Why Harrogate “Metro” Line?

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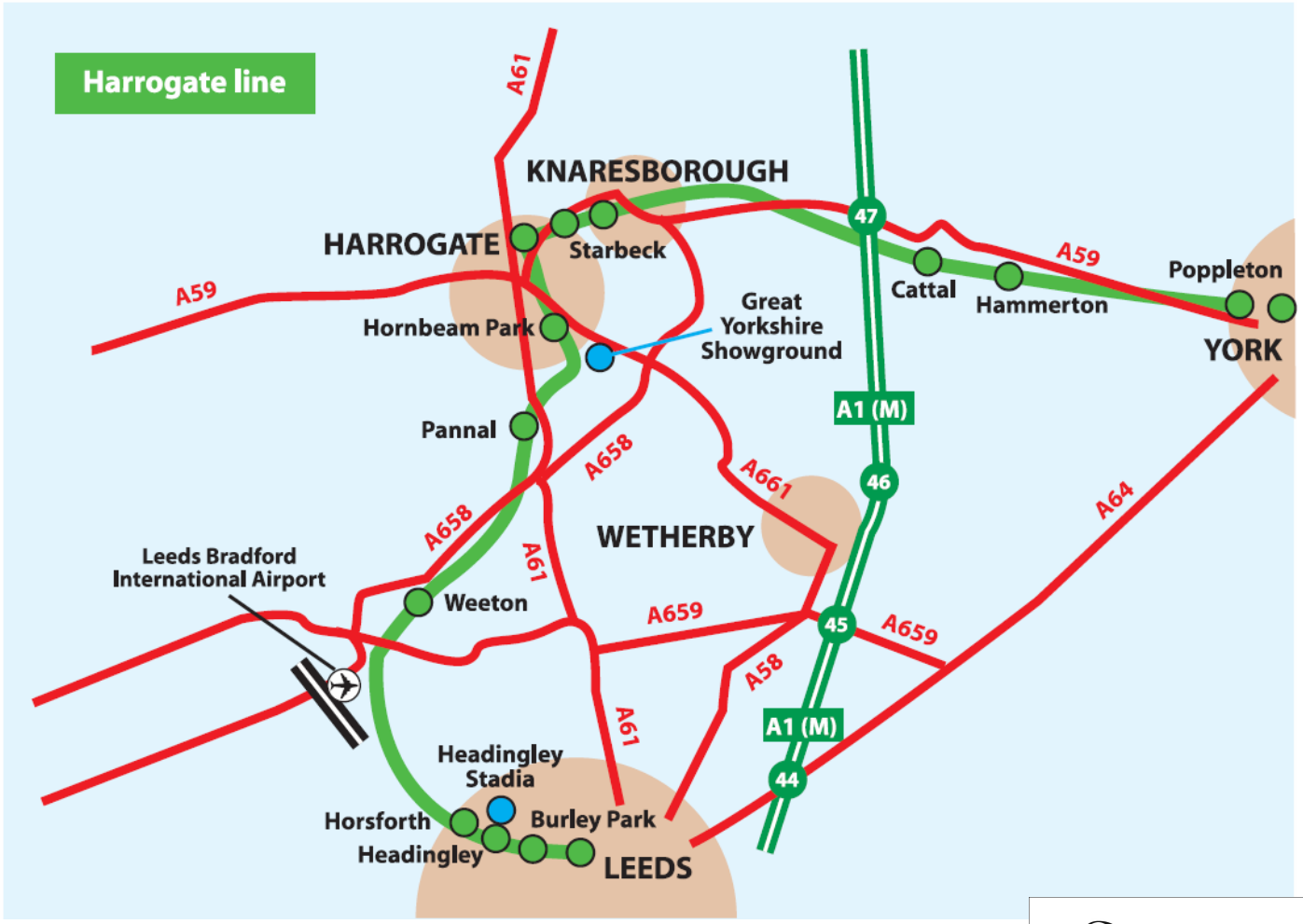
Leeds-Harrogate-York railway line: Geographical context & key locations



