
BANWELL BYPASS

Environmental Statement





HIF Banwell Bypass and Highways Improvements Project

Environmental Statement Chapter 12- Population and Human Health

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12.1 Introduction

12.1.1 The Environmental Impact Assessment (Miscellaneous Amendments Relating to Harbours, Highways and Transport) Regulations 2017 require Environmental Assessments to include, inter alia, assessment of potential impacts upon population and human health, including potential impacts/ effects on physical, mental, and social wellbeing. As such, this chapter of the Environmental Statement (ES) reports on the potential impacts of the construction and operational phases of the Banwell Bypass, Banwell placemaking and the wider mitigation measures in Winscombe, Churchill and Sandford, (“the Scheme”), on population and human health. A full description of the works comprising the Scheme is provided in ES Volume 1 Chapter 2.

12.1.2 The chapter has been completed in accordance with the method set out in Design Manual for Roads and Bridges (DMRB) *LA 112 Population and Human Health* ^{12.1} and *LA 104 Environmental Assessment and Monitoring*. ^{12.2} The environmental assessment of population and human health shall report on the following elements:

Land-use and accessibility

- a) private property and housing;
- b) community land and assets;
- c) development land and businesses;
- d) agricultural land holdings; and
- e) walkers, cyclists and horse riders (WCH)

Human health

- f) health profiles of affected communities;
- g) health determinants; and
- h) likely health outcomes

12.1.3 Since the scoping stage, the preferred alignment has been

confirmed and developed into the Scheme. This chapter assesses and reports the likely environmental effects (positive and negative) on population and human health arising from the construction, operation, and maintenance of the Scheme.

- 12.1.4 This chapter should be read in conjunction with the following appendices:
- a) ES Volume 3 Appendix 12.A – Equality Impact Assessment (EqIA)
 - b) ES Volume 3 Appendix 12.B – Evidence Base
 - c) ES Volume 3 Appendix 12.C – Agricultural Holdings
 - d) ES Volume 3 Appendix 12.D – Private properties within 500m of the Bypass
 - e) ES Volume 3 Appendix 12.E – Private Properties Significance
 - f) ES Volume 3 Appendix 12.F – Community land and assets significance
 - g) ES Volume 3 Appendix 12.G – Development land and assets significance
 - h) ES Volume 3 Appendix 12.H – Community land and amenities (additional mitigation study area)
 - i) ES Volume 3 Appendix 12.I – Development land and assets significance (additional mitigation study area).

Scheme Overview

- 12.1.5 The following section provides a brief description and overview of the Banwell Bypass and Highways Improvements Project.
- 12.1.6 The Scheme comprises the following distinct elements:
- a) a bypass of the village of Banwell (referred to as the “Banwell Bypass”);
 - b) a route connecting the A371 at Castle Hill and the A368 at East Street (referred to as the “Southern Link”); and
 - c) Mitigation and enhancement measures, which broadly consist of the following:
 - Environmental mitigation and enhancement measures in connection with the Banwell Bypass and the Southern Link, examples of which include (but are not limited to) flood compensation areas, planting and habitat creation, attenuation basins etc.

- Placemaking improvements within Banwell, comprising mitigation and enhancement measures to the public realm; and
- Traffic mitigation in connection with the Banwell Bypass and the Southern Link, including Improvements to the wider local road network.

12.1.7 Together, these elements comprise the “Scheme”. Each element as listed is described in more detail below.

Banwell Bypass

12.1.8 The Banwell Bypass would be located within the administrative area of North Somerset. The village of Banwell is located approximately 8km east of Weston-super-Mare. The Banwell Bypass would primarily consist of:

- a) signalisation and capacity improvements to the Summer Lane/ Wells Lane junctions on the A371;
- b) a 40mph single carriageway Banwell Bypass, connecting the existing A371 (east of Summer Lane) to A368 (west of Towerhead Farm);
- c) a 3 metre wide shared use path provided along the majority of the Banwell Bypass providing a link from Weston-super-Mare to Sandford;
- d) Banwell West Junction - a three arm roundabout located east of Knightcott Industrial Estate at the western end of Banwell;
- e) Wolvershill Road Junction – a traffic signalised junction, providing access for all users to the west, east, and north. Access to the south would be restricted to public transport and walking, cycling and horse-riders, and limited agricultural access only;
- f) Banwell River Bridge – an overbridge across Riverside and the River Banwell. There would not be a direct connection between Riverside and the Banwell Bypass;
- g) Moor Road to Riverside Link - a side road connection between Riverside and Moor Road; and
- h) Banwell East Junction - A three-arm traffic signalised junction, with dedicated turning lanes from the bypass towards the Southern Link.

Southern Link Road

- 12.1.9 The Southern Link would provide the new primary route south to Winscombe, as Castle Hill and Dark Lane are proposed to be stopped up. The Southern Link would be a 30mph single carriageway, connecting the A368 (East Street) to the A371 at Castle Hill. The Southern Link would be located within the Mendip Hills AONB. The Southern Link would link into the Banwell Bypass at the Banwell East Junction. A T-junction located along the Southern Link would provide access into the east of Banwell (at East Street).

Mitigation Measures

Environmental mitigation and enhancement measures in connection with the Banwell Bypass and the Southern Link.

- 12.1.10 The Scheme would include mitigation measures which are provided to offset the impact of the Banwell Bypass proposal. These include (but are not limited to):
- a) flood mitigation to ensure that the Banwell Bypass does not increase flood risk for third-party properties;
 - b) land for essential mitigation, such as ecology and landscape mitigation;
 - c) sustainable urban drainage systems (e.g. attenuation basins and swales), and additional groundwater mitigation, to prevent adverse water quality impacts (including the Source Protection Zone); and
 - d) replacement land to mitigate the impact of the scheme on Banwell Football Club.

Placemaking improvements within Banwell

- 12.1.11 As a result of the Banwell Bypass, there would be a reduction in traffic through Banwell. The reduction in traffic (and resulting reduction in congestion) through the village could result in higher traffic speeds without mitigation.
- 12.1.12 A reduced 20mph speed limit through Banwell would discourage vehicles from travelling at higher speeds, whilst also discouraging the use of the road as a through route (instead of the Banwell Bypass).

- 12.1.13 The reduction of traffic through Banwell due to the provision of the Banwell Bypass provides the opportunity to make improvements to the existing road and public spaces within Banwell to enhance the historic and urban setting of the village. These improvements would include, but are not limited to:
- a) Alteration to the road and footways including resurfacing, widening, and narrowing (which would encourage drivers to comply with the posted 20mph speed limit);
 - b) Incorporation of active travel measures;
 - c) Soft landscaping and ecological improvements; and
 - d) Street signage improvements.

Improvements to the wider local road network

- 12.1.14 Improvements to the local road network and junctions including the surrounding villages of Churchill, Sandford and Winscombe are proposed to mitigate increases in traffic as a result of the Banwell Bypass and Southern Link. These mitigation measures would consist of:
- a) Lowered speed limits:
 - 20mph: A368 through Churchill, A368 through Sandford, A371 through Winscombe.
 - 30mph: A368 between Churchill and Sandford Villages.
 - b) Gateway Features when entering and exiting the villages of Sandford, Churchill and Winscombe;
 - c) Non-physical traffic calming measures through and between villages (e.g. road markings and speed signage);
 - d) Capacity improvements to the Churchill Junction (A38/ A371);
 - e) Provision of new/ improvements to existing pedestrian and cycling crossings;
 - f) Active travel measures along the A368, with improved footway/ cycleway access from Churchill and Langford to Churchill Academy;
 - g) Improvements to footways, shared pedestrian, and cycleway; and
 - h) Soft landscaping, native planting, rewilding, and ecological enhancements.

Context

- 12.1.15 North Somerset Council's (NSC) Housing Infrastructure Fund (HIF) proposal supports potential housing sites (subject to the emerging Local Plan 2038).
- 12.1.16 A business case was submitted to Homes England to secure funding for a package of infrastructure improvements in February 2019 and a successful funding announcement was made at the end of October 2019.
- 12.1.17 The Banwell Bypass would provide a highway connection to enable potential housing sites that may be allocated in the emerging Local Plan and alleviate the anticipated impact of further traffic growth upon the already congested Banwell village.
- 12.1.18 NSC appointed Alun Griffiths (Contractors) Ltd, with Arup and TACP (the 'AGC Team') as their technical and environmental advisors, to develop a solution including optioneering, design and planning support of the proposed HIF Banwell Bypass and Highways Improvements Project Stage 1 (the "Scheme"). Stage 1 of the project includes: optioneering; preliminary design; Environmental Impact Assessment (EIA); planning permission; Statutory Processes. Stage 2 of the project is the detailed design and construction phase, following planning determination and land acquisition.

