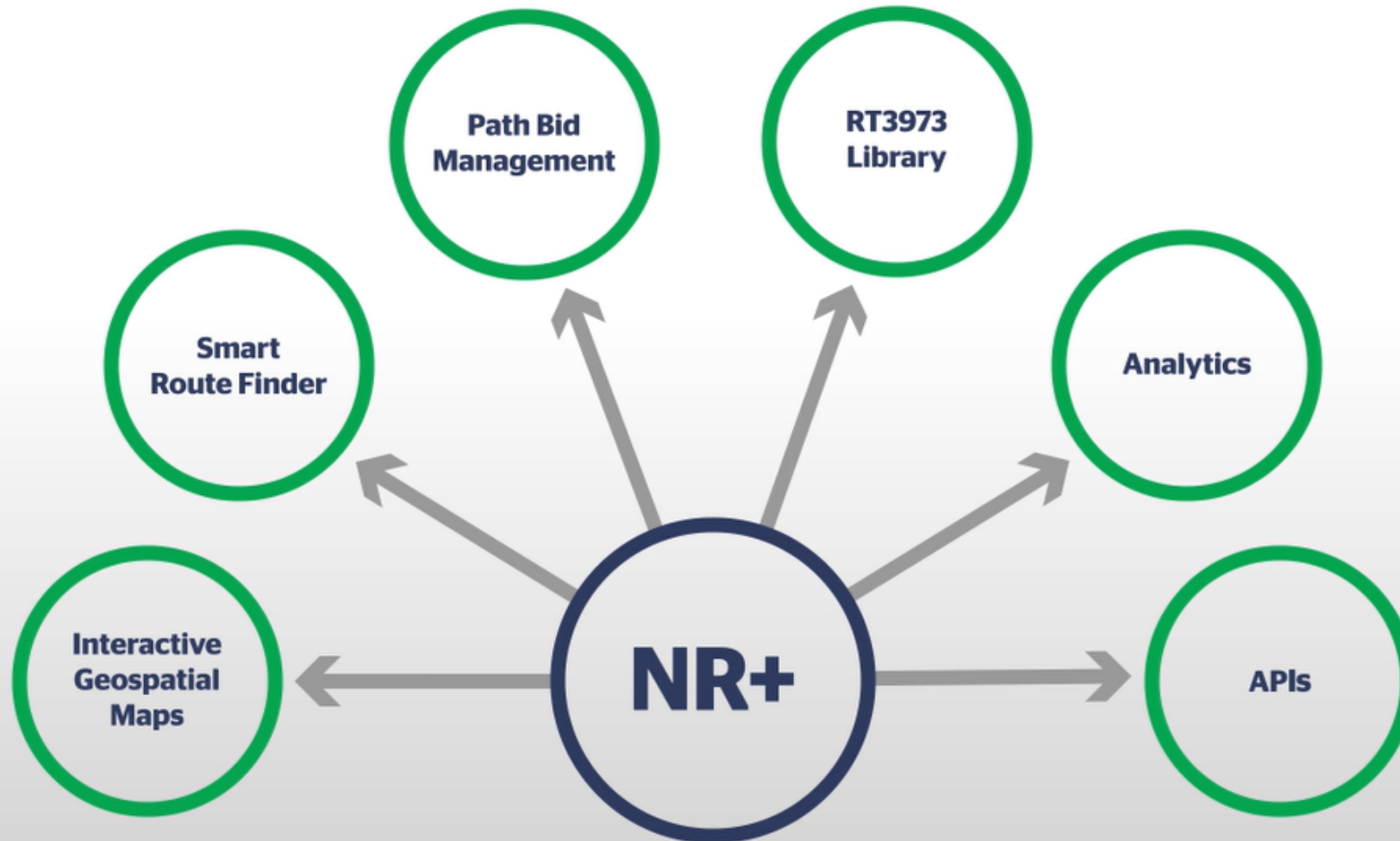


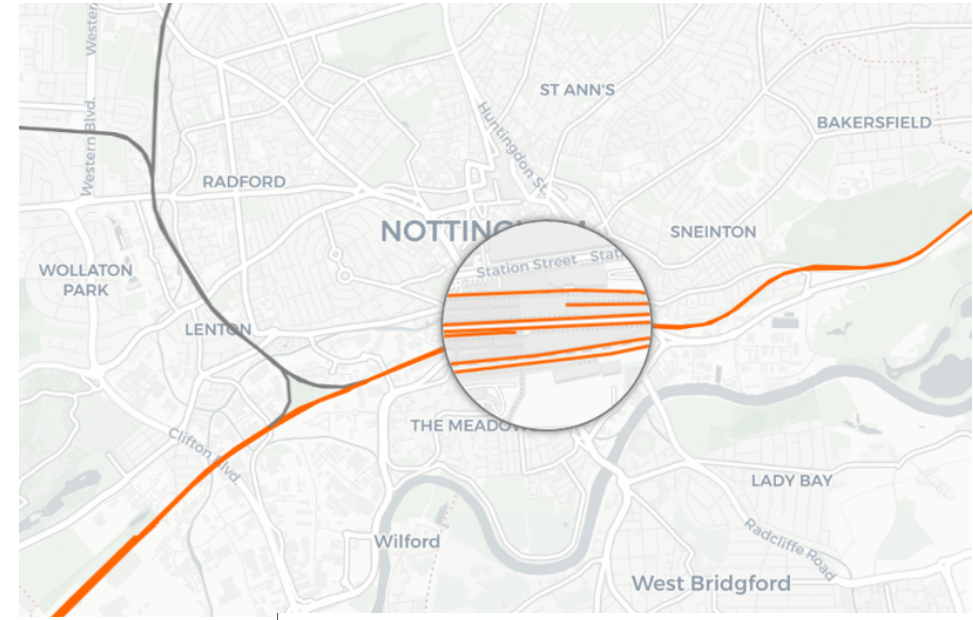
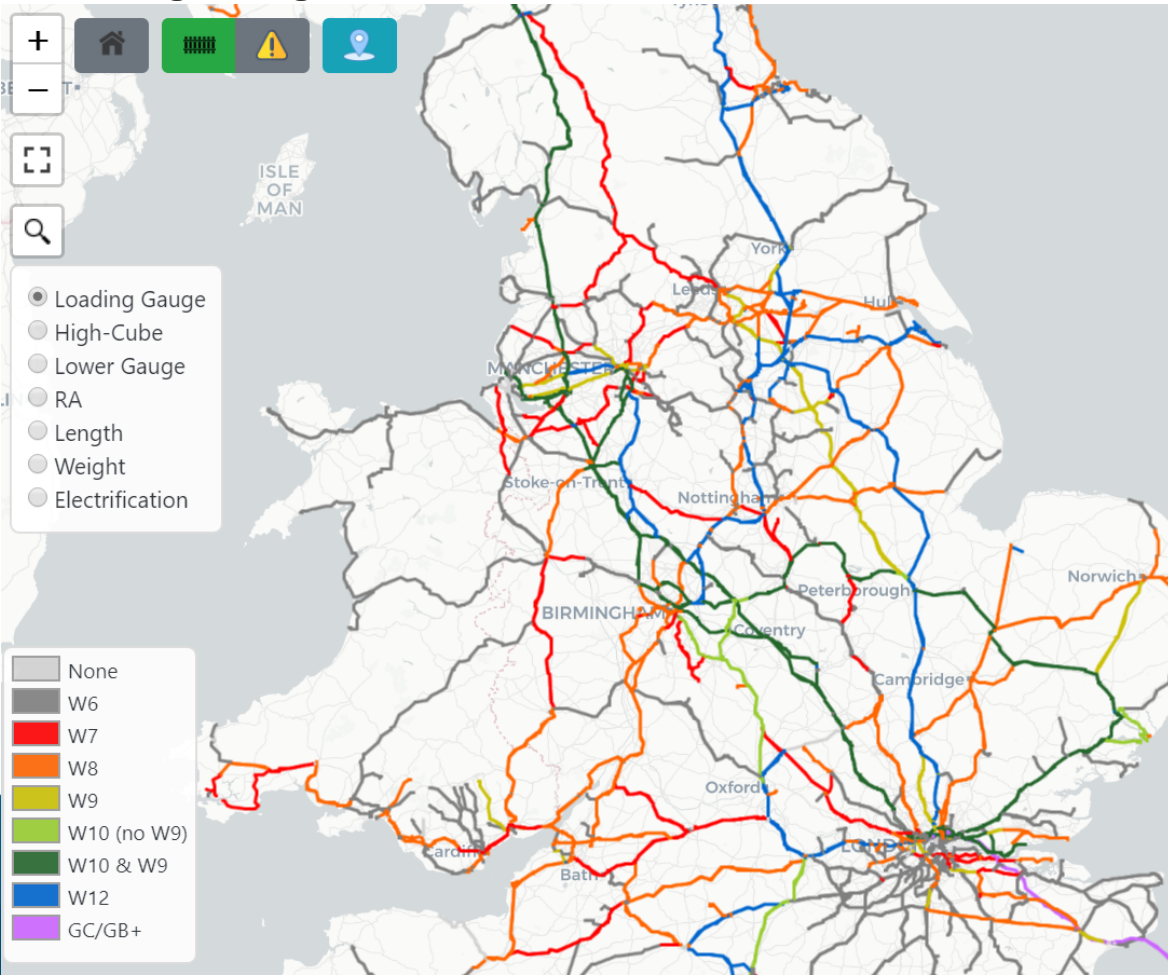
# Overview of the NR+ platform



Interactive Geospatial Maps

- Easy way to access rail capability information
- Find specific locations
- Highlight restrictions

Loading Gauge



