



2016 Flood Mitigation Research

Key Findings Report

Prepared for The City of Calgary by:

Contact:

Sheela Das
Director

Ipsos
587.952.4874

sheela.das@ipsos.com
700 6th Ave SW, Suite 1950
Calgary, AB T2P 0T8

Jamie Duncan
Vice President

Ipsos
587.952.4863

jamie.duncan@ipsos.com
700 6th Ave SW, Suite 1950
Calgary, AB T2P 0T8





Research Methodology

- ◆ Ipsos conducted a telephone survey with 500 Calgarians aged 18 years or older between April 11th and 17th, 2016.
 - ❖ The average interview length was 13 minutes.
- ◆ This included a representative sample of 300 adult Calgarians and a sample of 200 residents of flood prone communities.
 - ❖ For the general public survey, both RDD landline (70%) and cell phone (30%) sample were used.
 - ❖ For the survey of flood prone communities, listed landline sample (based on six digit postal code) was used.
- ◆ The final data for the general public sample were weighted to ensure the overall sample's quadrant and age/gender composition reflects that of the actual Calgary population aged 18 or older according to 2011 Federal Census data.
 - ❖ The data for residents of flood prone communities were weighted by quadrant and gender.
- ◆ The margin of error for the general public sample of 300 is ± 5.7 percentage points, 19 times out of 20, while the margin of error for the sample of 200 residents in flood prone communities is ± 7.0 percentage points.
 - ❖ The margin of error is larger by quadrant and other sub-groupings of the survey population.

Flood Mitigation: Values, Concerns and Attitudes

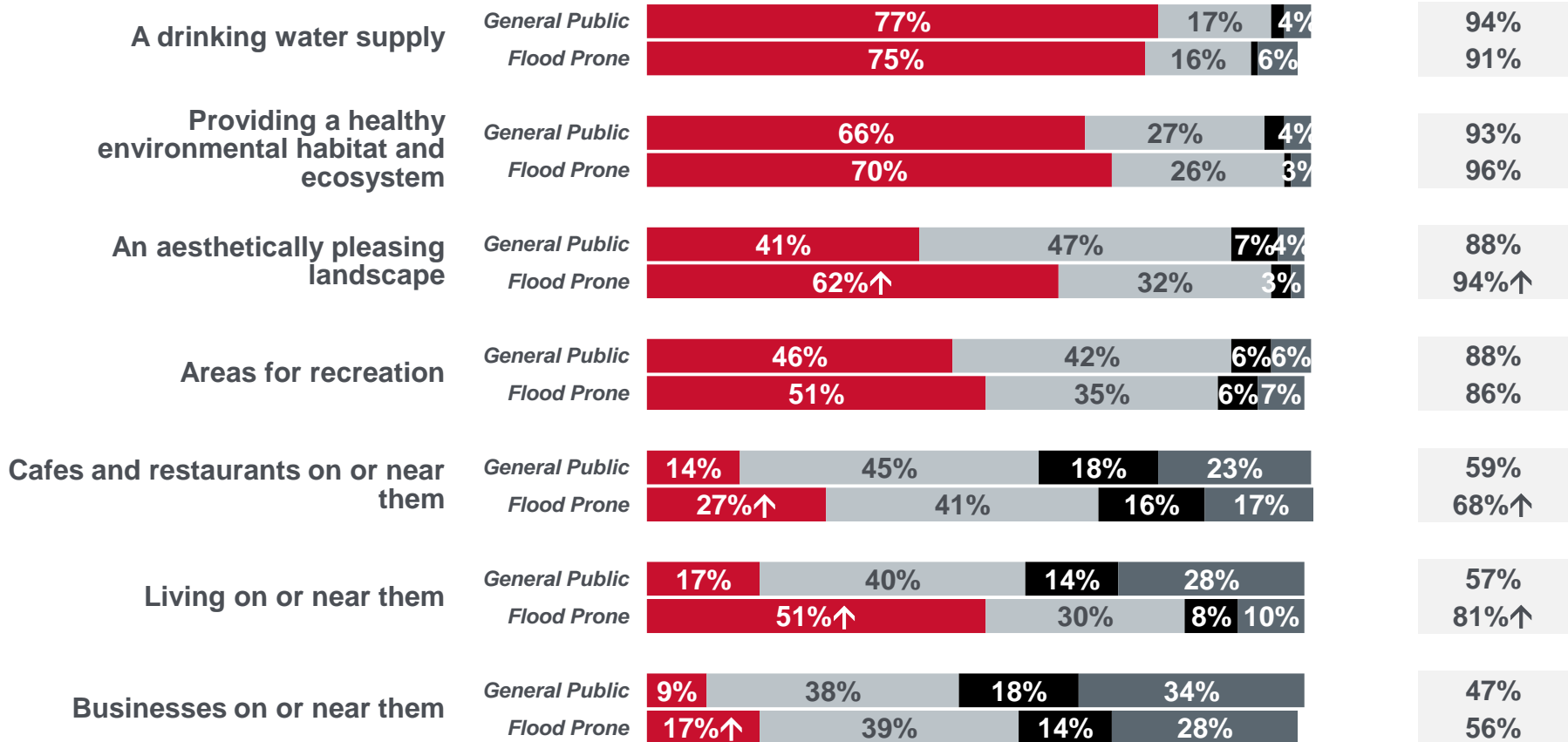




Riparian Values

■ 7 - value a great deal ■ 6 or 5 ■ 4 ■ 3, 2 or 1 - do not value at all

% Value (7, 6 or 5)

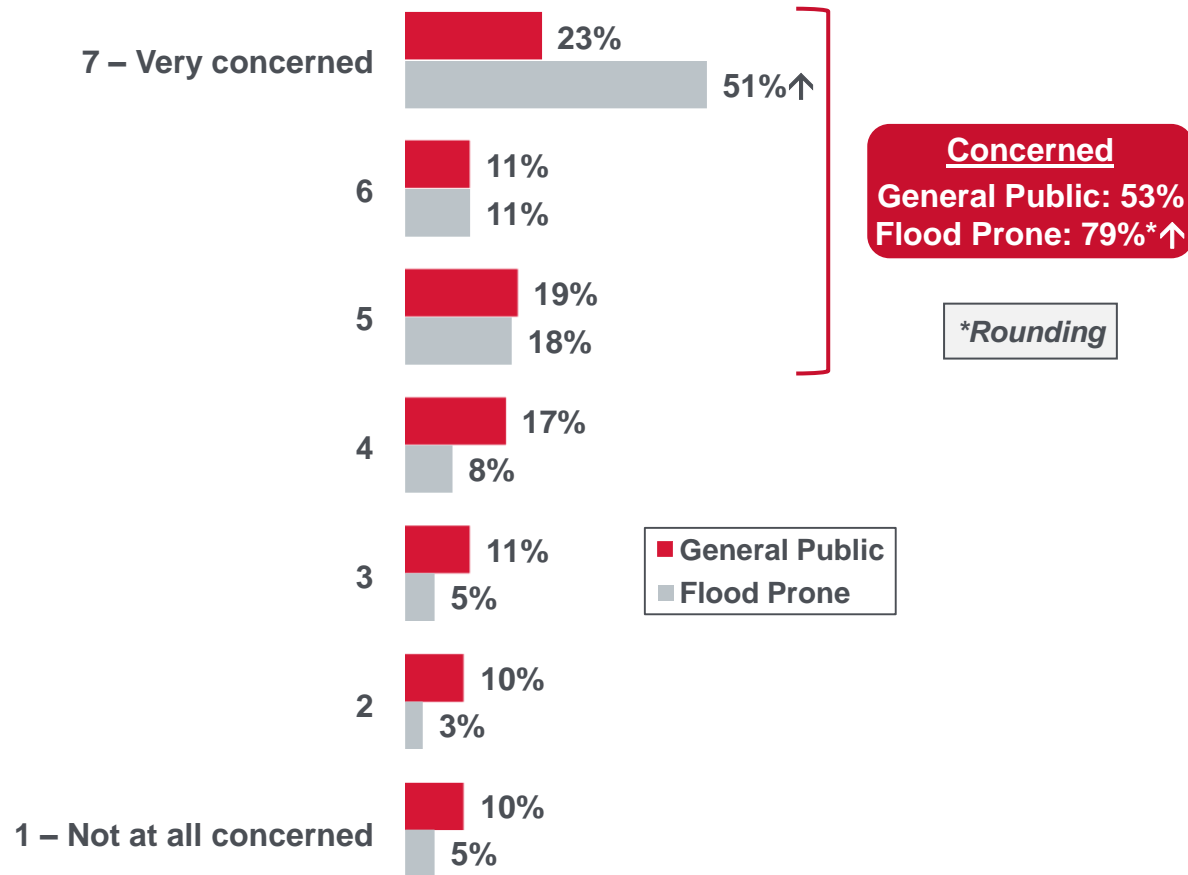


↑ significantly higher than general public

Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)
 Q1. Residents of Calgary value Calgary's rivers and the banks and areas beside the rivers for many reasons. For you personally, how much do you value the rivers or areas beside them for...? Please use a 7-point scale where 1 means 'do not value at all' and 7 means 'value a great deal.'



Concern about River Flooding

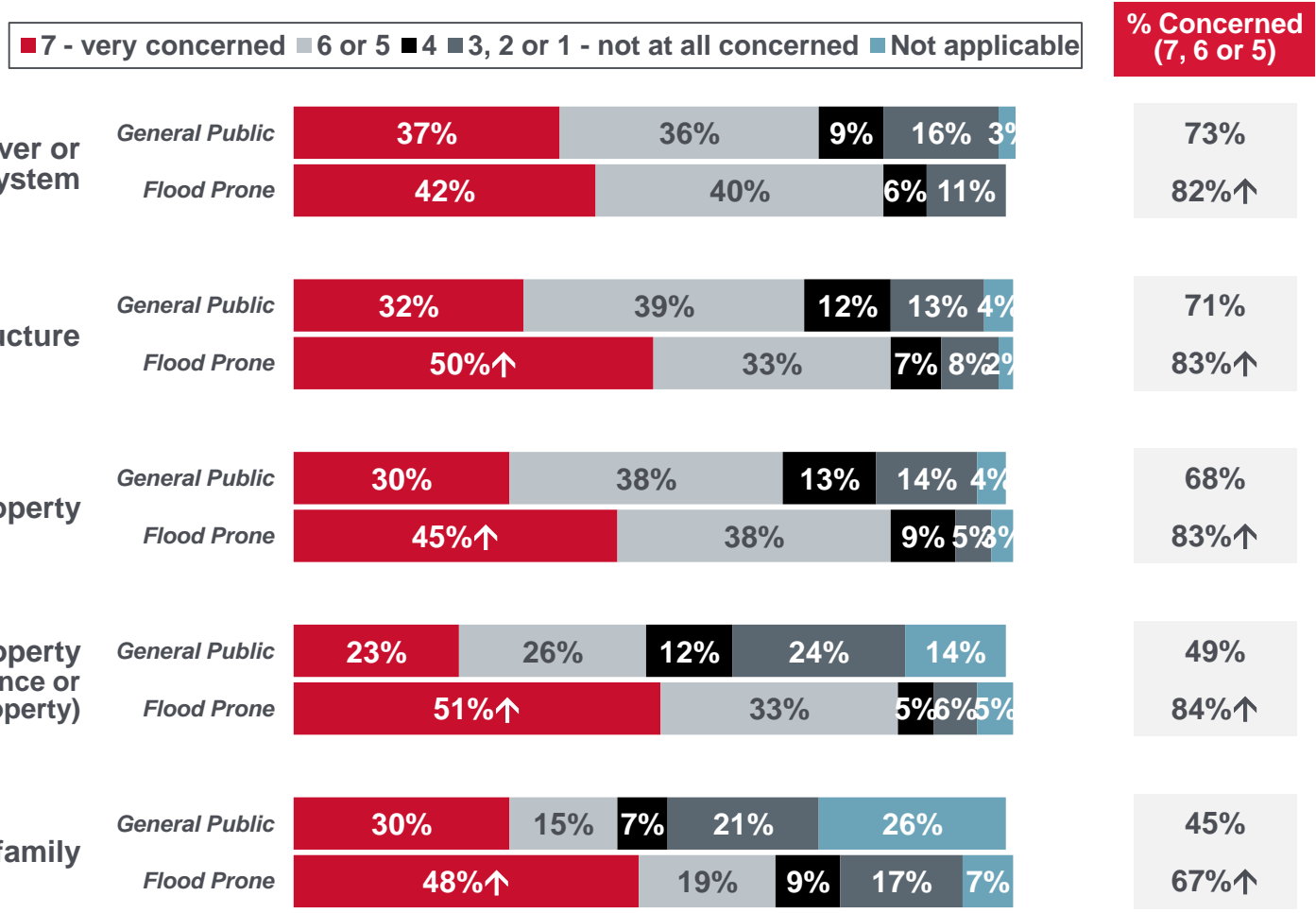


↑ significantly higher than general public

Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)
 Q2. Overall, how concerned are you about river flooding in Calgary? Please use a 7-point scale where 1 means 'not at all concerned' and 7 means 'very concerned.'



Concern with Impacts of River Flooding



↑ significantly higher than general public

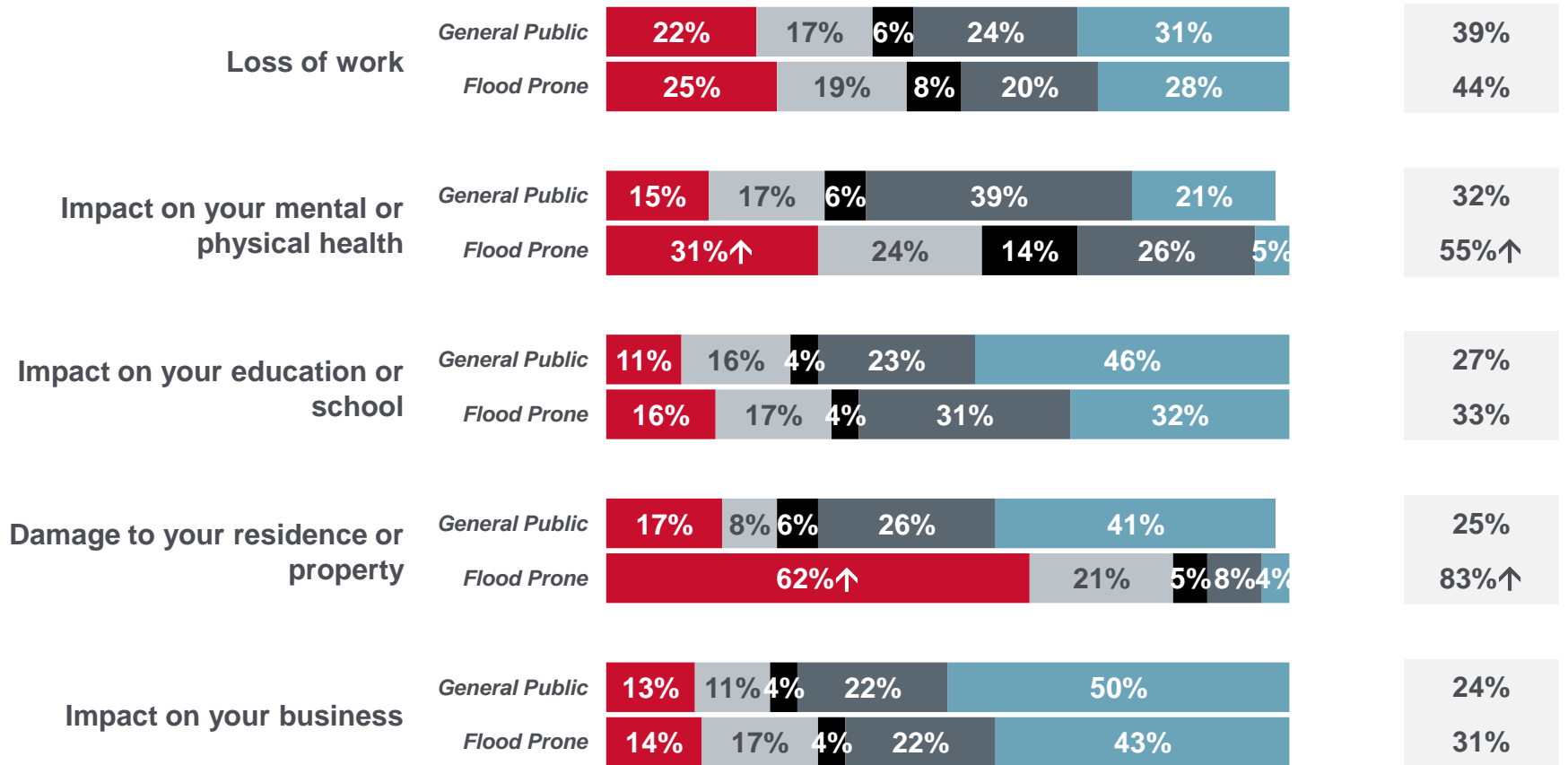
Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)
 Q3. How concerned are you with each of the following impacts of river flooding? If it does not apply to you, please say so. Please use a 7-point scale where 1 means 'not at all concerned' and 7 means 'very concerned.'



Concern with Impacts of River Flooding (cont'd)

■ 7 - very concerned ■ 6 or 5 ■ 4 ■ 3, 2 or 1 - not at all concerned ■ Not applicable

% Concerned (7, 6 or 5)

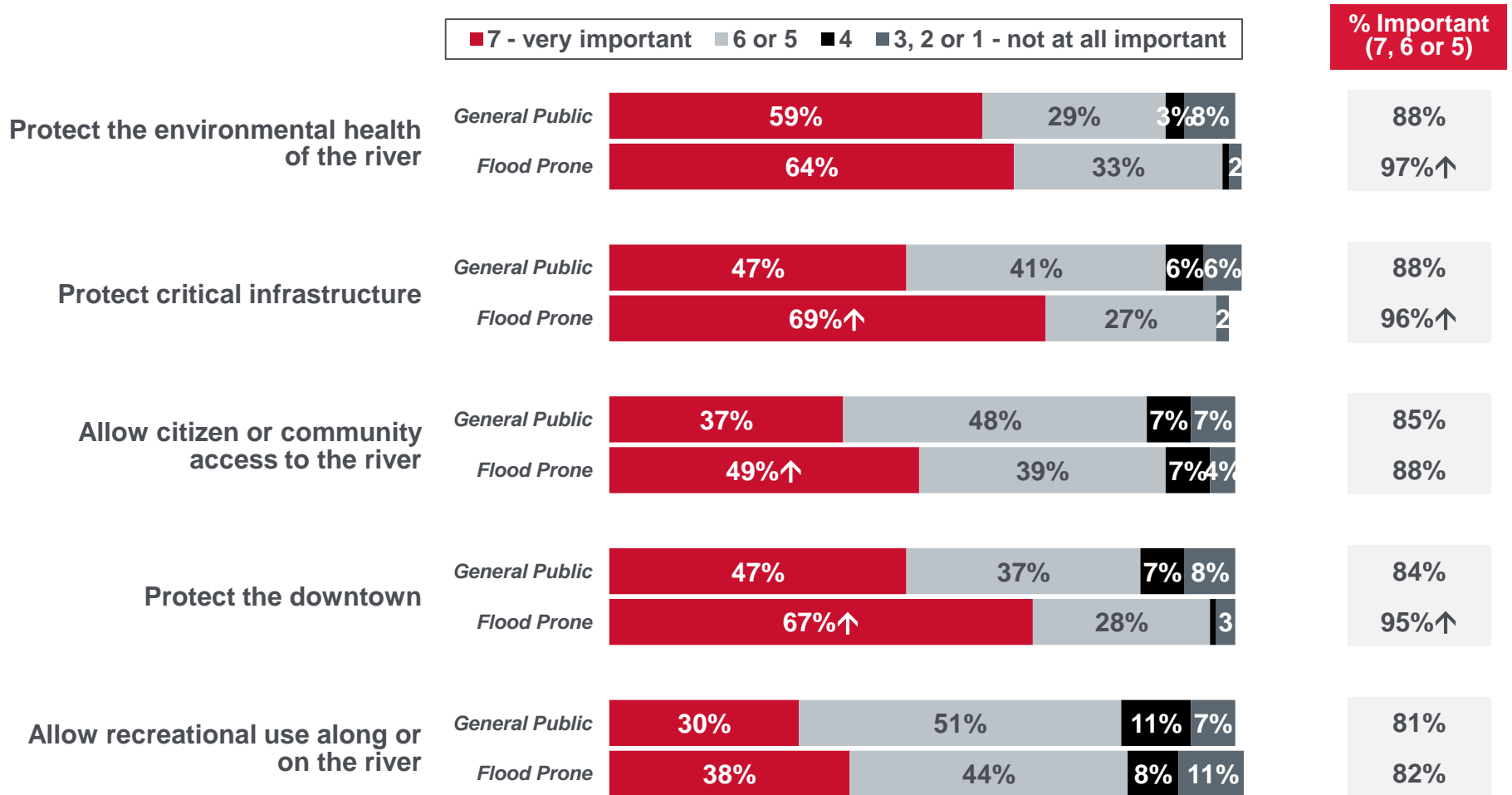


↑ significantly higher than general public

Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)
 Q3. How concerned are you with each of the following impacts of river flooding? If it does not apply to you, please say so. Please use a 7-point scale where 1 means 'not at all concerned' and 7 means 'very concerned.'



Importance of Considerations when Developing Plans to Reduce Future Impacts of River Flooding



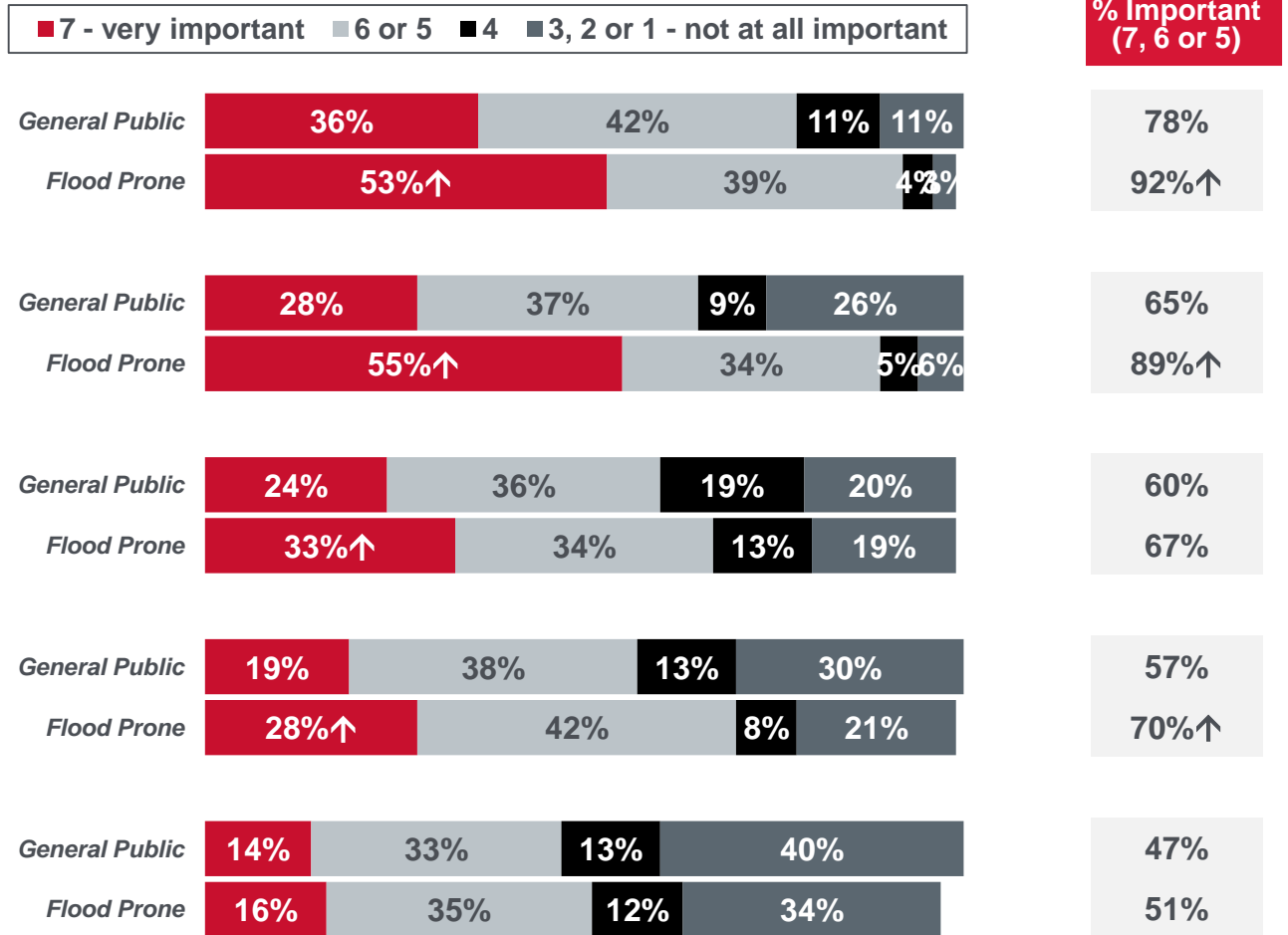
↑ significantly higher than general public

Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)

Q4. When The City of Calgary considers developing plans to reduce future impacts of river flooding how important is it to ...? Please use a 7-point scale where 1 means 'not at all important' and 7 means 'very important.'



Importance of Considerations when Developing Plans to Reduce Future Impacts of River Flooding (cont'd)



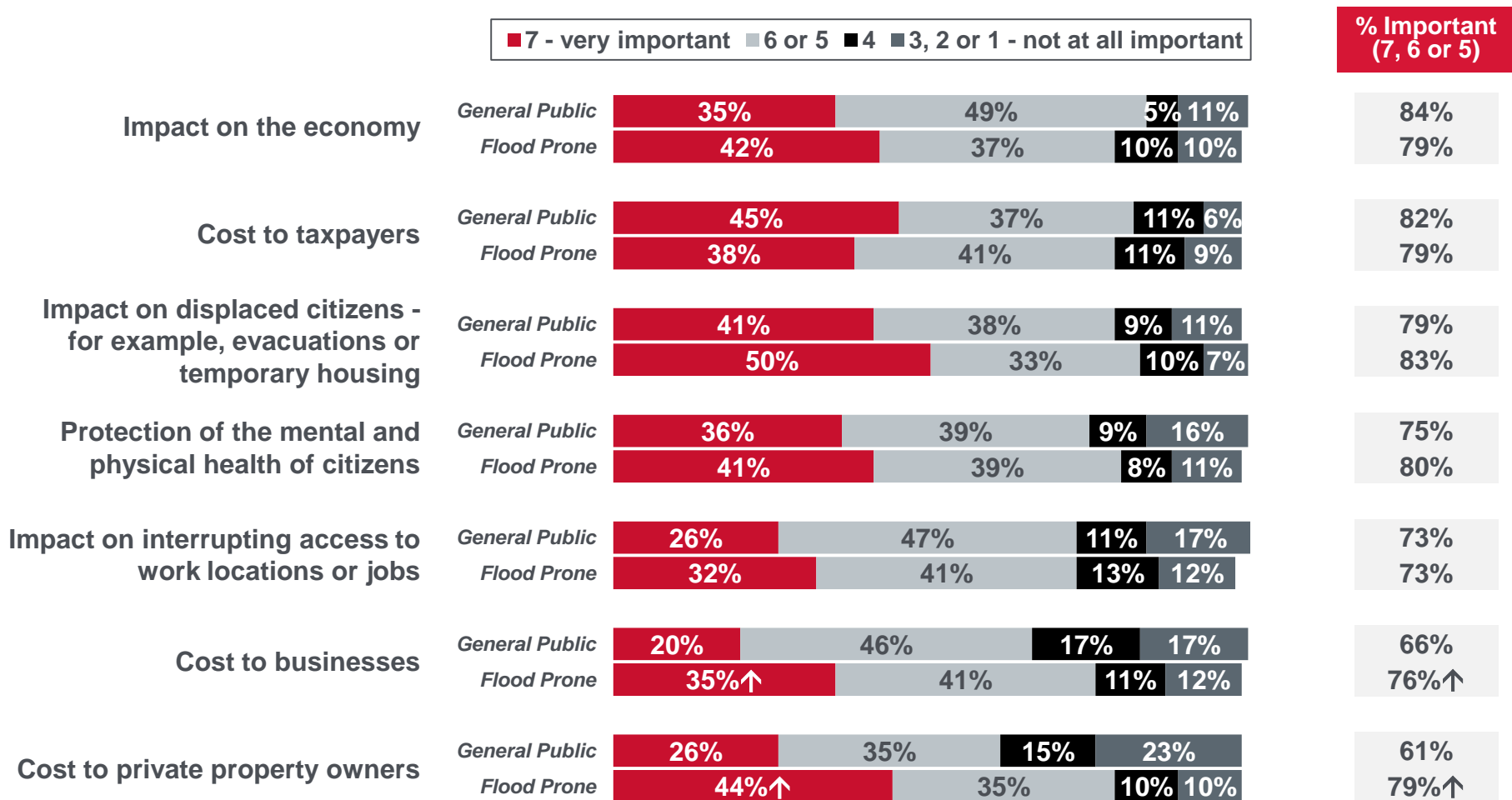
↑ significantly higher than general public

Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)

Q4. When The City of Calgary considers developing plans to reduce future impacts of river flooding how important is it to ...? Please use a 7-point scale where 1 means 'not at all important' and 7 means 'very important.'



Importance of Factors when Assessing Measures to Reduce Future Impacts of River Flooding



↑ significantly higher than general public

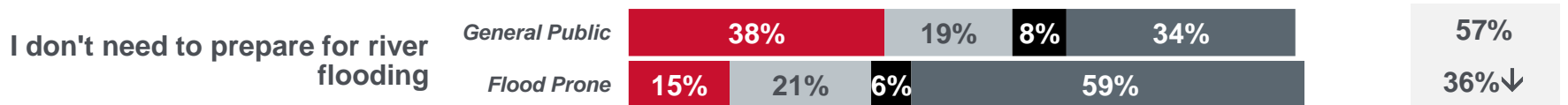
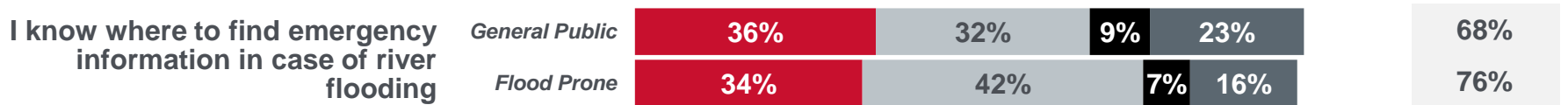
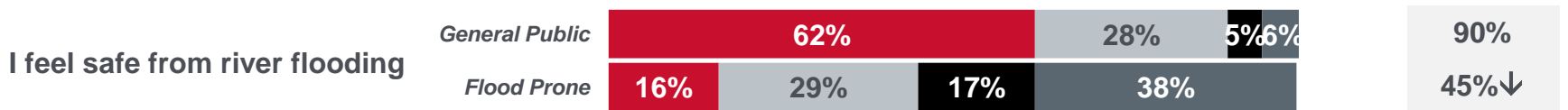
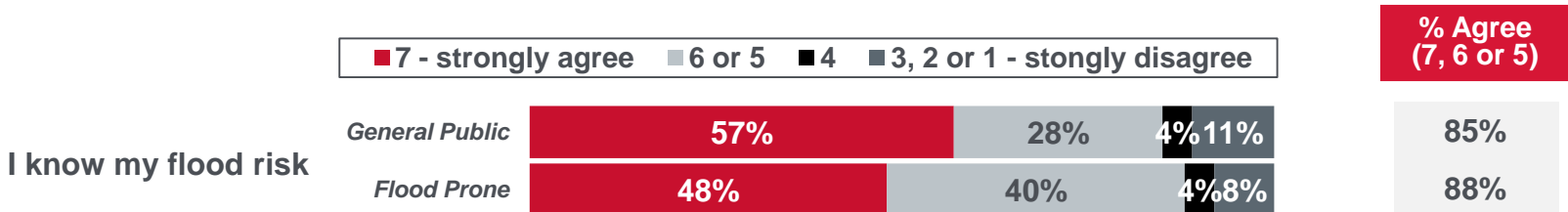
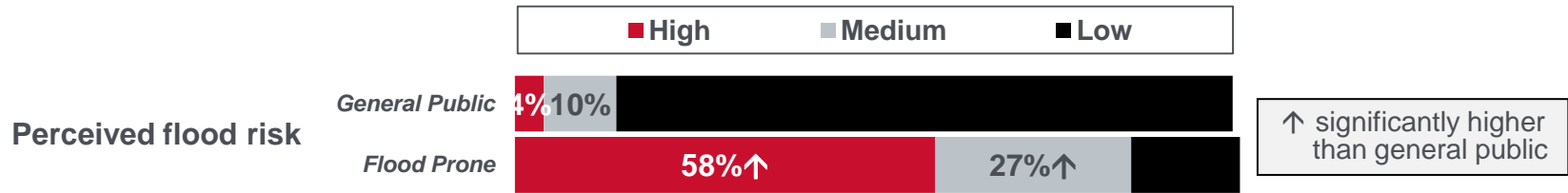
Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)
 Q5. When assessing measures to reduce future impacts of river flooding how important is it to consider the...?
 Please use a 7-point scale where 1 means 'not at all important' and 7 means 'very important.'

Flood Preparedness





Perceptions Regarding Flood Preparedness



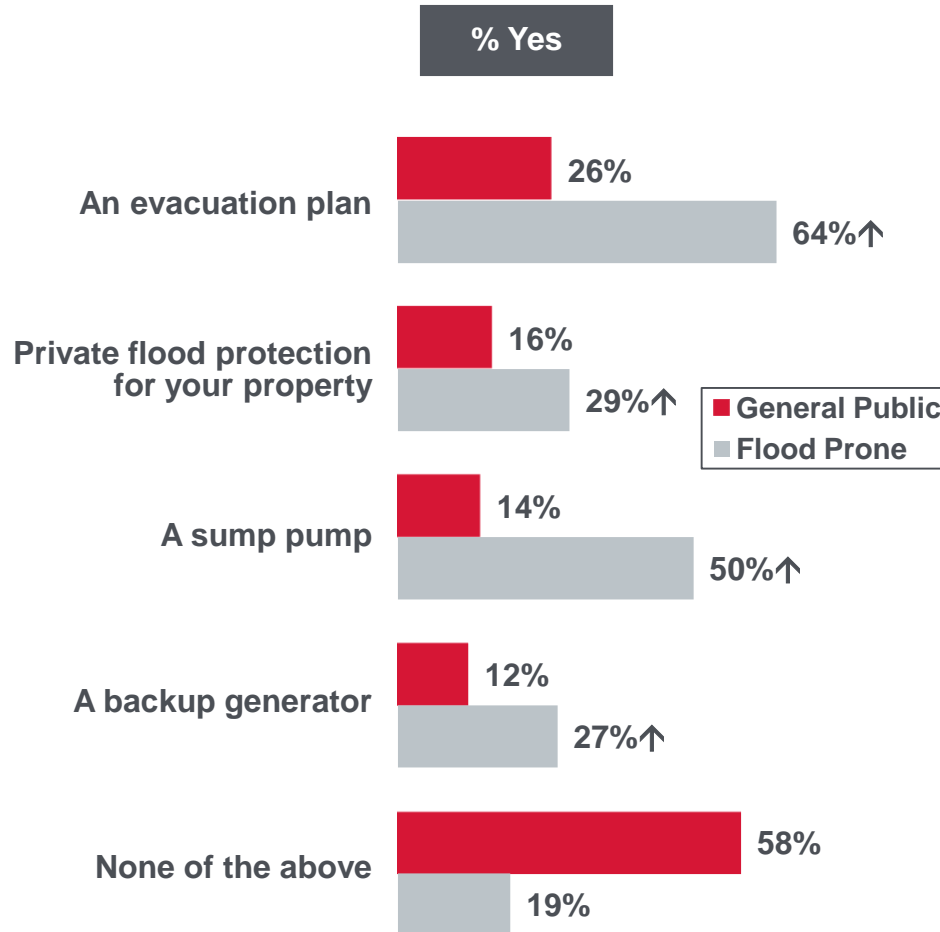
↓ significantly lower than general public

Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)

Q6. Thinking about where you live today, would you say your risk for potential flooding is high, medium or low? Q7. Please indicate your agreement or disagreement with the following statements using a 7-point scale where 1 means 'strongly disagree' and 7 means 'strongly agree.'



Flood Preparedness

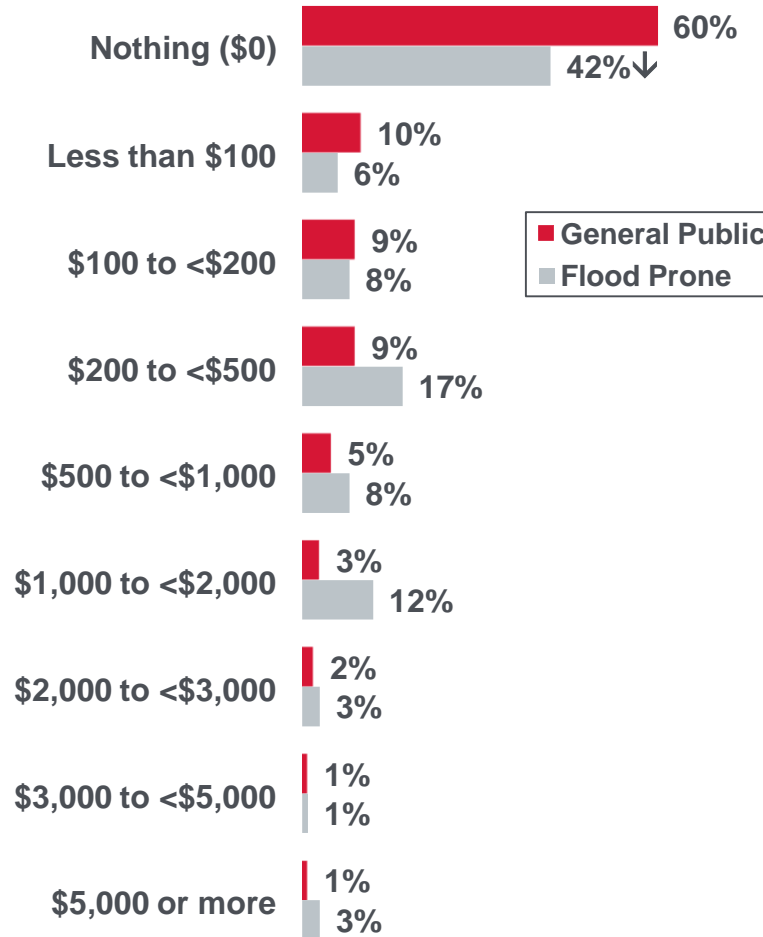


Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)
 Q8. In preparation for river flooding, does your household have...?

↑ significantly higher than general public



Willingness to Pay for Residential Flood Insurance



■ General Public
■ Flood Prone

↓ significantly lower than general public

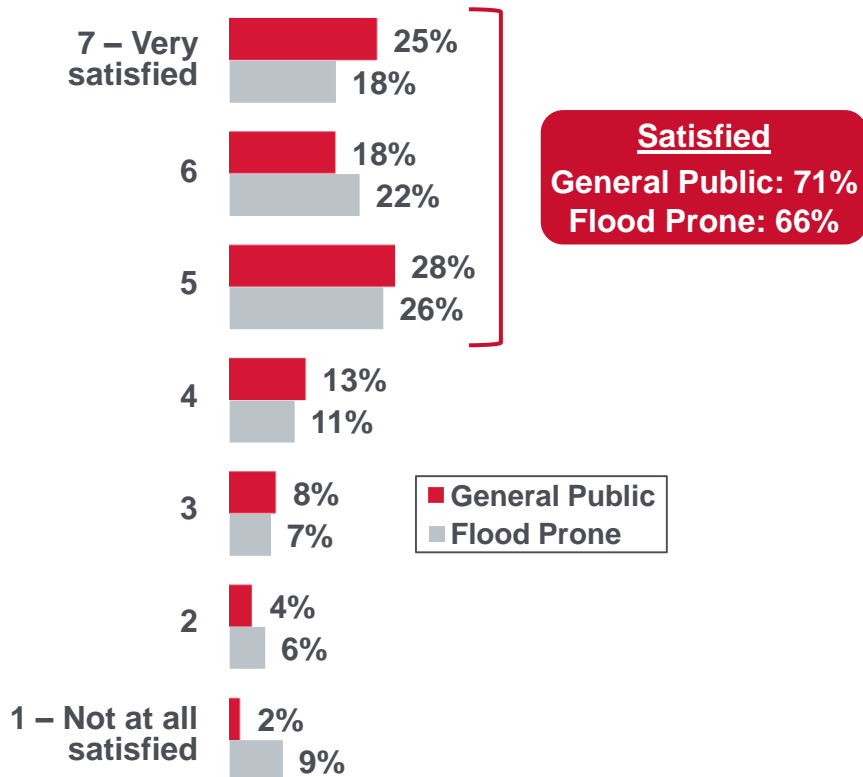
Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)
 Q9. If available, how much would you be willing to pay per year to purchase private residential flood insurance?



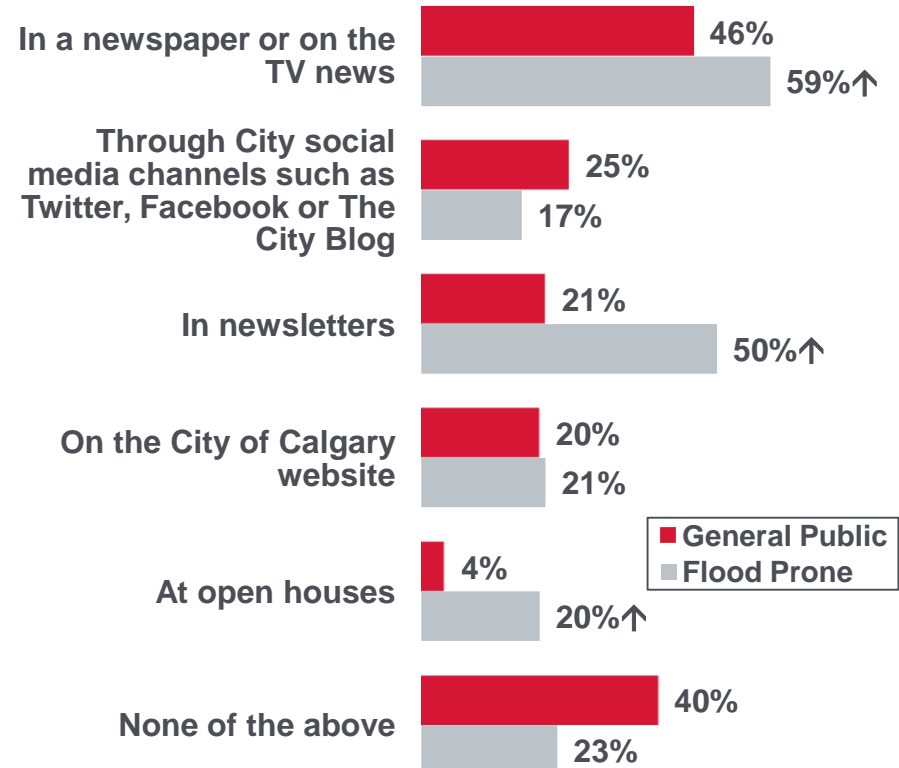


City Communications

Satisfaction



Information Recall (% Yes)



Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)

Q10. Overall, how satisfied are you with the information The City of Calgary provides on flooding?
 Please use a 7-point scale where 1 means 'not at all satisfied' and 7 means 'very satisfied.'

Q10A. In the past 12 months, have you seen any information from The City of Calgary about river flooding?

Demographics





Quadrant and Flood Impact

Quadrant

	Public	Flood
Southwest	30%	38%
Southeast	22%	27%
Northwest	28%	32%
Northeast	20%	3%

Property Located on the Bow or Elbow Rivers

	Public	Flood
Yes	9%	60%
No	91%	40%
No response	0%	1%

Years in Current Residence

	Public	Flood
Less than 1 year	9%	0%
1 to 2 years	16%	3%
3 to 5 years	19%	10%
6 to 10 years	20%	16%
11 to 20 years	20%	36%
More than 20 years	16%	35%

Base: Lived in Calgary for >2 years

Impact of Flood 2013

	Public	Flood
Work was disrupted	41%	49%
Lost electricity or other services	14%	83%
Evacuated - but there was no damage to your home or the suite in which you live	8%	50%
Evacuated - and your home or the suite in which you live was damaged	4%	42%
Own a rental property that was damaged	1%	12%
None of the above	51%	2%

Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)



Gender

	Public	Flood
Male	50%	50%
Female	50%	50%

Age

	Public	Flood
18 to 24	12%	1%
25 to 34	21%	2%
35 to 44	17%	9%
45 to 54	20%	18%
55 to 64	13%	32%
65 or older	14%	38%
No response	3%	1%

Education

	Public	Flood
Completed high school or less	19%	13%
Some post secondary or college diploma	27%	27%
Completed university degree or post-grad degree	53%	59%
No response	2%	0%

Income

	Public	Flood
Less than \$40K	8%	15%
\$40K to <\$60	13%	7%
\$60K to <\$80K	14%	7%
\$80K to <\$100K	14%	14%
\$100K to <\$120K	13%	9%
\$120K to <\$140K	6%	4%
\$140K or more	22%	29%
No response	9%	16%

Own or Rent

	Public	Flood
Own	73%	83%
Rent	22%	17%
Other	4%	0%

Tenure in Calgary

	Public	Flood
Less than 1 year	1%	0%
1 to 2 years	4%	1%
3 to 5 years	9%	3%
6 to 10 years	11%	5%
11 to 20 years	24%	14%
More than 20 years	50%	77%
No response	1%	1%

Base: All respondents (General Public: n=300 / Flood Prone Communities: n=200)



Contact

Sheela Das

Director

Ipsos Public Affairs

587.952.4874

email: sheela.das@ipsos.com

Jamie Duncan

Vice President

Ipsos Public Affairs

587.952.4863

email: jamie.duncan@ipsos.com



Calgary



Fall 2020 Quality of Life and Citizen Satisfaction Survey

Final Report

September 30, 2020

Prepared for The City of Calgary by:





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Respondent Profile

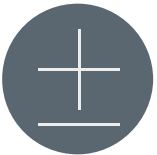


Telephone survey conducted with a randomly selected sample of 2,500 Calgarians aged 18 years and older between August 17th and September 6th, 2020.

