

Bus Data

Tim Rivett



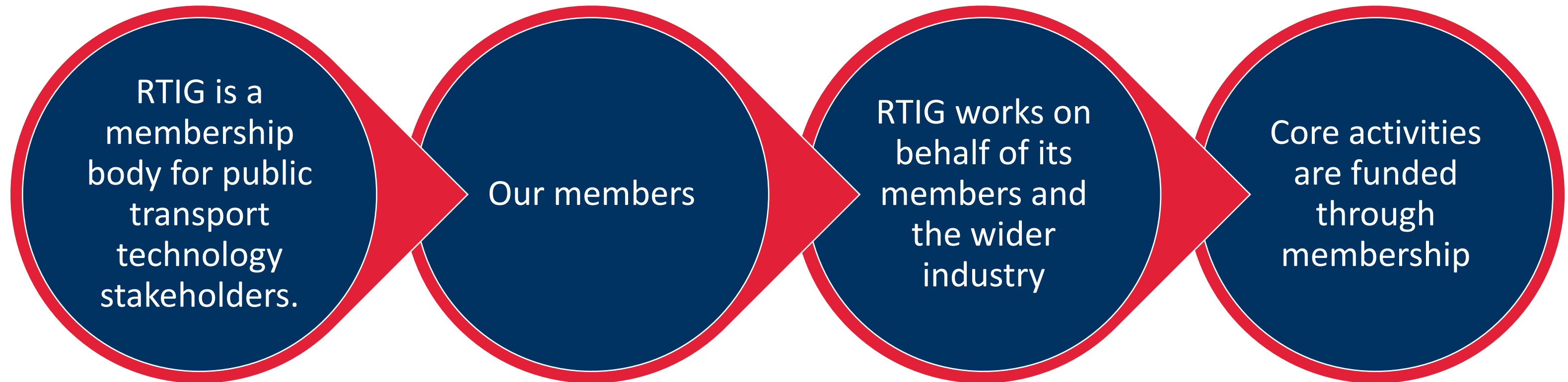
Bus Centre
Of Excellence



Department
for Transport



improving public transport
through technology



- local authorities,
- bus operators,
- system suppliers,
- Consultants.



improving public transport
through technology

Extensive technical library

- Continuously evolving
- 60+ Documents

Development of standards

- UK
- European
- Cooperation
 - VDV
 - CEN
 - ITS (UK)

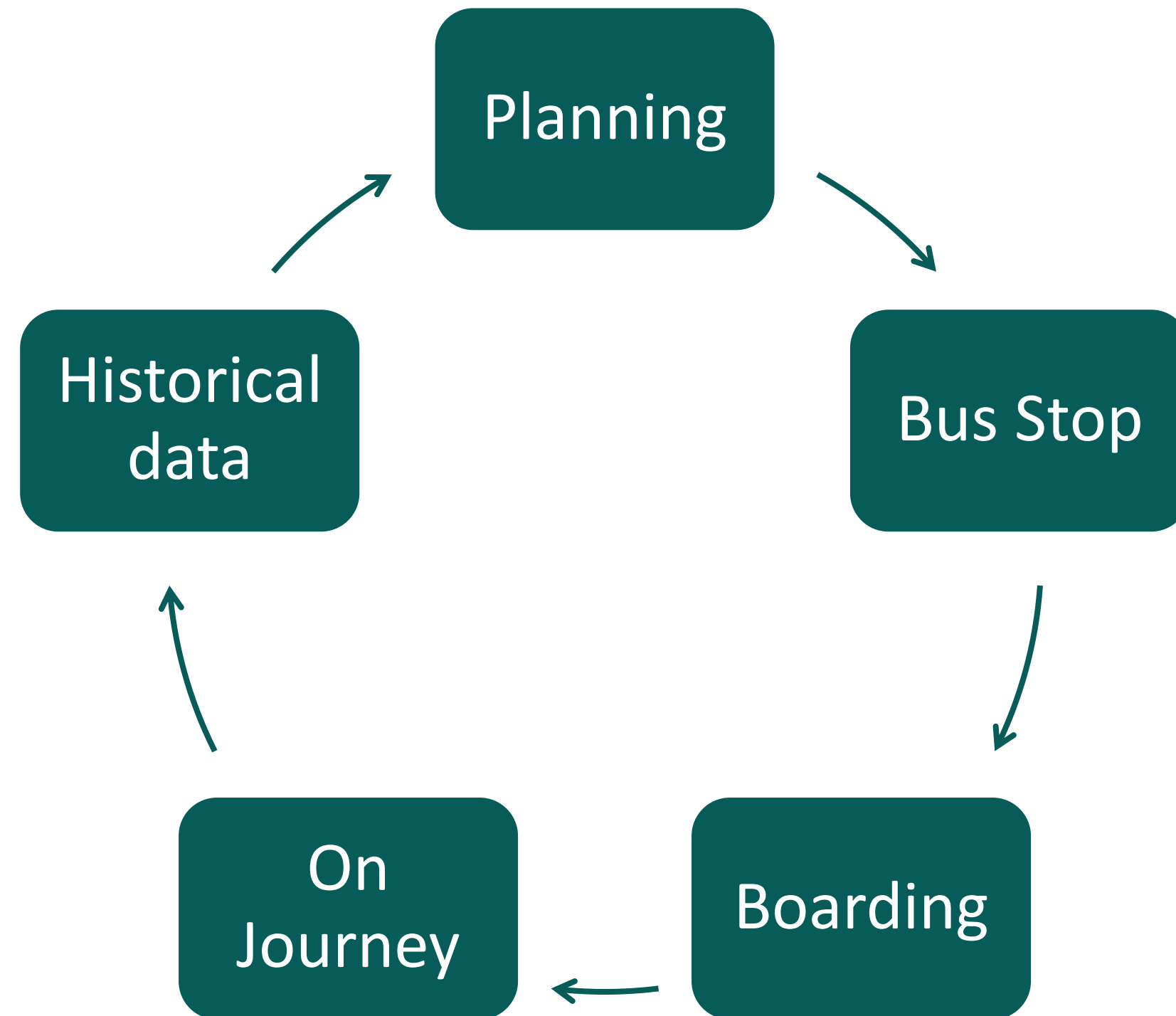
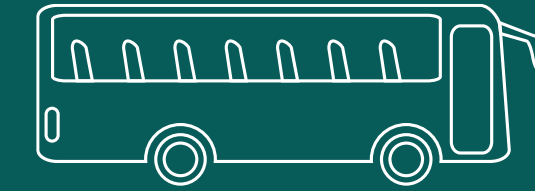
Practical guidelines

- How to
- Technical guidance
- Best practice
- Case studies

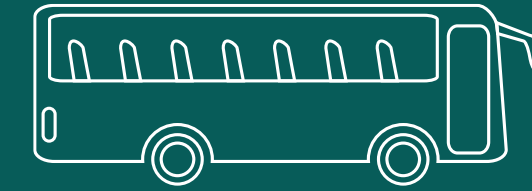
Education

- Sharing experience
- Day workshops
- Lunchtime Webinars
- Working groups

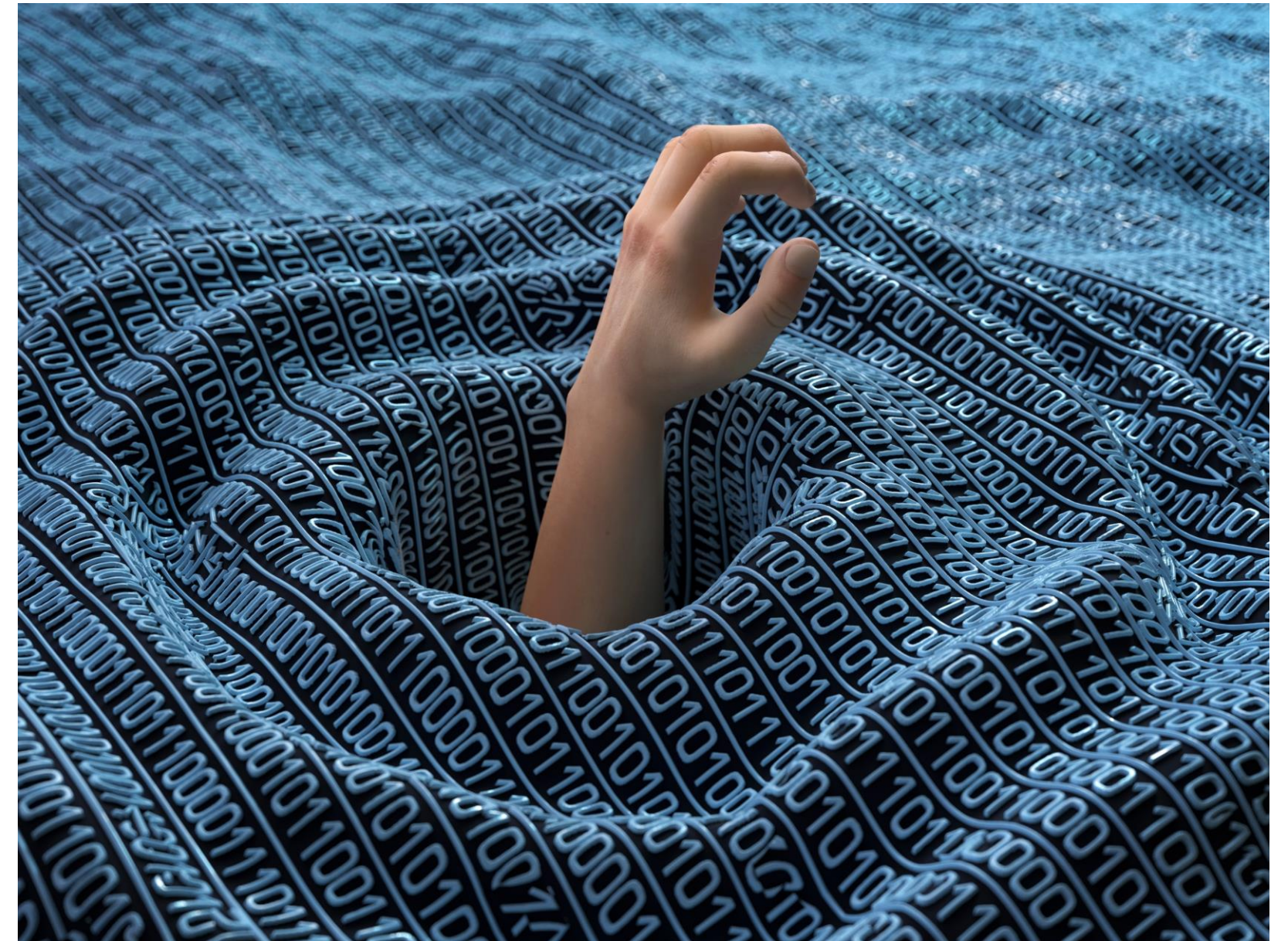
A Journey in Data



Volume (UK)

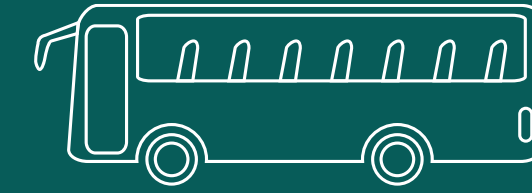


- Passenger journeys on bus
 - 3.7 billion
- Bus service miles
 - 1 billion
 - (15 mph with 20 second location update)
 - 12 billion location records
- Telematics data
 - speed, idling time, harsh acceleration or braking, fuel consumption, vehicle faults, and more
 - (say 10 data points once per 10 seconds)
 - 240 billion records



Planning

Planning a Journey



Best 29 min 1 hr 21... 4 hr 35 1 hr 16 —

Home (S36 8WH)

