Who Calgary's 311 Hears

Purpose and methodology of an independent study of equity in Calgary 311 reporting and response

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Study period: 311 requests made October 1, 2024 to September 30, 2026 · **Data retrieved:** October 20–21, 2026 · **Coverage:** 195 communities, 1,279,690 residents, 809,528 requests

Summary. Once a problem is reported, Calgary closes requests equally fast in every income and language group. But communities where more residents have no knowledge of English report substantially fewer infrastructure problems per resident. The raw gap between the quarter of communities with the most and fewest non-English speakers is 39%. After accounting for income, renters, community age and distance from downtown, the best estimate is about 23% fewer reports (95% range 9% to 33%) for a community where 5% of residents don't speak English, compared with one where 1% don't.

1. Purpose of the study

Calgary's 311 system is how residents tell the City about potholes, broken streetlights, sewer backups, damaged sidewalks and park problems. Much of the City's maintenance work is driven by those reports. That makes 311 efficient, but it carries a hidden risk: a system that fixes what people report can underserve people who report less, whether because of language, time, trust or familiarity with the system.

The study set out to answer, using only public data:

- **Speed:** once a problem is reported, does the City respond equally fast in every part of the city?
- **Who reports:** do some communities report far fewer problems per resident than others with similar infrastructure, and which community characteristics go with lower reporting?
- **Channel:** does use of the 311 app differ across communities?

The intent is constructive. The study is meant to give the City, Council, community associations and residents evidence for making 311 work equally well for everyone. It is not an audit of any individual, department or contractor, and it makes no allegation of wrongdoing. Findings are to be shared with the City before wider publication.

2. Data sources

All data are public and come from the City of Calgary Open Data portal (data.calgary.ca), published under the Open Government Licence - City of Calgary. No personal information was used. Every figure is an aggregate at community or area level.

Dataset (ID)	Period / vintage	Used for
311 Service Requests (iahh-g8bj)	Requests Oct 1, 2024 – Sep 30, 2026	Request volumes, channel (app or other), time to close
2021 Census Population and Dwellings by Community (f9wk-wej9)	2021	Population denominators, age structure

Dataset (ID)	Period / vintage	Used for
2021 Census Families and Households by Community (msjx-5ygv)	2021	Household size, one-person households, lone-parent families
2021 Census Employment by Community (isek-k4ja)	2021	Unemployment, labour participation, top industry and occupation
Calgary Equity Index Overlay Statistics (7g5f-dkmi)	2021, area level	Median income, no knowledge of English, newcomers, visible minority, renters, low income, area boundaries
Calgary Equity Index Matrix (xeek-u7v8)	2014–2021 by indicator, area level	Walk, Transit and Bike Score; green space; health; crime; education; voting; equity score
Historical Community Populations (jtpc-xgsh)	1968–2019	Community age (first census year with 500+ residents)
Current Year Property Assessments (4bsw-nn7w)	2026 roll	Median residential assessed value; median year homes built
Building Permits (c2es-76ed)	Applied Oct 2024 – Sep 2026	Development activity and new housing units
Social Disorder Statistics (4evm-wx9a)	Reviewed	Not used: about 7,400 events over two years was too sparse for community comparisons

The exact queries used to extract each dataset are listed in 01_Source_Data/SOURCES.csv in the accompanying data package.

3. Study population and definitions

Communities. Calgary communities with at least 500 residents in the 2021 Census. Communities created after 2021, industrial areas and residual areas have no 2021 population and are excluded. Carrington and Livingston also had 500+ residents but fall outside the 2021 Equity Index areas, so they have no income or language data and are excluded (6,735 residents). The analysis covers 195 communities and 1,279,690 residents.

Requests. Every 311 request made in the study period, excluding those the City marked as duplicates. Reporting rates use 30 common resident-reported service types (400,070 requests). "Infrastructure reports" are the 21 types covering roads (12, including potholes, streetlights, sidewalks, signs and snow and ice), water and sewer (5) and parks and trees (4). About 25.6% of these are not defects as such (snow and ice, debris, dead animals, park garbage); section 5.3 shows the result without them.