ELR: TSN2 LOR: LN3204 Reversible Loop [3506]

Class	W6	W7	W8
20	Y*	Y	Y
31/1			
33			
37/0			
37/4	2890	3570	
37/7	3190	3940	
47/0	2935	3000	
56	3170	3920	
57	3080	3150	
58	3020	3735	
58	3020	3735	
59	6490	6635	
60	6565	7675	
66	5695	5820	
66/6	6750	7365	

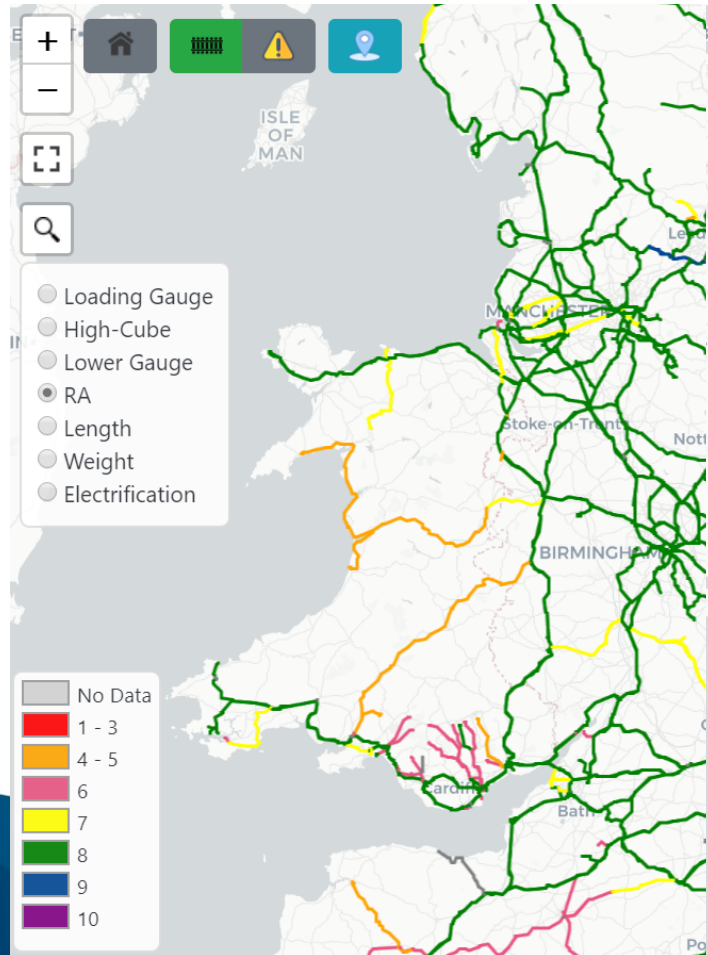
Route Availability	Value
Loco Gauge	8
	Y



