



Lewisham Scrutiny Committee
21st February 2022

Martin Padley- London Water Director
Simon Moore- Head of London Planning
Carl Leadbetter- Head of South Region Wastewater Network Operations

Agenda

1. Welcome
2. Our water network
3. Responding to emergencies
4. Review of Lewisham's water supply
5. Overview of water network assets in Lewisham
6. Trunk main monitoring
7. Investment plans for Lewisham
8. Waste water overview
9. Waste water
10. Thames Tideway Tunnel
11. Investment plans



Our water network

Our water network

Since 2020, we've been working hard to improve our Water Network performance

- We've focused on reducing leakage and supply interruptions
- We've transformed our repair & maintenance operation after over 20yrs of contracting out the service.
- We've launched a virtual triage following a successful pilot, and insourcing core technician activity to drive greater local accountability for seepage.



Leakage

- Reducing leakage is our priority. We have hit our last three leakage targets and reduced leakage by 10% over the last three years.
- We are now aiming at a 20% reduction by 2025 and, beyond that, to halve leakage by 2050.
- About a third of leakage comes from our pipes, one third from customers' private pipes and the remainder is made from flows that can't yet be accurately measured as not every property has a meter.
- Smart metering will help us clearly understand the balance between usage and leakage.
- We will install around 700,000 smart meters between 2020-25, our biggest ever programme.



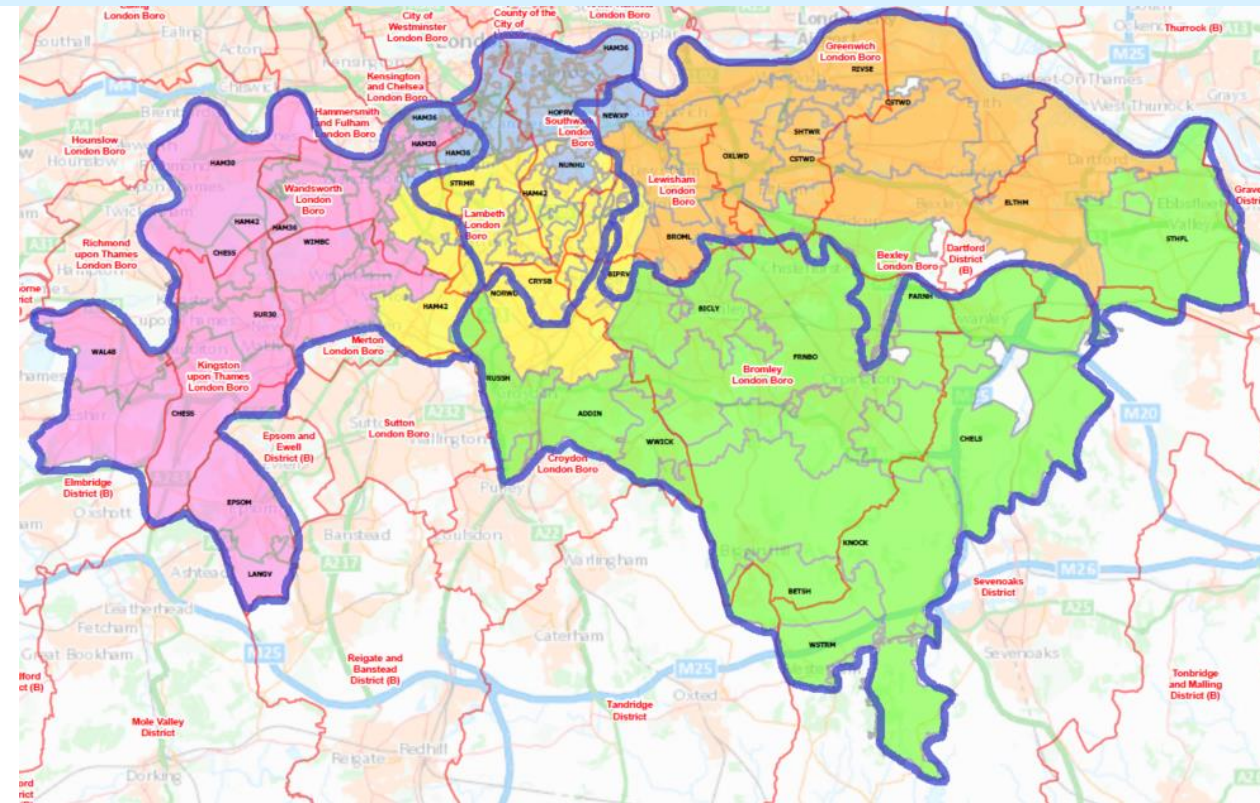
Leakage – what we're doing about it

From 2020 to 2025 we are focussed on:

- Focussing on data and insights, so we can more effectively measure consumption and identify and target leakage on a day-to-day basis.
- Investing in leak detection to develop options that improve our ability to find leaks accurately and quickly.
- Fixing leaks more efficiently, ensuring high productivity of our repair gangs so leaks are repaired quickly and efficiently using the right technique.
- Calming damaging pressure fluctuations that can cause bursts and leaks

Water Networks Transformation

- We now have a new way of working, insourcing our repair & maintenance operation after over 20yrs of contracting out the service.
- Across South London we have insourced more than 200 people from the out-going contractors.
- South London was then split into 4 operational areas to provide a local ownership.
- Induction and training is ongoing as we make sure we bring the standards of our people up to our expectations and that of the customers we serve.
- Our next step is to move from transition phase to transform phase.



Area 1	Area 2	Area 3	Area 4
SE1	CR4	DA1	BR1
SE11	KT1	DA10	BR2
SE15	KT10	DA11	BR3
SE16	KT17	DA12	BR4
SE17	KT18	DA13	BR5
SE21	KT19	DA14	BR6
SE22	KT2	DA15	BR7
SE24	KT22	DA16	BR8
SE26	KT3	DA17	CR0
SE27	KT4	DA18	CR2
SE5	KT5	DA2	CR3
SW12	KT6	DA4	CR5
SW16	KT7	DA5	CR6
SW2	KT8	DA6	CR7
SW8	KT9	DA7	CR8
SW9	SM4	DA8	CR9
	SM5	DA9	SE19
	SW11	SE10	SE20
	SW13	SE12	SE23
	SW14	SE13	SE25
	SW15	SE14	SE26
	SW17	SE18	TN14
	SW18	SE2	TN15
	SW19	SE28	TN16
	SW20	SE3	
	SW4	SE4	
	TW10	SE6	
	TW9	SE7	
		SE8	
		SE9	

Transition phase

Responding to emergencies






Incident Commander



Incident Manager/ Assistant Incident Manager

Provide direction and decision making   Provide information, updates and escalation

Incident Control Towers

Control Tower 1	Control Tower 2	Control Tower 3	Control Tower 4	Additional Control Towers
 System Operations Lead	 Customer Resolution Lead	 Return to Service Lead	 Public Information Office Lead	 May be stood up, depending on incident

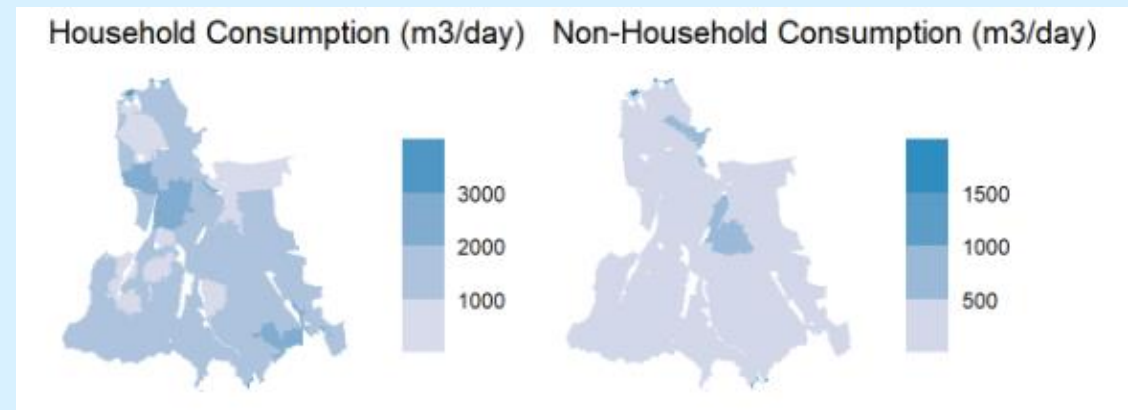
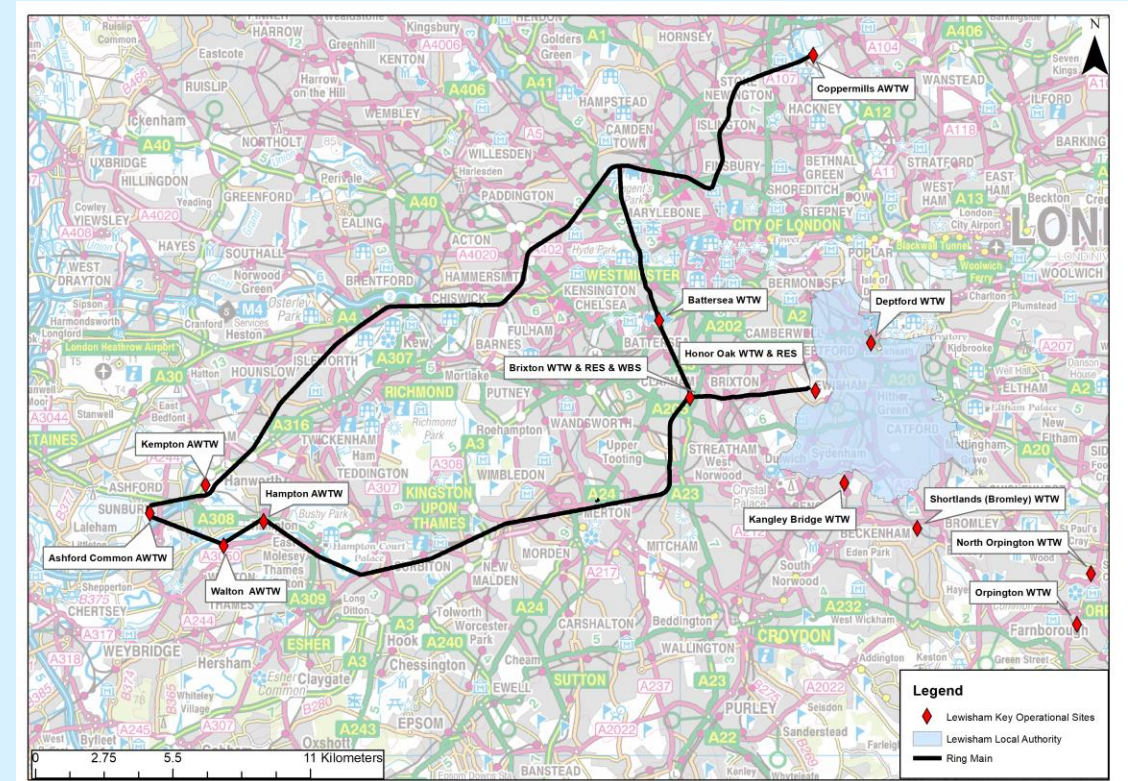
Incident Runways

Water System Ops	Customer Incident Management	Operational Teams	Customer Communications	Public Health
Waste System Ops	LOCC	3rd Party contractor management	Internal & Corporate Communications	Logistics
LOCC		H&S	Press Office	Health and Safety
		WQ	Stakeholder Communications	Digital
		Operational Service Centre (SMC, CSC, P&S)	Website	Security
		LOCC	Emergency Planning	

System Overview

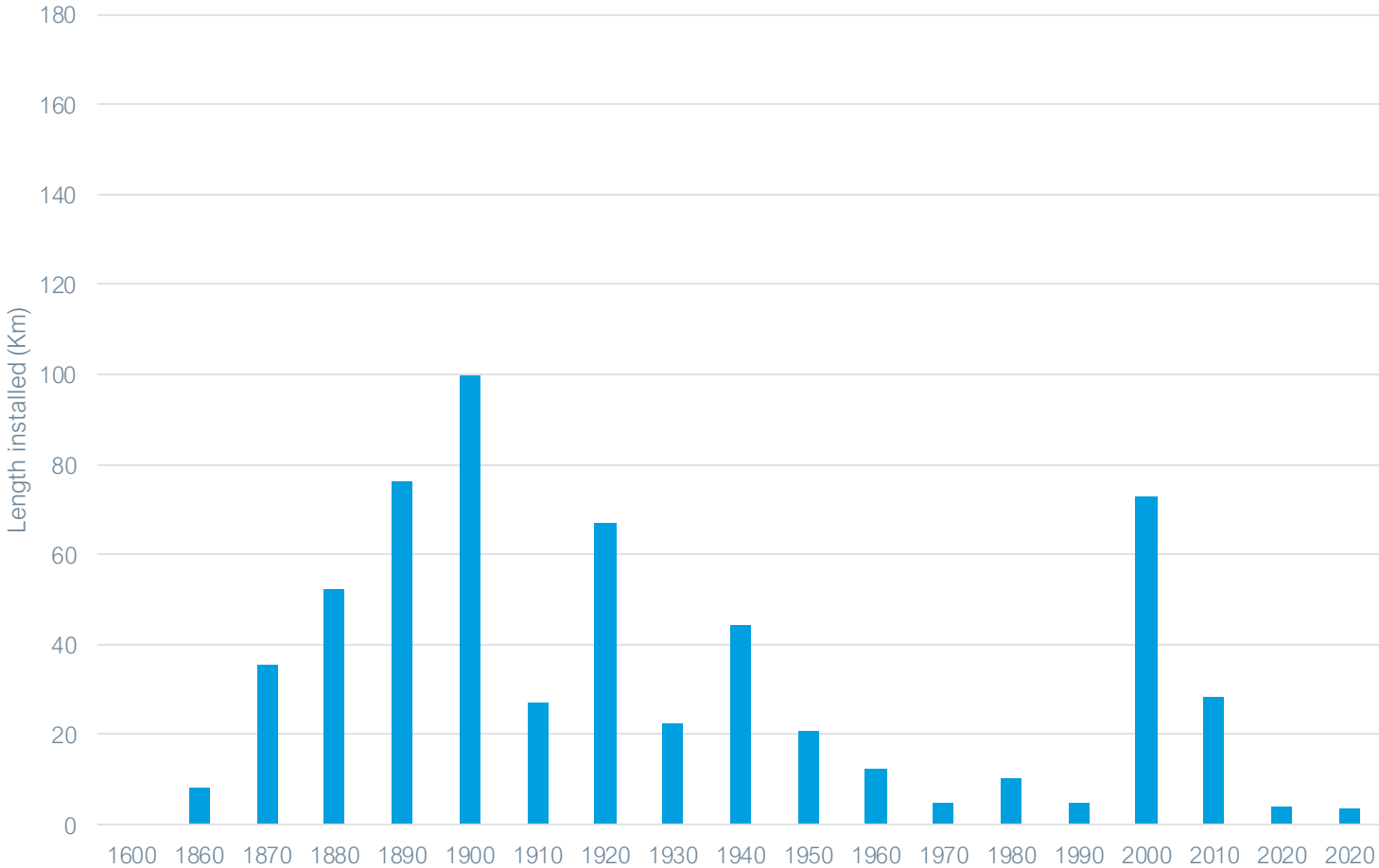
London Borough of Lewisham

- Lewisham sits within our South East London Strategic Supply Area and encompasses 13 of our Flow Monitoring zones and 55 of our District Metered Areas. The map on the right shows 13 of the **key sites** that supply water to the Lewisham Parliamentary Constituency.
- Lewisham property count: 127,309 household and 6,109 non-household customers. There are 4,849 key accounts.
- Lewisham's total daily flow is circa 70,043 m³/day, 89% of consumption is by household customers and 11% from non-household customers.
- Lewisham's water supply is derived from 13 key sources; Hampton AWTW, Ashford AWTW, Coppermills AWTW, Kempton AWTW, Walton AWTW, Battersea WTW, Brixton WTW, Deptford WTW, Honor Oak WTW, Kangley Bridge WTW, North Orpington WTW, Orpington WTW, Shortlands WTW