Reporting rate. Requests per 1,000 residents per year: requests ÷ 2021 population × 1,000 ÷ 2 years.

Time to close. Days from request date to closed date, for requests with status "Closed" (387,685 requests, 96.9% of the 30 study types). "Closed" means the City closed the request in its system. It does not always mean the problem was fixed.

Like-for-like speed. For each service type and year, we computed the citywide share closed within 7 days, within 30 days and after more than 90 days. Each group's expected count is the sum, over its requests, of those citywide shares (indirect standardization). We report observed ÷ expected, where 100% means exactly the citywide speed for the same mix of requests.

Channel. The 311 data records each request's source as "App", "Web" or "Other" (mostly phone). App share is App ÷ all requests.

Community characteristics. Income, language, newcomer, visible-minority, renter and low-income measures come from the Calgary Equity Index. That index reports them for community service areas, which each group several neighbouring communities. Communities were linked to their area by placing each

community's 311 centrepoint inside the area boundaries (point-in-polygon). Equity Index Matrix indicators (Walk Score, health, crime and others) were taken from the same area, so every area value for a community comes from one area. The Matrix also lists the communities in each area; for 25 of the 178 communities that could be matched by name, that list names a different area. Section 5.3 shows the result using the City's lists instead.

Community age. The first City census year in which the community had 500 or more residents. The series starts in 1968, so 1968 means 1968 or earlier. The median year homes were built, from 2026 assessments, was used as a second measure.

Home values. Median assessed value of residential (RE) parcels on the 2026 roll. In University District, Eau Claire, Downtown West End, Downtown Commercial Core the median is below $150,000 because parking stalls and storage units are assessed as separate residential parcels, so values there are shown as missing.

Requests not yet closed. Share of a community's requests in the 30 study types that did not have status "Closed" when the data was retrieved (October 2026).

4. Analysis methods

4.1 Descriptive comparisons. Communities were split into four equal groups by the share of residents with no knowledge of English, and into five income groups of equal population. Rates for each group are computed as total requests ÷ total residents.

4.2 Like-for-like comparison. The 63 communities first settled from 1975 to 2000 were split into three groups by non-English share. Matching on the era of first settlement makes infrastructure age broadly comparable. The groups still differ in other ways (the group with the most non-English speakers has lower incomes, more renters and is closer to downtown), which is why the regression below is the main estimate.

4.3 Regression. The main estimate comes from a population-weighted least-squares regression of log(infrastructure reports per 1,000 + 1) on:

- log median income
- percent renters
- percent with no knowledge of English
- distance from downtown (km)
- community age in years, plus an indicator for communities that existed by 1968

Communities in the same area share income and language values, so t-statistics are also reported with standard errors clustered by area.

Coefficients are expressed as the percent difference in reports between a community where 5% and one where 1% of residents have no knowledge of English: $(e^{4b} - 1) \times 100$.

4.4 Robustness. Alongside the main model (M2), 13 alternatives were run: without age, with age from home construction years, adding growth since 2021 and home values, excluding the northeast quadrant, excluding downtown, by category (roads, water, parks), using all 30 types and every 311 type, unweighted, and at area level rather than community level. Two more replace language with newcomer share (M14) or visible-minority share (M15), and two sensitivity checks count only defects and use the City's community lists to link areas. Uncertainty was estimated with a cluster bootstrap that resamples whole areas 1,000 times (seed 42).

4.5 Reporting gap. For each community, an expected infrastructure reporting rate was predicted from income, renters, distance and community age only, deliberately leaving out language. The prediction was calibrated so that the population-weighted average ratio of actual to expected equals 1. The reporting gap is actual ÷ expected – 1. It describes, not explains: it shows which communities report more or less than communities like them.

