VERSION 1.6

Bristol's '16 mph average daytime speed' claim, audited.

An evidence audit of the 20 mph speed-limit consultation

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Supporting data and scripts: available from the author on request

1. Summary

Bristol City Council consulted from 2 April to 17 May 2026 on lowering the speed limit from 30 mph 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.

The Council's response to information request 78075203 shows what those figures are. Each is a TomTom Move harmonic average speed for a route chosen by officers, which can span several roads, measured between 08:00 and 20:00, with the two directions added together and divided by two. The Council's own website says this 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. It is not the speed vehicles travel on the open road. The consultation did not say this until 13 May, four days before it closed, and the paper version never did.

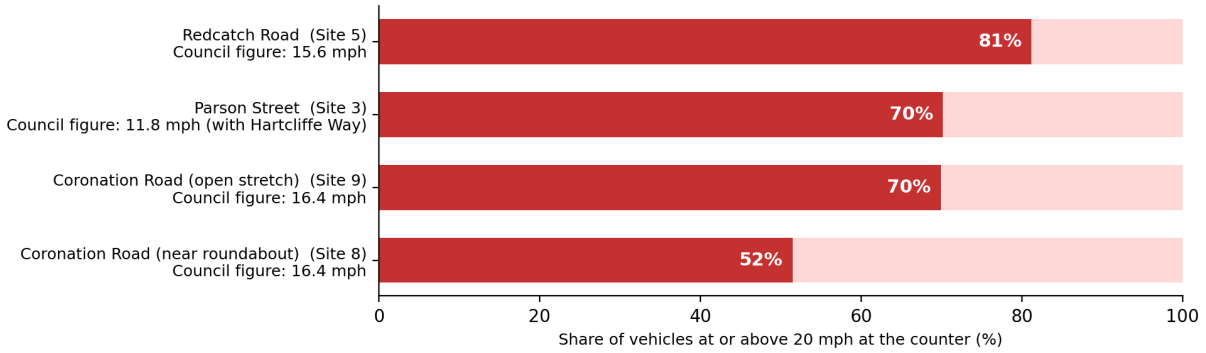
A journey speed of this kind cannot support the claim that a 20 mph limit will not add to journey times. It averages queues with open stretches, and the limit slows vehicles on the open stretches. The Council's own speed counters on these roads record 52 to 81 per cent of vehicles at or above 20 mph; on the open stretch of Coronation Road, 70 per cent.

The Department for Transport's Head of Speed Policy has confirmed in writing (27 August 2026, ref. 00075310) that its guidance does not specify a form of mean speed, that practitioners generally understand 'mean speed' as the arithmetic mean of observed vehicle speeds, and that the guidance 'could be clearer'. The Council departed from that usual practice without telling consultees.

The consultation's journey-time claim is not supported by the measure the Council used, and is contradicted by the Council's own speed counters. This audit 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.

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 (June 2024 survey, 07:00 to 19:00), with the Council's consultation figure for each road from FOI 78075203.

2. Definitions

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 consultation called the 'average daytime speed'.
Spot speed (ATC counter)	The speed of each vehicle as it passes one point on the road, recorded by a pneumatic tube counter. The Council's June 2024 traffic survey placed 22 such counters in south Bristol. A counter on an open stretch shows the speeds vehicles actually reach there.
Arithmetic mean	The speeds of all vehicles added up and divided by the number of vehicles. It does not say how many vehicles travel above any given speed.
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, and slow vehicles pull it down strongly.
85th-percentile speed	The speed at or below which 85 per cent of vehicles travel. DfT Circular 01/2013 paragraph 36 says authorities should collect and assess it alongside the mean.
Daytime	In the Council's figures, 08:00 to 20:00 (FOI 78075203); the consultation did not say so. The counter figures in this audit are 07:00 to 19:00, the Council survey's published window.
DfT Circular 01/2013	'Setting Local Speed Limits'. Paragraph 36 says mean speeds should be used as the basis for determining local speed limits; 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.
Survey methodology rule	The 2024 counters exclude vehicles below 5 mph (spreadsheet note: 'The minimum speed threshold to include vehicles in the reports is 5mph').

