Crafting new ideas into service deliverables on the network - a pipeline of innovation.

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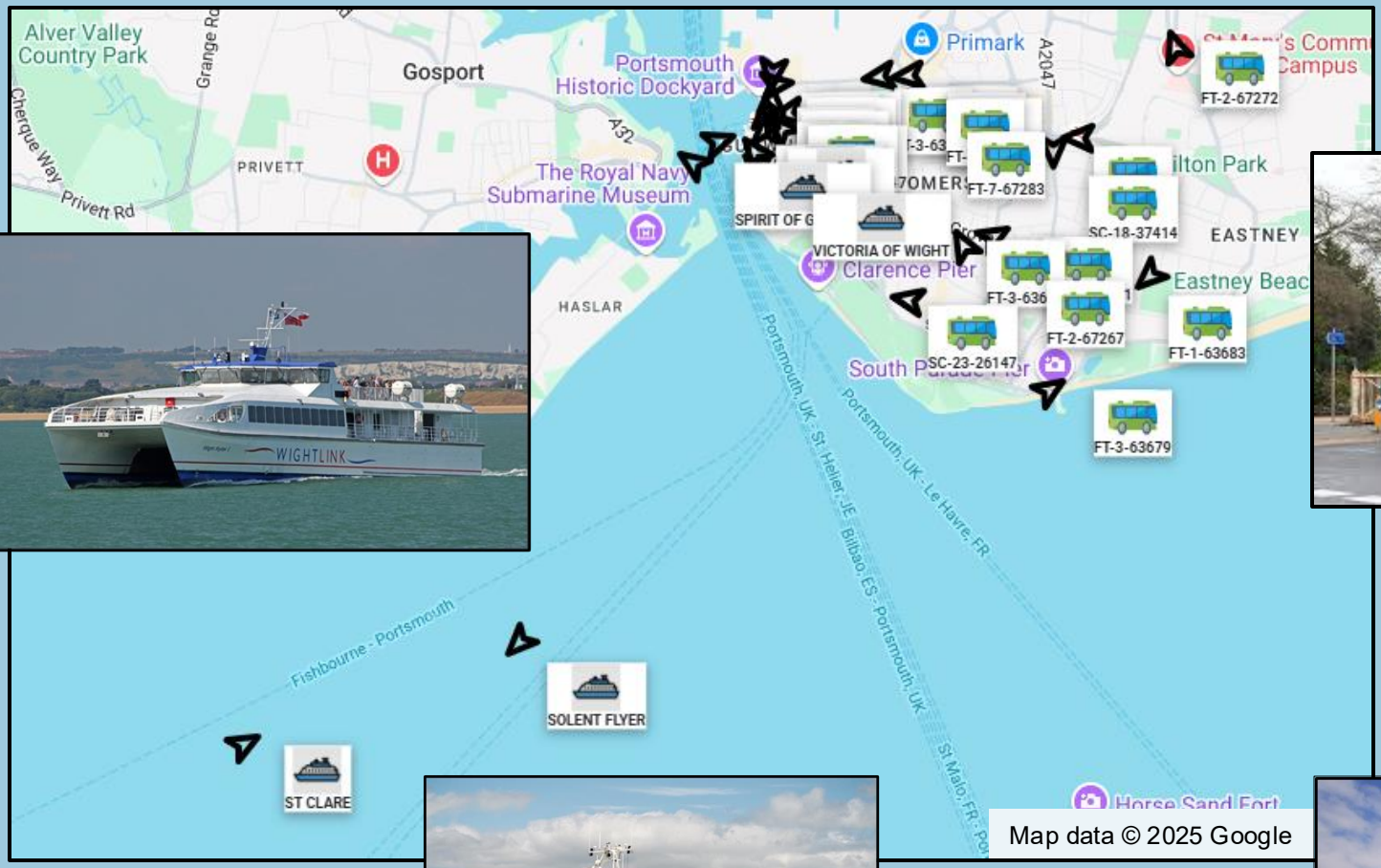
Our innovation journey has continued - we've been busy!

