

A46

Newark Bypass

Preliminary Environmental
Information



Volume 3: Non-Technical Summary

October 2022

About

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1. Introduction

1.1 Overview

National Highways proposes to upgrade a section of the A46 by widening the road between Farndon and Winthorpe roundabouts and the A1, developing a new section of dual carriageway between the western and eastern sides of the A1. The proposed scheme will help promote economic growth and development in Newark-on-Trent, Nottinghamshire and Leicestershire by improving safety, reducing congestion, improving customer experience and increasing resilience of the A46 and wider road network. The scheme also aims to protect and enhance the environment and biodiversity surrounding Newark.

This proposal is a “Nationally Significant Infrastructure Project” under the Planning Act 2008, which means that an application will need to be made for permission to deliver the proposed scheme. The permission is called a Development Consent Order (DCO).

Before an application for a DCO is submitted, the local community and other stakeholders must be formally consulted on the proposals and provided information. This includes a description of the proposed scheme, the likely significant environmental effects based on the preliminary environmental information available at the time, measures to avoid or reduce such effects and the alternatives considered. This is to help consultees develop an informed view of the likely significant environmental effects of the proposed scheme.

As well as undertaking this consultation, we’re continuing to gather environmental information, identifying the potential effects of the proposed scheme, and developing measures to avoid or reduce adverse effects - a process known as environmental impact assessment (EIA).

1.2 Scope and content of the Preliminary Environmental Information

We’ve prepared a Preliminary Environmental Information (PEI) Report (Volume 1) to describe the environmental setting and currently anticipated impacts of the proposed scheme on the environment. The PEI Report has been developed for the purposes of the statutory consultation and presents currently available information from the ongoing EIA process. The PEI Report is accompanied by a number of Supporting Figures (Volume 2). The PEI Report and Supporting Figures are available online at: www.nationalhighways.co.uk/a46-newark-bypass.

This document provides a summary of the PEI Report in non-technical language and forms Volume 3.

The information contained within the PEI Report is preliminary, we’ll continue to develop the findings further in the Environmental Statement (ES) to reflect the evolution of the design of the proposed scheme, informed by the feedback received from the consultation, and the ongoing EIA process. We’ll submit the ES, presenting the full results of the EIA, with the application for the DCO.

2. The scheme

2.1 Scheme location

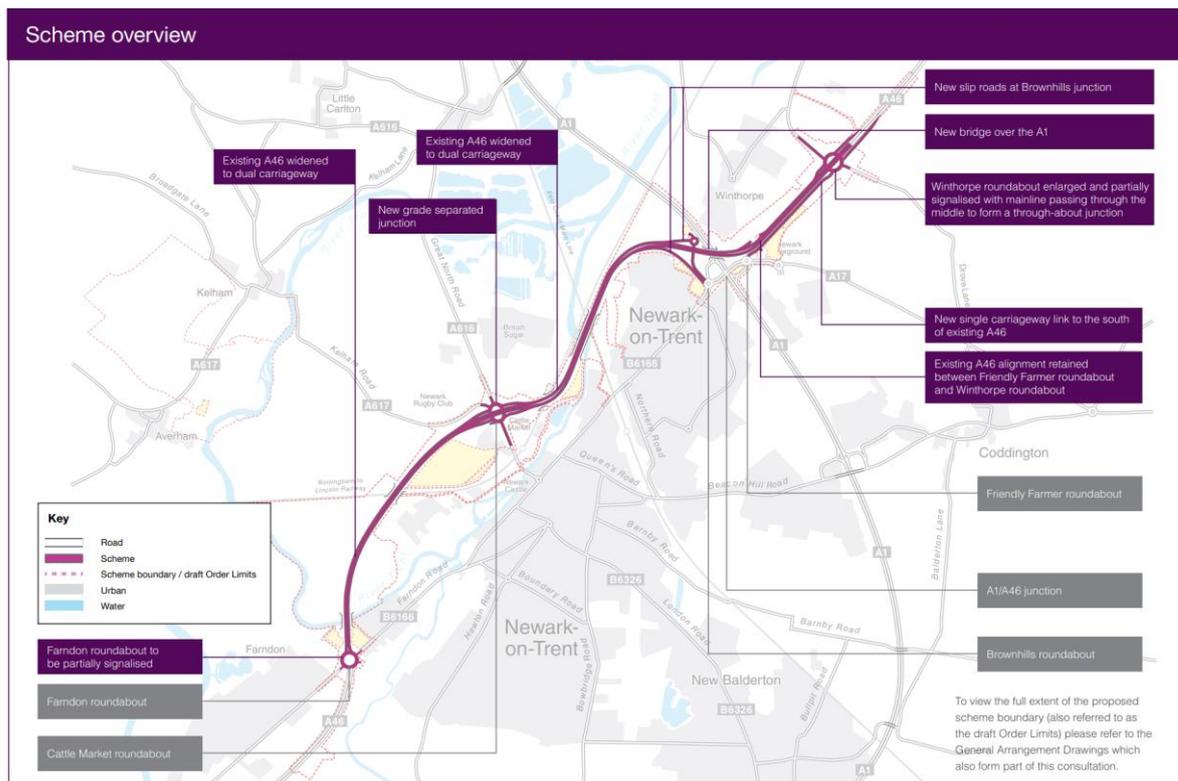
The scheme will provide a dual carriageway on the A46 between Farndon and Winthorpe. Farndon roundabout is located at the western extent of the scheme where the B6166 Farndon Road joins the A46. Winthorpe roundabout is located at the eastern extent where the A1133 joins the A46. Along its route, the scheme crosses A617 and B6326, at Cattle Market junction, and A1 between the Friendly Farmer roundabout and Brownhills roundabout.

The scheme will be situated within the county boundary of Nottinghamshire County Council, and Newark and Sherwood District Council.

