

M54 to M6 Link Road

TR010054

Volume 6

**6.4 Environmental Statement
Non-Technical Summary**

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

January 2020

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

**M54 to M6 Link Road
Development Consent Order 202[]**

Environmental Statement: Non-Technical Summary

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1 Introduction

- 1.1.1 This Non-Technical Summary (NTS) has been prepared for the M54 to M6 Link Road (herein referred to as the 'Scheme') and provides a summary of the Environmental Impact Assessment undertaken for the Scheme.
- 1.1.2 The Scheme is a Nationally Significant Infrastructure Project under the Planning Act 2008, which means that permission is required to build and operate the Scheme. The permission is called a Development Consent Order (DCO). The DCO application will be examined by the Planning Inspectorate which will report its findings and make a recommendation to the Secretary of State for Transport, who will make a decision on the application.
- 1.1.3 Highways England is responsible for modernising and maintaining England's strategic road network (made up of motorways and trunk roads (the most significant 'A' roads)), as well as running the network and keeping traffic moving. Highways England, as the Applicant under the Planning Act 2008, proposes to improve traffic flows and road capacity between the M6 Junction 11 and the M54 Junction 1, by providing a dual two-lane carriageway between the two junctions as well as improvements to the two junctions.
- 1.1.4 An Environmental Statement has been prepared to accompany the DCO application and presents the Environmental Impact Assessment. It includes a description of the Scheme and the reasonable alternatives considered in the development of the design, the environmental setting, the likely significant effects of the Scheme on the environment and local communities, and the measures proposed to mitigate these effects. This document provides a summary of the Environmental Statement in non-technical language.

2 Need for the Scheme

- 2.1.1 In 2001, the West Midlands Area Multi Modal Study recommended the construction of a link road between the M54 and M6 to provide the ‘missing’ link between the M54 and the M6 northbound. The government formerly committed to the delivery of the Scheme in 2014 in the Road Investment Strategy: 2015 to 2020, which sets out the long term approach to improve England’s motorways and major roads.
- 2.1.2 The M54 currently merges into the M6 southbound at Junction 10a. There is no strategic route between the M54 to the M6 northbound or the M6 Toll. There is also no motorway or dual carriageway route between the M6 southbound and the M54 westbound. Traffic wishing to make these movements has to leave the motorway network and use the regional/local road network including the A449, A5 and A460 (refer to Figure 2.1). The routes used are heavily congested, particularly during peak periods, and have relatively high accident rates.

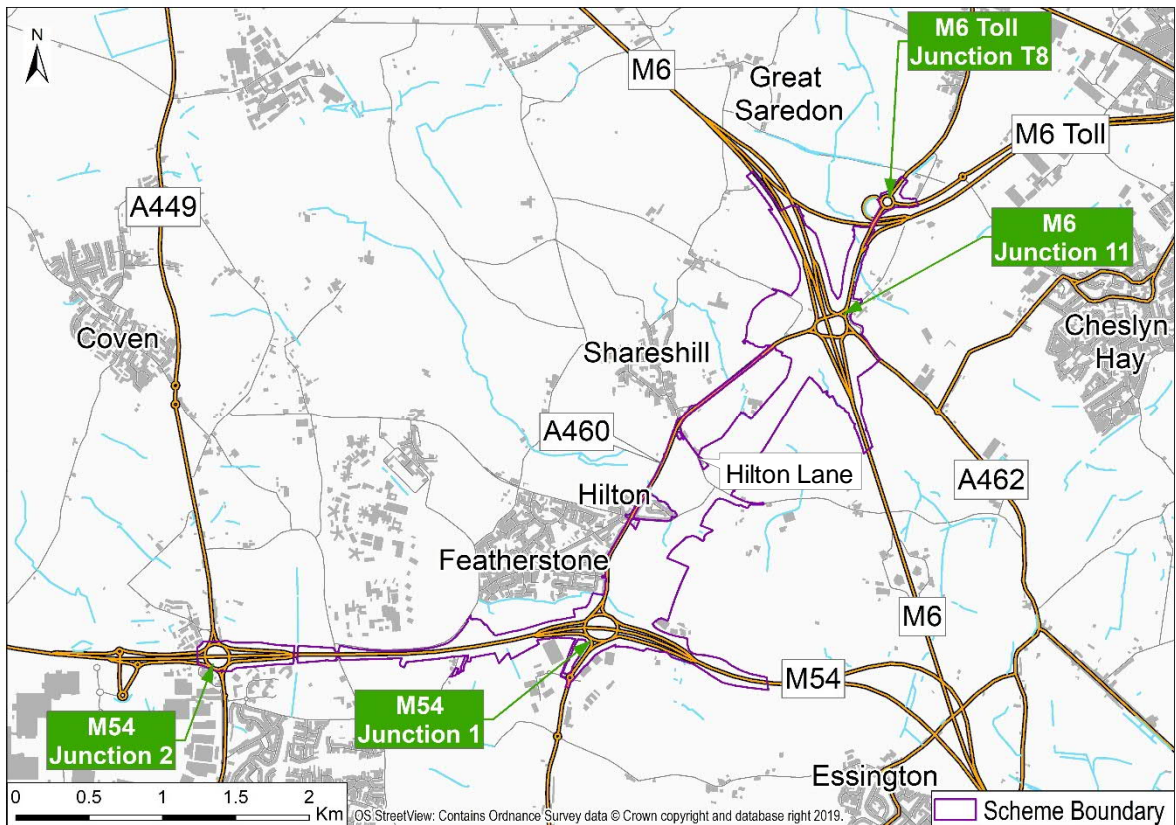


Figure 2.1: Location Plan

- 2.1.3 The signed route between the M54 westbound and the M6 northbound is via two trunk roads; the A449, which is a dual carriageway that is subject to the national speed limit, and the A5 that is subject to a 50 mph speed limit travelling between M54 Junction 2 and M6 Junction 12.
- 2.1.4 The existing A460 Cannock Road between M54 Junction 1 and M6 Junction 11 is a single carriageway road approximately 10 m wide with no physical separation between the flows of traffic in each direction. The A460 is predominantly subject to a 40 mph speed limit, but is also subject to a 30 mph limit from the M54 Junction 1

to approximately 140 m after the junction with the existing A460 and Monument Drive, a total distance of 840 m. In addition, the existing A460 is subject to a 50 mph speed limit south of the M6 Junction 11 for approximately 500 m. The existing A460 has eight minor roads and numerous private accesses joining it between the M54 and the M6, requiring six 'give way' priority junctions and one traffic signal controlled junction. These provide access to Featherstone, Shareshill, Hilton, Hilton Hall and other isolated properties. These junctions result in right turning traffic having to cross on-coming traffic to exit and enter the junctions. The A460 was not designed for the amount and type of traffic currently using it, resulting in delays.

- 2.1.5 The existing road network is not adequate to cope with the high volumes of traffic, often consisting of heavy goods vehicles. There is a need to provide a link road to address the current levels of congestion and its impacts on local residents and motorists. Investment in additional capacity will support local economic growth for Telford, Shrewsbury, Wolverhampton, Cannock and Tamworth by improving traffic flow and enhanced east-west and north-south routes.