"Network Management Duty" is at the heart of what we do:

Traffic Management Act 2004

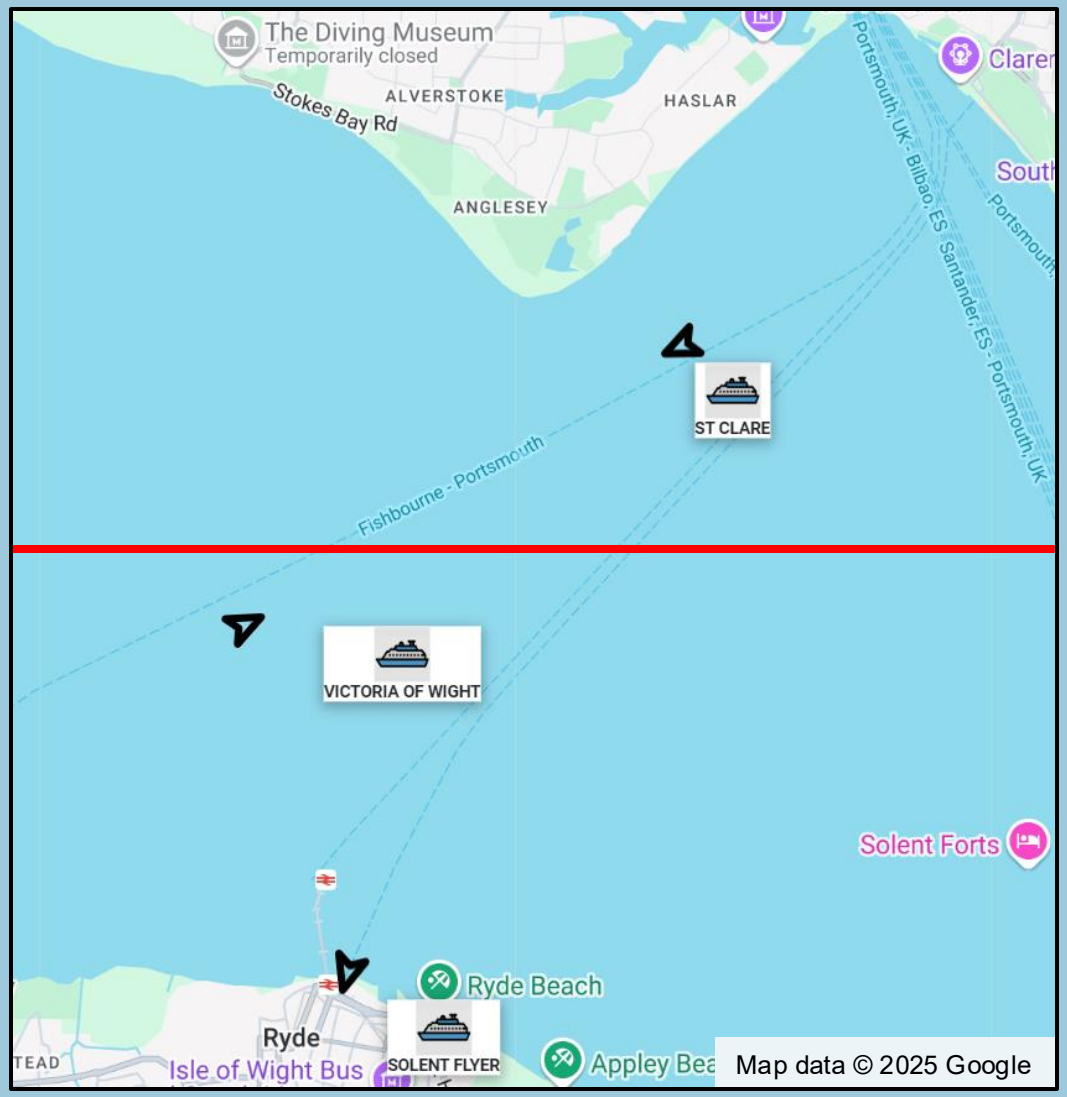
- "*…the authority must identify things (including future occurrences) which are causing, or which have the potential to cause, road congestion or other disruption to the movement of traffic on their road network*"

Digital model of public transport:



Ferry crossing logic:

Solent Crossing Trigger Line



Portsmouth - Fishbourne

Monday	Tuesday - Thursday	Friday	Saturday	Sunday
03:00 *	03:00 *	03:00 *	03:00	03:00
05:00 *	05:00 *	05:00 *	05:00	05:00
06:00	06:00	06:00	06:00	--
06:40	06:40	06:40	--	--
07:20	07:20	07:20	07:20	07:20
08:00	08:00	08:00	08:00	08:00
08:40	08:40	08:40	08:40	--
09:20	09:20	09:20	09:20	09:20
10:00	10:00	10:00	10:00	10:00
10:40	10:40 bc	10:40	10:40	--
11:20	11:20	11:20	11:20	11:20
12:00	12:00	12:00	12:00	12:00