The scheme crosses the River Trent twice, the Nottingham to Lincoln railway line twice, and the East Coast Main Line once.

Figure 1 below shows the location of the scheme.

Figure 1: Scheme location



2.2 Scheme objectives

The current National Highways' scheme objectives are below:

Safety

- Improve safety through scheme design to reduce collisions for all users of the A46 scheme.

Congestion

- Improve journey time and journey time reliability along the A46 and its junctions between Farndon and Winthorpe, including all approaches and A1 slip roads.

Connectivity

- Accommodate economic growth in Newark-on-Trent and the wider area by improving its strategic and local connectivity.

Environment

- Deliver better environmental outcomes by achieving a net gain in biodiversity, and improve noise levels at Noise Important Areas along the A46 between Farndon and Winthorpe junctions.

Customer

- Build an inclusive scheme which improves facilities for cyclists, walkers and other vulnerable users where existing routes are affected.

2.3 The proposed scheme

The proposed scheme has the following key features:

- widening of the existing A46 to a dual carriageway for a distance of 6.5 kilometres (approximately four miles) to provide two lanes of traffic in both directions between Farndon and Winthorpe roundabouts.
- partial signalisation of Farndon roundabout at the southern extent of the scheme to improve traffic flows during peak hours.
- a new grade-separated junction at Cattle Market junction, with the A46 elevated to pass over the roundabout. A larger roundabout beneath the A46 to provide increased capacity.
- a new dual carriageway section between (approximately) Brownhills roundabout and Friendly Farmer roundabout.
- new grade-separated roundabout (Brownhills roundabout) providing local access with a two-way link road on the southern arm to connect with the existing Brownhills roundabout.
- a new bridge structure over the existing A1, located to the north of the existing bridge.
- an upgraded roundabout with signal controls at Winthorpe roundabout.
- improvements to non-motorised user (NMF) facilities through safer, enhanced routes for walkers, cyclists and horse riders.
- provision of floodplain compensation to account for loss of floodplain as a result of the scheme footprint.

2.4 Alternatives

Proposals to improve the A46 have been the subject of extensive study and consultation since 2015. The process of options identification and route selection leading to the proposed scheme is summarised in Chapter 3 of the PEI Report (Volume 1). The process followed the following stages:

- identification and initial sifting of corridors of interest.
- review of constraints and opportunities for each corridor during an options workshop in January 2018.
- a second option sifting exercise.
- options consultation.
- production of an Environmental Assessment Report.
- selection of Preferred Route.

The Preferred Route was a modification of a route option which took consultation responses into account. The Preferred Route forms the basis of the proposed scheme.

3. The environmental impact assessment

3.1 The Environmental Impact Assessment process

Under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, the proposed scheme automatically requires a statutory Environmental Impact Assessment (EIA) due to the scale of the development. Accordingly, we're undertaking an EIA to meet the requirements of the relevant planning policy and legislation, so we can identify the effects of the proposed scheme on the environment.

The EIA considers impacts during the construction and operation of the scheme. The construction phase assessment addresses both 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. The scheme would unlikely be decommissioned as it would form an integral part of the Strategic Road Network (SRN). Therefore, decommissioning requires no further assessment.

Where adverse impacts are identified, we'll put in place measures to avoid, minimise or mitigate the impact. We'll identify appropriate mitigation measures in accordance with Best Practicable Means (BPM) which we'll incorporate into Environmental Management Plans.

We're continuing to undertake further work as part of the EIA process to confirm the preliminary findings presented below. We'll present the final assessment of environmental impacts in the ES that will be submitted with the DCO application.

3.2 Environmental Mitigation

The development of the scheme design is an iterative process and adheres to the principles of the design and mitigation hierarchy. The first principle being to avoid potential effects, if at all possible, before seeking to minimise or mitigate for any unavoidable impacts through a well-developed mitigation strategy.

Preliminary environmental mitigation has been established through this iterative process and incorporated into the scheme design. An indicative Environmental Masterplan has been developed and can be seen in Figure 2.3 of the PEI Report (Volume 2).

As the design develops, we'll continue to identify ways to avoid, minimise and mitigate any adverse environmental impacts. Full details of all mitigation measures will be included within the ES and the Environmental Management Plan.

3.3 Environmental Constraints

All of the environmentally designated sites located within 2 kilometres of the scheme extent are shown on the Environmental Constraints Plan (Figure 2.1 contained in Volume 2). The sites include those that are designated for natural or heritage reasons for example. Notable statutory and non-statutory environmental designations and additional environmental constraints are as follows:

- Devon Park Pastures Local Nature Reserve (LNR) (approximately 500 metres east of Farndon junction) and Farndon Ponds LNR (approximately 800 metres west of Farndon junction).
- 42 locally designated non-statutory ecological sites (39 of which are Local Wildlife Sites (LWS), 11 of which lie within the scheme footprint).
- the River Trent and four other main rivers (two of which are crossed by the existing A46).
- The scheme is located across areas within Flood Zone 2 and Flood Zone 3.
- Noise Important Areas (NIAs) within the scheme footprint along the A1, A46, A617, Fosse Road and the East Coast Main Line.
- designated heritage assets including scheduled monuments (a Civil War sconce at Devon Bridge, Civil War redoubts at Dairy Farm, Valley Farm and the Sugar Refinery, and a Moated site at Dairy Farm are within the scheme footprint).
- numerous listed buildings and structures within 2 kilometres of the scheme.
- Winthorpe Conservation Area and Newark-on-Trent Conservation Area are within the scheme footprint. Averham and Kelham Conservation Areas are located immediately adjacent to the scheme footprint. Farndon Conservation Area is located 1 kilometre west of the scheme footprint.
- Newark-on-Trent Castle Gardens Grade II Listed Registered Park and Garden is located approximately 580 metres south of the existing A46.
- predicted grade 3 land (good to moderate).
- the Trent and Belvoir Vales National Character Area.
- four veteran and ten notable trees identified within, or directly adjacent to, the scheme footprint (of which one veteran and nine notable trees are located at Kelham).
- a number of trees covered by Tree Protection Orders (TPOs).
- existing communities in the vicinity of the scheme that are sensitive to environmental change include Newark-on-Trent to the south-west of the scheme, and the village of Winthorpe, located to the north east of the scheme.

