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APPLRG: March 24th 2009

*Grasping the opportunity:
Developing tram-train
proposals for the Leeds City
Region*

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Rapid Transit, Metro**





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Content of Presentation

- Brief overview of Tram-Train
- Tram-Train: The stakeholder perspective
- The local opportunity – Leeds City Region

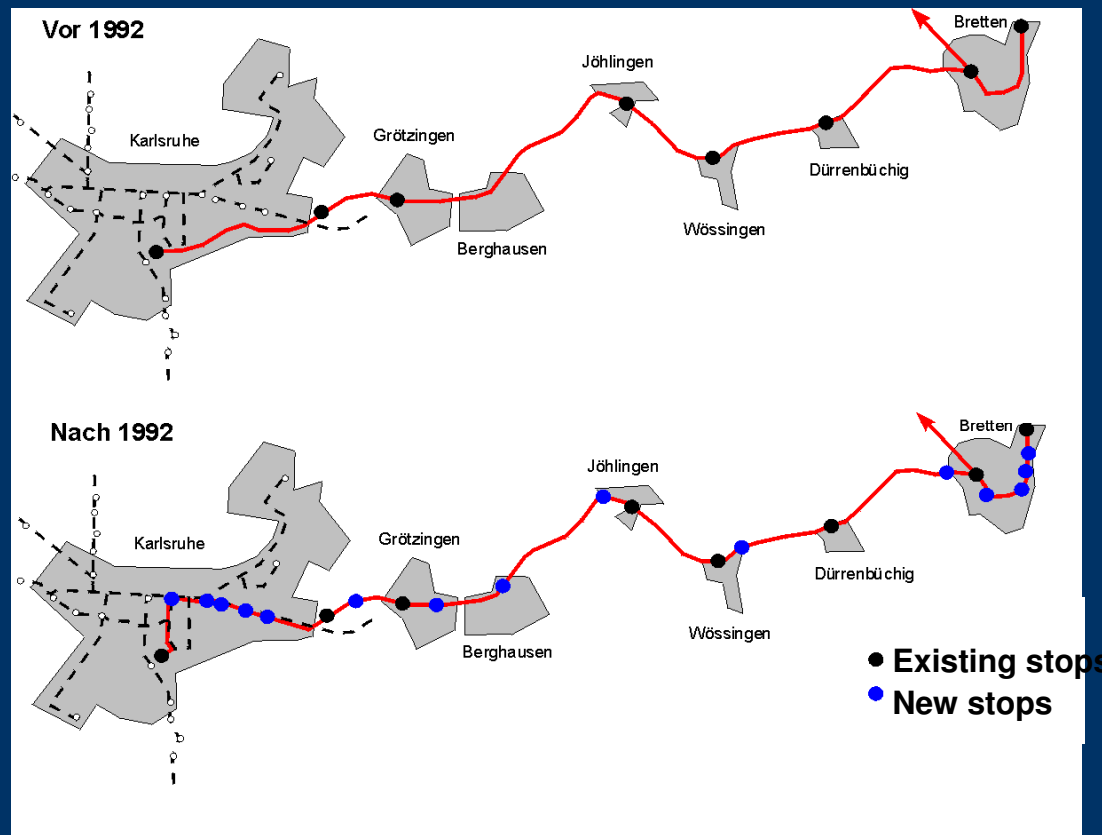




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Philosophy

- Direct connections between the region and inner city
 - Faster services serve more stops while still reducing overall travel times



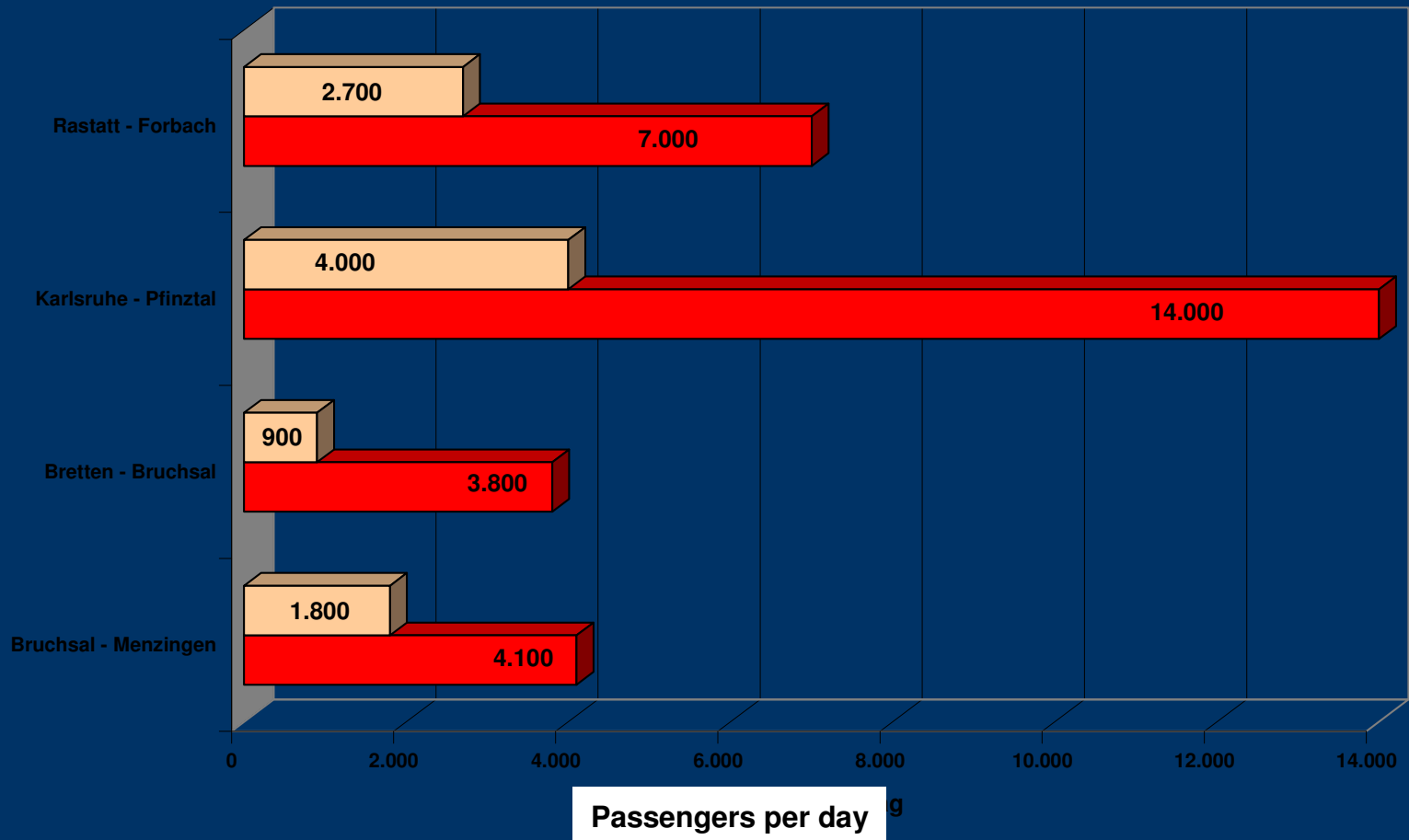
→ Public Transport Becomes Competitive





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Ridership on selected routes

