snow Route signs are confusing	5	0
People need time to get used to the Snow Routes	1	0
Number of responses	249	249

To understand convenience of parking on the street during parking bans, respondents who own vehicles were asked if they would be able to find convenient parking close to where they live when parking restrictions are put into place. Figure 6.2 shows that approximately one in ten respondents would not have convenient parking available when parking restrictions are put into place on one side of the street. The 2015 survey findings are similar to those obtained in the 2011 survey.

Figure 6.2: Able to Find Convenient Parking if Parking Restrictions Imposed



7.0 FURTHER SUGGESTIONS

Respondents were provided an opportunity to offer suggestions for how The City might reasonably improve travel in Calgary during winter conditions, which are presented in Table 7.1. The most common response was that respondents were pleased with the services already provided and they could not offer further suggestions. Still, typical suggestions provided by respondents included more plowing/grading/sanding/salting on roads, clearing residential streets of snow and ice quicker, clearing roads of snow and ice quicker generally. For the most part, the suggestions offered in the past three survey waves are similar.

Suggestions	% of Respondents		
	2011 (n=801)	2013 (n=733)	2015 (n=803)
Nothing/The City does all it can/Happy with the work The City does	21	29	34
More Plowing/Grading/Sanding/Salting on roads	18	22	16
Clear residential streets of snow and ice quicker	16	19	13
Clear roads of snow and ice quicker (not specific as to which roads)	11	5	10
Remove snow off streets completely instead of making piles	3	2	4
Clear walks and paths quicker after snowfall	4	0	4
Clear bus stops/c-train walkways/stairs	1	2	3
Brighter street lights/Synchronizing street lights	3	1	3
More/better information to citizens	0	0	3
More accessibility to driver education/Preparedness for weather	3	6	2
Promote/help Calgarians find or use alternate forms of transportation	1	5	2
Enforcing/Creating snow removal by-laws	1	4	2
Concentrate on removing of snow and ice from bridges/intersections/stop lights/turning lanes	2	3	2
Make winter tires mandatory	2	2	2
Other	9	5	2
Take pre-emptive measures and use new strategies in anticipation of winter storms	3	4	1
Adopt snow and ice removal strategies from other cities dealing with the same issues	2	1	1
City should contract out some/all snow removal	1	1	1
Clear main roads of snow and ice quicker	5	0	1
Less cleaning of bike lanes/no bike lanes	0	0	1
Clean bike lanes better/quicker	0	0	1
More consistency in road condition maintenance	3	1	<1
Create snow removal lanes for City vehicles	1	<1	<1
Put up more snow fences around the city	1	0	0
Number of responses	1,093	860	862

8.0 CONCLUDING REMARKS

The City of Calgary has developed a Snow and Ice Control Program to ensure that Calgary is safe for vehicle and pedestrian travel. The Program establishes priorities, standards and levels of services for snow and ice control initiatives implemented in Calgary. Periodically, Calgary Roads conducts a survey of Calgarians to gauge perceptions of the Snow and Ice Control Program.

The findings of the 2015 survey suggest that Calgarians, on the whole, are satisfied with travel during the winter season, including times when snow events occur. A significant majority of survey respondents stated they were very or somewhat satisfied with travel conditions due to snow and ice control when driving or being in a vehicle on Calgary roads. As well, approximately eight in ten respondents stated that travel time during morning rush hour after winter snow storms is very or somewhat reasonable. In both of these measures, the 2015 results show improvements over previous survey waves.

Among those who stated that travel time during morning rush hour after winter snow storms was unreasonable acknowledged that it is because of the severity of winter storms rather than lack of effort to provide snow and ice control services.

A significant majority of respondents to the 2015 survey indicated they were satisfied with the efforts of The City to inform citizens about travel conditions. It is worth noting that respondents in 2015 were more likely to use Internet-based sources of information compared to previous surveys.

Roads implemented Snow Route parking bans to facilitate snow and ice control initiatives during snow events. A significant majority of respondents agreed that roads that have Snow Route parking bans can be readily identified, the bans were effective in having snow removed quickly from Calgary roads and Calgarians are reasonably notified when Snow Route parking bans are in effect and lifted. Again, the 2015 results reveal improvements compared to previous survey waves.

Approximately one in ten respondents would not have convenient parking available when parking restrictions are put into place on one side of the street.