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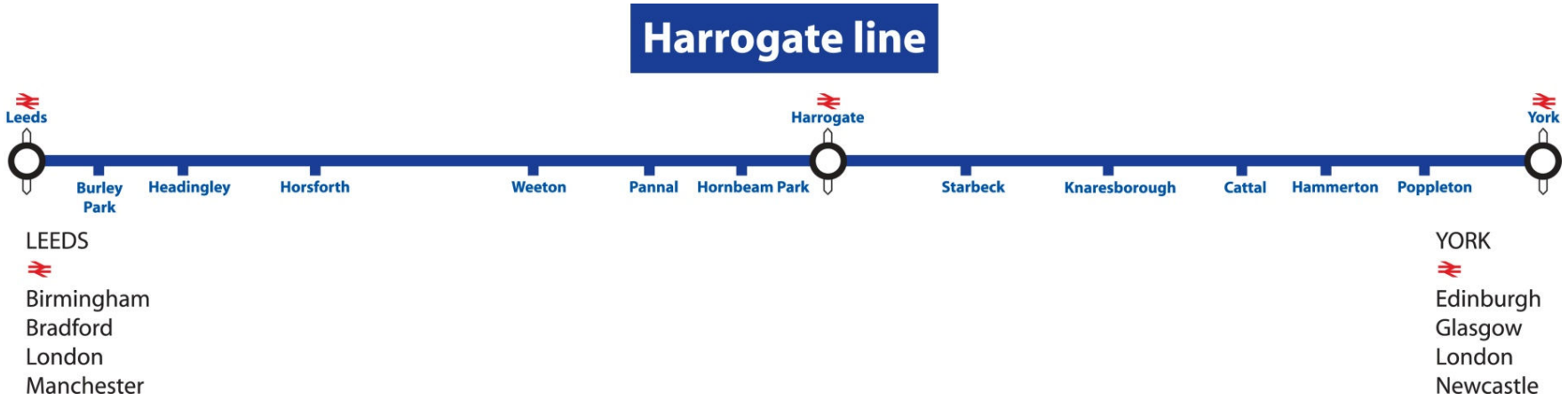
Local Authorities & Transport Authorities



Local Authorities:

Leeds City Council	Harrogate Borough Council	York CC

Transport Authorities:

WYPTE	North Yorkshire County Council	York CC

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Why upgrade/convert to conventional Metro ?

- Resolve inadequacy, capacity, passengers left behind
- Improve connectivity – Harrogate generates significant long distance flows accounting for an estimated 60%+ of the national rail revenue generated
- Optimise use of network capacity and capability
- Effectively serve the corridor and its major international venues
- Improve accessibility and usage - including several new stations
- Walk-up frequency (15 mins or less) and improved journey times
- Deliver significant efficiencies, reduction in unit costs
- Grow usage and revenues – 400% achieved elsewhere
- Only achievable using the superior performance capability of electric trains
- Maintain capability to operate direct London services

BUT:

- The line straddles three transport authority areas with historic absence of "ownership" post rail privatisation. Harrogate Borough Council is the largest single stakeholder by revenue and volume by a considerable margin.

Unlike other routes in the region, already serves or potentially could serve many venues and destinations apart from Leeds

- Many complex passenger flows in four directions simultaneously, peak, contra-peak and off-peak.
- Two Leeds Universities + Trinity college (Horsforth) + two York Universities
- Headingley Carnegie stadiums (cricket & rugby)
- Leeds Bradford International Airport,
- Great Yorkshire Showground,
- Harrogate Spa town, shopping centre and major college
- Pannal and Hornbeam Business Parks
- Knaresborough historical town centre
- City of York - major national tourism centre & National Railway Museum
- Excellent public transport links are imperative for all these venues
- A1(M) Park and Ride capability offers significant untapped potential.

The Harrogate Line - where are we now?

•Illustrative *planned* weekday seating capacity averages 206 per train

•Average *observed* seating capacity of widely mixed diesel fleet approx 170 per train – estimated *average* load factors around 75%-85%

•11% of worst recorded crowding in the Northern franchise occurs between Leeds, Horsforth and Harrogate.

•Many complaints about the poor quality of a very mixed bag of old uncomfortable rolling stock with high density seating configuration

• inadequate journey times, frequency and connectivity at Leeds and York

• inadequate reliability and punctuality.

• Development and growth severely frustrated by the availability and capability of slow diesel rolling stock

•New stations frustrated for the same reason

•Key destinations on the route and income generation not served

•Accessibility severely hampered by inadequate car parking

***YET:* -** High level of generation of long distance travel, esp. to/from London.

The Leeds-Harrogate-York Line: Where are we now?

