MOTT MACDONALD

Cumbria County Council

Kendal Northern Access Route

Strategic Outline Business Case Summary

June 2018

Cumbria County Council

Mott MacDonald
Ground floor
Royal Liver Building
Pier Head
Liverpool L3 1JH
United Kingdom

T +44 (0)151 482 9910
F +44 (0)151 236 2985
mottmac.com

Cumbria County Council
The Parkhouse Building
Kingmoor Business Park
Baron Way
Carlisle CA6 4SJ

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Executive Summary

This document presents a summary Strategic Outline Business Case (SOBC) for the Kendal Northern Access Route. The Kendal Northern Access Route is a prospective corridor to the north of Kendal, which will provide congestion relief and air quality improvements in Kendal town centre; provide a suitable diversion route for the M6 at times when the M6 is closed; and support economic development and growth in Kendal. This summary SOBC demonstrates the case for investment in the Kendal Northern Access Route, and provides the basis for more detailed development work on the scheme.

The Kendal Strategic Transport Infrastructure Study

This summary SOBC forms the outcome of the Kendal Strategic Transport Infrastructure Study, which was commissioned by Cumbria County Council in partnership with South Lakeland District Council and Kendal Town Council.

The aim of the Kendal Strategic Transport Infrastructure Study was to examine options for strategic transport improvements, and to demonstrate the case for investment in a preferred transport scheme. The primary objectives to guide the study were as follows:

1. Deliver the future strategic growth of the town.
2. Reduce congestion and increase network resilience within the town centre.
3. Improve the resilience of Kendal's transport network so that connectivity is retained during potential future flood events.
4. Improve resilience and accessibility to existing employment areas.
5. Ensure that, when the M6 is closed, diverted traffic is not reliant on single-lane bridges in Kendal therefore improving the resilience of the M6 corridor in the Kendal area.

The Kendal Northern Access Route

The Kendal Northern Access Route is the preferred option that has emerged from the Strategic Transport Infrastructure Study. The prospective route corridor runs across the north of Kendal, from Plumgarths Roundabout on the A591 in the west, to the A6 in the east, with potential for further connectivity to the A685.

An illustration of the indicative alignment for the Northern Access Route is included in **Appendix A** to this report.

Key benefits for Kendal and Cumbria

The key benefits of the Kendal Northern Access Route are as follows:

- **A significant reduction in congestion and improvements in air quality in Kendal town centre**, by taking traffic out of the congested A6 and town centre gyratory.
- **Significant journey time savings for road users.** Indicative economic appraisal, using the Kendal Transport Model, has shown that the journey time savings from the Northern Access Route would exceed £110m.
- **Improved network resilience, both for Kendal and the wider M6 corridor, when the Emergency Diversion Route (EDR) is activated.** The Northern Access Route would link

the A6 north of Kendal directly with the A591, avoiding the need for M6 traffic to travel through the town centre.

- **Unlocking economic development and growth in Kendal**, by connecting potential development sites to the north of Kendal with the strategic road network.
- **Increasing accessibility for residents and businesses**, particularly businesses along the Shap Road corridor.
- **An additional crossing over the River Kent, providing greater resilience** and enabling Kendal to retain a good level of transport connectivity during potential future flood events.

How the preferred scheme has been identified

The Strategic Transport Infrastructure Study followed a structured options appraisal process to identify a preferred option, as shown below.

Figure 1: Options appraisal process

In total, eight options were considered at the long list stage, and four options were shortlisted for further assessment, leading to the selection of the Kendal Northern Access Route as the preferred option. The Strategic Fit (Section 2 of this document) and the Economic Appraisal (Section 3) provide a more detailed overview of each stage within the decision-making process.

Next steps

This summary SOBC demonstrates the case for investment in the Kendal Northern Access Route at a high level. The SOBC is the first stage in the process of preparing the transport business case for the scheme, and will need to be followed by a more detailed Outline Business Case and full Major Scheme Business Case. The development of the case is evidence driven and necessitates the coordination of a range of issues including congestion, growth, environmental quality, waste management, deliverability and ultimately value for money.

1 Introduction

The Kendal Strategic Transport Infrastructure Study was commissioned by Cumbria County Council (CCC) in August 2016, in partnership with South Lakeland District Council (SLDC) and Kendal Town Council (KTC) to investigate the feasibility of strategic transport improvements in Kendal. This report summarises the Strategic Outline Business Case (SOBC) for the preferred option identified in the study, the Kendal Northern Access Route.

1.1 Strategic Need

The need for investment in strategic transport infrastructure and key contextual issues in Kendal are defined as:

- Strategic Access:
  - When the M6 Emergency Diversion Route (EDR) is activated, diverted traffic adds to congestion within Kendal.
  - There is a lack of route choice for HGVs accessing industrial areas to the north of the town centre from the south of the town, increasing through-traffic levels in the town centre.
  - The hilly topography surrounding Kendal necessitates that principal routes serving Kendal have a number of sharp bends and steep sections of carriageway, adversely impacting on the safety of these routes and their suitability to carry large volumes of traffic.
- Local Access:
  - Narrow, low capacity streets in Kendal town centre increase both levels of congestion and journey times.
  - There is no direct through route for north-south movements.
  - Victoria Bridge is the only river crossing within the town that supports west-to-east movements.
- Economic Development and Growth:
  - There is a need to support the future growth of Kendal including for new well connected housing and employment land.
  - Many employment sites are constrained by poor road access.
- Environment:
  - Routes in the north of the town centre became impassable to traffic after Storm Desmond and future flooding could again cause road closures, diversions and congestion.
  - Infrastructure to enable cars, buses and HGVs to avoid routing via Lowther Street could offer significant air quality benefits in an area where levels of nitrogen dioxide are currently failing to meet government targets.

1.2 Scheme Objectives

The objectives for investment in enhanced strategic transport infrastructure for Kendal were therefore defined as follows:

1. Deliver the future strategic growth of the town and ensure that high levels of growth and investment can be achieved across Kendal.

2. Reduce levels of through traffic and congestion within Kendal town centre.
3. Improve the resilience of Kendal's transport network so that connectivity to, from and within the town is retained during potential future flood events.
4. Improve accessibility to existing as well as proposed employment areas.
5. Enhance the resilience of the M6 corridor in the Kendal area, so that traffic is not reliant on single lane bridges and narrow town centre streets through Kendal when the M6 EDR is activated.

1.3 Proposed Scheme

A total of four scheme options and a 'Do Minimum' option have been assessed.

Assessments demonstrated that the Northern Access Route, a proposed new link road to the north of Kendal, from Plumgarths Roundabout on the A591 in the west, to the A6 in the east would be the preferred option. This would also have the potential for further connectivity to the A685. The options appraisal undertaken as part of the Strategic Transport Infrastructure Study has demonstrated that this option meets all of the objectives, and delivers the greatest benefits for Kendal and Cumbria.

An illustration of the indicative alignment for the Northern Access Route is included in **Appendix A** to this report.

1.4 Scheme Benefits

The Northern Access Route will meet the fundamental objectives of the study including delivering future strategic growth in Kendal and improving access to current and future employment sites, reducing town centre congestion and improving the resilience for both Kendal and the wider M6 corridor when the Emergency Diversion Route (EDR) is activated. It will connect potential development sites to the north of Kendal with the strategic road network south of Burneside. Delivery of the route can also support the future growth of Kendal and the development of the next South Lakeland District Local Plan.

The route will directly link the A591 to the A6, and potentially onwards to the A685, improving strategic access to and from Kendal, in addition to providing an additional crossing of the River Kent. Accessibility to existing businesses at Mintsfeet and within the Shap Road corridor will be significantly improved, in addition to enhanced accessibility between Windermere and Ambleside to the M6.

The likely transport benefits of the scheme were assessed using the Kendal Transport Model, a SATURN model held by Cumbria County Council. Network journey time has been monetised to provide an estimate of the journey time benefits for the scheme. Under the 2036 Base scenario, the Northern Access Route provides monetised transport benefits of £112.2m; under the 2036 growth scenario, this increases to £531.6m. Further information on the quantitative benefits of the scheme are outlined within the Economic Appraisal (Section 3 of this report).

By providing an additional crossing of the River Kent, there are also opportunities to engineer the new route so that it contributes to flood water storage, helping to reduce the scale of the impacts of potential future flood events.