Environmental Context

- 12.1.19 The Scheme crosses the North Somerset Levels which are characterised by flat open landscape of arable land divided by hedgeline ditches and rhynes. These have been inhabited and exploited for thousands of years. Much of the area lies within a designated flood zone.
- 12.1.20 Banwell lies to the immediate north of the Mendip Hills Area of Outstanding Natural Beauty (AONB). The Southern Link lies within the boundary of the AONB and within a groundwater Source Protection Zone. Whilst the Mendip Hills AONB is not a designated International Dark Sky Reserve (IDSR), it is well known for its dark sky environment.
- 12.1.21 There are five Scheduled Monuments in the vicinity of the

Scheme, the closest of which is a Romano-British villa. There are numerous Grade I, II* and II listed buildings within Banwell and its vicinity. The centre and east of Banwell is designated as a Conservation Area.

- 12.1.22 The North Somerset and Mendip Bats Special Area of Conservation (SAC), which includes ancient woodland, lies adjacent to the A368 and the eastern junction of the Scheme. The Banwell Ochre Caves and Banwell Caves Sites of Special Scientific Interest (SSSI) are designated for their geology and overlap with the North Somerset and Mendip Bats SAC, providing hibernation sites for Greater Horseshoe bats. The wider area provides habitat for a variety of protected and notable species including dormouse, grass snakes, otter, badger, kingfisher and several species of bat.
- 12.1.23 The Scheme is dissected by the River Banwell which flows northwards along Riverside. It is classified as a main river and is the source of the River Banwell Estuary.
- 12.1.24 There is an extensive Public Right of Way (PRoW) network in and around Banwell which includes well-used bridleways. To the east of Banwell, north of the A368 (Towerhead Road) lies a 7.2 MW photovoltaic power station (Banwell Solar Farm).

Scheme objectives

- 12.1.25 NSC's overall objectives for the Scheme are to deliver, within cost, quality, and programme targets:
- a) Improve the local road network to deal with existing congestion issues.
 - b) Improve and enhance Banwell's public spaces by reducing traffic severance and improving the public realm.
 - c) Provide the opportunity to increase active and sustainable travel between local villages and Weston-super-Mare.
 - d) Deliver infrastructure that enables housing development (subject to Local Plan).
 - e) Ensure the development respects the local area and minimises visual impact upon the surrounding countryside and Mendip Hills Area of Outstanding Natural Beauty (AONB).

- f) Innovative and efficient in reducing and offsetting carbon from the design and construction of the infrastructure.
- g) Ensure the development provides the opportunity to increase Biodiversity Net Gain by at least 10%.
- h) Proactively engage with stakeholders in a way that is both clear and transparent.

12.2 Competent Expert Evidence

- 12.2.1 The author of the Land and accessibility sections of this chapter (with the exception of the Agricultural land holdings elements) is a Practitioner member of IEMA (PIEMA) and holds a Masters (MEnvSci) of Environmental Science. He has worked on multiple large scale infrastructure road projects including the A361 North Devon Link Road and A465 Heads of the Valleys Road Sections 5&6. He has also drawn on the knowledge of the wider environmental consultancy team in carrying out the assessment.
- 12.2.2 The author of the agricultural land holdings sections of this chapter is a Fellow of the British Institute of Agricultural Consultants, holds a BSc(Hons) in Agriculture and has over 30 years' experience as an agricultural consultant. He has considerable experience of assessing the impact of developments on agriculture as part of multi-disciplinary teams on over thirty highway schemes (including for National Highways).
- 12.2.3 The author of the human health assessment is a Chartered Environmentalist who holds a BSc in Environmental Biology, an MSc in Environmental Assessment and Management and a Master of Public Health. She has completed similar assessment work on A417 Missing Link, A30 Chiverton to Carland Cross project on behalf of National Highways and A40 Improvement Projects on behalf of the Welsh Government.

12.3 Legislative and Policy Framework

- 12.3.1 The following legislation, national and local policy has been identified and considered as part of the assessment on population and human health. For further details of the policy context refer to ES Volume 1 Chapter 4.

Legislation

Countryside and Rights of Way Act 2000

- 12.3.2 The Countryside and Rights of Way Act provides the right of public access on foot to areas of open land. The Act improves the rights of way legislation by encouraging the creation of new routes and clarifying uncertainties about existing rights. The Act also provides safeguards which consider the needs of landowners and occupiers, and of other interests, including wildlife. In the context of the Scheme, the Act obliges the highway authority to recognise the needs of the mobility impaired when undertaking improvements.

Health and Social Care Act 2012

- 12.3.3 Impacts from development can affect physical and mental health or social wellbeing, which can have impacts on public health, and health and social care provision. At the local level, The Health and Social Care Act gives local authorities the responsibility for improving the health of their local populations.

Sustainable Communities Act 2007

- 12.3.4 This Act aims to promote the sustainability of local communities through joint working between the Secretary of State and local planning authorities to encourage improvements to the economic, social, or environmental well-being of an area. This includes measures designed to increase community health and well-being and the provision of local services.

Equality Act 2010

- 12.3.5 The Equality Act established equality duties for all public sector bodies which aims to integrate and advance equality into the day-to-day business of all bodies.

Health and Safety at Work Act 1974

- 12.3.6 This Act places duties on employers to ensure, as far as is reasonably practicable the health, safety and welfare at work of all their employees, and that persons not in their employment are not exposed to risks to their health or safety as a result of the activities undertaken.

National Policy

National Planning Policy Framework

- 12.3.7 Planning policies and decisions are required to consider the social, economic, and environmental benefits of development proposals.
- 12.3.8 Planning decisions are required to “ensure that new development is appropriate for its location considering the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development”
- 12.3.9 The National Planning Policy Framework ^{12.3} details the Government’s planning policies for England and guidance on their application, laying out a framework which can be used to produce locally-prepared plans for housing and other developments. It recognises the importance of promoting sustainable transport, specifically stating in Paragraph 104 with respect to walking and cycling that “opportunities to promote walking, cycling and public transport use are identified and pursued” [as part of development proposals]. From an agricultural perspective the framework does not deal with issues of farm viability, focusing instead on the use of Best and Most Versatile (BMV) agricultural land. Paragraph 174 states that planning policies and decisions should contribute to and enhance the natural and local environment by *inter alia*:
- a) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.

Fair Society, Healthy Lives (the Marmot Review) 2010

- 12.3.10 The Marmot Review analysed the causes of health inequalities in England and what needed to be done to address them. It showed the importance of social determinants of health acting through the life course. Policy recommendations included the need to fully integrate the planning, transport, housing, environmental and health systems to address the social determinants of health in each locality and prevent ill health.

Health Equity in England: The Marmot Review 10 Years On

- 12.3.11 This '10 Years On' report shows that, in England, health inequalities are increasing and, for the population as a whole, health is declining. The data that this report brings together also shows that for almost of all the recommendations made in the original Marmot Review, the country has been moving in the wrong direction.
- 12.3.12 The report calls for a reordering of national priorities, with wellbeing, rather than straightforward economic performance, seen as the central goal of policy that will create a better society with better health and greater health equity going forward.

[Public Health England] Strategy 2020 to 2025 (2019)

- 12.3.13 Safety, prevention of ill health, narrowing the health gap and supporting a strong economy are key threads within the Public Health England Strategy.

Cycling and Walking Investment Strategy

- 12.3.14 The Cycling and Walking Investment Strategy (CWIS) ⁴ is a statutory document defined by the Infrastructure Act 2015, which sets out the investment strategy for local bodies for the period between 2016 and 2021. The stated ambition is to make cycling and walking “the natural choices for shorter journeys or as part of a longer journey”. The policy is split into three chapters, the first chapter explaining the ambition and objectives which will aid progressing the ambition. The second section details what financial resources are available to support these objectives and how performance and governance will be monitored. The final chapter sets out specific actions planned to aid in the delivery of the objectives and the ambition during the first phase of the Cycling and Walking Investment Strategy. The second four-year CWIS is due to be published as soon as practicable following the 2021 Spending Review.

Local Policy and Strategy

North Somerset Core Strategy

- 12.3.15 The North Somerset Core Strategy ^{12.5} outlines “the broad long-term vision, objectives and strategic planning policies for North

Somerset up to 2026". The strategy looks at more than land use planning and has a wider scope of place shaping and creating sustainable communities. In this chapter, section CS27: Sport, recreation and community facilities is of particular relevance. The policy covers all indoor and outdoor community facilities; ensuring there is safe and convenient access to the facilities for all residents.

North Somerset Site Allocation Plan

- 12.3.16 The North Somerset Site Allocation Plan ^{12.6} is a Local Plan prepared in accordance with the Town and Country Local Planning (England) Regulations 2012 and identifies and details allocations required to deliver the Core Strategy.

North Somerset Development Management Policies: Site and Policies Plan

- 12.3.17 The Sites and Policies Plan ^{12.7} puts forward the detailed development plan policies which accompany the strategic context set out in the Core Strategy. It outlines development requirements for topics including major transport schemes, Public Rights of Way (PRoW), Travel Plans, ensuring safe and healthy communities and developing strong and inclusive communities.

