



Camden Culture and
Environment Scrutiny
Committee, January 22

Agenda

Overview of the Water assets in London Borough of Camden

1. Introductions
2. Review of Camden's water supply
3. Overview of water network assets in Camden
4. Investment plans for Camden
5. Flood Risk in Camden



System Overview

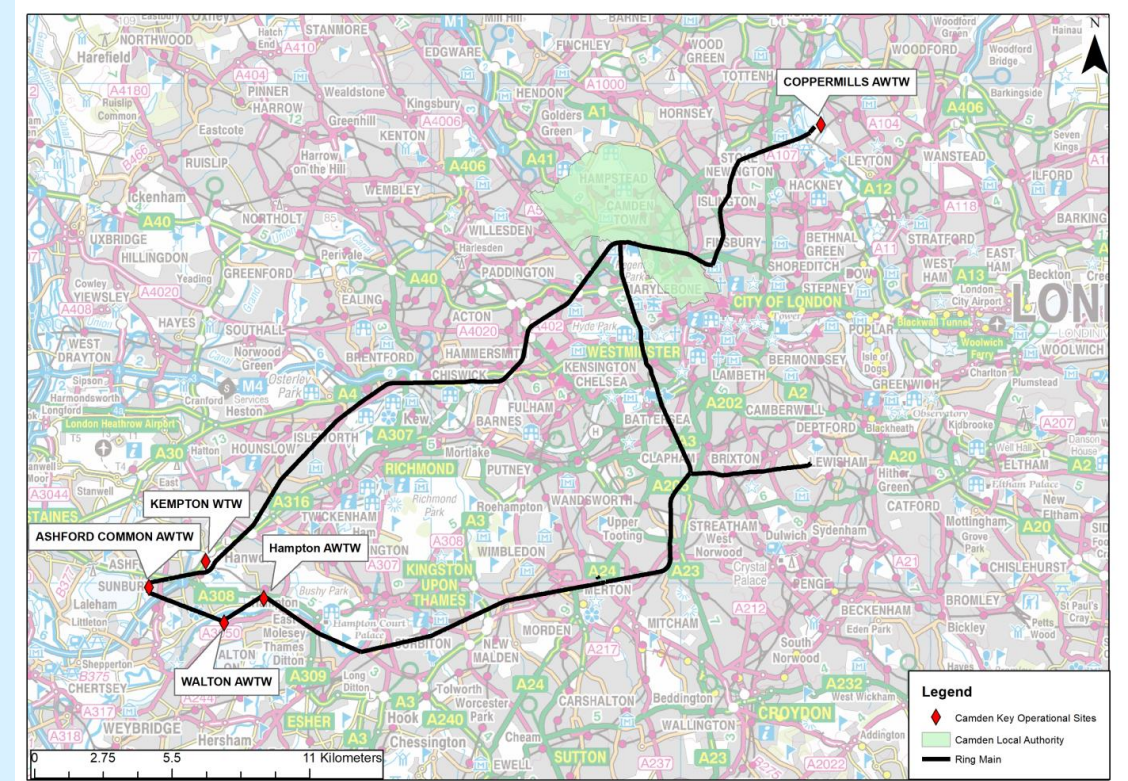
London Borough of Camden

Camden sits within our North West London Strategic Supply Area and encompasses **10** of our Flow Monitoring zones and **78** of our District Metered Areas. The map on the right shows **5** of the **key sites** that supply water to the Camden Parliamentary Constituency.

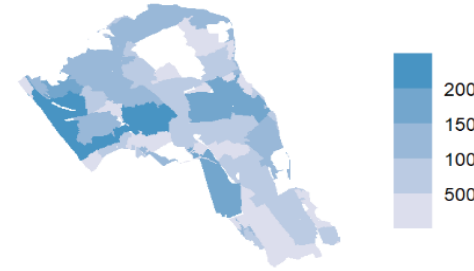
Camden property count: **111,114** household and **14,042** non-household customers. There are **8,275** key accounts.

Camden's total daily flow is circa **71,216** m³/day, 73% of consumption is by household customers and 27% from non-household customers.

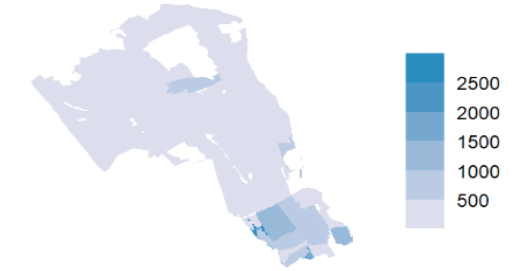
Camden's water supply is derived from **5** key Water Treatment Works; Kempton Park, Ashford Common, Hampton, Walton & Coppermills



Household Consumption (m³/day)

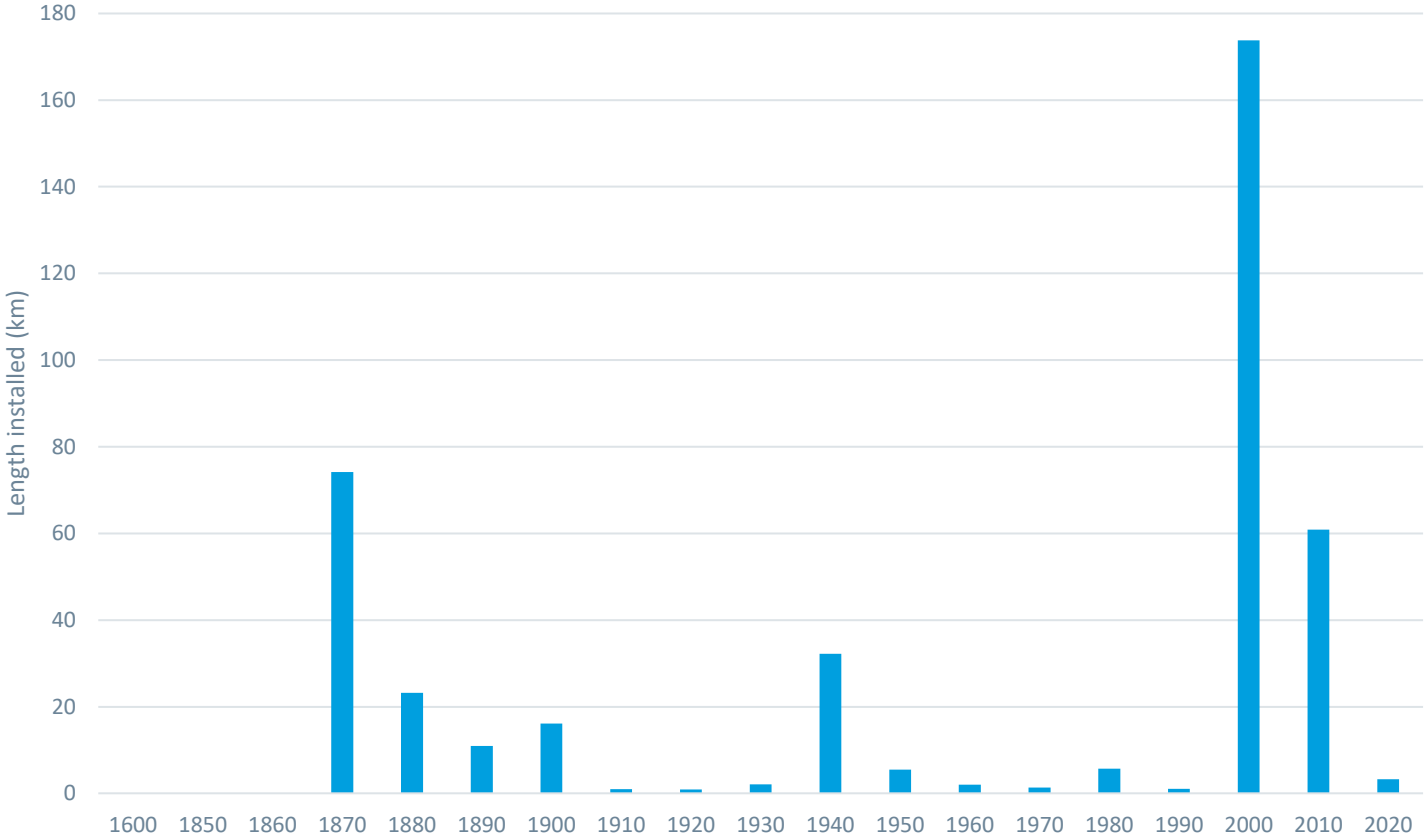


Non-Household Consumption (m³/day)



