VERSION 1.6 · CONSOLIDATED REPORT

An audit of Bristol City Council's traffic data

for the SBLN scheme and the 20 mph speed-limit consultation

Every claim sourced. Every figure reproducible.

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Status: Floow definition updated (sections 2.2 and 10)

Companion database: conversations/06_traffic_speed_database.xlsx (six sheets, all sources cited).

1. Summary in plain English

Bristol City Council are using statistics in two current public consultations, the South Bristol Liveable Neighbourhoods scheme (SBLN) and the parallel 20 mph speed-limit consultation, that do not match the data the Council itself has published. This report documents the gaps, line by line, against the Council's own files.

On the SBLN through-traffic claim. The Council's website states that 'high numbers of vehicles from outside the area use residential streets in Southville as a cut-through to other destinations.' The Council's own consultant, Arup, in an analysis dated November 2024 that the Council did not publish on its public-forum responses for 17 months, put the Sector 5 (Southville) figure at 10 to 13 per cent and described that as an 'upper-end estimate', concluding in their own words that 'through-traffic does not appear to make up a large proportion of all traffic'. Counting every vehicle seen at both of the cameras next to the Southville Zone, Camera 14 (Coronation Road) and Camera 16 (North Street), the same June 2024 data shows 79 to 92 vehicles a day within the contractor's 15-minute journey category, about 0.5 to 1.2 per cent of the traffic at those cameras. This figure was corrected on 19 October 2026; see the correction note with the ANPR cross-check and Appendix D.

On the Floow telematics map. The Council's published map shows headline figures of up to 85 per cent through-traffic on Raleigh Road and 81 per cent on Greenway Bush Lane, used to support the same claim. The map's percentages are highly unstable: of 1,077 physical road segments with two or more published time windows, 45.5 per cent swing by 30 percentage points or more across the day on the same road. When the Floow figures are compared to the Council's own pneumatic-tube counts on the same streets in the same hours, Floow accounts for only 53 per cent of the vehicles the tubes physically counted.

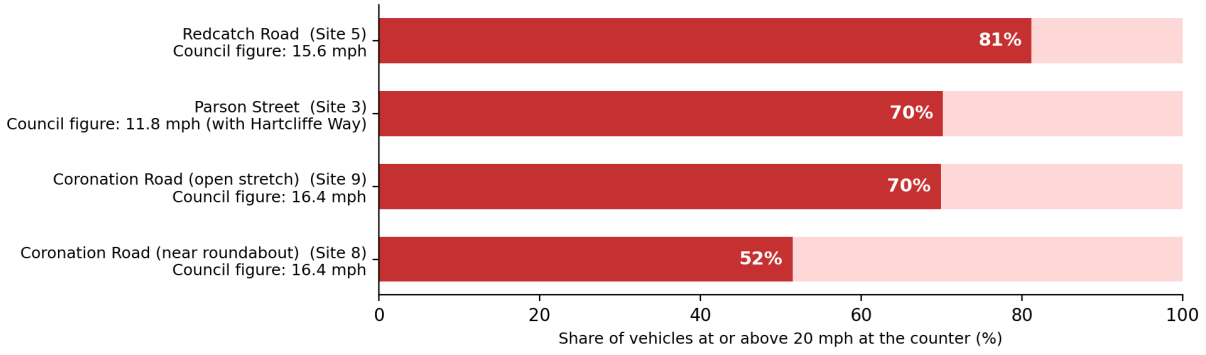
On the 20 mph consultation. The consultation gave an 'average daytime speed' for each road, 16 mph on Coronation Road, and said 'a 20mph limit should improve safety without adding to journey times.' The Council's response to information request 78075203 shows these are TomTom Move route journey speeds: harmonic averages over routes chosen by officers, 08:00 to 20:00, with the two directions averaged. A journey speed includes time spent slowing for junctions and queueing, so it cannot show that a 20 mph limit will not slow anyone. On the open stretches, the Council's own speed counters record 52 to 81 per cent of vehicles at or above 20 mph. The explanation of the figures was published on 13 May, four days before the consultation closed. This report does not argue against 20 mph limits; what cannot be defended is telling the public that journey times will not rise (Section 8).

All numerical claims in this report are derived from Council-published files, listed in Section 5 with their full paths. Every figure can be reproduced from the Excel database supplied with the report (`conversations/06_traffic_speed_database.xlsx`) and from the analysis scripts in `code/`. We hold no proprietary data and have no access the public does not have.

The headline finding in one chart

On the open stretches, most vehicles already travel above 20 mph

Council speed counters, June 2024, 07:00 to 19:00. 'Council figure' is the TomTom route journey speed (08:00 to 20:00, FOI 78075203) that the consultation called the 'average daytime speed'.



Share of vehicles at or above 20 mph at the Council's own speed counters on the proposed 20 mph roads (June 2024 survey, 07:00 to 19:00), with the Council's consultation figure for each road, a TomTom route journey speed from FOI 78075203.

How to verify every number in this report

Every figure traces to one of three places. First, the Council's own published spreadsheets (ANPR origin-destination matrices, ATC speed-bin distributions, JTC turning counts, all in the SBLN 2024 and Autumn 2025 survey packages). Second, the Council's published Floow GeoJSON, downloaded from their ArcGIS service. Third, the Council's published Arup analysis PDF. The supporting Excel database at `conversations/06_traffic_speed_database.xlsx` consolidates the speed and volume figures across all sources in long form, ready to pivot. Every Python script that generated a number in the report is in the repository's `code/` directory and is re-runnable against the original files. No proprietary data was used. The full file inventory is in Section 5 and Appendix B.

2. Definitions

Every term used in the rest of this report. Read this section first if any acronym in the Council's materials is unfamiliar. Both senses of 'through traffic' are given because the Council have used the same word for two different metrics.

2.1 Survey types

Term	Plain-English definition
ANPR (Automatic Number Plate Recognition)	A fixed camera that records the number plate, time and direction of every vehicle passing it. The June 2024 SBLN survey deployed 25 ANPR cameras around the study area perimeter. None were placed inside the Southville Zone.
ATC (Automatic Traffic Counter)	A pneumatic tube laid across the road that counts every vehicle physically passing over it, recording speed and direction. ATC is a literal vehicle count, not a sample. The 2024 SBLN survey installed 22 ATC sites; the Autumn 2025 follow-up installed 102.
JTC (Junction Turning Count)	An on-site observer (or a video review) recording, for each arm of a junction, how many vehicles approached and which way they turned. The 2024 SBLN survey covered 11 junctions over two days each.
MCC (Manual Classified Count)	An observer counting vehicles by class (cars, vans, HGVs, cyclists, pedestrians) on a road link. Used to validate ATC class counts and to provide pedestrian and cycle data.
Floow telematics	A commercial product from Floow Ltd, Sheffield. Anonymous GPS traces from a sample of vehicles (insurance black-box subscribers, connected-car app users, fleet vehicles), aggregated to per-segment counts and origin-destination percentages over a multi-month averaging window. Floow is a sample, not a census; the sample rate is not published.