- Both landline (55%) and cell phone (45%) sample were used.
- The average interview length was 31 minutes.



Final data were weighted to ensure the overall sample's quadrant, ward, and age/gender composition reflects that of the actual Calgary population aged 18 or older according to 2018 Municipal and 2016 Federal Census data.



The **margin of error** (MOE) for the total sample of 2,500 is ± 2.0 percentage points, 19 times out of 20.



Where possible, **results are compared** to previous iterations of the Quality of Life and Citizen Satisfaction survey.

- One should note that the 2006 to 2016 iterations of the survey were conducted annually in the Fall. Starting in 2017, the survey has been conducted twice annually, with a Spring and a Fall wave.
- Given the time of year each survey is run – and possible seasonal differences – caution should be exercised with comparing results from the 2020 Fall Citizen Satisfaction survey to 2020 Spring Pulse survey results.
- Statistically significant changes from Fall 2019 to Fall 2020 and from Spring 2020 to Fall 2020 are noted:
 - \uparrow indicates number is significantly higher than Fall 2019/ Spring 2020
 - \downarrow indicates number is significantly lower than Fall 2019/ Spring 2020
 - Some bar charts in this report do not add to 100% due to rounding.



Highlights





Fall 2020 Highlights

QUALITY OF LIFE



'Good' Quality of Life 79%

85%

I am proud to live in my neighbourhood



79%

I feel safe walking alone in my neighbourhood after dark



77%

Calgary is a great place to make a life

58%

Calgary is a great place to make a living

70%

Calgary is on the right track to be a better city 10 years from now

ISSUE AGENDA (TOP 3)



28%

Infrastructure, Traffic & Roads



15%

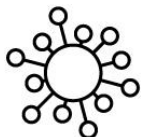
Crime, safety and policing



13%

Taxes

COVID-19



32%

Major threat to personal financial situation

29%

Major threat to physical health

26%

Major threat to mental health

VALUE FOR TAXES & CITIZEN SATISFACTION



53%

'Good' value for tax dollars



67%

'Satisfied' with City programs and services



75%

'Satisfied' with customer service

CITY PERFORMANCE & REPUTATION



69%

Satisfied with running of The City by Council and Administration



48%

'Trust' The City of Calgary



73%

'Agree' City practices open & accessible government



Fall 2020 Highlights

- 1.** Perceptions about the quality of life in Calgary remain strong and are identical to Spring 2020, but are down from Fall 2019. Perceptions of a ‘worsened’ quality of life have statistically increased since Fall 2019, yet are down from Spring 2020.
- 2.** “Infrastructure, traffic and roads” continues to lead the issue agenda, although has notably decreased in prominence since Fall 2019. “Crime, safety and policing” is the second ranked issue, followed closely by “taxes”, “transit”, and “COVID-19 pandemic”.
- 3.** As new measures in Fall 2020, the majority of Calgarians feel that the COVID-19 pandemic is a major or minor threat to their physical health, mental health, and personal financial situation, although a minority deem the COVID-19 pandemic to be a ‘major’ threat in these areas. Further, four-in-ten Calgarians have experienced a job or income loss as a result of the COVID-19 pandemic.
- 4.** Two-thirds of residents are satisfied with the overall level and quality of City services and programs, statistically down from Fall 2019 and Spring 2020. The main decreases in satisfaction which emerge in 2020 are for road maintenance, support for arts and culture, and Calgary Police Service, and the main increases in satisfaction rest with traffic flow management, on-street bikeways, and transportation planning.
- 5.** At least one-half or more of Calgarians want ‘more’ investment in affordable housing, social services, road maintenance including pothole repairs, and snow removal.
- 6.** The perceived value of property tax dollars is consistent with Fall 2019 and Spring 2020. In order to balance taxation and service delivery, Calgarians lean slightly more towards preferring tax increases versus cutting services.
- 7.** Satisfaction with The City’s customer service delivery remains strong, similar to results in Fall 2019.
- 8.** More than three-quarters of Calgarians report that The City communicates well with citizens about its services, programs, policies, and plans, significantly increased from Fall 2019. A statistical increase is also seen for Calgarians having access to ‘just the right amount of information’ from The City.
- 9.** ‘Trust’ in The City has experienced significant declines since Fall 2019, following an increase in ‘trust’ in Spring 2020. ‘Trust’ in The City in Fall 2020 is significantly lower than all previous waves.
- 10.** Satisfaction with City Administration’s performance remains strong and is consistent with results one year ago, and perceptions related to City Council’s performance are also similar to results in Fall 2019, though down from Spring 2020 which had seen a boost.



KEY FINDINGS

Quality of Life

Perceptions about the **quality of life in Calgary have remained consistent since the onset of the COVID-19 pandemic in Spring 2020, yet are lower than in Fall 2019.**

- In Fall 2020, 79% of Calgarians say the quality of life in Calgary today is ‘good’, identical to 79% in Spring 2020, yet is statistically lower than Fall 2019 (83%).
- More than four-in-ten Calgarians (43%) say the quality of life in Calgary has ‘stayed the same’ in the past three years, identical to 43% in Spring 2020 and consistent with 44% in Fall 2019. In comparison, 44% of Calgarians say the quality of life in the city has ‘worsened’, notably down from 47% in Spring 2020 at the onset of the COVID-19 pandemic, yet statistically increased from 40% in Fall 2019.
 - Perceptions of an ‘improved’ quality of life (14%) are statistically higher than 10% in Spring 2020, but are notably lower than 16% in Fall 2019.
- Agreement that ‘Calgary is a great place to make a living’ remains moderate (58%), showing notable gains from Spring 2020 (52%), yet is statistically lower than Fall 2019 (63%).
- Agreement that ‘Calgary is a great place to make a life’ (77%) also sees a significant increase from Spring 2020 (74%), and is on par with Fall 2019 levels (79%).
- Seven-in-ten (70%) Calgarians agree that ‘Calgary is on the right track to being a better city 10 years from now’, similar to Spring 2020 (72%), yet statistically lower than Fall 2019 (76%).
- As a new question in Fall 2020, 87% of Calgarians think Calgary is ‘safe’ overall.
 - Eight-in-ten (79%) Calgarians say they do or would feel safe walking alone in their neighborhood after dark, showing a statistical decline since Fall 2019 (82%).
 - An additional new question shows that 59% of Calgarians think that crime in their neighbourhood during the past three years has ‘stayed the same’, whereas 33% feel it has ‘increased’ and 4% believe it has ‘decreased’.



KEY FINDINGS

Issue Agenda

“Infrastructure, traffic and roads” continues to lead the 2020 issue agenda, yet has decreased in prominence. “Crime, safety and policing” has risen to the second ranked issue, followed closely by “taxes”, “transit”, and “COVID-19 pandemic”.

- Respondents were asked on an unaided (open-ended) basis to identify the most important issue facing their community.
- In Fall 2020, 28% of Calgarians cite “infrastructure, traffic and roads” as an important issue, and while this continues to lead the issue agenda, it is statistically down 7 percentage points from Fall 2019 (35%) and 12 percentage points from Fall 2018 (40%).
- Now ranking second on the issue agenda is “crime, safety and policing” (15%), identical to 15% citing this issue in Fall 2019 wherein it ranked third overall.
- “Taxes” ranks in third place in Fall 2020 (13%), and the proportion of Calgarians pointing to this issue has increased since Fall 2019 (11%).
- Next, 12% of Calgarians cite “transit” as an important issue, statistically down from 17% in Fall 2019 when it ranked second on the issue agenda.
- The “COVID-19 pandemic” is mentioned by 11% of Calgarians, notably up from 5% in the Spring 2020 measurement, followed by the “economy” at 9%, similar to 8% in Fall 2019.
- “Budget and spending” is mentioned by 8% of Calgarians (notably down from 11% in Fall 2019), and “education” is cited by 8% of Calgarians (unchanged since Fall 2019).
- Additional issues mentioned include “recreation” (7%, identical to 7% in Fall 2019), “environment and waste management” (7%, identical to 7% in Fall 2019), “homelessness, poverty and affordable housing” (6%, statistically up from 4% in Fall 2019), and growth and planning (4%, on par with 5% in Fall 2019).

KEY FINDINGS

COVID-19 Pandemic

Calgarians view the COVID-19 pandemic as more of a 'minor' threat vs. 'major' threat to their physical health, mental health and personal financial situation.

Almost four-in-ten Calgarians have experienced a job loss or income loss as a result of the COVID-19 pandemic.

- In Fall 2020, 11% of Calgarians point to the “COVID-19 pandemic” as the most important issue that local leaders need to address (statistically up from 5% in Spring 2020).
- As a new question in Fall 2020, more than three-quarters (78%) of Calgarians say that the COVID-19 pandemic is a threat to their physical health, including 29% rating it as a ‘major’ threat and 49% considering it to be a ‘minor’ threat. The remaining 22% do not consider the COVID-19 pandemic to be a threat to their physical health.
 - In addition, 78% of Calgarians feel that the COVID-19 pandemic is a threat to their mental health, including 26% saying it is a ‘major’ threat and 53% rating it as a ‘minor’ threat. The remaining 22% do not consider it a threat to their mental health.
 - Slightly more than three-quarters of Calgarians (76%) also consider the COVID-19 pandemic to be a threat to their personal financial situation, including 32% who deem it to be a ‘major’ threat and 44% considering it to be a ‘minor’ threat. Further, 24% of Calgarians do not see the COVID-19 pandemic to be a threat to their personal financial situation.
- As another additional measure in Fall 2020, all survey respondents were asked if they were employed at the beginning of the COVID-19 pandemic. The majority of Calgarians (71%) state that they were employed at the beginning of the COVID-19 pandemic.
 - Among Calgarians who were employed at the beginning of the COVID-19 pandemic, almost one-half (46%) report having experienced a job loss or income loss as a result of the COVID-19 pandemic.



KEY FINDINGS

Satisfaction with City Services and Programs

Overall satisfaction with the level and quality of city services and programs has decreased since Fall 2019.

- Roughly two-thirds (67%) of Calgarians say they are satisfied with the overall level and quality of services and programs provided by The City, significantly down from 77% in Spring 2020 and from 74% in Fall 2019.
- The majority of Calgarians are satisfied with each of the 35 services and programs assessed, with satisfaction at 90% or higher for 14 services and programs, and 80% to 89% for another 13 services, for a total of 27 out of 35 programs being rated as 80% or more.
 - The highest satisfaction ratings are for the Calgary Fire Department (99%), Calgary 9-1-1 (96%), and the quality of drinking water (95%), while the lowest satisfaction ratings are for property tax assessment (66%), road maintenance (67%), and on-street bikeways (67%).
- Statistically significant **increases** from Fall 2019 are seen for satisfaction with:
 - Traffic flow management (81%, up 12% since Fall 2019);
 - On-street bikeways (67%, up 7% since Fall 2019);
 - Transportation planning (83%, up 6% since Fall 2019);
 - Calgary Transit (84%, up 5% since Fall 2019);
 - Residential garbage collection (93%, up 3% since Fall 2019); and,
 - Calgary Fire Department (99%, up a statistically significant 1% since Fall 2019).
- Statistically significant **decreases** from Fall 2019 are seen for satisfaction with:
 - Road maintenance including pothole repairs (67%, down 6% since Fall 2019);
 - Support for arts and culture, including festivals (80%, down 5% since Fall 2019);
 - Calgary Police Service (89%, down 3% since Fall 2019);
 - Calgary 9-1-1 (96%, down 2% since Fall 2019); and,
 - Disaster planning and response (93%, down 2% since Fall 2019).



KEY FINDINGS

Importance vs. Satisfaction Analysis

Primary strengths of The City's services and programs continue to rest with the Fire Department, Calgary 9-1-1, and the quality of drinking water.

Primary noted areas include road maintenance, property tax assessment and affordable housing.

- When evaluating the level of importance of City services and programs against residents' satisfaction with the services and programs, the analysis identifies primary strengths and noted areas.
- **Primary Strengths:**
 - Fire Department;
 - Calgary 9-1-1;
 - Quality of drinking water;
 - Garbage collection;
 - Parks, playgrounds and open spaces;
 - Disaster planning and response;
 - Calgary's pathway system;
 - Spring road cleaning;
 - Police service;
 - Blue Cart recycling; and,
 - 311 services.
- **Primary Noted Areas:**
 - Road maintenance;
 - Property tax assessment;
 - Affordable housing;
 - Snow removal;
 - City growth management;
 - Land use planning;
 - Traffic flow management;
 - Social services;
 - Transportation planning; and,
 - Roads and infrastructure.



KEY FINDINGS

Desired Investment

Affordable housing and social services are the most desired areas for increased investment.

Decreases in desired investment are most notable for emergency services (Police and Fire), transportation (traffic flow management and transportation planning), and recreation (facilities and programs).

- When asked if The City should invest more, less or the same amount in specific services and programs, one-half or more Calgarians say The City should **invest more** in:
 - Affordable housing (64%, on par with 63% in Fall 2019);
 - Social services for individuals such as seniors or youth (62%, identical to 62% in Fall 2019);
 - Road maintenance, including pothole repairs (58%, statistically similar to 54% in Fall 2019); and,
 - Snow removal (50%, statistically on par with 52% in Fall 2019).
- Notable **increases in desired investment** are seen only in one area: disaster planning and response (32% invest *more*, up 9% since Fall 2019).
- Notable **decreases in desired investment** are seen for:
 - Calgary Police Service (41% invest *more*, down 13% since Fall 2019);
 - Calgary Fire Department (33% invest *more*, down 11% since Fall 2019);
 - Traffic flow management (40% invest *more*, down 11% since Fall 2019);
 - Transportation planning (40% invest *more*, down 10% since Fall 2019);
 - City operated recreation facilities such as pools, leisure centres and golf courses (32% invest *more*, down 10% from Fall 2019);
 - City operated recreation programs such as swimming lessons (27% invest *more*, down 10% since Fall 2019);
 - Calgary Transit, including bus and CTrain service (49% invest *more*, down 7% since Fall 2019);
 - City land use planning (28% invest *more*, down 6% since Fall 2019);
 - Calgary's parks, playgrounds and other open spaces (36% invest *more*, down 5% since Fall 2019);
 - City growth management (35% invest *more*, down 5% since Fall 2019); and,
 - Property tax assessment (23% invest *more*, down 4% since Fall 2019).

Taxation

The perceived value of property tax dollars has remained stable over the past year.

- Slightly more than one-half (53%) of Calgarians give The City a ‘good value’ rating for the value of their property tax dollars, statistically on par with 55% in Spring 2020 and 54% in Fall 2019.
- In order to balance taxation and service delivery levels, Calgarians lean somewhat more towards supporting tax increases to maintain or expand services at or beyond the current inflation rate (52%, statistically higher than 48% in Spring 2020 and 44% in Fall 2019), than supporting service cuts to maintain or further reduce taxes (44%, similar to 45% in Spring 2020, yet notably down from 50% in Fall 2019).
 - With respect to desired tax increases, significantly more Calgarians would prefer an increase in taxes at the current inflation rate to *maintain* services at current levels (43%) vs. an increase in taxes beyond the current inflation rate to *expand* services (9%).
 - When looking more specifically at cutting services, 25% of Calgarians would prefer to cut services to *maintain* current tax levels, and 19% would prefer to cut services further to *reduce* taxes.
- Just over one-half (56%) of Calgarians report being knowledgeable about how tax dollars are spent, on par with 57% in Fall 2019.
- Interest in knowing how property tax dollars are invested remains strong.
 - In Fall 2020, 92% of Calgarians agree that they are ‘interested in knowing how their property tax dollars are invested in various City services’, down from 94% in Fall 2019.
 - Further, 56% of Calgarians agree that ‘The City does a good job of providing citizens with information about how their property tax dollars are invested in various City services’, similar to 55% in Fall 2019.

KEY FINDINGS

Customer Service

Perceptions about The City's customer service delivery remain positive and stable since Fall 2019.

- Slightly more than six-in-ten (61%) Calgarians have contacted The City of Calgary within the past 12 months, similar to 62% in Fall 2019.
- Among those who contacted or dealt with The City in the past 12 months, 75% are satisfied with the overall level and quality of customer service provided by The City of Calgary, statistically on par with 74% in Fall 2019.
- Ratings for elements of customer service have remained stable since last year, maintaining certain notable customer service increases experienced in Fall 2019.
 - The vast majority of Calgarians agree that 'City staff are courteous, helpful and knowledgeable' (92%, identical to Fall 2019). Next, 84% agree that 'The City of Calgary meets my customer service expectations' (not asked in Fall 2019).
 - Eight-in-ten agree that the 'quality of customer service from The City is consistently high' (81%, unchanged since last year), and that 'The City of Calgary makes customer service a priority' (80%, on par with 79% in Fall 2019).
 - Further, 74% of Calgarians agree that 'City staff are easy to get a hold of when I need them', similar to 76% in Fall 2019, and 72% agree that 'The City responds quickly to requests and concerns', identical to 72% in Fall 2019.
- Among those who contacted or dealt with The City in the past 12 months, 62% have contacted The City via phone, similar to 65% in Fall 2019.
 - In addition, 26% contacted The City using the Internet either by using The City's website, the 311 website, the 311 app, or another City of Calgary app, which is also similar to Fall 2019 (24%).
 - An additional 6% of Calgarians contacted The City via email, 5% by visiting a City office or facility, 1% in writing through the mail, 1% through The City's Twitter account, and 2% 'some other way'.

City Communications

Perceptions of Calgarians rating City communications as 'good' have increased, as have ratings of having access to the 'right' amount of information.

- In Fall 2020, 76% of Calgarians are satisfied with the overall quality of City information and communications (statistically on par with 75% in Fall 2019).
- Currently, 58% of Calgarians say they have access to 'just the right amount' of information from The City (statistically increased from 54% in Fall 2019), while 40% say they have access to 'too little' information (a significant decrease from 44% in Fall 2019).
 - Just 2% of Calgarians say they have 'too much' access to information from The City, identical to results in Fall 2019.
- More than three-quarters (77%) of Calgarians report that The City communicates well with citizens about its services, programs, policies and plans, significantly increased from 72% in Fall 2019.
 - The proportion of Calgarians who feel that The City communicates 'very' well has statistically increased to 16% in Fall 2020 from 13% in Fall 2019.
 - As well, the proportion of Calgarians who feel that The City communicates 'poorly' has significantly decreased to 23% in Fall 2020 from 28% in Fall 2019.



KEY FINDINGS

City Reputation and Performance

Overall **trust** in The City has declined and advocacy has remained stable since last year.

Satisfaction with **City Council's performance** has decreased since Spring 2020, and perceptions of municipal government **transparency** and opportunities for **citizen input** are stable in Fall 2020.

- Calgarians' overall trust in The City has significantly declined (48%, down from 57% in Spring 2020), including exhibiting a notable decline since Fall 2019 (52%).
 - Distrust of The City (21%) remains statistically consistent with Spring 2020 (20%) and with Fall 2019 (23%).
- Almost one-quarter (23%) of Calgarians are 'advocates' of The City, consistent with 24% in Fall 2019. Two-in-ten (20%) Calgarians would act as 'critics' of The City if asked, on par with 19% in Fall 2019.
- Seven-in-ten (69%) citizens are satisfied with the way Council and Administration are running The City, consistent with 72% in Spring 2020 and with 70% in Fall 2019.
 - Eight-in-ten (80%) citizens are satisfied with City Administration's performance (identical to 80% in Spring 2020 and consistent with 79% in Fall 2019), which drops to 57% for City Council (statistically down from 61% in Spring 2020, and similar to 55% in Fall 2019).
 - Two-thirds (66%) of Calgarians believe that 'City Council and City Administration work collaboratively to make the best possible decisions for the future of Calgary', similar to 68% in Spring 2020 and identical to 66% in Fall 2019.
- Perceptions of transparency and citizen input have remained stable over the past year, with 73% of Calgarians agreeing that 'The City of Calgary practices open and accessible government' (on par with 71% in Fall 2019), as well as with 'I am confident that The City of Calgary is working to improve how it includes citizen input into important decisions (68%, identical to 68% in Fall 2019).
 - In addition, 67% of Calgarians agree that 'The City uses input from Calgarians in decision-making about City projects and services' and 63% agree that 'The City allows citizens to have meaningful input into decision-making', both similar to results in Fall 2019.

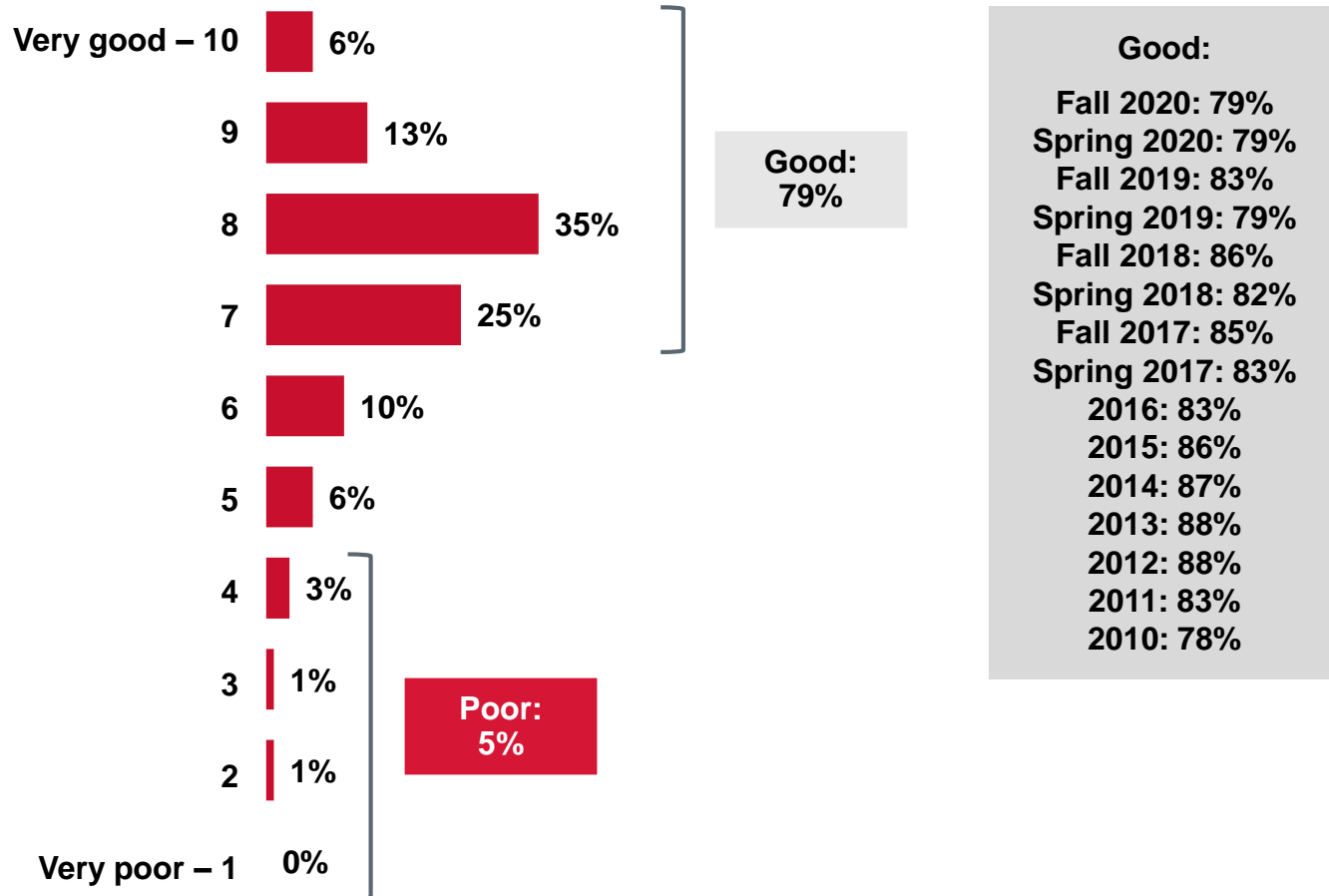


Quality of Life





Overall Quality of Life in Calgary

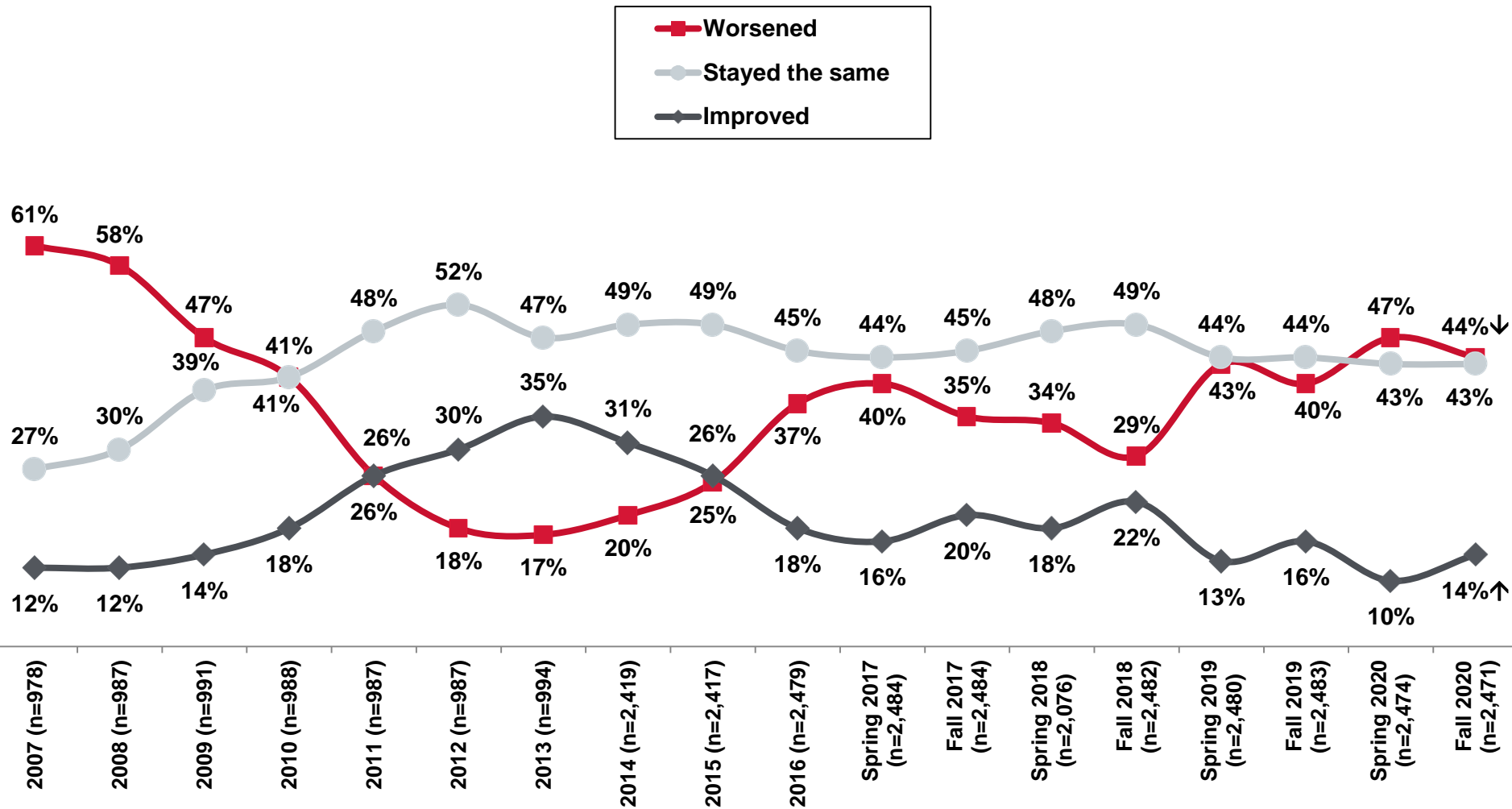


On a scale of “1” to “10” where “1” represents “very poor” and “10” represents “very good,” how would you rate the overall quality of life in the city of Calgary today?

Base: Valid respondents (n=2,494)



Perceived Change in the Quality of Life



And, do you feel that the quality of life in the city of Calgary in the past three years has ...?
 Base: Valid respondents

↑ Statistically higher than Spring 2020
 ↓ Statistically lower than Spring 2020

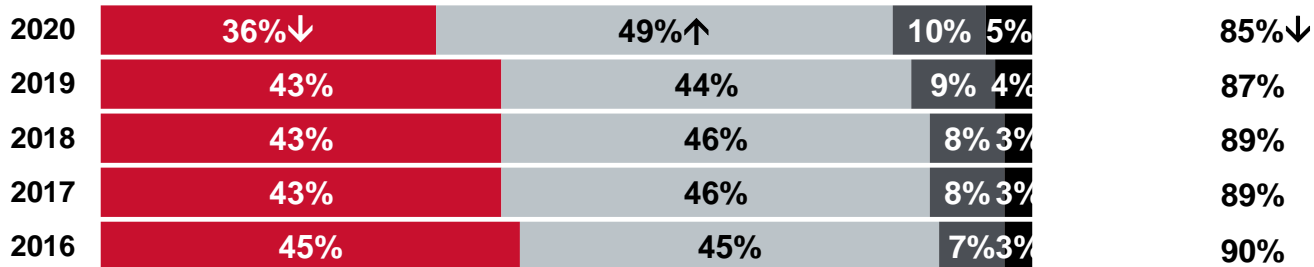


Sustainability: Connectedness

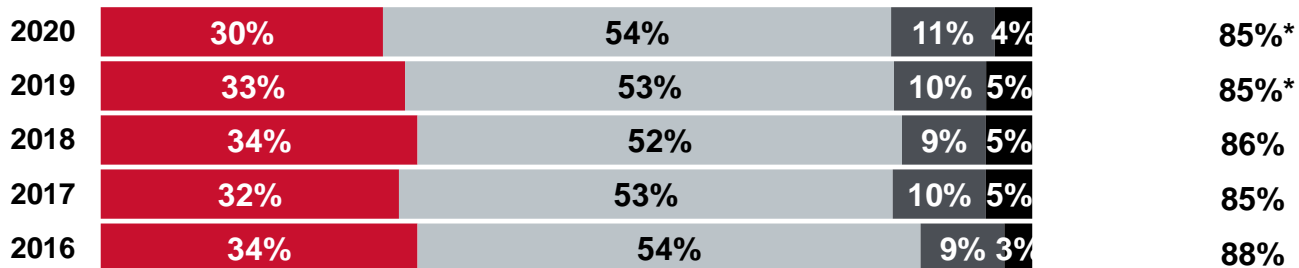
■ Completely Agree (10) ■ Agree (9, 8 or 7) ■ Neutral (6 or 5) ■ Disagree (4, 3, 2 or 1)

% Agree

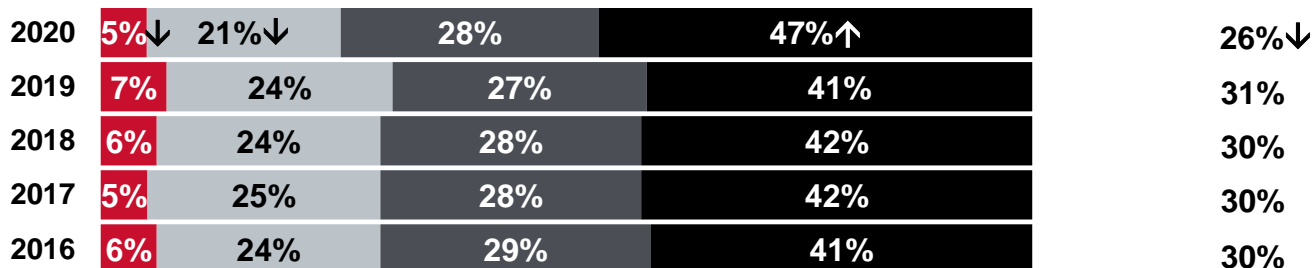
I am proud to be a Calgarian



I am proud to live in my neighbourhood



I am regularly involved in neighbourhood and local community events



All waves conducted in the Fall

Next, I'm going to read you a series of statements that some people have said about life in Calgary. Please indicate whether you agree or disagree with each statement using a scale from 1 to 10, where "1" is "completely disagree" and "10" is "completely agree."

Base: Valid respondents (Bases vary)

*Rounding

↑Statistically higher than Fall 2019
↓Statistically lower than Fall 2019

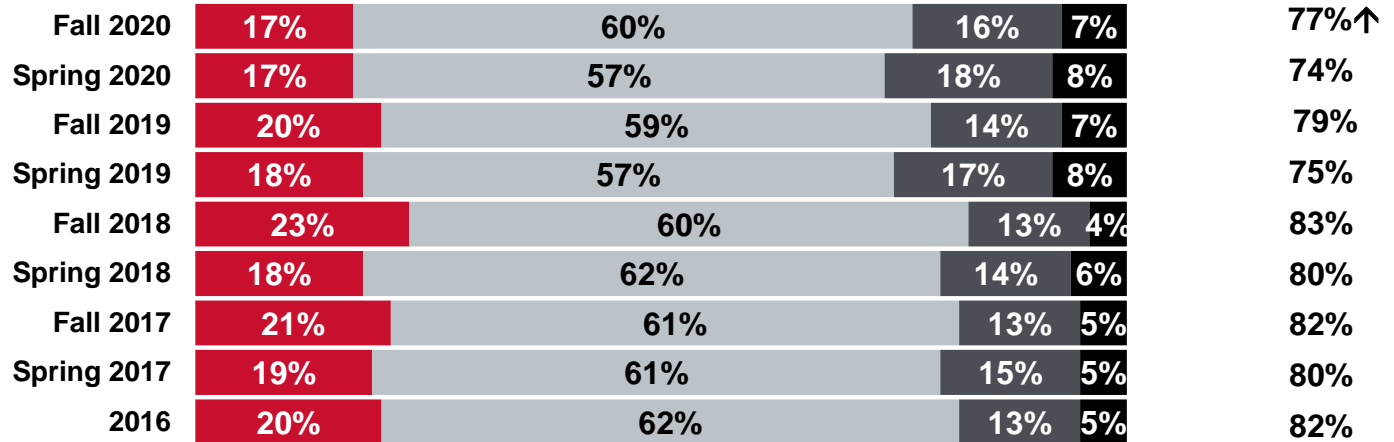


Sustainability: Making a Life and Making a Living

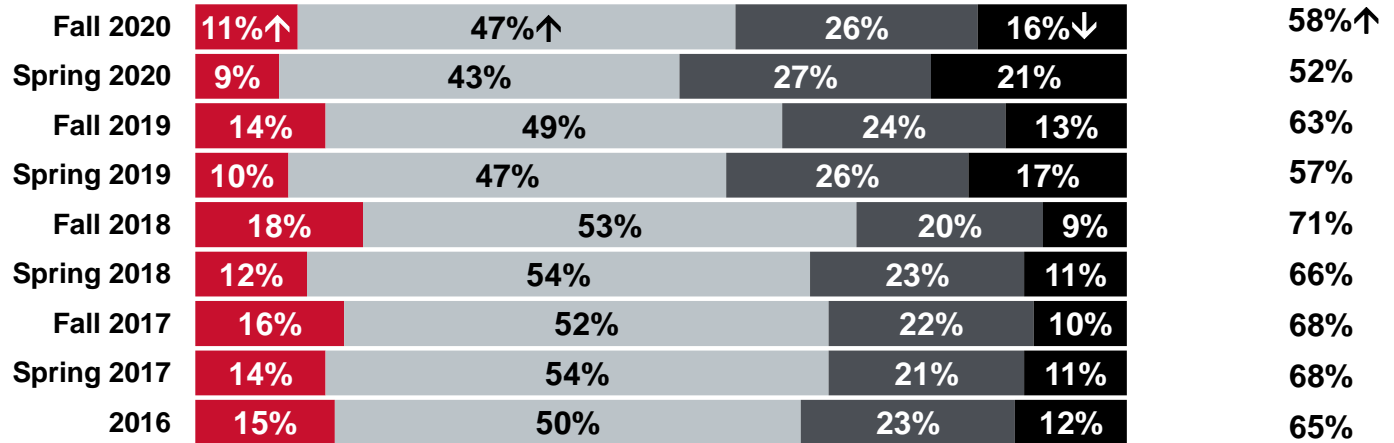
■ Completely Agree (10) ■ Agree (9, 8 or 7) ■ Neutral (6 or 5) ■ Disagree (4, 3, 2 or 1)

% Agree

Calgary is a great place to make a life



Calgary is a great place to make a living



Next, I'm going to read you a series of statements that some people have said about life in Calgary. Please indicate whether you agree or disagree with each statement using a scale from 1 to 10, where "1" is "completely disagree" and "10" is "completely agree."

Base: Valid respondents (Bases vary)

↑Statistically higher than Spring 2020
↓Statistically lower than Spring 2020

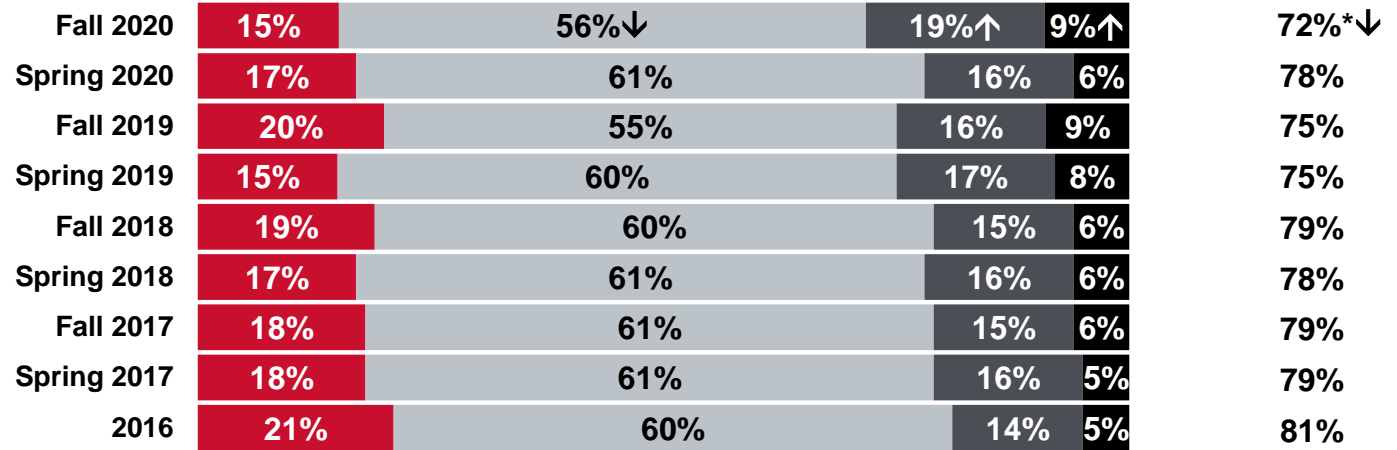


Sustainability: Inclusivity and Direction for the Future

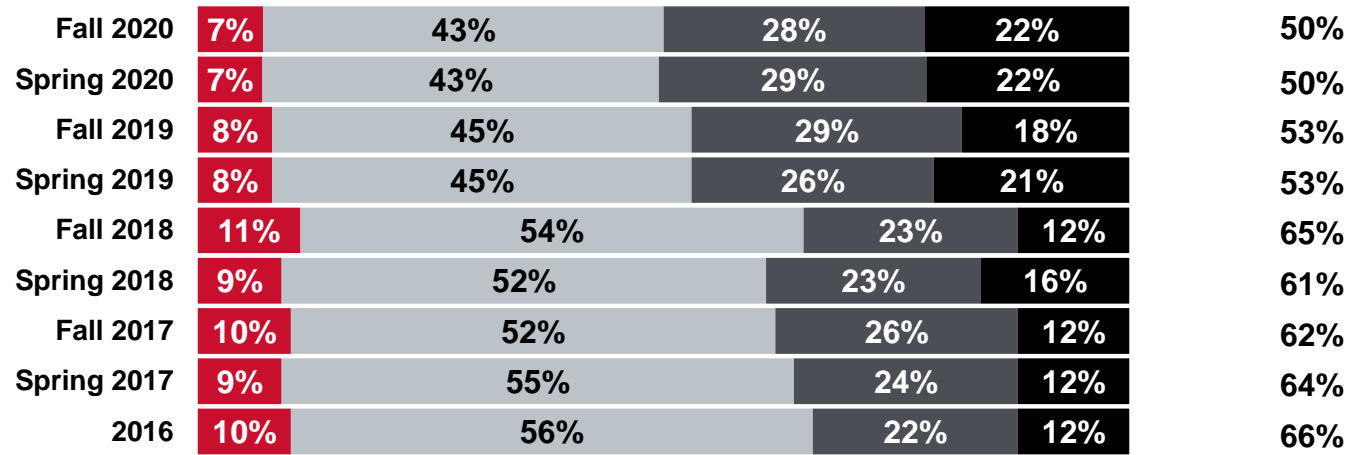
■ Completely Agree (10) ■ Agree (9, 8 or 7) ■ Neutral (6 or 5) ■ Disagree (4, 3, 2 or 1)

% Agree

The City of Calgary municipal government fosters a city that is inclusive and accepting of all



Calgary is moving in the right direction to ensure a high quality of life for future generations



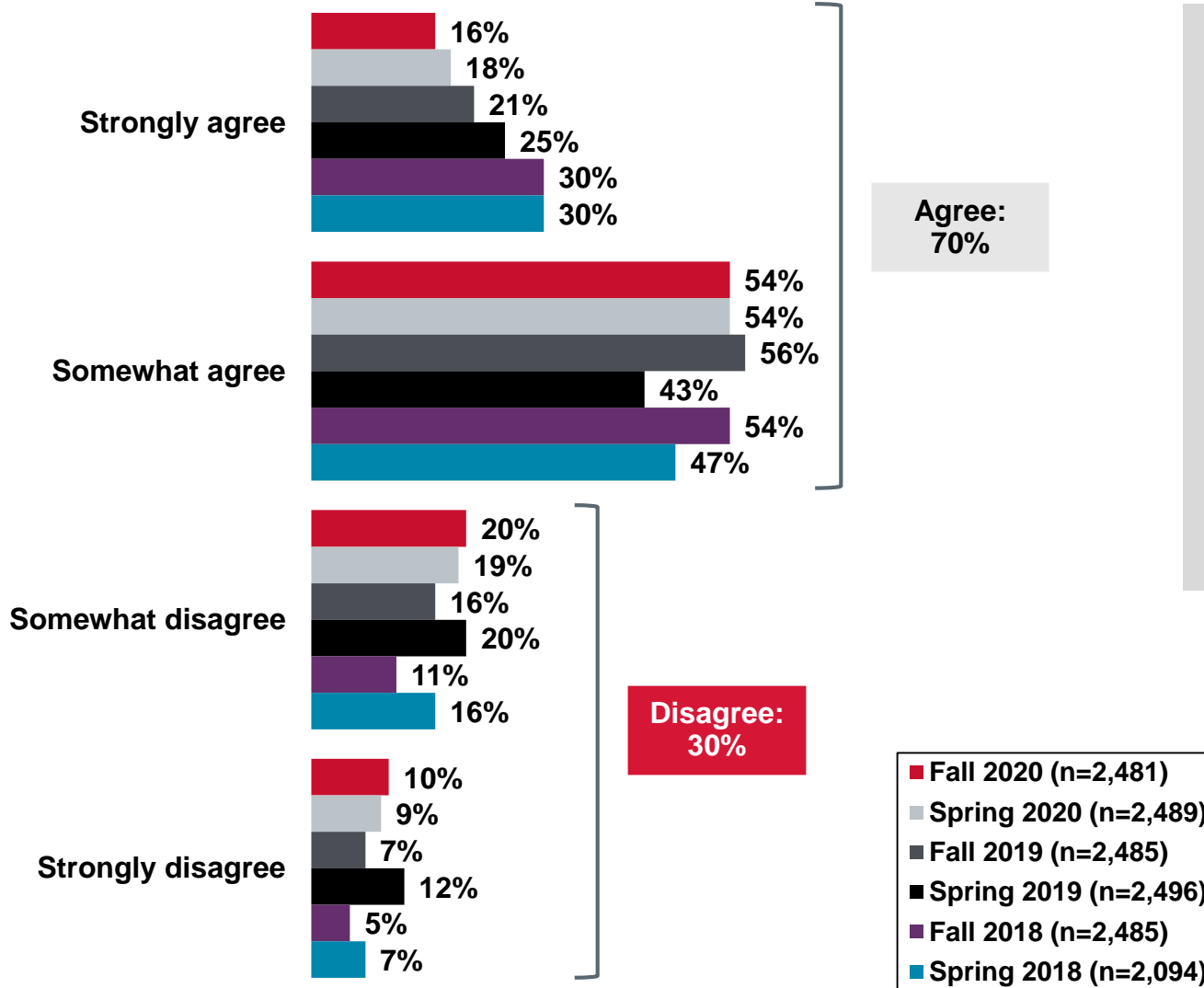
*Rounding

↑Statistically higher than Spring 2020
↓Statistically lower than Spring 2020

Next, I'm going to read you a series of statements that some people have said about life in Calgary. Please indicate whether you agree or disagree with each statement using a scale from 1 to 10, where "1" is "completely disagree" and "10" is "completely agree."
Base: Valid respondents (Bases vary)



Calgary: On the Right Track to Being a Better City?



