

APPENDIX A: INTERVENTIONS NOTE

INTRODUCTION

This Appendix provides descriptions of the possible interventions included in the Long List.

The evidence gathered and analysed as part of Stage 1, and subsequent stakeholder engagement, for this study provided the basis for identifying the issues and challenges which require addressing in Harrogate. The issues and challenges were used to form a list of key objectives which this study would attempt to achieve, and it is this which formed the basis for the development of the Long List of interventions.

In line with 'Step 5', of the WebTAG Transport Appraisal Process, a range of interventions was identified that could address the key challenges, and the objectives. The interventions were identified via a range of sources including:

- § 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 Report;
- § Stakeholder consultation including face-to-face meetings, questionnaire responses and internal stakeholder workshop; and
- § Consideration of examples elsewhere through internal project team workshops.

A total of 38 possible interventions were identified, ranging from strategic infrastructure to targeted behaviour change initiatives. It should be noted that, at this stage, the interventions had only been developed as high level concepts and assumptions, based on experience elsewhere, regarding the scale of impacts were made in the subsequent appraisal.

For ease of understanding, interventions were grouped by type under the following categories:

- § Information;
- § Demand Management;
- § Highways;
- § Parking;
- § Public Transport;
- § Cycling; and
- § Walking.

Descriptions of each of the possible interventions included in the long list, grouped under these headings, is set out below.

DESCRIPTION OF POSSIBLE INTERVENTIONS

Information Interventions

A1 - Variable Messaging



Intervention Description:

This intervention includes employing Variable Messaging Sign (VMS) technology across the study area to inform travellers of conditions on the transport network in an attempt to influence travel behaviour, including route choice, this would potentially include:

- § Use of VMS signing on strategic routes and the surrounding local road network to inform motorists of incidents, events and closures affecting routes, enabling drivers to make informed route choices. Data would be fed from Harrogate's Urban Traffic Control system and/or other monitoring methods such as Bluetooth or radar systems.
- § Use of vehicle activated signing at appropriate locations to re-enforce safe speeds and highlight potential hazards on routes.
- § Car parking information to advise of available parking in the town to avoid abortive journeys.

Provision of this intervention can alert users of the transport network to issues on the network and allow travel to be adjusted accordingly helping reduce congestion, improve journey time reliability and overall efficiency of the network.

A2 - Real Time Passenger Information (RTPI) – Public Transport



Intervention Description:

The introduction of RTPI systems in Harrogate and Knaresborough could allow passengers access to live arrival/departure information for public transport services via a variety of different sources, including mobile phone applications, platform-level signage and automated public address systems.

Provision of RTPI can provide benefits to users by improving confidence in the service by reducing uncertainty, frustration and anxiety felt by passengers whilst waiting for public transport services. It also enables the public to make informed decisions as to their route/mode of travel. RTPI can also benefit public transport operators with fleet management, bus performance and schedule adherence.

Overall, RTPI would help to:

- § Improve the image of public transport and increase patronage within the towns;
- § Reduce the number of car trips within the town and the associated adverse impacts of congestion by enabling more trips by public transport.

A3 - Area Wide Signage Strategy – potentially including tourist, HGV and wayfinding signage






Source: www.placemarque.com

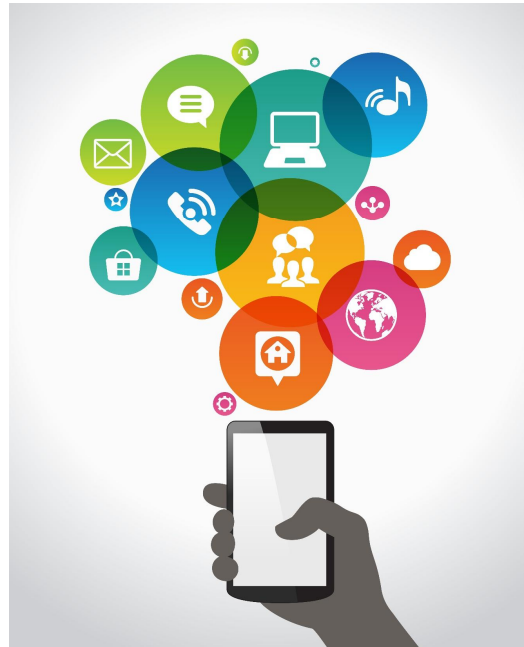
Intervention Description:

An area wide signage strategy is suggested in order to establish a clear and legible hierarchy of signage across the study area in order to aid orientation as well as encouraging use of the most appropriate routes when navigating in and around the Harrogate urban area. This would involve a review of the existing provision of all signage to reduce sign clutter and ensure clear and consistent signage across the urban area is provided.