4. Potential environmental effects

4.1 Air quality

Baseline

Pollutant concentrations in the area around the proposed scheme are considered to be low. There are no Air Quality Management Areas (AQMAs) close to the scheme and the available local authority and scheme monitoring data undertaken to date has shown no exceedances of the applicable thresholds. AQMAs are locations which the local authority has identified as exceeding air quality thresholds and require air quality action plans. The nearest AQMA is in the centre of Grantham, approximately 21.5 kilometres south-east of the scheme. This AQMA is declared for exceedance of nitrogen dioxide air quality threshold and is unlikely to be impacted by the scheme.

A scheme-specific diffusion tube monitoring survey is currently underway and is due to be completed in November 2022. The results will inform the baseline and assessment contained within the Environmental Statement (ES).

Construction

Without mitigation, construction of the proposed scheme may temporarily impact air quality because of dust generated from construction activities, and direct emissions of pollutants from construction equipment, such as excavators, cranes and on-site generators. Mitigation measures would involve the use of Best Practicable Means (BPM) to reduce emissions. Examples of these include avoiding double handling of materials, minimising stockpile heights and wetting down of surfaces to reduce dust emissions. With the implementation of best practice mitigation measures, no significant effects on air quality are predicted during the construction phase.

Operation

During operation there's the potential for the scheme to change pollutant concentrations where people may be present and at ecologically important locations. This is due to changes in emissions associated with traffic flows and speeds resulting from the scheme. The scheme is predicted to reduce flows in the centre of Newark where lots of people are present. There are increases in traffic flows predicted along the existing A46 due to the lane and junction improvements and on the B6326 Great North Road as a result of improvements at Cattle Market junction. However, there are few people present at these locations. The assessment we've undertaken has shown that there are no exceedances of air quality thresholds at human health locations. The assessments at ecologically important locations have been reviewed by an ecological specialist and no significant effects have been identified. Overall, no likely significant effects are anticipated on air quality from the operation phase.

4.2 Cultural heritage

Baseline

Cultural heritage includes archaeology, historic buildings/structures and historic landscapes, including parks and gardens. Designated assets are archaeological or built heritage features with statutory protection due to their heritage value. Non-designated assets are those heritage features and artefacts which are recorded but are not considered to meet the requisite criteria for statutory protection.

While a limited in depth archaeological survey has taken place at this stage, we recognise the high potential for medium and high value/sensitivity archaeology across the route. This mostly relates to prehistoric features at Farndon and Kelham, as well as Roman features in relation to the Fosse Way and Civil War era features across the route, particularly around Cattle Market junction.

There are a number of designated assets located within one kilometre of the proposed scheme, which include: 17 scheduled monuments, seven Grade I listed buildings, 15 Grade II* listed buildings, 387 Grade II listed buildings, a Grade II registered park and garden, and five conservation areas. There are also a number of non-designated assets within 500 metres of the proposed scheme, including 150 non-designated archaeological heritage assets and a further 82 non-designated built heritage assets.

Construction

The construction activities could cause temporary adverse impacts on the value of cultural heritage assets through visual intrusion, noise, vibration, dust, changes to setting and direct damage or disturbance.

The use of construction plant, materials, machinery, construction compounds and the provision of construction lighting would potentially adversely impact the setting of both designated and non-designated assets and have a temporary direct significant adverse effect on their heritage value during construction.

Mitigation measures would include the production of an Archaeological Management Plan to be updated at each phase of archaeological works and management of noise and vibration in the vicinity of heritage assets during construction. These would minimise any temporary impacts during construction activities.

The presence of the proposed scheme could also cause permanent adverse effects on the value of cultural heritage assets through permanent demolition or removal of assets due to excavation, ground disturbance and compaction, and changes to the setting of heritage assets as a result of the construction of new, and modification of existing, infrastructure.

Potential beneficial impacts on the value of cultural heritage assets may result from the advancement of knowledge and understanding of known and unknown heritage assets through discovery and recording.

Operation

Further assessment is required to establish the potential for noise and vibration impacts from changes to traffic flows and levels on designated and non-designated built heritage assets. These changes could have an effect on the setting of these assets. We'll provide further assessment within the ES.

No operational effects would be anticipated on buried archaeological remains as these assets would not be affected by the operation of the proposed scheme.

Possible beneficial effects to the value of cultural heritage assets may result from a potential reduction in noise, vibration or traffic which can result in an improvement in the setting of the heritage resource. There may also be beneficial effects as a result of the planting which, once established, would enhance the setting of assets.

4.3 Landscape and visual effects

Baseline

The proposed scheme would be situated in a landscape characterised by both natural and manmade features such as the River Trent; farmland; existing vegetation, including trees and hedgerows; road and rail infrastructure; industrial and commercial development; and residential settlements. To the north of the A46, farmland of irregular field patterns dominates, interspersed with small-scale village settlements. To the south of the road, the town of Newark-on-Trent has developed from a long and rich history to form a notable urban settlement.

Construction

Potential impacts on landscape character and visual amenity during construction would result from the presence of construction works, associated traffic movements, and temporary fencing, lighting and structures beyond the current highway boundary.

There remains potential for significant adverse effects on local landscape character immediately surrounding the works, for a temporary period during construction.

There's also the potential for significant adverse effects as a result of changes to views for residential receptors and from public rights of way, including the Trent Valley Way, and for visitors to recreational facilities including Newark Castle, and road users.