Harrogate-York services constrained by:-

- Capacity bottleneck at Skelton Junction with East Coast Main Line
- Single line sections Knaresborough-Cattal and Hammerton-Poppleton
- Availability, capacity and capability of diesel rolling stock
- Inability to contemplate additional stations due to rolling stock + single line

but

- 7% annual growth in journeys to/from/via Harrogate (highest across route)
- Major development plans along the line inhibited by absence of stations.

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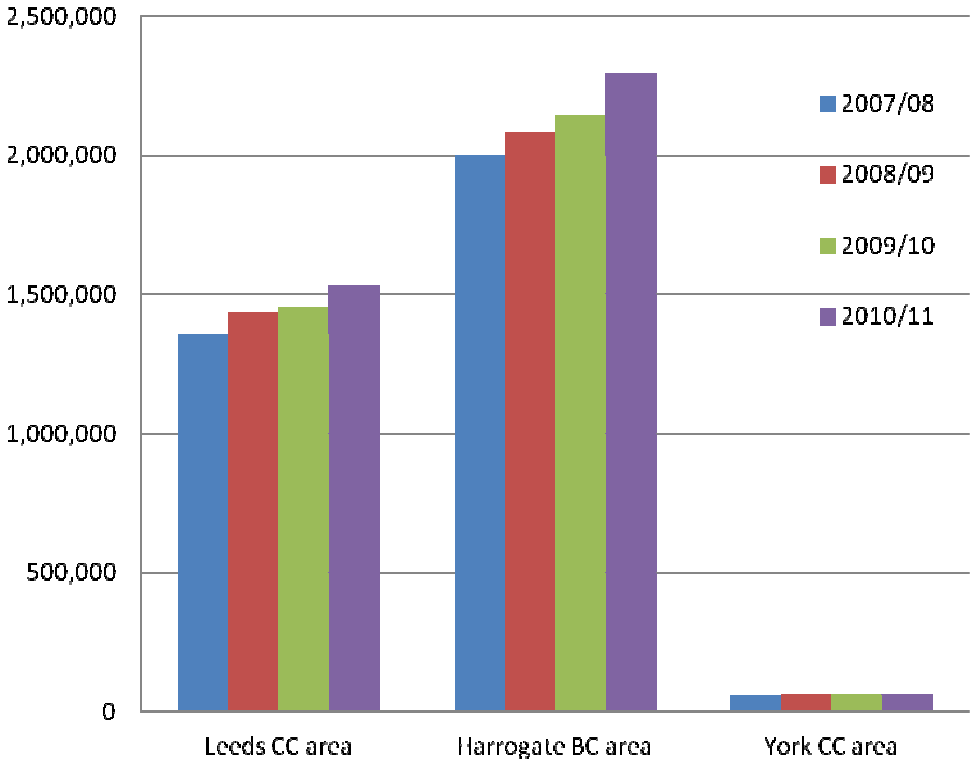
Harrogate Line stations by group – annual trips 2007-2011. c. 4m trips p.a.



Where are we now?
Usage by grouped stations (incl. 2010 growth)

Leeds City Council area (WYPTE) = Burley Park + Headingley + Horsforth (+5%).

Harrogate Borough Council area = Weeton + Pannal + Hornbeam Park + Harrogate + Starbeck + Knaresborough + Cattal + Hammerton. (+7%)

York City Council = Poppleton (-1%)

Where are we now? – poor connectivity/inadequate rolling stock

Harrogate line passengers (left) wait to gain access to the Class 144 pacer train Leeds-Harrogate-York on a wet platform 4 at Leeds station (12.29 June 2011). Many have just arrived in a high quality environment from London with luggage. The national revenue flow derived from connecting long-distance journeys (particularly London) is estimated to be almost double the income earned from local journeys internal to the route.

Overcrowded conditions on-board the 1720 York-Harrogate-Leeds contra-peak service in July 2011. Intending passengers were unable to board at Headingley & Burley Park. This was a 4-car train. Revenue collection staff were unable to perform their duty.

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Where do we need to get to?.. in our lifetime!

- Higher capacity trains with better seating and more standing room
- Some further platform extensions to suit longer trains as necessary
- Higher performance trains (better acceleration/braking)
- More frequent services – aiming for walk-up frequency
- Uplift from 30 to 15 minute frequency Leeds-Harrogate-Knaresborough
- Uplift from 60 to 30 minute frequency York-Harrogate
- More car parking at all Stations plus new Park & Ride facilities
- Extra stations to allow access to the services by a much wider audience e.g. Nether Poppleton (York former BSC site), Flaxby Moor A1(M) P&R
- Leeds Bradford International Airport Parkway station
- Significant improvement in reliability and in connectivity

Electric rolling stock on the Harrogate Line enable all these objectives

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How might we get there affordably?