Clear and appropriate provision of information and signage would help to:

-  Manage traffic along mixed priority routes and improve traffic calming measures.
-  Improve road efficiency by diverting HGV traffic to the most appropriate routes.
-  Reduce congestion and network stress on key routes.

A4 - Publicity Campaigns and Incentives for More Sustainable Travel



Intervention Description:

The aim of this intervention is to promote and encourage a greater uptake of sustainable transport modes, in particular for shorter journeys. This could involve a range of incentives and publicity campaigns to raise awareness of the sustainable transport choices available within Harrogate. This may include:

- Marketing, promotion and awareness raising.
- Challenges/competitions e.g. walking or cycling to school or work.
- Subsidised public transport tickets.
- Prize draws for sustainable travel use.
- Preferential parking for use of electric vehicles, car clubs etc.

Providing the above can 'nudge' people to travel by more sustainable modes, helping reduce congestion through a reduction in car trips in the town, as well as providing environmental benefits.

A5 - Improved Digital Provision – Open Harrogate Website and app, gamification/sustainable travel challenges






Source www.openharrogate.co.uk

Intervention Description:

This intervention would involve further developing the pre-existing Open Harrogate Application and possibly creating other digital provisions to reach a wider proportion of the population and incentivise sustainable travel. Digital provision can also provide intuitive, easy to use journey planner tools that highlight the benefits of sustainable travel such as information on health, environment and financial benefits.

The gamification aspect can include, amongst others, promotion of challenges through:

-  Step-o-metre apps.
-  Cycle distance measurements apps.
-  Most calories burned in a week.

Sufficient engagement with this intervention can increase sustainable transport use aiding improvements in congestion, the environment and general health of the residents, workers and visitors in the town.

A6 - Personalised Journey Planning



Intervention Description:

Personalised Journey Planning (PJP) intervention seeks to tackle the habit or preference of driving through providing greater awareness of, and confidence in, using sustainable travel options. This is achieved by providing people with clear information, advice and motivation to use sustainable travel modes. In Harrogate, it is envisaged this would highlight the various travel options available for journeys to work, retail, conference centres and tourist destinations.

The use of PJPs in Harrogate could help reduce the number of car trips through modal shift to sustainable modes. This would help reduce impacts of congestion as well as providing benefits to the environment and the general health and wellbeing of the residents, workers and visitors in the town.

Demand Management Interventions

B1 - Extend Pedestrianisation of Harrogate Central Core (potentially peak time only-controlled by rising bollards)



Source: Google Street View

Intervention Description:

This intervention would prioritise pedestrian movements within the central core of Harrogate. This could reduce car dominance and associated congestion, improving the townscape and helping to make the town centre more attractive to businesses and visitors. It is envisaged this would include the provision of appropriate high quality materials to delineate the pedestrianised areas, in keeping with the historic qualities of the town.

The reduction in vehicular access to and through the town centre, particularly HGVs, would also help to:

- Generate modal shift to more sustainable modes including walking and cycling.
- Improve safety in the town.
- Improve public health.
- Reduce pedestrian severance throughout the town.






B2 - Traffic Management / Low Emission Zone

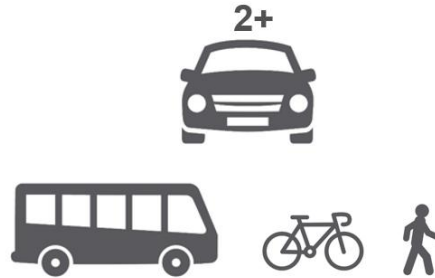


Intervention Description:

This intervention would help to minimise the number of vehicles accessing the town centres (particularly HGVs) through discouraging access. This would operate through the use of Automatic Number Plate Recognition (ANPR) cameras reading vehicle number plates and allowing free entry to exempt vehicles that enter a particular cordon in the central core area. Publicity and introduction of appropriate signage across the towns would also be required to ensure full awareness of the system.