When asked for suggestions about what might improve travel in Calgary during winter conditions, the most common answer was nothing or The City does all it can. However, some respondents felt more plowing/grading/sanding/salting on roads, clearing residential streets of snow and ice quicker, clearing roads of snow and ice quicker generally.

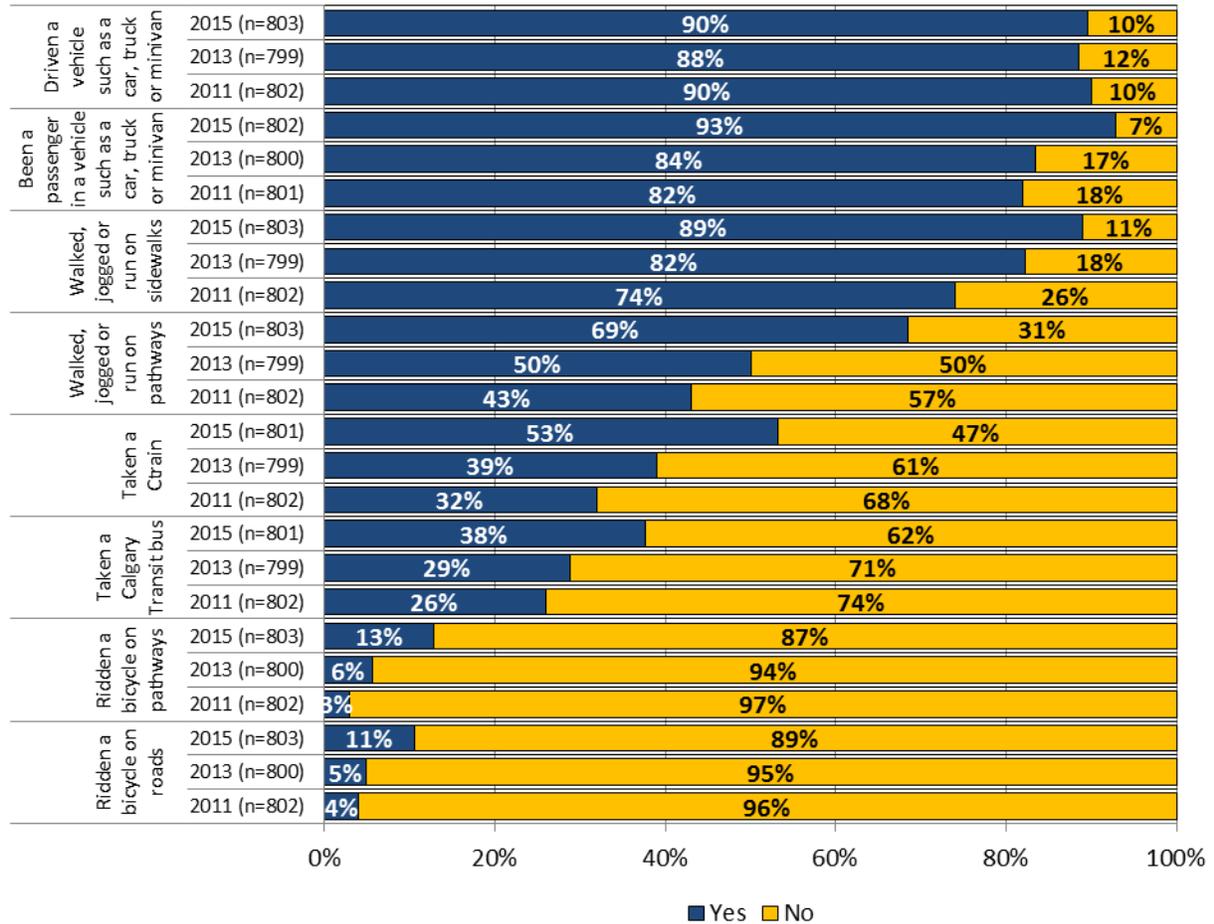
APPENDIX B

Respondent Profile

Respondent Profile						
Characteristics	Descriptions	2011 Survey	2013 Survey	2013 Survey	Calgary Population (Civic Census)	
Age (respondents)	(n=)	786	778	803		
	18-24 years	11	10	12	12	
	25-34 years	22	24	22	21	
	35-44 years	22	22	21	21	
	45-54 years	20	18	18	20	
	55-64 years	12	14	14	13	
	65+	12	13	13	12	
Total	100	100	100	100		
Gender	(n=)	802	802	803		
	Male	50	50	50	50	
	Female	50	50	50	50	
	Total	100	100	100	100	
City Quadrant	(n=)	796	792	799		
	Northwest	34	32	36	n/a	
	Northeast	21	17	17		
	Southwest	26	28	24		
	Southeast	19	23	23		
Total	100	100	100			
Work full-time/part-time or go to school	(n=)	794	793	801		
	Yes	75	81	83	n/a	
	No	25	19	17		
	Total	100	100	100		
Employed in a job requiring driving in Calgary	(n=)	597	641	662		
	Yes	32	32	30	n/a	
	No	68	68	70		
	Total	100	100	100		
Own a vehicle	(n=)	800	800	803		
	Yes	91	88	89	n/a	
	No	9	12	11		
	Total	100	100	100		
Travel	Use Car2Go	(n=)		716		
		Yes	n/a	n/a	17	n/a
		No			83	
	Total			100		
	Use Stroller	(n=)			803	
		Yes	n/a	n/a	14	n/a
		No			86	
	Total			100		
	Use Mobility Device	(n=)			801	
Yes		n/a	n/a	6	n/a	
No				94		
Total				100		

Snow and Ice Control Program Citizens' Survey - 2015

Modes of Travel in Calgary Since First Snowfall in Mid September



APPENDIX C

Snow Accumulation in Calgary

Total Snow ⁵ at Calgary International Airport (cm)													
