

Trans-Pennine Tunnel Study

Stakeholder Reference Group
Stage (iii)a corridor sifting and identification
9th December 2015

Opening Welcome

- Introductions
- Purpose of the day
- Expectations
- Proposed outcomes

Update on study progress

Overview of interim report

Key preliminary findings

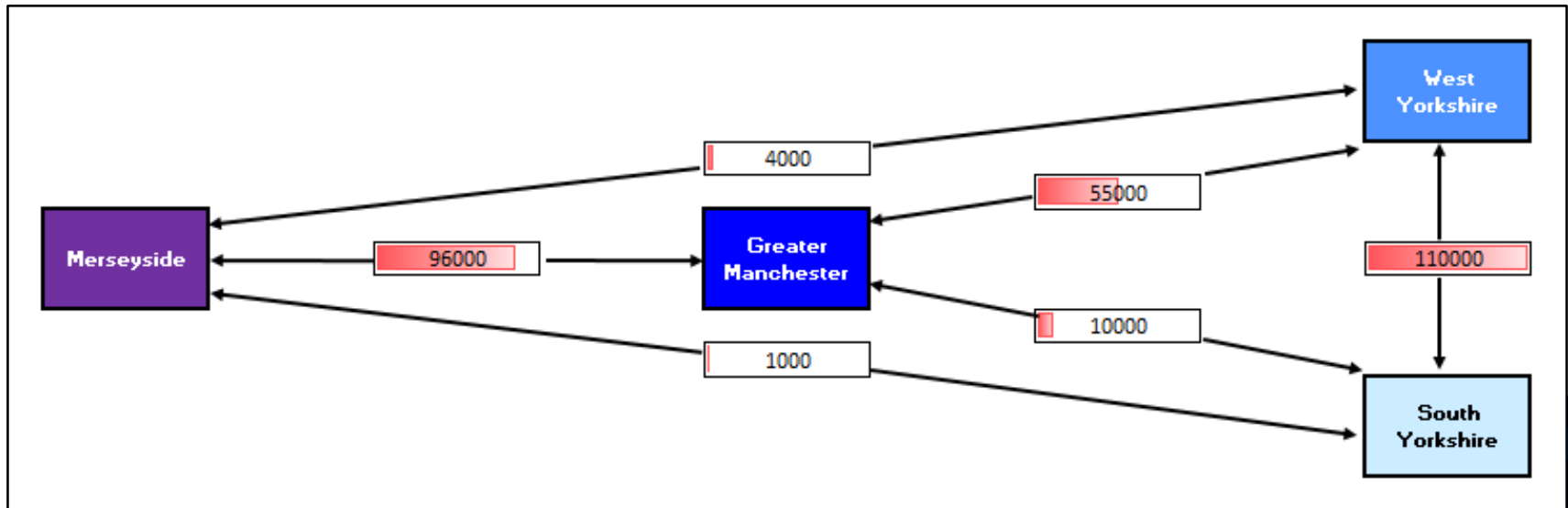
- **Clear strategic case for the scheme, which is aligned with central and sub-national Government policy;**
 - DfT and TfN identified a new major road link under the Pennines between Manchester and Sheffield in strategic plans;
 - Case for change based on interrelated transportation and economic needs of the North;
 - New route expected to improve connectivity, promote growth, improve capacity and safety, offer greater resilience and reduce the impact of traffic on the National Park

Key preliminary findings

- **The scale of the wider economic benefits has yet to be established but initial analysis shows that these could be significant and complementary to other elements of the developing Northern Powerhouse strategy.**
- **Economic benefits of the scheme could include:**
 - Direct user benefits,
 - Improved resilience of the route
 - Wider and more significant benefits in productivity, labour markets, land use and investment in the region;
 - Improved journey time
 - Improved reliability

Key preliminary findings

- Initial analysis: Movements between Sheffield and Manchester are far lower than those between Manchester and Leeds or between Leeds and Sheffield; further analysis is required to determine how the Pennines is creating a barrier to movement between Manchester and Sheffield.



Key preliminary findings

- **Construction of a new strategic route between Manchester and Sheffield is technically feasible**
 - Modern tunneling techniques
 - The geology of the Pennines is generally suitable for construction of bored tunnels

- **Recognition of some significant technical challenges:**
 - Extensive tunneling required through the National Park
 - Large quantities of excavated material
 - Provision of suitable connections to the Strategic Road Network (SRN) and access to the local road network
 - Understanding driver behaviour

Key preliminary findings

- **Operation and maintenance of this new road link – which includes extensive tunnel sections – would also be feasible;**
 - Current standards and methods of operation will need to be reviewed to develop a workable solution, with particular attention on safety and security.
 - Important that improvements in emerging technologies considered during identification and evaluation of options (operational design life of 120 years). Including; Automation, connectivity, propulsion, robotics)

Key preliminary findings

- **Development of a combined road and rail corridor through the tunnelled section could offer some additional benefits, although road and rail would need to occupy separate tunnel bores and we have not yet established the operational case for this type of solution;**
- **Light rail could, in principle, share road space with highway traffic, but low operating speeds make this undesirable.**

Objectives

- **Objective 1** – To provide a safer, faster, and more resilient road connection between Manchester and Sheffield, creating more capacity and an additional east-west connection.
- **Objective 2** – To fulfil the aims of the Northern Transport Strategy to deliver a scheme that will contribute to the transformation of the economy in the North.
- **Objective 3** – To protect and improve the natural environment by reducing through-traffic in the Peak District National Park and by getting the right traffic onto the right roads.
- **Objective 4** – To support wider socio-economic needs and leave a long-term legacy of improved road connectivity, better access to labour markets, wider employment opportunities, better land use, and more effective integration between transport modes.