1.5 How to read this document

This SOBC summary document is based on the Department for Transport's (DfT's) guidance on the preparation of Transport Business Cases. The remainder of this document is structured as follows:

- **Section 2: Strategic Fit** shows that the Kendal Northern Access Route is supported by a robust case for change that fits with wider public policy objectives.
- **Section 3: Economic Appraisal** demonstrates that the Kendal Northern Access Route would deliver value for money.
- **Section 4: Next Steps** discusses the next steps for the Kendal Northern Access Route, including further coordination with the Local Plan process, and further work to show that the proposed scheme is achievable, commercially viable and financially affordable.

2 Strategic Fit

This Strategic Fit analyses the key local transport network issues in Kendal, as well as wider development pressures and environmental issues. It reflects upon the role that improved strategic transport infrastructure can play in delivering local, regional and national aspirations, ranging from improved flood resilience at the local level, to improved strategic routing when the M6 is closed at the national level. Collated evidence has been used to generate a total of 8 investment options and drive an initial assessment to arrive at a shortlist of 4 options. The Economic Appraisal that follows this chapter outlines how the preferred option has been selected from this shortlist of 4 options.

2.1 Background

Kendal is the largest settlement within South Lakeland, with a population in excess of 28,000, equating to around 40% of the district's total population. The town is located on the south-east border of the Lake District National Park and both the M6 and West Coast Mainline railway are located in close proximity to the town. These link Kendal to regional and national destinations. Kendal's position within the valley of the River Kent as well as the historic character of the town centre afford the town a highly attractive setting, supporting a strong visitor offer.

The town is a significant attractor of people from across the South Lakeland District and beyond, serving as the district's principal retail and employment destination. The town supports a wide range of retail, financial and professional service jobs as well as major advanced manufacturing and warehousing, particularly to the north of the town in the Shap Road corridor including Lakeland Limited in the Westmorland Business Park and the James Cropper PLC site at Burneside.

2.2 The Need for Investment

This section outlines the need for investment in improved strategic transport infrastructure for Kendal through analysis of both current and forecast challenges and opportunities relating to environmental contexts, strategic infrastructure and wider economic and social impacts.

2.2.1 Flooding

The impacts of Storm Desmond (which occured in the first week of December 2015) in Kendal served as a key catalyst for a study into Kendal's strategic transport infrastructure. Flooding associated with the event was the largest ever to be recorded in Kendal, with over 2,000 homes and premises affected by flood water[1]. The flood event led to a number of key routes in the town centre becoming impassable to traffic including the A6 Shap Road (**Figure 2**) and the A685 Appleby Road (**Figure 3**), with flood depth reaching 1.2m above the surface of the carriageway.

Victoria Bridge, the only town centre bridge which supports cross river movement from west to east was also subject to ongoinig closures and restrictions for over 3 months between early December and early March, signficantly reducing town centre network resilience. In addition to town centre closures, the A591 was also closed to traffic between Kendal and the Brettargh Holt roundabout, reducing strategic connectivity between Kendal and the M6 and increasing traffic demand and congestion on the A65 corridor through Oxenholme.

[1] Environment Agency (2016) *Flood Investigation Report: Flood Event 5th-6th December*. Available at: http://www.cumbria.gov.uk/eLibrary/Content/Internet/536/6181/42557103755.pdf

Figure 2: Impact of Storm Desmond flooding at Shap Road

Source: Mercury Press (2015)

Figure 3: Impact of Storm Desmond flooding at the A685 and across Kendal

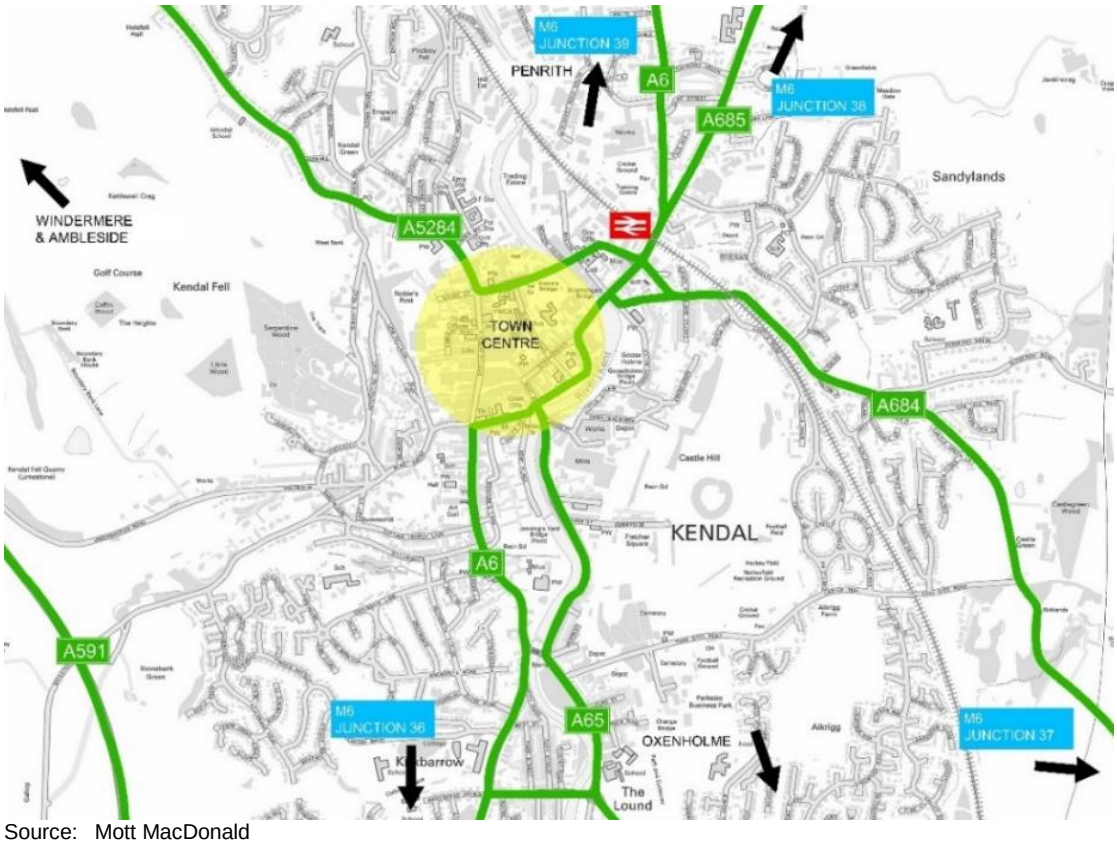
Source: Mercury Press (2015)

Following Storm Desmond, Cumbria County Council and partners began considering the role the local highway network could play in mitigating the impact of future flooding events. Investment in a scheme to provide an east-west bypass of Kendal town centre away from the floodplain would provide further route choice for vehicles in the Kendal area and add further resilience to the network in the event of further major flood events.

2.2.2 Strategic Access

An overview of key routes to and from Kendal town centre is indicated in **Figure 4**. Junction 36 of the M6 is accessed within a 15-minute drive to the south-east of Kendal town centre via the A6, A591 and A590.

Figure 4: Kendal Strategic Access Routes



Source: Mott MacDonald

The hilly topography surounding Kendal means many of the principal 'A' routes to and from Kendal have a numebr of sharp bends and steep sections of carriageway, adversely impacting upon the safety of these routes and their suitability to carry large volumes of traffic.

Outside of Wales, Cumbria has the highest proportion of all road casualties in the 17-19 age group in the UK at 15.8%, indicating that the network in the area is particularly unsuited to inexperienced drivers[2]. This reinforces safety concerns on key routes to and from Kendal and on the wider Cumbrian network, highlighting the urgent need for investment to deliver safer routes.

2.2.2.1 HGV Routes

CCC have published a series of HGV Network Maps for Cumbria[3]. These routes aim to reduce disruption or delay on the highway network, but are directed through Kendal town centre. The unsuitability of Kendal's local road network to take HGVs is increasing town centre traffic levels and reducing accessibility for residents and businesses. High volumes of HGVs in the town reduce the attractiveness of walking and cycling, increasing the propensity for users to travel by car in the town, which in turn adds to network congestion.