London Borough of Camden

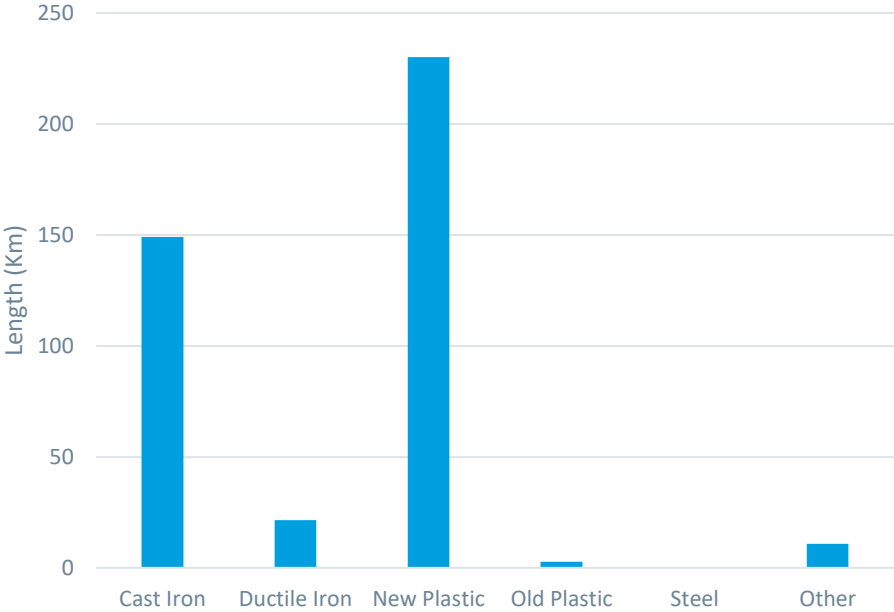
Distribution Mains Overview



415km of Distribution Mains

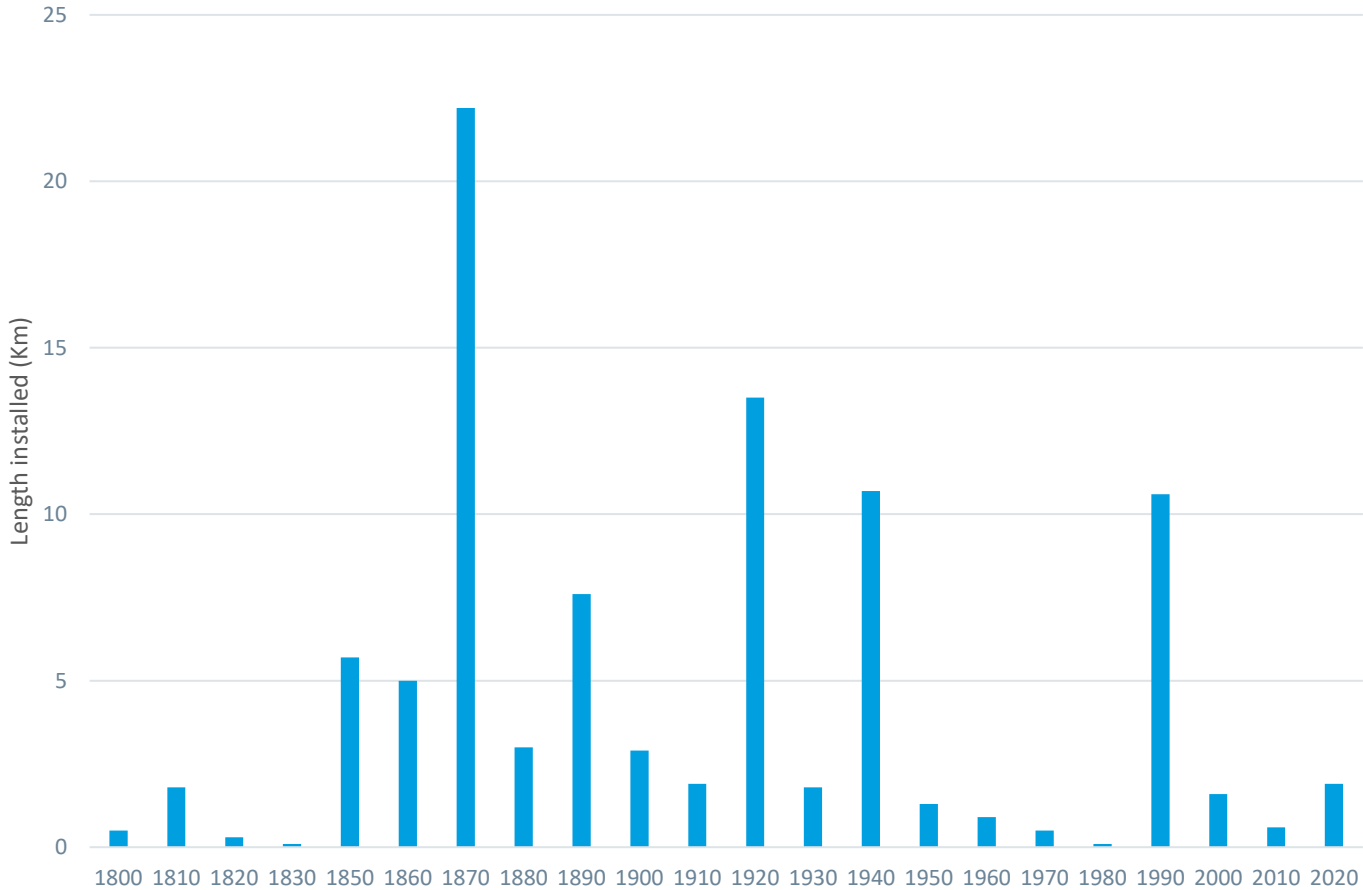
36% Cast Iron Mains

57% of mains replaced since 2000



London Borough of Camden

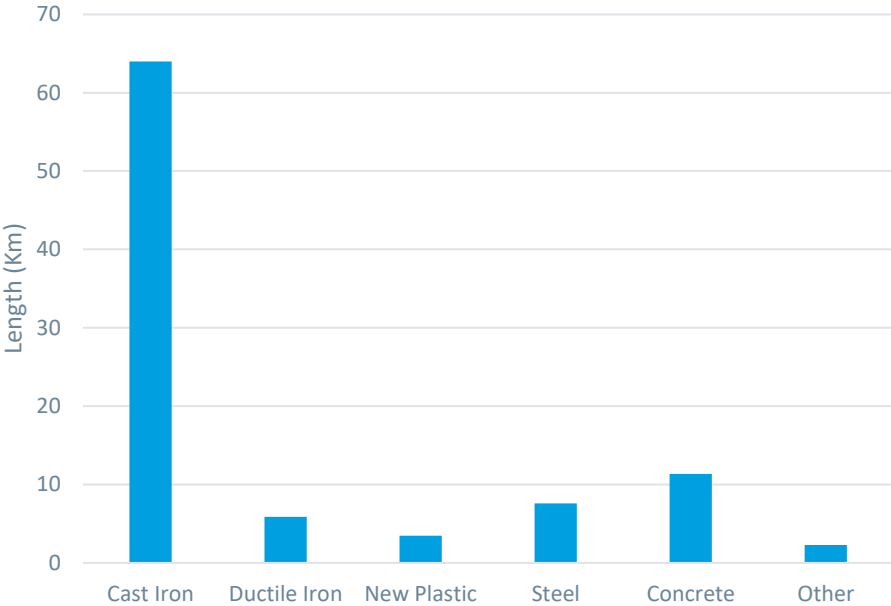
Trunk Mains Overview



95km of Trunk Mains

68% Cast Iron Mains

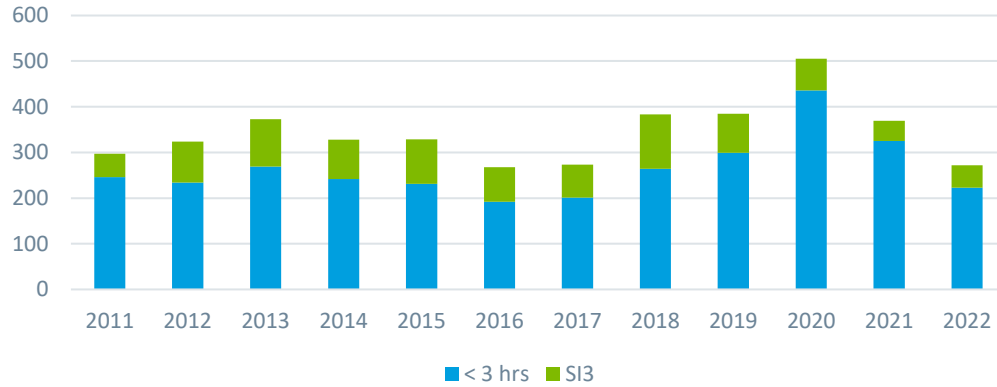
68% of mains are pre-1930s



London Borough of Camden

Performance Overview

Supply interruptions per year



3,825 mains repairs 2008 - 2022

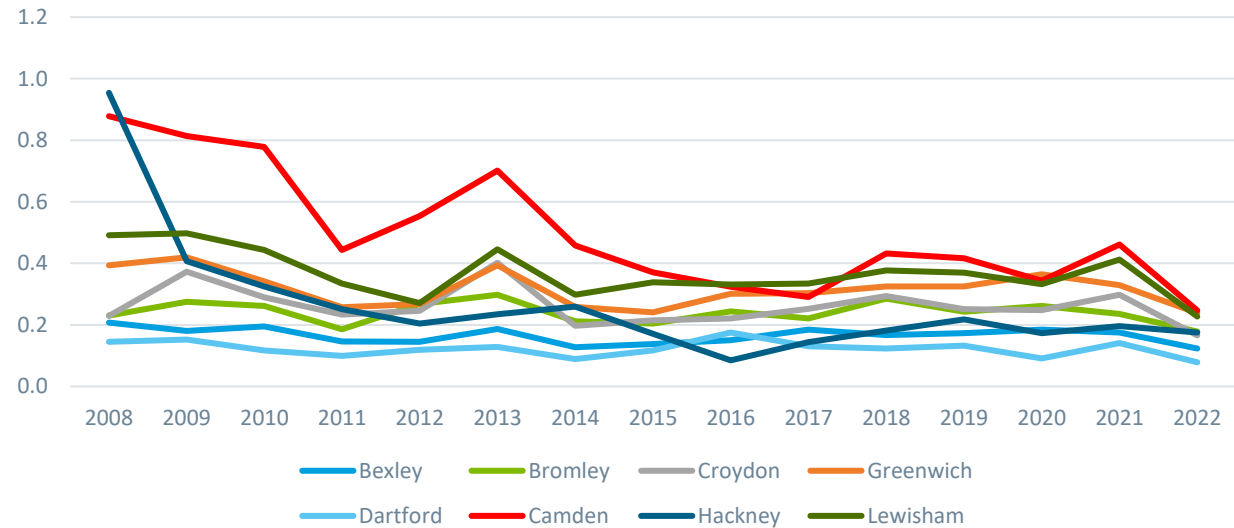
Average of c.255 repairs per year

Comparison shows average performance

Mains repairs by year



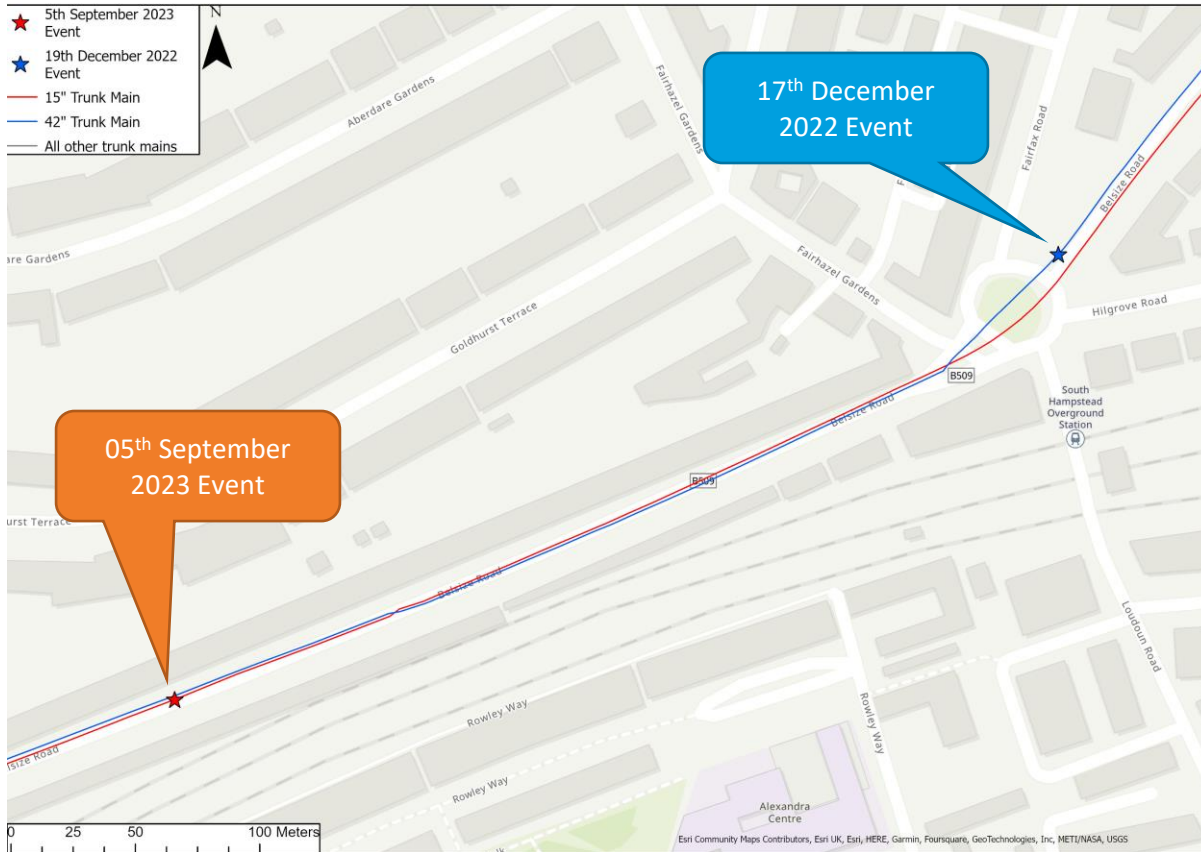
No. Mains Repairs by Calendar Year (b/km) Compared



Belsize Road

Belsize Road Burst Main Events

Burst Locations & Impact



42" Burst Main, Belsize Road, 17th December 2022

- Approximately 2:50 am, a trunk main monitoring alarm was received for the 42" main.
