



Developing High Speed Rail for Britain

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Introduction

Why Britain is developing HSR (c 70bn Euro)

How we are doing it

What we have learned



Britain is Growing

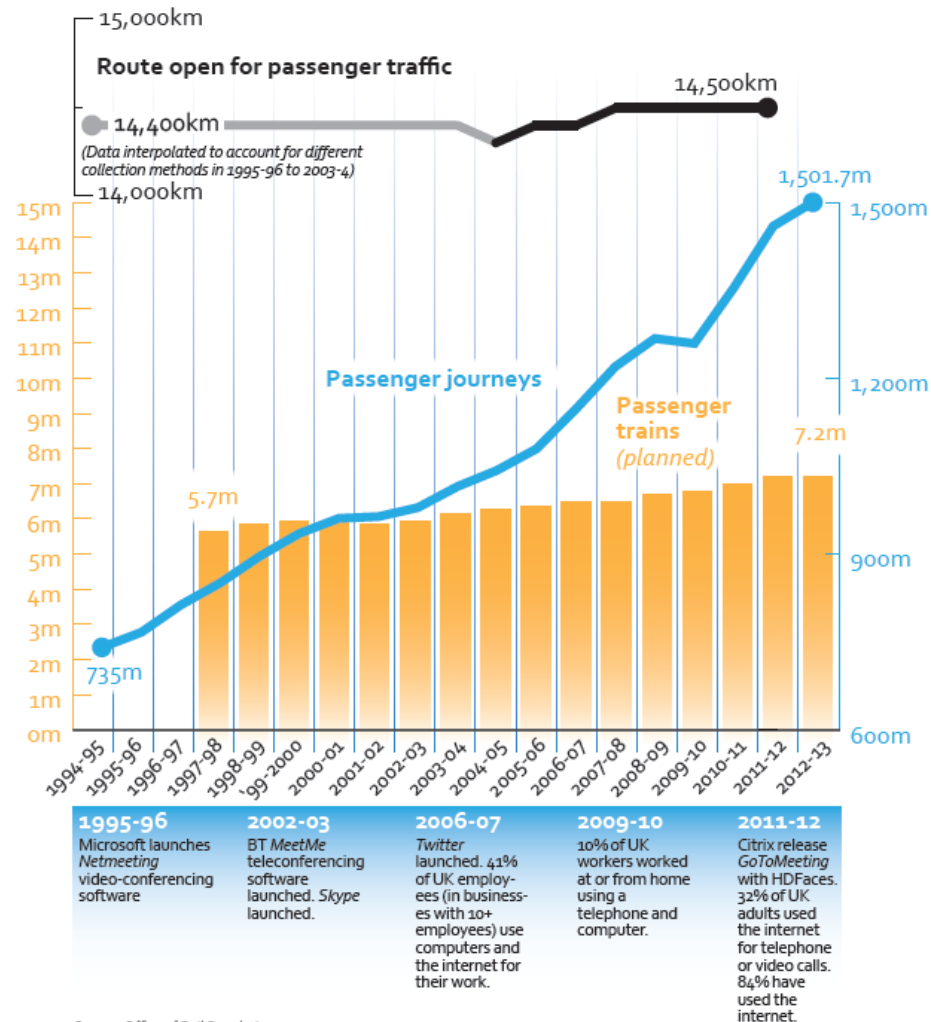
Population of England

- 2008 52m
- 2033 60m
- 2050 70m

Living in City Regions

- Today 41m
- 2050 61m

Rail Demand - Doubled in 20 Years



Source: Office of Rail Regulation

We Have Upgraded Classic Rail

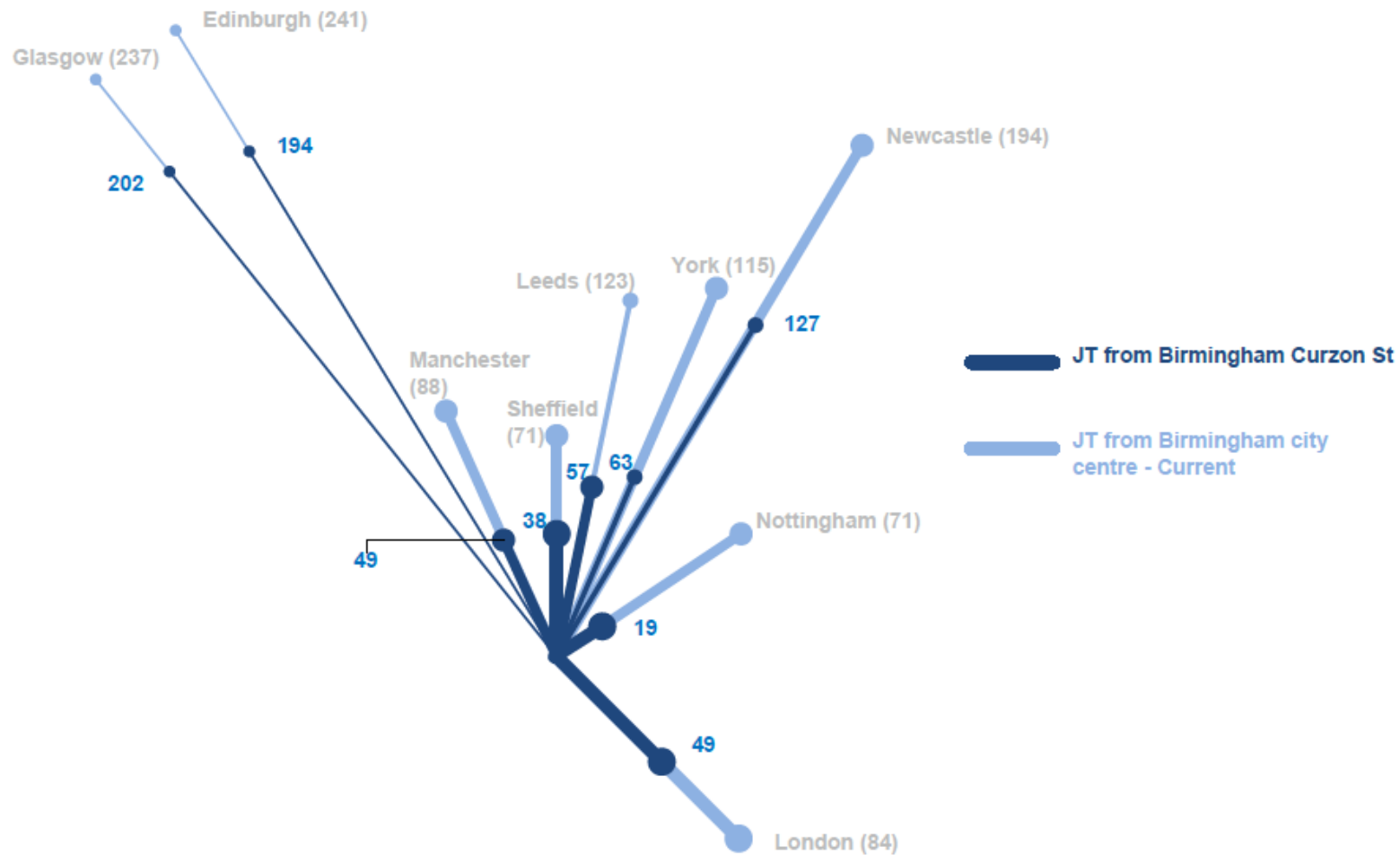


January 2013: Initial Network Announced



- London to
 - West Midlands 1-24 to 0-49
 - Manchester 2-08 to 1-08
 - Leeds 2-12 to 1-22
- Birmingham to
 - Manchester 1-34 to 0-41
 - Leeds 2-05 to 0-57

Changing Connectivity (e.g. Birmingham)



