

Calgary



TT2018-0467

Improving Accessibility and Reducing Injuries through Snow and Ice Control

June 7, 2018

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Executive Summary

Current state

The City of Calgary's Snow and Ice Control (SNIC) program is committed to helping make pedestrian, bicycle and vehicle passage along streets, sidewalks and pathways safer in winter. These services are delivered primarily by the Transportation Department, led by the Roads and Transit Business Units (BUs). Calgary Parks, Waste and Recycling Services and Calgary Community Standards (CCS) BUs also provide SNIC-related services, including bylaw enforcement.



The Roads and Parks SNIC budgets for streets and sidewalks was a total of \$39.2 million in 2017. This is a significantly lower annual investment compared to other cities in Canada: Edmonton budgets for \$63.7 million, Ottawa at \$69.2 million and Toronto at \$90 million. Calgary's unpredictable winter weather is a factor in allocating budget to SNIC services. Calgary is one of the unique locations in Canada that experiences warm, westerly winds in the middle of winter, known as a chinook.

Of the \$39.2 million budget, only \$3.4 million (about 8.6 per cent) is allocated specifically for clearing snow and ice from certain sidewalks, including those adjacent to parks. This is also a lower percentage of investment compared to other cities, where the ranges were between 12 to 21 per cent. This is not unexpected, as the SNIC

responsibilities for 90 per cent of the public sidewalks in Calgary fall to residents and business owners. Private property owners are responsible for the clearing of snow and ice from the public sidewalks or pathways that are adjacent their property. The Calgary Street Bylaw 20M88 requires that these sidewalks are cleared within 24 hours from when the snow stops falling. Sidewalks in The City's inventory are scheduled for clearing on a priority basis, resulting in a range of response times from 24 hours to seven days.

Ice or snow that builds up on sidewalks and pathways creates more than an inconvenience; it can contribute to slips or falls that result in injury. In 2017, Alberta Health Services confirmed that 303 people were treated for injuries in 2017 that were sustained by slipping or falling on public sidewalks and streets.

Improvements Required

In 2016, The City approved a pedestrian strategy called "Step Forward" that envisions a safer, more inviting and better maintained realm for pedestrians. This strategy is built on the concerns and opportunities for improvement, shared by thousands of Calgarians. Its primary goal is to increase the total trips made by walking from 19 to 25 per cent by 2025. For this to happen, better winter conditions for walking must be achieved, as snow and ice clearing was identified as a significant barrier to Calgarians.

These concerns were verified in an online survey conducted by Ipsos in 2018 February regarding SNIC on pathways and walkways, at a time when Calgary was experiencing record high snowfalls for February and March. Only 51 per cent of the panelists believed The City does an adequate job at providing safe conditions on sidewalks and pathways. This rating plummeted to 27 per cent when answered by those with mobility challenges.

With these concerns and opportunities in mind, City Council directed Administration to review the walking-focused snow and ice control policies to improve the safety, accessibility and equity of Calgary's walking network. They specified ten areas of focus for this review.

1. An escalating fine schedule for failure to clear abutting infrastructure within the 24 hours currently required by the Street Bylaw 20M88, as well as other mechanisms that increase accountability, create more consistent outcomes, and ensure cost-recovery for enforcement

The Street Bylaw does not currently have a fine associated with failure to remove snow and ice from a sidewalk or pathway. Instead, when a warning notice has been not complied with, the costs of clearing the sidewalk are billed to the adjacent property owner. The minimum charge for corrective action by a City-approved vendor back to a property owner is \$170.00 plus GST. If the property owner fails to pay the invoice, these costs

are added to their annual property tax bill. Having an option to also issue a ticket with a specified penalty may encourage better compliance in the future, particularly for those properties that repeatedly fail to make the sidewalks safe for others to travel on. Adding a specific penalty will require an amendment to the bylaw. To have this in place for the 2018/19 winter season, these amendments would need to come to Council in Q4 2018.

Options Presented	Proposed Penalty
Specify a Penalty for when a Summons is issued for failing to clear the sidewalk.	\$250
Include an escalating penalty scale for subsequent offenses at the same parcel/property owner.	+ \$150 - \$200

2. Updating SNIC policies to be consistent with Council-approved direction in the Pedestrian Strategy

Guided by the “Step Forward” strategy and a new “High Priority Areas” map, a menu of options was developed on how to enhance SNIC services, and what the associate cost ranges could be. As final decisions regarding budgets will not occur until Q4 2018, many of these options would have to be phased in over time, leading up to the 2019 or 2020 winter seasons. Full implementation would be dependent upon capacity of labour pool, equipment and external contractors.

Administration recommends that The City’s SNIC Policy be updated to ensure there would be a specific focus on pedestrian SNIC service levels and plans, separate from those used to prioritize SNIC response for roadways. The direction that Council may give around enhanced or expanded services for the pedestrian realm would inform these policy updates.

Options Presented	Cost Ranges (where applicable)
A) The City performs SNIC services for all sidewalks, pathways and engineered walkways	\$30-40 million (operating) \$40-50 million (capital)
B) 1. The City provides SNIC services for all sidewalks within a High Priority Network	\$20-30 million (operating) \$25-35 million (capital)
B) 2. The City provides SNIC services for all sidewalks within the High Pedestrian Use Network	\$9-14 million (operating) \$12-17 million (capital)
C) Expand inventory of sidewalks and pathways that City clears	\$4-6 million (operating) \$6-8 million (capital)

D) Expand inventory of sidewalks and pathways within High Priority Network	\$2.5-3.5 million (operating) \$4.5-6.5 million (capital)
E) Provide SNIC services to additional 100 km of pathway	\$0.5-1 million (operating)
F) Complete all Bus Zones within 24 hours	\$4.5-6.5 million (operating) \$5-7 million (capital)

3. Identification of a High Priority Network, including missing links, for improved City clearing that facilitates access to transit routes, the Centre City, Major Activity Centres, Neighbourhood Activity Centres, Main Streets and other destinations with high walking volumes

The “Step Forward” strategy included a “High Priority Areas Map” which provided a conceptual level identification of areas of the city that are strategically important for creating areas that promote walking. To support the discussion about SNIC service levels, investment levels and a walking-focused policy, two new maps of priority areas were developed, with a specific focus on areas where snow and ice control represents a significant barrier to accessibility.

Map A illustrates the High Use Areas for

pedestrians, and includes the Central Business District, Main Streets, Light Rail Train (LRT) stations, Transitways, Bus Rapid Transit (BRT) stations, high-use Bus stops outside of the Central Business District.

Map B illustrates the High Priority Areas for pedestrians based on policy and the “Step Forward” strategy. These areas include Major Activity Centres, Major Institutions (universities, hospitals), senior facilities, and school sites.

4. Increased coordination of snow and ice control between Roads, Transit, Parks, and other relevant City departments

Roads, Transit and Parks regularly coordinate work in effort to provide the most efficient SNIC service to the highest priority areas of the City. Since 2012, Parks and Roads have traded SNIC responsibilities on various pathways and sidewalks based on proximity to other assets. This reduces travel time and increases the efficiency of service delivery. Working in partnership with Calgary Neighbourhoods, Roads also clears over five km of sidewalk at identified locations that improve travel conditions for persons with reduced mobility. This includes certain community hubs, retail centres and senior centres. Through the One Calgary strategic plan for the 2019-2022 budget, the

provision of SNIC services on sidewalks and pathways by Parks, Transit and Roads will be included in the Sidewalks and Pathways service line. This may lead to the establishment of a working group to confirm priority routes and locations, and the development of a single more efficient work plan for SNIC. For routine operations such as SNIC, Administration may also examine if efficiencies could be gained by having only one Business Unit (BU) be responsible for all SNIC services for The City’s inventory of public sidewalks and pathways. This may allow for a more consistent level of service during snow events of any scale.

5. Improved timelines for clearing sidewalks and pathways abutting City property that would bring them more in line with expectations on private property owners

The City's BUs with sidewalks outside of residential properties, office buildings or public facilities are most likely to achieve 24-hour timelines, as the snow clearing falls under their facility management contracts. However, the two BUs that are

responsible for largest, least occupied parcels currently have a planned SNIC response that is slower – Parks has a 72-hour response rate for their 300 km of sidewalk, and Roads completes all sidewalks within their inventory within 7 days.

Options Presented	Cost Ranges (where applicable)
Clear all sidewalks adjacent to City property within 24 hours	\$3-5 million (operating)

6. Identification of options to provide winter maintenance for Calgary's 78 kilometres of engineered walkways

Engineered walkways are thoroughfares that run between private properties to provide pedestrian mobility through neighbourhoods and to provide convenient year-round connectivity to transit, schools, recreation and shopping centres. However, during the winter season, most of these walkways remain unshovelled as the adjacent property owners are not responsible for these

spaces under the Street Bylaw, and these walkways are not currently in The City's SNIC inventory list either. These walkways are important for winter travel at the community level, and a decision is required to ensure SNIC responsibilities for the future are understood and carried out. Three options were developed for consideration.

Options Presented	Cost Ranges (where applicable)
Assign responsibility to the adjacent Property Owner(s)	No additional SNIC costs, however may have an impact on costs to investigate and enforce.
City provide SNIC service for high priority walkways within 24 hours. High-priority walkways make up about 50% of the total. Remaining walkways would be assigned to adjacent Property Owners	\$3-4 million (operating) \$3 million (capital)
City provide SNIC service for all engineered walkways within 24 hours	\$6-8 million (operating) \$6 million (capital)

7. Guidelines or rules for the clearing of wheelchair ramps, curb cuts, and sidewalk crossings of laneways

There are over 38,000 wheelchair ramps in the city, and like driveway curb cuts, they are built as part of the sidewalk to make access easier. The responsibility to remove snow and ice from these slopes lies with the adjacent property owner.

However, adjacent property owners are not currently responsible for SNIC where the sidewalk crosses a lane or alley. There are over 12,700 laneway crossings city-wide. Two options were developed for consideration.

Options Presented	Cost Ranges (where applicable)
Assign responsibility to the adjacent Property Owner(s)	No additional SNIC costs, however may likely have an impact on costs to investigate and enforce.
Blended approach. City to clear laneway crossings within seven days based on a priority system. Property Owner(s) still responsible for wheelchair ramps and curb cuts.	\$12-15 million (operating)

Windrows were also considered in the discussion regarding wheelchair ramps, as they can create a barrier to pedestrians, seniors and people with mobility challenges that use these ramps. Windrows are the continuous trails of snow that are

created by snow plowing activity on the road. While it is the adjacent property owner's responsibility to clear the sidewalk of snow and ice, they are not required to clear away snow on the street. Two options to improve accessibility were developed.

Options Presented	Cost Ranges (where applicable)
Plow windrows away from high priority wheelchair ramp locations.	\$2-3 million (operating)
Plow windrows away from all wheelchair ramps.	\$13-16 million (operating)

8. Improved 3-1-1 phone, website, and mobile app reporting options

Roads and 3-1-1 Citizen Services have recently updated the *Roads Snow and Ice Control SR* to improve customer service and employee response. This project was completed in June 2017. Many of the improvements were to address pedestrian-related concerns regarding SNIC – on public roads, sidewalks, stairs, overpasses and

bridges. 3-1-1 is also working on two projects to further improve citizen's access to SR information: Live Maps to provide real-time information for select request types, and a Worker App to enable updates directly from the field crews who are helping to address the citizen concerns.

9. Identification of winter maintenance funding for relevant City departments whenever new capital and annual network growth projects are implemented

Over the last 15 years, the average annual increase to the sidewalk network was 1.77 per cent, and 3.37 per cent for pathways. The City has also made significant investments in transit infrastructure over this time, including the West LRT line, new LRT stations in the north-east and north-west, and the physical expansion of every LRT platform to accommodate four-car trains. It is

important that the operating costs for these assets, including SNIC, are identified at the planning stages for these capital projects, and documented for consideration in the annual budget review. Some recent changes led by the Corporate Project Management Centre and the Growth Strategies may ensure this information is better captured in the future.

10. An updated strategy to assist Calgarians who are unable to clear abutting walking infrastructure themselves

Calgary Neighbourhoods (CN) work with Council's Advisory Committee on Accessibility (ACA) and the Age Friendly Steering Committee. They advocate for improved snow and ice clearing from The City for sidewalks, pathways, roadways and walkways. People with disabilities or reduced mobility need to be able to participate in work, leisure and educational opportunities in Calgary, regardless of the season. CN manage two programs that provide additional snow clearing

Next Steps

The report has developed a menu of options on how to improve, enhance or expand the SNIC services for Calgarians going forward. While a number of these options focus on improvements through efficiencies, collaboration and partnerships, any adjustments that would expand or accelerate the delivery of SNIC services would require additional investment in both operating and capital dollars.

It is expected that after review and deliberation by the Standing Policy Committee on Transportation and Transit on 2018 June 7, a selection of options and service packages may be forwarded to Council for decision.

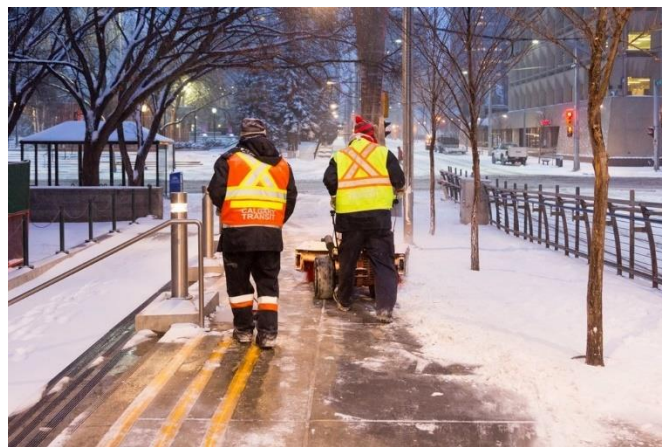
Administration recommends that The City's SNIC Policy be updated to ensure there would be a specific focus on pedestrian SNIC service levels, plans and measures, separate from those used to prioritize the SNIC response for roadways. The direction that Council may give around enhanced or expanded services for the pedestrian realm would inform these policy updates. Policy changes could be completed by Q3 2019.

Several potential amendments to City bylaws have been presented in this report, and the requirement to make any amendments will depend on Council's deliberations around pedestrian SNIC services.

assistance in the community. The volunteer-based Snow Angels campaign, which saw 1,152 people sign up for the 2017/18 season to help out their neighbours with sidewalk snow shovelling. The Seniors Home Maintenance Service provides low income, qualifying seniors in 400 households with snow removal services. The program also provides seniors with basic yard care, house cleaning, painting and minor repairs.

To have any changes in penalties or responsibilities come into force for the 2018/19 winter season, Administration would need to be directed to bring such amendments back to Council no later than Q4 2018.

Should there be changes proposed to bylaws, and/or citizen and City responsibility for SNIC for sidewalks, pathways or engineered walkways, detailed engagement with *all* citizens would be a major priority entering the 2018-19 SNIC season. Communications would include, but not be limited to, mailouts to every resident, television and radio commercials, transit advertising, utilizing a campaign aimed at educating citizens about proposed (or approved) changes. This would also be a time sensitive campaign if its target is completion prior to the 2018/19 winter season.



Current State of Snow and Ice Control

The City of Calgary (The City) manages snow and ice control (SNIC) operations on City infrastructure in accordance with the Municipal Government Act (MGA), relevant City Bylaws, and Council approved policy. SNIC services to Calgarians are delivered primarily by the Transportation Department, led by the Roads and Transit Business Units. Calgary Parks, Waste and Recycling Services and Calgary Community Standards Business Units also provide SNIC-related services, including bylaw enforcement.

The City's SNIC program is committed to helping make Calgary safe for pedestrian, bicycle and vehicle passage along the developed right-of-way according to the City-Council approved policy and priority system.



Responsibilities

Roads is responsible for the SNIC operations for The City's public road right-of-way, which includes streets, bicycle tracks and bridges. However, the Province of Alberta maintains road conditions for the two provincial highways that run within Calgary: Deerfoot Trail and the Stoney Trail ring-road.

Roads also clears a certain number of public sidewalks (including stairs) of snow, where there are no adjacent property owners, or where there is no access to the sidewalk due to fences and barriers.

Transit is responsible for snow and ice control at the Light Rail Train (LRT) stations and transit parking lots. The pedestrian spaces around LRT stations are cleared of ice and snow within 24 hours of the end of snow fall. Bus zones are also cleared in partnership with Roads. 700 priority bus zones are cleared within 24 hours, the remainder are completed as part of a 7-day plan.

Parks is responsible for the maintenance for the pathways. They clear 400 km of the main regional pathway system to encourage winter walking and cycling, including commuting for work to the downtown core. These pathways are cleared within 24 hours of the end of snow fall. Roughly 450 km of pathways receive no SNIC service. Parks also clears all the sidewalks adjacent to the park spaces (300 km) within 72 hours.

Waste and Recycling is responsible for sanding laneways to enable the collection of garbage. However, when an alley becomes impassable, it is Roads' responsibility to make the alley passable.

The SNIC responsibilities for most public sidewalks in Calgary fall to residents and business owners. Private property owners are responsible for the clearing of snow and ice from the public sidewalks or pathways that are adjacent to the front or side of their property. The Calgary Street Bylaw 20M88 requires that these sidewalks are cleared within 24 hours from when the snow stops falling.