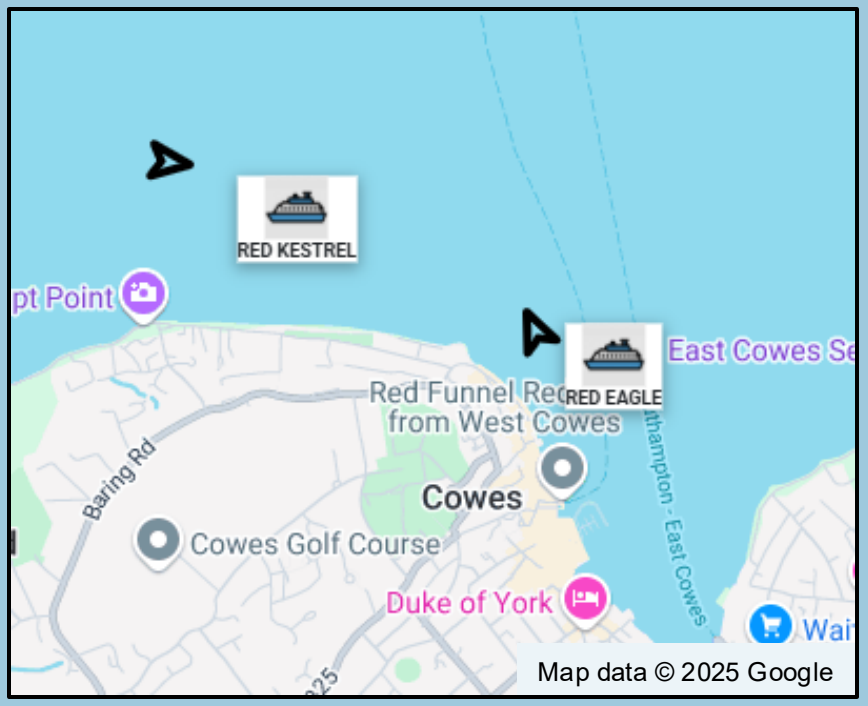
RYDE, ISLE OF WIGHT > SOUTHSEA,

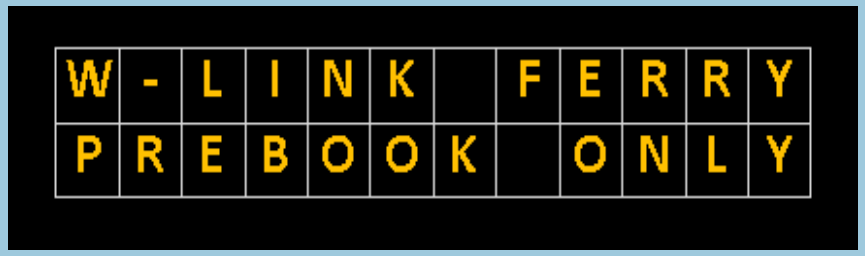
RYDE		DEP	06.15	06.45	07.15	07.45	0
SOUTHSEA		ARR	06.25	06.55	07.25	07.55	0

Southampton to IOW Ferry disruption:

Passengers try to divert onto Portsmouth route.

Use of M275 VMS to warn of need to pre-book.





Bus tracking:

Use of Bus Open Data Service (BODS).

Known fleet, known routes, on scheduled services.