Future investment in improved access between key business and employment sites at Mintsfeet and the Strategic Highway Network at the M6 will ensure that Kendal remains attractive for existing and potential businesses, supporting growth and employment within the town.

2.2.2.2 M6 Emergency Diversion Route (EDR)

When a major incident occurs on the M6 and the north and/or southbound carriageway is shut between Junctions 36-39, the Emergency Diversion Route (EDR) is activated. Motorway traffic is then routed through Kendal town centre, as shown in **Appendix B**. The suitability of the route to carry high volumes of traffic is reduced by the speed restrictions, steep gradients and bends along the route.

When activated, the EDR worsens town centre journey times and increases air pollution levels in the area. Increased traffic significantly reduces network resilience in the Kendal area, having a detrimental effect on accessibility to the town centre. The objectives for new strategic transport infrastructure for Kendal should therefore consider how investment could be used to avoid the need for through and diverted motorway traffic to be routed through Kendal town centre, helping to improve journey times for through traffic as well as for vehicles completing regular journeys within the town.

2.2.3 Local Access

As indicated in **Appendix C**, Kendal town centre is characterised by a number of narrow one-way streets. For vehicles bound for the town centre from the south of the town, the A6 Milnthorpe Road and A65 Burton Road converge at Nether Bridge, as shown in **Appendix D**. The A65 also provides the principal connection between Kendal town centre and Westmorland General Hospital and Oxenholme. No direct through route for north-south movements is available through Kendal along the A6 due to the semi-pedestrianisation of the high street.

[2] RAC Foundation (2016) *Road Safety*. Available at: http://www.racfoundation.org/motoring-faqs/safety#a11

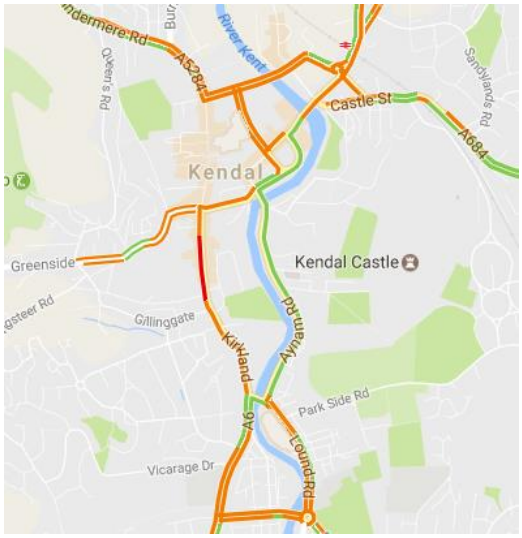
[3] Cumbria County Council (2010) *HGV Guide*. Available at: http://www.cumbria.gov.uk/roads-transport/public-transport-road-safety/transport/hgv/hgv.asp

2.2.3.1 Congestion

As highlighted within the Cumbria Transport Plan Strategy 2011-2026, Kendal suffers from regular localised traffic congestion and a strategic priority at both county and district level is to overcome the adverse effects of this congestion on the economy and environment of the town.

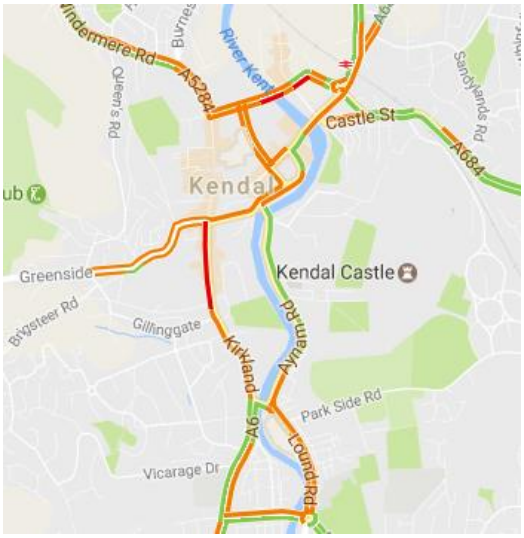
Congestion increases levels of poor air quality within the town, decreasing the attractiveness of walking and cycling, further enforcing high levels of car use and congestion within Kendal. A review of traffic data from Google Maps' traffic interface demonstrates that the town centre road network suffers from congestion throughout the day on a typical weekday as well as at the weekend, as shown in **Figure 5** and **Figure 6**. The orange and red routes demonstrate congested routes, with uncongested routes highlighted in green.

Figure 5: Typical weekday peak congestion levels (9AM)



Source: Google Maps

Figure 6: Typical weekend peak congestion levels (12PM)



Source: Google Maps

Transport modelling assessments completed by Cumbria County Council have also highlighted that a number of junctions within the town centre are currently operating over capacity, with further junctions forecast to be operating over capacity by 2022 if committed developments and Local Plan proposals in Kendal, Burneside, Natland and Oxenholme are brought forward as expected. The modelling assessments have made use of the Kendal Transport (SATURN) model and assumes that modelled junctions with an RFC (Ratio of Flow to Capacity) greater or equal to 90% have limited capacity and are congested.

Without long-term investment in Kendal's highway network to help relieve town centre congestion, and thus make the town centre a more attractive and viable retail destination for both businesses and shoppers, the town will struggle to support economic growth and new employment.

2.2.3.2 Victoria Bridge

Victoria Bridge is the only bridge within Kendal that supports west to east movements over the River Kent for vehicles within the town centre and it therefore provides a crucial link from Kendal town centre towards the rail station, employment areas to the north of the town and the M6.

The impacts of Storm Desmond led to the closure of the bridge for a month across January and February 2016, adding to local congestion levels and reducing connectivity for all town centre

vehicle users. Options for strategic transport improvements for Kendal should therefore consider the viability of providing new river crossings to help improve the resilience of the town centre transport network in the event of major flood events.

2.2.3.3 Travel to Work

Kendal has a population density of 1,855 people/km^2. The town is a key trip attractor on the M6 corridor through the county, with over 1,000 journeys to work made to the town every day[4]. In order to better support commuter movements to Kendal and stimulate economic and job growth in the area, enhancing strategic transport network will bring clear benefit. Without this investment, given the existing traffic and congestion issues within Kendal, the town centre will be an unattractive location for potential new investors bringing further economic prosperity and jobs to the town.

2.2.4 Air Quality

An Air Quality Management Area (AQMA) was declared for Kendal in 2000 when levels of nitrogen dioxide (NO_2) at Lowther Street were found to be above the government's annual mean objective for the pollutant. This was extended in 2010 to cover additional roads in the town centre.

As noted within South Lakeland's most recent Air Quality Annual Status Report, levels of NO_2 at Lowther Street still fail to meet government objectives[5]. To improve environmental quality at Lowther Street, investment in strategic transport infrastructure to remove the need for northbound through traffic to travel through the town centre should be delivered. This will also help to increase the safety and desirability of the area, and help promote Kendal as an attractive location for investment.

2.2.5 Economic Development and Growth

The population in Kendal is growing at a faster rate than for South Lakeland and Cumbria as a whole. Growth has been notable in the arts, recreation and health sectors. SLDC's Core Strategy for Kendal certifies the aim to:

- Make provision for **3,080 new residential dwellings** between 2003 and 2025, prioritising previously developed land and sites within urban areas.
- Accommodate in the region of **21 hectares of employment land** between 2010 and 2025.

To enable proposed development to come forward, further investment in Kendal's transport network is crucial. This will support long-term economic growth and employment opportunities, overcoming high levels of congestion within the town centre, and a relative lack of connectivity to potential development sites outside of the town centre.

2.2.5.1 Land Allocations

The *South Lakeland Local Plan Land Allocations: Development Plan Document (DPD)* allocates land within the district for housing, employment, mixed-use and other uses, certifying the aim to

[4] Cumbria LEP (2015) *West of M6 Strategic Connectivity Study: Option Appraisal Report.* Available at: http://www.cumbrialep.co.uk/wp-content/uploads/2015/09/West-of-M6-Strategic-Connectivity-Study-Report_FINAL2.pdf

[5] South Lakeland District Council (2016) *2016 Air Quality Annual Status Report (ASR).* Available at: http://www.southlakeland.gov.uk/EasySiteWeb/GatewayLink.aspx?alId=55031

accommodate around 60% of South Lakeland's new homes and workplaces in Kendal and the surrounding area[6].