The reduction in vehicular access to and through the town centre, particularly HGVs, would also help to:

- 
 Increase the modal shift to more sustainable means by removing traffic.
- 
 Improve safety in the town.
- 
 Improve public health.
- 
 Improve air quality in the town centre
- 
 Reduce pedestrian severance throughout the town.

B3 - High Occupancy (2+) Vehicle Lanes**Intervention Description:**

Provision of High-Occupancy Vehicle (HOV) lanes involves the reallocation of road space by giving priority to vehicles with more than one occupant to encourage car-sharing or use of public transport.

High occupancy lanes would be implemented on key routes through the study area, operating at peak times for the exclusive use of vehicles with a driver and one or more passengers. This would aim to:

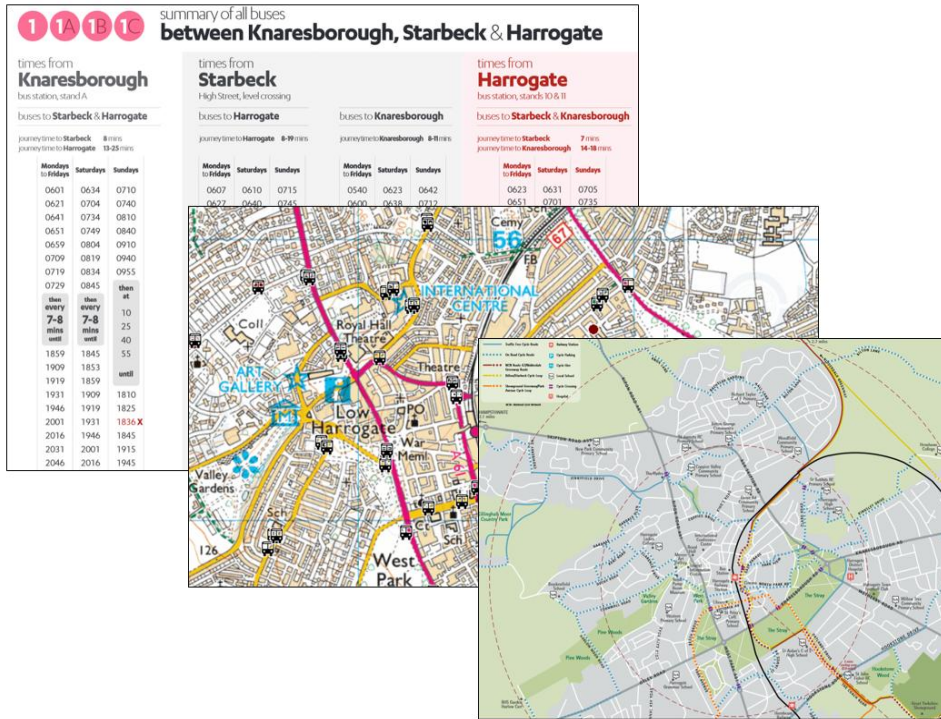


Reduce congestion.

Increase public transport patronage.

Improve the environmental conditions in the town centres.

B4 - Area Wide Travel Planning – workplace travel plans, event management



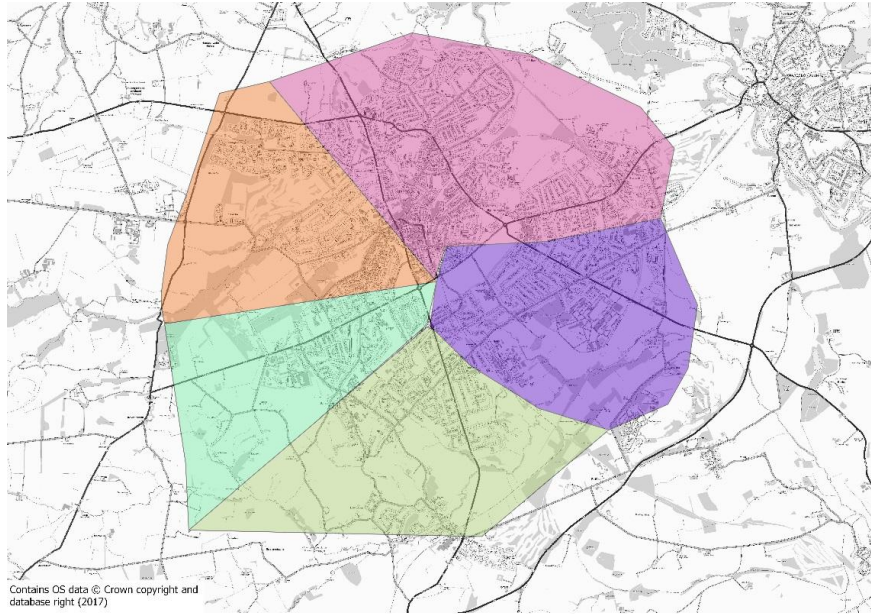
Intervention Description:

This intervention includes the implementation of Travel Plans, including packages of measures aimed at promoting sustainable travel, at organisations across the study area. This can include organisations that generate/attract large numbers of trips such as large employers and educational establishments within Harrogate and the surrounding area, as well as aiding in the planning for large events, such as the Great Yorkshire Show, to reduce their impact.

The aim of these Travel Plans is to:

- § Help reduce overall congestion in the town, particularly during the peak commuting periods in the morning and evening rush hour.
- § Further help to reduce the impact of large scale events hosted in Harrogate and promote the town’s image further as a conference and tourist destination.

B5 - Create Cell System in Harrogate Town Centre – potential routing subject to vehicle type



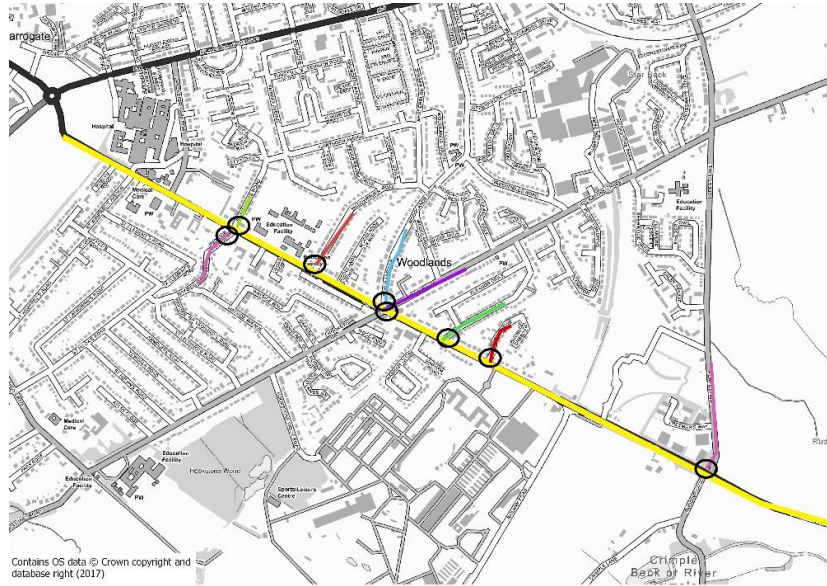
Intervention Description:

A cell system would involve restricting and managing the flow of vehicles within the town. This would result in certain vehicle types being limited to certain areas, one way road systems and potential restrictions in access during specific times.

Together these can contribute towards:

- Congestion relief.
- Reliability improvements for public transport/increased usage.
- Network resilience improvement.
- Improved air quality due to less stationary traffic.

B6 - Management of Side Road Access to Improve Main Route Efficiency



Intervention Description:

This intervention aims to improve general traffic flow through the town, particularly at peak times. It would seek to improve main route efficiency by minimising the disruption caused by side road traffic. This could be achieved through a traffic signal review and minimising side road priority, potentially closing some accesses and creating one way systems on side roads in order to minimise disruption with right/left turners off the main route. The benefits of providing this include:

- Reducing congestion.
- Improving route efficiency.
- Improving air quality.

B7 - HGV Ban at Peak Times/Loading Restrictions**Intervention Description:**

This intervention involves implementing restrictions as to the locations that HGVs are permitted to travel during peak hours. This would likely target the town centre.

Implementation of this intervention would aid reduction in traffic flows (particularly within the town centre) at peak times, helping to ease peak traffic pressure, as well as improve network efficiency with less delays resulting from slow moving HGVs. Restrictions could be used to spread the peak of HGV traffic throughout the day for commercial vehicles so as to minimise their impact.