3. What the consultation told the public

Paper version of the consultation (supplied under FOI 78075203), Area 10, Coronation Road and Clift House Road:

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

The paper version does not mention TomTom, a route, a time window, or the harmonic mean. Near-identical wording appears for Redcatch Road (16 mph), Parson Street and Bedminster Down Road (below 18 mph) and Winterstoke Road (around 17 mph).

Date (2026)	Event (source: FOI 78075203 response, 20 August 2026)
2 April	Consultation opens.
11 May	First public question to the road safety team about which 'average' was used.
13 May	Council adds a section 'Average speed data used in this consultation' to the website, describing the figures as TomTom Move harmonic means.
17 May	Consultation closes.

For 41 of the consultation's 46 days, the public was given the figures with no description of what they measured. The section added on 13 May says the harmonic mean is 'the most appropriate average speed for assessing potential impacts of speed limit changes on journey times, as it accounts for vehicles speeding up and slowing down during that journey, as opposed to a snapshot of a single second'.

4. How the Council produced its figures

The FOI response of 20 August 2026 and the Council's follow-up of 27 August 2026 state that:

- the source is TomTom Move, 'a software platform used by Bristol City Council which analyses connected vehicle data';
- officers 'specify an A-B route (which can include multiple roads or sections of road)' and take TomTom's harmonic average speed for it;
- 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 underlying data cannot be inspected without a paid TomTom licence;
- TomTom Move 'has been assessed and found to be accurate compared to Automatic Traffic Counters'. No assessment is provided.

The Council's figures for the roads examined in this audit:

Council route (FOI wording)	Consultation said	Inbound	Outbound	Council figure
Coronation Road / Clift House Rd	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'. On Bedminster Down Road the two directions differ by 6.8 mph; the Council gave both equal weight regardless of how much traffic travels each way.

5. Why a route journey speed cannot support 'no added journey time'

A route journey speed of 16 mph is an average of slow sections, such as junction approaches and queues, and 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. A low average over the whole route does not show that nobody will be slowed; it hides where they will be.

The Council's own counters show what happens on the open 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 (Council traffic survey, June 2024). 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.

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 over 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, and the consultation presented it as the road's 'average daytime speed' without saying what it was.

> On the Council's own counters, between 52 and 81 per cent of vehicles on these roads travel at or above 20 mph. Every one of those vehicles would be slowed by a 20 mph limit. The statement that the limit would not add to journey times is contradicted by the Council's own data.

6. What the Department for Transport says

Letter from the DfT's Head of Speed Policy, Road Safety Division, 27 August 2026 (ref. 00075310), in response to a public enquiry about which mean speed the guidance intends:

> *"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."*
>
> *"In operational use, 'mean speed' is generally understood by practitioners to refer to the arithmetic mean of observed vehicle speeds. However, this is the usual practical interpretation, not a formal definition contained in the guidance itself."*
>
> *"I accept that the guidance could be clearer on this issue."*

An earlier DfT reply (29 July 2026, ref. 00073901) adds that counters should, wherever practicable, be positioned 'away from traffic-calming features, junctions, or locations where queuing traffic is likely to affect the reliability of the data collected'. That is the reason this audit relies on Coronation Road Site 9, the open stretch, rather than Site 8 near the roundabout.

7. Documented inconsistencies

1. **A route journey speed was presented as the road's 'average daytime speed'.** The figures include time spent slowing and queueing over officer-selected routes (FOI 78075203). The consultation did not say so.
2. **The measure was explained four days before the consultation closed.** The explanation was added on 13 May 2026, two days after the first public question; the paper version never contained it.
3. **The journey-time claim is contradicted by the Council's own counters.** 52 to 81 per cent of vehicles on these roads travel at or above 20 mph and would be slowed by a 20 mph limit.
4. **The Council departed from usual practice without saying so.** The DfT states that practitioners generally use the arithmetic mean of observed vehicle speeds (ref. 00075310).
5. **The two directions were given equal weight.** Inbound and outbound figures were added and divided by two, regardless of traffic volume in each direction (Bedminster Down Road: 14.4 and 21.2 mph).
6. **'Daytime' was never defined for the public.** The Council's figures cover 08:00 to 20:00 (FOI 78075203).
7. **The accuracy claim is unsupported and the data cannot be checked.** The Council asserts that TomTom Move was assessed against counters but has provided no assessment, and the underlying data requires a paid licence to inspect.

