VERSION 1.5

Bristol's 'high numbers' cut-through claim, audited.

An evidence audit of the SBLN through-traffic case

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Companion database: conversations/06_traffic_speed_database.xlsx

1. Summary

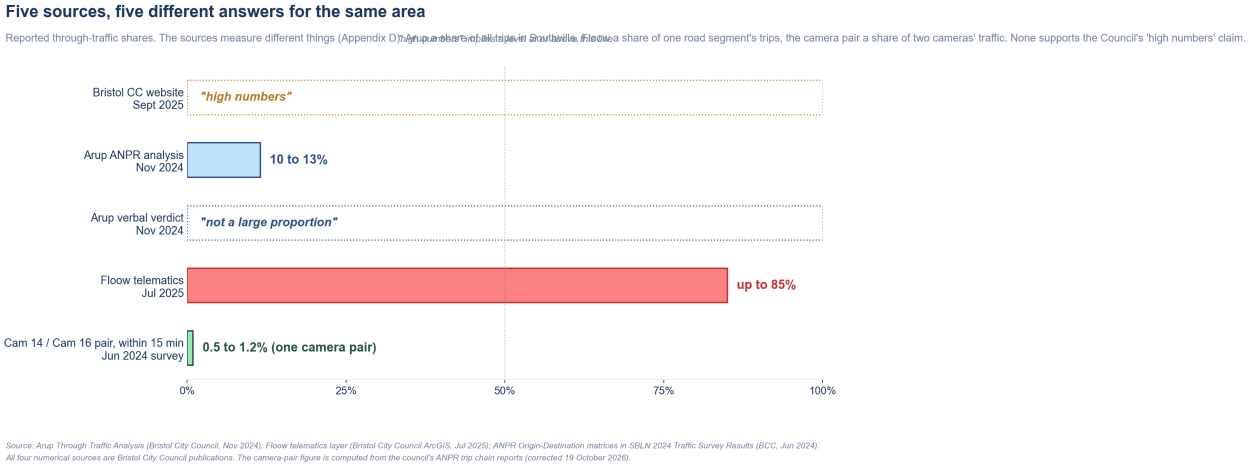
Bristol City Council's public-facing claim on the SBLN scheme is that 'high numbers of vehicles from outside the area use residential streets in Southville as a cut-through to other destinations.' This audit tests that claim against the Council's own published data, and against the analyses the Council itself commissioned.

Arup, the consultant the Council paid to do this analysis, put Sector 5 (Southville) at 10 to 13 per cent in November 2024, marked it as an upper-end estimate, and concluded that through-traffic 'does not appear to make up a large proportion of all traffic'. The Council held that analysis unpublished for 17 months. 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.

The Council's Floow telematics map shows headline figures of up to 85 per cent on Raleigh Road and 81 per cent on Greenway Bush Lane. Those figures rest on a metric whose formal definition the Council have not published. The metric is unstable across time of day, disagrees with the Council's own pneumatic-tube counts by a factor of two in aggregate, and reports 81 per cent through-traffic on Upper Sydney Street, a 50-metre cul-de-sac where no vehicle can physically pass through.

Every numerical claim in this audit traces to a Council-published file. The supporting Excel database at `conversations/06_traffic_speed_database.xlsx` consolidates the figures in long form. The analysis scripts in `code/` are re-runnable against the originals.

The headline finding in one chart



Five sources, five different reported figures for the same area. They measure different things and cannot be compared directly. The Council's public 'high numbers' claim is supported by none of the five sources.

2. Definitions

Every term used in the rest of this audit. Both senses of 'through traffic' are given because the Council have used the same word for two different metrics.