Agree:

- Fall 2020: 70%
- Spring 2020: 72%*
- Fall 2019: 76%*
- Spring 2019: 68%
- Fall 2018: 84%
- Spring 2018: 77%
- Fall 2017: 84%
- Spring 2017: 85%
- 2016: 86%
- 2015: 88%
- 2014: 89%
- 2013: 90%
- 2012: 89%
- 2011: 86%

- Fall 2020 (n=2,481)
- Spring 2020 (n=2,489)
- Fall 2019 (n=2,485)
- Spring 2019 (n=2,496)
- Fall 2018 (n=2,485)
- Spring 2018 (n=2,094)

*Rounding

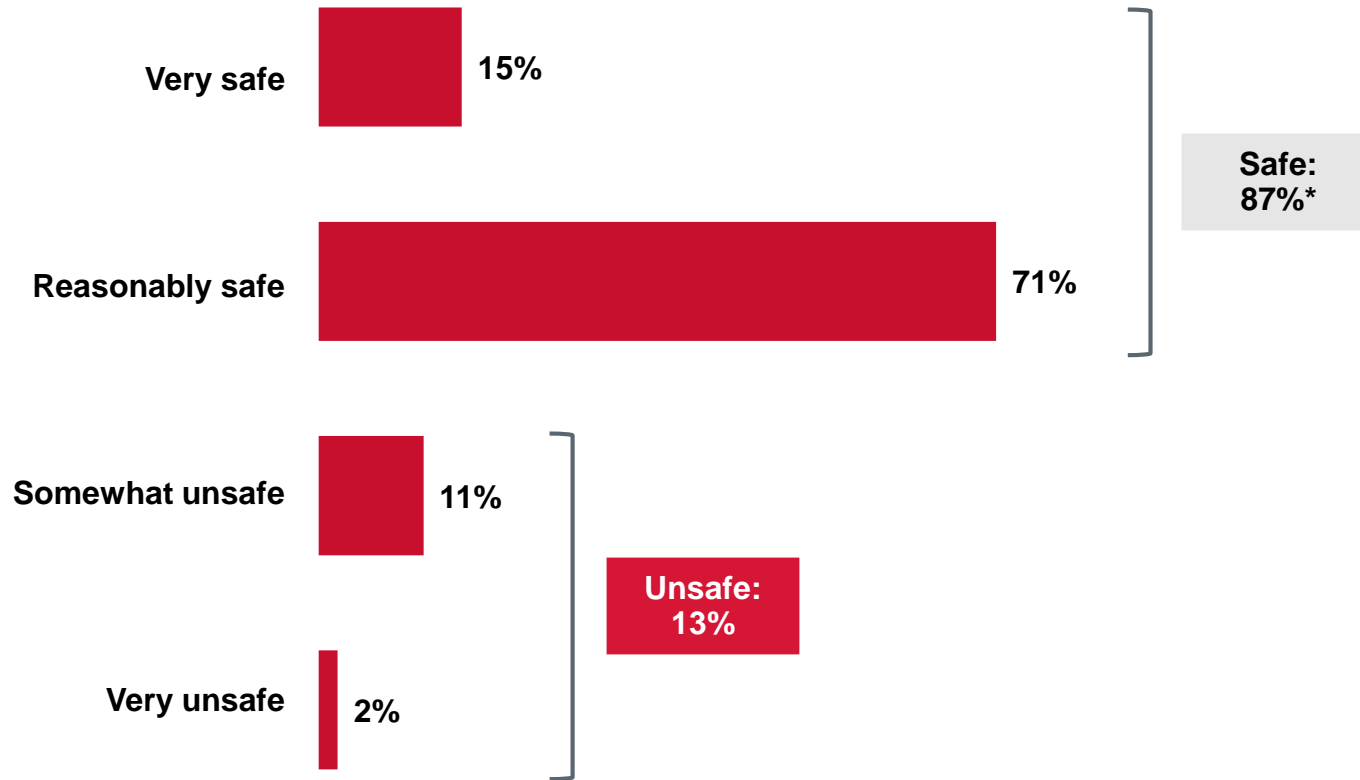
There are a wide array of challenges facing The City of Calgary today, but also many success stories. Please indicate whether you agree or disagree with the following statement about Calgary's future: Calgary is on the right track to be a better city 10 years from now.

Base: Valid respondents



Perceived Safety of City of Calgary Overall

New question in
Fall 2020

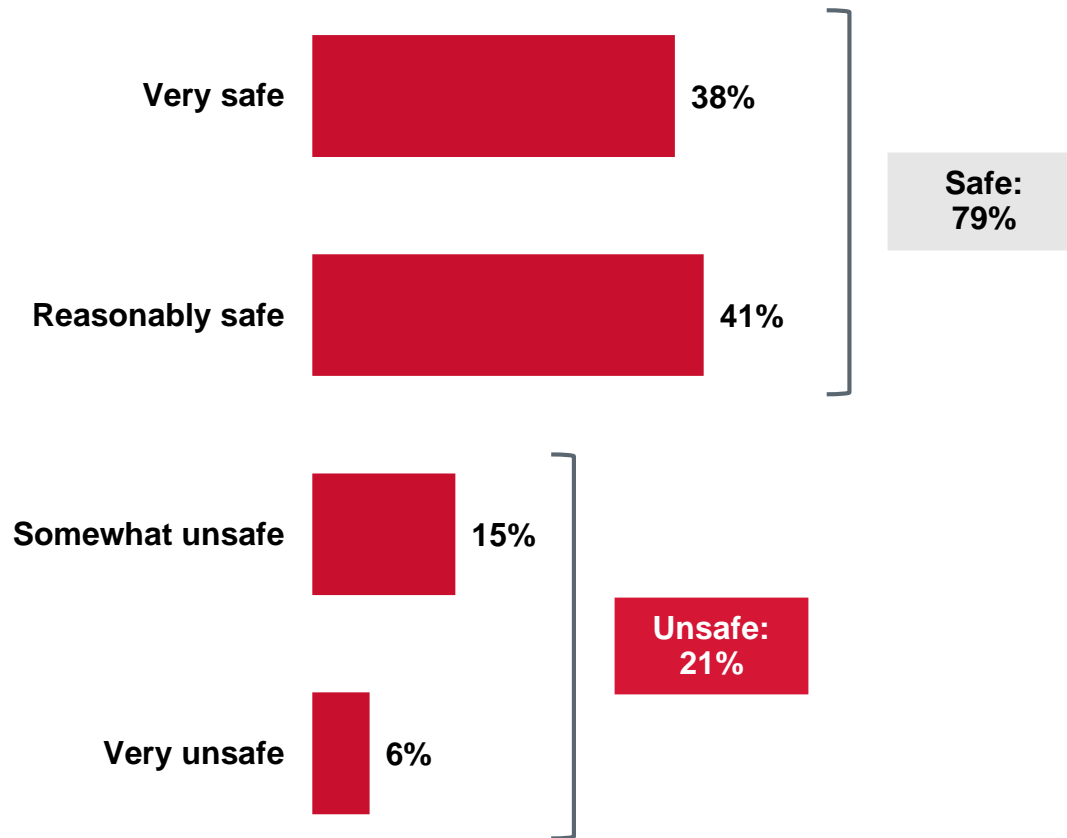


How safe or unsafe do you think Calgary is overall?
Base: Valid respondents (n=2,493)

*Rounding



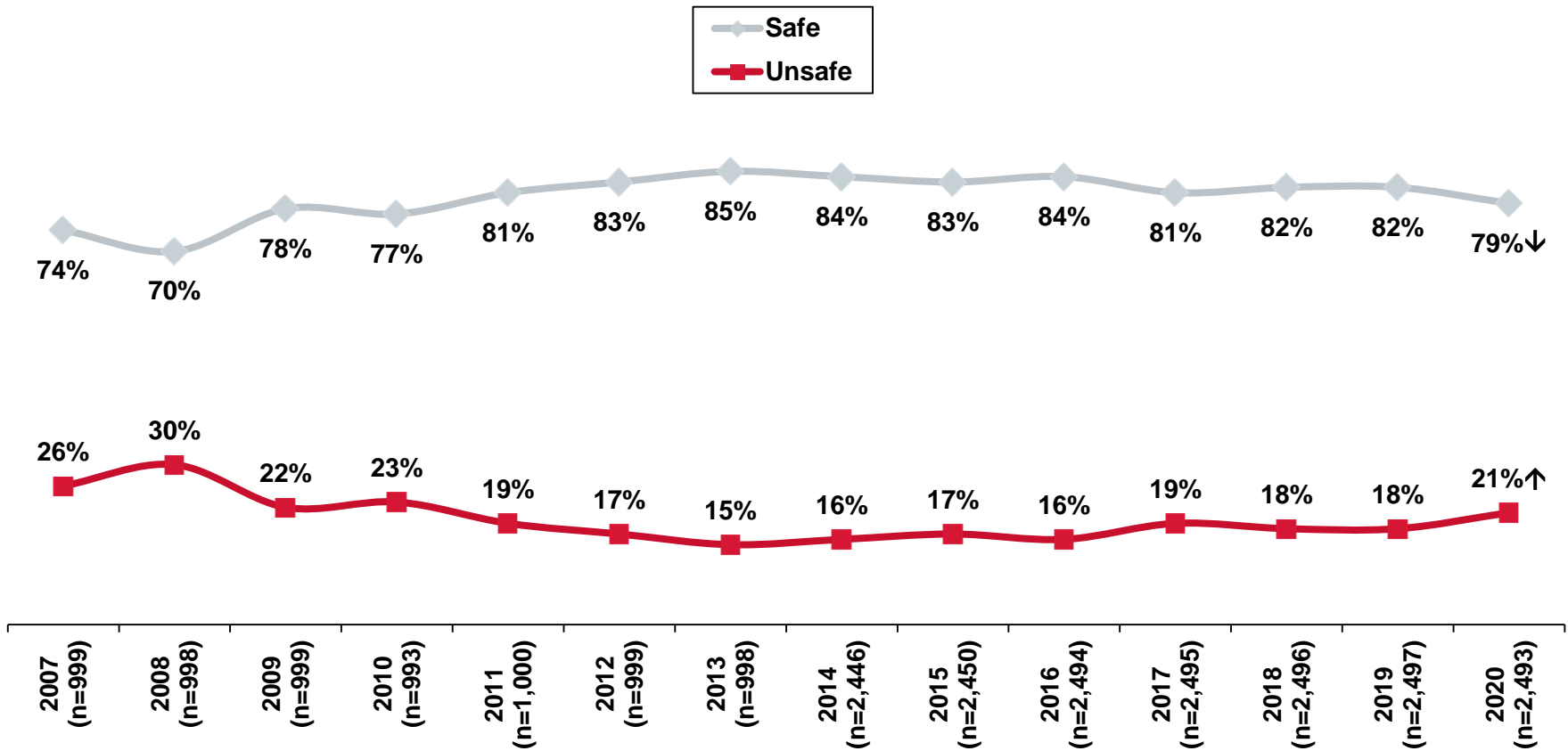
Perceived Safety in Own Neighbourhood



How safe do you feel or would you feel walking alone in your neighbourhood after dark?
 Base: Valid respondents (n=2,493)



Tracking Perceived Safety in Own Neighbourhood



All waves conducted in the Fall

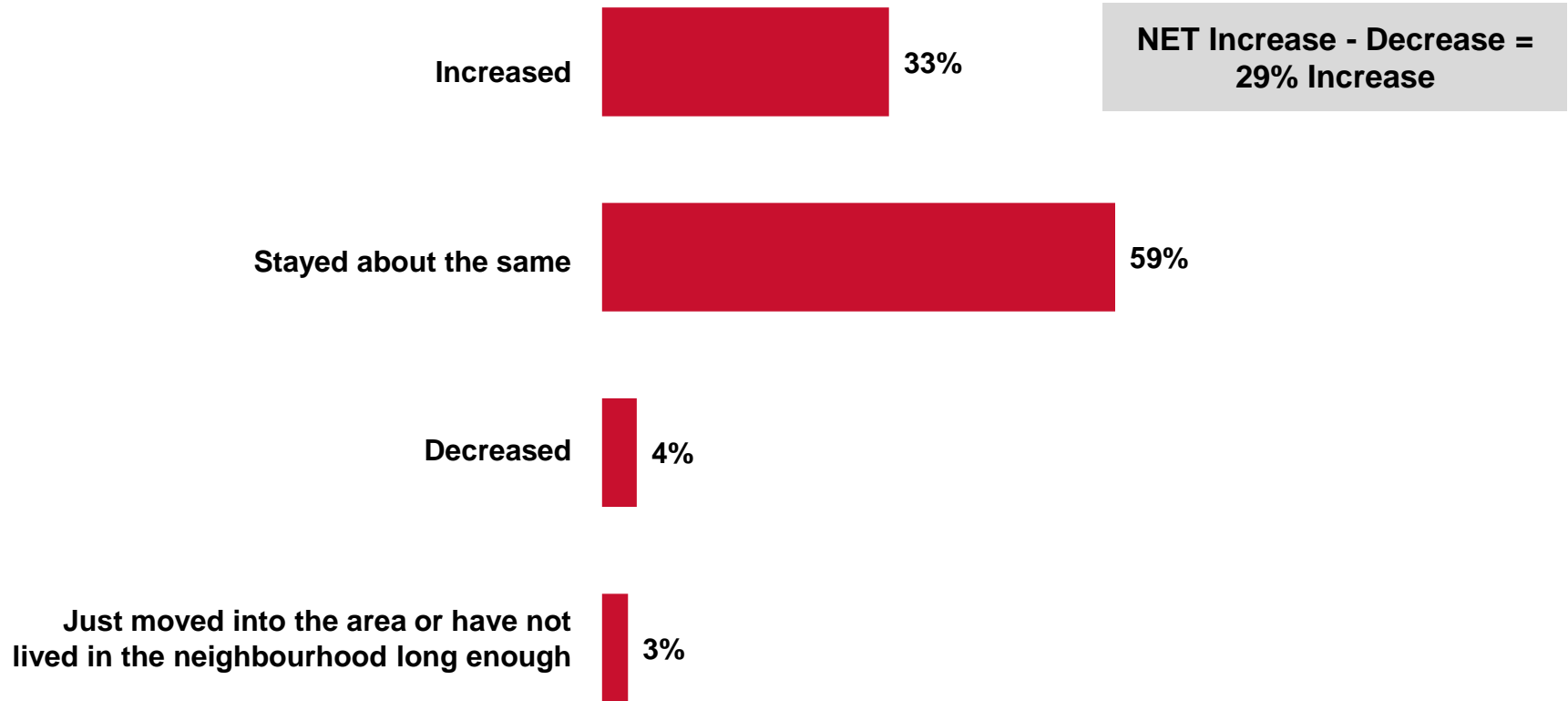
↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019

How safe do you feel or would you feel walking alone in your neighbourhood after dark?
 Base: Valid respondents



Perceived Change in Neighbourhood Crime

New question in
Fall 2020



During the last 3 years, do you think that crime in your neighbourhood has increased, decreased or remained about the same?
Base: Valid respondents (n=2,480)



Issue Agenda





Issue Agenda

Multiple Responses

Note: A “NET” is a combination of 2 or more mentions that cover a specific theme



Change
Fall 2019 – Fall 2020

Issue	First Mention	Other Mentions	Total	Change
Infrastructure, Traffic & Roads [NET]	18%	10%	28%	-7%↓
Road conditions	5%	4%	9%	+2%↑
Traffic congestion	3%	4%	7%	-3%↓
(Lack of) snow removal	4%	0%	4%	-1%↓
Crime, Safety & Policing [NET]	10%	5%	15%	-
Breaking and entering/gangs/drugs	4%	3%	7%	-2%
Public safety	4%	2%	6%	-
Taxes [NET]	9%	4%	13%	+2%↑
High taxes	6%	3%	9%	+1%
Property taxes	3%	1%	4%	-
Transit [NET]	8%	4%	12%	-5%↓
Public Transportation (incl. buses/ C-train/ poor service)	4%	2%	6%	-2%↓
Transit system improvements	3%	1%	4%	-2%
COVID-19 Pandemic	8%	3%	11%	+11%↑
Economy [NET]	6%	3%	9%	+1%
Budget & Spending [NET]	6%	2%	8%	-3%↓
Education	6%	2%	8%	-
Recreation [NET]	3%	4%	7%	-
Environment and Waste Management [NET]	3%	4%	7%	-
Homelessness, Poverty & Affordable Housing [NET]	4%	2%	6%	+2%↑
Growth and Planning [NET]	3%	1%	4%	-1%
None	0%	0%	15%	+4%↑

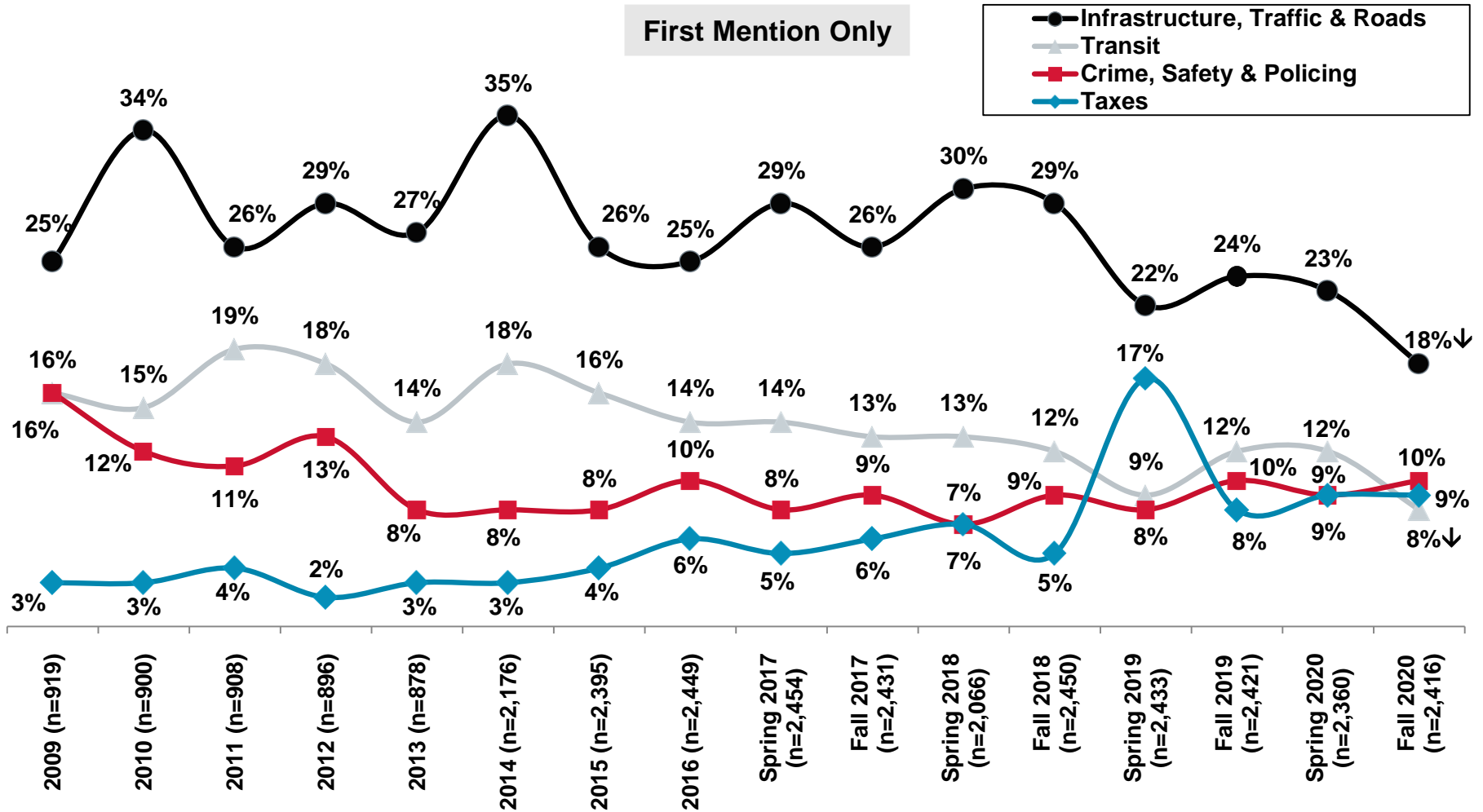
Mentions of <4% are not shown
Data labels of <3% are not shown

↑ Statistically higher than Fall 2019
↓ Statistically lower than Fall 2019

In your view, as a resident of the city of Calgary, what is the most important issue facing your community, that is, the one issue you feel should receive the greatest attention from your local leaders? Are there any other important local issues?
Base: Valid respondents (n=2,422)



Tracking Most Important Issue Facing Calgary



In your view, as a resident of the city of Calgary, what is the most important issue facing your community, that is, the one issue you feel should receive the greatest attention from your local leaders? Base: Valid respondents

↑ Statistically higher than Spring 2020
 ↓ Statistically lower than Spring 2020



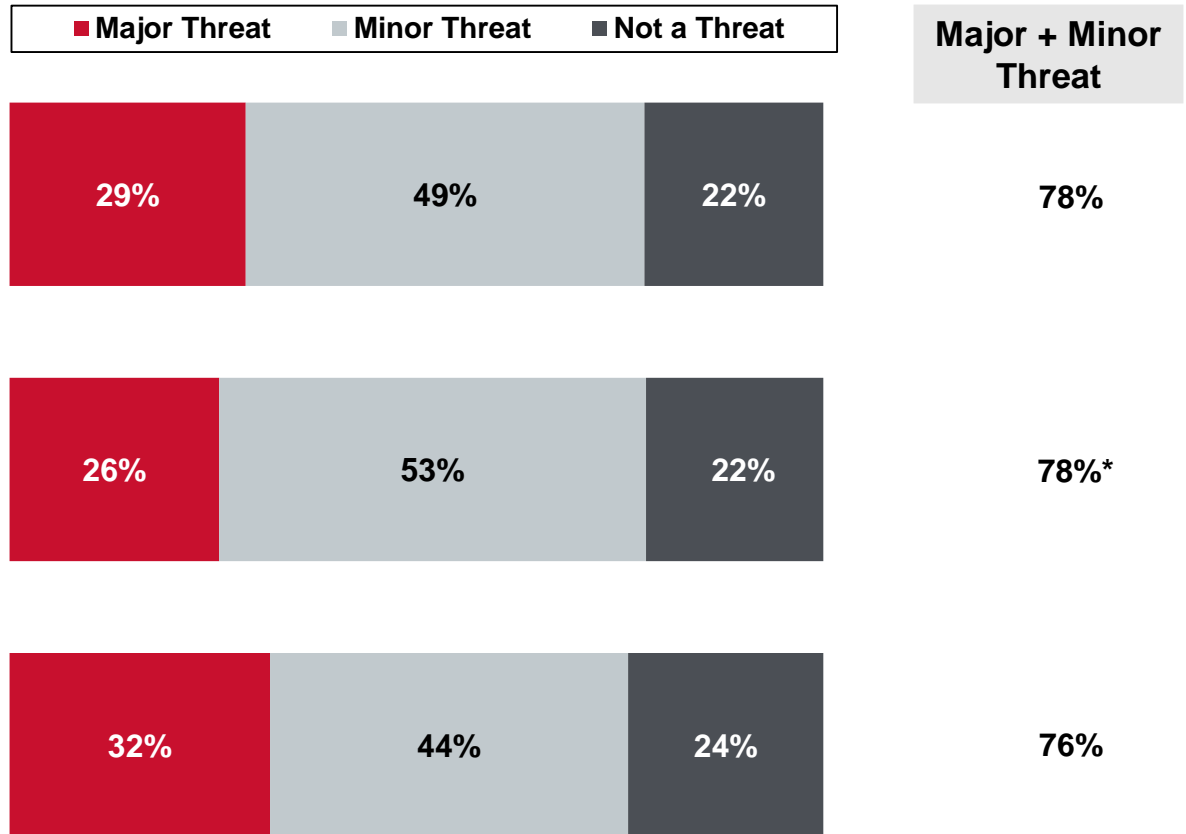
COVID-19 Pandemic





Threats Related to the COVID-19 Pandemic

New question in
Fall 2020



In your opinion, how much of a threat is the COVID-19 pandemic for...?
Base: Valid respondents

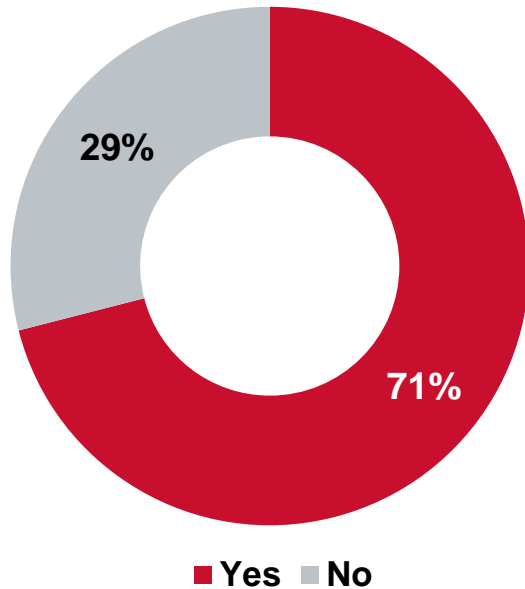
*Rounding



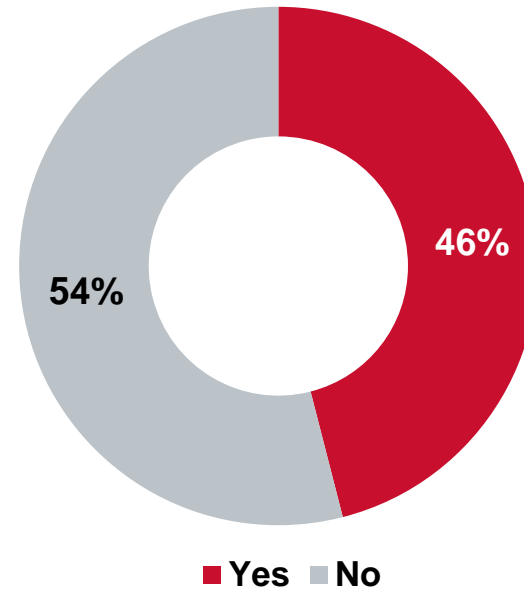
Employment During the COVID-19 Pandemic

New questions in
Fall 2020

Employed at the beginning of the COVID-19 pandemic



Experienced a job/income loss as a result of the COVID-19 pandemic



*At the beginning of the COVID-19 pandemic, were you employed?
This includes being self-employed.*
Base: Valid respondents (n=2,494)

Have you experienced a job loss or income loss due to the COVID-19 pandemic?
Base: Valid respondents employed pre-COVID-19 (n=1,598)

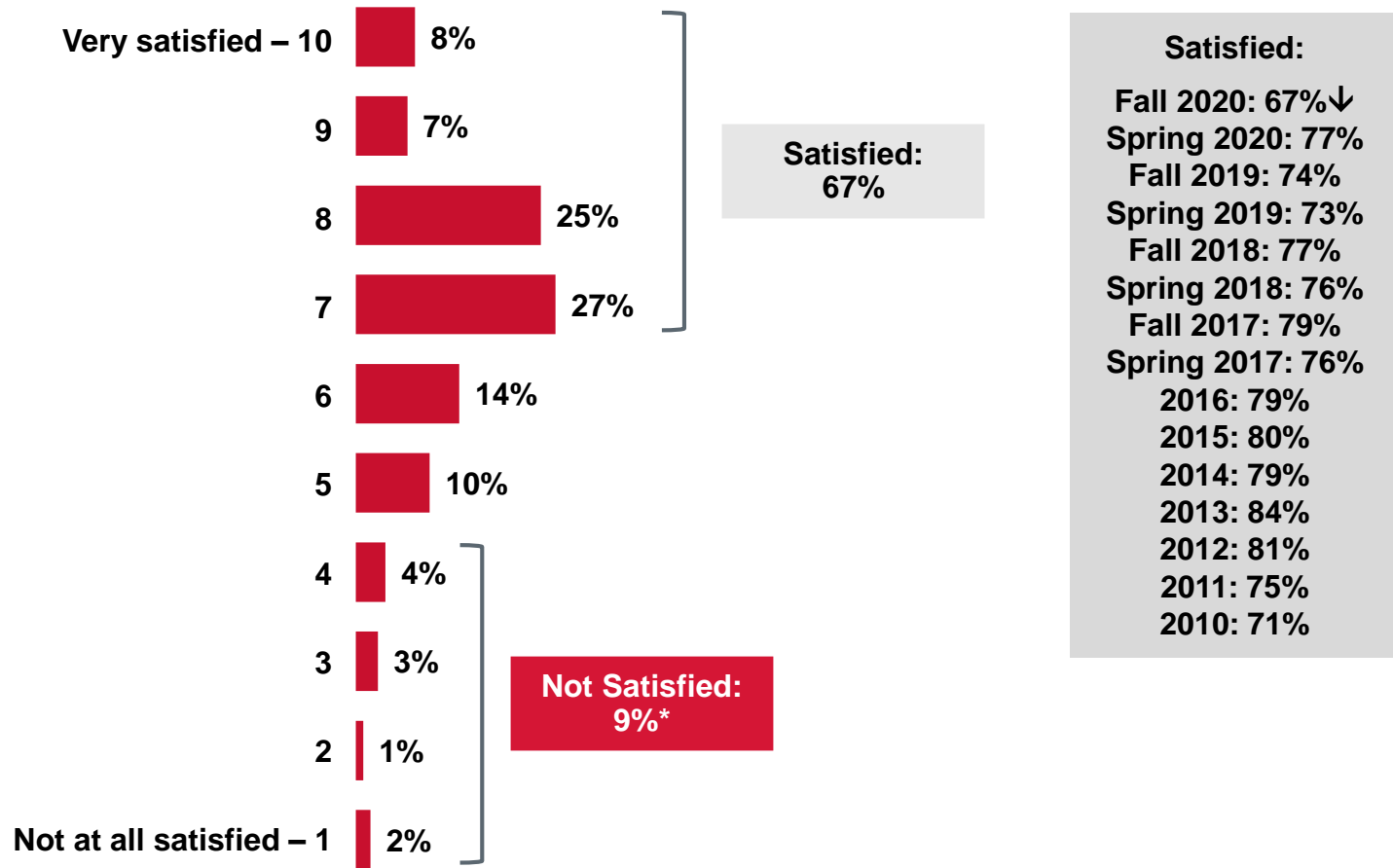


City Programs and Services





Satisfaction with the Overall Level and Quality of City Services and Programs



On a scale from “1” to “10” where “1” represents “not at all satisfied” and “10” represents “very satisfied,” how satisfied are you with the overall level and quality of services and programs provided by The City of Calgary?

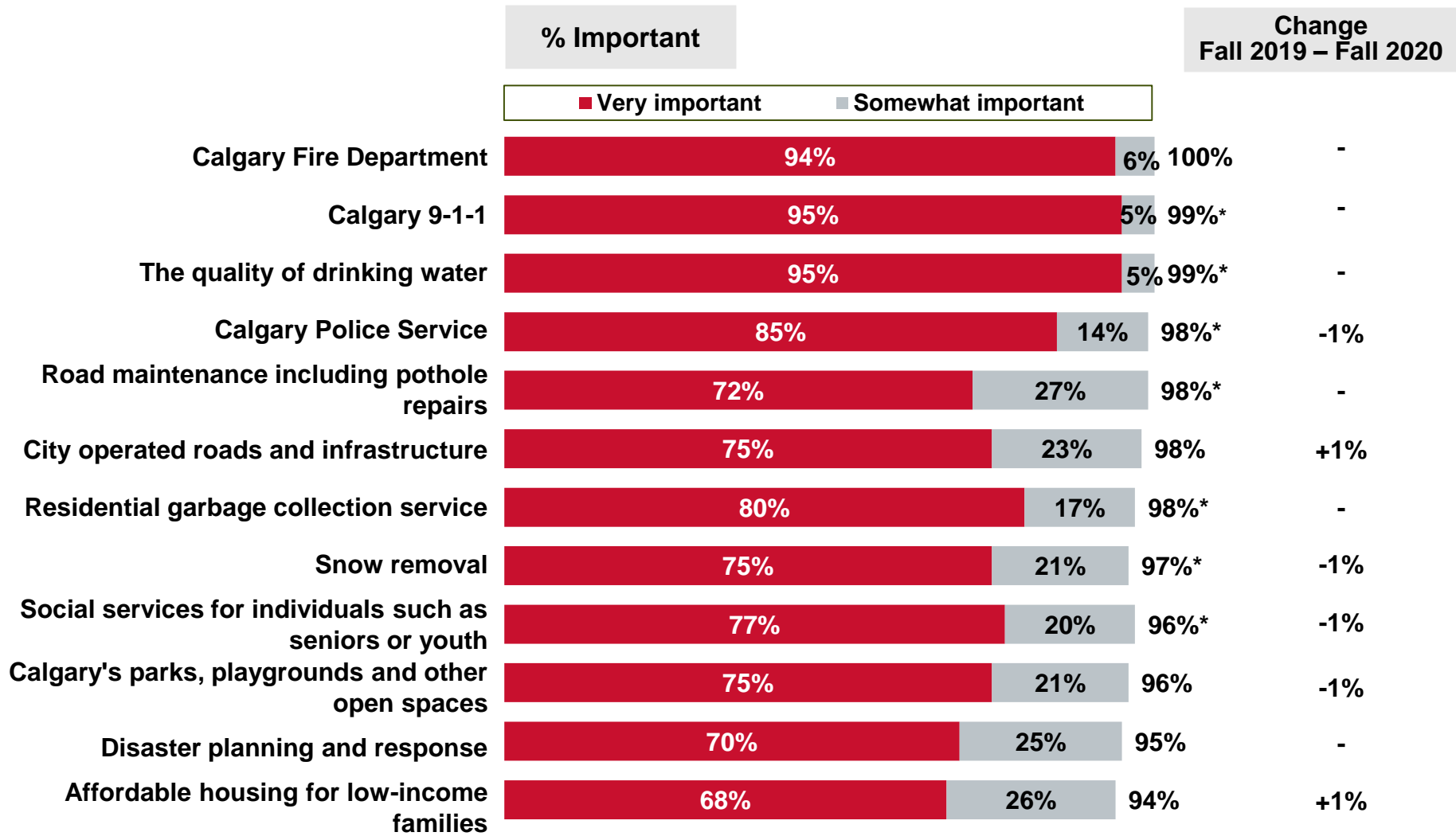
Base: Valid respondents (n=2,487)

*Rounding

↑Statistically higher than Spring 2020
 ↓Statistically lower than Spring 2020



Importance of City Programs and Services

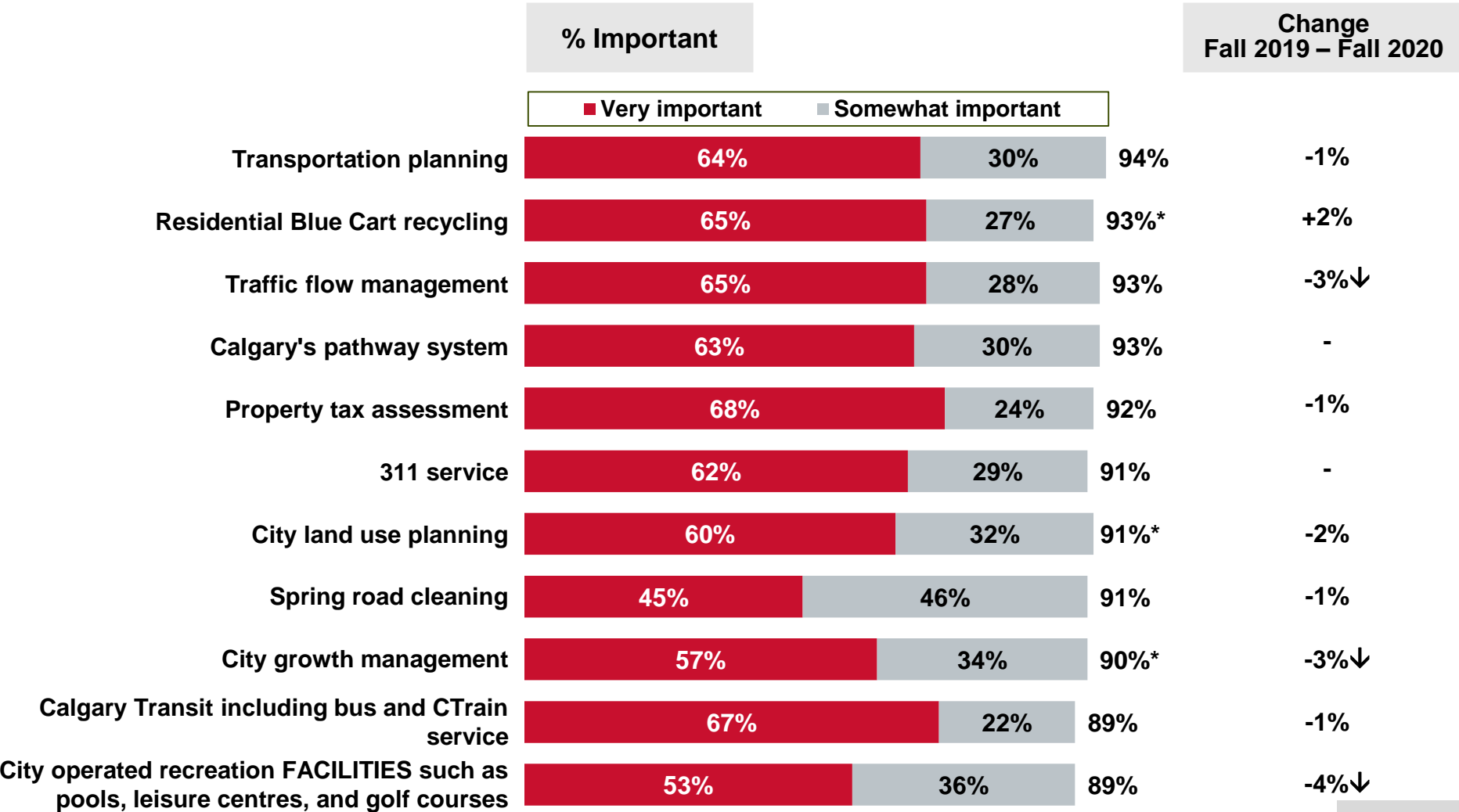


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
 Base: Valid respondents (Bases vary)

*Rounding



Importance of City Programs and Services (continued)



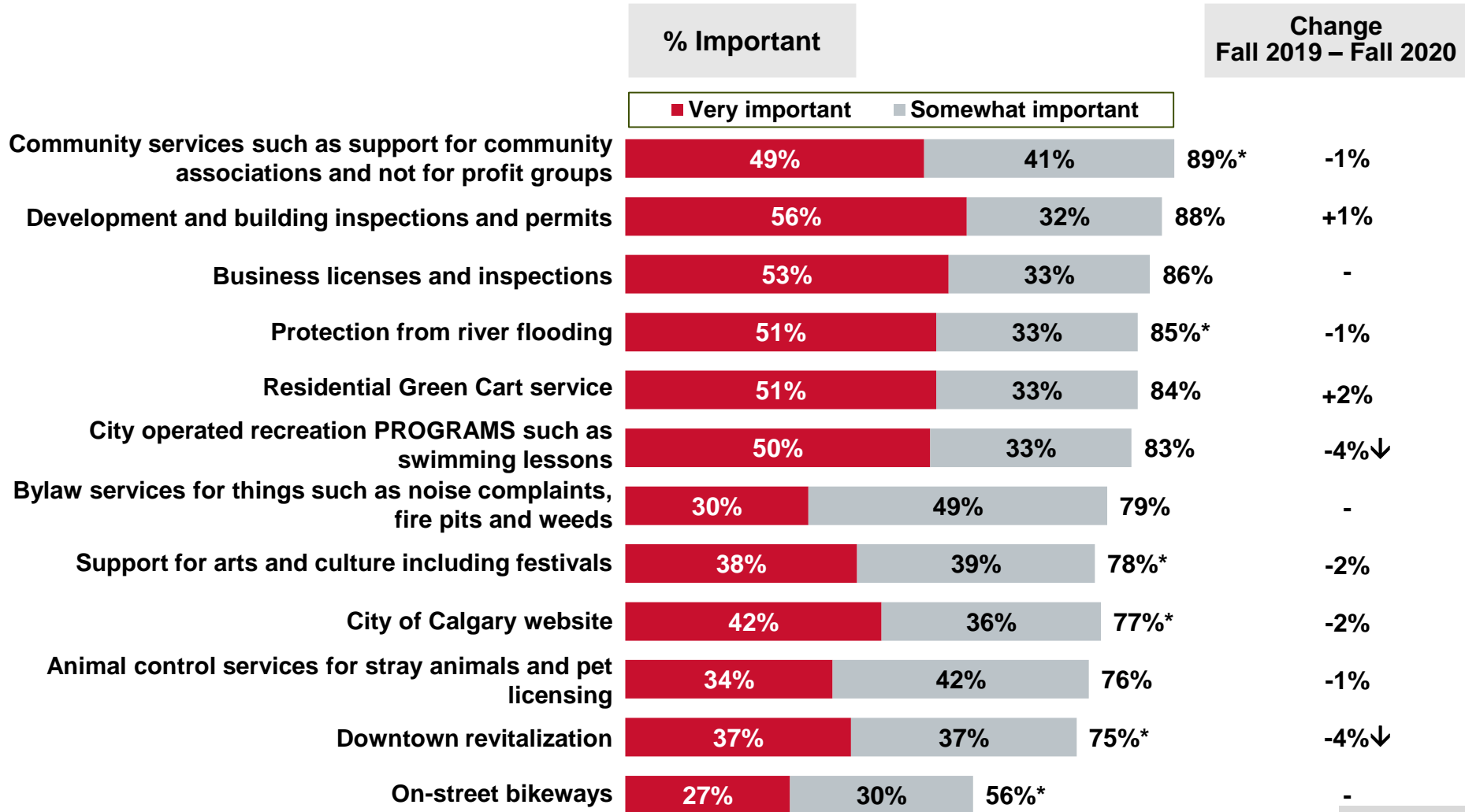
*Rounding

I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
↓ Statistically lower than Fall 2019



Importance of City Programs and Services (continued)