Underpinning Growth

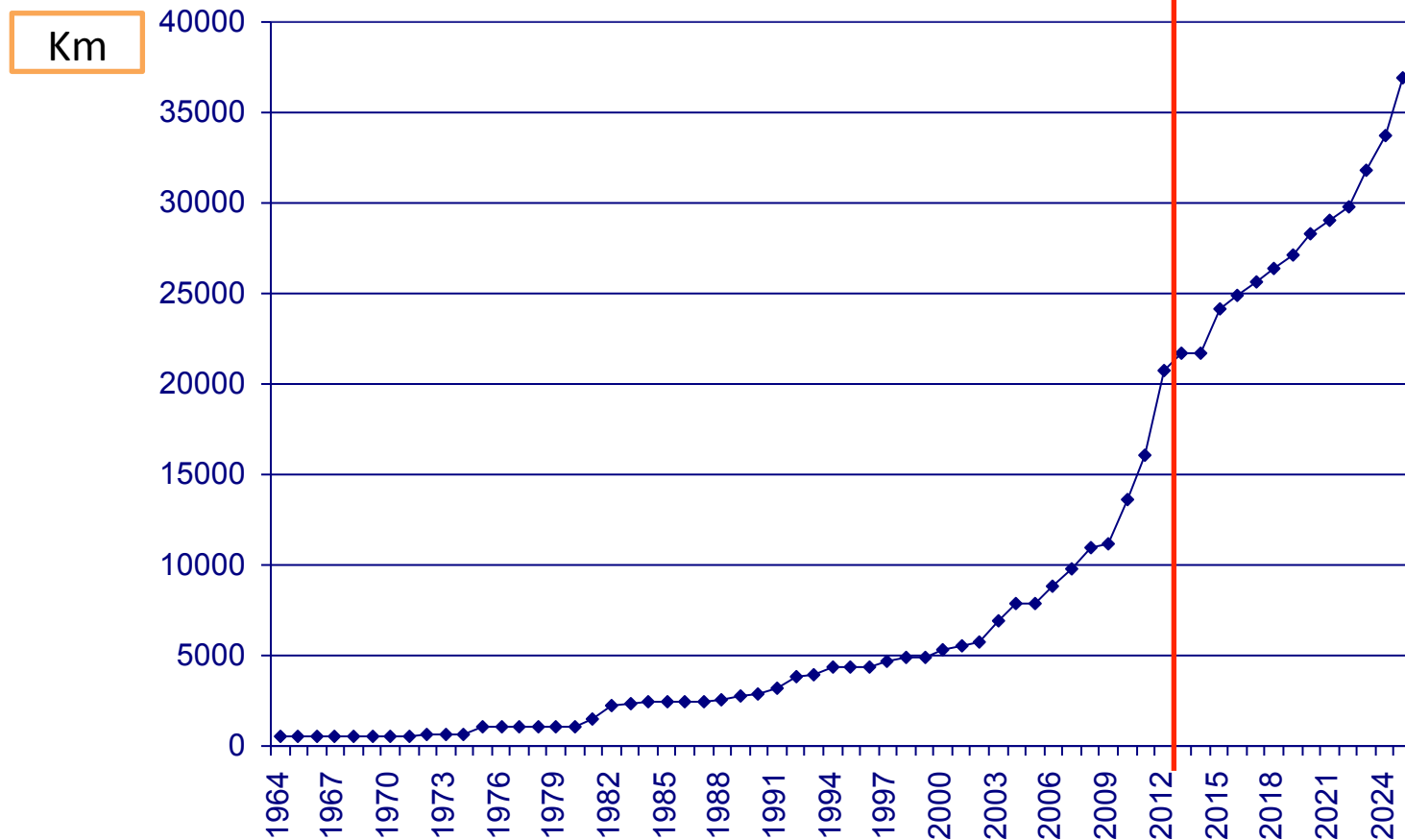
- Rebuild and rebalance UK economy
- Wider benefits from released capacity
- Supports the creation of up to 400,000 jobs
- Cities working as one economic powerhouse
- **HS1** (in SE England) has seen regeneration worth twice the initial capital cost since opening in 2003



High Speed Rail is 50 Years Old

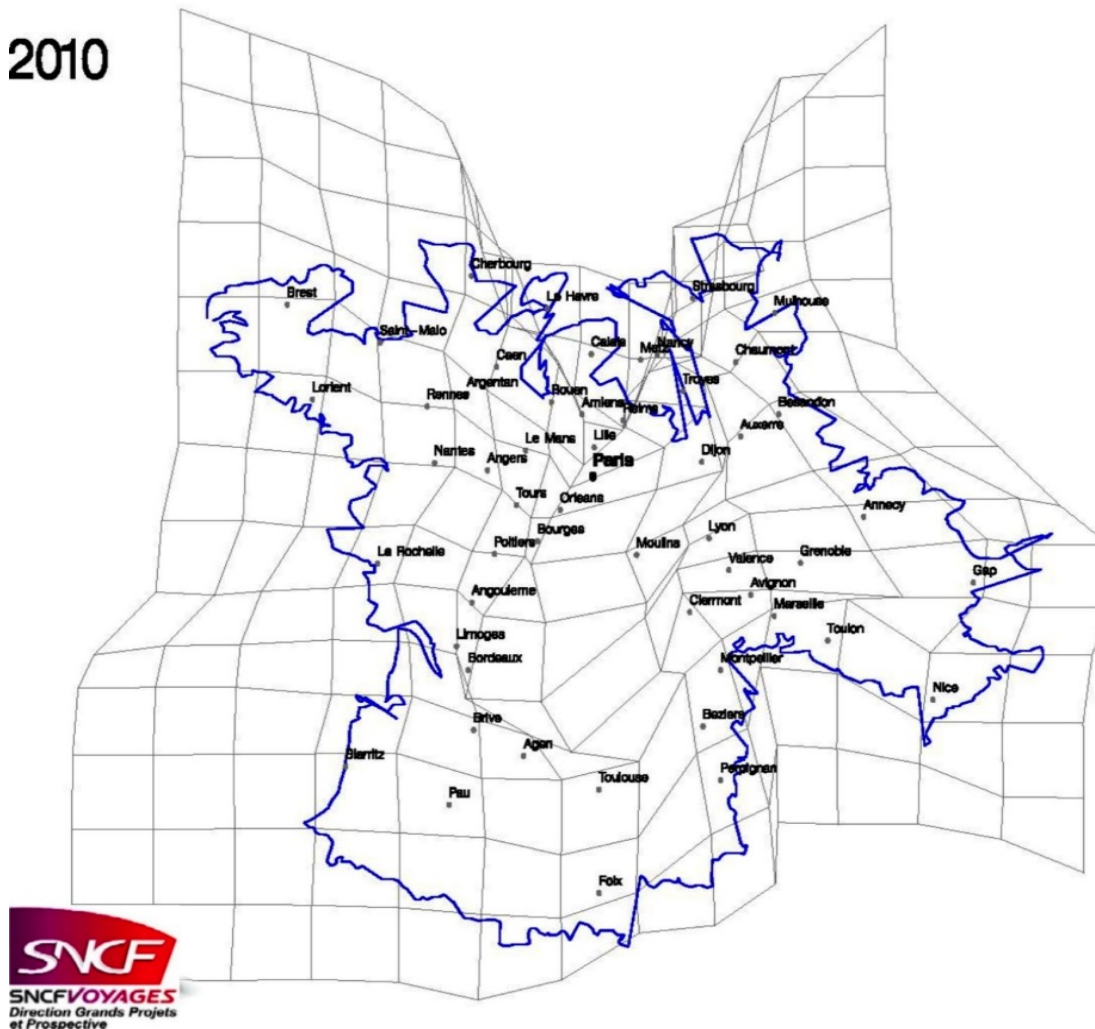


World High Speed Rail Expansion



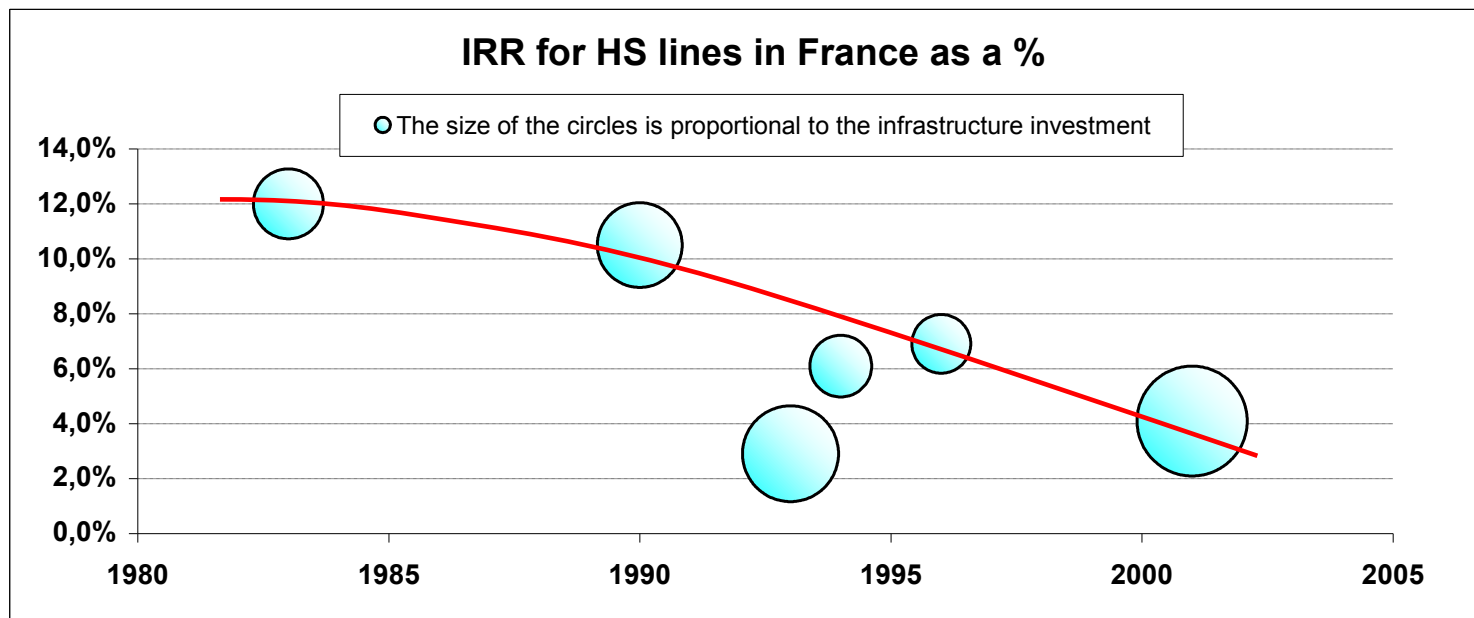
The French Experience

2010



The French Financial Lesson

- HSR on the trunk routes has had a good rate of return.
- Branches and twigs have been justified on “strategic” arguments