Significant effects at a national character level are unlikely given the scale and nature of the works in relation to the scale of the National Character Area.

Measures to mitigate the visual impacts of construction activities would include keeping a well-maintained site, restoration of land used temporarily to construct the scheme, as soon as practicable and limiting works to daylight hours where possible, with any night works to be kept to a minimum.

Operation

Potential impacts to landscape character and visual effects during operation include additional road infrastructure, notably new structures such as bridges, and the permanent loss of vegetation.

There's the potential for significant adverse effects on landscape character which would most likely result in significant effects within the immediate landscape surrounding the scheme rather than more broadly at a national scale. Any significant adverse effects on landscape character during the initial years of scheme operation would reduce over time as mitigation planting establishes, ensuring that the scheme is integrated into the landscape once planting is mature.

There's the potential for significant adverse effects for visual receptors such as residential properties in close proximity to the scheme, where there would be short distance, direct views to the widened A46 and associated structures. However, those significant adverse effects during the early years of scheme operation would reduce over time as mitigation planting becomes established and starts to screen views of the scheme. It may not be possible to fully mitigate all significant visual effects during operation, particularly for visual receptors with direct views to the scheme, or where at height structures such as bridges are notable within a view. However, in these circumstances views of the scheme are still likely to be softened by proposed planting over time.

Significant adverse effects aren't currently predicted as a result of the floodplain compensation area during operation.

Mitigation measures would include retention and enhancement of hedgerows and linear belts of vegetation along the highway boundary, with opportunities for habitat creation to be incorporated into the environmental design, with an aim to increase biodiversity.

4.4 Biodiversity

Baseline

There are several important designated sites in the vicinity of the proposed scheme, such as Devon Park Pastures and Farndon Ponds Local Nature Reserves (LNRs). Other important non-statutory designated sites near the proposed scheme include Local Wildlife Sites (LWSs) and Sites of Interest for Nature Conservation (SINCs).

Priority habitats in the vicinity of the scheme include wood pasture, traditional orchard, eutrophic standing water, lowland meadows and, coastal and floodplain grazing marsh.

Construction

The scheme will result in permanent habitat loss and fragmentation of habitat at multiple LWSs including Dairy Farm Railway Strip, Great North Road Grasslands, Newark Dismantled Railway, and Newark (Beet Factory) Dismantled Railway. Construction activities could also increase the risk of a pollution incident, such as contaminated run off, spills/leaks of oils and fuels, and increased airborne pollutants.

The scheme will result in loss of priority habitat consisting of deciduous woodland, wood pasture, coastal and floodplain grazing marsh, lowland meadow and lowland fen. It has the potential to result in indirect effects on other priority habitats due to construction activities required for the scheme and vegetation clearance required to

facilitate construction. Additional indirect impacts may also affect habitats through airborne pollution, run-off, and compaction of root systems.

Site clearance and construction activities may have an adverse effect on protected species where commuting, foraging, breeding and rearing habitats are lost. These protected species include otters, water voles, aquatic invertebrates, barn owls, badgers and bats. Construction related run-off could indirectly impact the water quality of local water courses inhabited by species such as water vole and otter. Night works would directly disturb nocturnal species and terrestrial invertebrates due to increased lighting pollution, noise and vibration. This disturbance could potentially contribute to the displacement of a number of species from the area. Additional impacts on species include mortality or injury through construction activities and indirect impacts. Changes in water levels has the potential to alter how bankside habitat can be used for water vole burrowing and otter resting sites. Nightworks and associated lighting have the potential to cause disturbance to bats, badgers and barn owls.

Measures to mitigate impacts on biodiversity during construction include:

- reducing the significance of effects caused by changes to air quality
- reducing the significance of effects caused by changes to water quality
- preparing an Ecological Mitigation Strategy
- granting protected species licenses from Natural England
- managing lighting during night works

Operation

Without mitigation, traffic emissions as a result of the proposed scheme could lead to changes in air quality and increased levels of nitrogen deposition at the LWSs. This could adversely impact sensitive habitats and species.

Once operational, the scheme would result in the permanent severance of habitats of biodiversity value. In the absence of mitigation, the permanent severance of habitats suitable to support protected and notable species has the potential to adversely affect individual species and their conservation status.

There's the potential for changes to hydrology and water quality at LWSs and nearby grassland and woodland habitats as a result of additional traffic.

There's the potential for adverse effects on protected species through the incorporation of a new road at height, with the risk of killing and injuring species such as bats, otters and barn owls through collision with traffic along the flyover. There's also the potential for adverse effects on nocturnal species as a result of light disturbance. Increased traffic volume and speed during operation may have adverse effects on the behaviour of species sensitive to noise, particularly birds.

Mitigation measures will be implemented to reduce operational effects where possible. These measures include directional and hooded lighting to minimise light spill and additional screening vegetation around areas of road at height to minimise the chance of collisions between protected species and traffic.

4.5 Noise and vibration

Baseline

The area consists of discrete groups of residential receptors separated by more rural, agricultural areas with isolated properties. There are also recreational and industrial/commercial receptors in the area. In addition to the existing A46, there are several other trunk roads and two railways. Therefore, background noise consists largely of road traffic noise (the level being dependent on time of day and distance from the road network) and noise from the railways.

Construction

Temporary noise and vibration impacts related to the proposed scheme and associated construction traffic are likely. These impacts would mainly be in the vicinity of the scheme. However, depending on haul routes and construction-related traffic, these could extend along the existing road network.

Measures to mitigate impacts of noise and vibration during the construction period include implementation of Best Practicable Means (BPM), controlled timing of works and careful site layout to minimise noise and vibration. The effects of potential noise and vibration on affected communities will also be mitigated by effective communication between the promoter, contractor and the public.

