

**M54 to M6 Link Road**

**TR010054**

**Volume 6**

**6.1 Environmental Statement**

**Chapter 12 – Population and  
Human Health**

Regulation 5(2)(a)

Planning Act 2008

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

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Infrastructure Planning

Planning Act 2008

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

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

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**6.1 Environmental Statement  
Chapter 12 Population and Human Health**

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## 12. Population and Human Health

### 12.1. Introduction

- 12.1.1. This chapter assesses the potential impacts on population and human health associated with the construction and operation of the Scheme, following the methodology set out in Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, LA 112 Population and Human Health (Ref 12.1) (formerly Part 6 Land Use (Ref 12.2), Part 8 Pedestrians, Cyclists, Equestrians and Community Effects (Ref 12.3) and Part 9 Vehicle Travellers (Ref 12.4) and LA 104 Environmental Assessment and Monitoring (Ref 12.5). This chapter summarises the regulatory and policy framework related to population and human health, details the methodology followed for the assessment and describes the existing environment in the area surrounding the Scheme. Following this, the design, mitigation and residual effects of the Scheme are presented.
- 12.1.2. This chapter of the Environmental Statement (ES) has been prepared by competent experts with relevant and appropriate experience. The technical lead for the population and human health assessment has 19 years of relevant experience and has professional qualifications as summarised in Appendix 1.1 [TR010054/APP/6.3].

### 12.2. Legislative and Policy Framework

#### Legislation

- 12.2.1. The following legislation has been considered as part of the population and human health assessment where these have informed the identification of receptors and resources and their sensitivity; the assessment methodology; the potential for significant environmental effects; and required mitigation. This legislation includes:
- The Countryside and Rights of Way Act (2000) (CRoW Act) legislation is considered in this assessment. The CRoW Act regulates public rights of way (PRoW) and open access land and ensures access to them (Ref 12.6).
  - Health and Social Care Act (2012): In terms of human health legislation, the Health and Social Care Act 2012 was introduced following the Health and Social Care Bill 2011 and outlines the Secretary of State's duty to promote and improve the National Health Service (NHS), in pursuit of a number of key aims, which include (Ref 12.7):
    - An improvement in the quality of services.
    - A reduction in health inequalities.
    - The promotion of autonomy for General Practitioners (GPs) and health centres.
    - Improvements to the treatments and services offered to patients.

The document focuses on the regulation of the NHS at a national and local level, and also promotes changes such as the abolition of NHS Trusts, support for the production of Joint Strategic Needs Assessments (JSNA), and establishment of Health and Well-being boards at a local authority level. These boards would be established for the purpose of advancing the health and well-being of people

within each local authority area and aim to “*encourage persons who arrange for the provision of any health or social care services in that area to work in an integrated manner*” paragraph 152 (Ref 12.7).

## Planning Policy

- 12.2.2. The primary basis for deciding whether or not to grant a Development Consent Order (DCO) is the National Policy Statement for National Networks (NPSNN)<sup>1</sup> (Ref 12.8) which sets out policies to guide how DCO applications would be decided and how the impacts of national networks infrastructure should be considered. Table 12.1 identifies the NPSNN policies relevant to the population and human health assessment and where in this ES chapter information is provided to address these policy requirements.

**Table 12.1: NPSNN policies relevant for the population and human health assessment**

NPSNN para.	Requirement of the NPSNN	Location where information addresses policy requirements
3.17	The Government expects applicants to use reasonable endeavours to address the needs of cyclists and pedestrians in the design of new schemes. The Government also expects applicants to identify opportunities to invest in infrastructure in locations where the national road network severs communities and acts as a barrier to cycling and walking, by correcting historic problems, retrofitting the latest solutions and ensuring that it is easy and safe for cyclists to use junctions.	Refer to Chapter 2: The Scheme and Sections 12.8 ‘Design, mitigation and enhancement’ for details of provisions for cyclists which form part of the Scheme. Section 12.9 ‘Likely significant effects’ which considers the impacts on walkers, cyclists and horse-riders (WCH).
5.165 – 5.167	The applicant should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing.	Refer to Sections 12.6 ‘Baseline conditions’ and 12.9 ‘Likely significant effects’.
5.174	The Secretary of State should not grant consent for development on existing open space, sports and recreational buildings unless there is surplus or excess land or the benefits of the project outweigh the loss of those facilities.	The Scheme would not include development on existing open space or sport and recreation buildings.
5.180	Applicants are expected to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other public rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve access.	Refer to Section 12.8 ‘Design, mitigation and enhancement’, Environmental Masterplans (Figure 2.1 to 2.7 [TR010054/APP/6.2]) and Appendix 12.2 [TR010054/APP/6.3].
5.203 – 5.205	Applicants should have regard to the policies set out in local plans and consult with the relevant	Refer to Sections 12.3 ‘Assessment methodology’, 12.8 ‘Design, mitigation and

<sup>1</sup> Although other policies can have weight as relevant and important matters in decision making. See Case for the Scheme for more information [TR010054/APP/7.2].

NPSNN para.	Requirement of the NPSNN	Location where information addresses policy requirements
	highway authority and local planning authority on the assessment of transport impacts. Applicants should consider reasonable opportunities to support other transport modes in developing infrastructure. The applicant should provide evidence that as part of the project they have used reasonable endeavours to address any existing severance issues that act as a barrier to non-motorised users.	enhancement' and 12.9 'Likely significant effects'.
5.206	For road and rail developments, if a development is subject to EIA [Environmental Impact Assessment] and is likely to have significant environmental impacts arising from impacts on transport networks, the applicant's environmental statement should describe those impacts and mitigating commitments.	Refer to Sections 12.7 'Potential impacts', 12.8 'Design, mitigation and enhancement' and 12.9 'Likely significant effects'.

12.2.3. An assessment of the Schemes conformity with the relevant paragraphs and provisions for population and human health in the NPSNN is presented in the NPSNN Accordance Table, Appendix A of the Case for the Scheme [TR010054/APP/7.2].

12.2.4. Other relevant policies have been considered as part of the population and human health assessment where these have informed the identification of receptors and resources and their sensitivity; the assessment methodology; the potential for significant environmental effects; and required mitigation. These policies include:

- National Planning Policy Framework (NPPF) (Ref 12.9): The NPPF and supporting Planning Practice Guidance (PPG) (Ref 12.10) sections on 'Promoting healthy and safe communities' Chapter 8 and 'Promoting sustainable transport' Chapter 9 which support the application of NPPF policies. In accordance with the NPPF, the NPSNN policies relating to the applicant's assessment are the primary source of policy guidance regarding this assessment.
- South Staffordshire Core Development Plan (Ref 12.11) includes a number of policies which support, sustainable transport, health and wellbeing and community safety, including Core Policy 4, 11, 12 and 13 and Strategic Objective 13.
- Staffordshire Local Transport Plan (Ref 12.12) which supports improving the safety, security, health and quality of life of residents.

12.2.5. These policies outline the importance of safeguarding PRoW and open spaces, as well as recreational buildings for communities. These policies also identify the need for a community severance and amenity assessment to assess development impacts on WCH due to variables such as pollution, natural environment and general amenity.

- 12.2.6. In terms of motorised travel, policy leans towards sustainable transport modes and local policy highlights the importance on separating local and long distance traffic to reduce delays and congestion in the area.

### 12.3. Assessment Methodology

#### General Approach

- 12.3.1. The population and human health assessment includes the assessment of impacts on the following elements:

- Land use and accessibility which includes the assessment of impacts on:
  - private property and housing;
  - community land and assets;
  - development land and businesses;
  - agricultural land holdings; and
  - WCH.
- Human health.

- 12.3.2. Key methodology documents of relevance to the population and human health assessment include the following standards and guidance:

- DMRB LA 112 Population and human health (Ref 12.1) (formerly Part 6 Land Use, Part 8 Pedestrians, Cyclists, Equestrians and Community Effect and Part 9 Vehicle Travellers).
- DMRB LA 104 Environmental Assessment and Monitoring (Ref 12.2).
- IEMA, Health in EIA: A Primer for a Proportionate Approach (Ref 12.13)
- HUDU (London Health Urban Development Unit) Planning for Health Rapid Health Impact Assessment Tool (Ref 12.14).

#### Establishing baseline conditions

- 12.3.3. Baseline conditions have been established through a desk based study and consultation with landowners. The following data sources have been used:

- 1:25,000 and 1:10,000 scale Ordnance Survey mapping, aerial photography available in the public domain and Google streetview – used to identify land use relationships, community land and facilities (Ref 12.15).
- traffic forecasts prepared as part of the Transport Assessment Report [TR010054/APP/7.4].
- WCH surveys, reported in the Walking, Cycling and Horse Riding Assessment Report (Appendix 12.2 [TR010054/APP/6.3])
- Multi-Agency Geographic Information for the Countryside (MAGIC) maps (Ref 12.16)
- Sustrans, National Cycle Network (Ref 12.17).
- Staffordshire County Council (SCC), Cycling Maps (Ref 12.18)
- South Staffordshire Council (SSC) South Staffordshire Local Plan, Site Allocations Document (Ref 12.19).

- Office of National Statistics, Labour Market profile south Staffordshire (Ref 12.20).
- Public Health England, Public Health Profile (Fingertips) (Ref 12.21).

### Land use and accessibility

#### Sensitivity of receptors

- 12.3.4. The sensitivity of land use and accessibility receptors has been determined using the criteria presented in Table 12.2 as a guide. These criteria are derived from Table 3.11 of the DMRB LA 112 (Ref 12.1).

**Table 12.2: Sensitivity of receptors**

Receptor value (sensitivity)	Description
Very high	<p><b>Private property and housing:</b></p> <ul style="list-style-type: none"> <li>• existing private property or land allocated for housing located in a local authority area where the number of households are expected to increase by &gt;25% by 2041 (ONS data); and/or</li> <li>• existing housing and land allocated for housing (e.g. strategic housing sites) covering &gt;5ha and / or &gt;150 houses.</li> </ul> <p><b>Community land and assets where there is a combination of the following:</b></p> <ul style="list-style-type: none"> <li>• complete severance between communities and their land/assets, with little/no accessibility provision;</li> <li>• alternatives are only available outside the local planning authority area;</li> <li>• the level of use is very frequent (daily); and</li> <li>• the land and assets are used by the majority (&gt;=50%) of the community.</li> </ul> <p><b>Development land and businesses:</b></p> <ul style="list-style-type: none"> <li>• existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering &gt;5ha.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>• areas of land in which the enterprise is wholly reliant on the spatial relationship of land to key agricultural infrastructure; and</li> <li>• access between land and key agricultural infrastructure is required on a frequent basis (daily).</li> </ul> <p><b>WCH:</b></p> <ul style="list-style-type: none"> <li>• national trails and routes likely to be used for both commuting and recreation that record frequent (daily) use. Such routes connect communities with employment land uses and other services with a direct and convenient WCH route. Little / no potential for substitution.</li> <li>• routes regularly used by vulnerable travellers such as the elderly, school children and people with disabilities, who could be disproportionately affected by small changes in the baseline due to potentially different needs.</li> <li>• rights of way for WCH crossing roads at grade with &gt;16,000 vehicles per day.</li> </ul>