As of 2013 when the Land Allocations were adopted, 2,373 dwellings are proposed in Kendal to meet a District wide requirement of 6,756 between 2013 and 2025. In order to meet this contribution, by 2025, an average of 215 dwellings will need to be delivered per annum, a rate of growth which far exceeds the 171 p/a growth in new dwellings achieved between 1991 and 2009. However, as noted within the DPD, Kendal is the key area within the district where existing infrastructure is under stress and "particular areas of stress are the town centre transport network, which is suffering significant congestion at peak times".

It is therefore clear that strategic transport infrastructure improvements for Kendal, in order to deliver both improvements to the town centre network as well as to the network surrounding the town will be required to deliver both residential and employment growth at key sites within Kendal.

2.2.5.2 Growth beyond the current Local Plan Period

The next SLDC Local Plan will supersede the current Core Strategy and is scheduled for adoption by July 2021. It is intended to cover the period 2021-2036. This will need to consider a range of growth opportunities which will impact on transport networks within the town. To support this stage of development work a number of assumptions were made. These will require further consideration through development of the next Local Plan.

2.3 Policy and Strategy Context

This section of the Strategic Fit shows how investment in strategic transport infrastructure in Kendal aligns with wider policies and strategies at national, regional and local level.

2.3.1 Kendal and the Northern Powerhouse

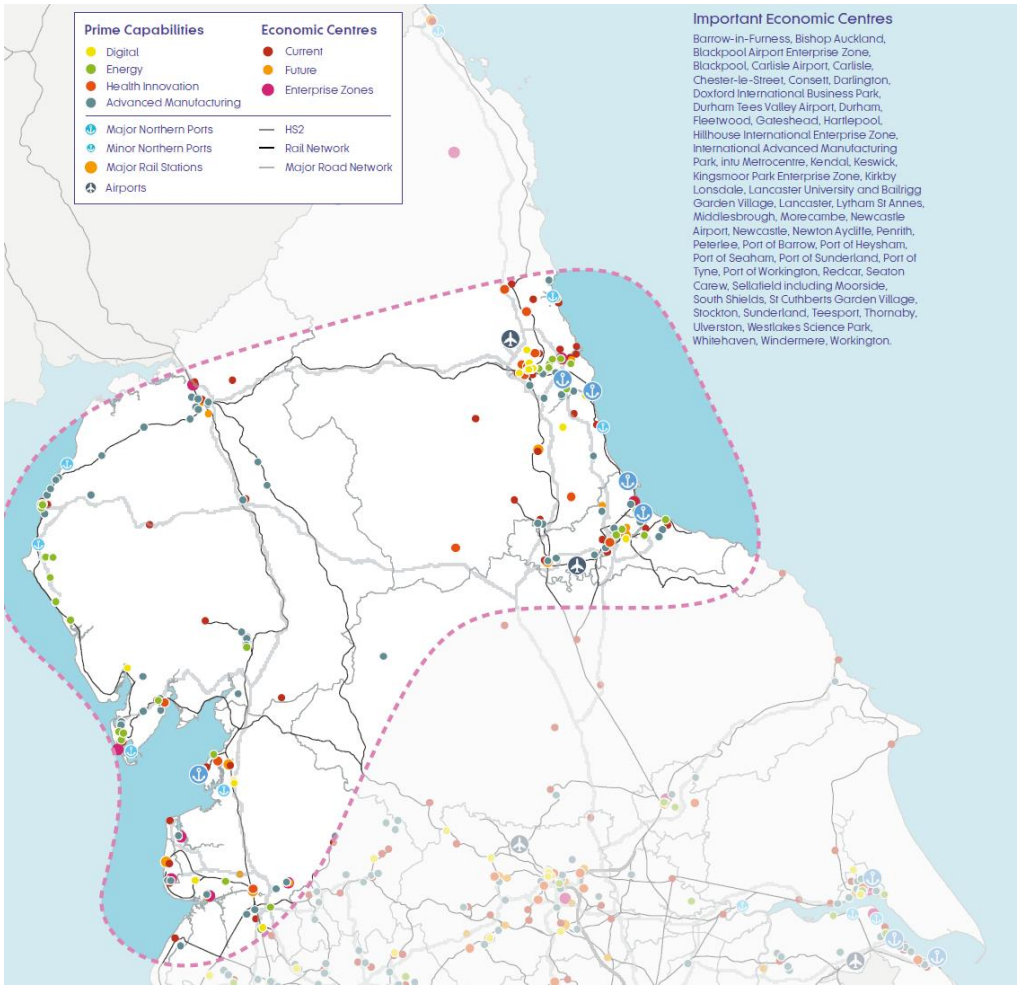
The Northern Powerhouse represents the shared vision of the Government, Northern city regions and Local Enterprise Partnerships for "joining up the North's great towns, cities and counties, pooling their strengths, and tackling major barriers to productivity to unleash the full economic potential of the North", as highlighted within Transport for the North's (TfN's) Draft Strategic Transport Plan[7].

TfN's Draft Strategic Transport Plan has identified seven 'Strategic Development Corridors', which represent economic areas where TfN's evidence to date suggests most progress towards transformational growth would be made by bringing forward major, strategic rail and road investment. One of the seven Strategic Development Corridors identified by TfN is 'Connecting the Energy Coasts', which aims to improve connectivity for people and goods between the nationally significant non-carbon energy and research assets located in Cumbria, Lancashire, North Yorkshire, the North East, and Tees Valley (Figure 7).

[6] South Lakeland District Council (2013) *South Lakeland Local Plan Land Allocations: Development Plan Document*. Available at: http://applications.southlakeland.gov.uk/documentbrowser/DocumentBrowserFiles/local%20plan/land%20allocations/00%20Adoption/01%20Local%20Plan%20-%20Land%20Allocations%20Adopted%20Dec%202013.pdf

[7] Transport for the North (2018), *Draft Strategic Transport Plan*. Available at: https://transportforthenorth.com/stp/

Figure 7: The 'Connecting the Energy Coasts' Strategic Development Corridor



Source: Transport for the North (2018), Draft Strategic Transport Plan

Investment in improved strategic connectivity for Kendal will help deliver a step change in strategic access for businesses and residents in the North West who are reliant on the connectivity provided by the M6, and could form a crucial component of the future strategy for the 'Connecting the Energy Coasts' corridor.

2.3.2 Cumbria Local Enterprise Partnership (LEP)

The Cumbria Local Enterprise Partnership (LEP) is one of the UK's 39 LEPs. As outlined within the 'Four Pronged Attack' Strategic Economic Plan (SEP), the vision for the Cumbria LEP is to unleash Cumbria's full economic potential and make a significant contribution to UK growth[8].

Improved strategic connectivity in the Kendal area would support the four priority themes of the Cumbria LEP, as shown in Figure 8 below:

- **Advanced manufacturing growth:** The SEP highlights that a number of potential employment sites in the M6 corridor, including at Kendal, could be brought forward if investment in enhanced strategic transport infrastructure is delivered.

[8] Cumbria LEP (2014) *The Four Pronged Attack: Cumbria Strategic Economic Plan 2014-2024.* Available at: http://www.cumbrialep.co.uk/wp-content/uploads/2014/03/Cumbria-LEP-final-report-1-April-2014.pdf

- **Nuclear and energy excellence:** Improvements to strategic connectivity in Kendal will also support access to nationally significant nuclear and energy opportunities on the Cumbrian Coast including the proposed Moorside nuclear new build and ongoing decommissioning at Sellafield.
- **Vibrant rural and visitor economy:** Kendal's attractive town centre streets and buildings, the Kendal Castle, Brewery Arts Centre and the Kendal Museum contribute to Kendal's significant visitor offer and the improved access to and from the town that would be afforded by investment in strategic infrastructure will further stimulate Kendal's visitor economy.
- **Strategic connectivity of the M6 corridor:** Investment in strategic transport infrastructure in Kendal would create a much more reliable and resilient Emergency Diversion Route.

