Queensbury Tunnel Greenway

Preferred Route Alignments

08 July 2021

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Contents

Preferred Route Alignments

The following alignments have been identified as the preferred options for further development, based on initial site visits. The preferred alignments outlined in this report have been selected based on their potential to provide coherent, attractive options that connect the towns of Halifax, Bradford and Keighley with Queensbury as a central node.

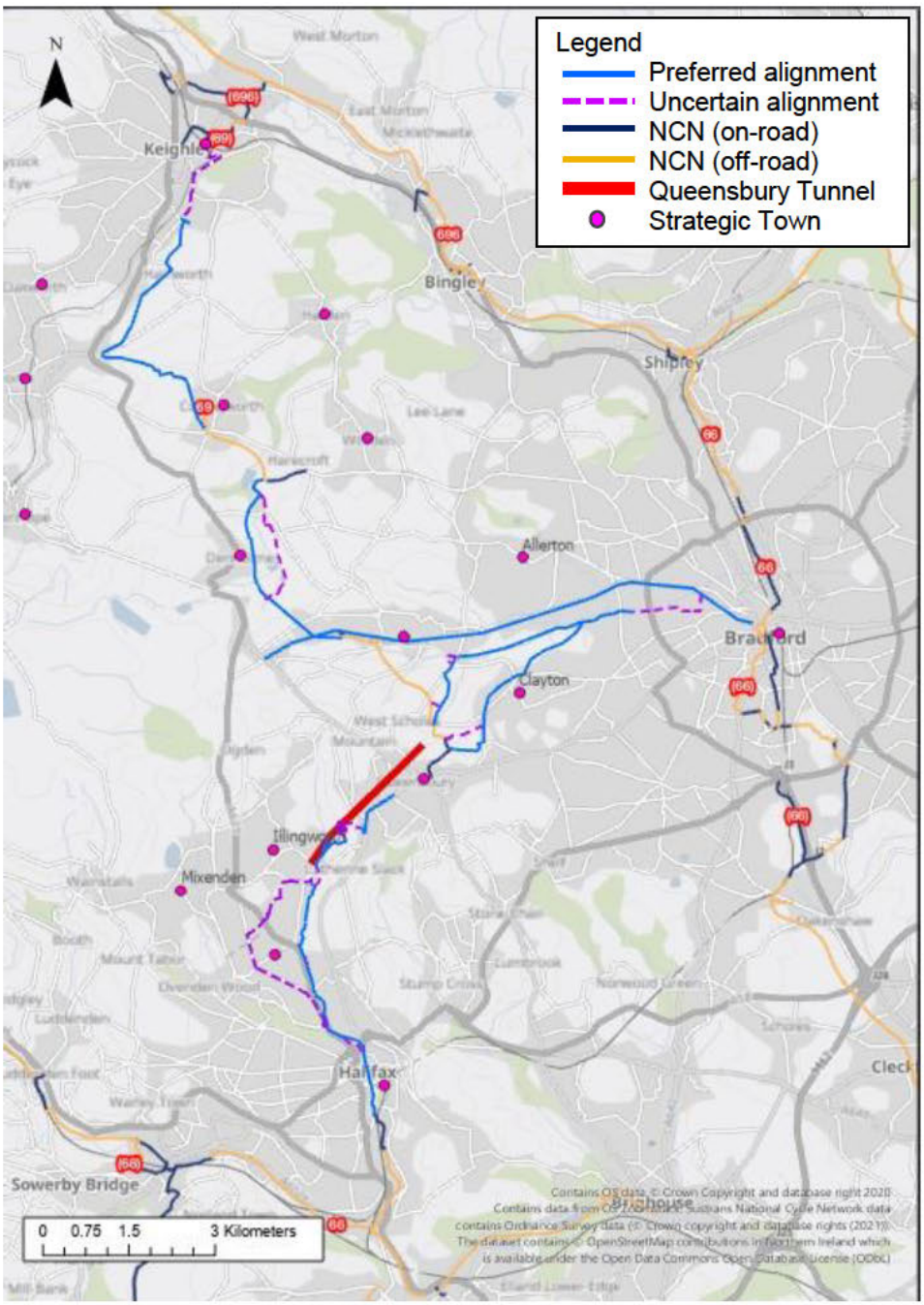

Figure 1: Whole-area view of preferred alignments after initial site visits.

Considerable topographical challenges exist across the study area, and it is inevitable that there will be links within the preferred alignments sections that are not compliant with current standards, particularly with respect to gradient. The selected alignments have been chosen to minimise sections of non-compliance, while at the same time providing an attractive greenway network.

There are also substantial technical challenges inherent within each of the corridors shown, and these are summarised in the alignment descriptions. A commentary of known non-technical challenges is also provided for each corridor where applicable. An absence of commentary does not indicate an absence of issues.

Alignments have been determined using a three-stage process:

— Seven previously identified corridors between strategic towns were taken from Sustrans' Queensbury Tunnel Report (2017). A further five possible corridors have now been identified and added to make a total of 12 possible corridor options (Appendix A). *Corridor numbers shown in Appendix A reflect historic numbering. It is suggested that this is replaced with a system to reflect individual alignments, once alignments are finalised to take forward to concept design.*

— Potential route options within and around the 12 corridors were identified using desk study analysis (Appendix B), and site visits undertaken to assess these options.

— The current preferred alignments were selected based on the combined findings of the desk analysis and site visits. In some cases, new alignments have been suggested on the basis of site explorations.

It should be noted that:

— The inclusion of an alignment as 'preferred' in this document does not guarantee its inclusion in the final proposals. Preferred alignments are subject to change as the design process progresses and new information is received, particularly from project partners and stakeholders.

— The options appraisal process has not considered any non-Local Authority stakeholder consultation or engagement at this stage. The client's consent to engage with key stakeholders has now been given. Those stakeholders' local knowledge and route preferences will now be sought and may influence the preference or alignment of routes for consideration.

Alignment Overview

Table 1: Summary of corridors described in this report

Description	Current Corridor No. (Appendix A)	Character & main features	Principal opportunities & challenges
Keighley to Cullingworth	1	The preferred alignment is of mixed character, leaving Keighley via urban, residential and unadopted roads before connecting a series of traffic-free rights of way. The alignment merges with the disused railway on the approach to Cullingworth.	The northern-most section of the preferred alignment will require extensive highway works to achieve a suitable level of provision. Further south, gradients may restrict access for some users, with ecological challenges also present. The preferred alignment is shown in the Draft Bradford District Local Plan Policies Map (2020-2038).
Cullingworth to Station Road	2	Linking two existing sections of the Great Northern Railway Trail (GNRT), the preferred alignment follows the line of the disused railway wherever possible, to create a wholly traffic-free link between Cullingworth and the northern portal of Queensbury Tunnel.	Realising this alignment would increase the attraction of the already well-used GNRT. Several tunnels are present along the alignment. These represent an opportunity to build on the heritage attraction of the route, but also key risks in terms of buildability and future liability.
West Bradford to Station Road	3a	The greenway alignment passes between the settlements of Thornton and Clayton along the Clayton Beck Valley, before climbing rural roads and/or fields to meet the existing NCN 69 near the northern portal of Queensbury Tunnel.	This alignment has potential to facilitate local leisure use in addition to providing access to the wider greenway. However, it misses an opportunity to connect local communities into the wider network. Largely inaccessible to close inspection, this alignment also carries a high degree of uncertainty as to its feasibility.
	7	This mixed character alignment begins at the eastern end of the Clayton Beck Valley, close to the Thornton Road alignment. Using the 'closed' Deep Lane to climb to Clayton, the alignment continues on local roads through the town.	Deep Lane has long been the focus of local pressure to open a cycling and walking route between Clayton and West Bradford. The Clayton Option is likely to have strong local support, and provides a good opportunity to connect one of the strategic towns to the wider greenway route.
Thornton Road	3b	Segregated provision is proposed for the length of Thornton Road under TCF plans. This alignment is highly urban in character.	As a TCF scheme, the Thornton Road proposal is likely to be constructed in the near future. As an urban route it will be highly…