Receptor value (sensitivity)	Description
High	<p><b>Private property and housing:</b></p> <ul style="list-style-type: none"> <li>private property or land allocated for housing located in a local planning authority area where the number of households are expected to increase by 16-25% by 2041 (ONS data); and/or</li> <li>existing housing and land allocated for housing (e.g. strategic housing sites) covering &gt;1-5ha and / or &gt;30-150 houses.</li> </ul> <p><b>Community land and assets where there is a combination of the following:</b></p> <ul style="list-style-type: none"> <li>there is substantial severance between community and assets, with limited accessibility provision;</li> <li>alternative facilities are only available in the wider local planning authority area;</li> <li>the level of use is frequent (weekly); and</li> <li>the land and assets are used by the majority (&gt;=50%) of the community.</li> </ul> <p><b>Development land and businesses:</b></p> <ul style="list-style-type: none"> <li>existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering &gt;1 - 5ha.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>areas of land in which the enterprise is dependent on the spatial relationship of land to key agricultural infrastructure; and</li> <li>access between land and key agricultural infrastructure is required on a frequent basis (weekly).</li> </ul> <p><b>WCH:</b></p> <ul style="list-style-type: none"> <li>regional trails and routes (e.g. promoted circular walks) likely to be used for recreation and to a lesser extent commuting, that record frequent (daily) use. Limited potential for substitution; and/or</li> <li>rights of way for WCH crossing roads at grade with &gt;8,000 - 16,000 vehicles per day</li> </ul>
Medium	<p><b>Private property and housing:</b></p> <ul style="list-style-type: none"> <li>houses or land allocated for housing located in a local authority area where the number of households are expected to increase by &gt;6-15% by 2041 (ONS data); and/or</li> <li>existing housing and land allocated for housing (e.g. strategic housing sites) covering &lt;1ha and / or &lt;30 houses.</li> </ul> <p><b>Community land and assets where there is a combination of the following:</b></p> <ul style="list-style-type: none"> <li>there is severance between communities and their land/assets but with existing accessibility provision;</li> <li>limited alternative facilities are available at a local level within adjacent communities;</li> <li>the level of use is reasonably frequent (monthly); and</li> <li>the land and assets are used by the majority (&gt;=50%) of the community.</li> </ul> <p><b>Development land and businesses:</b></p>

Receptor value (sensitivity)	Description
	<ul style="list-style-type: none"> <li>• existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering &lt;1ha.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>• areas of land in which the enterprise is partially dependent on the spatial relationship of land to key agricultural infrastructure; and</li> <li>• access between land and key agricultural infrastructure is required on a reasonably frequent basis (monthly).</li> </ul> <p><b>WCH:</b></p> <ul style="list-style-type: none"> <li>• PRoW and other routes close to communities which are used for recreational purposes (e.g. dog walking), but for which alternative routes can be taken. These routes are likely to link to a wider network of routes to provide options for longer, recreational journeys, and / or</li> <li>• rights of way for WCH crossing roads at grade with &gt;4000 – 8000 vehicles per day.</li> </ul>
Low	<p><b>Private property and housing:</b></p> <ul style="list-style-type: none"> <li>• proposed development on unallocated sites providing housing with planning permission/in the planning process.</li> </ul> <p><b>Community land and assets where there is a combination of the following:</b></p> <ul style="list-style-type: none"> <li>• limited existing severance between community and assets, with existing full Disability Discrimination Act compliant accessibility provision;</li> <li>• alternative facilities are available at a local level within the wider community;</li> <li>• the level of use is infrequent (monthly or less frequent); and</li> <li>• the land and assets are used by the minority (&gt;=50%) of the community.</li> </ul> <p><b>Development land and businesses:</b></p> <ul style="list-style-type: none"> <li>• proposed development on unallocated sites providing employment with planning permission/in the planning process.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>• areas of land which the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure; and</li> <li>• access between land and key agricultural infrastructure is required on an infrequent basis (monthly or less frequent).</li> </ul> <p><b>WCH:</b></p> <ul style="list-style-type: none"> <li>• routes which have fallen into disuse through past severance or which are scarcely used because they do not currently offer a meaningful route for either utility or recreational purposes, and/or</li> <li>• rights of way for WCH crossing roads at grade with &lt;4000 vehicles per day.</li> </ul>

Magnitude of impact

12.3.5. The magnitude of impact on land use and accessibility has been determined using the criteria presented in Table 12.3 as a guide. These criteria are derived from Table 3.12 of the DMRB LA 112 (Ref 12.1).

**Table 12.3: Magnitude of impact and typical descriptions**

Magnitude of impact (change)	Typical description
Major	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <ul style="list-style-type: none"> <li>• loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements. e.g. direct acquisition and demolition of buildings and direct development of land to accommodate highway assets; and/or</li> <li>• introduction (adverse) or removal (beneficial) of complete severance with no/full accessibility provision.</li> </ul> <p>WCH: &gt;500m increase (adverse) / decrease (beneficial) in WCH journey length.</p>
Moderate	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <ul style="list-style-type: none"> <li>• partial loss of/damage to key characteristics, features or elements, e.g. partial removal or substantial amendment to access or acquisition of land compromising viability of property, businesses, community assets or agricultural holdings; and/or</li> <li>• introduction (adverse) or removal (beneficial) of severe severance with limited / moderate accessibility provision.</li> </ul> <p>WCH: &gt;250m - 500m increase (adverse) or decrease (beneficial) in WCH journey length.</p>
Minor	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <ul style="list-style-type: none"> <li>• a discernible change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements, e.g. amendment to access or acquisition of land resulting in changes to operating conditions that do not compromise overall viability of property, businesses, community assets or agricultural holdings; and/or</li> <li>• introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision.</li> </ul> <p>WCH: &gt;50m - 250m increase (adverse) or decrease (beneficial) in WCH journey length.</p>
Negligible	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <ul style="list-style-type: none"> <li>• loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements. e.g. direct acquisition and demolition of buildings and direct development of land to accommodate highway assets; and/or</li> <li>• introduction (adverse) or removal (beneficial) of complete severance with no/full accessibility provision.</li> </ul> <p>WCH: &gt;500m increase (adverse) / decrease (beneficial) in WCH journey length.</p>
No change	<p>No loss or alteration of characteristics, features, elements or accessibility; no observable impact on either direction.</p>

### Significance of effect

- 12.3.6. The significance of effects been undertaken using professional judgement, based on knowledge and experience of similar schemes and has involved combining the sensitivity of the receptor and the magnitude of the impact resulting from the Scheme in accordance with the significance matrix set out in the DMRB LA 104, Table 3.8.1 (Ref 12.5). The significance matrix has been reproduced in Chapter 4: Environmental Assessment Methodology, Table 4.3.
- 12.3.7. The matrix has been used to guide the identification and assessment of effects on land use and access; however, where professional judgement has resulted in a deviation from the thresholds contained in the matrix these are explained within the relevant sections of the chapter and are supported by appropriate evidence and explanation.

### Human health

- 12.3.8. Health is defined by the World Health Organisation (WHO) as ‘a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.’ (Ref 12.22). A qualitative assessment of human health has been undertaken in line with the DMRB LA112 (Ref 12.1). The assessment considers the change to health determinants as a result of the construction and operation of the Scheme. Changes to health determinants can affect the health of individuals or communities differently depending on their sensitivity to change.
- 12.3.9. The health assessment presented herein considers the potential consequences for health and wellbeing from the construction and operation of the Scheme. In particular, it draws on information and conclusions contained within various assessments reported within this ES (namely: air quality, landscape and visual, noise and vibration, geology and soils, road drainage and the water environment, and climate) and the Transport Assessment Report [TR010054/APP/7.4] produced in respect of the Scheme.
- 12.3.10. The geographical extent of the impacts considered within this assessment depends on the type of impacts and receptors. A qualitative assessment of the impact of the Scheme on the surrounding statistical wards has been undertaken. This assessment is a qualitative rather than a quantitative assessment due to the diverse nature of health determinants and health outcomes which are assessed. The assessment of human health effects describes the likely qualitative health outcomes. It is not possible to quantify the severity or extent of the effects which give rise to these impacts. As such, the potential health impacts during construction and operation have been categorised based on the broad categories shown in Table 12.4. Where an impact is identified, actions have been recommended as appropriate to mitigate any negative impact on health, or opportunities to enhance health benefits.

**Table 12.4: Human health impact categories**

Impact category	Impact symbol	Description
Positive	+	A benefit health impact is identified

Neutral	0	No discernible health impact is identified
Negative	-	An adverse health impact is identified
Uncertain	?	Where uncertainty exists as to the overall health impact

12.3.11. Appendix 12.1 Human health assessment [TR010054/APP/6.3], provides additional details regarding the methodology and the assessment of effects on human health as set out within this chapter.

### Scoping response

12.3.12. The proposed scope of the population and human health assessment was detailed in the EIA Scoping Report (Ref 12.23) submitted to the Inspectorate on 11 January 2019. An overview of the Inspectorate’s scoping opinion in relation to population and human health is presented in Table 12.5. Where the assessment has been undertaken in accordance with the Scoping Opinion, a response and the relevant ES section is provided; where an alternative approach has been agreed with the relevant stakeholders, an explanation is provided.

**Table 12.5: Scoping opinion and response**

Scoping Opinion	Where addressed in the ES
<b>The Inspectorate</b>	
Based on the information provided, which is that these receptors are not present within the study area (such as village greens, community land, and areas of public open space), the Inspectorate is satisfied that this matter may be scoped out of the assessment.	Noted.
The Applicant makes reference to management plans including the CEMP [Construction Environmental Management Plan] and a Traffic Management Plan. The Applicant should provide draft copies of these documents appended to the ES and/or demonstrate how they are intended to be secured through the DCO. The Applicant should also include evidence of consultation with relevant consultation bodies in effort to agree the Traffic Management Plan.	Refer to Outline Environmental Management Plan (OEMP) [TR010054/APP/6.11] and Outline Traffic Management Plan [TR010054/APP/7.5]. The Traffic Management Plan will be further developed in consultation with relevant organisations as outlined in the OEMP.
The Inspectorate notes that job creation and training opportunities associated with the Proposed Development have not been considered within the scope of assessment. The ES should consider such opportunities, as well as the resulting impact of a changing influx of workers during the construction and operation phases of the development where effects could be significant. The ES should also consider how the development’s socio-economic impacts correlate with local planning policies.	Refer to Section 12.9 ‘Assessment of likely significant effects’ and Appendix 12.1 [TR010054/APP/6.3] job creation and training opportunities have been considered as part of the assessment of human health. Consideration of the Scheme and its effects in relation to local planning policies is considered in the Case for the Scheme [TR010054/APP/7.2].
<b>Public Health England</b>	

<b>Scoping Opinion</b>	<b>Where addressed in the ES</b>
<p>We believe the summation of relevant issues [in relation to health] into a specific section of the report provides a focus which ensures that public health is given adequate consideration. The section should summarise key information, risk assessments, proposed mitigation measures, conclusions and residual impacts, relating to human health. Compliance with the requirements of National Policy Statements and relevant guidance and standards should also be highlighted.</p>	<p>Refer to Section 12.9 'Assessment of likely significant effects'</p> <p>Refer to Table 12.1 and the Case for the Scheme [TR010054/APP/7.2] for compliance with the NPSNN and other planning policy.</p>
<p>Any assessments undertaken to inform the ES should be proportionate to the potential impacts of the proposal, therefore we accept that, in some circumstances, particular assessments may not be relevant to an application, or that an assessment may be adequately completed using a qualitative rather than quantitative methodology. In cases where this decision is made the promoters should fully explain and justify their rationale in the submitted documentation.</p>	<p>Refer to Section 12.3 'Assessment Methodology'.</p>
<p>The applicant has undertaken previous public consultations, predominantly relating to route selection. During these consultations, the public identified the following priorities which should be addressed as part of the submission:</p> <ul style="list-style-type: none"> <li>• disruption during construction;</li> <li>• congestion on A460</li> <li>• protecting landscape views</li> <li>• minimising impact to local businesses, landowners and residents</li> <li>• protecting ancient woodland</li> <li>• reducing and minimising pollution to the local area, including noise</li> <li>• concerns about road safety</li> </ul>	<p>Refer to Section 12.9 'Assessment of likely significant effects'.</p> <p>Refer to Chapter 5: Air Quality for assessment of impacts on air pollution.</p> <p>Refer to Chapter 7: Landscape and Visual for assessment of impacts on landscape character and views.</p> <p>Refer to Chapter 8: Biodiversity for assessment of impacts on ancient woodland.</p> <p>Refer to Chapter 11: Noise and Vibration for assessment of impacts from noise pollution.</p>
<p>The submitted documentation does not contain evidence of engagement with local Directors of Public Health or the NHS. To ensure that local public health concerns are fully identified and addressed Highways England should engage with the relevant local authorities prior to producing both the preliminary environmental impact report (PIER) and the submission of the public consultation (section 42) stage of the NSIP documentation.</p>	<p>Refer to Section 12.3 'Assessment Methodology' paragraphs 12.3.13.</p>
<p>We request the applicant fully considers the potential impacts of the scheme in the light of the wider determinants of health. [...] We understand that you may determine that some of the suggested assessments can be scoped out of the EIA and request, should that be the case, subsequent</p>	<p>Refer to Section 12.9 'Assessment of likely significant effects' and Appendix 12.1 Human health assessment [TR010054/APP/6.3].</p>

Scoping Opinion	Where addressed in the ES
documentation provide detailed rationale and justification for any such exclusions.	