London Borough of Lewisham

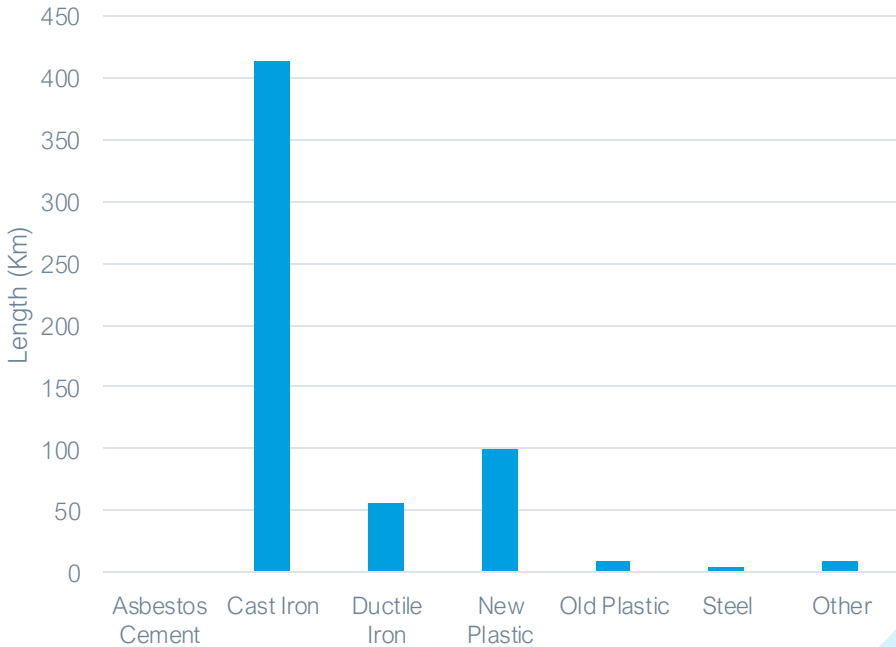
Distribution Mains Overview



415km of Distribution Mains

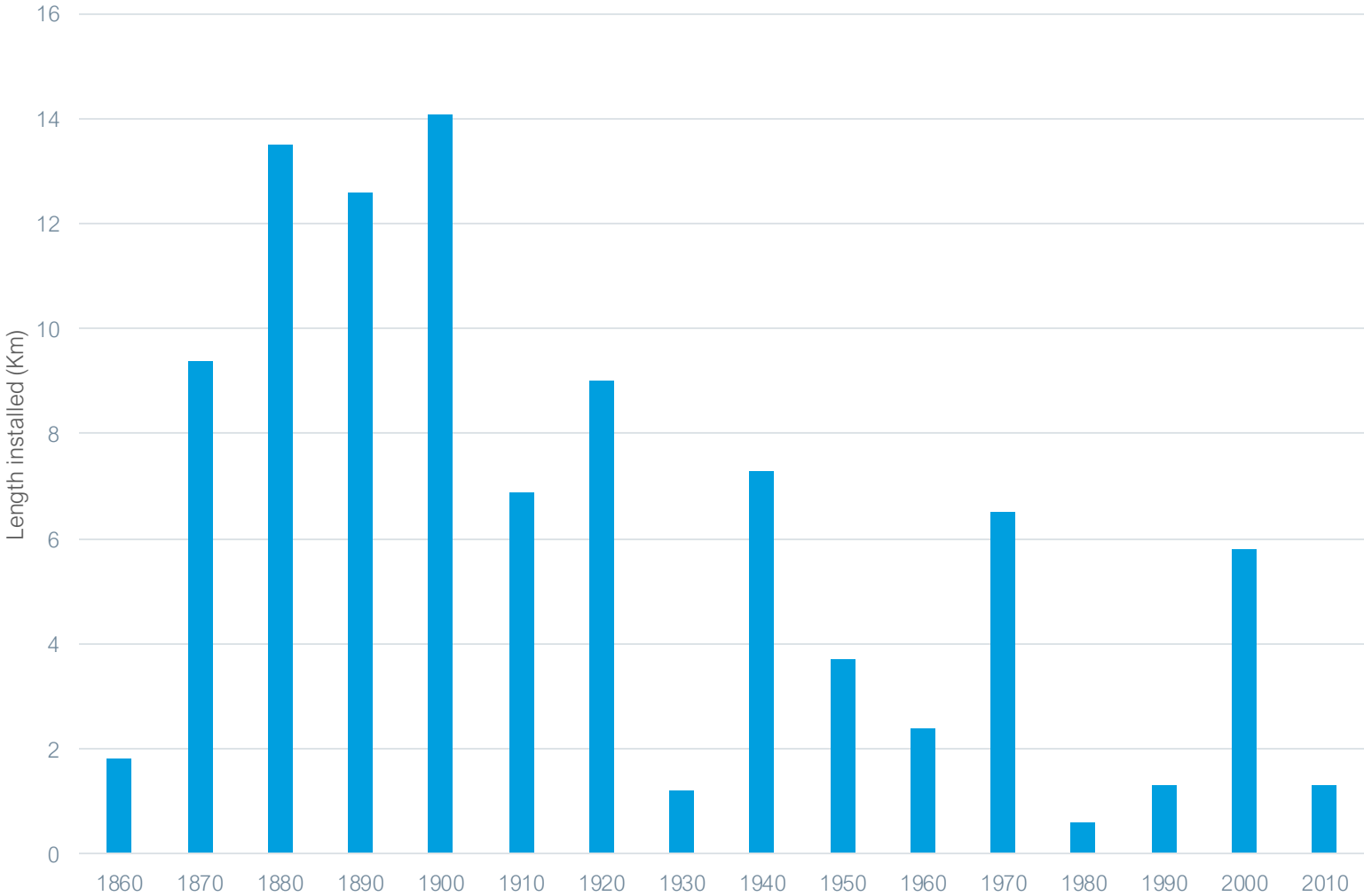
36% Cast Iron Mains

26% of mains replaced since 2000



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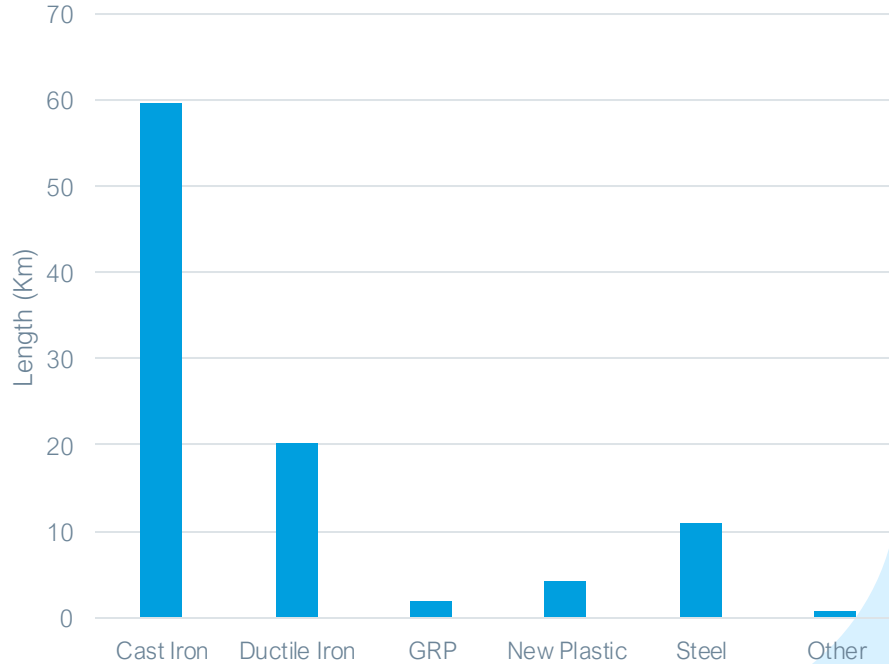
Trunk Mains Overview