- Use cascaded rolling stock to quickly deliver the benefits
- Examine alternative low cost modern ground-level electrification (on DLR)
- Deliver affordable passenger benefits and efficiencies through electrification, single-person operation and smart-card ticketing
- Capital investment in extra stations and car parks to provide all-day accessibility
- Either Network Rail as a partner or a long-term concession is possible
- Iterative development plan for extra Stations and routes over 15-20 years
- Examine opportunities for development and operation a not-for-dividend/ mutual company or concession locally controlled with key stakeholder representation, outside current rail franchising to re-cycle potential profits towards ongoing development.

Possible cascaded rolling stock options – Plan A-1

Class 315 4-car 25kV electric train – available 2018-20

- 318 Seats (+54% on current average)
- c.10%+ improved journey times
- Single Person operation
- Refurbished 2004
- No selective door controls
- No certainty of availability

Possible cascaded rolling stock options – Plan A-2

Class 317 or 319 4-car 25kV

electric train – available ??

c.198 Seats (+16% on current average)

•c.10%+ improved journey times

Single Person operation

•Refurbished 2004

o selective door controls

•No certainty of availability

Possible cascaded rolling stock options – Plan B

D78 6-car 750v DC electric train – available 2014-15

•280 Seats (+36% on current average) + 700 standing for events

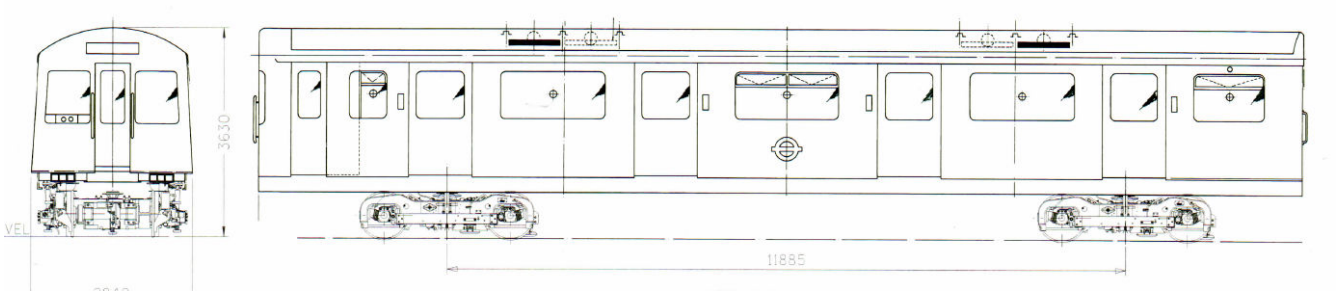
•c.12%+ improved journey times

•Single Person operation

•Refurbished 2007

• Selective door controls

•Certainty of availability 2015



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Benefits of electric operation (D78 Metro)

- Significant increase in capacity
- Consistent standard train length
- Designed for single person operation
- Approx 10-12% faster running times and shorter station dwell times
- 20 years estimated forward asset life
- Estimated operating costs 50% lower per vehicle compared with diesel
- Maintenance costs 33% lower than diesel (D78 = £0.42p per vehicle mile)
- Significantly improved train reliability
- Significant contribution towards carbon/emissions targets and modal shift.

(Source Network Rail Electrification RUS & London Underground)

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Electrification options

Electrification is needed - but a "one size fits all solution" may not be cost effective for the Harrogate Line

RHS = Standard 25kV overhead electrification – may involve significant overbridge structure replacement and additional feeder for power supplies

LHS = Modern form low-level side rail 750v DC electrification on Berlin Metro – by a UK supplier. May involve additional gauge clearance work in the lower sector and additional signalling immunisation

Why consider modern DC electrification option?

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- No certainty of availability of suitable AC rolling stock in acceptable timescales.
- Age of 25kV cascaded rolling stock when it becomes available
- D78 rolling stock is recently heavily refurbished & available with certainty.
- The Leeds-Harrogate-York route has operated successfully as a self-contained enclave for over thirty years.
- There are no wider network benefits, diversions or freight over the route
- Most new DC rolling stock is also dual voltage so can operate on either 750vDC or 25kV AC systems, e.g. Class 375/377, Eurostar, Class 395 etc.
- Close proximity of stations lends itself to conventional 750v DC metro operation (higher power to weight ratio/acceleration etc.).