This measure would help to improve air quality through minimising congestion and would help improve journey time reliability. It would also help to further reduce the impacts on the townscape encouraging greater investment and boost tourism. The reduction in commercial HGVs within the town centre would help to reduce impacts of severance for pedestrian within the town centre.

B8 - Town Centre 20mph Speed Limits/Zones



Intervention Description:

The implementation of 20mph speed limits within the town centre could result in both actual and perceived benefits of safety in the town. This could benefit Non-Motorised Users, particularly cyclists, resulting in a modal shift towards sustainable modes of transport. Further benefits could potentially be realised through smoother flowing traffic and an improved town centre environment as a result of the limit. All of these benefits could help to improve the town's image which may be beneficial to the town's economy particularly the tourist industry.

B9 - Car Sharing



Intervention Description:

Car sharing involves people, who would have otherwise travelled as single-occupancy vehicle users, travelling together and sharing their journey. Car sharing offers potential to reduce overall car trips within Harrogate, relieving congestion on the road network and the associated negative impacts of car use. Car sharing still offers the convenience of car travel but allows greater efficiency in the use of private vehicles.

B10 - Car Clubs (Electric Vehicles)



Intervention Description:

An electric vehicle car club would provide the use of electric vehicles within the study area, available for hire and use by the general public. Car clubs provide the convenience of car use when it is required but without the expenses and inefficiencies associated with car ownership. This, in turn, can then reduce the number of cars using the highway network reducing congestion and associated negative impacts. It could also help promote Harrogate as a forward thinking, dynamic and sustainable town; aiding promotion of tourism and attracting business to the town.

B11 - Work with Schools to Ameliorate the Impact of School Run (e.g. encourage sustainable school travel, review start/end times etc.)



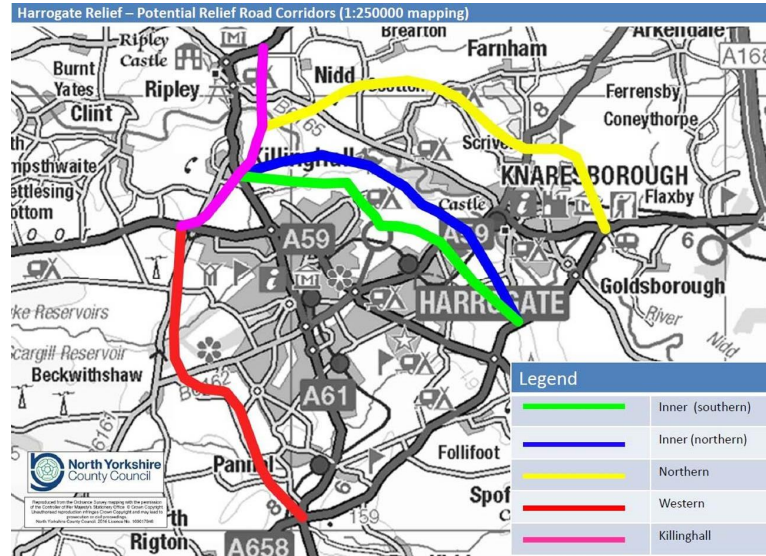
Intervention Description:

Travel to school is accountable for a large proportion of peak time trips, particularly in the morning. A strategy to reduce the number of trips by non-sustainable means could therefore have a significant impact on peak time congestion.

Strategy measures can include shifting school start and end times to avoid peak commuting times, as well as encouraging sustainable travel through education and school based challenges. In turn this can help improve general public health, improve network resilience and relieve congestion. Facilitating sustainable travel to school, offers potential for this behaviour to continue as children grow up and become independent, continuing the trend of young people being less car-oriented in adulthood.

Highways

C1 - Relief Road



Intervention Description:

The introduction of a relief road to remove traffic from Harrogate town centre has been identified as a potential intervention. Provision of a relief road could reduce the impact of traffic within the town, helping improve the safety of Non-Motorised Users (NMUs) and improving network resilience. Reduced trips along key routes would improve conditions for those living and working in Harrogate as well as reducing issues of pedestrian severance and NMU safety. This could have benefits for businesses in the town as well as those wanting to travel through the area, including promoting east-west connectivity. Improved journey times and journey time reliability would benefit the economy of the town and surrounding area. Improved reliability of journey times within the town can also help encourage the use of public transport.