## Consultation

- 12.3.13. A number of consultees were contacted to comment on the scope and methodology required for the assessment of health. These consultees included Staffordshire County Council's Director of Health and Care, Public Health England and the NHS Commissioning Boards for Wolverhampton and South East Staffordshire and Seisdon Peninsula.
- 12.3.14. The Preliminary Environmental Information (PEI) Report for this Scheme (Ref 12.24) was published in May 2019 as part of the statutory consultation. The PEI Report presented the environmental information collected, together with the preliminary findings of the assessment of likely significant environmental effects of the Scheme at the time. Comments received during public consultation and the associated responses, are detailed within the Consultation Report [TR010054/APP/5.1].

## 12.4. Assessment assumptions and limitations

- 12.4.1. The assessment has been based on the Scheme description detailed within Chapter 2: The Scheme, and has taken into account the lateral and vertical limits of deviation defined on the Works Plans [TR010054/APP/2.4] and the draft DCO [TR010054/APP/3.1] in order to establish a realistic worst-case assessment scenario. This scenario has identified and reported the effect that any lateral and vertical deviation would realistically give rise to. Taking into account the potential for the Scheme to impact land use and access (WCH, residential and commercial properties, community facilities and agricultural land holdings) and human health through the development of the Scheme.
- 12.4.2. Notwithstanding any potential deviation, all population and human health mitigation measures embedded in the design of the Scheme and described in Section 12.8 would still be deliverable within the limits of deviation (refer to Chapter 2: The Scheme, Section 2.5) and would still fulfil their intended function.
- 12.4.3. Land may be required for the Scheme from agricultural land holdings temporarily, during the construction period, or permanently. Where land is required temporarily for construction and retained permanently, the combined effect of this would have the most impact on the holding. During the construction period, some agricultural land would be restored to unrestricted agricultural use and the same agricultural condition, and the impact on individual holdings would reduce. In some cases, land would be restored to agriculture but would be maintained as species-rich or amenity grassland or woodland. The long-term management strategy for this land has yet to be finalised but the assessment assumes a worst case basis (from a landowner perspective) that the ownership of the land would remain with the acquiring authority with a land management company being retained to manage the land. Where this occurs, the restored land would not be available to the original landowner and the impact on the holdings affected would not be reduced.

## 12.5. Study area

- 12.5.1. The study area for the assessment of impacts on land use and accessibility includes residential properties, community land and assets, businesses, development land, WCH facilities (PRoW - footpaths, bridleways and byways -, cycle routes and footways) and agricultural holdings within and up to 500 m from the Scheme boundary in line with the DMRB (Ref 12.1).
- 12.5.2. The study area for the assessment of impacts on human health includes the residents within the wards of, Essington, Featherstone and Shareshill and Cheslyn Hay North & Saredon due to their proximity to the Scheme.
- 12.5.3. The study areas are illustrated on Figure 12.1 [TR010054/APP/6.2].

## 12.6. Baseline conditions

### Land use and access

#### Private property and housing

- 12.6.1. The Scheme would be located in a predominantly rural area consisting mainly of mixed agricultural land and scattered woodland. The nearest residential areas include the villages of Shareshill to the north-west and the villages of Featherstone and Hilton to the west of the Scheme boundary. There are also a number of more isolated residential properties and farm holdings in the vicinity of the Scheme, for example a farm and a small group of residential properties at Laney Green, north of M6 Junction 11, Brookfield Farm south of M6 Junction 11 and Tower House Farm north-east of M54 Junction 1.
- 12.6.2. Private property and housing are defined as “*land, buildings and infrastructure for the purpose of residential use*”. There are no residential properties within the Scheme boundary. However, there are a number of residential properties in close proximity to the Scheme boundary, on the existing A460 Cannock Road and Tower House Farm in Featherstone, Dark Lane, Park Road, Hilton Lane in Hilton and Brookfield Farm, Shareshill.
- 12.6.3. Current traffic flows on the existing A460 Cannock Road through Featherstone and Shareshill (approximately 26,800 Annual Average Daily Traffic (AADT)) result in congestion on this route. For properties accessed directly off the existing A460 in Featherstone these traffic flows and resulting congestion can make it difficult for residents to enter and exit their driveways safely during peak flows.
- 12.6.4. Access to Brookfield Farm and Tower House Farm is from the existing A460 at Shareshill and Featherstone. Properties on Dark Lane and Park Road can currently be accessed from Hilton Lane and the A460, Featherstone. Traffic signals are in place on the A460/ New Road/ Dark Lane junction, these do not allow right turns onto Dark Lane forcing traffic wishing to enter Dark Lane from the south to either, turn left into New Road and undertake a U-turn to approach the junction from the west, or carry on to Hilton Lane to access Dark Lane from the north, adding a further 1.2 km (0.7 miles) to the journey.
- 12.6.5. There is one 2.8 ha planning application for housing within the study area this planning application is approximately 260 m north of the Scheme boundary. The



site would accommodate 103 dwellings (Refer to Figure 15.1, Allocation ID 23 [TR010054/APP/6.2]).

#### Community land and assets

- 12.6.6. There are no areas of community land (public open space, village greens, allotments or sports pitches) or assets (village halls, health care, education and religious facilities) within the Scheme boundary.
- 12.6.7. Community facilities within the study area include:
- In the village of Featherstone: Featherstone Academy primary school (300 m west of the Scheme boundary), Featherstone Methodist Church (26 m west of the Scheme boundary), Featherstone and Hilton Community Centre (including an area of public open space) (355 m west of the Scheme boundary) and Featherstone Family Health Centre (270 m west of the Scheme boundary).
  - In the village of Shareshill: Shareshill Village Hall, 330 m west of the Scheme boundary. Havergal Church of England Primary School (580 m west of the Scheme boundary and St Mary and St Luke Church (535 m west of the Scheme boundary) are outside the study area but within Shareshill village.
- 12.6.8. The villages of Featherstone and Shareshill are <1 km apart, linked by the existing A460 and associated footway. Residents of Featherstone and Shareshill can access community facilities in either of the villages via this route. There are no community facilities located within Hilton or Laney Green. The residents in these areas are likely to utilise community facilities within Featherstone and Shareshill. There are no secondary schools within Featherstone or Shareshill. The catchment school for these villages is Cheslyn Hay Sport and Community High School in Cheslyn Hay (approximately 900 m east of the Scheme boundary, outside of the study area). Refer to Figure 12.1 [TR010054/APP/6.2] for the location of community facilities.
- 12.6.9. More extensive community facilities are available in the nearest town - Cannock Chase (9 km north-east) - and city – Wolverhampton (11 km south). These are accessible by residents in the study area via the A460 north and south of the Scheme. The nearest general hospital is New Cross Hospital in Wolverhampton approximately 4 km south of Featherstone.
- 12.6.10. High traffic flows on the existing A460 Cannock Road currently result in congestion and increased journey times for vehicle users accessing community facilities outside their immediate village. The existing A460 acts as a barrier for WCH with limited signalised crossing along the road and high levels of congestion and Heavy Goods Vehicles (HGVs) likely to discourage cyclists and horse riders from using this route.

#### Development land and businesses

- 12.6.11. There are a number of businesses and allocated development land within the Scheme boundary, these include:
- Moseley Old Hall a National Trust property, south of the M54.

- Hilton Cross Business Park allocated as a strategic development site by SSC (Ref 12.19) located directly south-west of the M54 Junction 1.
- Dave's American Motorhome Service, north-east of M54 Junction 1, at Tower House Farm.
- Fishing pond, at Tower House Farm.
- Fishing ponds, at Lower Pool and the ponds west of Hilton Hall.
- Car boot held at a number of locations in proximity to the Scheme including two locations within the Scheme boundary.
- Fishing ponds south-east of Brookfield Farm.

12.6.12. There are a number of other businesses within the study area in close proximity to the Scheme boundary for which access may be affected by the construction or operation of the Scheme. On the existing A460 Featherstone there is a Convenience Store and Post Office, a petrol station and a public house. On Hilton Lane, Hilton there is a coach travel business (Majestic travel) adjacent to the Scheme boundary, paintball centre and Hilton Hall offices (also a wedding venue). Along the existing A460 in Shareshill businesses include the M6 Diesel petrol station, a vehicle repair garage and hand car wash as well as a number of businesses run from Brookfield Farm. Hilton Park Quarry is located to the east of the Scheme, a non-operational mineral infrastructure site but for which permitted reserves remain (refer to Appendix 10.1 for further details [TR010054/APP/6.3]).

12.6.13. As outlined in Chapter 15: Assessment of Cumulative Effects there are four allocated development sites within 500 m of the Scheme boundary (Development ID 20, 43 and 50) or with consented planning permission (Development ID 8 and 20, an allocated site with planning permission for the demolition of property), refer to Figure 15.1 [TR010054/APP/6.2] for the location of these sites. Allocations 50 and 20 are allocated for employment and transport with Allocation 50 being an access road proposed for Allocation 20. Allocation 43 is a proposed employment site. Further details of the proposed developments are provided in Appendix 15.1 [TR010054/APP/6.3]. These development sites are not anticipated to be impacted by the Scheme.

#### Agricultural land holdings

12.6.14. Nine landowners are expected to be affected by the Scheme, with much of the affected agricultural land in arable use and farmed by a third-party contractor. Agricultural land holdings and their sensitivity are detailed in Table 12.6 and illustrated in Figure 12.3 [TR010054/APP/6.2].

**Table 12.6: Agricultural land holdings within the Scheme boundary**

Farm Name	Holding type	Tenure	Area farmed	Other enterprises	Sensitivity
Farm holding 1	Arable and Grassland	Unknown	Unknown	N/A	High
Farm holding 2	Arable	Owner Occupied	Unknown	N/A	Medium

Farm Name	Holding type	Tenure	Area farmed	Other enterprises	Sensitivity
Farm holding 3	Arable	Owned/Contract Farmed	Unknown	American motorhome business; fishing	Medium
Farm holding 4	Equestrian	Unknown	Unknown	Equestrian; Fishing Lakes; Nightclub	High
Farm holding 5	Arable	Owned/Contract Farmed	121.4ha	Equestrian; fishing; clay pigeon shooting; classic car hire; storage, car boot sale site	Medium
Farm holding 6	Non-commercial Equestrian	Unknown	1.4ha	N/A	High
Farm holding 7	Arable	Unknown	Unknown	N/A	Medium
Farm holding 8	Grassland	Owned	1.2ha	N/A	Negligible
Farm holding 9	Arable and Woodland	Owned/Contract Farmed	Unknown	Car boot sale site	Medium

#### Walkers, cyclists and horse-riders

12.6.15. There are a number of WCH facilities located within the study area, these are listed in Table 12.7 and illustrated on Figure 12.1 [TR010054/APP/6.2]. The majority of PRow (footpaths, bridleways and byways) within the study area are largely located to the north of Hilton Lane between the A460 and M6.

12.6.16. There are a number of formal crossing points on the A460, these include:

- an uncontrolled at grade crossing point at Shareshill;
- a signalised crossing point at the northern extent of Featherstone;
- signalised crossing points on New Road and northern arm of the A460 at the New Road/ A460/ Dark Lane junction (the other arms of the junction utilise traffic lights however, there are no signalised crossing points in place);
- an uncontrolled at grade crossing point south of The Avenue; and
- uncontrolled at grade crossing points on all the arms of the M54 Junction 1.

12.6.17. WCH utilising these facilities along the A460 are exposed to heavy traffic (an annual average of 26,800 vehicles a day), a high proportion of which are HGVs, refer to the Transport Assessment Report for further details [TR010054/APP/7.4].