97km of Trunk Mains

61% Cast Iron Mains

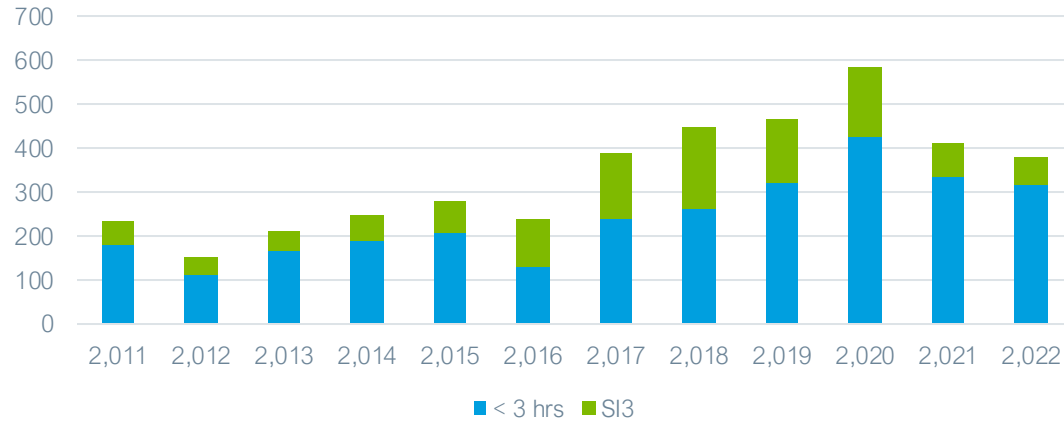
69% of mains are pre-1930s



London Borough of Lewisham

Performance Overview

Supply interruptions per year

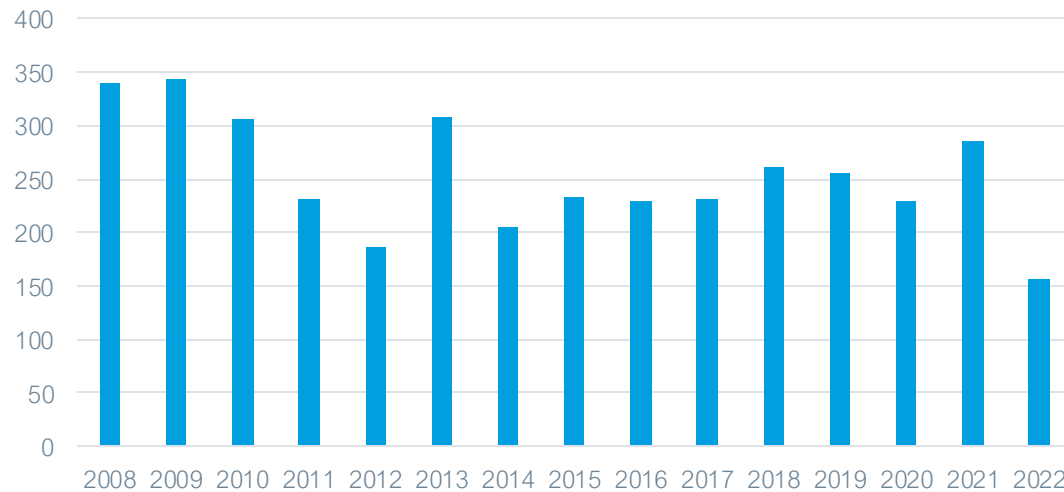


3,806 mains repairs 2008 - 2022

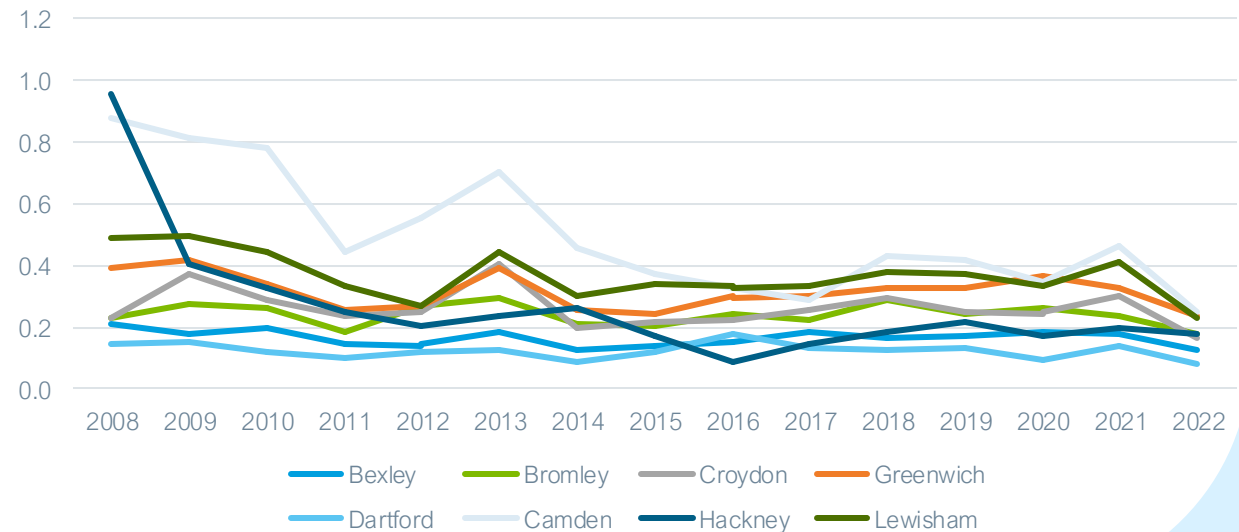
Average of c.254 repairs per year

Comparison shows average performance

Mains repairs by year



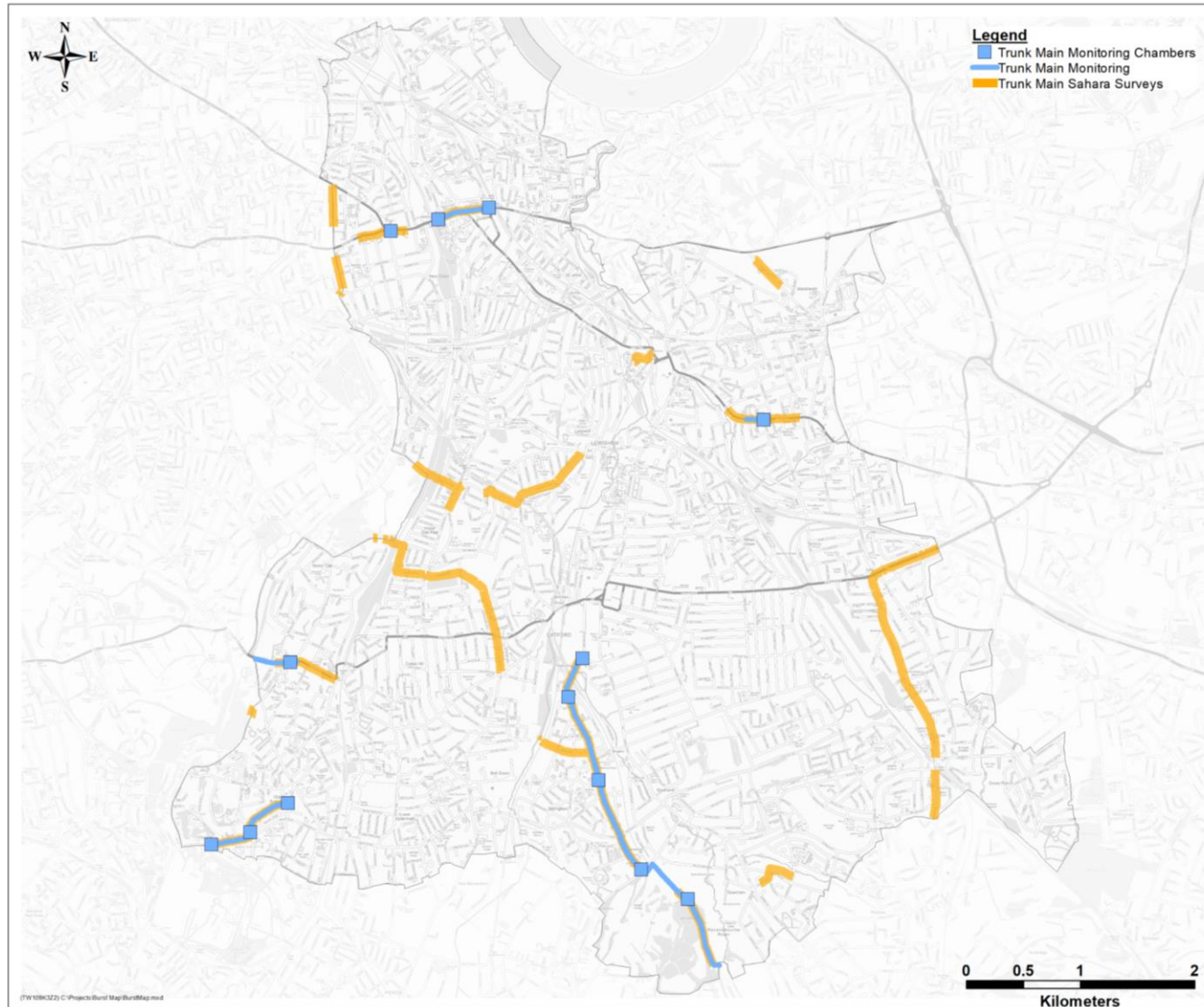
No. Mains Repairs by Calendar Year (b/km) Compared



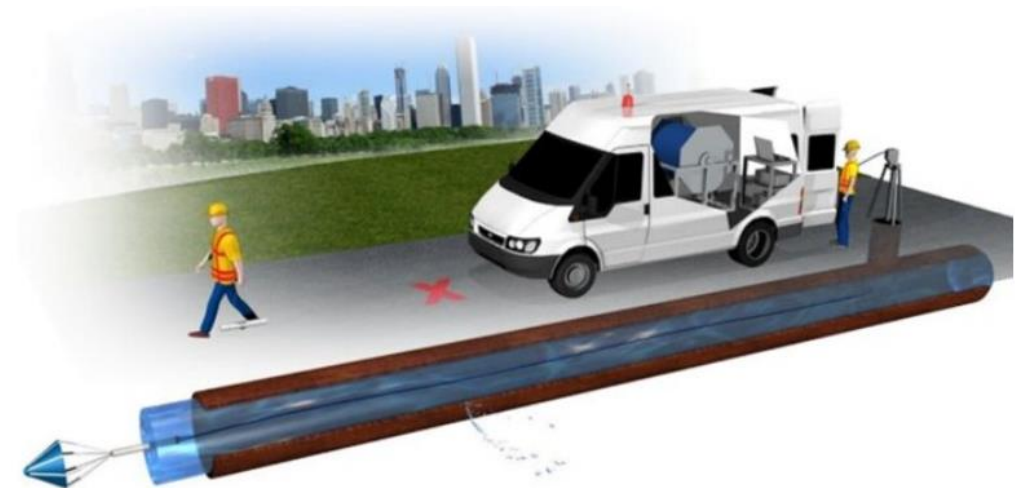
Monitoring

Trunk Main Monitoring

Monitoring Coverage

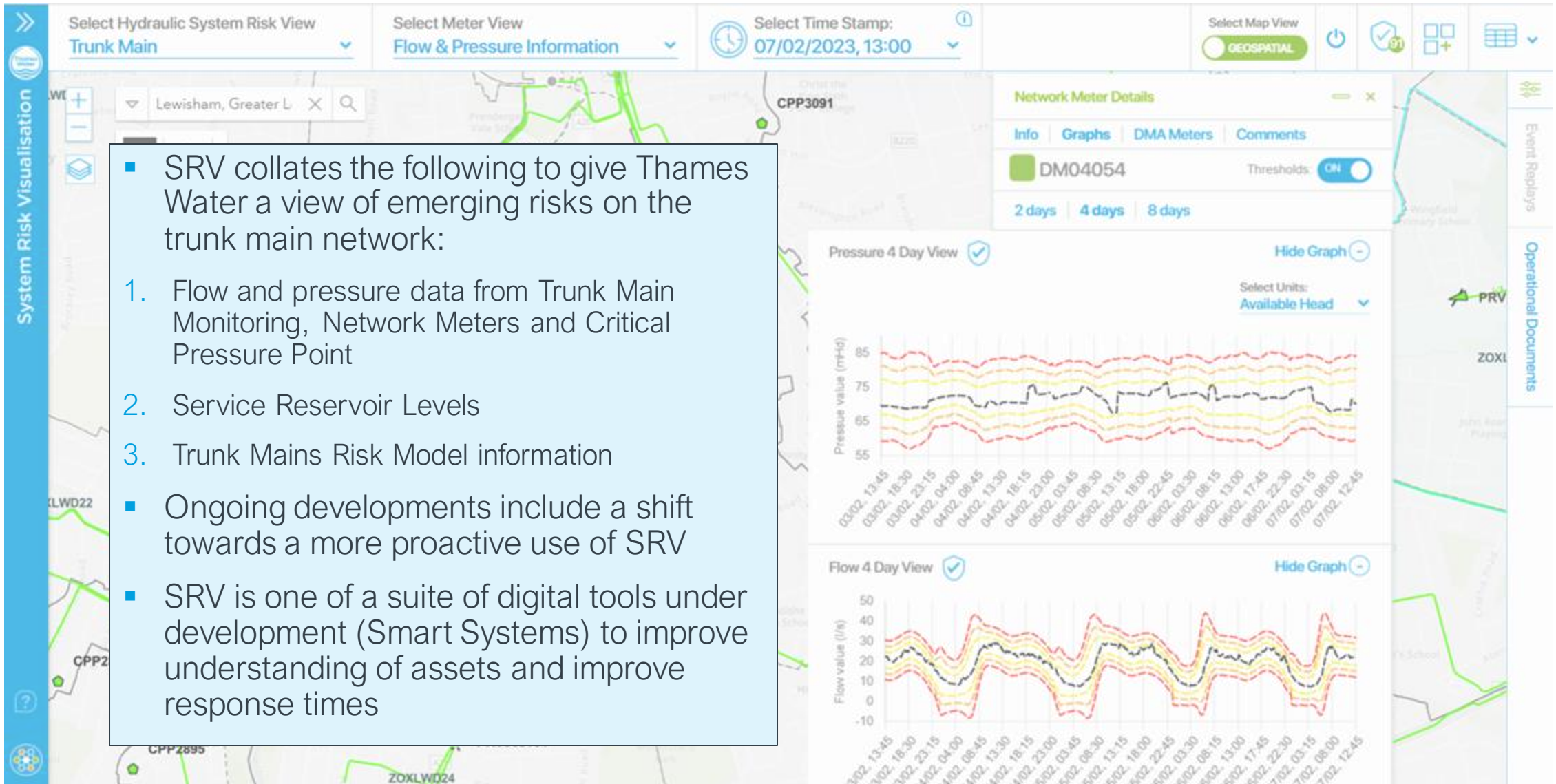


- Approximately 69 km of trunk mains in Lewisham.
- 13 Trunk Main Monitors covering ~9% of trunk mains, sending flow and pressure anomaly alerts to the Thames Water Control Room.
- 23 In-pipe Sahara surveys conducted on ~21% of trunk mains, as part of Thames Water's leak detection programme.



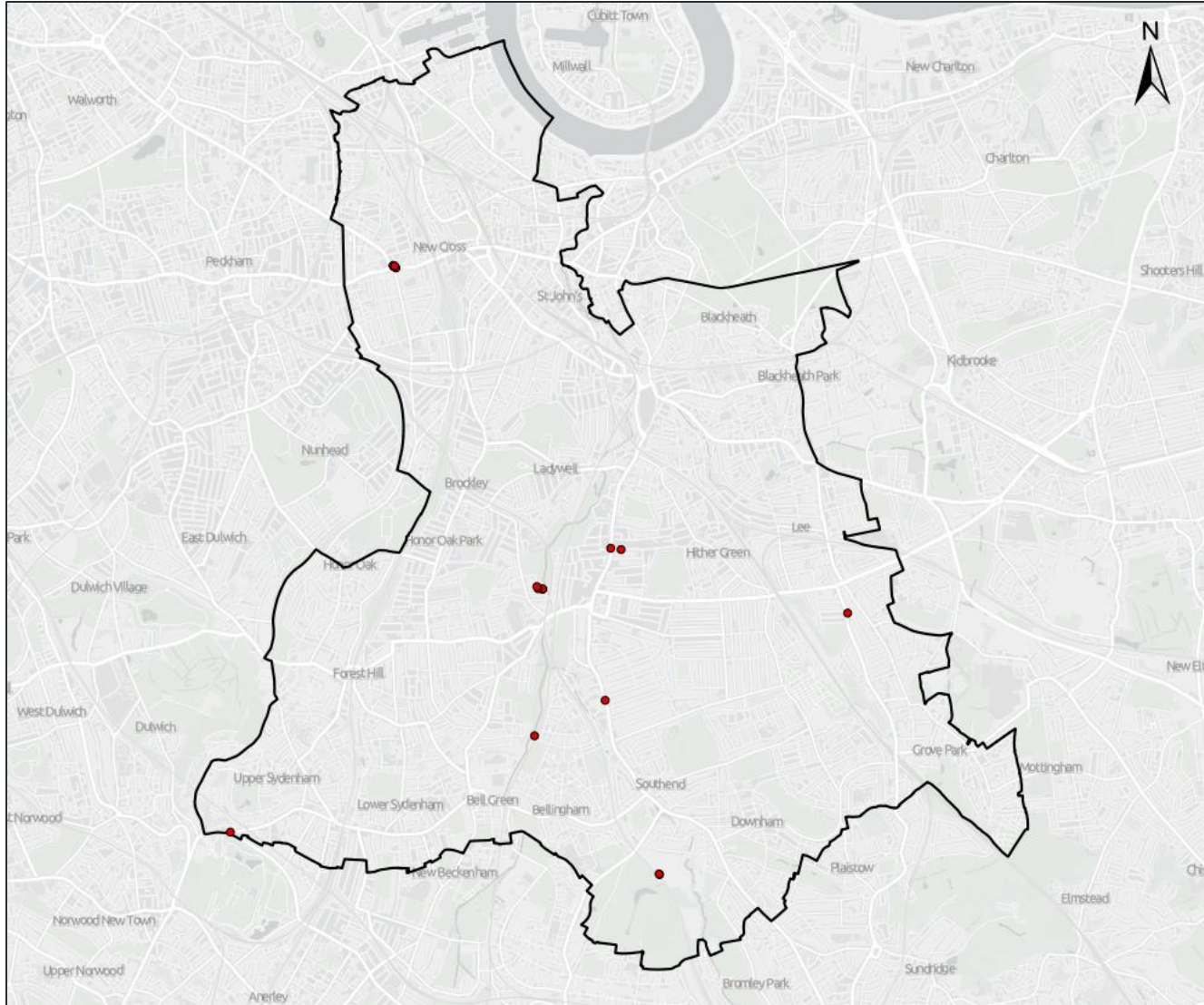
Trunk Main Monitoring

System Risk Visualisation



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 787 critical valves within the Lewisham network
- Currently, 17 critical valves are deemed to be covered/missing

Investment

London Borough of Lewisham

Current and Future investment

Orpington WTW Surge Reduction (In Progress)

- Water treatment work process reviewed and new strategy implemented to reduce transient occurrence resulting in burst reduction.