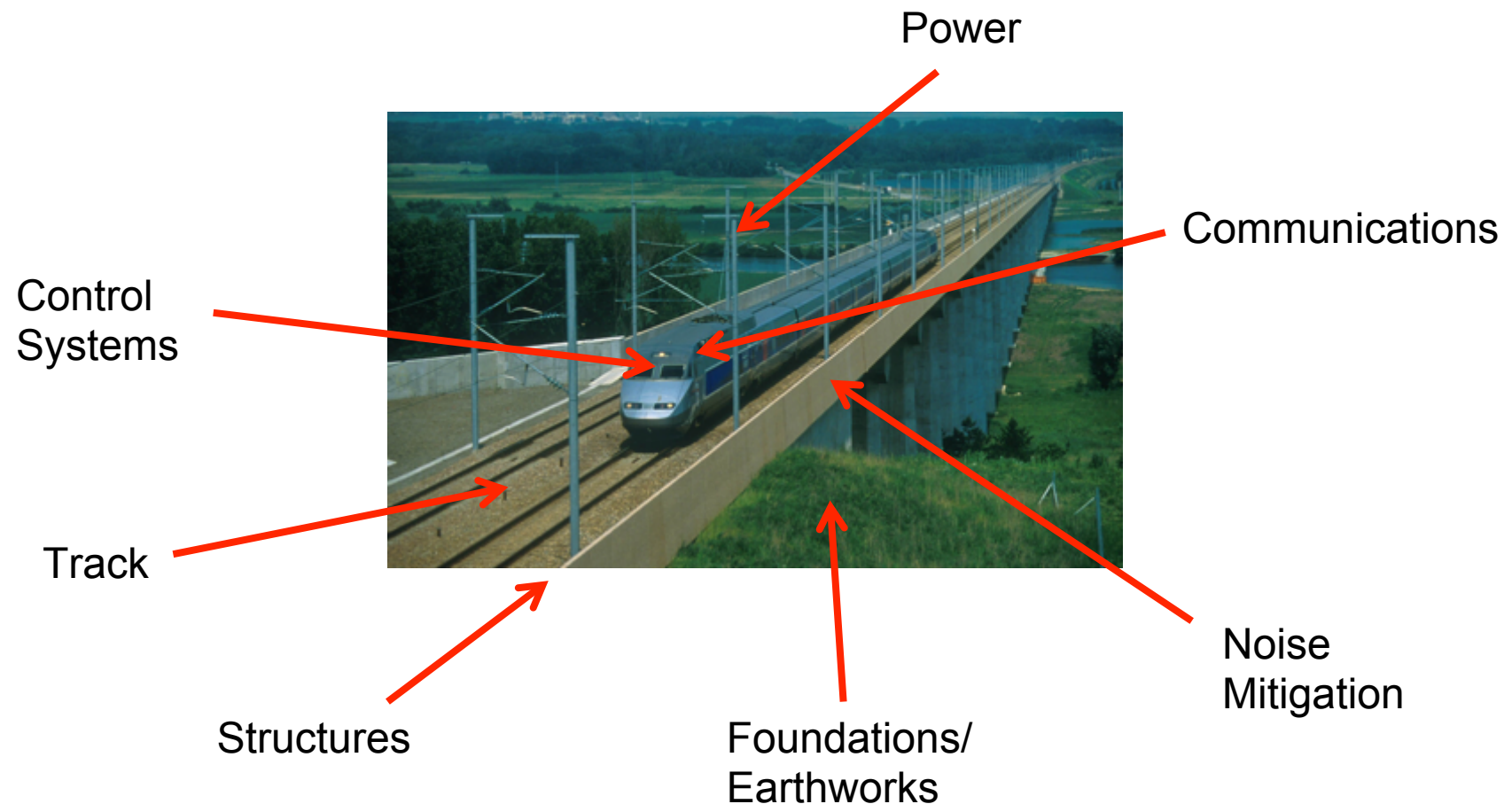
HS2 Guiding Principles

1. HSR high capacity need to be matched by strong demand
2. City to city journeys, not shorter distance trips
3. Maximise capacity – mixed services reduce capacity
4. Initial network should serve cities further north by through running
5. As the network grows more dedicated services to maximise capacity and reliability
6. Well integrated with other transport networks to carry benefits through to whole door-to-door journeys