			…visible, and provides a good opportunity to provide a safe route to the wider greenway.
Halifax to Holmfield	4	This valley greenway option initially follows proposed TCF links, before joining the valley of Ovenden Brook and the disused railway alignment to provide a largely traffic-free link to the southern portal of Queensbury Tunnel.	As a greenway link, this alignment has the potential to cater for local leisure trips in Halifax, in addition to longer touring trips between towns. Heritage and ecological challenges are present along this valley alignment, most notably the presence of a dilapidated Grade II Listed Mill building, which will require work to ensure the safety of users on the greenway. *At the northern end, uncertainty remains around the best option for final link to the tunnel portal itself.*
	4	Segregated provision in the southern half of this predominantly highway-based option is proposed as part of TCF plans for Halifax. Leaving the TCF streets, the alignment continues through a mixture of residential and low traffic streets, and parkland.	Building on TCF schemes that pass through northern Halifax, the southern half of this alignment has a high chance of construction. In the northern stretch, major works will be required to facilitate the crossing of two main roads. There are opportunities to link several strategic areas into the greenway. *At the northern end, uncertainty remains around the best option for final link to the tunnel portal itself.*
Station Road	5	The existing Station Road is a virtually traffic-free ascent between the northern Queensbury Tunnel portal and Queensbury town.	This link is already in existence, and while the gradients are higher than would be preferred, there is little opportunity for alternative options. As a virtually traffic-free link, this alignment has considerable advantages over alternative ascents to Queensbury.
Holmfield to Station Road	6	This tunnel alignment consists of a wholly traffic-free passage through Queensbury Tunnel.	Restoration of the tunnel for use as a link between Holmfield and Station Road will provide a marquee attraction for the area, and overcome the significant topographical challenges associated with traversing this same corridor over land. There is an opportunity to build on the heritage attraction of the route, but also key risks in terms of buildability and future liability.
	6	Avoiding use of the tunnel, this ‘alpine’ alignment would ascend the slopes above the tunnel portal in a series of zig zags to join segregated provision along the A647 to Queensbury.	An ‘alpine’ ascent of the slopes above the tunnel portal could provide an attraction in its own right, drawing on the mining heritage of the area. *There remains a question as to the final link between the A647 and Station Road through the highly constrained streets of Queensbury.*

Table 2: Corridors no longer under consideration

Corridors no longer under consideration		
Holmfield to GNRT	8	This alignment, while technically feasible, would result in a highly indirect link between Halifax and Bradford, and Halifax and Queensbury. Wholly highway based, it is also not in keeping with the aspiration for a greenway network between the towns.
Windy Bank (top) to Queensbury	9	This alignment has been partially incorporated into the overland option between Holmfield and Station Road. The northern section of this alignment is unfeasible without significant changes to the highway layout and character in Queensbury.
Halifax to Windy Bank (top)	9s	This alignment travels through areas previously investigated and discounted for provision by Calderdale Council. It faces the same topographical challenges as other corridors, but misses any opportunity to connect strategic towns into the network.
Windy Bank	10	Windy Bank is a steep road bounded by stone walls. This alignment starts and ends in similar locations to alternative options, and provides no benefit over these options.

Keighley to Cullingworth

Route options in this corridor have been narrowed to a single preferred alignment. The alignment shown represents an opportunity to link communities on the outskirts of Keighley with the wider greenway route.

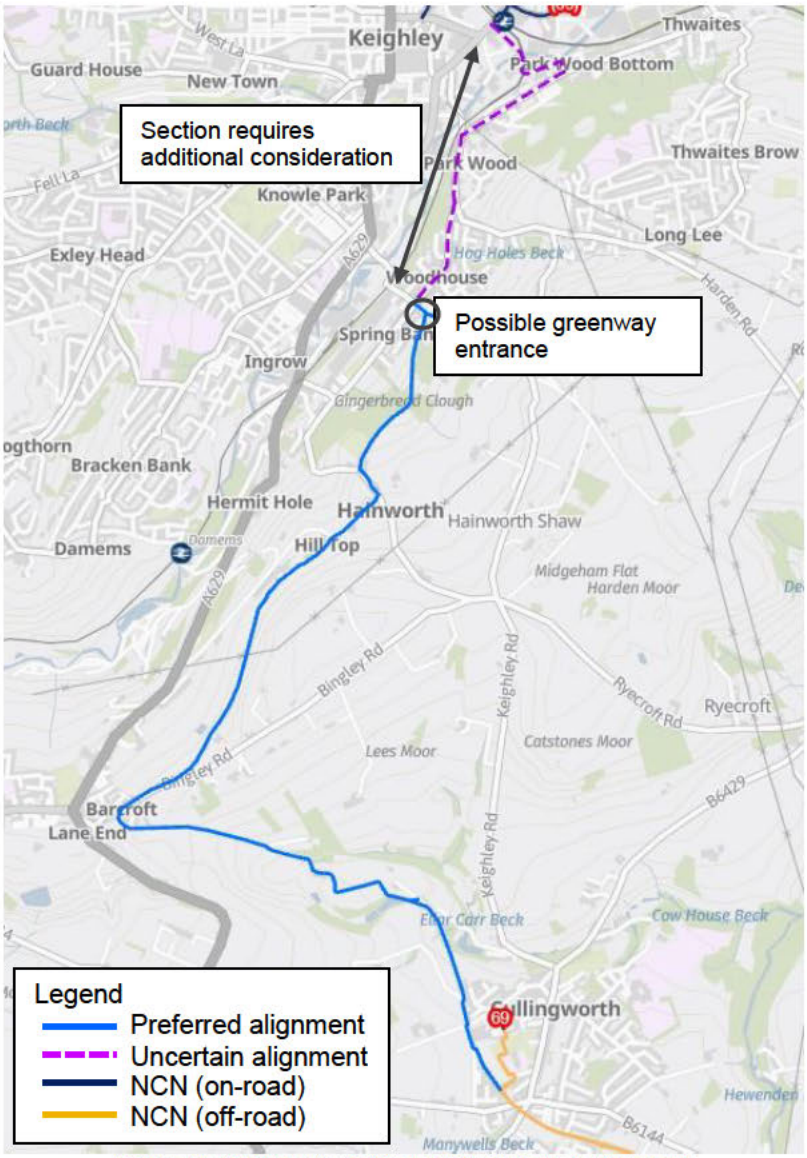

Figure 2: Keighley to Cullingworth preferred alignment.

— Railway station to Park Lane (purple dashed): no ideal solution. A potential link between Park Lane and Keighley railway station exists via Low Mill Lane, Grace Street and Parkwood Street. However, several aspects of this alignment are problematic. Cobbles on Low Mill Lane present an accessibility challenge, as does the steep gradient of Grace Street. Significant interventions will be required on Parkwood Street and the

junction with Park Lane, potentially including highway reconfiguration on both links, the introduction of model filters or other restrictions to traffic flow, and a signalised junction.

— An alternative possibility is to widen the existing footpath between Low Mill Lane and Park Lane, picking up the alignment of the disused railway immediately prior to joining Park Lane. This would provide a more direct route to Park Lane at a more acceptable gradient, but would require existing stone walls to be removed and rebuilt on currently private land, in order to provide an acceptable width. Neither of these alignment options present a simple prospect.

Figure 3: Clockwise from top left – Low Mill Lane (station end), Parkwood Street, alternative footpath entrance, Low Mill Lane (at bridge).