North Somerset Draft Local Plan 2038

- 12.3.18 The updated North Somerset Local Plan will cover the period 2023-2038. Upon adoption it will set out the Council's policies and proposals to address housing and employment needs and other economic, social and environmental priorities.
- 12.3.19 A key aim is to address the scale of the housing challenge. The government's standard method (March 2021 update) sets the housing requirement at 1,339 dwellings per annum (pa), this equates to 20,085 additional dwellings in North Somerset over a 15 year period.

Joint Local Transport Plan 4

- 12.3.20 The Joint Local Transport Plan 4 (JLTP4) ^{12.8} looks at transport up to 2036. It sets out how signed up Local Authorities aim to achieve a well-connected sustainable transport network that works for residents, businesses and visitors across the region; a

network that offers greater, realistic travel choices and makes walking, cycling and public transport the natural way to travel.

North Somerset Council's Active Travel Strategy 2020-2030

- 12.3.21 The main ambition of the North Somerset Active Travel Strategy 2020-2030 ^{12.9} is to make *“walking and cycling the natural choice for a cleaner, healthier and more active North Somerset”*. The aim is for residents to choose walking and cycling as the natural and enjoyable choice for short and medium length journeys.

Green Infrastructure Strategy

- 12.3.22 North Somerset's Green Infrastructure Strategy ^{12.10} aims to protect and enhance the GI network within North Somerset, in order to maximise the multiple benefits that the natural environment delivers. It identifies opportunities to maintain and create connectivity and quality within the Green Infrastructure (GI) network to provide access to open space by the public.

North Somerset Health and Wellbeing Strategy 2021-2024

- 12.3.23 The joint health and wellbeing strategy sets out the vision, shared ambitions, principles, and actions for health and wellbeing across North Somerset. It runs from 2021-2024.
- 12.3.24 It aims to:
- a) identify areas for improvement in health and wellbeing
 - b) work to reduce health inequalities

Main priorities

- 12.3.25 The strategy and action plan are centred around three main approaches:
- a) prevention - prevent people from becoming unwell or experiencing poor health and wellbeing
 - b) early intervention - support people to identify and manage health and wellbeing problems as early as possible. Ensure support is in the right place to address those problems
 - c) thriving communities - focus on the wider factors and influences on health, and work with partners to support communities to thrive. This includes a focus on the wider determinants of health, such as employment, transport and

housing, alongside ways to enhance access to green spaces and to address climate change

- 12.3.26 Within these approaches, NSC aim to address the following priority themes:
- a) mental health and wellbeing,
 - b) physical activity
 - c) diet and nutrition
 - d) tobacco use
 - e) alcohol use
 - f) substance use
 - g) other factors that may contribute to health
- 12.3.27 The strategy and action plan address these themes across all areas of life, from children and young people to adults and older people.
- North Somerset Council's Joint strategic needs assessment (JSNA) for health and social care
- 12.3.28 The JSNA brings together data and intelligence which helps NSC to better understand the needs of the local population. The key strategic needs and issues include the following: Population, Demographics, Economy, Public Health, Housing, Crime and anti-social behaviour, Deprivation, Child poverty, Ward comparison. The North Somerset Health and Wellbeing Strategy is informed by the JSNA

12.4 Assessment Method

Land use and accessibility

- 12.4.1 The significance of environmental effects are assessed in accordance with *LA 112 Population and human health* ^{12.1} and *LA 104 Environmental Assessment and Monitoring* ^{12.2}. Significance is calculated as a function of the 'sensitivity' of a receptor and the 'magnitude' of the impact on the receptor. Professional judgement has been applied where appropriate and it has been clearly explained where this is the case.
- 12.4.2 Within this chapter, severance refers to the extent to which

members of communities are able (or not able) to move around their community and access services / facilities ^{12.1}. Severance, when used for agricultural holdings, refers solely to the severance of individual holdings.

- 12.4.3 The assessment of cumulative effects of this chapter topic both in-combination with other technical assessments on specific receptors and with other relevant developments have been assessed and are reported in the Cumulative Effects chapter, ES Volume 1 Chapter 15.

Baseline scenario

- 12.4.4 The baseline scenario for land use and accessibility has been developed using the following approach:
- a) data collection, including site visits where required (Agricultural Land Holdings and Walking Cycling Horse-riding) and relevant (commencing at the screening / scoping stage and developed with greater detail during the production of the full Environmental Statement);
 - b) spatial data mapping; and
 - c) consultation (where required to inform assessment conclusions).
- 12.4.5 Following these methods, the subsequent data has been gathered for each of the identified receptor groups.
- 12.4.6 Private property and housing:
- a) the location and number of properties at risk of demolition, or from which land would be required / access affected by the Scheme.
 - b) the location of residential development land and number of units that would be affected by the Scheme.
- 12.4.7 Community land and assets:
- a) the location of community land (e.g common land, village greens, open green space, allotments, sports pitches etc) and amount of land which will be required/ access affected by a project;
 - b) the location of community assets (e.g. village halls, healthcare facilities, education facilities, religious facilities etc) and number of assets from which land will be required/ access affected by a project;

- c) the level of existing accessibility restrictions / severance to community land and assets within the study area; and
- d) the frequency of use of community land and assets within the study area.

12.4.8 Development land and business:

- a) the location and number of businesses (and associated jobs) at risk or from which land will be required / access affected by a project;
- b) the location of land allocated for development by local authorities and the number of future jobs that will be affected by a project;
- c) land not allocated by local authorities which is subject to planning application(s) supporting future jobs; and
- d) the level of existing accessibility restrictions / severance to development land and businesses within the study area.

12.4.9 Agricultural land holdings:

- a) the type, location and number of agricultural holdings at risk of demolition, or from which land will be required, or where internal farm accesses or external access to land affected by a project;
- b) the spatial arrangement of the agricultural land holdings within the study area and any existing severance/ accessibility restrictions; and
- c) the frequency of use of the agricultural holdings/ assets within the study area.

12.4.10 Walkers, cyclists and horse-riders (WCH):

- a) the type, location and extent of WCH provision (e.g. public rights of way) within the study area; and
- b) the frequency of use of the WCH provision within the study area.

12.4.11 For clarity, WCH considers all groups of WCH and is not restricted to walkers, cyclists and horse-riders.

12.4.12 Where possible, publicly available data has been used in order to provide information in relation to the frequency and type of use for community land and assets. Interviews have been held with owners/ occupiers (and / or land agents) with regard to agricultural land holdings. Where required and possible, targeted consultation and surveys have been carried out to obtain additional information on the frequency of use of community land,

assets and WCH routes. A combination of the two data collection approaches has been used to carry out the assessment.

Study Area

- 12.4.13 The study area for the land and accessibility impacts includes receptors within 500m of the Banwell Bypass and the Southern Link. Additional receptors that fall outside the 500m buffer but are likely to be impacted by the Scheme have also been identified. However, the agricultural impact assessment deals only with land holdings that are physically affected by the construction. The study area for additional mitigation works (including but not limited to road narrowing, signage, reduced speed limits and footpath creation) has been reduced to a 50m buffer. Receptors whose primary access route falls within this 50m buffer have also been assessed. Given the reduced severity of these mitigation works a reduced study area is considered sufficient. For the minor online improvement additional mitigation works (e.g. road markings, gateway features), receptors have been considered along the main road and not the 500m study area as this would be disproportionate.
- 12.4.14 The study area for the health assessment includes the wards and communities directly and indirectly affected by the Scheme, and therefore is comprised of the following which are located within 500m of the Scheme boundary:
- a) Banwell & Winscombe ward (ID 145725);
 - b) Hutton & Locking ward (ID 145724);
 - c) Sandford village and
 - d) Churchill village.
- 12.4.15 To understand the population that is the focus of the health assessment, a community profile has been developed and this has been built up based on data available at the smallest scale available which is either village or Lower Super Output Area (LSOA) level. LSOAs are small areas designed to be of a similar population size, with an average of approximately 1,500 residents of 650 households. Where this is not available, ward or district level data is used. National level (England) data is included for comparison.

Significance Criteria

- 12.4.16 In assessing the significance of effects on identified receptors by the Scheme during both the construction and operational phases, the following methods have been applied in accordance with LA 112.

Assessment of sensitivity

- 12.4.17 The sensitivity of land use and receptors has been assessed using the criteria in Table 12-1 below.