The preliminary construction assessment indicates no significant adverse effects are anticipated from construction noise and no significant adverse effects are anticipated from construction vibration.

Operation

Without mitigation, changes in traffic flows and road alignment can potentially result in noise changes at noise sensitive receptors, particularly from increased road traffic. These impacts can be beneficial or adverse.

Measures to mitigate the impacts of noise and vibration during the operation phase include the use of noise barriers and earth bunds. Sound insulation packages for residences will be offered where significant impacts remain after incorporation of reasonably practicable mitigation measures. The preliminary operational assessment indicates that the scheme has potential to result in significant residual adverse effects at noise sensitive receptors, thus suitable mitigation will be considered. Operational vibration is not considered to lead to significant adverse effects and has already been scoped out of requiring further assessment.

4.6 Geology and soils

Baseline

The solid geology within the location of the scheme comprises of the Mercia Mudstone Group, the Edwalton Member Mudstone and the Gunthorpe Member Mudstone. Mercia Mudstone is recorded underlying the full extent of the scheme. The Edwalton Member

is recorded underlying the southwest extent of the scheme, while the Gunthorpe Member underlies the southeast extent.

Superficial deposits of Alluvium, associated with the River Trent, are present across the majority of the south-western half of the study area. The Balderton Sand and Gravel Member underlies much of the north-eastern section of the study area. Small areas of Holme Pierrepont Sand and Gravel Member are also present, mainly located just west of the A1, north of Cattle Market roundabout and at the south-western extent of the study area. Engineered Fill for the existing A46 embankments is also present within the study area.

The soils in the scheme area belong to three broad groups:

- coarse textured soils found on the terraces of the River Trent in the north of the survey area.
- where the terrace gravels thin out, the coarse loamy deposits overlie the red clay of Mercian Mudstone that occurs below 60cm.
- the low-lying Trent floodplain supports loamy and clayey alluvium.

The Agricultural Land Classification (ALC) grades of soils identified in the study area include grade 2, subgrade 3a, 3b and non-agricultural land. Soils comprising of Grade 2 and 3a, are deemed 'Best and Most Versatile' (BMV) land.

Historical land use within the scheme area is defined predominately by railway, roads and agricultural fields. We've identified a number of possible sources of contamination including Made Ground, the railway lines, the active British Sugar factory, active sewage works, former chemical works, historic landfill, active fuel filling station, ADR automotive site, Newark lorry wash, an old bleaching house and a former petrol station.

Construction

Potential impacts associated with contamination are likely to relate to the existing level of ground contamination on site and its interaction with the proposed scheme.

There's potential for the creation of contamination pathways/driving down of contaminants, presenting a risk to groundwater. The removal or remediation of any areas of contaminated soils identified would have a potential benefit.

It's considered that the scheme has the potential to result in significant adverse effects on ALC grade 2 soils in the Kelham and Averham Floodplain Compensation Area during construction due to the loss of agricultural land.

There's potential for permanent compaction or removal of anticipated BMV agricultural soils or topsoil/sub soil material. Soil deterioration and compaction may occur due to vehicle movements and loading, leading to adverse impacts.

There are no designated or non-designated geological sites/features of interest within 500 metres of the scheme. Therefore, there are no anticipated impacts on geology.

Measures to mitigate impacts on geology and soils include using a robust materials management plan and site waste management plan (SWMP), and complying with industry codes of practice document.

Operation

There's the potential for fuel leakage from vehicles and site run-off. The highways drainage will be designed in accordance with the Design Manual for Roads and Bridges (DMRB) standards to collect potentially contaminated site run off from vehicle fuel leakage to mitigate potential operational impacts on geology and soils. There are no anticipated significant adverse effects on geology, contaminated land or soils during operation.

4.7 Road drainage and water environment

Baseline

The surface water environment includes four main rivers (River Trent, Middle Beck, River Devon and Slough Dyke (the Fleet)). Currently, the A46 crosses the River Trent twice and Slough Dyke (the Fleet) once. There are also ordinary watercourses¹ within the study area, including the Old Trent Dyke which the A46 crosses. There are also numerous lakes and ponds within the study area. The scheme is located within the Trent Valley Internal Drainage Board (IDB) area. The majority of the scheme is located within areas of very low risk of surface water flooding, however there are some areas of medium risk located within the study area. These are associated with the River Trent.

The entirety of the scheme is located within the Lower Trent Erewash Secondary Combined Water Framework Directive (WFD) groundwater waterbody. Bedrock in the area are designated as a Secondary B aquifer, which typically comprise low permeability layers that store and yield limited amount of groundwater through fissures. The majority of the scheme is located within an area that is considered highly susceptible to groundwater flooding.

There are two Local Nature Reserves (LNRs) (Farndon Ponds LNR, and Devon Park Pastures LNR), and three authorised landfills within the study area.

Construction

There's the potential for construction activities, such as excavation, deposition of soils and sediments, and fuel spillages, to affect surface water quality by contaminants entering surface watercourses. In addition, construction activities have the potential to contaminate the groundwater through movement of contaminants within the soil. There's the potential for significant adverse effects on the water quality of surrounding surface waterbodies from the potential discharge of pollutants into watercourses during construction activities.

There's the potential for an increase in flood risk across the scheme and surrounding areas due to construction activities altering the flow paths of surface water or increasing the amount of surface water run-off in localised areas. An increase in flood

¹ An Ordinary Watercourse is any river, stream, brook, ditch, drain, culvert, pipe and any other passage through which water may flow which is not designated as Main River. It does not have to be recorded on a map to be an ordinary watercourse and commonly is not.

risk could also occur due to any changes in topography and/or earthworks which could change the overland flows during storm events.