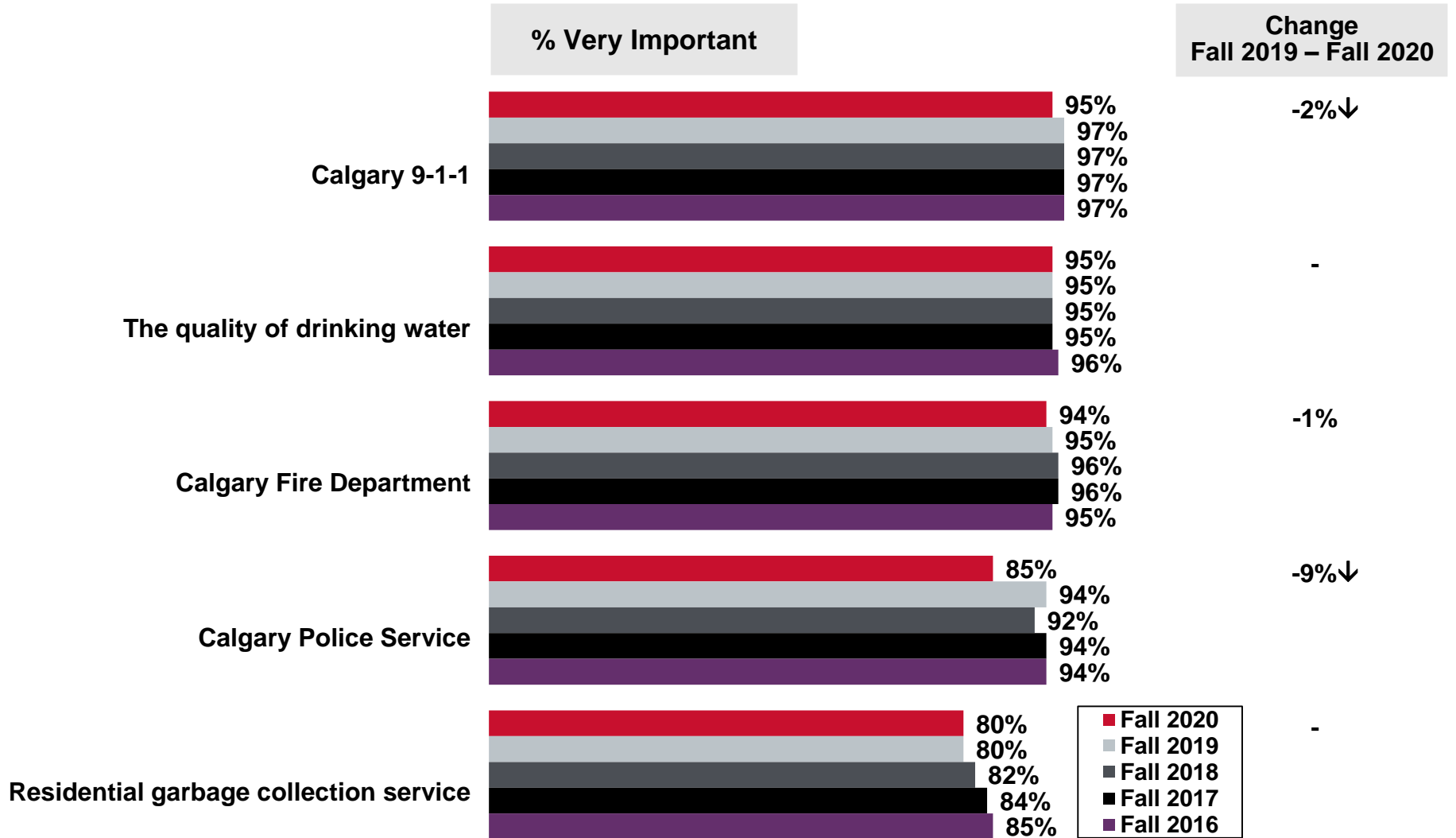
*Rounding

I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Importance of City Programs and Services

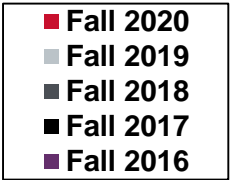
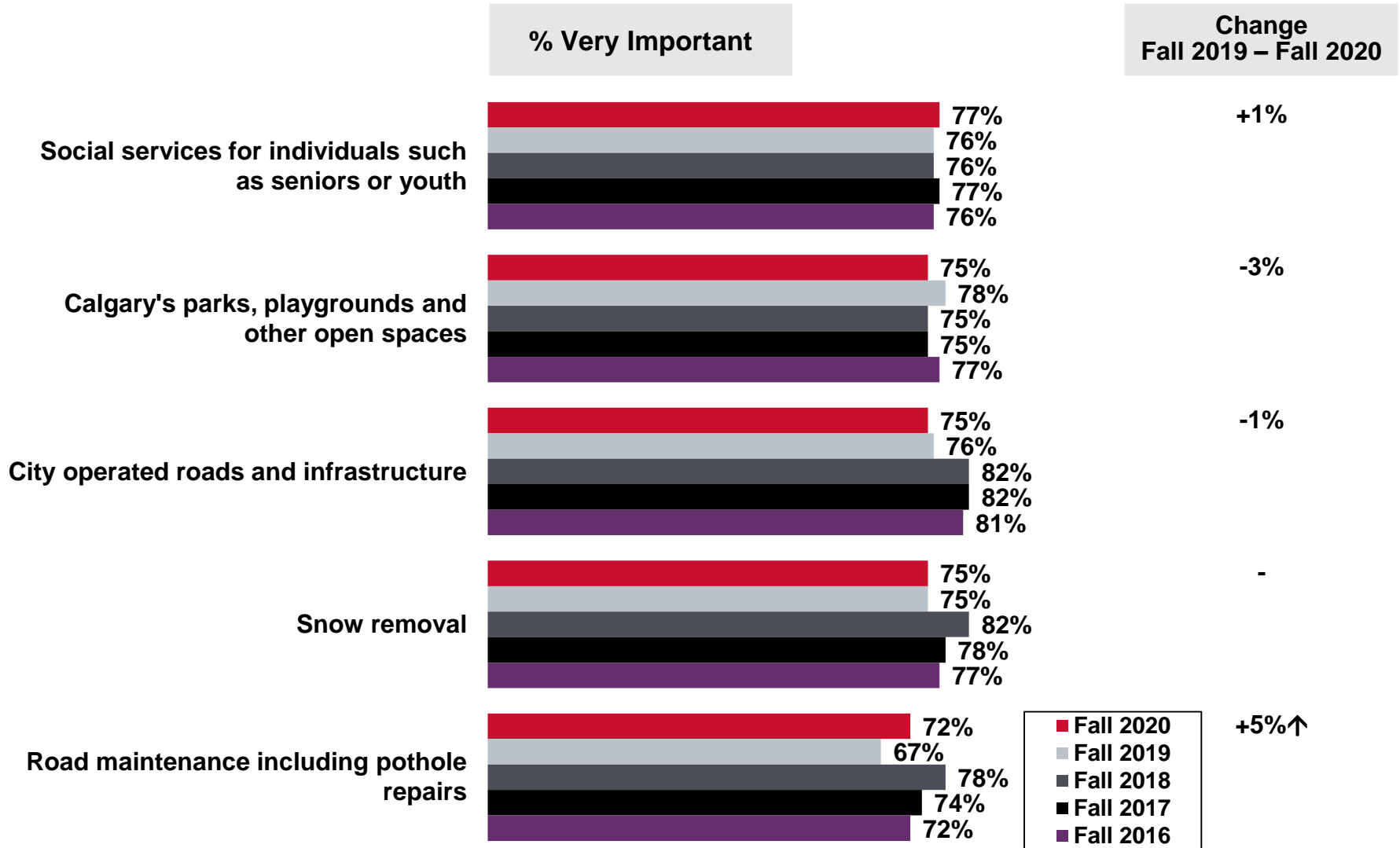


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Importance of City Programs and Services (continued)

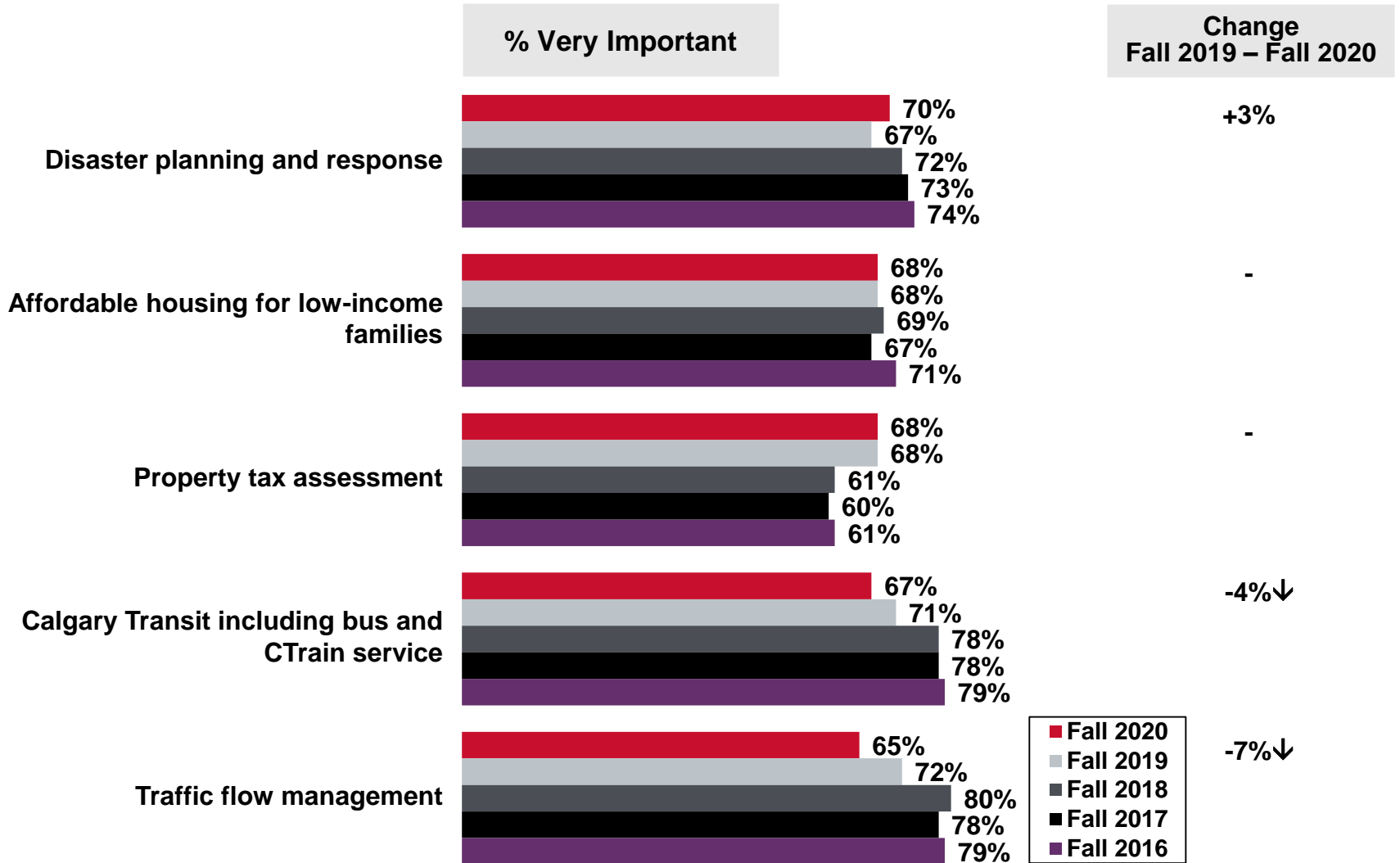


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Importance of City Programs and Services (continued)

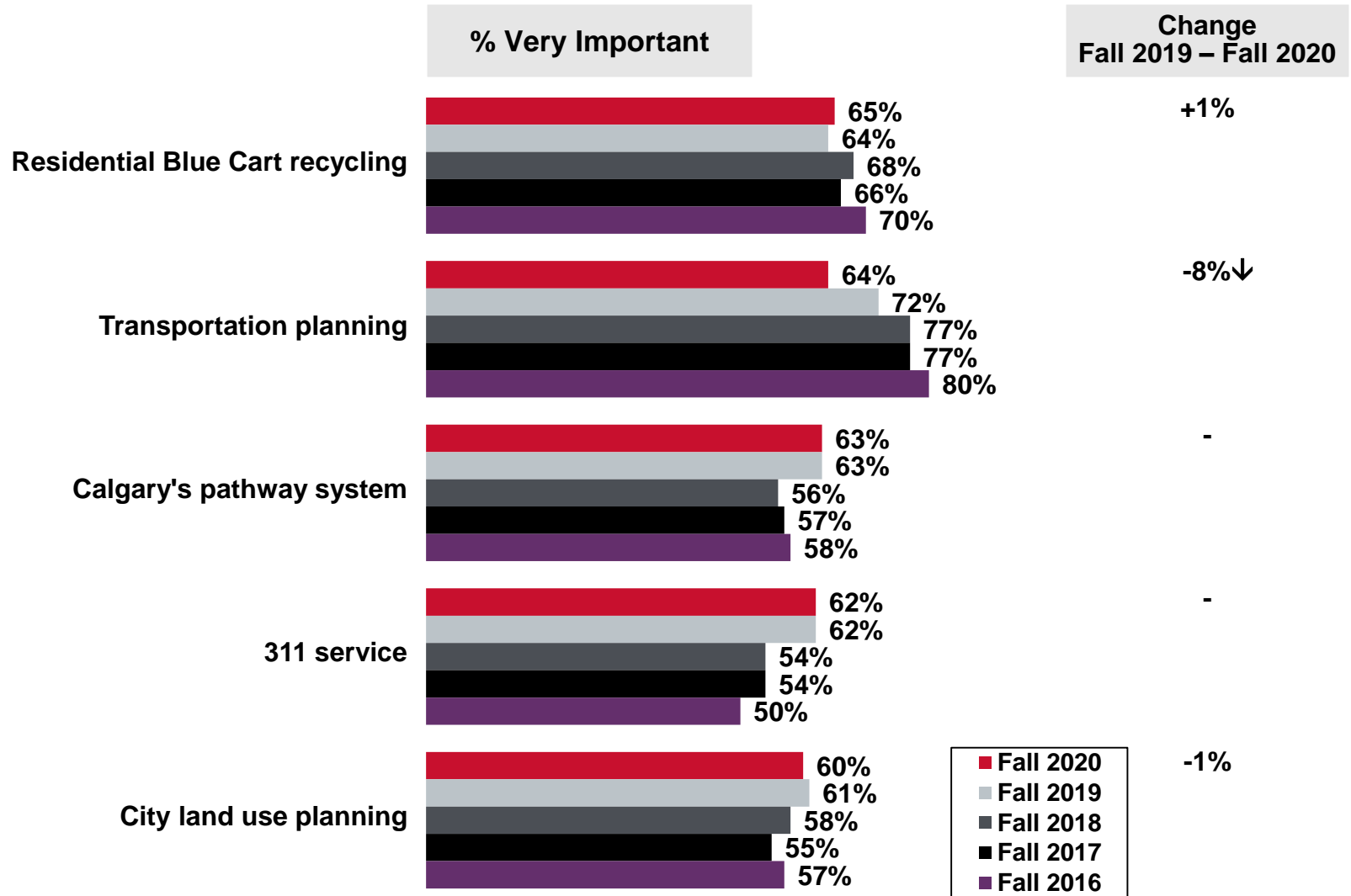


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Importance of City Programs and Services (continued)

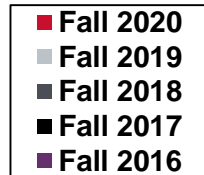
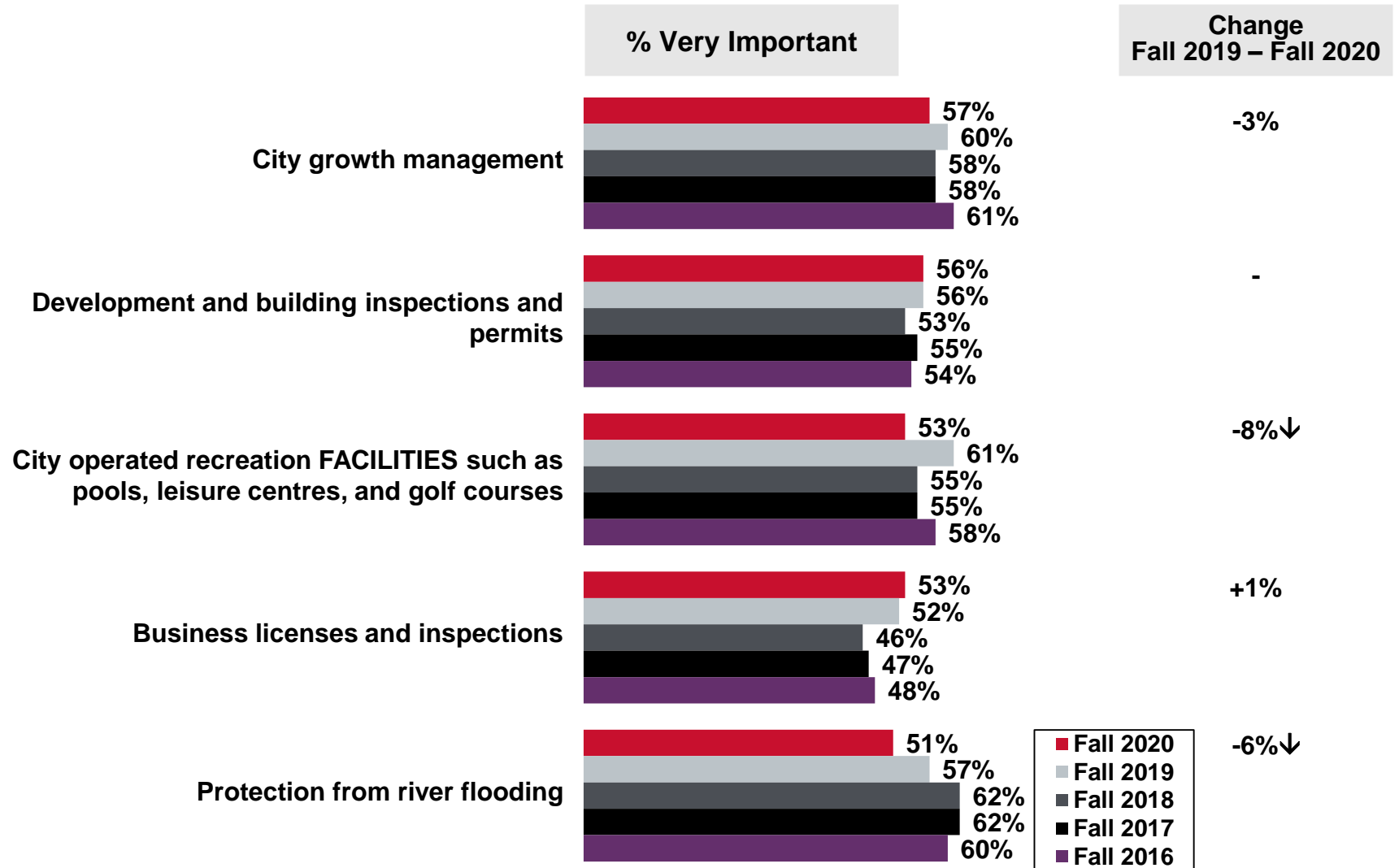


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Importance of City Programs and Services (continued)



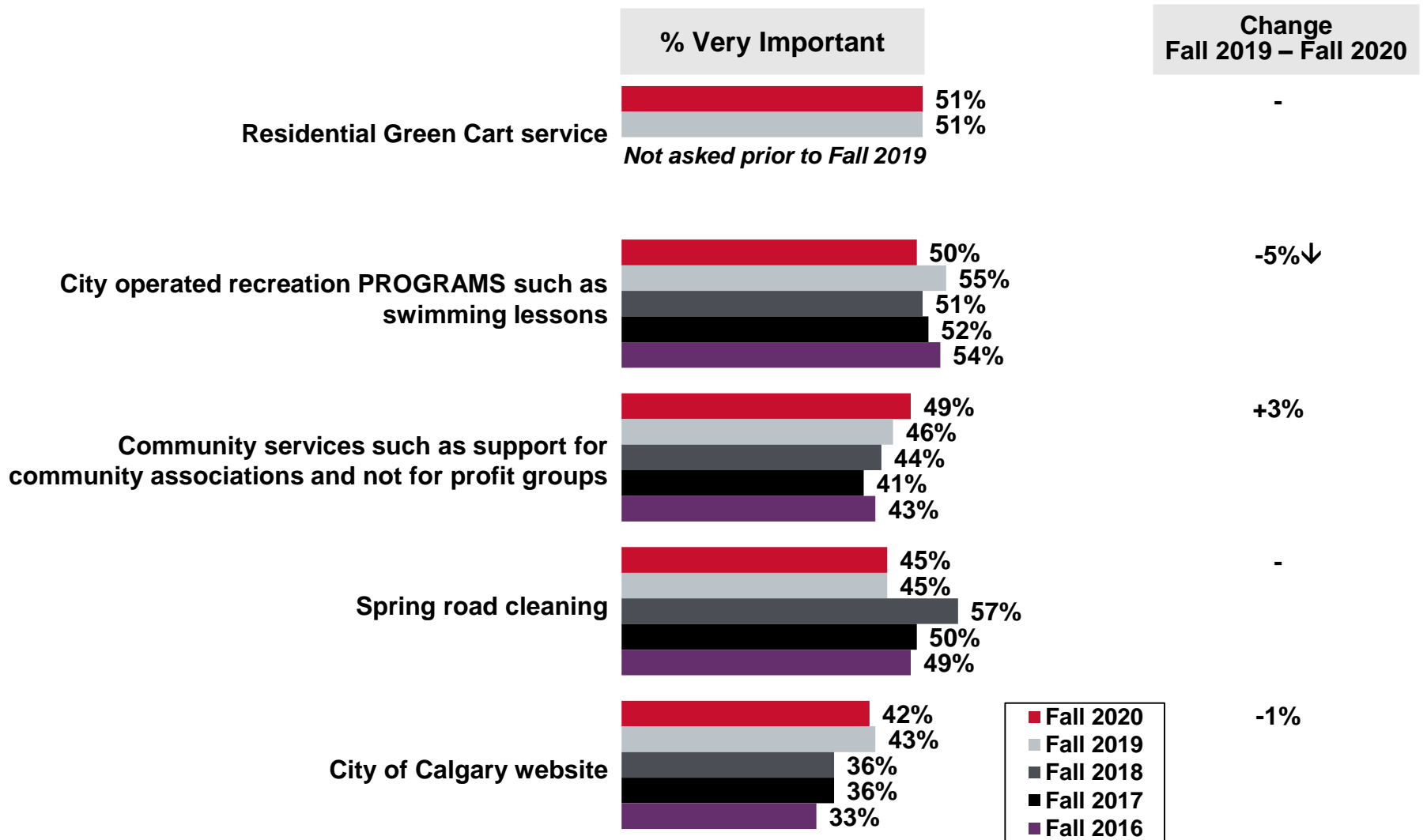
↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019

I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.

Base: Valid respondents (Bases vary)



Tracking Importance of City Programs and Services (continued)

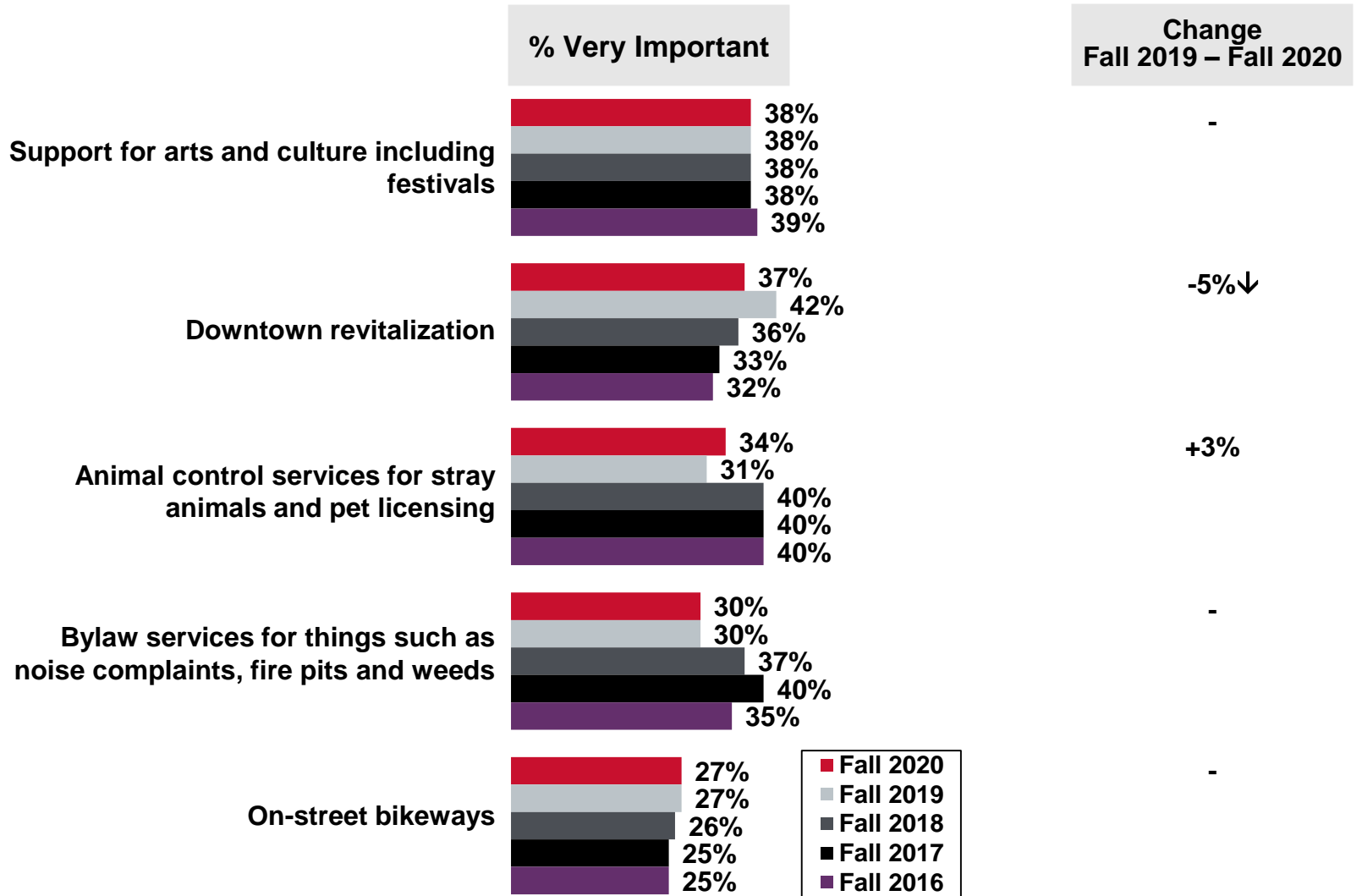


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Importance of City Programs and Services (continued)

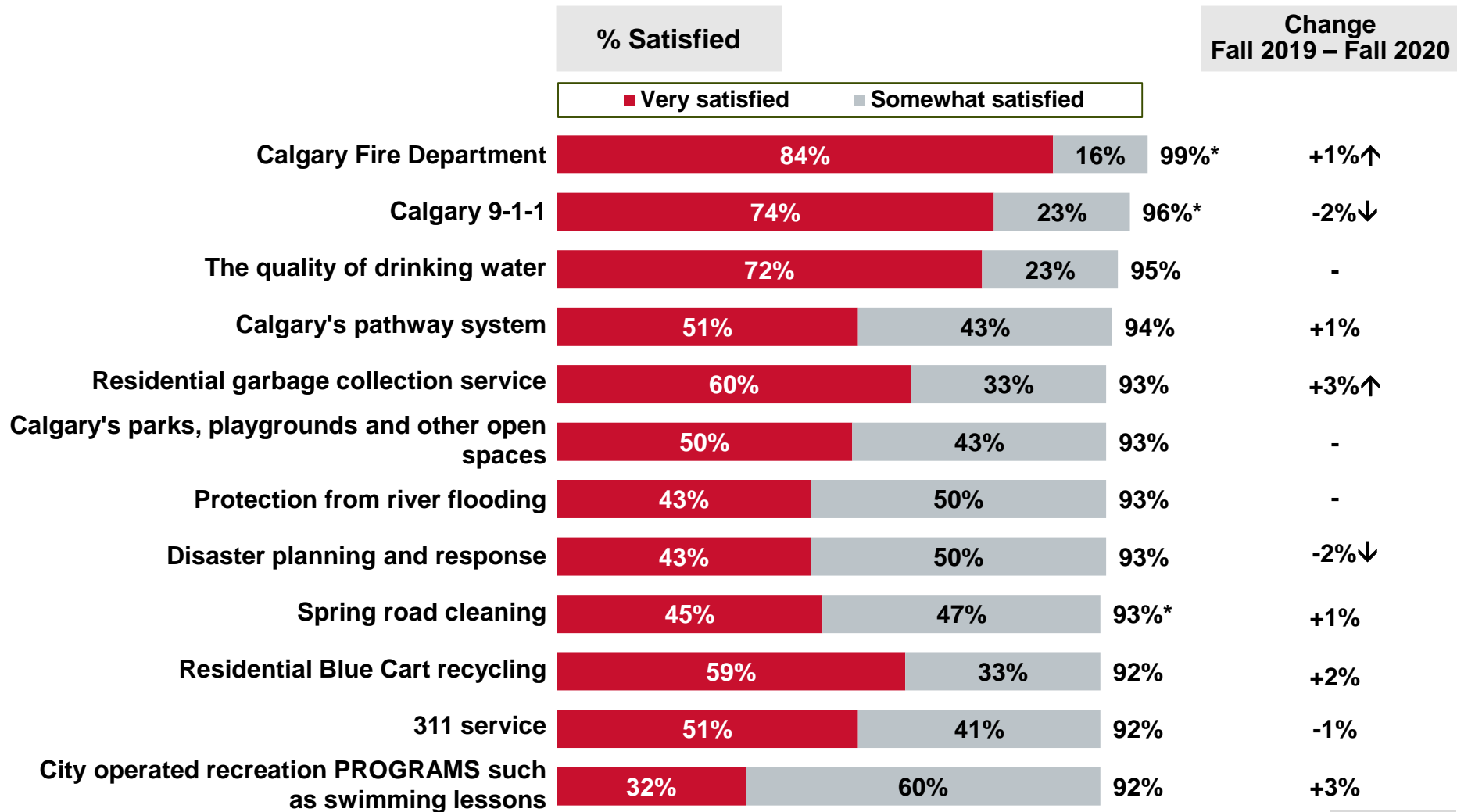


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how important each one is to you.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Satisfaction with City Programs and Services



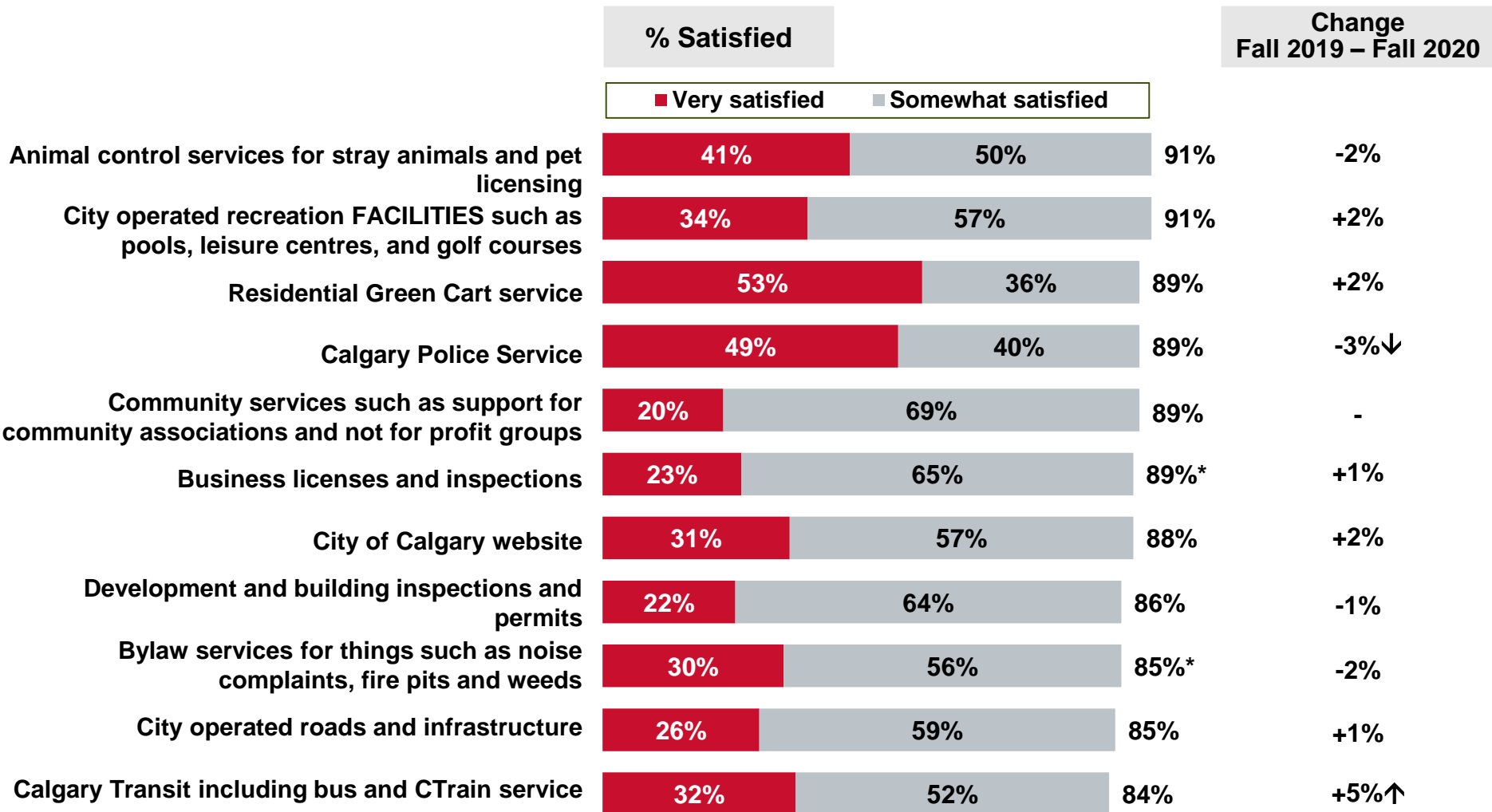
*Rounding

I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
↓ Statistically lower than Fall 2019



Satisfaction with City Programs and Services (continued)



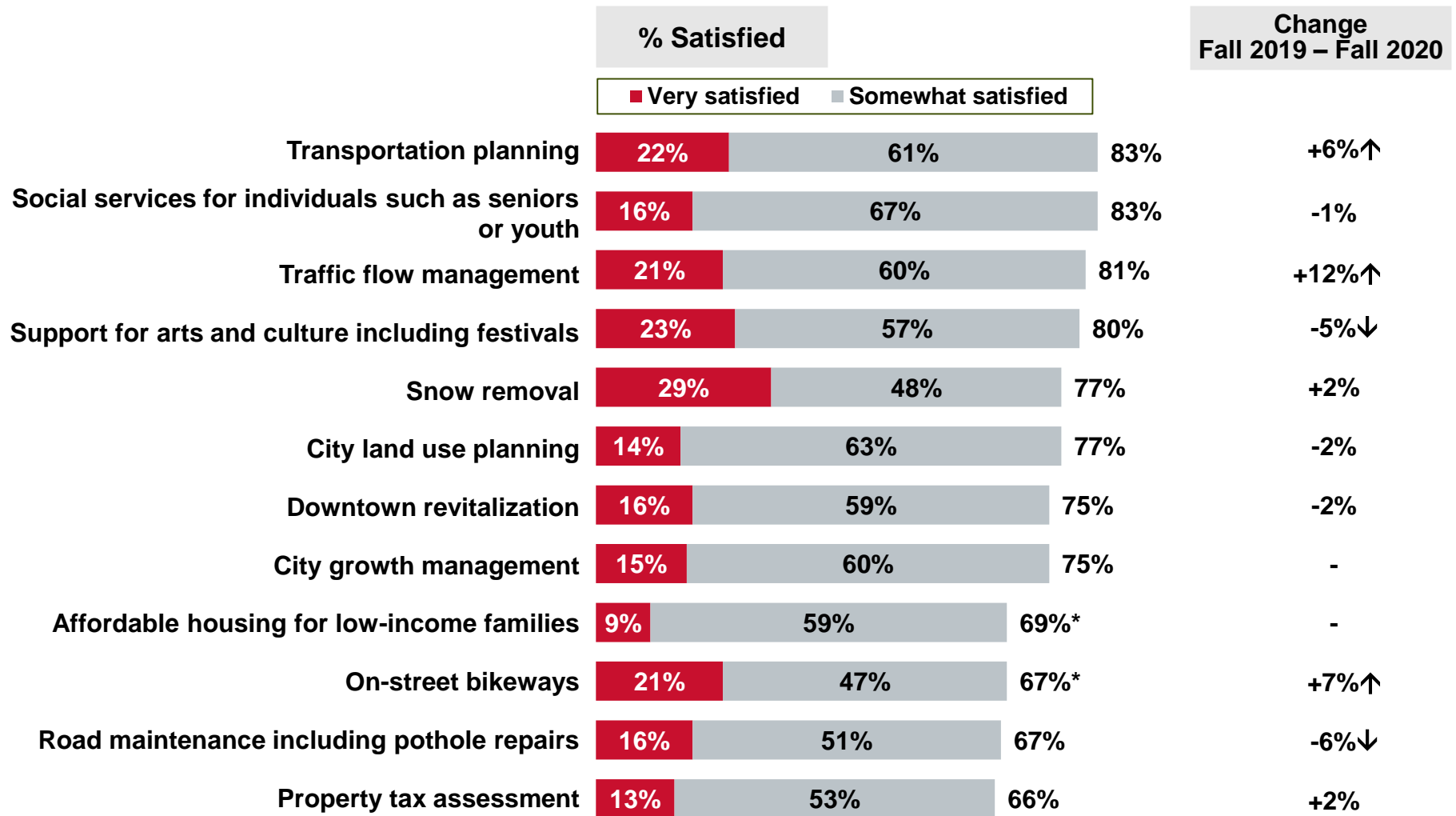
*Rounding

I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
↓ Statistically lower than Fall 2019



Satisfaction with City Programs and Services (continued)



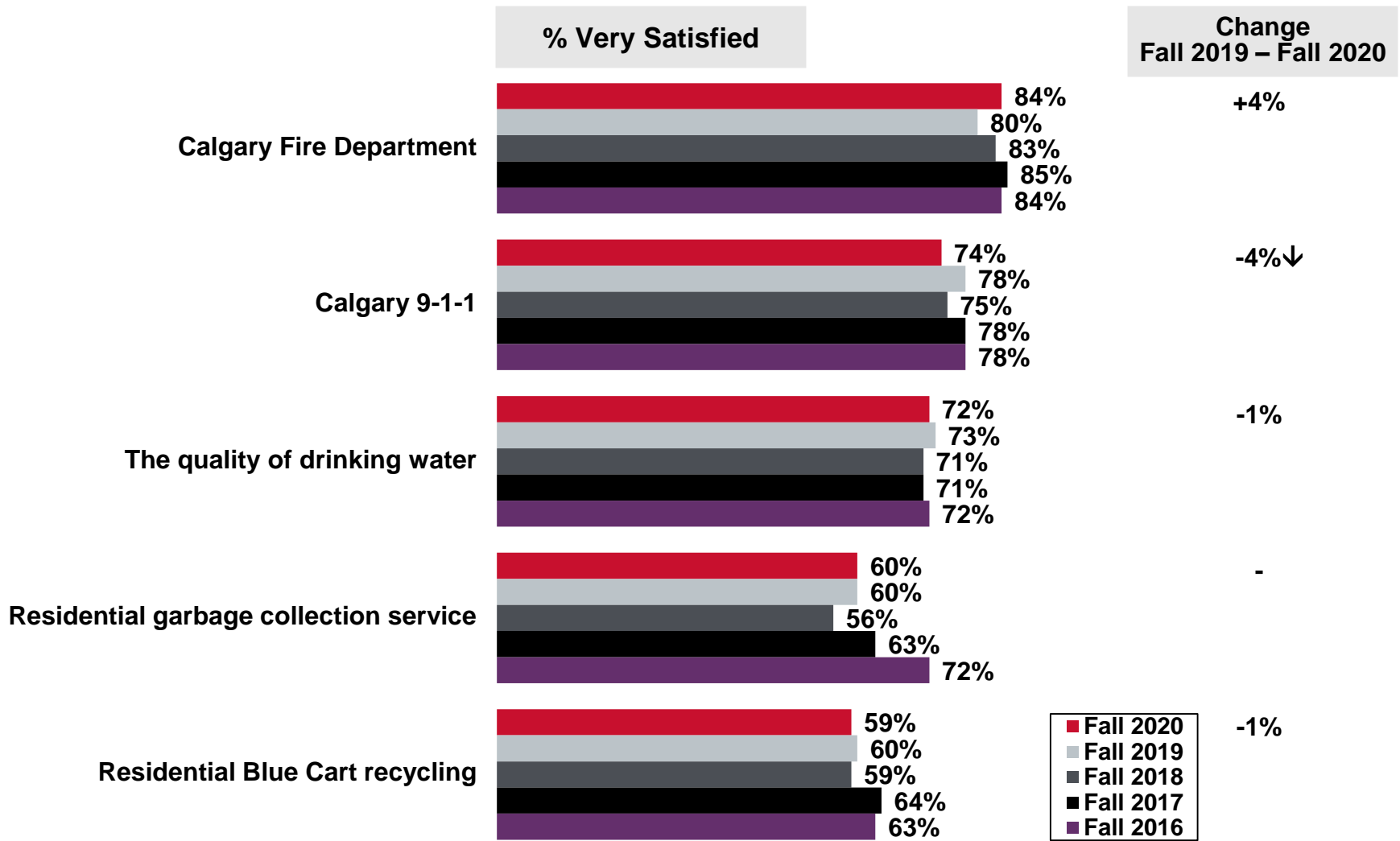
*Rounding

↑ Statistically higher than Fall 2019
↓ Statistically lower than Fall 2019

I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service. Base: Valid respondents (Bases vary)



Tracking Satisfaction with City Programs and Services

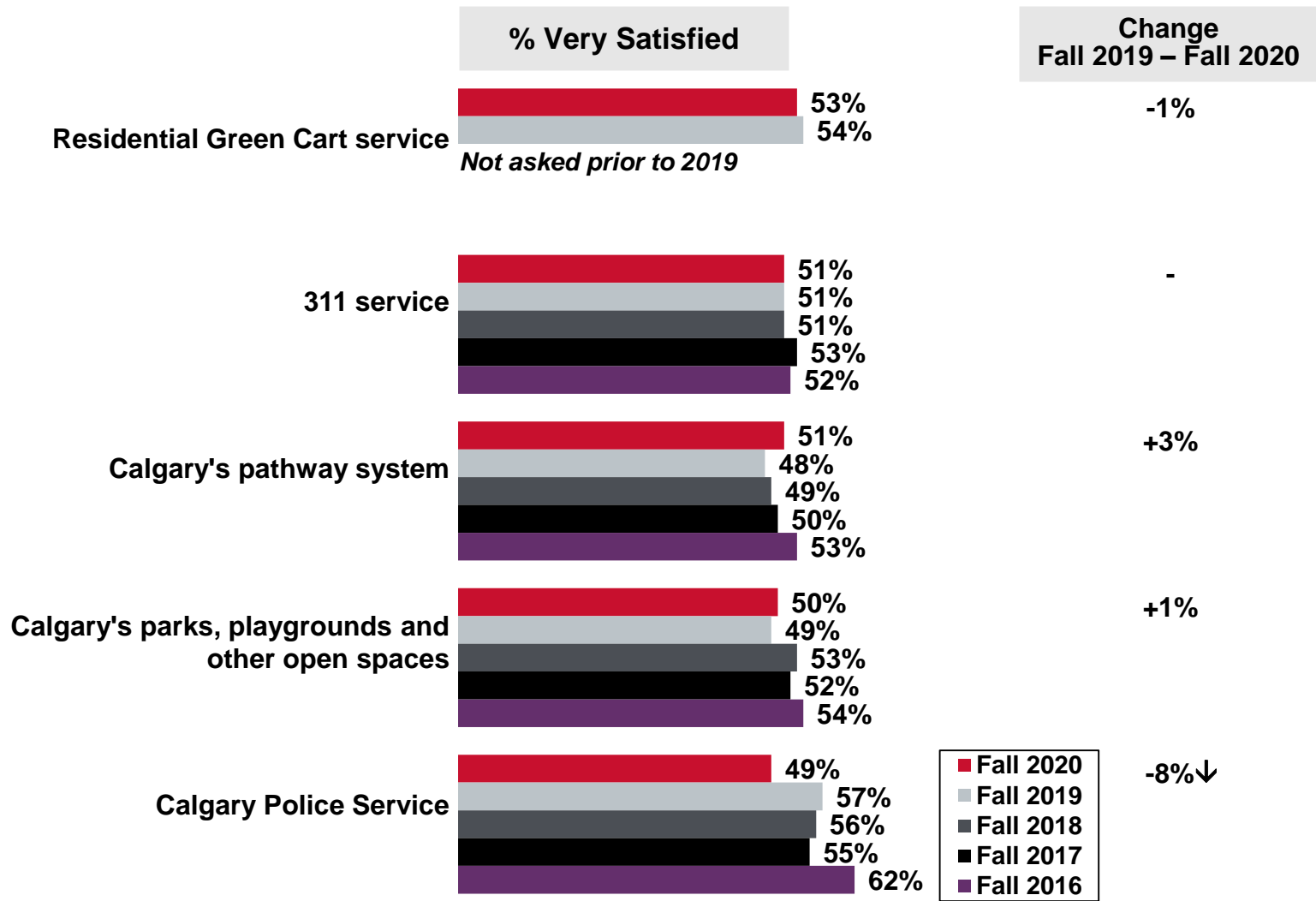


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Satisfaction with City Programs and Services (continued)