Shortlands WTW RTS & Booster Pumps Upgrade

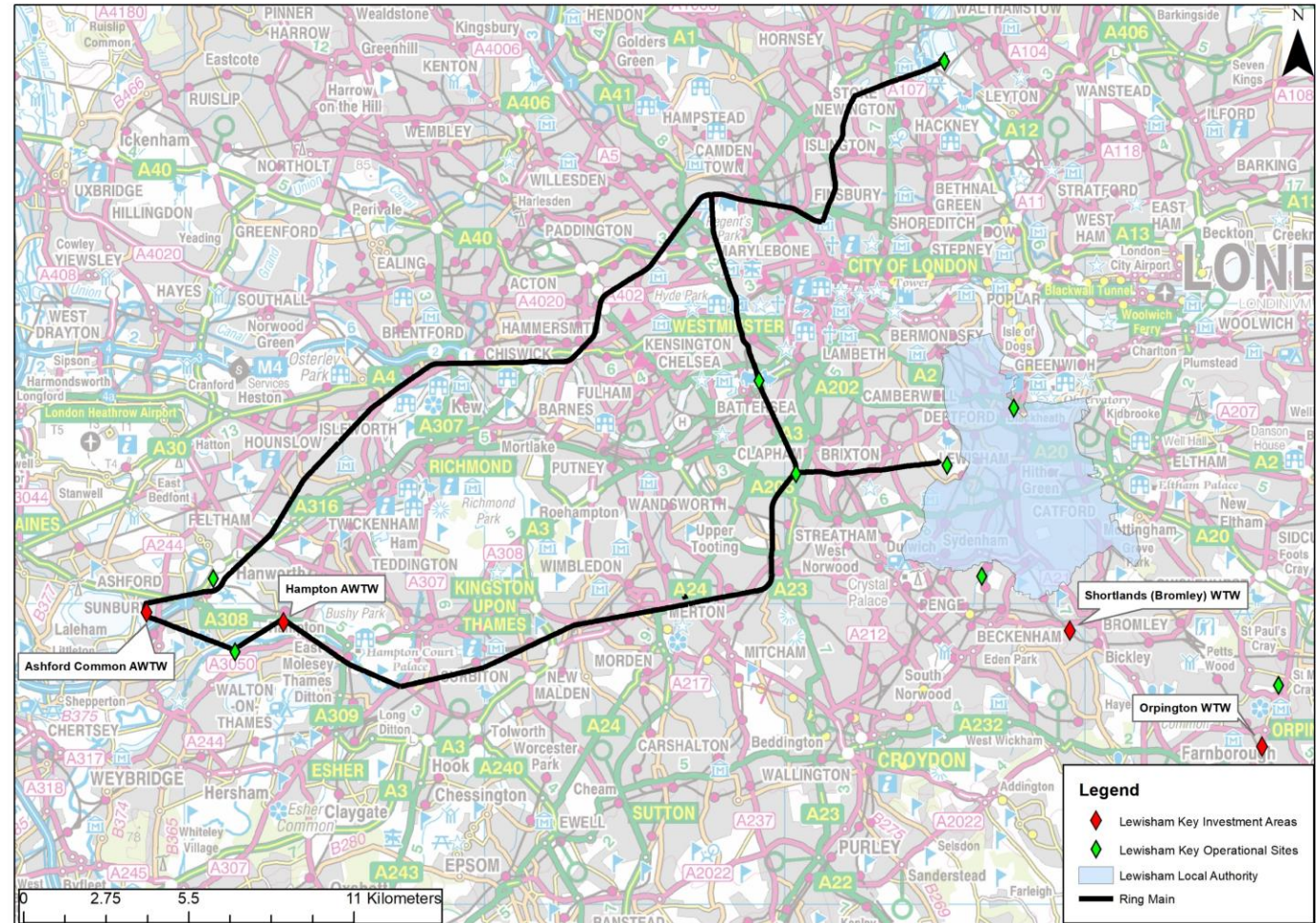
- Upgraded water booster pumping to remove the risk of pressure transients and associated consequence to TW customer supply (reduced or lost), whilst improving pump efficiency and reducing leakage impact.

Hampton WTW Eastern SSF Recirculation

- Delivery of priority 1 works to upgrade the disinfection plants to ensure water quality standards and site output is not compromised.

Ashford Common AWTW Disinfection Refurb

- Delivery of priority 1 works to upgrade the disinfection plants to ensure water quality standards and site output is not compromised



London Borough of Lewisham

Current and Future investment

Ashford Com WTW Transformer Replacement (Estimated Mid 2023)

- £2.3 million project to Replace two transformers with known failure modes to protect against treatment disruption.

Ashford Common AWTW Disinfection Refurb (Early 2025)

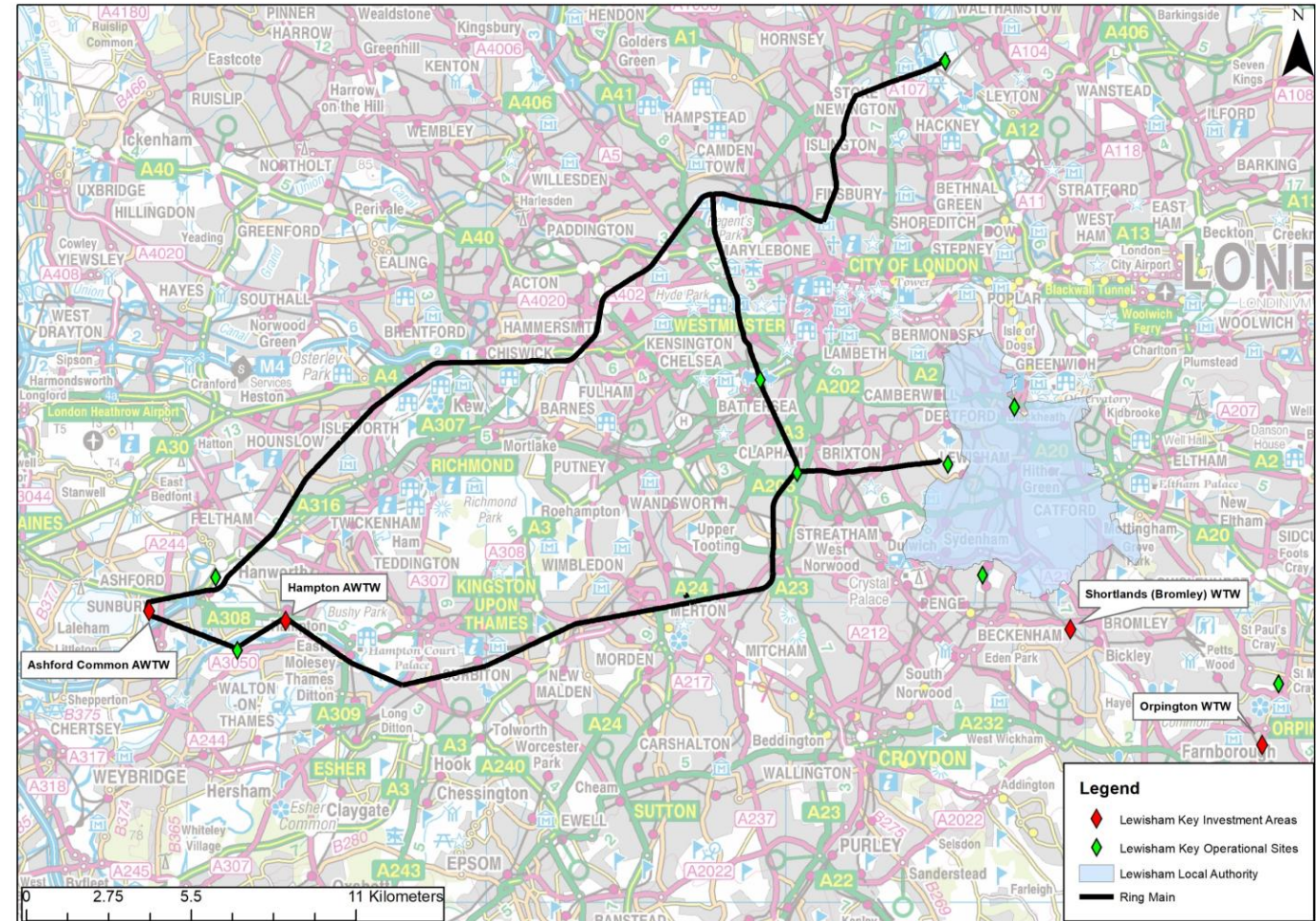
- £7 Million to Deliver priority 1 works to upgrade the disinfection plants to ensure water quality standards and site output is not compromised. Priority 2 work to be delivered in AMP8.

Ashford Common Post Ozone Main Replacement (Mid 2024)

- £12.5 million project replacing the post ozone main to ensure site output is maintained.

Ashford Common AWTW West Low Lifts (Mid 2027)

- £0.5 million project to Remodel the west low lift pumping station to improve resilience of site output via the A-main supply route.



London Borough of Lewisham

Current and Future investment

Hampton WTW Eastern SSF Recirculation (End of 2023)

- £10 million project to Improve Slow Sand Filter (SSF) Recirculation on remaining SSF's at Hampton to improve Water Quality.

Hampton WTW Contact Tank & Penstocks (Early 2027)

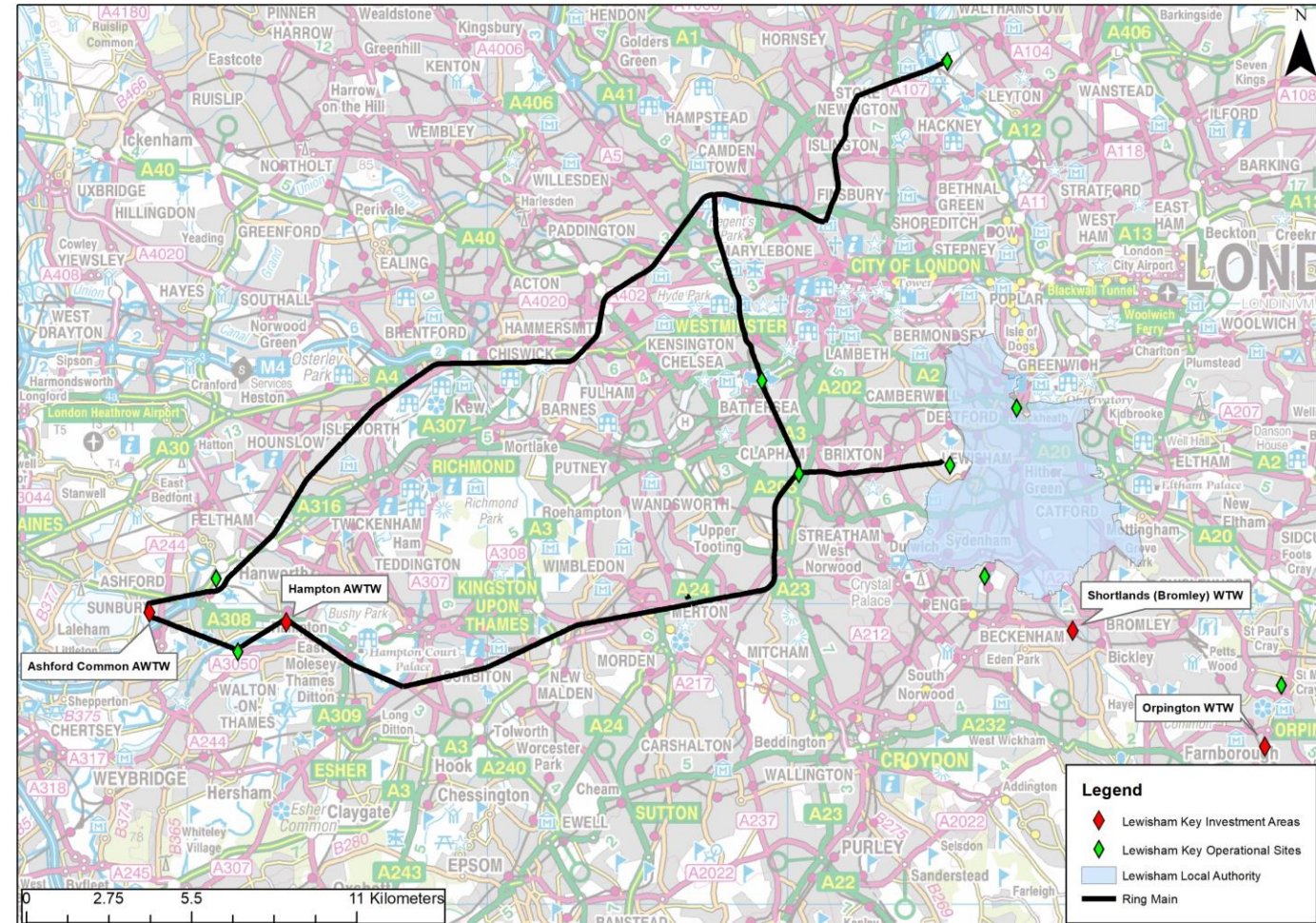
- £12 Million project to improve resilience of disinfection contact tank to enable inspections to be carried out safely and remove risk of water quality failures.

Hampton WTW 33KV Switchgear (Mid 2024)

- £12.5 Million project for the Replacement of Incoming High Voltage (HV) switchgear to remove known failure mode and improve resilience of treatment works.

Hampton Grand Junction Res Shutdown (Mid 2026).