Snow and Ice Control (SNIC) Policy and the 7-Day Plan

Council approved the current Snow and Ice Control Policy (TP004) in 2011. The purpose was to establish the priorities, standards and service levels of The City's snow and ice control operations for streets and sidewalks. The SNIC Policy lays out response targets that are focused primarily on the roadway conditions.

Roads developed a 7-Day plan in order to achieve the SNIC requirements within the assigned budget and resources. The plan addresses high volume and higher-risk transportation assets first, and then moves to lower volume and lower risk assets. The plan is activated after the snow stops falling. Figure 1 provides additional details on the 7-Day Plan.

SNIC RESPONSE TIME FRAMES – SNOW EVENT START TO END

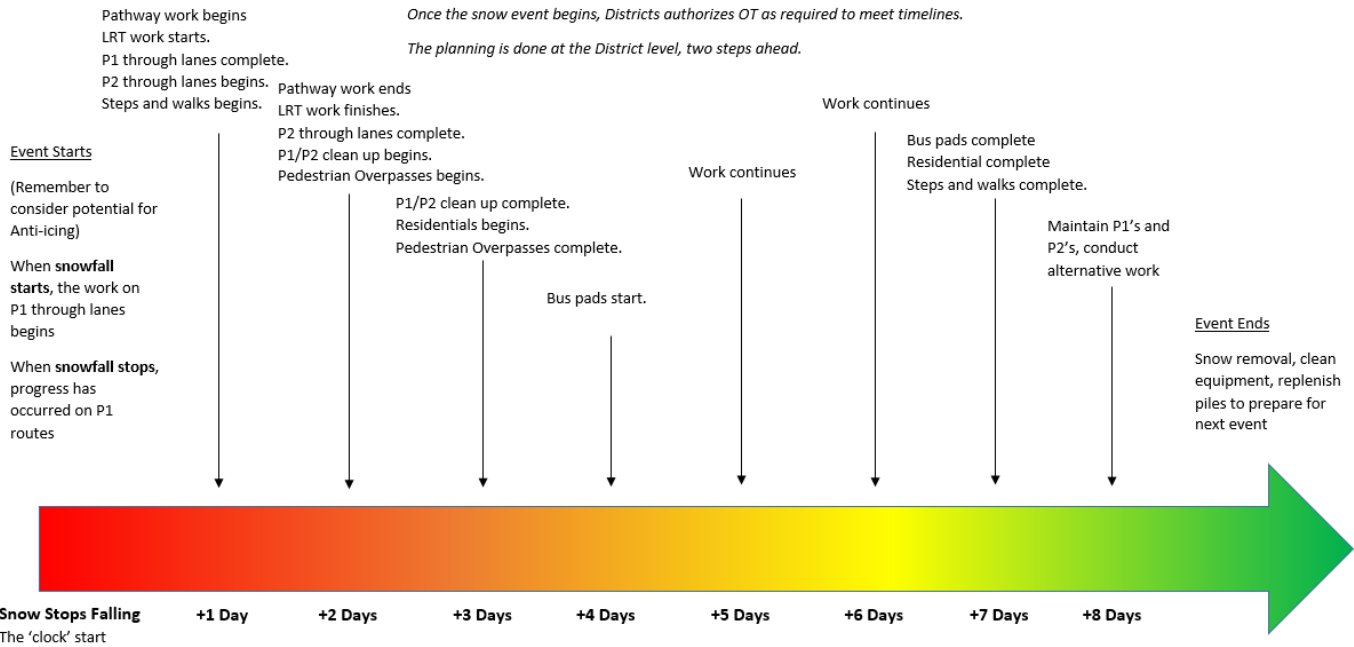


Figure 1: Roads Maintenance's Seven Day Plan

Sidewalk and Pathway Clearing

As mentioned, the primary focus of the SNIC 7-day plan is on maintaining acceptable roadway conditions for vehicles, including transit. Sidewalk clearing activities are more targeted, and include high priority bus zones, LRT stations and sidewalks adjacent to Roads property that have been identified for clearing, usually in areas where developer fences or sound attenuation walls separate the private property from having easy access to the sidewalk.

Service to sidewalks are also prioritized over the seven days. Day 1 and Day 2, SNIC operations focus on the LRT stations, pedestrian overpasses and priority bus zones. From Day 3 to Day 7, the remaining bus zones and the specific sidewalks that are on the Roads inventory list are cleared.

While the 7-day plan has been relatively successful in meeting the expectations of the 2011 SNIC policy, there is a drawback in the prioritization model. If snow starts falling again while Roads is working on the 7-Day plan, the plan will reset to

Day 1. This means the workforce is redeployed back to the Priority 1 and 2 routes, and the SNIC work on collector roads, residential roads, bus zones and sidewalks are interrupted. This can result in snow accumulations over time that would make travel more difficult, particularly for people with limited or reduced mobility. This also means that The City is generally responding to SNIC on sidewalks well after the 24-hour response time expected of citizens.

The City's pathway network contains 852 km of paved surface, while the sidewalk network is approximately 5,700 km. Calgary Parks currently clears 400 km of the regional pathway system within a 24-hour cycle, and 300 km of the sidewalks adjacent to parks are cleared within 72-hours once the snow has stopped falling. The remaining 452 km of pathways receive no scheduled SNIC service.

Table 1 below shows the amount of pathway and sidewalk assets The City owns, the amount cleared by adjacent property owners, the amount cleared by The City and the amount that receives no SNIC service presently.

	Pathways (km)	Sidewalks (km)
Asset Quantity	852	5,681
Cleared by Adjacent Property Owner	0*	5,074
Cleared by City as Adjacent to Parks	-	300
Cleared by City	400	283
No Clearing Service	452	24

Table 1: Current Level of Service Provided

Benchmarking

How does The City's 7-day plan for sidewalks compare to other Municipalities?

Sidewalk SNIC Plans in other Municipalities				
Road Designation	Response Time			
	Edmonton	Winnipeg	Ottawa	Toronto
Priority 1	City to plow snow from multi use trails and sidewalks adjacent to city owned land <i>Within 48 hours</i>	Sidewalks on regional streets, around the Health Sciences Centre <i>Within 36 hours of snow event</i>	Sidewalks in the downtown core <i>Within 6 hours</i>	Sidewalks with high pedestrian volumes <i>Within 15 hours of snow event</i>
Priority 2		Sidewalks on regional bus routes and high-volume collector streets <i>Within 36 hours of snow event</i>	Downtown residential sidewalks <i>Within 12 hours</i>	Sidewalks with low pedestrian volumes <i>Within 48 hours</i>
Priority 3		Sidewalks on residential and/or little used industrial streets <i>Within five working days</i>	Residential sidewalks <i>Within 16 hours</i>	Transit stops and crosswalks <i>Within 48 hours</i>
Priority 4			Intersections, bus stops, pedestrian crossings <i>Within 24 hours</i>	

Table 2: Comparison of Sidewalk 7-Day Plan to other Municipalities

Contract Resources

The City retains contracted resources to augment City personnel and equipment for various SNIC operations. Below is a table showing services provided by contractors to Parks, Roads and Transit.

Business Unit	Services Provided to Pedestrians	Expenditure on Contractor/City Forces (%)
Parks	Clearing of sidewalks adjacent to Parks' property and 46% of the pathways	75% : 25%
Roads	Steps, sidewalks, bus zones and pedestrian overpasses	30% : 70%
Transit	LRT Station platforms, LRT Station parking lots, Park N' Ride Terminals Lots and walkways.	100% contracted

Table 3: Services Provided by Contractors

Table 4 below shows the usage of contractors for sidewalk snow clearing in other major cities.

City	SNIC Services Provided by Contractors on Sidewalk
Edmonton	75% of sidewalk clearing by contractor
Ottawa	66% of sidewalk clearing by contractor
Toronto	96% of sidewalk clearing by contractor
Winnipeg	38% of sidewalk clearing by contractor

Table 4: Usage of Contractor Services for Sidewalks in other Municipalities

For Roads, services for pedestrians are delivered by City Staff and Contractors based on the 7-Day plan. City staff are deployed to clear pedestrian overpasses, stairs, sidewalk, and bus zones over seven days. Contractors are used to accelerate services on priority assets such as high-volume bus zones and sidewalks.

Currently, The City has the ability to increase service for pedestrians during the heavy snow falls. There is an annual equipment tender which contractors submit pricing for on-demand services. With this equipment tender, there is no

commitment from the contractor to accept the work when called upon by The City. On the 2018 list, there are 17 pieces of sidewalk clearing equipment available.

Another option to acquire additional on-demand services from contractors is to issue a separate equipment tender identifying the expected response time and services delivered. It is the Administration's experience that the contractor(s) will require a retainer to provide guaranteed services on work that may or may not be required due to weather conditions.

Current Investment

The City's SNIC operations and budgets for roadways were compared against other Canadian cities (Table 5). The results show that Calgary has a significantly different approach to SNIC on sidewalks, as the responsibility has been transferred by law to adjacent property owners.

Only 10 per cent of the public sidewalks are cleared by The City. Edmonton clears approximately 25 per cent, Toronto 75 per cent, and Ottawa and Winnipeg clear all public sidewalks.

	Calgary	Edmonton	Ottawa	Toronto	Winnipeg
Km of Sidewalks	5,681	5,500	2,332	7,945	2,950
Km of Sidewalks Cleared by City	583	1,370	2,332	6,000	2,950
Annual Snow Fall (Five year average)	126.4 cm	122 cm	238.1 cm	103.9 cm	127.6 cm
2017 Sidewalk Clearing Budget	\$3.4 million*	\$10 million	\$8.8 million	\$19 million	\$3.9 million
Overall 2017 SNIC Budget	\$39.2 million**	\$63.7 million	\$69.2 million	\$90 million	\$32 million
% of Budget Allocated to Sidewalk Clearing	8.6%	15.7%	12.7%	21.1%	12.2%

* Combined sidewalk SNIC budgets for Roads and Parks **Parks sidewalk budget added to Roads SNIC budget

Table 5: Comparison of Sidewalk Kilometres versus Budget in other Municipalities in Canada

Understandably, Calgary has a much lower budget allocation for snow and ice control services for the percentage of sidewalks they clear. This approach means smaller sections of sidewalks must be cleared throughout the City, which increases the time spent travelling from one area to the next,

while loading and unloading snow clearing equipment. This likely has an impact on the costs to deliver SNIC services compared to other cities, where snow clearing activities are more continuous over longer stretches of sidewalk.

New SNIC Program for Priority Bus Zones

In the 2015 to 2018 Action Plan, \$2 million was allocated to improve accessibility for citizens with mobility challenges during the SNIC season. This funding was jointly given to Calgary Transit, Calgary Neighbourhoods (CN) and Roads. During the spring of 2015, the mobility-focused program prioritized bus pads and bare pavement bus stops that had large windrow accumulations. These locations included bus stops with high numbers of transit ramp deployments, hospitals and senior centres/residences. Snow clearing would begin during the snow event and continue until all the identified locations were clear following the snow event. Calgary Transit and CN worked together to develop the list of priority locations. Calgary Transit controlled funding for this program. Roads has a contract in place that would allow this work to be completed as on-demand SNIC work.

During the 2017/2018 SNIC season, Roads' contractors provided service to over 700 bus stop locations. This program has proven effective for seniors and people with disabilities to have better access to transportation to get to work, medical appointments and other activities.

Figure 2 below is a sample communication from the contractor indicating that a bus stop was completed.



Figure 2: Contractor Communication

SNIC Maintenance Agreements

An organized Community/Resident's or Homeowner's Association (RA/HOA) may enter into an agreement with The City called a "Snow Removal/Ice Control Pathway/Sidewalk Maintenance Agreement". This allows a community at its own expense to conduct snow and ice control on pathways/sidewalks on specific sections that are not currently cleared by The City or to a higher standard.

When a Snow Removal / Ice Control Pathway Maintenance Agreement is in place, the Association becomes responsible for clearing the agreed upon pathway/sidewalks within 24 hours of when the snow stops falling. All snow and ice must be removed down to the bare surface of the sidewalk or pathway. The RA/HOA is required to have liability coverage insurance and follow normal City policies.

There are two funding models for communities who wish to have enhanced snow clearing:

Caveat on Title

Home owners pay into a Residents' or Homeowner's Association fund through a caveat on their property title. The RA/HOA then hires its own contractor to clear selected sidewalks and pathways in the Community.

Special Tax Levy

The special tax levy is funded through additional voluntary property taxes. Two-thirds (66.7 per cent) of property owners in a neighborhood must agree to the additional taxes to fund the snow clearing program through a petition. The amount that the residents have agreed to pay will be collected on their annual property tax and will be held in a separate account within The City. The fund collected will be paid out once the association has invoiced The City for the snow clearing being done. Current agreements:

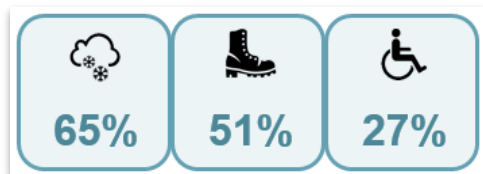
- Elbow Park (The Glencoe Club)
- Mahogany
- New Brighton
- Panorama Hills
- Rocky Ridge
- McKenzie Lake

Current Concerns

SNIC Pathways and Walkways Survey

An online survey was conducted in 2018 February about SNIC for pathways and walkways [Appendix A]. The survey used Citizens' View, The City's online panel that encourages citizens to sign up and participate in shaping City of Calgary programs and services through surveys, discussions and engagement activities. As the panel is comprised of people who signed up to participate, the findings may not be statistically representative of all Calgarians. A total of 1,303 panelists completed the survey, 85 per cent of which have lived within Calgary for over 10 years.

According to the survey, 65 per cent of the panel travel on public sidewalks and pathways during icy or snowy conditions every day, or nearly every day. Of the 1,303 panelists, only 51 per cent of pedestrians, cyclists and other users of sidewalks and pathways without mobility challenges believed The City does an adequate job at providing safe conditions. This rating plummeted to 27 per cent when those with mobility challenges were asked.



Specifically, due to the conditions not being cleared, 62 per cent reported they often have trouble walking on the sidewalk, 57 per cent experience difficulties crossing the street, 53 per cent experience difficulties walking on a pathway, and 35 per cent experience difficulties accessing transit.

When asked how The City can most improve their experience using sidewalks or pathways during icy or snowy conditions, 73 per cent chose clearing activities to be most important. The main actions identified for The City to take to improve safety conditions were:

- Increase enforcement of City bylaws for not removing snow from sidewalks (77 per cent).

- Create a fine structure for those that do not remove snow in front of properties (77 per cent).
- Increase the budget for snow and ice removal on sidewalks (72 per cent).

Community Meetings

Roads recently met with community groups in Acadia, Forest Lawn, Manchester, East Village and Bridgeland, as well as the Disability Action Hall and Calgary Women Centre.

Questions were asked about their experiences with travelling on sidewalks, pathways and crossing streets during the winter, and some common concerns were noted:

- Windrows at bus stops and crosswalks are barriers for pedestrians.
- Seniors and mobility-challenged citizens need assistance to clear snow from their sidewalks and need the sidewalks cleared to get to transit and other areas in the neighbourhood.
- People feel trapped inside (isolated) because of unsafe sidewalk conditions.
- Windrows and deep ice ruts in the road need to be cleared from handicap zones for loading and unloading passengers.
- Calgarians need to be educated on what the sidewalk clearing requirements are, and then follow up with enforcement.
- Relying on chinooks is not the proper way to develop a snow and ice control program.
- Sometimes, calls to 3-1-1 do not go to the right people.
- Citizens want a priority system for which sidewalks should be looked at first (accessibility issues, access to medical or city services).
- Leverage community groups to help seniors and people with disabilities clear sidewalks.
- City must lead by example to clear their pathways and sidewalks quickly.
- Roads are often better cleared than the sidewalks.
- Need a sidewalk policy (for SNIC) that is similar to the policy for cars.

Health Consequences

Ice or snow that builds up on sidewalks and pathways creates more than an inconvenience; it can contribute to slips or falls that result in injury. The City obtained statistics from Alberta Health Services (AHS) regarding slips and falls. Table 7 shows the number of emergency department and urgent care centre visits due to falls involving snow

and ice on streets and sidewalks. Table 7 also contains the number of 3-1-1 calls The City received about people who slipped and fell due to sidewalk conditions, and the total of uncleared sidewalk complaints that Calgary Community Standards (CCS) responded to over the past five years.

AHS – Slip & Fall Injuries			3-1-1 – Snow / Ice on Sidewalks (CCS)		
Calendar Year	Calgary	Alberta	Calendar Year	Slip & Fall	Total
2013	287	1,406	2013	195	5,568
2014	267	848	2014	734	14,958
2015	166	518	2015	281	6,375
2016	129	374	2016	277	5,681
2017	303	657	2017	457	9,090

Table 7: AHS and City 3-1-1 report - Falls involving snow and ice, occurring on streets and highways, including sidewalks.