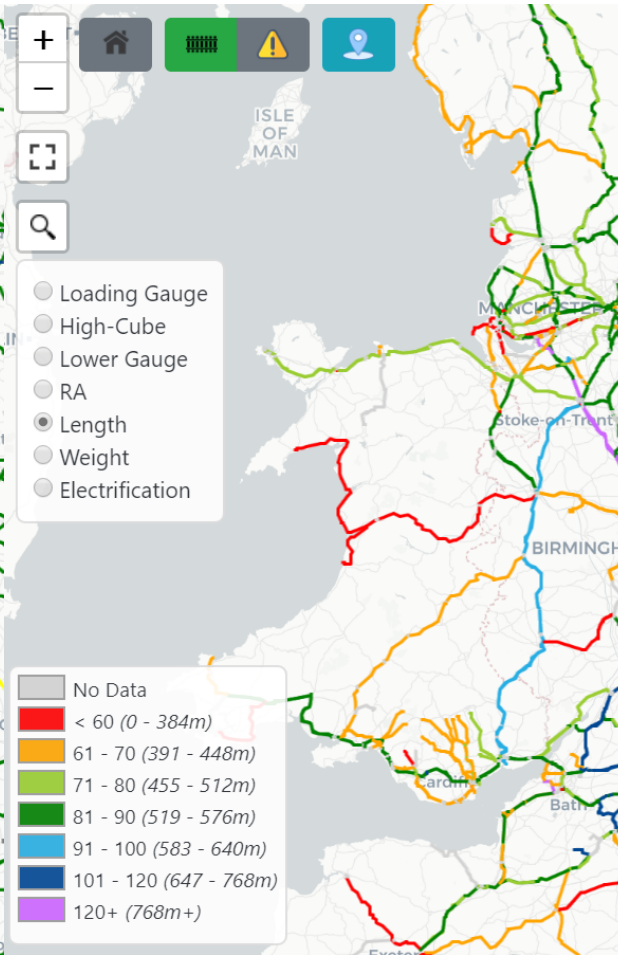
# Interactive Geospatial Maps

- Various maps, including loading gauge, route availability, trailing length, trailing weight, electrification

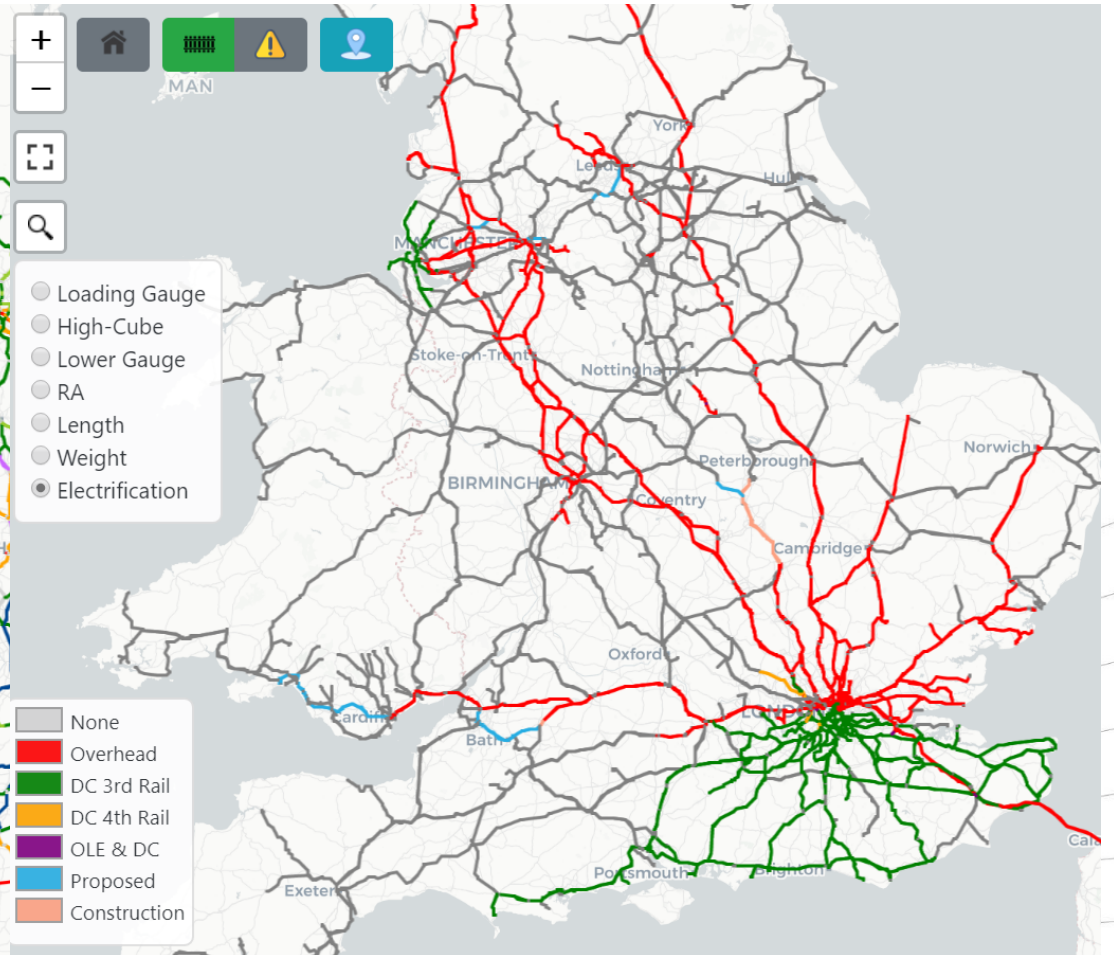
### Route Availability (RA)



### Max trailing length



### Electrification







- Build maps to identify routes meeting specified capability requirements

Where can I run long trains (more than 525m) with high-cube containers (W10)?