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
2002/03	0.0	0.0	3.8	20.0	11.4	16.2	15.8	37.9	18.6	59.2	28.2	0.0	211.1
2003/04	0.0	0.0	11.8	17.6	24.2	1.4	27.2	5.4	10.2	13.8	27.2	0.0	138.8
2004/05	0.0	0.0	T	13.5	3.2	21.0	16.6	12.2	16.4	4.8	3.0	0.0	90.7
2005/06	0.0	0.0	2.0	0.2	13.8	5.5	10.0	33.1	16.9	0.6	0.8	0.0	82.9
2006/07	0.0	0.0	T	18.0	28.4	8.2	12.2	41.0	31.7	43.2	12.8	T	195.5
2007/08	0.0	0.0	0.2	6.2	10.4	8.0	16.8	15.6	17.6	65.8	8.8	T	149.4
2008/09	0.0	0.0	0.0	T	20.8	45.4	14.4	21.4	46.6	12.4	0.4	3.8	165.2
2009/10	0.0	0.0	0.0	24.6	6.8	37.4	14.8	7.2	1.5	36.8	23.2	0.0	152.3
2010/11	0.0	0.0	0.2	4.4	22.0	20.8	33.7	24.2	23.8	58.0	0.0	0.0	187.1
2011/12	0.0	0.0	0.0	1.0	15.0	23.1	7.8	20.0	19.8	27.7	12.6	0.0	127.0
2012/13	0.0	0.0	0.0	25.5	19.4	15.6	24.9	3.4	21.6	11.8	0.0	0.0	122.2
2013/14	0.0	0.0	0.0	4.4	27.8	52.4	23.3	6.4	36.3	13.6	15.6	0.0	179.8
2014/15	0.0	0.0	28.2	1.2	43.2	7.6	34.6	13.7	n/a	n/a	n/a	n/a	128.5

T=trace
Source: http://climate.weatheroffice.gc.ca/climateData/dailydata_e.html?timeframe=2&Prov=ALTA&StationID=50430&hlyRange=2012-07-09|2012-07-16&Month=2&Year=2013&cmdB1=Go&Day=1

Total Snow ⁶ at Calgary International Airport (cm) September to February during Survey Years											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total	3 Months (Dec, Jan, Feb)	4 Months (Nov, Dec, Jan, Feb)
2010/11	0.0	0.0	0.2	4.4	22.0	20.8	33.7	24.2	105.3	78.7	100.7
2012/13	0.0	0.0	0.0	25.5	19.4	15.6	24.9	3.4	88.8	43.9	63.3
2014/15	0.0	0.0	28.2	1.2	43.2	7.6	34.6	13.7	128.5	55.9	99.1

T=trace
Source: http://climate.weatheroffice.gc.ca/climateData/dailydata_e.html?timeframe=2&Prov=ALTA&StationID=50430&hlyRange=2012-07-09|2012-07-16&Month=2&Year=2013&cmdB1=Go&Day=1

⁵ The total snowfall, or amount of frozen (solid) precipitation in cm such as snow and ice pellets, observed during the day.