Improvement Required

In 2016, The City approved a pedestrian strategy called “Step Forward” that envisions a safer, more inviting and better maintained realm for pedestrians. This strategy is built on the concerns and opportunities for improvement, shared by thousands of Calgarians. Its primary goal is to increase the total trips made by walking from 19 per cent to 25 per cent by 2025. For this to happen, better winter conditions for walking must be achieved, as snow and ice clearing was identified as a significant barrier to Calgarians. In a 2015 public phone survey, residents were asked “What

gets people walking more?” Clearing sidewalks of snow and ice was the highest ranked response - 80 per cent wanted this done somewhat more, or much more often.

The goal is to achieve a target of 80 per cent for public satisfaction (satisfied or very satisfied) with city-wide snow clearance on sidewalks and pathways by 2025. In the “Step Forward” plan, four action items were identified that are directly related to SNIC on pedestrian facilities (refer to Table 8 below).

2016 Pedestrian Strategy – Action Items	
Action 30	Enhance the existing snow and ice control operations to reduce obstructions at transit stops and road crossings in high pedestrian activity areas. Investigate the trial alternative materials and equipment.
Action 31	Undertake an assessment of engineering walkways, develop a management plan, amend the bylaw to address public concerns, and identify funding requirements to upgrade and maintain walkways city wide.
Action 36	Increase the snow clearing response time to P1 (within 24 hours of a snow event) on City-managed sidewalks in high pedestrian activity areas.
Action 49	Investigate ways to encourage property owners to undertake prompt snow and ice clearing from sidewalks, support those not able to carry out snow clearing, and improve bylaw enforcement on non-compliance.

Table 8: Action Items in “Step Forward” Plan

With this in mind, City Council directed Administration to review the walking-focused snow and ice control policies to improve the accessibility, safety, and equity of Calgary's walking network. The 10 areas of consideration are:

1. An escalating fine schedule for failure to clear abutting infrastructure within the 24 hours currently required by the Streets Bylaw 20M88, as well as other mechanisms that increase accountability, create more consistent outcomes, and ensure cost-recovery for enforcement;
2. Updating snow and ice control policies to be consistent with Council-approved direction in the Pedestrian Strategy;
3. Identification of a high priority network, including missing links, for improved City clearing that facilitates access to transit routes, the Centre City, Major Activity Centres, Neighbourhood Activity Centres, Main Streets, and other destinations with high walking volumes;
4. Increased coordination of snow and ice control between Roads, Transit, Parks, and other relevant City departments;

5. Improved timelines for clearing sidewalks and pathways abutting City property that would bring them more in line with expectations on private property owners;
6. Identification of options to provide winter maintenance for Calgary's 78 kilometres of engineered walkways;
7. Guidelines or rules for the clearing of wheelchair ramps, curb cuts, and sidewalk crossings of laneways;
8. Improved 3-1-1 phone, website, and mobile app reporting options;
9. Identification of winter maintenance funding for relevant City departments whenever new capital and annual network growth projects are implemented;
10. An updated strategy to assist Calgarians who are unable to clear abutting walking infrastructure themselves;

The following sections of this report contain the investigation and proposals around these ten areas.



1. Fines and Penalties

Calgary Community Standards (CCS) responds to complaints of snow and ice on sidewalks as well as proactively addressing snow and ice issues when they come across them during regular duties. In all cases, the goal is to render the scene safe.

Calgary's Street Bylaw 20M88 sets the requirements for snow and ice removal from sidewalks. Section 67(1):

The owner or occupant of a private parcel of land adjacent to a Sidewalk or Pathway that runs in front of the property or along the side of the property where:

(a) such Sidewalk or Pathway runs parallel to and directly adjacent to a Street,
or

(b) such Sidewalk or Pathway runs parallel to and adjacent to a Street, where the Pathway or Sidewalk and Street are separated only by a grassed or otherwise covered boulevard;

shall remove ice and snow from that portion of the Sidewalk or Pathway adjacent to the parcel so that the Sidewalk or Pathway is cleared to the bare surface, within 24 hours after the ice and snow has been deposited.

The exceptions are where the Sidewalk or Pathway is separated from the rest of the parcel by a developer-built retaining wall or community

screening fence, or a sound attenuation barrier.

When a call is received via 3-1-1 for a snow and ice service request, a letter is auto generated to the property owner. Based on the past three years, the compliance rate following the issuance of a letter is, on average, 60 per cent. The process for address input via the 3-1-1 mobile phone app is currently based on geo-location which, at this time, does not allow for address verification, therefore the auto-generation of a letter is not feasible. For these files, officer attendance is required. CCS is working with 3-1-1 to rectify the address issues in the mobile app to increase the accuracy of location information and improve efficiency for complaint response.

When a Community Peace Officer (CPO) attends a scene, they make an evaluation as to the severity of the snow and ice condition. When applicable, CPOs apply materials provided by Roads such as a salt/gravel mix to make the scene safe for the public immediately. Once a CPO has identified an infraction, they may proceed to issue a warning notice to the person(s) responsible, requiring that the situation be corrected within a reasonable timeframe. When dealing with public property such as a sidewalk, a warning notice gives a CPO authority to take corrective action and remove any material from public property. The chart below outlines the process and compliance rates of each step.

3-1-1 Service Requests for 'Snow and Ice on Sidewalks'							
Year	Annual Snowfall (cm)	Total SR generated	Complied without Warning	Warning Issued	Complied with Warning	Standard Work Order Generated	Percent to Work Order
2013	146.3	5,568	49.1%	2,834	89.5%	551	10.5%
2014	175.3	14,958	50.6%	7,391	92.5%	1,076	7.5%
2015	104.1	6,375	47.2%	3,364	85.8%	896	14.2%
2016	61.7	5,681	50.8%	2,797	88.2%	649	11.8%
2017	144.6	9,090	66.2%	3,071	90.3%	866	9.7%
2018 (Q1)	96.2	13,847	64.8%	4,872	88.8%	1,500	11.2%
Average (incl. Q1 2018)	121.4	9,253	55%	4,055	89%	923	11%

Table 9: Sidewalk Clearing SRs and Compliance Activities

Current enforcement practice is to issue the owner/occupant of a parcel, via a Warning Notice for Snow and Ice Removal Notice, 24 hours to clear the sidewalk. The goal of the notice is to ensure the snow and ice is removed from the public sidewalk. The CPO returns to the property 24 hours later and, if the situation has not been remedied, the file is sent to a contractor who, in turn, dispatches a crew to clear the sidewalk.



The Street Bylaw does not currently have a fine associated with failure to remove snow and ice from a sidewalk or pathway. Instead, costs of clearing the sidewalk are billed to the adjacent property owner. The minimum charge for corrective action by a City-approved vendor back to a property owner is \$170.00 plus GST. If the property owner fails to pay the invoice, these costs are added to the annual property tax bill.

CCS is evaluating ways to streamline the process of responding to snow and ice complaints and would value a secondary tool of fines being issued to properties who continuously create situations of snow and ice buildup on the sidewalks. CPOs would continue to approach each situation starting with education leading to possible corrective action. In certain cases, a fine may be appropriate in addition to taking corrective action.

To enable a CPO to issue a ticket for failing to clear away the snow and ice from the public sidewalk, the Street Bylaw 20M88 would need to be amended by Council. The changes should include an escalating fine schedule for failure to clear abutting infrastructure within 24 hours, and

provisions related to unsafe conditions with associated fines.

It is recommended that the fine amount be approximately \$250, with an escalating scale for subsequent offences at the same parcel to the same property owner with a minimum of no less than \$150. In comparison, Edmonton, Toronto, and Saskatoon all charge a \$100 fine, but in some cases, they also charge an administrative fee.

It should be noted that fines will result in an increase to the time required to complete a file as provincial legislation requires a violation ticket for this type of offense to be served in person. Residents are not compelled to open the door for a CPO. This is often the case if the person knows they will receive a ticket. A CPO would be required to exercise discretion on the application of a fine, which would support Council's direction to fine chronic problem properties. Snow and ice files usually create a heavy caseload in winter months. Time spent tracking down property owners to issue fines will take away from a CPO's ability to investigate and remediate other files.

In addition to a fine structure, CCS is currently exploring other efficiencies in our snow and ice response:

- Develop and implement further mechanisms that increase accountability, create more consistent outcomes, and ensure cost-recovery for enforcement.
- Working with 3-1-1 regarding the mobile app to ensure the address of the concern is correct.
- Engaging with frontline staff on workflows.
- Reviewing internal policy and procedures to ensure officers are responding most effectively and efficiently to snow and ice complaints.
- Collaborating with Roads and other business units to identify ways to improve compliance with applicable bylaws.

2 and 3. Updating Snow and Ice Control Policies and Identifying a “High Priority Network” for Improved Accessibility and Service

These two components are closely linked. Prioritizing what services are to be completed and in what time-frames will inform the final policy for snow and ice control for sidewalks, pathway and walkways. What is clear is there is a need to amend The City’s SNIC Policy (TP004) to separate out pedestrian-focused infrastructure from the 7-Day plan for roadways.

There are numerous options to improve SNIC services for pedestrians and they are presented later in this report. Each option will require different changes to the 7-Day plan. Administration will update the SNIC Policy upon receiving Council direction.

Infrastructure Type	Current Level of Service	Future Level of Service
Bus Zones	5,355 bus zones 700 are completed 24 hours after snow stops. 4,655 are completed during the 7-Day Plan	Will require updates to existing plan
Engineered Walkways	2,200 walkways (99 km) No scheduled service	
Pathways	852 km in total 400 km receives service. Complete 24 hours after snow stops	
Sidewalks by Adjacent Property Owner	5,092 km To be completed 24 hours after snow stops (Bylaw requirement)	
Sidewalks by COC	300 km adjacent to parks - Complete within 72 hrs	
	283 km in Roads inventory - Complete during 7-Day Plan 24 km in Roads inventory – No Service	

Table 10: Current levels of service

Identification of a High Priority Network

Background

In June 2016, The City adopted “Step Forward”, a strategy for improving the safety and comfort of Calgarians as they walk around the city. Appendix A of the strategy includes a “High Priority Areas Map” which provided a conceptual level identification of areas of the city that are strategically important for creating areas that promote walking.

To support the discussion about service levels and a walking-focused policy on SNIC, two new maps of priority areas have been developed, with resolution at the street/blockface level, and with specific focus on areas where snow and ice control represents a significant barrier to accessibility.

Purpose

Administration has developed two maps of priority areas, as outlined in the following sections. The first map (A) identifies areas that have high pedestrian volumes, the second (B) focuses on areas that support key City policies around walkability and access. These maps serve the following purposes:

1. Where resources are constrained, the priority areas map can be used to identify a sub-set of all pedestrian facilities in the city that would be particularly valuable for enhanced treatment of snow and ice.
2. Where resources are sufficient for enhanced service on a city-wide basis, the priority areas map can be used to direct where effort should be expended first.

It is not the intent of this map to illustrate a change in the legal responsibility for snow and ice control in the identified areas. The areas identified are merely those of strategic importance with respect to the goal of providing year-round walkability and accessibility for as many Calgarians as possible.

Decisions that may alter the service levels or responsibility for snow and ice control on select infrastructure or within specific areas would only be made by Council.



Methods

The high priority areas maps have been developed by overlaying a series of criteria onto a map of all sidewalks, walkways, and pathways in the city. Some of these layers overlap.

Map A: High Use Areas includes any sidewalk or pathway that meets one of the following criteria:

1. Central Business District
All public walking surfaces within the Central Business District (downtown) were included in the High Use Areas Map.
2. Main Streets
For each approved Main Street area, a 100 m walking zone was established from the centre-line of the street along the full length of the identified Main Street and all public walking surfaces in that area were included in the High Use Areas Map.
3. LRT Stations
For each existing LRT Station, an area of 800 m from the station head was included in the High Use Areas Map.
4. BRT Stations
For each existing BRT Station, an area of 400 m from the station was included in the High Use Areas Map.
5. Top 200 bus stops outside of the downtown core
Some non-BRT stops serve multiple transit routes or have heavy use. Outside of the

downtown core (which is already included via item 1 above), the top 200 stops, based on the number of people boarding or debarking busses per day at that location, were included with a 200 m area around each stop added to the High Use Areas Map.

The High Use Areas in **Map A** represent approximately 23 per cent of the full inventory of sidewalks and pathways within the city. Of these, 107 km of sidewalks and 125 km of pathways are cleared as a City responsibility.

Map B: Policy Driven Priority Areas includes any sidewalk or pathway that meets one of the following criteria:

1. Major Activity Centre / Community Activity Centre

These land areas are defined by the Municipal Development Plan (MDP) (see Map 1 of the MDP). All public walking surfaces (sidewalks, pathways, engineered walkways) within these areas was included in the Policy Driven Priority Areas Map, as long as the land area is currently developed (Some MAC and CAC areas are identified in the MDP but have not yet been developed, see “Growth” discussion below).

2. Major Institutions

The MDP (Map 1) provides a key index of major institutions (universities, hospitals, et cetera). For each institution, an 800 m catchment area was identified and all public walking surfaces in that capture area were included in the High Priority Areas Map.

3. Seniors facilities

City mapping identifies Seniors Residences, Assisted Living Residences, and Long-term Care Facilities. For each site, a walkshed of 400 m was included in the Policy Driven Priority Areas Map.

4. School sites

City mapping identifies all Public, Separate, Charter, and Private schools in Calgary. For each school site, a walkshed of 200 m was included in the Policy Driven Priority Areas Map. Although this does not represent the full walkshed of each school, it captures critical crossings and sidewalks in the vicinity of each site.

The Policy Driven Priority Areas in **Map B** that were not captured in Map A represent an additional 45 per cent of the full inventory of sidewalks and pathways within the city. Of these, 235 km of sidewalks and 240 km of pathways are cleared as a City responsibility.

Result

The resulting High Use Areas Map and Policy Driven Priority Areas Map are shown below. As shown, these areas include all of the areas in the conceptual level map provided in the Pedestrian Strategy, and many additional areas that serve a critical function for accessibility.

Growth

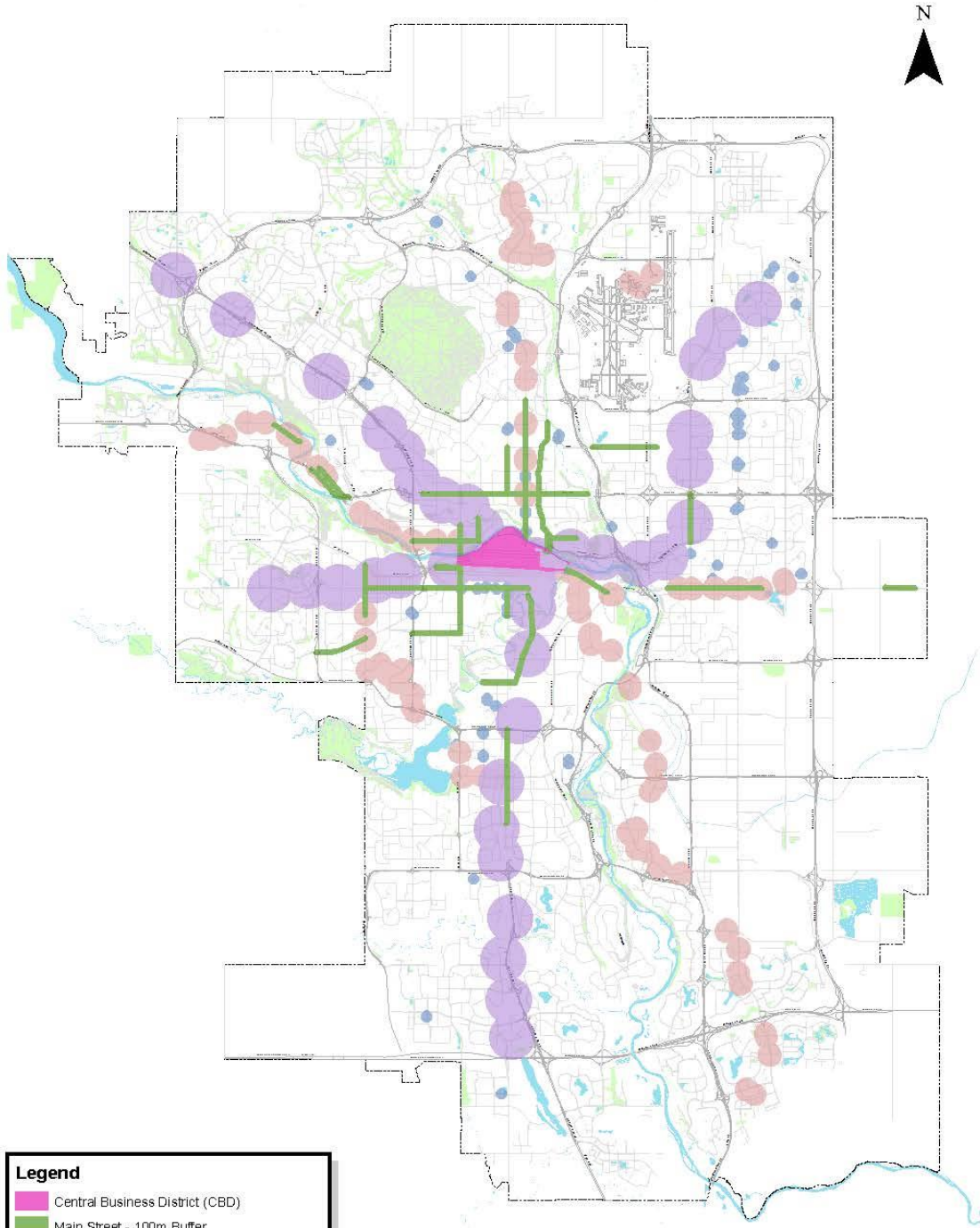
By using a criteria-based approach to identify areas where enhanced service will be provided, the analysis can be updated as required to reflect changes in the built form of the city. As new Major Activity Centres (MAC), schools and transit service points (e.g. Greenline stations) come online, the priority maps would expand to include those areas.