— Park Lane to Hainworth Road (purple dashed): limited options available. Exiting Keighley south on Park Lane, before joining Hainworth Wood Road N and Woodhouse Road. This alignment provides a link to terrain south of Keighley that minimises elevation gain and avoids the busy, narrow and steep Long Lee Lane option. Hainworth Wood Road N is wide, with good potential for providing safe cycling conditions. However, Park Lane and the junctions adjoining this link, will require significant interventions to realise an acceptable standard of provision. Interventions along Park Lane would potentially include land acquisition to provide a suitable signalised junction

with Parkwood Street, a further signalised junction with Hainworth Wood Road N, and displacement of parking from Park Lane to provide protected space for cycling.

— **Hainworth Road (Keighley 612): preferred alignment.** Hainworth Road is an unadopted road, currently unsurfaced but open to all traffic. Climbing from north to south, the road has a convex profile, with the steepest slopes reaching approximately 16% for 60m. Across the whole length of the road, the average gradient is approximately 9%. While significantly steeper than an ideal gradient of 5%, this is comparable with alternative alignment options available. Given the challenges exiting Keighley, an argument exists to mark the start of the greenway at the entrance to Hainworth Road.

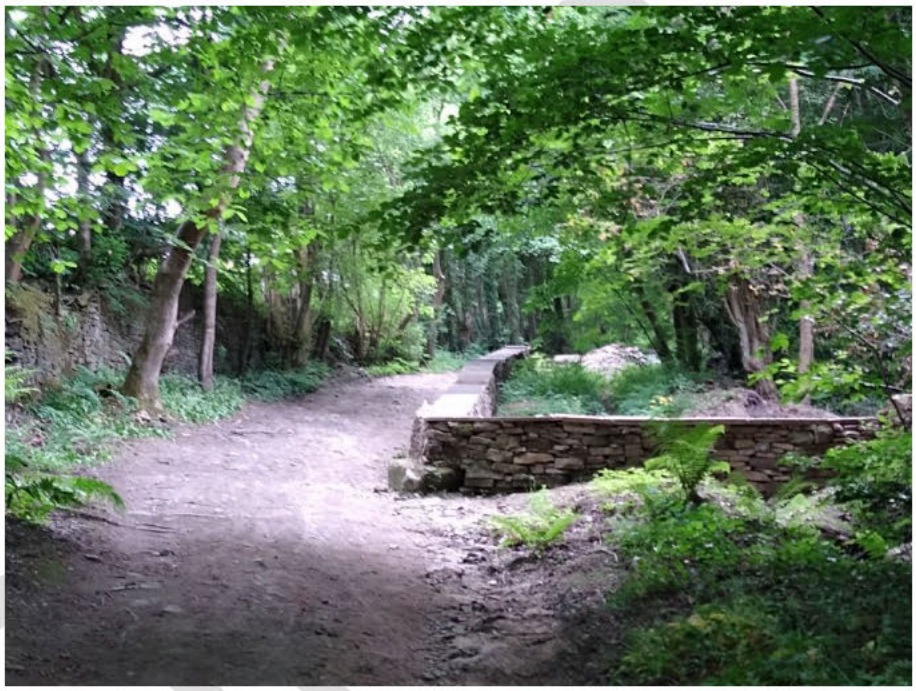

Figure 4: Hainworth road, showing general character and new structure under construction

— **Nether House Farm to Bingley Road: preferred alignment**. Exit Hainworth Road to join Hainworth Lane and then Hill Top Road, before following the existing footpath (Keighley 108) to join Bingley Road. Keighley 108 has previously been subject to consideration for upgrade to a public bridleway, and provides a shallow-graded link between Hainworth and Cross Roads. There is evidence that the path is already in use as an unofficial bridleway. Widening of the path may be required at pinch points, and may impact on areas of Open Mosaic Habitat to the east of the path.

— **Bingley Road to Sugden House Farm: preferred alignment**. Options for segregated cycling on Bingley Road are constrained at the western end of the link. Possible solutions include extending the zone subject to existing speed and flow controls, or seeking an alignment through the fields south of Bingley Road. The walled lane to

Sugden Farm provides a lightly trafficked bridleway link to the final off-road link to Cullingworth.

— **Bridleway to Cullingworth: preferred alignment.** Widening and improvement of the existing bridleway to Cullingworth would provide an attractive link. The final approach to the village also has the potential to join the line of the disused railway line north of Station Road, although this would require negotiation with landowners to achieve.

Figure 5: Keighley 108 (L), walled lane to Sugden Farm (Centre), bridleway to Cullingworth (R)

The route described above represents the preferred alignment based on an assessment of the possible routes shown in Appendix B. In addition to presenting a solution which offers a balance between utility potential and attractiveness, an advantage of the alignment shown over other options is that it is in line with preferences identified on the Draft Bradford District Local Plan Policies Map 2020 – 2038. However, engagement with groups such as the GNRT Forum is yet to take place. Given the extensive assessment of possible alignments in this area undertaken by this stakeholder group, further information obtained may result in amendments to the alignment described here.

Keighley to Cullingworth commentary

As identified in the description above, there are technical challenges constraining the choice of alignment towards the northern end of the corridor. In addition to the technical challenges, the following known issues exist within the corridor:

Hainworth Road (Keighley 612)

— As an unadopted highway, this route is open to all traffic. In its current state, traffic is largely limited to off-road vehicles, vehicles accessing Hainworth Wood Wild Camping, and people on foot, horses and cycles. To achieve LTN1/20 standards, the track would require resurfacing, but this is likely to encourage use of the road for a larger number of motor vehicles. Therefore, it is likely that a Traffic Regulation Order (TRO) limiting use by motor vehicles may be required alongside any works.

— A new structure is under construction approximately half way down the track. This structure extends into the highway boundary, and may present an obstacle to use (see Figure 4).

— The track passes through an area of designated ancient woodland. Resurfacing of the track will not require felling of trees, and can be specified to create minimum impact within the highway boundary alone. Nevertheless, it is likely that any work in this area will require consultation with Natural England.

Bridleway to Cullingworth (Bingley 134)

— This bridleway has previously been the subject of an (unsuccessful) application to downgrade to a footpath. There may therefore be some resistance to raising the standard of the alignment to facilitate increased levels of use.

Cullingworth to Thornton (GNRT)

Route options in this corridor are strongly influenced by the current alignment of the Great Northern Railway Trail (GNRT). The preferred alignment makes use of the line of the disused railway to provide a coherent link in character with the existing provision.

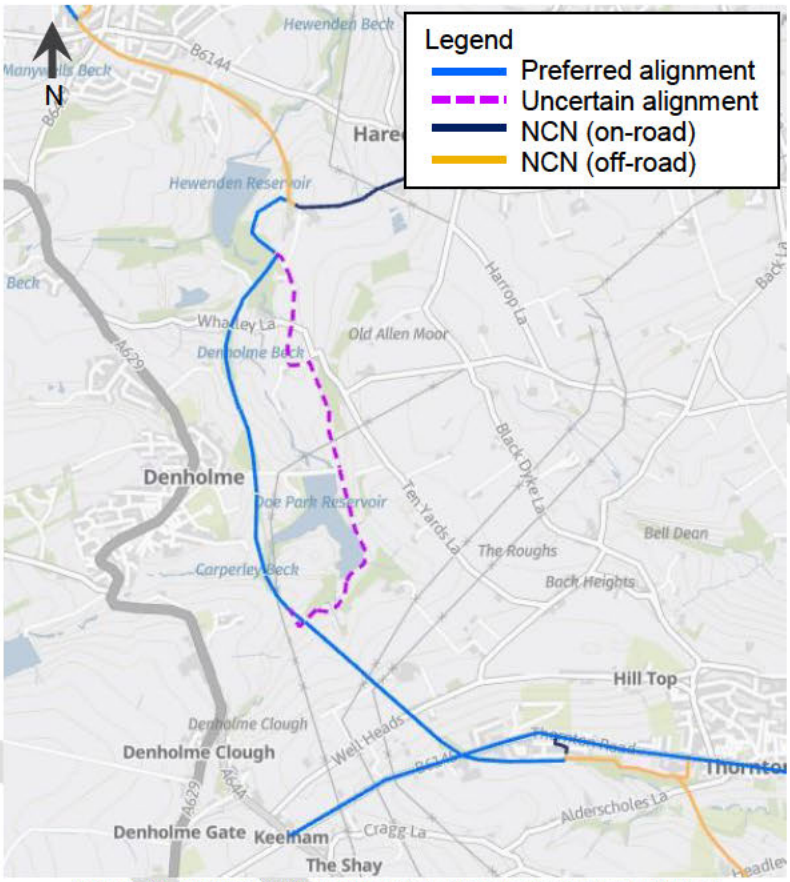

Figure 6: Cullingworth to Thornton preferred alignment (blue)

— **Cullingworth to Station Road in Wilsden via Hewenden Viaduct: existing route**. Alignment follows the existing NCN 69 along the GNRT.

