



North Yorkshire County Council

HARROGATE RELIEF ROAD REVIEW

Stage 1 and Options Assessment Report -
Executive Summary



STAGE 1 AND OPTIONS ASSESSMENT - EXECUTIVE SUMMARY

1. INTRODUCTION

The Harrogate Relief Road (HRR) Review is led by North Yorkshire County Council (NYCC). WSP was commissioned by NYCC, in March 2017, to undertake work associated with addressing issues of urban congestion in and around the Harrogate urban area, while also looking to improve east-west connectivity across the County. The review also considers the need for, and potential alignment of, a Harrogate Relief Road.

At this early stage of the study it is necessary to consider the towns, and the surrounding area, in their entirety in order to provide an unbiased view of the need for intervention. As such, the study area currently identified is set out in **Figure 1**.

The study has closely followed the Department for Transport's (DfT) Transport Appraisal Guidance (WebTAG). The guidance sets out the recommended approach to take in understanding the current and future context and conditions, establishing the need for intervention and developing options to address the identified issues through an objective led approach. This study has been divided into two parts; Stage 1 and Options Assessment, as set out below.

Stage 1 Tasks

As per the recommended WebTAG approach, Stage 1 of the study looks to outline and present the evidence base that will be used to underpin the identification of any future interventions. The analysis seeks to:

- Understand the current and future context and conditions within the study area.
- Examine the case for intervention through the preparation of a sound body of evidence to demonstrate the need to develop any improvement scheme(s).

Options Assessment Tasks

In accordance with the DfT Transport Appraisal Process, the first stage of Options Assessment looks to:

- Identify objectives, based upon the Stage 1 evidence review and resulting need for intervention, which set out what the interventions are aiming to achieve.
- Develop a long-list of interventions, informed by numerous sources, which will be subject to

a high-level 'sift' to identify any which would be considered undeliverable in the context of the study.

- Consider the resulting short-list of interventions and undertake detailed sifting to inform early prioritisation, ahead of public consultation.

2. KEY FINDINGS FROM THE STAGE 1 REPORT – THE NEED FOR INTERVENTION

Strategies and Policies

A review of relevant policies and strategies has demonstrated strong support for intervention to address issues of traffic congestion and delay in the vicinity of Harrogate and Knaresborough, and beyond, and to support economic development and growth.

Economic Context

Harrogate occupies an important position in relation to both the local and regional economy, but is disadvantaged by a reliance on low value sector employment. This is driven primarily by the prevalence of the local service industry (hotels and restaurants) that are a result of a buoyant events and tourism market.

The prevalence of low value jobs in Harrogate, a well-educated and qualified resident population and the significant discrepancy between worker earnings and the high cost of living, is resulting in increased cross-boundary trips both into and out of the area.

There is an aspiration to further grow Harrogate's economy, particularly in relation to higher value sectors, to address this economic imbalance and ensure resilience of the area.

The local transport network is often identified as a barrier to achieving additional inward investment and realising this growth.

Operation of the Local Transport Network

The key routes through the study area (A59, A61 and A661) carry very high volumes of traffic, for the standard of road, resulting in capacity issues in both Harrogate and Knaresborough with resultant impacts on the surrounding area including the city of Ripon.

Delays are experienced at key junctions on these routes and parts of the network experience journey

times that are up to 145% higher in the peak hour compared to the Interpeak, with average speeds that reduce to 9km/hr on some roads in the busiest periods. This results in issues of poor journey time reliability that impacts commuter trips and deliveries.

The main movements on the local network, in both the AM and PM peak hours, are made up of trips with either an origin or destination in the urban areas of Harrogate and Knaresborough, or those that both begin and end within the same urban area; purely internal trips are generally short in length (an average of no more than 2.6km), are primarily commuting related and are predominantly undertaken by private vehicle. Through traffic, with origins and destinations external to the Harrogate and Knaresborough urban areas, is shown to have little bearing on the local network and generally bypasses the towns altogether by travelling on peripheral routes. Whilst purely external trips are low (7%), trips that either start or end in areas external to the urban areas of Harrogate and Knaresborough make up almost half (45% and 48% in the AM and PM peaks respectively) of all trips. Similarly, trips that are purely internal represent around a half of all trips; 48% and 45% in AM and PM peaks respectively. Consequently, interventions which are designed to improve conditions in the study area must be aimed at these non-through trips. The movements described above are shown in **Table 1** below.