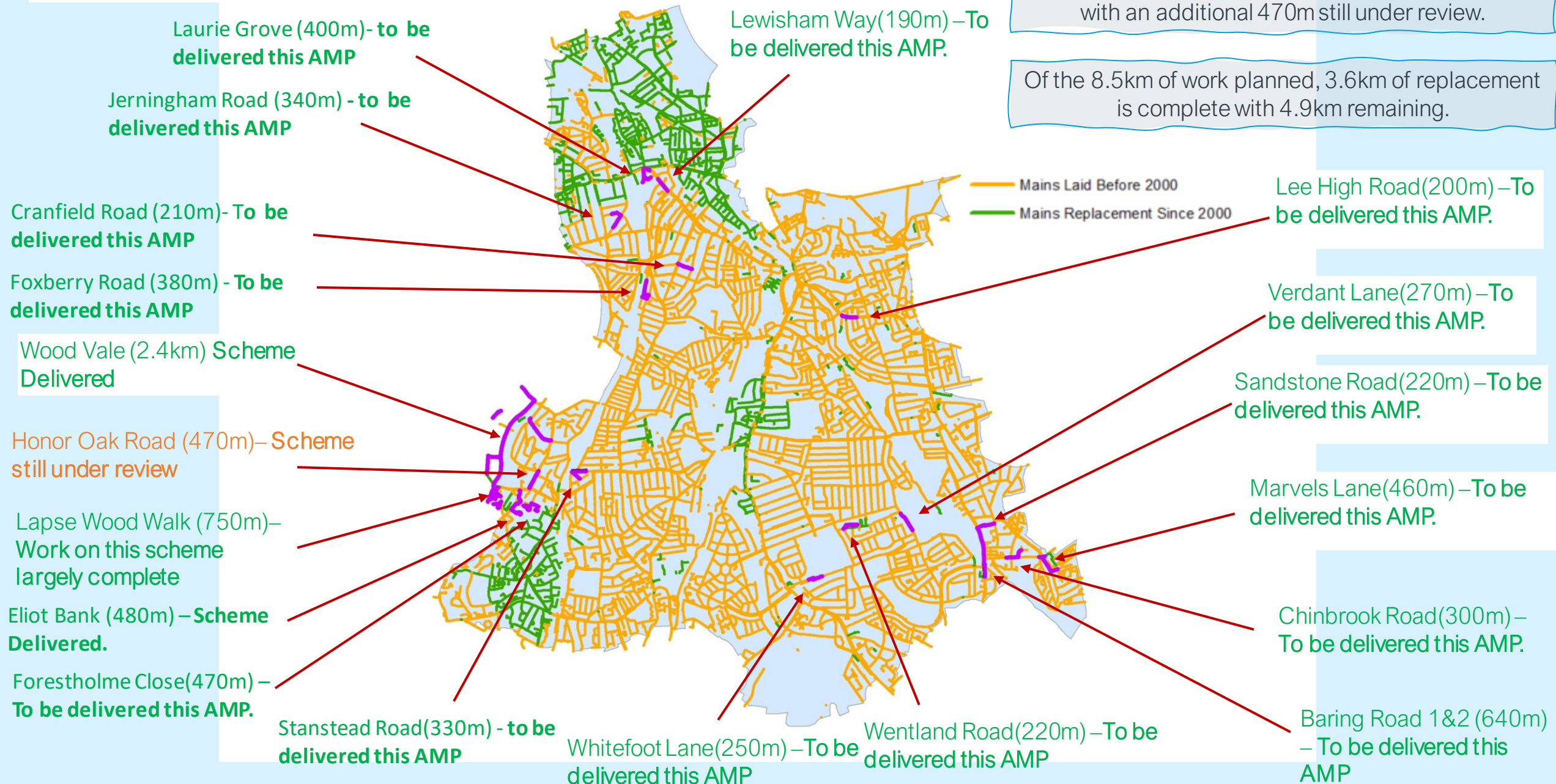
- £4.5 Million project to all the Provision of a improved fail safe shut down system to protect reservoir against uncontrolled filling and potential catastrophic failure resulting in Hampton WTW output loss.



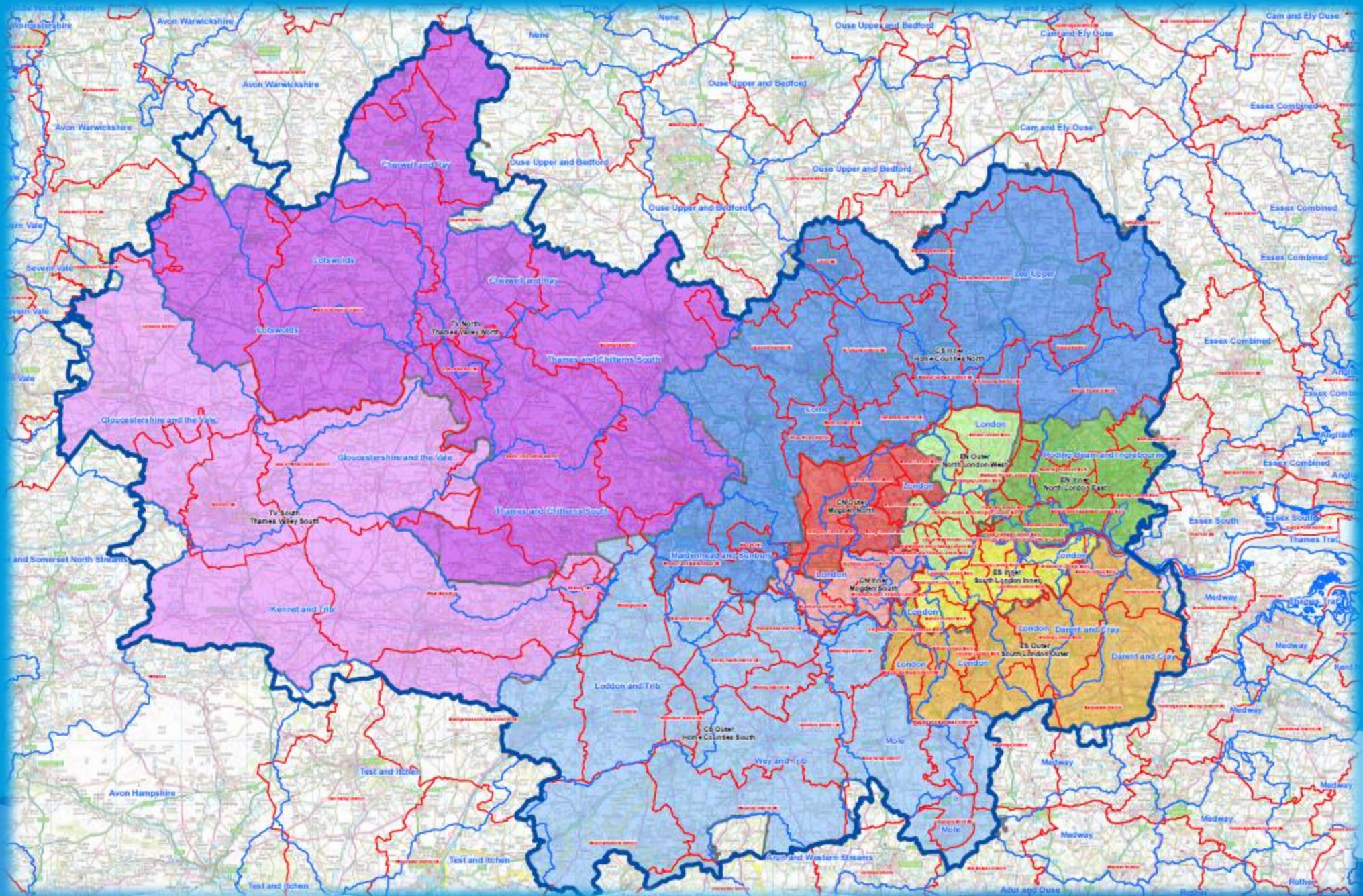
Distribution Main Investment – Current Status

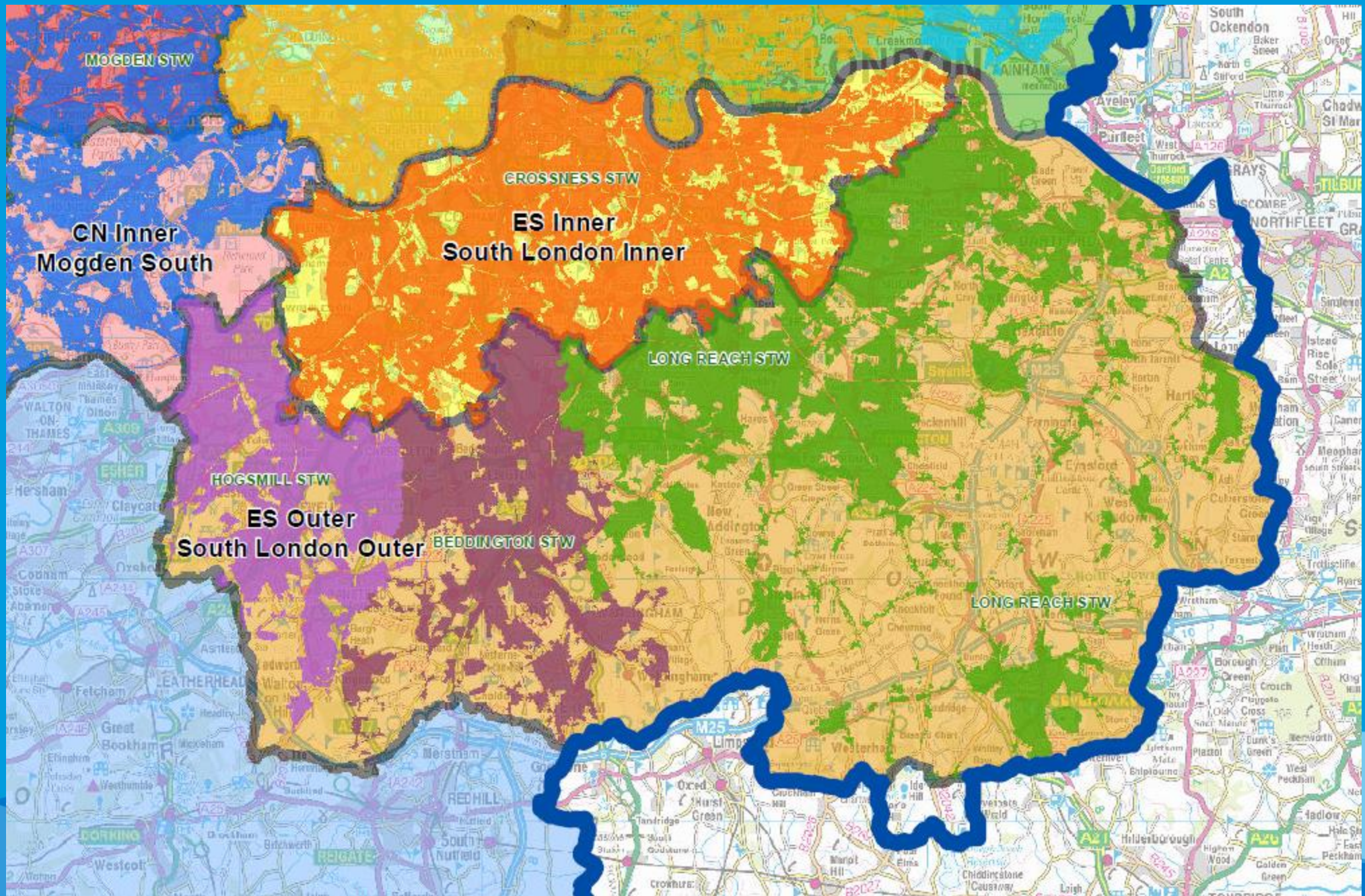
Across the borough, there are 19 schemes delivering 8.5km of mains replacement this AMP (2020-2025) with an additional 470m still under review.

Of the 8.5km of work planned, 3.6km of replacement is complete with 4.9km remaining.



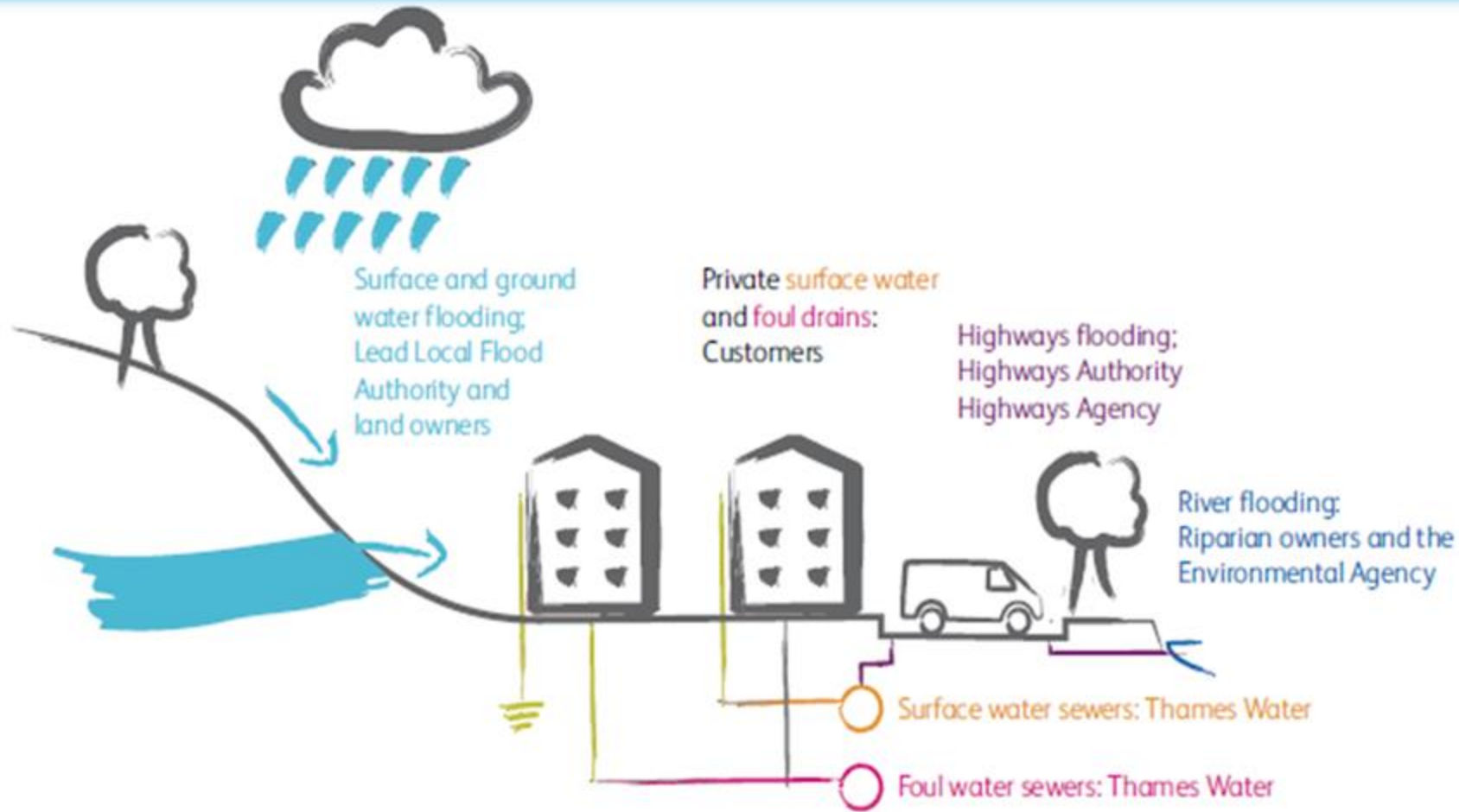
Our waste network







Responsibilities for Drainage



- As a 'Lead Local Flood Authority' (LLFA) under the Flood and Water Management Act 2010, the London Borough of Lewisham is responsible for co-ordinating the management of flood risk from surface water, groundwater and ordinary watercourses.