- 29 basement properties confirmed to be impacted.
- Homes flooded to an estimated depth of 50cm.

15" Burst Main, Belsize Road, 05th September 2023

- Burst on the 15" trunk main caused flooding to 1 basement property.



PA MEDIA

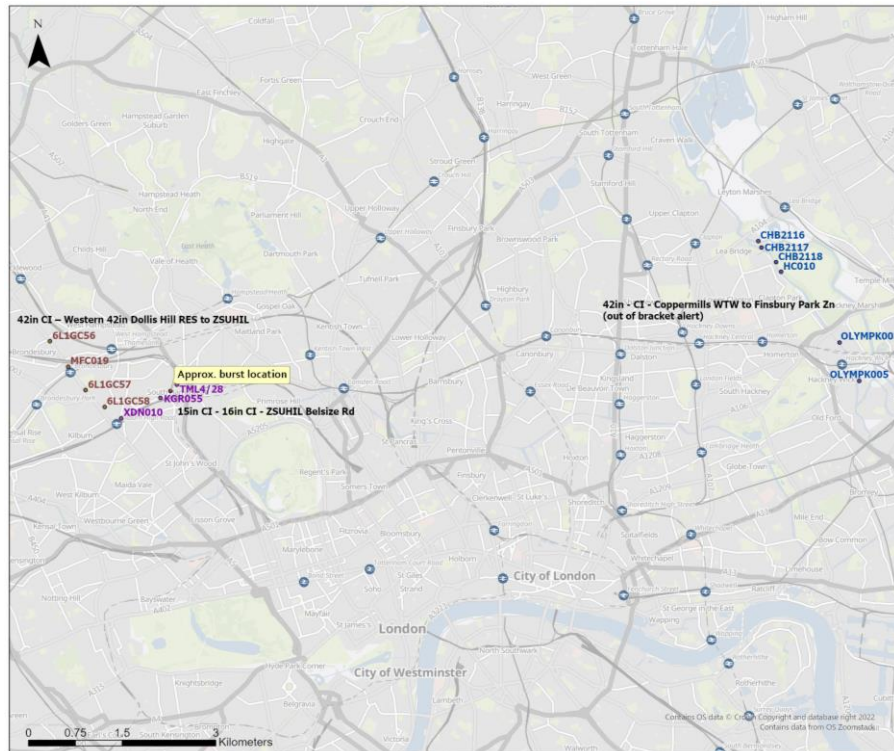
Fire crews led 24 people to safety after two water mains burst, causing flooding to homes

[Homes flooded after north London water mains burst - BBC News](#)

42" Burst Main, Belsize Road, 17th December 2022

Trunk main monitoring & root cause analysis

- Burst detected by monitoring on the 42" main, on the parallel 16" main and by monitors as far away as Upper Clapton.
- Root cause analysis showed burst caused by joint rotation due to ground movement. The main is located in sandy brown clay which is susceptible to ground movement caused by shrinkage and swelling with a previously extremely dry summer causing shrinkage followed by a wet winter causing swelling.
- No records of mains failures for this section of main prior to or since the event.