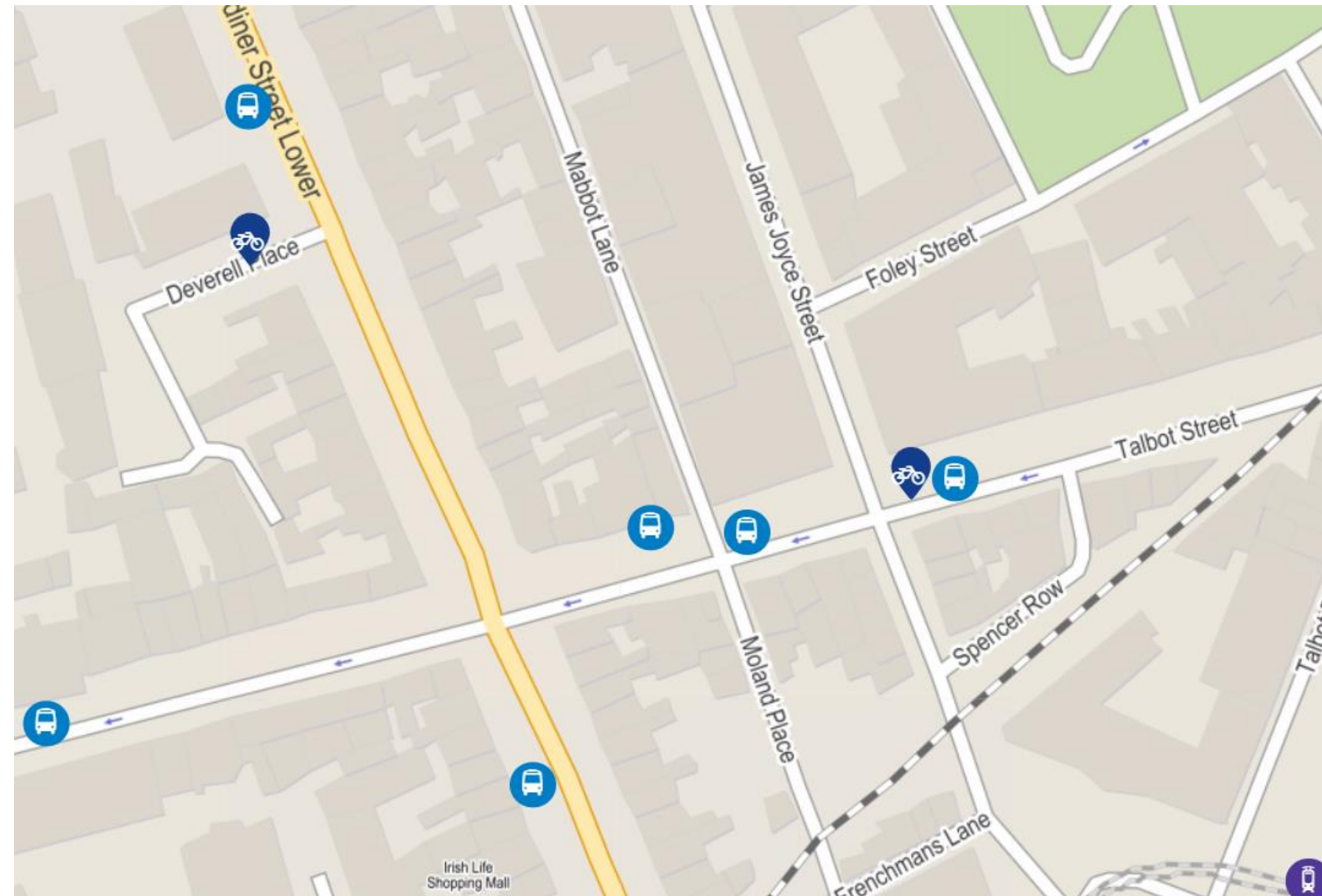
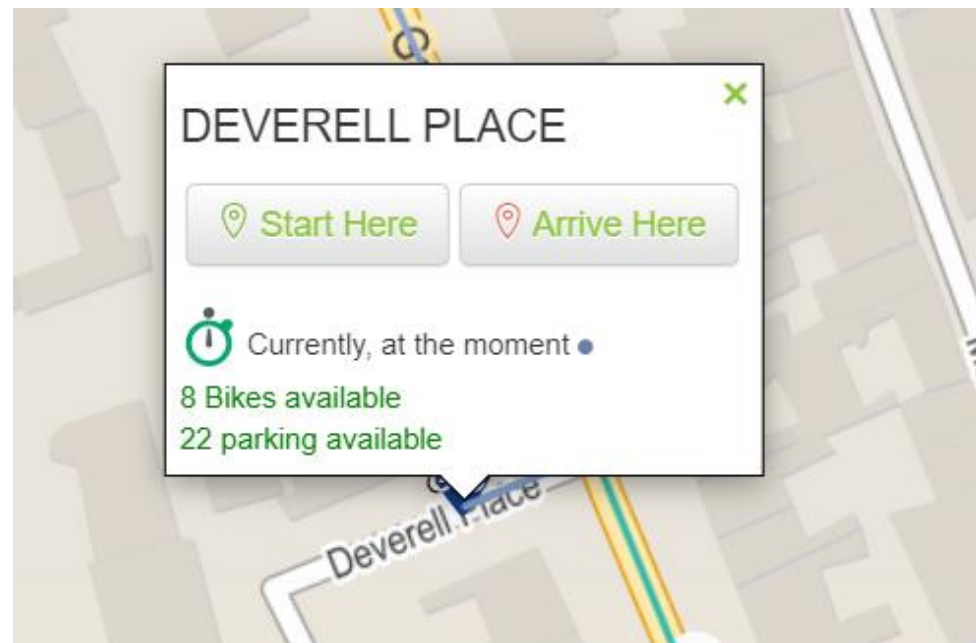
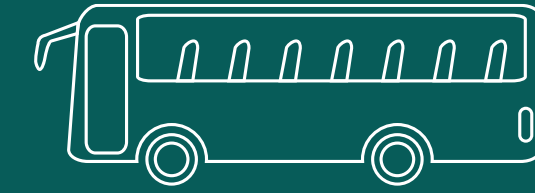
Sheffield Railway Station, Sheaf St, Sheffi

Leave now Options

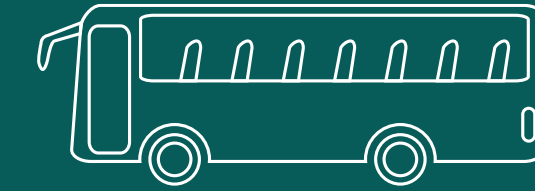
Send directions to your phone Copy link

5:14 PM - 6:35 PM	1 hr 21 min
Walking > Bus 29 > Walking > Northern	
5:22 PM from Sheffield Road/Roughbircworth Lane	
13 min every 60 min	
Details	
5:25 PM - 7:05 PM	1 hr 40 min
Walking > Bus 24a > Northern	
6:18 PM - 7:30 PM	1 hr 12 min
Walking > Bus 21a > Northern	
6:22 PM - 7:30 PM	1 hr 8 min
Walking > Bus 24a / 29 > Walking > Northern	
6:17 AM (Monday) - 7:30 AM	1 hr 13 min
Walking > Bus 21 > Northern	

Planning a Multimodal Journey



Planning a Multimodal Journey



11:31 - 11:50 (duration 19 m) (duration 19 m)
 > > **Red Line** > >

11:14 - 11:22 (duration 8 m) (duration 8 m)
 >

Later Last
 Individual transport

(duration 31 m) (duration 31 m)
 >

11:14 - 11:23 (duration 9 m) (duration 9 m)
 >

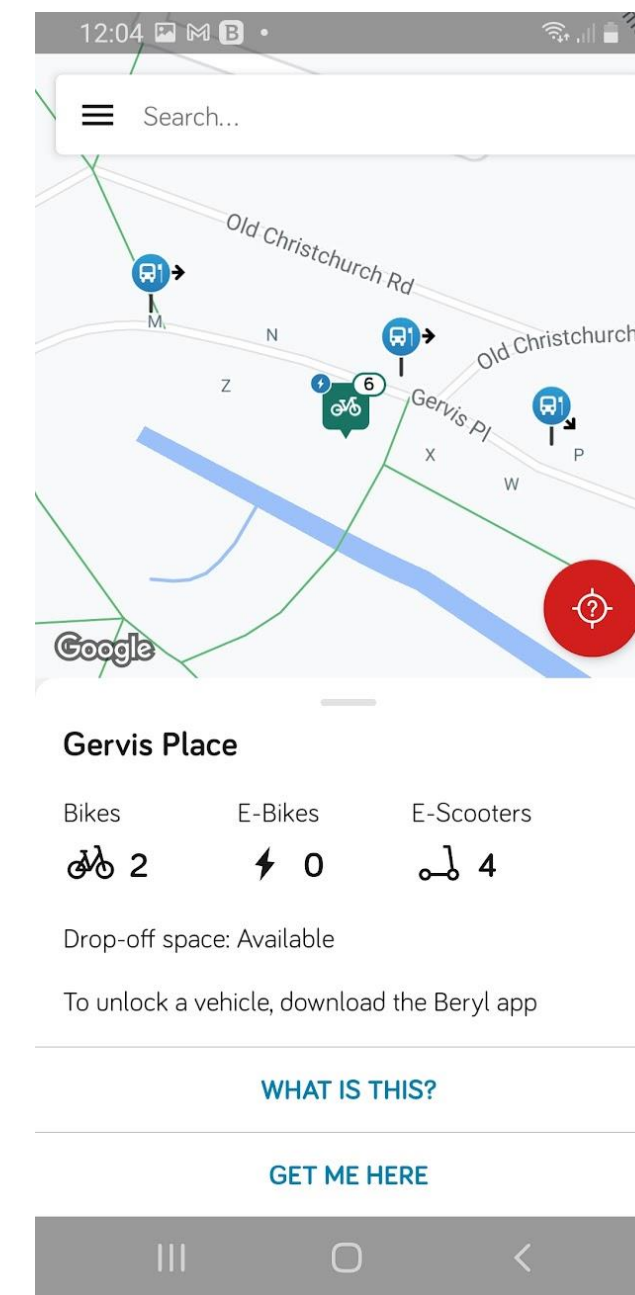
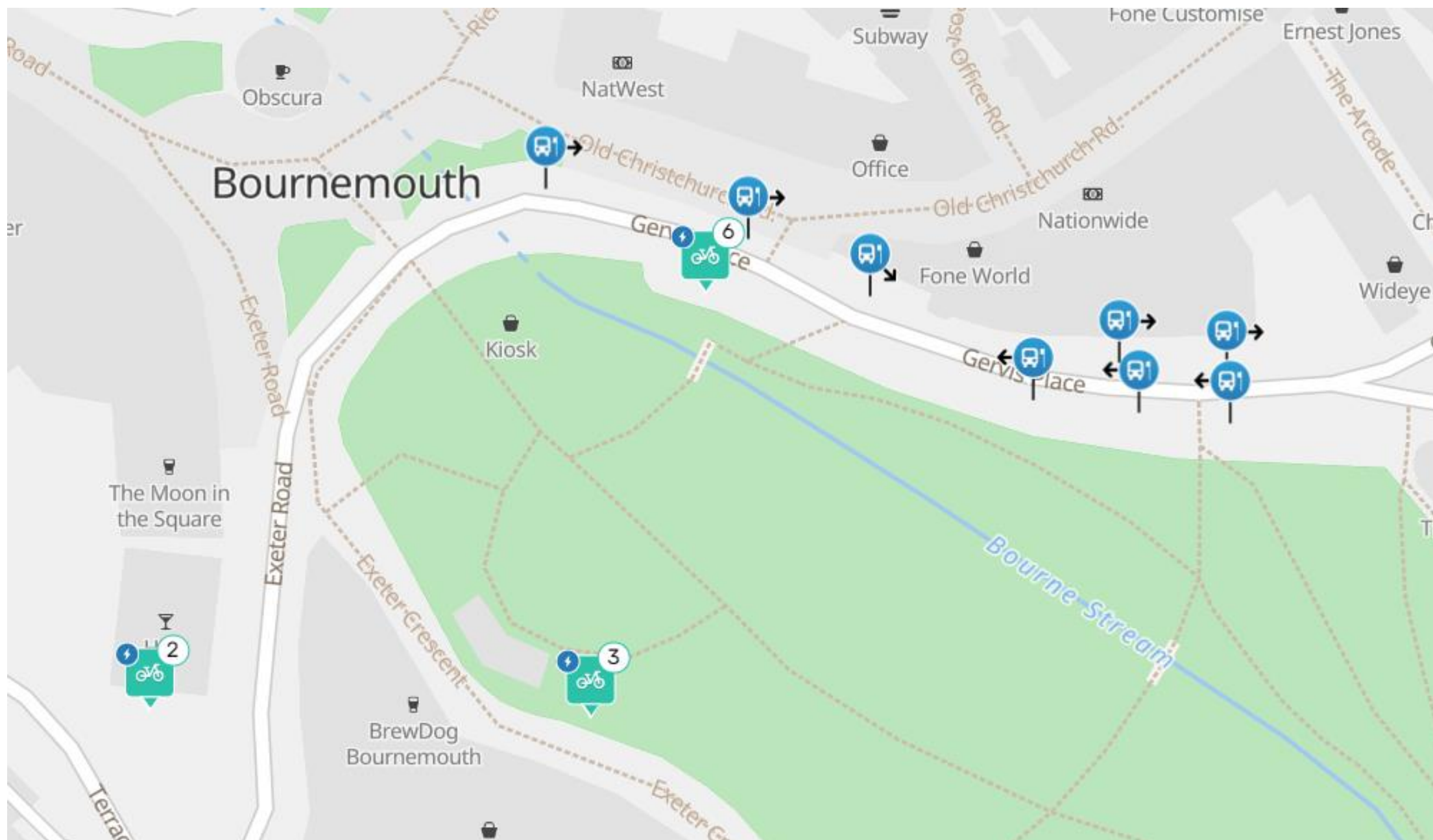
Bike Hire