2.2 'Through traffic', two senses

Term	Plain-English definition
Through traffic (Arup definition, used in their Nov 2024 analysis)	Verbatim from the Arup glossary, page 1: 'traffic that passes through a neighbourhood sector. It represents trips not made by residents or visitors.' This is the conventional, common-sense reading of 'cut-through'. A trip is through-traffic only if its driver had no business being in the area.
Through traffic (Floow definition, as stated by the Council)	Trips 'that start and end outside of a neighbourhood boundary' (Council answer to question 24, Transport Committee, 22 October 2026). A stop of less than 10 minutes does not register as a destination (Cllr Plowden, in writing on 7 May 2026: 'something like 10 minutes'), so a brief stop on the way still classifies the trip as 'through'. The boundaries are not published, and they are not the published sub-zone polygons: on Raleigh Road the published sub-zone gives 19 to 40 per cent through traffic at the Camera 3 position in a residents' camera survey (October 2026), against Floow's 80 to 86 per cent. Treating each stretch of road as its own small area gives 70 to 81 per cent from the same survey. The Raleigh Road rows carry od_region codes 11 and 12, which have no published polygon.
Internal (Floow)	Trip with origin and destination both inside the neighbourhood boundary.
Inbound (Floow)	Trip with destination inside the zone, origin outside.
Outbound (Floow)	Trip with origin inside the zone, destination outside.

2.3 Speed measures

Term	Plain-English definition
Route journey speed (TomTom Move)	The average speed of vehicles over a whole route from A to B, calculated from connected vehicles' travel times. It includes time spent slowing for junctions, crossings and queues. This is what the 20 mph consultation called the 'average daytime speed' (FOI 78075203).
Spot speed (ATC counter)	The speed of each vehicle as it passes one point, recorded by a pneumatic tube counter. A counter on an open stretch shows the speeds vehicles actually reach there.
Mean speed (arithmetic)	The speeds of all vehicles added up and divided by the number of vehicles. The DfT's Head of Speed Policy wrote (27 August 2026) that practitioners generally understand 'mean speed' this way.
Harmonic mean	An average based on the time vehicles take rather than their speed. It is always lower than the arithmetic mean of the same vehicles. TomTom Move reports this form.
85th-percentile speed	The speed at or below which 85 per cent of vehicles travel. DfT Circular 01/2013 paragraph 36 says mean speeds should be the basis for setting local limits and that the 85th percentile should be collected and assessed alongside them.
Posted Speed Limit (PSL)	The legal speed limit displayed on signs.
Daytime	In the Council's 20 mph figures, 08:00 to 20:00 (FOI 78075203); the consultation did not say so. The counter figures in this report are 07:00 to 19:00, the Council survey's published window.

2.4 Other terms

Term	Plain-English definition
SBLN	South Bristol Liveable Neighbourhoods. The proposed Council scheme that includes modal filters, one-way changes, and bus-gate restrictions in Southville and adjacent areas.
Modal filter	A physical barrier (bollards, planters) that prevents motor vehicles from passing through a point on a road, while allowing cyclists and pedestrians. Used to break a residential street as a through-route.
Sector	Arup's term for a numbered subdivision of the SBLN study area. Eight sectors in their Nov 2024 analysis. Not the same as Floow's sub-zones (10 polygons) or the engagement material's modal-filter zones (4).
Sub-zone polygon	A polygon drawn on a map. Floow's published zone layer contains 10 such polygons. Used to test whether trip endpoints are 'inside' or 'outside' for the through-traffic classification. The polygons carry no name field, only an integer ID.
DfT Circular 01/2013	UK Department for Transport's published guidance 'Setting Local Speed Limits'. The standard reference for selecting a speed limit on a particular road, based on the 85th-percentile speed and other factors.

3. The Council's claims, verbatim

Quoted directly from the Council's own published materials. Each claim is the proposition the rest of this report tests against the data.

3.1 The SBLN through-traffic claim

Bristol City Council, SBLN project page, accessed May 2026, statement on the rationale for the modal-filter proposals:

> *"Traffic data show that high numbers of vehicles from outside the area use residential streets in Southville as a cut-through to other destinations."*

Source: bristol.gov.uk SBLN page; reproduced in the Engagement Report (BD17291 SBLN Engagement Report A4_a_v8.pdf).

3.2 The 20 mph speed-limit claim

Bristol City Council, 20 mph consultation page, Area 10 (Hotwells and Southville), Coronation Road and Clift House Road entry, accessed May 2026:

> *"The average daytime speed along this section is 16mph. This means a 20mph limit should improve safety without adding to journey times."*

Near-identical wording is repeated for Redcatch Road (16 mph), Parson Street and Bedminster Down Road (below 18 mph) and Winterstoke Road (around 17 mph). Source: Bristol City Council 20 mph consultation web pages, Area 10 and Area 22.

3.3 What Arup actually said about through-traffic

From the Arup analysis the Council commissioned but did not include in 17 months of officer responses to public-forum questions on this topic, disclosed in late April 2026:

> *"Whilst there is some variance across the study area, at a sector level through-traffic does not appear to make up a large proportion of all traffic."*

> *"No exclusion of 'long' through trips… or of mismatches… Both of these exclusions make the through traffic percentage estimates upper end estimates."*

Source: Arup, 'Area-level through traffic analysis', dated November 2024, marked OFFICIAL. Published by the Council on or before 30 April 2026 at bristol.gov.uk/files/ask-bristol/10865-arup-through-traffic-analysis. Page references: pages 1 and 3.

4. Concerns raised by residents and reviewers

This audit was prompted in part by independent observation and questioning from local residents, in particular Matt Sanders, whose work-in-progress analysis of the Floow map (7 May 2026) and the 20 mph consultation (6 May 2026) raised the following concerns. Each is tested in the Findings section.

Floow's per-segment percentages do not measure cut-through Southville traffic. From direct inspection of the Council's interactive map, the Floow data treats each short stretch of road between two junctions as a tiny individual neighbourhood. A car classified as 'through' on a stretch is simply a car that did not stop or start within that stretch. The dramatic percentages on residential roads come from segments where cars have no reason to stop, not from cut-through behaviour.

Upper Sydney Street. The Floow map reports 81 per cent through-traffic on a 50-metre cul-de-sac. A cul-de-sac has only one entrance, so cars cannot physically pass through. The reported high percentage is most likely artefactual: cars enter, fail to find a parking space (the road has limited resident parking and a Tesco Express on the corner of North Street), and leave. Brief stops do not register as a destination, so the trip looks 'through' to the algorithm.

The Southville zone has been redrawn. The November 2024 Arup map placed the eastern perimeter of Sector 5 along East Street and Bedminster Parade, with Dean Lane inside the sector. The September 2025 SBLN consultation map redraws the perimeter along Dean Lane, Catherine Mead Street and St John's Road, putting Dean Lane on the boundary. Trips on Dean Lane that were classed as through-traffic in the November 2024 figures cease to be through-traffic under the new geometry, but the Council have continued to quote the original percentages.

The 20 mph journey-time claim does not follow from an average. A 20 mph limit slows every vehicle travelling above 20, wherever it is on the route, so a low average does not show that journey times will not rise.

The 16 mph figure is lower than the Council's own counters show. Residents found means well above 16 mph on the 2024 counters. The Council's later information-request response explains why: its figures are route journey speeds that include queueing, not spot speeds (Section 8).