Figure 8: Cumbria LEP Priority Themes

Source: Cumbria LEP (2014)

2.4 Strategic Scenario Development

Using the issues and opportunities identified in **Section 2.2**, a number of potential strategic scenarios were developed by the Kendal Strategic Transport Infrastructure Study team as well as elected members and officers from CCC, SLDC and KTC during formal consultation workshop events. The scenarios were developed to enable the members and officers to identify both their aspirations for strategic transport infrastructure in Kendal and potential investment options. There was agreement from members and officers consulted that a total of seven strategic scenarios should be tested using transport appraisal tools in the next phase of the study:

1. Flood Resilience.
2. Strategic Connectivity.
3. Town Centre.

4. Sustainable Access.
5. Development Support.
6. Strategic Transport & Development Support (Combined 2 & 5).
7. Strategic Sustainable Development (Combined 4 & 6).

Following use of the transport appraisal tools, the 'Strategic Transport & Development Support' infrastructure development scenario was identified as the preferred development scenario against which transport infrastructure options for Kendal should align.

In order for this scenario to be successfully realised, through traffic in Kendal would be reduced and access between Kendal and surrounding areas would be improved, with high levels of growth and investment achieved in the area. The objectives of this scenario directly align to the issues identified under the strategic access, local access and economic development and growth headings and will also contribute to overcoming identified environmental issues by reducing the need for through traffic to travel through the town centre, helping to reduce issues of poor town centre air quality.

2.5 Scheme Objectives

The objectives for investment in a scheme to enhance strategic transport infrastructure for Kendal were derived using both the issues and opportunities identified within **Section 2.2** and the objectives of the Strategic Transport & Development Support scenario, as discussed in **Section 2.4** above.

The resulting objectives are as follows:

1. Deliver the future strategic growth of the town and ensure that high levels of growth and investment can be achieved across Kendal.
2. Reduce levels of through traffic and congestion within Kendal town centre.
3. Improve the resilience of Kendal's transport network so that connectivity to, from and within the town is retained during potential future flood events.
4. Improve accessibility to existing as well as proposed employment areas.
5. Enhance the resilience of the M6 corridor in the Kendal area, so that traffic is not reliant on single lane bridges and narrow town centre streets through Kendal when the M6 EDR is activated.

2.6 The Emerging Scheme

2.6.1 Options Identification

Based upon the objectives agreed for the scheme, a range of scheme options was developed by the study team. Initial options development was undertaken by Mott MacDonald in October 2016 based on two separate workshops held with Officer and Member groups from CCC, SLDC and KTC.

Wider stakeholders included the Environment Agency, currently undertaking extensive flood repair work in Kendal, as well as AECOM, who are completing a Master Plan for Kendal town centre. A total of 8 options were initially identified in this consultation, with the name and a brief overview of each of the options shown below.

1. Northern Access Route	• Link between the A591 and A685 south of Burneside
2. Northern Orbital Access Route	• Link between the A591 and A685 north of Burneside
3. Eastern Orbtial Access Route 1	• Link between A6 at Queen Katherines Avenue to the A65 at Helm Lane
4. Eastern Orbital Access Route 2	• Link betweek the A6 at Queen Katherines Avenue to the A65 at Low Barrows Green/A590
5. Southern Orbital Access Route 1	• Link between A591/A6 junction and the A65 Low Barrow Road, north of Natland
6. Southern Orbital Access Route 2	• Link between the A590/A591 junction and the A65 Low Barrow Road, south of Natland
7. Western Town Centre Access Route	• Link between A591 in the vicinity of Brigsteer Road and Highgate in the vicinity of Beast Banks
8. Cross River Access	• New or wider bridges at Lound Road and Aynam Road to facilitate a change in the gyratory to the south of the town centre

2.6.2 Initial Assessment

The Investment Sifting and Evaluation Tool (INSET) has been used by the study team to undertake an initial assessment of each of the 8 scheme options. Mott MacDonald has developed INSET as an enhancement of DfT's EAST (Early Assessment and Sifting Tool) to support the evaluation of different options for large-scale investments and investment programmes.

2.6.2.1 Assessment Process

To structure the process, the INSET assessment asked a series of questions based around four key themes:

- **A** - *Overview (quality of information)* that was available for the proposed intervention.
- **B** - *Option length (proxy for cost)* that assigned the approximate route length for each of the proposed schemes, to gauge an early understanding of cost.
- **C** - *Benefits* that the proposed interventions would be expected to deliver across; transport, wider economic, social and environmental.
- **D** – *Deliverability* of the proposed intervention.

In order to inform the appraisal of the scheme options using INSET and to increase understanding of the relative benefits and deliverability of the options, discussions were held with officers from CCC and SLDC in January 2017.

2.6.2.2 Appraisal Results

An overview of the results of the completed INSET appraisal process, with the results for each of the schemes against the four themes, is displayed in **Figure 9**.

Figure 9: INSET Appraisal Results: Shortlisted Options

MULTI-CRITERIA ANALYSIS - SUMMARY								
No.	Name	A. Overview of Options	B. Option length (proxy for cost)	C. Multi-Criteria Analysis (Benefits)	D. Multi-Criteria Analysis (Deliverability score)	D. Multi-Criteria Analysis (Deliverability- Description)		Total Quantiative Score
		Is enough information available to assess the proposed option?	*Approximate length:*	***Final weighted score (-2 to 2 scale):***	***Final weighted score (0-3 scale):***	*Deliverability score (low / medium / high):*	*Dependencies on other options:*	*Based on benefits and deliverability criteria*
1	**Northern Access Route**	YES	all options 2-3km	**1.25**	**1.88**	Medium deliverability		**3.13**
2	**Northern Orbital Access Route**	YES	all options 4-7km	**1.11**	**0.75**	Low deliverability		**1.86**
3	**Eastern Orbital Access Route 1**	YES	5-7km	**0.86**	**0.56**	Low deliverability		**1.43**
4	**Eastern Orbital Access Route 2**	YES	all options 8-10km+	**0.91**	**0.38**	Low deliverability		**1.28**
5	**Southern Orbital Access Route 1**	YES	all options 2-3km	**1.07**	**2.63**	High deliverability		**3.70**
6	**Southern Orbital Access Route 2**	YES	2-3km	**0.19**	**0.38**	Low deliverability		**0.57**
7	**Western Town Centre Access Route**	YES	2-3km	**-0.10**	**1.50**	Medium deliverability		**1.40**
8	**Cross River Access**	YES	N/A	**0.75**	**2.63**	High deliverability	Dependant on the outcome of the Environmental Agency Flood Report	**3.38**

Source: Mott MacDonald

A total of 4 options were subsequently shortlisted for further assessment on the highway network using the Kendal Transport Model. This included Options 1, 5 and 8 as well as a combined Option 9, which was included following consultation with officer and member groups:

- Option 1 – Northern Access Route.
- Option 5 – Southern Orbital Access Route 1.
- Option 8 – Cross River Access.
- Option 9 – A combined package incorporating both Option 1 and Option 8.

3 Economic Appraisal

The Economic Appraisal assesses the shortlisted options quantitatively to identify their impacts and the resulting benefits. An appraisal of the transport benefits for the four scheme options and a Do Minimum option has been carried out by Cumbria County Council using the Kendal Transport Model. This has been used to inform a further appraisal of the schemes using the INSET process, resulting in the selection of a preferred option from the shortlist of four options.

3.1 Transport Forecasting and Appraisal of the Shortlisted Options

3.1.1 Methodology

The transport forecasting and appraisal of the four shortlisted options was completed by Cumbria County Council officers using the Kendal Transport Model, a strategic SATURN traffic model of the Kendal urban area and surrounding district. The model covers the morning and evening weekday peak periods of 8-9am and 5-6pm.

The assessment of potential infrastructure schemes in Kendal was undertaken by creating new forecast scenarios with each of the potential schemes. The output from the model scenarios was then compared to analyse the traffic impact of the scheme. The network journey time was then monetised to provide an estimate of the journey time benefits that could be expected for each scheme.

3.1.2 Demand assumptions

The forecasting has considered the future year of 2036, in line with the next potential South Lakeland Local Plan period of 2025-36. The following two modelling scenarios were assessed in SATURN:

- 2036 Base scenario.
- 2036 Local Plan scenario.

The 2036 Base scenario is the reference case. It includes development which is considered more than likely to occur by 2036.