11:14 - 11:29 (duration 15 m) (duration 15 m)
 > > **Bike hire** > >

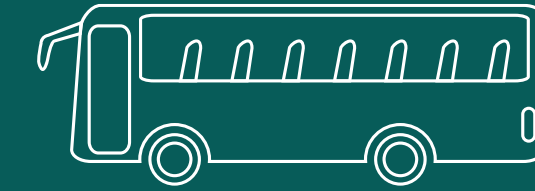
^ Cycling (est. 00h:13m)

Deverell Place	1 m	
Deverell Place	↑ 20 m	
Gardiner Street Lower	↖ 180 m	
Sean Macdermott Street	↖ 350 m	
Upper/Cathal Brugha Street		
Cathal Brugha Street	↑ 10 m	
Unknown Street	↖ 10 m	
Unknown Street	↖ 10 m	
O'Connell Street Upper	↖ 10 m	
O'Connell Street Upper	↑ 60 m	
Parnell Street	↖ 110 m	
Parnell Street	↑ 160 m	
Dominick Street Lower	↖ 190 m	

Planning a Multimodal Journey



Promoting Public Transport



Employee journey planning guide

Choosing sustainable travel options for the commute can help you save money, support you to reduce carbon emissions for a greener and cleaner Greater Manchester, and also have positive impacts on your health and wellbeing.

Planning your journey to and from work

This guide sets out information to help you plan your commute by public transport, on bike or by foot.

To talk to someone about your journey, our contact centre is on hand to take your call on **0161 244 1000**. They are available between 7am and 8pm on weekdays and from 8am to 7pm at weekends.

How you commute

Our journey planner – tfgm.com/plan-a-journey – allows you to explore the different options available to you for your commute. It includes public transport times and active travel options, and allows you to filter results based on your priorities, such as carbon emissions, cost, exercise and time taken.

When you commute

If you can, try travelling outside the busiest times of the day, when services are likely to be quieter and there's more space available. For commuting by tram, go to tfgm.com/public-transport/tram/quietest-times-to-travel-on-metrolink to help you plan your journey.

Discover the Bee Network – walking and cycling

The **Bee Network** is GM's vision for an integrated London-style transport system which will join together buses, trams and rail as well as walking and cycling through the UK's largest cycling and walking network. You can plan your commute around the active travel options in your area here: beeactive.tfgm.com/schemes-near-me

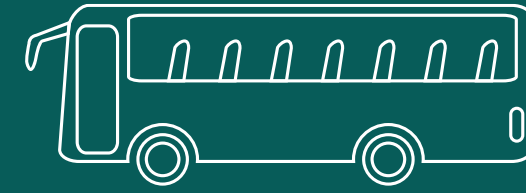
If you're new to commuting by bike, there is lots of information and support available:

- Head to tfgm.com/cycling-advice to navigate a route and help find safe cycle parking options if it isn't available at your workplace.
- Free cycle training sessions are available at beeactive.tfgm.com/cycling/cycling-for-beginners-start-riding/ for different levels, including one-to-one coaching for building more confidence riding alongside traffic.
- Go to gov.uk/government/news/cycle-to-work-scheme to find out more about how you could save money on bikes through the UK cycle to work scheme.
- Greater Manchester's first publicly operated, self-service, 24/7 cycle hire scheme are available from multiple stations across Oxford Road, the University of Salford and at MediaCity – making cycling a real option for commuting and cross city travellers. The scheme, which will roll out in stages, will see 1,500 bikes – including e-bikes, available to the public in 2022. Simply download the Beryl app at beryl.app/download to unlock a bike. You can find out more about cycle hire at beeactive.tfgm.com/cycle-hire

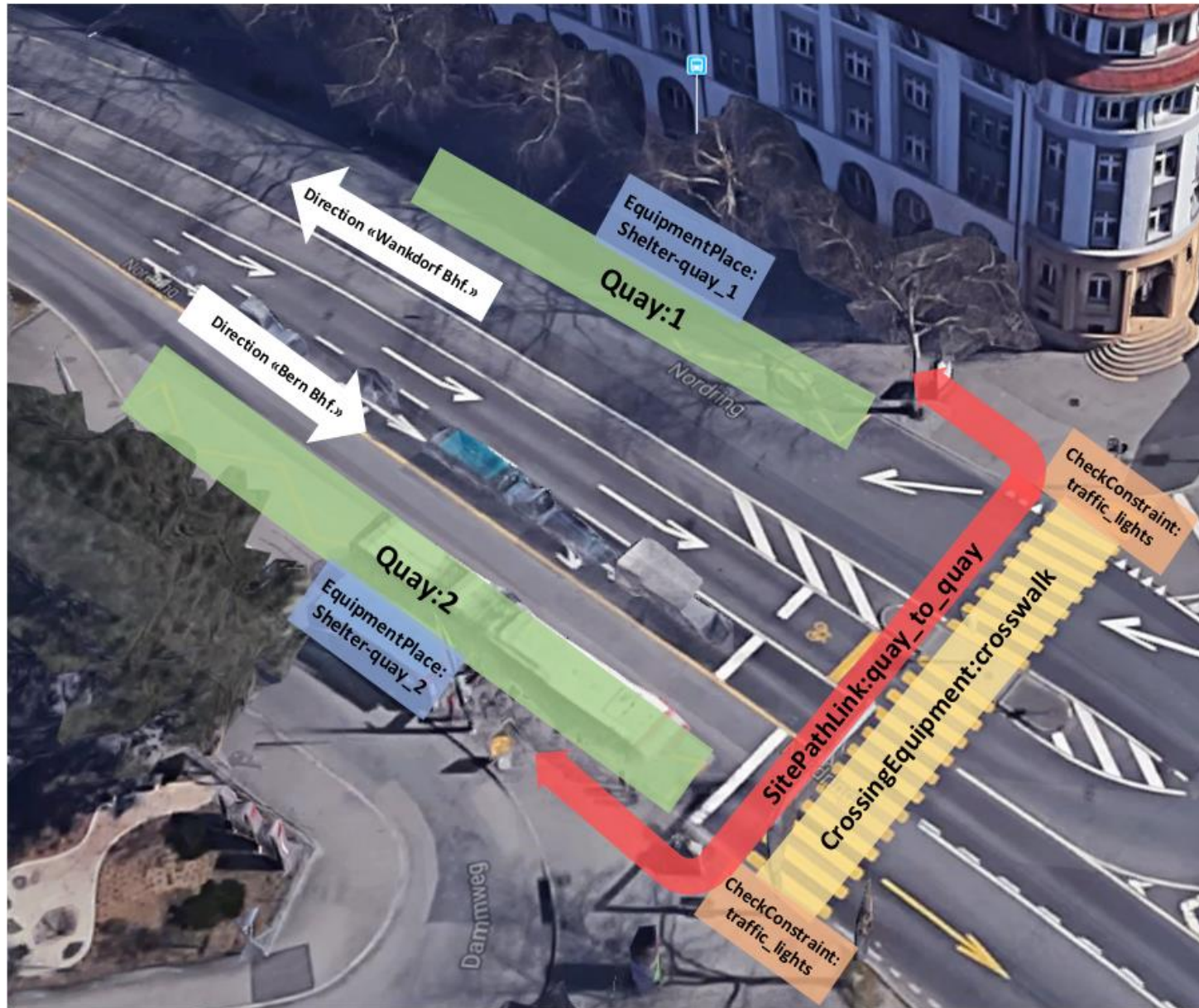
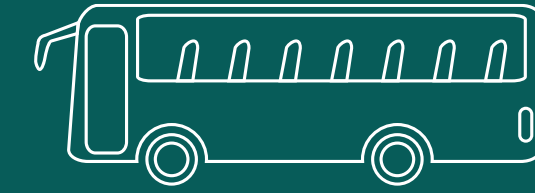


Bus Stop

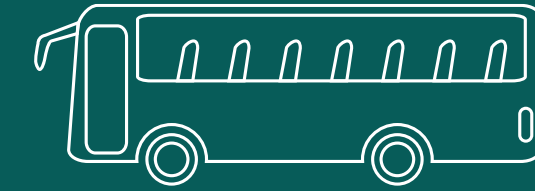
Bus Stop



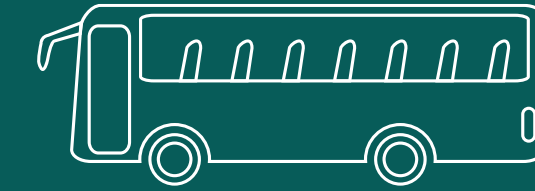
Not just the Stop



Where should a stop be?



Can I get on a bus?



Know how full your bus is before it arrives

Route	Destination	Time	Space available
1 X6	Leeds Bus Station	Due	Space available
2 X6	Leeds Bus Station	10m	Space limited
3 X6	Leeds Bus Station	20m	Full capacity

M METRO Stay apart. Stay safe. Save lives.

M METRO **Brighouse** **08:00**

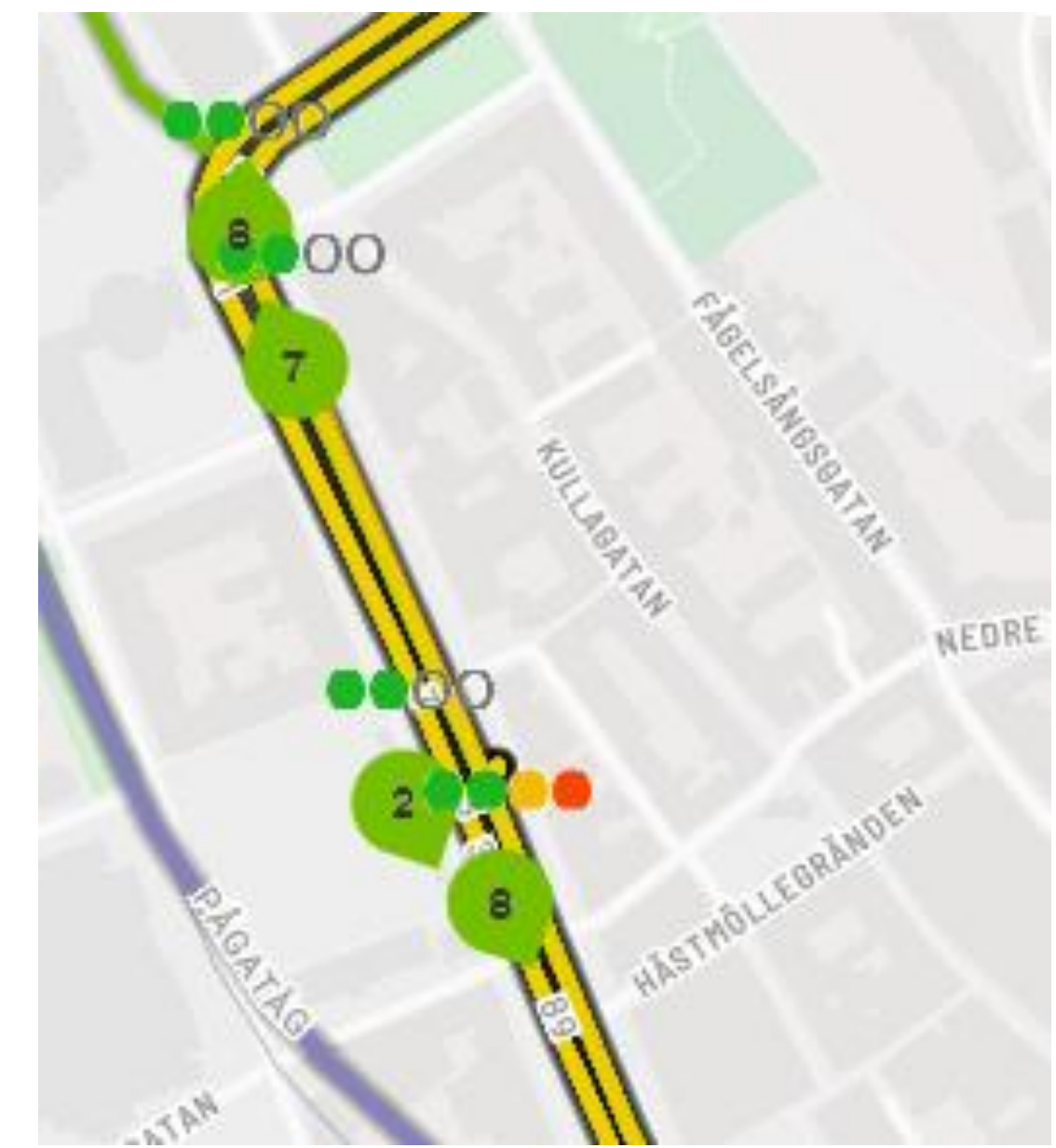
service destination	occ	stand	departs	service destination	occ	stand	departs
686 Bradford Intc via Odsal	🚌	A	3 min	571 Halifax Bus Station via Southowram	🚌	C	45 min
548 Rastrick Nunnery Ln	🚌	E	5 min	563 Halifax via Rastrick, Elland & West Vale	🚌	C	50 min
548 Halifax Bus Station via Hipperholme		B	08:05	571 Bradford Intc via Hipperholme	🚌	D	53 min
549 Halifax Bus Station via Hipperholme	🚌	B	22 min	549 Huddersfield BusStn via Rastrick & Cowcliffe	🚌	E	55 min
549 Rastrick Nunnery Ln	🚌	E	23 min	549 Halifax Bus Station via Hipperholme	🚌	B	55 min
686 Bradford Intc via Odsal	🚌	A	23 min	262 Huddersfield via Mirfield & Kirkheaton		D	08:57
C48 Brighouse High Sch		D	08:28	686 Bradford Intc via Odsal	🚌	A	63 min
349 Halifax Bus Stn via Southowram		C	08:37	548 Rastrick Nunnery Ln		E	09:10
548 Halifax Bus Station via Hipperholme	🚌	B	40 min	548 Halifax Bus Station via Hipperholme		B	09:21
686 Bradford Intc via Odsal		A	08:43	686 Bradford Intc via Odsal		A	09:23