12.6.18. There are no routes designated under the National Cycle Network within the study area. However, there is a traffic free cycle route along the Staffordshire and Worcestershire Canal north of M54 Junction 2 and a short approximately 80 m section of cycleway painted on the carriageway of the northbound A460 south of New Road. The 'Cycle Map and Information Guide' for South Staffordshire, produced by Staffordshire County Council shows an 'advisory cycle route' along Hilton Lane and Dark Lane.

12.6.19. A survey of the numbers of WCH utilising PRow in the vicinity of the Scheme was undertaken on a weekend and weekday in August and September 2017 by Road Data Services. The survey covers a 12 hr period on a weekday and weekend between 7am to 7pm. The results of this survey are reported in Appendix 12.2 [TR010054/APP/6.3] and summarised in Table 12.7.

**Table 12.7: PRow and public access routes within close proximity to the Scheme boundary**

WCH routes	Details	2017 WCH survey results*		Sensitivity
		Weekend	Weekday	
Featherstone Bridleway BW 3	A bridleway which runs adjacent to the M54 and along the edge of Oxden Leasow Wood which joins a track to Moseley Road.	WCH surveys were not undertaken for this route, however, it is assumed that this route would have a similar level of use to other WCH facilities in the area and is used for recreational purposes, with reasonable alternatives available.		Medium
Shareshill Bridleway BW1	Part of the footpaths and bridleways which form a grid in between the A460, Hilton Lane and the M6, Shareshill 1 is a bridleway located south of Brookfield Farm providing an east to west link across the fields. Shareshill 1 links the A460 to Shareshill 17.	1 walker 0 cyclists 0 horse-rider	1 walker 0 cyclists 0 horse-rider	Low
Shareshill Footpath (FP) 3	Part of the footpaths and bridleways which form a grid in between the A460, Hilton Lane and the M6, Shareshill 3 runs in a north-south direction linking Shareshill 1 and 5. Shareshill 3 has been planted over and there is little evidence of use.	2 walker 0 cyclists 0 horse-rider	1 walker 0 cyclists 0 horse-rider	Low
Shareshill FP4/ Saredon FP8/ Saredon FP 1R/224 F	Part of the footpaths and bridleways which form a grid in between the A460, Hilton Lane and the M6, Shareshill 4 branches off perpendicular to Shareshill 1 heading north-east towards Junction 11 of the M6. Shareshill 4 merges into Saredon 8 as the footpath crosses Latherford Brook.	0 WCH recorded	0 WCH recorded	Low
Shareshill FP5	Part of the footpaths and bridleways which form a grid in between the A460, Hilton Lane and the M6, Shareshill 5 provides an east to west across fields north of Hilton Lane. The footpath links Hilton Lane and Shareshill 18.	1 walker 0 cyclists 0 horse-riders	3 walker 0 cyclists 0 horse-riders	Low
Shareshill FP17	Part of the footpaths and bridleways which form a grid in between the A460, Hilton Lane and the M6, Shareshill 17 is a footpath which provides an east to west link. The footpath merges into Shareshill 1 to the east and joins Shareshill 1R/2216 directly east of the M6. This path could not be	0 WCH recorded	0 WCH recorded	Low

WCH routes	Details	2017 WCH survey results*		Sensitivity
		Weekend	Weekday	
	located during the WCH survey. It was assumed the track that runs alongside is used.			
Shareshill BW18	A bridleway that runs from Hilton Lane (west of Yells Farm) in a north east direction to tie into Shareshill 17.	0 WCH recorded	0 WCH recorded	Low
Saredon BW13	Accessed from Windy Arbour Lane north east of the M6/ M6 Toll. Bridleway goes under the M6 Toll and alongside the M6; it runs alongside the A460 and terminates at M6 Junction 11.	0 WCH recorded	0 WCH recorded	Low
Dark Lane footway and advisory cycle route	Footway on the northern side of the road. There is an advisory cycle route along Dark Lane, though there are no cycling facilities along this route.	23 walkers 8 cyclists 0 horse-riders	6 walkers 5 cyclists 0 horse-riders	Medium
Hilton Lane (Near A460 Junction) partial footway and advisory cycle route	Footway along the northern carriageway of Hilton Lane as far as Majestic travel. There is an advisory cycle route along Hilton Lane, though there are no cycling facilities along this route.	9 walkers 24 cyclists 0 horse-riders	6 walkers 1 cyclists 0 horse-riders	Medium
A460 (M54 Junction 1) footway	There is a footway to the east and west of the A460. These footways continue south around the M54 Junction 1 utilising uncontrolled crossings with traffic flows of >8,000 – 16,000.	22 walkers 32 cyclists 2 horse-riders	30 walkers 19 cyclists 0 horse-riders	High
A460 (Featherstone to Shareshill) (footway)	There is a footway to the east and west of the A460 through Featherstone. North of Featherstone the eastern footway is discontinued, reoccurring further north at the junction with Shareshill providing access to a local bus stop on the southbound carriageway. There is a small section of an on road cycle lane near the junction with Dark Lane.	23 walkers 39 cyclists 0 horse-riders	42 walkers 19 cyclists 0 horse-riders	Medium
A460 (Shareshill to M6 Junction 11) (footway)	There is a footway along the northbound carriageway of A460 between Shareshill and Junction 11 of the M6.	7 walkers 22 cyclists 0 horse-riders	2 walkers 5 cyclists 0 horse-riders	Medium

WCH routes	Details	2017 WCH survey results*		Sensitivity
		Weekend	Weekday	
A460 (M6 Junction 11 to M6 Toll JT8) (footway)	The is a footway along the southbound carriageway of the A460 between M6 Junction 11 and M6 Toll Junction T8.	3 walkers 2 cyclists 0 horse-riders	1 walkers 0 cyclists 0 horse-riders	Low

## Accidents

12.6.20. Accident data over a three year period (between January 2015 and December 2017) recorded four slight accidents<sup>2</sup> involving cyclists within the WCH study area. No walker or horse-rider accidents were recorded in this time. The cycling accidents all occurred along the A460 or M54 Junction 1. No serious or fatal accidents for WCH were recorded within the study area in this period. This data is presented in Appendix 12.2, Figure 2.1 [TR010054/APP/6.3].

## **Human health**

12.6.21. The human health study area is within in the County of Staffordshire within the district of South Staffordshire which has an estimated population of 111,900 (Ref 12.20). In 2016, the total population of the wards of Featherstone and Shareshill, Cheslyn Hay North and Saredon and Essington was estimated to be 16,658 people, with the largest population within the ward of Featherstone and Shareshill, at 7,573 people (Ref 12.21). Table 12.8 provides a comparison of local health indicators for each ward against the national (England) averages.

12.6.22. In Featherstone and Shareshill the proportion of the population which are considered in the context of the assessment to have a health classification of 'bad or very bad' or are considered to have a long term illness or disability, is below the national average. The proportion of the population with increased susceptibility to health issues (aged <16 or >65) is lower than the national average.

12.6.23. In Essington the proportion of the population which are considered to have a health classification of 'bad or very bad' or are considered to have a limiting long term illness or disability is considered to be worse than the national average.

12.6.24. In Cheslyn Hay North and Saredon the proportion of the population which are considered to have a health classification of 'bad or very bad' or are considered to have a limiting long term illness or disability is higher than the national average. However, the life expectancy for both males and females is considered to be slightly higher than the national average.

**Table 12.8: Human health profile within the study area (Ref 12.21)**

Local Health Indicator	Ward			England
	Featherstone & Shareshill	Essington	Cheslyn Hay North & Saredon	
Population	7,164	5,179	4,337	54,786,327
Population aged under 16 (%)	12.0	16.1	16.4	19.0
Population aged over 65 (%)	12.4	23.8	22.5	17.8
Percentage of the community with increased susceptibility to	24.4	39.9	38.9	36.8

<sup>2</sup> One in which at least one person is slightly injured but no person is killed or seriously injured.



Local Health Indicator	Ward			England
	Featherstone & Shareshill	Essington	Cheslyn Hay North & Saredon	
health issues (<16 and >65)				
Income deprivation (people living in income-deprived households as % of population)	13.7	12.0	10.8	14.6
General health - bad or very bad (%)	5.1	8.7	6.2	5.5
Limiting long term illness or disability (%)	16.6	21.5	20.3	17.6
Emergency hospital admissions for Chronic Obstructive Pulmonary Disease (SAR)	54.6	77.7	66.1	100
Deaths from respiratory diseases, all ages, all persons (SMR)	84.7	112.9	98.7	100
Life expectancy at birth - males, 2011-2015 (years)	80	78.9	79.9	79.4
Life expectancy at birth - females, 2011-2015 (years)	84.5	81.3	85.1	83.1
<p>(Standardised Admissions Ratio (SAR): The ratio of the observed number of admissions in a ward to the number expected if the ward had the same age-specific rates as England. Standard Mortality Ratio (SMR): 'is a quantity, expressed as either a ratio or percentage quantifying the increase or decrease in mortality of a study cohort with respect to the general population' (Ref 12.21)</p>				

12.6.25. Health is a complex topic which is influenced by a number of health determinants including air quality emissions, noise and vibration, landscape amenity, pathways to contamination and access to public open space, education and healthcare facilities. A brief overview of the existing conditions of these health determinants are provided below:

- There are three Noise Important Areas within the human health study area, one north of Moseley Old Hall on the M54, one of the A460 Cannock Road through Featherstone and one north-east of M6 Junction 11 on Wolverhampton Road. For further details of the existing ambient noise refer to Chapter 11: Noise and Vibration.

- There are no Air Quality Management Areas (AQMAs) within the human health study area. For further details of ambient air quality emissions refer to Chapter 5: Air Quality.
- Landscape amenity is considered as part of the landscape and visual assessment. For details on existing landscape amenity refer to Chapter 7: Landscape and Visual.
- There are a number of potential sources of contamination including an historic landfill site and historic mining sites. For further details refer to Chapter 9: Geology and Soils.
- Access to public open space, healthcare and education facilities are reported in this chapter above under the subheading of 'Land-use and access'.

### **Future baseline**

12.6.26. As detailed in Chapter 4: Environmental Assessment Methodology, in order to identify the effects of the Scheme on environmental features, it is important to understand the baseline at the year of construction commencement and at the year the Scheme becomes operational. The baseline conditions for these years may be different to the current conditions and such changes could alter the sensitivity of existing environmental receptors, as well as introduce new sensitive receptors.

#### Construction year baseline (2021)

12.6.27. The baseline details as reported in the sections above describes the people and communities features as they are currently (2019). Construction works associated with the Scheme are anticipated to start in 2021, subject to securing a DCO (refer to Chapter 2: The Scheme).

12.6.28. The majority of the land that would be impacted by the Scheme (and in its vicinity) comprises existing highway infrastructure (the M54, the M6 and the existing alignment of the A460), agricultural land, woodland, and surrounding residential areas in Featherstone and Shareshill. Environmental baseline conditions are not anticipated to change significantly by 2021 from the conditions as detailed above. As detailed in Chapter 15: Assessment of Cumulative Effects, a number of development projects are ongoing, or are planned, that have the potential to change baseline conditions. However, there are no developments within the study area which are anticipated to be operational by 2021. For further details of developments refer to Appendix 15.1 [TR010054/APP/6.3].

#### Opening year baseline (2024)

12.6.29. It is not possible to accurately predict baseline environmental conditions for the year of Scheme opening (2024) given the uncertainties regarding area development proposals; however, it is anticipated that baseline conditions in the vicinity of the Scheme will largely be the same as at 2021, although most of the developments as detailed in Appendix 15.1 [TR010054/APP/6.3] are anticipated to have been completed by 2024. Those developments within 500 m of the Scheme boundary include:

- 19/00919/FUL SSC application of 103 dwellings, with infrastructure access and open space (Development ID 23).

- SSC allocation Hilton Cross Business Park available plots (Development ID 30).
- City of Wolverhampton Council regeneration corridor, Fordhouses; a premier high quality employment location in the Black Country and a focus for leading edge, high technology industry in the Wolverhampton to Telford High Technology Corridor (Development ID 43).