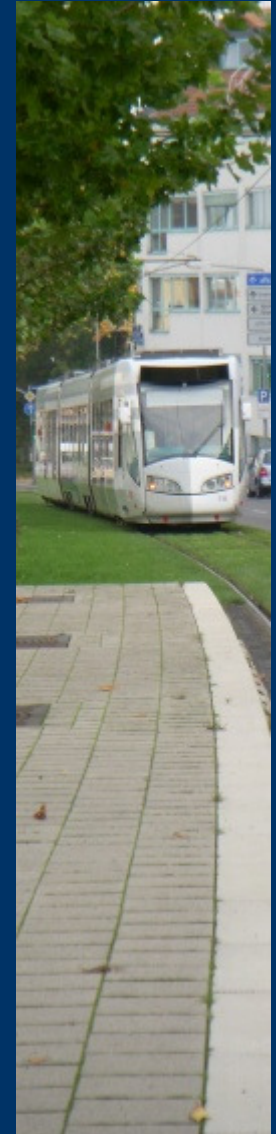




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Reasons for Tram Train

- > **Potential new passengers all own cars**
 - > (Decreasing number of captives)
- > **Motorists would rather use trams than buses:**
- > **proportion of car owners using trams:**
 - > **40%**
- > **proportion of car owners using buses :**
 - < **5%**
- > **Creating direct connections: car owners don't like to change**
- > **Paying equal attention to traffic in inner cities and rural areas**
- > **Regional traffic between cities and rural areas is the main growth market for Public Transport!**