International Technical Standards



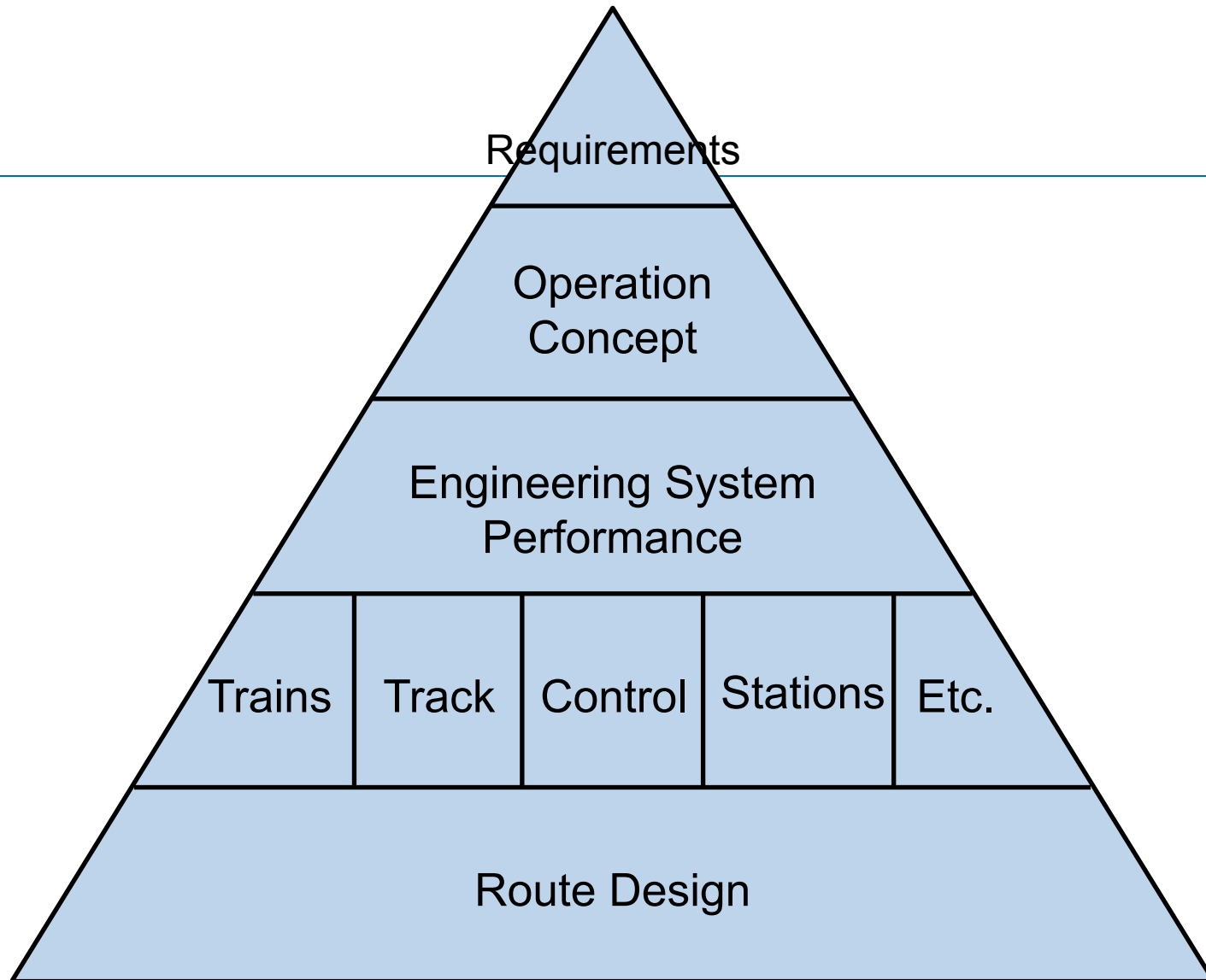
A Complex Technical System



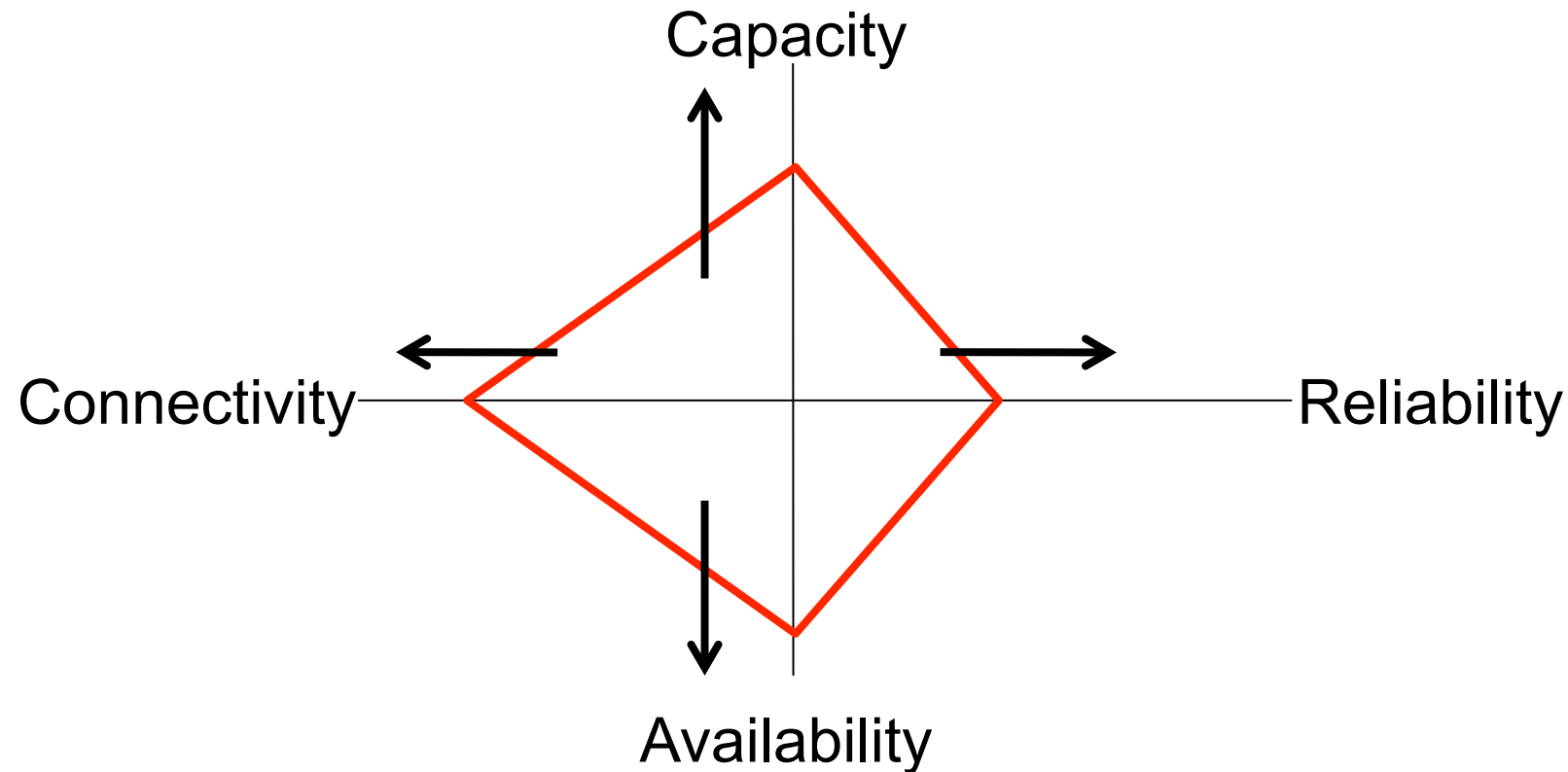
And Whole Life

- Construct
- Commission
- Operate
- Maintain
- Renew
- Adapt





Maximising Capacity, Connectivity, Availability and Reliability

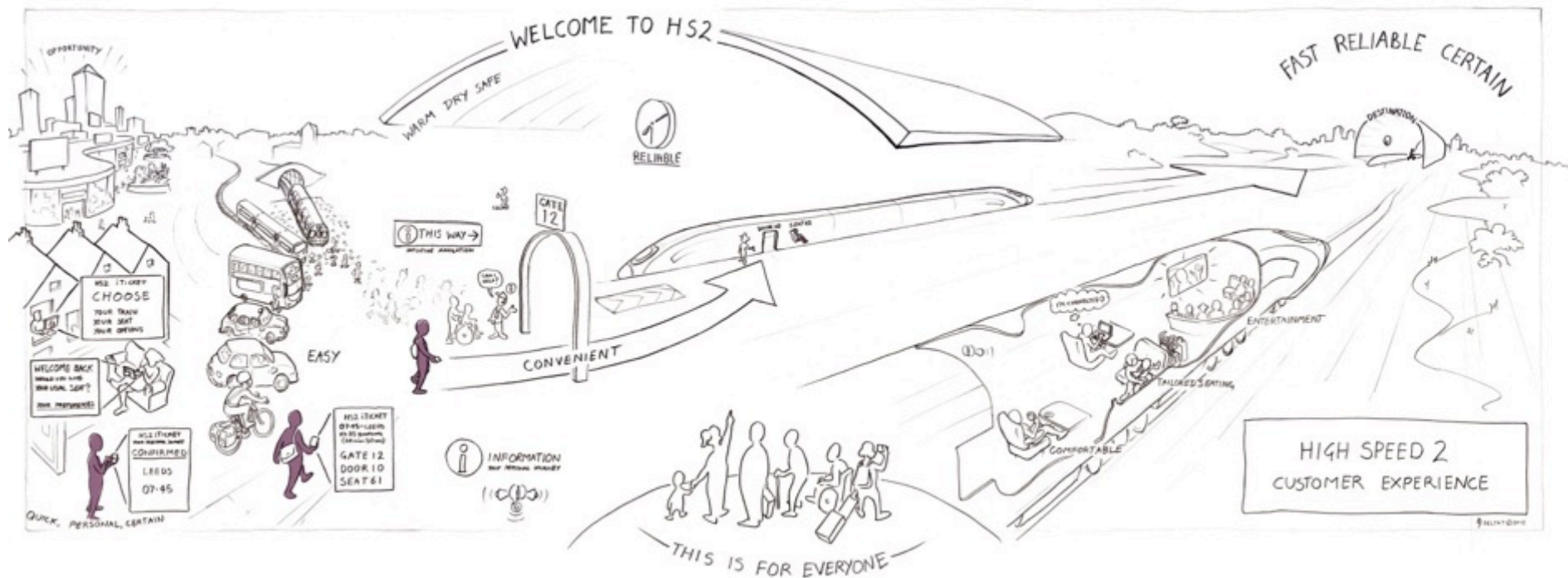