3 Scheme Description

3.1 Environmental context

- 3.1.1 The Scheme would be located within a semi-rural setting, heavily influenced by linear road infrastructure and traffic flow between Cannock, Wolverhampton and Birmingham (see Figure 2.1).
- 3.1.2 Land use is marked by the villages of Featherstone and Shareshill to the west of the A460 and Hilton to the east and rural developments, including farmland and Hilton Hall, in the triangle of land between the A460, M54 and the M6 Toll. Land to the north of the M54 Junction 1 is mainly farmland intersected by the M6 Junction 11 and the A460 bypass and slip road. The Hilton Park service station is located on the M6 to the east of the Scheme.
- 3.1.3 Wolverhampton is located to the south-west of the Scheme, with the larger settlement of Essington to the south-east and Hilton Mains Small Business Park to the south-west. All of these are set within farmland.

3.2 The Scheme

- 3.2.1 The Scheme would provide a strategic link between the M54 Junction 1 and M6 Junction 11. From south to north the main components of the Scheme include (refer to Figures 3.1 to 3.3):
- Replacement of the existing M54 Junction 1 with free-flow slip roads between the new link road and the M54. This would allow the free-flow of traffic between the M54 and the new link road in both directions and maintain connectivity with the existing local road network, via three new roundabouts.
 - Construction of a new dual carriageway between M54 Junction 1 and the M6 Junction 11. The alignment of the carriageway would be located to the east of the existing A460 and the villages of Featherstone, Hilton and Shareshill and west of Hilton Hall.
 - Dark Lane would be stopped-up between the final property and the junction with Hilton Lane so that it is no longer a through-road.
 - The realignment of Hilton Lane on a bridge over the mainline of the Scheme. The bridge would be reconstructed on a similar alignment and would provide sufficient clearance for the new road.
 - Provision of an accommodation bridge and access track across the mainline of the Scheme to retain access to severed land to the east of the Scheme. The route of the new link road would then continue north to the east of Brookfield Farm to link to the M6 Junction 11.
 - Enlargement of the M6 Junction 11 signalised roundabout to accommodate a connection to the new link road and realign existing connections with the A460 and M6. Two replacement bridges would be required over the M6 to provide an increase in capacity from two lanes to four lanes of traffic on the roundabout. This work would raise the height of the junction by approximately 1.5 m.