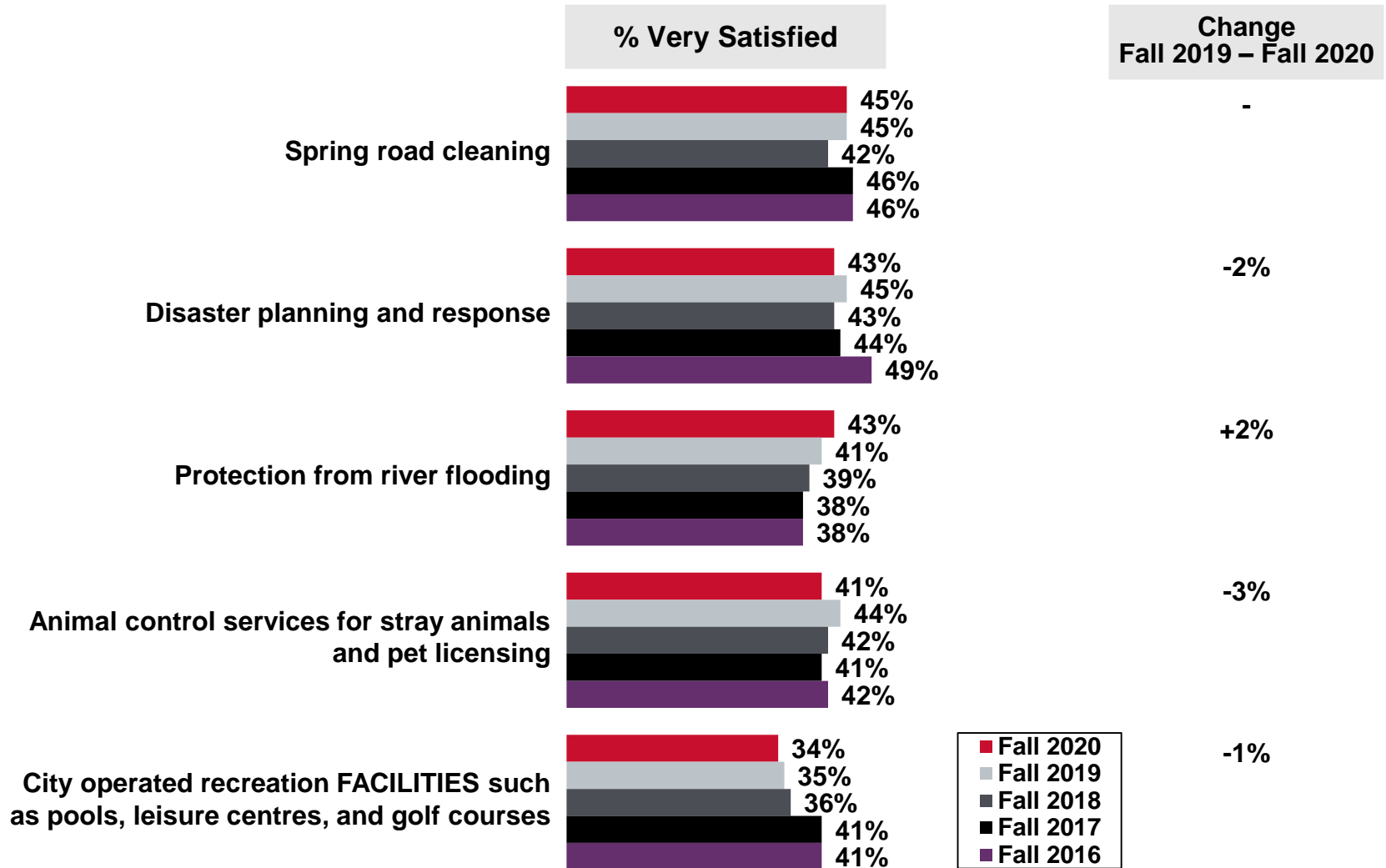


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



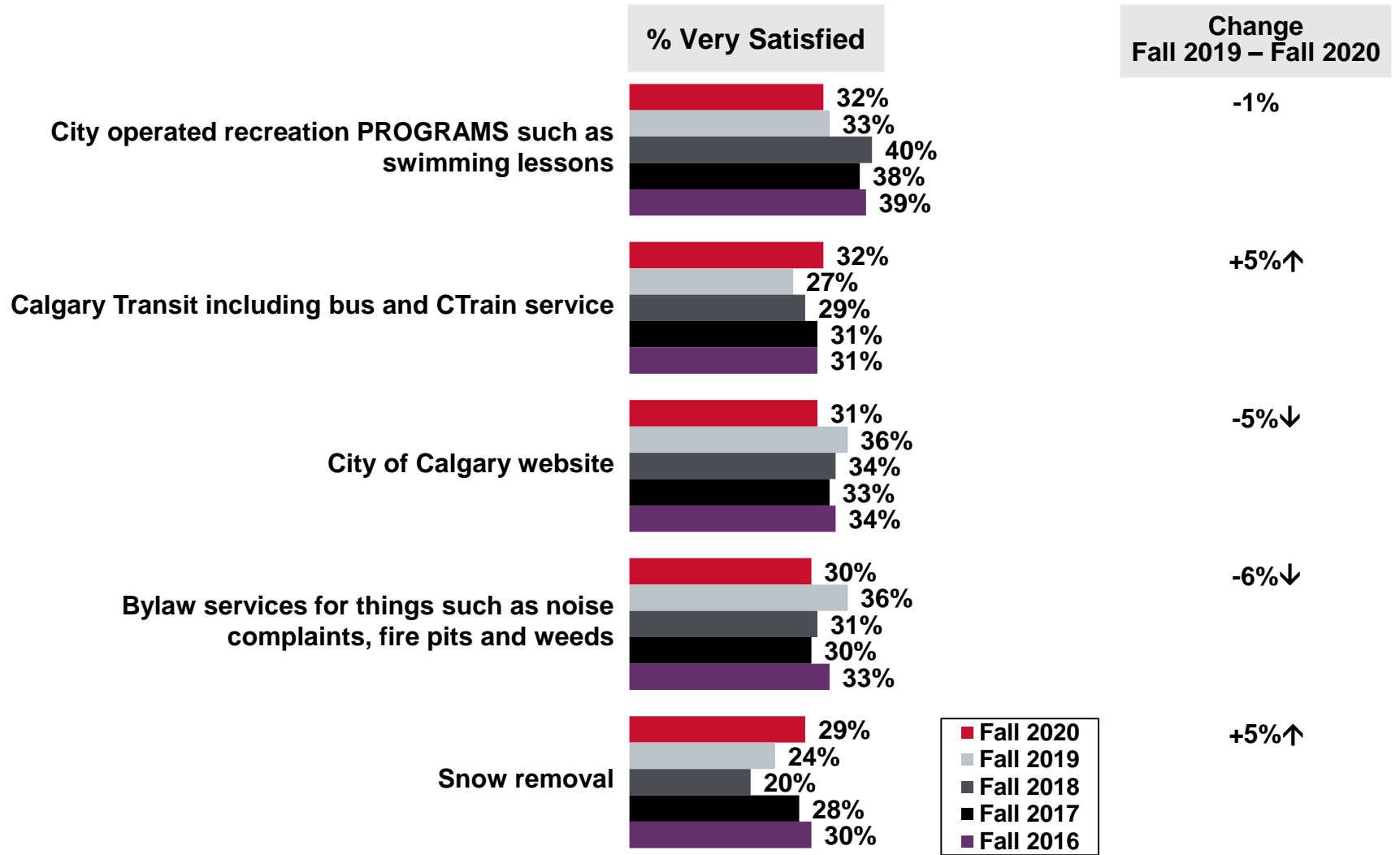
Tracking Satisfaction with City Programs and Services (continued)



I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
 Base: Valid respondents (Bases vary)



Tracking Satisfaction with City Programs and Services (continued)

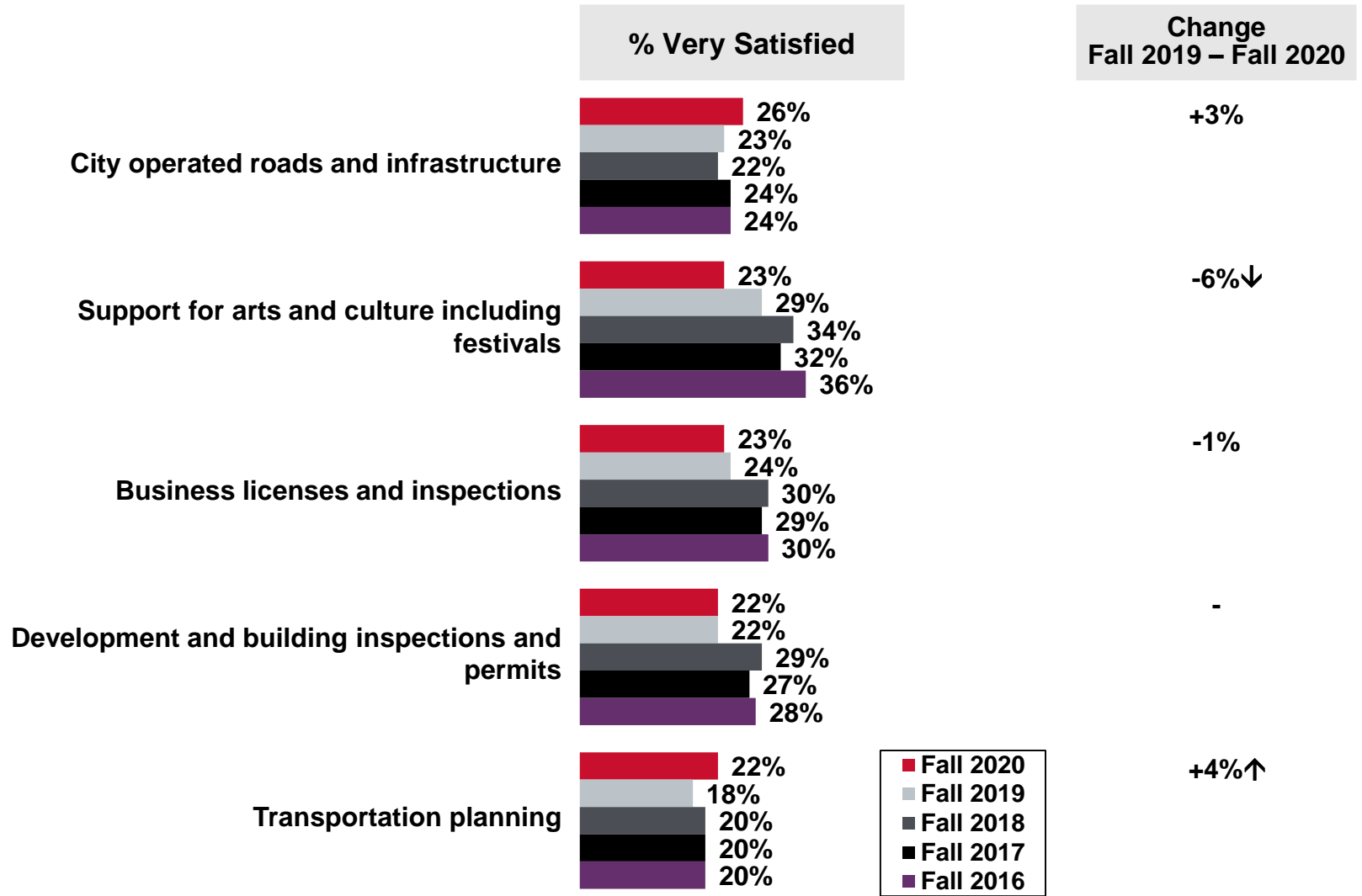


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
 Base: Valid respondents (Bases vary)

↑Statistically higher than Fall 2019
 ↓Statistically lower than Fall 2019



Tracking Satisfaction with City Programs and Services (continued)

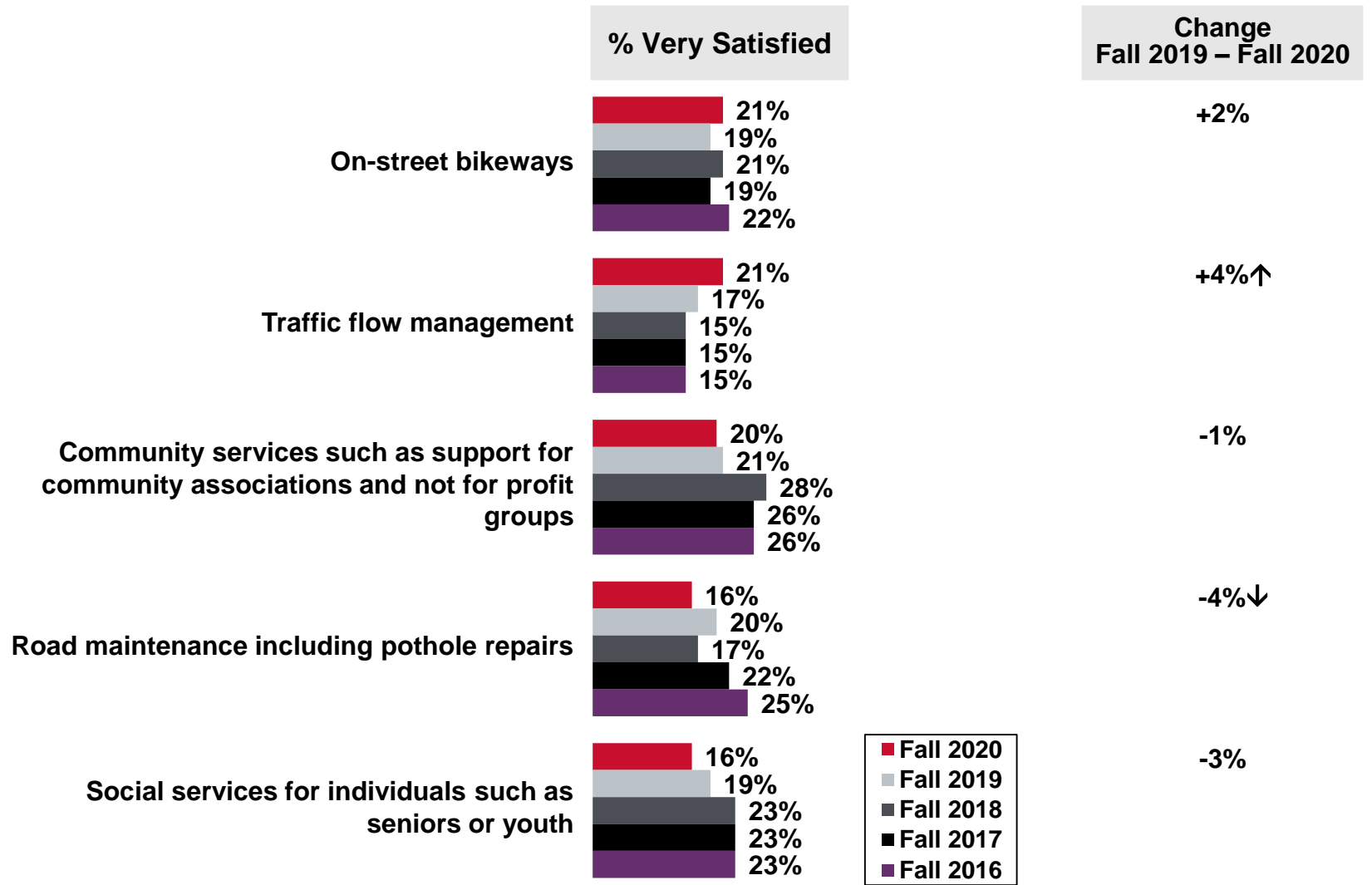


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Satisfaction with City Programs and Services (continued)

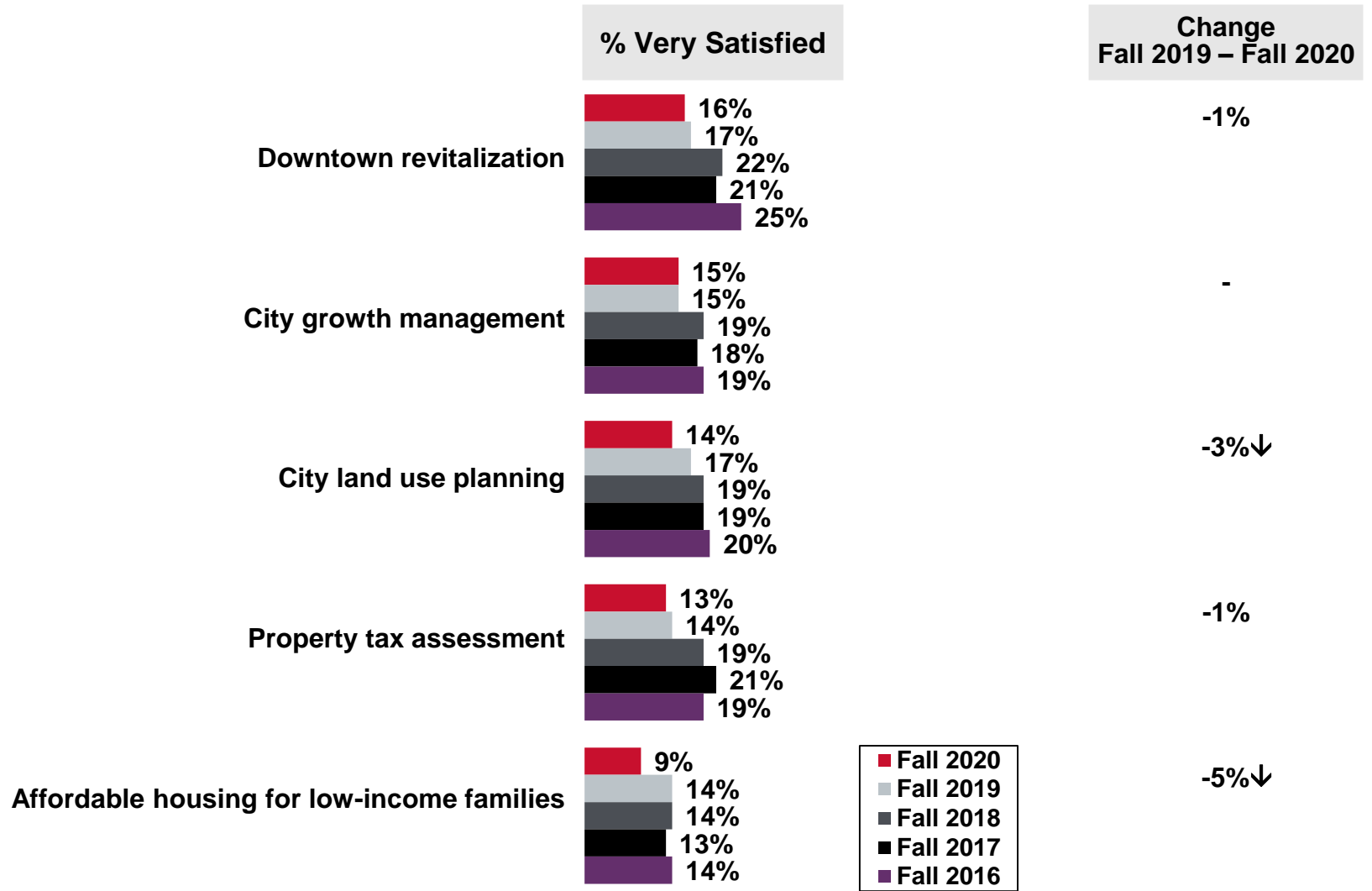


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Tracking Satisfaction with City Programs and Services (continued)

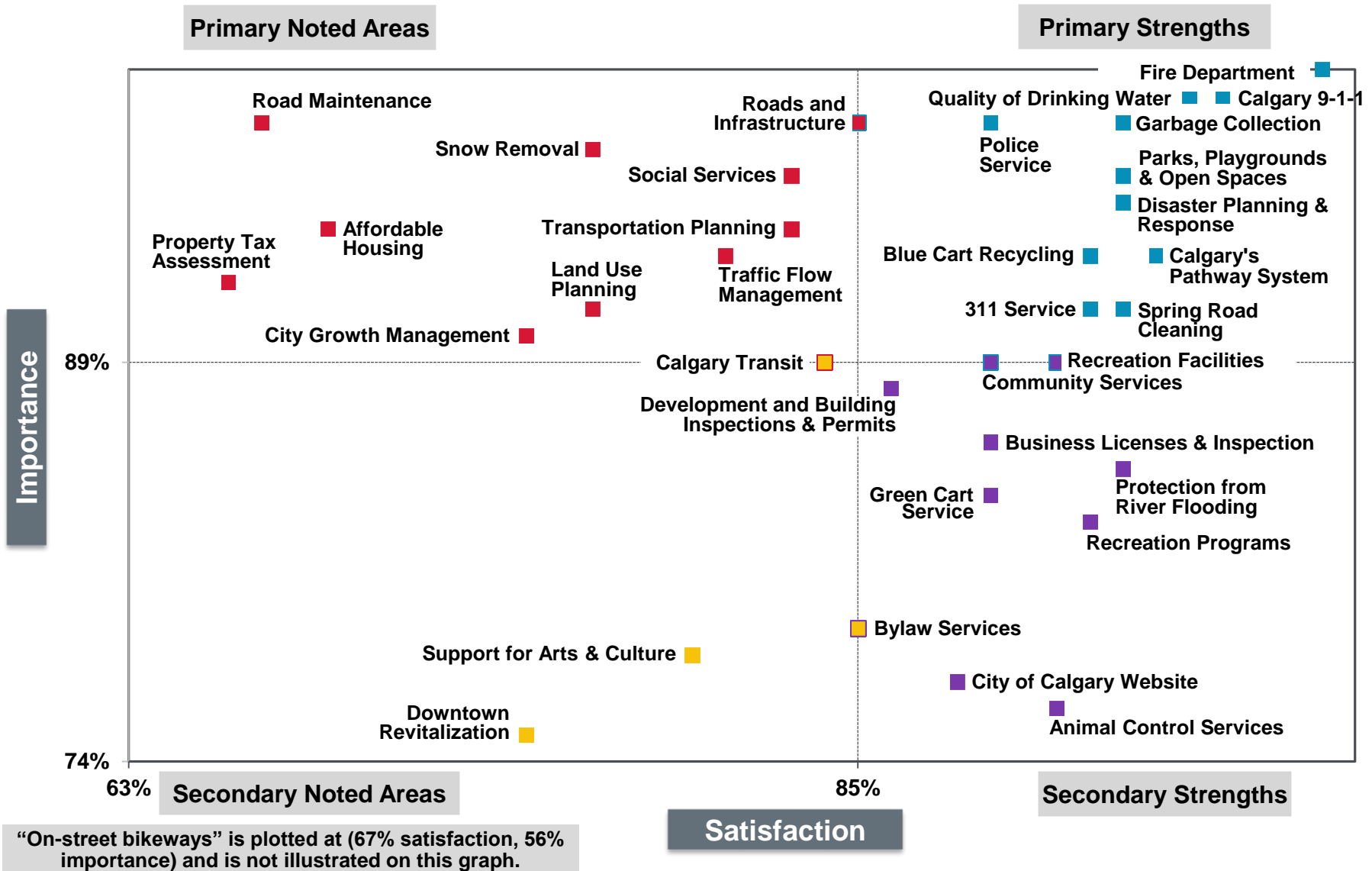


I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me how satisfied you are with the job The City is doing in providing that program or service.
 Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019

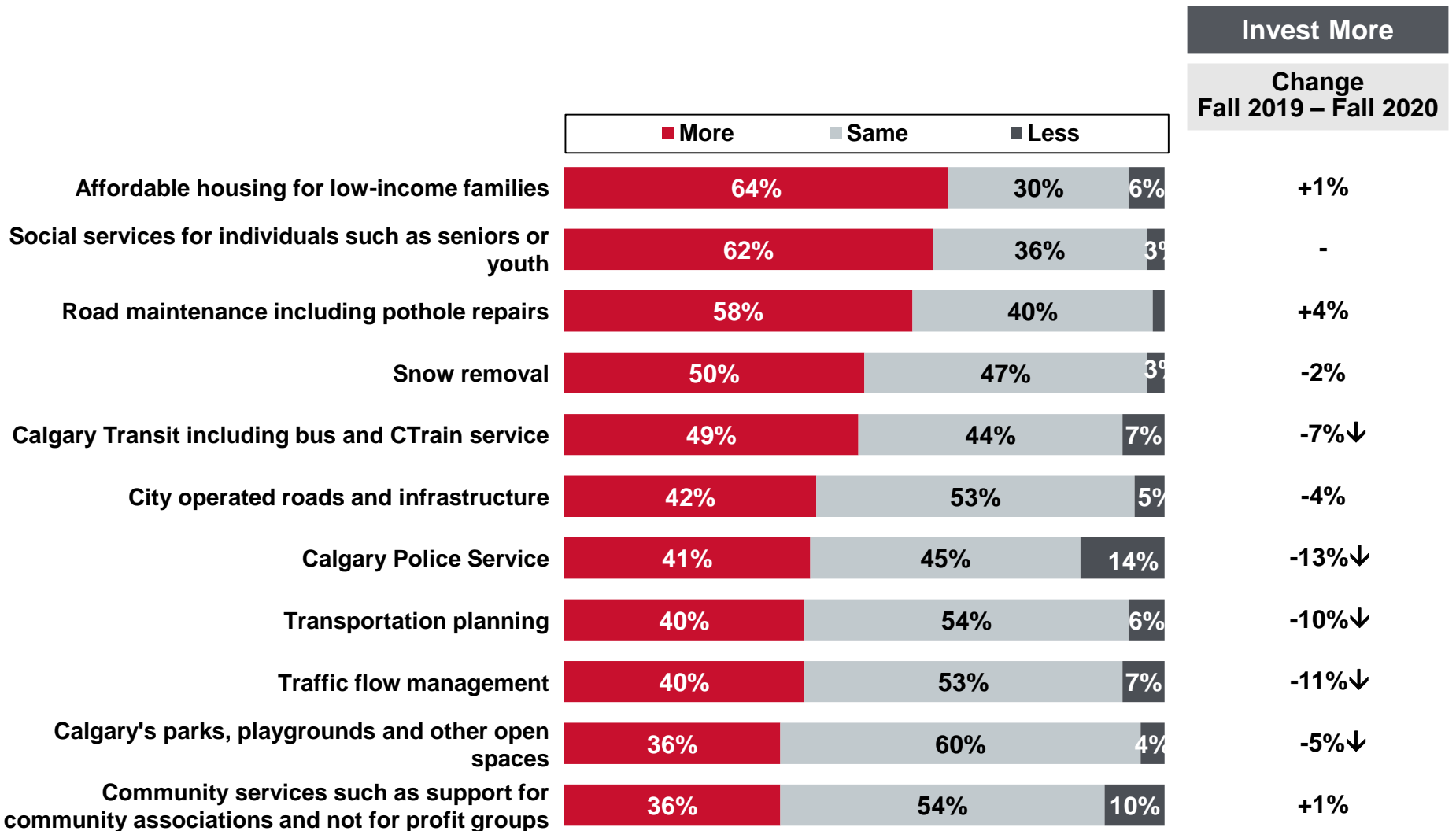


Importance vs. Satisfaction Grid





Investment in City Programs and Services



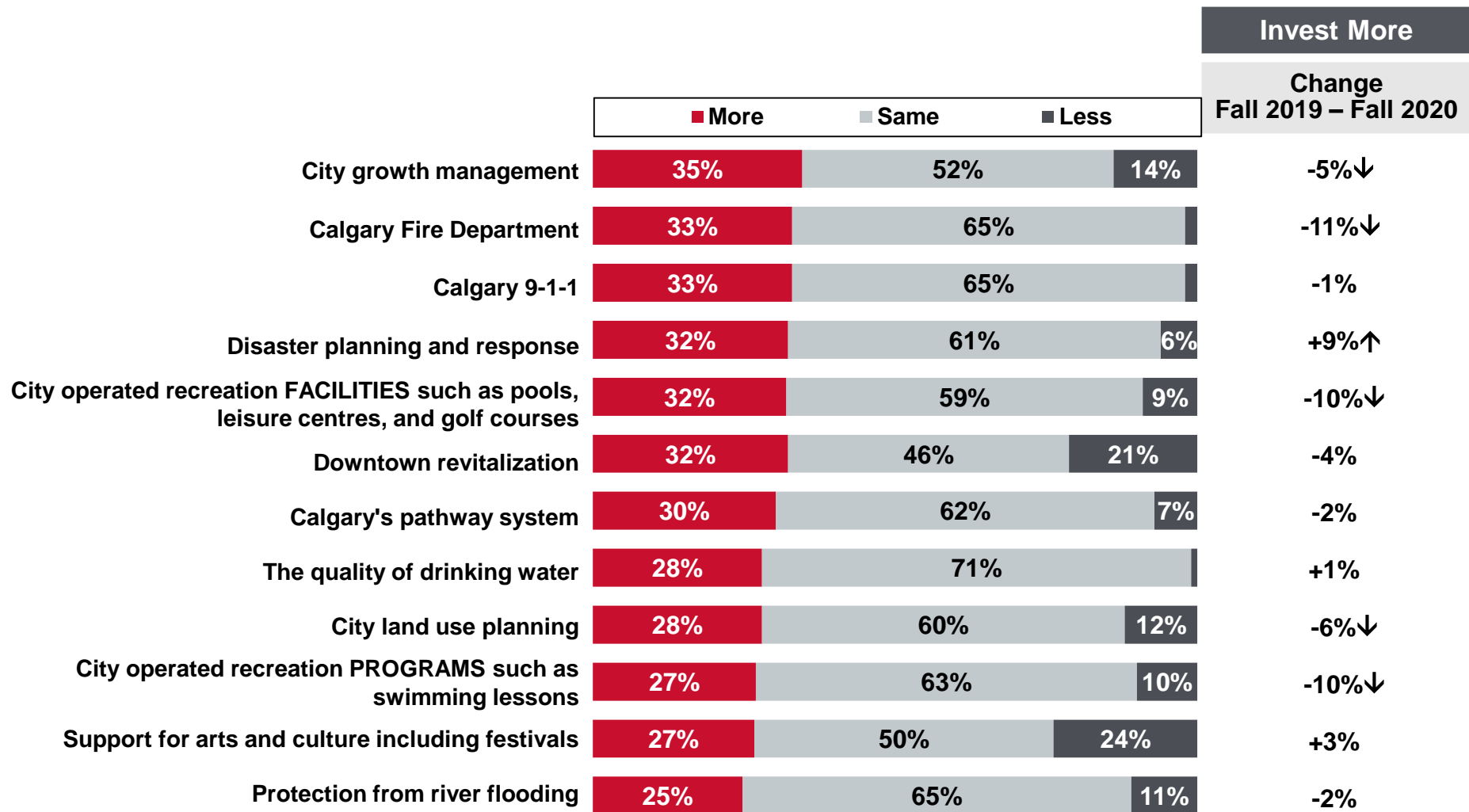
Data labels of <3% are not shown

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019

I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me if you think The City should invest more, less or the same amount on the program or service.
 Base: Valid respondents (Bases vary)



Investment in City Programs and Services (continued)



Data labels of <3% are not shown

I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me if you think The City should invest more, less or the same amount on the program or service.
Base: Valid respondents (Bases vary)

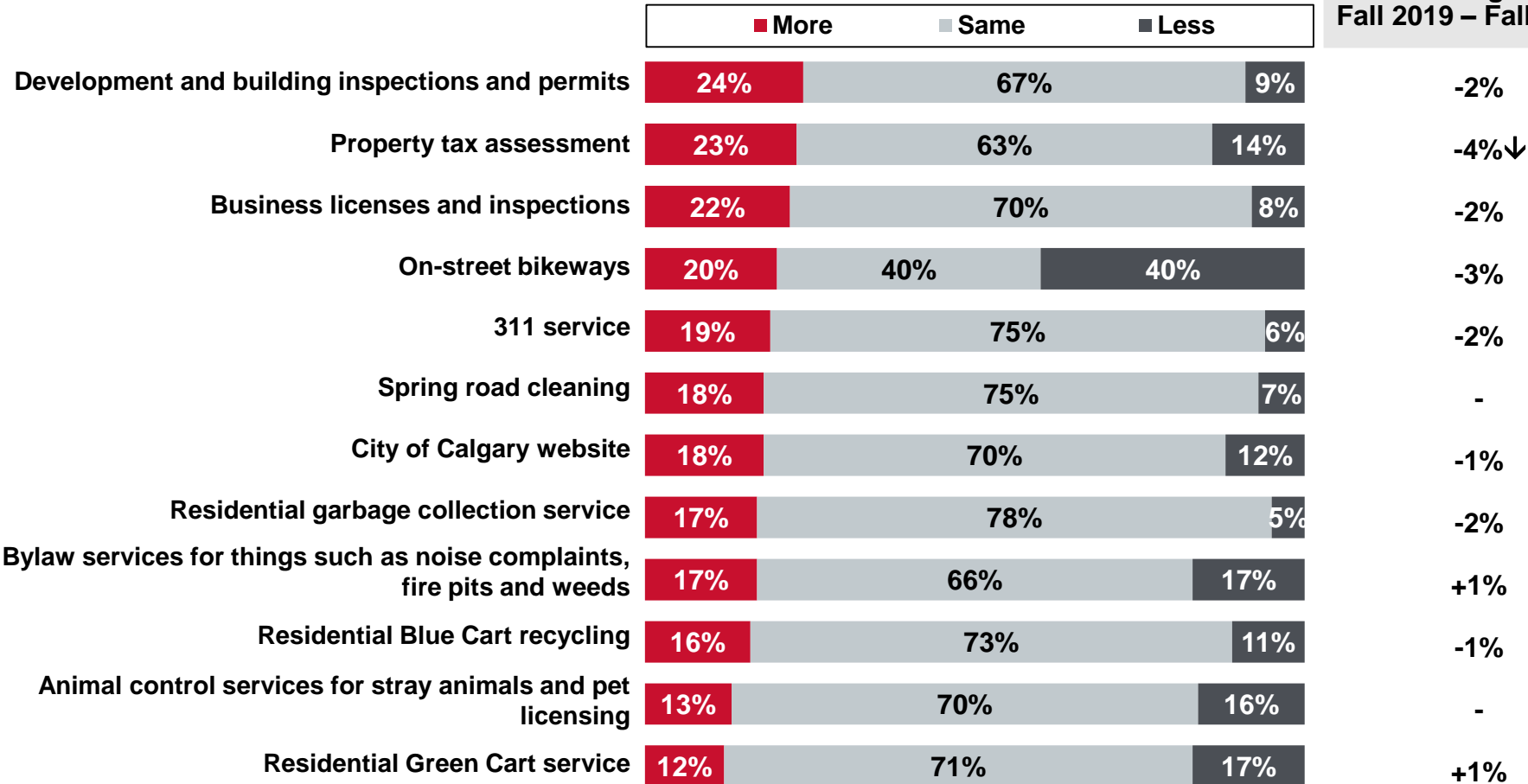
↑Statistically higher than Fall 2019
↓Statistically lower than Fall 2019



Investment in City Programs and Services (continued)

Invest More

Change
Fall 2019 – Fall 2020



I am going to read a list of programs and services provided to you by The City of Calgary. Please tell me if you think The City should invest more, less or the same amount on the program or service.
Base: Valid respondents (Bases vary)

↑ Statistically higher than Fall 2019
↓ Statistically lower than Fall 2019

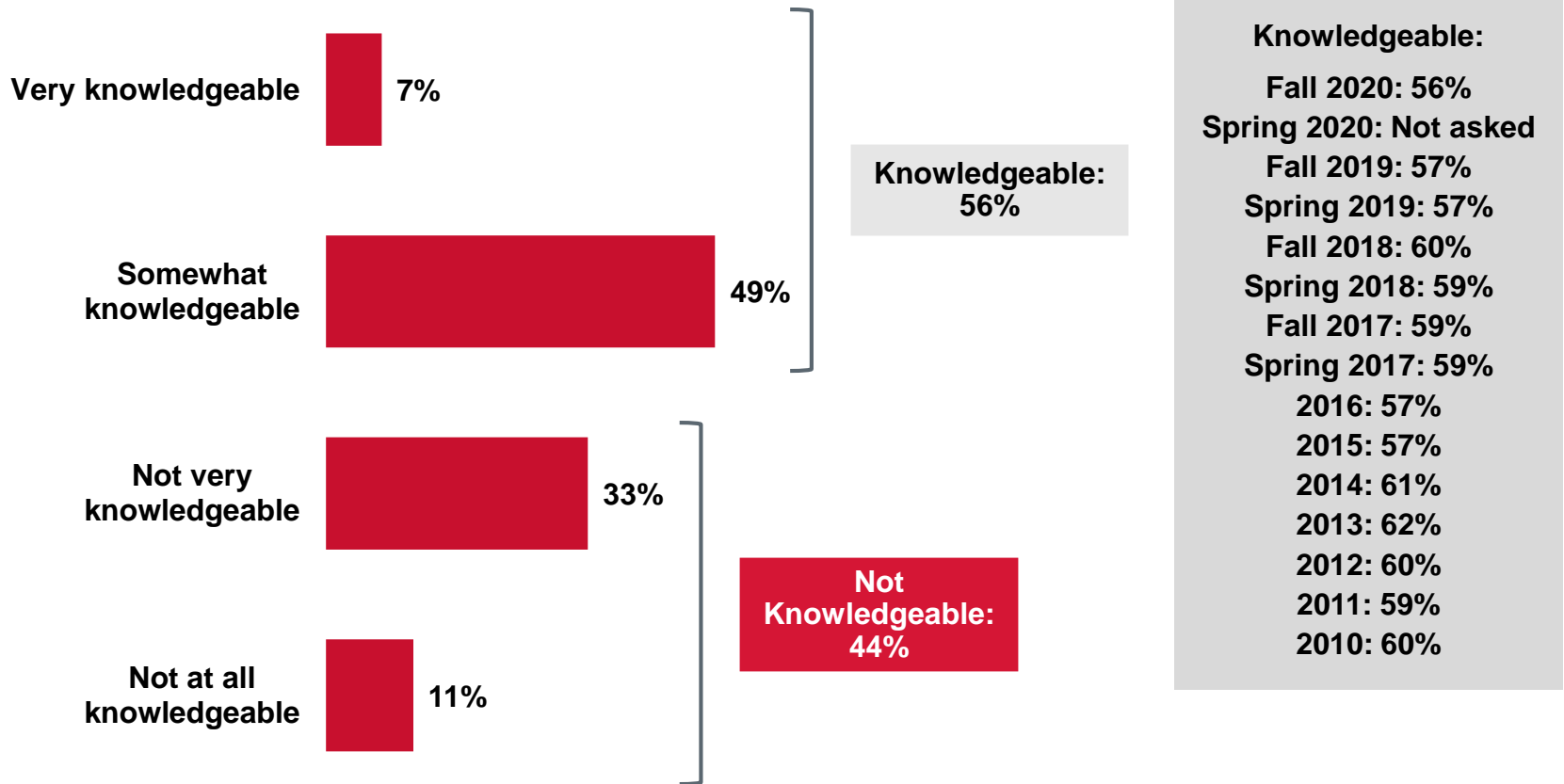


Taxation





Knowledge Levels of Tax Dollar Spending

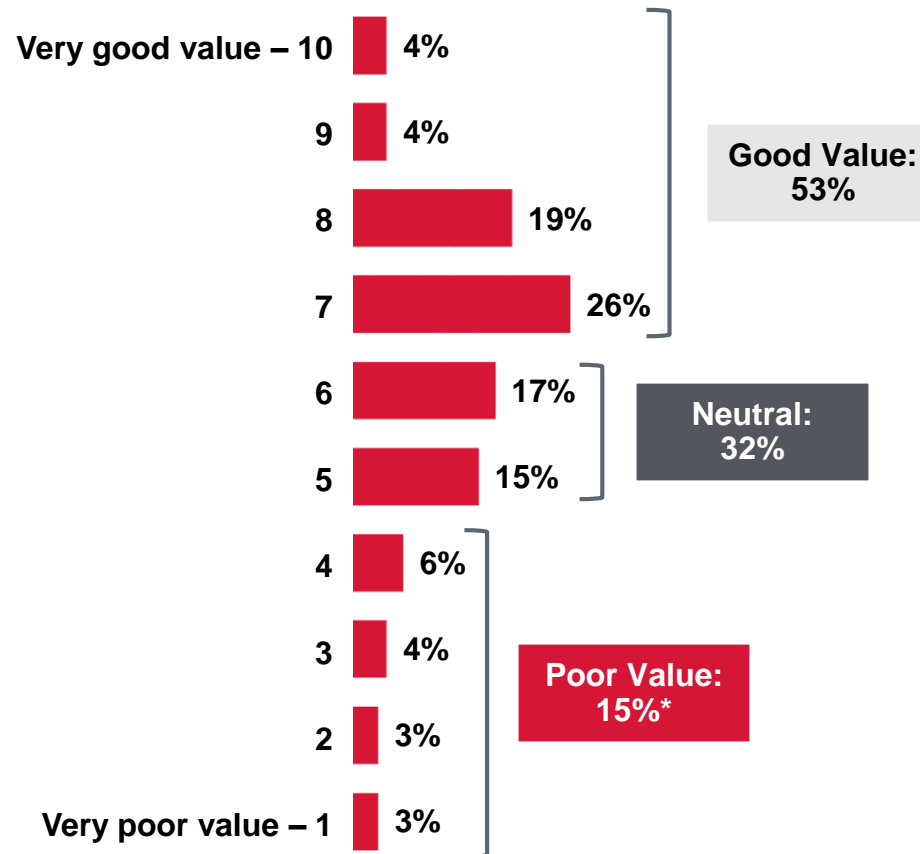


Thinking about how The City of Calgary government is run, and what services it provides, would you say you are very, somewhat, not very, or not at all knowledgeable about how City tax dollars are spent?

Base: Valid respondents (n=2,484)



Perceived Value of Property Taxes



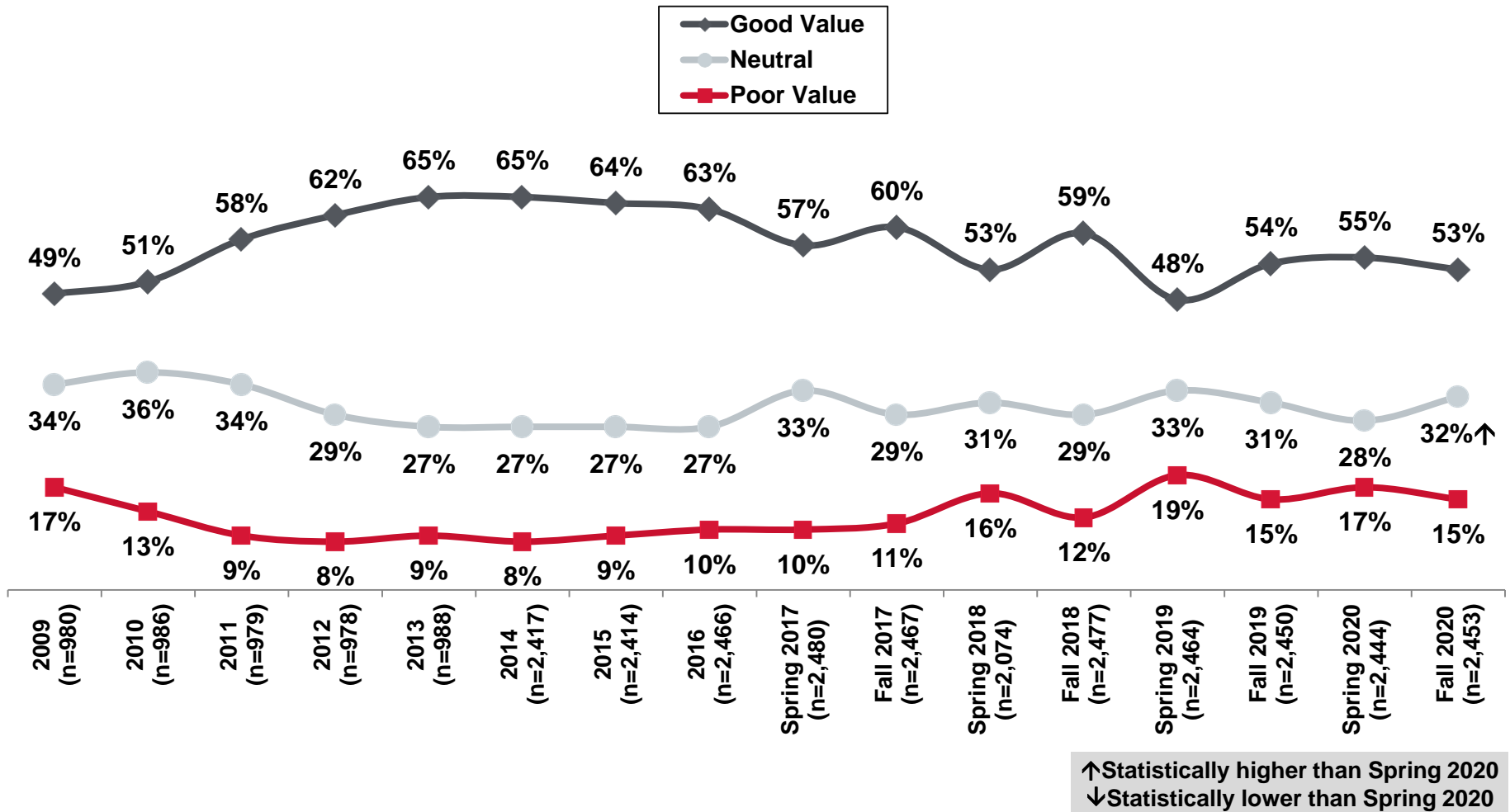
*Rounding

Your property tax dollars are divided between The City and the Province. In Calgary, approximately two-thirds of your residential property tax payment goes to The City to fund municipal services. Considering the services provided by The City, please rate the value you feel you receive from your municipal property tax dollars using a scale of 1 to 10 where “1” represents “very poor value” and “10” represents “very good value”.