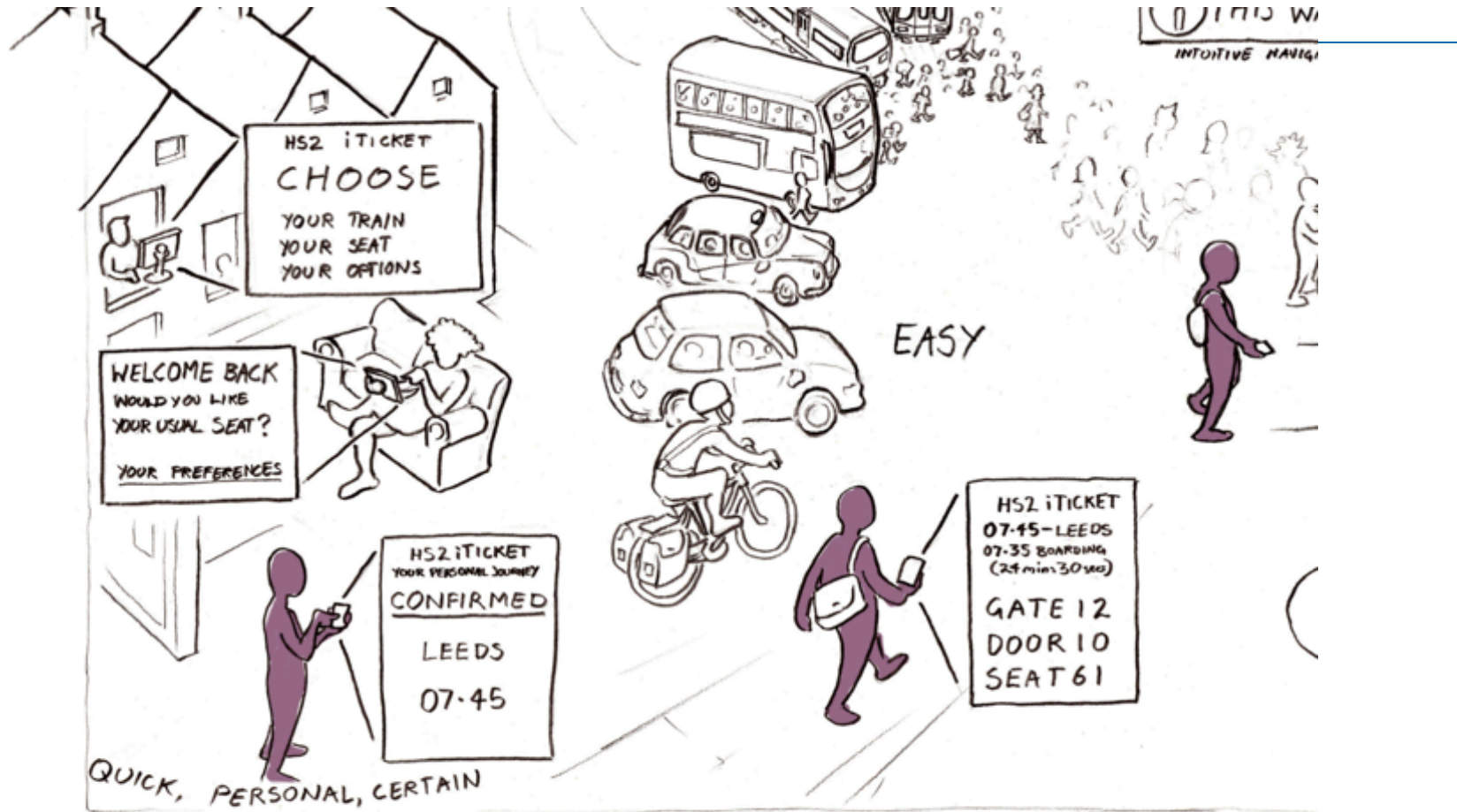
Designed for Individual Passengers



A 21st Century Railway: The Passenger Experience

High capacity: up to 18 trains per hour, up to 1100 seats per train

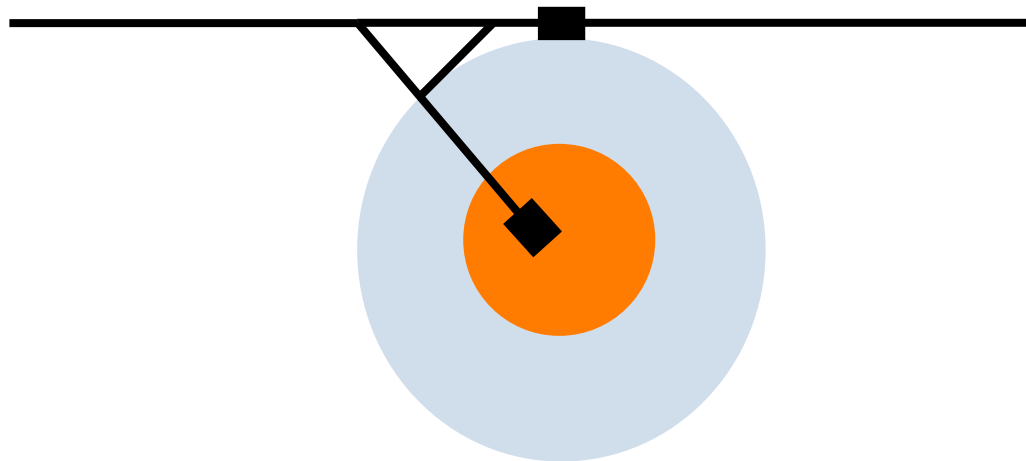




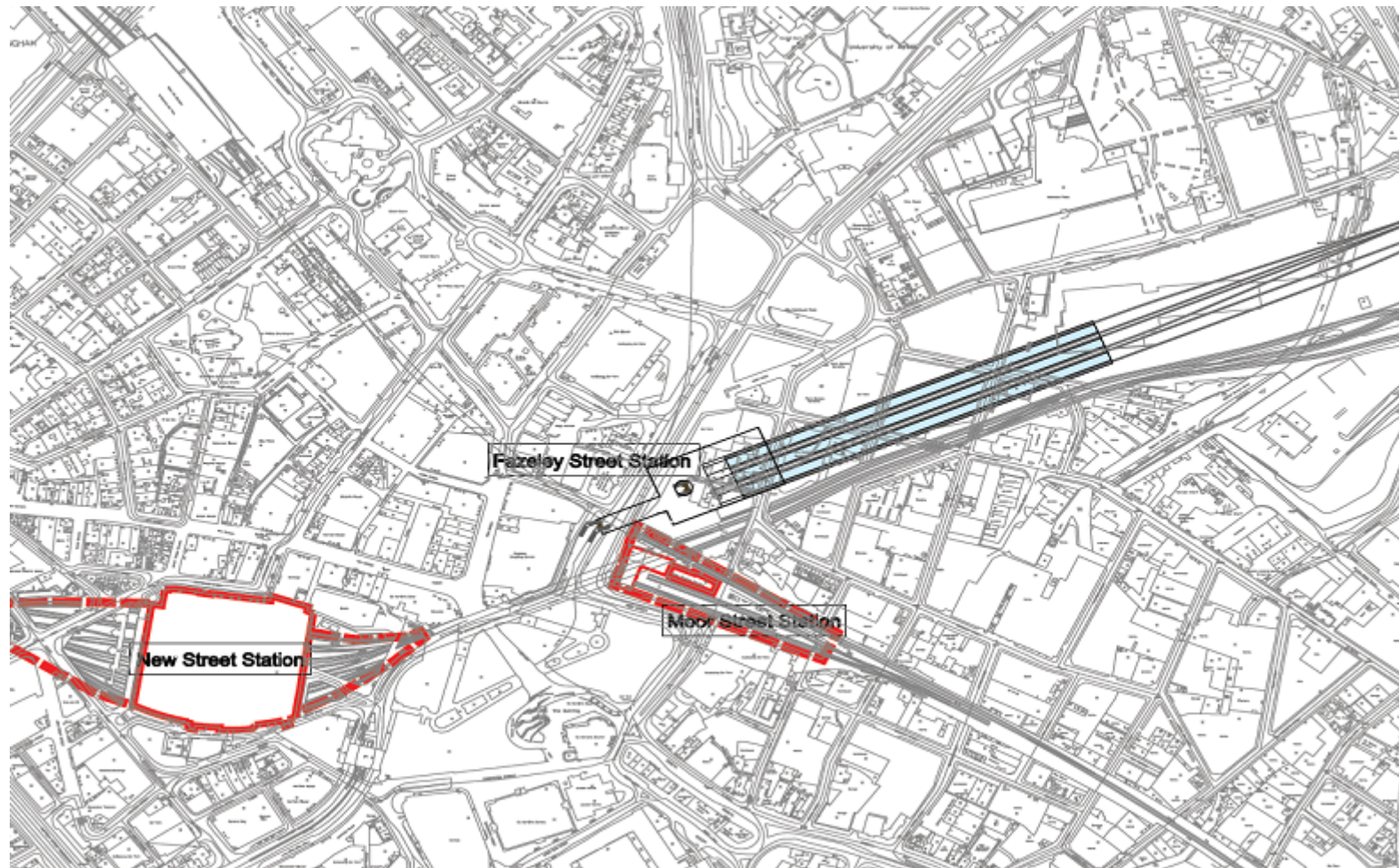
Stations – City or Fringe



Large City (~ 2m+ People)