12.6.30. Planned future developments in addition to those listed above have been taken into consideration during the assessment. For example, changes in future traffic baseline flows have been modelled both with and without the Scheme taking into account future development patterns (refer to the Transport Assessment Report [TR010054/APP/7.4]). Modelling outcomes have been used in order to determine the potential effect of Scheme opening on the environment surrounding the Scheme e.g. noise, air quality, severance, water quality effects, biodiversity.

#### Design year baseline (2039)

12.6.31. It is not possible to accurately predict baseline environmental conditions for the design year of the Scheme (2039) given the uncertainties regarding area development proposals. There are two known allocations and applications within the study area for the Scheme which are anticipated to be operational by 2039, these include:

- ROF Featherstone (Development ID 29) (for employment use and associated landscape planting); and
- the accompanying ROF Featherstone road option 9 (Development ID 50).

12.6.32. A wide range of long term potential future development proposals have been taken into account by the traffic modelling used to support the assessment (both with and without the Scheme) (refer to the Transport Assessment Report [TR010054/APP/7.4]). Modelling outcomes have been used in order to determine the potential impacts on human health during operation of the Scheme.

## 12.7. Potential impacts

### **Land use and access**

12.7.1. The introduction or modification of road infrastructure associated with the Scheme would potentially result in different types and durations of impact on land use and access, during the construction and operational phases.

#### Construction

12.7.2. Temporary construction impacts lasting for all or part of the construction phase of the Scheme potentially include the following:

- Temporary disruption to access for residential properties and businesses as a result of road closures and traffic management.
- Temporary changes to severance/ accessibility of community assets, development land, businesses and agricultural land holdings due to construction activities and associated vehicle movements.
- Temporary loss of land from agricultural land holdings to accommodate construction.

12.7.3. Permanent construction impacts lasting beyond the construction phase potentially include the following:

- Permanent changes to access for residential properties on Dark Lane and Park Road, Tower House Farm and the existing A460.
- Permanent change to access for commercial properties on the existing A460, fishing pool and those located at Tower House Farm
- Permanent loss of land from business and development sites.
- Permanent loss of land associated with agricultural land holdings.
- Permanent severance of land and buildings which form part of an agricultural holding.
- Permanent realignment of WCH facilities as a result of permanent land take to facilitate the footprint of the Scheme.

#### Operational

12.7.4. Operational impacts of the Scheme on land use and access potentially include the following:

- Changes to traffic movements which could affect the severance of community facilities.
- Changes to traffic movements which could affect the severance of businesses.

#### **Human health**

12.7.5. Potential impacts in terms of human health include:

- Temporary changes in air quality, noise and vibration and amenity arising from construction activities and associated vehicle movements.
- Permanent changes in air quality, noise and vibration and amenity arising from operation of the Scheme.
- Temporary and permanent impacts on access to healthcare services and social infrastructure as a result in changes in severance.
- Temporary and permanent impacts on social cohesion as a result of changes in severance.

## 12.8. Design, mitigation and enhancement measures

### **Embedded mitigation**

12.8.1. The Scheme has been designed, as far as possible, to avoid and minimise impacts and effects on population and human health through the process of design-development (refer to Chapter 3: Assessment of Alternatives) considering good design principles. Embedded mitigation, defined within the DMRB as 'Design measures which are integrated into a project for the purpose of minimising environmental effects,' is reported as part of the scheme description in Chapter 2: The Scheme. The following section reports the essential mitigation required in addition to embedded mitigation to reduce and offset likely significant adverse environmental effects.

## Essential mitigation

### Construction

- 12.8.2. During the construction of the Scheme, a number of mitigation measures would be put in place to reduce potential impacts on population and human health.
- 12.8.3. As detailed in Chapter 2: The Scheme, construction of the Scheme would be subject to measures and procedures as defined within the OEMP [TR010054/APP/6.11]. This OEMP includes a range of measures associated with mitigating potential environmental impacts during Scheme construction. The measures detailed within the OEMP would be developed into a CEMP, which would be prepared and implemented by the appointed construction contractor. The CEMP would set out the environmental mitigation requirements during Scheme construction and also the project level expectations on how the Scheme would be constructed.
- 12.8.4. A Traffic Management Plan (TMP) would be prepared and implemented by the construction contractor. The TMP 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 HGV movements, particularly at peak periods. HGV deliveries of construction materials would be made in a 12 hour period between 07:00 and 19:00 on weekdays and between 07:00 and 13:00 on Saturdays, other than in exceptional circumstances. HGV deliveries would access the Scheme construction sites via the main highway corridors of the M54 and the M6 and would utilise the main haul route along the line of the new link road where possible.
- 12.8.5. Bus routes would be taken into consideration when defining temporary diversions and temporary traffic management - the construction contractor would discuss and agree temporary diversion routes in advance with SSC, SCC and City of Wolverhampton Council (CWC) as applicable in order to limit impacts on passengers.
- 12.8.6. Planning of the Scheme construction works would be undertaken in order to minimise the need to close and divert footways, PRow and cycle facilities, and minimise closures and diversion durations. Where the closure of WCH routes would be required, safe and appropriate alternative means of access would be provided to ensure access would be maintained at all times in order to minimise temporary severance. The construction contractor would agree temporary diversion routes in advance with SSC, SCC and CWC as applicable. Appropriate signage for all closures and diversion of footpaths and cycleways would be used to inform WCH with sufficient notice of such closures and diversions being provided.
- 12.8.7. During the Scheme construction phase, appropriate mechanisms to communicate with local residents and businesses would be set up to highlight potential periods of disruption (e.g. web-based, newsletters, newspapers, radio announcements etc.). This would include the appointment of a Community Relations Manager (CRM) responsible for leading engagement with affected communities. A Highways England Scheme web-page would be set up to provide up-to-date construction and

community liaison information. It is envisaged that the web-page would provide updates regarding construction progress, details of areas affected by construction, and mitigation in place to reduce adverse effects. The communication approaches would help drivers and local residents to plan their journeys and take account of potential disruption due to Scheme construction, as well as provide local residents with details of construction phase activities.

- 12.8.8. In addition, the Highways England Customer Contact Centre would also be available to deal with queries from the public. This includes an information line staffed by Highways England at all times. A complaint management system would be in place, in line with systems used by Highways England on other major infrastructure projects. Any complaints would be investigated and appropriate action taken as required. The complainant would be provided with a response outlining the results of the investigation and any action taken.
- 12.8.9. The OEMP includes a number of mitigation measures to minimise impacts on agricultural holdings during construction, these include:
- arrangements for the maintenance of farm and field accesses affected by construction;
  - the protection and maintenance of livestock water supply systems, where reasonably practicable;
  - the protection of agricultural land adjacent to the construction site, including the provision and maintenance of appropriate stock-proof fencing;
  - the adoption of measures to control the deposition of dust on adjacent agricultural crops;
  - the control of invasive and non-native species and the prevention of the spread of weeds generally from the construction site to adjacent agricultural land;
  - the adoption of measures to prevent, insofar as reasonably practicable, the spread of soil-borne, tree, crop and animal diseases from the construction area; and
  - liaison and advisory arrangements with affected landowners, occupiers and agents, as appropriate.
- 12.8.10. Where unrestricted agricultural uses are to be resumed on land disturbed during the construction of the Scheme, the design objective is to avoid any reduction in long term capability, which would downgrade the quality of the disturbed land, through the adoption of good practice techniques in handling, storing and reinstating soils on that land as detailed in Chapter 9: Geology and Soils.
- 12.8.11. Essential mitigation measures for noise and visual impacts during construction of the Scheme are outlined in Chapter 11: Noise and Vibration and Chapter 7: Landscape and Visual.

#### Operation

- 12.8.12. No essential mitigation measures are required during the operation of the Scheme in addition to those measures embedded in the Scheme design as outlined in Chapter 2: The Scheme. Essential mitigation measures for noise and visual

impacts during operation of the Scheme are outlined in Chapter 11: Noise and Vibration and Chapter 7: Landscape and Visual.

### **Enhancement measures**

- 12.8.13. No enhancement measures are proposed in relation to population and human health.

## **12.9. Assessment of likely significant effects**

### **Construction**

#### Land use and access

##### *Private property and housing*

- 12.9.1. No land is required from residential properties temporarily or permanently to construct the Scheme. No residential properties would be demolished as part of the Scheme.
- 12.9.2. The permanent closure of Dark Lane north of Park Road during construction would alter access to the residential properties (60 properties – high sensitivity) on Dark Lane and Park Road (accessed from Dark Lane). Residents would no longer be able to gain access to Dark Lane from Hilton Lane in a vehicle, though WCH connections would be maintained through the provision of a new shared footway and cycling, an improvement on the existing facilitates for WCH. Traffic signalling at the New Road/ Dark Lane/ A460 junction would be altered as part of the Scheme to allow access to Dark Lane from the A460 south of Dark Lane improving the access to Dark Lane from the A460. Currently residents are only able to turn left/right into Dark Lane from the north/south. These permanent changes to access are anticipated to have negligible beneficial impact on residents of Park Road and Dark Lane resulting in a slight beneficial effect which is not significant.
- 12.9.3. The current access to Tower House Farm from the existing A460 would be permanently severed by the Scheme. A new permanent access would be provided directly off the M54 Junction 1 (eastern dumbbell). This would have a negligible impact on three residential property (and planning application for a further three residential properties) (medium sensitivity) resulting in a neutral effect which is not significant.
- 12.9.4. A number of residential properties (approximately six – medium sensitivity) on the A460 Cannock Road in Featherstone would be temporarily and permanently impacted by the realignment of the existing A460 to tie into the new M54 Junction 1 arrangement. The driveways of these properties would be extended to tie into the new road alignment to maintain permanent access. Access to these properties would be maintained at all times during the construction period, though there may be a short period (up to two weeks) where vehicular access to the property's driveways may not be possible during the road realignment works. This would result in a temporary minor adverse impact on a medium receptor resulting in a slight adverse effect. The permanent impact on access to these properties on the A460 is considered to be negligible due to the minor alteration to their access. This would result in a permanent neutral effect which is not significant.

- 12.9.5. No other accesses to residential properties would be temporarily or permanently altered by the Scheme.

*Community land and assets*

- 12.9.6. Community land and assets would not be directly impacted by the Scheme, with no loss of land or change to the access of these sites. The main community facilities for the villages and residential properties adjacent to the Scheme (Featherstone, Hilton, Shareshill and Laney Green) are located in Featherstone and Shareshill, due to the distance between these residential areas these community facilities are considered to be accessible by WCH and vehicles travellers within the villages and from the surrounding villages.
- 12.9.7. During construction of the Scheme access to the construction compounds would be from the A460 with deliveries and workers travelling to site, this would result in an increase in traffic along the existing A460 (+220 HDVs (+420 AADT)), and the potential for increases in congestion at the M54 Junction 1 and the M6 Junction 11. It is therefore anticipated that construction activities may result in a change in journey patterns and routes with trips between villages and the wider community facilities anticipated to take longer for motorised users due to unfamiliar road layouts during works to the two junctions, and the potential for increased congestion which may result in some hindrance to movement. However, it is unlikely that users would be dissuaded from making journeys. Therefore motorised users would likely experience a minor increase in severance from community facilities during construction of the Scheme resulting in slight adverse effect.
- 12.9.8. The Scheme is not anticipated to increase WCH severance within the communities of Featherstone and Shareshill during construction. For example, the Scheme would not result in increases in journey length, or new obstacles within Featherstone that would deter the residents of Featherstone from making trips to community facilities within Featherstone during the construction period. However, residents in Hilton and Laney Green who do not have their own community facilities, due to the size of the settlements and proximity to other villages, are likely to rely on community facilities in Featherstone and Shareshill. Due to the high levels of traffic on the existing A460 a small increase in severance is likely during construction of the Scheme for WCH.
- 12.9.9. Existing traffic levels along the A460 already provide a level of severance between Hilton and Featherstone and Shareshill for WCH, however there are two signalised crossing facilities on the A460 (at the New Road junction and 90 m north of this junction) to allow users to safely cross this route. These crossing facilities would be maintained during the construction of the Scheme to maintain connectivity and therefore there is anticipated to be minor adverse impact on severance between Hilton and Featherstone and Shareshill community facilities for WCH resulting in a slight adverse effect.
- 12.9.10. During construction there is potential for the footway between Laney Green and Shareshill to be disrupted while the new junction arrangement is being constructed. This route would be maintained where possible but may need to be temporarily closed or diverted during construction which may deter users. The arrangements for closure or diversion would be agreed between the contractor and SCC in



advance. Laney Green is approximately 1.5 km from Shareshill along a busy road and therefore it is anticipated that this route is unlikely to be used by more vulnerable users such as the elderly or children at present. Assuming a temporary closure of this route may be required the construction of the Scheme is anticipated to result in a minor increase in severance for WCH during the construction phase resulting in a slight adverse effect.