Belsize Road

Burst Map of Camden

There have been 12 mains repairs undertaken along Belsize Road since 2015.

However, Belsize Road has a relatively low burst (burst/Km/Year) when compared with the network in the Camden Constituency.

Currently no investment planned for Belsize Road due to higher priority mains in the network.

Camden Constituency

Information



Legend

Camden Constituency

Burst Rate by Road [Burst / Km / Year]

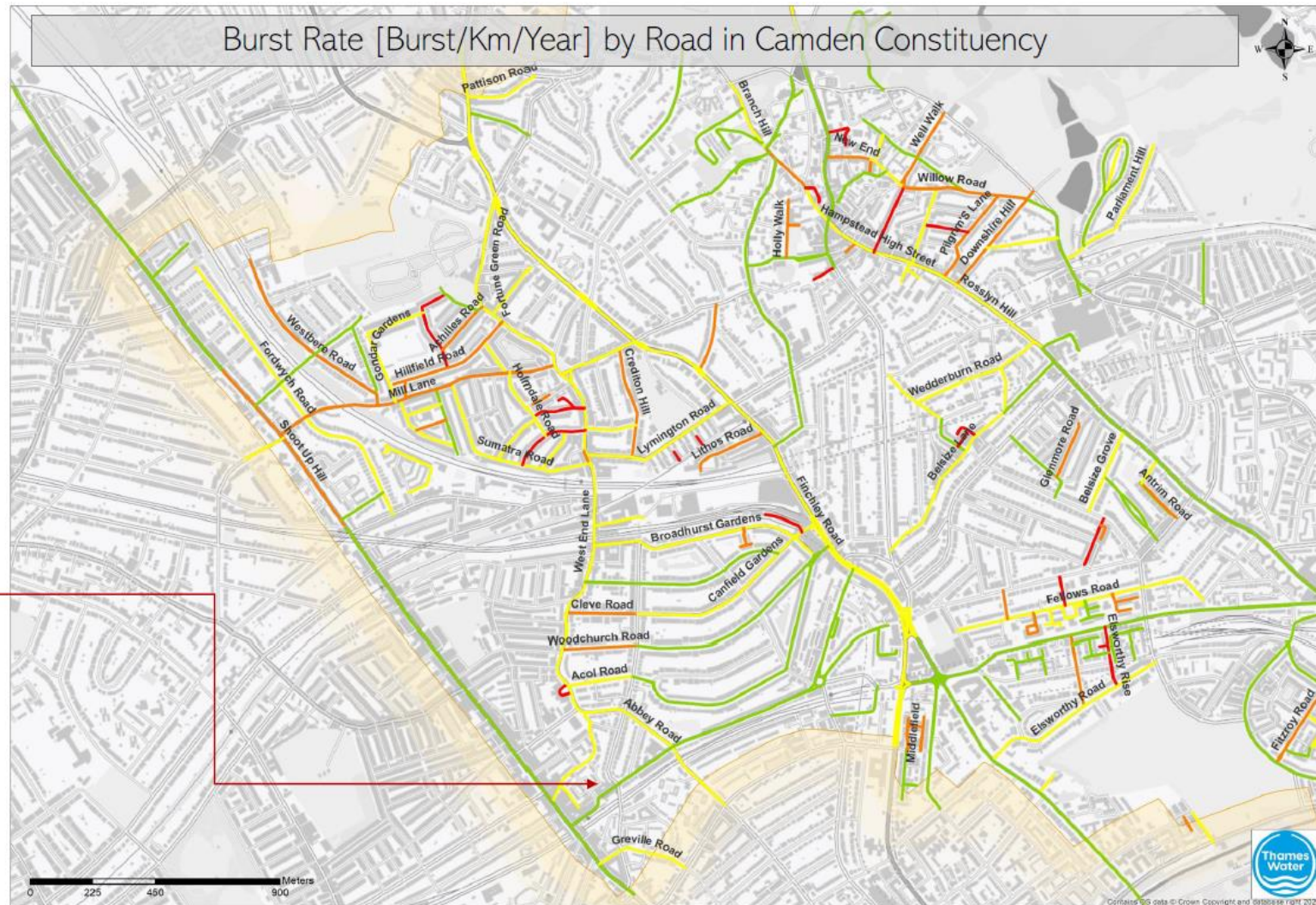
- 0 - 0.5
- 0.5 - 1
- 1 - 2
- 2 - 4
- 4 - 15

Belsize Road

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed.

Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified on site before any works are undertaken.

Reproduced from the Ordnance Survey Mapping by Thames Water Utilities Ltd with the permission of the Controller of Her Majesty's Stationery Office © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence No. 100019345



Belsize Road

Assessment of Potential Causes for Bursts Along Belsize Road

Thames Water received the following potential causes of main bursts along Belsize Road from work led by Vicki Harding (from the Heath and Hampstead Society):

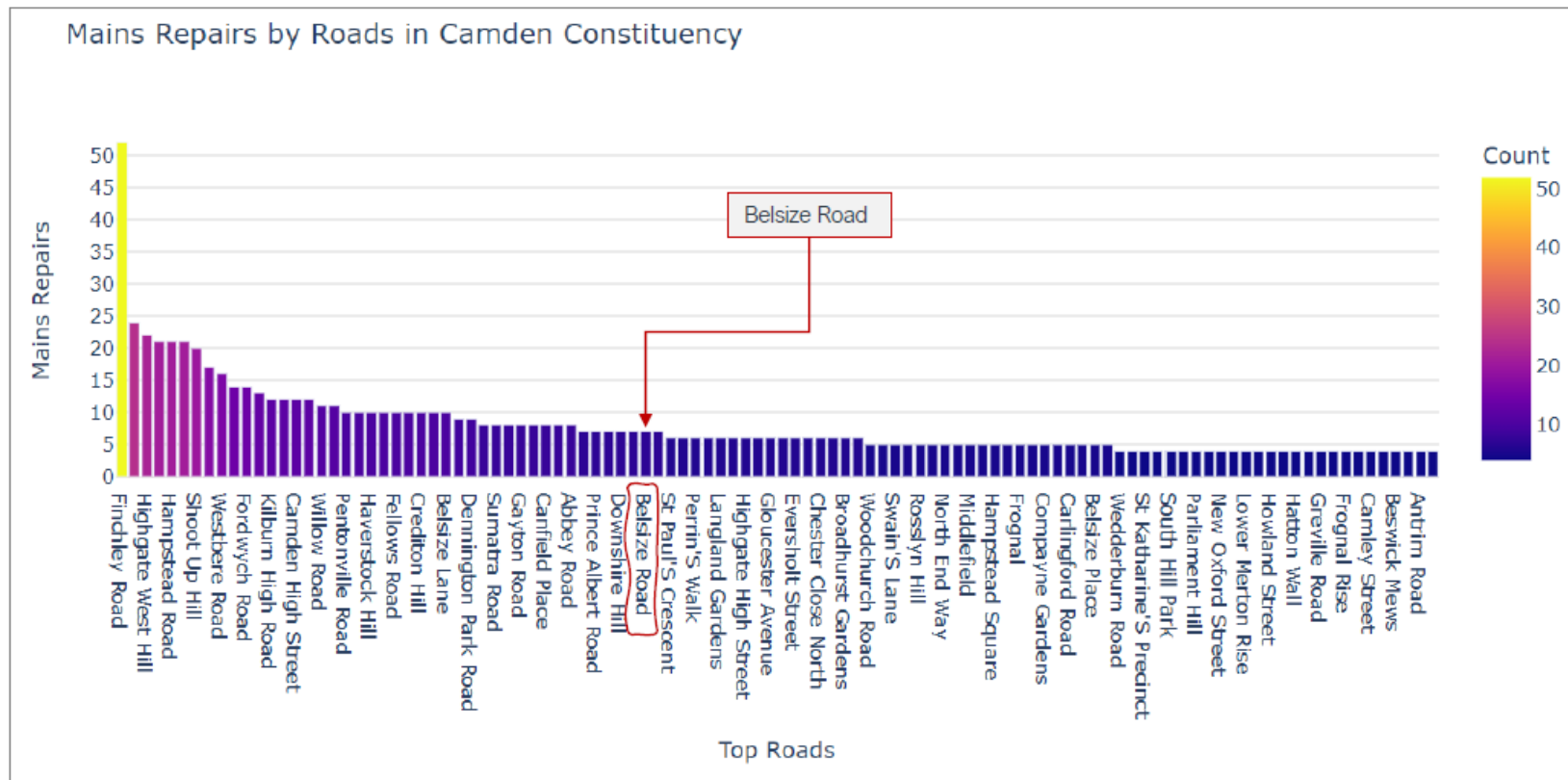
1. The presence of a past river tributary, and the geological and hydrological features associated with this.
2. Severe flooding and sewer discharging during storms, rapidly flowing as a deepish river directly along Belsize Road.
3. Groundwater encountered upstream in Hampstead by basement dig-outs is usually sent directly into the sewer system and not into attenuation tanks that could slow its passage during rainstorms.
4. Demolition and Basement construction causing significant and immediate ground pressure changes and ongoing ground adaptation and settlement. These put stresses onto the rigid pipes and their joints until failure.
5. Construction into and back-filling of services trenches with erodible material. This is almost London-wide and a permanent solution is needed.