Modification and construction of culverts and bridges could also potentially produce adverse impacts by causing localised damage to the watercourse. This could also have the potential to affect the WFD status of the waterbodies. The scheme has the potential to result in deterioration in water quality and impact the groundwater flow through piling and other subsurface construction activities in the Lower Trent Erewash Secondary Combined WFD groundwater waterbody.

There's a potential for ground and earthworks during construction to cause disruptions to the flow of groundwater. De-watering activities in the superficial sediments or bedrocks have the potential to result in minor reductions in groundwater flows. These impacts may lead to either a reduction or loss of water supply to groundwater abstractions.

There are no anticipated impacts on LNRs. However, changes to surface water qualities and volumes during construction could adversely impact the LNRs through contaminated surface water run-off.

Measures to mitigate construction impacts on road drainage and the water environment include implementing an Environmental Management Plan, following Best Practice Measures in accordance with industry guidelines and monitoring the watercourses at risk of pollution. With mitigation, the effects from construction activities on surface water and groundwater are not anticipated to be significant.

Operation

There's the potential for adverse effects from contaminated surface water run-off entering surface and groundwater waterbodies leading to long-term degradation of water quality. There's also the potential for redirection of surface water run-off and an increase in impermeable surface that could increase the risk of surface water flooding, resulting in a significant adverse effect.

The presence of permanent infrastructure within the floodplain, an increase in impermeable surfacing, changes to surface water run-off and the presence of permanent below ground structures, all have the potential to increase the flood risk in the area. The presence of permanent below ground structures also has the potential to change the existing groundwater flow, resulting in an interruption of flow which may lead to the loss of water supply to springs and streams. A new drainage system has the potential to interrupt surface water flow which may result in a reduction in recharge to the underlying aquifer. The construction of permanent below-ground structures and/or deep foundations has the potential to have a significant adverse effect on groundwater flow by forming barriers. Surface water flows and sediment transportation could also be affected. Infrastructure within or adjacent to watercourses has the potential to cause direct adverse impacts to the shape and flow in the watercourse, which could result in a less dynamic flow, loss of riverbed continuity, increased sedimentation, habitat severance, potential barriers for fish migration and loss of habitats for plants through shading.

Mitigation will be incorporated within the design of the scheme to reduce the impact of the above on the water environment within the study area, including new drainage systems designed in accordance with industry standards, floodplain compensation sites, and surface water quality monitoring.

4.8 Material assets and waste

Baseline

Demand for materials and minerals/mineral products in the UK includes primary aggregates, recycled and secondary aggregates, cementitious products, ready-mixed concrete, asphalt, dimension stone, China clay, slag, apparent steel use, igneous rock limestone dolomite and sandstone, and sand and gravel. We've identified aggregates reserves and permitted aggregates sites for the Nottinghamshire region that may be used by the scheme, along with the status of current land banks.

We've identified appropriate available facilities for recycling and recovery which manage construction and demolition waste, either through transfer, treatment, crushing and screening, or storage, within 10 kilometres of the existing A46 junctions. Although the scheme aims to prioritise the waste hierarchy² and avoid sending waste to landfill, we've identified a list of permitted landfill sites with remaining capacity within 50 kilometres of the existing A46 junctions that could accept waste in a worst-case scenario.

Construction

The materials likely to be required during the construction of the proposed scheme include steel, concrete, plastic, wood, cement and aggregate. Without mitigation, construction of the proposed scheme could result in importing material resources and depletion of non-renewable resources from quarries and other mineral sources.

Waste generation during the construction phase may result in adverse impacts including temporary occupation of waste management infrastructure capacity, temporary occupation of land for storing waste awaiting transfer off-site and permanent reduction in landfill capacity. The scheme would aim to minimise the generation of waste as much as possible.

It's unlikely that the generation and management of waste would result in significant effects as long as there's appropriate waste management and mitigation measures are implemented.

It's likely that any significant effects due to the quantity of material resources required could be appropriately mitigated. Further assessment within the Environmental Statement is required to confirm there will be no significant effects.

Potential measures to mitigate construction impacts on materials include prioritising the waste hierarchy through delivering materials on an 'as required' basis, maximising

² The "waste hierarchy" ranks waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (e.g. landfill).

recycling and reuse of waste, identifying locally sourced materials and suppliers where practicable, and avoiding, where possible, temporary stockpiling of fill materials prior to incorporation to the scheme. Surplus cut materials would be suitable to be re-used in the landscaping for the scheme.

Operation

There would be minimal requirement for materials used in the operation of the scheme with the exception of small quantities of materials that may be required for maintenance. Significant adverse effects are not likely for material assets during the operation of the scheme.

The use of materials and waste produced through the operation of the scheme will be negligible. The scheme would aim to minimise the generation of waste as much as possible throughout operations such as by promoting resource efficiency by repairing and reusing materials, and complying with required maintenance schedules to prolong the lifespan of materials.

We anticipate that waste generated through general operational activities and significant maintenance and repair activities would be infrequent and unlikely to generate large volumes of waste requiring treatment or disposal.

Potential measures to mitigate operational impacts on materials are the same as those implemented during the construction phase of the scheme, where applicable. This will assist in reducing material requirements and waste generation.

4.9 Population and human health

Baseline

Key communities near to the scheme are: Newark-on-Trent to the south-west of the scheme, accessed from the A46 via Farndon Road; Great North Road and Lincoln Road; and the village of Winthorpe, located to the north-east of the scheme, accessed via the A1133. There are a number of community resources located within the Local Impact Area (LIA), including Newark Rugby Club, Sconce and Devon Park, Lovers Lane Primary School and Newark Showground. The Newark and Sherwood Local Plan identifies three employment sites with planning permission, four housing sites with planning permission, two mixed use allocations and the Newark Flyover transport scheme.