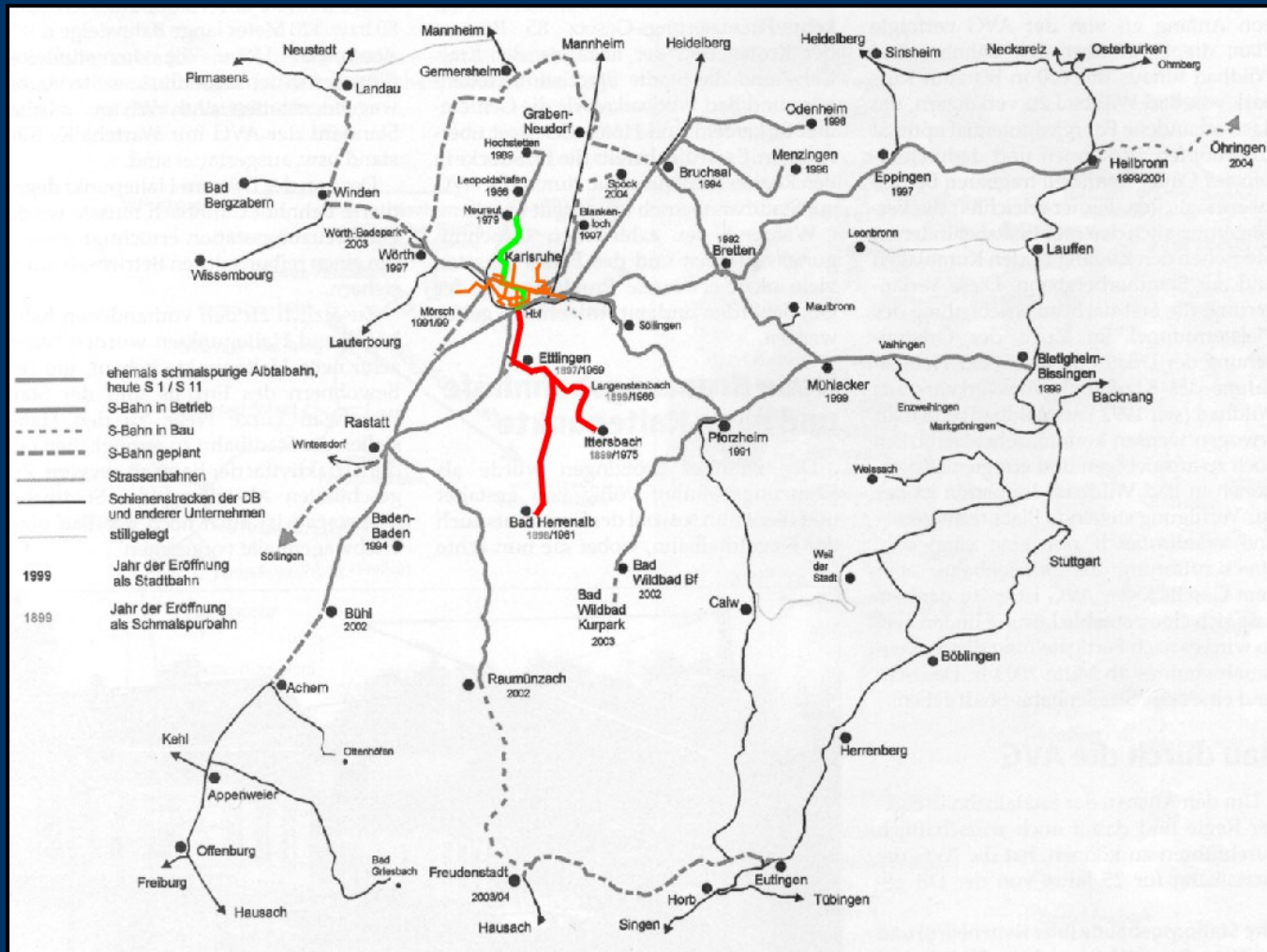




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1979

Development of the Tram-train network in Karlsruhe

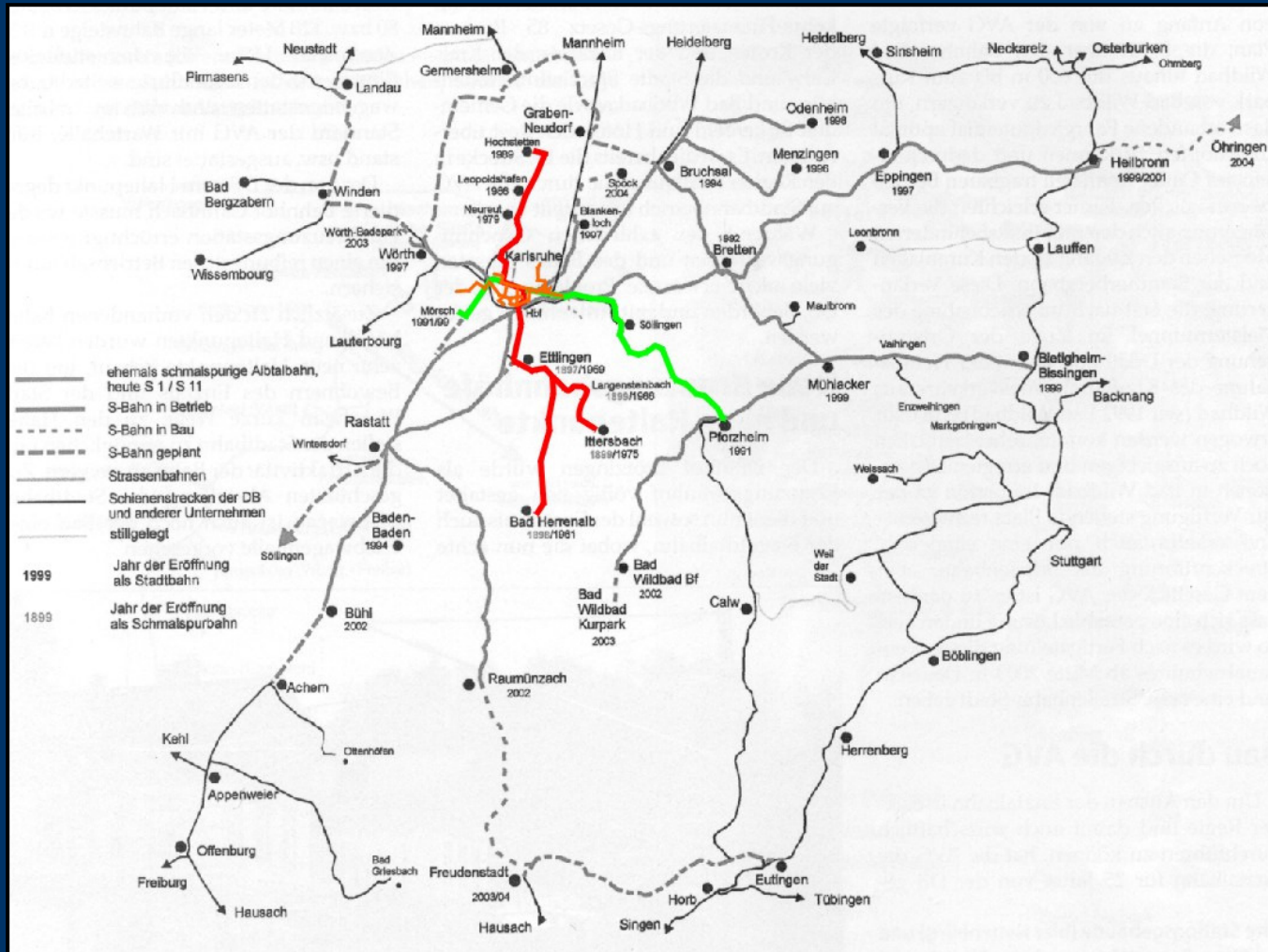




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Development of the Tram-train network in Karlsruhe

1991

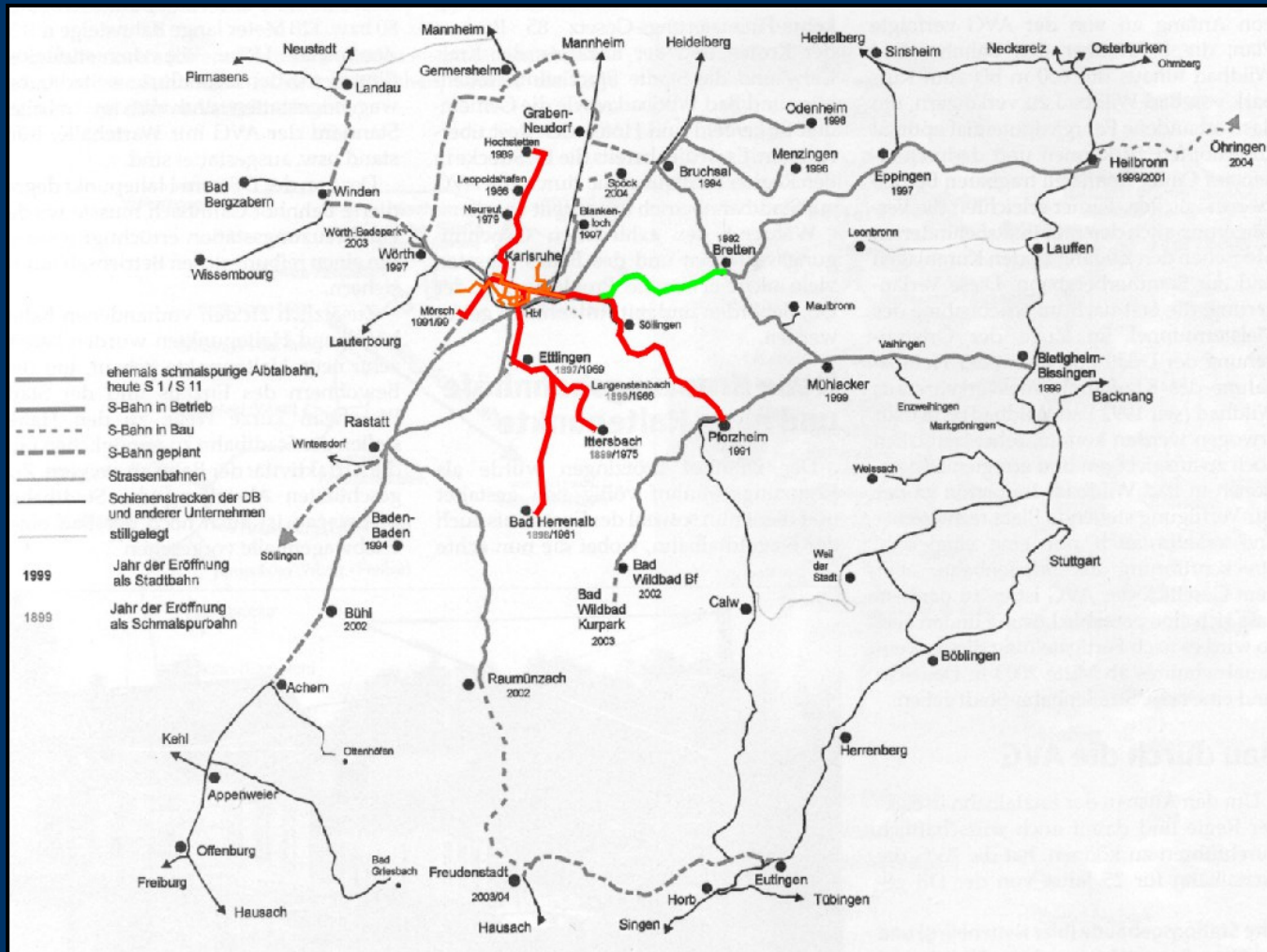




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Development of the Tram-train network in Karlsruhe

