CROWD-SENSE

Crowd-Sense for UK local authorities and BIDs

Hosted footfall data — privacy-defensible by architecture

An information sheet for local authorities, combined authorities, BIDs, transport authorities and BIDs' preparatory/shadow companies.

The service

Crowd-Sense is a **hosted footfall and pedestrian-density data subscription**. Pedestrian density and dwell, reported by location, time window and distance zone, delivered via dashboard and API to the authority's data team.

The sensing infrastructure that generates the data is supplied, installed, maintained and periodically replaced as part of the subscription. **The authority owns no hardware, maintains no hardware, and replaces no hardware.** Sensors are small, mains-powered, self-installing units connected over the authority's existing Wi-Fi or Ethernet; they can also be deployed on lamp columns or other civic infrastructure by arrangement.

How the data is produced

Each sensor passively listens for 802.11 probe frames transmitted by nearby devices. At the close of each aggregation window (every 1, 5, 15, 30 and 60 minutes, aligned to wall-clock boundaries), unique identifiers seen within that window are binned into five distance brackets defined by received signal strength, and **only the per-bracket counts are transmitted** to the hosted platform.

No identifiers — raw, hashed, pseudonymised or otherwise — leave the sensor. There is no back-end dataset of device observations. There is nothing that can be re-balanced, re-identified, or produced under a subject-access request, because the information required to do so never exists in the first place. The on-sensor aggregation is a one-way function by design.

Typical wire payload is approximately 10 KB per hour per sensor.

Regulatory posture

The architecture is explicitly designed to sit within the safe-harbour described by the ICO's 2016 *Wi-Fi Location Analytics* guidance, which endorses aggregation as a compliance route where the controller's purpose is "to measure the number of visitors" and identifiers are not retained.

Area	Posture
UK GDPR / Data Protection Act 2018	Aggregate bracket counts are outside the definition of personal data; DPIA template provided for the authority's records
PECR / ePrivacy Directive	Passive reception of broadcast probe frames; no storage on, or access to, terminal equipment
ICO 2016 WiFi Location Analytics guidance	Compliance route endorsed — aggregation prevents singling-out
CNIL (JCDecaux) precedent	Architecture does not rely on hashed/salted recurring identifiers; the Conseil d'État's concern is not engaged

A model DPIA and venue signage artwork are provided to every subscriber, pre-populated against the standard ICO accountability framework.

Scope of the subscription

Included in the subscription	Out of scope
Sensing infrastructure (supply, install, warranty, OTA updates, replacement)	On-street cabinets and civil works where required by deployment context
Hosted data platform (dashboard, API, webhook alerts)	Integration with the authority's own BI or GIS stack (supported via API, charged separately if bespoke)
Standard data feeds (minute-to-hour bracket counts by location)	Bespoke data-science or consultancy engagements
DPIA template, signage artwork, technical note for DPO review	Third-party data layers (telco, card-spend, sociodemographic) — integration paths available on request
Customer success contact during the subscription	Hardware transfer to authority ownership — not offered; sensing remains the supplier's responsibility

What it measures — and what it does not

Measures well:

- Pedestrian density by location and zone
- Dwell and flow across short and long time windows
- Relative busy-ness and trend (day-over-day, week-over-week)
- Opening-hours versus closed-hours comparison
- Event, weather and seasonality impact

Does not measure (and does not claim to):

- Absolute unique-visitor counts over long windows (modern MAC randomisation prevents this from probe data alone; overcount factor is documented and published)
- Individual return-visit behaviour
- Identity of any specific person or device
- Any trajectory that could be attributed to an individual

Honest disclosure of these boundaries is part of the subscription. We publish the overcount curves for all window lengths so the authority can cite the limits in its own reporting.

Typical deployment

- **Coverage:** one sensor typically covers a radius of approximately 25 metres (fringe bracket) and a core zone within 3–8 metres. A typical town-centre footfall programme uses 10–30 sensors; a whole-borough programme may use 50–100.
- **Installation:** self-install, 15–30 minutes per sensor. No scaffolding, no civils. Power and an Ethernet or Wi-Fi connection are the only site requirements for the basic configuration.
- **Lead time:** 2–4 weeks from contract signature to data live.
- **Onboarding:** includes DPO briefing, DPIA sign-off support, and signage installation guidance.

Commercial terms

The subscription is priced per site per month, with standard tier discounts for multi-site deployments. Indicative pricing for a 30-sensor town-centre programme is in the same order of magnitude as a mid-range SDK-aggregator data subscription — materially lower than any camera-based infrastructure procurement currently visible on Crown Commercial Service frameworks. A free 60-day proof-of-concept is available on application.

Procurement routes available:

- Direct subscription (below-threshold, suitable for district-council and BID-scale deployments)
- G-Cloud call-off (application to G-Cloud 15/16 pending at time of writing)
- Authority-specific framework inclusion on request

What you should ask us

Any procurement that tenders for a hosted footfall data feed should challenge any supplier on three questions. Crowd-Sense's answers are below; we encourage you to put the same questions to every bidder.

1. What personal data do you collect, even transiently, on behalf of this authority? Crowd-Sense: none. Probe-frame MAC addresses are discarded on the sensor at aggregation close. No personal data is ever transmitted, stored, or accessible to our team or to the authority.

2. If one of your upstream data sources changed its methodology or dataset weighting, how would we find out? Crowd-Sense: not applicable. There are no upstream data sources. Each sensor produces counts directly from its own local observations.

3. What is your documented position on MAC-address randomisation and the resulting overcount? Crowd-Sense: we publish the overcount curves (1-minute windows: ~1.2–2×; 15-minute windows: ~2–5×; 60-minute windows: ~4–10×). The product is positioned as density and trend measurement, not as absolute unique-visitor counting, and the subscription includes a methodology statement the authority can cite in its own reporting.

Contact

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Crowd-Sense is a product of Visual Solutions (UK) Ltd (Companies House #02955160), an active UK private limited company in continuous operation since 1994. Crowd-Sense is registered with the ICO and operates to an internal data-minimisation policy summarised in the technical note available on request. Reference sites and subscriber references will be available from Q3 2026; pre-launch design-partner engagements are available now.