Map Builder

Basic Advanced

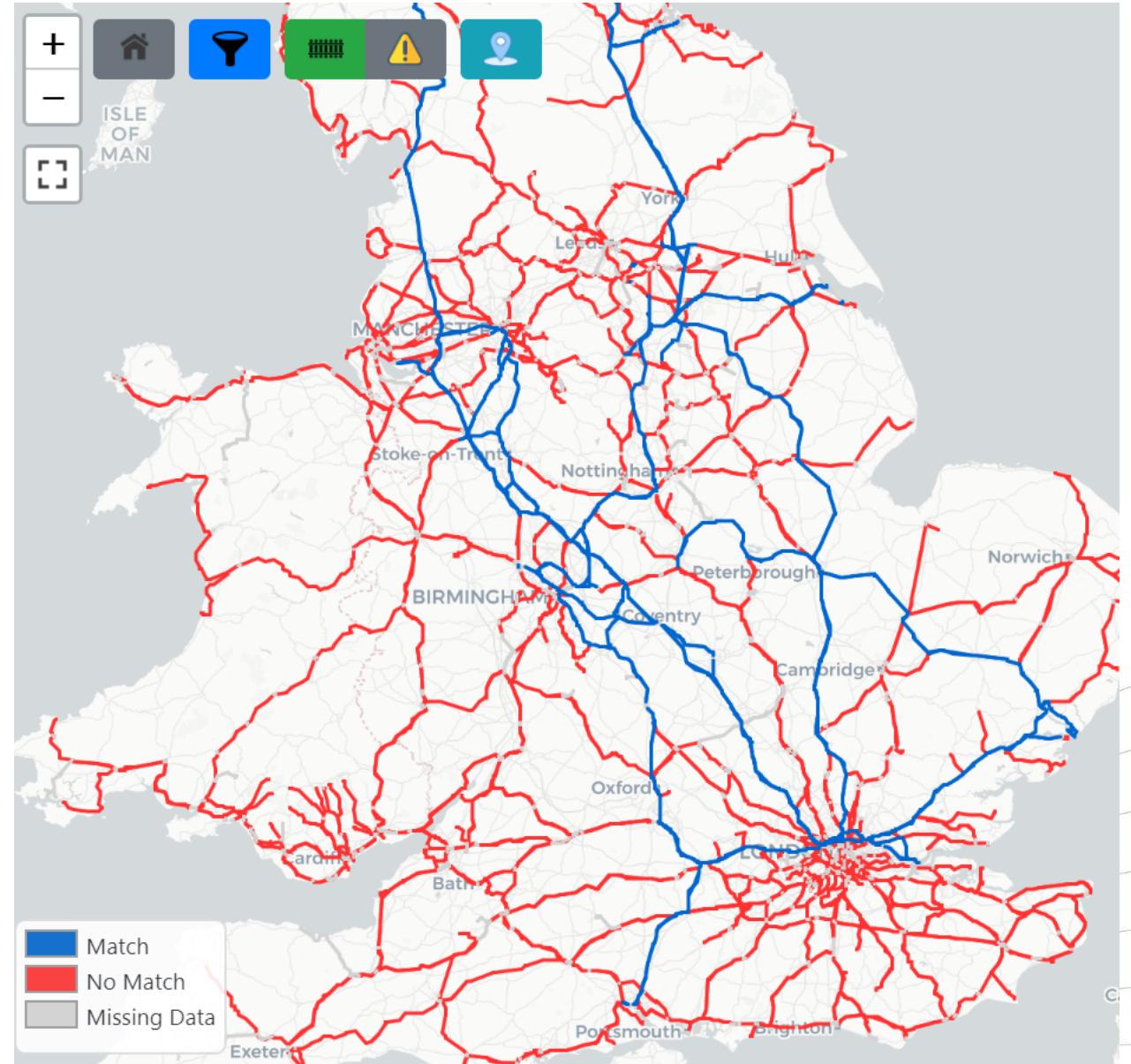
Gauge	>=	W10 High-Cube	<input type="checkbox"/> Lower Gauge
Route Availability	>=	7	<input type="checkbox"/> Loco Gauge Only
Length	>=	82 SLU (525m - 1722ft)	
Electrified	Any		
Show HS1	No		

Locomotive	Any		
Weight	>=	0	

Some items are currently not available.

Search

Close





# Smart Route Finder

- Find the best path between two points
- Use our path finding algorithm
- Also consider existing and historic scheduled paths
- Consider gauging and other requirements
- Specify “via” or “avoid” points

Smart Route Finder
Historic Schedules
✕

Origin  +

Destination

Clear

Include historic schedules

Start  End

Freight  Passenger

Advanced

\* Only applied when calculating the shortest path.

Gauge  ▼

Route Availability  ▼

Length (m)

Weight (t)

Electrification  ▼

Search

**Shortest Route**

Shortest Route

Show Information

**Historic Routes**

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6
- Route 7
- Route 8
- Route 9
- Route 10
- Route 11
- Route 12
- Route 13
- Route 14
- Route 15
- Route 16
- Route 17
- Route 18
- Route 19
- Route 20
- Route 21
- Route 22
- Route 23
- Route 24
- Route 25
- Route 26
- Route 27
- Route 28

**Shortest Route Information**

TIPLOC	Mandatory
TUNSTDS	No
GTRCKSJ	Yes
PEAKFSB	Yes
CHNLYSJ	Yes
CHNLVEJ	Yes
EDALE	Yes
EDALE16	Yes
ERLESDG	Yes
HOPD	No
BAMFORD	Yes
HATHRSG	No
GRNDI FD	Yes