everyone over 11 must wear a face covering on the bus unless exempt.

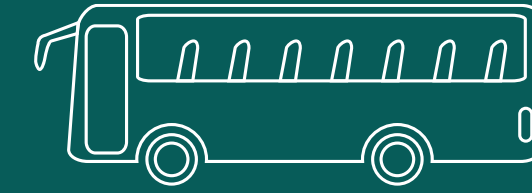
← Wynyard Stati... Bus stop

Filter by service name, number or stop

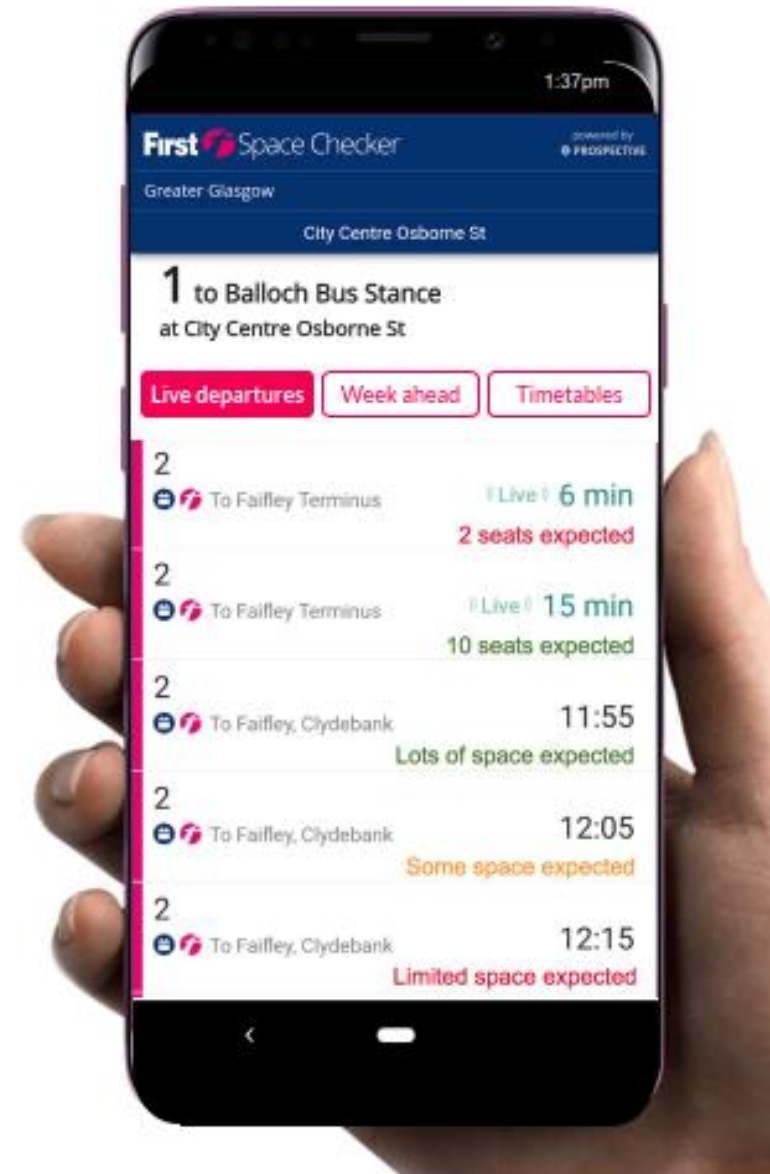
- MANY SEATS AVAILABLE
- Wheelchair accessible
- 325 at 6:51
Watsons Bay
On time
MANY SEATS AVAILABLE
10 min
Wheelchair accessible
- 614X: 6:51 - 6:51
QVB York St
3 mins early (6:55 service)
STANDING ROOM ONLY
10 min
Wheelchair accessible
- 610X: 6:51 - 6:51
QVB York St
7 mins early (6:59 service)
MANY SEATS AVAILABLE
10 min
Not wheelchair accessible
- 270: 6:51 - 6:52
City (Town Hall)
11 min



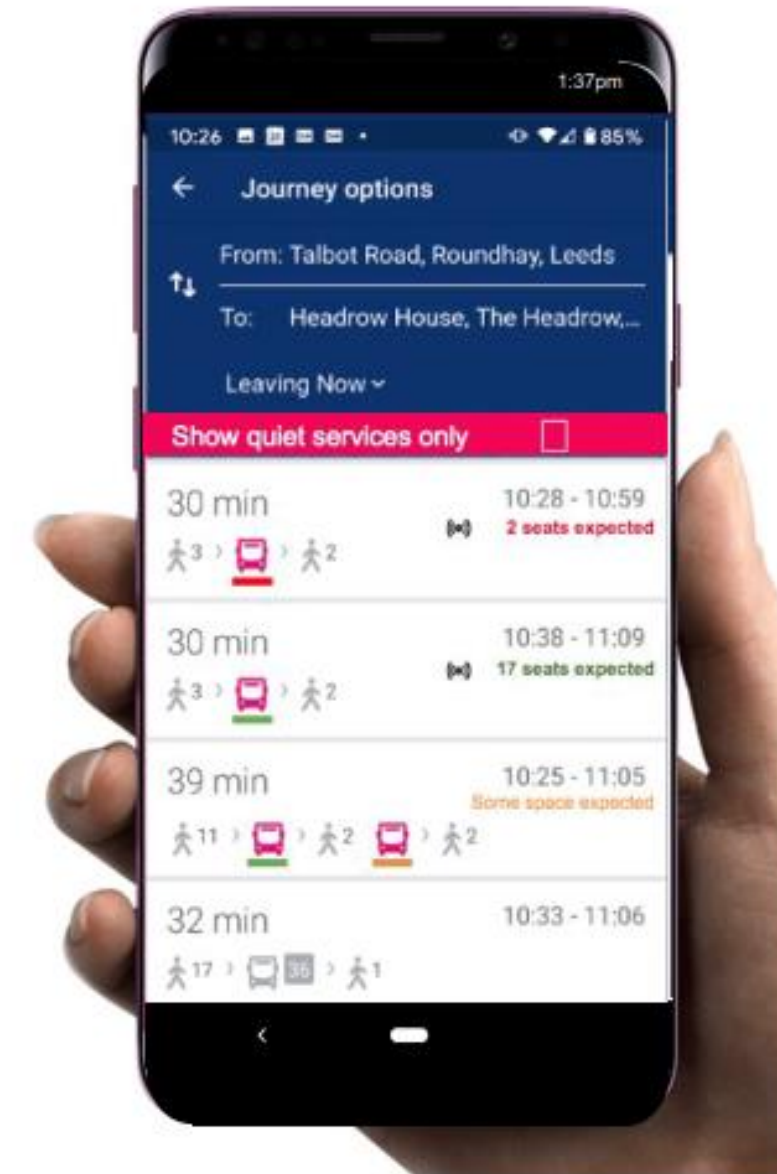
Can I get on a bus?



Trip level predictions

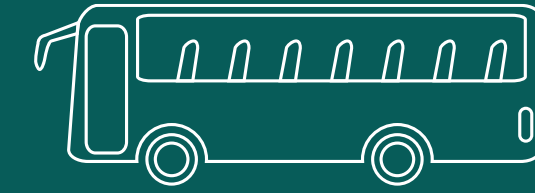


Real time prediction



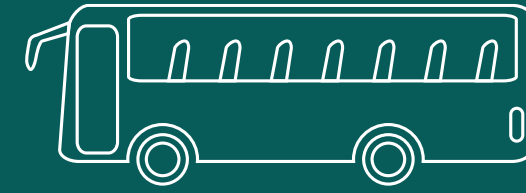
Journey planning

Can I get on a bus?



A screenshot of the 'more' bus website. The top navigation bar is blue with the 'more' logo and links for 'Plan your journey', 'Fares & tickets', 'Customer support', 'Using the bus', 'About us', 'News', and 'Search'. Below the navigation bar, there's a search bar and a 'Back' button. The main content area is split into two columns. The left column shows details for a bus route: 'm1 to Castlepoint'. It features a bus icon with the name 'Richard Taylor' and the registration 'HG68 YJT'. Below this, there are sections for 'Capacity' (79 seats, Leather), 'Extra buggy/wheelchair space', 'Luggage rack', 'Bike bay', 'Connectivity' (Free wifi 500mb, USB charging), and a 'Give feedback on this bus' link. The right column shows a map of the Westbourne area with a blue route line. The map includes labels for roads like 'Wessex Way', 'Prince Of Wales Rd.', 'Milburn Road', 'A338', 'A10', 'A35', 'B3065', 'A04', 'Alum Chine Road', 'Grosvenor Road', and 'Westbourne Close'. Landmarks such as 'County Gates House', 'Coffee Saloon', 'Lollipops Play Cafe', 'Westbourne Bookshop', 'The Westbourne', 'Westbourne Library', 'aphrodite', and 'Westbourne academy' are also marked. A yellow bus icon with the number '50' is shown on the route line. At the bottom of the map, there are icons for a bus, a person with a wheelchair, and a gear.

Which Bus is Coming?



Rail departures 10:01

Time	Destination	Platform	Expected
10:05	Lowestoft	6B	On Time
10:30	London Liverpool	3	On Time
10:36	Great Yarmouth	4	On Time
10:40	Cambridge	1	On Time
10:45	Sheringham	4	On Time
10:57	Liverpool Lime St	3	On Time
10:58	Lowestoft	4	On Time
11:00	London Liverpool		On Time
11:30	London Liverpool		On Time
11:36	Great Yarmouth		On Time



Bus Departures 11:12

Service	Destination	Stand	Scheduled	Expected
14	Dussindale Park	Stop DD	11:08	On Time
26	Norwich Railway St.	Stop DD	11:14	On Time
26	N&N Hospital	Stop DF	11:15	
14	Norwich City Centre	Stop DE	11:17	
14A	Little Plumstead	Stop DD	11:23	
15A	Lingwood, Rail Stat	Stop DD	11:23	On Time

Public Transport

IF YOU CAN CATCH A COLD YOU CAN CATCH CORONAVIRUS

The viruses that cause colds and flu are spread in the same way as coronavirus. This means that the things that protect us from one virus can protect us from other viruses too.