Table 1 Trip Movements (2015 AM & PM Peaks)

| | 2015 AM (0800-0900) 2015 PM (1645-1745) | | | |
|--------------|--|--------------------------------|--------------------------------|--------------------------------|
| From / To | External | H'gate | K'boro | TOTAL |
| External | 7% AM 7% PM | 20% AM 15% PM | 4% AM 7% PM | 31% AM 29% PM |
| H'gate | 14% AM 20% PM | 37% AM 34% PM | 4% AM 5% PM | 55% AM 59% PM |
| K'boro | 7% AM 6% AM | 5% AM 4% PM | 2% AM 2% PM | 14% AM 12% PM |
| TOTAL | 28% AM 33% PM | 62% AM 53% PM | 10% AM 14% PM | 100% |

Sustainable Transport

In Harrogate, 56% of residents that both live and work within the urban area undertake their commuting journey by car or motorcycle, despite internal trips having an average length of no more than 2.6km in any peak; the equivalent for Knaresborough is 33%). This suggests that there may be some potential to switch a proportion of these trips onto more sustainable modes.

Walking, as a mode, is already well represented, particularly in Knaresborough where it accounts for over 61% of internal journeys to work (32% in Harrogate), suggesting that there may be little suppressed demand and therefore limited scope for mode switch.

There may be an opportunity to increase the level of cycling as a substitute for short, internal trips made by private vehicle, although the topography of the area will need to be a consideration in the development of any intervention. Analysis of collision clusters identifies a high level of Non-Motorised User (NMU) casualties, suggesting that the heavily-trafficked roads, and associated congestion, may be a contributory factor to the lower levels of cycling.

Increased use of public buses in Harrogate may also be an opportunity to reduce car travel. There is an overall trend of decreasing bus use in Harrogate and around 6% of internal commuting trips made within Harrogate are by bus.

Environmental Evidence

Harrogate, as a district, covers a large and geographically diverse area; the study area environment is of exceptionally high quality and includes the Stray and a significant area of Green Belt separating the towns of Harrogate and Knaresborough. This is reflected in the number and geographical scale of areas that are formally subject to environmental designations designed to protect the natural and built environment.

As part of the evidence gathering, comprehensive mapping of environmental constraints within the study area has been undertaken.

High traffic flows and existing congestion are contributing to issues of Air Quality on key routes and AQMAs have been declared in the sites of most concentrated congestion.

Significant Committed and Planned Development

There are currently 4,500 dwellings and 56,000sqm of employment space with existing planning permission across the Harrogate district.

The resident population of the district is forecast to grow substantially by 2035. Future development designed to accommodate this growth, as set out in Harrogate Borough Council's draft Local Plan, is for around 11,700 new homes and 25ha of employment land.

Proposals are also put forward for a 'new settlement' near Green Hammerton, which would be served by the A59.

Improvements are planned to Junction 47 of the A1(M), and to the A59 west of Harrogate, to increase capacity and improve journey times and reliability. There will also be enhancement of local public transport, and investment in walking and cycling, in part through DfT's Access Fund.

It is forecast that this level of development, in the locations cited, in addition to background traffic growth will result in almost 5,700 additional trips on the local network, in each peak hour, by 2035. This is predicted to result in the majority of junctions operating with significant delays and increases in journey times of up to 26% (when compared to 2015). The proportion of trips with an origin or destination in Harrogate and/or Knaresborough and purely internal trips is forecast to increase which is off-set by a reduction in through-traffic, suggesting that drivers are choosing to avoid the study area altogether for trips with neither an origin nor destination in Harrogate.

3. PRELIMINARY VIEW ON THE NEED FOR INTERVENTION

Committed and proposed development sites are generally located within the main study area, adjacent to the local highway, on key routes identified as already being subject to the highest levels of traffic flows.