1992

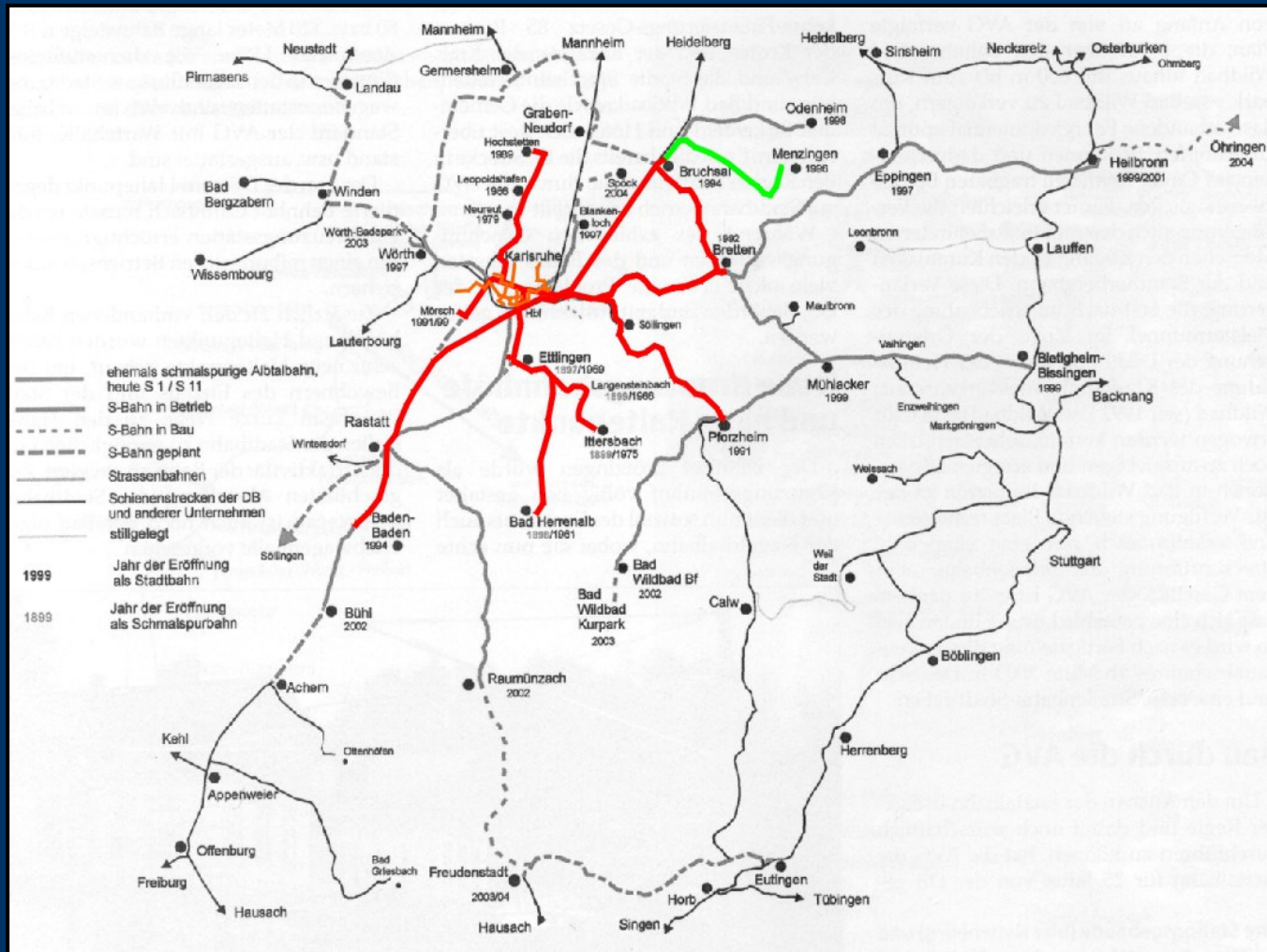




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Development of the Tram-train network in Karlsruhe