Table 12-1 Environmental value (sensitivity) and descriptions

Receptor value/sensitivity	Description
Very high	<p>Private property and housing:</p> <ul style="list-style-type: none"> a) existing private property or land allocated for housing located in a local authority area where the number of households is expected to increase by >25% by 2041 (ONS data); and/ or b) existing housing and land allocated for housing (e.g. strategic housing sites) covering >5ha and / or >150 houses. <p>Community land and assets where there is a combination of the following:</p> <ul style="list-style-type: none"> a) complete severance between communities and their land/ assets, with little/ no accessibility provision; b) alternatives are only available outside the local planning authority area; c) the level of use is very frequent (daily); and d) the land and assets are used by the majority (>=50%) of the community. <p>Development land and businesses:</p> <ul style="list-style-type: none"> a) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering >5ha. <p>Agricultural land holdings:</p> <ul style="list-style-type: none"> a) areas of land in which the enterprise is wholly reliant on the spatial relationship of land to key agricultural infrastructure; and b) access between land and key agricultural infrastructure is required on a frequent basis (daily). <p>WCH:</p> <ul style="list-style-type: none"> a) national trails and routes likely to be used for both commuting and recreation that record frequent (daily)

Receptor value/sensitivity	Description
	<p>use. Such routes connect communities with employment land uses and other services with a direct and convenient WCH route. Little/ no potential for substitution.</p> <p>b) 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.</p> <p>c) rights of way for WCH crossing roads at grade with >16,000 vehicles per day.</p>
High	<p>Private property and housing:</p> <p>a) 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</p> <p>b) existing housing and land allocated for housing (e.g. strategic housing sites) covering >1-5ha and / or >30-150 houses.</p> <p>Community land and assets where there is a combination of the following:</p> <p>a) there is substantial severance between community and assets, with limited accessibility provision;</p> <p>b) alternative facilities are only available in the wider local planning authority area;</p> <p>c) the level of use is frequent (weekly); and</p> <p>d) the land and assets are used by the majority (>=50%) of the community.</p> <p>Development land and businesses:</p> <p>a) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering >1 - 5ha.</p> <p>Agricultural land holdings:</p> <p>a) areas of land in which the enterprise is dependent on the spatial relationship of land to key agricultural infrastructure; and</p> <p>b) access between land and key agricultural infrastructure is required on a frequent basis (weekly).</p> <p>WCH:</p> <p>a) 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</p>

Receptor value/sensitivity	Description
	b) rights of way for WCH crossing roads at grade with >8,000 - 16,000 vehicles per day.
Medium	<p>Private property and housing:</p> <ul style="list-style-type: none"> a) houses or land allocated for housing located in a local authority area where the number of households are expected to increase by >6-15% by 2041 (ONS data); and/ or b) existing housing and land allocated for housing (e.g. strategic housing sites) covering <1ha and/ or <30 houses. <p>Community land and assets where there is a combination of the following:</p> <ul style="list-style-type: none"> a) there is severance between communities and their land/ assets but with existing accessibility provision; b) limited alternative facilities are available at a local level within adjacent communities; c) the level of use is reasonably frequent (monthly); and d) the land and assets are used by the majority (>=50%) of the community. <p>Development land and businesses:</p> <ul style="list-style-type: none"> a) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering <1ha. <p>Agricultural land holdings:</p> <ul style="list-style-type: none"> a) areas of land in which the enterprise is partially dependant on the spatial relationship of land to key agricultural infrastructure; and b) access between land and key agricultural infrastructure is required on a reasonably frequent basis (monthly). <p>WCH:</p> <ul style="list-style-type: none"> a) 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 b) Rights of way for WCH crossing roads at grade with >4,000 – 8,000 vehicles per day.
Low	<p>Private property and housing:</p> <ul style="list-style-type: none"> a) proposed development on unallocated sites providing housing with planning permission/ in the planning process.

Receptor value/sensitivity	Description
	<p>Community land and assets where there is a combination of the following:</p> <ul style="list-style-type: none"> a) limited existing severance between community and assets, with existing full Disability Discrimination Act (DDA) DDA 1995 [Ref 2.N] compliant accessibility provision; b) alternative facilities are available at a local level within the wider community; c) the level of use is infrequent (monthly or less frequent); and d) the land and assets are used by the minority ($\geq 50\%$) of the community. <p>Development land and businesses:</p> <ul style="list-style-type: none"> a) proposed development on unallocated sites providing employment with planning permission/ in the planning process. <p>Agricultural land holdings:</p> <ul style="list-style-type: none"> a) areas of land which the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure; and b) access between land and key agricultural infrastructure is required on an infrequent basis (monthly or less frequent). <p>WCH:</p> <ul style="list-style-type: none"> a) 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 b) rights of way for WCH crossing roads at grade with < 4000 vehicles per day.
Negligible	<p>Private property and housing:</p> <ul style="list-style-type: none"> a) N/A. <p>Community land and assets where there is a combination of the following:</p> <ul style="list-style-type: none"> a) no or limited severance or accessibility issues; b) alternative facilities are available within the same community; c) the level of use is very infrequent (a few occasions yearly); and d) the land and assets are used by the minority ($\geq 50\%$) of the community. <p>Development land and businesses:</p>

Receptor value/sensitivity	Description
	<p>a) N/A.</p> <p>Agricultural land holdings:</p> <p>a) areas of land which are infrequently used on a non-commercial basis.</p> <p>WCH:</p> <p>a) N/A.</p>

Assessment of magnitude

12.4.18 The magnitude of impact criteria that have been applied (as set out in LA 112^{12.1}) are presented in Table 12-2 below.

Table 12-2 Magnitude of impact for land use and accessibility

Magnitude of Impact	Typical description
Major	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <p>a) 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</p> <p>b) introduction (adverse) or removal (beneficial) of complete severance with no/ full accessibility provision.</p> <p>WCH: >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> <p>a) 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</p> <p>b) introduction (adverse) or removal (beneficial) of severe severance with limited / moderate accessibility provision.</p> <p>WCH: >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> <p>a) 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</p>

Magnitude of Impact	Typical description
	<p>of property, businesses, community assets or agricultural holdings; and/ or</p> <p>b) introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision.</p> <p>WCH: >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> <p>a) very minor loss or detrimental alteration to one or more characteristics, features or elements. e.g. acquisition of non operational land or buildings not directly affecting the viability of property, businesses, community assets or agricultural holdings; and/ or</p> <p>b) very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision.</p> <p>WCH: <50m increase (adverse) or decrease (beneficial) in WCH journey length.</p>
No change	No loss or alteration of characteristics, features, elements or accessibility; no observable impact in either direction.

12.4.19 In addition to the above descriptions, professional judgement has been applied where appropriate throughout the assessment.

12.4.20 In considering significance, the assessment makes a distinction between temporary and permanent effects, with temporary effects during construction considered to have a reduced impact to that of a permanent effect during operation.

Assessment of significance

12.4.21 The significance of effect is derived by combining the assigned value (sensitivity) of receptors with the magnitude of change arising from a project, in accordance with LA 104. The significance is assessed for all identified receptor within each subtopic (e.g. development land and businesses) affected by the Scheme. Note that the significant effects comprise effects after mitigation has been considered, and comprise residual effects that are within the moderate, large or very large categories.

12.4.22 Significance has been allocated using Table 12-3 in accordance with LA 104.

Table 12-3 Significance of effects for land use and accessibility

	Magnitude of impact (degree of change)					
		No change	Negligible	Minor	Moderate	Major
Environmental value (sensitivity)	Very High	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Design and Mitigation

12.4.23 The following mitigation hierarchy shall be implemented during design and assessment:

a) avoidance and prevention:

- identify alternative design / route options that avoid the requirement to compulsory purchase property, land and assets; and
- identify alternative design / route options that avoid introducing or worsening severance and avoid reducing WCH provision/ increasing journey times

b) reduction:

- minimise impacts on property, land and assets by selecting route alignments that avoid land take from the most sensitive receptors/ aspects of receptors thereby maintaining viability; and
- by altering alignment to minimise severance to communities and disruption to WCH provision.

c) remediation:

- where it is not possible to avoid or reduce a significant adverse effect, e.g. community sports pitches have to be acquired to facilitate construction, provide equivalent facilities as close to the original location as possible.

12.4.24 WCH design, assessment and provision has been undertaken in accordance with DMRB GG 142 ¹¹ Walking, cycling and horse-riding assessment and review. The full *Phase B Walking Cycling Horse-riding Assessment Report* is available in Planning Document - Walking Cycling Horse-riding Assessment Report.

Environmental mitigation

- 12.4.25 Where possible, mitigation opportunities have been identified and reported, including mitigation and enhancement opportunities for land use and accessibility.

Reporting

- 12.4.26 As part of the assessment, land use effects have been assessed during construction and for the first year of operation (future year scenario).
- 12.4.27 After the first year of operation, effects on land use are assumed to be associated with routine maintenance operations and are unlikely to be significant.

Human Health

- 12.4.28 The assessment of human health is a multidisciplinary process designed to identify and assess the potential health outcomes (both negative and positive) of a proposed project, plan or programme and to deliver evidence-based recommendations which provide an opportunity to identify ways in which any health benefits can be maximised as well as how health risks can be minimised.
- 12.4.29 Whilst the 2017 revisions to the EIA Directive make it clear that population and human health is a topic to be included and addressed in the EIA process, it does not seek to define the way in which this will be undertaken. There is no formal guidance that specifies the detailed content required to assess human health within the context of EIA or appropriate standards and thresholds for the assessment of significance of effects. Therefore, using professional judgement and best practice guidance, the human health element of the assessment has been based upon Institute of Environmental Management and Assessment (IEMA) guidance contained in '*Health in Environmental Impact Assessment: A Primer for a Proportionate Approach*' and the World Health Organisation (WHO) definition of health used by the public health profession in the UK. Here, health is defined as a 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity'. A further

consideration in the assessment is equity, or the distribution of effects (demographic, socio-economic, geographic), within the affected population. This will be used alongside the guidance for Human Health assessment set out in Design Manual for Road and Bridges standard '*LA112 Population and Human Health*'¹.