Figure 3.1: General Scheme arrangement

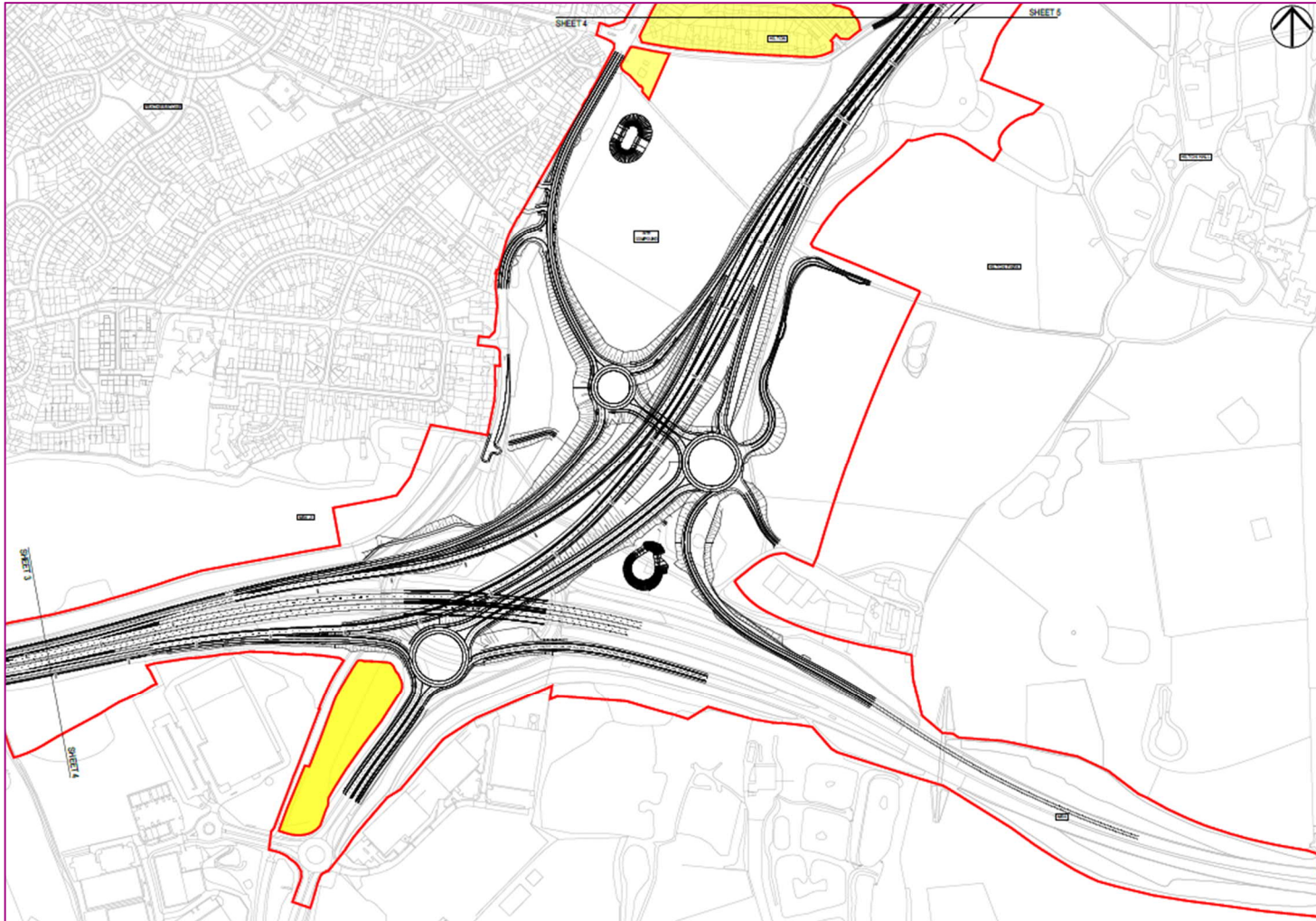


Figure 3.2: General Scheme arrangement

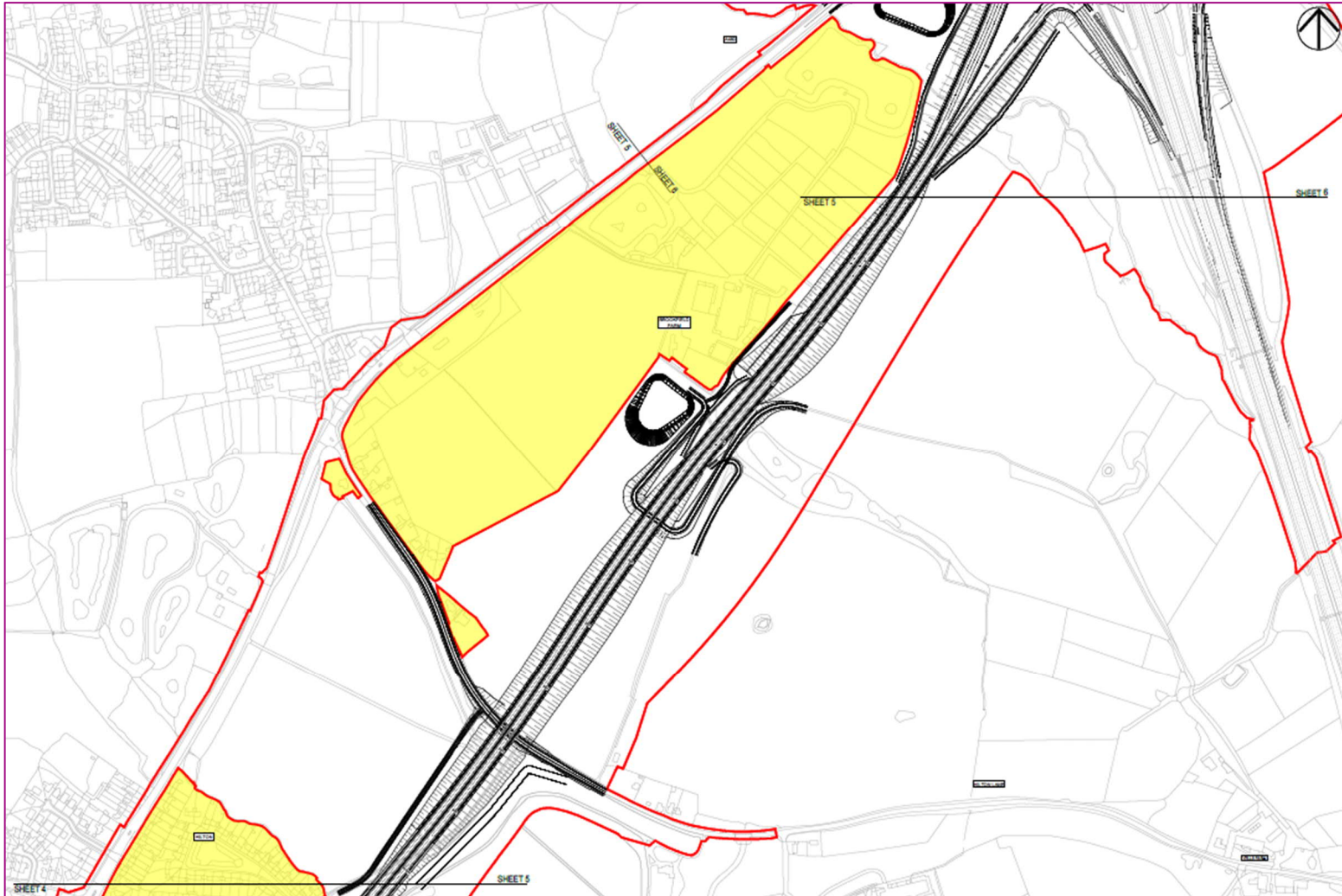


Figure 3.3: General Scheme arrangement



3.3 Scheme objectives

3.3.1 The primary objectives of the Scheme are to:

- Relieve traffic congestion on the A460, A449 and A5, this will provide more reliable journey times.
- Keep the right traffic on the right roads and improve safety by separating local community traffic from long distance and business traffic.
- Reduce volumes of through-traffic in villages, improving local community access.
- Support local economic growth for Telford, Shrewsbury, Wolverhampton, Cannock and Tamworth by improving traffic flow and enhancing access to east-west and north-south routes.

3.4 Measures to avoid, prevent or reduce significant effects

3.4.1 The Scheme includes a range of measures that have been developed to avoid, prevent, reduce or offset potential significant adverse environmental effects including (but not limited to) the following:

- avoiding sensitive, valued or important environmental features and interests where reasonably practicable through iterative design (i.e. reducing as far as practicable land take within ancient woodland through the use of a retaining wall);
- minimising visual intrusion by putting the new mainline link road in cutting where practical, together with the use of screening and planting to reduce local views of the road where possible;
- minimising the amount of land required to construct and accommodate the Scheme, through construction of the new mainline link road in cutting with slopes generally at a gradient of 1:3 or steeper to reduce overall land take; and
- addressing (through mitigation) potential environmental effects using earthworks, planting, drainage and barriers and screening the Scheme where possible with appropriate planting.

3.4.2 The control measures mentioned above are contained within the Outline Environmental Management Plan, which is included in the DCO Application. The Outline Environmental Management Plan will be further developed into a Construction Environmental Management Plan, which will be implemented by the construction contractor and will include the approach to monitoring of construction activities and the performance of mitigation measures as appropriate.

3.5 Construction approach and programme

3.5.1 The Scheme's main construction works are planned to start in Spring 2022 and the Scheme is due to open to traffic in 2024. The construction programme assumes that the works would be split into three zones, M54 Junction 1 (Zone 1), the mainline of the new link road (Zone 2) and M6 Junction 11 (Zone 3). Work would occur in all three zones simultaneously, although it is anticipated that the programme would be split into a number of different phases within each of the

zones to coordinate the works in a manner that would, where possible, enable effective materials re-use and minimise disruption.

- 3.5.2 The appointed construction contractor would employ standard best practice construction methods to minimise disruption during construction, with any Scheme-specific measures identified in the Construction Environmental Management Plan.
- 3.5.3 Highways England will work closely with stakeholders during the construction works to maximise the efficiency of the construction and minimise disruption to the travelling public and other stakeholders living and working in the area.
- 3.5.4 The construction of the Scheme would require two construction compounds. The main compound would be located to the west of the M6 Junction 11 with a secondary compound located north-east of the M54 Junction 1.
- 3.5.5 Construction of the Scheme would require the diversion, relocation and protection of existing utility assets including water, wastewater, electricity, gas and telecommunications.

4 Alternatives Studies and Consultation

4.1.1 Chapter 3 of the Environmental Statement provides descriptions of the main alternatives studied and an indication of the main reasons for selecting the chosen option, including a comparison of environmental effects in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations'). This section of the Non-Technical Summary provides an overview of the process followed and the types of alternatives considered. The consideration of alternatives followed these stages:

- options identification and options selection, including the testing, design development and decision-making process, informed by consultation in 2014/15 and 2017;
- preferred route announcement in 2018;
- post preferred route announcement design development for Statutory Consultation in May to July 2019; and
- continued design development post Statutory Consultation.

4.1.2 The range of alternatives assessed includes:

- a scenario without the Scheme;
- route alignments to the east and west of Hilton Hall, including consideration around Dark Lane, Brookfield Farm and Hilton Lane;
- junction arrangements for the M54 Junction 1, M6 Junction 11 and M6 Toll Junction T8; and on the new link road, and the option to stop up Mill Lane near M6 Junction 11;
- the standard of the link road (whether it should be a dual carriageway or a motorway);
- the location of accommodation bridges, watercourse crossings and culverts, the cut and fill balance and lighting; and
- mitigation alternatives.