Download CSV
Close



- Draft and submit bids

## Bidding Overview

Create New

All Bids

Operator

Status

Type

Start Date 2019-05-19

Show 10 entries

Reference	Name	Operator	Received	Assigned To	Status
WALP19SSB980297	WALP19SSB980297 DEC19 Rollover	NRTrial	Thu Dec 12 2019	Don Praveen Amarasinghe	Offer
WALP19SSB980299	WALP19SSB980299	UoHVirtual	Wed Nov 27 2019	Liam Crozier	Complete
WALP19SSB980300	WALP19SSB980300	UoHVirtual	Wed Nov 27 2019	Un-Assigned	Pre_Validation
WALP20PSB980043	WALP20PSB980043	UoHVirtual	Wed Nov 27 2019	Liam Crozier	Complete
WALP20PSB980045	WALP20PSB980045	NRTrial	Thu Dec 12 2019	Un-Assigned	Submitted

## Bid Details

Save

Delete

Submit Bid

Assign Bid [Admin] Barrie Louw

Draft

This bid has not yet been submitted

Submitted

The bid has been submitted

Pre-Validation

Network Code 2.51

Safety

Safety Checks and Possessions

Validation

Train Planning Rules

Post-Validation

Informed Traveller

Complete

Completed

Bid Name *	Tunstead to Battersea 2	Bid Reference *	DBLP19SSB98999
Type *	<input type="radio"/> WTT <input type="radio"/> VAR <input checked="" type="radio"/> STP <input type="radio"/> VSTP	Created By	Barrie Louw

FOC Name *	Freightliner Heavy Haul		
FOC Planner Name	Barrie Louw	FOC Planner Email	barrie@freightliner.com

Main Schedules Notes Auditing Files RT3973

1 [6L10HP TUNSTDS - WTHRFHH] (213.1mi / 343.0km)

Tunstead Sdgs - West Thurrock Sidings FHH

Not Approved

# Path Bid Management

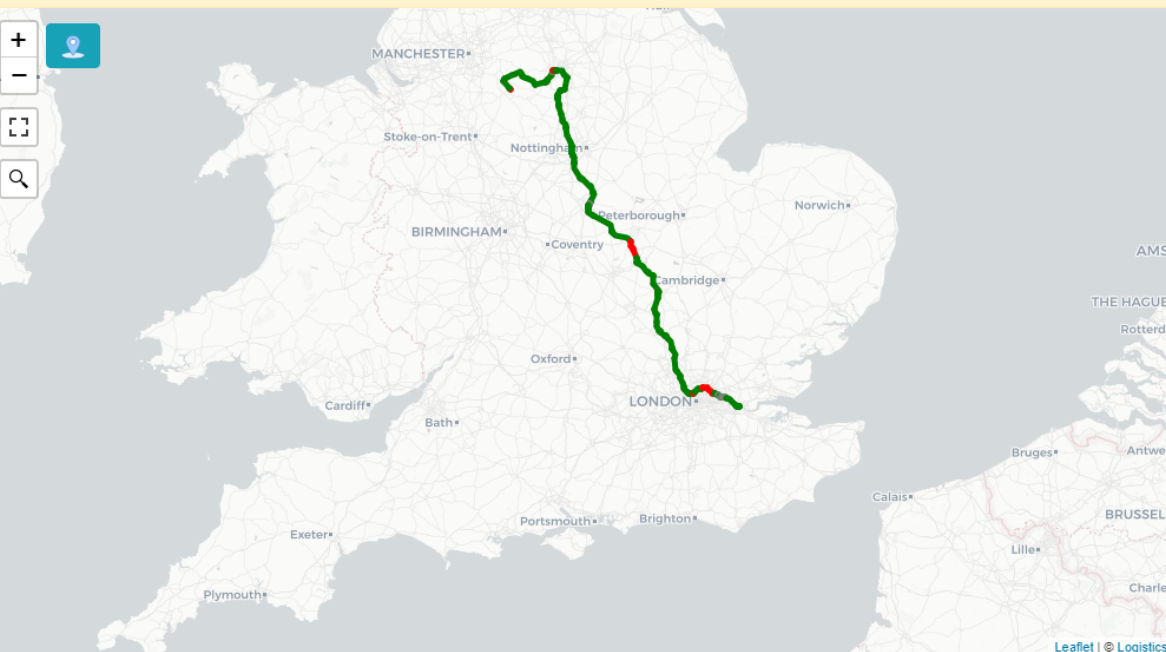
- Validate routes for Gauge, RA, length, weight
- Identify potential engineering access (possession) conflicts

### Train Configuration

Length (m)	500	Gauge	W6A	Class	66
Weight (t)	2400	Coupling	Not Specified	RA	8
Max Speed	60	Container	<input type="checkbox"/>	HAW	<input checked="" type="checkbox"/> RT3973/HAW Re