New Central Birmingham Station

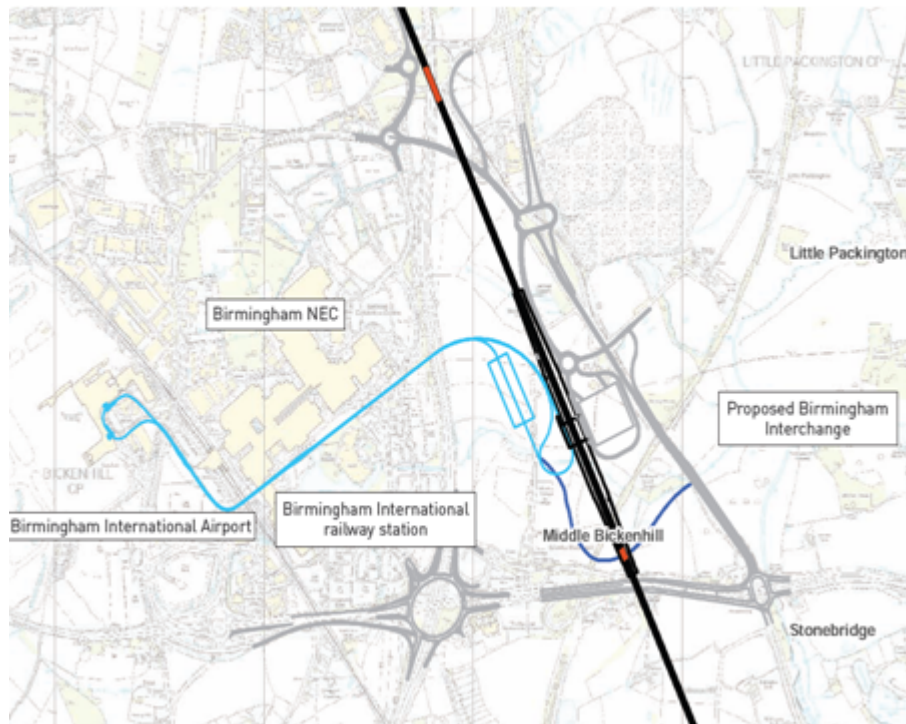


Opportunities Around HS2 Stations

- Catalyst for regeneration
- Working with local authorities on wider opportunities
 - Joining up station with surrounding areas
- Different opportunities at each of the stations

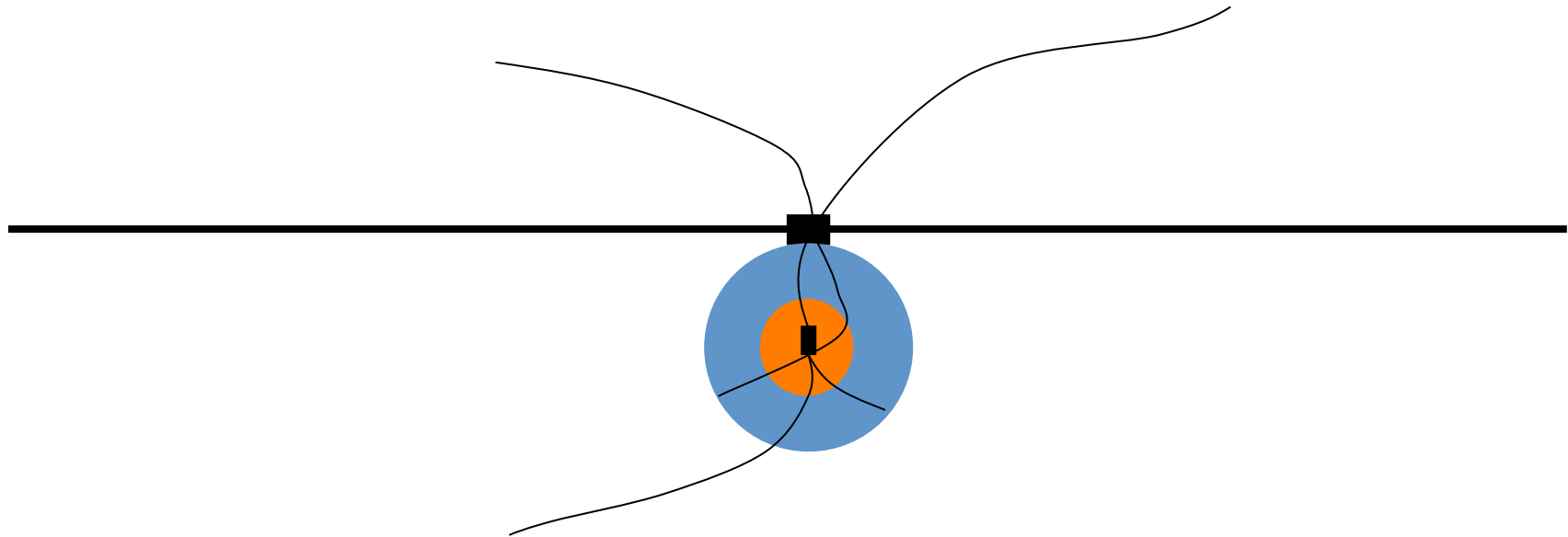


West Midlands Interchange

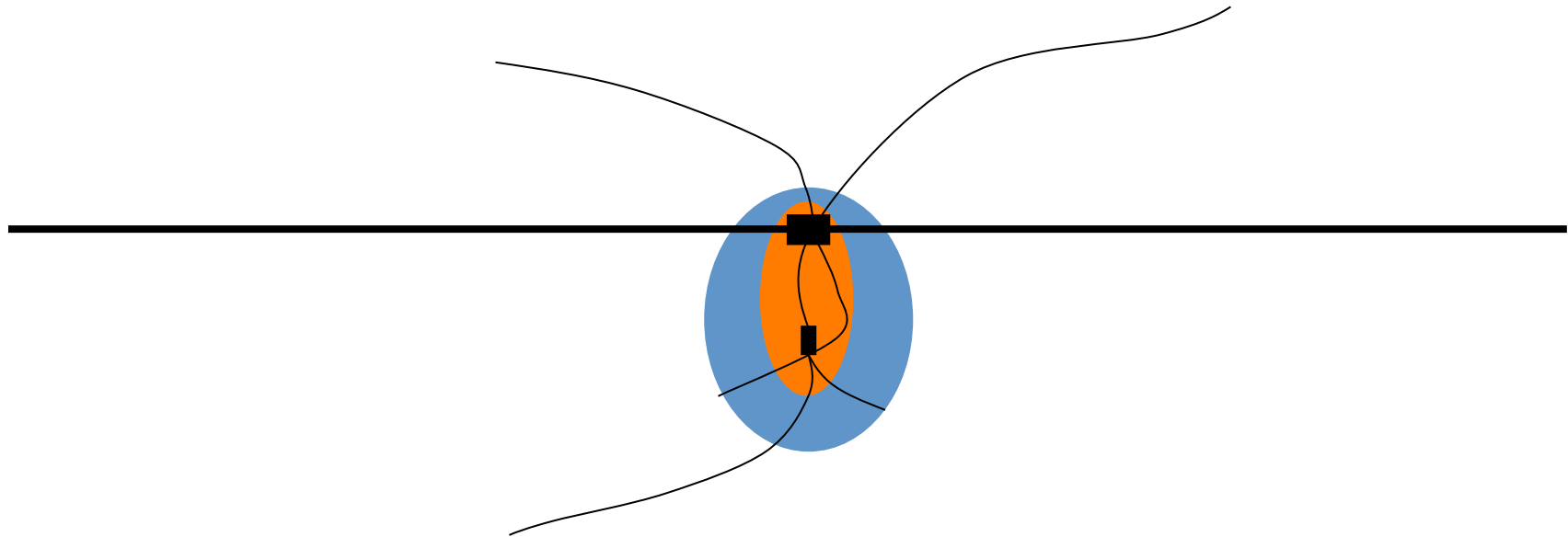


- Plans for new Sustainable City “UK Central”

Not Just a Transport System... ...Changing Cities?