4.1.3 This has resulted in a Scheme which provides the optimum route and design to:

- limit the loss of ancient woodland, veteran trees and ecological habitat losses;
- balance the adverse impacts on sensitive residential areas from operational noise with a need to protect the historic character of the area;
- provide the highest level of congestion relief for the A460 (and benefits in terms of noise reductions and reduced vehicles emissions), whilst maintaining good local connectivity;
- provide the shortest journey time between the motorways and the highest benefit to the local economy; and
- respond to consultation feedback in terms of alignment, design and mitigation to provide a balance between achieving the Scheme objectives and all environmental, social and economic impacts.

- 4.1.4 Details of the May to July 2019 statutory consultation can be found in the Consultation Booklet at: <https://highwaysengland.co.uk/projects/m54-to-m6m6-toll-link-road/>.
- 4.1.5 The feedback to the 2019 consultation exercises, and Highways England response to it, is presented in the Consultation Report included in the DCO Application.
- 4.1.6 In addition to formal consultation, regular engagement has been undertaken with relevant stakeholders to inform the development and assessment of the Scheme design. These stakeholders include, but are not limited to, Staffordshire County Council, South Staffordshire Council, City of Wolverhampton Council, Natural England, Historic England, the Environment Agency, local parish councils and affected local landowners.

5 Assessment of Likely Significant Effects

- 5.1.1 Under the EIA Regulations, the Scheme is defined as the type and scale of development that automatically requires an Environmental Impact Assessment. Accordingly, an Environmental Impact Assessment has been undertaken to meet the requirements of the relevant planning policy and legislation, and identify the potential for the Scheme to have significant effects upon the environment. The results of the Environmental Impact Assessment are reported in the Environmental Statement which is submitted with the DCO Application.
- 5.1.2 The Environmental Impact Assessment considers impacts during construction and operation of the Scheme. The construction phase assessment addresses the temporary activities involved in building the Scheme, and the subsequent permanent presence of the Scheme once constructed. Where relevant, these temporary and permanent effects are described separately below. The operational assessment considers the situation when the Scheme is being used by traffic.

5.2 Methods used in the assessment

- 5.2.1 The approach to the Environmental Impact Assessment comprised the gathering of information to establish the current environmental setting or baseline, considering the potential impacts of the Scheme, developing measures to avoid, prevent or reduce adverse impacts and then assessing the resultant likely significant effects of the Scheme on local communities and the environment. The Environmental Impact Assessment has followed industry standard methods, including for establishing significance, set out in Highways England's Design Manual for Roads and Bridges along with topic-specific guidance as appropriate. Each topic chapter in the Environmental Statement provides further detail regarding the specific methodology applied.
- 5.2.2 This assessment has been undertaken against both the current baseline setting of the Scheme, and potential changes to the Scheme's baseline setting at the times of both construction and operation of the Scheme (the future baseline). Future changes to the baseline, without the Scheme, could result from both natural events such as the movement of protected ecological species, or from human activities, such as the development of homes and businesses in the area.
- 5.2.3 For each environmental topic, a prediction (based on either professional judgements or computer modelling, undertaken in accordance with industry guidance and methodologies) in regard to 'significant effects' has been provided. Significant effects can either be adverse (negative) or beneficial (positive) and indicate the greatest environmental impacts. Predictions regarding significant effects take into account the proposed mitigation and are the effect that is likely to occur once mitigation has been implemented, for example, noise barriers and landscape planting such as woodland and grassland.
- 5.2.4 In accordance with the EIA Regulations, an assessment has been undertaken of the vulnerability of the Scheme to major accidents or disasters. The assessment considered a wide range of events including naturally occurring events such as: lightning strikes, floods and heatwaves; human accidents such as road, aircraft and military accidents; infrastructure failure such as bridge, utilities or dam failure; and

bomb, vehicle and cyber-attacks. The assessment concluded that with the mitigation measures included in the Scheme design, no significant adverse effects from major events would be expected.

- 5.2.5 The following sections provide a summary of the assessment of likely significant environmental effects as a result of the Scheme on an environmental topic basis as reported in the Environmental Statement.

6 Air Quality

6.1 Baseline

- 6.1.1 Air quality in the area around the Scheme is currently affected by traffic using the M54, M6 and the local road network, particularly the A460. If a local authority identifies any locations within its boundaries where the air quality objectives are not likely to be achieved, it must declare the area as an air quality management area. There are no Air Quality Management Areas within the Scheme boundary. However, there are eight AQMAs located within 200 m of the wider road network identified as likely to be affected by changes in air quality as a result of a Scheme.
- 6.1.2 The closest Air Quality Management Area is Wolverhampton (2005) located approximately 400 m from the Scheme boundary, which was designated due to exceedances in nitrogen dioxide and particulate matter. There are a number of sensitive receptors (including residential properties) within 200 m of the Scheme. Based on a review of monitoring data air quality in the immediate area around the Scheme is considered to be good.
- 6.1.3 There are four Sites of Special Scientific Interest within 200 m of the affected road network, which contain features that are sensitive to air pollutants, such as nitrogen oxides.

6.2 Construction

- 6.2.1 Without mitigation, construction of the Scheme could temporarily impact air quality as a result of dust from construction activities, such as earth moving, demolition and excavations, and emissions from construction traffic and equipment. Mitigation measures in the Construction Environmental Management Plan would include those for dust suppression, the controlled use of equipment and construction traffic management. These would minimise the temporary dust impacts during Scheme construction activities. No significant changes to emissions important for air quality are expected at identified sensitive receptors.

Summary of construction assessment:

- No significant air quality effects are likely to occur.

Operation

- 6.2.2 During Scheme operation there could be impacts on air quality as a result of changes in vehicle flows along the Scheme and the wider road network once the Scheme is open to traffic. Air quality impacts have been assessed at sensitive properties near to the Scheme and near roads that are expected to be affected by the Scheme.
- 6.2.3 Modelling undertaken indicates the Scheme would not result in any new exceedances of air quality objectives or worsen existing exceedances. Once the Scheme is operational, traffic would be moved further away from the villages of Featherstone and Shareshill, though it would move traffic closer to some houses in Hilton.

Summary of operation assessment:

- Scheme operation would have an impact on air quality as a result of changes in vehicle flows, however, no significant adverse air quality effects are likely.

7 Cultural Heritage

7.1 Baseline

- 7.1.1 Cultural heritage includes archaeology, historic buildings, structures and historic landscapes including parks and gardens. There are numerous cultural heritage assets within the vicinity of the Scheme, including; two Grade I listed, three Grade II* listed and 21 Grade II listed buildings. In addition, there are 59 non-designated archaeological assets recorded from the Historic England and county council Historic Environment Records and a total of 13 historic buildings and structures, including seven locally listed buildings or structures. Some of the nearest listed buildings to the Scheme include the Grade I Listed Hilton Hall and associated buildings and structures.
- 7.1.2 The Scheme would cross Hilton Park a non-designated historic parkland within which are the listed buildings associated with Hilton Hall.

7.2 Construction

- 7.2.1 Construction of the Scheme has the potential to have adverse impacts on cultural heritage. This includes the partial or total removal of archaeological remains within the Scheme footprint, as well as compaction of potential archaeological deposits by construction traffic. Potential impacts upon historic buildings include temporary impacts from construction activities such as traffic movements, lighting and noise. Scheme construction activities also have the potential to impact upon the historic parkland surrounding the Scheme.
- 7.2.2 In addition to adopting best practice construction methods (as included within the Construction Environmental Management Plan), a staged programme of archaeological mitigation would be undertaken which would comprise measures to protect archaeological remains in-situ and to record archaeological remains prior to Scheme construction to avoid significant adverse effects.