Term	Plain-English definition
ANPR (Automatic Number Plate Recognition)	A fixed camera that records 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. The 2024 SBLN survey installed 22; the Autumn 2025 follow-up installed 102. ATC is a literal count, not a sample.
JTC (Junction Turning Count)	An observer recording how many vehicles approached each arm of a junction and which way they turned. 11 junctions in the June 2024 survey.
Floow telematics	A commercial product from Floow Ltd. Anonymous GPS traces from a sample of vehicles (insurance black boxes, connected-car apps, fleet vehicles), aggregated to per-segment counts and origin-destination percentages.
Through traffic (Arup definition, Nov 2024)	Verbatim from the Arup glossary: 'traffic that passes through a neighbourhood sector. It represents trips not made by residents or visitors.'
Through traffic (Floow definition, inferred)	A trip is classified as 'through' on a road segment if its origin and destination both lie outside the local SBLN sub-zone polygon. Stops under 10 minutes do not register as endpoints (Cllr Plowden confirmation, 7 May 2026), so brief stops do not change the classification.
Internal, Inbound, Outbound (Floow)	The other three categories. Internal = origin and destination both inside the zone. Inbound = ends inside, starts outside. Outbound = starts inside, ends outside.
Sector (Arup)	Arup's term for a numbered subdivision of the SBLN study area. Eight sectors in their November 2024 analysis. Not the same as Floow's sub-zones.
Modal filter	A physical barrier (bollards, planters) that prevents motor vehicles from passing through a point, while allowing cyclists and pedestrians. The intervention the SBLN scheme proposes.

3. The Council's claim, verbatim

Bristol City Council, SBLN project page, accessed May 2026:

> *"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).

What Arup actually said about Southville (Sector 5), in the November 2024 analysis the Council commissioned but did not cite in any officer response to public-forum questions until 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.

4. The data we examined

Date	Dataset	Local file or URL
June 2024	SBLN Traffic Survey Results. 22 ATC sites, 11 JTC junctions, 25 ANPR cameras, MCC, bus, parking. 94 spreadsheets.	data/SBLN 2024 Traffic Survey Results/
Nov 2024	Arup, 'Area-level through traffic analysis'. 5-page PDF, marked OFFICIAL.	Arup Through Traffic Analysis.pdf
Sept 2024 to May 2025	Floow telematics layer. Per-segment OD percentages and estimatedCarsPerHour. 5 published time windows, 4,866 polyline rows.	data/floow/floow_all.geojson
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
May 2026	Floow interactive map.	experience.arcgis.com/experience/cd5bba6670c64e7f9de6da0cd4306859
7 May 2026	Cllr Ed Plowden's written explanation of the 10-minute dwell rule and the school-end cul-de-sac explanation.	Email, archived in conversations/03_matt_second_feedback.md thread

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

Missing item	Why it matters
Formal Floow methodology document	The Council have not published a definition for percent_internal, percent_inbound, percent_outbound or percent_through. The GeoJSON metadata, the ArcGIS service description, and every field's description are empty. Both the resident-facing and the polygon-endpoint readings of 'through' are inferences.
Floow sample rate	Floow is a sample, not a census. The Council have not disclosed what fraction of vehicles the Floow feed observes, nor the extrapolation factor used to convert that sample to displayed cars-per-hour figures.
Floow's missing weekday hours	Five time windows are published. The longest weekday block (10:00 to 16:00) is missing; weekday evenings and overnight are absent. The data manager 'is not entirely sure why' (Plowden email).
Cross-walk between zone systems	Arup's 8 sectors, Floow's 10-to-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.
Recomputation under September 2025 boundary	The November 2024 Arup figure was computed against a Sector 5 perimeter along East Street and Bedminster Parade. The September 2025 SBLN consultation map redrew the perimeter along Dean Lane. The 10 to 13 per cent figure has not been recomputed for the new boundary, but is still cited.
Sample-size threshold for Floow segments	The Council say segments are shown '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	Whether buses, taxis, delivery vans, fleet vehicles, motorcycles and emergency services are included, excluded or weighted is not disclosed.
Resident vs visitor classification	Arup's definition of through-traffic excludes both residents and visitors. The Council have not published how a resident is distinguished from a visitor in the anonymous Floow data.