Belsize Road

Historic Mains Repairs

According to the analysis made for Camden Constituency, the data indicates that Belsize Road is not a hotspot for bursts.

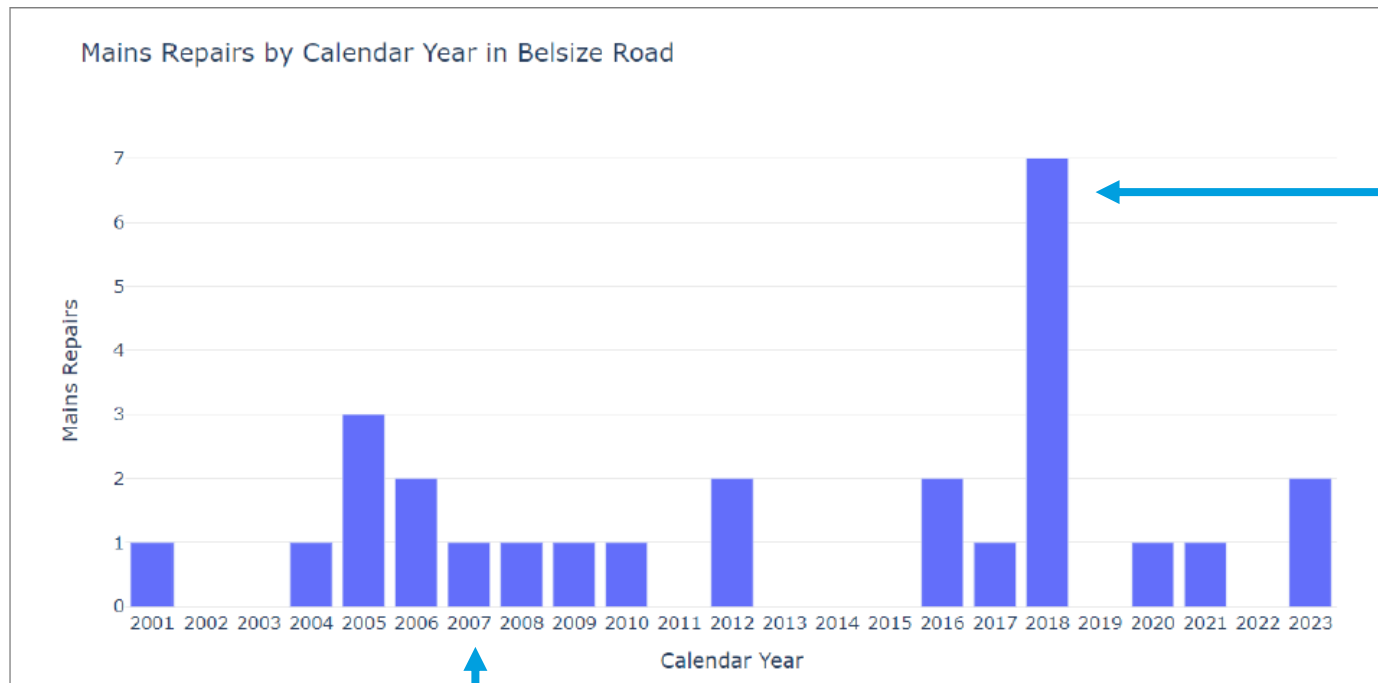
Finchley Road has the highest number of mains repairs undertaken, and this is a focus for investment next AMP. Mains replacement proposed in PR24 for Finchley Road to reduce risk of basement flooding.



Belsize Road

Has the burst rate of failure changed since the speed bumps/bus routes changed?

While historic data may lack precision beyond the past decade, the available information indicated that there is no evident correlation between the implementation of speed bumps or changed in bus routes and an increase in the Burst Rate by Year.



Speed bumps installed &
bus route changed

7 bursts in 2018
4 bursts on trunk mains
3 bursts on distribution mains

Bursts occurred between January and August.

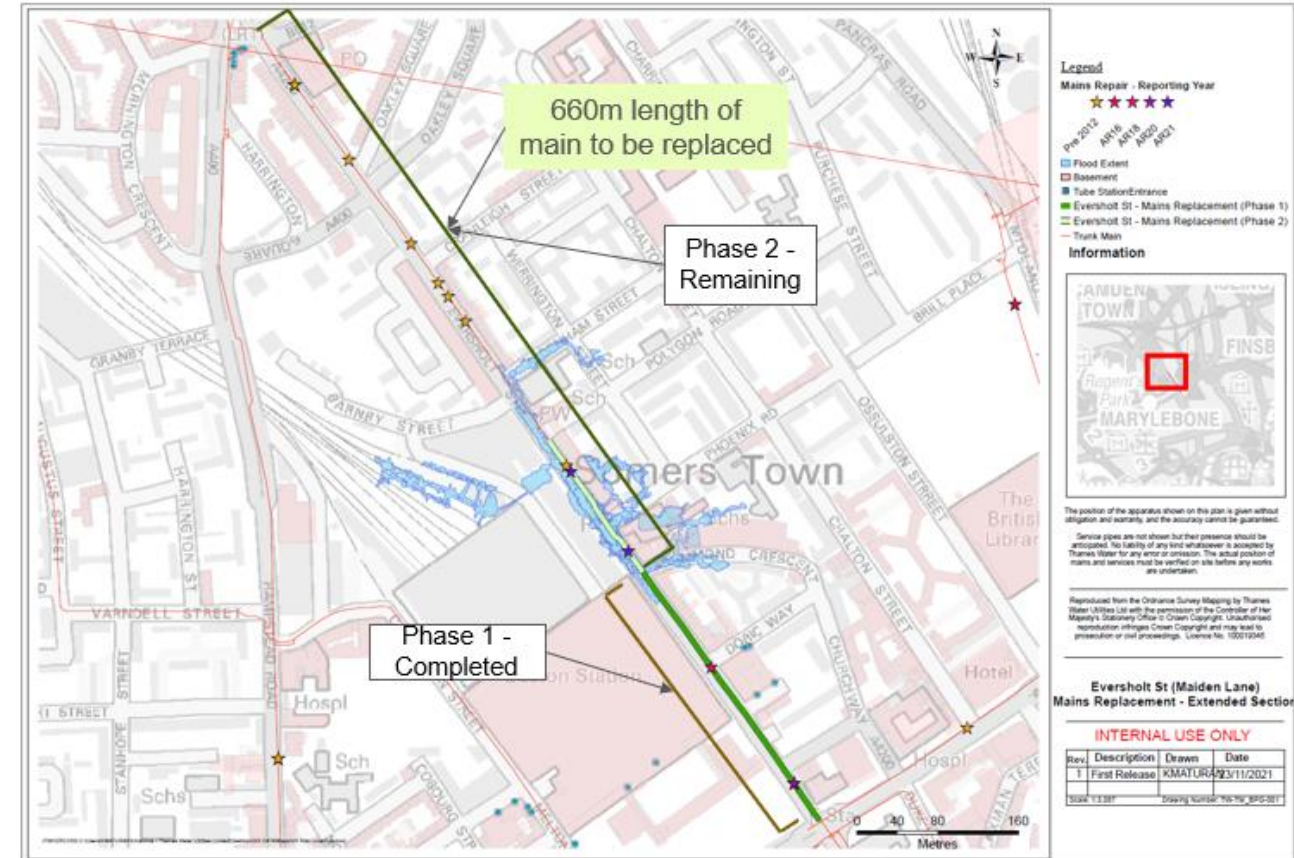
5 burst on cast iron mains, 1 on ductile iron, and one on new plastic.

Eversholt Street

Eversholt Street Main Replacement.