Summary of construction assessment:

- The Scheme would likely have a permanent significant adverse effect on Hilton Park due to the partial loss of key elements of the historic parkland, including the woodland and pool (Lower Pool) to the west of Hilton Hall.
- No other significant effects are predicted on cultural heritage assets as a result of the Scheme during construction.

7.3 Operation

- 7.3.1 During Scheme operation, cultural heritage impacts are restricted to those associated with the setting of heritage assets, principally due to changes in lighting and traffic noise levels.
- 7.3.2 Any archaeological assets directly impacted by Scheme would have been removed during construction, therefore there would be no impacts arising from operation of the Scheme on archaeology.

Summary of operation assessment:

- No significant effects on cultural heritage features are anticipated during operation of the Scheme.

8 Landscape and Visual

8.1 Baseline

8.1.1 The Scheme would be located in a largely rural area on the urban-fringe. The land use is predominantly agricultural, with a number of residential areas including the villages of Shareshill, Featherstone and Hilton. The area is heavily influenced by existing roads, with the presence of the M6, M54 and M6 Toll detracting from the surrounding landscape.

8.2 Construction

8.2.1 Construction activities have the potential to temporarily impact on local landscapes and on the views of users on public rights of way and local roads, and views from residential properties close to the Scheme. Measures to mitigate potential impacts of construction activities include sensitive design of construction compounds; sympathetic lighting to minimise disturbance to nearby receptors; and ensuring materials are delivered to site on an “as and when” basis.

Summary of construction assessment:

- Scheme construction activity is likely to result in a temporary significant adverse effect on the landscape in the immediate vicinity of the Scheme due to the introduction of machinery, earthworks and tree loss.
- Scheme construction activities would likely have significant temporary adverse visual effects on local residents, recreational receptors, and local road users at the following locations:
 - Users of the A460 Cannock Road, Featherstone;
 - Users of Great Saredon Road;
 - Users of the Public Rights of Way (PRoW) located to the east of Brookfield Farm;
 - Users of the PRoW north of Hilton Lane;
 - Some residents located on Dark Lane and Park Road;
 - Users of and some residents located off Hilton Lane; and
 - Users of Whitgreave's Wood (Oxdon Leasow).

8.3 Operation

8.3.1 Due to the nature of the Scheme within the wider landscape, operation activities could have permanent adverse impacts on the local landscape and views. Measures to mitigate the landscape and visual impacts include the reinstatement of planting, as well as the careful design and siting of new lighting and signage to minimise visual intrusion and light spill into the surrounding area.

Summary of operational assessment:

- Operation of the Scheme is not anticipated to result in significant effects on the surrounding landscape, either adverse or beneficial in the year the road opens (2024) or 15 years later (2039).

- There are likely to be permanent, short-term (when the Scheme opens) significant adverse effects on receptors from the following viewpoints:
 - Users of and residents located on A460 Cannock Road, Featherstone;
 - Users of Great Saredon Road;
 - Users of PRow located east of Brookfield Farm;
 - Users of and residents located off Hilton Lane;
 - Users of and residents located on Dark Land and Park Lane; and
 - Users of PRow north of Hilton Lane.
- There are likely to be permanent, long-term (by 2039) significant adverse effects on receptors from the following viewpoints:
 - Users of and residents located on the A460 Cannock Road, Featherstone;
 - Users of the PRow located to the east of Brookfield Farm;
 - Users of the PRow north of Hilton Lane; and
 - Users of and residents located on Dark Lane and Park Road.

9 Biodiversity

9.1 Baseline

- 9.1.1 There are no statutory international nature conservation designated sites within 2 km of the Scheme. There are two Local Wildlife Sites, designated by the local authority, within the Scheme boundary; Lower Pool Site of Biological Importance and Brookfield Farm Site of Biological Importance. Two areas of ancient woodland have also been identified within the Scheme boundary, one within Brookfield Farm Site of Biological Importance and Whitgreave's Wood (Oxden Leasow), south of the M54.
- 9.1.2 Vegetation and habitat surveys have been undertaken to understand the existing ecological conditions. A desk study and further ecological surveys have been undertaken to gather baseline information on protected and notable species in the vicinity of the Scheme including surveys for: [REDACTED]; barn owl; bats; breeding birds; wintering birds; otter, water vole; great crested newt; reptiles; terrestrial and aquatic invertebrates; and fish.

9.2 Construction

- 9.2.1 Impacts on ecological features, in the absence of mitigation, during construction of the Scheme are likely to include: habitat loss; fragmentation of populations or habitats; disturbance; habitat degradation; and species mortality.

Summary of construction assessment:

- No significant effects on designated sites, including those of national and international importance are anticipated during construction of the Scheme.
- There is likely to be a significant adverse effect on ancient woodland at Whitgreave's Wood (Oxden Leasow) and Brookfield Farm due to indirect and direct losses to the ancient woodland.

9.3 Operational

- 9.3.1 Impacts on ecological features during the operational phase of the Scheme are likely to include species mortality and fragmentation; habitat degradation and disturbance. As such, a range of mitigation measures have been included within the Scheme design – this includes provision of suitable fencing to prevent species such as [REDACTED] accessing the road and mammal crossings. In addition, the habitats planted during the construction phase would mature and develop into habitats of value to protected species.

Summary of operational assessment:

- No significant effects on designated sites, including those of national and international importance are anticipated during operation of the Scheme.
- Permanent adverse effect on ancient woodland within Brookfield Farm Site of Biological Importance due to increases in emissions that affect air quality.

10 Geology and Soils

10.1 Baseline

- 10.1.1 The current land use along the alignment of the Scheme is primarily fields and farm land with some small wooded areas. The underlying geology across the Scheme consists of sandstone and mudstone. A number of potential sources of ground contamination have been identified close to the Scheme including the M6 Diesel Fuel Station and the Hilton Services fuel station. There are also three inactive landfills located in the vicinity of the Scheme.
- 10.1.2 Soil surveys were undertaken to identify land classified as Best and Most Versatile. 54% of the national character area, within which the Scheme is located, is Best and Most Versatile agricultural soil.

10.2 Construction

- 10.2.1 During construction there is the potential for related activities to generate contaminants and enter groundwater or surface water, should they be disturbed through either in-situ contamination or construction related activities. Other potential impacts may include harm to human receptors or physical changes on the geology and soils such as the compaction of soil, or direct loss of Best and Most Versatile soils. The Construction Environmental Management Plan would include measures for the identification, treatment, re-use and management of excavated materials.

Summary of construction assessment:

- Construction of the Scheme would result in a significant adverse effect on agricultural land due to the permanent loss of approximately 56.3 hectares of Best and Most Versatile agricultural soil making up a total loss of 57.5 ha of agricultural soils. Less than 8 ha of BMV would be sealed permanently by the Scheme, with the remaining area required to deliver environmental mitigation, which would therefore limit its potential for agricultural use.