To understand the potential budget impact of ongoing growth, 10-year outlook versions of the two maps were developed, adding known growth areas including the Greenline Stations and upcoming MAC developments. This projection was used to provide a high-level estimate of the projected growth in costs for the alternatives presented in this report.

Map A

High Use Areas

Light Rail Transit (LRT), Bus Rapid Transit (BRT),
Central Business District (CBD), Main Streets, High Use Bus Stops



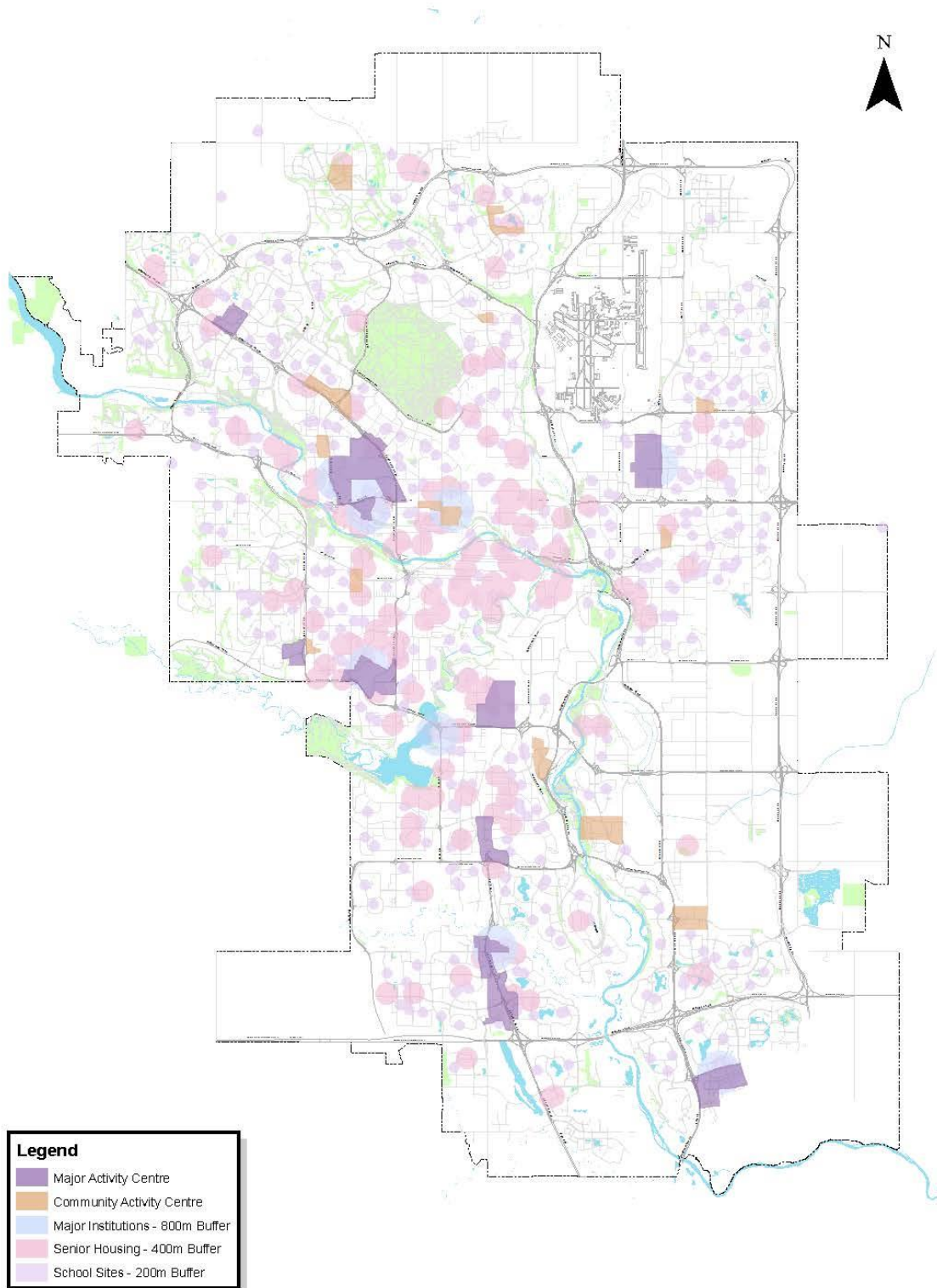
Legend

- Central Business District (CBD)
- Main Street - 100m Buffer
- Light Rail Transit (LRT) - 800m Buffer
- Bus Rapid Transit (BRT) Stops - 400m Buffer
- High Use Bus Stops - 200m Buffer

Map B

Policy Driven Priority Areas

Major Activity Centre, Community Activity Centre,
Major Institution, Seniors Facilities, School Sites



Alternatives to Enhance SNIC Services

Below are the options identified by Administration to improve SNIC services for pedestrian facilities:

Option A) The City performs all SNIC services on sidewalks, pathways and engineered walkways.

In this option, service to various assets are bundled. All the engineered walkways, pathways and sidewalks would be cleared by The City, including those adjacent to private property. This would compare to the service level seen in Ottawa, ON. All bus zones, wheelchair ramps, windrows at crosswalks and lane aprons would be included. There are efficiency gains with this option as there will be less time spent on travelling from one location to another. The snow clearing provisions for private property under the Street Bylaw would likely be no longer required.

The estimated cost to provide the stated level of service would be \$30-40 million annually. To complete the work in 24 hours, it is estimated that 200 sidewalk clearing units will be required, distributed evenly across the city. It is unknown if the industry has the labour force and the volume of equipment required at this time. It is estimated that the supply of contractors for this type of work can be achieved over a few years. If The City was to provide this service, an additional one time capital cost of \$40 million to \$50 million would be needed to acquire the sidewalk clearing units and the land to store these units.

This option provides the highest level of service, but at a significant cost.

Level of Service	Operating Cost	Capital Cost if Performed by City Staff
Complete work 24 hours after snow stops	\$30-40 million	\$40-50 million

Table 11: Option A

Option B) The City provides SNIC services for all sidewalks within the High Priority Network.

1. In this option, The City would clear ALL sidewalks identified using the criteria in the identification of a High Priority Network (**Maps A and B**), including those adjacent to private property. This would encompass all pathways and sidewalks within:

- 800 m of LRT stations, MACs and major institutions;
- 400 m of BRT stops and senior's facilities;
- 200 m of high use transit stops and schools;
- 100 m of Main Streets, and;
- the Central Business District (Downtown, 11 Street S.W. to the Elbow River)

This option focuses on increasing service to key pedestrian areas, and taking on the responsibility to ensure that SNIC is completed within the 24-hour timeframe in a thorough and efficient manner. SNIC activities would still be prioritized.

BRT stations, the Central Business District, Main Streets and high use bus zones will be given the highest priority. Schools, institutions, MACs and senior facilities will be given the second priority. The third priority will be neighbourhood activity centres and bus zones. Within the High Priority Network, The City would clear 3,927 km of sidewalk and 519 km of pathways. To service all the pathways and sidewalks with a completion time of 24 hours after snow stops, the estimated cost will be \$20-30 million.

Level of Service	Operating Cost*	Capital Cost if Performed by City Staff
Complete work 24 hours after snow stops	\$20-30 million	\$25-35 million

Table 12: Option B-1

2. This option focuses on only **Map A** of the high priority network – the sidewalks and pathways that have high pedestrian volumes. The City would clear ALL sidewalks and pathways in the Central Business District, and within the buffer zones for LRT stations, BRT stops, high-use transit stops (outside of the downtown area), and the Main Streets.

Level of Service	Operating Cost	Capital Cost if Performed by City Staff
Complete work 24 hours after snow stops	\$9-14 million	\$12-17 million

Table 13: Option B-2

This targeted approach would ensure the SNIC service level in high pedestrian volume areas would meet the “Step Forward” policy expectations, with a moderate investment in budget. It would help remove barriers for winter travel around these key destinations and transportation hubs, and likely result in a reduction in slips and falls and the related societal costs.

Option C) Expand the inventory of sidewalks and pathways the City is required to clear.

This option is to clear all the sidewalks in The City’s inventory for service, and increase the pathways cleared by 100 km. For sidewalks, an additional 502 km will have to be cleared and 483 km will be accelerated to a faster response. This estimation does not include engineered walkways, lane aprons and windrows at crosswalks.

To clear these pathways and sidewalks with a completion time of 24 hours after snow stops, the estimated cost is between \$4-6 million in addition to the amounts already allocated to pathways and sidewalks. Additional level of service options are listed in Table 14.

Level of Service	Operating Cost*	Capital Cost if Performed by City Staff
Complete work 24 hours after snow stops	\$4-6 million	\$6-8 million
Complete work 48 hours after snow stops	\$4-6 million	\$3-4 million
Complete work 72 hours after snow stops	\$4-5 million	\$2-3 million

Table 14: Option C

This option will result in some efficiency gains with the increase in the amount of pathways and sidewalks cleared. The average travel distance between clearing locations will be shorter. The level of service to the Calgarians will be high as all pathways and sidewalks are cleared except for engineered walkways, lane aprons and windrows at crosswalks.

Option D) Expand the inventory of sidewalks and pathways for SNIC within the High Priority Network.

This option is to clear all the sidewalks in The City’s inventory for service that fall within the areas identified in the High Priority Network (**Maps A and B**). An additional 100 km of pathway would also be added for service. This action is directly linked to Action 36 from the “Step Forward” strategy.

Within this area, The City currently clears 203 km of sidewalk within 72 hours, and another 139 km within seven days. There are an additional 17 km of sidewalks that are currently uncleared. To clear all 359 km of sidewalks and 100 km of pathway within 24 hours after the snow stops, the estimated annual cost would be \$2.5 million to \$3.5 million.

Level of Service	Operating Cost*	Capital Cost if Performed by City Staff
Complete work 24 hours after snow stops	\$2.5-3.5 million	\$4.5-6.5 million

Table 15: Option D

Option E) Provide SNIC services to additional 100 km of pathways only.

Parks identified an additional 100 km of pathways that if cleared would increase accessibility and improve access to the pathway network. There would be little benefit to clear all pathways within the city, as some segments are remote and have low usage in winter, and some paths in natural parkland would be difficult to access and clear. Criteria related to the access to the primary network, use patterns and connections to destination sites is in place and should be

the basis of what is cleared. To clear an additional 100 km of pathways, with a completion time of 24 hours after snow stops, the estimated cost would be \$500,000 to \$1 million annually.

Level of Service	Operating Cost*	Capital Cost if Performed by City Staff
Complete work 24 hours after snow stops	\$500K to \$1 million	Minimal

Table 16: Option E

Option F) Complete all Bus Zones within 24 hours after snow stops.

Currently, 700 priority bus zones must be completed 24 hours after snow stops. There are over 4,655 bus zones that are completed during the 7-Day Plan. To clear all bus zones with a completion time of 24 hours after snow stops, the estimated cost will be \$4.5 million to \$6.5 million. This option increases the service to bus zones only. Additional levels of service are listed below.

Extending the time to complete the work to 48 hours or 72 hours does not significantly change the operating cost estimate, however the capital investment in machinery and equipment would be affected.

Level of Service	Operating Cost*	Capital Cost if Performed by City Staff
Complete work 24 hours after snow stops	\$4.5-6.5 million	\$5-7 million
Complete work 48 hours after snow stops	\$4-5 million	\$3-4 million
Complete work 72 hours after snow stops	\$4-5 million	\$2-3 million

Table 17: Option F

*The estimated cost ranges in the preceding tables includes consideration for varying weather conditions and work performed by City Staff versus work by Contractors

It is assumed that the industry will have some capacity to perform some of the services required described in the above noted options. Depending on the scope and volume of work contracted to the industry, at least one to two years will be required to meet the demand.

4. Increased Coordination of SNIC Activities

Current Status

SNIC services are performed by several City of Calgary business units (BUs), however the largest portions of public infrastructure are cleared by Roads, Transit and Parks.

SNIC Services	
Roads	Roadways, sidewalks, bus stop pads, and some pathways
Parks	Pathways and sidewalks adjacent to park spaces
Transit	LRT Stations
Other BUs	Sidewalks or pathways adjacent to their facility

Table 18: SNIC Services

Roads, Parks and Transit regularly coordinate work in an effort to provide the most efficient SNIC service to the highest priority areas of the city.

- Roads clears 700 bus zones, pedestrian overpasses, and priority sidewalks around the LRT stations, bus loops, bus traps, and at Park and Ride locations.
- Since 2012, Parks and Roads have traded SNIC responsibilities on various pathways and sidewalks based on proximity to other assets. This reduces each BU's travel time, streamlining operations and increasing the efficiency of service delivery.
- Roads is clearing over five km of sidewalk at high priority locations such as community hubs, retail centers and seniors centres. Calgary Neighborhoods, Calgary Transit and Roads meet on a regular basis to ensure this list of locations is accurate and service is being prioritized appropriately.

Opportunities for Improvement

Through One Calgary, the provision of SNIC services on sidewalks and pathways by Parks, Transit and Roads will be included in the Sidewalks and Pathways service line. This may lead to the establishment of a working group to confirm priority routes and locations, and the development of a single, more efficient work plan for SNIC.

For routine operations such as SNIC, Administration may also examine if efficiencies could be gained by having only one BU responsible for all SNIC services on public sidewalks and pathways, except those that are adjacent to municipal buildings and facilities. This could allow for a more consistent level of service regardless of the type of pedestrian infrastructure being cleared. Priorities, timelines and workforce availability may be better coordinated through a single BU in order to effectively complete the SNIC service during snow events of any scale.



5. Improved Timelines for Clearing Sidewalks next to City Property

The City owns 8,115 parcels of land that have a total of 384 km of adjacent sidewalks that require snow removal. The SNIC responsibilities are distributed to the various business units who operate or maintain these lands. While the Street Bylaw 20M88 requires that sidewalks and pathways adjacent to a private parcel of land be cleared within 24 hours after snow stops, the planned SNIC services for many of these sidewalks do not meet this timeframe. The main reasons for varying service levels are resources and quantity of infrastructure to be cleared.

City BUs with sidewalks outside of residential properties, office buildings or public facilities are most likely to achieve compliance as the snow clearing falls under their facility management contracts. This would include Real Estate and Development Services, Calgary Housing, Transit, Recreation, Facility Management and the Calgary Fire Department. In total, 66 km of sidewalks next to 1,710 parcels are typically cleared within 24 hours.

However, the two BUs (Parks and Roads) that are responsible for largest, least occupied parcels have a lower level of service than 24 hours after snow stops due to the resource requirements and the available budget for this service (refer to Table 18). Currently, Parks has a 72-hour response plan for their 300 km of sidewalk, and Roads completes

all sidewalks within their inventory within seven days. The SNIC resource needs are typically higher as they require transport of equipment and personnel between sites which takes considerably more time.

Land Steward	Number of Parcels	Sidewalks (km)
Calgary Parks	5,827	300
Roads	431	14.9
Transportation Infrastructure	113	2.4
Totals	6,371	317.3

Table 19: BUs with Sidewalks abutting City Properties – not meeting 24-hour response for SNIC

The two options would be to maintain the status quo, leaving the service level and investment as is, or require all City properties to be compliant with a 24-hour snow clearing requirement. The additional resources that would be required to achieve the 24-hour standard is identified below:

Option - 24-hour SNIC Response
<p>The City would provide SNIC services for all sidewalks adjacent to City property within 24 hours of snow fall.</p> <p>The estimated cost to would be an additional \$3-5 million annually.</p>



6. Engineered Walkways

Engineered walkways are thoroughfares that run between private properties to connect streets, pathways, lanes, and parks to each other. Typically, these thoroughfares have an asphalt surface and have a barrier placed at the ends (bollard or bedstead) to prevent traffic from accessing them. There are 2,200 public engineered walkways within the city with a total length of 98.7 km. Almost all engineered walkways are paved with asphalt (93.7 per cent).

These walkways are used to provide pedestrian mobility through neighbourhoods and to provide convenient year-round connectivity to transit, schools, recreation and shopping centres. However, during the winter season, most of these walkways remain unshovelled, which makes them difficult to travel through. While the walkway performs the same function as a sidewalk, the adjacent property owners are not required to keep this space clear of snow and ice. Section 67 of the Street Bylaw only requires the removal of snow and ice from public sidewalks or pathways that run parallel to and directly adjacent to a street.



Engineered walkways are not currently part of The City's SNIC inventory list. The Roads BU addresses snow and ice concerns on the walkways on a request basis only. Snow and ice is not removed. Instead, sand and salt is applied to provide traction and a hard-packed snow condition is maintained.