Current Progress

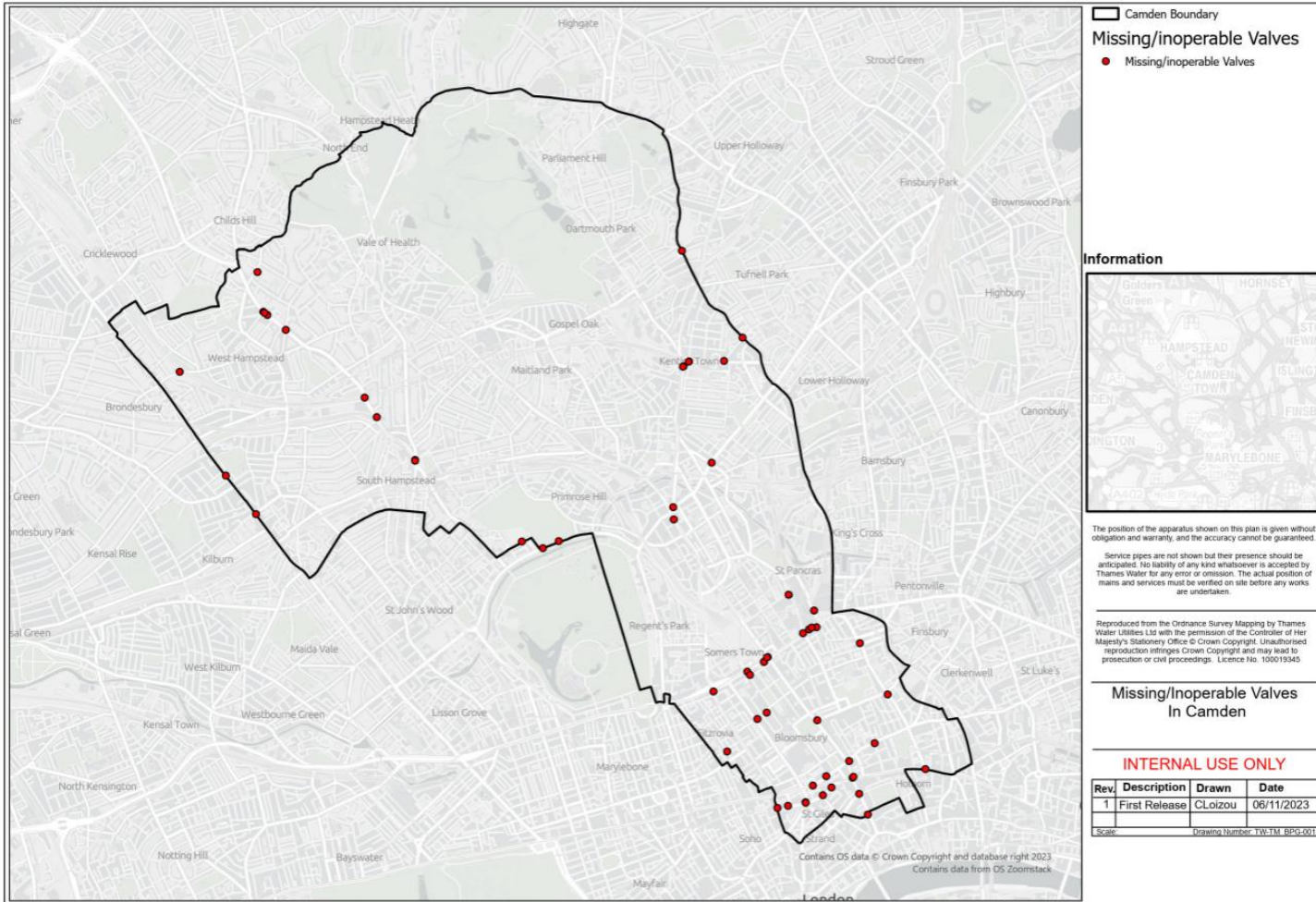
- As part of HS2 work, a 200m-long 16" CI section of the existing trunk main (Phase 1) was replaced between Euston Road and Drummond Crescent. Phase 1 has been completed.
- Additional 150m section North of phase 1 was due to be replaced but halted due to HS2 protests.
- As a result of further analysis of the entire main, it has been decided that ~660m of the 16" CI main should instead be put forward for mains replacement (Phase 2).
- Phase 2 started on site in October 2023. 260m of mains rehabilitation has been completed between Crowndale Road and Cranleigh Street. The remaining ~400m is forecast to be completed by April 2024.



Trunk Main Valve Checks

Trunk Main Valves

Missing Valves



- Our trunk main valves are critical to operate and maintain our strategic network, including isolating a burst swiftly
- We proactively check all of our ~40,000 strategic valves at least every 5 years
- We have a substantial programme of works to recover or repair valves found to be missing or inoperable
- There are 1,171 valves within the Camden network
- As of 2023, 62 valves have been confirmed to be buried or inoperable

Distribution Mains Replacement

Distribution Main Investment – Current Status

Across the borough, there are 9km schemes planned for this AMP (2020-2025) with an additional 400m still under review and deferred into next AMP.

Of the 9km of work planned, 5.3 km of replacement is complete with 3.7 km remaining.

Sarre Lane (270m)- **AMP7 year 1 scheme Completed**

Mill Lane (500m)- **New Scheme to be delivered by April 2025.**

West End Lane (1.9km) – **Delivered**

Daleham Gardens (220m)– **delivered**

Fellows road/Adelaide road – **On site, delivered 2km of a planned 4km scheme**

Manley Street (250m) - **New Scheme to be delivered by April 2025**

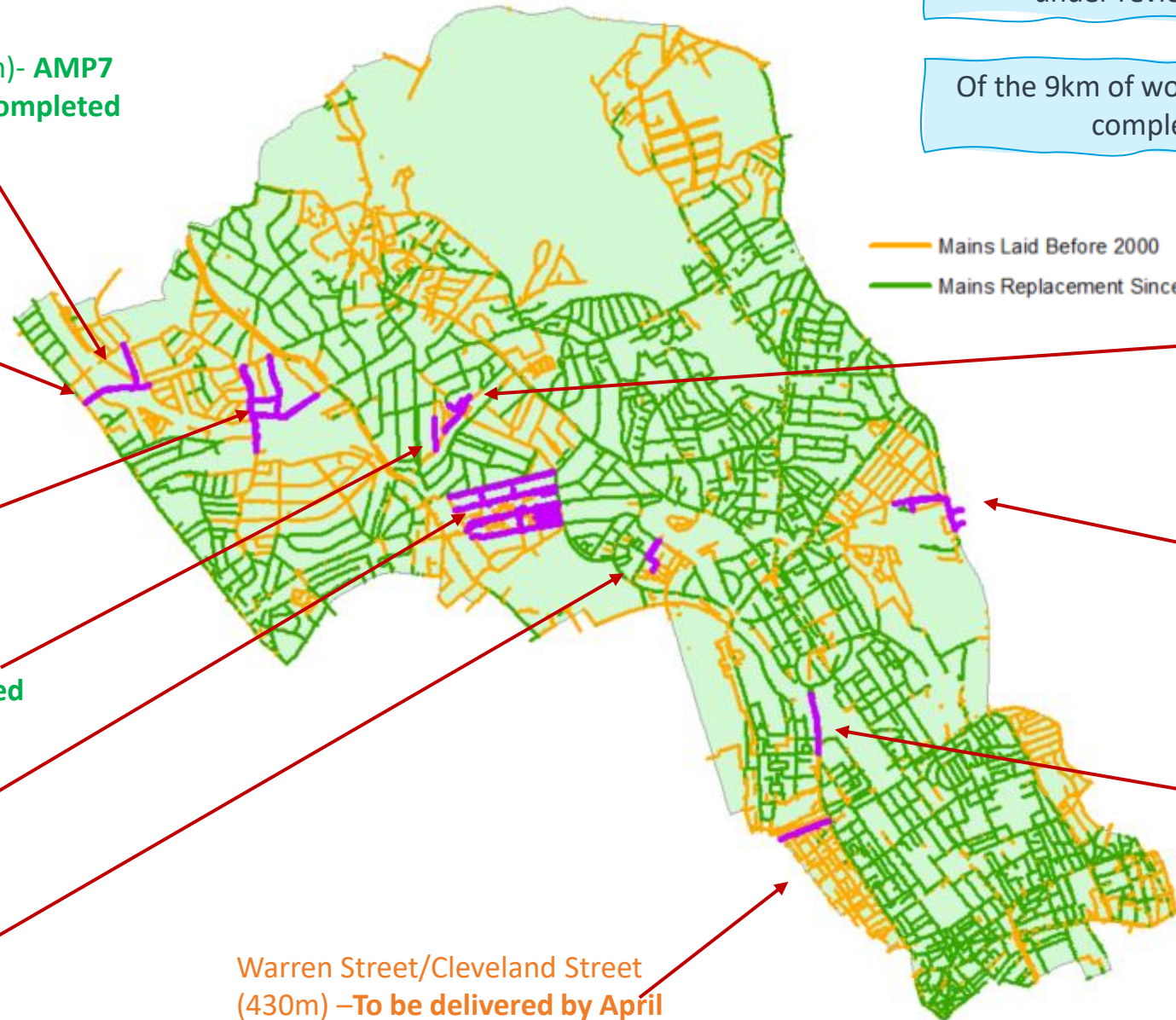
Warren Street/Cleveland Street (430m) –**To be delivered by April 2025**