To maximise Harrogate's economic potential, there is a need to plan, not only for the expansion of existing businesses, but also to attract the inward investment required to generate new, high value jobs with transport connectivity key to achieving this.

With aspirations of economic growth across the north, and the identification of logistics as a key enabler to unlocking this, freight movements on the

A59 will continue to increase as east-west connections become more of a focus. The route is highlighted as part of TfN's emerging work on Strategic Development Corridors, with congestion in Harrogate highlighted as a contributor to a lack of resilience on the A59. Without intervention within the study area the A59 will remain a constraint on the entire route, limiting the benefits of improvements in other locations and its potential as a regional east-west corridor.

Initial assessments, undertaken for the Local Plan, suggest that traffic associated with development can be accommodated mainly through localised junction improvements. However, this is likely at best to return the congestion situation to present day levels. Additionally in the longer term, the impact of this growth, if left unmanaged, is likely to deter the further inward investment and diversification of the economy that is considered critical to ensuring resilience of the district and achieving economic growth projections, both locally and regionally.

4. KEY ACTIVITIES AND FINDINGS OF THE OPTIONS ASSESSMENT REPORT

Setting Objectives

Based upon the outcomes of the Stage 1 Report evidence review, and informed by stakeholder engagement, a set of Strategic and Specific Objectives have been identified in accordance with the WebTAG process.

These objectives have been developed to align with the current and future issues identified as part of the Stage 1 review, and will provide a framework for initial high-level assessment of the interventions.

In order to identify how each Specific Objective contributes to the Strategic Objectives, a 'mapping' exercise has been undertaken,

Developing the Long-List of Interventions

Following the Stage 1 evidence review, and subsequent stakeholder engagement, a long-list of interventions was developed. Interventions were included as part of the long-list if it was considered that they could seek to address the identified issues and contribute towards achievement of the objectives. The 38 interventions identified were from a range of sources including:

- A review of historical schemes;
- A review of existing policies and strategies, relating to transportation in Harrogate;

- A review of both county-wide and Harrogate specific transport improvements included in existing studies and proposals;
- Consideration of the issues and opportunities identified in the Stage 1 review;
- Stakeholder consultation including face-to-face meetings, questionnaire responses and internal stakeholder workshop; and
- Internal study team workshops.

At this stage, the interventions are high level concepts only. Given the complex issues in Harrogate, as well as being considered separately, each of the interventions has also been looked at in terms of its potential contribution as part of a package of interventions.

Initial Sift and Short-Listing of Interventions

Due to the number of interventions, identified as part of the long-list, an initial 'sift' has been carried out to identify any that would not be taken forward for more detailed assessment as part of this study. This approach is in accordance with the DfT TAG appraisal process and included consideration of the following:

- Contribution to the Specific Objectives;
- Deliverability;
- Dependence upon other interventions;
- Indicative cost; and
- Timescales.

Each of the Initial Sift criteria, set out above, was brought together in an overall framework, allowing for an assessment of individual interventions to be considered on an equal and consistent basis.

Following the Initial Sift 15 interventions were considered inappropriate to progress to the more detailed assessment in their own right, leaving 23 interventions to be taken forward for more detailed appraisal.

Packaging of Interventions

It has been shown, through the Stage 1 evidence review, that Harrogate and Knaresborough's transport issues are complex; congestion and delays are a result not only of trips in and out of the town, but also of purely internal trips being made within the towns themselves.

As such, it is considered unlikely that one intervention could effectively address these issues; therefore a 'Packages' approach to interventions has been adopted. The 'Package' approach reflects an appreciation that no single intervention, in isolation, is likely to provide a solution to all of

Harrogate and Knaresborough's transport issues, nor fully meet all of the objectives of the study.

A total of five Packages have been developed, which represent the grouping of interventions with common themes, where it is considered that positive improvements for transport in Harrogate and Knaresborough could be delivered. The Packaging approach allows for the opportunity to unlock various funding sources, and to stagger the timetable for implementation with some interventions able to be delivered earlier than others, with the potential for 'quick wins'.

