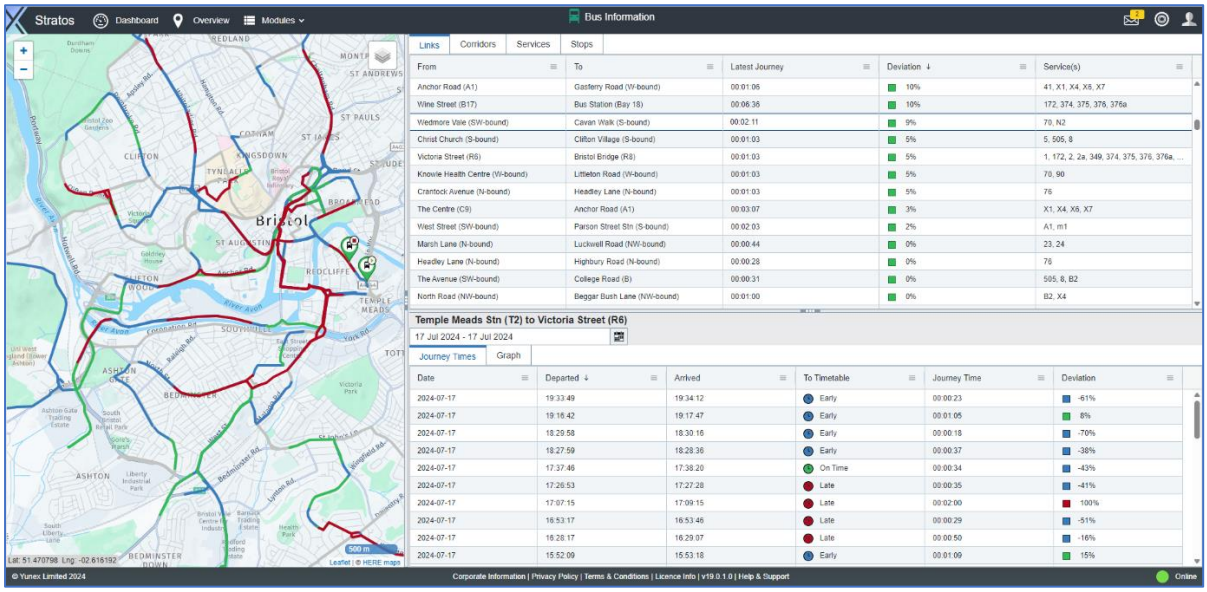
Stratos Bus Analytics Module

Helping to unlock the potential of smart bus networks

The UK's leading strategic traffic management solution, Stratos, is constantly evolving, with new features, functionality and system interfaces regularly added to the system.

For years, bus priority has been a feature within our UTC system, yet the comprehensive analysis of bus movements remained isolated from other key traffic management insights available to traffic managers. Now, with the implementation of the Stratos Bus Analytics Module, we bridge this gap by fully utilizing the data from bus operators in your region.

Through increased data gathering and analysis, the Bus Analytics Module will provide improved network-wide management, creating a multimodal network status view to give a co-ordinated, managed response to traffic incidents and events. Linked with the Stratos Strategy Manager Module, the Bus Analytics Module will empower real-time, automated decision-making, utilising the full extent of the data at your disposal.



Bus Module Overview

Key features and benefits

Real-Time Insights

- Enables you to monitor bus services in real time.
- Get live updates on routes, schedules, and performance metrics.

Corridor Monitoring:

- Define specific corridors spanning multiple links.
- Monitor all services using the entire corridor.

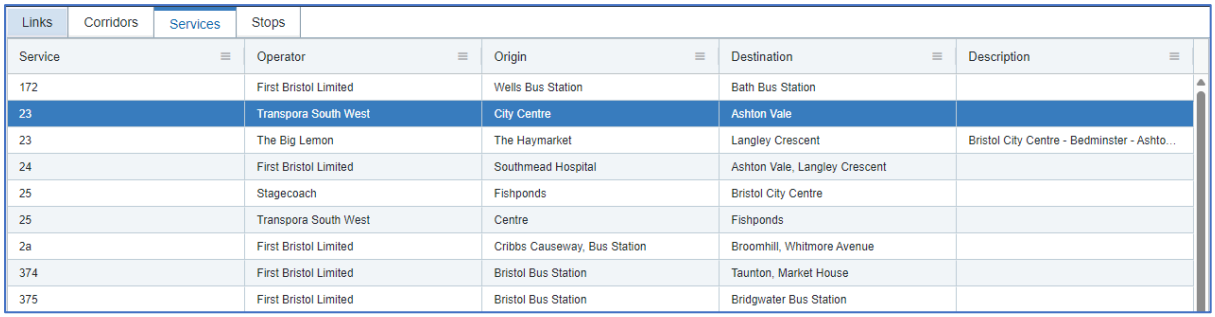
Automated Network Optimisation:

- Seamlessly integrate data from bus operators with general traffic data
- Enable automated decisions based on comprehensive information.
- Execute network-level changes through UTC commands.

A closer look at how the Bus Analytics Module works

Services – information and analysis

You can find details of bus services in specified areas in the Services Tab (shown in the example below).

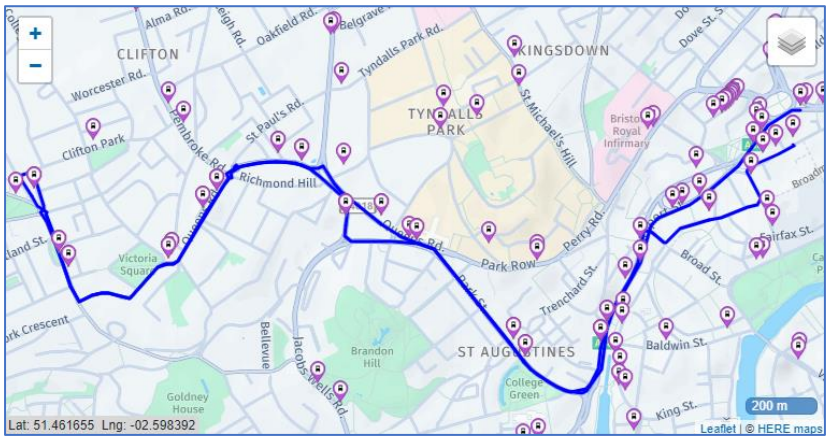


Links | Corridors | Services | Stops

Service	Operator	Origin	Destination	Description
172	First Bristol Limited	Wells Bus Station	Bath Bus Station	
23	Transpora South West	City Centre	Ashton Vale	
23	The Big Lemon	The Haymarket	Langley Crescent	Bristol City Centre - Bedminster - Ashto…
24	First Bristol Limited	Southmead Hospital	Ashton Vale, Langley Crescent	
25	Stagecoach	Fishponds	Bristol City Centre	
25	Transpora South West	Centre	Fishponds	
2a	First Bristol Limited	Cribbs Causeway, Bus Station	Broomhill, Whitmore Avenue	
374	First Bristol Limited	Bristol Bus Station	Taunton, Market House	
375	First Bristol Limited	Bristol Bus Station	Bridgwater Bus Station	

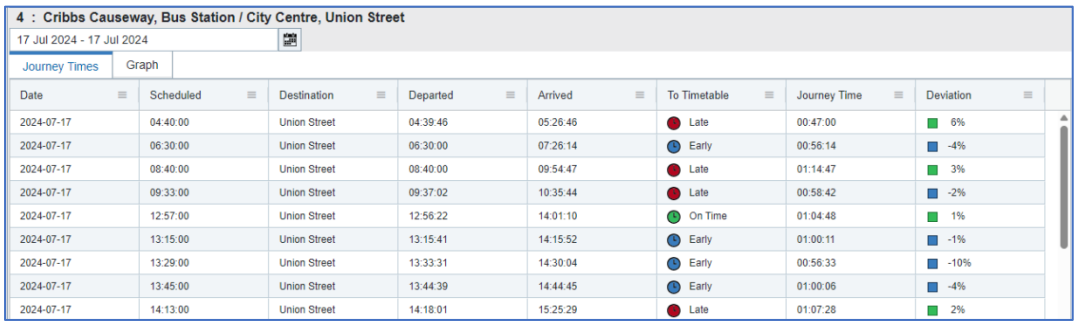
Services Tab

You can then select a specific service to display on the map, with that service's route subsequently highlighted:



Selected Service

You can then easily analyze service performance showing compliance to timetable:



4 : Cribbs Causeway, Bus Station / City Centre, Union Street

17 Jul 2024 - 17 Jul 2024

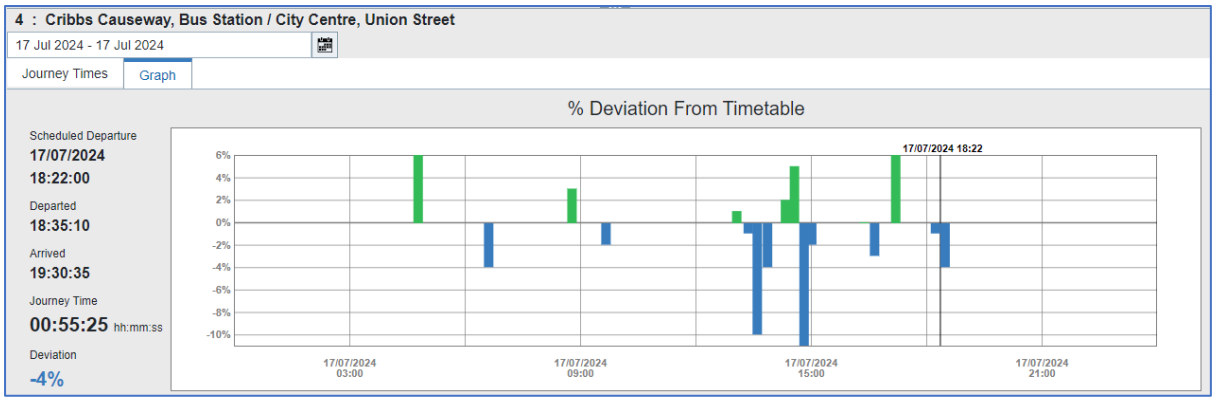
Journey Times | Graph

Date	Scheduled	Destination	Departed	Arrived	To Timetable	Journey Time	Deviation
2024-07-17	04:40:00	Union Street	04:39:46	05:26:46	Late	00:47:00	6%
2024-07-17	06:30:00	Union Street	06:30:00	07:26:14	Early	00:56:14	-4%
2024-07-17	08:40:00	Union Street	08:40:00	09:54:47	Late	01:14:47	3%
2024-07-17	09:33:00	Union Street	09:37:02	10:35:44	Late	00:58:42	-2%
2024-07-17	12:57:00	Union Street	12:56:22	14:01:10	On Time	01:04:48	1%
2024-07-17	13:15:00	Union Street	13:15:41	14:15:52	Early	01:00:11	-1%
2024-07-17	13:29:00	Union Street	13:33:31	14:30:04	Early	00:56:33	-10%
2024-07-17	13:45:00	Union Street	13:44:39	14:44:45	Early	01:00:06	-4%
2024-07-17	14:13:00	Union Street	14:18:01	15:25:29	Late	01:07:28	2%

Service Performance Grid

Data may be directly exported to .csv or Microsoft excel format from the Service Performance Grid.

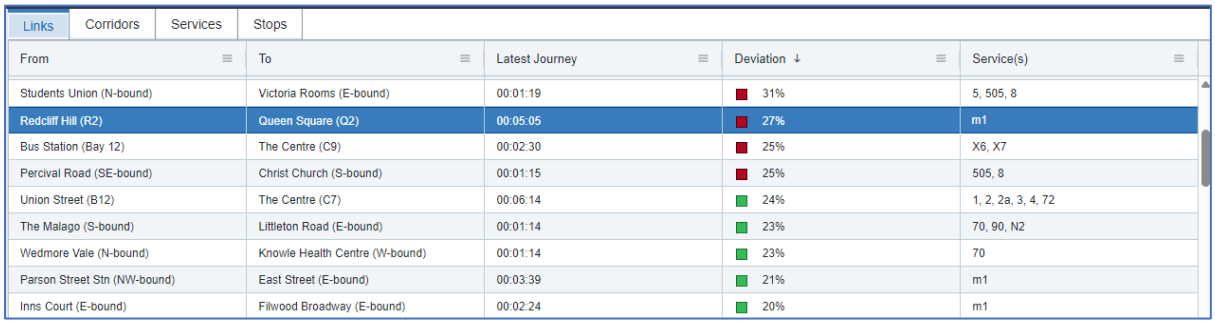
Graphs make it easy to spot performance trends for a service.