### Map

Show Directional Arrows  Show Tiploc Markers |  Route  Gauge  Length  RA  V



Restriction on line for specified restriction.
  No data.
  Restricted

Train Id	LOR	Section	WSM	Periods	StartTiploc	EndTiploc	TBCR	Start Time	End Time	Direction	M	T	W	Th	F	Sa	Su
LOGHBNJ	LN3201	15	MidWeek	ABCDEFHJ	LOGHBNJ	LOGHBRO	TB	22:59:30	23:00:30	B	Y	Y	Y	Y	Y	N	N
LOGHBRO	LN3201	15	MidWeek	ABCDEFHJ	LOGHBRO	SILEBYJ	TB	23:00:30	23:14:30	B	Y	Y	Y	Y	Y	N	N
SILEBYJ	LN3201	15	MidWeek	ABCDEFHJ	SILEBYJ	SYSTNSJ	TB	23:14:30	23:28:30	B	Y	Y	Y	Y	Y	N	N
SYSTNSJ	LN3201	15	MidWeek	ABCDEFHJ	SYSTNSJ	LESTER	TB	23:28:30	23:36:30	B	Y	Y	Y	Y	Y	N	N
LESTER	LN3201	15	MidWeek	ABCDEFHJ	LESTER	LESTKJN	TB	23:36:30	23:40:30	B	Y	Y	Y	Y	Y	N	N
LESTKJN	LN3201	15	MidWeek	ABCDEFHJ	LESTKJN	WGSTNNJ	TB	23:40:30	23:45:30	B	Y	Y	Y	Y	Y	N	N
WGSTNNJ	LN3201	15	MidWeek	ABCDEFHJ	WGSTNNJ	KLBYBDG	TB	00:07:30	00:14:30	B	Y	Y	Y	Y	Y	N	N
KLBYBDG	LN3201	15	MidWeek	ABCDEFHJ	KLBYBDG	MRKTHRB	TB	00:14:30	00:29:30	B	Y	Y	Y	Y	Y	N	N
MRKTHRB	LN3201	15	MidWeek	ABCDEFHJ	MRKTHRB	KETRGNJ	TB	00:29:30	00:43:00	B	Y	Y	Y	Y	Y	N	N
KETRGNJ	LN3201	15	MidWeek	ABCDEFHJ	KETRGNJ	KETR	TB	00:43:00	00:46:00	B	Y	Y	Y	Y	Y	N	N
KETR	LN3201	15	MidWeek	ABCDEFHJ	KETR	KETRSTHJN	TB	00:46:00	00:48:00	B	Y	Y	Y	Y	Y	N	N
KETRSTHJN	LN3201	15	MidWeek	ABCDEFHJ	KETRSTHJN	HRWDENJ	TB	00:48:00	00:51:30	B	Y	Y	Y	Y	Y	N	N
HRWDENJ	LN3201	15	MidWeek	ABCDEFHJ	HRWDENJ	WLNBRO	TB	00:51:30	00:55:00	B	Y	Y	Y	Y	Y	N	N
WLNBRO	LN3201	15	MidWeek	ABCDEFHJ	WLNBRO	SNBKJN	TB	00:55:00	01:07:00	B	Y	Y	Y	Y	Y	N	N
SNBKJN	LN3201	15	MidWeek	ABCDEFHJ	SNBKJN	BEDFDN	TB	01:07:00	01:15:00	B	Y	Y	Y	Y	Y	N	N
BEDFDN	LN3201	15	MidWeek	ABCDEFHJ	BEDFDN		TB	01:15:00		B	Y	Y	Y	Y	Y	N	N

### Possession Viewer

#### Harrowden Jn and Kettering South Jn 3201.15

Train Id	LOR	Section	WSM	Periods	StartTiploc	EndTiploc	TBCR	Start Time	End Time	Direction	M	T	W	Th	F	Sa	Su
6L10HP	LN3201	15	MidWeek	ABCDEFHJ	HRWDENJ	KETRSTHJN	TB	22:00:00	06:00:00	B	Y	Y	Y	Y	Y	N	N

Slows BLOCKED

#### Harrowden Jn and Kettering South Jn 3201.15

Train Id	LOR	Section	WSM	Periods	StartTiploc	EndTiploc	TBCR	Start Time	End Time	Direction	M	T	W	Th	F	Sa	Su
6L10HP	LN3201	15	SunMon	ABCDEFHJ	HRWDENJ	KETRSTHJN	TB	22:40:00	05:25:00	B	N	N	N	N	N	Y	N

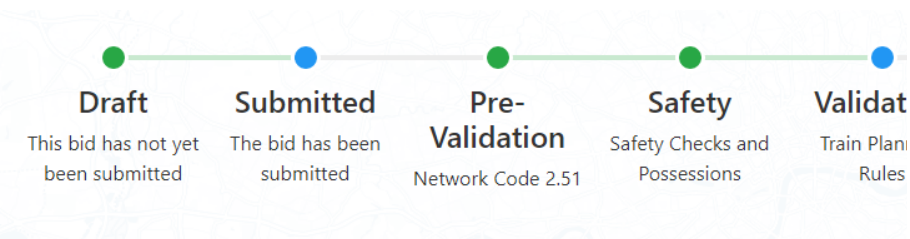
Fasts or Up & Down Slow BLOCKED

Close



# Path Bid Management

- Checklists for bid evaluation tasks
- Planner notes
- Audit trail



## #3 Validation Check-List

- Timings
- Pathing Allowances
- Engineering Allowances
- Complies with Train Planning Rules

**Comments:**  
Type here to write any notes.

## Notes

Note that this route is only cleared up to RA8. RT3973 will be required for RA9 or 10 loads. - Barrie L