Note on independence. Where the data is inferential rather than direct (most clearly the Floow definition, since the Council have not published a methodology document), this report treats every input, including the resident concerns above, with the same scepticism it applies to the Council's own statements. Each of the concerns above is tested in Section 7 against the published files.

5. The data we examined

Every dataset cited in this report. All files are publicly accessible from bristol.gov.uk or from the Council's ArcGIS portal. Local copies are held in the companion repository. The companion Excel workbook described in Appendix A consolidates the speed and volume figures across all sources in one place.

Date	Dataset	Local file or public URL
June 2024	SBLN Traffic Survey Results: 22 ATC sites, 11 JTC junctions, 25 ANPR cameras, MCC, bus stop, parking. 94 spreadsheets in total.	data/SBLN 2024 Traffic Survey Results/
Nov 2024	Arup, 'Area-level through traffic analysis'. 5-page PDF, marked OFFICIAL. First publicly cited by the Council in May 2026.	Arup Through Traffic Analysis.pdf bristol.gov.uk/files/ask-bristol/10865-arup-through-traffic-analysis
Sept 2024 to May 2025	Floow telematics layer. Per-segment percent_internal, percent_inbound, percent_outbound, percent_through, plus estimatedCarsPerHour. 5 published time windows, 4,866 polyline rows.	data/floow/floow_all.geojson data/floow/floow_all.csv
March 2025	Spring 2025 Parking Survey package.	data/SBLN-Spring-2025-Parking-Survey-Package.zip
Sept to Oct 2025	SBLN Consultation Survey. Council-published response data.	data/SBLN_Consultation_Report_2026.pdf and Appendix
Oct to Nov 2025	'December 2025' / Autumn 2025 ATC and JTC follow-up surveys. 122 spreadsheets, plus 102-segment summary layer.	data/SBLN-December-2025-Traffic-Surveys.zip data/floow/sbln_traffic_count_extents_autumn2025.geojson
May 2026	Floow interactive map and supporting text.	experience.arcgis.com/experience/cd5bba6670c64e7f9de6da0cd4306859
Spring 2026	Bristol City Council 20 mph speed-limit consultation pages, Areas 1 to 28.	bristol.gov.uk/ask/find-consultation-engagement (consultation open until 17 May 2026)
7 May 2026	Cllr Ed Plowden written explanation of Floow methodology, including the 10-minute dwell rule and the 'school at the end' explanation for cul-de-sac percentages.	Email correspondence, recorded in conversations/03_matt_second_feedback.md and onward thread

6. What is missing from the Council's published data

Items the Council have either not published, or whose absence is itself a finding because they are required to interpret figures the Council cite publicly. Each is referenced again in the relevant Findings sub-section.

Missing item	Why it matters
Formal Floow methodology document	The Council's interactive Floow map shows fields named percent_internal, percent_inbound, percent_outbound, percent_through, and estimatedCarsPerHour, but no published document defines what those mean. The GeoJSON file's metadata, the ArcGIS service description, and every field's description are empty. Both the resident-facing and the algorithmic definitions of 'through' in this report are therefore inferences from the data structure, the Council's dashboard text, and the 7 May 2026 confirmation of the 10-minute rule. The Council have not published the rule they are using.
Floow sample rate	Floow telematics is a sample, not a census. The Council have not published what fraction of all vehicles on Bristol's roads Floow's feed observes, nor the extrapolation factor used to convert that sample to the displayed cars-per-hour figures. The estimatedCarsPerHour value cannot be verified without it.
Floow weekday inter-peak window (10:00 to 16:00)	The published Floow map covers five time windows: weekday AM peak, weekday PM peak, weekend AM peak, weekend midday, weekend PM peak. The longest weekday block, 10:00 to 16:00, is missing from the public dataset. Cllr Plowden has confirmed (7 May 2026) that the data manager 'is not entirely sure why and is picking this up with the contractors'.
Floow weekday evening and overnight	The published data ends at 19:00 on weekdays. There is no evening (19:00 to 22:00) or overnight (22:00 to 06:00) coverage on weekdays. Speed and traffic patterns at those hours are different from peaks, and those hours are part of the basis on which the 20 mph cap would change journey times.
Cross-walk between zone systems	The Council's documents use three different zone partitions of the same area: Arup's eight numbered sectors, Floow's ten zone polygons (with twelve od_region codes in the data, two not visible in the published polygon layer), and the engagement-material's four modal-filter zones. The Council have not published a cross-walk between the three. A 'Southville percentage' under one system is not the same area as under another.
Sample-size threshold for Floow segments	The Council page says the Floow data shows roads 'where there is a sufficient sample size'. The threshold is not published. Some segments report exactly 100 per cent through, which under any sensible threshold should not appear.
Vehicle classes in the Floow sample	The Council have not published whether the Floow sample includes buses, taxis, delivery vans, fleet vehicles, motorcycles or emergency services, or whether the displayed percent_through counts those vehicles or strips them out.
Resident vs visitor classification rule	Arup's definition of through-traffic excludes 'trips not made by residents or visitors'. The Council have not published how a resident is distinguished from a visitor in either the ANPR or the anonymous Floow data. Telematics data is structurally not capable of such a distinction without an external lookup.
Assessment behind the '16 mph' speed figures	The FOI response (78075203) discloses the method: TomTom Move harmonic route speeds over officer-selected routes, 08:00 to 20:00, directions averaged. It states that TomTom 'has been assessed and found to be accurate compared to Automatic Traffic Counters' but provides no assessment, and the underlying data needs a paid licence to inspect.
Journey-time assessment for the 20 mph limits	The consultation states that the limits will not add to journey times. No journey-time assessment has been published, and the route-speed figures cannot show it (Section 8).
Recomputation under September 2025 boundary	Arup's November 2024 analysis was computed against a Southville Sector perimeter that placed Dean Lane inside the sector. The September 2025 SBLN consultation map places the perimeter along Dean Lane, putting Dean Lane on the boundary. The 10 to 13 per cent Sector 5 figure has not been recomputed for the new boundary, but is still cited.

Missing item	Why it matters
Pre and post measurement plan	If the SBLN scheme proceeds, the Council have not published a plan to re-survey the same Floow segments and ATC counters after the modal filters are installed and to publish the post-installation figures on the same basis as the pre-installation ones.

7. Findings, organised by Council claim

Each finding takes a Council claim, sets out what the Council's own published data actually says about it, and notes any gap or inconsistency. Numbers in this section trace to the Excel database in Appendix A.

7.1 SBLN: 'high numbers of vehicles cut through Southville'

Council claim. The Council's website asserts 'high numbers' of vehicles use Southville's residential streets as a cut-through (see Section 3.1).

Arup's own number. Arup, in the analysis the Council commissioned and held unpublished for 17 months, put Sector 5 (Southville) at 10 to 13 per cent across the AM peak, inter-peak and PM peak, marked the figure as an upper-end estimate, and wrote that 'through-traffic does not appear to make up a large proportion of all traffic'. Source: Arup Through Traffic Analysis.pdf, Table 2, page 5; verbal verdict, page 3.