C2 - Inner Ring Road**Intervention Description:**

This option would include the construction of an inner ring road within Harrogate with the aim of improving network resilience and reducing congestion within the town centre. It would aim to improve journey times and incentivise the use of bus use due to increased reliability. This can help reduce the problem of high network pressure during peak times and school commutes. The reduction of traffic on other routes can provide safety benefits and encourage an uptake in active modes, particularly cycling.

C3 - Network Optimisation



Intervention Description:

This intervention would begin with a review of how the existing road network within the study area operates in order to see if changes can be made which will contribute to the Objectives. This could include facilitating certain movements to reduce the time traffic is static and hence reduce air and noise pollution, whilst also restricting other movements to reduce intrusive traffic flow in the town centre. This could help to encourage the use of new infrastructure such as a relief road. This intervention could include changes to traffic signal settings and other traffic management measures as well as the restriction of vehicle types (such as HGVs) which slow down general traffic and increase noise and air pollution. Optimisation overall would help to improve the resilience of the network, make best use of existing and new infrastructure, improve safety and reduce environmental impacts.

C4 - Area Wide Signal Strategy Review



Intervention Description:

This intervention looks to assess and review signals within the study area to help optimise and alleviate congestion that may be created from inefficient signal timing. This could include a review of:

- The “green wave” along key routes
- Public transport priorities
- Increased “red phase” time on side road accesses

This would seek to improve network resilience, traffic flow/congestion and reduce journey times. Improved reliability of travel times may increase public transport use and help to meet air quality targets through the minimisation of stationary traffic particularly within AQMA areas.

C5 - Reallocation of Road Space



Intervention Description:

This intervention looks to reassess and reallocate road space in order to relieve congestion and improve journey times by encouraging the modal shift towards sustainable travel modes. Reallocation could improve the safety of NMUs and help to ensure reliable journey times. This could include the prioritisation of non-car modes and public transport, cycle lanes and cycle only routes. Overall, the aim of this intervention is to reduce the reliance upon private car ownership, improve public health and reduce vehicle emissions.

Parking Interventions

D1 - Area Wide Review of Car Parking Management, Supply and Charging and Development of Area Wide Strategy



Intervention Description:

A review of the overall car parking strategy for the town including management, supply and pricing system, would look to minimise the flow of traffic to the town centre. This can be achieved by either restricting the availability of parking or adjusting the pricing regime across the town and discourage driving into the town, with the aim of reducing congestion within the town centre and helping to improve safety, particularly for NMUs. It could also help address issues of severance and contribute towards meeting climate targets and encourage the growth of tourism within the town due to the benefits of reduced traffic in and around Harrogate town centre.

D2 - Park and Ride

**Option Description:**

Park and Ride provision in Harrogate would aim to reduce the flow of traffic within the town centre by incentivising out of town parking through implementation of a Park and Ride scheme. This would target reductions in congestion within the town centre and help to improve the safety of all road users, particularly NMUs. As a result this can in turn work towards the achievement of environmental targets (such as air quality and carbon emissions), improve the aesthetics of the town and encourage growth of tourism.

This intervention could help to improve the town's permeability whilst promoting sustainable transport solutions and minimising the effect that additional associated traffic can cause.

Public Transport Interventions

E1 - Bus/rail Station Interchange Development and Public Realm Improvements



Intervention Description:

This intervention would aim to create a fully integrated and modern transportation facility that meets the needs of Harrogate. It would potentially comprise a modern bus station and rail station facility in close proximity to one another in order to provide improved integration between transport modes. This would make the use of these modes increasingly viable and provide an attractive gateway to Harrogate which can encourage greater investment and economic benefits in the town.

Public realm improvements and improved pedestrian access to an interchange could increase the permeability of the town and access to bus and rail travel. This may reduce car usage and issues of congestion and delay, with associated environmental benefits in the town.

E2 - Bus Priority on Key Routes



Intervention Description:

Provision of bus priority could help improve the efficiency and reliability of buses within Harrogate, making bus travel a more viable and attractive transport choice in the town. This can reduce the dependence on car use, reducing the volume of traffic travelling to/from the town centres, thereby reducing congestion and providing safety and environmental benefits. Bus priority measures can include:

- Segregation / road space reallocation e.g. provision of bus lanes.
- Traffic management changes to prioritise buses.
- Traffic signal control to prioritise buses.
- Bus stop improvements.