Much of the land within the LIA is used for arable production, with approximately 550 agricultural land holdings. There are also a number of public rights of way (footpaths and bridleways) in the LIA including Newark BW2 and Winthorpe FP2. There are further walking, cycling and horse-riding (WCH) amenities in the LIA such as Trent Valley Long Distance Path and National Cycle Network Route 64. The population of the LIA is 11,773, the majority of which are of working age.

Construction

During construction of the proposed scheme, potential impacts on agriculture relate to both permanent and temporary use of agricultural land along the route within the

scheme footprint, potentially impacting on the functioning and viability of agricultural holdings and enterprises. The construction of the scheme may also require both permanent and temporary land take from the grounds of residential properties, businesses and development land in the Newark area within the scheme footprint.

Temporary changes to access and increases in traffic from construction activities could impact access to private property and housing in Newark and Winthorpe, community land and assets, development land and businesses, and access of WCH facilities within the LIA during the construction period.

Temporary diversions or closures of WCH routes are likely to be needed within the LIA. This could result in changes to accessibility and increases to journey lengths for WCHs.

Temporary creation of jobs necessary to deliver the scheme may have direct and indirect beneficial impacts on employment in the wider area.

There are also likely to be temporary changes to the local environment from construction dust and noise, and this can have an effect upon human health such as from sleep disturbance and stress. However, .

measures to mitigate the impacts of construction of the proposed scheme include implementation of the Environmental Management Plan (EMP) to mitigate adverse effects associated with air quality, noise, traffic and visual impacts, and this will ensure that adverse effects during construction will be reduced. Additionally, a Construction Communications plan to engage with local people and businesses will be developed, and a traffic management plan (TMP) will be implemented to ensure that access is maintained, and disruption is minimised as far as possible. With these measures in place, the temporary effects from construction are not likely to be significant.

Operation

There's the potential for permanent closures or diversions of WCH routes within the LIA and for new WCH provisions to be delivered as part of the scheme. These could potentially increase journey lengths for WCH, including for vulnerable travellers. However, the scheme also has the potential to reduce severance resulting in a benefit for cyclists, walkers and other vulnerable road users wishing to cross the A46 within the LIA.

Additionally, the operation of the scheme is anticipated to reduce congestion, reduce journey time and improve safety, improving the access to employment for people living within the LIA and supporting the future economic growth of the region. The scheme has the potential to improve the provision of infrastructure that encourages active travel modes, supports a potential reduction in pollutants and offers access to employment with the potential for positive health impacts.

Measures to mitigate adverse operational effects from the scheme include providing appropriate signage for new or permanently diverted WCH routes and maintaining access to all affected residential properties, businesses and areas of open space and recreation.

4.10 Climate

Baseline

For 2020, in Nottinghamshire County, the emissions for all roads were estimated at 1,392.7kt CO₂e; in 2019 this was 1,696.8kt CO₂e. This continues a downward trend from previous years as there was 1,717.2kt CO₂e in 2018 and 1,751.8kt CO₂e in 2017³.

Mean annual temperatures over the region vary from around 8 °C to just over 10 °C. The highest values occur in the lower Severn valley, while the lowest occur at the higher altitudes such as the Peak District. In the region, the more sheltered areas of the South and East Midlands are the driest with less than 600mm per year in parts of Northamptonshire, the lower Trent valley and the Avon valley. This is 80% lower than the highest rainfall area in the UK, but still 300-500mm greater than the driest parts.

Construction

The main impact on climate during construction will be the release of greenhouse gases (GHGs) which contribute towards altering the UK's climate beyond what would be expected from natural variation. GHG release will be by plant and machinery, construction process stage, materials production, land use change and changes to traffic flows.

Measures to mitigate the impacts of construction on climate include requirements for subcontractors and suppliers to prioritise low/zero carbon solutions, reporting and collaboration requirements, and completing a carbon Management Plan.

The projected future climate is likely to follow the UK wide trend of drier summers, wetter winters and an increase in average mean temperature. It's also likely that changes to the climate will lead to an increase in the frequency and severity of weather events such as storms, heavy rainfall, droughts and heatwaves. The scheme will experience the effects of these changes in construction. Measures to manage and reduce the impact of these changes include adopting construction processes which are adapted to ensure they are resilient to changes in climate during the construction period.

Operation

The main impact on climate during operation will be the release of GHG which contribute towards altering the UK's climate beyond what would be expected from natural variation. GHG release will be caused by changes in land use, vehicle distributions and speed limits, maintenance activities, repair activities, and replacement and refurbishment of assets.

Measures to mitigate the operational impacts of the proposed scheme on climate include ensuring the lifetime operation is as efficient as possible and identifying

³ Calculated from UK Local authority and regional data 'Nottinghamshire Total' Road Transport (A roads), Road Transport (Motorways) & Road Transport (Minor roads) (2020) available at https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fgovernment%2Fuploads%2Fsystem%2Fuploads%2Fattachment_data%2Ffile%2F1086982%2FUK-local-authority-ghg-emissions-2020.ods&wdOrigin=BROWSELINK (Last accessed July 2022)

opportunities during the design and construction of the scheme to reduce operational GHG emissions.

The projected future climate is likely to follow the UK wide trend of drier summers, wetter winters and an increase in average mean temperature. It is also likely that changes to the climate will lead to temporal and severity increase of weather events such as storms, heavy rainfall, droughts and heatwaves. The scheme will experience the effects of these changes in operation.

Measures to mitigate the operational impacts of the proposed scheme on climate include developing the scheme design to accommodate the predicted changes in regional climate.

5. Consultation and next steps

This Non-Technical Summary has been prepared to help those potentially affected or interested in the proposed scheme to understand the environmental setting and currently anticipated effects of the proposed scheme on the environment. These considerations can then be taken into account in your responses to the consultation.

Your feedback from the consultation will inform our continuing development of the scheme. Once we have considered your feedback, we plan to submit our application for a Development Consent Order (DCO) in summer/autumn 2023. We'll also prepare a report on the consultation, recording the feedback and our response, which will be published with our application.