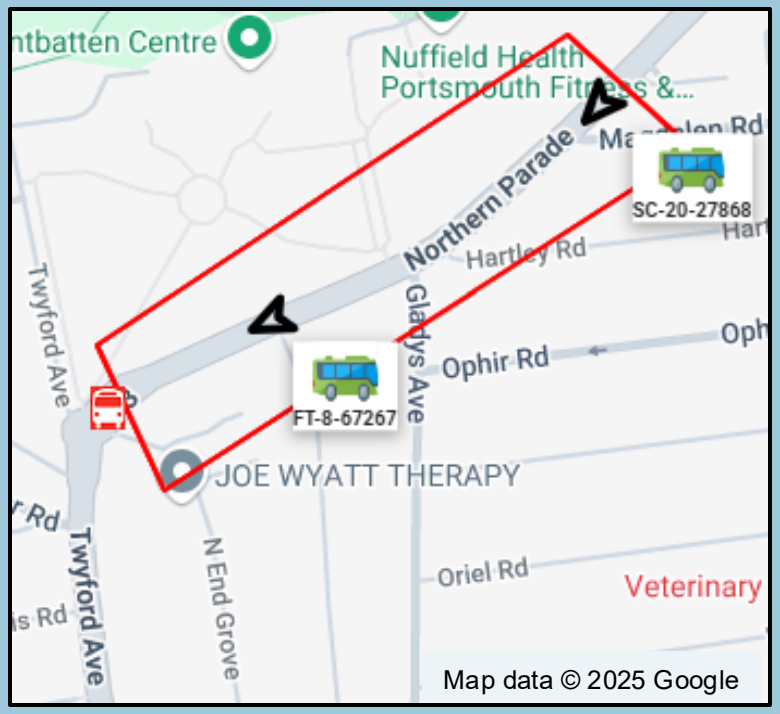
“Pinch-point” monitoring and alerting.

Bus stop announcements:

Issue with poor visibility of approaching buses.

Defined trigger polygon in advance of stop.

Command to play correct message sent via MQTT to hardware at bus stop.



Digital model of traffic lights:

Real-time data from controller of signal phase states (both traffic & pedestrian), on-crossing detectors, bus priority requests and published faults.

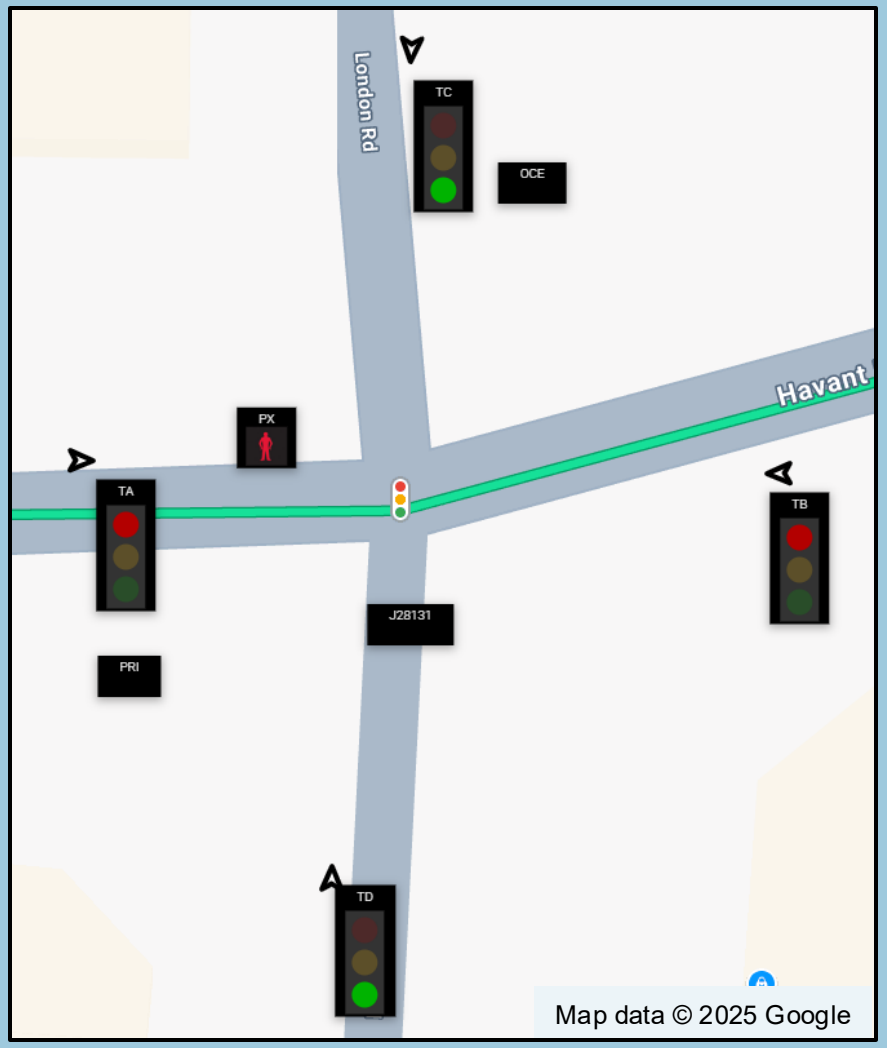
Captured from controller I/O board via IOT device and transmitted to cloud broker via MQTT.