⁶ The total snowfall, or amount of frozen (solid) precipitation in cm such as snow and ice pellets, observed during the day.

APPENDIX D

Additional Data

Data Associated with Figure 3.1: Perceptions of Various Attributes of Travel during Winter Conditions with Satisfaction of Roads

2015

			Satisfaction - Driving or being in a vehicle such as a car, truck or minivan on Calgary roads				Total
			Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied	
Travel is reasonably safe during winter conditions due to snow and ice control provided on Calgary roads	Strongly agree	Count	89	77	3	1	170
		%	52.4%	45.3%	1.8%	.6%	100.0%
	Somewhat agree	Count	74	357	39	5	475
		%	15.6%	75.2%	8.2%	1.1%	100.0%
	Somewhat disagree	Count	2	55	37	4	98
		%	2.0%	56.1%	37.8%	4.1%	100.0%
	Strongly disagree	Count	3	8	11	19	41
		%	7.3%	19.5%	26.8%	46.3%	100.0%
Total		Count	168	497	90	29	784
		%	21.4%	63.4%	11.5%	3.7%	100.0%

2013

			Satisfaction - Driving or being in a vehicle such as a car, truck or minivan on Calgary roads				Total
			Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied	
Agreement - Travel is reasonably safe during winter conditions	Strongly agree	Count	71	48	2	1	122
		%	58.2%	39.3%	1.6%	.8%	100.0%
	Somewhat agree	Count	85	298	43	9	435
		%	19.5%	68.5%	9.9%	2.1%	100.0%
	Somewhat disagree	Count	11	82	50	4	147
		%	7.5%	55.8%	34.0%	2.7%	100.0%
	Strongly disagree	Count	4	21	19	19	63
		%	6.3%	33.3%	30.2%	30.2%	100.0%
Total		Count	171	449	114	33	767
		%	22.3%	58.5%	14.9%	4.3%	100.0%

2015

			Satisfaction - Driving or being in a vehicle such as a car, truck or minivan on Calgary roads				Total
			Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied	
Minimal tire skidding or sliding occurs during winter conditions due to snow and ice control provided on Calgary roads	Strongly agree	Count	67	63	6	4	140
		%	47.9%	45.0%	4.3%	2.9%	100.0%
	Somewhat agree	Count	87	272	22	4	385
		%	22.6%	70.6%	5.7%	1.0%	100.0%
	Somewhat disagree	Count	9	125	35	2	171
		%	5.3%	73.1%	20.5%	1.2%	100.0%
	Strongly disagree	Count	5	29	23	19	76
		%	6.6%	38.2%	30.3%	25.0%	100.0%
Total		Count	168	489	86	29	772
		%	21.8%	63.3%	11.1%	3.8%	100.0%

Snow and Ice Control Program Citizens' Survey - 2015

2013

			Satisfaction - Driving or being in a vehicle such as a car, truck or minivan on Calgary roads				Total
			Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied	
Agreement - Minimal tire skidding or sliding occurs during winter conditions	Strongly agree	Count	62	49	12	2	125
		%	49.6%	39.2%	9.6%	1.6%	100.0%
	Somewhat agree	Count	79	239	30	5	353
		%	22.4%	67.7%	8.5%	1.4%	100.0%
	Somewhat disagree	Count	25	115	43	6	189
		%	13.2%	60.8%	22.8%	3.2%	100.0%
	Strongly disagree	Count	4	40	30	19	93
		%	4.3%	43.0%	32.3%	20.4%	100.0%
Total		Count	170	443	115	32	760
		%	22.4%	58.3%	15.1%	4.2%	100.0%

2015

			Driving or being in a vehicle such as a car, truck or minivan on Calgary roads				Total
			Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied	
Travel times are reasonable during winter conditions due to snow and ice control provided on Calgary roads	Strongly agree	Count	79	55	8	1	143
		%	55.2%	38.5%	5.6%	0.7%	100.0%
	Somewhat agree	Count	73	316	28	7	424
		%	17.2%	74.5%	6.6%	1.7%	100.0%
	Somewhat disagree	Count	12	92	34	6	144
		%	8.3%	63.9%	23.6%	4.2%	100.0%
	Strongly disagree	Count	4	31	19	16	70
		%	5.7%	44.3%	27.1%	22.9%	100.0%
Total		Count	168	494	89	30	781
		%	21.5%	63.3%	11.4%	3.8%	100.0%