5.1 Where you can get more information

The scheme webpage

The scheme webpage provides current scheme information as well as historic information and can be accessed using the following web address:

www.nationalhighways.co.uk/a46-newark-bypass

You can also use the scheme webpage to sign up to receive latest news and updates via email.

Copies of consultation materials

Printed copies of our consultation brochure and consultation response form will be available free of charge at deposit locations and consultation events, throughout the consultation period. Copies of other consultation documents and plans will be available online and for inspection only at our consultation events. Copies of additional or accessible versions of our consultation materials are available upon request from our project team.

Consultation events

We're using community venues and our Engagement Van to give you the opportunity to speak to members of the project team about the proposed scheme. Details of the events are as follows:

Location	Day	Time
Newark Showground Gift and Food Show, Lincoln Road, Winthorpe, Newark-on-Trent, NG24 2NY	29 October 2022	9am to 5pm
Newark Showground Gift and Food Show, Lincoln Road, Winthorpe, Newark-on-Trent, NG24 2NY	30 October 2022	9am to 4pm
Farndon Memorial Hall Marsh Lane, Farndon, Newark-on- Trent, NG24 3SZ	8 November 2022	3pm to 8pm
Newark Town Hall Market Place, Newark-on-Trent, NG24 1DU	9 November 2022	11am to 4pm
Bridge Community Centre Lincoln Road, Newark-on-Trent, NG24 2DQ	10 November 2022	3pm to 8pm
Winthorpe Community Centre Woodlands, Winthorpe, Newark-on- Trent, NG24 2NL	12 November 2022	12 noon to 5pm
The Fox Inn Main Street, Newark-on-Trent, NG23 5QP	15 November 2022	3pm to 8pm
Newark Market Place Market Place, Newark-on-Trent, NG24 1DU	19 November 2022	10am to 2pm
Northgate Retail Park Northgate, Newark-on-Trent, NG24 1GA	20 November 2022	10am to 2pm
Newark Town Hall Market Place, Newark-on-Trent, NG24 1DU	30 November 2022	11am to 4pm

Any changes to these events will be communicated on the scheme webpage and on social media. You can also call us to confirm that an event is going ahead.

Deposit locations

The opening times of these deposit locations may be subject to change due to circumstances out of our control. If in doubt, please contact a location before visiting.

Location	Opening hours	
	Day	Time
Newark Indoor Bowls Centre Newark Showground, Lincoln Road, Winthorpe, Newark-on-Trent, NG24 2NY	Monday to Friday:	9:45am to 9:30pm
	Saturday and Sunday:	9:30am to 2:30pm
The Lord Nelson Gainsborough Road, Winthorpe, Newark-on-Trent, NG24 2NN	Monday to Saturday:	10am to 10pm
	Sunday:	10am to 7pm
Bridge Community Centre Lincoln Road, Newark-on-Trent, NG24 2DQ	Monday to Sunday:	8:30am to 9pm
Newark and Sherwood District Council Castle House, Great North Road, Newark-on-Trent, NG24 1BY	Monday to Friday:	9am to -5pm
The Fox Inn Main Street, Newark-On-Trent, NG23 5QP	Monday to Thursday:	12 noon to 10pm
	Friday and Saturday:	12 noon to 11pm
	Sunday:	12 noon to 8pm
Newark Library Balderton Gate, Town Centre, Newark-on-Trent, NG24 1UW	Monday and Wednesday:	9am to 6:30pm
	Tuesday, Thursday and Friday:	9am to 6pm
	Saturday:	9am – 4pm
	Sunday:	Closed
The Lord Ted Farndon Road, Newark-on-Trent, NG24 4SW	Monday to Sunday:	11am to 11pm

5.2 How to respond to our consultation

The consultation period will run from Wednesday 26 October to Monday 12 December 2022. We'd like to hear what you think, so please share any ideas, local knowledge, or concerns that you may have about our proposals by responding to our consultation. All your feedback will be considered as we continue to develop our proposals and the scheme design. You can respond to our consultation using one of the following methods:

Online

Complete our response form online at www.nationalhighways.co.uk/a46-newark-bypass

Post

Complete a copy of our printed response form and post it back to our team using the scheme freepost address:

Freepost A46 NEWARK BYPASS

There's no need for a stamp when using this freepost address. The response form can be placed in an envelope with the freepost address written on the front.

In person

Complete a copy of our printed response form and give it to a member of staff at one of our consultation events.

All responses should be submitted by 11.59pm on Monday 12 December 2022.

Your comments will be analysed by National Highways and any of its appointed agents. Copies may be made available in due course to the Secretary of State, the Planning Inspectorate and other relevant statutory authorities so that your comments can be considered as part of the DCO application process. We'll request that your personal details are not placed on public record and will be held securely by National Highways in accordance with the Data Protection Act 1998. Your data will be used solely in connection with the consultation process and subsequent DCO application and, except as noted above, will not be passed to third parties.

5.3 Contact us

Visit our scheme webpage for information about the scheme and how to have your say, or call or email us to find out more.

- A46newarkbypass@nationalhighways.co.uk
- 0300 123 5000
- www.nationalhighways.co.uk/a46-newark-bypass

5.4 Next steps

If our application for a DCO is accepted by the Planning Inspectorate, there will be an examination of the application in which the public can participate. This examination will take a maximum of six months. The Planning Inspectorate then has three months to make a recommendation to the Secretary of State, who then has a further three months to make a final decision. If our application is approved, work on the scheme is planned to start in 2025

If you would like any further information on the DCO application process, please visit the Planning Inspectorate's website: [**http://infrastructure.planningportal.gov.uk**](http://infrastructure.planningportal.gov.uk)

The Planning Inspectorate's website will also provide updates on the scheme's application process, including providing access to the submitted application documents.