E3 - Quality Bus Corridors (QBC)



Intervention Description:

QBCs are strategic routes that are designed to enhance and increase bus use, through improved reliability and efficiency as well as enhancing passenger waiting facilities. This can reduce the dependence on car use, reducing the volume of traffic travelling to/from the town centres, thereby reducing congestion and providing safety and environmental benefits. QBCs include:

- Provision of bus lanes.
- Junction Improvements.
- Traffic management changes to prioritise buses.
- Traffic signal control to prioritise buses (including coordination with Urban Traffic Control).
- Real Time Passenger Information.
- Bus stop improvements.
- Updating bus fleet e.g. replacing old buses with modern low-emission vehicles.

E4 - Focus on New Developments Providing Sustainable Transport Options



Intervention Description:

This intervention is designed to ensure any new development is well connected by all transport modes, with a priority towards sustainable transport modes. Provision and ease of access for sustainable transport options can encourage their use, rather than the private car, reducing the number of vehicles on the road network, improving journey times, resilience, safety and environmental improvements. Elements of this measure include:

- Sustainable travel to be designed into new developments.
- Private vehicle priority reduced where feasible.
- Travel Plans.
- Linkages to existing NMU routes and public transport options.
- Provision of walking and cycling provision where applicable.
- Encouragement for employers/residents to sign up to sustainable travel initiatives.

E5 - Demand Responsive Services



Intervention Description:

This option comprises a user-oriented form of public transport characterised by flexible routing and scheduling of small/medium size vehicles providing a shared transport mode. It would operate from different pick-up and drop-off locations according to the passengers' needs. This includes "dial-a-ride" type services where customers would contact a central provider and options of times and locations for specified pick-up and drop offs would be provided. Schemes such as these are typically useful for people with mobility issues and in rural areas where public transport options can be scarce. Provision of services such as this can reduce the number of private car trips into Harrogate by providing alternative, shared, options.

E6 - Reopen Disused Railway Lines



Intervention Description:

Reopening disused railway lines is an intervention suggested to improve public transport provision through greater connectivity for places no longer served by the rail network as well as helping tackle overcrowding on the existing rail network. This aims to improve attractiveness and viability of rail travel, encourage greater use and making it a more favourable mode of travel, than the private car, to/from Harrogate reducing congestion in the town and providing improved safety and environmental benefits. This could involve re-opening of the following lines:

- § Harrogate - Leeds (via Wetherby).
- § Harrogate - Ripon – Northallerton.

E7 - Shuttle Bus from Railway Stations**Intervention Description:**

A shuttle bus that links Harrogate's train stations with retail areas, large businesses, conference centres, educational establishments and tourist attractions may encourage sharing of trips from the station and improve integrated travel improving confidence for users of the station/town. This can reduce car trips to/from the town helping reduce the adverse issue relating to congestion.

E8 - Relocation of Starbeck Railway Station



Source: Google Street View

Intervention Description:

Relocation of Starbeck Station was suggested in order to relieve the issues resulting from traffic congestion associated with the level crossing. This would seek to improve the network flow efficiency and resilience as well as provide environmental and safety improvements as a result of reduced congestion and queuing traffic.

E9 - Parkway Stations



Intervention Description:

A parkway railway station is a station that primarily provides a park and ride rail interchange rather than directly serving an urban centre.

Provision of a parkway railway station as either a new station or expansion of existing stations outside of Harrogate town centre has been suggested as it could provide greater access to rail particularly for strategic trips out of Harrogate. This could reduce the number of trips to the town centre by car, alleviating congestion and encouraging environmental improvements through use of a more sustainable travel mode than the private car. It could also improve the permeability of the town, while minimising the effects of increased car usage associated.