— **Station Road, Wilsden, to Well Heads Tunnel: preferred alignment**. The preferred alignment initially departs from the old railway to follow an existing bridleway and Public Right of Way (PRoW) footpath past Glen House, before re-joining the line of the old railway. Note, a steep bank requires a ramp to reach the rail embankment, which is part Sustrans/RPL-owned for a stretch here. This section includes several bridges and tunnels, with lengths varying between approx. 30m & 130m, which will require further analysis to determine the best approach to navigate. Options include re-opening the tunnels, or aligning the route to climb out of the cutting and around the sealed structures. Much of this stretch hasn't been accessible for close inspection due to being

in privately owned land, but most appears to be overgrown woodland with some remaining clear sections visible.

— Also included in this stretch is a section routing through a new housing development to the south of Foster Park View in Denholme. Provision of a shared-use path linking north to south has been included in the development plans. Both the north and south ends of the proposed shared-use path here feed into woodland areas that approach tunnels (Appendix C).

Figure 7: Clockwise from top left – bridleway around Glen House, railway alignment, existing railway structure, alternative PRoW on NW edge.

— Station Road, Wilsden, to Well Heads Tunnel: non-railway alignment. A potential alternative alignment has been identified in addition to the above, which would bypass all but the southern end of the old rail alignment on the approach to Well Heads Tunnel. This follows PRoW footpaths to and across Whalley Lane; a new section across fields/hillside would then join to meet a further PRoW footpath to continue southwards and along the east side of Doe Park Reservoir, then along the south edge of the reservoir. An existing 1m-wide decking across the marshy and suspected environmentally sensitive area (details of designation not confirmed) would require widening here. The route would then run south-westwards to re-join the old rail alignment. Ramping structure or earthworks would be required here also. Note that the

road running east from Foster Park View to and across the reservoir has been discounted due to its steepness (over 10%) on the west side of the reservoir.

Figure 8: Character of alternative non-railway alignment

— **Well Heads Tunnel: preferred alignment**. Reopening the tunnel would provide a safe, well-graded link into Thornton, avoiding challenges of gradients and options constrained by existing developments. This section is in private ownership and has not been inspected on site.

— **Thornton to Queensbury: existing alignment**. Route follows the existing NCN 69 along the GNRT.

The preferred route identified above is believed to concur with that of the GNRT Forum. However, engagement with this group is yet to take place. Given the extensive assessment of possible alignments undertaken by this stakeholder group, any further information obtained may result in amendments to the alignment described here.

Cullingworth to Thornton Commentary

The four tunnels present in this corridor present both an opportunity to build on the heritage attraction of the corridor, but also present key risks in terms of buildability and future liability. At this stage, it is not known whether restoration of all the tunnels is possible. A possibility of bats being present in the disused tunnels presents a significant ecological risk, alongside the technical challenges of ensuring the tunnels are fit for use for walking and cycling. Additionally, much of the corridor has Priority Habitat (Deciduous Woodland) present, presenting a further ecological risk.

West Bradford to Queensbury/GNRT

The corridor to the west of Bradford has the greatest potential to provide alternative routes, each with specific character and purpose. Three possible routes are described: the Thornton Road option; the Valley Greenway option; and the Clayton option. The Thornton Road option carries a far higher degree of certainty regarding its constructability than the alternative options described.

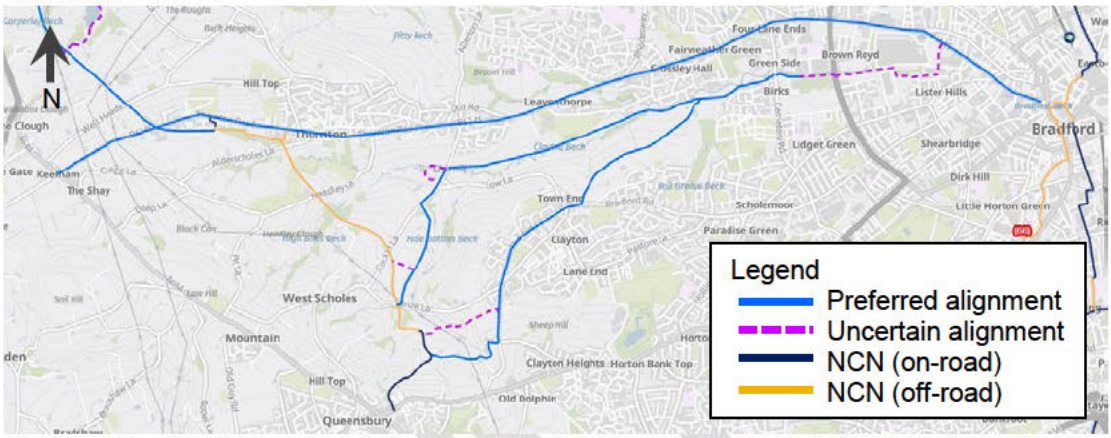

Figure 9: West Bradford preferred alignments, showing the Thornton Road Option (top), the Valley Greenway Option (middle) and the Clayton Option (bottom). The dark blue line to Queensbury is the existing Station Road alignment.

Thornton Road Option

Thornton road: preferred alignment. Development of segregated cycling provision along the length of Thornton Road is included in current plans under the Transforming Cities Fund. Phase 1 of the "Thornton Cycle Superhighway" extends west from Bradford City Centre to the A6177 outer ring road. Plans to extend the cycle superhighway to Thornton are currently at the advanced business case stage. This alignment would provide a safe link to the existing GNRT. The alignment is not described in detail here, but represents a viable option to link Bradford to the wider network.

Valley Greenway Option

A route along the valley between Ingleby Road and the GNRT may be possible, initially following Clayton Beck before rising out of the valley to meet the disused railway. Much of this route is situated on private land, preventing close inspection of a potential alignment. The starting section from Thornton Road is not yet fully determined but could reach and run alongside the ASDA on Cemetery Lane (possibly utilising their cycle infrastructure). There is then potential to follow the alignment of existing footpaths alongside Middle Beck to the south leg of the Clayton Beck. Beyond Leaventhorpe, provided an area of farm buildings can be bypassed, an alignment to the north of the Beck avoids the steeper slopes to the south and

preserves opportunities to link to settlements to the north. However, this introduces the need to cross Clayton Beck to climb towards the disused railway to the south.

Two possible alignments to exit the valley have been identified but each carries a high degree of uncertainty without further examination:

— Ascending Chat Hill Road to Cockin Lane, before joining the line of the existing footpath between Cockin Lane and Brow Lane. New infrastructure in field edges adjacent to Chat Hill Road / Cockin Lane may be a consideration to avoid the narrow lanes here. An alternative part-alignment at the north end of this, running via Corn Mill Lane and crossing the beck, may be worth further exploration. The route would then follow a PRoW footpath (requiring necessary upgrade) to reach and cross Brow Lane and join the existing NCN.