- 12.4.30 In accordance with DMRB LA 112, unlike the Population assessment criteria which assigns a magnitude of impact and significance of effects, the human health assessment utilises a qualitative assessment only, of the human health impacts/ effects likely to arise as a result of the Scheme, with evidence provided to support the conclusions. Where appropriate, the assessment will use the findings from the other technical chapters of the ES (e.g. Air quality, Noise and vibration, Material assets and waste etc.) and qualitatively consider, using professional judgement, how these findings can be expected to result in changes to health and well-being outcomes, including the distribution of effects within the affected population (e.g. on the wider group and vulnerable groups who would be more susceptible to certain impacts arising from the Scheme).
- 12.4.31 From a public health perspective, likely changes in, for example, air quality or noise levels are changes in determinants of health, not changes in health outcomes. Therefore, the consideration of potential impacts/ effects on human health also requires a separate consideration of the way in which any change identified to the baseline conditions, including what is identified in the various technical chapters of the EIA, can be expected to manifest itself in health and well-being outcomes. For example, a change in air pollutants can cause a change in respiratory health or noise or vibration can cause a change in social or mental wellbeing, and this can have particular impacts for the people who are more vulnerable or susceptible in the area. The assessment therefore considers the issue of attribution i.e. how the health outcomes in the current and future population could be impacted (positively or negatively) as a result of the Scheme.
- 12.4.32 Impacts on human health can be influenced (both negatively and positively) individually or cumulatively by a range of wider health determinants and are further modified by local community circumstance such as living conditions and existing health profiles. Therefore, this Human Health assessment also considers the distribution of any potential impacts of the Scheme

within the affected population, including potential impacts on the more vulnerable, sensitive, or disadvantaged population groups or individuals. The location and presence of these vulnerable groups within the study area and their profiles are described in further detail in the baseline.

Determinants of human health

12.4.33 In considering and assessing how the activities associated with the Scheme are likely to affect human health, wider health determinants are used. Wider health determinants are a diverse range of social, economic, and environmental factors which have the potential to influence people's mental and physical health, and social wellbeing. The wider health determinants chosen for assessment are included in Table 12-4.

Table 12-4 Wider determinants of health relevant to the Scheme

Health determinant	Contributing factors/ considerations within the assessment
Lifestyle/social and community determinants	
Access to health and social care services and other social infrastructure (e.g. schools)	a) Equitable access b) Severance / separation of communities from these facilities
Access and accessibility to housing	a) Severance of housing
Access to green/open space and nature	a) Opportunities for exercise b) Equitable access c) Severance/ separation of communities from assets
Accessibility and active travel	a) Congestion on the surrounding road network b) Severance / separation of communities from active travel facilities public transport routes c) Equitable access
Crime and community safety	a) Road safety b) Construction activities
Access to work and training	a) Equitable access b) Construction work/ training opportunities
Environmental determinants	
Ambient air quality	a) Changes in local environmental conditions (Neighbourhood amenity)
Ambient noise environment (ambient noise and areas sensitive to noise)	
Sources and pathways of potential pollution (e.g. land/ water contamination)	
Landscape amenity (including light)	

Baseline data gathering

- 12.4.34 Baseline data has been collated from a range of sources to provide an overview of the following:
- a) **Population demographics** (population numbers, ethnicity, gender split, age profile)
 - b) **Existing health profile** (population with long-term limiting illness, healthy life expectancy, index of multiple deprivation, incidence rates of disease and mental health within the population)
 - c) **the local physical environment** (to include local character of study area, recreational and educational facilities, location of open green space, access to healthcare facilities, spatial characteristics of the road network, air quality, noise environment, landscape amenity, sources and pathways of potential pollution)
- 12.4.35 Baseline data for developing the community profile has been obtained from the UK 2011 Census (data from the more recent 2021 census is not yet available), mid-year population estimates for 2020 and 2019 data on Indices for Multiple Deprivation from the Office for National Statistics (ONS), local health reports on wards from Public Health England, health profile data on North Somerset from Office for Health Improvement and Disparities (OHID). Although these data sources are from different years, the various sources are the best available and as up-to-date as possible. Therefore, it is considered that they give an accurate representation of the baseline conditions.
- 12.4.36 Baseline data related to the local physical environment has been coordinated with other workstreams within the ES such as air quality, and noise and vibration assessments, population assessment and Public Rights of Way assessment. In addition, other information related to the physical environment has been obtained through publicly available information.

Evidence Review

- 12.4.37 Publicly available literature has been reviewed to identify evidence linking health determinants with health outcomes. This is reported in Volume 3 Appendix 12.B - Evidence Basis. The evidence review forms the basis of the qualitative assessment of health effects of the Scheme.

Study area

12.4.38 The study area for the health assessment includes the wards and communities directly and indirectly affected by the Scheme, and therefore is comprised of the following which are located within 500m of the Scheme boundary:

- a) Banwell & Winscombe ward (ID 145725);
- b) Hutton & Locking ward (ID 145724);
- c) Sandford village and
- d) Churchill village.

12.4.39 To understand the population that is the focus of the health assessment, a community profile has been developed and this has been built up based on data available at the smallest scale available which is either village or Lower Super Output Area (LSOA) level. Where this is not available, ward or district level data is used. National level (England) data is included for comparison.

12.4.40 Table 12-5 identifies how these different areas relate spatially to each other:

Table 12-5 Study Area – spatial scales

District Authority	Ward	LSOA	Village
North Somerset	Banwell & Winscombe	North Somerset 023A	Banwell Village
		North Somerset 023B	
		North Somerset 024A	
		North Somerset 024B	
		North Somerset 024C	Sandford Village
		North Somerset 024F	Churchill Village
		North Somerset 026B	
	Hutton & Locking	North Somerset 023C	

12.4.41 In relation to quantification of air quality and noise effects, reference has been made to assessments in ES Volume 1 Chapter 5 Air quality and ES Volume 1 Chapter 11 Noise and Vibration that have been prepared for the Scheme, and which have used a 200 metre and 600 metre study area respectively. It is important to note that chapters such as Air quality and Noise and vibration follow their own assessment methodology such as

IAQM guidance, industry standard guidance, and their own DMRB guidance. Findings are reported which would be above the minimum or low risk required by these standards and objectives, even for the most sensitive members of the population. Therefore, this human health assessment does not attempt to reassess these findings. It only reports them where they are relevant to human health in the context of the health outcome assessment which requires its own methodology, including DMRB LA 112^{12.1}.

Definition of community in relation to human health

- 12.4.42 This health assessment considers the health and well-being status and current health issues of all people within the local community. This means that assessment is made at the community or population level; it is not possible to assess the health impacts at an individual level. However, vulnerable and / or disadvantaged groups can often experience health impacts more acutely than other groups within communities and are therefore more sensitive to changes.
- 12.4.43 In broad terms, the population located closest to the Scheme would be most vulnerable or susceptible to changes occurring as a result of the activities associated with the Scheme. Although some of this population may not be 'vulnerable' in human health, social or other terms, they are likely to be more sensitive to any changes resulting from the Scheme.
- 12.4.44 The population groups identified as being more vulnerable or susceptible to impacts arising from the Scheme depends on the characteristics of the local population and the nature and proximity of this population to the Scheme's works and activities. The baseline study has identified vulnerable or sensitive population sub-groups as being present within the study area which, along with the general population, will form the basis of the assessment. The vulnerable groups listed below are not mutually exclusive e.g. an individual may fit into one or more of these vulnerable group categories. These groups include:
- a) Families with children and adolescents (e.g. pregnant women, babies, children and adolescents);
 - b) People who are physically or mentally disadvantaged (e.g. elderly people, people with physical and / or disabilities, people with other health problems or impairments);

- c) People of certain ethnicity and / or gender; and
- d) People who are materially disadvantaged (e.g. people on low income, people without access to a car, unemployed people).

12.4.45 Consideration of vulnerable groups systematically considers inequalities within the population and assesses the extent and distribution of them. These groups can, for example, include older people, children and young people, those who suffer from chronic conditions, or those who are geographically isolated. Whilst this assessment is not an equality assessment, it does consider protected characteristics groups as defined by the Equality Act (2010) where these are considered to be vulnerable groups. An Equality Impact Assessment (EqIA) has been prepared for the Scheme. Refer to ES Volume 3 - Appendix 12.A - Equality Impact Assessment.

Population sensitivity

12.4.46 The sensitivity of the population is a function of how vulnerable the population is considered to change in the health determinant being considered, combined with the extend of exposure likely to be experienced by this population.