Base: Valid respondents (n=2,453)



Tracking Perceived Value of Property Taxes

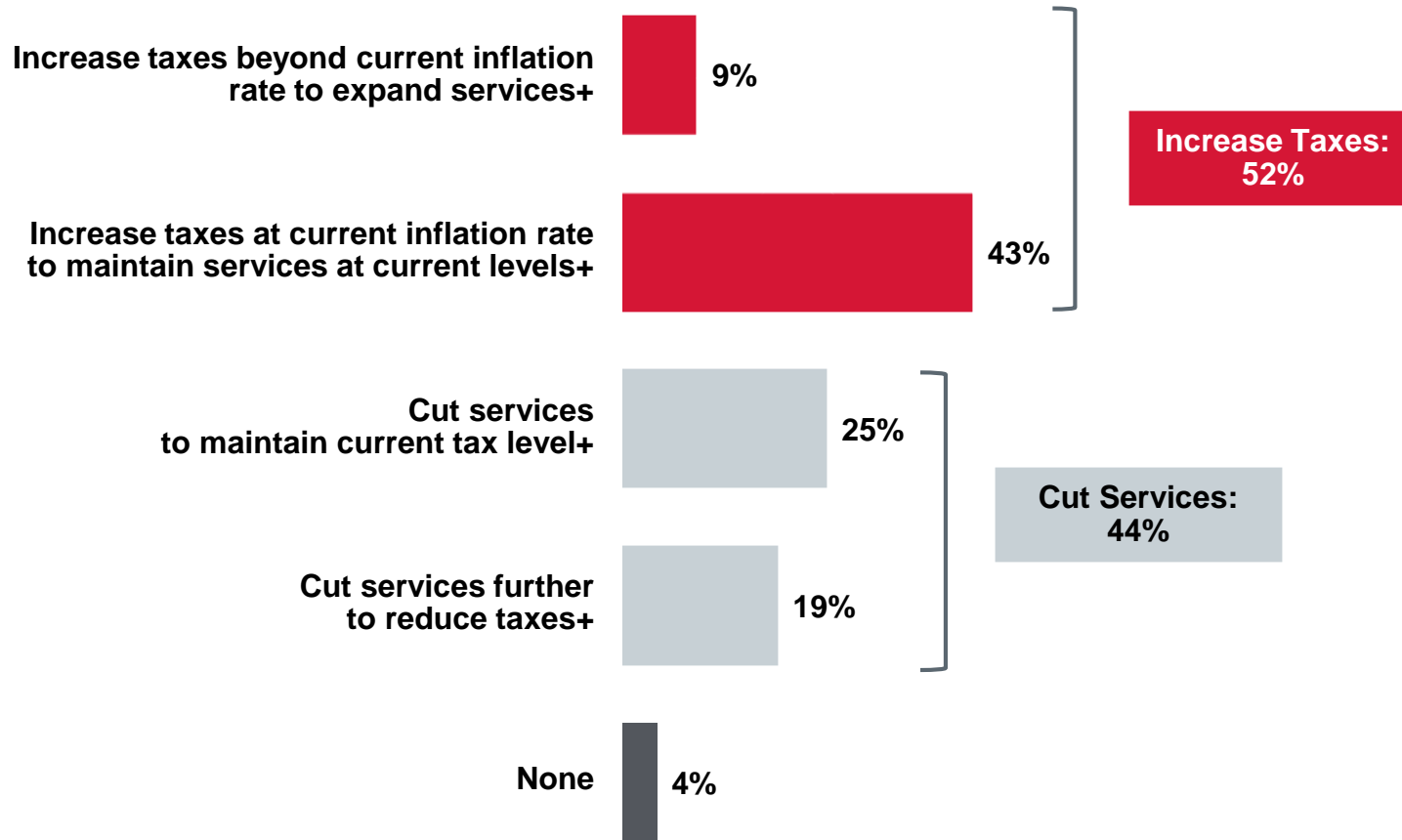


Your property tax dollars are divided between The City and the Province. In Calgary, approximately two-thirds of your residential property tax payment goes to The City to fund municipal services. Considering the services provided by The City, please rate the value you feel you receive from your municipal property tax dollars using a scale of 1 to 10 where “1” represents “very poor value” and “10” represents “very good value”.

Base: Valid respondents



Balancing Taxation and Service Delivery Levels



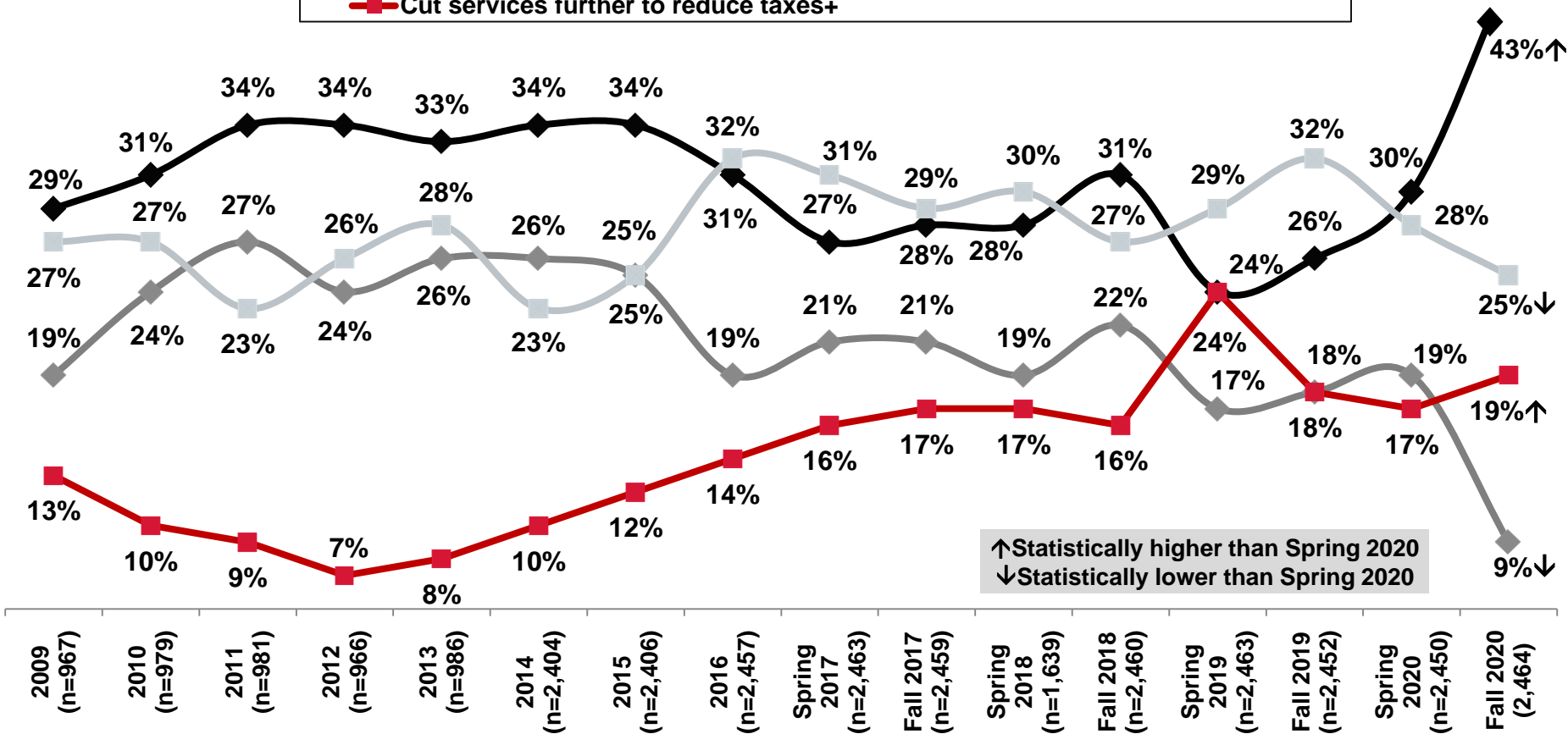
Municipal property taxes are the primary way to pay for services and programs provided by The City of Calgary. Due to the increased cost of maintaining current service levels and infrastructure, The City must balance taxation and service delivery levels. To deal with this situation, which of the following four options would you most like The City to pursue?

Base: Valid respondents (n=2,464) | +Slight wording changes in Fall 2020



Tracking Balancing Taxation and Service Delivery Levels

- ◆— Increase taxes beyond current inflation rate to expand services+
- ◆— Increase taxes at current inflation rate to maintain services at current levels+
- Cut services to maintain current tax level+
- Cut services further to reduce taxes+



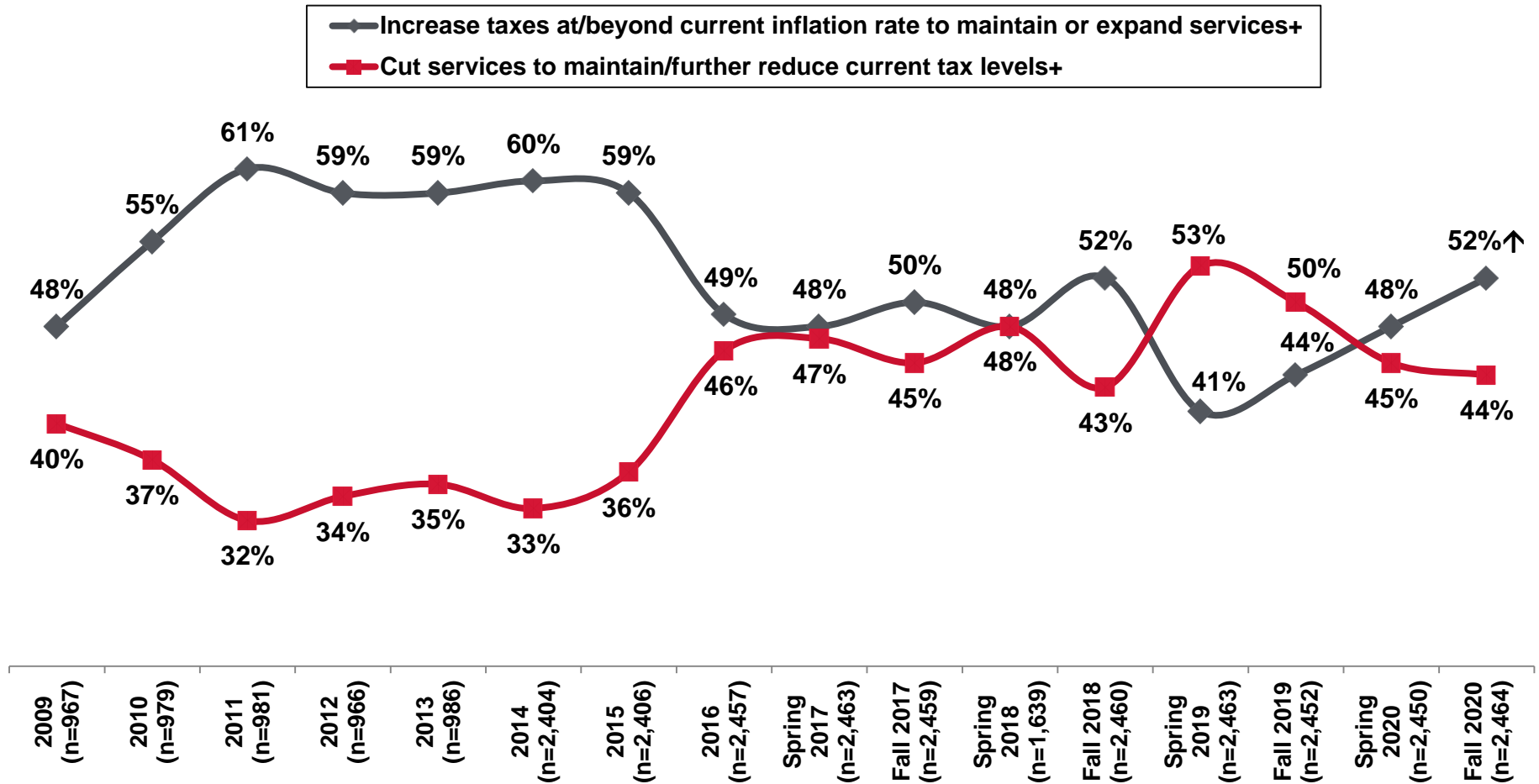
↑ Statistically higher than Spring 2020
 ↓ Statistically lower than Spring 2020

Municipal property taxes are the primary way to pay for services and programs provided by The City of Calgary. Due to the increased cost of maintaining current service levels and infrastructure, The City must balance taxation and service delivery levels. To deal with this situation, which of the following four options would you most like The City to pursue?

Base: Valid respondents | +Slight wording changes in Fall 2020



Tracking Balancing Taxation and Service Delivery Levels: Increase Taxes versus Cut Services



Municipal property taxes are the primary way to pay for services and programs provided by The City of Calgary. Due to the increased cost of maintaining current service levels and infrastructure, The City must balance taxation and service delivery levels. To deal with this situation, which of the following four options would you most like The City to pursue?

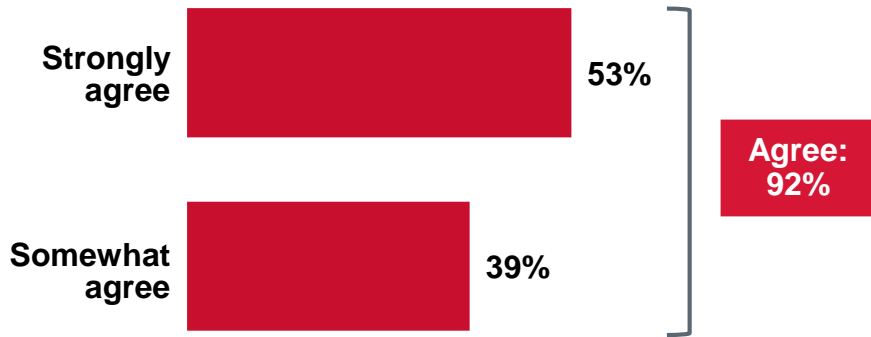
Base: Valid respondents | +Slight wording changes in Fall 2020

↑ Statistically higher than Spring 2020
 ↓ Statistically lower than Spring 2020

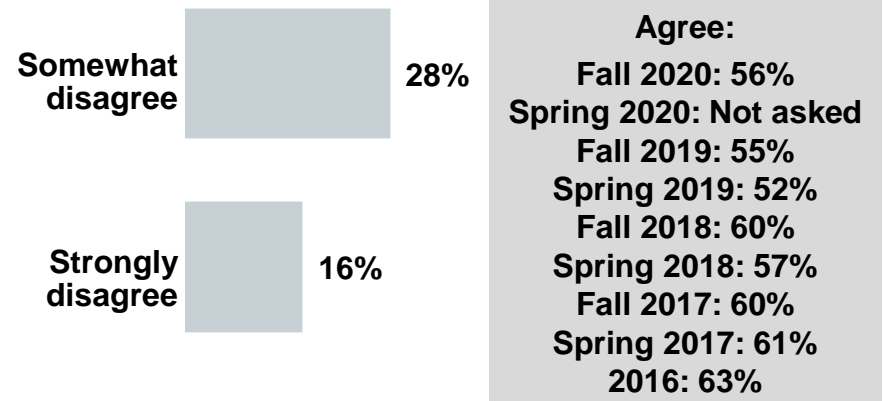
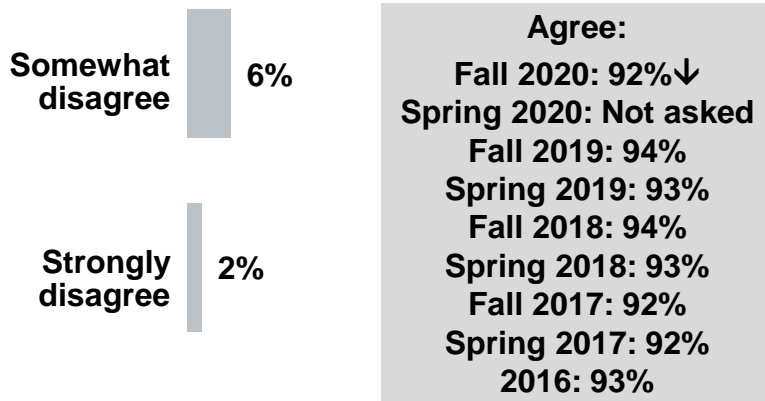
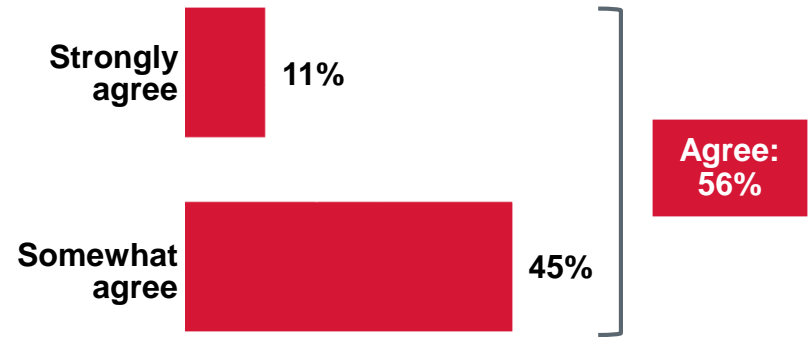


Property Tax Dollar Investment

I am interested in knowing how my property tax dollars are invested in various City services



The City does a good job of providing citizens with information about how their property tax dollars are invested in various City services



Please indicate if you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each of the following statements.
 Base: Valid respondents (Fall 2020 n=2,481 / n=2,453)

↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019

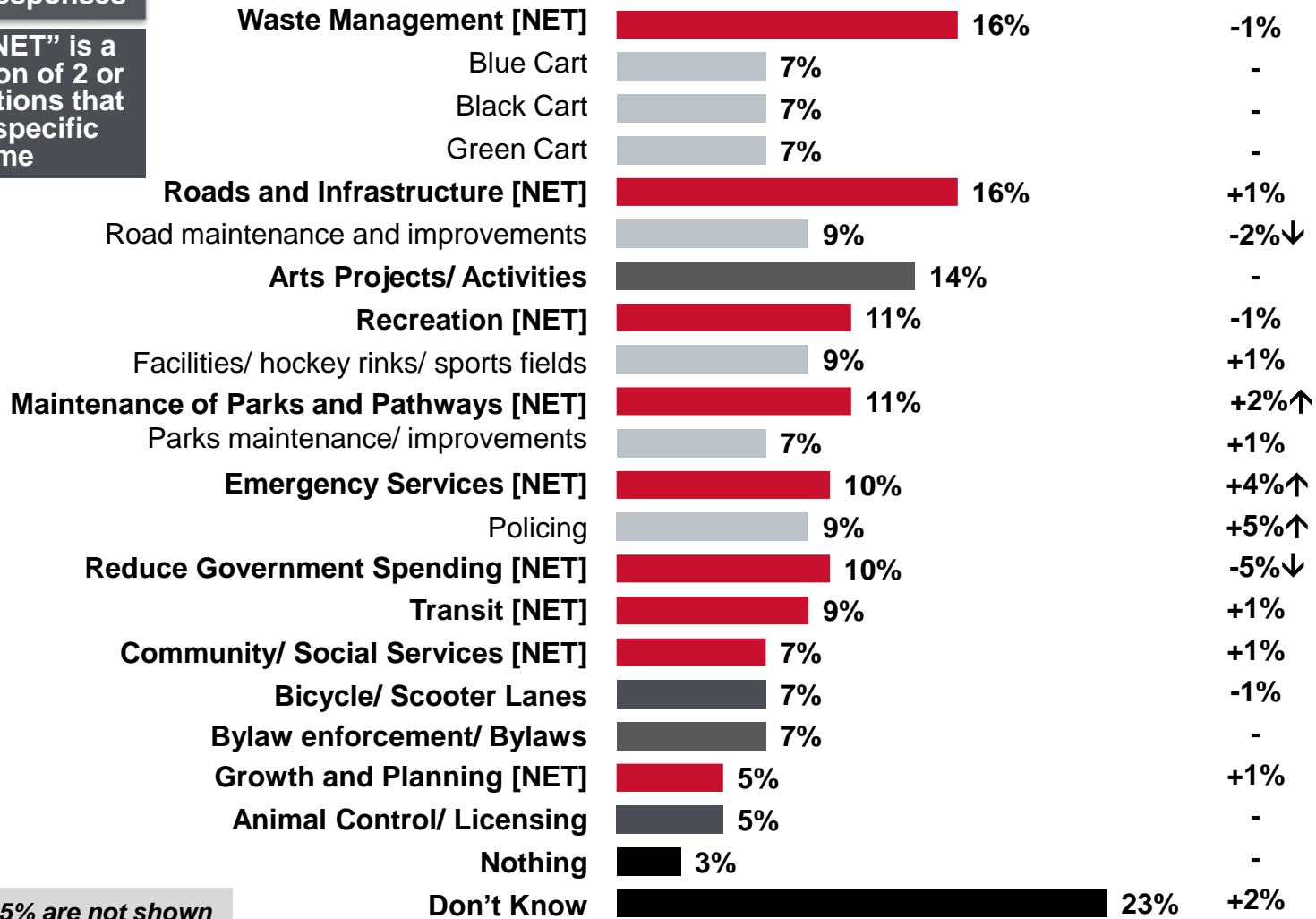


Proposed Service Reductions

Multiple Responses

Note: A "NET" is a combination of 2 or more mentions that cover a specific theme

Change
Fall 2019 – Fall 2020



Mentions of <5% are not shown

Of all the services you know of that are provided by The City of Calgary, name up to three services that you would propose to have a service reduction in order to save costs.

Base: Valid respondents (n=2,500)

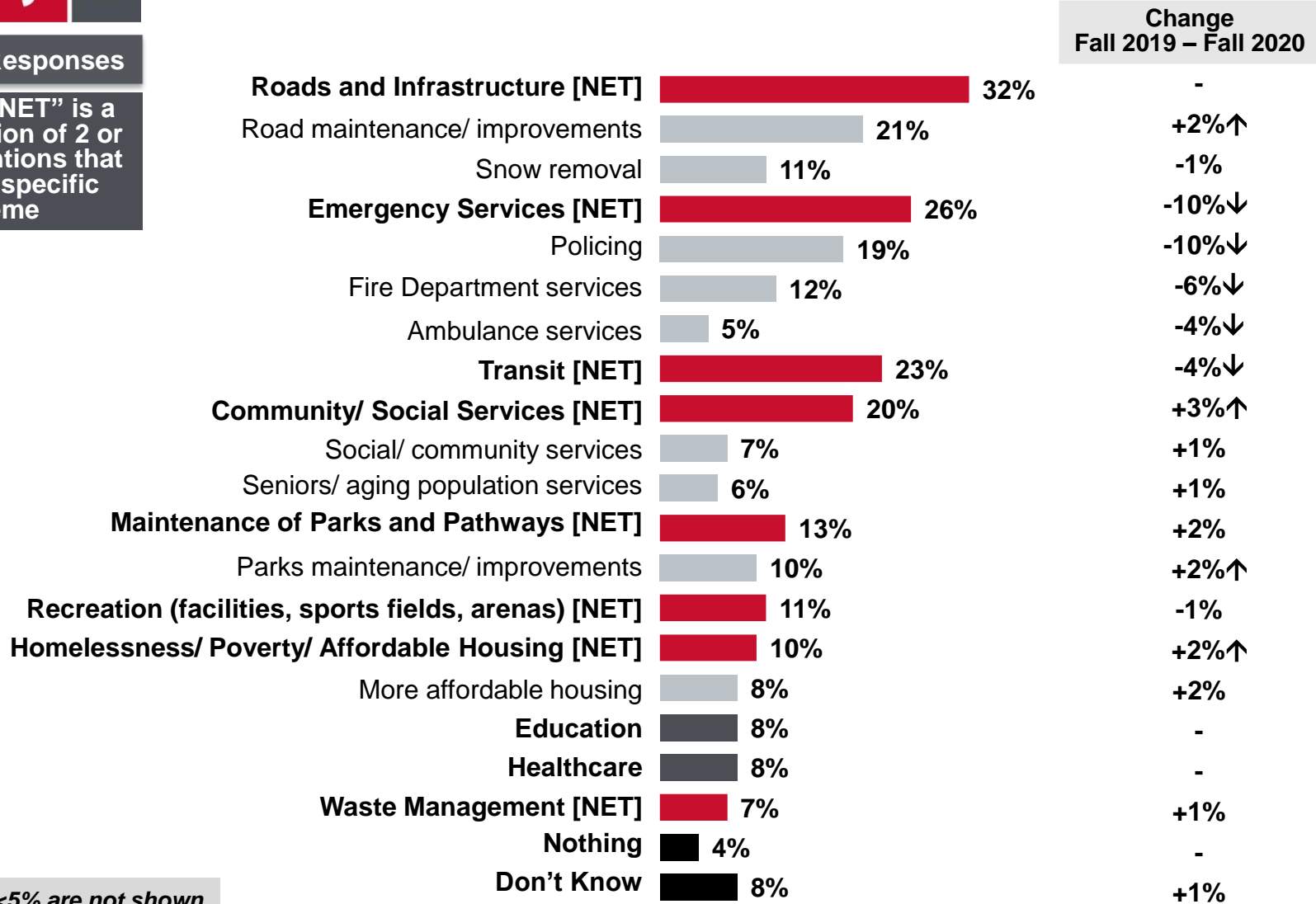
↑Statistically higher than Fall 2019
↓Statistically lower than Fall 2019



Proposed Service Increases

Multiple Responses

Note: A "NET" is a combination of 2 or more mentions that cover a specific theme



Mentions of <5% are not shown

Again, considering all the services that you know The City of Calgary provides, name up to three services that you would propose to spend more on to receive an increase in service.

Base: Valid respondents (n=2,500)

↑Statistically higher than Fall 2019

↓Statistically lower than Fall 2019



Contact with The City and Customer Service

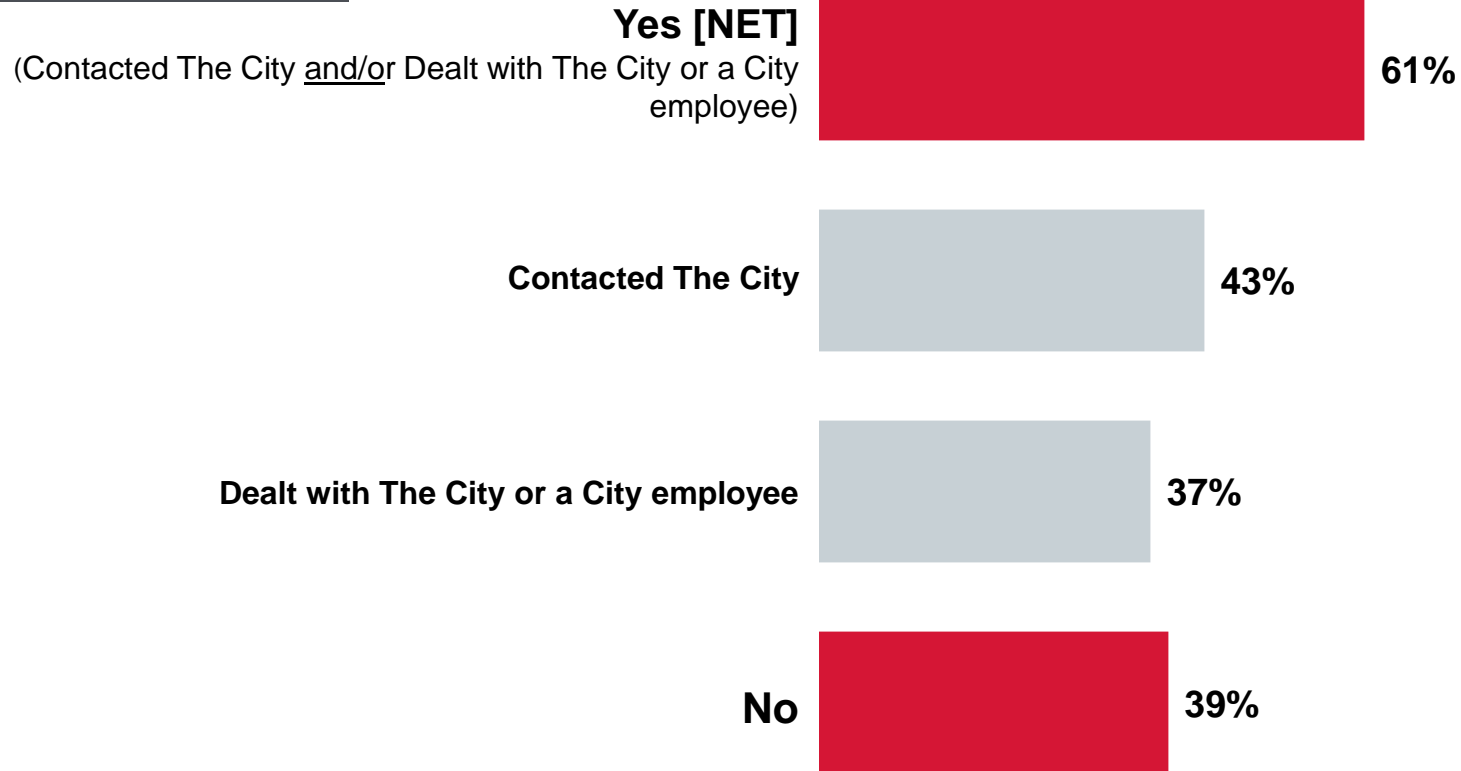




Past 12 Months Contact with The City of Calgary

Multiple Responses

Note: A "NET" is a combination of 2 or more mentions that cover a specific theme

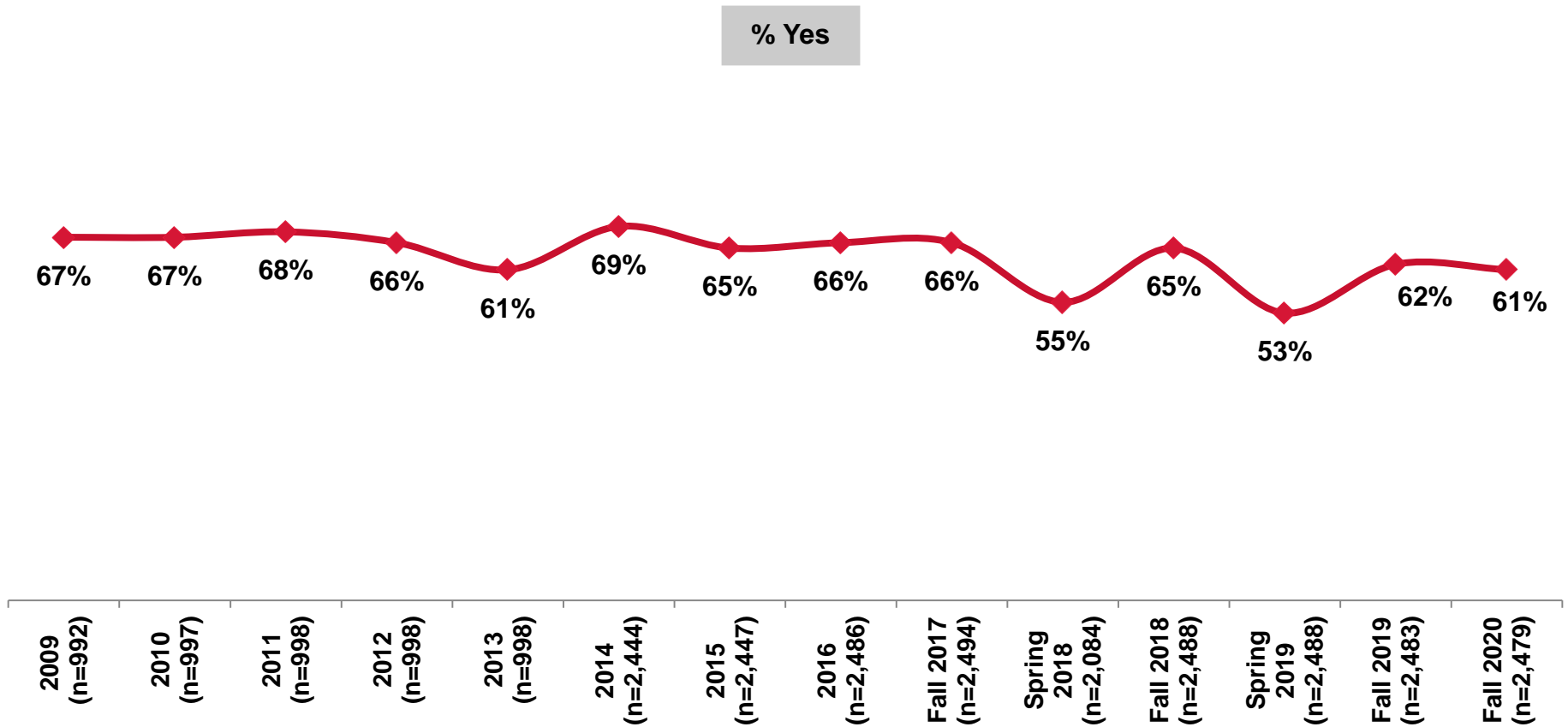


Have you contacted The City of Calgary or dealt with The City or one of its employees in the last twelve months?
 Base: Valid respondents (n=2,479)



Tracking Past 12 Months Contact with The City of Calgary

% Yes

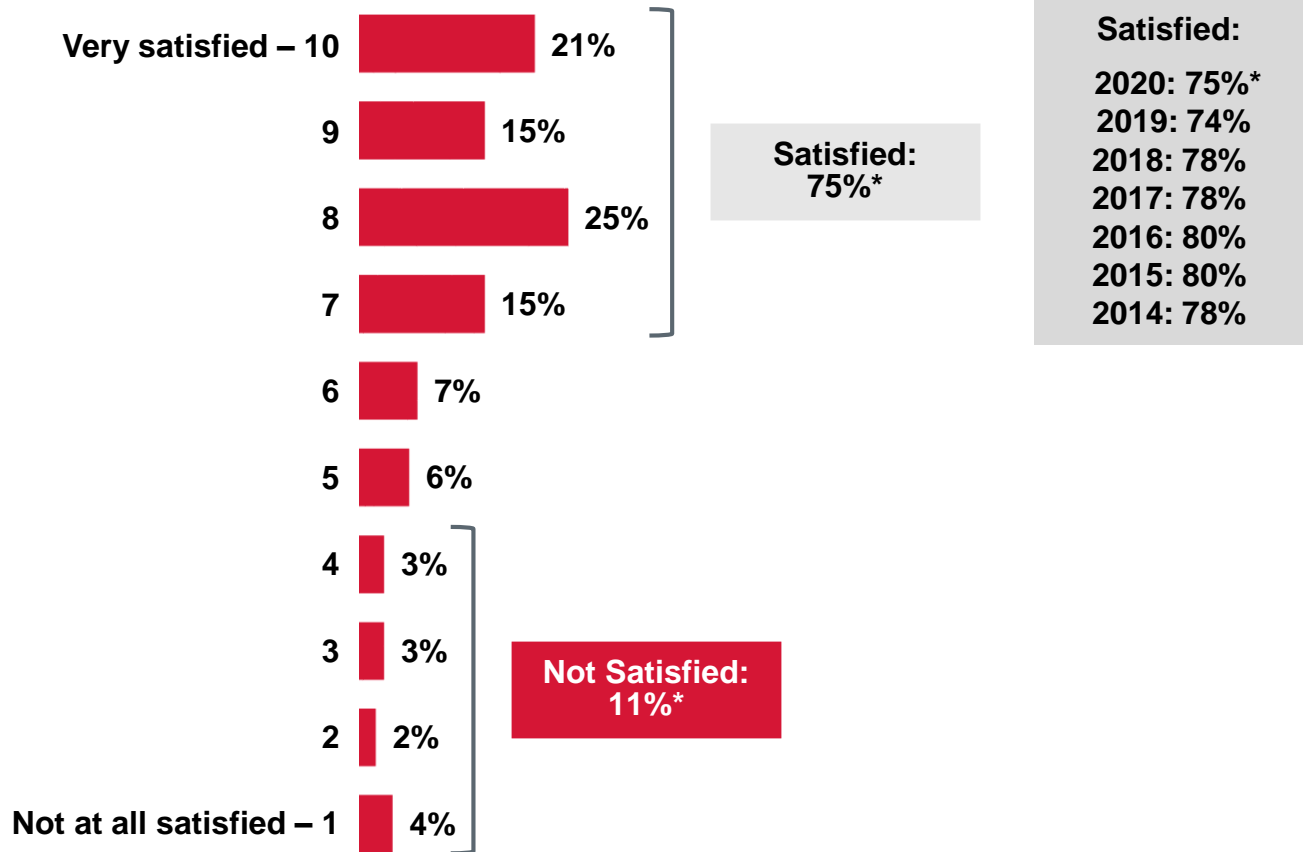


Have you contacted The City of Calgary or one of its employees in the last twelve months?
Base: Valid respondents

Not asked in Spring 2020 & Spring 2017



Satisfaction with the Overall Level and Quality of Customer Service



On a scale of 1 to 10 where “1” represents “not at all satisfied” and “10” represents “very satisfied”, how satisfied are you with the overall level and quality of customer service provided by The City of Calgary?

Base: Valid respondents who contacted The City in the last twelve months (n=1,535)

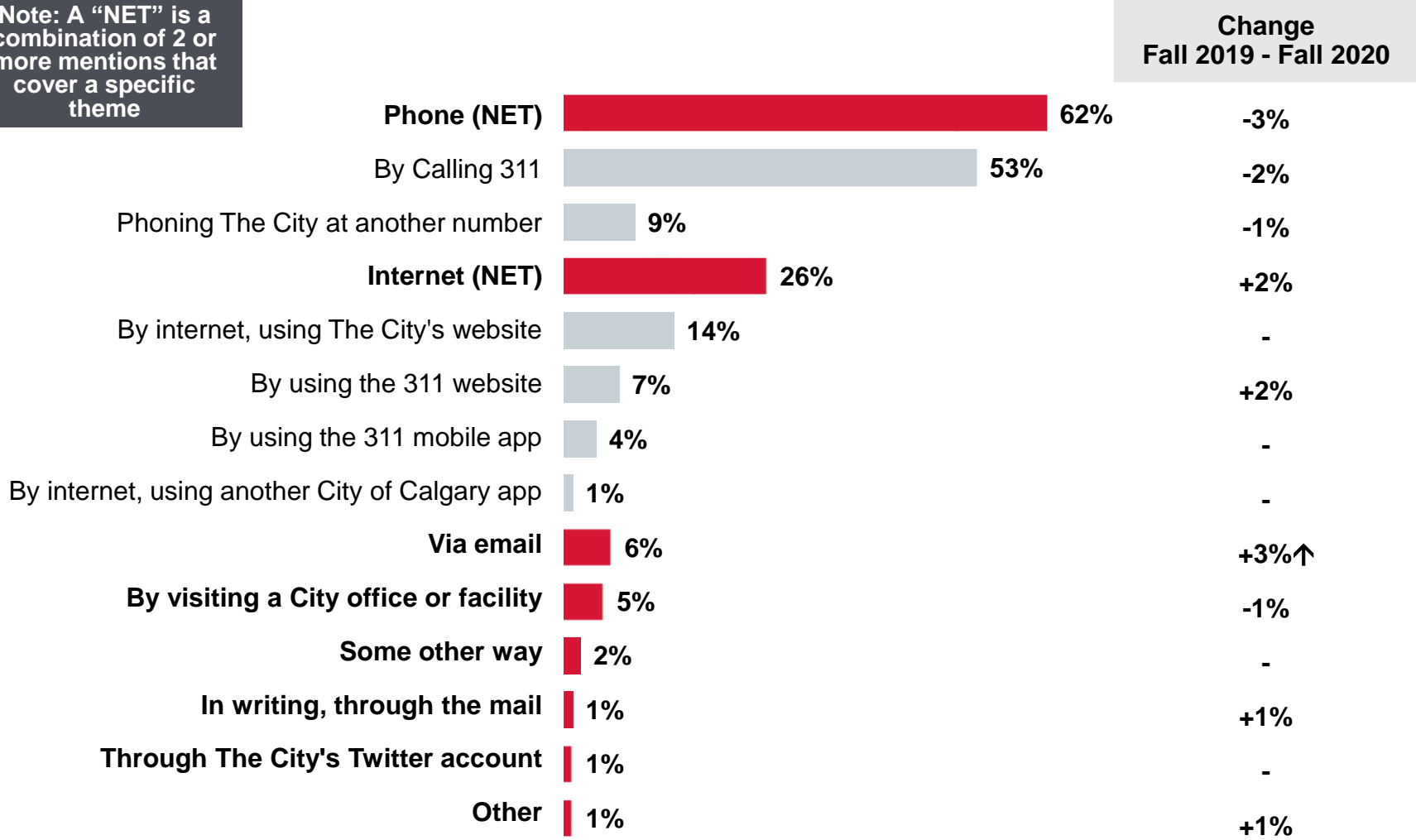
*Rounding

All waves conducted in the Fall



Type of Contact

Note: A "NET" is a combination of 2 or more mentions that cover a specific theme



Mentions of <1% are not shown

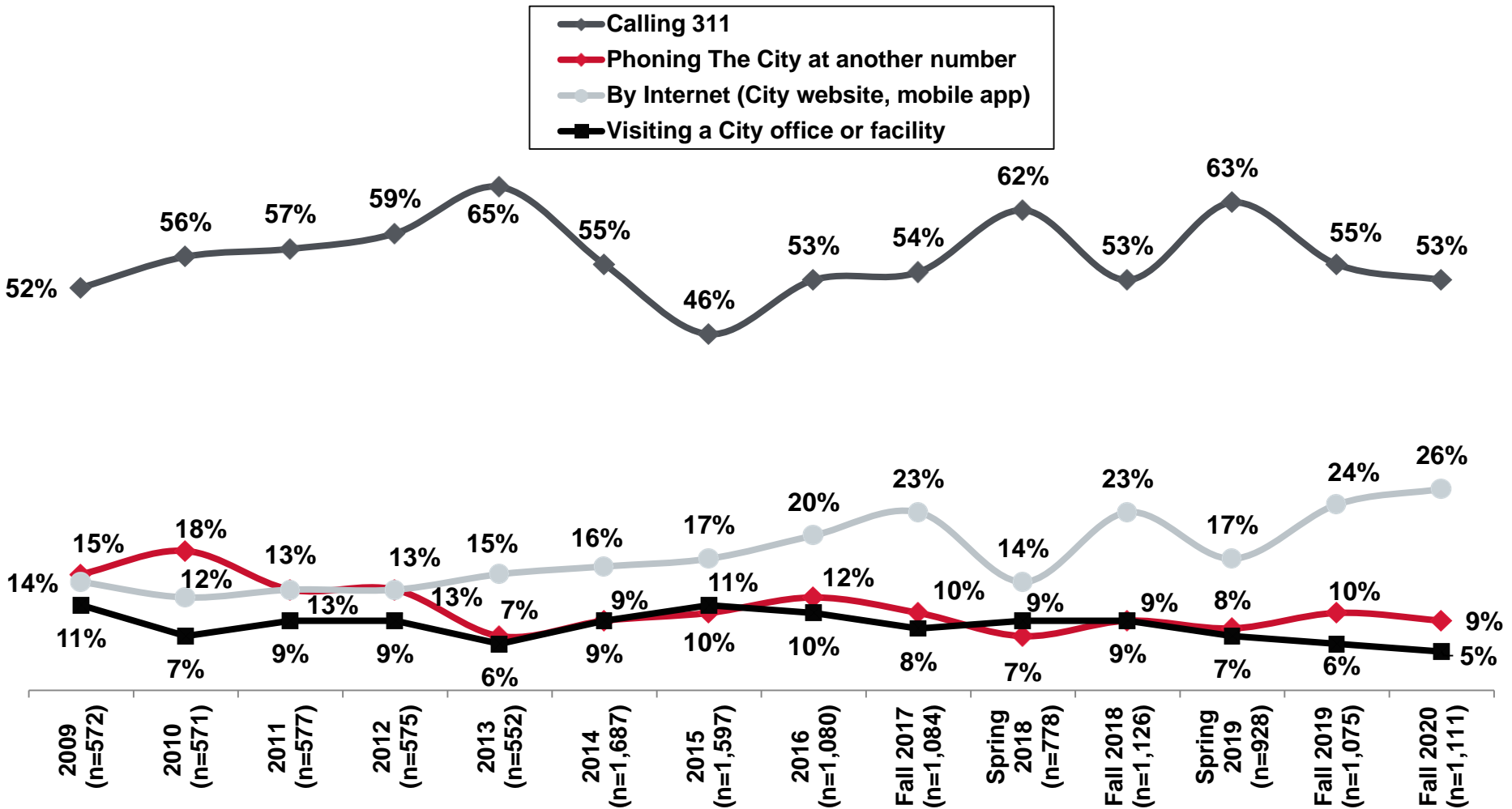
↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019

When you contacted The City was it... ?

Base: Valid respondents who contacted The City in the last twelve months (n=1,111)



Tracking Type of Contact



When you contacted The City was it... ?