Service Performance Graph

Links – information and analysis

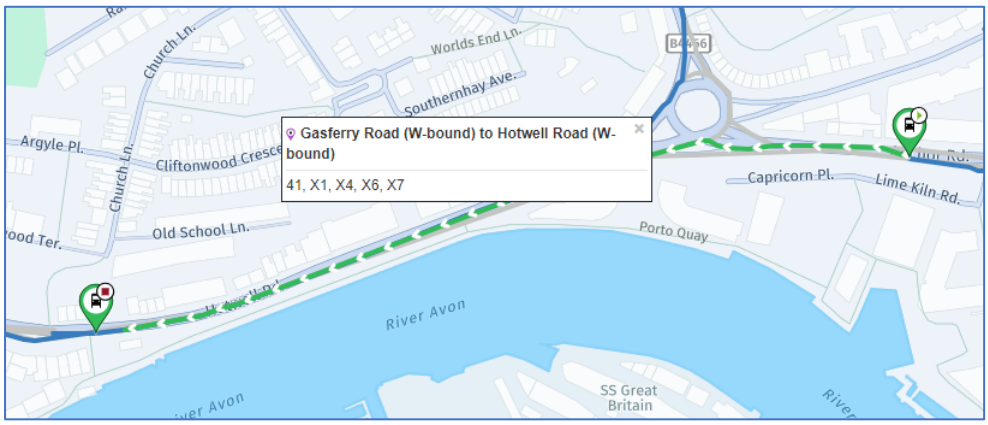
The Links Tab details all the bus services between two stops:



From	To	Latest Journey	Deviation	Service(s)
Students Union (N-bound)	Victoria Rooms (E-bound)	00:01:19	31%	5, 505, 8
Redcliff Hill (R2)	Queen Square (Q2)	00:05:05	27%	m1
Bus Station (Bay 12)	The Centre (C9)	00:02:30	25%	X6, X7
Percival Road (SE-bound)	Christ Church (S-bound)	00:01:15	25%	505, 8
Union Street (B12)	The Centre (C7)	00:06:14	24%	1, 2, 2a, 3, 4, 72
The Malago (S-bound)	Littleton Road (E-bound)	00:01:14	23%	70, 90, N2
Wedmore Vale (N-bound)	Knowle Health Centre (W-bound)	00:01:14	23%	70
Parson Street Stn (NW-bound)	East Street (E-bound)	00:03:39	21%	m1
Inns Court (E-bound)	Filwood Broadway (E-bound)	00:02:24	20%	m1

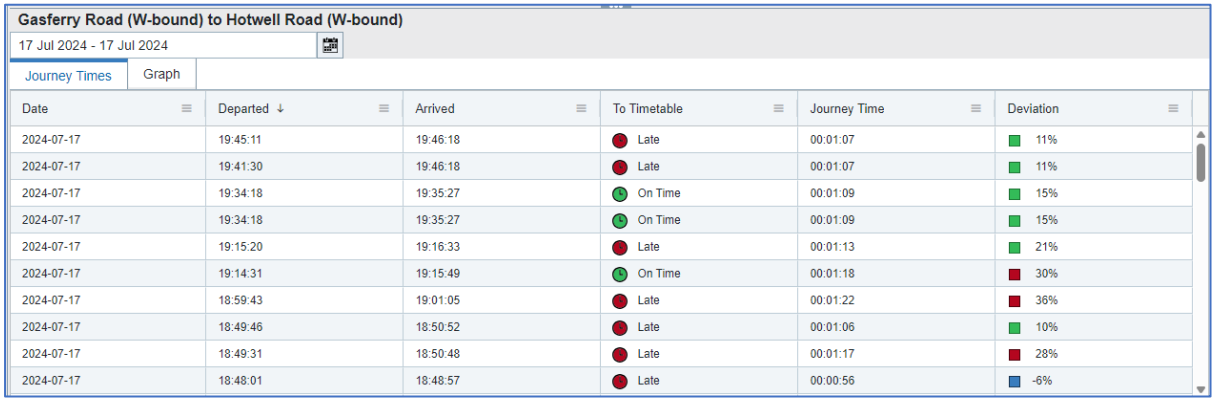
Links Tab

Items can then be selected and shown on the map with the Link highlighted. The start and end of the link and the route followed are clearly indicated.