On 2014 January 22, Transportation presented a report on the SNIC service for these walkways (TT2014-0017). Options were presented at that time to make adjacent property owners responsible, or to have Roads take responsibility for SNIC services, along with the required operating and capital budgets. However, Council's final decision was to refer the report to Administration for incorporation into the scoping of the new Pedestrian Strategy that was being developed at the same time. Action 31 from the strategy states:

“Undertake an assessment of engineered walkways, develop a management plan, amend the bylaw to address public concerns, and identify funding requirements to upgrade and maintain the walkways city wide.”

Options to Consider

Since the status quo does not advance the goals set in the Pedestrian Strategy, three other options were considered for snow and ice control on engineered walkways:

Adjacent property owner responsibility

Through a bylaw amendment, make adjacent property owners/occupants responsible for snow and ice clearing on these walkways. The same timeframes and standards for sidewalks would apply.

There are practical challenges to this approach that would need to be addressed. The language of the bylaw would have to explicitly determine how the space is to be cleared by each property owner – divide pathway in half lengthwise, or at a midpoint, or by alternating years (owner on north or east side responsible on odd-numbered years, and the other owner for even-numbered years). This piece is critical, and would need to be clearly communicated with all parties, as non-compliance would be met with corrective action costs, and possibly fines.

The space itself is usually fenced or hedged in with little space to store snow on either side of the walkway. This means the snow would have to be removed out of the walkway, through the existing barriers, to the street. There are also locations where the private properties that border the engineered walkways have no practical access to

them (no side gates or lanes), and would have to be identified as an exception.

Blended approach

The locations of engineered walkways were compared to the High Priority Network of sidewalks and pathways that was developed for this report. Proximity to school sites was chosen as the primary area to focus on, to help promote walking to school during the winter. Using the 200 m buffer zone around the schools, approximately 50 per cent of the total inventory of engineered walkways were captured (49.7 km).

The option would be for The City to provide SNIC service for these priority walkways, within 24 hours after the snow stops falling. This would require an initial investment of \$2.5 - \$3.5 million to upgrade all end treatments to removable bollards for machines to access the walkways, and an annual increase in operating budget of \$3 million to \$4 million. It is assumed that this work will be performed by contractor.

The remaining 50 per cent of walkways would either be relegated to the status quo, where no SNIC service would be legally required, or make the adjacent property owners responsible for SNIC through a bylaw amendment.

Full Service

The final option would be for The City to provide snow and ice control for all engineered walkways based on a priority system, and completed within seven days after snow stops. This would require an

initial investment of approximately \$5 - 7 million to upgrade all end treatments to removable bollards for machines to access walkways, and an annual increase in operating budget of \$6 million to \$8 million. It is assumed that this work will be performed by contractor.



Option 1: Adjacent Property	Option 2: Blended Approach	Option 3: Full Service
<p>Bylaw amendment to make adjacent property owner/ occupant responsible;</p> <p>Same standards as sidewalks would apply;</p> <p>If surface condition makes it difficult to clear snow, sand or similar material shall be applied</p>	<p>The City will provide SNIC service within 24 hours for the priority walkways only;</p> <p>An estimated \$2.5-3.5M to make walkways machine accessible;</p> <p>Service to cost \$3-4M annually</p> <p>Remaining walkways to have no service (status quo) OR make adjacent property owners responsible through bylaw amendment</p>	<p>The City will provide SNIC services for all engineered walkways within 7 days, based on a priority system;</p> <p>An estimated \$5-7M (not including surface repair or improvement) to make walkways machine accessible;</p> <p>Service to cost \$6-8M annually</p>

Table 20: Options for SNIC on Engineered Walkways

7. SNIC for Wheelchair Ramps, Curb Cuts, and Laneway Crossings

The Street Bylaw delegates responsibility to remove snow and ice from sidewalks and pathways that are at the front of or along the side to the adjacent property owner/occupant. Included in the sidewalks and/or pathways, there are other infrastructure such as wheelchair ramps, curb cuts and sidewalk crossings of laneways.

Wheelchair ramps are sloped connections from the roadway to concrete sidewalks, typically installed at intersections and crosswalks to enhance accessibility for all sidewalk users. Wheelchair ramps are part of the sidewalk infrastructure. Therefore, the adjacent property owner is responsible for the snow and ice control.

Curb cuts are sloped concrete sections that provide vehicular entry into private garages and driveways. The adjacent property owner is responsible for snow and ice control of public sidewalk portion of the curb cut.

Sidewalk crossings of laneways are sloped concrete sections that provide vehicular entry into lanes and alleys. These crossings are not in front of or along the side to the adjacent property owner. Therefore, the snow and ice control responsibility of these crossings reside with The City. Currently, The City does not provide SNIC services to these crossings.

There are over 38,000 wheelchair ramps and 12,715 sidewalk crossings of laneways. The City does not have records of the number of driveway curb cuts.

As the status quo is understood, and does not advance the goals set in the Pedestrian Strategy, two other options were considered for snow and ice control on wheelchair ramps, curb cuts and sidewalk crossings of laneways:

1. Bylaw amendment: Provide additional clarification to make adjacent property owners/occupants responsible for clearing these sidewalk spaces within 24 hours.
2. Blended approach: The City to provide snow and ice control on sidewalk crossings of laneways within 24 hours of snow deposit. Adjacent property owners still responsible for wheelchair ramps and driveway crossings and curb cuts.

	Option 1: Adjacent Property	Option 2: Blended Approach
Adjacent property owner /occupant responsibility	Wheelchair ramps, driveway curb cuts, and sidewalk crossing of laneways	Wheelchair ramps and driveway curb cuts
City's Roads BU responsibility		Sidewalk crossings of laneways within 7 days after snow stops falling based on a priority system
Additional Cost to City	No additional SNIC costs, however may likely have an impact on costs to investigate and enforce	\$12-15 million (operating) to manage sidewalk crossing of laneways using hand crews

Table 21: Options for SNIC on Wheelchair Ramps, Curb Cuts and Side Crossing of Laneways

Windrows and Accessibility

Windrows are the continuous trails of snow that are created by snow plowing activity. One of the barriers to pedestrians, seniors and people with mobility challenges are windrows that cross in front of wheelchair ramps. While it is the adjacent property owner's responsibility to clear the sidewalk of snow and ice, they are not required to clear away snow on the street.

Currently, the grading or plowing of windrows is completed on an as-needed basis, and at the discretion of the Roads Maintenance Manager. To completely remove windrows city-wide, the snow would have to be picked up and hauled away to an approved storage site. This level of snow removal is very costly, as the estimated cost to eliminate windrows one time is \$56 million. Street parking would have to be temporarily banned during snow removal operation. This level of city-wide service is not viewed as practical, and it would likely require upgrades or construction of additional snow storage sites in the city to properly contain all the hauled materials.

Option to Consider

However, The City may consider a more targeted approach to address windrows at wheelchair ramps and crossing locations where there are large volumes of pedestrians. Frequently used pick-up and drop-off locations for Calgary Transit Access could also be considered.

Specialized vehicles with plows or brushes could be used to flatten down these windrows during

heavy snow events. These smaller vehicles would create openings in the windrows at each crossing, as the City snow plows continue to work on the priority route plans. The estimated cost for this service would be approximately \$2-3 million for the season, and would likely be contracted out to industry. Clearing windrows from every ramp location would cost approximately \$13-16 million annually.

Windrow Plowing at Crossings	
Priority Locations only	Every Snow Event
The estimated cost of service would be: \$2-3 million (operating) to manage windrows at select locations	The estimated cost of service would be: \$13-16 million (operating)

Table 22: Windrow Plowing at Crossings

Adding a new service to clear windrows away from wheelchair ramps could have an impact on street parking. The Calgary Parking Bylaw 41M2002 requires that vehicles be parked a minimum of five metres back from an intersection, stop sign or yield sign. Successful plowing of the windrows from crossings may require more space for SNIC vehicles to operate than this minimum five metre clearance. Upon evaluation, if more space was required to be effective, there may be a need to restrict parking, using seasonal signage, to 10 metres back from the crossings that have wheelchair ramps.



8. Improved 3-1-1 Phone, Website, and Mobile App Reporting Options

The 3-1-1 Operations Centre receives an average of one million calls from citizens every year. 60 per cent of these calls are informational in nature and 40 per cent are requests for service. These service requests (SR) would typically come through three main channels: 70 per cent via Phone, 20 per cent via the 3-1-1 Calgary app and 10 per cent via the Web.

Snow and Ice SR volume in 2017 for the three major BUs are as follows: 15,551 for Roads, 9,090 for Bylaw and 2,067 for Parks. SR volume is highly variable year over year based on the number of snow events (i.e. for Q1 2018, there are a total of 39,350 snow related SRs reported).

Recent Improvements

The 3-1-1 processes and systems for intake and status reporting were reviewed and improved in the 2012-2015 period in response to a Notice of Motion (2012-29) passed by Council. A Task Force was formed to work on all the provisions and requirements in the Notice of Motion. All final recommendations that were defined by the Task Force were developed, implemented and deployed in February 2016 and were presented to the Client Council as part of the Final Report.

The following improvements and new processes were implemented:

- Implemented a minimum of five new SRs in the 3-1-1 Calgary app every year since 2014, with a total of 65 SRs to date in the 3-1-1 Calgary app. Roads has 15 SRs configured for the app.
- Migrated 30 of the Top 50 SRs by volume into the Web and 3-1-1 Calgary App (where applicable).
- Implemented follow-up and escalation processes in 3-1-1 and the BUs.
- Completed the 3-Stage Status Updates for all 386 public facing SRs:

1. We have received your service request and it is being reviewed.

2. Your service request has been reviewed and work has been assigned.
3. Your service request has been completed and is now closed.

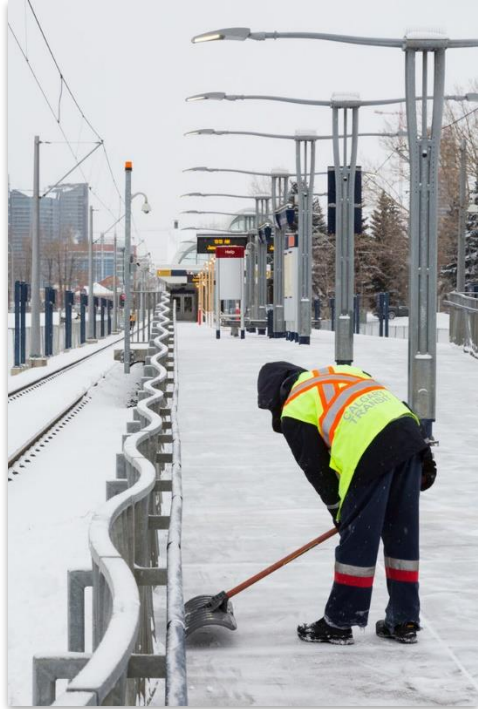
A confirmation email is also sent to each customer who provided an email address at the time of SR intake via phone, web or 3-1-1 app. This contains a link to view the 3-Stage Status Update of their request. The implementation of this new self-service procedure enabled The City to provide greater transparency and better customer service for the citizens. This resulted in a 10 per cent decrease in follow-up calls to the 3-1-1 Operations Center. Overall, the citizen's experience in reporting their service request and obtaining status has been greatly improved and streamlined with the completion of this 3-Stage Initiative and other deliverables as part of the NOM 2012-29.

Roads SNIC Service Requests

The Roads BU has recently updated the *Roads Snow and Ice Control SR* to improve customer service and employee response. This project was completed in June 2017. Many of the improvements were to address pedestrian-related concerns regarding snow and ice control on public roads, sidewalks, stairs, overpasses and bridges. The SR now captures the following concerns through a drop-down menu:

- Snow and ice causing flooding on a roadway
 - Snow and ice salt/sand and plowing requests (including windrows)
 - Snow and ice on a marked bicycle route
 - Snow plowed onto sidewalks
 - Snow and ice hanging off a Plus-15 walkway
 - Snow route concerns
 - Sand box refilling
 - Snow Angel sign concerns
- The information available online and used by the 3-1-1 agents to help answer citizen's questions were also reviewed and updated:
- Information about enforcement pertaining to a Snow Route Parking Ban
 - Information for 3-1-1 Agents about citizens reporting a Slip or Fall on a sidewalk
 - Information about free sandbox locations and sand refill requests

- Information explaining the Priority System / 7 Day Plan educating citizens about when areas are plowed, sanded or salted
- Information about designated Disabled Parking Zones and Roads' response to clearing these areas if they are plowed in
- Information about the response to windrows, blocked driveways or plowed-in cars



Future Improvements

The 3-1-1 Operations Centre is continually exploring new ways to further improve the delivery of services and provision of updated information to the citizens. There are two new projects currently underway to further improve citizen's access to SR information as follows:

Live Maps – provides real-time information of selected service requests that are displayed on a

map through a Customer Service Request (CSR) System webpage that is linked from Calgary.ca.

Worker App – enable online update entry from the field crew on the work done on service requests including a photo of completion where the updates will flow through the existing 3-Stage process in real time.

These two systems will help demonstrate the value for tax dollars for services provided by The City and enable better transparency and accountability to the citizens. Both systems are currently in the discovery and development stage and two pilot business units will be launching these new features in Q2 2018, with full launch projected by the end of 2018.

The improvements to the *Roads-Snow and Ice Control SR* are part of a two-year Roads/3-1-1 Project that will see 65 Roads SRs reviewed and reconfigured by the end of February 2019. The goals of the project are:

- To improve customer service by ensuring the 3-1-1 Operations Centre has clear and accurate information to share, and that it was aligned to reflect Roads processes.
- To increase the efficiency of employees working the SRs by improving the functionality of the SRs, use of new tools available within 3-1-1 and by providing hands-on training for employees customized for the specific SR that they work.

Council can be confident that any policies and process changes Roads implements regarding improving accessibility and walkability through snow and ice control will include improved 3-1-1 reporting options for citizens.

9. Connect Winter Maintenance Funding with Network Growth

Calgary continues to grow, even through an economic downturn, as new asset infrastructure is transferred to the City of Calgary on an annual basis by developers and other capital construction projects. Over the past 15 years, Roads has received an average of 100 km (or 1.77 % growth) added to the roadway and sidewalk network each year (currently 5,681 km), and Parks has seen an annual increase of more than 30 km (3.67%) added to its inventory (currently 852 km). The pathway and sidewalk network growth in the next four-year budget cycle is expected to be 400 km and 125 km respectively.

In the past five years, there has been a significant investment in Transit infrastructure, including new LRT stations in the north-east and north-west, and the physical expansion of every LRT platform to accommodate four-car trains. Also for 2018, there is the addition of the new BRT system. All these things come with snow removal of Plus-15s, parking lots, sidewalks, mobility access ramps and bus loops.

This increased asset must be serviced from the perspective of SNIC once the public can access the roadways. After the warranty period ends, the City maintains the asset.

Over the last 10 years, there have been increases to SNIC budgets but many of these increases were associated with policy change and service improvements. An example would be Council Report LPT 2011-57 which resulted in a \$13.5 million addition to the SNIC budget. This increase was associated with the following basic changes to the current and interim SNIC policies:

- New SNIC standard - applied bare pavement requirement to Priority 1 and 2 routes.
- New SNIC standard - snow ruts on residential roads should not exceed 12 cm.

- Incorporated routine plowing and sanding of residential roads.
- Shortened and service level response times.
- Elevated SNIC response for marked, on-street bike lanes to Priority 2 (48 hours).
- Consolidation of the Snow Removal Priority System for streets and sidewalks.
- Consolidated Sanding and Salting and Plowing activities into a single entity within the Priority system.

Network growth was not one of the factors associated with this funding increase. Below is a graphic that shows the sidewalk network growth over the last five years.



Figure 3: Sidewalk Asset Growth

Assuming the network growth trends continue, when an average 2017 cost inflation rate of 2.1 per cent is factored in, the annual operating budget increase required to provide the same level of service would be approximately 3.9 per cent.

In the Corporate Project Management Centre business case, BUs must identify the impact to operating cost associated with new capital projects. In the One Calgary project, maintenance cost of new capital asset will be considered.

It is recommended that any future capital asset's maintenance cost that are not captured in the mid-cycle adjustments be reviewed and be included in the new Four Year Business Plan for consideration.

Infrastructure in Maintenance yards

To ensure SNIC services are delivered in a timely manner, operating and maintenance BUs require maintenance yards with adequate infrastructure for office space, equipment and material storage space.

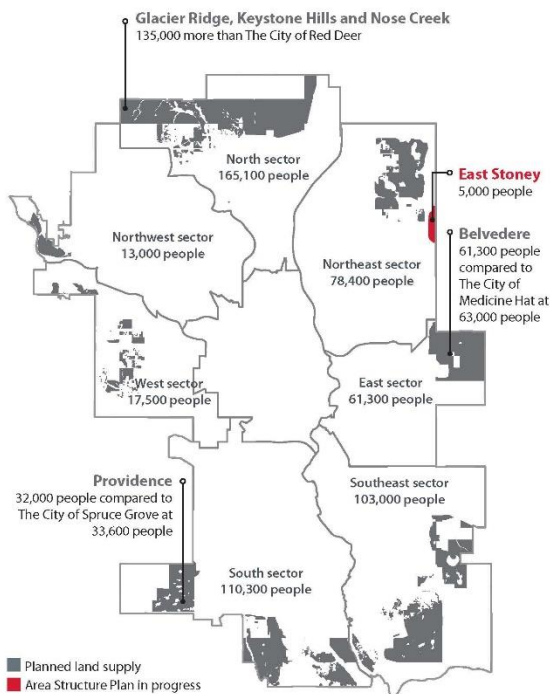
The Snow and Ice Control Annual Report 2013-2014 Season (TT2014-0472) recommended \$148.5 million with \$48 million funded through Investing in Mobility at \$6 million per year. An additional \$48.5 million from subsequent Action Plans at \$6 million for each of the eight years beyond 2022, and \$52 million to fund the enhancement and growth requirements of city snow storage sites.