— Following the line of Hole Bottom Beck to cross Brow Lane at its lowest point to meet the disused railway north of the Queensbury Tunnel northern portal. Further exploration required of this option is required.

Figure 10: Land north of Clayton Beck (L), footpaths at northern end of alignment (Centre, R).

Clayton Option

A route through Clayton provides an opportunity to link this strategic town into the wider cycle network at the same time as providing a link between West Bradford and Queensbury Tunnel.

— **Deep Lane to Baldwin Lane: preferred alignment.** Following existing bridleway, the alignment ascends Deep Lane to join Bradford Road and The Avenue, before joining land above the former Clayton Tunnel. Though likely to be steeper than the desired 5% in places, the upgrading of Deep Lane to a high quality cycle way has been the subject of a local campaign for some time, and would provide the opportunity to link Clayton into the wider network. Issues relating to the maintenance of a retaining wall in adjacent land along part of the track have been raised. The Avenue, although with some gradient, has good width and potential for new cycle infrastructure and links to adjacent

residential areas etc. Similarly, Baldwin Lane would require LTN 1/20 compliant infrastructure, but also may have potential for field-edge infrastructure.


Figure 11: Retaining wall on Deep Lane (L), The Avenue (R)

— Baldwin Lane to NCN 69: limited options available. There is some remaining uncertainty surrounding the final link between Baldwin Lane and the disused railway alignment; a possible option via PRoW footpath routes involving minimal gradients is shown, though would involve passing through/near some residential properties unless PRoW path realignment could be achieved. A further possible option may be to align alongside the tunnel from Baldwin Lane – a meandering alignment down to the existing NCN on Station Road, meeting acceptable gradients, would need to be found.

Station Road

Station Road: preferred alignment. The existing link between the GNRT and Queensbury is a virtually traffic-free cul-de-sac with an average gradient of 10%. The road provides a near-direct link between the northern portal of Queensbury Tunnel and Queensbury itself. Two of the three route options in Corridor 3 terminate approximately at the tunnel portal, and any route from the south which uses the tunnel itself will emerge at this point. Therefore, while steeper than desired, this alignment represents the preferred link between the valley and Queensbury.

Holmfield to Queensbury

Route options between Holmfield and Queensbury are determined by the use or otherwise of Queensbury Tunnel. The former railway tunnel provides a potential focal point for the greenway route, linking Keighley and Bradford with Halifax, but its inclusion is reliant on the restoration and upgrade of the tunnel. Excluding the tunnel necessitates an ascent of the steep terrain to the south of Queensbury. The preferred alignment ascends the slopes above the tunnel portal to Ambler Thorn and the Halifax Road. Links at either end of this corridor are problematic and will represent a key challenge to overcome for the integrity of the greenway as a whole.

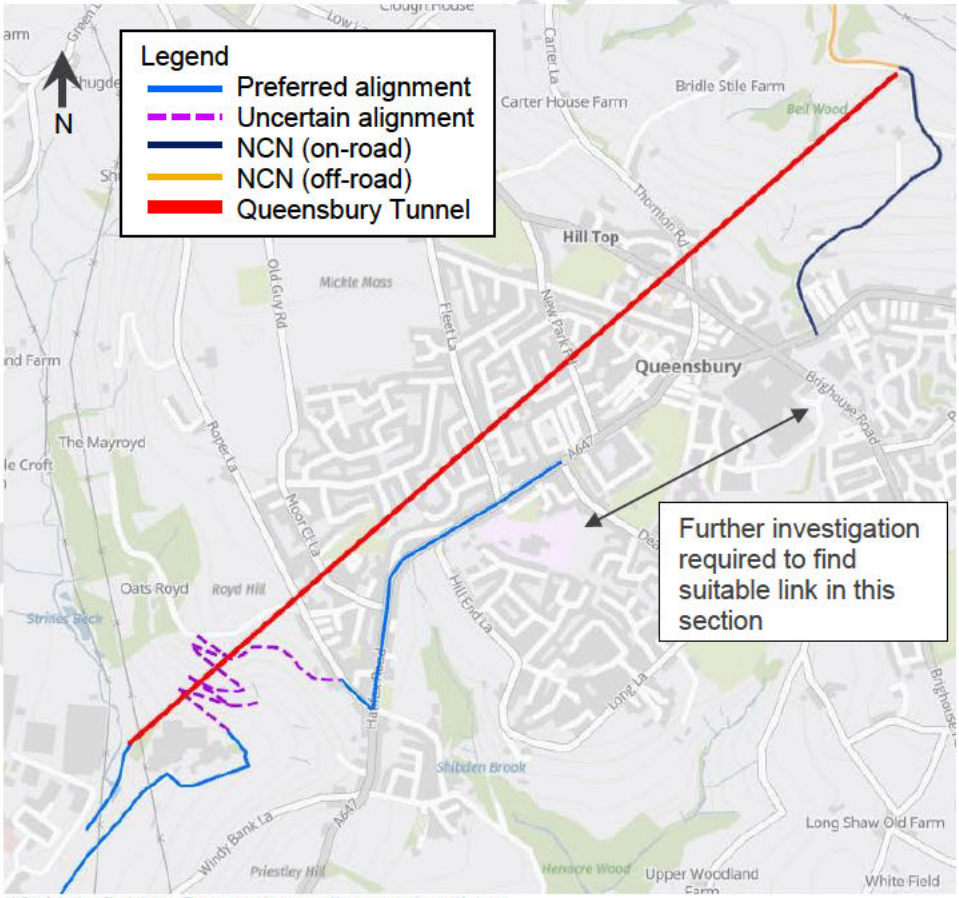

Figure 12: Holmfield to Queensbury alignment options

— **School Cote Brow to lower slopes/tunnel portal: preferred alignment.** For either the alpine or tunnel option, School Cote Brow represents the preferred approach to the foot of the slope. Currently in use for access to a factory, traffic levels are sufficiently light to enable on-carriageway use. However, the road becomes busy during shift changeovers, and is used by HGVs and tractors to access the factory and fields.

Changes to the appearance of the road will be required as a minimum to alert drivers to the presence of non-vehicle users.

Figure 13: School Cote Brow and adjoining infilled railway cutting (L), portal approach (R)

Alpine Option

— **Ascent of portal slopes (Figure 12, purple dashed): preferred alignment.** Above the southern tunnel portal, a network of public rights of ways, tracks and former mine workings are present, alongside two wind turbines. Sloped farmland lies between School Cote Brow and Windy Bank. Using the fullest extent of the area available, it is proposed to ascend these slopes in a series of 'alpine' zigzags, to meet the eastern end of Roper Lane at Ambler Thorn. Extensive earthworks will be required to achieve this at a satisfactory gradient.

Figure 14: Complex ground on slopes above portal (L), evidence of a previously constructed incline (R)

— **Halifax Road to Queensbury: preferred alignment.** The A647 Halifax Road carriageway has the width to allow provision for segregated cycling as far as Russel Hall Lane, with the removal of on-street parking and central islands.

— Russell Hall Lane to Station Road: limited options available. Beyond Russell Hall Lane, limited options to complete a link with Station Road exist without extensive highway interventions. The challenges of providing suitable cycling and walking conditions in

Queensbury have been examined and articulated in the (now outdated) Queensbury Walking and Cycling Study. Options to address this missing link are being revisited.

Tunnel Option

— **Queensbury Tunnel: preferred underground alignment.** Use of Queensbury Tunnel as a connection between Holmfield and Station Road provides a unique opportunity to create one of the longest cycling wand walking tunnels in England. In addition to bypassing the significant topographical challenges, use of the tunnel would create a focal attraction for the greenway route.

Holmfield to Queensbury Commentary

A significant outstanding issue for this corridor remains the lack of suitable links to link with adjacent corridors at either end. As with the entry to Queensbury at the northern end, constrained conditions present a significant challenge to overcome at the southern end of the corridor. Possible options for this missing southern link are described in the Halifax to Holmfield section.