Our plans

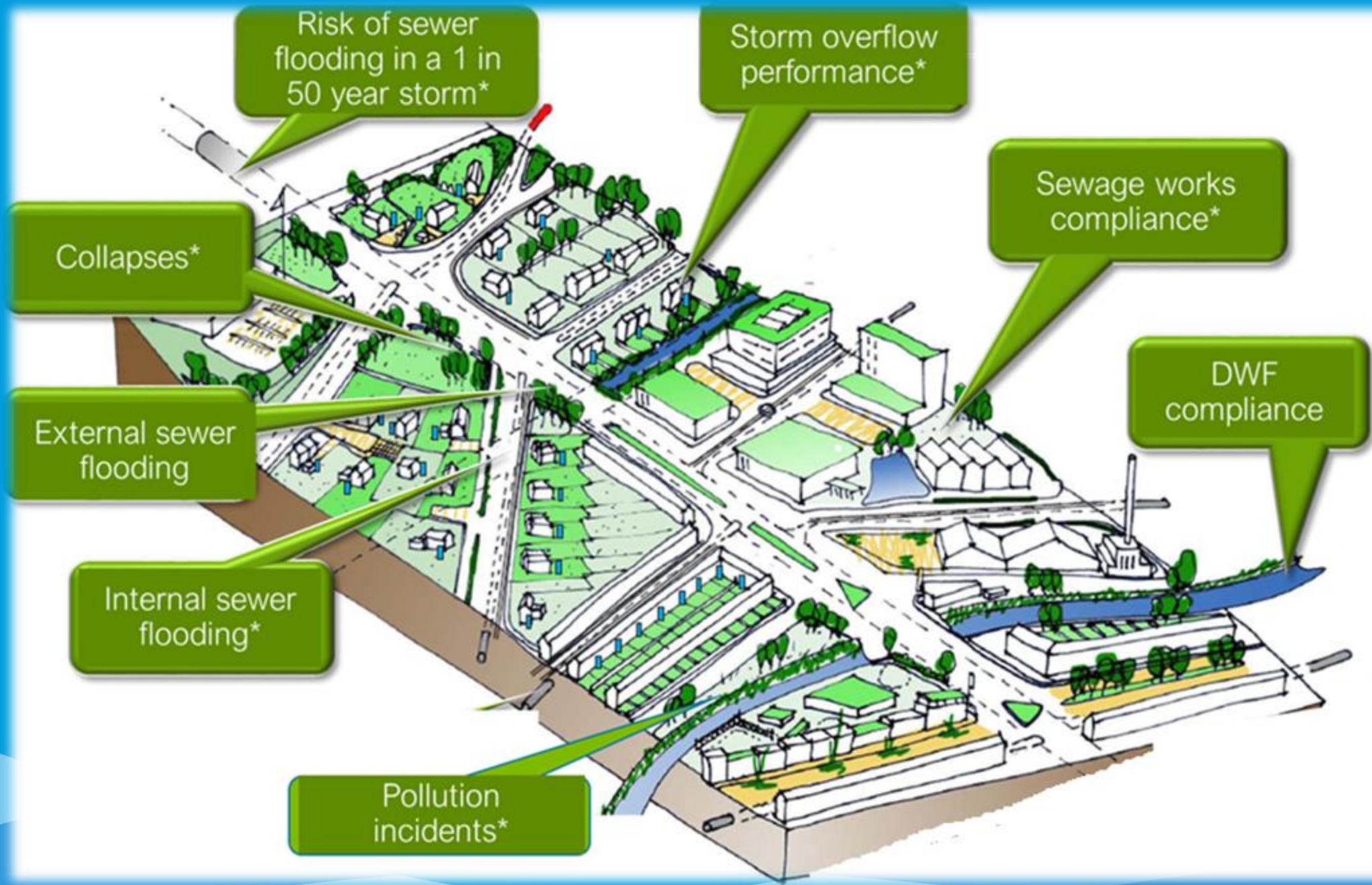
Catchment Strategic Plan

Part of our Drainage and Wastewater Management Plan (DWMP)

Co-creating resilient wastewater catchments

A long-term Strategic Plan for the **Crossness** System

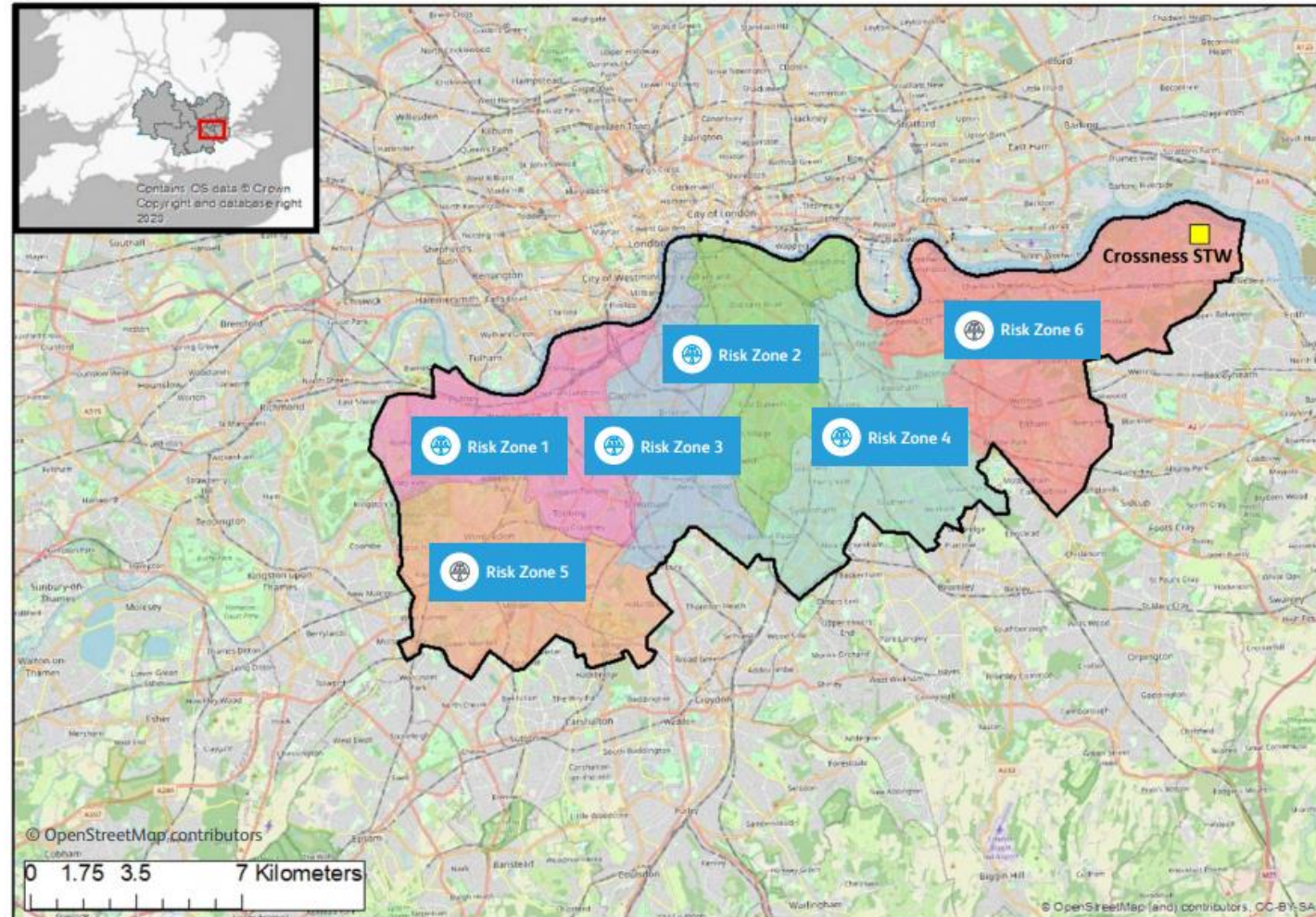




Our shared plan at catchment level

Use this interactive map to find out more about our plans for the four risk zones that are predicted to breach our goals.

The map shows 6 risk zones, but only 4 of them have been identified to be at risk, so the remaining ones are not included in the descriptions below.



Risk Zone 4 - Lewisham

Considerable growth is predicted in this area which experiences flooding during rainfall events.

<p>What are the challenges?</p>	<ul style="list-style-type: none"> Increased modelled internal hydraulic sewer flooding from 3.7% of properties (5716) at risk up to a one in 30 year storm (equating to a 3.3% chance of occurring in any given year) in 2035 to 4.1% of properties (6284) at risk by 2050 Increased modelled external hydraulic sewer flooding from 2.5% of properties (3941) at risk up to a one in 30 year storm (equating to a 3.3% chance of occurring in any given year) in 2035 to 2.6% of properties (3944) at risk by 2050 Increased modelled internal hydraulic sewer flooding from 7.3% of properties (11318) at risk up to a one in 50 year storm (equating to a 2% chance of occurring in any given year) in 2035 to 7.8% of properties (12034) at risk by 2050 The two overflows in this area spilt 56 times in 2020
<p>Which of our solutions are best suited?</p>	<ul style="list-style-type: none"> Surface water management Construct new surface water sewers

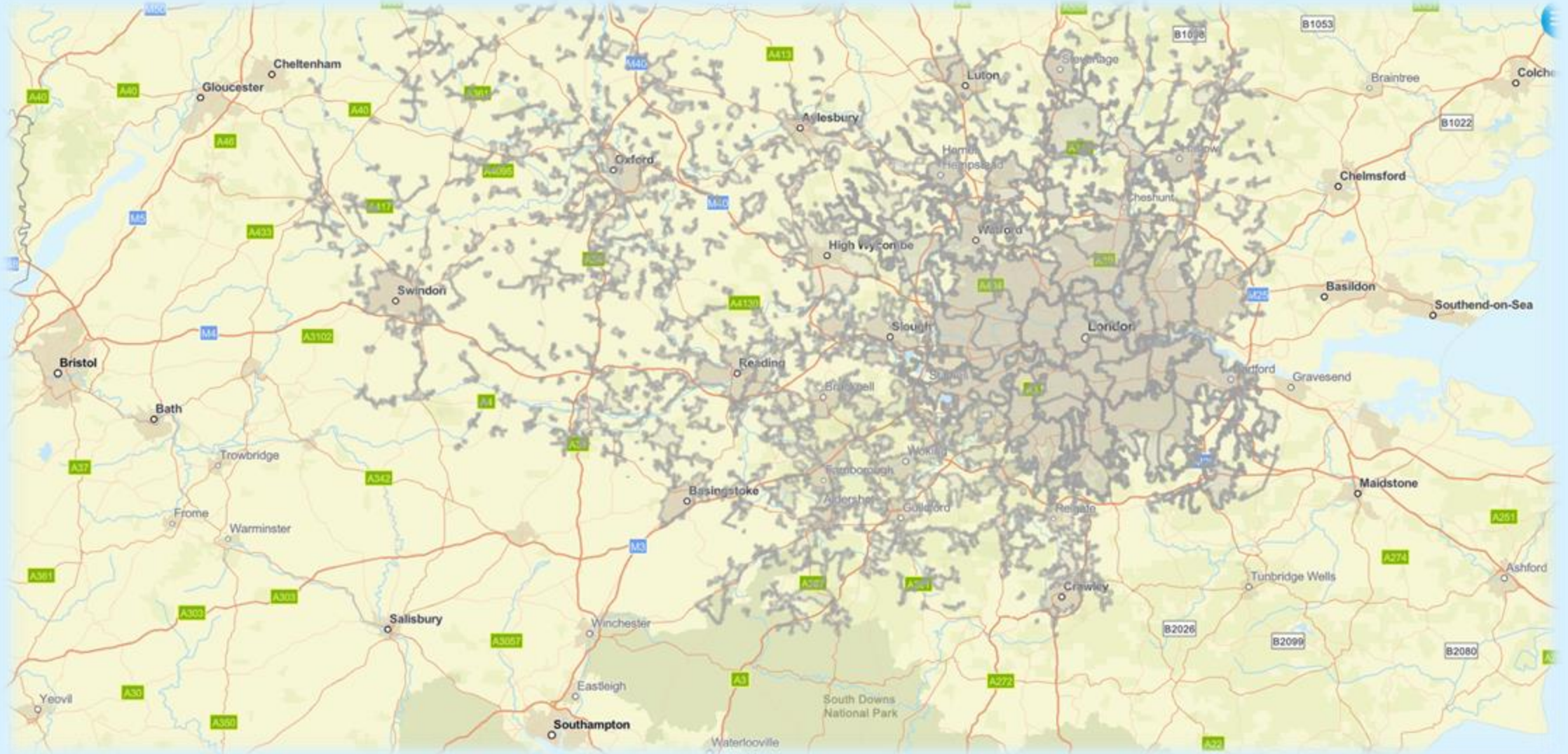


Timescale	2025	2030	2035	2050
What targets are we seeking?	<p>Short term</p> <p>Medium Term</p> <p>Long Term</p> <p>To:</p> <ul style="list-style-type: none"> Reduce internal and external property hydraulic sewer flooding to 1.5% and 3% up to a one in 30 year storm event (3.3% probability) in any given year Reduce spills (where overflows are present) to <10 in a typical year 			
How will we achieve the targets?	<p>We will:</p> <ul style="list-style-type: none"> Increase the confidence in our plans for long-term investment to reduce the risk of internal and external sewer flooding and enable catchment-level planning 		<p>We will:</p> <ul style="list-style-type: none"> Provide sewer network enhancements by constructing surface water sewers and storm attenuation to meet growth and climate change drivers Further develop our catchment-level planning and implement local surface water management solutions to reduce the risk of sewer flooding by removing rainfall runoff entering our system 	
	<p>We will:</p> <ul style="list-style-type: none"> Continue to provide sewer network enhancements by constructing new surface water sewers and storm attenuation Continue to reduce the risk of sewer flooding through the catchment-wide implementation of surface water management solutions 			