Base: 2016 to 2019: Valid respondents who contacted The City of Calgary in the last twelve months | 2006 to 2015: Valid respondents who contacted or dealt with The City of Calgary in the last 12 months

Not asked in Spring 2020 & Spring 2017

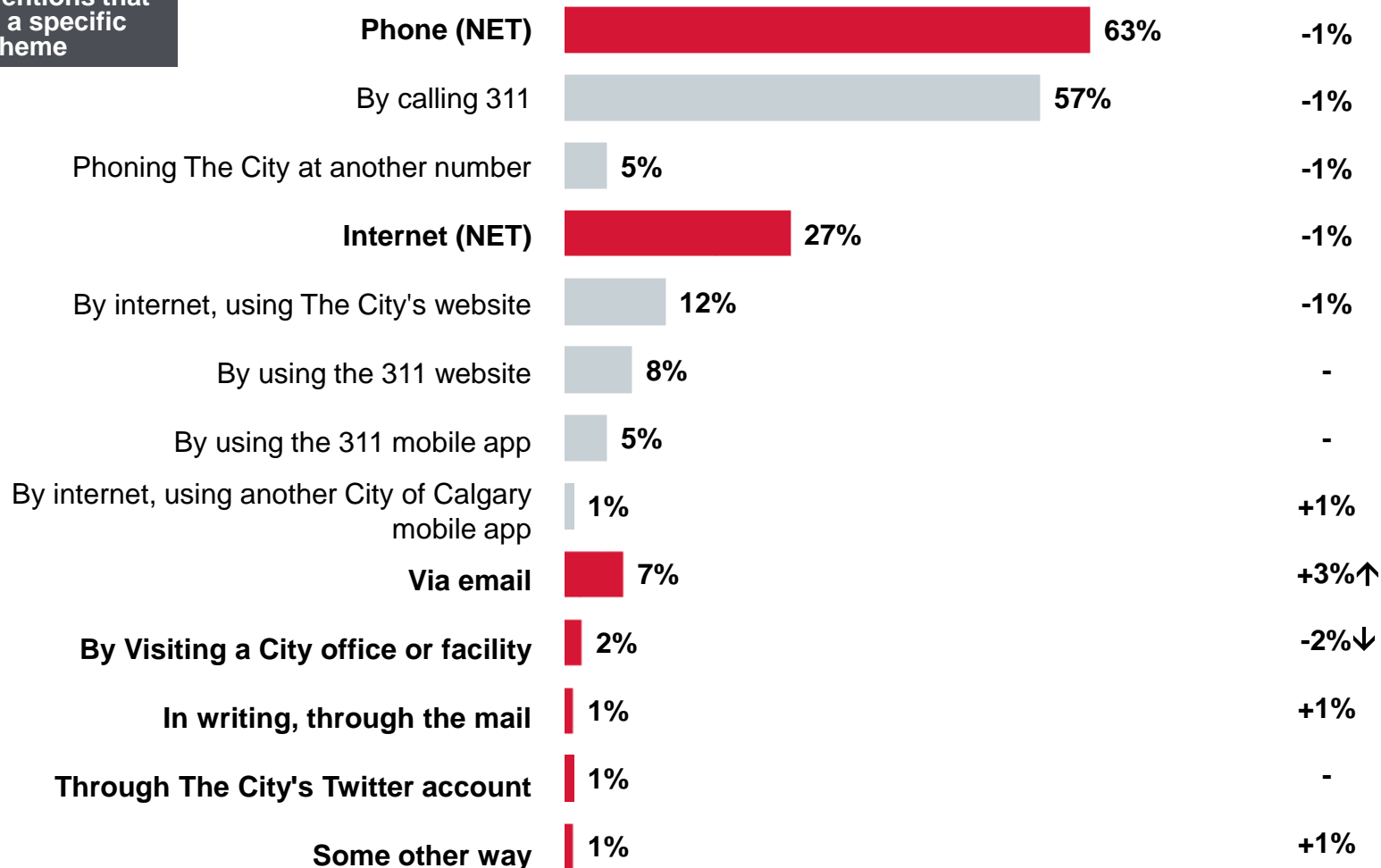
↑ Statistically higher than Fall 2019
 ↓ Statistically lower than Fall 2019



Preferred Method of Contact

Note: A "NET" is a combination of 2 or more mentions that cover a specific theme

Change
Fall 2019 - Fall 2020



Mentions of <1% are not shown

What is your preferred way of contacting The City?

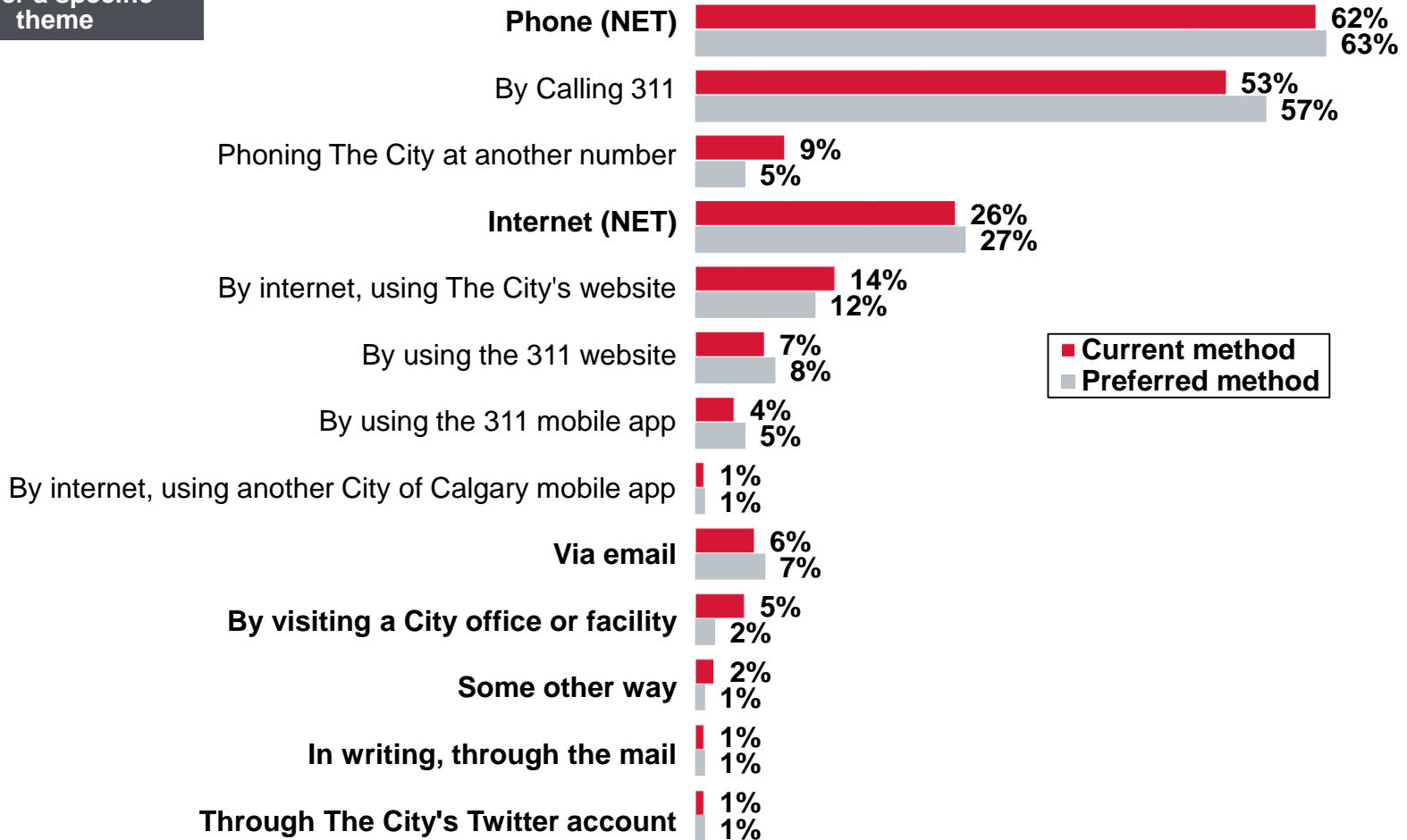
Base: Valid respondents who contacted The City in the last twelve months (n=1,111)

↑Statistically higher than Fall 2019
↓Statistically lower than Fall 2019



Current vs. Preferred Method of Contact

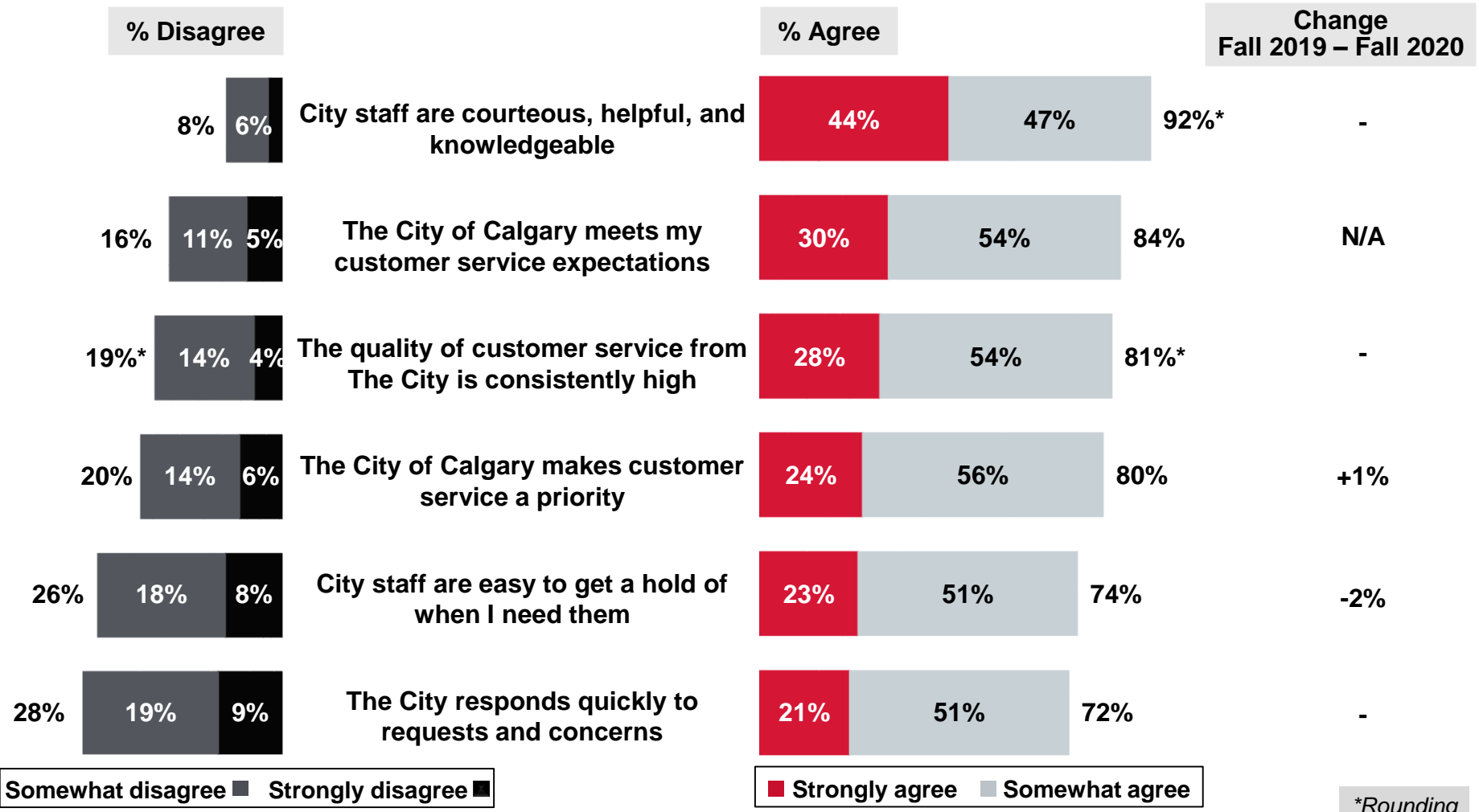
Note: A "NET" is a combination of 2 or more mentions that cover a specific theme



When you contacted The City was it... ? / What is your preferred way of contacting The City?
 Base: Valid respondents who contacted The City in the last twelve months (n=1,111/n=1,111)



Attitudes Regarding Customer Service



Thinking about your personal dealings with The City of Calgary, your general impressions and anything you may have read, seen or heard, please tell me whether you agree or disagree with each of the following statements about The City?

Base: Valid respondents (Bases vary)

Data labels of <3% are not shown

↑ Statistically higher than Fall 2019

↓ Statistically lower than Fall 2019



Tracking Attitudes Regarding Customer Service

% Agree

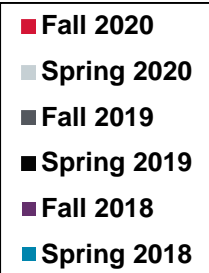
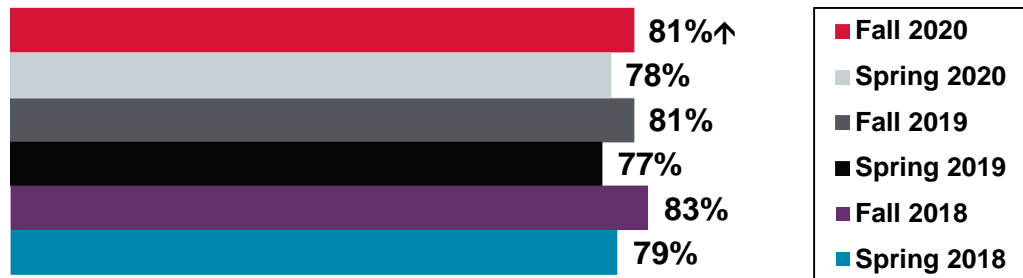
City staff are courteous, helpful, and knowledgeable



The City of Calgary meets my customer service expectations



The quality of customer service from The City is consistently high



Thinking about your personal dealings with The City of Calgary, your general impressions and anything you may have read, seen or heard, please tell me whether you agree or disagree with each of the following statements about The City? Base: Valid respondents (Bases vary)

↑ Statistically higher than Spring 2020
 ↓ Statistically lower than Spring 2020



Tracking Attitudes Regarding Customer Service

(continued)

% Agree

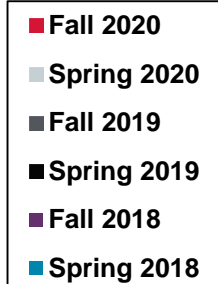
The City of Calgary makes customer service a priority



City staff are easy to get a hold of when I need them



The City responds quickly to requests and concerns



Thinking about your personal dealings with The City of Calgary, your general impressions and anything you may have read, seen or heard, please tell me whether you agree or disagree with each of the following statements about The City? Base: Valid respondents (Bases vary)

↑ Statistically higher than Spring 2020
 ↓ Statistically lower than Spring 2020

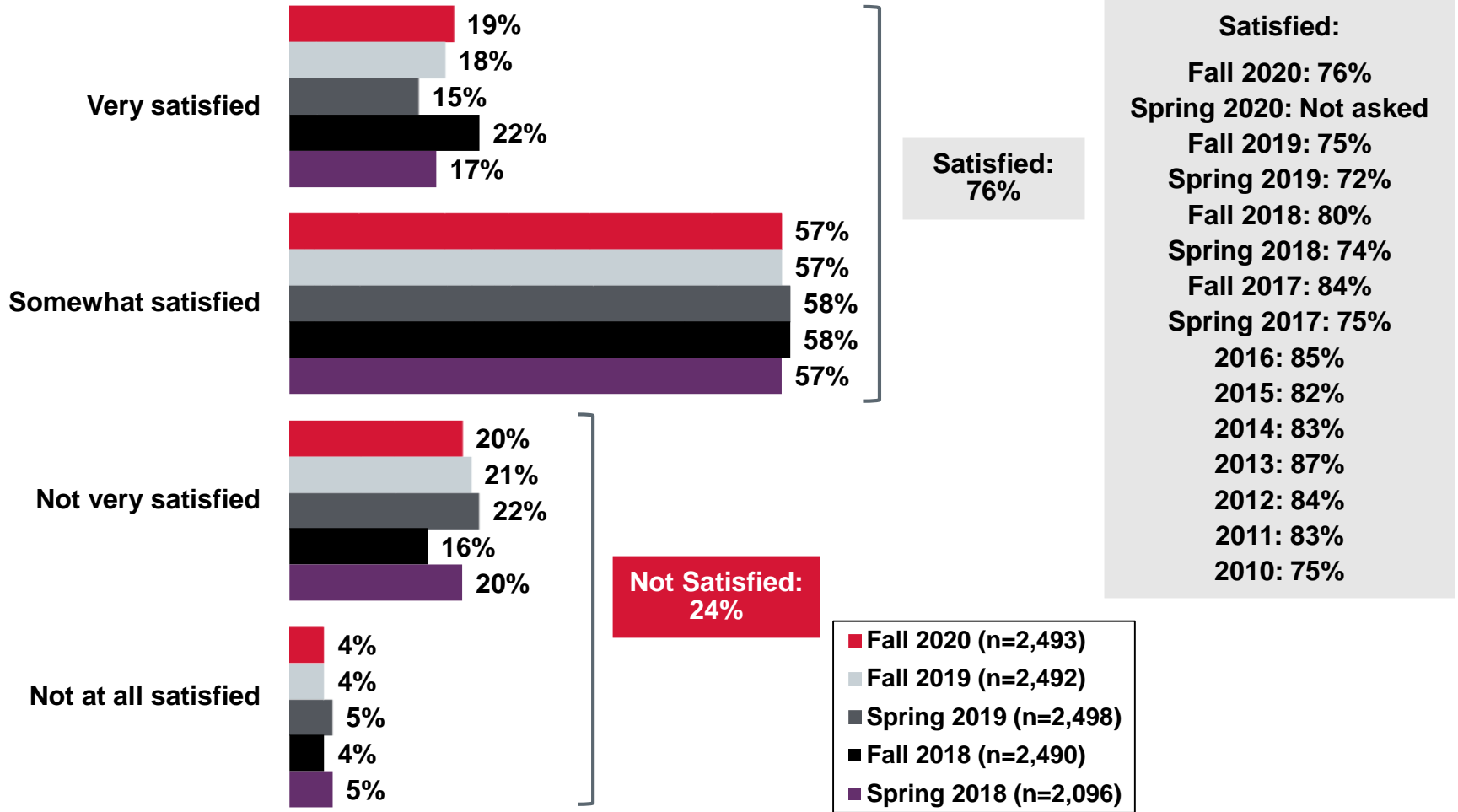


City Communications





Satisfaction with the Overall Quality of City Information and Communications

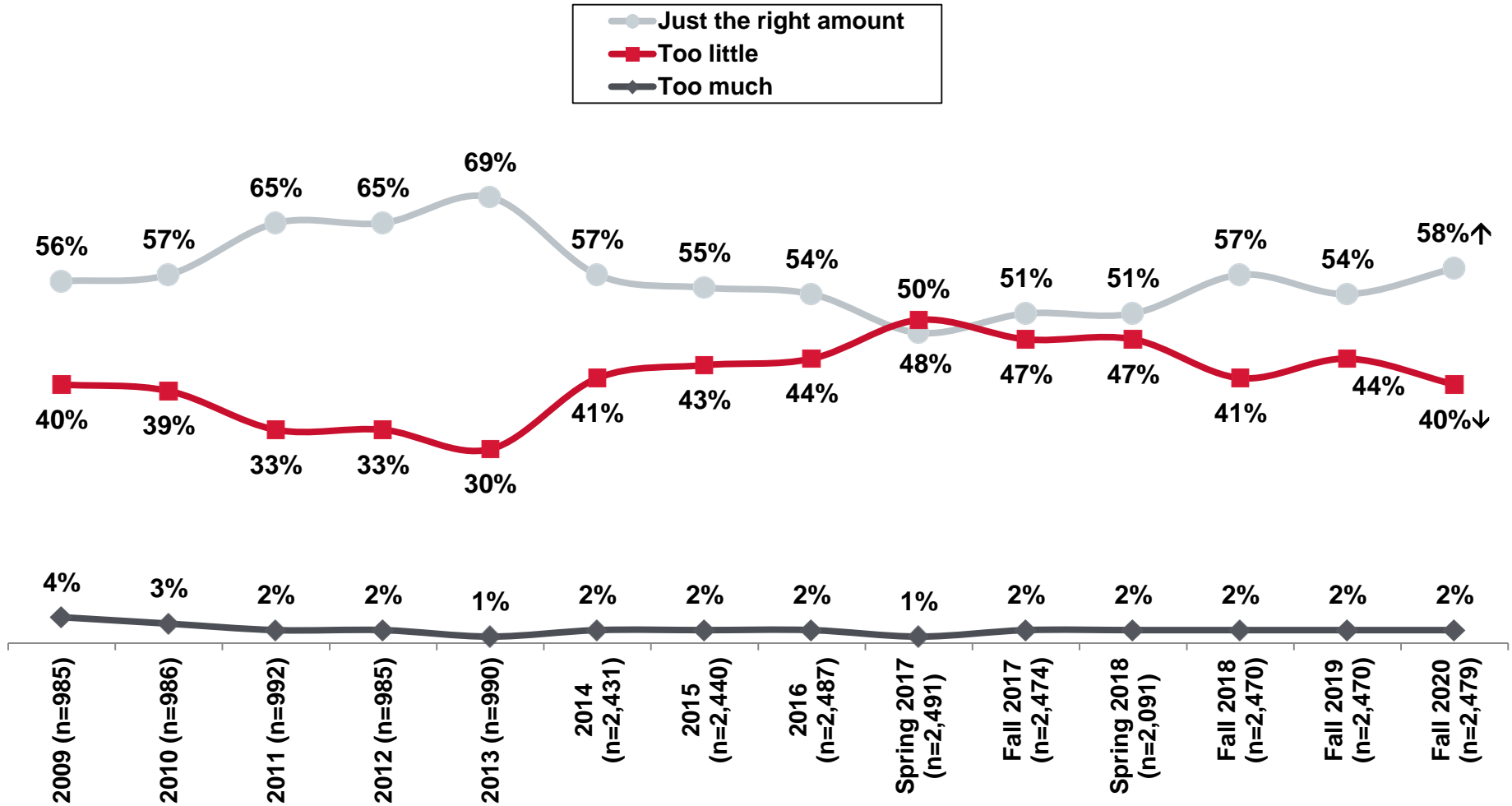


And how satisfied are you with the overall quality of City information and communications?
 Base: Valid respondents

Not asked in Spring 2020



Amount of Accessible Information



In your opinion, do you currently [have access to](#) [prior to Spring 2018: [receive](#)] too much, too little, or just the right amount of information from The City?

Base: Valid respondents

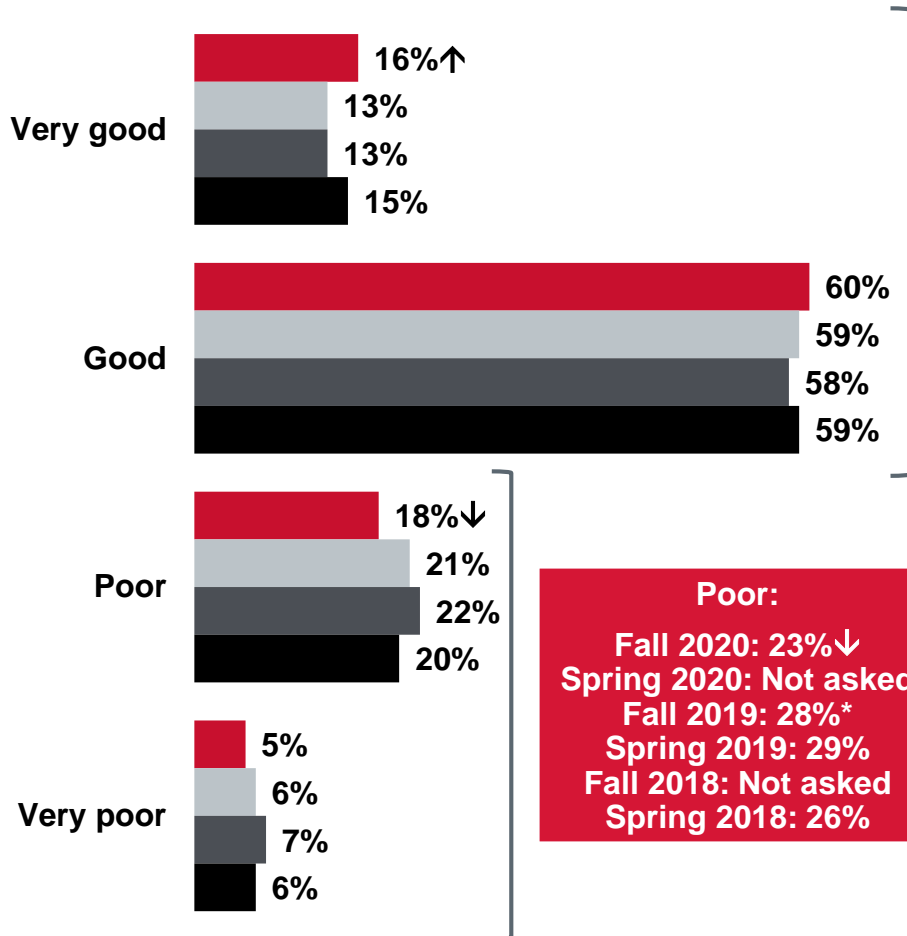
Not asked in Spring 2020 & 2019

↑ Statistically higher than Fall 2019

↓ Statistically lower than Fall 2019



Overall Communications from The City



Good:
 Fall 2020: 77%*↑
 Spring 2020: Not asked
 Fall 2019: 72%
 Spring 2019: 71%
 Fall 2018: Not asked
 Spring 2018: 74%

Poor:
 Fall 2020: 23%↓
 Spring 2020: Not asked
 Fall 2019: 28%*
 Spring 2019: 29%
 Fall 2018: Not asked
 Spring 2018: 26%

■ Fall 2020 (n=2,484)
 ■ Fall 2019 (n=2,486)
 ■ Spring 2019 (n=2,491)
 ■ Spring 2018 (n=2,495)

*Rounding

Not asked in Spring 2020 or Fall 2018

↑Statistically higher than Fall 2019
 ↓Statistically lower than Fall 2019

Overall, how would you rate The City of Calgary in terms of how well it communicates with citizens about its services, programs, policies and plans in the past 6 months?

Base: Valid respondents

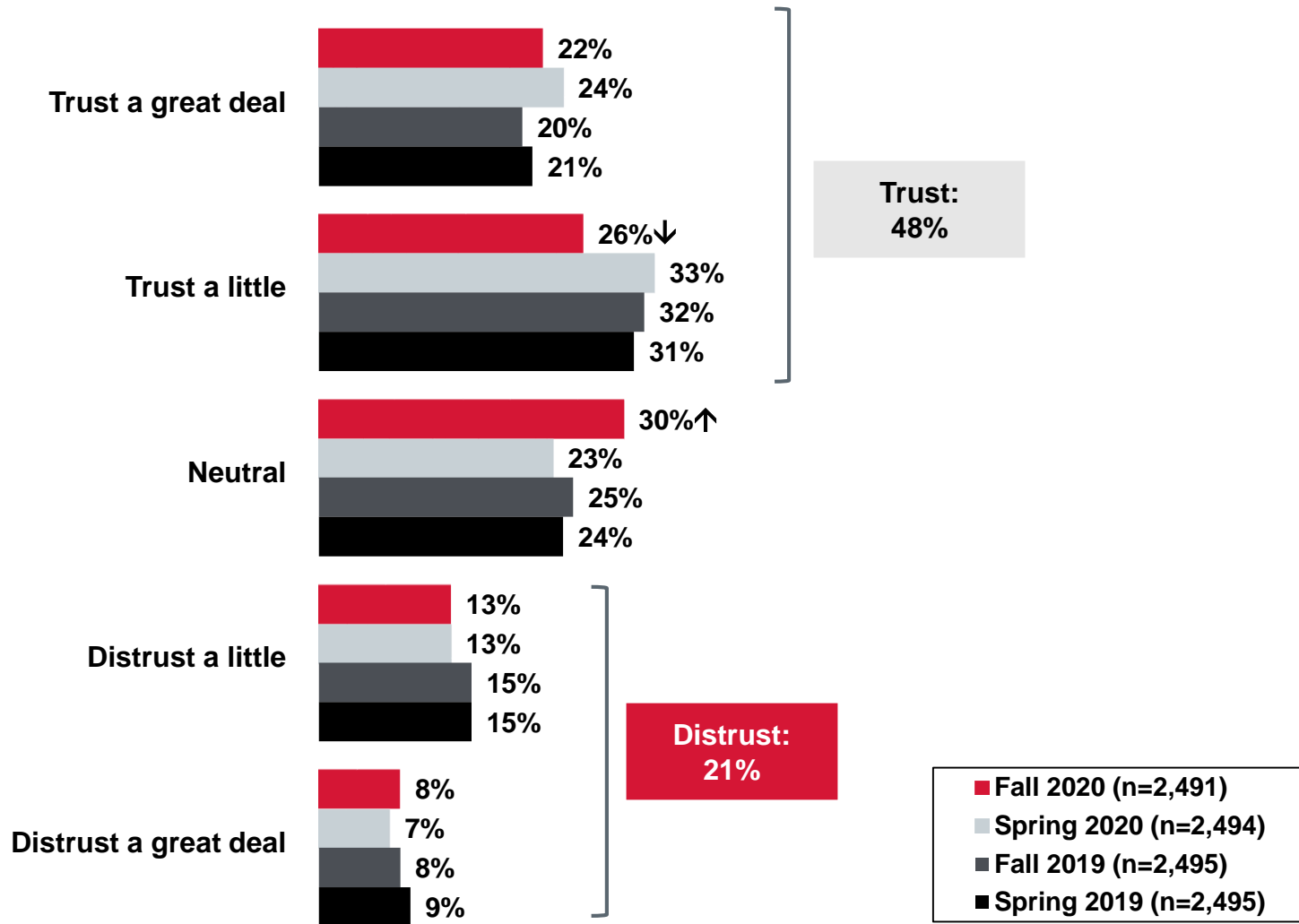


City Reputation and Performance





Trust in The City

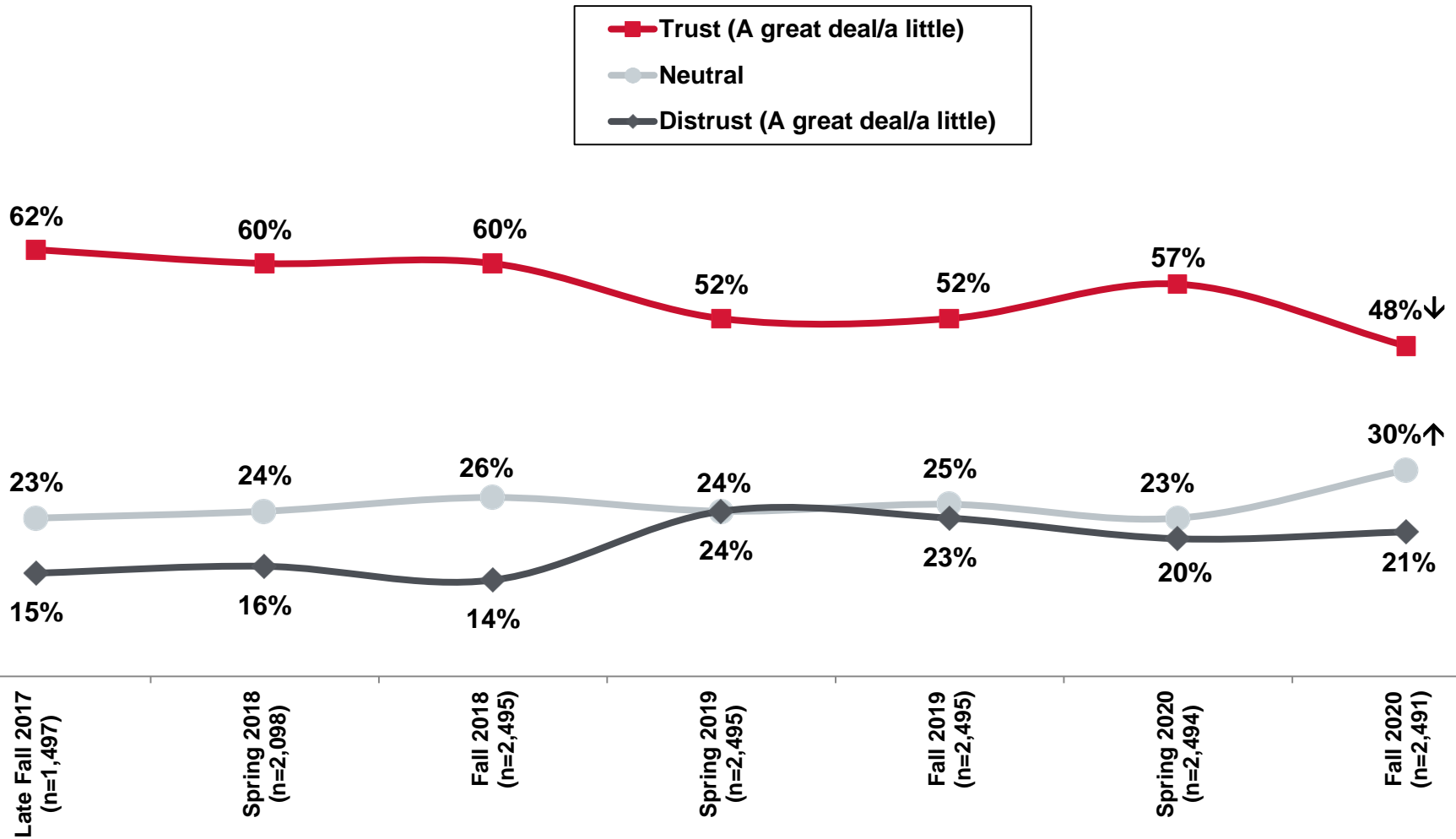


Again, taking into account all of the things which you think are important, how much do you trust or distrust The City of Calgary?
 Base: Valid respondents | ++Question introduced in an additional survey in Late Fall 2017

↑Statistically higher than Spring 2020
 ↓Statistically lower than Spring 2020



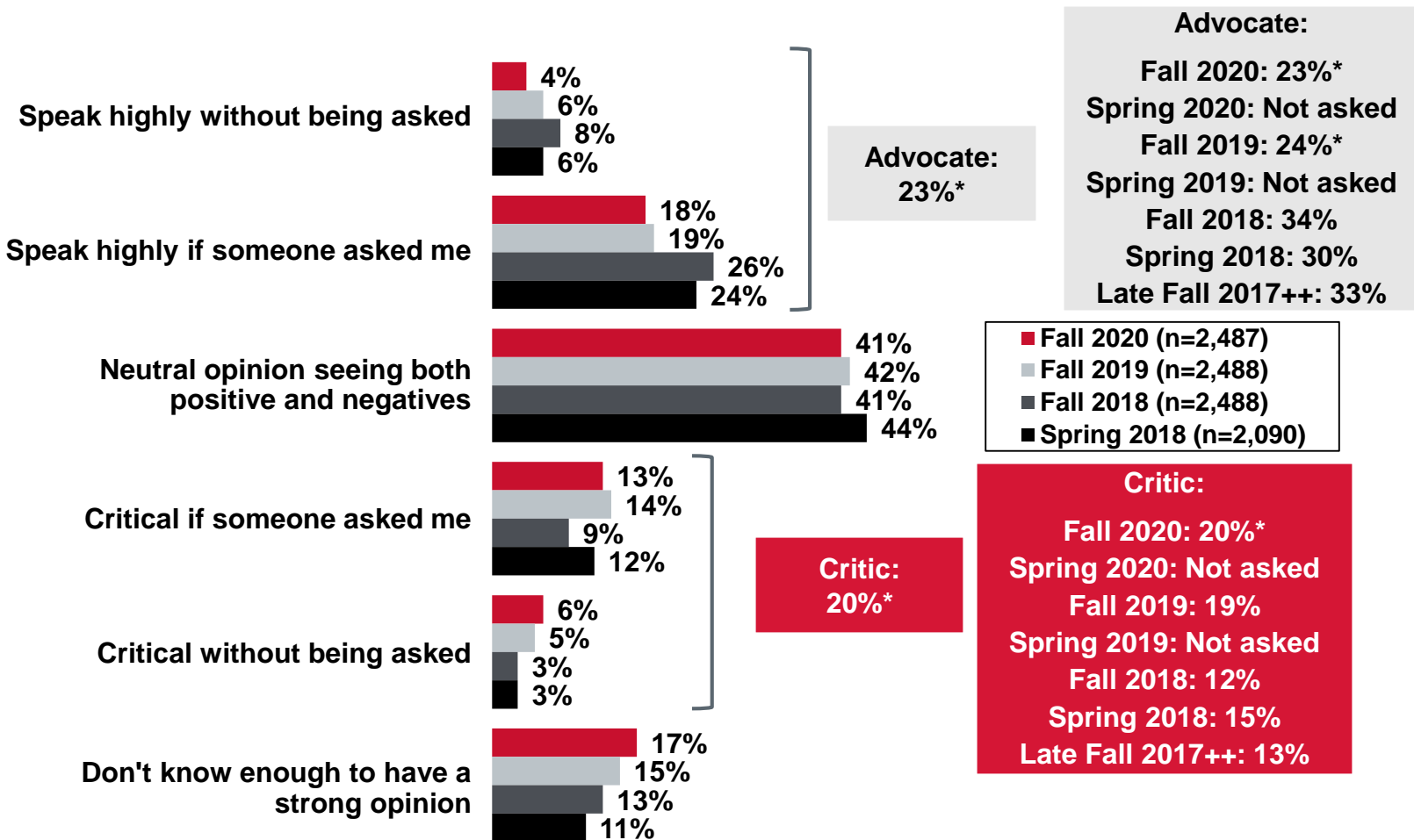
Tracking Trust in The City



Again, taking into account all of the things which you think are important, how much do you trust or distrust The City of Calgary?

Base: Valid respondents

↑Statistically higher than Spring 2020
 ↓Statistically lower than Spring 2020



Which one of the following statements best reflects your overall opinion and perceptions of The City of Calgary?

Base: Valid respondents

++Question introduced in an additional survey in Late Fall 2017

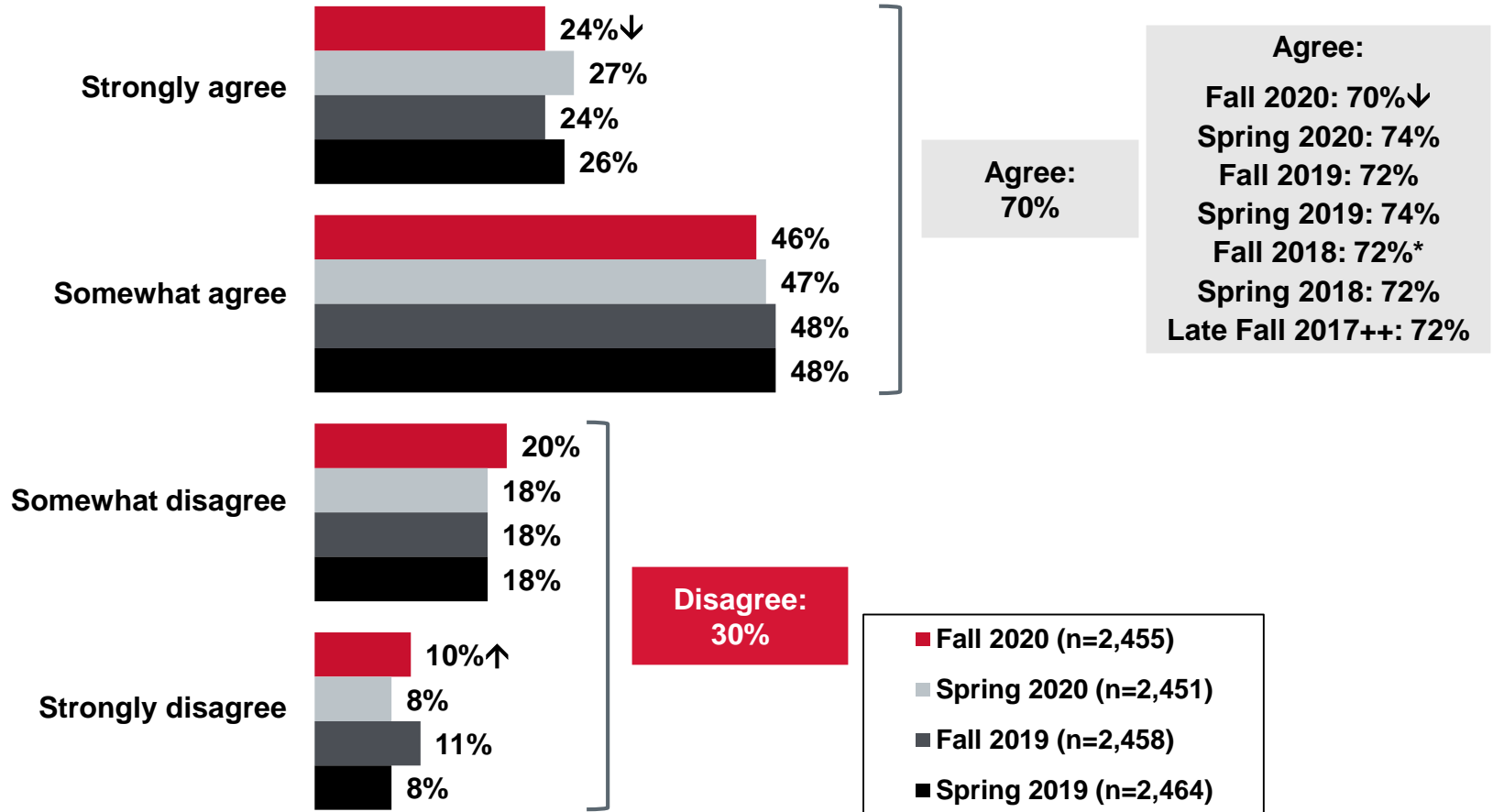
*Rounding

Not asked in Spring 2020 & Spring 2019



Understanding of the Roles of City Council versus City Administration

I understand the roles and responsibilities of City Council compared to those of City Administration



Do you strongly agree, somewhat agree, somewhat disagree or strongly disagree with the following statement: I understand the roles and responsibilities of City Council compared to those of City Administration.

Base: Valid respondents | ++Question introduced in an additional survey in Late Fall 2017

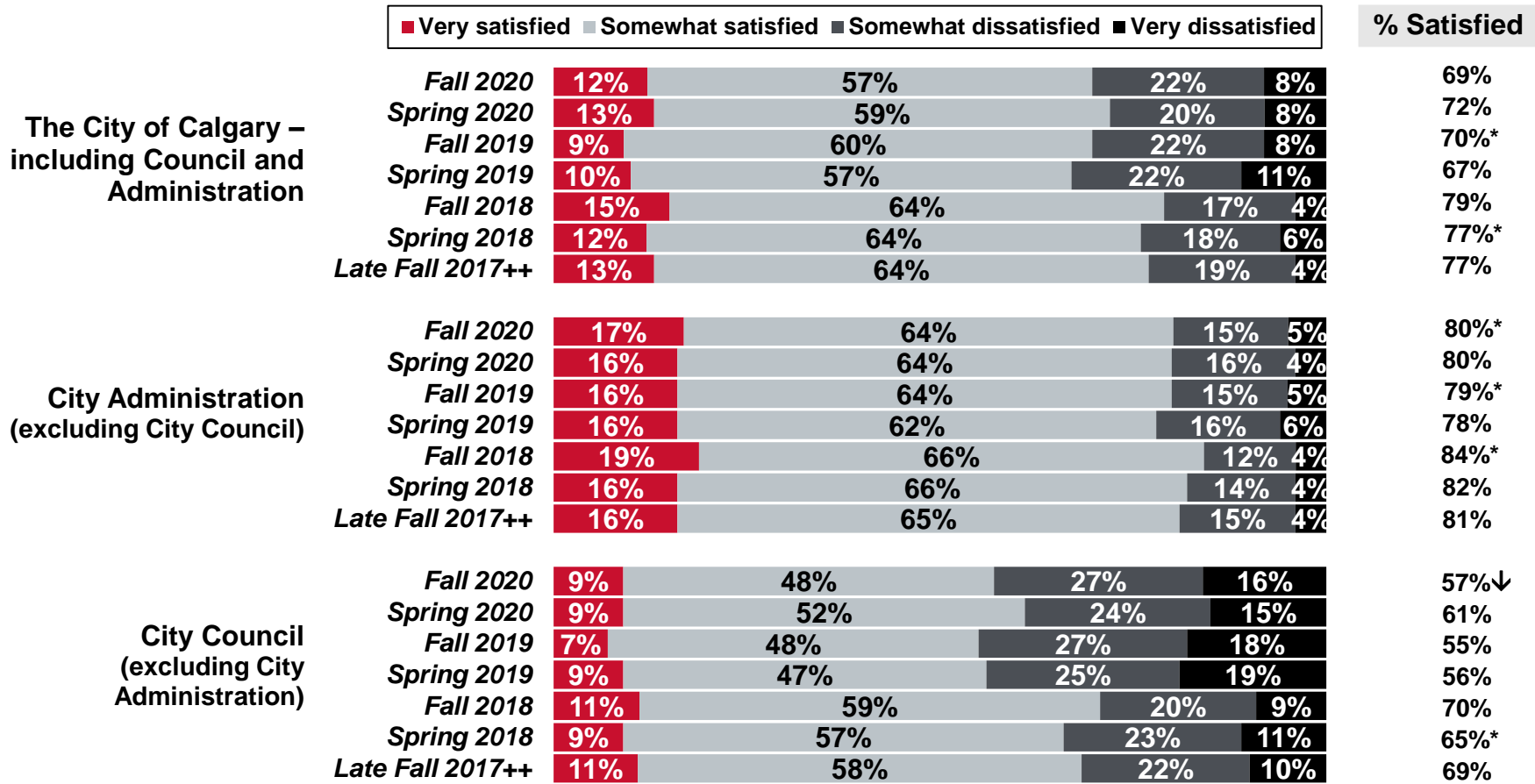
*Rounding

↑Statistically higher than Spring 2020
 ↓Statistically lower than Spring 2020



Perceptions About City Performance

As you may know, **City Council** is made up of elected officials who are the legislative body that govern The City. While **City Administration** is made up of non-elected employees at The City who are responsible for the management and running of local services. In other words, public servants who administer services, facilities, safety and infrastructure for communities.