10.3 Operation

- 10.3.1 During operation of the Scheme, road users, and the road infrastructure would be introduced as new receptors. Any contamination deemed by risk assessment to have posed a significant risk during construction, would have been removed or remediated during the construction phase.
- 10.3.2 Following the opening of the Scheme, soils adjacent to the road may be affected by spray or airborne contaminants generated during routine maintenance and operation of the road or released during road accidents or emergency situations.

Summary of operation assessment:

- No significant effects are anticipated during operation of the Scheme.

11 Material Assets and Waste

11.1 Baseline

11.1.1 Baseline information consists of the current landfill capacity in the waste disposal authority (Staffordshire), and in the wider West Midlands region. In 2018, there was 15,343,000 m³ of landfill capacity in Staffordshire and 55,172,000 m³ of landfill capacity in the West Midlands.

11.1.2 A wide range of material resources would be required to construct the Scheme. This includes concrete, cement, timber, plywood, reinforcing fabrics and geotextiles and packaging materials and construction activities would inevitably generate waste. Given the nature of the Scheme, large quantities of material could be excavated during construction. With regards to re-use of materials, the baseline target for recycling of construction and demolition waste is 70%, as set out in the EU Waste Framework Directive and the Waste Plan for England.

11.2 Construction

11.2.1 Opportunities to re-use material resources would be sought where practicable and waste would be prevented and designed out in accordance with the requirements of the OEMP. The main material generated during construction would be from excavations to build the Scheme. Where possible this would be used directly 'as excavated' in the construction of the embankments and landscaping works for the Scheme.

11.2.2 Construction of the Scheme is expected to generate approximately 41,855 tonnes of waste (approximately 26,966 m³), excluding earthworks material. An excess of approximately 140,339 m³ of excavated material is anticipated, this includes unacceptable material and wastage from construction. Based on a worst-case assumption that all waste generated from the Scheme would be disposed of to landfill, this would utilise approximately 0.16% of the regional landfill capacity. In practice a large proportion of waste from the Scheme is likely to be recovered rather than disposed of to landfill, further reducing the overall quantities of waste for disposal.

Summary of construction assessment:

- No significant effects on materials and waste are anticipated during construction.

11.3 Operation

11.3.1 Material use and waste generation are expected to be very small during operation of the Scheme. Routine maintenance would include gully emptying and litter collection. Periodically, maintenance activities such as resurfacing would be required. Waste arising from these maintenance activities is expected to be generally the same (in both type and quantity) to that generated by the existing strategic highways network; and the wastes would be managed using the established procedures and facilities that are used across the strategic road network. For these reasons, an assessment of operational phase of the Scheme, in relation to material assets and waste, has not been undertaken.

12 Noise and Vibration

12.1 Baseline

- 12.1.1 There are three Noise Important Areas (identified by the government as areas being most exposed to noise) located within 1 km of the Scheme. Residential properties are concentrated in the built-up areas of Featherstone and Shareshill. Smaller areas of residential properties are located close to the Scheme in Hilton (at Dark Lane, Park Road and Hilton Lane) and Shareshill (Brookfield Farm).
- 12.1.2 Non-residential potentially sensitive receptors, including educational buildings, medical buildings and community facilities, are concentrated in Featherstone and Shareshill. Moseley Old Hall, owned by the National Trust and open to the public, is located to the south of the M54 to the west of Junction 1. A number of public rights of way cross the Scheme boundary.
- 12.1.3 A combination of long-term and short-term noise monitoring was undertaken to provide information on the current noise levels in the area.

12.2 Construction

- 12.2.1 The main construction activities that would take place during the Scheme construction phase are site clearance, earthworks, retaining wall construction, bridge construction and road construction (pavement) works, construction traffic (Heavy Goods Vehicles). These construction activities have the potential to result in temporary noise impacts at the receptors closest to the works.
- 12.2.2 The potential for temporary construction vibration impacts is dependent on the need for construction activities which are a potentially significant source of vibration, such as earthworks and road construction (pavement) works using vibratory rollers. Piling would be required at the new bridges. Rotary bored piling is proposed for these works, noting that vibration associated with this type of piling is minimal. Impact or driven piling, which is a potentially significant source of vibration, is not proposed during the Scheme construction phase.

Summary of construction assessment:

- Significant adverse construction vibration effects are anticipated at the closest properties to the construction works in the vicinity of Dark Lane, Hilton Lane (east and west of the Scheme) and Brookfield Farm. These effects would be reduced as far as possible through measures set out in the Construction Environmental Management Plan.
- Significant adverse construction noise effects are anticipated at the closest properties to the construction works in the vicinity of Dark Lane, Hilton Lane (east and west of the Scheme) and Brookfield Farm. These effects would be reduced as far as possible through measures set out in the Construction Environmental Management Plan.

12.3 Operation

- 12.3.1 The operation of the Scheme has the potential to result in both beneficial and adverse permanent traffic noise impacts. The Scheme would alleviate traffic flow

on the A460 close to some receptors but would provide a new noise source close to others. Additionally, the Scheme would attract traffic to the area which has the potential to generate adverse noise impacts. Low noise surfacing and noise barriers are included in the scheme design.

12.3.2 The magnitude of operational traffic noise impacts at a receptor is dependent on a range of factors, including the traffic flow, composition, speed, road surface, ground topography, the presence of intervening buildings and structures, and the distance to the road.

Summary of operational assessment:

- Significant adverse effects are anticipated at residential properties along the Scheme at Brookfield Farm and Hilton Lane.
- Significant adverse effects are anticipated for residential properties on the A460, south of the M54 due to the increase in traffic flows on this route and the existing high traffic noise levels in this location.
- Significant beneficial effects are anticipated at residential properties on the A460 bypassed by the Scheme.
- Significant beneficial effects are also anticipated at residential properties on a section of Old Stafford Road in Cross Green, due to reductions in traffic flows on this route.

13 Population and Human Health

13.1 Baseline

- 13.1.1 Local community facilities are located in the villages of Sharesill and Featherstone including schools, community centres, local shops, churches and health care facilities. Other than these relatively small residential areas and isolated dwellings the surrounding area of the Scheme consists largely of agricultural land.
- 13.1.2 There are a number of footpaths and bridleways in the vicinity of the Scheme, these are mainly located to the north of Hilton Lane between the A460 and M6. These public rights of way are not well used at present.
- 13.1.3 The A460 Cannock Road, adjacent to Featherstone. Sharesill and Hilton experiences heavy traffic which largely consists of long-distance traffic including heavy goods vehicles moving between the M54 and M6 motorways. Heavy traffic on the A460 results in congestion and increased journey times for users and results in severance for local residents.