5. Results

5.1 Reports per resident by share of residents with no knowledge of English

Group	Communities	Residents	No English (avg)	Area median income (avg)	Infra reports / 1,000 / yr
Fewest	49	267,800	0.6%	$51,876	90.0
Fewer	49	254,000	1.1%	$52,082	86.7
More	48	322,450	1.6%	$45,110	69.8
Most	49	435,440	5.0%	$38,655	54.6

5.2 Like-for-like: communities first settled 1975–2000

Group	Communities	No English (avg)	Avg first year	Avg km to downtown	Infra reports / 1,000 / yr
Fewest	21	0.8%	1987	13.8	59.7
Middle	21	1.8%	1987	11.9	51.7
Most	21	5.7%	1988	11.6	44.6

5.3 Regression estimates (percent difference, 5% vs 1% non-English)

Model	Estimate	t	t (clustered)	R^2	n
M1 community: income, renters, no-English, distance	-30.2%	-5.96	-5.51	0.554	195
M2 + community age (first census year)	-22.7%	-4.28	-3.92	0.617	192
M3 + median year homes built (assessments)	-21.5%	-3.79	-3.56	0.607	191
M4 + age + growth since 2021 (new housing units)	-20.3%	-3.9	-3.23	0.649	192
M5 + age + home value	-24.1%	-4.6	-3.88	0.643	188
M6 M2 excluding NE quadrant	-28.6%	-3.94	-2.73	0.609	160
M7 M2 roads only	-19.1%	-3.71	-3.48	0.579	192
M8 M2 water & sewer only	-29.1%	-4.37	-3.22	0.618	192
M9 M2 parks & trees only	-22.6%	-3.45	-3.26	0.524	192
M10 M2 all 30 request types	-17.0%	-3.62	-3.58	0.628	192
M11 M2 all request types (every 311 service)	-13.4%	-2.77	-2.72	0.603	192
M12 M2 excluding communities within 3 km of downtown	-21.1%	-4.05	-3.5	0.647	167
M13 M2 unweighted	-25.8%	-4.19	-4.66	0.584	192
M16 area level (CSA), with age	-25.2%	-4.12	n/a	0.695	101

Model	Estimate	t	t (clustered)	R^2	n
Sensitivity: Defects only (no snow, debris, dead animals, park garbage)	-23.0%	-4.03	-3.51		192
Sensitivity: Area from the City's community lists	-19.9%	-3.79	-2.91		192

M16 has one row per area, so it needs no clustering. Models with community age have 192 communities because Belmont, Yorkville and Wolf Willow do not appear in the historical census series. Raw gap between the top and bottom quarter: 41.8% for defects only and 43.2% with the City's community lists (main: 39.3%).

Main model (M2) cluster-bootstrap 95% range: 9% to 33% fewer reports. With visible-minority share in place of language the coefficient is also negative (t = -6.5, clustered -4.84). With newcomer share it is negative but weaker (t = -2.46, clustered -1.86, not significant). The three measures are closely correlated (non-English vs visible minority r = 0.72; vs newcomers r = 0.58) and cannot be separated with these data.

5.4 Reports per 1,000 residents per year by category

Category	Fewest non-English	Fewer	More	Most non-English
Roads	48.2	47.0	38.3	31.9
Water & sewer	15.7	15.1	13.6	10.5
Parks & trees	26.1	24.6	17.9	12.1
Graffiti & encampments	25.5	15.4	10.1	10.8
Bylaw	24.2	26.7	22.9	20.1
Waste carts	49.3	55.1	43.0	42.5

Roads, water and sewer, and parks and trees make up the infrastructure measure. Graffiti, bylaw and waste-cart requests are shown for context only and are not part of it.

5.4b Infrastructure reports per 1,000 residents by year (closed requests)

Year	Fewest non-English	Fewer	More	Most non-English
2024 (Oct–Dec only)	18.1	17.0	14.4	11.0
2025	85.0	83.0	65.6	52.5
2026 (Jan–Sep only)	66.4	63.5	51.5	38.6

Partial years are not annualized. The same ordering appears in every year.