City Develops to the HS Station



Developing the Route



Current Train Sound (360km/h)

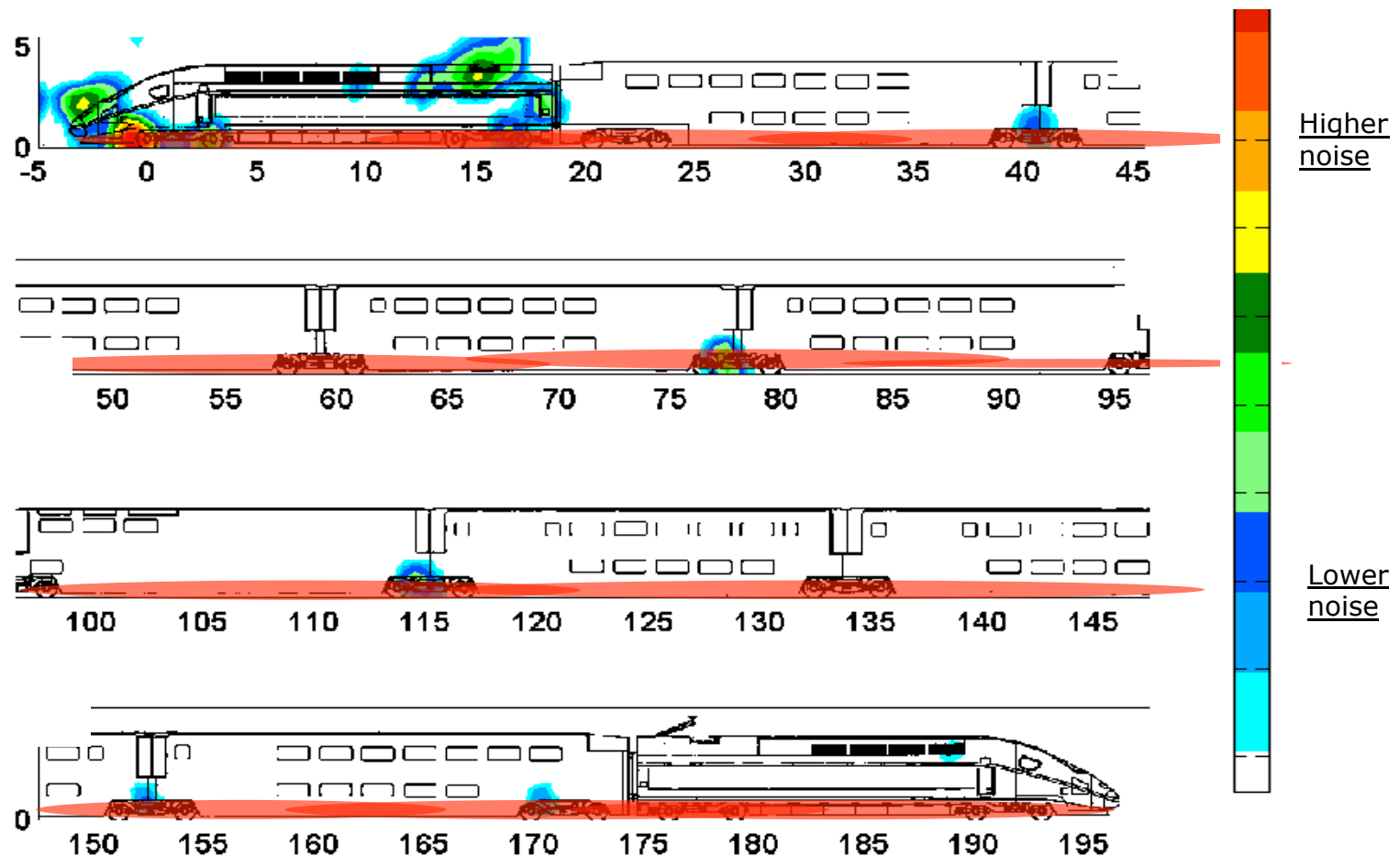
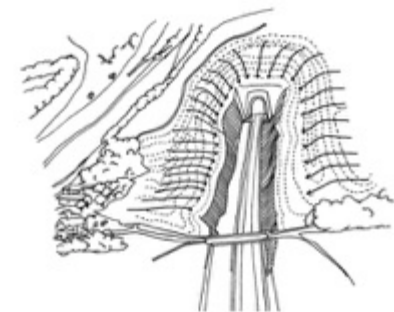
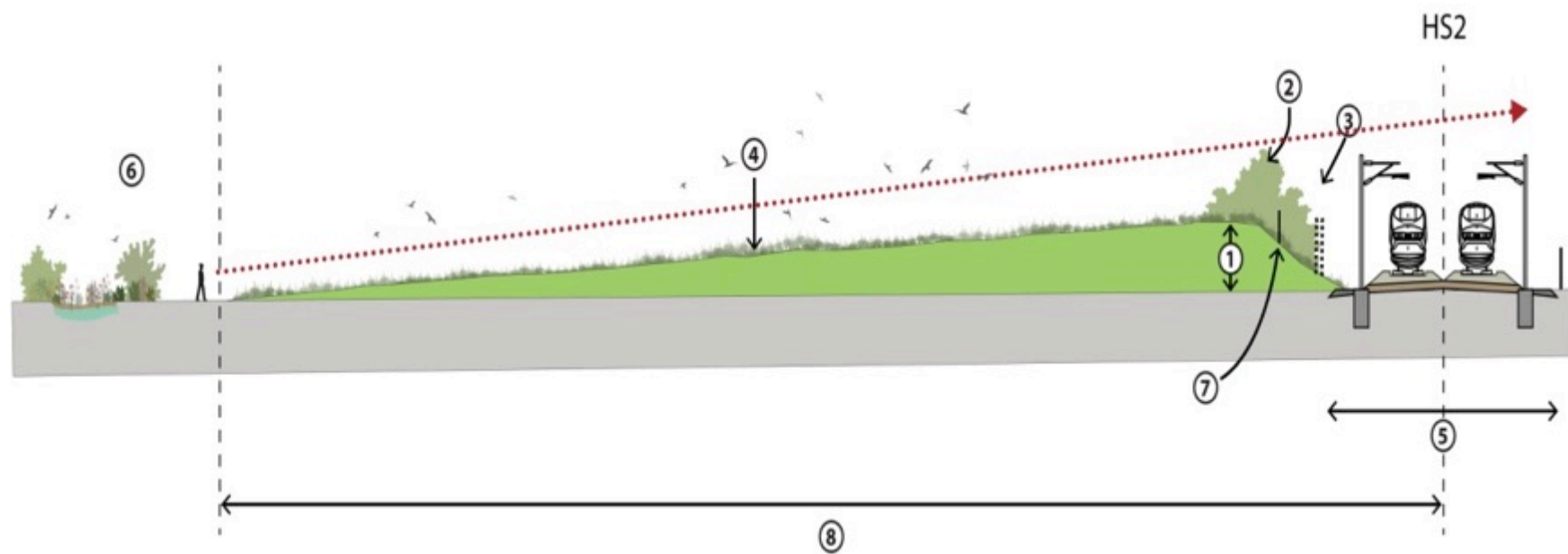


Image based on SNCF 1/3 Octave Noise Map of TGV at 360km/hr
modified to represent L_{pAeq} using output from TWINS modelling