Possible key Park & Ride stations include:-

Flaxby Moor Park & Ride

- Junction 47 A1M/A59 offers frequent journey opportunities to York, Knaresborough, Harrogate, Airport, Headingley and Leeds.
- Approx 10 minutes drive time from Boroughbridge and Wetherby
- Development site for station, park & ride + possible maintenance depot

Leeds Bradford Airport Park & Ride

- 1.9km from Airport terminal – just off Scotland Lane
- Served by extending existing Long Stay car park shuttle bus
- Park and ride for Bramhope / Yeadon / Cookridge
- Overspill for Horsforth (Car park usually full)
- 75%+ more journey opportunities & 21% faster journeys

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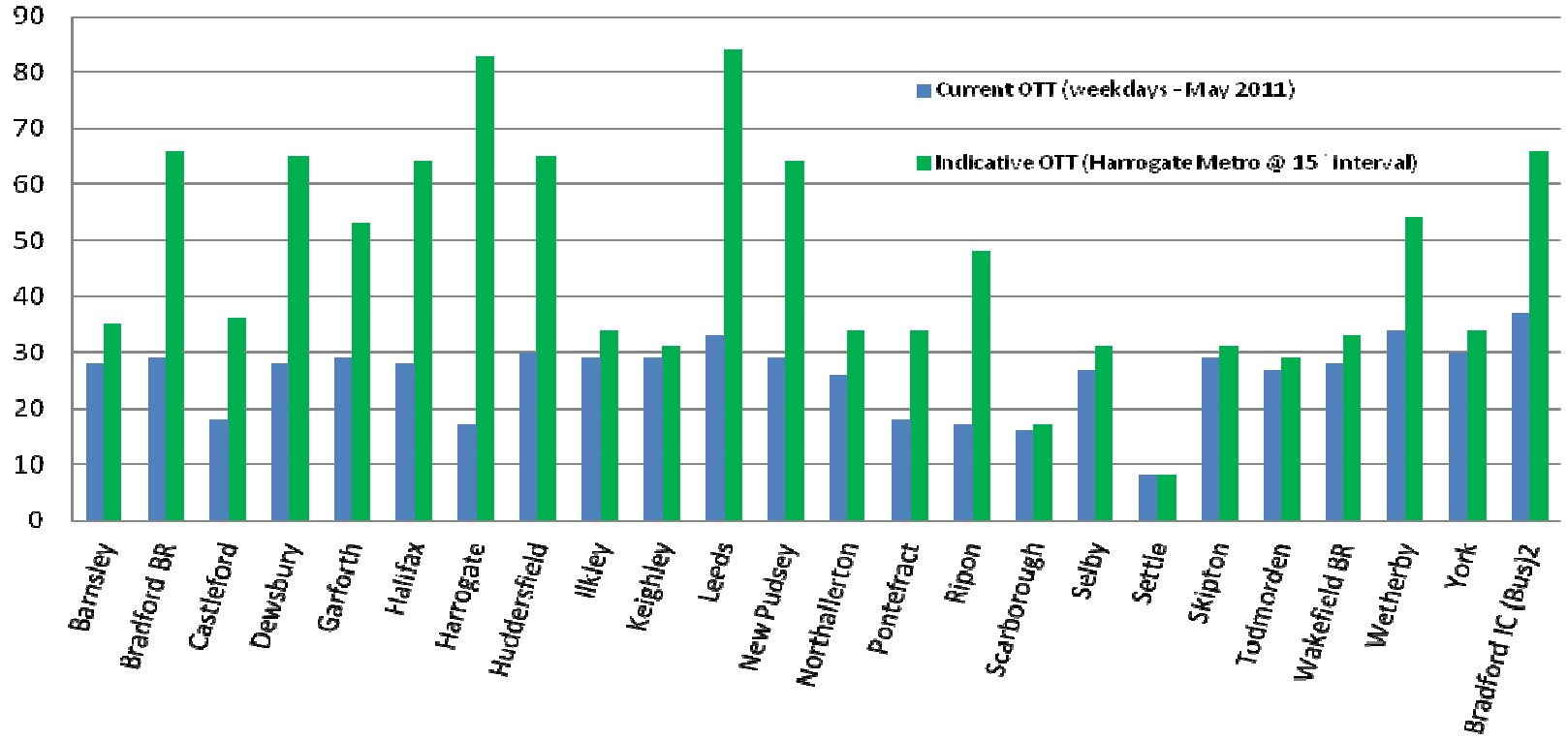
Leeds Bradford Airport – potential new Parkway Station - Significant benefits for wider Leeds City Region – e.g. +75% more journey opportunities by train AND average 21% reduction in journey time.