A December 2017 ISL Engineering Roads Strategic Accommodations Master Plan report identified an immediate funding need of \$45 million to replace end of life district operational yard infrastructure and to upgrade sites to meet current legislative requirements, bylaws, the Environment

Canada Code of Practice for the Environmental Management of Roads Salts, and industry best management practices. A September 2014 Governance Report Submission identified “current salt storage practices are posing an environmental, financial and potential reputational risk to the corporation”.

Currently, two district locations contain SNIC material structures which are not in service. A third structure is currently undergoing an engineering assessment to determine suitability for further use. The current and continued reduction in SNIC material availability at Roads district locations requires operators to travel to multiple locations to obtain appropriate SNIC materials. This results in operational inefficiencies and encourages the use of less effective SNIC materials, which may impact mobility.

Calgary Land supply and forecasted growth in new communities



City-wide land supply

Calgary has a significant amount of unbuilt suburban residential land that will be used to accommodate future growth.

548,600 people in planned land supply

+ 5,000 people in area structure plans in progress

553,600 people build-out capacity

Serviced land supply

Calgary has approximately 1,400 hectares of vacant serviced land with approved land use. This will allow for 53,700 units (17,900 single and 35,800 multi), which could accommodate 137,900 people.



Forecast

Based on Calgary's population forecast, there is enough land supply to accommodate the growth in new communities.

In the next five years, Calgary's population will grow by

78,200 people



78% (61,000 people) of that growth is expected to occur in the suburbs.



Monthly serviced lot supply reports are available at: calgary.ca/geodemographics
Updated 2017 | Vacant planned land supply as of April 2016

2017 0819

Figure 4: Forecast growth in new communities (April 2016)

10. Assisting Calgarians who are unable to clear walking infrastructure

The information included below is based on our work with seniors and people with disabilities in Calgary Neighbourhoods (CN). This will begin to formulate considerations for an updated SNIC Policy, with priority areas based on the needs of people with disabilities and seniors. CN will collaborate with Roads, Parks and Bylaw through the Issue Strategists working in the Access and Disability and Seniors portfolios, along with Council's Advisory Committee on Accessibility and the Age Friendly Steering Committee.

The Advisory Committee on Accessibility (ACA) advocates for improved snow and ice clearing from The City for sidewalks, pathways, crosswalks and walkways. The windrows that accumulate at wheelchair curb ramps, pedestrian crosswalks, engineered walkways and back lane aprons provide challenges for people with disabilities. People with disabilities need to be able to participate in work, leisure and educational opportunities in Calgary, so snow and ice clearing during a snow event is vital. This will become more of a challenge with our aging population that will have increased mobility issues.

It is difficult for some property owners with disabilities and seniors to clear their own sidewalks and adjacent engineered walkways or back lane aprons. CN could investigate models used in other cities in Canada that may work in Calgary, such as a process for matching service providers with those that require the assistance.

For the past four years, a collaborative relationship has existed between CN, Roads and Transit on a \$2 million enhanced snow clearing project that provides for the removal of windrows and clearing of contiguous sidewalks of 700 bus stops across the city. This type of snow and ice clearing is completed on a Priority 1 basis and has decreased barriers for people with disabilities and seniors using Calgary Transit in the winter months. The

clearing of snow at these 700 stops have benefitted many other Calgarians that push their children in strollers and use grocery buggies.

Seniors Services Home Maintenance

In addition, the Seniors Services Home Maintenance program (SSHM) within CN provides eligible low-income seniors with basic yard care, snow removal, house cleaning, interior and exterior painting and minor repairs. Over 400 households receive snow removal service through SSHM after each snowfall. There are currently 28 households on the waitlist for this service.

Snow Angels

Partnering with Roads, CN manages the Snow Angels marketing campaign which encourages citizens to be good neighbours by clearing snow for those who need assistance. There were 1,152 snow angels reported through 3-1-1 for the winter of 2017/18. There is no expectation that this program could provide the reliable support that people with disabilities, seniors or those on low income would require as it is all volunteer based.

CN will collaborate with the service lines that have core responsibilities for snow and ice control, ensuring the needs of people with disabilities and seniors are included.

SNIC Maintenance Agreements

There are six Residents' or Homeowners Associations (RA/HOA) that have an agreement with The City called a "Snow Removal/Ice Control Pathway/Sidewalk Maintenance Agreement". This allows the community at its own expense to conduct snow and ice control on pathways/sidewalks on specific sections that are not currently cleared by The City or to a higher standard.

There may be an opportunity to connect with these neighbourhoods regarding specific locations and routes that could be added to the contract that would assist residents that have difficulties in clearing their sidewalks.

Next Steps

Level of Service to be Decided

The report has developed a menu of options on how to improve, enhance or expand the snow and ice control services for Calgarians going forward. While a number of these options focus on improvements through efficiencies, collaboration and partnerships, any adjustments that would expand or accelerate the delivery of SNIC services would require additional investment in both operating and capital dollars.

Administration does not have a specific recommendation for Council on which option or package of options would be best suited for the Calgary area. However, as the findings and actions contained within the 2016 Pedestrian Strategy were a key component in this review of Calgary's SNIC services, the table below links the specific service-level options that would achieve four of the Action Items from that strategy:





2016 Pedestrian Strategy – Action Items		Can Achieve?	Operating Costs
Action 30	Enhance the existing SNIC operations to reduce obstructions at transit stops and road crossings in high pedestrian activity areas.		\$4.5-6.5 million for all bus zones in 24 hours. \$2-3 million for clearing windrows from high-priority wheelchair ramp locations.
Action 31	Undertake an assessment of engineering walkways and identify alternatives to maintain walkways city wide (bylaw or service).		\$3-4 million for walkways in high-priority areas, OR \$6-8 million for all engineered walkways.
Action 36	Increase the snow clearing response time to P1 (within 24 hours of a snow event) on City-managed sidewalks in high pedestrian activity areas.		\$2.5-3.5 million for City-managed sidewalks and pathways in high-priority areas in 24 hours.
Action 49	Investigate ways to encourage property owners to undertake prompt snow and ice clearing from sidewalks.		No operating costs to amend bylaw and add a penalty of \$250 for non-compliance. May require additional resources for investigation and enforcement.
Total Cost Range			\$12 million to \$21 million

Table 23: 2016 Pedestrian Strategy

Administration recommends that The City's SNIC Policy be updated to ensure there would be a specific focus on pedestrian SNIC service levels, plans and measures, separate from those used to prioritize the SNIC response for roadways. The direction that Council may give around enhanced or expanded services for the pedestrian realm would inform these policy updates. Policy changes could be completed by Q3 2019.

Bylaw Amendments

Several potential amendments to City bylaws have been presented in this report, and the requirement to make any amendments will depend on Council's deliberations around pedestrian SNIC services. To have any changes in penalties or responsibilities come into force for the 2018/19 winter season, Administration would need to be directed to bring such amendments back to Council no later than Q4 2018.

Communications

Should there be changes proposed to bylaws, and/or citizen and City responsibility for SNIC for sidewalks, pathways or engineered walkways, detailed engagement with *all* citizens would be a major priority entering the 2018-19 SNIC season. Communications would include, but not be limited to, mailouts to every resident, television and radio commercials, transit advertising, utilizing a campaign aimed at educating citizens about proposed (or approved) changes. This would also be a time sensitive campaign if its target is completion prior to the 2018/19 winter season.

Budget Decisions

Based on the pedestrian SNIC service level discussions, there would be a variety of operating and capital budget scenarios to review and package for consideration in the One Calgary 2019-2022 budget. These decisions would also influence investment levels to the SNIC Reserve Fund.

Snow and Ice Control Reserve Fund

In 2012, Council approved the terms of reference for the SNIC Reserve with funding from the Fiscal Stability Reserve (FSR) of \$7 million (\$3.5 million in 2012 and \$3.5 million in 2013). The reserve was created to supplement Roads' annual SNIC budget to ensure the Council approved SNIC policy can be implemented in years with above average snowfall. It will be replenished with any surplus in the SNIC budget.

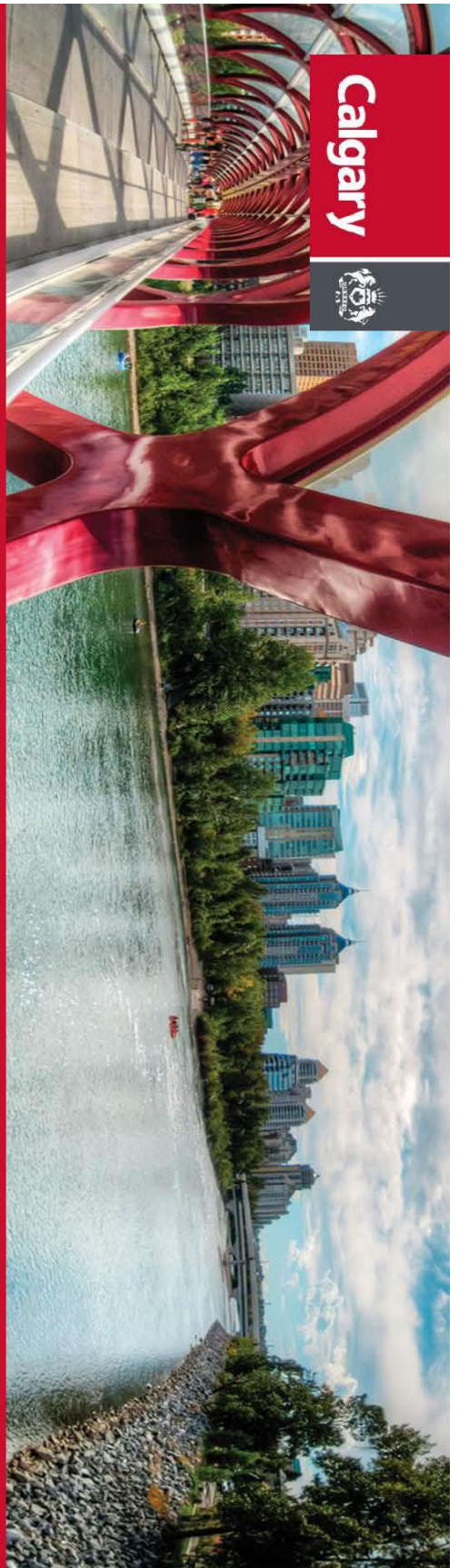
Fiscal Year	Transportation's Contribution to The SNIC Reserve	Fiscal Sustainability Reserve's Contribution to The SNIC Reserve	SNIC Reserve Total at The End of Fiscal Year
2015	\$3.94 million	\$5.0 million	\$8.94 million
2016	\$1.06 million	\$5.0 million	\$15 million
2017	- \$2.5 million	\$0	\$12.5 million

Table 24: 2015-2017 SNIC Reserve Fund

As mentioned previously, the 2018 winter season has been especially challenging, resulting in Roads spending \$34.5 million on winter operations. This is 90 per cent of the total annual budget that is expected to cover SNIC expenditures for October, November and December 2018. Based on the average over the last five years, the estimated expenditures for the remainder of the 2018 winter season would be up to \$14 million.

The estimated amount remaining in the SNIC reserve at the end of 2018 would be approximately \$2.1 million.

Additional pedestrian SNIC service levels should be factored into the SNIC Reserve to ensure The City can deliver consistent levels of service no matter the severity of winter conditions from season to season.



Calgary



SNIC Pathways and Walkways Survey

REPORT: April 2018

Prepared for The City of Calgary by:

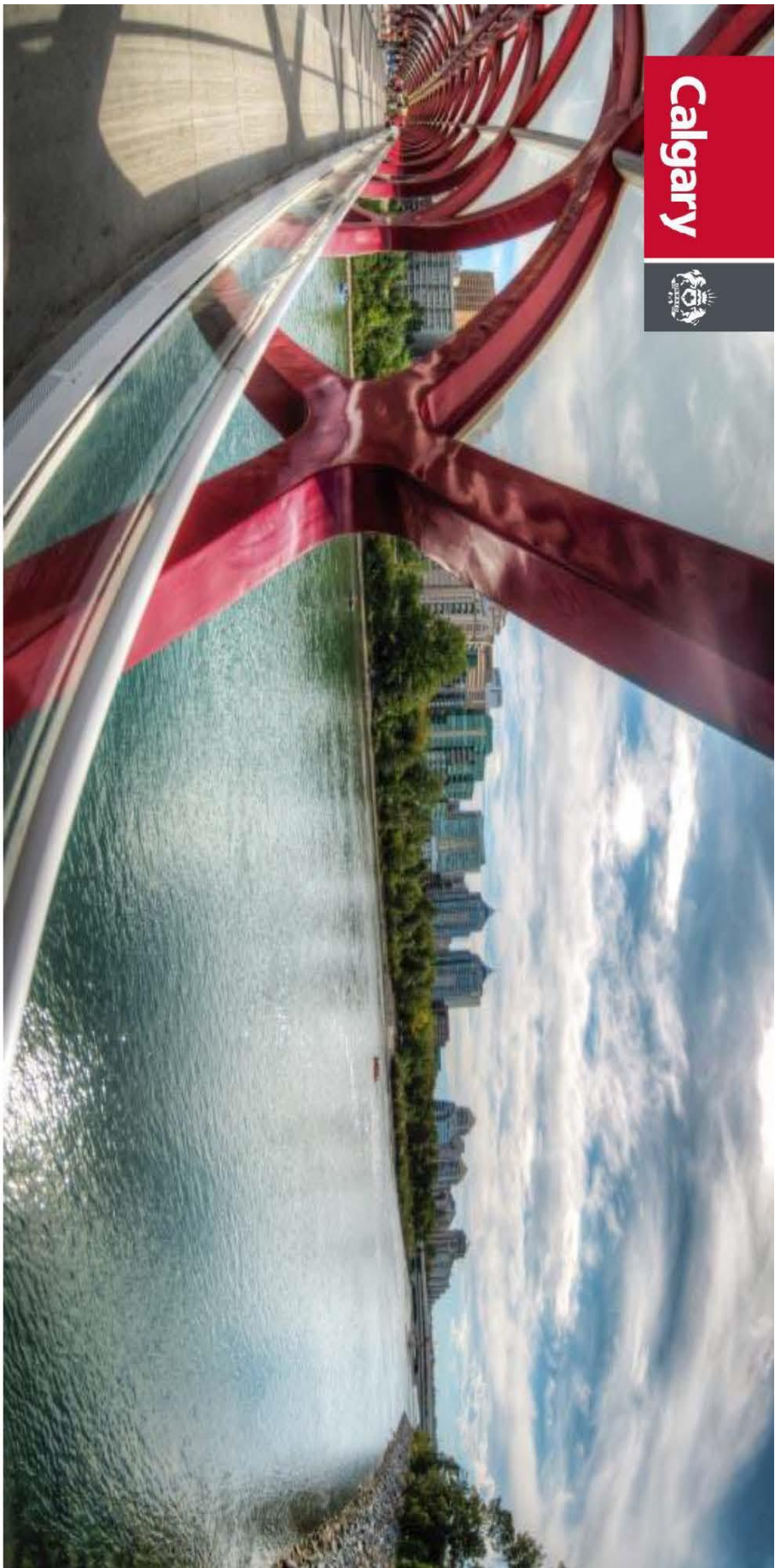
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Methodology