Loads will be below RA9 - Peter P

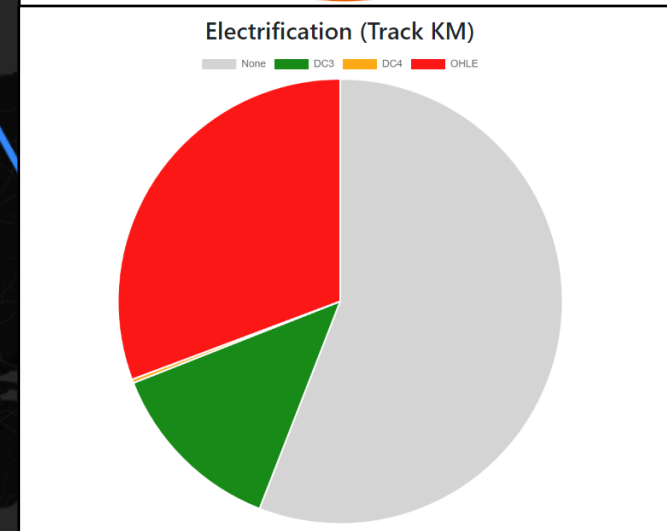
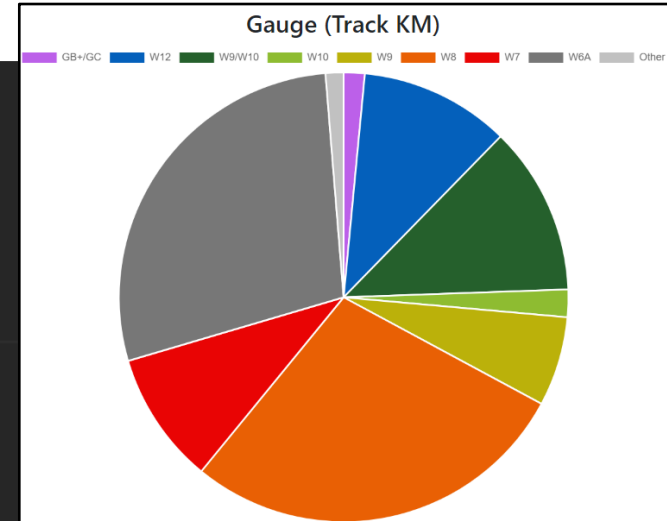
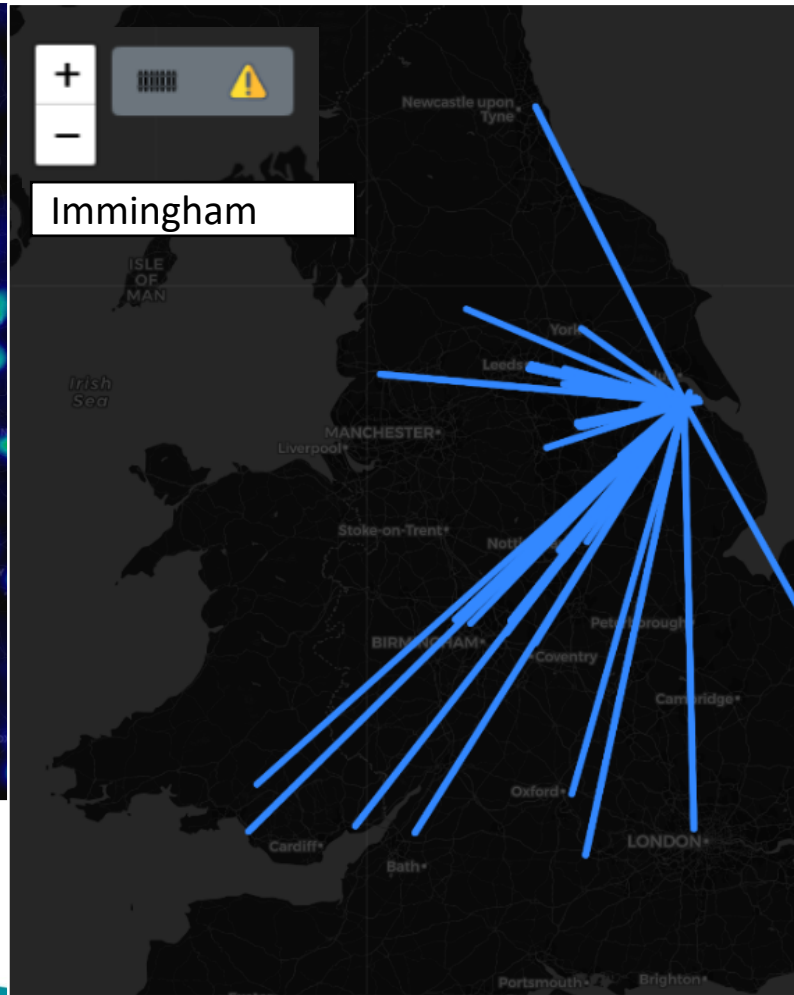
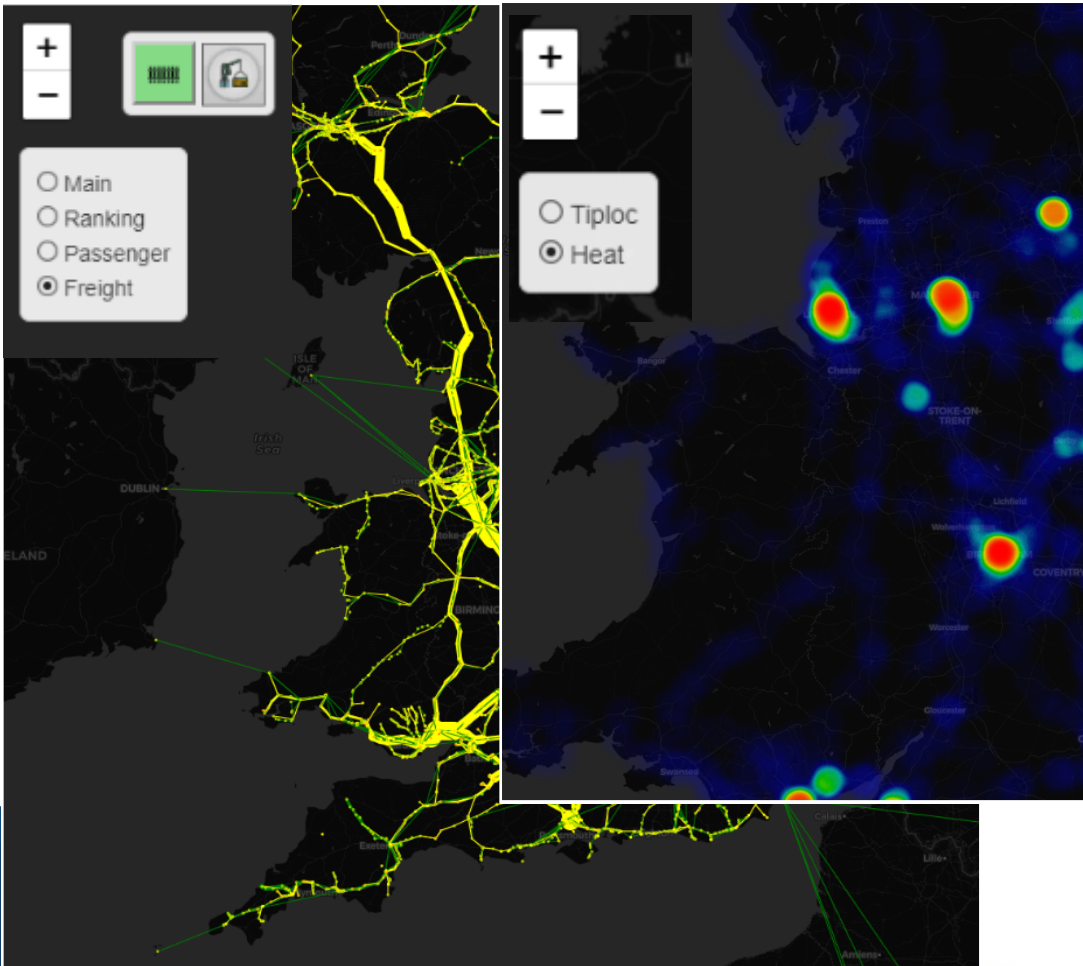
## Auditing