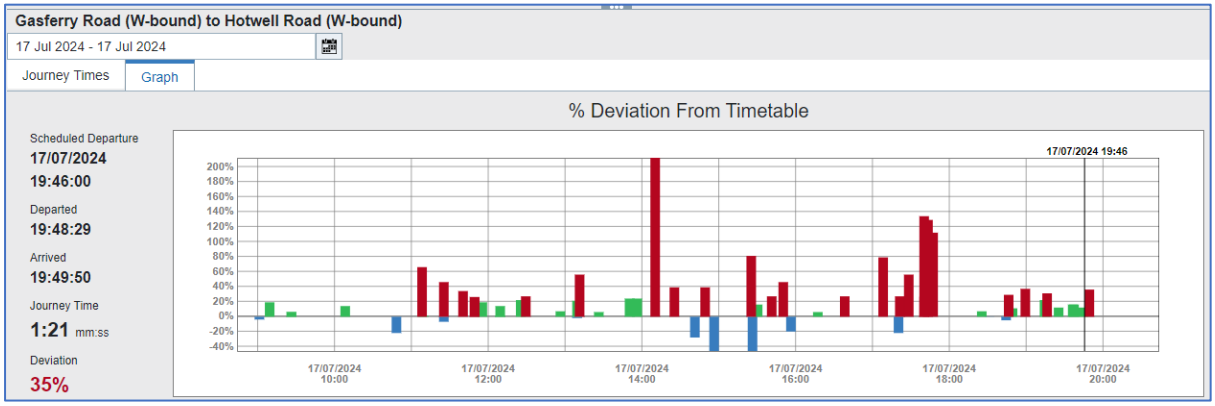


Selected Link

A breakdown of services that use a specific link is provided along with graphing, similar to that provided for the individual bus services. This enables you to identify any problem areas on the network and plan corrective actions.