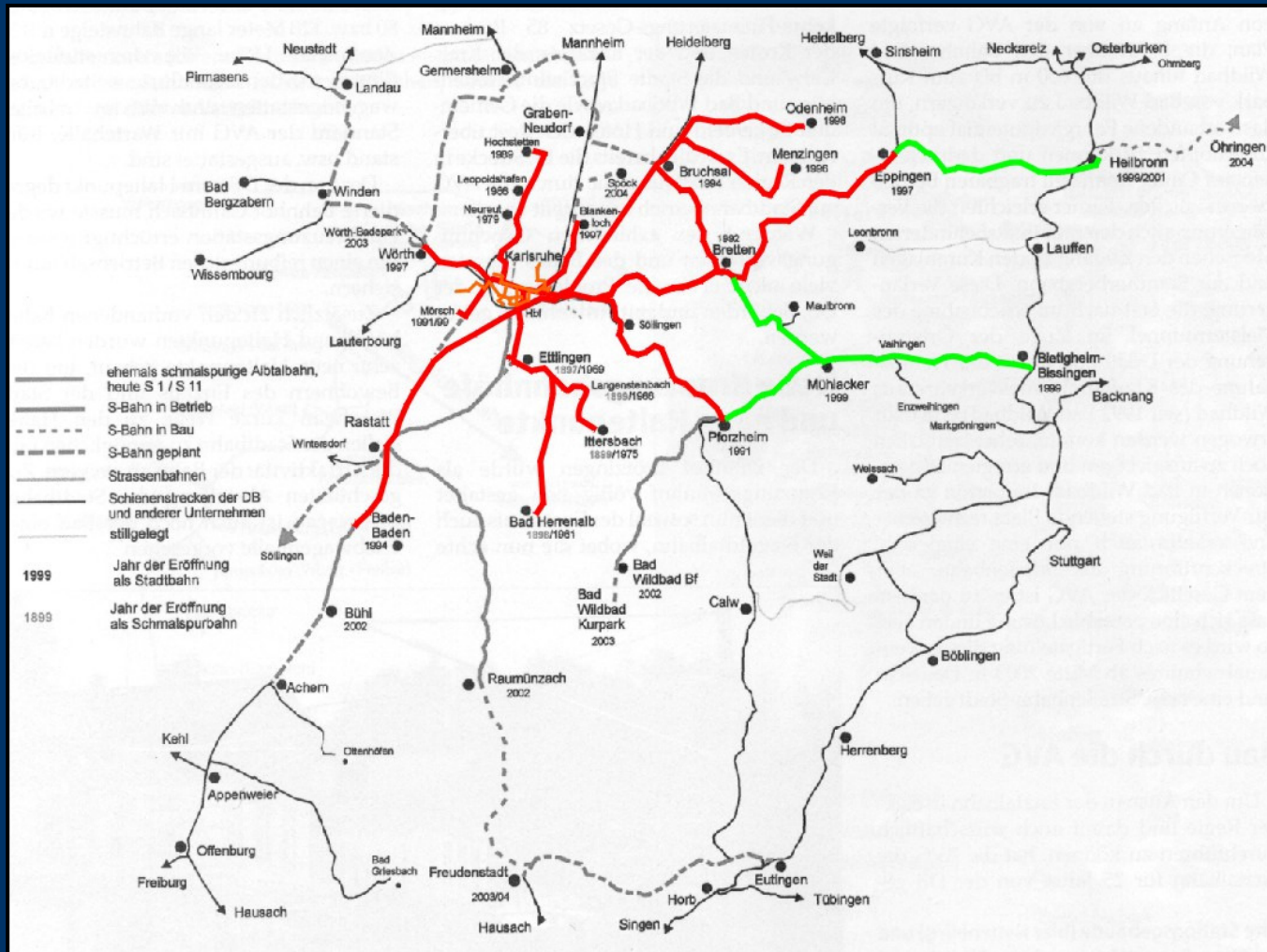
1996





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Development of the Tram-train network in Karlsruhe



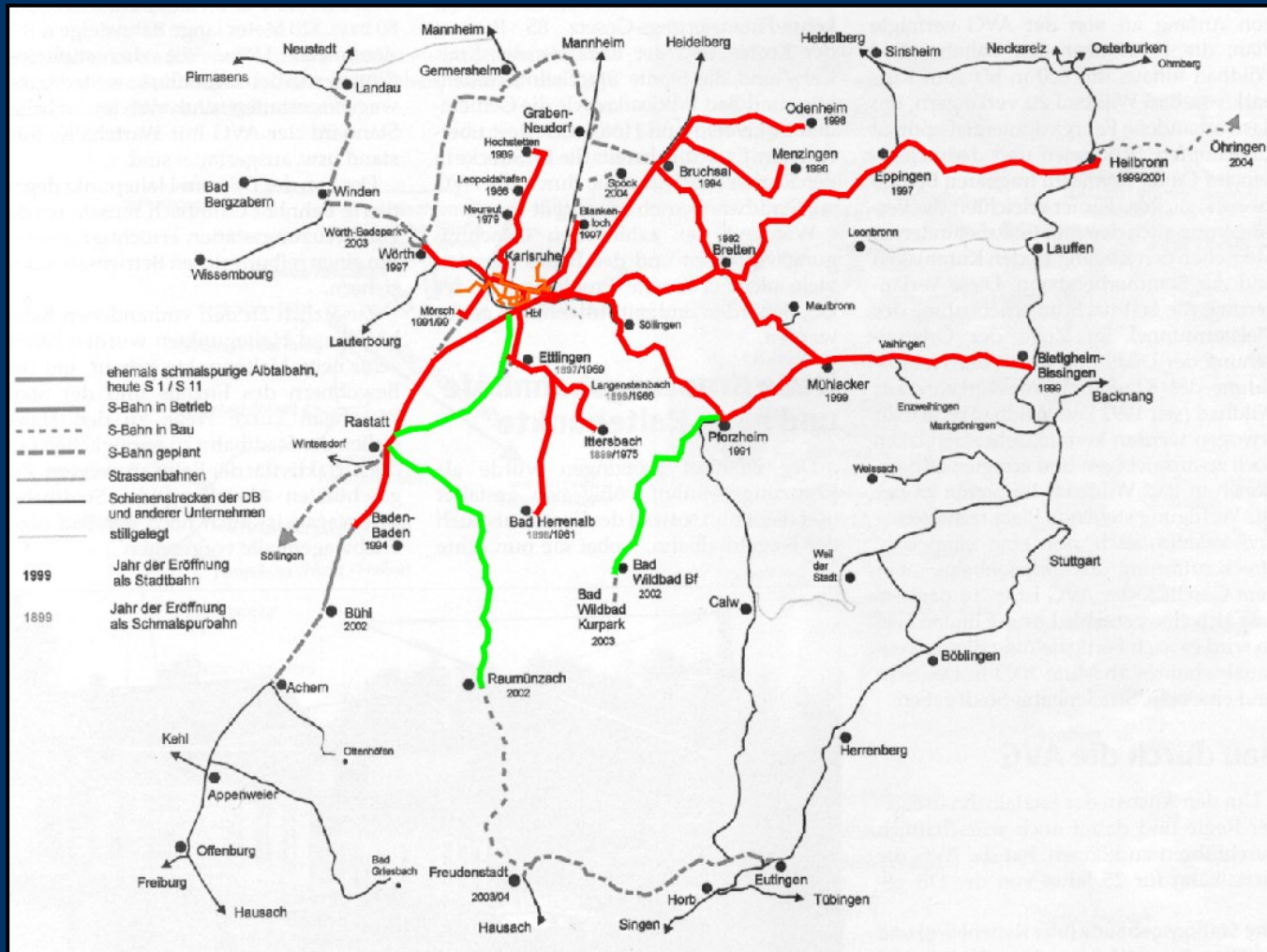
1999





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Development of the Tram-train network in Karlsruhe