Taking everything into account, how satisfied or dissatisfied are you with the way [INSERT] is going about running our City?

Base: Valid respondents (Bases vary)

++Question introduced in an additional survey in Late Fall 2017

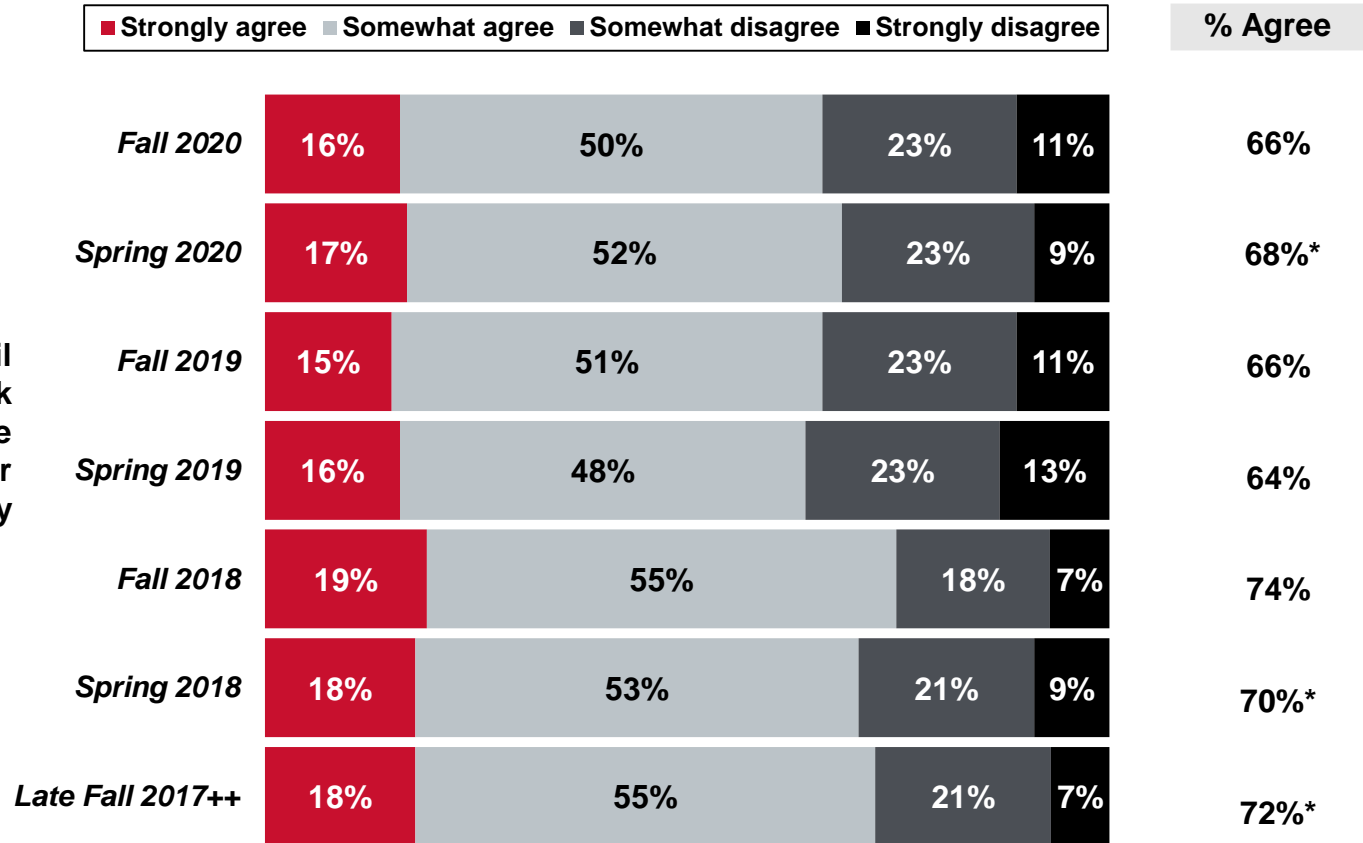
*Rounding

↑Statistically higher than Spring 2020
↓Statistically lower than Spring 2020



Attitudes Regarding Collaboration

I believe that City Council and City Administration work collaboratively to make the best possible decisions for the future of Calgary



Please tell me whether you agree or disagree with each of the following statements?

Base: Valid respondents (Bases vary)

++Question introduced in an additional survey in Late Fall 2017

*Rounding

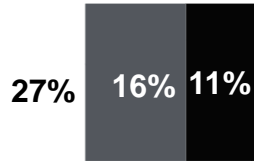


Perceptions of Transparency and Citizen Input

% Disagree

% Agree

Change
Fall 2019 – Fall 2020



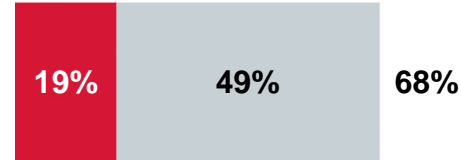
The City of Calgary practices open and accessible government



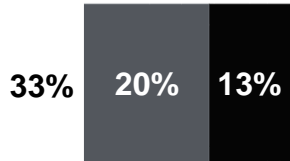
73% +2%



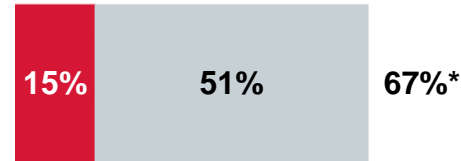
I am confident that The City of Calgary is working to improve how it includes citizen input into important decisions



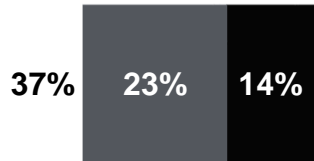
68% -



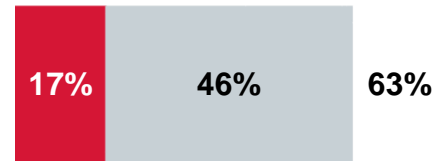
The City uses input from Calgarians in decision-making about City projects and services



67%* +2%



The City allows citizens to have meaningful input into decision-making



63% +3%

Somewhat disagree ■ Strongly disagree ■

Strongly agree ■ Somewhat agree

Thinking about your personal dealings with The City of Calgary, your general impressions and anything you may have read, seen or heard, please tell me whether you agree or disagree with each of the following statements about The City?

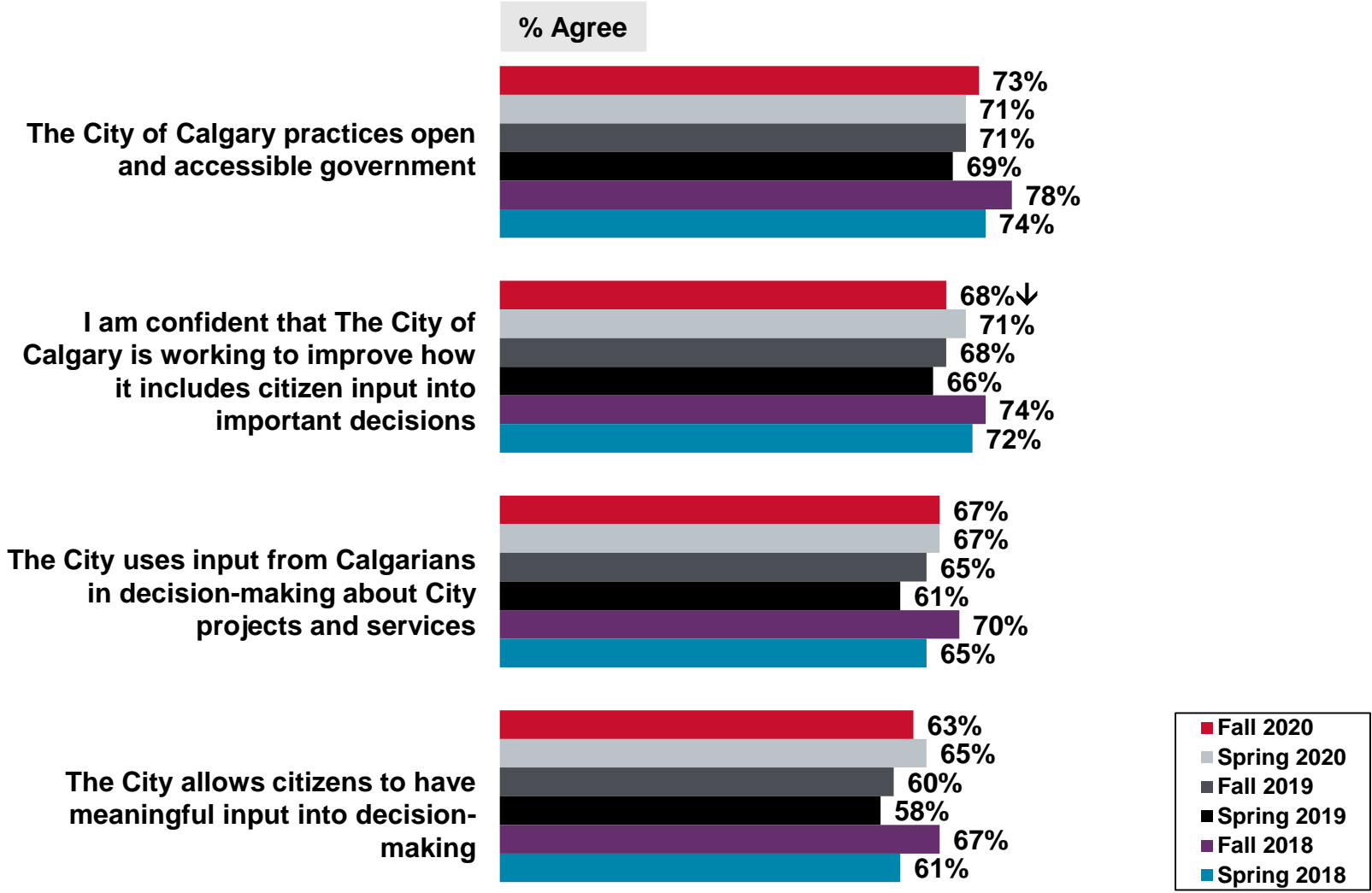
Base: Valid respondents (Bases vary)

*Rounding

↑ Statistically higher than Fall 2019
↓ Statistically lower than Fall 2019



Tracking Perceptions of Transparency and Citizen Input



Thinking about your personal dealings with The City of Calgary, your general impressions and anything you may have read, seen or heard, please tell me whether you agree or disagree with each of the following statements about The City?

Base: Valid respondents (Bases vary)

↑ Statistically higher than Spring 2020
 ↓ Statistically lower than Spring 2020



Respondent Profile





Respondent Profile

Gender

Female	50%
Male	49%
Other	<1%

Quadrant

Southwest	28%
Southeast	24%
Northwest	28%
Northeast	20%

Education

Completed high school or less	16%
Some post secondary or completed a college diploma	34%
Completed university degree or post-grad degree	50%

Age

18 to 24	11%
25 to 34	22%
35 to 44	18%
45 to 54	19%
55 to 64	13%
65 or older	17%
Mean	45.5

Income

Less than \$30,000	7%
\$30,000 to <\$45,000	8%
\$45,000 to <\$60,000	10%
\$60,000 to <\$75,000	9%
\$75,000 to <\$90,000	9%
\$90,000 to <\$105,000	11%
\$105,000 to <\$120,000	11%
\$120,000 to <\$150,000	13%
\$150,000 or more	23%

Base: Valid respondents (Bases vary)



Respondent Profile (continued)

Type of Dwelling

Single-detached house	69%
Apartment or apartment-style condominium	13%
Townhouse or rowhouse	8%
Duplex, triplex or fourplex	8%
Another type of multi-dwelling unit	2%

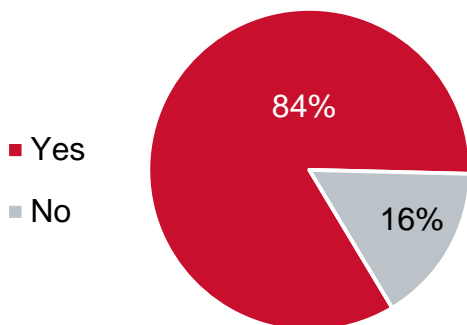
Children and Seniors in Household

Yes - Children	31%
Yes - Seniors	28%

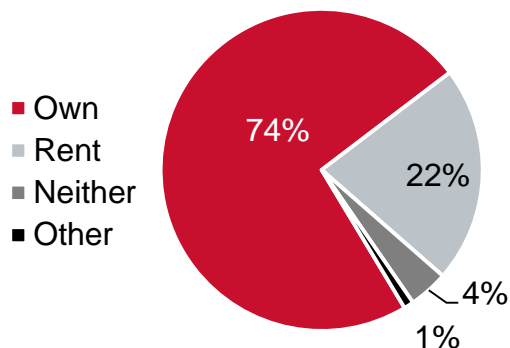
Household Size

1	14%
2	33%
3	19%
4	21%
5 or more	13%
Mean	2.9

Responsible for Property Taxes



Own or Rent



Tenure in Calgary

Less than 5 years	6%
5 to less than 10 years	10%
10 to less than 15 years	10%
15 to less than 20 years	10%
20 to less than 30 years	24%
30 to less than 40 years	15%
40 or more	26%
Mean	27.2

Base: Valid respondents (Bases vary)



Born in Canada

Yes	73%
No	27%

Age Left Country of Birth

Base: Not born in Canada (n=639)	
Under the age of 12	30%
12 to 17	12%
18 or older	57%

Ethnic Background

Caucasian/ White	26%
British	18%
Canadian/ French Canadian	15%
Northern or Western European	11%
East or Southeast Asian	11%
Southern or Eastern European	7%
South Asian	7%
Central/ South American or Caribbean	3%
West Asian or Middle Eastern	2%
African	2%
Aboriginal/ First Nations/ Metis	1%
Declined to respond	1%
Don't Know	4%

Disability

Yes	18%
No	82%

Visible Minority

Yes	27%
No	73%

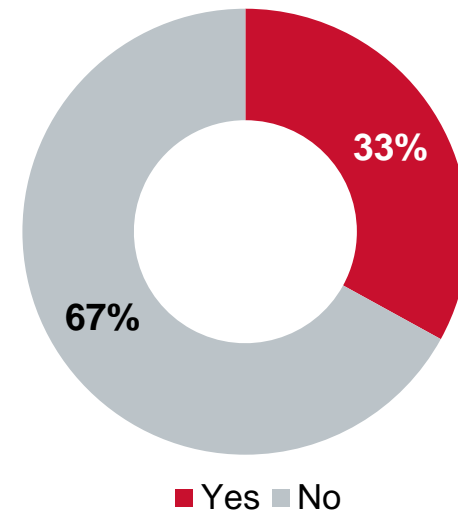
Base: Valid respondents (Bases vary)



Employment Status

Employed full time	43%
Employed part time	8%
Self-employed	10%
Out of work and looking for work	9%
Out of work but not currently looking for work	2%
Homemaker	2%
Student	6%
Retired	17%
Unable to work	2%
Other	1%

Business Leader



Among those in the workforce
(n=1,377 valid respondents)

Base: Valid respondents (Bases vary)

The word "Calgary" in white sans-serif font on a red rectangular background.

Contact

Krista Ring
Manager of Web, Research & Projects
The City of Calgary
403-268-9963 | 403-988-9425
Krista.Ring@Calgary.ca

Public health surveillance response following the southern Alberta floods, 2013

Vanita Sahni, MHSc, Allison N. Scott, MSc, Marie Beliveau, MSc, Marie Varughese, MSc, Douglas C. Dover, MSc, James Talbot, MD, PhD

ABSTRACT

OBJECTIVE: In June of 2013, southern Alberta underwent flooding that affected approximately 100,000 people. We describe the process put in place for public health surveillance and assessment of the impacts on health.

METHODS: Public health surveillance was implemented for the six-week period after the flood to detect anticipated health events, including injuries, mental health problems and infectious diseases. Data sources were emergency departments (EDs) for presenting complaints, public health data on the post-exposure administration of tetanus vaccine/immunoglobulin, administrative data on prescription drugs, and reportable diseases.

RESULTS: An increase in injuries was detected through ED visits among Calgary residents (rate ratio [RR] 1.28, 95% confidence interval [CI]: 1.14–1.43) and was supported by a 75% increase in the average weekly administration of post-exposure prophylaxis against tetanus. Mental health impacts in High River residents were observed among females through a 1.64-fold (95% CI: 1.11–2.43) and 2.32-fold (95% CI: 1.45–3.70) increase in new prescriptions for anti-anxiety medication and sleep aids respectively. An increase in sexual assaults presenting to EDs (RR 3.18, 95% CI: 1.29–7.84) was observed among Calgary residents. No increases in infectious gastrointestinal disease or respiratory illness were identified. Timely identification and communication of surveillance alerts allowed for messaging around the use of personal protective equipment and precautions for personal safety.

CONCLUSION: Existing data sources were used for surveillance following an emergency situation. The information produced, though limited, was sufficiently timely to inform public health decision-making.

KEY WORDS: Floods; population surveillance; epidemiology

La traduction du résumé se trouve à la fin de l'article.

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On June 19, 2013, heavy rainfall in southern Alberta resulted in one of the largest and most destructive floods in the province's history.¹ This led to a provincial state of emergency and 29 local states of emergency being declared.¹ A 55,000 km² region was directly affected, including 30 communities and with an estimated total of 100,000 people. Damage occurred to roadways, water and waste-water treatment facilities, over 80 schools and 5 health care facilities.¹ Several communities were affected, including Calgary, Alberta's largest city. The hardest hit community was High River, located 40 km south of Calgary. All 12,000 community members were evacuated, and mandatory evacuation remained in place for eight days, after which re-entry occurred in a staged approach.²

As part of the emergency response, the Alberta Ministry of Health was engaged to identify and report on any emerging health threats associated with the floods in order to inform public health actions. The immediate health impacts described in the literature were predominantly non-communicable and included deaths,³ injuries^{3–8} and physiological distress,^{3,5} infectious diseases^{3,5,9} were also a potential risk.

Injuries requiring medical attention can occur shortly before a flood (e.g., during evacuation), and during and after the event (e.g., drowning,^{3,10} musculoskeletal stress,⁷ punctures and lacerations,^{4,8} electrocution³ and carbon monoxide poisoning^{6,7}).

Psychological distress, defined as a person's natural coping mechanisms becoming overwhelmed, is common after a natural disaster; for most people the effect will be temporary and they will recover independently with the support of personal networks.¹¹ Mental health impacts can include anxiety¹² and difficulty sleeping,¹³ as well as the precipitation or exacerbation of mental health disorders requiring medical attention (e.g., depression, post-traumatic stress disorder).¹¹ For only a small subset of those with psychological distress will mental disorders go on to develop over the long term.¹¹ Monitoring prescription drug changes can provide an indirect measure of psychological distress in the population.^{14–16} Psychological stress has been associated with externalized behaviour such as substance abuse and violence.¹⁷ An increase in violence following a disaster has been observed in some studies.¹⁸

The potential for infectious diseases after a flood is related to what is endemic in the area. Following Hurricane Katrina, medical

Author Affiliations

Alberta Ministry of Health, Edmonton, AB

Correspondence: Vanita Sahni, Surveillance and Assessment, Alberta Health, 23rd Floor, ATB Place, 10025 Jasper Avenue NW, Edmonton, AB T5J 1S6, Tel: 780-415-2820, E-mail: vanita.sahni@gov.ab.ca

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Conflict of Interest: None to declare.

Table 1. Summary of data sources

Data source	Population under surveillance (area of residence)	Baseline period	Timeliness: time for the data set to be updated	Frequency of reporting	Date of first report
Emergency departments and urgent care centres	Calgary*	June 6–18, 2013 2003–2012 historical ED discharge data for the same weeks	1 day	Daily	July 4
Prescription information network	Flood-affected vs. not-affected neighbourhoods in Calgary* High River* Calgary* Selected First Nations communities Flood-affected vs. not-affected communities	June 16, 2012–June 19, 2013	3 days	Weekly	July 9
Immunization registry (ImmARI)	Calgary* Palliser Region Chinook Region David Thompson Region	April 1–June 16, 2013	Calgary: 1 week Other health regions: variable	Calgary: weekly	July 4
Communicable Diseases Reporting System	Regional health authorities Flood-affected vs. not-affected communities	June 1–June 18, 2013 3-year historical monthly averages	2 days	Daily	June 28

* Population counts for the areas under surveillance: Calgary – 1,237,857, flood-affected – 118,391, not-flood affected – 1,119,465, High River – 16,702.

issues consisted predominantly of skin/wound infections, acute respiratory infections and diarrhea.⁹ Injury-related infections are expected within a few days after a flood; airborne, waterborne and foodborne infections are expected up to a month afterwards because of incubation times. In North America, infectious disease outbreaks after a flood are uncommon;⁹ however, factors that may be present and may increase infectious disease risks include crowded living conditions (e.g., evacuation centres),⁹ compromised sanitation (e.g., of hand hygiene, waste disposal, food preparation, drinking water)^{3,19} and power outages (e.g., loss of food refrigeration).¹⁹

This report describes public health surveillance activities, results and actions for the six weeks after the flood in southern Alberta. It discusses the extent to which surveillance contributed to public health actions and lessons learned.

METHODS

Enhanced surveillance efforts focused on injuries, mental health, violence and infectious diseases. Data sources that had the potential to aid in monitoring these three areas were identified and evaluated according to the following criteria: 1) available to the surveillance team, 2) sufficiently timely to inform a rapidly changing situation (at least weekly) and 3) of high quality. Four sources were identified to examine the health events under surveillance: emergency department data, the immunization registry, prescription drugs and communicable disease reporting data.

Injury surveillance focused on the injuries most likely associated with post-flood clean-up, including carbon monoxide poisoning (e.g., from generators), electrical injuries and physical punctures/lacerations. Mental health surveillance centred on violence; substance abuse; assaults; and dispensed prescriptions for depression, anti-anxiety and sleep-aid medications. Infectious disease surveillance focused on waterborne and foodborne

pathogens, and those infections with outbreak potential, including shigellosis, campylobacteriosis, salmonellosis, giardiasis, amoebiasis, verotoxigenic *E. coli* O157:H7, rotavirus and norovirus.

Affected communities were defined as Calgary neighbourhoods where flooding was reported and southern Alberta communities where a state of emergency had been declared.

The surveillance period was defined as the six weeks after the flood (June 19–July 31, 2013). A blend of statistical and visual approaches was used in analyzing the data, with the goal of detecting and interpreting changes in health event rates. When a signal was observed in one data source, whether as a statistical signal or visual cue, other data sources were examined in an attempt to validate it. This broad approach was designed to incorporate statistical analysis with expert opinion, taking all sources of data and information available into consideration. The data sources are summarized in Table 1.

Data sources and analysis

Emergency Department (ED) Data

Real-time data from EDs were not available when flooding began; however, work was under way to expand the Alberta Real Time Syndromic Surveillance Net (ARTSSN), a database of presenting complaints updated in real time,²⁰ to include Calgary EDs. This work allowed for the creation of daily datasets of presenting complaints, including a baseline (comparison) period of two weeks. The availability and duration of baseline data were limited because of a change in information systems used by Calgary EDs. This dataset was shared with the Ministry of Health starting nine days after the flood (June 28). Similar data from other communities were not available.

A systematic classification system of presenting complaints was used to identify injuries, assaults, violence and substance abuse (see Table 2). Carbon monoxide poisoning did not have a dedicated category. Initially a triage nurse collated counts of discharge

Table 2. Health events under surveillance using emergency department data

Health event under surveillance	Groups of presenting complaints
Gastrointestinal illness	Blood in stool/rectal bleeding, diarrhea, vomiting and/or nausea, vomiting blood
Diarrhea	Blood in stool/rectal bleeding, diarrhea
Vomiting	Vomiting and/or nausea, vomiting blood
Respiratory	Cough/congestion, nasal congestion, shortness of breath, wheezing
Injury	Abrasion, amputation, back pain (traumatic), electrical injury, eye trauma, facial trauma, head injury, isolated abdominal trauma – blunt, isolated abdominal trauma – penetrating, isolated chest trauma – blunt, isolated chest trauma – penetrating, laceration/puncture, lower extremity injury, major trauma – blunt, major trauma – penetrating, neck trauma, upper extremity injury abrasions, lacerations, amputations, electrical injury, punctures and traumas to the body
Abrasions/lacerations	Abrasion, laceration/puncture abrasions, lacerations
Electrical injury	Electrical injury
Chemical injury	Chemical exposure, chemical exposure (eye) abrasion, amputation, back pain (traumatic), electrical injury, eye trauma, facial trauma, head injury, isolated abdominal trauma – blunt, isolated abdominal trauma – penetrating, isolated chest trauma – blunt, isolated chest trauma – penetrating, laceration/puncture, lower extremity injury, major trauma – blunt, major trauma – penetrating, neck trauma, upper extremity injury
Noxious inhalation	Noxious inhalation
Carbon monoxide poisoning	Carbon monoxide poisoning*
Mental health	Anxiety, deliberate self harm, depression/suicidal, situational crisis
Sexual assault	Sexual assault
Violent behaviour	Violent behaviour
Substance use	Substance misuse, substance withdrawal
Cardiac events	Cardiac arrest, cardiac type pain, chest pain (cardiac features)
Rash	Hives, other skin conditions, rash

* Identified through the text description of the presenting complaint.

diagnoses for carbon monoxide poisoning from Calgary EDs and reported them on a daily basis to the Ministry of Health via the emergency operations centres. As ARTSSN ED became available, text descriptions of presenting complaints were also searched for carbon monoxide poisoning.

As only Calgary ED information was available, analysis was restricted to Calgary residents. People displaced to Calgary from other communities during the floods were not included in the analysis to ensure that the underlying cohort was comparable.

Comparisons were made between the pre-flood period (June 6 to 18) and the post-flood period (June 26 to date of analysis). A major ED facility was flooded and therefore unable to assess patients between June 19 and 25; thus, using data between these dates would have shown an artificial decrease in ED events. Rate ratios (RRs) and 95% confidence intervals (95% CI) were calculated by means of Poisson regression in SAS version 9.2. A signal for this data source was defined as a statistically significant difference between the two time periods. Visually, daily counts were compared with the pre-flood average daily count. As daily counts can be quite variable and influenced by day-of-the-week effects, a seven-day moving average (with 95% CI) was also visually examined. The visual tools were designed to aid in the interpretation of any observed increased rates by providing more details on their time and duration.

In order to compensate for a relatively short baseline period, ED discharge data between 2003 and 2012 for the same facilities were used as an additional comparison group. The comparison data were not restricted to Calgary residents.

Immunization Distribution and Registry

Post-exposure prophylaxis (i.e., with tetanus vaccine and immunoglobulin) was investigated as an indicator of injuries. The number of tetanus immunizations and administrations of immunoglobulin after exposure by public health staff in Calgary was provided weekly by Calgary Zone public health. Numbers for other affected areas were obtained through Alberta’s immunization registry (Imm/ARI). Immunization data for tetanus prophylaxis were examined visually comparing the baseline period (April 1–June 16) with the post-flood period.

Pharmaceutical Information Network

The Pharmaceutical Information Network is a database of all dispensed prescriptions from 98% of the community pharmacies in Alberta and includes identifiers, so that the data can be analyzed by individual. Records contain information such as patient characteristics, dispensed date, Anatomical Therapeutic Chemical Classification System codes (ATC code) and location of pharmacy. Dispensed prescriptions for antidepressants (ATC codes: N06A, N06CA) anti-anxiety/anxiolytic medications (ATC codes: N05B) and hypnotics and sedatives (ATC codes: N05C) were used as indicators of mental distress among residents of Calgary, High River and selected First Nations communities.

Counts of total and new prescriptions dispensed for these medications in the post-flood period were examined. A prescription was defined as new if an individual had had no prior prescription for that specific drug type in the previous 365 days. New prescriptions were used, as some pre-existing medications could have been abandoned or lost during the flood and evacuation.

Dispensed prescriptions in the post-flood period were examined in comparison with data from the year before the flood (June 16, 2012–June 19, 2013) for residents of Calgary, High River and selected First Nations communities. A signal was defined as more than two standard deviations above the mean with reference to the pre-flood period. The 95% confidence interval was calculated for the relative risk comparing pre- and post-flood dispensations.

Communicable Diseases Reporting System (CDRS)

Shigellosis, campylobacteriosis, salmonellosis, giardiasis, amoebiasis, verotoxigenic *E. coli*, rotavirus and norovirus infections are notifiable under Alberta’s *Public Health Act* and must be reported within 48 hours of confirmation to a medical officer of health (MOH). The MOH or the designate contacts the patient to obtain risk factor information; the final case report form is then forwarded to the Ministry of Health within 14 days of diagnosis and entered into the provincial CDRS database.

The timeliest notification of confirmed cases comes from laboratory data. The provincial laboratory provides notification to the Ministry of Health at the same time as notifying the local MOHs; regional laboratories only report to the local MOH, and only selected specimens are forwarded to the provincial laboratory.

In order to support the earliest possible notification of increased enteric activity and/or outbreaks, routine laboratory reporting was enhanced. A request was made by the Chief Medical Officer of Health to the regional laboratories in the flood-affected areas to forward a copy of all positive reports of campylobacteriosis, giardiasis, cryptosporidiosis and amoebiasis to the Ministry of Health in addition to the MOH within 48 hours of confirmation. This allowed the Ministry of Health to report on enteric diseases with greater timeliness.

Counts and seven-day rolling averages were used to compare the number of incident (non-travel associated) cases of enteric diseases in the pre-flood period (June 1 to 18) with the post-flood period (starting June 19). As enteric illnesses tend to increase in the summer months, three-year historical averages of the pre-flood and post-flood periods were also used to account for any seasonal trends.

Reporting

Surveillance reports were published daily from June 28 to July 8, 2013; twice a week from July 9 to July 21, 2013; and weekly from July 22 to July 31, 2013. They were distributed through emergency operations centres and to a distribution list of public health professionals.

RESULTS

Injuries

The first sign of increased injuries came on June 28, 2013, with increased visits among Calgary residents to EDs for abrasions and lacerations. This was reported the following week (Figure 1a). As of July 4, 2013, the RR was 1.28 (95% CI: 1.14–1.43). This result was found for residents of both flooded and non-flooded areas in Calgary.

A 75% increase in the average weekly administration of tetanus post-exposure prophylaxis by public health in Calgary Zone was seen in the three weeks after the flood (June 24–July 14) compared with the pre-flood period. This increase was consistent with the simultaneous increase in ED visits for abrasions and lacerations, and was temporally associated with residents returning to their homes and the post-flood clean-up effort.

An increase in carbon monoxide poisoning was identified and reported on July 2 (14 days post-flood). In the 10 days after the flood (June 19–28), 24 ED visits presenting with carbon monoxide as the primary complaint were reported; in comparison, two cases were reported in the two weeks prior to the event, and five were expected based on historical ED discharge data. Text descriptions from the presenting complaint indicated that the carbon monoxide poisonings in the post-flood period were largely due to the use of generators.

Mental health and violence

A 1.64-fold (95% CI: 1.11–2.43) and 2.32-fold (95% CI: 1.45–3.70) increase was observed in new prescriptions for anti-anxiety medications and sleeping aids respectively for female residents of High River in the six-week period after the flood (Figures 2 and 3). No changes in new prescriptions for anti-depressants were observed for either males or females. In Calgary no changes in new prescriptions for anti-anxiety medications, sleeping aids or

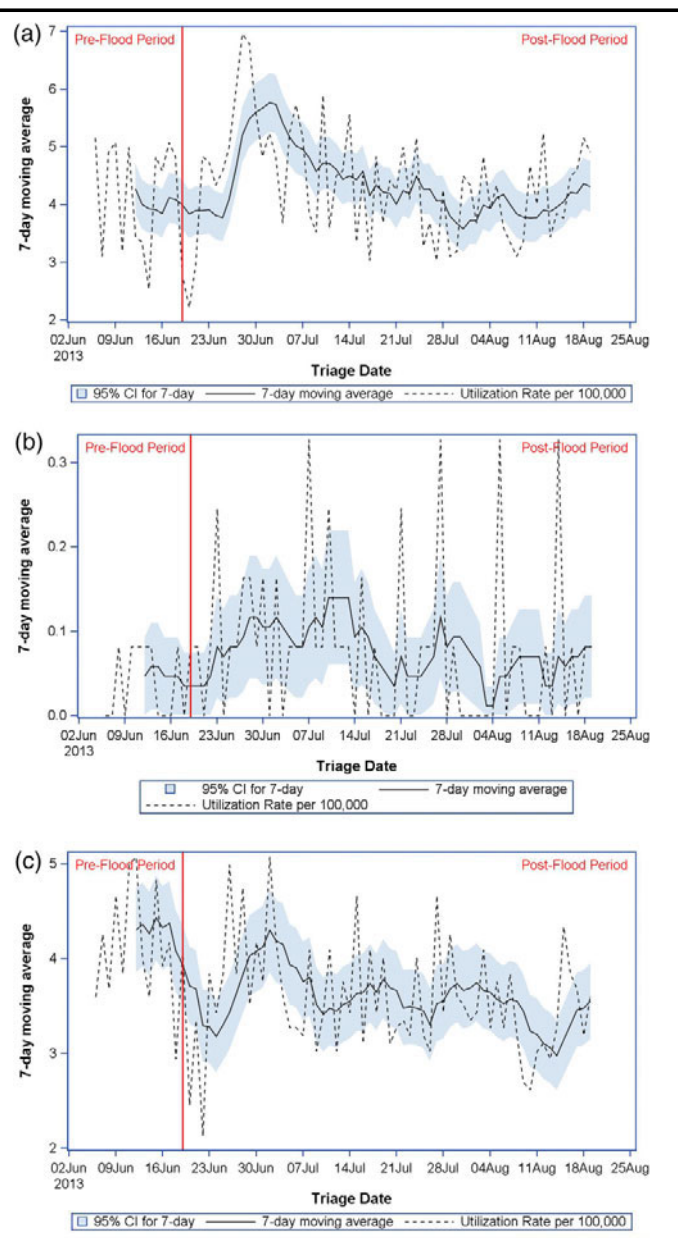


Figure 1. a) Daily rate of emergency department visits with a presenting complaint of abrasions and lacerations, per 100,000 population, Calgary residents, June 6–August 18, 2013. b) Daily rate of emergency department visits with a presenting complaint of sexual assault, per 100,000 population, Calgary residents, June 6–August 18, 2013. c) Daily rate of emergency department visits with a presenting complaint of gastrointestinal illness per 100,000 population, Calgary residents, June 6–August 18, 2013

antidepressants were observed. The ED data for Calgary did not show any changes in visits for anxiety, depression, deliberate self-harm, suicidal/situational crisis, substance misuse and/or substance withdrawal.

A threefold increase in sexual assaults (RR 3.18, 95% CI: 1.29–7.84) compared with the pre-flood period was reported on July 10 (Figure 1b). Between June 26 and July 9 there were 21 ED visits with

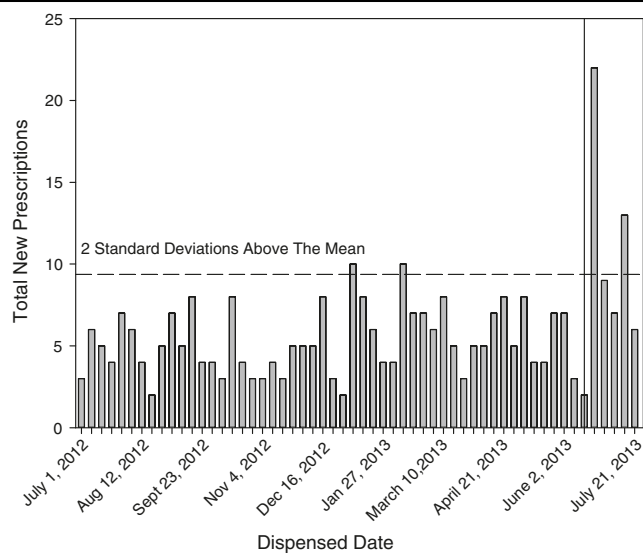


Figure 2. Number of new prescriptions for sleeping aids filled by day between July 2012 and July 2013 for High River residents, females

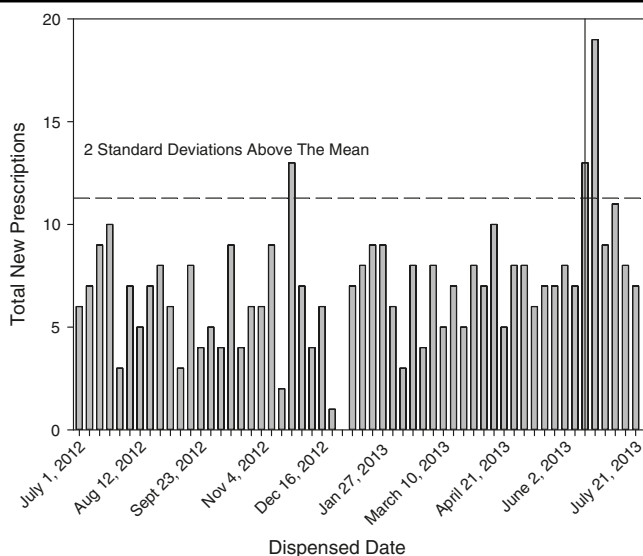


Figure 3. Number of new prescriptions for anti-anxiety medication filled by day between July 2012 and July 2013 for High River residents, females

presenting complaints of sexual assault (23 for all visits regardless of residence); 14 visits were expected on the basis of historical data. No change was observed in ED visits for violent behaviour.

Infectious disease

No increases in enteric illness were reported during the surveillance period (Figure 1c). The drinking water system in Calgary was not compromised.²¹ Higher rates of *E. coli* positivity in untreated water were reported in some communities, though drinking water surveillance was put into place by the provincial laboratory;²² concurrent increases in enteric illness were not detected.

DISCUSSION

Injuries

Public health actions as a result of injury surveillance included media attention reminding residents to use personal protective equipment during flood clean-up. The signal for injuries was temporally associated with residents returning to homes and post-flood clean-up efforts. The fact that it was observed among residents of both flood-affected and non-affected areas may have been due to the outpouring of assistance from residents of neighbourhoods and communities not affected by flooding in the clean-up efforts.²³

Provincial-level surveillance was not sufficiently timely to inform messaging for carbon monoxide; however, alerts were generated through concurrent hospital-level surveillance. In response, a public advisory was issued by Alberta Health Services and messaging about gas leaks was included in home re-entry information provided by the city of Calgary.^{24,25} Knowledge that carbon monoxide toxicity may be a concern in flooding events should prompt proactive, anticipatory messaging for future events.

Mental health and violence

Surveillance information showing an increase in new prescriptions for anti-anxiety and sleep-aids dispensed among females in High River was disseminated widely to health care workers through professional networks and the media. We do not know what actions (if any) resulted from this dissemination.

The increase in new prescriptions for these medications may be an indicator of psychological health impacts attributable to the flood. This is consistent with studies in the UK and Australia that found associations between flooding and psychological distress, anxiety and sleep quality.^{12,13} However, it differs from an Australian study that showed a decrease in prescriptions of anti-anxiety medications immediately after a cyclone but an increase over a six-month period.¹⁶ A possible explanation is that this Australian study looked at overall rates of prescriptions, whereas the current study looked at new prescriptions among individuals who had not had a previous prescription in the preceding year, and this specificity allowed for the detection of a signal. As ED data were not available for High River, we were unable to look for other indicators of psychological health. The absence of change in new anti-depressant prescriptions is not unexpected, as guidance documents suggest waiting at least a month after a disaster before diagnosing a mental health condition such as depression.²⁶

Surveillance data contributed to public health messaging regarding gender-based violence and the need for precautionary measures (e.g., not walking alone after dark). Violence and sexual assault, including domestic/intimate partner violence, has been reported after natural disasters, including flooding events caused by Hurricane Katrina.¹⁸ The reasons for this are not clear.

Infectious diseases

No increases in gastrointestinal illness requiring investigation were identified, and this information was used to reassure the public that the situation was being monitored and was not deteriorating. Local active surveillance implemented at evacuation centres detected small clusters of norovirus, which were quickly

controlled.²⁷ This is consistent with the experiences of flooding events in other developed countries, where large increases in gastrointestinal illnesses are rare,³ but contained outbreaks, particularly diarrheal illness, are documented in areas where people are living in close quarters (e.g., evacuation centres).⁹

Strengths and limitations

A strength of Alberta's post-flood surveillance was the ability to monitor real time or near real time health data using pre-existing sources and indicators. These data streams were used to monitor a large range of health events and were sufficiently sensitive to detect and validate signals, some of which resulted in public health actions.

This surveillance made possible comparisons with pre-flood baseline counts and rates. This capability is often missing from post-disaster surveillance, which tends to be retrospective and include post-event data only,^{4-6,8,9} this makes it difficult to assess whether an increase was temporarily associated with the event. The baseline data available were sufficient to make short-term pre-post comparisons but were not always suitable for the consideration of other factors (e.g., seasonality).

Challenges emerged in integrating the results found in multiple datasets, using different indicators, populations and baseline periods. This is not unusual for post-disaster surveillance, when conclusions need to be drawn from the best available information, but it is nevertheless a limitation. Challenges with data availability in other geographic areas meant that surveillance was focused on Calgary, and it is possible that we missed signals in other communities. Smaller communities may have experienced different or more severe health effects, as they did not have the same level of municipal infrastructure as Calgary.

We believe this is the first study to use post-exposure tetanus immunizations as an indicator of injury. While further validation of the indicator is required, it may contribute to the range of tools available for emergency response surveillance.

CONCLUSION

Public health surveillance implemented to detect injuries, psychological distress, violence and infectious diseases following the floods was useful in that the signals detected resulted in timely public health messaging.

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RÉSUMÉ

OBJECTIF : En juin 2013, des inondations ont touché environ 100 000 personnes dans le Sud de l'Alberta. Nous décrivons le processus mis en place pour surveiller la santé publique et évaluer les impacts sur la santé.

MÉTHODE : Une surveillance de la santé publique a été mise en œuvre pendant les six semaines qui ont suivi les inondations afin de détecter les épisodes morbides prévus : traumatismes, troubles de santé mentale et maladies infectieuses. Les sources de données étaient les présentations aux services d'urgence (SU), les données de santé publique sur l'administration post-exposition du vaccin antitétanique/de l'immunoglobuline, les données administratives sur les médicaments sur ordonnance, ainsi que les maladies à déclaration obligatoire.

RÉSULTATS : On a détecté une hausse des traumatismes chez les résidents de Calgary en examinant les visites aux SU (rapport de taux [RT] 1,28, intervalle de confiance de 95 % [IC] : 1,14–1,43); ce résultat était appuyé par une hausse de 75 % de l'administration hebdomadaire moyenne de la prophylaxie post-exposition contre le tétanos. Des effets sur la santé

mentale des résidents de High River ont été observés chez les femmes d'après la multiplication par 1,64 (IC de 95 % : 1,11–2,43) et par 2,32 (IC de 95 % : 1,45–3,70) des nouvelles ordonnances de médicaments contre l'anxiété et de somnifères, respectivement. Une hausse des agressions sexuelles chez les personnes se présentant aux SU (RT 3,18, IC de 95 % : 1,29–7,84) a été observée chez les résidents de Calgary. Aucune hausse des maladies gastrointestinales infectieuses ni des maladies respiratoires n'a été constatée. L'identification rapide et la communication des alertes de surveillance ont permis d'émettre des messages sur l'utilisation d'équipement de protection individuelle et sur les précautions à prendre pour sa sécurité personnelle.

CONCLUSION : On a utilisé des sources de données existantes pour assurer la surveillance après une situation d'urgence. L'information produite, bien que limitée, a été suffisamment rapide pour éclairer la prise de décisions de santé publique. Il faudrait pousser la recherche pour confirmer la validité des résultats obtenus et l'utilité des interventions connexes.

MOTS CLÉS : inondations; surveillance de population; épidémiologie