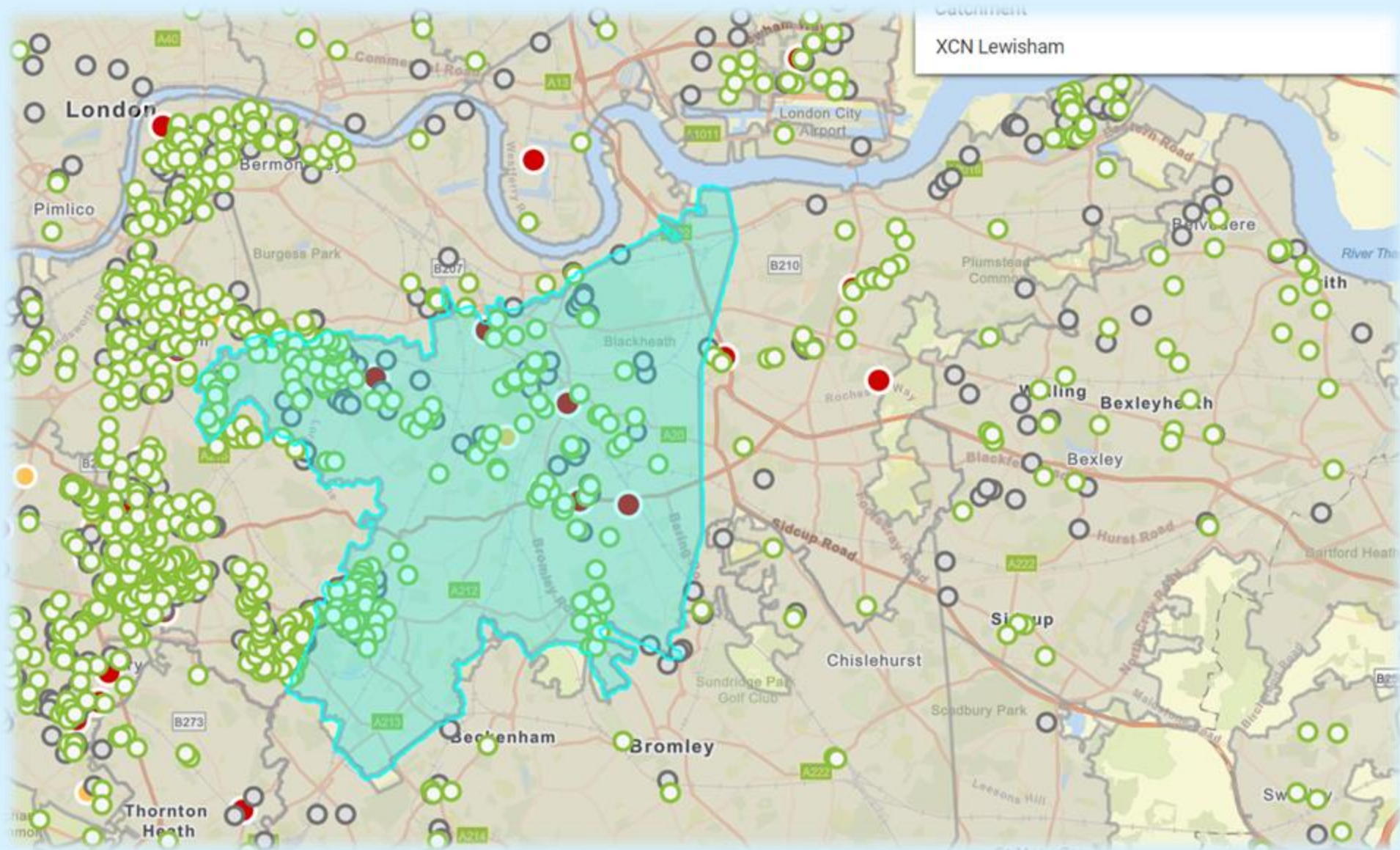


Short Term Plans

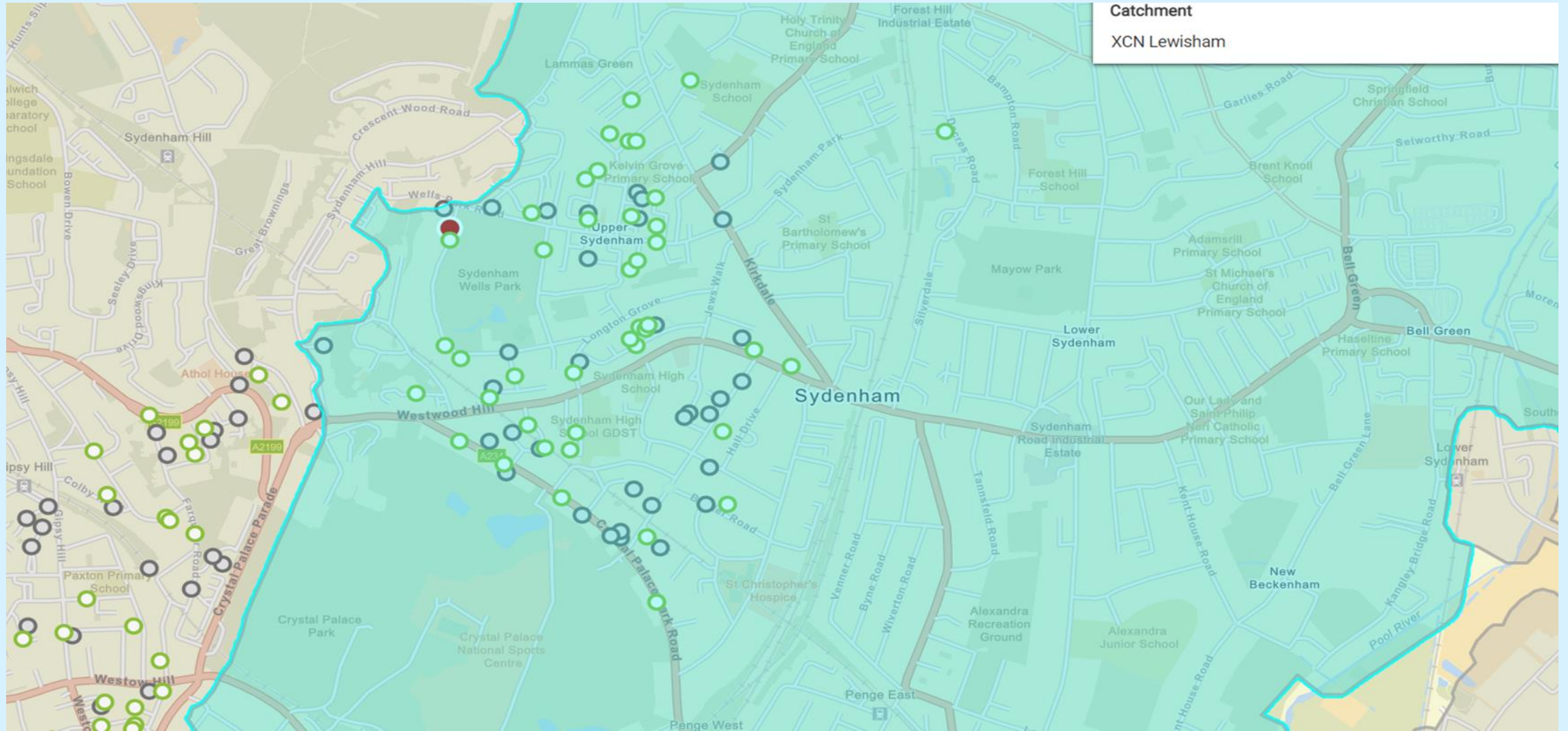
Active Monitoring of the Sewer Network



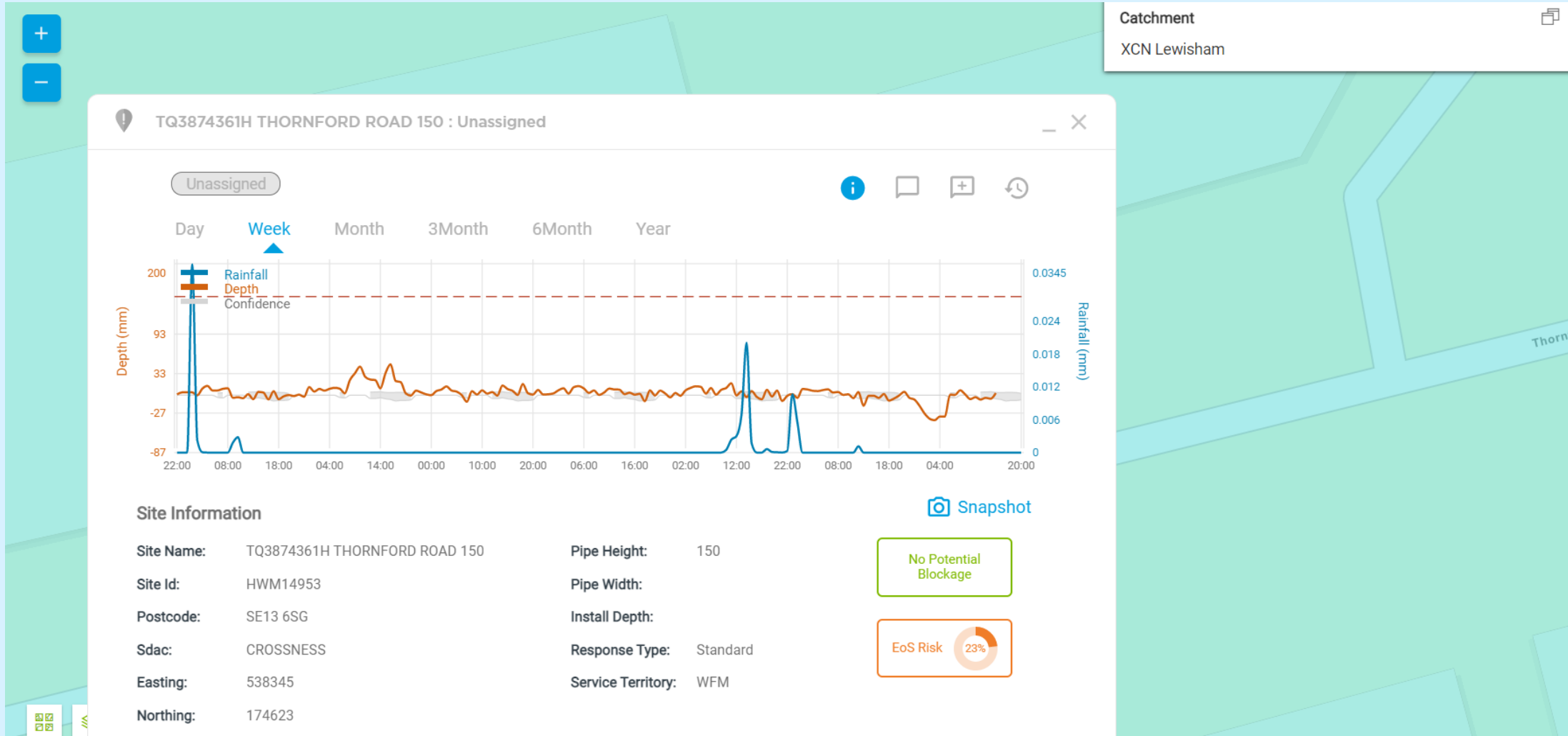
Lewisham Monitors



Monitors Installed based on Historic information /risk



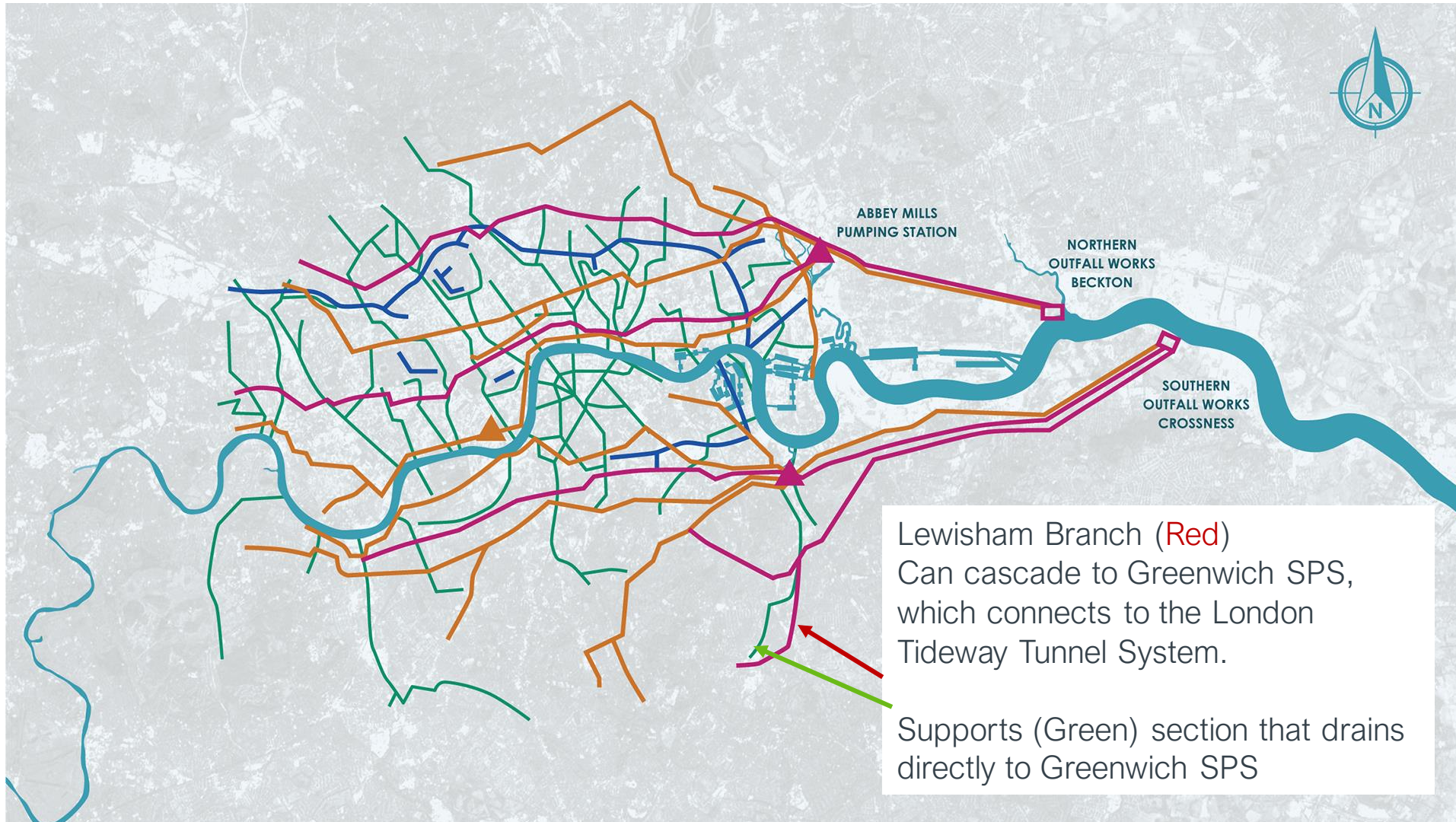
Live Alarmed monitoring of the Sewer Network