12.5 Assessment Assumptions and Limitations

- 12.5.1 The assessment relies partly on the availability of data from third parties which are the most up to date records available at the time of assessment.
- 12.5.2 Whilst it will be possible to identify changes to some of the wider health determinants that would arise because of the Scheme, health outcomes are dependent on multiple factors. Some rest with individuals and/ or are linked to other factors which lie outside the powers or influence of physical infrastructure and / or planning decisions. For example, a person engaging in multiple unhealthy behaviours could be more susceptible to impacts arising from construction and development proposals. It is also important to note that the assessment is undertaken at a population and group level; it is not possible to assess the health impacts at an individual level.
- 12.5.3 The impacts of COVID-19 are an added dimension for daily life, public health and wellbeing, with impacts on-going and uncertain. This is likely to remain the case for some time.
- 12.5.4 The assessment identifies and considers impacts at the stage they first materialise. For example, the permanent removal of built form or vegetation is assessed as part of the construction phase where works would be required to enable construction.
- 12.5.5 As part of the private property and housing baseline scenario, the Office for National Statistics (ONS) household projections are only available at a North Somerset level, not Banwell specific. North Somerset Council has projections for the Ward of Banwell & Winscombe but not for Banwell only.
- 12.5.6 The following assumptions relating to the assessment of impacts and effects (and their mitigation) on land and land use interests have been applied:
- a) Land returned to agriculture following its temporary use for construction would be restored to its pre-construction condition.
 - b) The existing pattern of ownership and agricultural land use would remain unaltered until the start of construction.
- 12.5.7 For the purpose of this assessment those farms that have significant additional non-agricultural income streams (e.g.

caravan parks, amenity attractions) have been assessed in both the *Development land and business* category and the *Agricultural land holdings* category. The significance of impact on the non-agricultural element has not been considered part of the overall agricultural holding impact. This has been done to ensure that the impact on the non-agricultural element is not overlooked; it also ensures that there is no double counting.

Assumed construction practices

- 12.5.8 During construction, Contractors would be required to comply with the environmental management regime for the Scheme. This would include a Construction Environmental Management Plan (CEMP) and Landscape and Environmental Management Plan (LEMP), (refer to ES Volume 3 Appendix 16.A - Outline CEMP and Appendix 16.C - Pre-Construction Landscape and Ecological Management Plan) which provides a basis for route wide construction environmental and landscape management.
- 12.5.9 The CEMP would be the means of controlling the construction works associated with the Scheme to ensure that the effects of the works upon people and the natural environment are reduced or avoided so far as is reasonably practicable. A Public Engagement Strategy would be produced by the contractor to ensure residents are kept informed.
- 12.5.10 In addition to the CEMP, an Environmental Landscape and Ecological Aftercare and Management Plan is to be prepared and implemented by the Contractor for a period of five years following implementation of Environmental Design Works. This is relevant to the Human Health element of this Population and Human Health assessment and the HIA which accompanies the ES because management of the natural environment would influence how people experience their local natural resources such as open space, access to green space as well as access to biodiversity and active travel options.

12.6 Consultation

- 12.6.1 For full consultation refer to ES Volume 1 - Chapter 1 - Section 1.7. Consultation specific to Population and Human Health have been held as part of the Equality Impact Assessment (ES Volume 3 – Appendix 12.A - Equality Impact Assessment).

12.7 Baseline Conditions

- 12.7.1 The current baseline conditions for the Scheme at the time of preparing this ES chapter are presented below and split into the following subtopics:

Land-use and accessibility

- a) private property and housing;
- b) community land and assets;
- c) development land and businesses;
- d) agricultural land holdings; and
- e) walkers, cyclists and horse riders (WCH)

Human health

- a) health profiles of affected communities;
- b) health determinants; and
- c) likely health outcomes

Land use and accessibility Private property and housing

- 12.7.2 Private property is defined in *LA 112: Population and human health* as land, buildings and infrastructure for the purpose of residential use. Land that accommodates community facility or asset, public space, commercial or agricultural property are covered in subsequent sections.
- 12.7.3 In determining the sensitivity of private property and housing, household projections are considered alongside the current properties. The 2018-based household projections to 2041 for the local authority of North Somerset Council are presented in Table 12-6 below. Table 12-7 depicts 2041 estimated household projections with a 2018-base provided by NSC, specifically for

the ward of Banwell & Winscombe. Some of the additional mitigation works extend into Churchill, so for completeness the table also presents data for Blagdon & Churchill.

Table 12-6 Study Area – ONS household projections 2018-based to 2041

	2018	2041	Total Change	% Change
North Somerset DC	94,000	112,000	18,000	19%

Table 12-7 North Somerset Council household projections 2018-base to 2041

Ward	2018	2041	Total Change	% Change
Banwell & Winscombe	7,940	9,280	1,340	17%
Blagdon & Churchill	3952	4512	560	14%

12.7.4 The ONS expected increase for all of North Somerset of 19% categorises private property impacted by the Scheme as having *High* sensitivity. The NSC household projections of 17% would also suggest a *High* sensitivity.

12.7.5 Broad locations and indicative capacity for further testing and assessment has been identified at Weston-super-Mare of up to around 3,000 dwellings. These have been considered as part of the cumulative impact. The main opportunity is a potential growth location north of A371 and east of the M5 linked to the delivery of the Banwell Bypass. However, as these plans have not yet been confirmed this additional housing has been reviewed in the subsequent Cumulative Impacts section.

12.7.6 In addition to the above-mentioned housing allocations, there are two approved housing sites within Banwell with a combined 80 new dwellings. Therefore, the majority of growth identified in Table 12-6 above would occur in the wider local authority area, outside of the Scheme study area. This means that any housing growth within the study area would likely develop on unallocated sites through the planning application process. This characteristic would lead to a *Low* sensitivity, and it is therefore considered that on balance, applying a *Medium* sensitivity to the private property and housing receptors group is appropriate.

12.7.7 Current private property data has been sourced from the

Ordnance Survey AddressBase dataset. Properties were identified within the study area. Table 12-8 below identifies those properties that are likely to be directly impacted by the Scheme's footprint (of the bypass only, wider mitigation impacts are discussed subsequently), either through risk of demolition, or from land and access requirements within 500m of the Scheme. The full list of properties within the 500m of the Scheme's alignment is presented in ES Volume 3 Appendix 12.D - Private properties within 500m of the Bypass.

- 12.7.8 There are no permanent private residential properties directly within the footprint of the Scheme. Access routes to some private residential properties would be affected by the Scheme. These have been identified and in Table 12-8 below with their allocated sensitivities.

Table 12-8 Private properties (Banwell Bypass)

Property	Access Change	Sensitivity
22, CASTLE HILL	Castle Hill / Southern Link	Medium
20, CASTLE HILL	Castle Hill / Southern Link	Medium
16-18, CASTLE HILL	Castle Hill / Southern Link	Medium
14, CASTLE HILL	Castle Hill / Southern Link	Medium
12A, CASTLE HILL	Castle Hill / Southern Link	Medium
12, CASTLE HILL	Castle Hill / Southern Link	Medium
10, CASTLE HILL	Castle Hill / Southern Link	Medium
3, CASTLE HILL	Castle Hill / Southern Link	Medium
8, CASTLE HILL	Castle Hill / Southern Link	Medium
6, CASTLE HILL	Castle Hill / Southern Link	Medium
2-4, CASTLE HILL	Castle Hill / Southern Link	Medium
THE STABLES, CASTLE HILL	Castle Hill / Southern Link	Medium
9, DARK LANE	Castle Hill / Southern Link	Medium
7, DARK LANE	Castle Hill / Southern Link	Medium
10, DARK LANE	Castle Hill / Southern Link	Medium
5, DARK LANE	Castle Hill / Southern Link	Medium
8, DARK LANE	Castle Hill / Southern Link	Medium
LANGDALE, DARK LANE	Castle Hill / Southern Link	Medium
ROSEBANK, DARK LANE	Castle Hill / Southern Link	Medium
HOLLINGWORTH, DARK LANE	Castle Hill / Southern Link	Medium
PENNANT, DARK LANE	Castle Hill / Southern Link	Medium
LAMBOURNE COTTAGE, DARK LANE	Castle Hill / Southern Link	Medium
WOODSIDE COTTAGE, DARK LANE	Castle Hill / Southern Link	Medium
CHERRY MEAD, DARK LANE	Castle Hill / Southern Link	Medium
PARK HOUSE, EAST STREET	Castle Hill / Southern Link	Medium
14, EAST STREET	Castle Hill / Southern Link	Medium
12, EAST STREET	Castle Hill / Southern Link	Medium
20, EAST STREET	Castle Hill / Southern Link	Medium