6. Findings

6.1 Arup's 10 to 13 per cent figure

Arup, the Council's own consultant, put Sector 5 (Southville) through-traffic at 10 to 13 per cent in the AM, inter-peak, and PM windows. Source: Arup Through Traffic Analysis.pdf, Table 2, page 5. The figure is marked 'upper-end' (page 3), and Arup's own verbal verdict is that through-traffic 'does not appear to make up a large proportion of all traffic'. The single highest absolute through-traffic count Arup identifies anywhere in the SBLN study area is 229 vehicles per AM peak, on Palmyra Road westbound, in Sector 4 (Bedminster Central), not Southville.

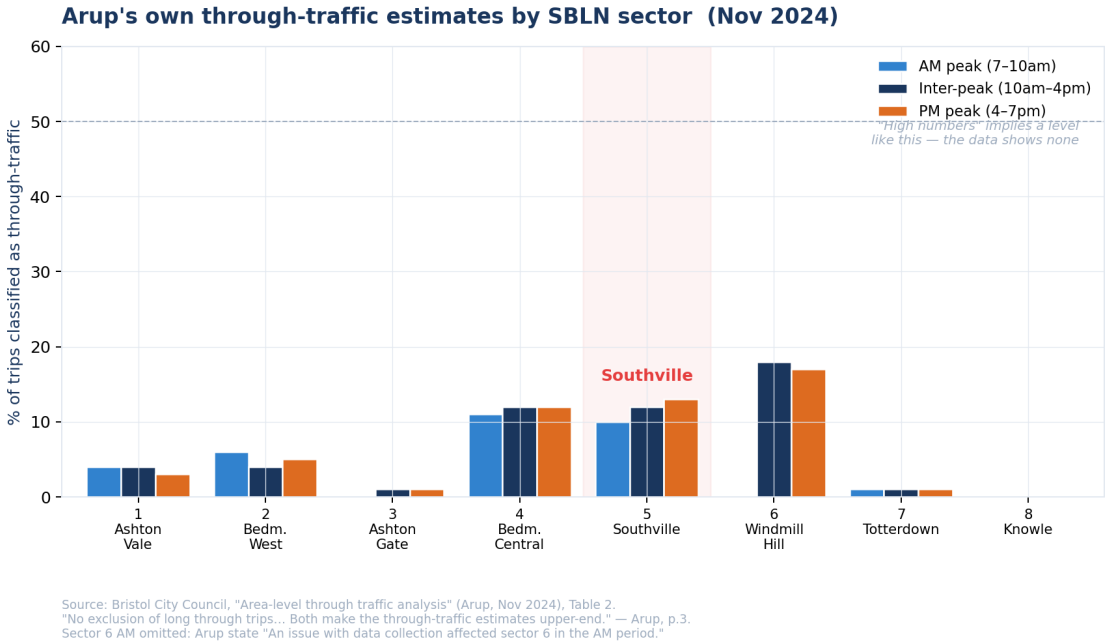


Figure 1. Arup's published Table 2 visualised. Source: Arup Through Traffic Analysis.pdf, page 5.

6.2 The 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.*

6.3 The Floow telematics map

The Council's interactive Floow map reports headline figures of up to 85 per cent on Raleigh Road and 81 per cent on Greenway Bush Lane. Three structural problems with the metric, each documented separately:

- **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. One segment goes from 22.9 per cent in the AM peak to 85 per cent in the PM peak on the same physical road.
- **The metric does not match the Council's own pneumatic-tube counts.** Cross-checked across 86 matched sites in PM peak, Floow's hourly figures sum to 53 per cent of what the tubes physically counted. On the busiest road in the cross-check, BCC-583 (Malago Road), Floow records 3 per cent of the tube count. On quiet residential streets the pattern reverses: Floow over-counts by 3 to 4 times.
- **The cul-de-sac case.** Upper Sydney Street, a 50-metre cul-de-sac with a single road entrance, reports 81 per cent through-traffic in the Weekday PM peak. No vehicle can physically pass through. The percentage is an artefact of the metric definition combined with the 10-minute dwell rule, not a measurement of cut-through behaviour.