Methodology

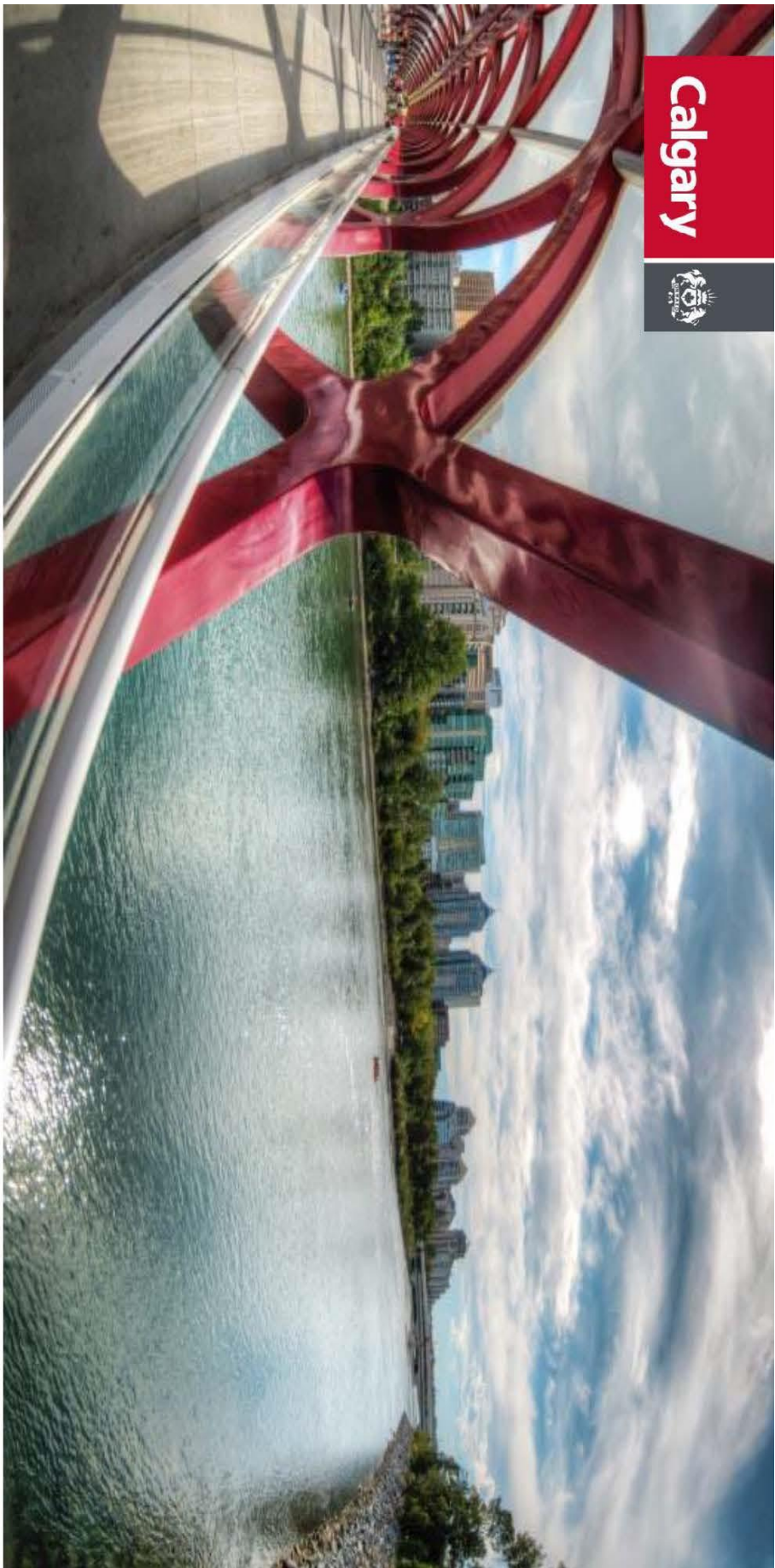
Ipsos conducted an online survey with Citizens' View panelists.

Citizens' View is an online panel that encourages citizens to participate in shaping City of Calgary programs and services through surveys, discussions and engagement activities.

The survey was launched on March 12 to 3,346 panelists. A total of 1,303 panelists completed the survey before March 19.

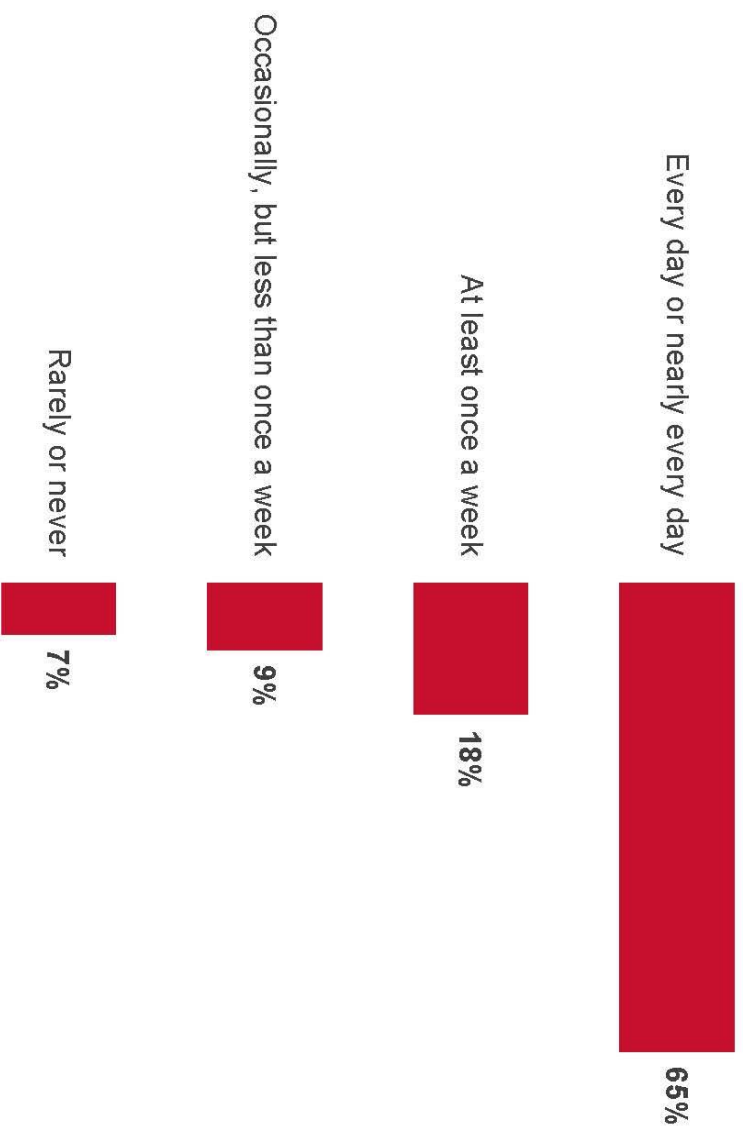
The following findings may not be statistically representative of all Calgarians. The work is exploratory as a result of the make up of panelists currently on the Citizens' View panel. The results should be regarded as directional and should not be projected to the larger population without research with a representative sample of citizens.





Summary of Findings

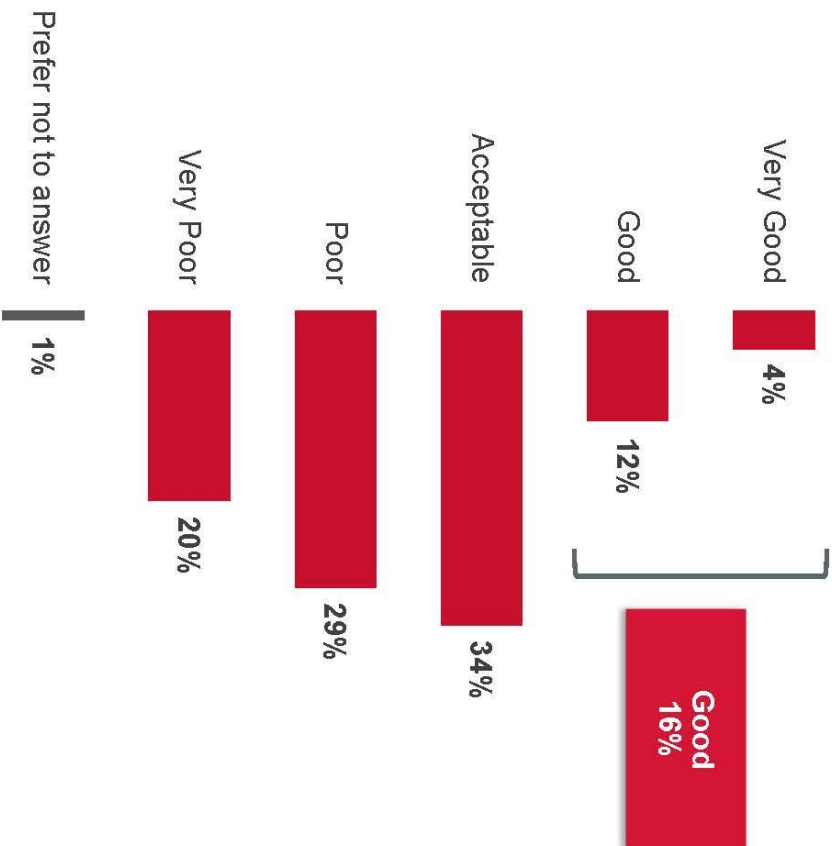
Frequency of Active Travel During Icy or Snowy Conditions



Q1. In the winter when conditions are icy or snowy, how often do you travel on public sidewalks and pathways by foot, bicycle, skateboard, scooter, wheelchair etc.?
 Base: Total Respondents (n=1,303)

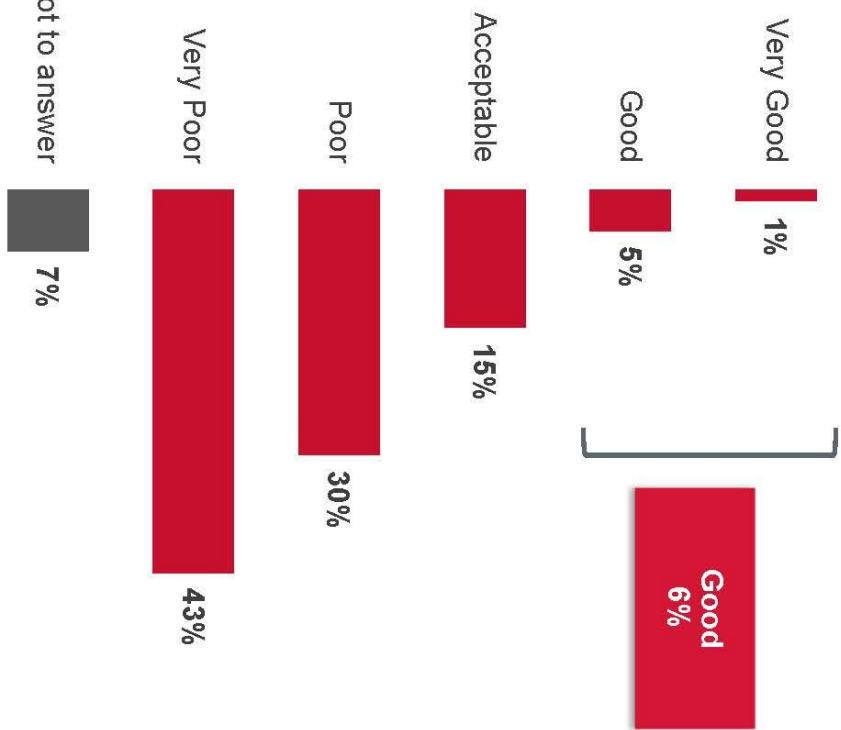


Rating of The City of Calgary for Providing Safe Conditions for Users of Sidewalks and Pathways Who Do Not Have Mobility Challenges



Q2. How would you rate the job that the City of Calgary does during times of icy and/or snowy winter conditions when it comes to providing safe conditions for pedestrians, cyclists and other users of sidewalks and pathways who do not have mobility challenges?
 Base: Total Respondents (n=1,303)

Rating of The City of Calgary for Providing Safe Conditions for Users of Sidewalks and Pathways Who Have Mobility Challenges



Q3 How would you rate the job that the City of Calgary does during times of icy and/or snowy winter conditions when it comes to providing safe conditions for pedestrians, cyclists and other users of sidewalks and pathways who have mobility challenges?
 Base: Total Respondents (n=1,303)

Agreement with City of Calgary Actions to Improve Safety Conditions During Icy or Snowy Times

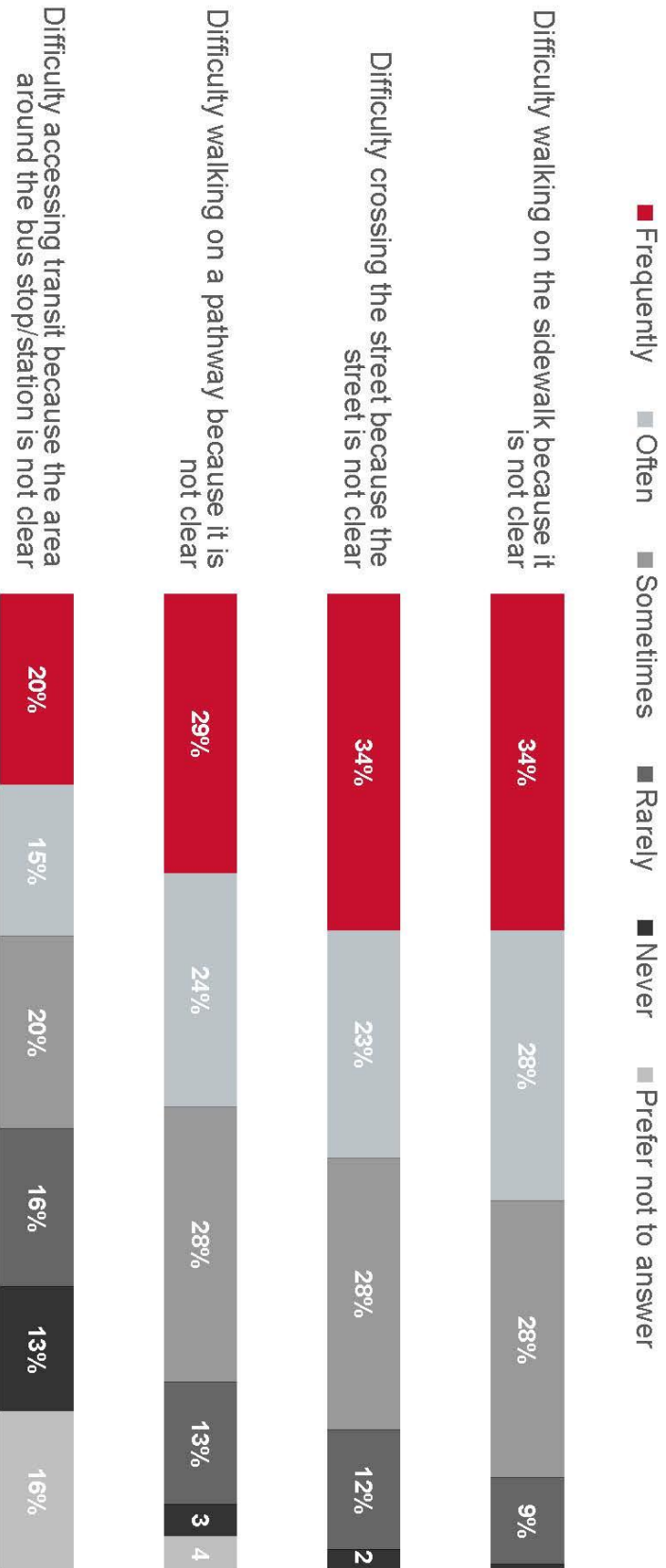
■ Strongly agree
 ■ Somewhat agree
 ■ Somewhat disagree
 ■ Strongly disagree
 ■ Prefer not to answer
 ■ Agree



Q4. There are decisions and actions that the City of Calgary could make to improve safety conditions during these times. How much do you agree or disagree that the City should take the following actions?