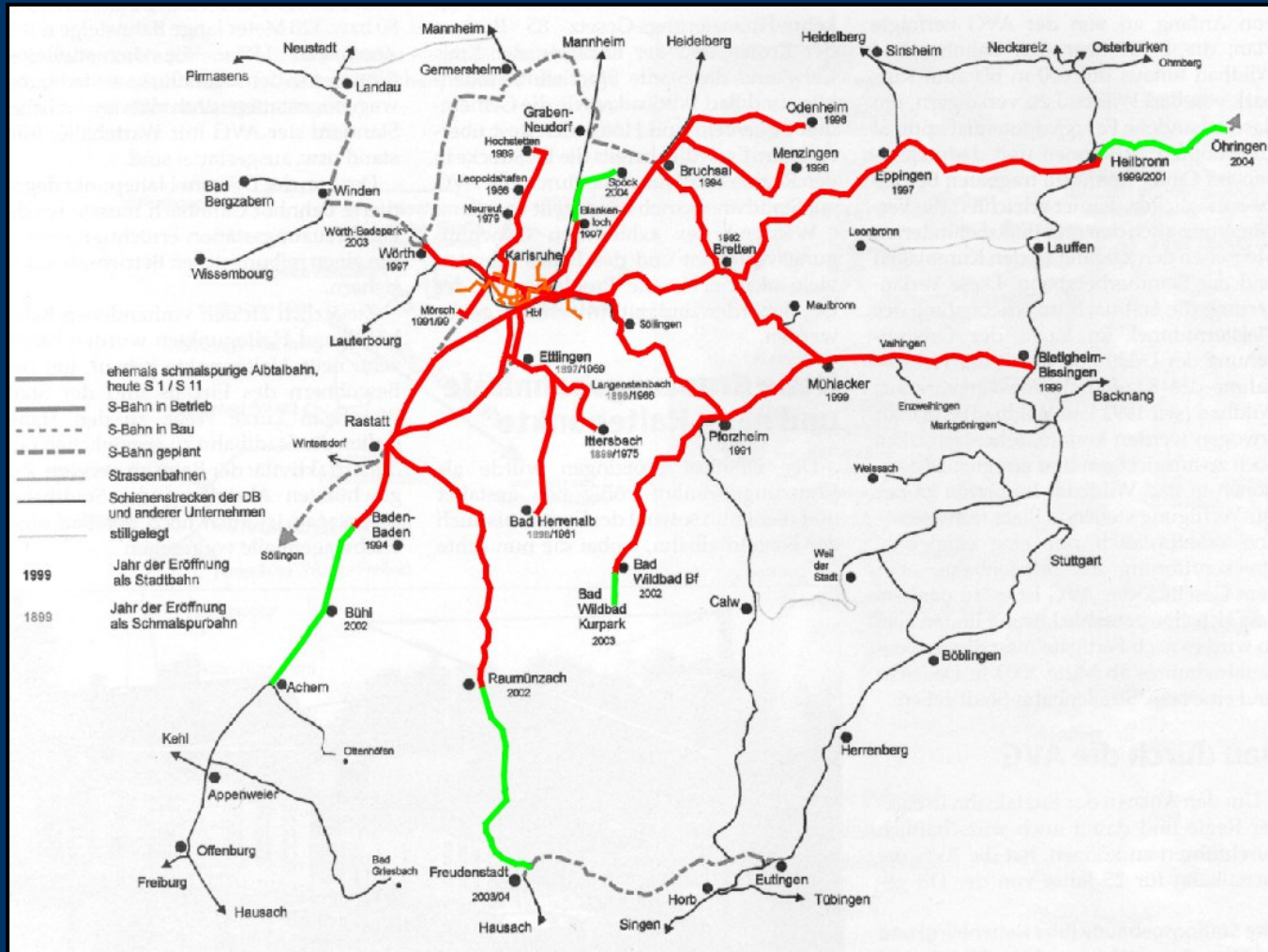
2002





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Development of the Tram-train network in Karlsruhe



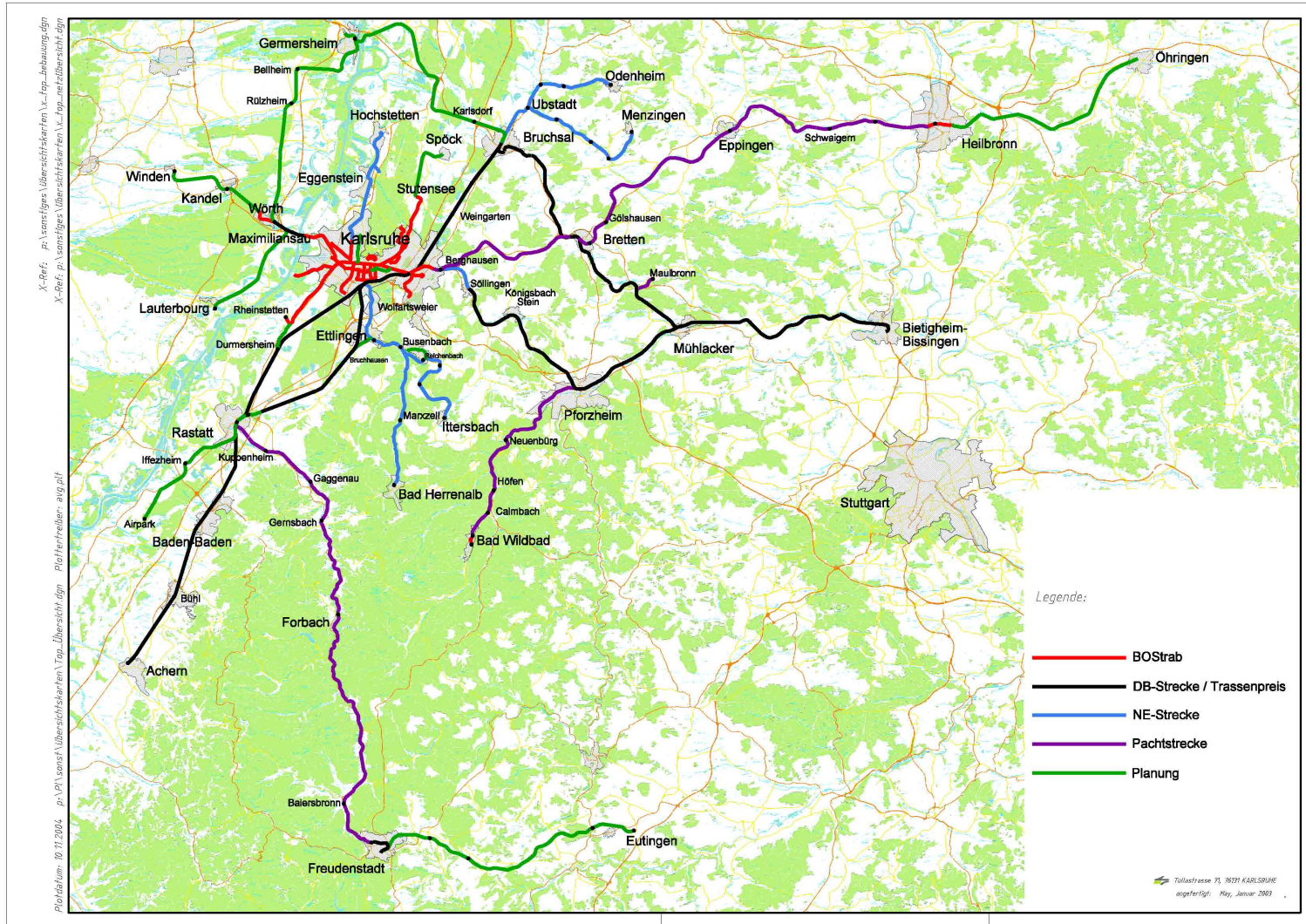
2003-
2007





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The Network today – 500 km in operation





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Evaluating the Benefits - Heavy Rail versus Tram-Train Solutions?