— Mains Laid Before 2000
— Mains Replacement Since 2000

Belsize Lane (450m) –**To be delivered by April 2024.**

Agar Grove/St Pauls Crescent (900m) –**Work is largely complete on this scheme**

Hampstead Road (410m) – **possible collaboration with HS2 – deferred to after April 2025**



Other Investment

London Borough of Camden

Current and Future investment – up to 2030

£34 million investment in improvements to water quality

- Improvement focused at the 5 large London Production Plants (LPPs)
- Upgrades to disinfection equipment and controls

£22 million investment in resilience of supply for customers

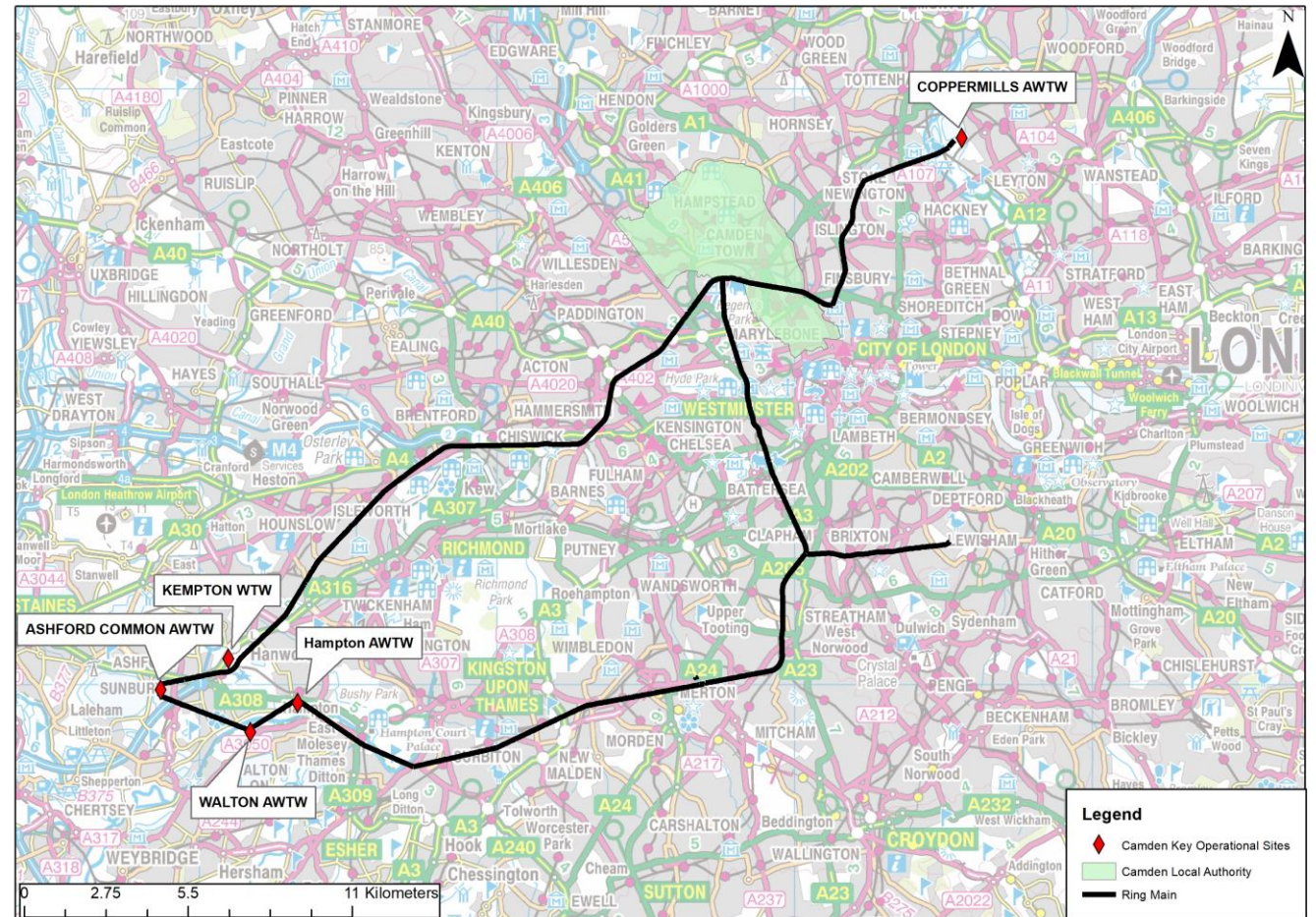
- Investment focused at the LPPs
- Upgrades to mechanical and electrical equipment

£12.5 million investment in additional leakage savings

- Repair of leaks on the Coppermills WTW's High Lift Pumping Station Delivery manifold.

£70 million investment in H&S through network upgrades

- 3.5km of mains replacement proposed in our PR24 Reduction in Basement Flooding Enhancement Case



Flood risk in Camden

London Borough of Camden

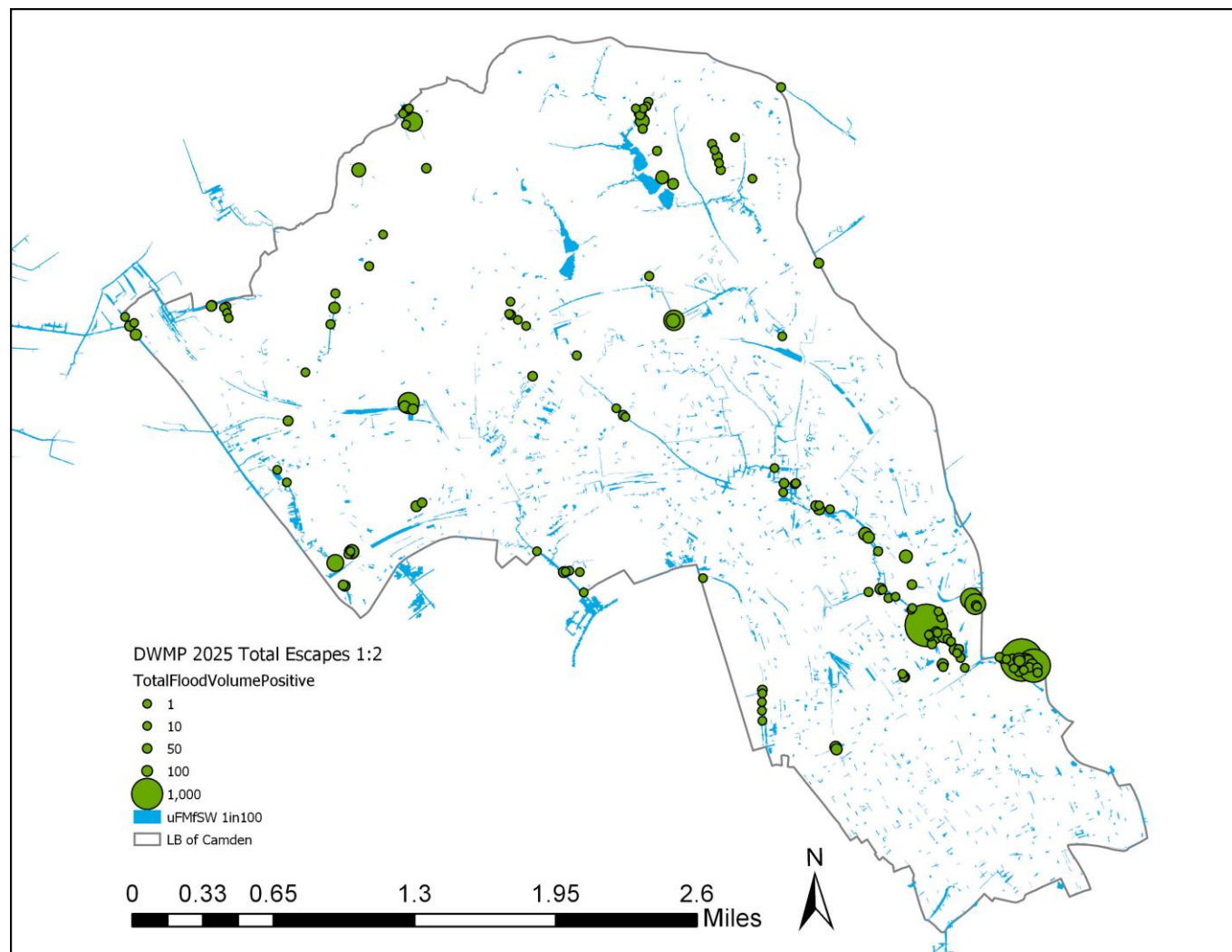
Flood Risk

Surface Water Flood Risk

- The map shows the EA produced risk of Surface Water Flooding for a 1:100 RRP (in blue). This is an indication of where rainfall will pond and can cause flooding

DWMP: Predicted escape from manholes in 2025 for a 1:50 RRP

- The map shows the locations where we predict flow to exit the sewer system in 2025 (with the London Tideway Tunnel in operation) for a 1:50 RRP. The green circles are sized by the volume of escape modelled.
- Note the overlap with the uFMfSW with our escape data, especially to the southeast of the borough boundary.