The 5 packages are:

- **Package A** – Demand Management Package;
- **Package B** – Demand Management and Behavioural Change Package;
- **Package C** – Relief Road Only Package;
- **Package D** – Relief Road and Highway Operational Improvement Measures Package; and
- **Package E** – Relief Road, Highway Operational Improvement Measures plus Sustainable Travel and Urban Realm Improvement Package.

It should be noted that the packaging process was undertaken to enable the assessment of a suite of interventions and to illustrate the benefits that they could provide cumulatively. It is envisaged that as the study progresses these packages will evolve to find the best mix of interventions to provide the desired outcomes.

Relief Road Corridor Testing

As with all of the proposed interventions, there has been no detailed design of relief road alignments; however, a number of historical corridor proposals do exist and have previously been consulted on. Historically 5 options have been identified for a relief road, these are:

- Northern;
- Inner (Northern);
- Inner (Southern) including Bilton Lane link;
- Western; and
- Killinghall.

When looking at the trip patterns that are currently causing the issues of congestion in Harrogate and Knaresborough, it was considered that a number of these historical proposals would be unlikely to successfully address them. To test this, high level testing was undertaken using the existing Harrogate and Knaresborough Strategic Traffic Model looking at the potential benefits of each corridor.

The modelling assessment looked at traffic flows and journey times and showed the Inner relief road options (Northern and Southern), including the Killinghall tie-in, achieved the most benefits. This outcome was in line with the issues identified in the Stage 1 Report; as such, it was agreed that the Northern, Western and Killinghall (stand-alone) corridors would be discounted at this stage and that the Inner Northern and Inner Southern corridors would be taken forward as a generic 'Inner' corridor within the next stage of the assessment.

Detailed Sift of Packages of Interventions

In order to look at the Packages in more detail this second round of sifting was undertaken using the DfT's Early Assessment and Sifting Tool (EAST).

EAST considers a range of metrics, set out in line with the DfT's 'Five Case Model' – this includes the following factors:

- Strategic;
- Economic;
- Financial;
- Management; and
- Commercial.

With this in mind a multi-discipline team was involved in undertaking the scoring of each package against the various metrics – the team included:

- Transport Planners (including specialists in transport modelling and sustainable transport);
- Environmental Consultants;
- Geotechnical Consultants;
- Highway Engineers; and
- Quantity Surveyors.

The EAST sift was proportionate to this early stage of the study, where complex modelling would not usually be applied, as per the recommended WebTAG approach. However, given the existence of a traffic model covering the study area this was used where relevant to assess the impacts of the Inner relief road corridors as well as for a number of the 'softer measures' identified. The latter has been undertaken through modifications to the demand matrices and/or to the model network itself; the extent of these modifications has been based upon evidence of intervention outcomes in other locations, and informed the EAST appraisal as appropriate.

Summary of Appraisal of Packages

The outcome of the EAST appraisal has shown that Packages B and E appear to be the better performing packages providing the most potential to

bring about benefits for Harrogate, Knaresborough and the surrounding areas. Package A offered a reasonable level of benefits as well as being considered to be the lowest cost of all of the Packages. Packages C and D are considered to offer the least benefits relative to the other packages.

Given the early stage of the process of option development it is not proposed to discount any of the Packages at this stage of the study. Prioritisation will be considered following public consultation. It should be noted that it is considered that the elements of the packages will likely change following consultation with interventions being added or removed as relevant to achieve the best level of benefits and meet the identified objectives.

5. NEXT STEPS

Public Consultation

Public consultation, on the initial outcomes of this study, is planned for late 2017/early 2018.

Feedback from this consultation will be used to revisit the composition of the better performing packages and identify a prioritisation of the Packages ahead of progression to Strategic Outline Business Case.