Sub-second latency achieved via MQTT over both 4G and Mesh WiFi to fixed-line internet connections.

Being rolled out to all Green Light Fund junctions.

Pilot sites:


B2154
TAB
PC
OC1
St George's Rd


London Rd
TC
OCE
Havant
PX
TA
TB
J28131
PRI
TD
Map data © 2025 Google

Use of traffic light data:

Alerting of signal faults, “stuck” lights, reduced pedestrian demands (broken buttons), constant pedestrian demands (stuck buttons).

On-crossing detectors provide a rich source of data:

- traffic flow sensor (queuing / none).
- red light violations.
- unused pedestrian demands.
- traffic held at red signal.

Traffic light data report examples (1):

Red light violations at a pedestrian crossing

Site: P24264 On-crossing detection: OC1 Report Date: 03/05/2025

Detect at 08:29:40.9	Duration 1.0 Secs	Time from Red 8.6 Secs
Detect at 09:44:43.2	Duration 1.8 Secs	Time from Red 9.6 Secs
Detect at 10:17:48.9	Duration 1.0 Secs	Time from Red 10.4 Secs
Detect at 10:20:28.2	Duration 1.0 Secs	Time from Red 5.6 Secs
Detect at 10:37:44.1	Duration 1.0 Secs	Time from Red 16.4 Secs
Detect at 11:28:52.9	Duration 1.0 Secs	Time from Red 10.6 Secs
Detect at 11:41:05.3	Duration 1.0 Secs	Time from Red 6.2 Secs
Detect at 12:47:21.3	Duration 0.9 Secs	Time from Red 1.1 Secs
Detect at 15:53:31.5	Duration 1.4 Secs	Time from Red 9.5 Secs
Detect at 15:54:04.7	Duration 1.1 Secs	Time from Red 1.2 Secs
Detect at 16:09:05.3	Duration 1.0 Secs	Time from Red 1.6 Secs
Detect at 16:31:54.3	Duration 1.3 Secs	Time from Red 12.7 Secs
Detect at 16:39:39.0	Duration 1.5 Secs	Time from Red 0.3 Secs
Detect at 20:01:35.1	Duration 1.4 Secs	Time from Red 16.6 Secs
Detect at 22:58:37.1	Duration 1.0 Secs	Time from Red 10.8 Secs

Number of detections = 15

Traffic light data report examples (2):

Pedestrian demands made at a crossing

Site: P24264 Report Date: 03/05/2025

00 to 01 Crossing Demands = 1	12 to 13 Crossing Demands = 20
01 to 02 Crossing Demands = 0	13 to 14 Crossing Demands = 21
02 to 03 Crossing Demands = 0	14 to 15 Crossing Demands = 24
03 to 04 Crossing Demands = 0	15 to 16 Crossing Demands = 35
04 to 05 Crossing Demands = 0	16 to 17 Crossing Demands = 20
05 to 06 Crossing Demands = 0	17 to 18 Crossing Demands = 24
06 to 07 Crossing Demands = 1	18 to 19 Crossing Demands = 13
07 to 08 Crossing Demands = 1	19 to 20 Crossing Demands = 15
08 to 09 Crossing Demands = 9	20 to 21 Crossing Demands = 22
09 to 10 Crossing Demands = 14	21 to 22 Crossing Demands = 4
10 to 11 Crossing Demands = 15	22 to 23 Crossing Demands = 8
11 to 12 Crossing Demands = 23	23 to 24 Crossing Demands =1

Number of detections = 271
Total red time to traffic = 4026 Seconds (4.7% of total time)

Our approach:

Analyse a real-world problem or “need”.

Identify appropriate data sources.

Understand normal vs abnormal.

Define logic and rules – at the edge vs in the cloud.

Design outputs – alerting, reporting, commanding.

Seek associated opportunities – maximise benefits.

Connect things up – use APIs to exchange data and commands.

Proof-of-concept ► Pilot ► Productionise

Final thoughts:

Collaborative working between PCC and our suppliers, particularly George Brown at KL Systems.

Need for agility, creative thinking and problem-solving skills.

Incremental and flexible use of funds, ongoing effort vs a single defined project.

The more things we do, the more things we think of and then are keen to have a go at solving.

If we all did something and shared our learning, it would enable us collectively to do so much more.