5.5 Speed of closing requests, compared with the citywide expectation (100%)

Income group	Closed requests	Closed in 7 days	7-day vs expected	30-day vs expected	>90 days vs expected
Lowest	69,031	77.8%	99.6%	99.9%	103.0%
Lower	80,810	75.8%	101.0%	100.4%	95.2%
Middle	85,862	76.6%	100.9%	100.3%	93.4%
Higher	84,950	74.4%	99.5%	99.7%	107.2%
Highest	67,032	74.5%	98.6%	99.6%	102.0%
Non-English group	**Closed requests**	**Closed in 7 days**	**7-day vs expected**	**30-day vs expected**	**>90 days vs expected**
Fewest	97,898	74.0%	99.5%	99.4%	104.0%
Fewer	90,635	74.5%	98.6%	99.9%	98.5%
More	91,144	76.6%	100.8%	100.5%	96.9%

Non-English group	Closed requests	Closed in 7 days	7-day vs expected	30-day vs expected	>90 days vs expected
Most	108,008	77.8%	100.9%	100.2%	99.9%

Requests taking more than 90 days are rare (2.4% of closed requests), so that column varies more between groups, with no consistent direction. By category, the 7-day ratio stays within about 2% of expected for roads and water, and within about 5% for parks and trees.

5.6 Share of requests made through the 311 app

Income group	Lowest	Lower	Middle	Higher	Highest
App share	18.2%	19.0%	20.1%	22.6%	23.2%

Non-English group	Fewest	Fewer	More	Most
App share	23.4%	21.3%	19.6%	18.6%

6. Data quality checks

- Closed requests (387,685) are 96.9% of all non-duplicate requests in the 30 study types (400,070). The remainder were still open or had other statuses.
- Duplicate requests (status "Duplicate (Open)" or "Duplicate (Closed)") were excluded.
- Requests with no community recorded cannot be placed and are not counted anywhere in this study, so all request totals here are for the 195 study communities.
- Every figure in this document and every community value was recomputed independently from the raw extracts, and the errors found were corrected in this version.
- Figures in this document are generated by script from reanalysis_results.json, except the count of social disorder events in section 2, which comes from the source dataset.

7. Limitations

- **Association, not cause.** The study shows who 311 hears less from, not why. Fewer reports could partly mean fewer problems, and problems nobody reports cannot be observed.
- **Language, ethnicity and newcomer status overlap.** They are strongly correlated across Calgary communities and can't be separated with these data.
- **Area-level characteristics.** Income and language are measured for areas that group several communities, so neighbouring communities share values. This makes community-level estimates less precise. The area-level model gives a similar result.
- **Population date.** Rates use 2021 population, so communities that have grown since then show rates that are too high. The interactive report flags communities whose estimated population during the study is at least 1.5 times their 2021 Census population (estimated from dwellings on the 2026 property assessment roll and rental-building units from building permits) and shows growth-adjusted figures for every community that grew 15% or more (method on the Ward 5 page). Growth does not explain the language gap: new housing units in permits per 100 residents were 2.63, 3.10, 3.42 and 1.67 from the fewest to the most non-English quarter, and model M4 controls for growth.

- **Area linkage.** For 25 communities, the area containing the community's centrepoint differs from the area the City's Equity Index lists it under. Using the City's lists gives a similar result (-19.9%).
- **"Closed" is not "fixed".** Speed figures measure administrative closure.
- **Location precision.** Most requests are located only to a community centrepoint, so single repairs can't be tracked.
- **Older context indicators.** Some Equity Index Matrix indicators date from 2014–2016 and describe areas, not communities.

8. Responsible use

- Only aggregate public data was used. No personal information was collected or analyzed.
- The study is independent and not affiliated with The City of Calgary.
- Findings describe patterns in public service data. They are not allegations against any person, department or contractor.
- Findings should be shared with the City (311 and the City Auditor's Office) before wider publication, with an opportunity to comment.
- Every number can be reproduced from the data package using the included code and queries.