Alpine Option

In addition to these missing links, the presence of historical mining works on the slopes above and to the east of the southern tunnel portal present both a challenge and an opportunity for an over-ground link in the corridor. While the existing inclines demonstrate the constructability of inclines at a suitable grade on these slopes, their presence and the presence of historical coal workings will require a full Coal Mining Risk Assessment to be conducted, and may require works to stabilise and secure former mining works in addition to construction of a new path.

Numerous existing rights of way are present on the slopes above the tunnel portal. Construction of a gradually ascending path across the hillside is likely to require their realignment in places, and creation of new rights of ways in others.

Finally, consultation with Local Authority stakeholders suggests that the slopes shown in Figure 15 are also subject to consideration for planned alternative transport provision between Halifax and Queensbury. Future options for cycling and walking should be taken into account in any plans taken forward, to ensure that, should the tunnel option in this corridor prove unsuitable, over-ground possibilities remain.

Tunnel option

Use of Queensbury Tunnel is reliant on the reopening and restoration of the tunnel, which will incur significant costs. A separate report detailing the required interventions to the tunnel is being compiled by Jacobs.

It should be noted that engagement with Queensbury Tunnel Society, stakeholders with a high-level of interest in this area, has not yet taken place. Conversations with this group may enable the further development of suggested solutions for this corridor.

Figure 15: Previously constructed inclines are clearly visible in the slopes above the tunnel portal.

Halifax to Holmfield

Two possible alignments exist to link central Halifax with Holmfield and School Cote Brow: a greenway route following the alignment of the former railway line along Ovenden Brook (the Greenway option), and a largely highway-based option making use of the TCF interventions proposed for Ovenden Way and Cousin Lane (the Highway option). These two options are distinctly different in character and likely cost.

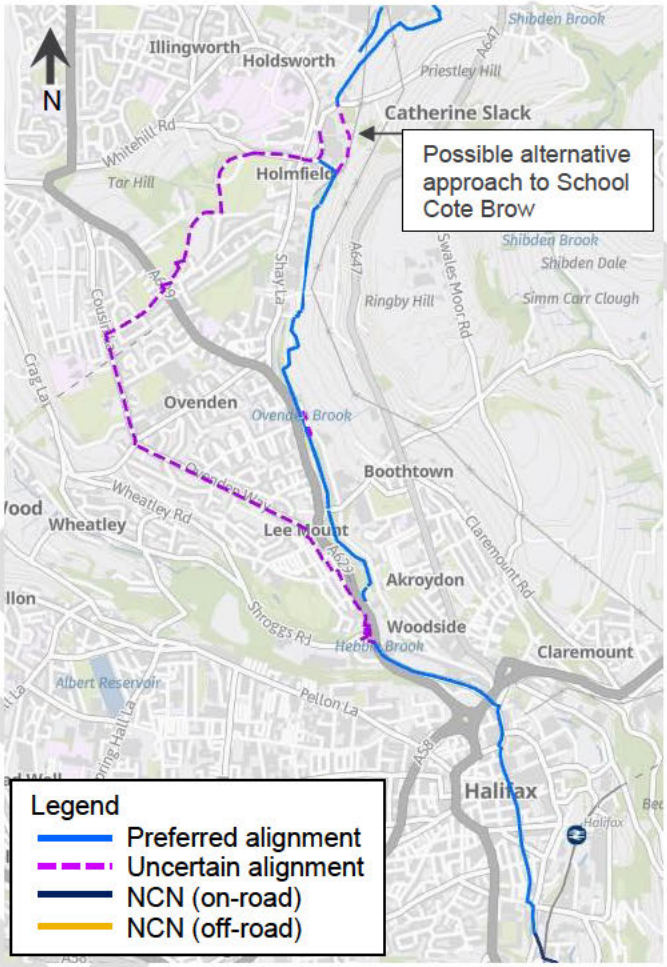

Figure 16: Halifax to Holmfield preferred alignment options, showing Greenway Option (blue) and Highway Option (purple dashed)

Greenway Option

The greenway option initially commences using the proposed Zone 6 improvements set out in the North Halifax Improved Streets for People consultation, before deviating to join Lee Bank and the valley floor along – or near – the old rail alignment. The route north of Lee Bank is included in a separate consultation taking place for Calderdale Council, but Sustrans have not as yet had sight of these plans.

— **Lee Bank to Royd Lane: preferred alignment.** Beyond Lee Bank, the route runs northwards and round a disused (heritage listed) factory site which is currently in a state of disrepair. Close proximity of the proposed path to the building would rule this out as an option currently, but the site appears to have great potential for development as an office or residential block - and also potential for inclusion of a shared-use path. The alignment continues northwards in the old railway corridor parallel with Old Lane. Access for inspection has not been possible for the full stretch but crossings of the beck at several points are apparent and may entail new structures. An out-building sited just south of the bridge where Old Lane crosses the brook at the north end of Old Lane currently blocks the route, and further investigation into ownership and use of this structure is required.

— **Royd Lane to Churn Milk Lane: preferred alignment.** Parallel with the south end of Shay Lane, the route of the railway is inaccessible and thought to be densely overgrown. Therefore an alignment eastwards away from the rail line is suggested, part joining Royd Lane. Possible future planned developments in this area provide an opportunity for inclusion of a shared-use route here. The suggested route would then cross field corners eastwards to reach and run along Kimberley Street.

Figure 17: Route beyond Lee Bank (L), listed disused factory (centre), Kimberly Street (R)

— Churn Milk Lane to School Cote Brow: challenges remain. North from Churn Milk Lane, a route to the east of the industrial units is proposed in field edges to link to Holdsworth Road. The north end of this part is through woodlands and would require further exploration for confirmation of suitability. A link between Holdsworth Road and School Cote Brow represents a key challenge for completion of both this and the Highway option. A potential option running in privately owned land east of Holdsworth Road has recently been identified and is shown on the map (purple dashed); this requires further exploration.

Figure 18: Fields to the east of industrial units north of Churn Milk Lane

Highway Option

The highway option largely follows the proposals suggested in the Zone 2 to Zone 6 improvements in the North Halifax Improved Streets for People consultation.

— **Lee Bridge to Cousin Lane: preferred alignment.** The new segregated provision along Ovenden Road described in the TCF proposals will provide a link between the town centre and Ovenden Way that meets current standards. However, this is an unattractive option that is unlikely to provide an engaging start to the wider greenway route. Therefore, were the highway option to be selected as the preferred route, a ramped connection between Shroggs Road and Old Lee Bank is suggested in preference to travelling alongside Ovenden Road, to ensure a route more in keeping with the wider character of proposals. Such a link would serve to connect the residences to the west of the A629 with the wider Halifax network, and would provide a safer, quieter, more attractive proposition than cycling alongside a major dual carriageway. The preferred alignment re-joins existing proposals at the junction of Wheatley Lane and Ovenden Way, following this alignment to Cousin Lane.

Figure 19: Clockwise - Ovenden Road, Ovenden Way, Cousin Lane, access to Ovenden Way from Wheatley Lane, quiet streets on non-dual carriageway alignment, sloped area showing cycle desire line between Shroggs Lane to Old Lee Bank.

— **Cousin Lane to Keighley Road: preferred alignment**. The alignment deviates from TCF proposals at Moor Lane using the wide, then filtered, Moor Lane link to Keighley Road. Improvements would be required at the junction of Moor Lane and Keighley Road to provide safe passage across the A629 and into Beechwood Road.