- Key issues considered:
 - Capacity of vehicle / platform / line
 - Cost
 - Infrastructure constraints
 - Wider connectivity impacts
- Findings:
 - Significant cost implications of delivering increased heavy rail capacity
 - Tram-train is more cost effective means of increasing capacity





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Tram-Train Stakeholders: Customers

Opportunities

- Significant Connectivity benefits
- More frequent stops
- Higher frequency
- Longer operational day
- Penetration of communities
- Level Boarding - accessibility
- Journey reliability

Risks

- Higher level of standing
- Toilet facilities





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Tram-Train Stakeholders: Rail Operators

Opportunities

- Further source of new rolling stock
- Improved journey times
- Increased patronage
- Cost reduction opportunities – operations/fuel
- Whole life cost savings
- Track access charges lowered

Risks

- Risk of –ve passenger reaction
- Increased operational complexity
- New standards
- Realisation of lower costs





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Tram-Train Stakeholders: Network Rail

Opportunities

- Reduced track maintenance and renewals costs
- Reduce local service use of network capacity
- More train paths to sell
- Major station capacity

Risks

- New standards
- Perceived risk of collision consequences
- Further interfaces and boundaries to manage
- Platform height / length provision





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Tram-Train Stakeholders: Department for Transport

Opportunities

- Franchise cost savings
- Additional capacity at lower cost
- Incremental development – spreads funding

Risks

- Alien culture – rail / regions /light rail
- Uncertainty in franchise specs
- Rail to fulfil more complex objectives - finance





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Tram-Train Stakeholders: Local Transport Authorities

Opportunities

- Connectivity benefits over all other modes
- Uses spare capacity, thus lower cost of provision
- Best features of light and heavy rail
- Progressive implementation opportunities

Risks

- RFA programme inclusion
- Dependence on Network Rail – not controllable
- Cross-boundary political agendas
- Development costs in face of uncertainty





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Tram-Train Stakeholders: ROSCOs

Opportunities

- New market opportunities on an international basis
- Good PR – pioneering in UK
- Shape rail vehicle markets – pacer replacement

Risks

- Scale of fleet requirements



Context for Investment

- Leeds City Region Transport Vision



- Leeds TIF Activity

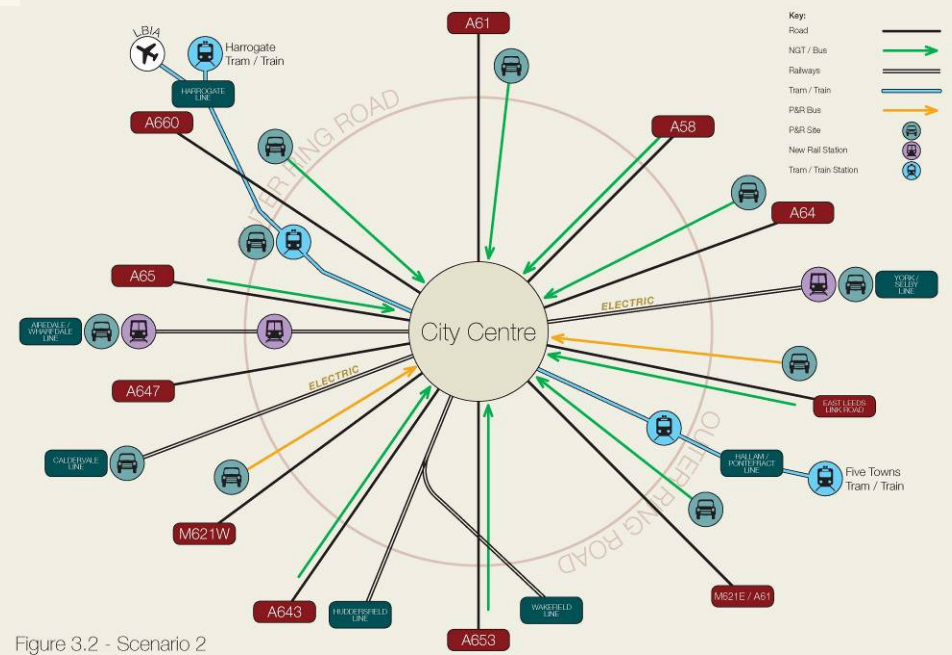


Figure 3.2 - Scenario 2





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Rail Network Problems

- Significant patronage growth has led to widespread overcrowding – Strategic Fit analysis agreed by DfT
- Poor connectivity between some Leeds City Region centres e.g. Harrogate –York
- Poor public transport access to Leeds Bradford International Airport – step change required to deliver envisaged growth
- Existing infrastructure has very little spare capacity – limited opportunities to increase frequencies/introduce new stations





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Outcomes Sought

- Leeds City Region connectivity – Airports, housing and employment growth areas, employment links
- Significant additional capacity in system
- Cost efficiency – savings in Leeds and York station infrastructure costs, and elsewhere
- Climate change and mode shift



Tram-train Investment

- Tram-train conversion for:
 - Harrogate Line / Extension to the Airport
 - New alignment to the Lower Aire Valley and Five Towns
- More affordable solution to increase capacity compared with heavy rail
- Better city centre accessibility, solution helps to alleviate platform capacity constraints at Leeds station
- Value for Money solution – requires less subsidy



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Harrogate Line

- Identified as a priority for conversion
- To include a direct link to LBIA from Leeds (cost of £17m-£25m)
- Indirect link from Harrogate/York to LBIA (interchange at Horsforth)
- On street alignments into Leeds City Centre and York Development sites
- Frequencies of up to 6tph into Leeds, 4tph into York
- Interface with open access operators





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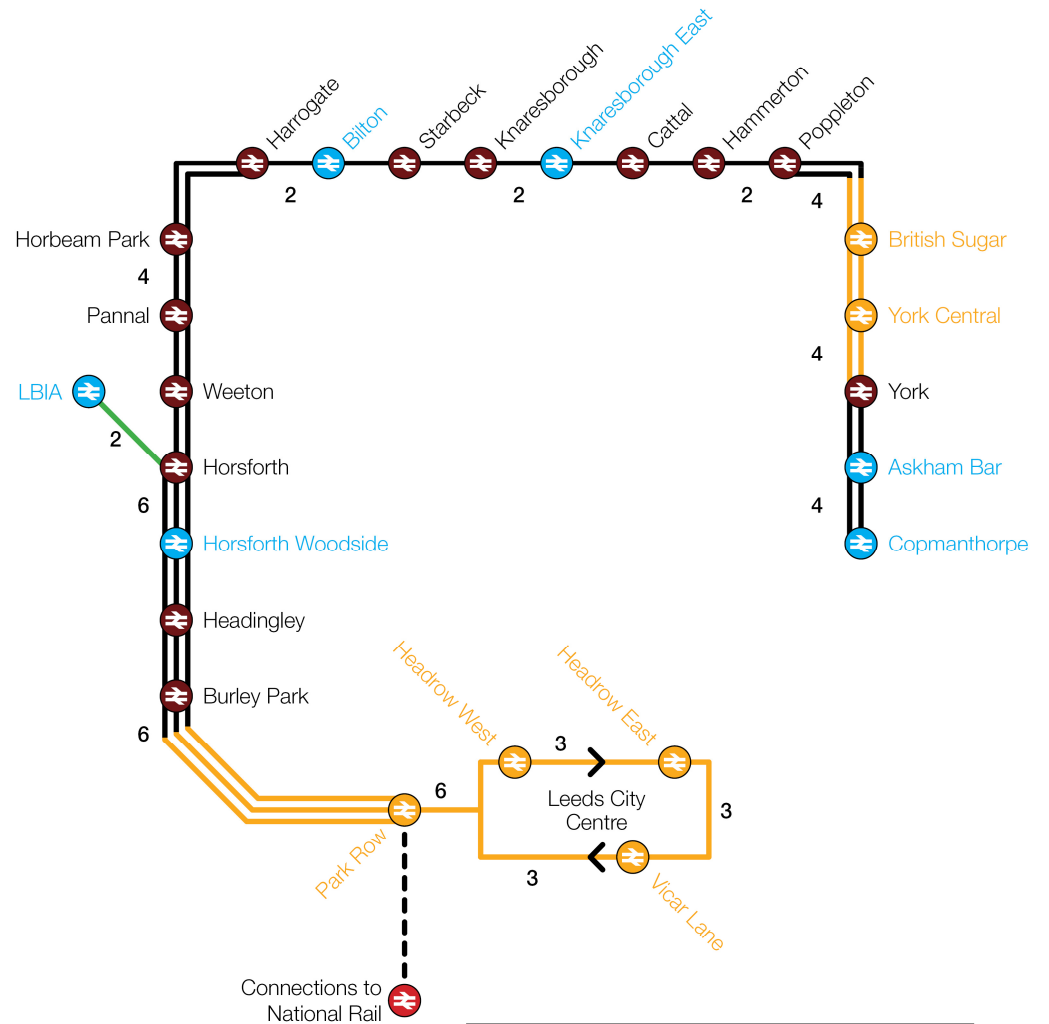
Leeds City Centre On Street Running