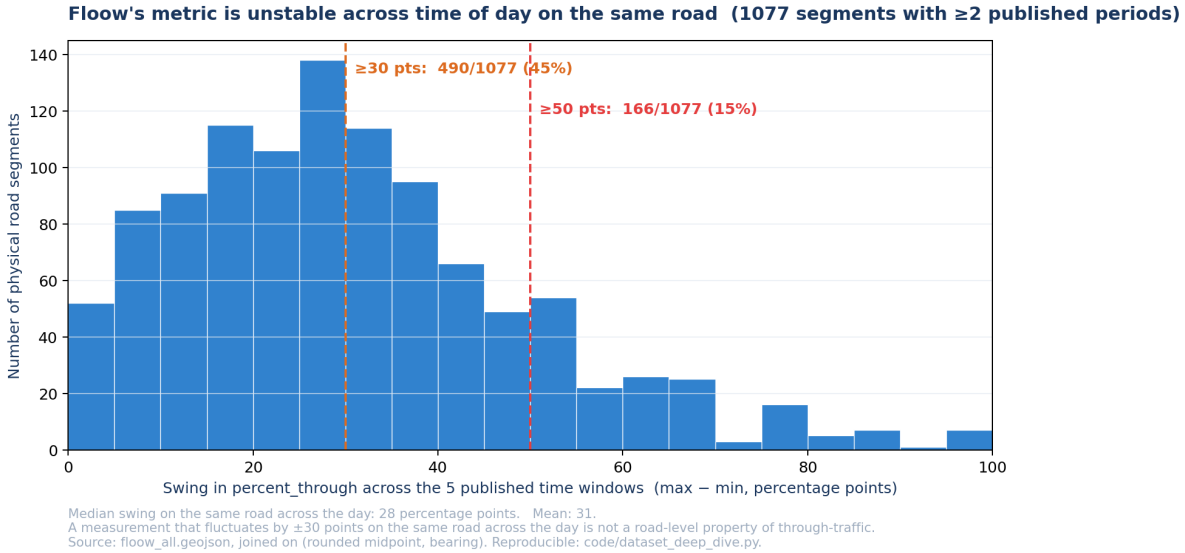


Figure 2. Distribution of percent_through swing across time of day on the same physical road. 1,077 segments with two or more published time windows. A road-level property of through-traffic should be near 0.