9. Reproducing the study

The accompanying folder **Calgary-311-Study** contains:

- **01_Source_Data**: every extract used, with SOURCES.csv listing dataset IDs and exact queries, and download_raw_311.py to re-download the full raw 311 records (about 1 million rows).
- **02_Analysis**: community_indicators_enriched.csv (195 communities × all indicators), model_results.csv, reanalysis_results.json, the Python scripts, and raw/ with the extracts exactly as the scripts read them.
- **03_Report**: this document and the report to The City of Calgary.

To re-run: install Python 3 with pandas and numpy and run python reanalyze.py inside 02_Analysis. It reproduces reanalysis_results.json exactly.

Appendix: community indicators

The interactive report shows these 52 indicators for each community, with a Calgary figure for all study communities together and the community's rank among them. The Calgary figure is the total rate for per-resident and per-request measures; a population-weighted average for shares of people; a household-weighted average for shares of households; the average community size for residents; and the median of community medians for home value.

Group	Indicator	Source
People	Residents	2021 Census
People	Children (0–14)	2021 Census
People	Seniors (65+)	2021 Census
People	Average household size	2021 Census

Group	Indicator	Source
People	One-person households	2021 Census
People	Lone-parent families	2021 Census
People	Recent newcomers	Equity Index (2021, area)
People	No knowledge of English	Equity Index (2021, area)
People	Visible minority	Equity Index (2021, area)
People	Indigenous	Equity Index (2021, area)
People	Moved in the last year	Equity Index (2021, area)
Economy	Median income	Equity Index (2021, area)
Economy	Adults (18–64) in low income	Equity Index (2021, area)
Economy	Children in low income	Equity Index (2021, area)
Economy	Unemployment rate (2021)	2021 Census
Economy	Labour force participation	2021 Census
Economy	Households in core housing need	Equity Index (2016, area)
Economy	Post-secondary education	Equity Index (2016, area)
Housing & growth	Renters	Equity Index (2021, area)
Housing & growth	Live in a single-detached home	Equity Index (2021, area)
Housing & growth	Median assessed home value (2026)	Property assessments 2026
Housing & growth	Median year homes built	Property assessments 2026
Housing & growth	Building permits per 1,000 residents a year	Building permits
Housing & growth	New housing units in permits per 1,000 residents a year	Building permits
Getting around & places	Walk Score	Equity Index (2021, area)
Getting around & places	Transit Score	Equity Index (2021, area)
Getting around & places	Bike Score	Equity Index (2021, area)
Getting around & places	Take transit to work	Equity Index (2021, area)
Getting around & places	Green space (share of area)	Equity Index (2019, area)
Getting around & places	Community spaces per 100,000	Equity Index (2020, area)
Getting around & places	Can walk to a healthier food store	Equity Index (2019, area)
Health & safety	Rate own health good or better	Equity Index (2014, area)
Health & safety	Diabetes prevalence	Equity Index (2015, area)
Health & safety	Mental illness prevalence	Equity Index (2014, area)
Health & safety	Property crime per 100,000	Equity Index (2020, area)
Health & safety	Violent crime per 100,000	Equity Index (2020, area)
Health & safety	Voted in 2021 municipal election	Equity Index (2021, area)
Health & safety	City equity score (higher = better off)	Equity Index (2021, area)
311 service	All 311 requests per 1,000 a year	311 open data
311 service	Infrastructure reports per 1,000 a year	311 open data

Group	Indicator	Source
311 service	Expected for a community like this	Study model
311 service	Reporting gap vs expected	Study model
311 service	Roads reports per 1,000 a year	311 open data
311 service	Water & sewer reports per 1,000 a year	311 open data
311 service	Parks & trees reports per 1,000 a year	311 open data
311 service	Graffiti & encampment reports per 1,000 a year	311 open data
311 service	Bylaw complaints per 1,000 a year	311 open data
311 service	Waste cart requests per 1,000 a year	311 open data
311 service	Requests made through the app	311 open data
311 service	Closed within 7 days	311 open data
311 service	Speed vs citywide for same requests	311 open data
311 service	Study requests not yet closed (Oct 2026)	311 open data