*Development land and business*

- 12.9.11. Moseley Old Hall National Trust site is within the Scheme boundary. The site is greater than 5 ha in size and therefore is of very high sensitivity. Land which forms part of this site would be required temporarily to provide access to Oxton Leasow (Whitgreaves) Wood, an area of ancient woodland, to provide enhancement work. This would result in a change to the operation or viability of the site. It is anticipated that there would be no change in impact on Moseley Old Hall as a result of the Scheme resulting in a neutral effect which is not significant.
- 12.9.12. Hilton Cross Business Park is an allocated site 18 ha in size with a remaining 4.8 ha of available land for employment and is therefore considered to be of very high sensitivity. An area of less than 0.2 ha (1% of the overall site) would be required permanently to accommodate the realignment of the M54 Junction 1 westbound on-slip. The land required is non-operation land located around the northern edge of the site adjacent to the M54, currently planted with trees. It is not anticipated that the permanent land take would reduce the viability of this site for future development. The Scheme would have a negligible impact on a high value site resulting in a slight adverse effect which is not significant.
- 12.9.13. There are a number of businesses, a motorhome services business and fishing pond run from Farm Holding 5. The motorhome services business is an existing employment sites covering >1 - 5ha, therefore the sensitivity of this business is high. The Scheme would result in the permanent loss of up to 860 m<sup>2</sup> (0.09 ha) of approximately 12,600m<sup>2</sup> of land including part of the yard and circulatory space to accommodate the M54 Junction 1 eastbound on-slip (within the limits of deviation). This amendment to access and acquisition of land may result in changes to the operation of the business (i.e. reduced storage space) but it is unlikely to compromise the overall viability of the business as it currently operates. The Scheme would have a permanent minor adverse impact on the business resulting in a permanent slight adverse effect which is not significant.
- 12.9.14. The fishing pond at Tower House Farm (0.5 ha in size) would be lost permanently to accommodate the M54 Junction 1 eastbound on-slip. This is a receptor of low sensitivity as it is assumed the pond does not provide permanent employment, the landowner would be compensated for the loss of this land and it would be relatively easy to replace should the landowner wish to do so. Total loss of the pond would result in a major adverse impact, resulting in a slight adverse effect which is not significant.
- 12.9.15. The closure of the existing A460 onto the existing M54 Junction 1 and realignment of the A460 to the new M54 Junction 1 would not require any land from these businesses however it would result in a change of access for the public house and petrol station. New access would be provided off the realigned A460. Access to

these businesses would be maintained throughout the construction period. Therefore, the construction of the Scheme would not result in a change in characteristics or features of the businesses or impact on the operation and viability. Temporary increases in traffic flows and the number of HGVs using the existing A460 during construction are anticipated to result in a minor increase in severance resulting in a slight adverse impact on these businesses which is not significant.

- 12.9.16. The alignment of the Scheme east of Dark Lane would result in the permanent partial loss (6,010 m<sup>2</sup>) of Lower Pool (12,900 m<sup>2</sup>), a pond stocked with fish for recreational fishing. This would result in the loss of approximately 47% of Lower Pool permanently. The rest of this pond is currently shown as being permanently required for the Scheme and therefore it is assumed that this pond would not be returned to the landowner post construction. There are two further fishing ponds under the same ownership which it is assumed would remain accessible during the construction period. Access to this site from the existing A460 would be severed during construction and a new access would be provided off the new M54 Junction 1 (eastern dumbbell). It is considered that this would result in a permanent minor adverse impact on a receptor of low sensitivity during the construction of the Scheme resulting in a permanent slight adverse effect.
- 12.9.17. Businesses located on Hilton Lane, Hilton Hall offices and a coach company (Majestic Travel) (both of medium sensitivity), would experience some minor disruption during the construction phase, during the works to Hilton Lane bridge. A temporary two way diversion would be put in place during these construction works to Hilton Lane. One way traffic lights would be in place for up to two weeks to construct the tie-ins to the temporary diversion. Access to these businesses would be maintained at all times during the construction of the Scheme, therefore the impact on these businesses is anticipated to be minor adverse at most during the construction phase resulting in a slight adverse effect, which is not significant.
- 12.9.18. The alignment of the Scheme and accommodation bridge to the south-east of Brookfield Farm would result in the loss of one pond and the partial loss (-9%) of a second pond (loss of up to 190 m<sup>2</sup> of a total 2160 m<sup>2</sup>) which are stocked with fish and used for recreational fishing. It is assumed that access to all three of these ponds would be lost temporarily during construction of the Scheme (approximately three years) due to the close proximity to the construction works. The fishing ponds are of low sensitivity as it is assumed that they do not provide permanent employment and the landowner would be compensated for the temporary and permanent loss of the ponds. The Scheme would have in a major adverse temporary impact on a receptor of low sensitivity which would result in a slight adverse effect, which is not significant.
- 12.9.19. Fields which temporarily accommodate a Sunday car boot sale (up to a maximum of 14 times a year on each site) held at Mill Lane, Saredon and Dark Lane, Featherstone would be acquired permanently as part of the Scheme. During the construction phase these fields would accommodate a temporary borrow pit (north of Dark Lane) and construction compound (off Mill Lane). These areas would then be used permanently during operation of the Scheme for ecological, landscape and visual mitigation measures (woodland planting, species rich hedgerows, species

rich grassland and ecology ponds). The car boot utilises a number of other fields in proximity to the Scheme in Essington, Cannock and behind M6 Diesel, Shareshill which would be unaffected by the Scheme. It is therefore likely that this receptor is of low sensitivity as it does not provide permanent employment and utilises land temporarily as a secondary use, for which there are likely to be alternatives in the area. The loss of this land would have a minor adverse impact on a receptor of low sensitivity value resulting in a slight adverse effect, which is not significant.

- 12.9.20. Hilton Park quarry is a non-operational mineral infrastructure site in proximity to the Scheme, Appendix 10.1 [TR010054/APP/6.3] considers the impact of the Scheme on this receptor and the associated mineral safeguard area. To summarise the report concluded that operations at the Hilton Park site would not be prohibited by the Scheme should it become operational in the future.

*Agricultural land holdings*

- 12.9.21. The acquisition and use of land for the Scheme would interfere with existing uses of that land and, in some locations, preclude existing land use practices. This could result in potential effects associated with the ability of affected agricultural interests to access and use residual parcels of land. The Scheme seeks to reduce this disruption and, where appropriate and reasonably practicable, incorporate inaccessible severed land as part of environmental mitigation works.
- 12.9.22. The effects of the Scheme on individual agricultural and related interests during the construction period are summarised in Table 12.9. The area of agricultural land that could be returned to the holding following the construction period is also indicated. The effect of severance during construction as set out in Table 12.9 is judged on the ease and availability of access to severed land (but excludes land already severed from the main holding or accessed from the public highway). Impacts on residential properties on farm holdings are assessed, as required, in Chapter 5: Air Quality and Chapter 11: Noise and Vibration.

**Table 12.9: Assessment of temporary effects on agricultural holdings**

Holding name	Sensitivity to change	Total area required during construction	Construction severance	Magnitude of Impact	Scale of construction effects	Area to be restored to agriculture
Farm holding 1	High	8.6 ha	Negligible	Moderate	Moderate adverse	0.9 ha
Farm holding 2	Medium	2.2 ha	Negligible	Minor	Slight adverse	1.0 ha
Farm holding 3	Medium	31.7 ha	Minor	Minor	Slight adverse	5.6 ha
Farm holding 4	High	0.4 ha	Negligible	Minor	Slight adverse	0 ha

Holding name	Sensitivity to change	Total area required during construction	Construction severance	Magnitude of Impact	Scale of construction effects	Area to be restored to agriculture
Farm holding 5	Medium	20.7 ha	Minor	Moderate	Moderate adverse	6.6 ha
Farm holding 6	High	1.5 ha	Negligible	Major	Large adverse	0 ha
Farm holding 7	Medium	3.6 ha	Negligible	Minor	Slight adverse	0.8 ha
Farm holding 8	Negligible	1.2 ha	Negligible	Major	Slight adverse	0 ha
Farm holding 9	Medium	26.1 ha	Minor	Moderate	Moderate adverse	2.8 ha

12.9.23. Overall, nine holdings would be affected during construction, of which one would experience a large adverse effect and three holdings would experience moderate adverse effects, which are significant for each holding.

12.9.24. The permanent effects from the construction of the Scheme on individual agricultural land holdings and related interests are summarised in Table 12.10. The scale of effect is based on the proportion of land required from the holding, the degree of severance and the consequence for the viability of the individual holdings.

**Table 12.10: Summary of permanent effects on agricultural holdings**

Holding name	Sensitivity to change	Land from holding (and % of total size)	Permanent severance	Magnitude of impact	Significance of effect
Farm holding 1	High	7.7 ha	Negligible	Moderate	Moderate adverse (significant)
Farm holding 2	Medium	1.2 ha	Negligible	Minor	Slight adverse (not significant)
Farm holding 3	Medium	26.1 ha including loss of car boot site and fishing pool	Minor	Minor	Slight adverse (not significant)
Farm holding 4	High	0.3 ha	Negligible	Minor	Slight adverse (not significant)

Holding name	Sensitivity to change	Land from holding (and % of total size)	Permanent severance	Magnitude of impact	Significance of effect
Farm holding 5	Medium	14.4 ha including the loss of a fishing pool	Minor	Moderate	Moderate adverse (significant)
Farm holding 6	High	1.5 ha	Negligible	Major	Large adverse (significant)
Farm holding 7	Medium	2.8 ha	Negligible	Minor	Slight adverse (not significant)
Farm holding 8	Negligible	1.2 ha	Negligible	Major	Slight adverse (not significant)
Farm holding 9	Medium	23.3 ha including loss of car boot site and fishing pool	Minor	Moderate	Moderate adverse (significant)

12.9.25. The impacts on farm holdings relate primarily to the loss of land. The Scheme would result in the loss of approximately 78 ha of agricultural land that is currently in agricultural use but, as the majority of the land is farmed remotely on a contract basis, there would be few consequences for the ongoing viability and operations of the agricultural occupiers.

12.9.26. Three of the holdings are assessed as being of high sensitivity. Two of these are smaller holdings with equestrian activities and one is an off-lying area of a dairy farm. One of these holdings would experience a large adverse permanent effect due to the holding being required in its entirety. Overall, the presence of the Scheme would affect nine holdings with one holding experiencing a large adverse permanent effect and three experiencing moderate adverse permanent effects which are significant for each holding.

12.9.27. Although financial compensation would be available, there can be no certainty that this would be used to reduce the adverse agricultural effects. Therefore, this assessment represents the worst case, which could be reduced if the owner and/or occupier is able, and chooses, to use compensation payments to replace assets.

*Walkers, cyclists and horse-riders*

12.9.28. Changes to journey times, local travel patterns, and certainty of route for WCH would arise from the temporary closures and diversions of PRoWs through direct land take, severance, and provision of access routes required for the construction of the Scheme.

12.9.29. The Scheme is likely to result in the diversion or temporary closure of several routes during construction, some of which would become permanent diversions for the operation of the Scheme. There are also likely to be some routes (for example the footway on Hilton Lane), which will require temporary diversion during construction, but with a final reinstatement on the current alignment.