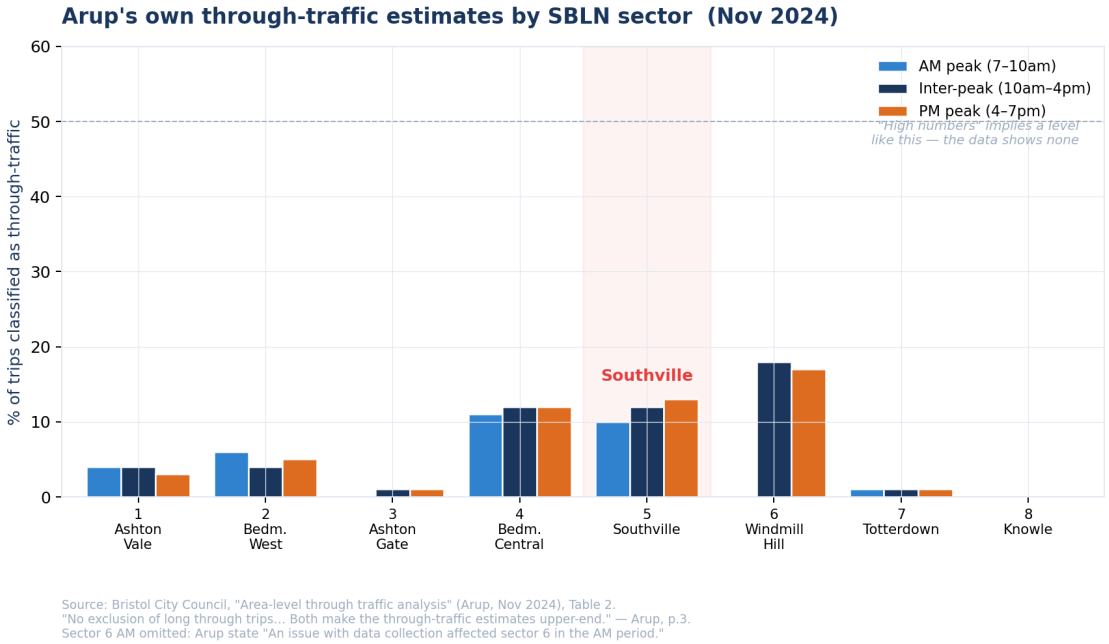


Figure 1. Through-traffic share by Arup sector across the three peak windows, from Arup's own published table.

Independent ANPR cross-check. Of the 25 ANPR cameras deployed for the June 2024 survey, none was placed inside the Southville Zone or on Raleigh Road. Camera 14 (Coronation Road) and Camera 16 (North Street) are the two cameras next to the Zone perimeter. Counting every vehicle whose recorded camera sequence includes both cameras, 79 vehicles on 11 June and 92 on 12 June passed both within the contractor's 15-minute journey category, about 0.5 to 1.2 per cent of the plates captured at those cameras; 45 to 46 a day did so within 10 minutes. A vehicle seen at both has not necessarily driven through the residential streets between them; it may have used the perimeter roads. The count covers one pair of cameras, so it is not a measure of through traffic for the whole Zone.

Correction (19 October 2026). *Earlier versions stated that only 10 to 11 vehicles a day were seen at both Camera 14 and Camera 16, 0.07 to 0.14 per cent of the traffic at those cameras, and called this an upper bound on cut-through. That figure counted only journeys that began at one of the two cameras and ended at the other, read from the contractor's origin-destination matrix. The trip chain reports, which list every camera a vehicle passed, give the figures above. Two cameras on the perimeter cannot set an upper limit on through traffic for the Zone, so that claim is withdrawn. The corrected figure is still small, and the rest of this section is unaffected.*

Highest absolute figure Arup identifies anywhere in the SBLN study area. 229 vehicles per AM peak on Palmyra Road westbound, in Sector 4 (Bedminster Central), not Southville. That is approximately 1.3 vehicles per minute, on the worst-affected single road Arup looked at. Source: Arup, Table 1, page 2.

7.2 SBLN: the Floow telematics map

Council claim. The Council's interactive Floow map shows headline percent_through figures of up to 85 per cent on Raleigh Road and 81 per cent on Greenway Bush Lane, used to support the same SBLN through-traffic claim.

What the data is. The Floow layer is 4,866 directional polyline rows, each carrying percent_internal, percent_inbound, percent_outbound, percent_through, estimatedCarsPerHour, and segment metadata, across five published time windows. Source: data/floow/floow_all.geojson, downloaded 7 May 2026 from the Council's ArcGIS service (item 701b8df988cf4480b9d80522f3f81a01).

Three structural problems with the metric:

- **(a) The metric is unstable across time of day.** Of 1,077 physical road segments with two or more published time windows, 45.5 per cent swing by 30 percentage points or more in percent_through between any two windows; 15.4 per cent swing by 50 points or more. Median swing on the same road across the day is 28 points. Examples include segments that go from 22.9 per cent in the AM peak to 85 per cent in the PM peak on the same road, and 81 per cent to 19.8 per cent in the opposite direction. Source: Excel database sheet Floow_summary, plus code/dataset_deep_dive.py.
- **(b) The metric does not match the Council's own physical counts.** Cross-checked against the Council's Autumn 2025 ATC pneumatic-tube counts on the same streets in the same hours, Floow's hourly figures sum to 53 per cent of what the tubes physically recorded across 86 matched sites. On the busiest road in the cross-check, BCC-583 (Malago Road) (12,509 vehicles per day on the tubes), Floow reports 23 cars per hour at PM peak, a ratio of 0.03. On quiet residential streets the pattern reverses: Floow can over-count by three to four times. Source: code/floow_vs_atc_crosscheck.py.
- **(c) The cul-de-sac case.** Upper Sydney Street is a 50-metre cul-de-sac on the south perimeter of the Southville Zone. The Floow map reports 81 per cent through-traffic in the Weekday PM peak. The street has only one road entrance; vehicles cannot physically pass through it. Cllr Plowden's 7 May 2026 explanation cites the school at the end of the street and a 10-minute dwell rule (a stop of less than 10 minutes does not register as a destination, so brief drop-off and parking-failure trips classify as 'through'). The 81 per cent figure on this street is therefore not measuring cut-through behaviour. Whether the cul-de-sac actually has a school at the end can be settled directly; what is conclusive either way is that no vehicle can physically pass through it.