- Leave heavy rail network south of Burley Park station
- Link to city centre via Kirkstall Rd / Wellington Street
- Potential city centre loop
- Indicative cost £30m-£50m
- Key benefits:
 - Release capacity at Leeds City Station – more cost effective solution to deliver capacity
 - Creates additional capacity for the Airedale / Wharfedale Lines
 - Improved penetration of city centre





Possible Network



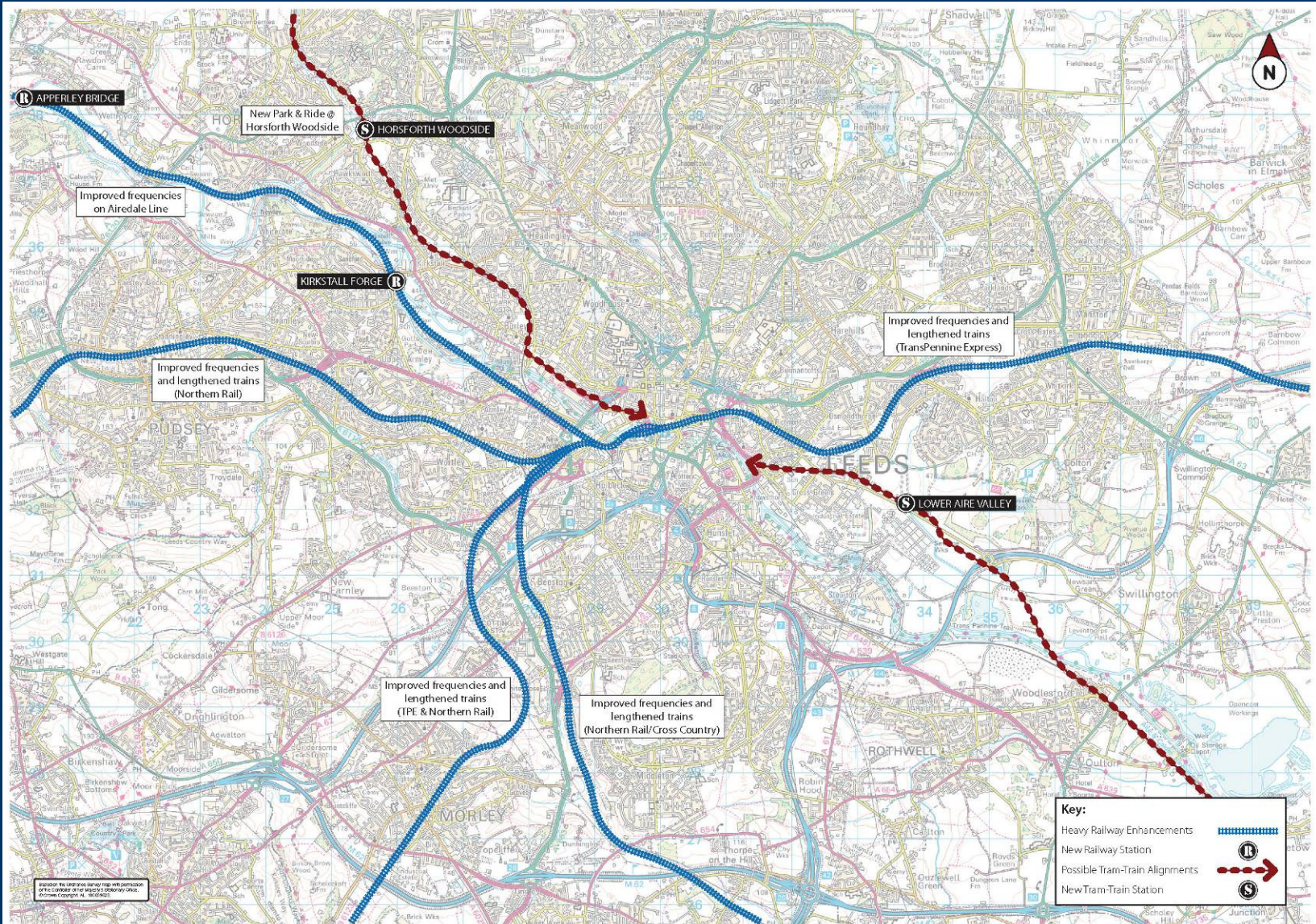
Key:	
Conversion of heavy rail alignment	
Connections to National Rail	
New alignment	
On-street Running	
Existing Station	
Proposed Station	
Proposed On-Street Station	
Trains per hour	6



Rail and Tram-Train Investment



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Rolling Stock Issues

- Power considerations:
 - Electric/diesel or combination
 - Suitable for rail/on-street operation
- Diesel-electric Hybrid recommended, but relative shortage of “off-the-shelf” examples
 - Diesel operation on heavy rail routes
 - Electric operation on-street
 - But emerging interest in electrification could increase opportunities for electric units
- High floor versus low floor vehicles
 - Costs to modify existing heavy rail stations
 - Design of halts in the city centre





Implementation in the UK – Key Issues

- > How do we capture the potential?
- > How do we bring all the necessary agencies together?
 - > e.g. Network Rail, different operators, rolling stock companies, local, regional and national authorities?
- > What is the post 2014 (>CP4) thinking on network capacity requirements?
- > To what extent is vehicle standardisation achievable in the UK?
- Are cost savings achievable under Network Rail regulations?





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Thank You for your attention