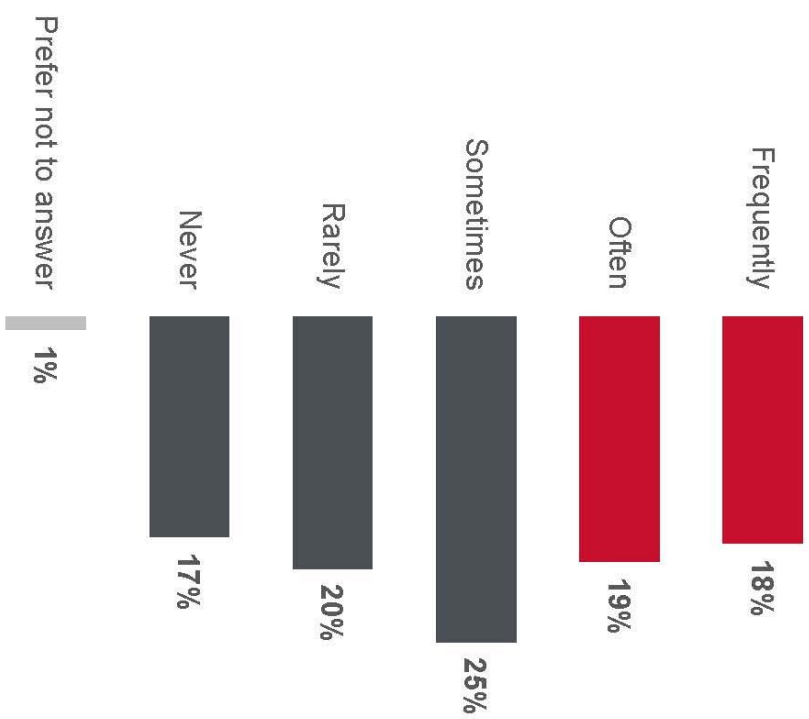
Base: Total Respondents (n=1,303)

Frequency of Experiencing Difficulties During Icy or Snowy Conditions



Q5. When walking on City sidewalks and pathways during icy or snowy conditions, how often have you experienced...
 Base: Respondents who travel on public sidewalks and pathways by foot, bicycle, skateboard, scooter, wheelchair etc. at least occasionally (n=1,210)

Frequency of Deciding Not to Travel on Foot Because of Concerns that Sidewalk or Pathway Will Not Be Cleared of Snow and Ice

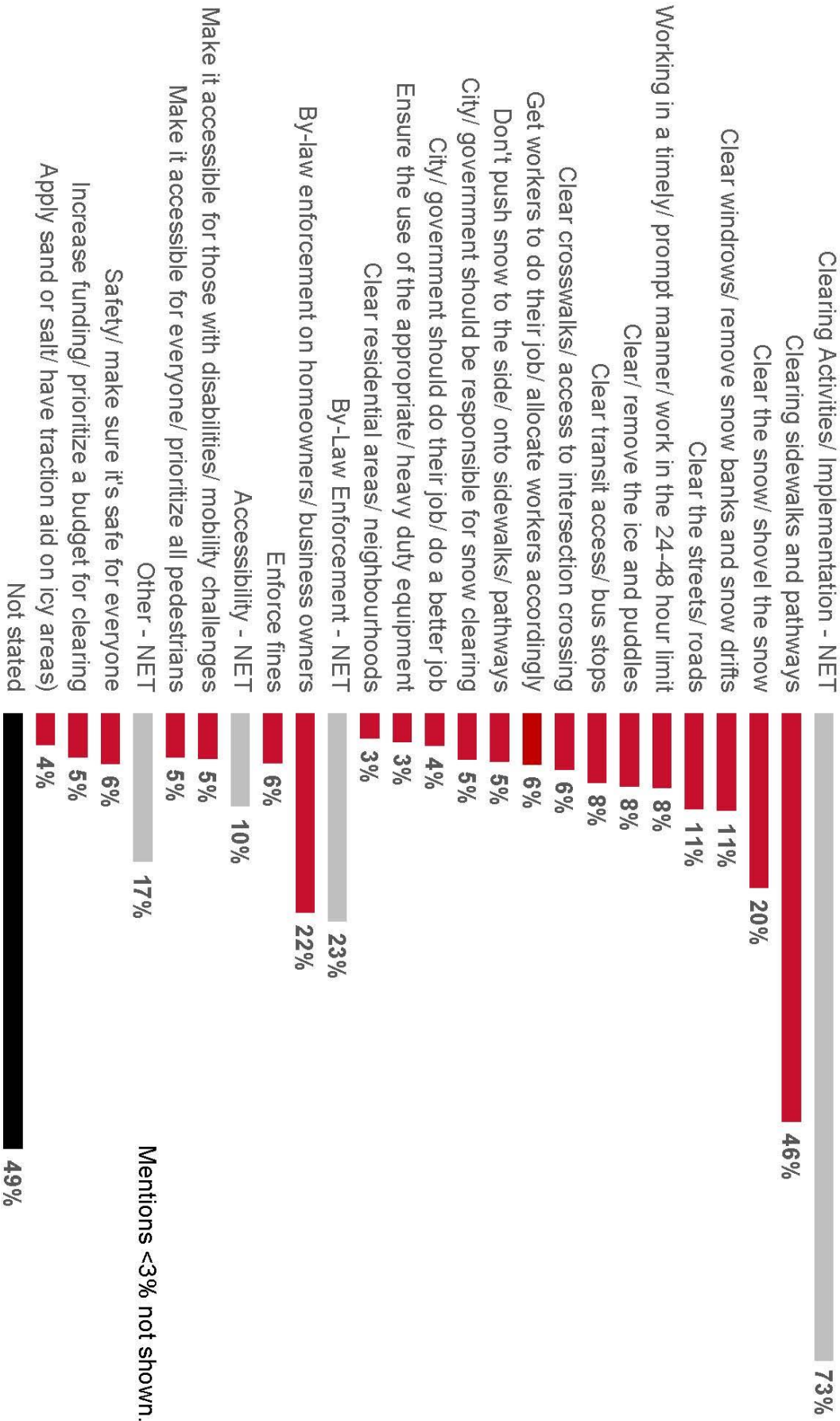


Q6: During icy and/or snowy conditions, how often do you decide **not to travel on foot** because you are concerned that the sidewalk or pathway will not be cleared of snow and ice?

Base: Respondents who travel on public sidewalks and pathways by foot, bicycle, skateboard, scooter, wheelchair etc. at least occasionally (n=1,210)



How to Most Improve Experience



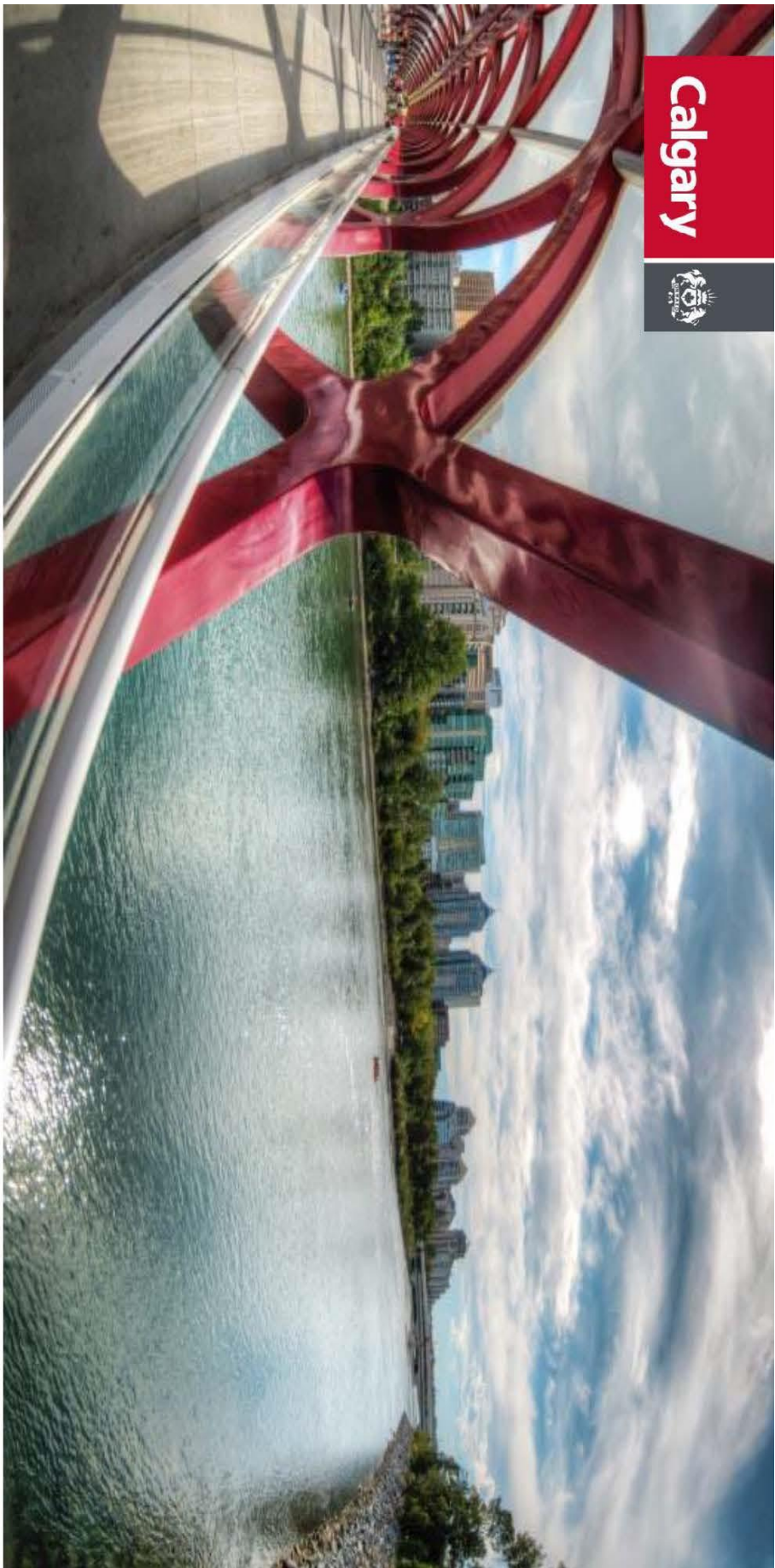
Q7. If the City of Calgary were to do one thing that would most improve your experience using sidewalks or pathways during icy or snowy conditions, what would it be? Please be specific about what would be done and when. (Optional)

Base: Total Respondents (n=1,303)

April 2018

SNIC Pathways and Walkways Survey

12



Characteristics and Attitudes toward the Survey

Agreement with Statements about the Survey

■ Strongly agree
 ■ Somewhat agree
 ■ Somewhat disagree
 ■ Strongly disagree
 ■ Prefer not to answer

The time required to complete this survey was acceptable for me.



This survey was easy for me to complete.



The topic of this survey was interesting to me.



Q12 Please indicate your level of agreement or disagreement with the following statements.
 Base: Total Respondents (n=1,303)

Demographic Characteristics

Gender



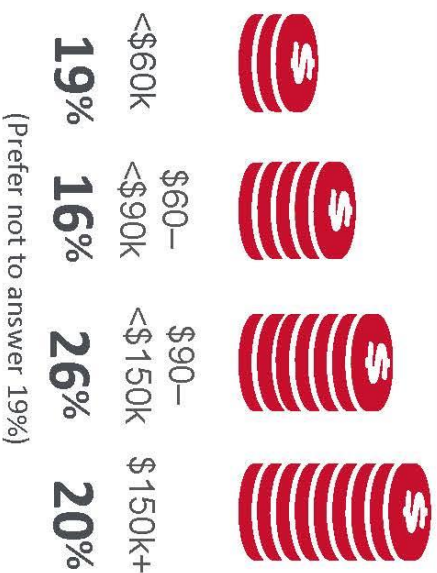
Education



Age



Income



Base: Total Respondents (n=1,303)



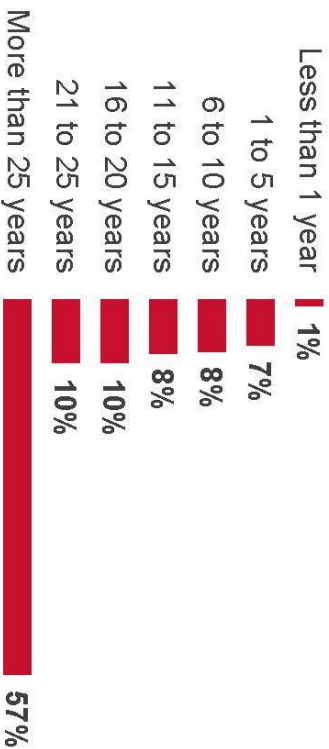
Family Characteristics

Household Size

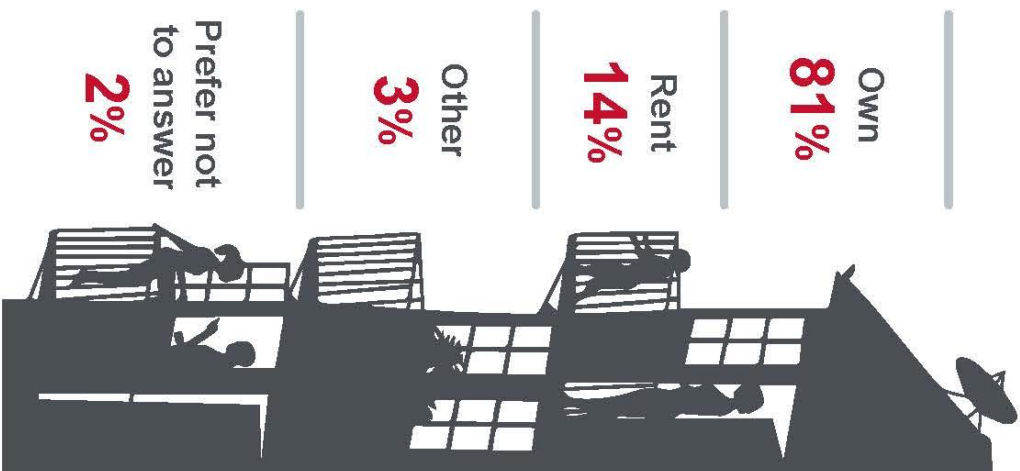


One **17%** Two **42%** Three **18%** Four **16%** Five+ **7%**

Lived in The City of Calgary...



Base: Total Respondents (n=1,303)



APPENDIX B – Community Engagement (2018)

In early 2018, Roads engaged several community stakeholders to identify common concerns related to accessible snow and ice control services.

Community Stakeholders

- Manchester area, Bridgeland, Forest Lawn, Acadia and East Village Senior Associations
- Disability Action Hall
- Calgary Women's Centre

Below is a summary of the issues identified during the engagement meetings.

Common Concerns Raised:

- Windrows at bus stops, crosswalks and mailboxes are barriers for pedestrians. Getting to the cleared sidewalk is an obstacle with windrows.
- Seniors and mobility challenged citizens need assistance to clear snow from their sidewalks and needs the sidewalks cleared to get to transit and other areas in the neighbourhood or they are house bound.
- Bus stops are not cleared consistently.
- Snow and windrows needs to be cleared from accessible zones for loading and unloading passengers
- Calgarians needs to be educated on what the sidewalk clearing requirements are and where to push the snow piles to.
- Relying on Chinooks (weather) is not the proper way to develop a snow and ice control program.
- Leverage community groups to help seniors and people with disabilities to clear sidewalks
- City must lead by example to clear pathway and sidewalks adjacent to City property in accordance to the bylaw.
- There is a perceived lack of enforcement.

Other Public Comments

- Pathways, bike lanes, cycle track are generally used by higher income and lower usage. More pedestrians use sidewalks. Focus should be on high density areas.
- Ruts in residential streets are also barriers for users.
- Services need to be focused on gender equity.
- Lane aprons needs to be cleared too.
- Need enforcement but citizens need to be educated first. Education then warning then fines.
- Need 311 escalation system for seniors and people with disabilities.
- Need a sidewalk policy that is like the current policy for cars.
- Calling 311 does no good along 1 Ave NE. Adjoining sidewalks, intersections/alleys are problem areas.
- Don't pile snow at the corner. There is a lack of snow storage locations.
- Nice to have a plan to help communities with seniors. Poor snow and ice control on sidewalks discourages seniors from travelling and it is big cause of isolation for seniors.
- 25% of the population in Bridgeland are seniors. Access to transit is important.
- Marlborough park has programs to get youths to clear snow
- If people with disability cannot get full value for tax dollars, there should be a disability tax credit. Senior and people with disability have lives just like anyone else.
- Accessibility is door to door.
- Improve outbound communication responding to service request.
- Can the snow angels program be improved? Snow angels do not exist, needs to be another way.

- Current city snow clearing policy is piecemeal work. Snow removal is required. True accessibility won't come until all the snow is removed. Must be properly funded.
- How can we identify people that can't clear the sidewalk? Broad-based effective solution is snow removal which provides the integration between sidewalk and roadway.
- Couldn't leave the house if wasn't for Access Calgary.
- Roads are better cleared than sidewalk.
- Food delivered to the house because they can't leave the house.
- City pay for shovels for volunteers. Should have a database to create a list of people that needs help
- Connect people that needs jobs to clear sidewalks in the winter.
- 24 hours maybe too long because people need to go medical appointments etc.
- Prioritization - city spaces, hospital and museums are all missing. Keeping pathways/bus stops cleared.
- Can't tell where broken sidewalks are if covered with snow.
- Subsidized housing should be a priority.
- Construction in Forest Lawn. Normal bus stops are not used. Windrows at temp bus stop. This shouldn't be just about permanent installations. Construction detours needs to be accessible
- 9 ave - wheelchair going down that road because sidewalk is not safe / missing wheelchair ramps.
- Ice on ramps and bridges.
- Rundle bridge not cleared properly.
- Access Calgary - carrying shovels to shovel sidewalks. Get survey to Access Calgary and we will get a bunch of stories. Can't keep their schedule if they are shoveling sidewalks
- Signal timing at intersections with deep snow are insufficient
- CT train station - stairs icy
- Call city and 311 to start a snow removal community program. Community association not in favour.
- Not interested in calling 311 - they ask for too much information. Senior just doesn't want to call.
- Sometimes 311 is not going to right people.
- Don't put snow in the handicap parking stall at City Transit lots.
- Accessibility taxi - need more.
- Plus 15 not opened. Making people go to the sidewalks.
- Crosswalk buttons are sometimes hard to access.
- Use more of the grader gates.
- Lack usage of material on sidewalk and bus stops.
- Under the current policy, cars are more important pedestrians which is not right.
- Live near the school, kids jumping into the piles of snow. Leaves snow on sidewalk and creates ice.
- Bus pass renewal cannot be mailed in, have to have a personal visit.
- Seniors are more likely to die because of injuries. Cost of health care is more expensive than clearing the sidewalks. Need to know where the seniors live to help the seniors. Set priority for seniors.
- Can we communicate better to 311 in terms of what service are needed.
- Alleys are so bad.
- Should not be responsible for if water ice up on sidewalks when water wouldn't drain.
- Thanks to neighbours some people are able to be mobile.
- Coordination different parts of the City.
- Enforcement - school board needs to clear the sidewalks.
- Non-seniors are also prone to injuries.
- Research on societal cost is required.
- One city one voice is important.
- Dedicated seniors will do a good job. Paid contractors are not performing.
- Too many people involved in shoveling the same block.
- People will not clear sidewalk connecting to crosswalks.
- Just want people to be responsible for what they are supposed to do.