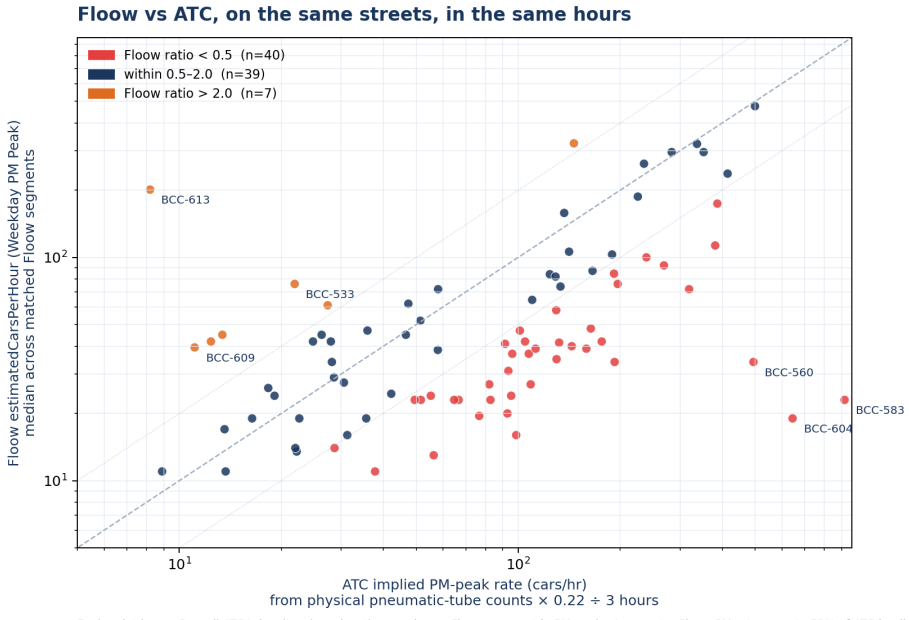


Figure 3. Floow estimatedCarsPerHour against ATC pneumatic-tube counts on the same 86 streets in the same Weekday PM Peak. Dashed line is 1:1 agreement. Red points are Floow undercounting (mostly busy roads); orange points are Floow over-counting (mostly quiet residential streets).

6.4 The Sector 5 boundary was redrawn

Arup's November 2024 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 itself, 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 southern 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.

6.5 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'
Floow telematics	Jul 2025	Trip endpoints both outside the local SBLN sub-zone polygon	Up to 85% Raleigh Rd / 81% Greenway Bush Ln. Medians 49 to 74%.
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)

7. Documented inconsistencies

1. **Council 'high numbers' vs Arup 10 to 13 per cent (upper-end).** Source: Arup Through Traffic Analysis.pdf, pages 1, 3.
2. **'Through traffic' has two different definitions in the Council's evidence.** Arup excludes residents and visitors. Floow's polygon-endpoint test includes them whenever they stop briefly. The Council use the same word for both.
3. **Floow zone codes do not match the published zone polygons.** 12 distinct od_region codes but only 10 zone polygons 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 to 12 zones, the engagement material's 4 modal-filter zones. No cross-walk.
5. **Floow zone polygons are unnamed.** Published zones carry 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 (the longest weekday block), no weekday evening, no overnight. The data manager 'is not entirely sure why' (Plowden, 7 May 2026).
7. **Floow has duplicate rows and 100 per cent segments.** Identical attribute rows with different Shape__Length values; some segments at exactly 100 per cent through despite the 'sufficient sample size' filter. Threshold unpublished.
8. **Arup November 2024 analysis withheld for 17 months.** Not cited in officer responses to public-forum questions between December 2025 and March 2026. Not referenced in the January 2026 FOI response on this topic. First cited publicly in late April 2026 after media coverage.
9. **Floow map withheld for 11 months after data collection ended.** The ArcGIS item title 'TheFloow_though_traffic_SBLN_Sep24_May25' shows data was collected between September 2024 and May 2025. The public-facing ArcGIS Online item (701b8df988cf4480b9d80522f3f81a01) was not created until 27 April 2026 (created timestamp 1777290791000). The Council held this data for almost a year before publishing the map.
10. **Highest Arup through-count is 229 vehicles per AM peak on Palmyra Road westbound.** Sector 4, not Southville. About 1.3 vehicles per minute on the worst-affected single road Arup identified.
11. **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. A road-level property of through-traffic should be near zero.
12. **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 quiet residential streets, Floow over-counts by 3 to 4 times. Sample rate not published.
13. **The Sector 5 boundary was redrawn in September 2025; Arup's figure was not recomputed.** Dean Lane moved from inside Sector 5 to on its perimeter. Arup's 10 to 13 per cent is still cited despite the change.

8. What this audit cannot answer

- Arup's exact 10 to 13 per cent figure cannot be reconstructed from public files. The method depends on ANPR origin-destination matching with a 'long trips' filter whose threshold Arup did not publish.
- The precise definition Floow uses to classify 'through' cannot be proven. The Council have not published a methodology document. The polygon-endpoint reading and the per-segment reading are both

inferences from the same evidence and converge on the same dataset-level conclusion.

- Floow's absolute counts cannot be verified without the published sample rate and extrapolation factor. The 53 per cent comparison to ATC tubes is the strongest verifiable bound.
- Whether the Council have used a different (unpublished) methodology that would resolve the gap if published cannot be assessed without that methodology being published. The list in Section 5 is what would settle most outstanding questions.