Local Authorities & Transport Authorities

November 2011 – strategy and objectives agreed across all stakeholders, led by Harrogate Chamber and hosted by Harrogate Borough Council:

- **Harrogate Borough Council**
- **North Yorkshire County Council**
- **West Yorkshire Passenger Transport Executive**
- **Leeds City Council**
- **York City Council**
- **Network Rail**

Electrification forms a fundamental, essential and urgent cornerstone of the strategy to fulfil increased capacity and improved frequency and accessibility along this vital orbital route.

(59% of all trips on the route involve travel to/from stations in the Harrogate Borough Council/NYCC area. (2010-2011 data). WYPTE = 39%; YCC = 2%)

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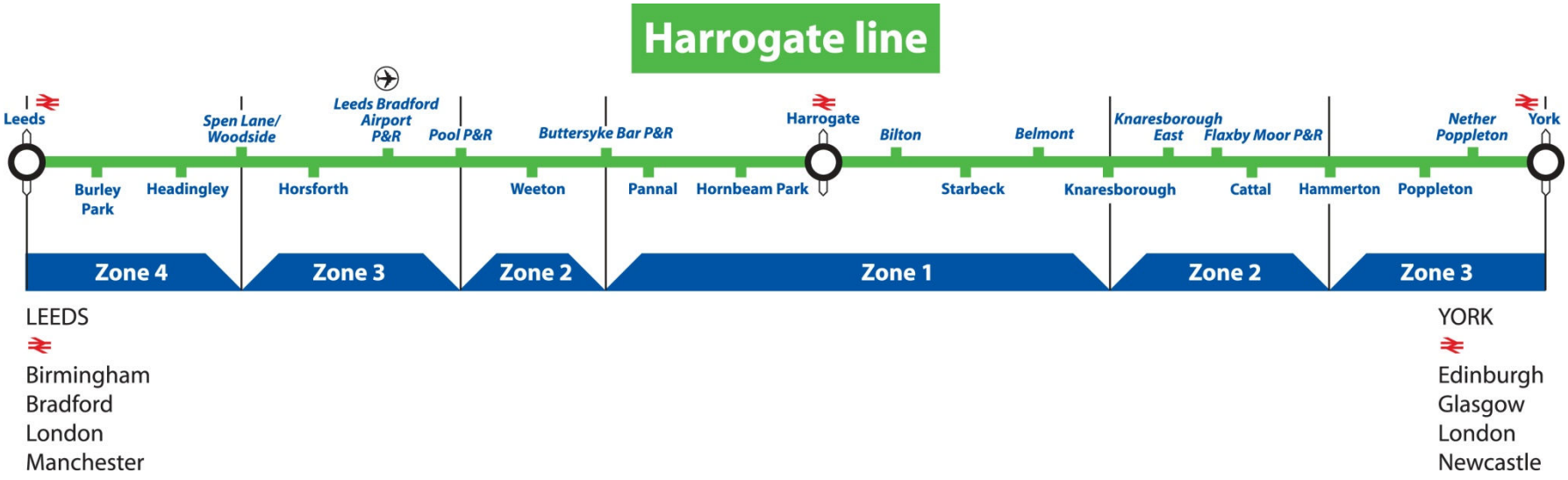
Harrogate Metro Line – what next?

Electrification at 25kV or modern DC system as proposed endorsed technically in principle by the Rail Industry Vehicle/Traction Interface Committee in Sep 2011. (Network Rail, DfT, ORR & senior industry reps).

- **Formalise alliance of key stakeholders and manage as one route - e.g. Harrogate Line Development Company.**
- **Lobby Government – Dept for Transport**
- **Resolve omission from industry planning process (RUS)**
- **Include in CP5 industry planning**
- **Demand forecasting & Business Case**
- **Feasibility/outline design estimates**
- **Synergy/opportunities arising from Trans-Pennine Electrification**
- **Set the agenda for franchise replacement /concession and beyond**
- **Funding for next steps to be secured (c. £0.3m)**

Future vision – Harrogate "Metro" Line



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