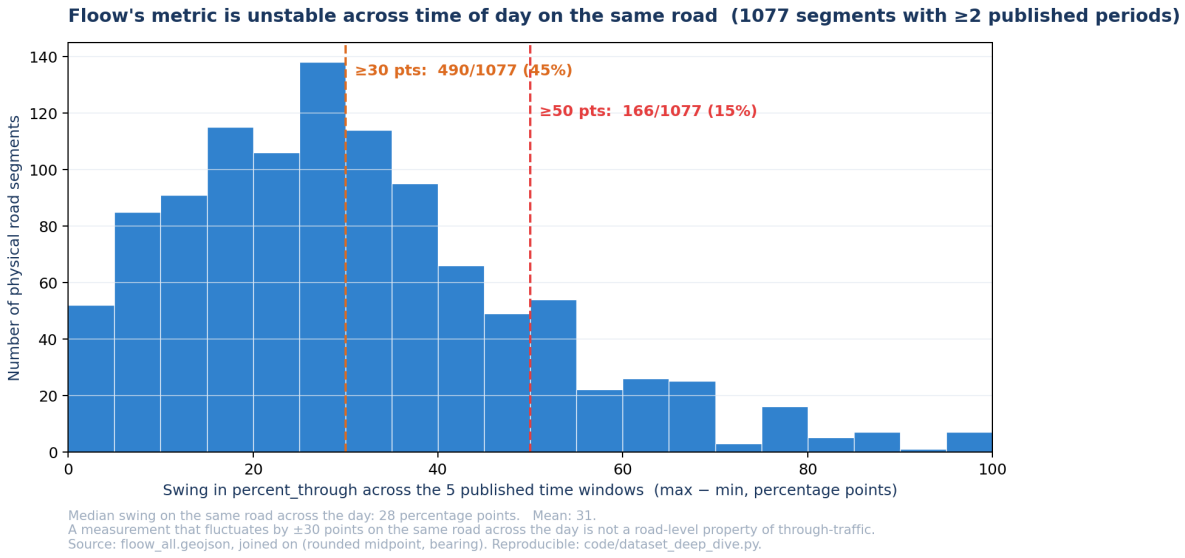


Figure 2. Distribution of percent_through swing across the day on the same physical road, all 1,077 segments with two or more time windows. Median 28 points, mean 31. The orange line is 30 points, the red line 50.

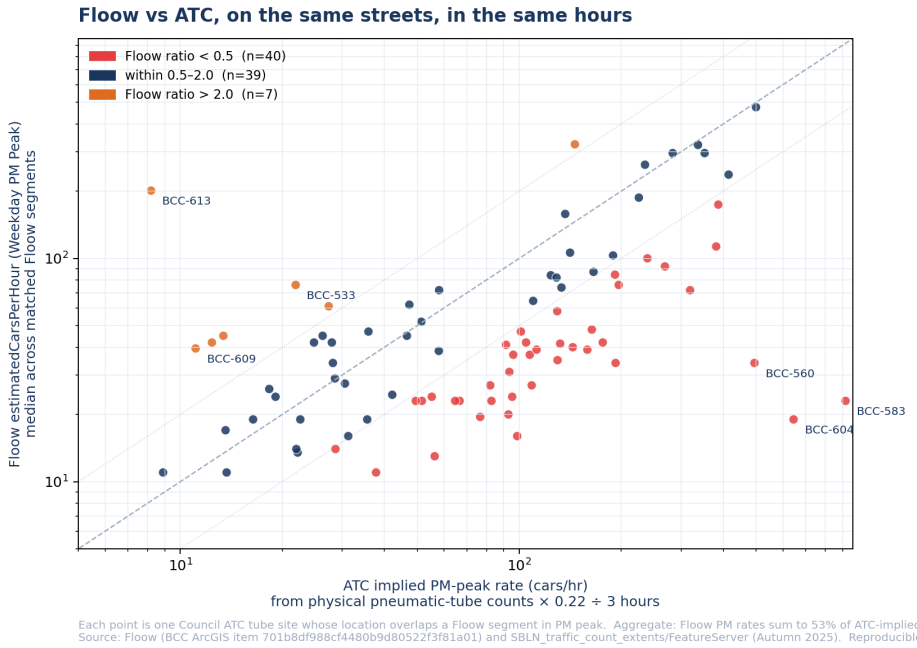


Figure 3. Floow estimatedCarsPerHour vs ATC pneumatic-tube counts on the same 86 streets in the same Weekday PM Peak. Each point is one street. Dashed line is 1:1 agreement. Red points show Floow undercounting (mostly busy roads); orange points show Floow over-counting (mostly quiet roads).

What Floow actually is. A sample of vehicles, not a census. The Council have not published Floow's coverage rate or scaling factor (Section 6). Until they do, the estimatedCarsPerHour values cannot be relied on as physical counts.

7.3 SBLN: the Sector 5 boundary was redrawn

Arup's November 2024 analysis used a Sector 5 perimeter along East Street and Bedminster Parade, with Dean Lane inside the sector. The September 2025 SBLN consultation map redraws the perimeter along Dean Lane, Catherine Mead Street and St John's Road, putting Dean Lane on the boundary. Trips on Dean Lane that crossed the November 2024 perimeter and counted as through-traffic in Arup's figures cease to be through-traffic under the new geometry. Arup's 10 to 13 per cent has not been recomputed.

JTC Site 6 (Dean Lane / Cannon Street / North Street, the south end of Dean Lane) recorded 2,486 vehicles using Dean Lane in the AM peak alone on 11 June 2024, the same day Arup's ANPR data was collected. That is approximately 3.78 times Arup's entire Sector 5 through-traffic count for the same period (657 trips). The two figures cannot be subtracted directly because the JTC is a census while Arup's figure is a filter on ANPR-matched trips, but the order-of-magnitude relationship is itself the finding: one residential road on the new perimeter carries roughly three times the entire vehicle count Arup attributed to through-traffic for the whole sector. Source: ATC database, JTC Site 6 spreadsheet, processed in code/dean_lane_calculation.py.

7.4 Reconciliation across the Council's own datasets

Source	Issued	Definition of 'through'	Headline figure for Southville
Council website	Sept 2025	(none stated)	'high numbers'
Arup ANPR analysis (Sector 5)	Nov 2024	Trips not made by residents or visitors, sector level, ANPR-detected	**10 to 13%** upper-end estimate
Arup verbal verdict	Nov 2024	(as above)	'does not appear to make up a large proportion'

Source	Issued	Definition of 'through'	Headline figure for Southville
Floow telematics	Jul 2025	Trip endpoints both outside an unpublished neighbourhood boundary, segment level	Up to 85% Raleigh Road / 81% Greenway Bush Lane (single-segment maxima; medians 49 to 74%; absolute volumes 15 to 28 vehicles per hour per segment)
ANPR Cam 14 / Cam 16 pair	Jun 2024 survey	Vehicles whose camera sequence includes both cameras within the contractor's 15-minute category (council trip chain reports). One camera pair, not a zone figure.	**0.5 to 1.2%** of camera traffic (79 to 92 vehicles a day; corrected 19 Oct 2026)

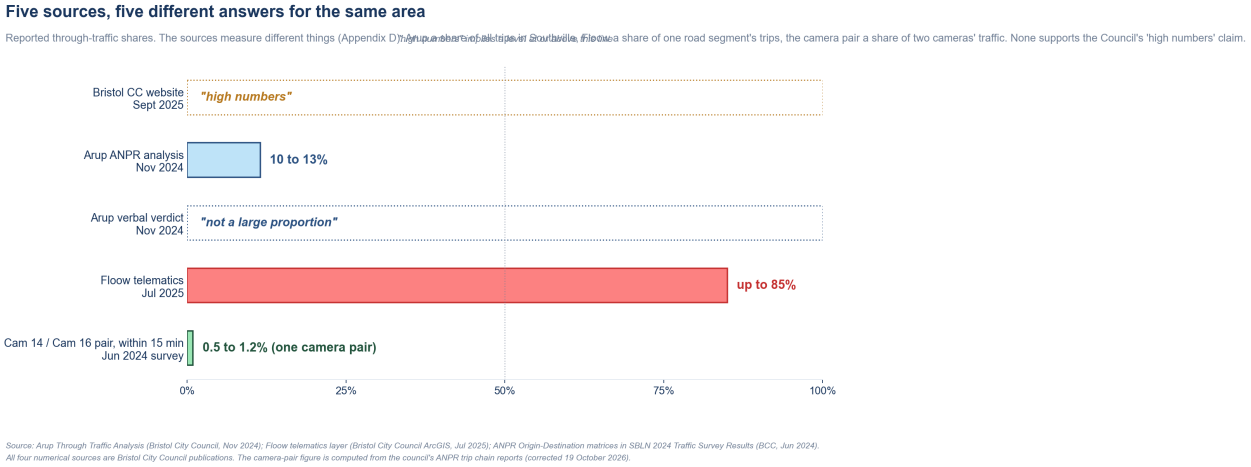


Figure 4. Five sources, five different reported figures for Southville through-traffic. They measure different things and cannot be compared directly. The Council's public 'high numbers' claim is supported by none of them.