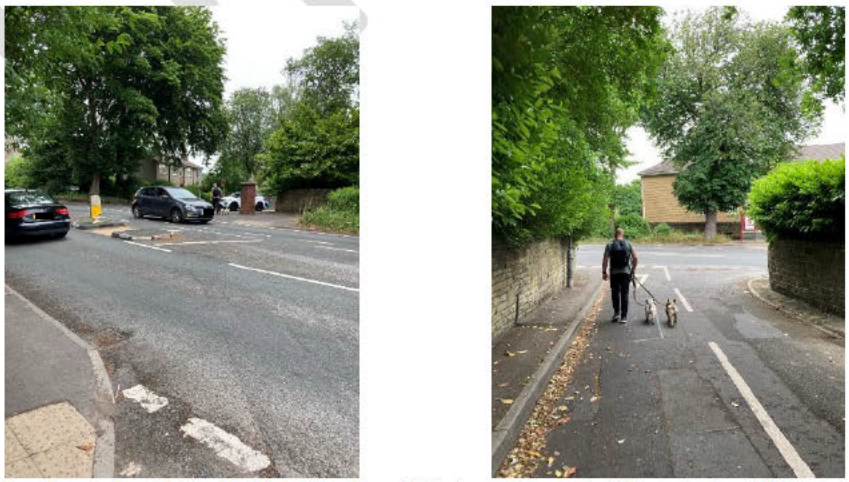

Figure 20: Moor Lane junction with Keighley Road (L), in use as quiet filtered street (R)

— **Beechwood Road to Heathy Lane: preferred alignment.** Existing rights of way (many currently footpaths) provide opportunities for improved provision to and through Beechwood Park. Use of the existing footpath alignments would require the use of land at the edge of the rugby club pitches to bypass the narrow walled footpath at Beechwood road end.

Figure 21: Clockwise from top left – rugby club land, narrow walled footpath, open sided footpath, alternative existing bridleway approach to park, Beechwood Park.

A need for land take could be avoided if an alternative alignment using an existing bridleway approach were selected (Figure 21). This alternative approach would require the use of residential streets between Cousin Lane and Keighley Road.

— **Heathy Lane to Holdsworth Road: preferred alignment.** Heathy Lane provides a link to Shay Lane. Currently traffic calmed and in a poor state of repair, this link is a likely rat run during commuting hours, and enhanced traffic control measures are likely to be required to enable safe on-carriageway use throughout the day. Provision of a crossing over Shay Lane would also be required. Onward links to School Cote Brow face the same challenge as the Greenway Option.

Figure 22: Evidence of existing traffic control measures on Heathy Lane

Halifax to Holmfield Commentary

Greenway Option

The greenway option north from Halifax relies on a suitable connection between the town and Lee Bank (or an alternative approach). The disused, listed factory just north of Lee Bank would require development with inclusion of a shared-use path. Much of the route then aligns through woodland and although a track is present in places, some areas have Priority Habitat (Deciduous Woodland) protection and are likely to present ecological challenges. Structures crossing the beck would be required at some locations.

As the land appears to be occupied by businesses in some stretches (a gym carpark, scrap yard etc.) challenges relating to land ownership are expected.

Highway Option

The Highway option presents several technical challenges along its route to provide safe cycling and walking alongside and within the carriageway. In addition to these technical challenges, the status of Beechwood Park as a Local Nature Reserve is an additional challenge to this alignment.

Much of the Highway option passes through areas currently being considered for improvement under the Halifax Streets for People Scheme. It is important that consideration is given to the potential for synergy between these proposals, or alternatively, the potential for options chosen now to impact on possibilities in the future. Further engagement with Calderdale Council is vital to ensure that existing schemes are coordinated with future plans.

Both options

It is reiterated that the Halifax to Holmfield corridor is reliant on an acceptable approach to School Cote Brow and the southern portal being identified. A suitable alignment is likely to require negotiation with landowners to enable an approach across fields to the south of Brow Lane.

Appendix A: Initial Corridor Options

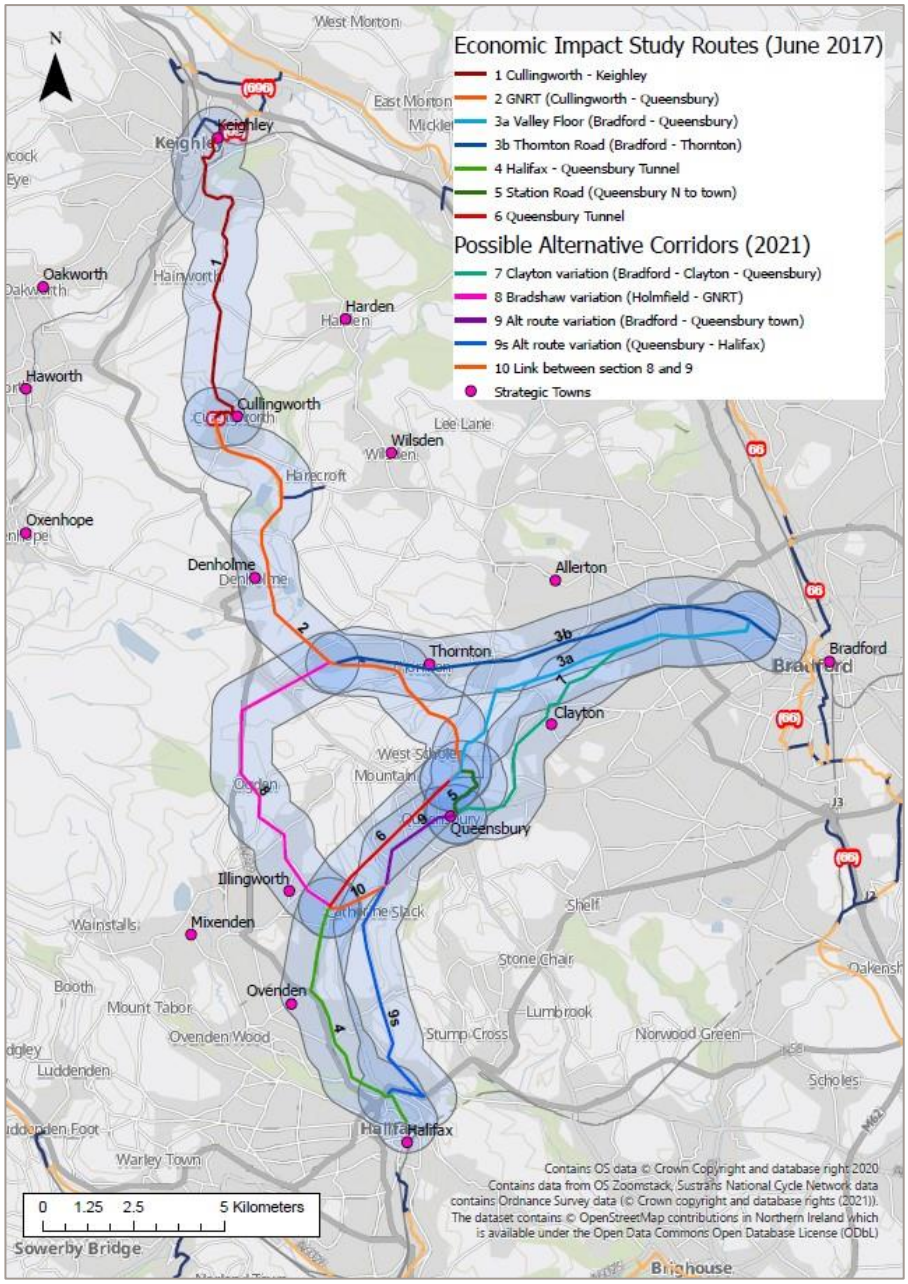

Figure 23: Corridor proposals considered.

Corridors 8, 9, 9s and 10 as shown in Figure 23 have been discounted after desk study and site assessments. The reasons for no longer considering their inclusion are set out in Table 2.