Are you doing everything that you can to protect yourself and others?

- Wash your hands regularly
- Wear a face covering in enclosed spaces
- Keep your distance

PROTECT OURSELVES. PROTECT OTHERS. PROTECT NORFOLK.

Rail Departures 11:12

Time	Destination	Platform	Expected
11:56	Liverpool Lime Street		On Time
12:00	London Liverpool Street		On Time
12:00	London Liverpool Street		On Time
12:33	Stanstead Airport		On Time
12:36	Great Yarmouth via Acle		On Time



Bus departures 10:01

Service	Destination	Stand	Scheduled	Expected
502	Ride	F	10:03	
501	Ride	G	10:05	
X1	Great Yarmouth	D	10:05	
8	Norwich, Riverside	J	10:10	
7	Great Yarmouth	E	10:10	
501	Airport Park and Ride	J	10:10	
502	Harford Park and Ride	H	10:10	
85	Surlingham	K	10:10	
503	County Hall	L	10:10	
503		M	10:12	
87	Poringland	K	10:15	
501	Thickthorn Park and Ride	G	10:15	



Which Bus is Coming?

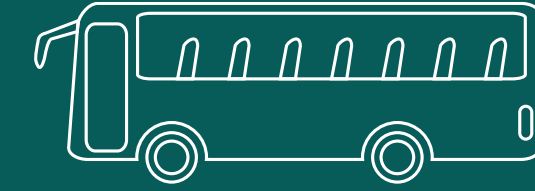


Boarding

Boarding Times

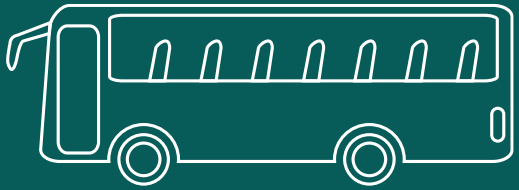


Boarding Times

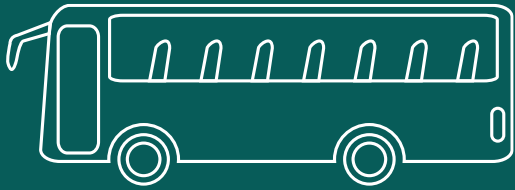


Vehicle Type and Door Configuration	Average Dwell Time in Seconds
Standard double deck bus with single door only, used on route X26	40.2
Standard double deck bus with two doors	12.1
Single deck bus with two doors and front door only boarding	10.5
Single deck bus with single door	10.2

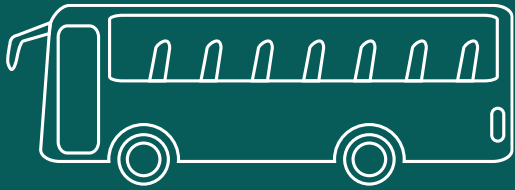
Accessibility of a Stop



Where can I sit?

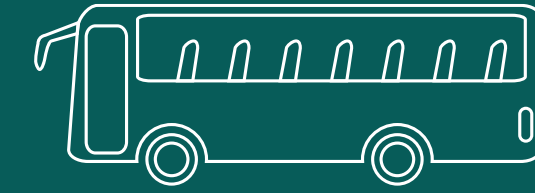


Can I get on?

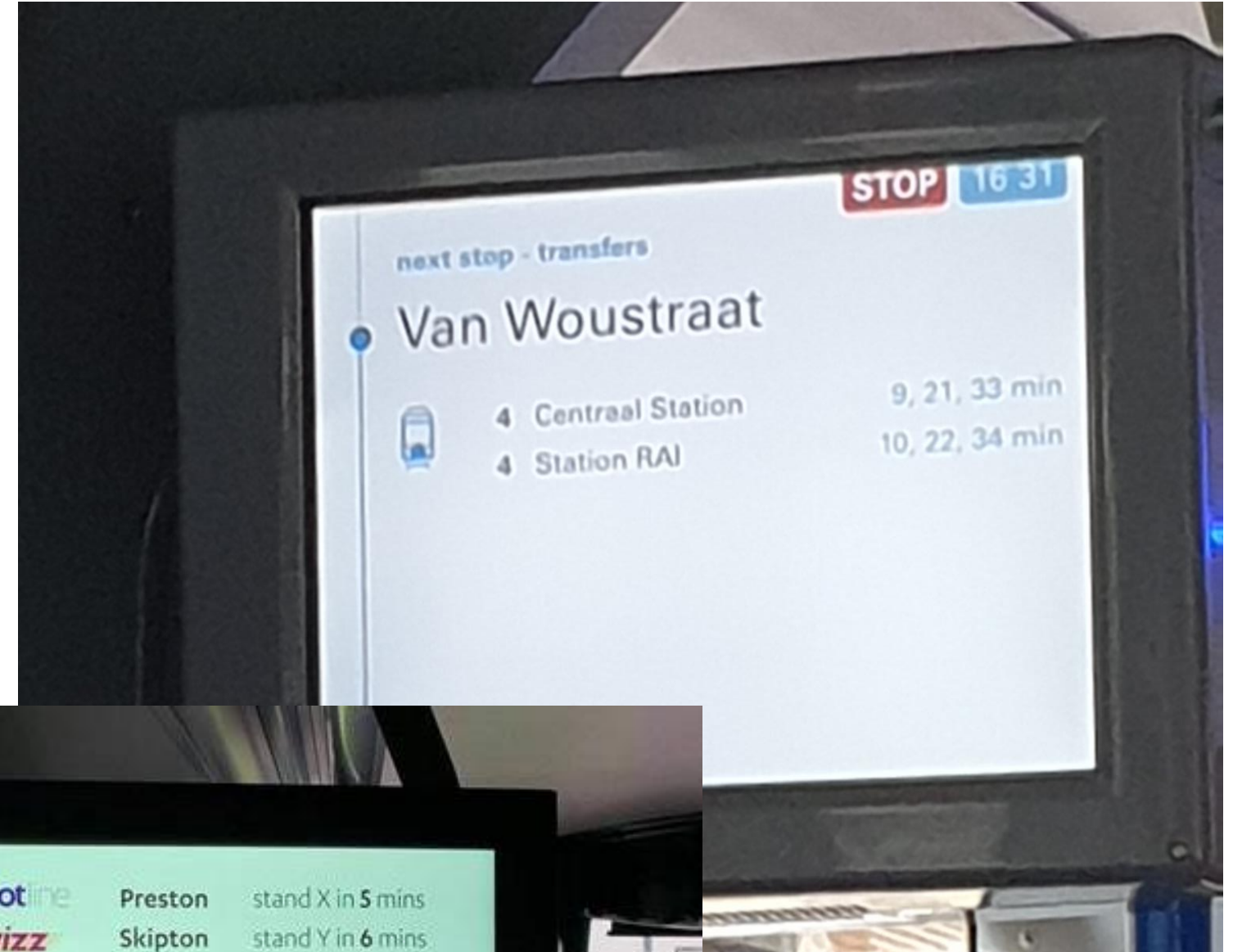
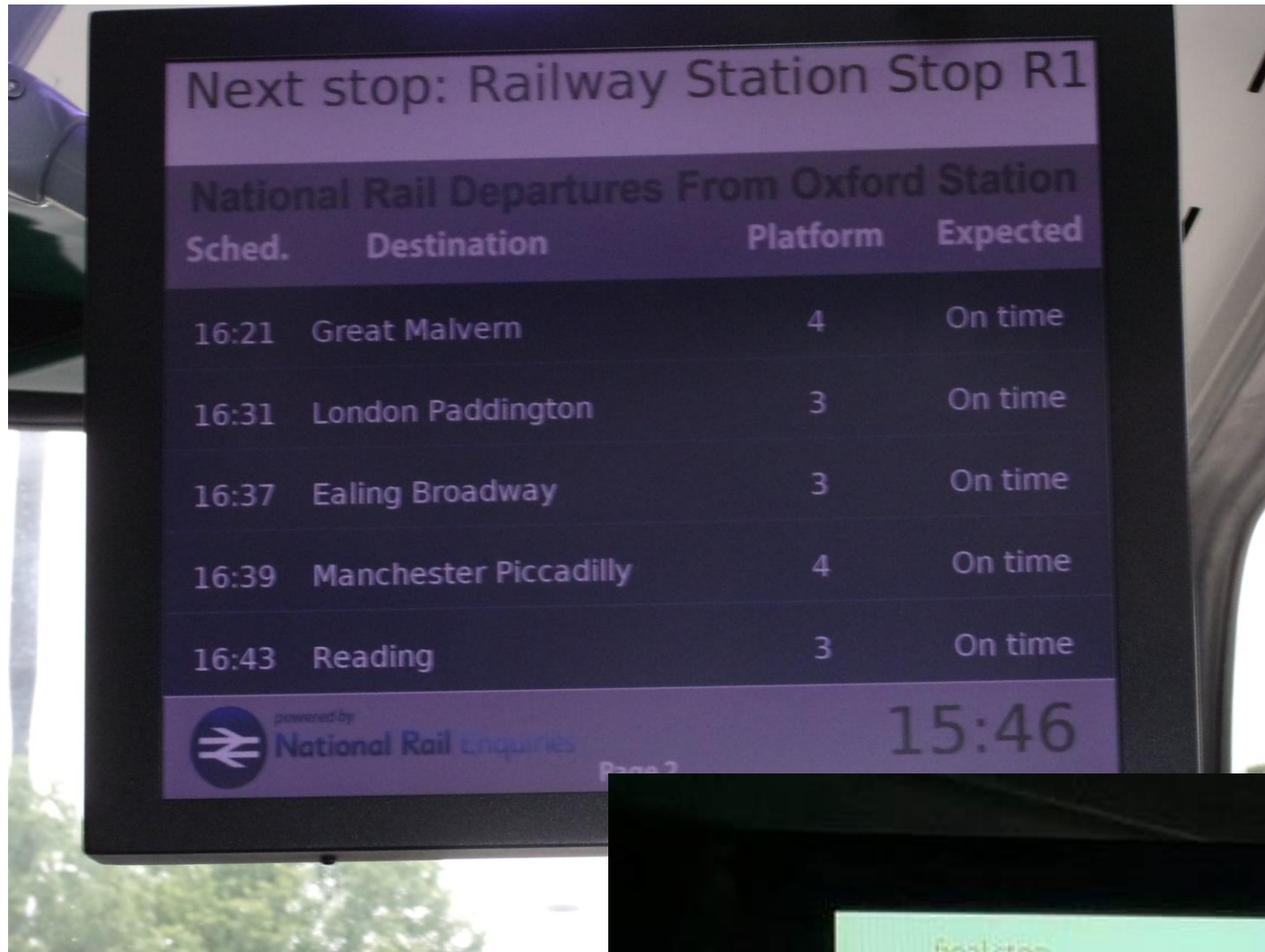
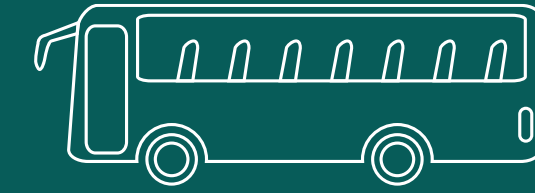