The 2036 Local Plan scenario includes all developments in the 2036 Base scenario; all development sites identified within the 2012–2025 South Lakeland Local Plan; an estimate of potential development which could be included in the 2025–36 South Lakeland Local Plan; and a number of potential town centre development sites identified as part of the ongoing Kendal town centre masterplan study.

3.1.3 Results

The journey time benefits for each of the proposed schemes were used as the basis for an indicative economic appraisal of transport benefits. Whilst the appraisal is limited, it forms a guide to the likely scale of the scheme benefits.

The forecast demand scenarios consider a future year of 2036. A 60-year appraisal period was assumed. As only one modelled year was considered, it was assumed that the journey time benefits were constant for all years in the appraisal period. For each year in the appraisal period, the journey time benefits were monetised based on forecast values of time in 2010 prices from the TAG data book (summer 2016).

The monetised journey time benefits for each scheme compared to the Do Minimum scenario are summarised in **Table 1** and **Table 2**.

Table 1: Monetised journey time benefits for the 2036 Base scenario (in 2010 prices)

Improvement scheme	Modelled benefits per year (pcu-hrs)	Total modelled monetised benefits (£m)	Annualisation and non-modelled time periods factor	Total monetised benefits (£m)
Northern Access Route	742	£0.22	506	£112.2
Southern Orbital Access Route 1	369	£0.11	506	£55.5
Cross River Access	56	£0.02	506	£8.6
Northern Access Route & Cross River Access	763	£0.23	506	£115.5

Source: Cumbria County Council, 2017

The results in **Table 1** for the base scenario show that the Northern Access Route alongside the Cross River Access scheme could be expected to provide the largest journey time benefits. The journey time benefits of the southern route are around half that of the northern route. The combined north and town option shows slightly higher journey time benefits compared to the northern route alone.

Table 2: Monetised journey time benefits for the 2036 Local Plan scenario (in 2010 prices)

Improvement scheme	Modelled benefits per year (pcu-hrs)	Total modelled monetised benefits (£m)	Annualisation and non-modelled time periods factor	Total monetised benefits (£m)
Northern Access Route	3,502	£1.05	506	£531.6
Southern Orbital Access Route 1	1,603	£0.48	506	£243.4
Cross River Access	-688	-£0.20	506	-£101.9
Northern Access Route & Cross River Access	3,365	£1.01	506	£511.4

Source: Cumbria County Council, 2017

The results in **Table 2** for the local plan scenario follow a similar pattern to the base scenario. The results show the Northern Access Route could provide the greatest journey time benefits, and the southern route could provide roughly half of the benefits of the northern route. The results also show that the town centre improvements could increase journey times.

The results of the journey time benefits appraisal show that the northern route provides the highest level of journey time benefits, and suggest that the northern route could provide high value for money. Conversely, the results suggest that the town centre improvements as tested would not support the objectives of the study.

3.2 Identification of Preferred Scheme

Using the results of the transport appraisal conducted by Cumbria County Council as well as the high-level scheme costs outlined within the Strategic Fit, a further round of appraisal for the four scheme options was conducted using INSET.

The scheme which indicated the highest calculated transport user benefits (Northern Access Route & Cross River Access) was awarded the maximum score of 2. The other schemes were

then scored as a proportion of 2, relative to the transport benefit of the scheme compared to the highest scoring (Table 3). Assessments of the wider economic benefits of each scheme as well as social and environmental benefits remained unchanged compared to the initial INSET assessment for the long list of 8 options.

Table 3: Scoring of transport benefits in the final INSET assessment

Option	Total monetised transport benefits (£m)	Transport benefits score
Northern Access Route	£112.2	1.94
Southern Orbital Access Route 1	£55.5	0.96
Cross River Access	£8.6	0.15
Northern Access Route & Cross River Access	£115.5	2.00

The final scores for each of the four options are outlined within **Figure 10**.

Figure 10: INSET Appraisal – Final Monetised Benefits

3. MULTI-CRITERIA ANALYSIS - SUMMARY

No.	Name	0. Overview of Options	1A. Multi-Criteria Analysis (Benefits)	1B. Multi-Criteria Analysis (Deliverability score)	1B. Multi-Criteria Analysis (Deliverability- Description)		1C. Costs	Total Quantiative Score
		Is enough information available to assess the proposed option?	***Final score (-2 to 2 scale):***	***Final score (-2 to 2 scale):***	*Deliverability score (low / medium / high):*	*Dependencies on other options:*	***Final score (-2 to 2 scale):***	***Final weighted score (-2 to 2 scale):***
1	**Northern Access Route**	YES	1.37	0.50	Medium deliverability		0.92	**1.06**
4	**Northern Access Route plus Cross River Access**	YES	1.40	0.00	Medium deliverability		0.63	**0.89**
6	**Southern Orbital Access Route 1**	YES	0.87	1.00	High deliverability		1.25	**0.96**
9	**Cross River Access**	YES	0.35	1.00	High deliverability	Dependent on the outcome of the Environmental Agency Flood Report	2.00	**0.77**

Source: Mott MacDonald

The Northern Access Route scored highest and therefore emerged as the preferred option. Consequently, this preferred scheme is the subject of this SOBC.

3.3 Wider Benefits

Mott MacDonald's economic appraisal team have undertaken a calculation of the gross number of number of jobs on proposed employment sites (as per SLDC's Local Plan Land Allocations - 2013) that are potentially supported by the Northern Access Route.

In summary, adding the hectarage for the sites located close to the scheme gives a total of 17.18ha of employment land adjacent or very close to the scheme, a further 28.76ha within 500m and 6.31ha between 500m and 1km. A broad assumption is that approximately half of this hectarage is actually used for employment purposes, with a further standard conversion applied to look at an estimate of the Net Internal Area on these sites.

The appraisal has assumed that 40% of the total floorspace is used for Industrial & Manufacturing (B2) purposes, 40% for Warehousing (B8) and 20% for Retail/ sui generis use[9]. Assuming an occupancy rate of 75%, this means that there could be 870 gross jobs being potentially be supported on sites very close or adjacent to the scheme, a further 1,456 jobs within 500m and, finally, 320 jobs between 500m and 1km.

[9] This is based on a recent review of employment sites undertaken by Mott MacDonald in the North Kendal area.

4 Next Steps

This Strategic Outline Business Case has set out the case for investing in the Kendal Northern Access Route, focussing on the strategic fit of the scheme with wider public policy objectives (the 'Strategic Case'), and the value for money of the scheme from initial economic appraisal (the 'Economic Case'). Beyond this SOBC, further evidence-driven assessments will be required to demonstrate the case for investment, leading to a more detailed Outline Business Case, and eventually, a full Major Scheme Business Case.

4.1 Next steps in the Transport Business Case process

The Strategic Outline Business Case is the first step in the development of business cases for major transport schemes. In the subsequent stages ('Outline Business Case' and 'Major Scheme Business Case'), the evidence builds up and becomes progressively more detailed, in order to support a final investment decision (Figure 11).

Figure 11: The three phases of the Transport Business Case decision-making process

Source: Department for Transport

The development of a future Outline Business Case and Major Scheme Business Case will require the coordination of a range of issues including congestion, growth, environmental quality, waste management, deliverability and ultimately value for money. This will be captured in an updated and expanded Strategic Case and Economic Case.

At Outline Business Case stage, it will be particularly important to coordinate the development of the business case for the Kendal Northern Access Route with the next SLDC Local Plan, which is scheduled for adoption by July 2021. This will ensure that the scheme will work in unison with the emerging Local Plan ambitions to deliver improvements to the town centre network and the network surrounding the town. The location of future development in Kendal will have a major impact on demand for travel around the town, so it will be crucial that the proposals emerging from the Local Plan process are taken into account in the updated economic appraisal in order to make the case for the Northern Access Route.

In addition, at Outline Business Case stage there will also be a need to demonstrate that the proposed Kendal Northern Access Route:

- Is financially affordable (the 'Financial Case').
- Is commercially viable (the 'Commercial Case').
- Is achievable (the 'Management Case').

Each of these requirements is discussed in more detail below.

4.2 Demonstrating financial affordability

Through the Outline Business Case, it will be necessary to demonstrate the affordability of the scheme, including how much the project is expected to cost, and how it will be funded.