Property	Access Change	Sensitivity
2 PARK MEADOW, EAST STREET	Castle Hill / Southern Link	Medium
1 PARK MEADOW, EAST STREET	Castle Hill / Southern Link	Medium
24, EAST STREET	Castle Hill / Southern Link	Medium
8, EAST STREET	Castle Hill / Southern Link	Medium
10, EAST STREET	Castle Hill / Southern Link	Medium
16, EAST STREET	Castle Hill / Southern Link	Medium
22, EAST STREET	Castle Hill / Southern Link	Medium
THE COACH HOUSE, EAST STREET	East Street	Medium
EVERSLEIGH, EAST STREET	East Street	Medium
BONNIE DOONE, EASTERMEAD LANE	East Street	Medium
CORNER HOUSE, EASTERMEAD LANE	East Street	Medium
EASTERMEAD COTTAGE, EASTERMEAD LANE	East Street	Medium
ABBNEY FARM, EASTERMEAD LANE	East Street	Medium
EAST MEADOW, EASTERMEAD LANE	East Street	Medium
3 TOWERHEAD	East Street	Medium
1A, HIGH STREET	Castle Hill / Southern Link	Medium
THE MANOR, THE SQUARE	Castle Hill / Southern Link	Medium
3, THE SQUARE	Castle Hill / Southern Link	Medium
4, THE SQUARE	Castle Hill / Southern Link	Medium
DAYS COTTAGE, THE SQUARE	Castle Hill / Southern Link	Medium
SUMMER LANE PARK HOMES(164 properties)	Summer Lane	Medium
BANWELL COURT, WOLVERSHILL ROAD	Wolvershill Road	Medium
BELMONT, WOLVERSHILL ROAD	Wolvershill Road	Medium
BELVEDERE, WOLVERSHILL ROAD	Wolvershill Road	Medium
CEDAR LODGE, WOLVERSHILL ROAD	Wolvershill Road	Medium
COACH HOUSE, WOLVERSHILL ROAD	Wolvershill Road	Medium
DIMORA, WOLVERSHILL ROAD	Wolvershill Road	Medium
EAST MEAD, WOLVERSHILL ROAD	Wolvershill Road	Medium
EL GEDIDA, WOLVERSHILL ROAD	Wolvershill Road	Medium
ELMBRIDGE COTTAGE, WOLVERSHILL ROAD	Wolvershill Road	Medium
ELMFIELD, WOLVERSHILL ROAD	Wolvershill Road	Medium
EPWORTH, WOLVERSHILL ROAD	Wolvershill Road	Medium
HOMEFIELD, WOLVERSHILL ROAD	Wolvershill Road	Medium
JANA, WOLVERSHILL ROAD	Wolvershill Road	Medium
MANSFIELD HOUSE, WOLVERSHILL ROAD	Wolvershill Road	Medium
MEADOW COURT, WOLVERSHILL ROAD	Wolvershill Road	Medium
OAKLANDS, WOLVERSHILL ROAD	Wolvershill Road	Medium
ORIEL LODGE, WOLVERSHILL ROAD	Wolvershill Road	Medium

Property	Access Change	Sensitivity
PARK FARM, WOLVERSHILL ROAD	Wolvershill Road	Medium
RIDGEWAY, WOLVERSHILL ROAD	Wolvershill Road	Medium
ROOKERY NOOK, WOLVERSHILL ROAD	Wolvershill Road	Medium
ROWAN WICK, WOLVERSHILL ROAD	Wolvershill Road	Medium
STONEBRIDGE COTTAGE, WOLVERSHILL ROAD	Wolvershill Road	Medium
STONEBRIDGE FARM, WOLVERSHILL ROAD	Wolvershill Road	Medium
STONEBRIDGE FARM, WOLVERSHILL ROAD	Wolvershill Road	Medium
STONEBRIDGE FARM, WOLVERSHILL ROAD	Wolvershill Road	Medium
STONEBRIDGE HOUSE, WOLVERSHILL ROAD	Wolvershill Road	Medium
STONEBRIDGE HOUSE, WOLVERSHILL ROAD	Wolvershill Road	Medium
STONEBRIDGE, WOLVERSHILL ROAD	Wolvershill Road	Medium
SUMMERCOURT, WOLVERSHILL ROAD	Wolvershill Road	Medium
THE CROFT, WOLVERSHILL ROAD	Wolvershill Road	Medium
THE ELMS, WOLVERSHILL ROAD	Wolvershill Road	Medium
THE RANCH, WOLVERSHILL ROAD	Wolvershill Road	Medium
THE STABLES, WOLVERSHILL ROAD	Wolvershill Road	Medium
TRAILS END, WOLVERSHILL ROAD	Wolvershill Road	Medium
WALNUT TREE COTTAGE, WOLVERSHILL ROAD	Wolvershill Road	Medium
WESTERING, WOLVERSHILL ROAD	Wolvershill Road	Medium
WOLVERS CLOSE, WOLVERSHILL ROAD	Wolvershill Road	Medium
WOLVERSHILL COURT, WOLVERSHILL ROAD	Wolvershill Road	Medium
WOOD RISING, WOLVERSHILL ROAD	Wolvershill Road	Medium
BANWELL COURT, WOLVERSHILL ROAD	Wolvershill Road	Medium
BELMONT, WOLVERSHILL ROAD	Wolvershill Road	Medium
1 WHITECROSS LANE	Wolvershill Road	Medium
4 WHITECROSS LANE	Wolvershill Road	Medium
CORNER LODGE, WHITECROSS LANE	Wolvershill Road	Medium
FERNCIFFE, WHITECROSS LANE	Wolvershill Road	Medium
HOMELEIGH, WHITECROSS LANE	Wolvershill Road	Medium
LABURNHAM COTTAGE, WHITECROSS LANE	Wolvershill Road	Medium
LILAC COTTAGE, WHITECROSS LANE	Wolvershill Road	Medium
OLDFIELD, WHITECROSS LANE	Wolvershill Road	Medium
PRIMROSE COTTAGE, WHITECROSS LANE	Wolvershill Road	Medium
QUARRY LEA, WHITECROSS LANE	Wolvershill Road	Medium
SILVER BIRCHES, WHITECROSS LANE	Wolvershill Road	Medium

Property	Access Change	Sensitivity
SUNNYSIDE, WHITECROSS LANE	Wolvershill Road	Medium
TANERA, WHITECROSS LANE	Wolvershill Road	Medium
THE CROFT, WHITECROSS LANE	Wolvershill Road	Medium
YORK HOUSE, WHITECROSS LANE	Wolvershill Road	Medium
COACH HOUSE, COOKS LANE	Wolvershill Road	Medium
COURTYARD COTTAGE, COOKS LANE	Wolvershill Road	Medium
ELMCROFT FARM, COOKS LANE	Wolvershill Road	Medium
HALCYON, COOKS LANE	Wolvershill Road	Medium
HUNTERS LODGE, COOKS LANE	Wolvershill Road	Medium
LITTLE VAUST, COOKS LANE	Wolvershill Road	Medium
TARDIZ, COOKS LANE	Wolvershill Road	Medium
THE HOMESTEAD, COOKS LANE	Wolvershill Road	Medium
THE STABLES, COOKS LANE	Wolvershill Road	Medium
WHITECROSS COTTAGE, COOKS LANE	Wolvershill Road	Medium
WILLOWS END, COOKS LANE	Wolvershill Road	Medium
115, KNIGHTCOTT ROAD	Knightcott Road	Medium
113, KNIGHTCOTT ROAD	Knightcott Road	Medium
111, KNIGHTCOTT ROAD	Knightcott Road	Medium
109, KNIGHTCOTT ROAD	Knightcott Road	Medium
25, KNIGHTCOTT ROAD	Knightcott Road	Medium
23A, KNIGHTCOTT ROAD	Knightcott Road	Medium
23B, KNIGHTCOTT ROAD	Knightcott Road	Medium
21, KNIGHTCOTT ROAD	Knightcott Road	Medium
17, KNIGHTCOTT ROAD	Knightcott Road	Medium
PROSPECT HOUSE, KNIGHTCOTT ROAD	Knightcott Road	Medium
ARCHERS WYCK, KNIGHTCOTT ROAD	Knightcott Road	Medium
ORCHARD BUNGALOW, KNIGHTCOTT ROAD	Knightcott Road	Medium
CHESTNUT HOUSE, KNIGHTCOTT ROAD	Knightcott Road	Medium
WAITS COTTAGE, KNIGHTCOTT ROAD	Knightcott Road	Medium
TEMPORARILY OCCUPIED CARAVAN, RIVERSIDE	Riverside	Medium
COURT FARM	Moor Road	Medium
MOORLAND FARM	Moor Road	Medium
DOWNEND FARM	Moor Road	Medium
BRICK COTTAGE, MOOR ROAD	Moor Road	Medium

12.7.9 ES Volume 2 Figure 12.1 depicts the properties identified in Table 12-8 above.

12.7.10 Adjacent to the Southern Link, there are 49 private properties that can be accessed from the south via Castle Hill. This is a narrow road leading into Banwell from the south.

12.7.11 Summer Lane Park Homes is a residential park home estate with 164 properties recorded in the *Ordnance Survey AddressBase*

dataset. The estate is located West of the Scheme with the closest properties within 200m. Access to Banwell from the estate is south along Summer Lane and eastbound along Knightcott Road.