On Journey

Interchange



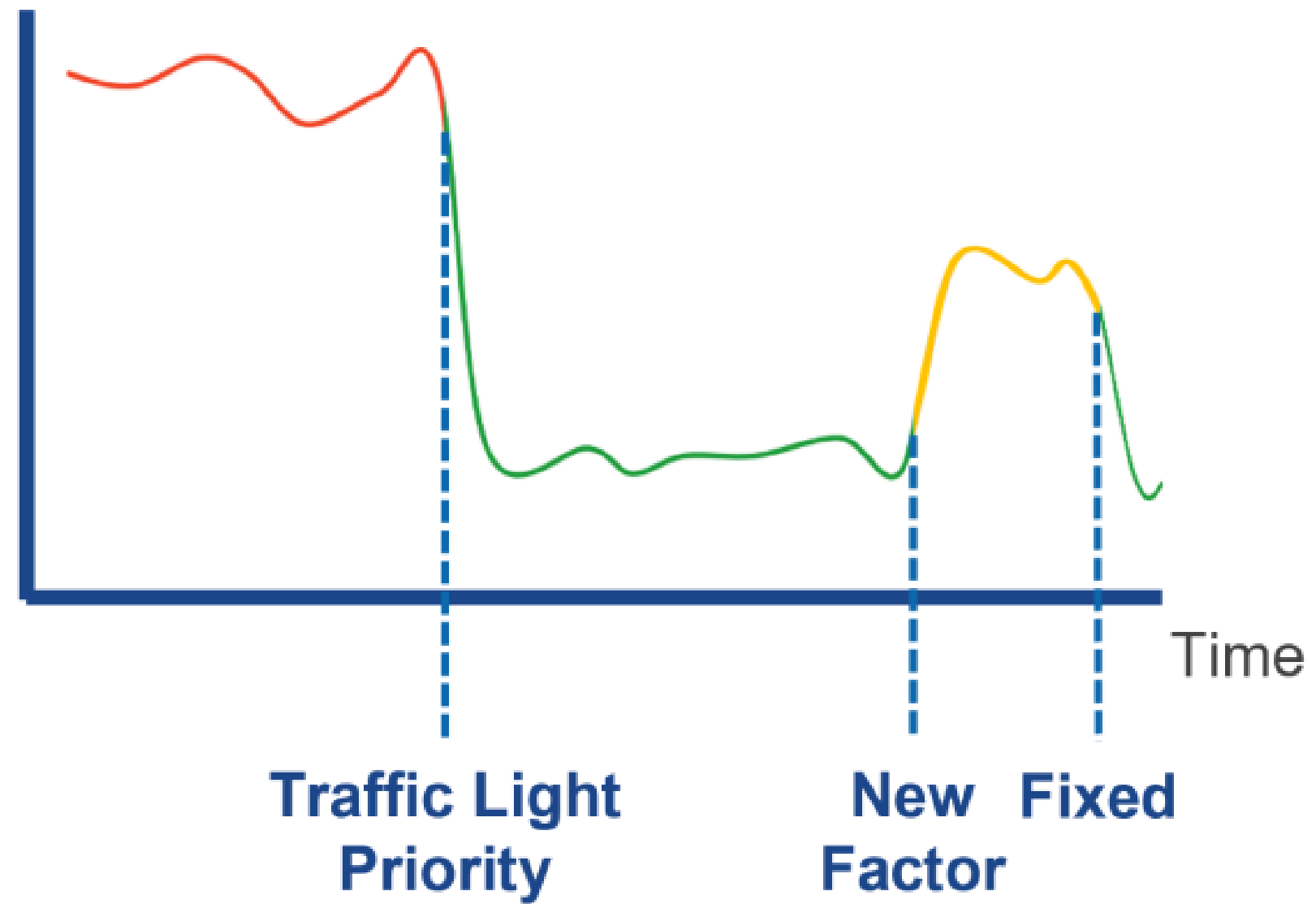
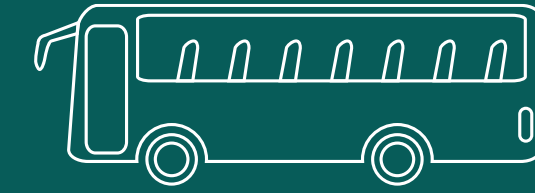
Interchange



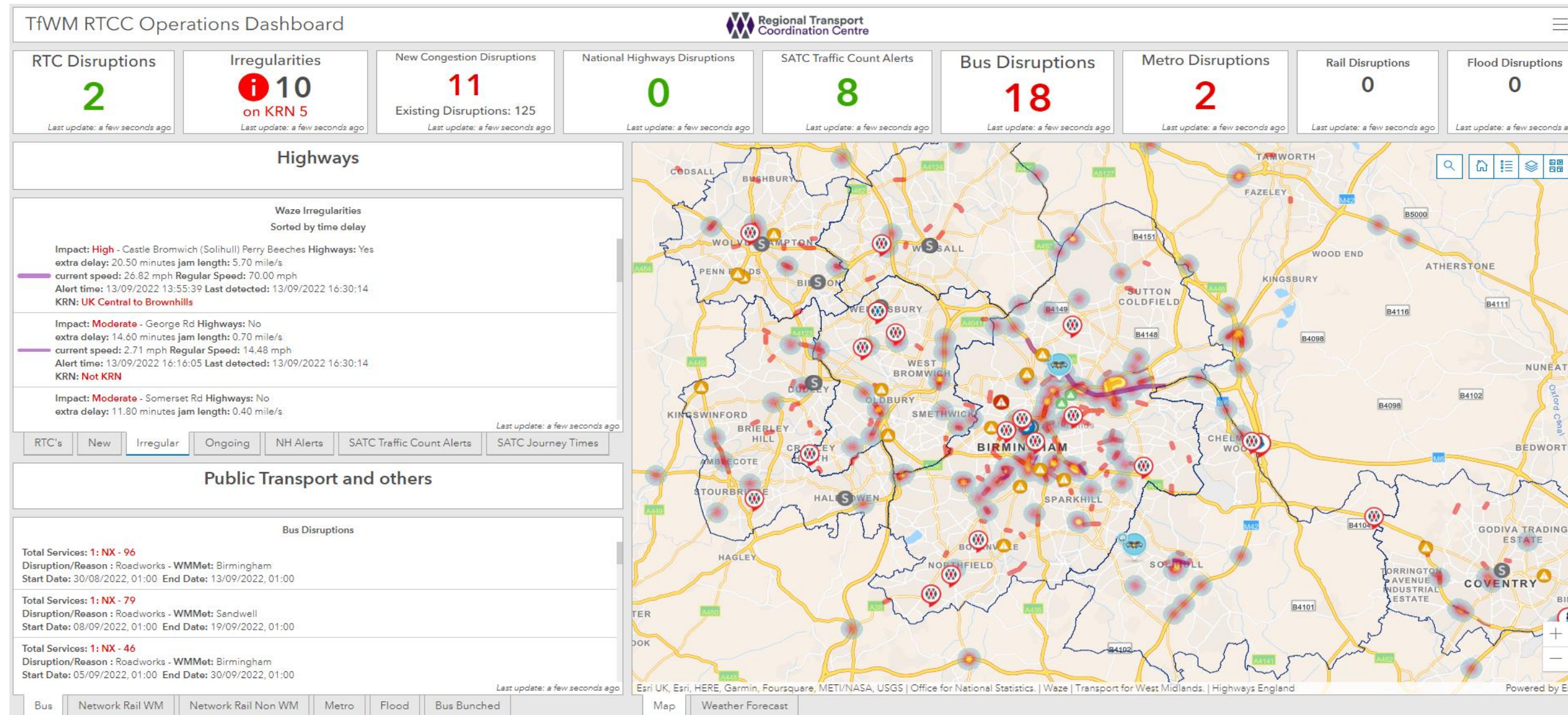
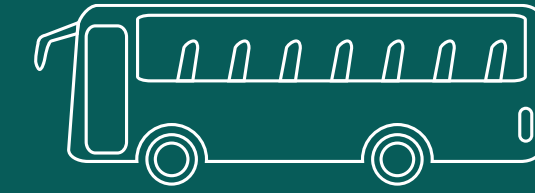
Operational Management



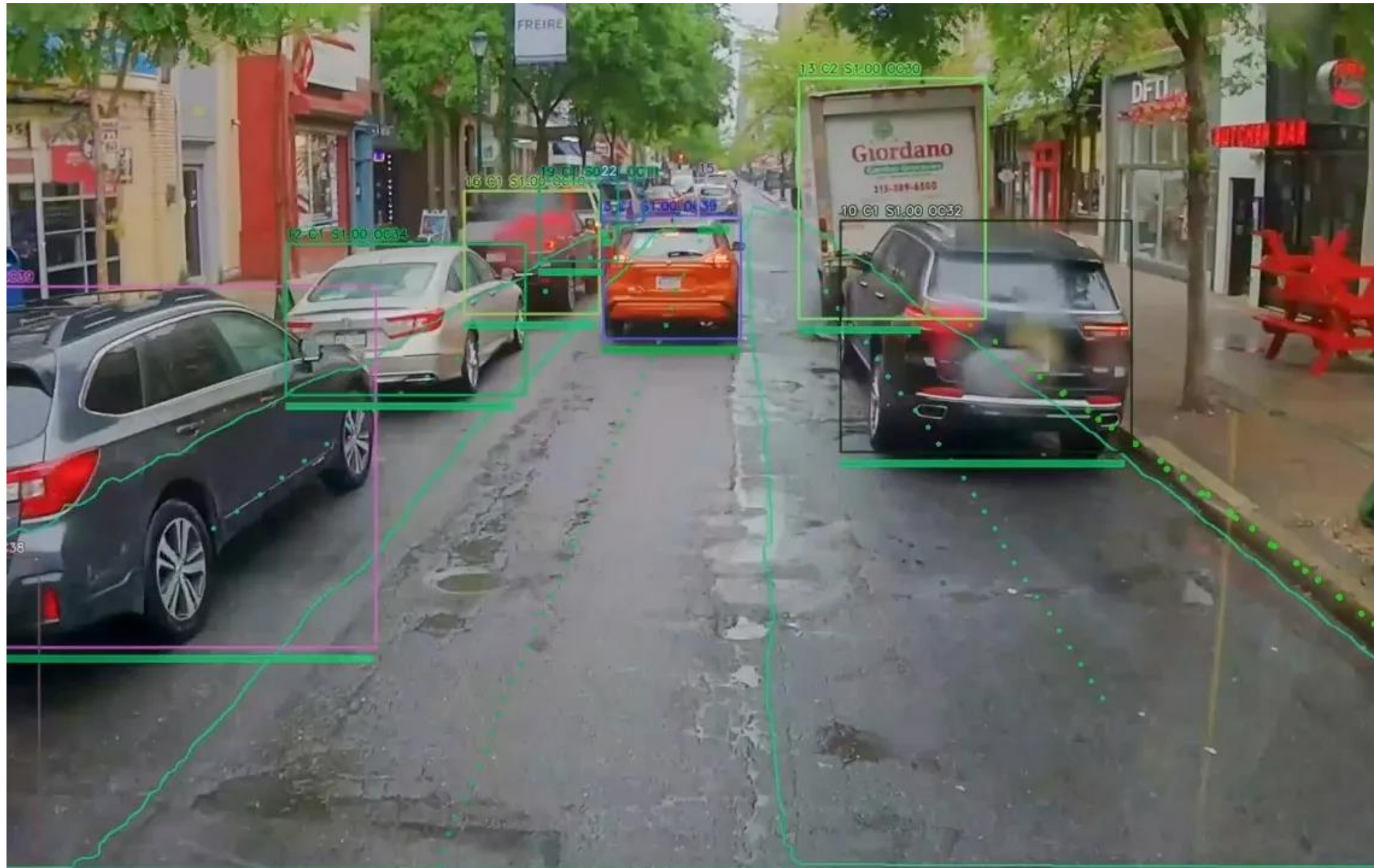
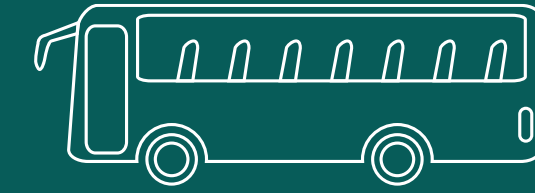
Bus Priority