- 12.9.30. Planning of the Scheme construction works would be undertaken in order to minimise the need to close and divert footways, PRow and cycle facilities, and minimise closures and diversion durations. It is anticipated that the following routes would be at risk of diversion or temporary closure during construction:
- Featherstone BW3;
  - footway along A460 south of Dark Lane;
  - footway and advisory cycle route along Dark Lane;
  - Shareshill FP4/ Saredon FP8 and Saredon 1R/2214 which forms a single walking route;
  - Shareshill FP5;
  - Shareshill BW1;
  - Mill Lane advisory cycle route;
  - Footway around M6 Junction 11 connecting to the A460; and
  - Saredon BW13.
- 12.9.31. As noted in Section 12.8, where the closure of WCH routes would be required, safe and appropriate alternative means of access would be provided to ensure access would be maintained at all times in order to minimise temporary severance. The construction contractor would agree appropriate temporary diversion routes in advance with SSC, SCC and CWC as applicable. Appropriate signage for all closures and diversion of footpaths and cycleways would be used to inform walkers and cyclists with sufficient notice of such closures and diversions being provided. Considering the low to medium sensitivity of these routes (Table 12.7) and the mitigation measure proposed that construction of the Scheme would result in a temporary minor adverse effect on WCH which is not significant.
- 12.9.32. The permanent realignment and diversion and improvement of WCH facilities are illustrated in Figure 12.2 [TR010054/APP/6.2].
- 12.9.33. Featherstone BW3 (medium sensitivity) would be permanently realigned 10 m south of its current alignment to accommodate the widening of the M54 Junction 1 westbound on-slip. The realignment would result in a negligible reduction in journey length of approximately 8 m. The Scheme would have a negligible beneficial impact on a PRow of medium sensitivity resulting in a neutral effect, which is not significant.
- 12.9.34. The southern end of the A460 would be closed as part of the Scheme (medium sensitivity) with WCH permanently diverted along the realigned A460 and through the new alignment of M54 Junction 1. For users travelling to or from north of the Red White and Blue public house in Featherstone, to the south of the M54 would experience an increase in journey length of 245 m to 300 m. However, the new route would be a shared footway and cycleway providing improved facilities. Traffic flows at Junction 1 would also be reduced, with the junction predominantly used by local traffic, with long distance HGVs) traffic utilising the free flow link to the mainline of the Scheme. This is anticipated to improve the amenity and perceived safety of this route. Therefore, despite a moderate increase in journey length the Scheme would result in at most, a slight adverse effect. For cyclists this route

provides an improvement to the existing facilities despite the increase in journey length resulting in a permanent minor beneficial impact and slight beneficial effect.

- 12.9.35. The northern end of Dark Lane (medium sensitivity) would be permanently closed during construction reducing traffic along Dark Lane. A new shared footway and cycleway would be built to the west of the mainline to maintain the WCH route between the A460 and Hilton Lane. The shared route would result in either approximately an 80 m reduction or 40 m increase in journey length, depending on the direction of travel. The new facilities are anticipated to improve the perception of safety and convenience resulting in a minor beneficial impact and a slight beneficial effect on WCH, which is not significant.
- 12.9.36. Shareshill FP5 (low sensitivity) would be permanently severed during construction of the Scheme and realigned along Hilton Lane, over the new Hilton Lane overbridge on a new section of footway, then diverted north parallel to the Scheme to tie into the current alignment of the footpath. This would result in a minor increase in journey length of approximately 120 m. Though this would result in an increase in journey length for walkers using this route, it would provide greater connectivity to other WCH facilities, providing a link between Hilton Lane and the new shared footway/ cycleway off Dark Lane. Therefore, this would result in a neutral effect which is not significant.
- 12.9.37. Shareshill BW1 (low sensitivity) would be permanently severed during construction of the Scheme and the bridleway realigned on an accommodation bridge built to accommodate horse-riders over the mainline of the Scheme. This would result in a major increase in journey length of approximately 605 m. As this route is of low sensitivity due to the number of users recorded (1 walker) and is anticipated to be used largely as a recreational route for WCH, the significance of effect is anticipated to be slight adverse which is not significant.
- 12.9.38. Saredon FP 1R/2214, Saredon FP8 and Shareshill FP4 form a continuous footpath linking the footway around the eastern side of the M6 Junction 11 to Shareshill BW1 and Shareshill FP4 (low sensitivity). The permanent change in journey length has therefore been considered as a single route rather than considering the footway and footpaths in isolation. The footway on the new M6 Junction 11 would link directly into Saredon FP8 due to the widening of the junction making Saredon FP 1R/2214 redundant. Though this would result in the loss of a PRoW it would not significantly change the route used by walkers permanently. Saredon FP8 would be realigned approximately 40 m to the east adjacent to the mainline of the Scheme. Access would be maintained across Watercourse 5 details to be considered during the detailed design of the Scheme. The change in journey length along the full length of this route (A460 (north of Junction 11) to the tie in with Shareshill BW1) resulting in a permanent slight beneficial effect, which is not significant.
- 12.9.39. As part of the realignment of the A460 and M6 Junction 11, the footway (adjacent to the west of the A460 and through M6 Junction 11) and Saredon BW13 (low sensitivity) would be permanently realigned which would result in a negligible reduction in journey length of approximately 18 m. The steps between the bridleway and the junction would be removed and the bridleway appropriately

regraded to link into the junction without the need for steps. The footway around Junction 11 would be replaced with a shared footway and cycleway which would link directly into Saredon BW13 to the north and the advisory cycle route on Mill Lane to the south and providing an improved perception of safety for cyclists using this route. It is therefore anticipated that this would result in a slight beneficial effect which is not significant.

### Human health

#### *Access to healthcare service and other social infrastructure*

- 12.9.40. During periods of the construction phase, traffic would be restricted by traffic management and an increase in construction traffic in the area. However, the provision of mitigation measures, such as diversions and relevant access points, would ensure access to health care and community facilities remains possible. The effect on local community assets as a determinant of human health during construction is assessed to be neutral (0).

#### *Access to open space and nature*

- 12.9.41. There are no areas of public open space within the Scheme boundary and there is limited public access to natural spaces in the immediate vicinity of the Scheme. During construction, temporary working and storage areas, material stockpiles, haul roads and provision for site compounds are expected. PRow access would be maintained throughout the construction period where possible to maintain access to existing natural spaces.
- 12.9.42. Changes to journey times, local travel patterns, and certainty of route for WCH would arise from the temporary closures and diversions of PRow through direct land take and provision of access routes required for the construction of the Scheme. Through mitigation measures, such as temporary diversions to access routes and PRow and replacement provision of access to open and natural space during the Scheme construction would be maintained and so the effect on human health is assessed to be neutral (0).

#### *Air quality, noise and neighbourhood amenity*

- 12.9.43. There is potential for residents to be affected by noise exceedances or worsening in air quality due to construction activities and construction traffic where present. Construction works and increased traffic noise from additional vehicle movements including HGVs would increase noise and vibration impacts at nearby noise sensitive receptors, although these impacts would be temporary in nature.
- 12.9.44. The assessment in respect of construction noise and vibration concludes that the majority of effects on noise sensitive receptors would not be significant, however receptors closest to the construction works in the vicinity of the A460 (section to be realigned) Dark Lane, Hilton Lane and Brookfield Farm would experience significant adverse effects during construction. For the majority of these receptors the impact would be short term. Once specific details of the construction works are available, the potential to reduce the magnitude of construction noise impacts, for example, through the use of localised site hoarding, will be determined through the requirements in the CEMP.



12.9.45. During construction, emissions from construction dust, HGVs and traffic effects would occur, although they would be temporary in nature. Additional vehicle movements have the potential to increase concentrations of pollutants including nitrogen dioxide and PM<sub>10</sub> at receptors along the A460. Mitigation measures for construction of the Scheme are presented in Chapter 5: Air Quality and in the OEMP [TR010054/APP/6.11]. The air quality assessment concluded there would be no significant effects resulting from dust or increased emissions during the construction phase.

12.9.46. Potential impacts on air quality, noise and neighbourhood amenity would be managed through the use of best practicable means included in the OEMP [TR010054/APP/6.11] and the potential for additional attenuation of noise from construction activities through the use of localised temporary site hoardings or noise barriers as outlined in the noise and vibration assessment. As a result, the effect of the Scheme on air quality, noise and neighbourhood amenity as a determinant of human health during construction is assessed to be neutral (0).

*Accessibility and active travel*

12.9.47. The construction phase would require a number of closures and diversions to the existing PRoW network at locations directly affected by the Scheme. The majority of these routes are not well used and appropriate diversions/ other relevant access points would minimise any potential impact on WCH routes.

12.9.48. Construction traffic may impact on journeys made by WCH in the local area. However, the effects would be minimised through measures set out within the OEMP [TR010054/APP/6.11] and the required traffic management plans. Mitigation measures such as diversions to access would minimise disruption and therefore the effect of the Scheme on accessibility and active travel as a determinant of human health during construction is assessed to be neutral (0).

*Access to work and training*

12.9.49. The construction phase of the Scheme would provide net additional employment opportunities in the local area. Therefore, the effect of the Scheme on access to work and training as a determinant of human health during construction is assessed to be positive (+).

*Social cohesion and neighbourhoods*

12.9.50. During the construction phase, temporary severance issues may occur due to disruption to existing road usage and increases in the number of HDVs utilising the A460 to access the construction compounds. Through mitigation measures, such as the provision of diversions during construction, the effect of the Scheme on social cohesion and lifetime neighbourhoods as a determinant of human health is assessed to be neutral (0).

*Minimising the use of resource*

12.9.51. The Scheme has been designed to minimise the footprint of the Scheme where possible as outlined in Chapter 3: Assessment of Alternatives to make best use of the land available.

- 12.9.52. As outlined in Chapter 10: Material Assets and Waste the Scheme aims to prioritise waste prevention, followed by preparing for re-use, recycling and recovery and lastly disposal to landfill as per the internationally recognised waste hierarchy. Re-use and recycling of materials off-site where re-use on-site is not practical. The OEMP [TR010054/APP/6.11] sets a target that 27% of aggregates should be secondary and recycled aggregates, for those applications where it is technically and economically feasible to substitute these alternative materials for primary aggregates.
- 12.9.53. Applying good industry practice to management of the waste materials generated by the Scheme, it is anticipated that an overall recovery rate of 94% could be achieved. The effect of the Scheme on minimising the use of resources as a determinant of human health is assessed to be neutral (0).

#### *Climate change*

- 12.9.54. During construction, the Scheme would be designed to improve its resilience to climate change and in accordance with current planning, design and engineering practice and codes. Road design standards would be incorporated to take into consideration future climate allowances and construction materials which have high tolerance to fluctuating temperatures will be used.
- 12.9.55. Chapter 14: Climate identifies and takes into account the existing resilience measures for each climate variable and associated risks either already in place or in development. Innovation and investments in environmentally sound infrastructure and technologies can both reduce greenhouse gas emissions and enhance resilience to climate change. Sustainable drainage techniques would be incorporated (where practicable) in the design of the Scheme to ensure that flooding is not exacerbated. All drainage has been designed in accordance with current drainage guidelines such as Construction Industry Research and Information Association (CIRIA) which are included in the OEMP [TR010054/APP/6.11] where applicable.
- 12.9.56. As stated in Chapter 14: Climate, climate resilience impacts and effects of the Scheme during the construction phase are not expected to be significant. The effect of the Scheme on climate change as a determinant of human health during construction is therefore assessed to be neutral (0).

### **Operation**

#### Land use and assets

##### *Private property and housing*

- 12.9.57. Permanent impacts on private property and housing resulting from land take or a change in access are reported under construction, refer to paragraph 12.9.1 to 12.9.5. No further impacts on private property and housing are anticipated during operation of the Scheme.
- 12.9.58. Impacts on residential receptors during operation of the Scheme are reported in Chapter 5: Air Quality, Chapter 7: Landscape and Visual and Chapter 11: Noise and Vibration.