Links Performance Grid

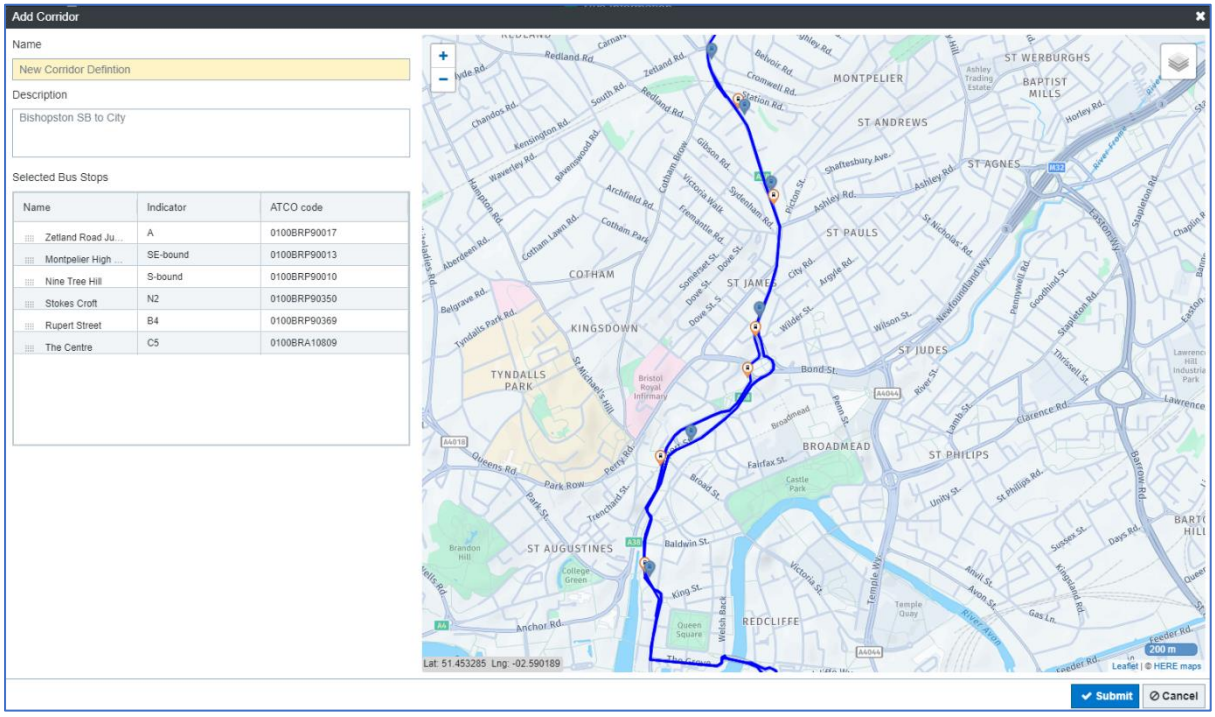


Links Performance Graph

Corridors

The capability to define a corridor that spans multiple links is also available allowing the user to define a corridor of interest and monitor all the services that use the entire corridor. This is especially useful for SCOOT / FUSION validation and fine-tuning work.

A corridor is added based on a single service and then all busses that use the whole corridor are included in the analysis.

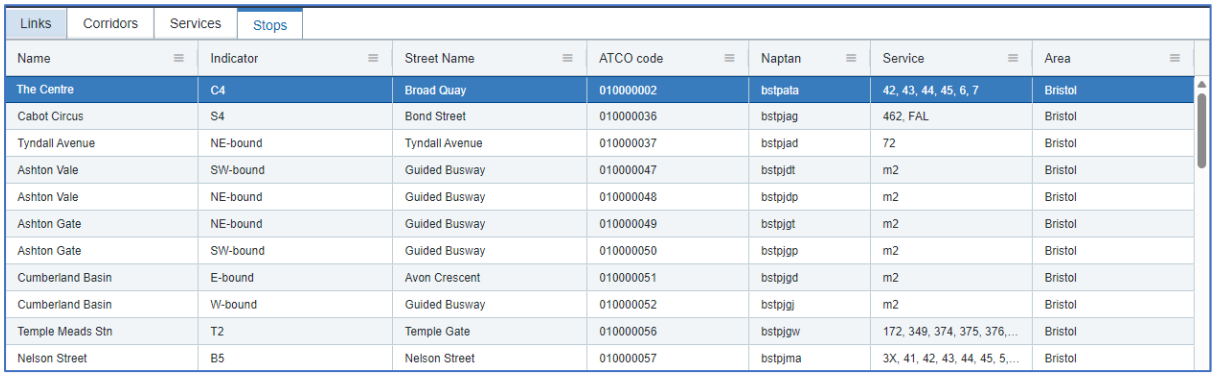


Corridor Definition

Graph and Grid details, similar to those for Links and Services, are also available.

Stops

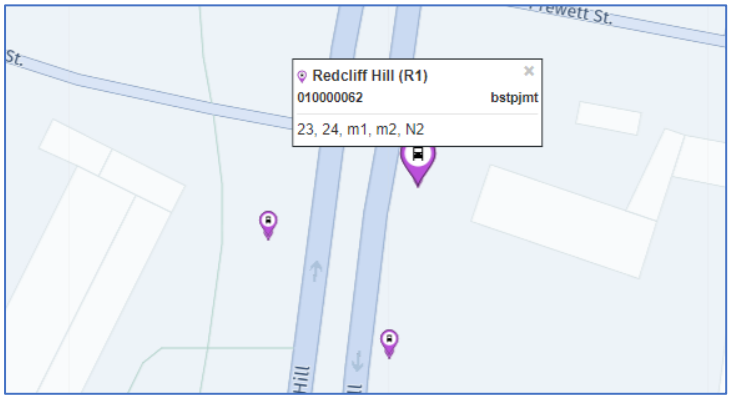
The Stops tab details all the stops within an Area, and includes information about nationally recognised NaPTAN and ATCO codes and as well as the Local Authority Area, and bus services that are scheduled to stop there.