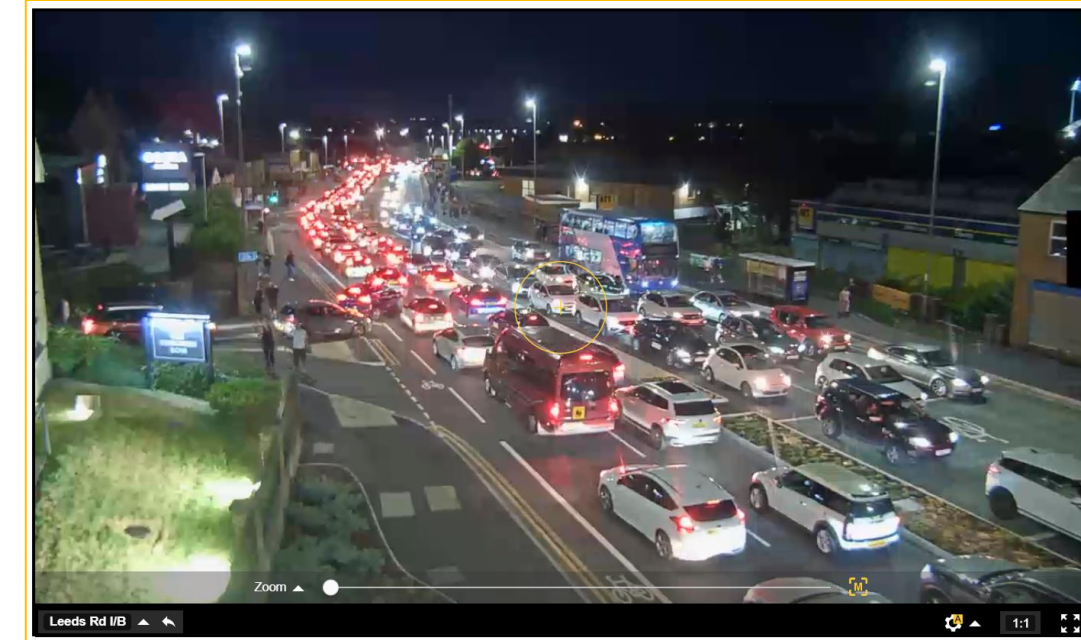
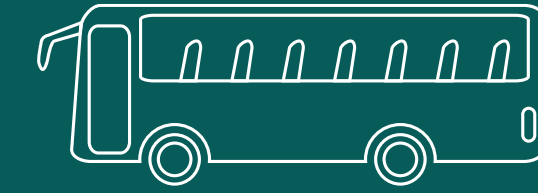
Managing as a Network



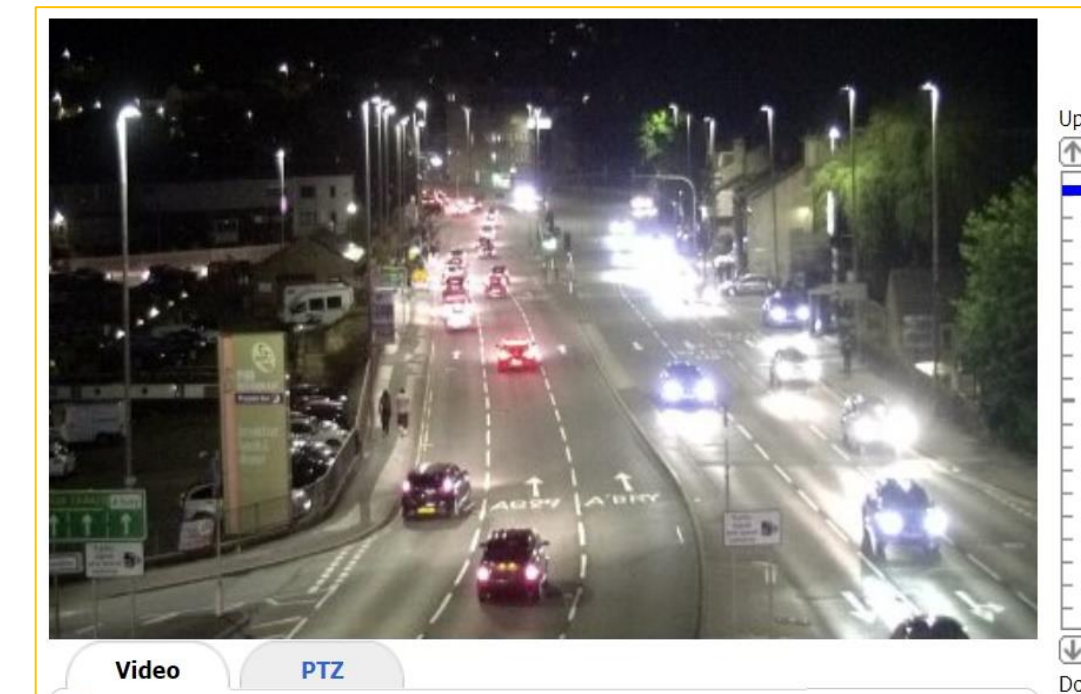
Managing Road Use



Managing as a Network



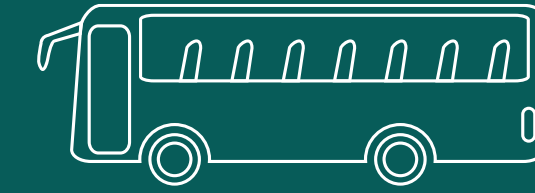
Traffic leaving North – without Simplifai AI



Traffic leaving East – with Simplifai AI

Historic Data

Analysing the Past



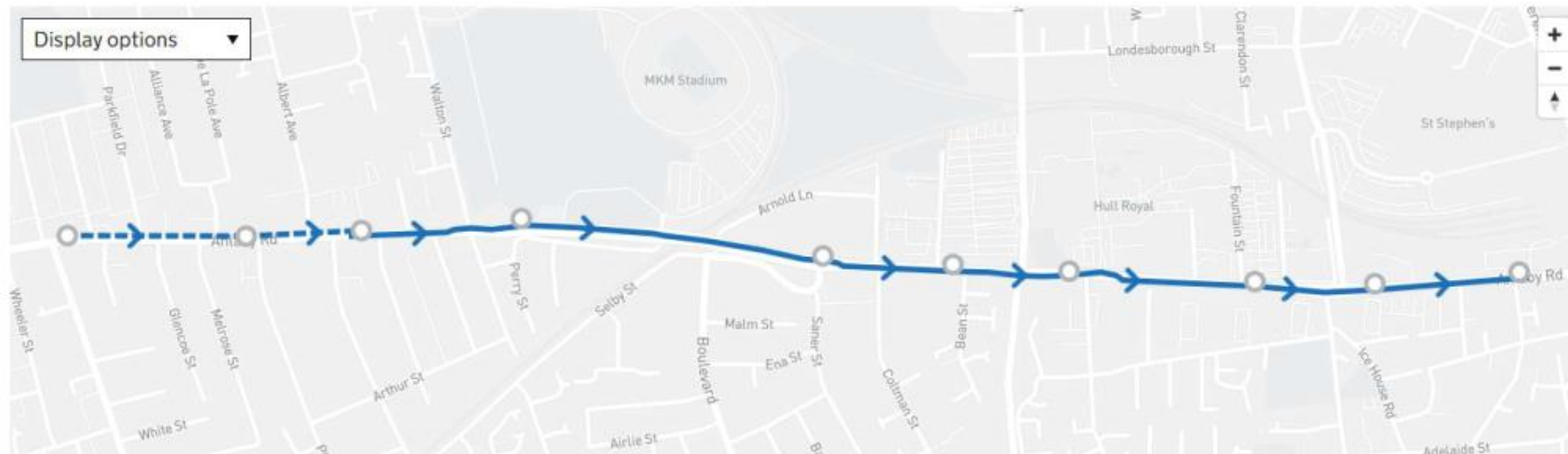
08 Jan 2024 - 14 Jan 2024 Last 7 days [Edit corridor](#)



* Dashed line indicates speed and distance are based on straight-line measurement

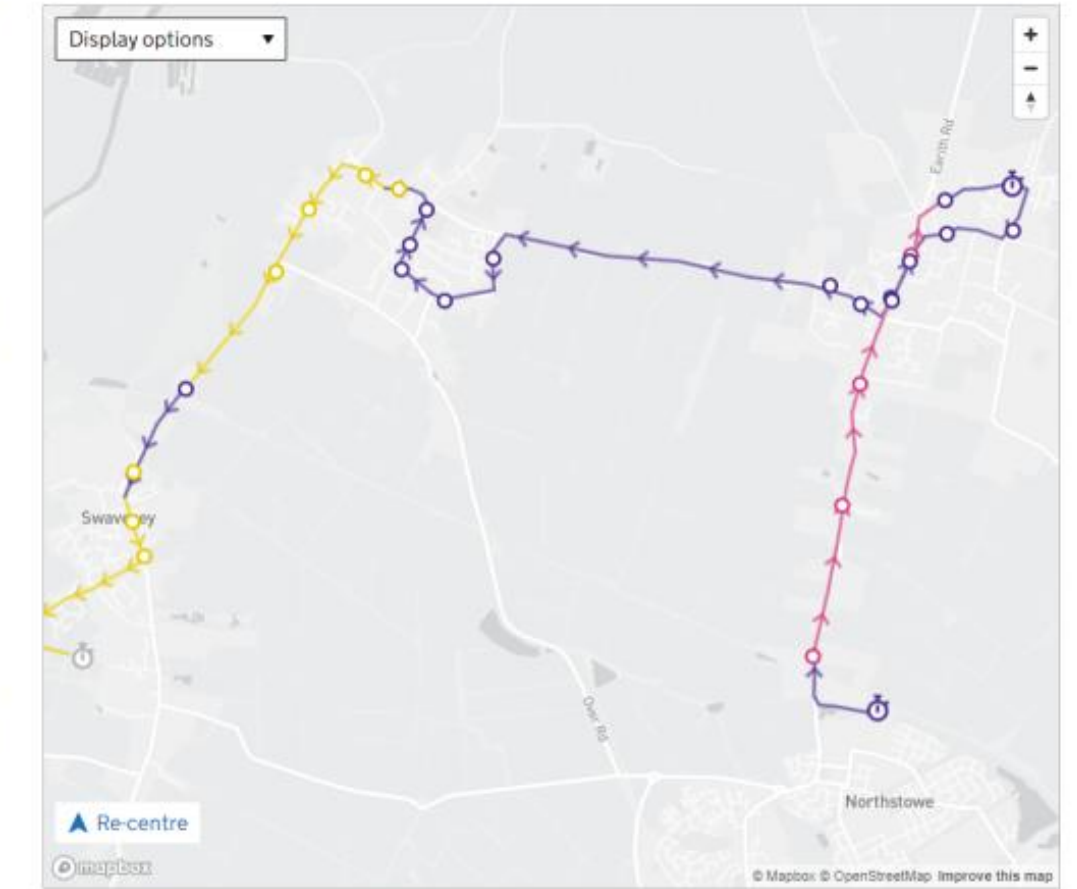
Total transits	Missing transits	Average journey time	Average speed	Services
804	78	09:20	10mph	11