2013

			Satisfaction - Driving or being in a vehicle such as a car, truck or minivan on Calgary roads				Total
			Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied	
Agreement - Travel times are reasonable during winter conditions	Strongly agree	Count	75	46	4	1	126
		%	59.5%	36.5%	3.2%	0.8%	100.0%
	Somewhat agree	Count	81	276	34	3	394
		%	20.6%	70.1%	8.6%	0.8%	100.0%
	Somewhat disagree	Count	12	102	56	7	177
		%	6.8%	57.6%	31.6%	4.0%	100.0%
	Strongly disagree	Count	3	23	21	22	69
		%	4.3%	33.3%	30.4%	31.9%	100.0%
Total		Count	171	447	115	33	766
		%	22.3%	58.4%	15.0%	4.3%	100.0%

2015

			Driving or being in a vehicle such as a car, truck or minivan on Calgary roads				Total
			Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied	
Travel conditions are reasonable on Calgary roads on mornings immediately after considerable snow falls due to snow and ice control	Strongly agree	Count	43	36	3	1	83
		%	51.8%	43.4%	3.6%	1.2%	100.0%
	Somewhat agree	Count	96	251	18	3	368
		%	26.1%	68.2%	4.9%	0.8%	100.0%
	Somewhat disagree	Count	17	147	31	5	200
		%	8.5%	73.5%	15.5%	2.5%	100.0%
	Strongly disagree	Count	4	49	38	21	112
		%	3.6%	43.8%	33.9%	18.8%	100.0%
Total		Count	160	483	90	30	763
		%	21.0%	63.3%	11.8%	3.9%	100.0%

Snow and Ice Control Program Citizens' Survey - 2015

2013

			atisfaction - Driving or being in a vehicle such as a car, truck or minivan on Calgary roads				Total
			Very satisfied	Somewhat satisfied	Somewhat dissatisfied	Very dissatisfied	
Agreement - Travel conditions are reasonable on mornings immediately after considerable snowfalls	Strongly agree	Count	40	21	2	1	64
		%	62.5%	32.8%	3.1%	1.6%	100.0%
	Somewhat agree	Count	85	165	12	1	263
		%	32.3%	62.7%	4.6%	.4%	100.0%
	Somewhat disagree	Count	21	158	47	1	227
		%	9.3%	69.6%	20.7%	.4%	100.0%
	Strongly disagree	Count	12	85	52	29	178
		%	6.7%	47.8%	29.2%	16.3%	100.0%
Total	Count	158	429	113	32	732	
	%	21.6%	58.6%	15.4%	4.4%	100.0%	

Data Associated with Table 5.1: Methods of Finding Out about Travel Conditions in Calgary

Source of Information	Sum of %'s			Source of Information	% of Respondents		
	2011 (n=689)	2013 (n=650)	2015 (n=649)		2011 (n=689)	2013 (n=650)	2015 (n=649)
Traditional	123	100	85	Radio news/weather reports	52	39	40
				TV news/weather reports	45	35	32
				The Weather Network TV Channel	24	23	12
				TAR Traffic Advisory Radio FM 106.5	1	2	1
				Newspaper	1	1	<1
Internet-Based	23	33	58	Smart phone application	2	5	12
				The Weather Network website/app*	4	13	10
				Other websites	3	3	9
				Google	0	2	8
				The City of Calgary's website (not specified webpage)	5	3	4
				TV/radio/newspaper websites	1	0	4
				AMA website	3	3	3
				Twitter	0	1	3
				The real time road conditions map on City of Calgary webs	<1	2	1
				The City of Calgary's Travelers Information Website	3	1	1
				Other government websites	1	0	1
				Environment Canada website	1	0	1
				Social media (facebook, other – not Twitter)	0	0	1
				Alberta 511	0	0	<1
Other	5	6	7	Word of mouth (family, friends, co-workers, etc.)	3	3	3
				Looking out the window/going outside	1	3	3
				Call The City 3-1-1	<1	<1	<1
				Call for recorded message (other than AMA)	<1	0	<1
				Other	3	0	2
Number of responses	1,093	905	978	Number of responses	1,093	905	978

*Note: In 2011, the pre-coded response was simply The Weather Network website, while in 2013 the app was added.

Snow and Ice Control Program Citizens' Survey - 2015

Data Associated with Figure 7.1: Opinions about Snow Route Parking Bans
(results from the 2012 Annual Roads Survey)