13.2 Construction

- 13.2.1 During construction of the Scheme, there would be loss, severance and fragmentation of agricultural holdings. There are also possible impacts on the users of a number of public rights of way, footways and advisory cycle routes which would be severed by the Scheme. The Scheme has been designed to minimise agricultural land take as far as reasonably practicable. Mitigation measures during construction would include temporary and permanent diversions and signage to limit the impacts on pedestrians, cyclists and equestrians and maintain agricultural accesses.
- 13.2.2 During the construction period the traffic management required to construct the Scheme, including the construction of a temporary road and the presence of construction traffic could lead to additional delays that would increase driver stress and increased severance. Traffic management and construction activity could also lead to changes in views from the road. A Traffic Management Plan would be implemented which would define measures to be used by the construction contractor to reduce the impacts from construction traffic, including measures to reduce worker vehicle movements and to reduce heavy goods vehicles movements, particularly at peak periods. An Outline Traffic Management Plan has been submitted with the DCO application.
- 13.2.3 A Highways England webpage for the Scheme would be set up to provide up-to-date construction and community liaison information. It is envisaged that this would include progress updates, areas affected by construction, and mitigation measures in place to reduce adverse effects. These communication approaches would help drivers and local residents to plan their journeys and take account of potential disruption due to Scheme construction.

Summary of construction assessment:

- Permanent significant adverse effects on four agricultural land holdings due to the land required to facilitate the Scheme.

13.3 Operation

- 13.3.1 The Scheme design includes the permanent diversions of footways and public rights of way to maintain connectivity of the local network of footpaths bridleways and footways. Users would experience reductions and increases in journey length, however these changes are not considered to be significant. Reductions in traffic on local roads and the provision of new cycle facilities in the form of shared footways and cycleways would improve facilities for cyclists.
- 13.3.2 The Scheme would divert traffic from the existing A460 Cannock Road onto the new link road reducing traffic flows on the A460 by approximately 80%, resulting in a reduction in driver stress and severance.

Summary of operation assessment:

- Permanent significant beneficial effect resulting from reduced severance for walkers, cyclists, horse riders and vehicle users accessing community land and assets.

14 Road Drainage and the Water Environment

14.1 Baseline

- 14.1.1 There are a number of key watercourses and ponds in close proximity to the Scheme. Four watercourses would be directly impacted by the Scheme, three of which are relatively small unnamed watercourses. Latherford Brook passes to the south of the M6 Junction 11 and would be crossed by the Scheme.
- 14.1.2 There are a number of ponds within close proximity to the Scheme including a number of commercial fishing ponds. The study area slopes gently downwards from just south of the M54 at the Essington Industrial Estate towards the Latherford Brook (near to Junction 11 of M6) to the north, which flows beneath the M6 to the east of Brookfield Farm.
- 14.1.3 The majority of the study area is defined as Principal aquifer status (these are layers of rock or drift deposits that usually provide a high level of water storage; they may support water supply and/or river base flow on a regional scale).
- 14.1.4 The majority of the Scheme is categorised as being within Flood Zone 1, which is at the lowest risk of flooding from rivers. However, some land adjacent to Latherford Brook and Watercourse 4 is within Flood Zones 2 and 3, which have a higher risk of flooding.

14.2 Construction

- 14.2.1 Without mitigation, proposed construction activities could impact upon surface water quality and flows, as well as impact upon groundwater quality and flows. Impacts upon surface water and groundwater could result from accidental spillages or sediment containing run-off causing pollution and risk of contamination to surface water and groundwater, localised disruption to groundwater levels and worsening flood risk.
- 14.2.2 The Construction Environmental Management Plan would include measures to mitigate potential adverse effects on surface watercourses during construction. This would include measures to tackle emergency spillages, and appropriate procedures for managing storage areas and material stockpiles. Potential effects on groundwater would also be mitigated through adherence to the Construction Environmental Management Plan.

Summary of construction assessment:

- Temporary significant adverse effect on groundwater as a result of the use of a borrow pit (which is proposed on land north of Park Road).

14.3 Operation

- 14.3.1 Three watercourses would be permanently diverted under the Scheme in culverts. The Scheme would cross over Latherford Brook on a bridge to maintain as far as practicable the natural alignment of the watercourse. Two ponds would be lost as a result of the Scheme with the partial loss of two other ponds. New replacement ponds will be provided to mitigate for this loss.

- 14.3.2 During Scheme operation, road run-off during rain events could result in flooding and cause pollution impacts on surface water and groundwater. As such, a road drainage system would be provided which would collect highway runoff, with water being discharged into ponds and watercourse. A number of wet ponds, filter drains, broad and vegetated channels, new highway ditches and flow separators have been incorporated into the overall water management strategy. These have been designed to mimic natural drainage as far as practicable, and to provide ecological habitat creation. The Scheme has been designed to take into account predicted changes in rainfall and river flow due to climate change.
- 14.3.3 A programme of water quality monitoring will be undertaken prior to, during and post-construction to ensure that no detrimental effect of the water environment occurs, and to allow any pollution incidents to be identified and remedied.

Summary of operation assessment:

- No significant effects on the water environment are likely to occur.

15 Climate

15.1 Baseline

- 15.1.1 An assessment has been undertaken of the effects on climate from greenhouse gas emissions associated with the Scheme. Consideration has also been given to the resilience of the Scheme to climate change.
- 15.1.2 Climate observations for the region covering the Scheme between 1969 and 2018, identify gradual warming with an increase of 1.03 °C in mean maximum annual temperatures between the periods 1969-1978 and 2009-2018. Mean annual rainfall has increased by 8.1% between the same periods. The UK Climate Projections for the region covering the Scheme suggest an increase in mean summer and winter air temperatures, while precipitation rates are expected to become more seasonal, with increased precipitation expected in winter and decreased precipitation in summer.

15.2 Construction

- 15.2.1 During the construction of the Scheme, a number of processes would produce greenhouse gases, these could include: emissions from fuel consumed by construction vehicles and construction machinery; emissions during the production of materials used to construct the Scheme; emissions from grid electricity to power auxiliary facilities; emissions arising from the fuel consumed for worker commuting to and from the construction site; and emissions arising from the transportation of the waste to treatment and disposal facility. The construction contractor would develop and implement a plan to reduce energy consumption and associated carbon emissions. This could include the consideration of renewable, or low or zero carbon energy sources and record percentage of savings implemented. These measures would be set out in the Construction Environmental Management Plan.
- 15.2.2 Potential impacts of severe weather events during the construction phase include reduction of working hours, increased health and safety risks and damage to construction materials. The Scheme has been designed to be resilient to impacts arising from predicted severe weather events and climatic conditions, and designed in accordance with current planning, design and engineering practice and codes. Trees, shrubs and hedgerows planted as part of the landscape design would offset some of the carbon emissions associated with land use change and subsequent loss of carbon sink.

Summary of construction assessment:

- No significant effects with regards to changes in greenhouse gas emissions.
- No significant effects with regards to the vulnerability of the Scheme to climate change.

15.3 Operation

- 15.3.1 Potential likely impacts during the operation of the Scheme are related to the use of the Scheme by road users, the repair and maintenance of the road and the emissions associated with the electricity used to light the proposed carriageway.

15.3.2 Potential impacts of climate change during the Scheme operational phase would include increased flooding, health and safety risks associated with extreme weather events and storm damage to structures. Mitigation measures included within the Scheme design comprise the use of appropriate construction materials, and the provision of a highway drainage system and flood mitigation measures that take account of predicted increased rainfall.

Summary of operation assessment:

- No significant effects with regard to changes in greenhouse gas emissions.
- No significant effects with regard to the vulnerability of the Scheme to climate change.