Analysis Journey time Speed

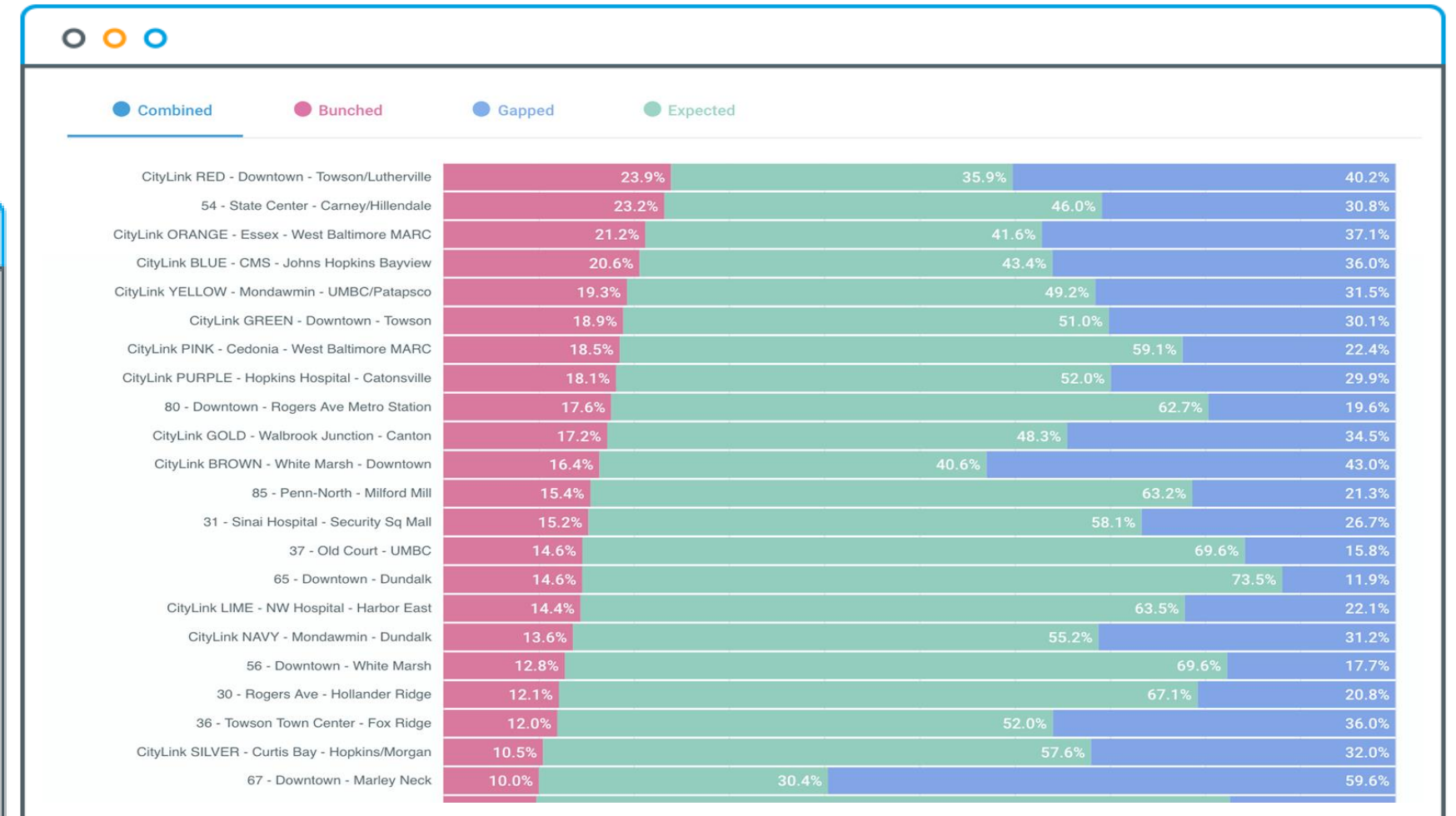
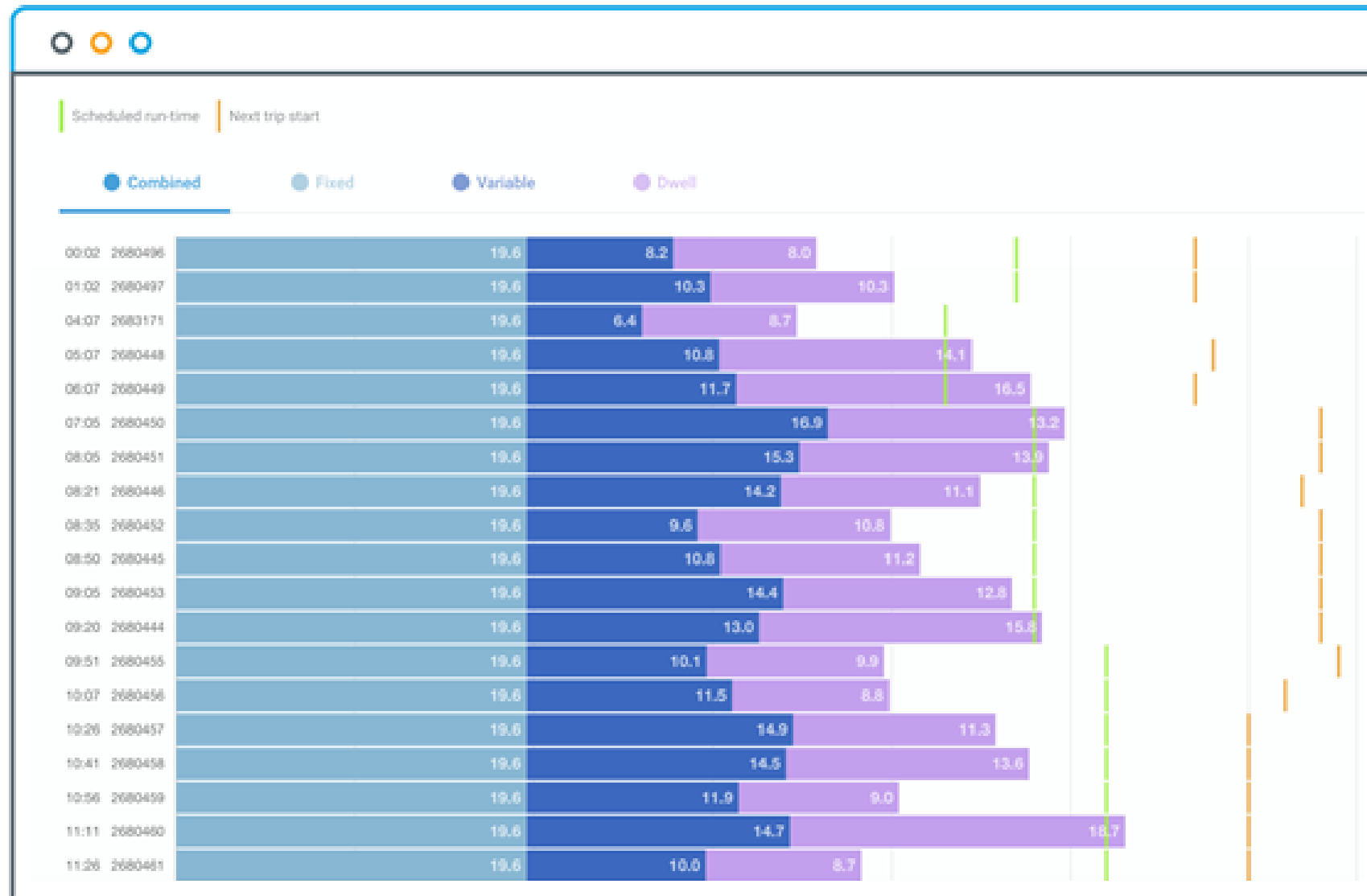
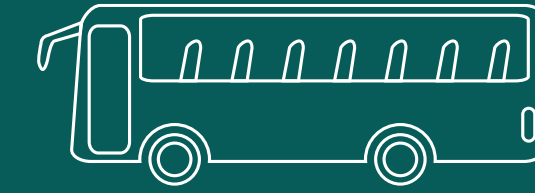


Westfield	07:59	07:56
Millfield	08:01	07:58
Covent Garden	08:02	08:01
Osborn Close	08:03	08:01
Church Lane	08:04	08:03
Brickhills	08:05	08:05
Priest Lane	08:05	08:05
St Mary's Church	08:06	08:07
Osborn Close	08:06	08:08
Covent Garden	08:07	08:08
Rook Grove	08:07	08:11
Westmeadow Close	08:07	08:11
Cox's End	08:11	08:15
Cromwell Park	08:12	08:16
Glover Street	08:12	08:17
Chapman's Way	08:13	08:18
Willingham Road	08:13	08:18
Randalls Lane	08:13	08:19
Overcote Road	08:14	08:20
The Doles	08:15	08:21
New Road	08:15	08:21
Swavesey Station	08:17	08:22
Chequers Court	08:18	08:24
Wallman's Lane	08:18	08:25
School Lane	08:18	08:25
Swavesey Village	---	---

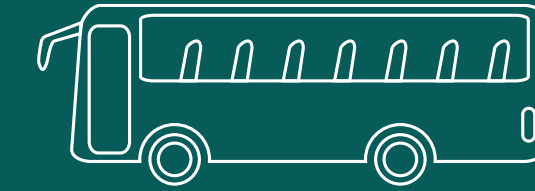
On-time	Late	Early	Incomplete data
59.26%	25.93%	14.81%	3.57%



Analysing the Past



Analysing the Past to help the future



Select type of day: **Weekdays**

Select service pattern: **56 - Whinmoor Sho...**

Comparison dates: FROM 03/11/21

All stops
Timing points

1 Whinmoor Shopp...
Stop + segments

2 Swarcliffe
Stop + segments

3 Travellers Rest
Stop + segments

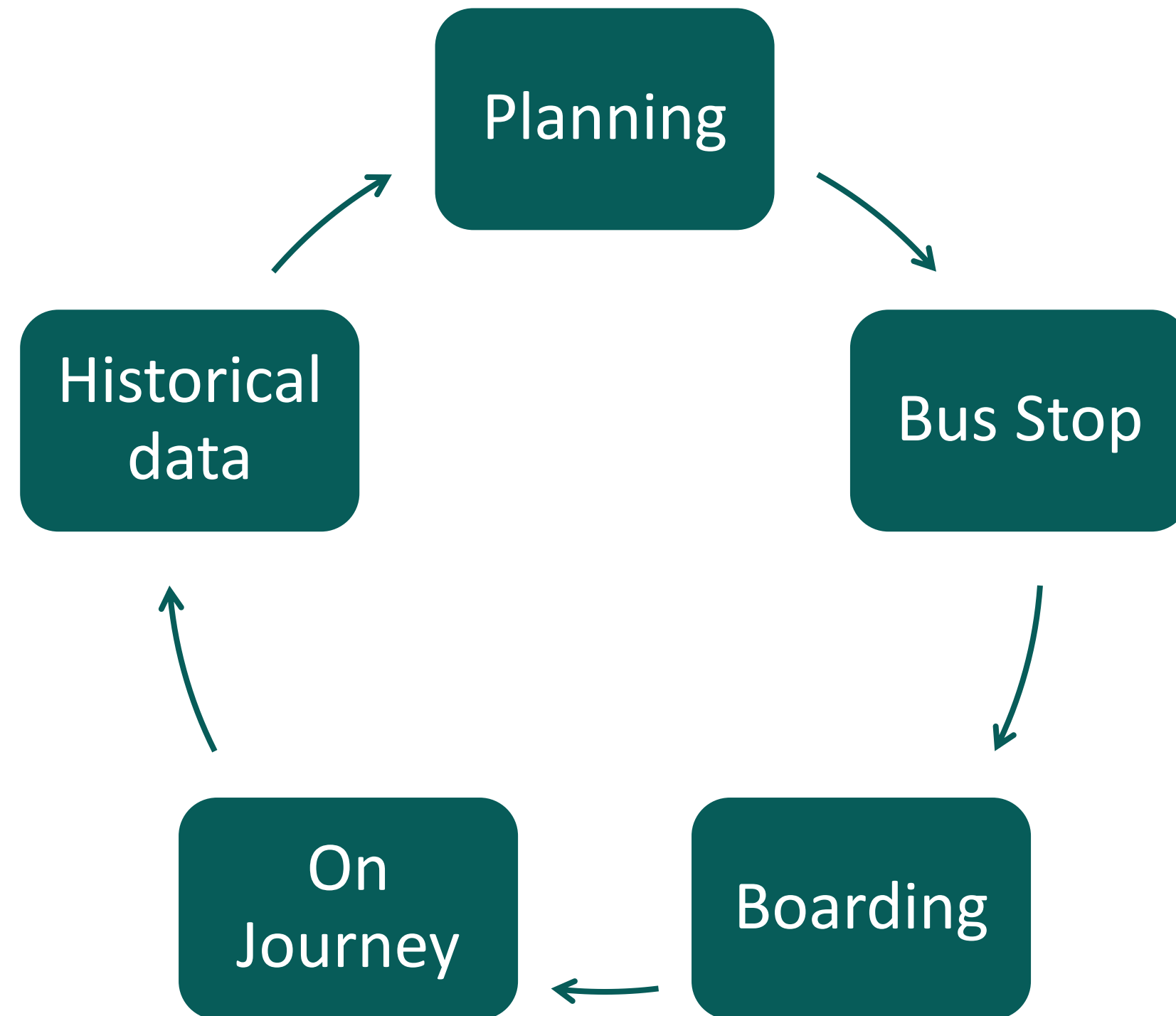
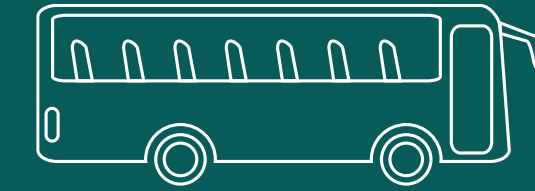
Leeds E... - 30 Secs +

Recovery

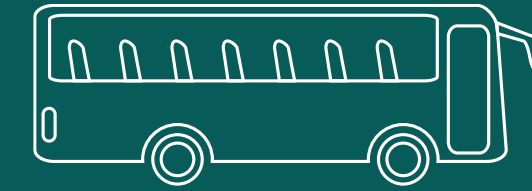
Transit

	00:00 - 01:00	01:00 - 02:00	02:00 - 03:00	03:00 - 04:00
01:30	01:30	01:30	01:30	01:30
09:07	09:07	09:07	09:07	09:07
00:17	00:17	00:17	00:17	00:17
10:08		09:20	09:20	09:20
00:21		00:10	00:10	00:10
01:30 Recommended	01:30 Recommended	01:30 Recommended	01:30 Recommended	
02:00	02:00	02:00	02:00	02:00
05:00	05:00	05:00	05:00	05:00
38:57	38:09	38:10	38:09	

A Journey in Data



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