



Department  
for Transport

# Future of The Queensbury Tunnel

Official

# Background and Context

## Background

- 1.4 mile long ex-railway tunnel in Yorkshire
- Last used as a railway tunnel in the 1950s
- Passes under the village of Queensbury
- Forms part of National Highways' current Historical Railways Estate responsibility
- In considerable disrepair, partially flooded and considered too dangerous to enter
- Has been subject of several plans to repair and repurpose the tunnel as part of a local greenway





An aerial photograph of a suburban neighborhood. A red dot is placed on a small, light-colored building or structure in the center-left of the image. The surrounding area is filled with houses, lawns, and trees. A road labeled 'MAY 15' runs diagonally across the top. Another road labeled 'MAY 15' is visible on the right side. The overall scene is a typical residential area with various house styles and landscaping.

An aerial photograph of a suburban neighborhood. A red dot is placed on a house located on the west side of a street, between the intersections of 1st Street and 2nd Street. The street names '1st Street', '2nd Street', '3rd Street', and '4th Street' are visible. The houses are mostly single-story with light-colored roofs, surrounded by green lawns and trees.

An aerial photograph of a suburban neighborhood. A red pin is placed on a street, indicating a specific location. The area includes houses with dark roofs, green lawns, and a mix of paved and grassy areas. A road runs vertically through the center, with several houses and trees along its sides. The overall scene is a typical residential development.

SHAFT 6



# Current Condition

## Conditions in the Tunnel

- The tunnel lining continues to deteriorate resulting in falling masonry from the tunnel lining
- Tunnel shafts have deteriorated
- Dangerous gases collect in the tunnel
- The southern portal is completely flooded
- Flooding extends into the middle of the tunnel
- Water continually seeps through the rock and tunnel lining reducing visibility even with the aid of lighting





# Current Risk

## Risks in the Tunnel

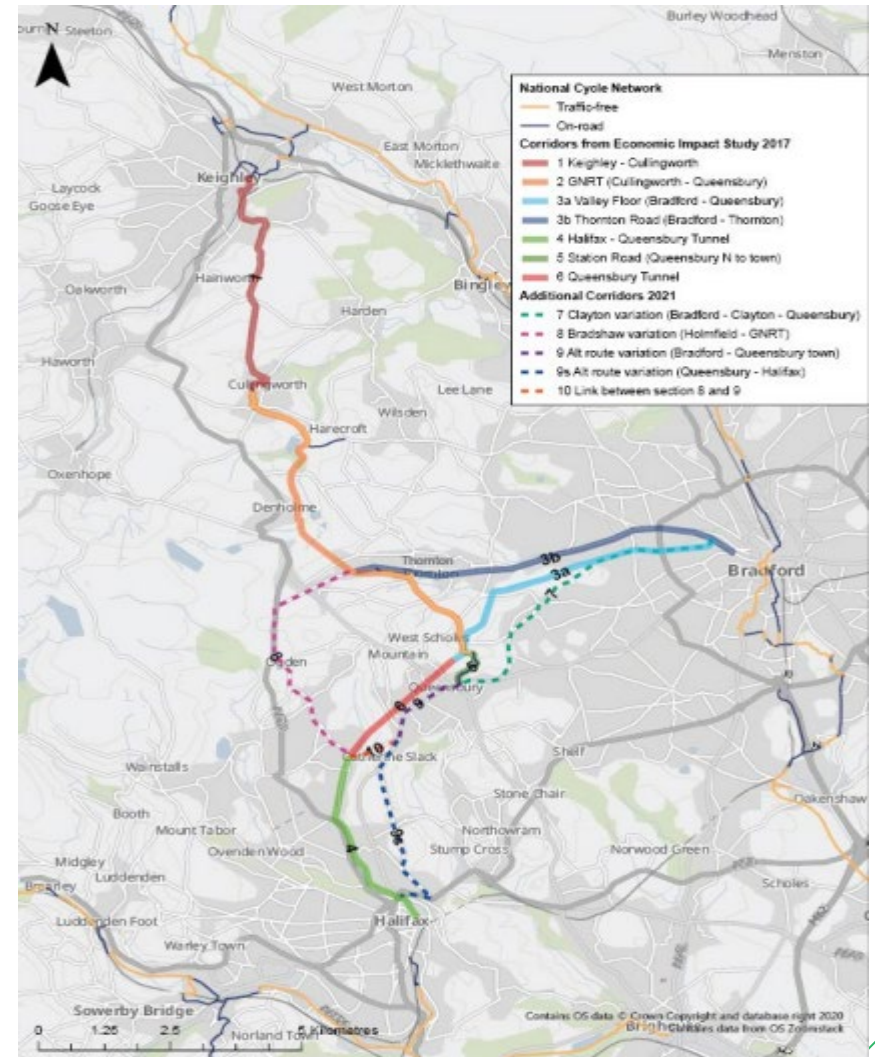
- As inspectors are unable to safely access the tunnel it is not possible properly assess the current level of risk.
- Without further work on the tunnel the following risks could potentially materialise:
  - Risk of shafts collapsing leading to potential destruction of infrastructure above the tunnel – assessed as low based on last inspections but up to date assessment has not been possible
  - Risk of lining collapse leading to potential loss of life for any individual in the tunnel - mitigated by restricting entry
- Coupled with the risk to infrastructure above the tunnel is the risk to engineers inside the tunnel when making assessments of its condition due to:
  - Single point of access/egress
  - Rising gas levels
  - Risk of injury from falling masonry