Appendix B: Route Alignment Options

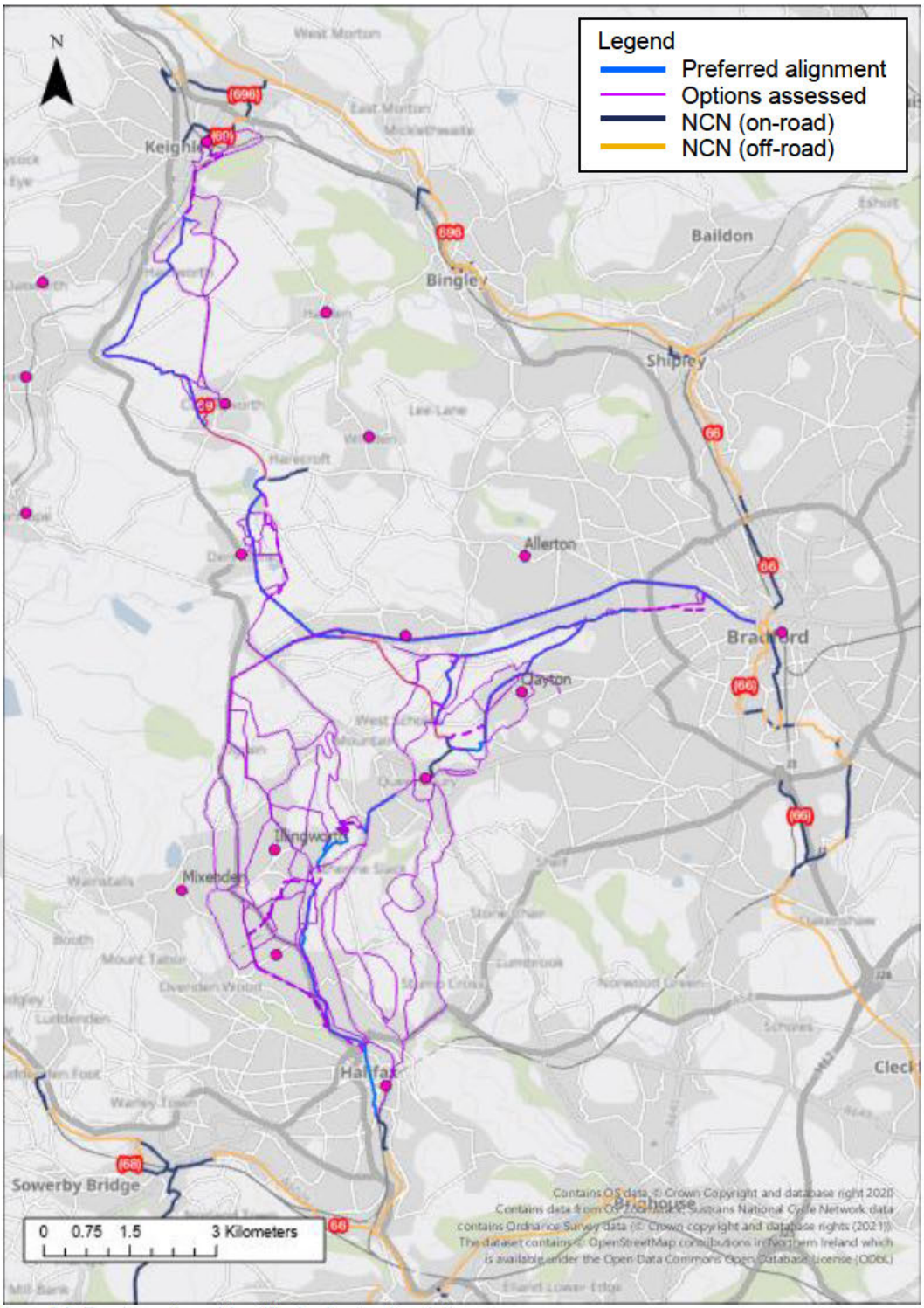

Figure 24: Route options identified prior to site visits.

Appendix C: Station Road, Denholme

Station Road Denholme (19_05214_MAF)

Figure 25: Site location and existing tunnel structures

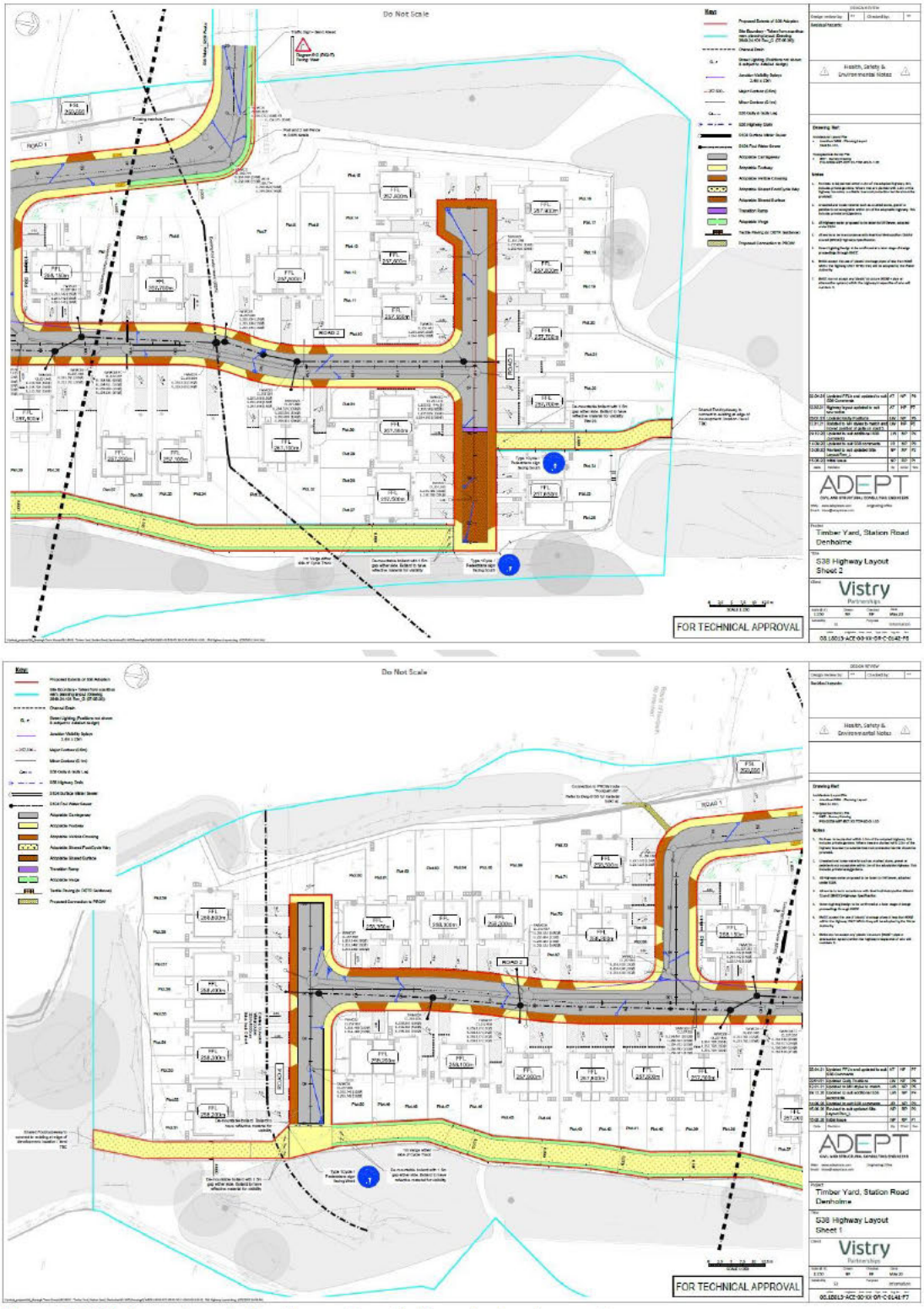

Figure 26: Highway layout showing cycle path through development.