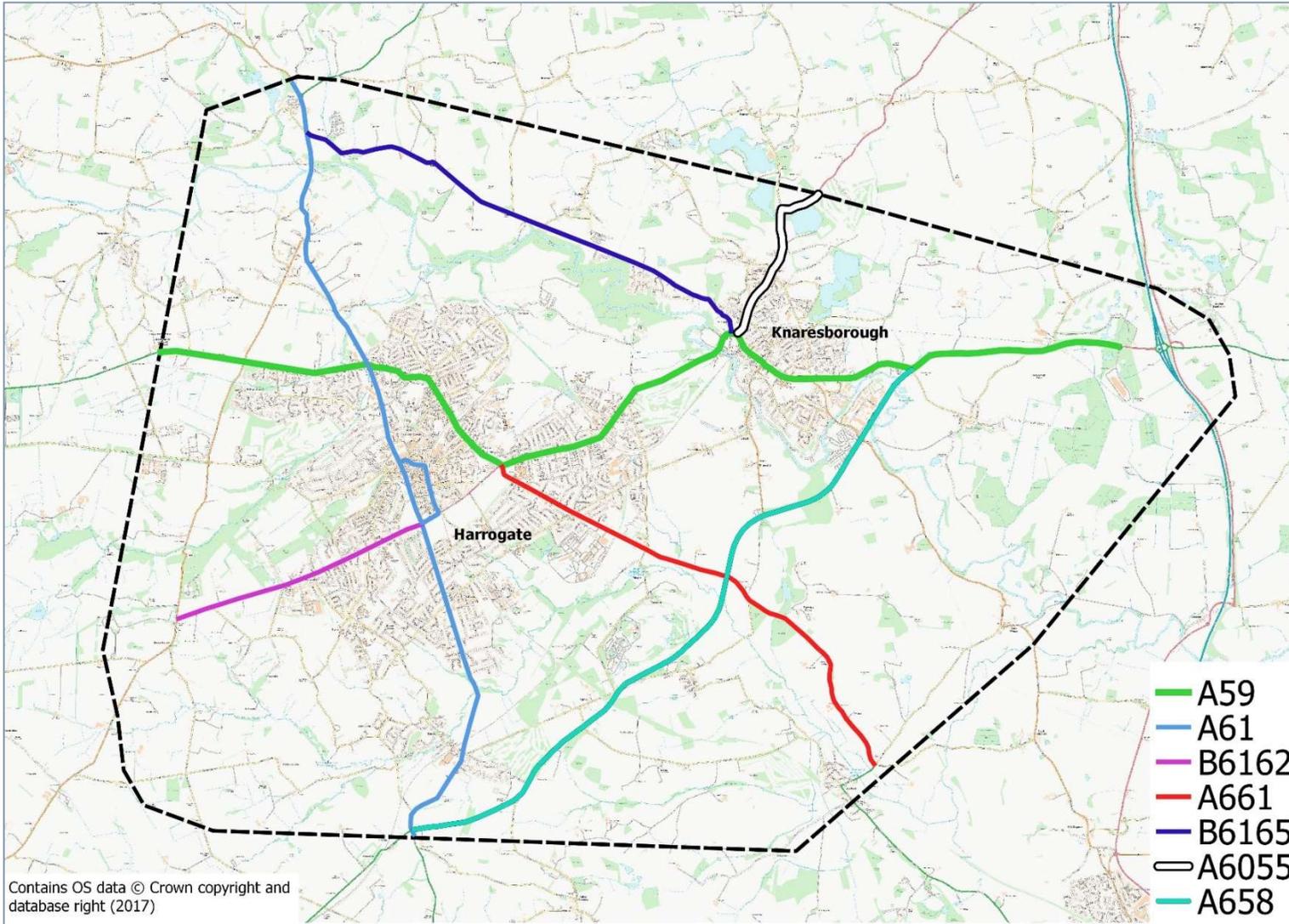
Strategic Outline Business Case (SOBC)

It is recommended that following public consultation three packages of interventions are identified for progression to SOBC where more detailed consideration of the interventions involved will be undertaken.

Following further analysis and assessment of the Packages, as part of a Strategic Outline Business Case, 'Preferred', 'Next Best' and 'Low Cost' Packages will be considered and potentially taken forward for detailed assessment as part of an Outline Business Case.

It is likely that, while these options will be based upon the existing Packages of Interventions, the content of these Packages may change, with interventions being either discounted or added dependent upon the outcomes of the public consultation and further analysis as part of the SOBC.

Figure 1 – Study Area





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wsp.com