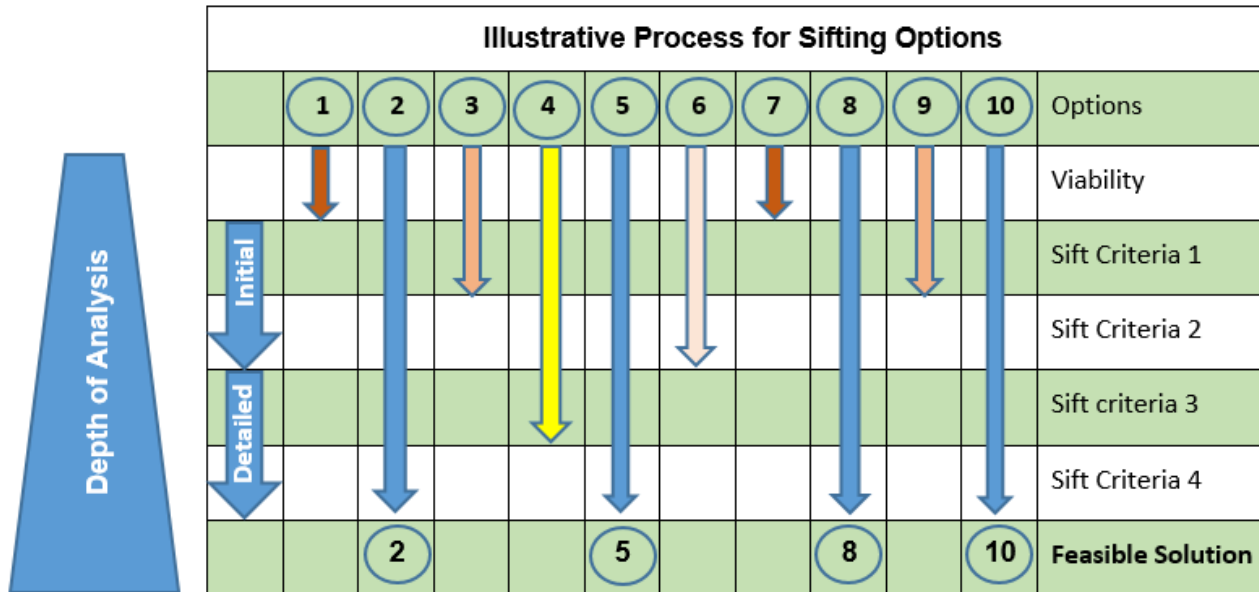
Corridor selection process

Techniques for assessing corridors

- Application of sifting criteria
- Viability assumptions
- EAST Tool
- Metrics and differentiation
- Develop and agree scoring criteria
- Framework for generating corridors

Application of sifting criteria

- Sifting Process:



- Viability Assumptions Check Spreadsheet
- EAST Spreadsheet

Viability assumptions

1. Fits with project scope – i.e. strategic link connecting Manchester and Sheffield across Pennines
2. Within study area boundary
3. Does not involve construction of surface route within the National Park

EAST Tool

- Decision support tool.
 - Developed to quickly summarise and present evidence on options in a clear and consistent format.
 - Provides decision makers with relevant, high level information.
 - Tool does not make recommendation.
 - Ensures a robust audit trail for the option sifting process is maintained.
- Design to be consistent with DfT's Transport Business Case principles, based around the, best practice, 5 case model approach:
 - Strategic Case.
 - Economic Case.
 - Financial Case.
 - Management Case.
 - Commercial Case.

Metrics and differentiation

- Strategic case:
 - Identify problems and objectives
 - Scale of impact
 - Fit with wider transport and government objectives
 - Fit with other objectives
 - Degree of consensus over outcomes

Metrics and differentiation

- Economic case:
 - Economic Growth
 - Carbon Emissions
 - Socio-distributional impacts and the regions
 - Local environment
 - Wellbeing
 - Expected VfM category

Metrics and differentiation

- Management case:
 - Implementation timetable
 - Public acceptability
 - Practical feasibility
 - Quality of supporting evidence
 - Key risks

Metrics and differentiation

- Financial case:
 - Affordability
 - Capital Cost. (relative)
 - Revenue Cost
 - Cost Profile
 - Overall Cost Risk

Metrics and differentiation

- Commercial case:
 - Flexibility of option
 - Where is funding coming from
 - Level of income generated

Framework for generating corridors

- Constraints
 - Geological
 - Environmental
 - Highway geometry and planning
- Develop ideas
- Apply viability assumptions check
- Aggregate ideas into corridors

Corridor selection process

Table discussions, Q&A

LUNCH

Corridor development – Presentation of constraints

- Geological constraints
- Environmental constraints
- Highway geometry and planning

Corridor development – Corridor mapping (table discussions)

Corridor development – Feedback from groups (consolidation)

Next steps

Next steps (programme)

Timeframe	Task
Dec – Jan 2016	Identify corridors and analyse/sift in collaboration with stakeholders
Jan – Mar 2016	Develop long list of options and undertake more detailed analysis / sifting to establish a shortlist of 3 to 4 options
Apr – Oct 2016	Evaluate short list of options through production of Strategic Outline Business Cases