8. The parallel 20 mph speed-limit consultation

Bristol City Council consulted from 2 April to 17 May 2026 on lowering the speed limit from 30 to 20 mph on around 100 roads. For each road it stated an 'average daytime speed', 16 mph on Coronation Road, and told the public that 'a 20mph limit should improve safety without adding to journey times'. The Transport Committee is due to decide on 22 October 2026. This section summarises the standalone 20 mph audit, version 1.6 (Bristol_20mph_Speed_Consultation_Audit_v1.6.pdf), which replaces the analysis in earlier versions of this report.

8.1 What the Council's figures are

The Council's response to information request 78075203 (20 August 2026, with a follow-up on 27 August) states that the figures come from TomTom Move, that officers 'specify an A-B route (which can include multiple roads or sections of road)' and take its harmonic average speed, measured from 08:00 to 20:00, and that the only calculations were converting kilometres per hour to miles per hour and 'adding the average for each direction together and dividing by 2'. The Council's website says the measure 'accounts for vehicles speeding up and slowing down during that journey'. It is a journey speed that includes time spent slowing for junctions and queueing, not the speed vehicles travel on the open road.

Council route (FOI wording)	Consultation said	Inbound	Outbound	Council figure
Coronation Road / Clift House Road	16 mph	17.8	14.9	**16.4**
Redcatch Road / Axbridge Road	16 mph	15.6	15.6	**15.6**
Hartcliffe Way / Parson Street (30 mph section)	below 18 mph	10.1	13.5	**11.8**
Bedminster Down Road (A38)	below 18 mph	14.4	21.2	**17.8**
Winterstoke Road part 2 (Ashton Works to Bedminster Down Rd)	around 17 mph	18.1	16.2	**17.1**

All figures in mph, 08:00 to 20:00, from the Council's spreadsheet '20mph Average Speeds' supplied under FOI 78075203. On Bedminster Down Road the two directions differ by 6.8 mph and were given equal weight regardless of traffic in each direction.

8.2 When the public was told

The consultation opened on 2 April. The first public question about which average was used reached the road safety team on 11 May. On 13 May the Council added a section, 'Average speed data used in this consultation', describing the figures as TomTom Move harmonic means. The consultation closed on 17 May. For 41 of its 46 days the public had the figures with no description of what they measured, and the paper version never mentioned TomTom, a route, a time window or the harmonic mean.

8.3 Why a route journey speed cannot support 'no added journey time'

A route journey speed of 16 mph averages slow sections, such as junction approaches and queues, with faster open sections. A 20 mph limit has no effect where traffic is already slower than 20 mph; it slows every vehicle travelling above 20 mph on the open sections, and their journeys take longer. The Council's own counters show what happens on those sections:

Road and counter	Council route figure (08-20)	Counter arithmetic mean (07-19)	Counter harmonic mean (07-19)	Vehicles at or above 20 mph
Coronation Rd, Site 8 (near roundabout)	16.4	20.30	18.0	**51.5%**
Coronation Rd, Site 9 (open stretch)	16.4	22.23	19.7	**69.9%**
Redcatch Rd, Site 5	15.6	24.07	22.3	**81.2%**
Parson Street, Site 3	11.8	23.06	21.3	**70.2%**

Counter means are from the Council's own 7-day Speed Summary Two-Way sheets (June 2024 survey). Harmonic means are estimated from the counters' 5 mph speed bins and are accurate to about half a mile per hour. The FOI response does not state where on each route the Council's figure was measured relative to the counters. Winterstoke Road's counter (site 12) is on the western section that the consultation excluded as 'not currently suitable for 20mph', so it is not used.

The averaging method does not explain the low figures: applied to the counters, the harmonic mean gives 18.0 to 22.3 mph, not 16. The low figures come from measuring whole routes that include junctions and queues. That is a legitimate measure of congestion, but it is not evidence about the speeds a 20 mph limit would cap. On the Council's own counters, between 52 and 81 per cent of vehicles on these roads travel at or above 20 mph, and every one of them would be slowed by the limit. The statement that the limit would not add to journey times is contradicted by the Council's own data.

8.4 What the Department for Transport says

The DfT's Head of Speed Policy wrote on 27 August 2026 (ref. 00075310) that 'the current guidance does not specify that traffic authorities must use the arithmetic mean, harmonic mean, or any other named statistical form of mean speed', that 'in operational use, 'mean speed' is generally understood by practitioners to refer to the arithmetic mean of observed vehicle speeds', and that 'the guidance could be clearer on this issue'. An earlier reply (29 July 2026, ref. 00073901) says counters should be positioned 'away from traffic-calming features, junctions, or locations where queuing traffic is likely to affect the reliability of the data collected', which is why this section relies on the open-stretch counter on Coronation Road. DfT Circular 01/2013 paragraph 100 says a 20 mph limit by signing alone is likely to achieve general compliance where the mean speed is at or below 24 mph.

This report does not argue against 20 mph limits: under DfT guidance a 20 mph limit may be defensible on these roads using the Council's own data. What cannot be defended is telling the public that journey times will not rise. *Earlier versions of this report compared the consultation figures with counter means as if both measured the same thing, and included Winterstoke Road site 12; that analysis is withdrawn.*

9. Eighteen documented inconsistencies

Each item pairs a Council statement or implied position with what the Council's own data actually contains. Each cites a primary source.