This will not only require detailed, evidence-based analysis to estimate the 'core' construction costs of creating a new Access Route, but also a range of other associated items, such as:

- Signage.
- Transportation of excavated materials.
- Excavation.
- Traffic Management.
- Labour.
- Land ownership.
- Inflation.
- Ground remediation.
- Utilities.

These cost items will be considered in detail within the Financial Case of the Outline Business Case. The final costs can then also be used in the economic appraisal, by comparing the costs against the scheme benefits to derive a Benefit-Cost Ratio (BCR).

4.3 Demonstrating commercial viability

Through the Outline Business Case, it will be necessary to demonstrate the commercial viability of the scheme, including the procurement strategy that will be used to engage the market of potential suppliers to deliver the works, and how this will secure the economic, social and environmental factors outlined in the economic appraisal.

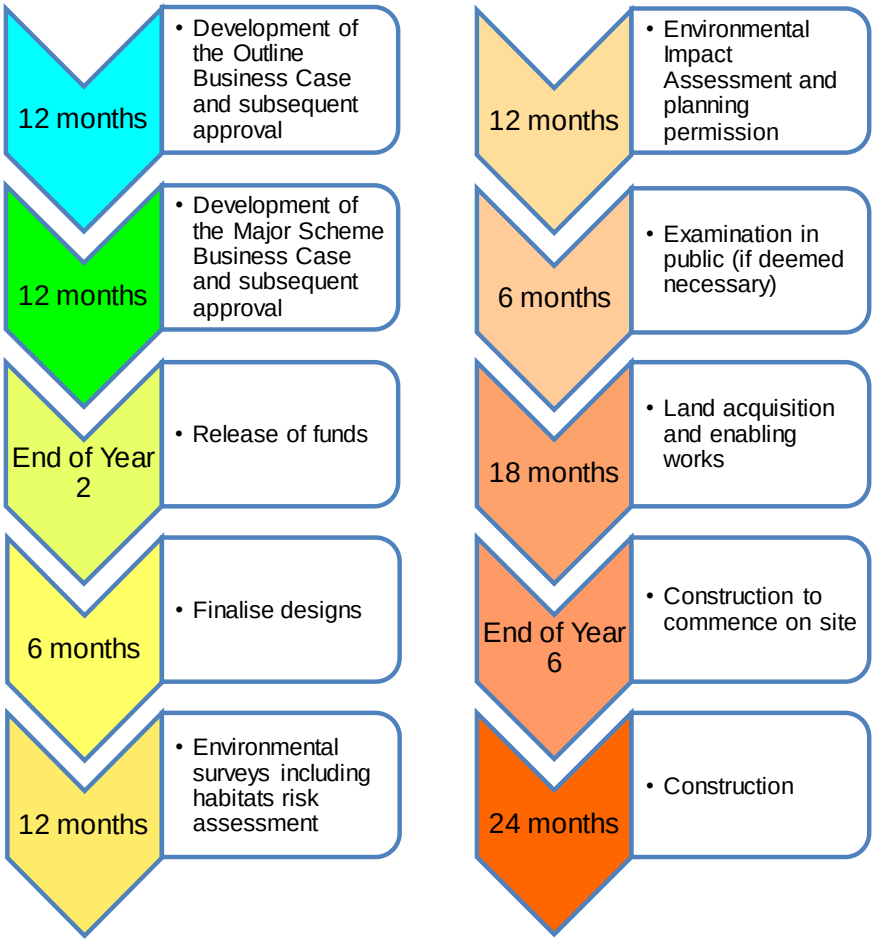
Cumbria County Council already have a number of different options for procuring the planning, design and construction of highways on the commercial market. The advantages and disadvantages of each will be considered in more detail in the Outline Business Case.

4.4 Demonstrating deliverability

Through the Outline Business Case, it will be necessary to demonstrate in detail that the proposed Kendal Northern Access Route is achievable. This will need to include consideration of project planning, governance structures, risk management, communications and stakeholder management, benefits realisation and assurance.

At this stage, an indicative programme has been developed to provide an overview of the forward process that will be undertaken from the development of an Outline Business Case to scheme completion (Figure 12). This programme is indicative and will be developed further at Outline Business Case stage. Critically, there will be need to secure funding for the continued development of the scheme.

Figure 12: Indicative programme



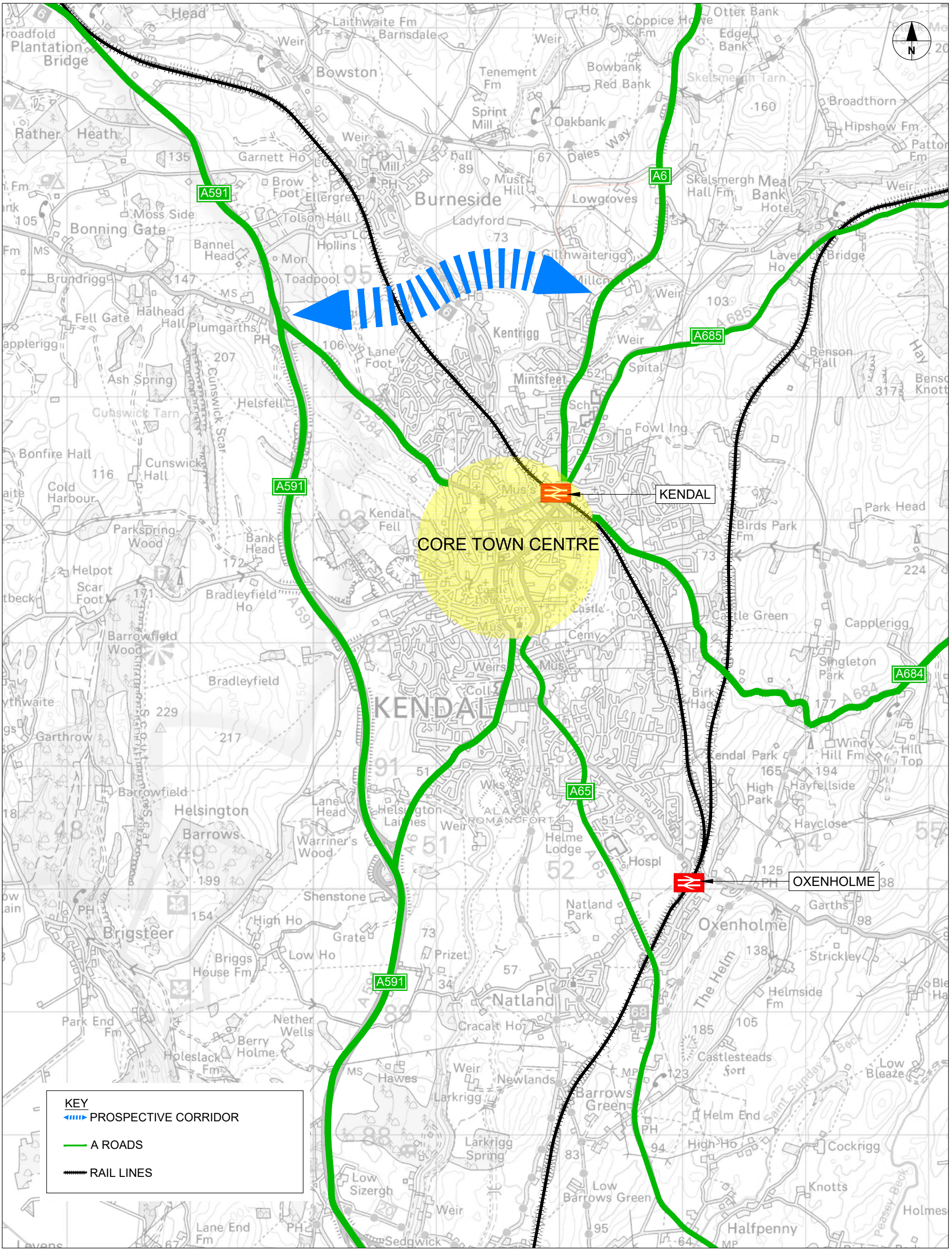
A Risk Management Strategy is an integral component of the standard project management procedures that are used by Cumbria County Council on major capital projects. As the Outline Business Case is prepared, a thorough and detailed examination of risks will be incorporated into a project risk register, which will be reviewed regularly throughout all stages of the project.