HS2 Design Principles



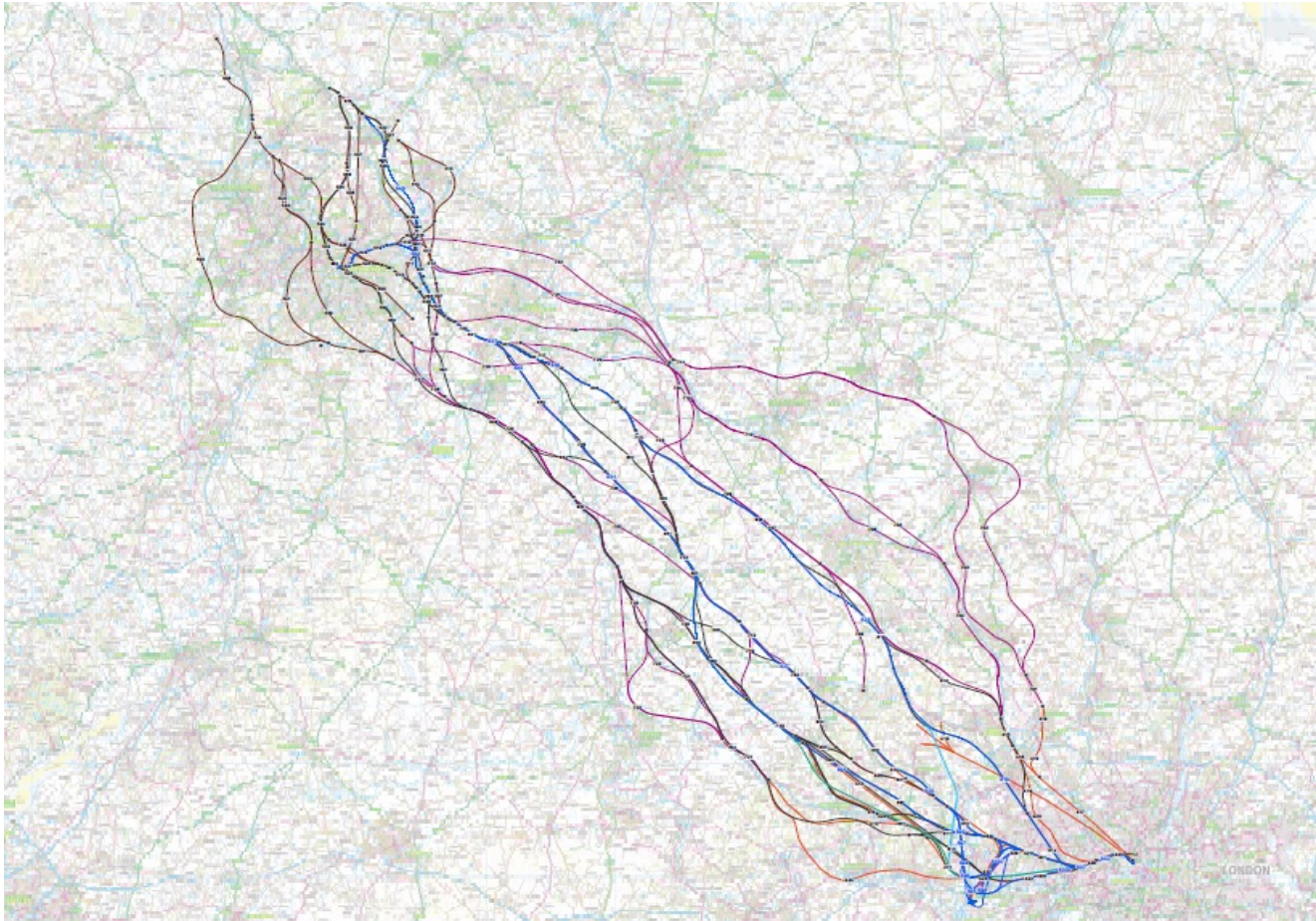
Protecting Landscape and People



Land Acquisition for Habitat Replacement

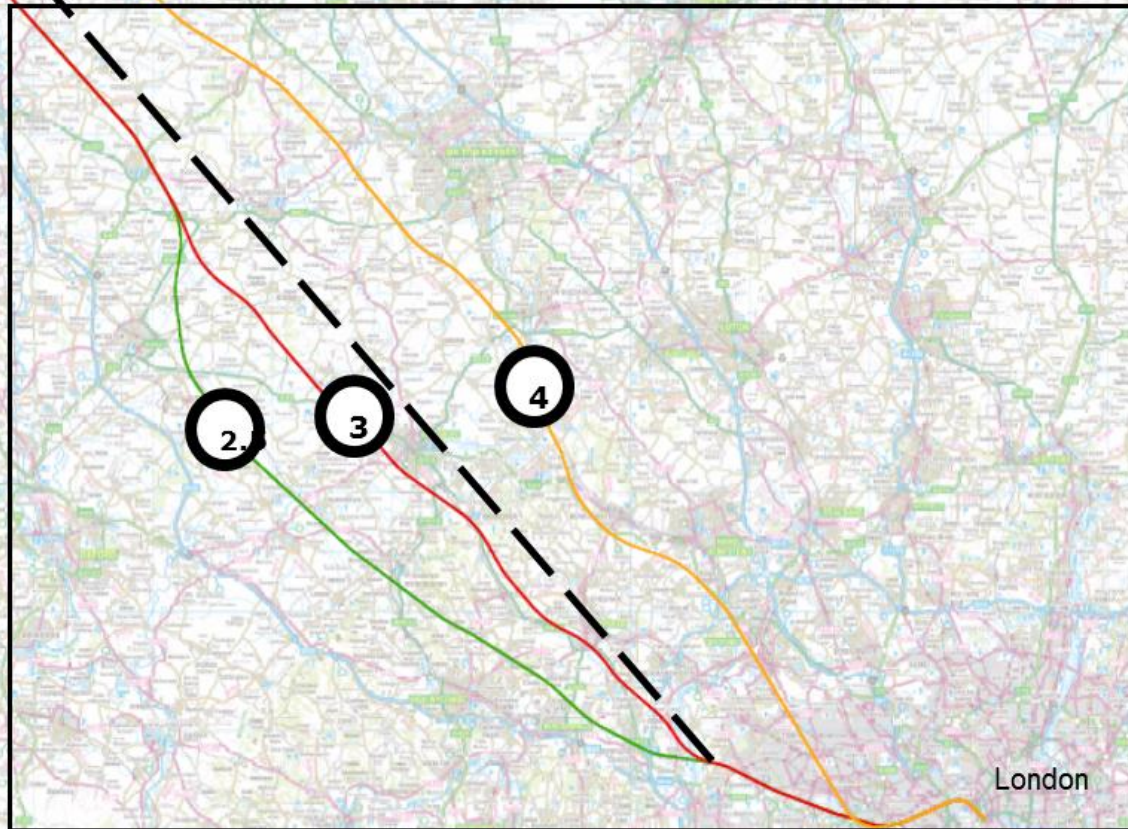


Route Long List of Options



Final Routes

Birmingham



London

Our Journey

- 2009 Government announcement of study
 - HS2 Ltd created to undertake work and advise government
- 2010 Announcement of strategy, a first route
- 2011 Public consultation on strategy and first route
- 2012 Government decision to proceed
 - HS2 Ltd expanded to be developer
- 2014 Government Bill (“planning process”) commenced
- 2016/7 Expected Act of Parliament
- 2017 Start Construction
 - HS2 Ltd to be constructor
- 2026 Operation of Phase 1
 - HS2 Ltd to be infrastructure manager
- 2033 Operation of Phase 2

Political Commitment



'High Speed Two will be a national asset, which is why it is backed by entrepreneurs, passengers, businesses and many local authorities right across Britain.'

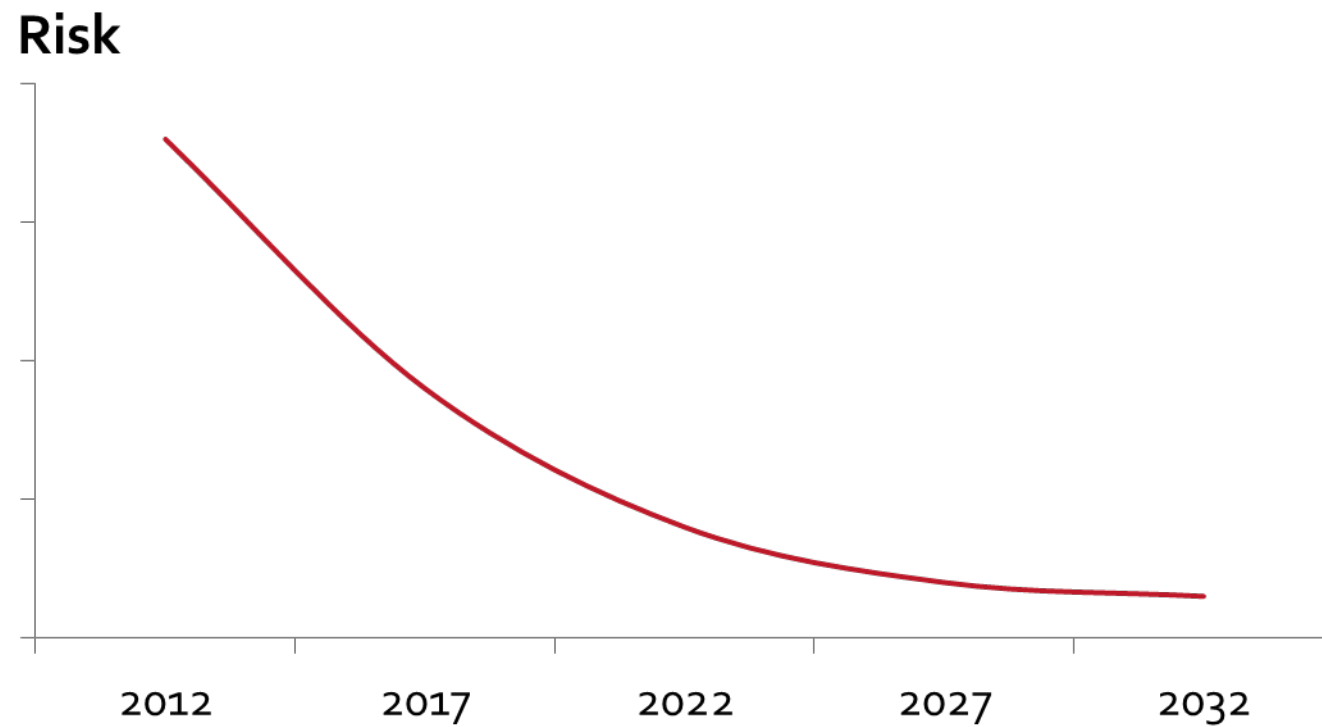
- Transport Secretary Patrick McLoughlin,
January 2013

Continuing Consultation & Dialogue



- Local Community forums established along the route
- Planning forum and bi-lateral discussions with planning authorities,
- National non-governmental organisations forum

Reduces Risk Over Time



Funding

Trains

- options from direct purchase through to DBMF

Stations

- commercial development contributions

Main Infrastructure

- public funding, potential later concession

Potential Operational Model

On Opening

HS2 Ltd Infrastructure Manager

Train operator(s) on operational contract

After 5 years

Commercial competitions with revenue risk

Concession competition for Infrastructure Manager

Supervised by independent statutory regulator



Judged By Future Generations