1. **Council 'high numbers' vs Arup 10 to 13 per cent (upper-end).** The Council's website states 'high numbers' of vehicles cut through Southville. The Council's own consultant put Sector 5 at 10 to 13 per cent, marked upper-end, and concluded that through-traffic 'does not appear to make up a large proportion of all traffic'. The two cannot both be true. Source: Arup Through Traffic Analysis.pdf, pages 1 and 3.
2. **'Through-traffic' has two different definitions in the Council's evidence.** Arup's definition excludes residents and visitors. Floow's definition is a polygon endpoint test that includes them whenever they stop briefly. The Council use the same word for both metrics.
3. **Floow zone codes do not match the published zone polygons.** The Floow data references 12 distinct od_region codes but only 10 zone polygons are published. Two zones used in the public-facing percentages are not visible to the public.
4. **Three different zone systems are not aligned across documents.** Arup's 8 sectors, Floow's 10-12 zones, and the engagement material's 4 modal-filter zones are three different partitions of the same area. The Council have not published a cross-walk.
5. **Floow zone polygons are unnamed.** The published zones layer carries only OBJECTID. Residents cannot tell which neighbourhood their address is in.
6. **Floow time coverage is peaks-and-weekends only.** Five published windows, no weekday inter-peak, no weekday evening, no overnight. Cllr Plowden has confirmed in writing that the data manager is not entirely sure why the weekday inter-peak is missing.
7. **Floow has duplicate rows and 100-per-cent segments.** Identical attribute rows appear with different Shape__Length values; some segments report 100 per cent through-traffic despite the documented 'sufficient sample size' filter. The threshold is unpublished.
8. **'December 2025' is in fact Autumn 2025.** The Council page labels the dataset 'December 2025'. The underlying ArcGIS layer is named '2025-10-30-SBLN-before-counts-Autumn-2025'. Spreadsheet filenames inside the zip are tagged 'Nov 25'.
9. **The Autumn 2025 surveys carry no through-traffic field.** 7-day average vehicles, mean speed, 85th-percentile speed, walking, cycling. By construction the dataset cannot speak to through-traffic.
10. **The Autumn 2025 surveys post-date the September 2025 claim.** Even if they had a through-traffic field they could not retrospectively support a claim made before they existed.
11. **Arup November 2024 analysis withheld for 17 months.** Not cited in officer responses to public-forum questions on this exact topic between December 2025 and March 2026, nor in the January 2026 Freedom of Information response. First cited publicly in late April 2026 after media coverage.
12. **Floow map withheld for 11 months after data collection ended.** The ArcGIS item title 'TheFloow_though_traffic_SBLN_Sep24_May25' shows the data was collected between September 2024 and May 2025. The public-facing ArcGIS Online item was not created until 27 April 2026 (item 701b8df988cf4480b9d80522f3f81a01, created timestamp 1777290791000). Data the Council had held for almost a year was only released after media coverage.
13. **Highest Arup through-count is 229 vehicles per AM peak on Palmyra Road westbound.** Sector 4 (Bedminster Central), not Southville. About 1.3 vehicles per minute on the worst-affected single road Arup identified.
14. **Floow percent_through is unstable across time of day on the same road.** Of 1,077 segments with two or more published windows, 45.5 per cent swing by 30 percentage points or more across the day; 15.4 per cent swing by 50 points or more. Median swing 28 points. A road-level property of through-traffic

should be near zero.

15. **Floow estimatedCarsPerHour disagrees with Council ATC pneumatic-tube counts.** Aggregate across 86 matched sites in PM peak: Floow figures sum to 53 per cent of the physical tube counts. On the busiest road, Floow records 3 per cent of the tube count. On the quietest residential streets, Floow over-counts by 3 to 4 times. Sample rate not published.
16. **A route journey speed was presented as the road's 'average daytime speed'.** The figures are TomTom Move harmonic route speeds over officer-selected routes, 08:00 to 20:00, directions averaged (FOI 78075203). They include time spent slowing and queueing, so they cannot support the claim that a 20 mph limit will not add to journey times; the Council's own counters show 52 to 81 per cent of vehicles at or above 20 mph (Section 8).
17. **The measure was explained four days before the 20 mph consultation closed.** The explanation was added on 13 May 2026, two days after the first public question; for 41 of the 46 days the public had no description, and the paper version never had one. The accuracy assessment the Council cites has not been provided (Section 8).
18. **The Sector 5 boundary was redrawn in September 2025 without recomputation.** The November 2024 Arup figure was computed against a Sector 5 perimeter along East Street and Bedminster Parade, with Dean Lane inside the sector. The September 2025 SBLN consultation map placed the perimeter along Dean Lane, putting Dean Lane on the boundary. Arup's 10 to 13 per cent has not been recomputed and is still cited.

10. What this report cannot answer

Honest constraints on the analysis. Some of these resolve as soon as the Council publish the missing items in Section 6.

- We cannot reconstruct Arup's exact 10 to 13 per cent figure from public files. Arup's method depends on origin-destination matching of ANPR records and a 'long trips' filter whose threshold they did not publish. The published number stands as Arup's own; we do not contest it, we test the Council's wider claim against it.
- We cannot identify the boundary Floow uses to classify 'through'. On 22 October 2026 the Council stated that through trips 'start and end outside of a neighbourhood boundary', but have not published those boundaries, and the data file's metadata is empty. The published sub-zone polygons do not reproduce Floow's figures: on Raleigh Road they give 19 to 40 per cent through traffic at the Camera 3 position in a residents' camera survey (October 2026), against Floow's 80 to 86 per cent. A boundary drawn close around each stretch of road gives 70 to 81 per cent, near Floow's figure. Earlier versions of this report said the two readings produce identical numbers; the Raleigh Road test shows they do not. Under the smaller boundary, a trip between two nearby streets, or one with a stop under 10 minutes, counts as through, so the conclusion about the metric's reliability is unchanged.
- We cannot verify Floow's absolute counts. Without the published sample rate and extrapolation factor, the displayed cars-per-hour figures cannot be checked. The 53 per cent comparison to ATC tube counts is the strongest verifiable bound from public data.
- We cannot check the Council's TomTom route speeds themselves: the underlying data needs a paid licence, and the FOI response does not say where on each route the figures were measured relative to the Council's counters.
- We cannot say whether the figures the Council have used reflect a different (unpublished) methodology that, if published, would resolve the gap. Section 6 lists the items that would settle most outstanding questions.

11. Recommendations

These are practical asks, addressed to Bristol City Council and to those reviewing the Council's evidence base.

- **To the Council, on the SBLN evidence base.** Publish the formal Floow methodology, including the sample rate, extrapolation factor, dwell-time threshold, sample-size filter, vehicle classes, and zone polygons used. Publish a cross-walk between Arup's sectors, Floow's zones and the engagement-material's modal-filter zones. Recompute Arup's Sector 5 figure under the September 2025 boundary, with workings.
- **To the Council, on the 20 mph consultation.** Tell the Transport Committee, before it decides, that the speeds quoted were route journey speeds and not the speeds vehicles travel on these roads. Withdraw the statement that the limits will not add to journey times, or publish a journey-time assessment that supports it. Publish the TomTom accuracy assessment the FOI response refers to, and the counters' arithmetic means and 85th-percentile speeds for each road.
- **To the Council, on disclosure.** Add the Arup November 2024 analysis and the Floow interactive map to the standard list of evidence cited in officer responses to public-forum questions on through-traffic. Confirm whether any further analyses commissioned on this topic remain unpublished.
- **To councillors and those scrutinising the Council's evidence.** The questions in Appendix C are designed to be addressed in writing by the Chair of the Transport and Connectivity Policy Committee (Cllr Ed Plowden) or by the Council's Data Manager. Each question has a checkable answer in the Council's own files. The absence of an answer is itself a finding.

Appendix A. The companion Excel database

Every numerical claim in this report is derivable from the Excel workbook supplied alongside it.

Path: `conversations/06_traffic_speed_database.xlsx`
Direct download: github.com/R3GENESI5/bristol-southville-traffic-analysis/raw/master/conversations/06_traffic_speed_database.xlsx
Builder script: `code/build_atc_speed_database.py` (re-runnable against the Council's own spreadsheets to reproduce identical numbers).