# Greenway Options

## Routes

- Sustrans 'Queensbury Tunnel Greenway Feasibility Study, 2024' considered multiple routes including both tunnel and non-tunnel options
- 6 were identified as viable routes by Sustrans in its report and these included 3 tunnel and 3 alpine routes.
- All 6 routes were assessed against the same multiple criteria which include consideration of heritage benefits
- The 3 alpine routes had costs ranging from £16m - £31m
- The 3 tunnel routes had costs ranging from £36m - £66m



# Greenway BCRs and Considerations

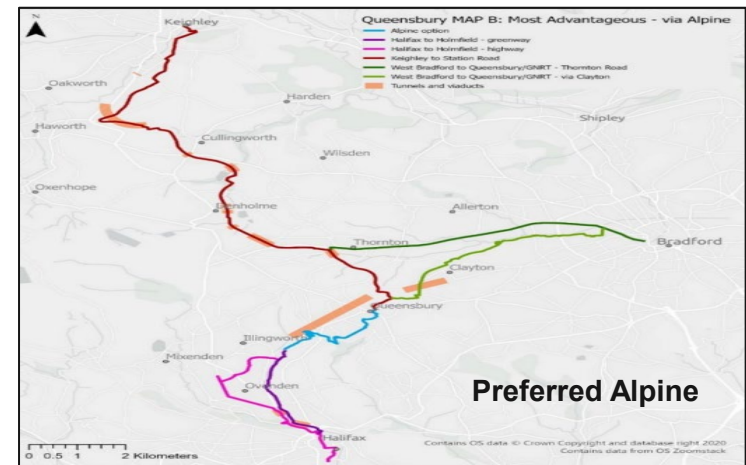
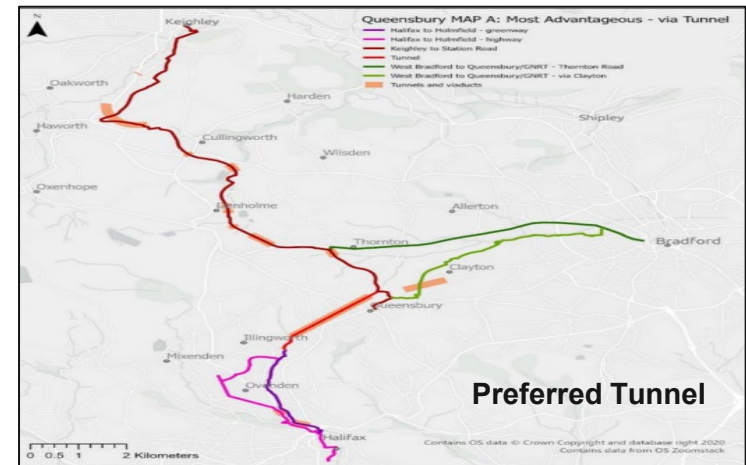
## BCR (Benefit Cost Ratio) Key Points

- BCRs distribution was relatively narrow ranging from 2.82 to 1.50 depending on methodology
- Tunnel options BCR 1.5 to 2.8
- Alpine options BCR 2.0 to 2.7 do not include the tunnel
- Report acknowledges that there is a high level of uncertainty in construction costs as well as baseline usage estimates and projected uplifts

## Route Considerations

- Delivery costs for the preferred tunnel route are estimated at £65.6m\*
- Delivery costs for the preferred alpine routes are estimated at £31.4m\*, although maintenance costs were assessed to be lower
- User experience is based on optimistic view on tunnel's condition, which is expected to be damp with occasions of poor visibility

\* Including optimism bias. 2020 costs





# Engineering Considerations

## Engineering Works To Make the Tunnel Safe

- A huge amount of work would be required to make the tunnel safe. This would include:
  - Full repair and stabilisation of all shafts
  - Repair including replacement where necessary of the entire tunnel lining
  - Draining and repair to any damage caused by the flooding
  - Strengthening of the tunnel wall where it has become misshapen
  - Work to improve drainage

## Engineering Works To Make the Tunnel Suitable for a Greenway

- Further works would be required to bring the tunnel to the standard required for a greenway
  - Installation of power for lighting and air flow
  - Repair of the tunnel bed
  - Repair of the tunnel entrances
  - Significant work on the tunnel approaches would be required in particular the flooded southern portal
  - Significant work to ensure drainage is compatible with the need to maintain a safe active travel route.





# Other HRE work

## Works to Develop and Utilise Other HRE Locations

- We recognise the importance of both the development of greenway options as sustainable travel options and the importance of maintaining and enhancing our rail heritage.
- We are very supportive of using the HRE where it can support the needs of local communities and other organisations and some examples include:
  - National Highways' work with WYCA on the Pudsey Greenside Tunnel
  - Multiple sites across England and Wales where HRE structures are being used to support Active Travel opportunities
  - Other non Active Travel examples include leasing tunnels for use as storage and gun ranges and allowing the emergency services to use some tunnels for training purposes.

# Summary

- The tunnel is in an extremely parlous condition
- There has been extensive engagement with stakeholders
- There are risks to inspectors in the tunnel, and potentially those living above, if work is not undertaken
- Limited access by the engineers means National Highways cannot confidently assess the pace at which the tunnel is deteriorating
- The BCRs for all the greenway options are comparable
- Projected usage across the preferred tunnel and preferred alpine routes are similar
- Costs of bringing the tunnel up to standard and considerable
- Decisions on the tunnel's future need to be mindful of the current fiscal constraints on both National Highways and the Department
- Preferred approach having considered the options in the current context is for National Highways to carry out the works to stabilise the shafts and tunnel lining subject to any necessary planning approvals.