Name	Indicator	Street Name	ATCO code	Naptan	Service	Area
The Centre	C4	Broad Quay	010000002	bstpata	42, 43, 44, 45, 6, 7	Bristol
Cabot Circus	S4	Bond Street	010000036	bstpjag	462, FAL	Bristol
Tyndall Avenue	NE-bound	Tyndall Avenue	010000037	bstpjad	72	Bristol
Ashton Vale	SW-bound	Guided Busway	010000047	bstpjdt	m2	Bristol
Ashton Vale	NE-bound	Guided Busway	010000048	bstpjdp	m2	Bristol
Ashton Gate	NE-bound	Guided Busway	010000049	bstpjgt	m2	Bristol
Ashton Gate	SW-bound	Guided Busway	010000050	bstpjgp	m2	Bristol
Cumberland Basin	E-bound	Avon Crescent	010000051	bstpjgd	m2	Bristol
Cumberland Basin	W-bound	Guided Busway	010000052	bstpjgj	m2	Bristol
Temple Meads Stn	T2	Temple Gate	010000056	bstpjgw	172, 349, 374, 375, 376,...	Bristol
Nelson Street	B5	Nelson Street	010000057	bstpjma	3X, 41, 42, 43, 44, 45, 5,...	Bristol

Stops tab

You can select an item to show on the map, which then zooms and centres on the selected stop. A pop up shows the Stop name, direction and services that stop at the location.



Selected Stop

Integration With Strategy Manager

At the very heart of Stratos is Strategy Manager. The Bus Analytics Module is fully integrated with Strategy Manager to provide a critical toolset and an entirely new level of control to instigate automated network level change through UTC commands. For example, enabling or disabling Bus Priority at certain nodes or on SCOOT / FUSION links.

It uses a standard type of Trigger based on either

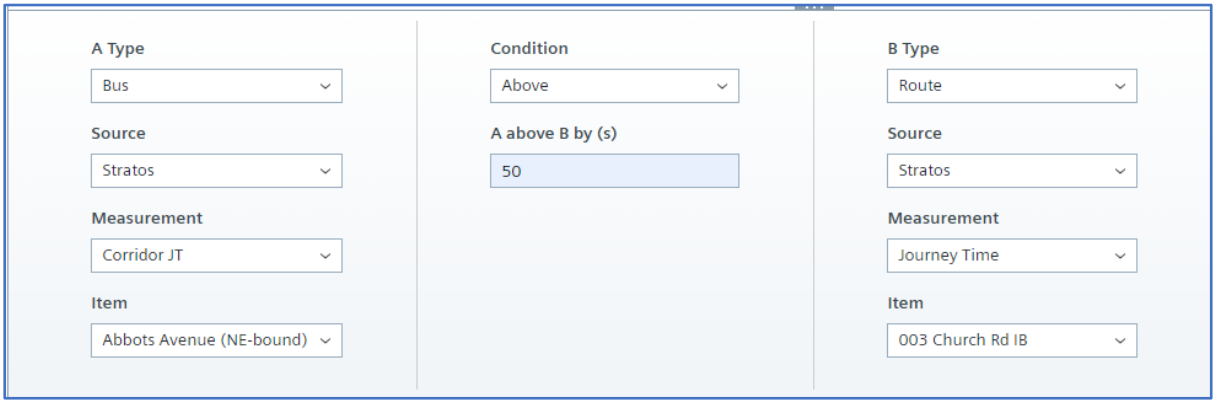
- Link Journey Time
- Link Journey Time Deviation
- Corridor Journey Time
- Corridor Journey Time Deviation

These are compared to User defined values, based on

- Above
- Below
- Between
- Not Between

A second Compare style of Trigger is also available providing:

- Bus Link JT to Bus Link JT
- Bus Link JT Deviation to Bus Link JT Deviation
- Bus Corridor JT to Bus Corridor JT
- Bus Corridor JT Deviation to Bus Corridor Deviation
- Bus Corridor JT to Route (ANPR, FVD) JT
- Bus Corridor JT to Route (ANPR, FVD) profile difference



Strategy Compare Trigger Type

Data sources

The Bus Analytics Module takes data from three different sources to provide a comprehensive view of all the bus movements in your area.

NaPTAN

The NaPTAN national data feed provides data concerning the physical location of bus stops.

Stratos retrieves an updated database daily so is always up to date with the latest published information.

Bus Open Data Service - TransXChange

The TransXChange standard provides the following information:

- Schedule timings
- Schedule Routing

Stratos checks for updates daily.

Siri-VM

The SIRI standard interface provides real time bus position information with data being pushed by the RTPI provider to Stratos in real time.