Thames Tideway Tunnel

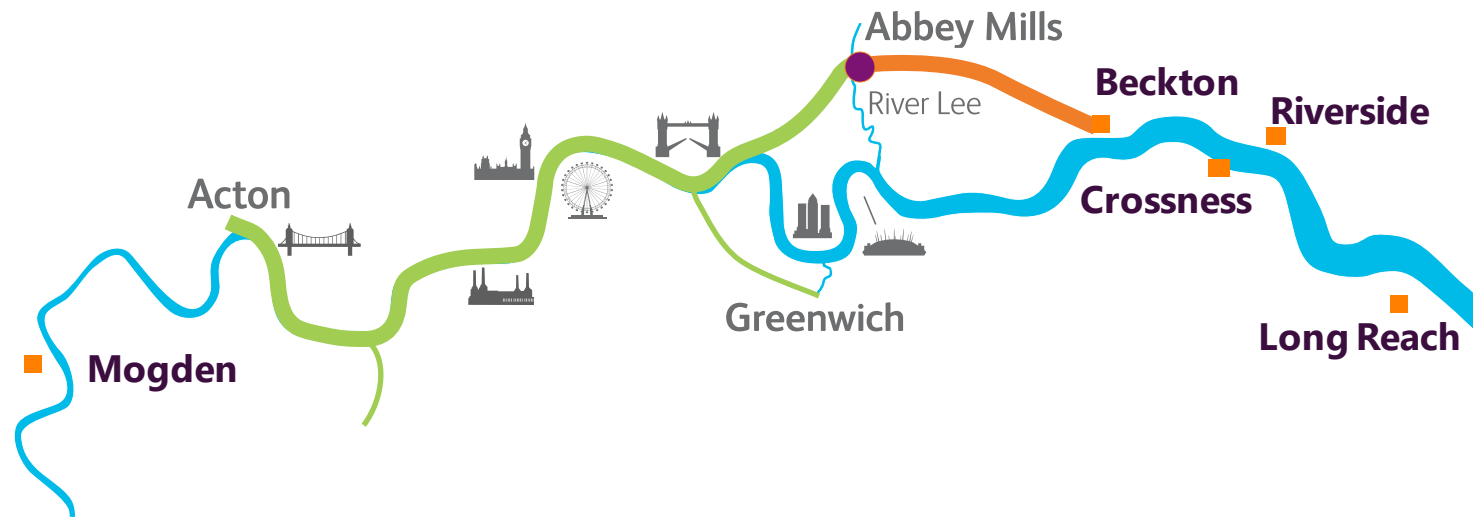
The trunk sewer network

A complex system that cascades towards the river when it rains



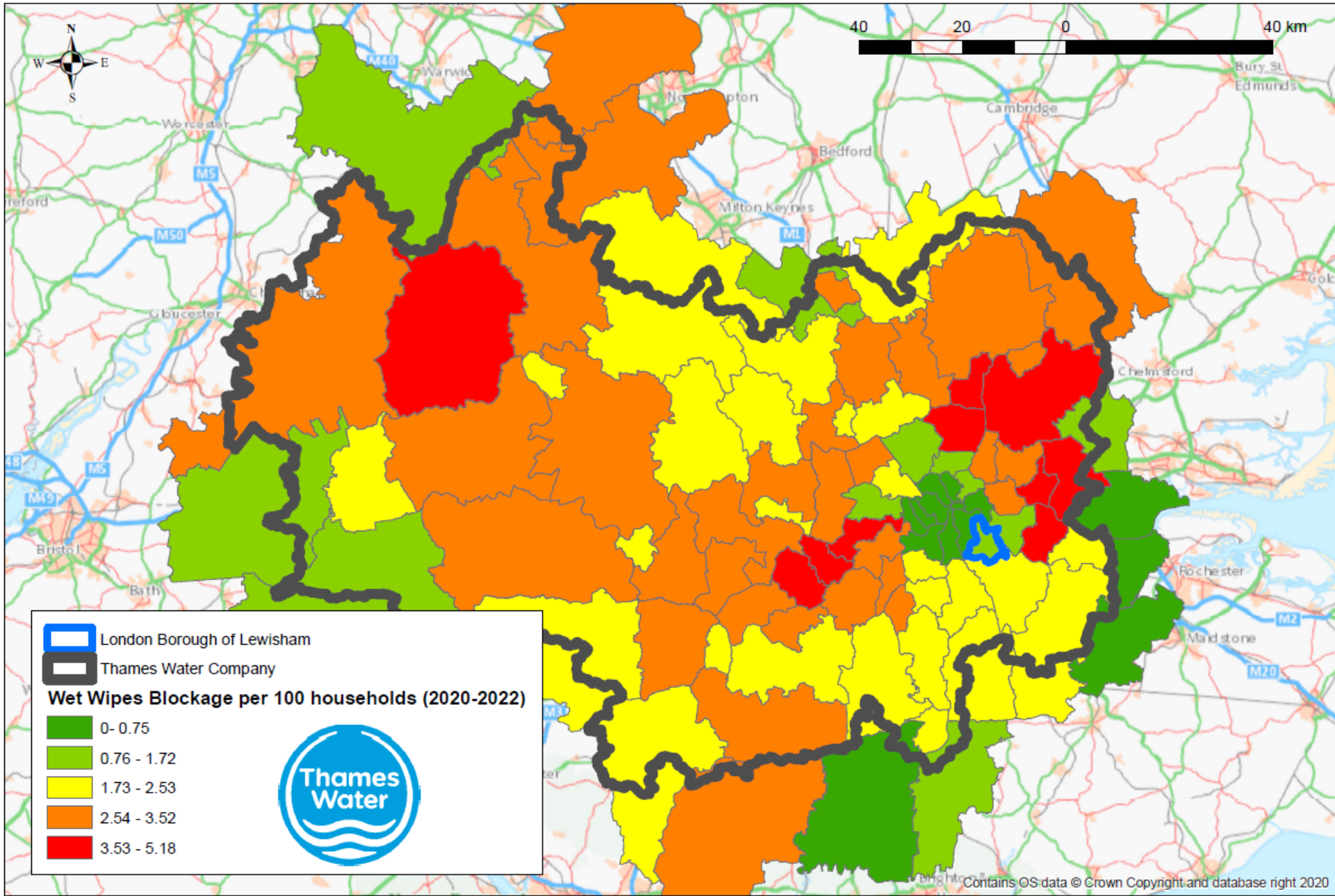
London Tideway Improvements

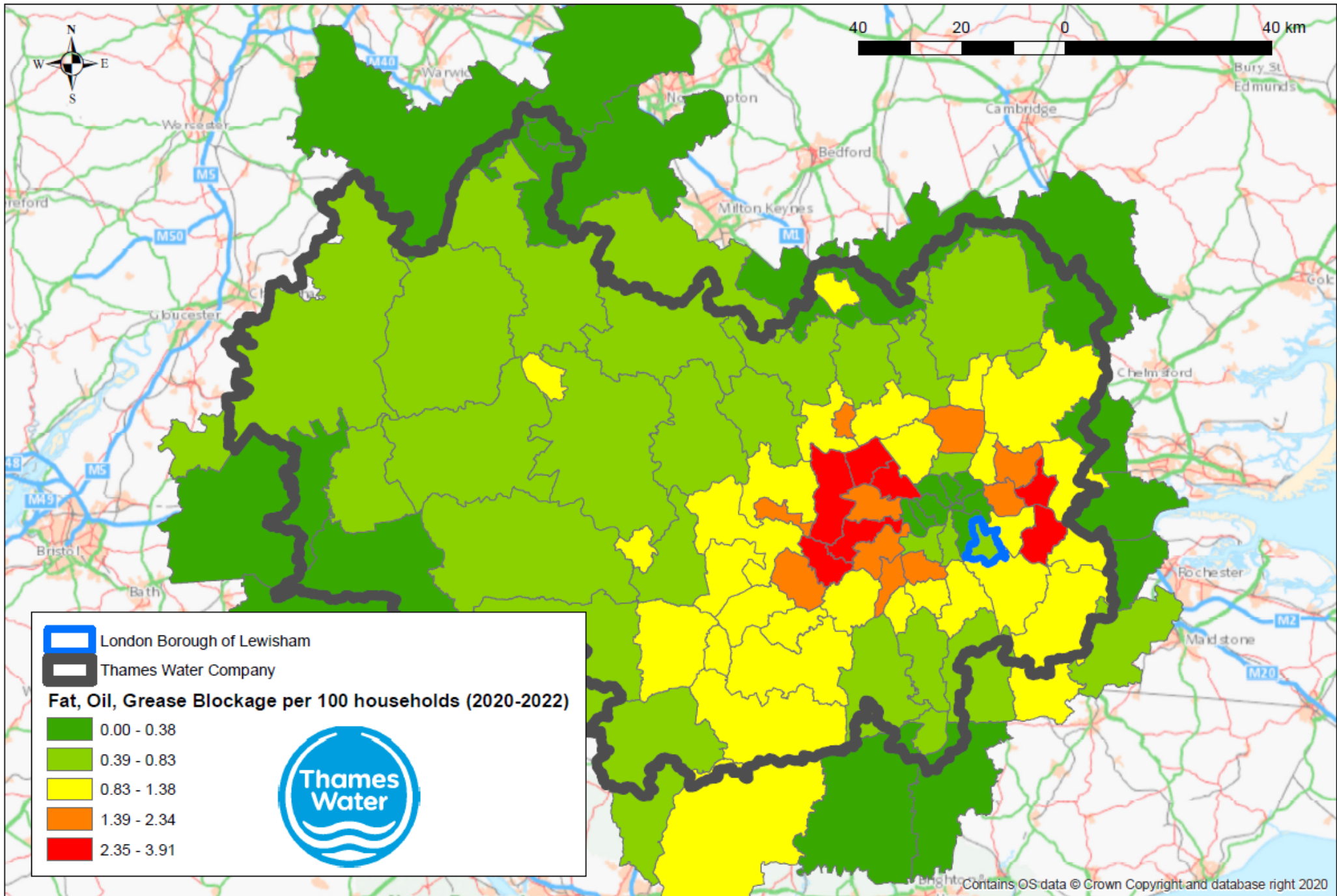
Three phases of work based on a combined strategy by TW, GLA, EA, OFWAT & DEFRA in the early 00's



- Sewage Works Upgrades – £700m (Phase 1)
- Lee Tunnel – £600m (Phase 2)
- Thames Tideway Tunnel – £4.2b (Phase 3)

Working together





1	Local Authority	Household (HH) count	FAT/ GREASE	PAPER/ RAG	FAT/GREASE per 100 HH	PAPER/RAG per 100 HH
2	Hounslow London Boro	106779	4177	4381	3.9	4.1
3	Ealing London Boro	142124	3331	2283	2.3	1.6
4	Brent London Boro	126563	3229	2680	2.6	2.1
5	Hillingdon London Boro	118064	3206	3175	2.7	2.7
6	Bexley London Boro	99143	2716	4357	2.7	4.4
7	Harrow London Boro	94731	2713	2618	2.9	2.8
8	Redbridge London Boro	106981	2318	3774	2.2	3.5
9	Newham London Boro	122942	2280	3346	1.9	2.7
10	Enfield London Boro	129006	2256	4896	1.7	3.8
11	Barking and Dagenham London Boro	77544	2061	4020	2.7	5.2
12	Merton London Boro	85662	1806	1810	2.1	2.1
13	Richmond upon Thames London Boro	85939	1806	2314	2.1	2.7
14	Croydon London Boro	162597	1744	3162	1.1	1.9
15	Barnet London Boro	156406	1365	2529	0.9	1.6
16	Greenwich London Boro	123058	1274	1360	1.0	1.1
17	Bromley London Boro	141779	1263	2924	0.9	2.1
18	Spelthorne District (B)	43352	1223	1910	2.8	4.4
19	Kingston upon Thames London Boro	72355	1214	1894	1.7	2.6
20	Havering London Boro	108469	1125	5111	1.0	4.7
21	Waltham Forest London Boro	108309	1114	2960	1.0	2.7
22	Sutton London Boro	84999	1074	1820	1.3	2.1
23	Lewisham London Boro	140464	1057	1316	0.8	0.9
24	Lambeth London Boro	149593	872	1062	0.6	0.7



Thank you