8. What this audit cannot answer

- The exact start and end points of each TomTom route, which the FOI response does not give, and therefore where each counter lies within it.
- Whether TomTom's route figures are accurate. The underlying data sits on a paid platform and the Council's accuracy assessment is unpublished.

- Speeds on consultation roads without a Council counter: Clift House Road, Bishopsworth Road, Bedminster Down Road, and the consulted section of Winterstoke Road (Ashton Works to Bedminster Down Road). The Council's 2024 counter on Winterstoke Road (Site 12) lies about 250 metres north of Ashton Works, on the western section the consultation excluded as 'not currently suitable for 20mph', so it is not used here. The FOI gives route figures for these roads, but there is no counter to show the speeds on their open sections.
- Changes since June 2024, when the counters used here were surveyed.

9. Recommendations

- Before any decision, tell the committee that the consultation's 'average daytime speeds' were route journey speeds including time spent queueing, and that most consultees were not told this.
- Withdraw the statement that the limits will not add to journey times, and replace it with an estimate based on the share of vehicles currently above 20 mph.
- Publish, for every road, the TomTom route endpoints, the inbound and outbound figures, the dates and the time window used.
- Publish the assessment of TomTom Move against the Council's counters that the FOI response refers to.
- Publish the arithmetic mean and 85th-percentile speeds from the Council's own counters wherever they exist, as DfT Circular 01/2013 paragraph 36 envisages.

Appendix A. Questions for the Council

1. The consultation stated an 'average daytime speed' for each road. FOI 78075203 shows these were TomTom Move journey speeds over officer-selected routes, including time spent slowing and queueing, between 08:00 and 20:00. Where in the consultation, online or on paper, was the public told this before 13 May 2026?
2. The Council's own counter on the open stretch of Coronation Road (Site 9) records 70 per cent of vehicles at or above 20 mph. On what evidence did officers state that a 20 mph limit 'should improve safety without adding to journey times'? Please provide any journey-time assessment carried out.
3. How many consultation responses were received between 2 April and 13 May 2026, before any description of the speed measure was published?
4. The FOI response states that TomTom Move 'has been assessed and found to be accurate compared to Automatic Traffic Counters'. Please publish that assessment: the roads, counters, dates and results.
5. The DfT's Head of Speed Policy has stated (27 August 2026, ref. 00075310) that 'mean speed' is generally understood by practitioners to be the arithmetic mean of observed vehicle speeds. Why did the Council use a different measure without telling consultees?
6. Inbound and outbound figures were added and divided by two; on Bedminster Down Road they were 14.4 and 21.2 mph. Why was no account taken of traffic volume in each direction?
7. Will the committee be told, before it decides, that the speeds quoted in the consultation were route journey speeds and not the speeds vehicles travel on these roads?

Appendix B. Sources and reproducibility

Source	What it provides
Bristol City Council, FOI/EIR response 78075203, 20 August 2026, and follow-up of 27 August 2026	How the figures were produced; dates the consultation was live and when the explanation was added; the '20mph Average Speeds' spreadsheet; the paper version of the consultation
DfT letters ref. 00075310 (27 August 2026) and 00073901 (29 July 2026)	The DfT's position on mean speed and on where counters should be placed
Council automatic traffic counter survey, June 2024, ref. ID-0524-0183 (22 sites)	Counter means, speed bins and shares at or above 20 mph
DfT Circular 01/2013, 'Setting Local Speed Limits'	Paragraphs 36 and 100

Every counter figure traces to the Council's own published spreadsheets. The consolidated Excel database and the analysis scripts (code/build_atc_speed_database.py, code/all_consultation_roads.py) are available from the author on request.

End of report.