### *Community land and assets*

- 12.9.59. As reported in the Transport Assessment Report traffic flows on the A460 Cannock Road would reduce from an average 29,400 vehicles per day (AADT without the Scheme 2039) to 3,350 vehicles a day (AADT with the Scheme 2039), as long distance regional traffic including HDVs would divert onto the Scheme. This would result in a removal of severance between the local villages of Featherstone, Shareshill, Hilton and Laney Green caused by high flows of congested traffic on the A460, allowing easier access for WCH and vehicle users to shared community facilities. The Scheme would provide a moderate reduction in severance on a medium sensitivity receptor resulting in a moderate beneficial effect which is significant.
- 12.9.60. The reduction in severance would also result in a minor reduction in severance for access to wider community facilities in Cheslyn Hay, Cannock and Wolverhampton with improved access to the M54 Junction 1 and M6 Junction 11 along the A460 from which the wider network of local and strategic roads can be accessed resulting in a slight beneficial effect which is not significant.

### *Development land and businesses*

- 12.9.61. No additional land would be required during operation of the Scheme. Impacts resulting from permanent changes to access are reported under the construction section as this is when the impact would originate.
- 12.9.62. As reported in paragraph 12.9.59 the Scheme would result in the separation of local and regional traffic, resulting in substantially reduced traffic flows on the A460, Cannock Road. This would improve the accessibility / remove severance to local businesses on the existing A460 (such as the public house, post office and convenience) for local residents. The Scheme would have a minor beneficial impact on medium sensitivity receptors resulting in a slight beneficial effect which is not significant
- 12.9.63. Where businesses rely on passing trade (e.g. the Petrol station in Featherstone and M6 Diesel Shareshill) the Scheme may act as a physical barrier with customers no longer able to see the petrol station from the strategic route. However, modern technology (such as satellite navigation systems) would allow road users to locate the petrol station should they require the service. Local access to the petrol station would also become easier following the reduction in traffic on the existing A460. The Scheme would have a minor adverse impact on medium sensitivity receptors resulting in a slight adverse effect which is not significant.

### *Agricultural land holdings*

- 12.9.64. Permanent impacts on agricultural holdings are reported under construction, refer to paragraphs 12.9.24 to 12.9.27. No further impacts on agricultural holdings are anticipated during operation of the Scheme.

### *Walkers, cyclists and horse-riders*

- 12.9.65. Permanent impacts on WCH are reported under construction, refer to paragraphs 12.9.33 to 12.9.39. No further impacts on WCH are anticipated during operation of the Scheme.

### Human health

12.9.66. A summary of the assessment on human health during of the operation of the Scheme is provided below, further details are outlined in Appendix 12.1 [TR010054/APP/6.3].

#### *Access to healthcare service and other social infrastructure*

12.9.67. The Scheme is anticipated to improve journey times along the A460 between M6 Junction 11 and M54 Junction 1, separating local and regional traffic. This would reduce severance experienced by local residents when accessing healthcare and other community facilities in Featherstone and the surrounding areas and reduce the existing severance of WCH. Improved access to healthcare is an essential component of creating sustainable, healthy communities.

12.9.68. Therefore, reduced severance and improved access to local healthcare services facilitated by the Scheme is assessed as positively effecting human health (+) of residents in the study area.

#### *Access to open space and nature*

12.9.69. There are no areas of public open space in proximity to the Scheme and there is limited public access to natural spaces in the immediate vicinity of the Scheme. Access to nature is provided through the provision of PRoW which are predominantly to the north of Hilton Lane and provide access to agricultural land.

12.9.70. New and realigned WCH routes and reduced traffic flows on the A460 would provide reduced severance for WCH and vehicle users between the villages of Shareshill, Featherstone and Hilton as well as maintaining connectivity to natural spaces to the east of the Scheme via PRoW. The effect of the Scheme on access to open and natural space as a determinant of health is assessed as having a neutral effect on the human health of residents in the study area (0).

#### *Air quality, noise and neighbourhood amenity*

12.9.71. During operation, the Scheme would result a redistribution of traffic, resulting in a decrease in traffic flows on the A460 and an increase in traffic flows on the strategic network, attracted to the area by the operation of the Scheme. The Scheme would bring the road closer to some receptors, and further away from others. The construction of the Scheme would result in the relocation of traffic from the A460 to the Scheme, with a more than 80% reduction in traffic flows on the A460.

12.9.72. As detailed in Chapter 5: Air Quality, of the sensitive air quality receptors assessed, no receptors are predicted to be affected by small, medium or large changes in air quality above the air quality objectives which are set for the protection of human health. With the Scheme a greater number of receptors would experience a reduction in NO<sub>2</sub> and PM<sub>10</sub> concentrations than would experience an increase.

12.9.73. As detailed in Chapter 11: Noise and Vibration, the majority of properties would experience either no change or a negligible change in noise levels from traffic during operation in the short term (2024). The overall trend in the study area is for a slight increase in traffic flows, and therefore traffic noise. Two residential properties (in Hilton and Shareshill) are anticipated to experience a significant

increase in traffic noise levels on the worst affected façade whilst 18 properties (along the A460, Featherstone) would experience a significant decrease. The Scheme is mainly located in the ward of Featherstone and Shareshill and is the ward with the most receptors in proximity to the Scheme. Heath statistics for this ward generally show an improvement on the national average. Decreases in traffic noise are anticipated on the eastern edge of Featherstone along the existing A460, and the northern and western edges along New Road and East Road, which undergo a reduction in traffic due to the Scheme. A small number of properties in Shareshill would experience minor increases and minor decreases due to the rerouting of traffic.

- 12.9.74. Receptors in the ward of Essington and Cheslyn Hay North and Saredon have a higher percentage of people with bad or very bad health and / or a limiting long term illness or disability than the national average, as set out in the Section 12.6. The majority of these wards are outside of the study area for the noise and vibration assessment however a number of significant adverse noise effects are anticipated on the A460 through the ward of Essington, south of the M54, though the increase in noise as a result of the Scheme is minor. Reductions in air quality are also anticipated along this route though emission concentrations would not exceed the health objectives.
- 12.9.75. The Scheme would result in a reduction in the overall number of residential buildings above the Significant Observable Adverse Effect Level (SOAEL) (the level above which significant adverse effects on health and quality of life occur) in the Scheme opening year (2024) and in the future assessment year (2039) during both the day and night. In summary, the redistribution of traffic would have likely positive implications for noise receptors in Featherstone, Shareshill and Hilton in proximity to the existing A460. The majority of increases and decreases at residential properties are negligible or minor (not significant), with a small number of both significant adverse and beneficial effects in the long term. The Scheme would not have more than a negligible increase or decrease in emission concentrations that are already above health objectives for air quality, nor would it create any new or remove any existing exceedances. The influence of the Scheme on air quality, noise and neighbourhood amenity as a determinant of human health during operation is assessed to be neutral (0) for residents in the study area.

*Accessibility and active travel*

- 12.9.76. During the operational phase, provisions have been included in the design to replace and enhance existing routes used by WCH. The provision of PRoW realignments and the construction of an accommodation bridge across the mainline of the Scheme, south-east of Brookfield Farm would avoid severance of WCH routes. Improved cycling facilities are proposed as part of the Scheme design and the reduction of traffic along the A460 would improve the perception of safety on this route, encouraging use of this route by cyclists.
- 12.9.77. Where feasible, existing WCH facilities would be upgraded and improved to encourage active travel, therefore the influence of the Scheme on accessibility and active travel as a determinant of human health during operation is assessed to be positive (+) for residents in the study area.

### *Access to work and training*

- 12.9.78. No direct impacts on employment are expected as a result of the operation of the Scheme. However, the operation of the Scheme may improve accessibility to local employment and training opportunities with indirect benefits on mental health and well-being. The Scheme is also anticipated to support local economic growth for Telford, Shrewsbury, Wolverhampton, Cannock and Tamworth by improving traffic flow and enhanced east-west and north-south routes. Therefore, the influence of the Scheme on access to work and training as a determinant of health during operation is assessed to be positive (+) for residents in the study area.

### *Social cohesion and neighbourhoods*

- 12.9.79. During the operational phase, the Scheme would reduce community severance through the separation of local and regional traffic resulting in large reductions in traffic on the existing A460. This would improve access between the villages of Shareshill, Featherstone, Hilton and Laney Green for vehicle users and WCH.
- 12.9.80. Whilst levels of social interaction can be influenced by a number of other factors, including the availability and quality of community facilities, open and play space, the influence of the Scheme on social cohesion and lifetime neighbourhoods as a determinant of human health during operation is assessed to be positive (+) for residents in the study area.

### *Climate change*

- 12.9.81. During the operational phase in respect of climate change resilience the Scheme may be vulnerable to a range of elements, such as flood risk. During operation, the resilience of the Scheme to climate change would be improved through effective and maintained drainage systems and lighting systems. As identified in Chapter 14: Climate, based on the mitigation built into the design and assumed management practices, United Kingdom Climate Change Projections 18 (UKCP18) climate change projections, information from other environmental disciplines, and details on scheme design, none of the potential impacts identified would be significant (and are therefore classed as non-significant).
- 12.9.82. In respect of pollution incidents, the mitigation embedded into the drainage design of the Scheme would prevent or mitigate for any incidents and any effects are assessed to be not significant. The measures incorporated are presented in: Chapter 13: Road Drainage and the Water Environment; in Appendix 13.2 [TR010054/APP/6.3]; and in the OEMP [TR010054/APP/6.11]. These measures include the provision of a number of attenuation areas which would provide storage to excess storm water and reduce the potential impacts of flooding.
- 12.9.83. Given these conclusions would ensure that effects on human health would be minimised, the effect of the Scheme on climate change as a determinant of human health are assessed to be neutral (0).

## 12.10. Monitoring

- 12.10.1. The Scheme would result in significant residual permanent adverse effects on a number of agricultural land holdings during the construction phase. These landowners would be entitled to financial compensation (as with all directly affected

land). The impact on these agricultural farm holdings would be monitored during the construction phase to ensure the construction of Scheme would result in no further harm to these agricultural holdings. Should worse adverse effects be identified appropriate remedial action would be taken.

## 12.11. References

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- Ref 12.2 Highways Agency (2001) *Design Manual for Roads and Bridges Volume 11, Section 3, Part 6 Land Use*. Now superseded for LA112
- Ref 12.3 Highways Agency (1993) *Design Manual for Roads and Bridges Volume 11, Section 3, Part 8 Pedestrians, Cyclists, Equestrians and Community Effect*. Now superseded for LA112
- Ref 12.4 Highways Agency (1993) *Design Manual for Roads and Bridges Volume 11, Section 3, Part 9 Vehicle Travellers*. Now superseded for LA112
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- Ref 12.6 The Countryside and Rights of Way Act (2000)
- Ref 12.7 Health and Social Care Act (2012)
- Ref 12.8 Department for Transport (2014) National Policy Statement for National Networks
- Ref 12.9 Department for Communities and Local Government (2019). National Planning Policy Framework, London: Her Majesty's Stationery Office
- Ref 12.10 Ministry of Housing, Communities and Local Government (2017) Planning Practice Guidance: Health and Wellbeing.
- Ref 12.11 South Staffordshire Council (2012) South Staffordshire Core Development Plan. Available online at: <https://www.sstaffs.gov.uk/planning/the-adopted-core-strategy.cfm>
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- Ref 12.13 IEMA (2017) Health in EIA: A Primer for a Proportionate Approach
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- Ref 12.17 Sustrans, National Cycle Network. Available online at:  
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- Ref 12.20 Office of National Statistics. Nomis Labour Market profile south Staffordshire. Available online at:  
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- Ref 12.21 Public Health England, Public Health Profile (Fingertips). Available online at:  
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- Ref 12.22 World Health Organisation (2019) Constitution/ Available online at:  
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- Ref 12.23 Highways England (2019) M54 to M6/ M6 Toll Link Road. PCF Stage 3 EIA Scoping Report. Available online at:  
<https://infrastructure.planninginsWCHtorate.gov.uk/wp-content/ipc/uploads/projects/TR010054/TR010054-000025-54M6-Scoping%20Report.pdf>
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