4.5 Summary

This Strategic Outline Business Case has demonstrated the case for change, focussing on the strategic fit of the scheme with wider public policy objectives, and the value for money of the scheme. As the scheme progresses to Outline Business Case and Major Scheme Business Case, the strategic fit and economic appraisal will be completed in greater detail and updated in line with the SLKC Local Plan process. A detailed assessment of the affordability, commercial viability and achievability of the scheme will also be undertaken.

Appendices

A. Kendal Northern Access Route – indicative alignment



Kendal Northern Access Route (Indicative Corridor)

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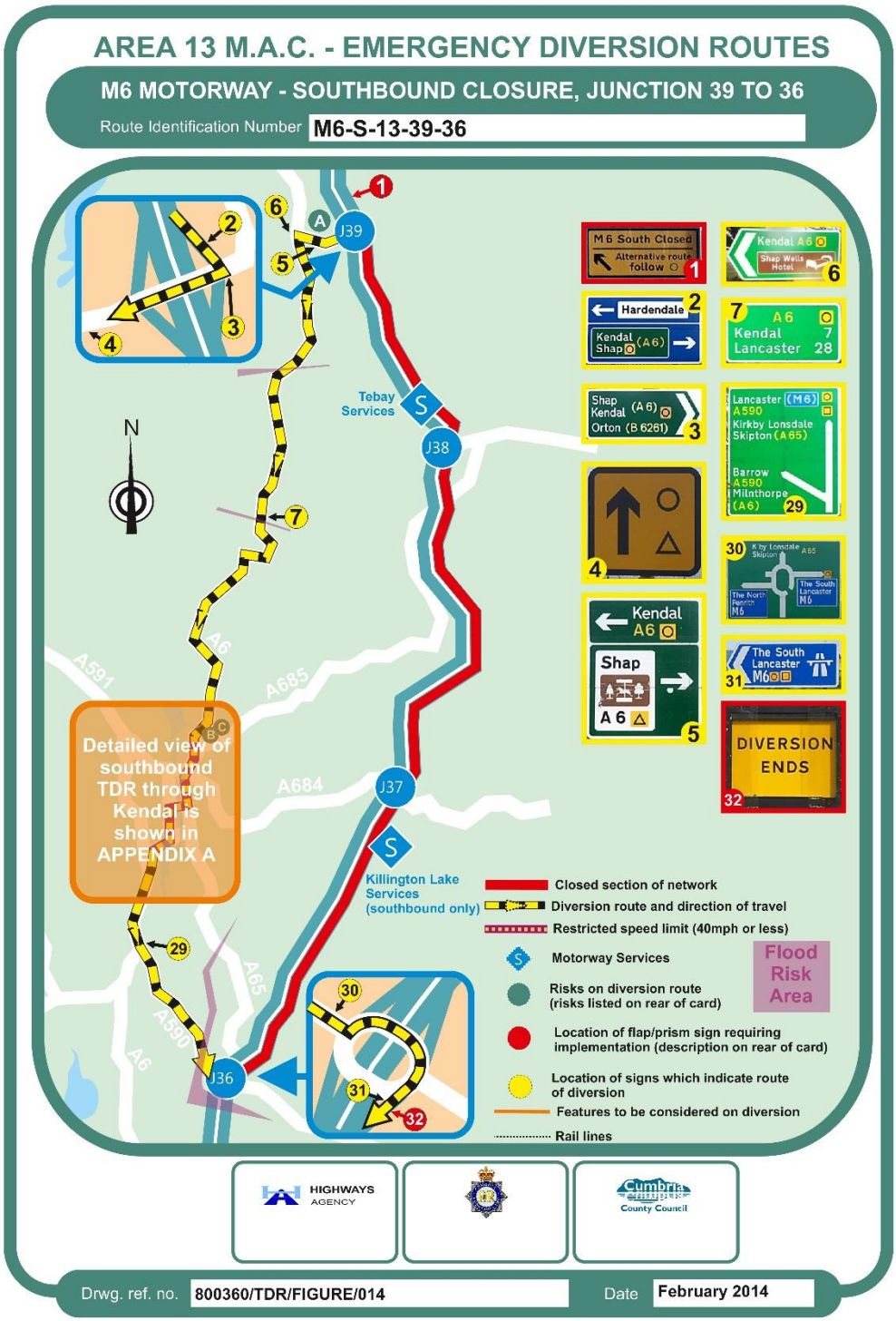
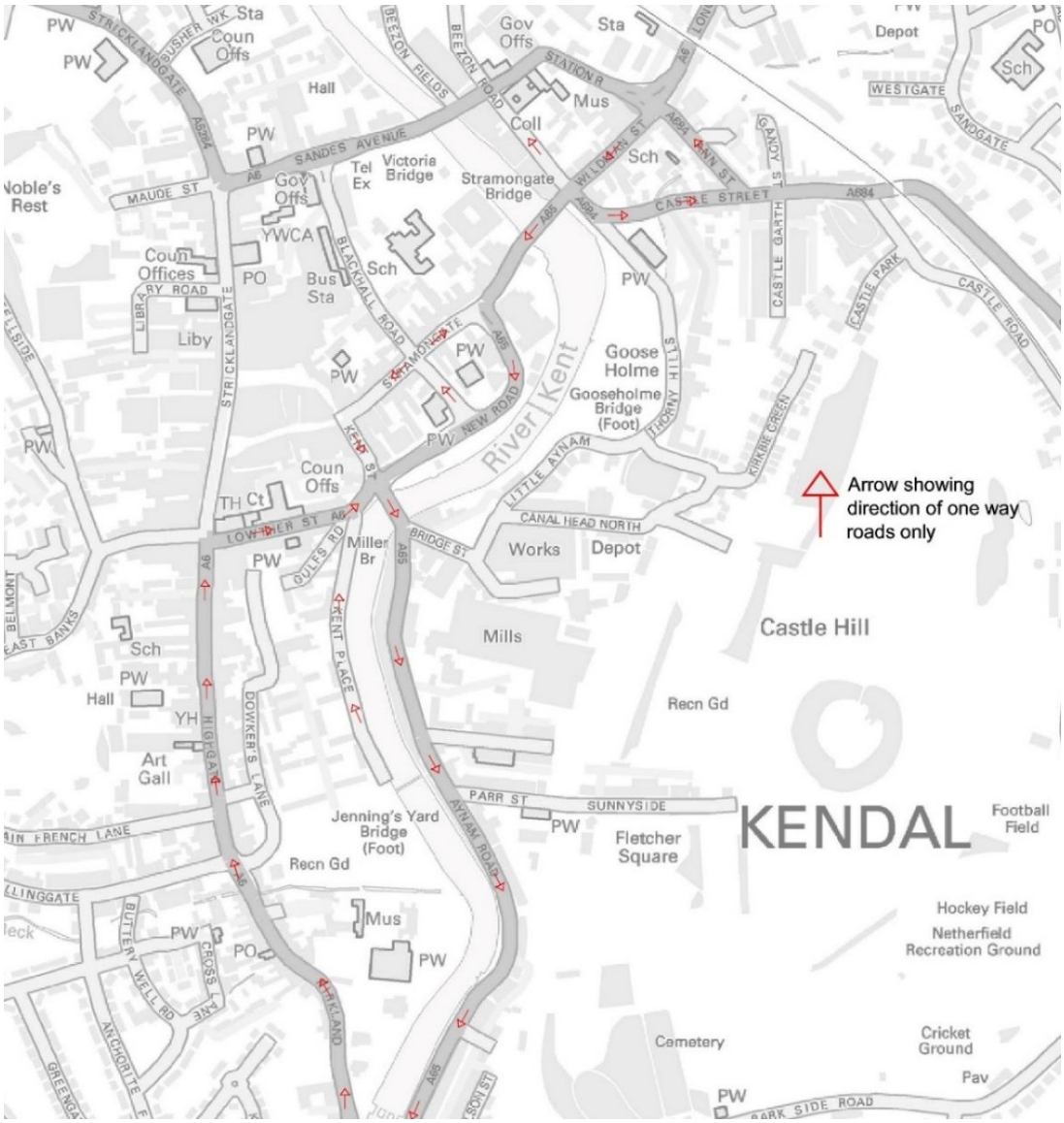
B. M6 Emergency Diversion Route



C. Kendal Town Centre Gyratory



D. Kendal Local Accessibility Context