E10- New Rail Halts



Source: <https://thespencergroup.co.uk>

Intervention Description:

Introduction of new rail halts serving key employment areas, educational facilities, new developments and suburbs of the town could help encourage use of rail travel to Harrogate, Knaresborough and beyond. This in turn can reduce congestion in the town by removing vehicle trips within the town centre - encouraging environmental improvements through use of more sustainable travel modes. Suggested locations of halts include:


-  Knaresborough East
- Claro Industrial Estate
- The Stray

E11- Improved Access to Rail Stations

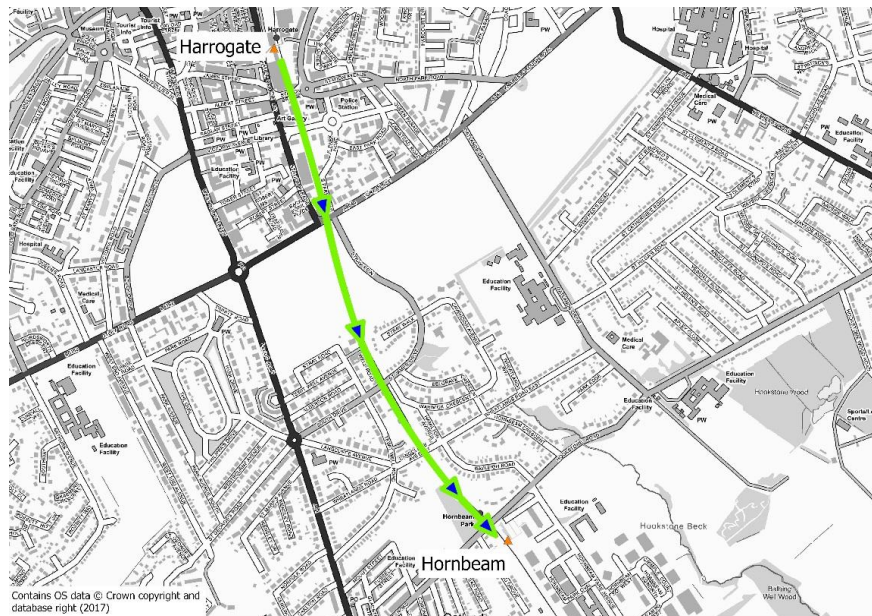


Intervention Description:

Improving access to rail stations could encourage more rail travel to/from Harrogate and Knaresborough which in turn could reduce traffic congestion and its associated adverse impacts in the town by removing vehicle trips. Improved access for NMUs in particular can help reduce car travel to/from the stations. Improved access can comprise:

-  New/improved footbridges and lifts, in particular to help those with mobility issues
- Provision of improved accessibility infrastructure for cyclists and pedestrians
- Improved cycle storage facilities
- Accessible changing/toilet facilities
- Provision of wayfinding and tactile paving



E12 - Encouraged Use of Rail for Internal Journeys



Intervention Description:

There are a number of railway stations within the study area and the use of rail for internal trips, within the study area, has been suggested.

Encouraged use of rail travel within Harrogate and Knaresborough can reduce congestion by reducing internal vehicle trips. This can be achieved by:

-  Promotion of rail travel
-  Reduced fares for short rail journeys (within Harrogate urban area and Knaresborough)

This intervention could also help to improve air quality and aesthetics of the town centre. Reduced traffic can also help to minimise pedestrian severance and increase the modal shift towards more sustainable modes of travel due to a perception of improvements to safety.

Cycling Interventions

F1 - Implementation of Cycling Infrastructure Plan for Harrogate Knaresborough and surrounding area



Intervention Description:

Implementation of the cycling infrastructure plan, developed as part of NYCC's Access Fund package of measures, would seek to make Harrogate district, and in particular the urban area, a place where cycling becomes a natural choice for shorter journeys. This will include making cycling accessible for all, with improvements to infrastructure, increased training opportunities as well as increasing promotion and 'joined up thinking' across organisations involved in cycling.

This can help provide benefits of reduced congestion in the towns as well as improving generally the health and wellbeing of residents, workers and visitors in Harrogate.

Walking Interventions

G1 - Area Wide Public Realm Strategy



Source: Harrogate Borough Council

Intervention Description:

An area wide public realm strategy would provide a coordinated approach to improvements in the public realm to ensure a high quality and consistent approach for proposals impacting the streetscape. The main objective of the strategy would be to ensure the streets and public spaces within the Harrogate urban area are designed to bring maximum benefit to residents, businesses and visitors as well as encouraging walking and cycling for shorter trips. Measures included in the strategy would seek to implement a change in priority from dominance of vehicles to prioritising pedestrian movements.

This can improve the health and wellbeing of residents, workers and visitors in Harrogate as well as making the town more attractive for investment, business and tourism.