9. Recommendations

- Publish the formal Floow methodology: sample rate, extrapolation factor, dwell-time threshold, sample-size filter, vehicle classes, and the zone polygons used.
- Publish a cross-walk between Arup's sectors, Floow's zones, and the engagement-material modal-filter zones.
- Recompute Arup's Sector 5 figure under the September 2025 boundary, with workings.
- Add the Arup November 2024 analysis and the Floow map to the standard list of evidence cited in officer responses to public-forum questions on through-traffic.
- Confirm whether any further through-traffic analyses commissioned by the Council remain unpublished.

Appendix A. Companion Excel database

Every numerical claim in this audit 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`

Sheet	Rows	Contents (relevant to SBLN audit)
README	30	Plain-English column descriptions and source files.
2024_ATC_speeds	126	22 SBLN ATC sites by 6 time windows. Used in the Floow vs ATC cross-check.
Autumn2025_ATC_summary	102	Autumn 2025 ATC counters used in the Floow cross-check.
Floow_summary	4,866	All Floow telematics rows. The primary source for the section 6.3 findings.

Appendix B. File inventory and reproducibility

File	Source
Arup Through Traffic Analysis.pdf	Arup, Nov 2024. bristol.gov.uk/files/ask-bristol/10865-arup-through-traffic-analysis
data/SBLN 2024 Traffic Survey Results/	94 spreadsheets (June 2024)
data/floow/floow_all.geojson	4,866 Floow telematics rows
data/floow/sbln_traffic_count_extents_autumn2025.geojson	102 Autumn 2025 ATC summaries
data/SBLN-December-2025-Traffic-Surveys.zip	122 ATC/JTC/pedestrian spreadsheets (Autumn 2025)

Analysis script	Purpose
code/build_atc_speed_database.py	Builds the Appendix-A Excel workbook
code/dataset_deep_dive.py	Floow universal statistics, time-period instability
code/floow_vs_atc_crosscheck.py	Cross-checks Floow against the Council's ATC pneumatic-tube counts
code/dean_lane_calculation.py	Dean Lane JTC analysis, Moving Goalposts argument
code/factcheck_matt_examples.py	Verifies Matt Sanders's worked examples against the data
code/generate_sbln_anpr_pair_charts.py	Camera 14/16 pair and next-camera counts from the trip chains (correction, Oct 2026)
code/build_sbln_raleigh_crosscheck.py	Raleigh Road cross-check workbook (Oct 2026)

Appendix C. Suggested questions for the Council

1. Which specific Council document supports the 'high numbers' statement on the SBLN page, 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 stationary period of 'something like 10 minutes' that Cllr Plowden described?
3. What is the formal definition Floow uses to classify a trip as 'internal', 'inbound', 'outbound' or 'through'? In particular, what is the dwell-time threshold, and against which polygon are endpoints tested?

4. What classes of vehicle does Floow's telematics feed observe (buses, taxis, delivery vans, fleet, motorcycles, emergency)? Are they included in the displayed percent_through?
5. What is Floow's sample rate, and the extrapolation factor used to convert the sample to displayed cars-per-hour figures?
6. What is the sample-size threshold under the 'sufficient sample size' rule on the Floow map?
7. If a vehicle is detected at Camera 14 at 8:05 and at Camera 16 at 8:30, the contractor's trip chain treats that as one journey, outside its 15-minute category. What is the maximum gap between detections that still counts as one trip in the Arup analysis?
8. Has Arup's 10 to 13 per cent figure been recomputed against the September 2025 boundary? If yes, what is the recomputed figure? If no, why is the original still cited?
9. Why was the November 2024 Arup analysis not cited in officer responses to public-forum questions between December 2025 and March 2026, nor in the January 2026 FOI response?
10. Are there any other through-traffic analyses commissioned by the Council that have not yet been disclosed?

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. Companion document: Bristol_20mph_Speed_Consultation_Audit.pdf covering the parallel 20 mph speed-limit consultation.