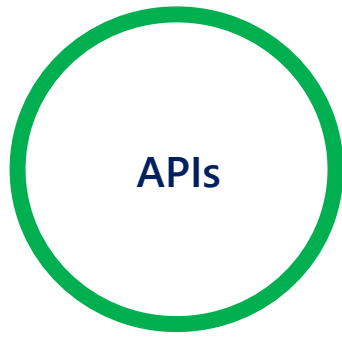
Search:

Date	User	Description
2020-03-25T00:39:49Z	21fb910d-a7cd-49b0-891e-411dd30fda6c	Bid was created.
2020-03-25T00:39:50Z	21fb910d-a7cd-49b0-891e-411dd30fda6c	A file was uploaded: <a href="#">Tunstead.pex (v1)</a>
2020-03-25T00:52:20Z	21fb910d-a7cd-49b0-891e-411dd30fda6c	The bid was saved.
2020-03-25T00:52:20Z	21fb910d-a7cd-49b0-891e-411dd30fda6c	Values have been updated: <b>AzureGroup:</b> "UoHVirtual" to "null"

# Analytics

- Bringing together train schedules and actual movements and the network capability information
- Heat maps and weighted line for line traffic
- Infrastructure pie charts and stats
- To be expanded based on user request





- Exposing our database to be used by third parties
  - Research
  - Applications
  - Web-sites
- Azure API Management Services



### NR Plus API

HOME APIS PRODUCTS APPLICATIONS ISSUES

#### APIs

- [Echo API](#)  
A great way to test connecting to the APIs.
- [Infrastructure API](#)  
API for interacting with the infrastructure database.
- [Schedules API](#)  
APIs to access schedule data.

### NR Plus API

HOME APIS PRODUCTS APPLICATIONS ISSUES SIGN IN

#### Infrastructure API

API change history  
API for interacting with the infrastructure database.

#### GaugeMap

Try it

Request

Request URL  
<https://nrplus.azure-api.net/Infrastructure/GaugeMap>

Request headers

Ocp-Apim-Subscription-Key	string	Subscription key which provides access to this API. Found in your <a href="#">Profile</a> .
---------------------------	--------	---

Request body

Code samples

Curly C# Java JavaScript ObjC PHP Python Ruby

```
@ECHO OFF
curl -v -X GET "https://nrplus.azure-api.net/Infrastructure/GaugeMap"
-H "Ocp-Apim-Subscription-Key: {subscription key}"
--data-ascii "{body}"
```





- Prototype built and demonstrated (CON and HAW)
- First digitalised library of special dispensations (RT3973)
- To be further developed during the next year

## Searchable RT3973 Library

### RT3973 Library

All RT3973

Show 10 entries

RT3973 Reference	Type	Issued	Expire	
BHM010HAW	HAW	Fri Jun 21 2019	Sat Nov 30 2019	<a href="#">View</a>
BHM027HAW	HAW	Wed Nov 20 2019	Fri Apr 30 2021	<a href="#">View</a>
LDS002CON	CON	Tue Apr 30 2019	Sun Mar 15 2020	<a href="#">View</a>
LDS006CON	CON	Tue Sep 03 2019	Thu Dec 31 2020	<a href="#">View</a>
LDS022HAW	HAW	Tue Nov 05 2019	Tue Aug 31 2021	<a href="#">View</a>
LDS052HAW	HAW	Thu Jul 25 2019	Wed Jun 30 2021	<a href="#">View</a>
LDS070CON	CON	Wed Nov 06 2019	Sat Feb 15 2020	<a href="#">View</a>
PAD006CON	CON	Mon Nov 18 2019	Sun Oct 31 2021	<a href="#">View</a>
PAD035CON	CON	Wed Apr 18 2018	Tue Mar 31 2020	<a href="#">View</a>
PAD083CON	CON	Mon Jul 15 2019	Fri Feb 28 2020	<a href="#">View</a>

## Identify relevant forms and routes for a specific path

RT3973 Routes and Restrictions

BHM010HAW RA (9,10)

Show 10 entries

Route	Origin	Destination
A	Mountsorrel	

Showing 1 to 1 of 1 entries

LDS002CON

Show 10 entries

Route	Origin	Destination
T	Darlaston Jn	Colche
FF	Gospel Oak Jn	Chann

Showing 1 to 2 of 2 entries

Route Details

Show 10 entries

Number	Location	Reverse	Required
1	Mountsorrel	false	false
2	Loughborough	false	false
3	Ratcliffe Jn	false	false
4	Trent South Jn	false	false
5	Trent East Jn	false	false
6	Attenborough Jn	false	false
7	Lenton South Jn	false	false
8	Mansfield Jn	false	false
9	Nottingham East Jn	false	false
10	Netherfield Jn	false	false

Showing 1 to 10 of 17 entries

Route Details

Show 10 entries

Between	Location	Distance	Speed	Direction	Notes
Just South of Loughborough Station	Bridge SPC5-74	111m 40ch	20	Both	
Sleaford East Jn and Boston		Throughout	20	Both	

Showing 1 to 2 of 2 entries

Provide relevant route and restriction details