Sheet	Rows	Contents
README	30	Plain-English description of every column and source file.
2024_ATC_speeds	126	22 SBLN ATC sites by 6 time windows. Per row: vehicles counted, mean speed, 85th-percentile, share of vehicles at or above 20, 25, 30 mph.
2024_ATC_distributions	1,341	Full speed-bin counts (5 to 75 mph) per site per window. Long form.
Autumn2025_ATC_summary	102	102 Autumn 2025 ATC counters as published. Daily totals, mean speed, 85th-percentile, walking and cycling.
Floow_summary	4,866	All Floow telematics rows. Per directional segment per window: percent_internal, percent_inbound, percent_outbound, percent_through, total cars/hr, through cars/hr.
Consultation_compare	6	Counter speeds on the 20 mph consultation roads: day mean, 24h mean, 85th-percentile and share above 20 mph. Compiled in May 2026; Section 8 uses four of these sites and excludes Winterstoke Road site 12, which is on a section the consultation excluded.

Appendix B. File inventory and reproducibility

All paths are relative to the project repository at `github.com/R3GENESI5/bristol-southville-traffic-analysis`.

Council documents (PDFs)

File	Source
Arup Through Traffic Analysis.pdf	Arup, Nov 2024. bristol.gov.uk/files/ask-bristol/10865-arup-through-traffic-analysis
BD17291 SBLN Engagement Report A4_a_v8.pdf	Engagement Report (consultation precursor)
data/SBLN_Consultation_Report_2026.pdf	Council consultation results (Sep-Oct 2025), published May 2026
South Bristol Liveable Neighbourhood Engagement Equalities Appendix.pdf	Equalities appendix

Survey datasets

Path	Contents
data/SBLN 2024 Traffic Survey Results/	94 spreadsheets (June 2024)
data/SBLN-December-2025-Traffic-Surveys.zip	122 ATC/JTC/pedestrian spreadsheets (Autumn 2025 surveys, mis-labelled)
data/SBLN-Spring-2025-Parking-Survey-Package.zip	Parking surveys
data/floow/floow_all.geojson	4,866 Floow telematics rows; 12 attribute fields

Path	Contents
data/floow/sbln_traffic_count_extents_autumn2025.geojson	102 Autumn 2025 short-segment ATC summaries
data/floow/sbln_zones.geojson	10 SBLN zone polygons; only OBJECTID, no name field

Analysis scripts

Script	Purpose
code/build_atc_speed_database.py	Builds the Appendix-A Excel workbook
code/dataset_deep_dive.py	Universal Floow statistics, time-period instability, Autumn 2025 volumes
code/floow_vs_atc_crosscheck.py	Cross-check Floow estimatedCarsPerHour against ATC pneumatic-tube counts
code/coronation_road_speed_analysis.py	Speed analysis for the Coronation Road area (Sites 7, 8, 9)
code/all_consultation_roads.py	Speed analysis for all SBLN counters that match a 20 mph consultation road
code/dean_lane_calculation.py	Dean Lane traffic count derivation, Moving Goalposts argument
code/factcheck_matt_examples.py	Verifies Matt Sanders's five Floow worked examples against the data

Appendix C. Suggested questions for the Council

Each question has a checkable answer in the Council's own files. Where the Council responds 'we will check', the absence of a published answer is itself part of the evidence base.

1. When the Council's website states 'high numbers of vehicles from outside the area use residential streets in Southville as a cut-through', which specific Council document, table, and page supports that claim, given that Arup's November 2024 figure for Sector 5 is 10 to 13 per cent (upper-end) and Arup themselves describe through-traffic as not making up a large proportion of all traffic?
2. If a parent drives a few minutes down a residential road to drop a child at the primary school and back, does that show up in the Floow data as a 'through' trip under the rule Cllr Plowden described ('something like 10 minutes')?
3. Is the 10-minute dwell rule a firm engineering threshold inside Floow's processing or an estimate the Data Manager gave when asked? When chasing the missing weekday inter-peak, can the missing weekday evening (19:00 to 22:00) and overnight (22:00 to 06:00) windows also be requested?
4. What classes of vehicle does Floow's telematics feed observe? Are buses, taxis, delivery vans, fleet vehicles, motorcycles and emergency services included, excluded, or weighted differently? Does the displayed percent_through count them or strip them out?
5. How does the system distinguish a resident from a visitor in anonymous telematics data? Home-postcode lookup, frequency rule, or assumed from where a vehicle starts the day?
6. What is the threshold for a road to be shown on the Floow map under the 'sufficient sample size' rule? Five trips per time window, ten, twenty? What happens to a road that falls below the threshold?
7. When Floow assigns a trip endpoint to a zone, is the GPS coordinate matched against the zone polygon directly or with a tolerance buffer? If a buffer, how big is it?
8. If a vehicle is detected at Camera 14 at 8:05 am and at Camera 16 at 8:30 am, the ANPR trip chain treats that as one journey, outside its 15-minute category. What is the maximum gap between camera detections that still counts as a single trip, and what stops a vehicle that parked in the area for the morning from being counted as 'through' twice?

9. Does the Floow data agree with Arup's November 2024 through-traffic findings, or are they measuring different things? Has the Floow data been updated since July 2025?
10. On a road where the Council has both a Floow segment and a pneumatic-tube counter, do the daily totals match? If the SBLN goes ahead, what is the Council's plan to re-survey both Floow and the ATC tubes after installation and publish those figures on the same basis as the pre-installation ones?

Appendix D. Definitions and time limits

Through-traffic figures depend on how long a vehicle may take between cameras and still count as passing through. The sources in this report use different limits, set out here.

Term	Meaning	Source
15 minutes (SBLN survey, June 2024)	The survey contractor, Intelligent Data Collection Ltd, groups matched journeys in the council's June 2024 ANPR reports into 'Less than 15 Minutes' and 'More than 15 Minutes'. This report uses the 15-minute category for all Southville ANPR figures.	ANPR OD Report, ID-0524-0183
10 minutes (EBLN survey, March 2022)	The same contractor's March 2022 survey for the East Bristol Liveable Neighbourhood used a 10-minute category. It does not apply to the Southville survey. Within 10 minutes, 45 to 46 vehicles a day were seen at both Camera 14 and Camera 16.	ANPR OD Report, ID06276
About 10 minutes stationary (Floow)	Cllr Ed Plowden wrote on 7 May 2026 that 'there is a period (something like 10 minutes) when if a car is stationary then it is not counted as through traffic'. This is an approximate description in correspondence; Floow's method is unpublished.	Email to Matt Sanders, 7 May 2026
No time limit (Arup)	Arup matched vehicles between cameras without a journey-time limit and without excluding longer trips that include a stop, and describes its 10 to 13 per cent as upper-end for that reason.	Arup Through Traffic Analysis, Nov 2024
Government guidance	We have not found a Department for Transport definition of through traffic or a standard journey-time limit for identifying it.	Our search, October 2026
Trip chains and the origin-destination matrix	The contractor's origin-destination matrix records each journey by its first and last camera. The trip chain report lists every camera a vehicle passed. A count of vehicles 'seen at both' of two cameras must use the trip chains; the matrix counts only journeys that began at one and ended at the other.	ANPR Trip Chain and OD Reports, ID-0524-0183

End of Report Version 1.6. Subsequent versions will fold in answers from the Council where given, and will explicitly note where requested information was withheld.