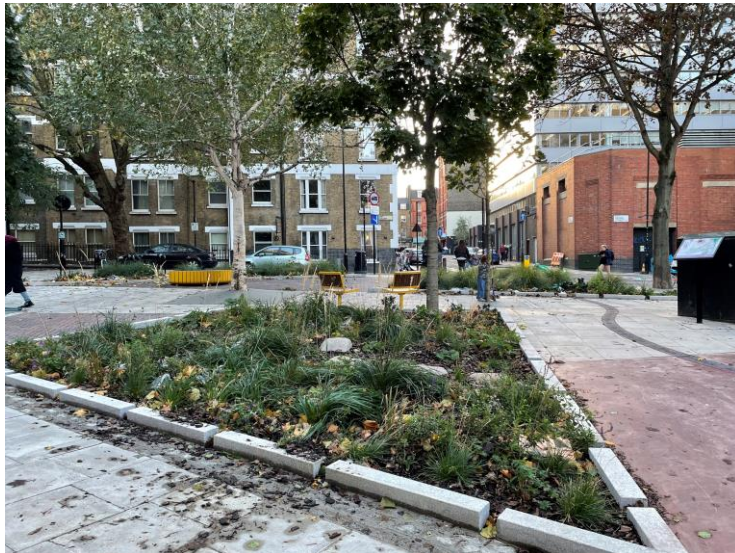
London Borough of Camden

Sustainable Urban Drainage

We have collaborated on three SuDS for Camden:

- Camley Street (completed 2019)
- Mount Pleasant Pocket Park (completed 2022)
- Belsize Road and Priory Gardens (public consultation underway with construction expected in 2024)

We are working to develop our approach for collaborative SuDS funding between 2025 and 2030 at the moment.



Mount Pleasant Pocket Park

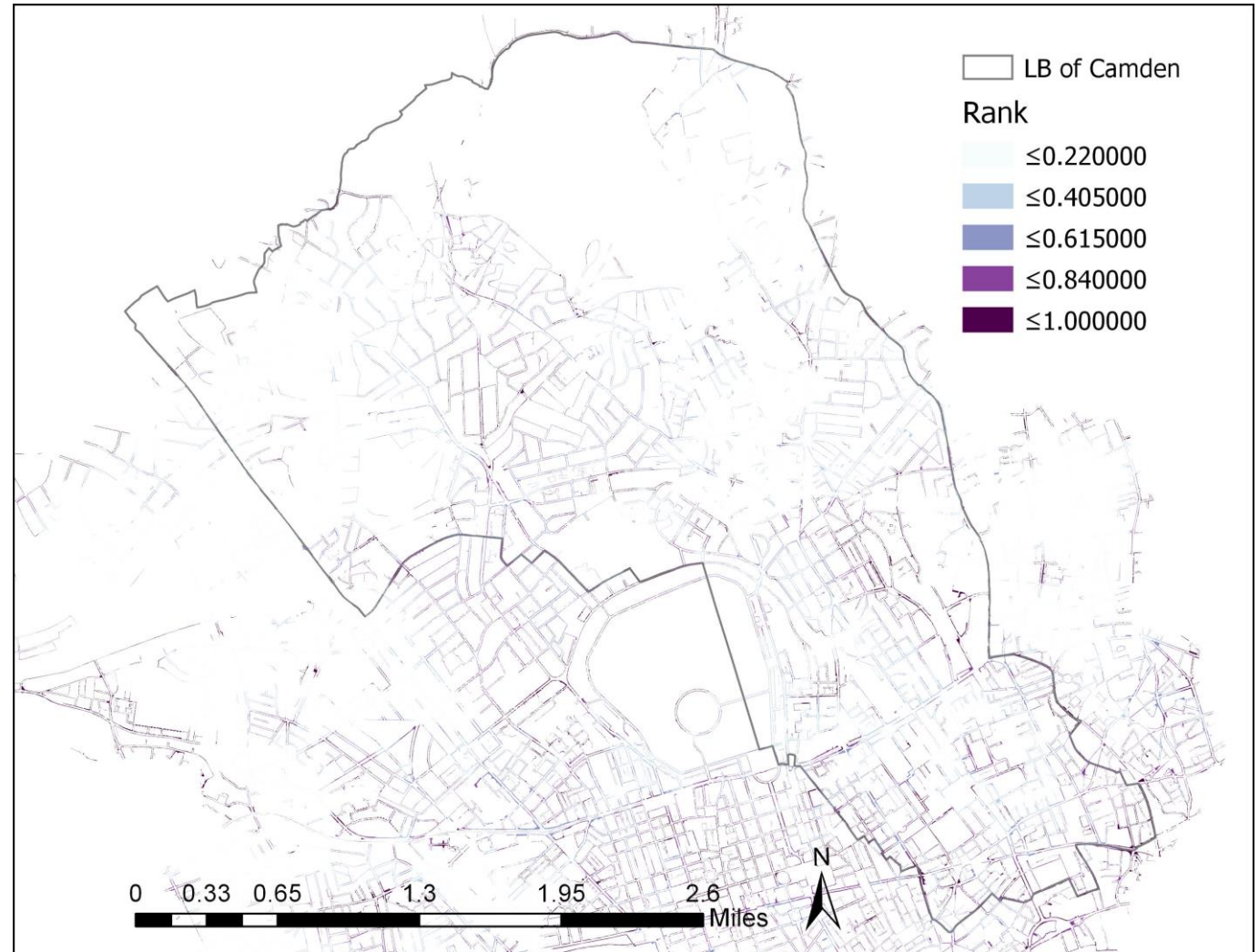


Camley Street soon after completion

London Borough of Camden

London Strategic SuDS Pilot

- This pilot supported LLFA's in SuDS construction (Camley Street for LB of Camden) & completed modelling for select boroughs on the best place to install SuDS based on reducing flood risk
- Phase 2 of the modelling included Southwark, Westminster & Camden
- A sample of the outputs are in the adjacent map. It shows where (in dark blue) is the best place in Camden to retrofit SuDS into pavements
- We have developed the approach further to identify the flooding that each possible SuDS location will benefit but this has only been applied to Enfield and Lambeth,
- We supported LB of Camden to convert this data to MapInfo and get it loaded onto their corporate GIS
- This data is a key tool in SuDS implementation across the borough
- Background information to the LSSP can be found on the SusDrain website



London Borough of Camden

Thames Water's Actions After 2021 Floods

Thames Water internal review – this focussed on our communications and responses to customers.

Concluded that there were two key areas in which we let our customers down:

1. In our initial response on the ground
2. How we could have better supported those trying to contact us.

We have identified 6 key areas for improvement and 14 actions to address these.

London Flood Review - We wanted to understand why the flooding in July 2021 was so severe and how our sewer network coped with the impact of the extreme weather. To ensure a fully transparent and impartial process, we commissioned an independent assessment by a group of experts.

Counters Creek Report – we have provided a report to OFWAT on the risk of flooding and level of resilience within the Counters Creek catchment.

All of these are available online <https://www.thameswater.co.uk/about-us/investing-in-our-region/london-flooding-response>

London Borough of Camden

Thames Water's Actions After 2021 Floods

Through our **Sewer Resilience Programme**, which is designed specifically to address property flooding involving sewers, for Camden we have:

- Carried out 60 surveys of properties at risk of sewer flooding.
- Completed 6 flood mitigation measures in the form of non-return devices to prevent sewers flooding properties - we have 8 more property measures planned.
- We have serviced 3 existing sewer flaps ensuring that they will operate effectively.

On the back on the Independent Review, and a number of other reviews which called for more collaborative working, the London Surface Water Strategic Group (LSWSG) was formed in Dec 2022. The LSWSG has repeatedly expressed its commitment to collaborative working to develop a long-term plan for dealing with surface water flood risk.