16 Assessment of Cumulative Effects

16.1.1 An assessment has been undertaken of potential cumulative and combined effects for all the above environmental topics arising from the following:

- cumulative effects – proposed developments in the vicinity of the Scheme that are under construction, have been consented or are identified on development plans, combined with the effects of the Scheme; and
- combined effects – from the Scheme on a single receptor from a number of individual environmental impacts, for example noise, dust and traffic.

16.2 Cumulative effects with other developments

16.2.1 A review of the planning applications and development proposals within the area around the Scheme was undertaken to identify any other developments which have the potential to result in a cumulative effect together with the Scheme. The predicted traffic flows associated with area developments were accounted for in the traffic data used for the noise, air quality, water and population and human health assessments. As such, these assessments are inherently cumulative.

Summary of cumulative effects assessment

- No significant cumulative effects with other developments would be likely.

16.3 Combined effects on a single receptor

16.3.1 A number of properties have the potential to experience combined impacts associated with visual intrusion, noise, vibration, air quality and dust during the Scheme construction phase. Such combined impacts are predicted where Scheme construction activities would be taking place in close proximity to such receptors. The Construction Environmental Management Plan would include a range of best practice construction measures that aim to minimise the potential for construction phase environmental impacts (e.g. impacts associated with visual intrusion, noise, dust and vibration). Implementation of the measures as detailed in the Construction Environmental Management Plan would aim to minimise the occurrence of combined effects.

Summary of construction assessment:

- There is likely to be significant temporary adverse combined effects for residents at Dark Lane and Park Road, Hilton Lane (east and west of the Scheme) and one property at Brookfield Farm. These would arise due to a combination of construction noise, vibration and visual impacts.

Summary of operation assessment:

- There is likely to be permanent significant adverse combined effects on one property at Brookfield Farm due to a combination of noise and visual impacts during operation of the Scheme.

17 Summary of Significant Effects

17.1.1 Table 17.1 provides a summary of the EIA findings with regard to significant environmental effects associated with Scheme construction and operation. Full details of these and non-significant environmental effects can be found within the Environmental Statement.

Table 17.1 Summary of likely significant effects associated with Scheme construction and operation

Topic	Summary of significant environmental effects	
	Construction stage	Operational stage
Air Quality	<ul style="list-style-type: none"> No significant effects. 	<ul style="list-style-type: none"> No significant effects.
Cultural Heritage	<ul style="list-style-type: none"> Permanent significant adverse effect on Hilton Park due to the partial loss of key elements of the historic parkland. 	<ul style="list-style-type: none"> No significant effects.
Landscape and Visual	<ul style="list-style-type: none"> Temporary significant adverse effect on the landscape in the immediate vicinity of the Scheme due to the introduction of machinery, earthworks and tree loss. Temporary significant adverse visual effects on the following receptors: <ul style="list-style-type: none"> Users of the A460 Cannock Road, Featherstone; Users of Great Saredon Road; Users of the public right of way located to the east of Brookfield Farm; Users of the public right of way north of Hilton Lane; Some residents located on Dark Lane and Park Road; Users of and some residents located off Hilton Lane; and Users of Whitgreave's Wood (Oxdon Leasow). 	<ul style="list-style-type: none"> No permanent significant landscape effects are anticipated. Short-term (opening year 2024) significant adverse effects on the following receptors: <ul style="list-style-type: none"> Users of and residents located on A460 Cannock Road, Featherstone; Users of Great Saredon Road; Users of public right of way located east of Brookfield Farm; Users of and residents located off Hilton Lane; Users of and residents located on Dark Lane and Park Lane; and Users of PRoW north of Hilton Lane. Permanent long-term (by 2039) significant adverse effects on receptors from the following viewpoints: <ul style="list-style-type: none"> Users of and residents located on the A460 Cannock Road, Featherstone; Users of the public right of way located to the east of Brookfield Farm;

Topic	Summary of significant environmental effects	
	Construction stage	Operational stage
		<ul style="list-style-type: none"> - Users of the public right of way north of Hilton Lane; and - Users of and residents located on Dark Lane and Park Road.
Biodiversity	<ul style="list-style-type: none"> • No significant effects on designated sites, including those of national and international importance. • Permanent significant adverse effect on ancient woodland at Oxden Leasow (Whitgreaves Wood) and Brookfield Farm due to indirect and direct losses. 	<ul style="list-style-type: none"> • No significant effects on internationally designated sites are anticipated. • Permanent significant adverse effect at ancient woodland within Brookfield Farm Site of Biological Importance, Local Wildlife Site due to increases in air quality emissions.
Geology and Soils	<ul style="list-style-type: none"> • Permanent significant adverse effect on best and most versatile agricultural land. 	<ul style="list-style-type: none"> • No significant effects.
Material Assets and Waste	<ul style="list-style-type: none"> • No significant effects. 	<ul style="list-style-type: none"> • No significant effects.
Noise and Vibration	<ul style="list-style-type: none"> • Temporary significant adverse construction vibration effects are anticipated at the closest properties to the construction works in the vicinity Dark Lane, Hilton Lane (east and west of the Scheme) and Brookfield Farm. • Temporary significant adverse construction noise effects are anticipated at the closest properties to the construction works in the vicinity of Dark Lane, Hilton Lane (east and west of the Scheme) and Brookfield Farm. 	<ul style="list-style-type: none"> • Significant adverse noise effects on one residential property on Hilton Lane and on property at Brookfield Farm due to their proximity to the Scheme. • Significant adverse noise effects on residents on the A460, south of the M54 due to increase in traffic on this route and the existing high traffic noise levels in this location. • Significant beneficial noise effects on residents on the existing A460 bypassed by the Scheme due to the reduction in traffic on this route. • Significant beneficial noise effects on residents on Old Stafford Road due to the reduction in traffic on this route.
Population and Human Health	<ul style="list-style-type: none"> • Permanent significant adverse effect on four agricultural holdings. 	<ul style="list-style-type: none"> • Permanent significant beneficial effect resulting from reduced severance for walkers, cyclists, horse riders and vehicle users accessing community land and assets.

Topic	Summary of significant environmental effects	
	Construction stage	Operational stage
Road Drainage and the Water Environment	<ul style="list-style-type: none"> Temporary significant adverse effect on groundwater as a result of the use of a borrow pit. 	<ul style="list-style-type: none"> No significant effects.
Climate	<ul style="list-style-type: none"> No significant effects. 	<ul style="list-style-type: none"> No significant effects.
Cumulative Effects	<ul style="list-style-type: none"> Temporary significant adverse combined noise, vibration and visual effects on residents closest to the Scheme on Dark Lane, Park Road, Hilton Lane and Brookfield Farm. 	<ul style="list-style-type: none"> Permanent significant adverse combined noise and visual effect on one property at Brookfield Farm.

18 Next steps

- 18.1.1 Following submission of the application for a Development Consent Order, the Planning Inspectorate will consider, on behalf of the Secretary of State for Transport, whether the application should be accepted for Examination. If accepted, the documents accompanying the application will be publicly available on the Planning Inspectorate's website.
- 18.1.2 Interested parties will be able to make relevant representations about the Scheme and its potential impacts. Representations received by the Planning Inspectorate will be considered as part of the Examination of the application.