- 12.7.12 The properties along Wolvershill Road currently have direct access to Banwell to the south. The Scheme alignment would dissect Wolvershill Road and alter access routes. Most properties along the road listed in Table 12-8 are located to the south of the Scheme.
- 12.7.13 There are multiple residential properties north of Banwell along Moor Road. The Scheme would cross Moor Road between these properties on an overbridge. A new link between Moor Road and Riverside will be constructed north of the Scheme, so access to Banwell via Riverside would be maintained.
- 12.7.14 At the western most point of the Scheme there are 14 properties along Knightcott Road within 200m of the Scheme. Towards the eastern end of the Scheme, there are seven properties accessed from East Street that would likely be impacted by the Scheme.
- 12.7.15 There is one property, a temporarily occupied caravan, within the footprint of the Scheme, where it intersects Riverside, and is included in Table 12-8. It is not considered a residential property within this assessment.
- 12.7.16 When considering the additional mitigation in neighbouring Sandford, Winscombe and Churchill, there are 366, 22, and 33 private properties respectively within the study area. This means the properties are either within 50m of the additional mitigation works, or their primary access routes are within 50m of the additional mitigation. Properties identified as within the additional mitigation study are shown in ES Volume 2 Figure 12.2.

Community land and assets

- 12.7.17 This section identifies the baseline scenario for community land and facilities. There is no registered common land within the footprint of the Scheme.
- 12.7.18 Table 12-9 indicates community land and amenities within 500m of the Bypass. These are also depicted in ES Volume 2 Figure

12.3. Table 12-9 identifies the main activity / function of the community land or asset, whether there is existing severance, alternative facilities, frequency of use and whether it is accessed by a majority ($\geq 50\%$) or minority ($< 50\%$) of the local population.

- 12.7.19 In addition to the community land and assets identified in Table 12-9, 12 receptors have been identified within the additional mitigation study area. A list of these is presented in ES Volume 3 Appendix 12.H - Community land and amenities. Prominent receptors include Russets care home, Sandford Primary School and Churchill Academy.

Table 12-9 Community facilities and services

Receptor	Main Activity	Severance	Alternative facilities	Frequency of use	Majority/Minority	Sensitivity
Youth and Community Centre	Community Centre	No or limited severance or accessibility issues	Nearest alternative - Banwell Village Hall	Daily	Minority	Low
Banwell Buddies Preschool	Nursery	No or limited severance or accessibility issues	Nearest alternative – Locking Preschool 2 miles away.	Daily term time use.	Majority	High
Banwell Primary School	Primary School	No or limited severance or accessibility issues	Nearest alternative – Sandford and Locking Primary Schools (2 miles away)	Daily term time use.	Majority	High
Bell Inn	Public house	No or limited severance or accessibility issues	Brewers Arms	Daily (Wednesday-Sunday)	Minority	Low
Brewers Arms	Public house	No or limited severance or accessibility issues	Bell Inn	Daily	Minority	Low
Banwell Recreation Ground	Recreation ground	No or limited severance or accessibility issues	Riverside Green	Daily	Minority	Medium
Banwell Football Club	Sports and training pitches	No or limited severance or accessibility issues	Alternatives in adjacent communities	Daily/ Weekly	Minority	Medium
Riverside Green	Green space	No or limited severance or accessibility issues	Banwell Recreation Ground	Weekly	Minority	Low
St Andrews Church	Place of worship	No or limited severance or accessibility issues	-	Regular/ weekly services	Minority	Medium
Banwell Methodist Church	Place of worship	No or limited severance or accessibility issues	-	Regular/ weekly services	Minority	Medium
Banwell Village Hall	Village hall	No or limited severance or accessibility issues	Nearest alternative - Banwell Youth and Community Centre	Weekly	Minority	Low

Receptor	Main Activity	Severance	Alternative facilities	Frequency of use	Majority/Minority	Sensitivity
Banwell Bowls Club	Bowling ground	No or limited severance or accessibility issues	Nearest alternative – Winscombe Bowling Club 2 miles away	Weekly (seasonal variation)	Minority	Medium
Banwell Village Pharmacy	GP practice	No or limited severance or accessibility issues	Nearest alternative – Locking Pharmacy 2 miles away	Daily	Majority	High
Mobile Library (West Street Car Park)	Library	No or limited severance or accessibility issues	Nearest alternative – Winscombe (2 miles) or Locking Castle (3 miles)	Weekly (Thursday's)	Minority	Low
Co-Op	Retail Facility	No or limited severance or accessibility issues	Locking Co-Op (2 miles)	Daily	Majority	High
Banwell News	Convenience store	No or limited severance or accessibility issues	Locking Co-Op (2 miles)	Daily	Minority	Medium
Banwell Convenience Store	Convenience store	No or limited severance or accessibility issues	Locking Co-Op (2 miles)	Daily	Minority	Medium
Stanley's Fish Bar	Food outlet	No or limited severance or accessibility issues	Locking Castle (2 miles)	Daily	Minority	Medium
Banwell Garden Centre	Retail facility	No or limited severance or accessibility issues	Hutton (3 miles)	Weekly	Minority	Low
Chillies Indian Takeaway	Food outlet	No or limited severance or accessibility issues	Winscombe (2 miles)	Daily	Minority	Medium
Banwell Castle Gatehouse Restaurant	Food outlet	No or limited severance or accessibility issues	Weston/ Winscombe (2/3 miles)	Weekly	Minority	Low
Banwell Equestrian Centre	Equestrian Centre	No or limited severance or accessibility issues	No local alternatives	Weekly	Minority	Medium
Churchill Academy	Education	No or limited severance or accessibility issues.	No local alternatives	Daily term time use.	Minority	High

Development land and business

12.7.20 Table 12-10 below identifies businesses that would either be impacted directly by the Scheme's footprint, or direct access to business premises would be impacted by the Scheme. ES Volume 2 Figure 12.4 depicts the location of businesses identified in the table. Agricultural premises are considered under the subsequent 'Agricultural land holdings' section.

12.7.21 In addition to the development land and business identified in Table 12-10, 49 receptors have been identified within the additional mitigation study area. A list of these is presented in Volume 3 Appendix 12.1 - Development land and assets significance.

Table 12-10 Development land and business

Receptor	Function	Jobs numbers (where known)	Size of employment site	Sensitivity
Stonebridge Farm Caravan Park - Estimate of caravan park land area only – excludes working farm	Caravan park	-	1<5ha	High
Rowtech Engineering	Manufacturing	2 employees	<1ha	Medium
Court Farm Country Park Estimate of adventure park land area only – excludes working farm.	Adventure Park	-	1<5ha	High
Trilec Communication Services Ltd.	Infrastructure cabling	8	<1ha	Medium
Ian Studley Cars Banwell Ltd.	Vehicle repairs and maintenance	4	<1ha	Medium
Knightcott Motors	Motor sales	-	<1ha	Medium
R J Motorcycles	Motorcycle maintenance	-	<1ha	Medium
SWD Design and Print	Signs & banner services	-	<1ha	Medium
Doug Taylor Metal Finishing	Metal finishing	-	<1ha	Medium
Newpaintco Ltd.	Architectural Coating	2	<1ha	Medium
Aardvark Technologies	Boat building	-	<1ha	Medium
Improve Homes Ltd.	Tile contractor	-	<1ha	Medium
Pallet2Product Co.	Carpenter	-	<1ha	Medium
Ace Automotive	Car body works	-	<1ha	Medium

Receptor	Function	Jobs numbers (where known)	Size of employment site	Sensitivity
Crossco	Window cleaning service	-	<1ha	Medium

- 12.7.22 In the above table, for both Stonebridge Farm and Court Farm the employment sites consider only the sites open to the public and not the working farm. This aspect is considered separately in the subsequent Agricultural land holdings section.
- 12.7.23 Stonebridge Farm Caravan Park has capacity of 56 pitches and is located north of Banwell along Wolvershill Road. The main field of the caravan park sits under the proposed alignment for the Scheme.
- 12.7.24 Rowtech Engineering is a manufacturing facility located approximately 0.7km north of Banwell on Moor Road with a small number of employees. The site is located on the boundary of the Scheme's footprint.
- 12.7.25 There are no employment allocations within the adopted Local Plan along the Scheme alignment.

Agricultural land holdings

- 12.7.26 The agricultural land holding information was collected by a survey of landowners which sought to establish the existing baseline agricultural circumstances and in particular:
- a) the size, location and use of the holding;
 - b) the scale and nature of agricultural and non-agricultural enterprises;
 - c) details of any key agri-environment schemes and other environmental land uses;
 - d) details of farm infrastructure, including buildings, drainage and tracks;
 - e) the physical impacts on the structure and operation of the farm holding arising from the construction and operation of the Scheme; and
 - f) options for mitigating likely significant environmental effects identified on an individual farm holding.

12.7.27 In total, twenty-three agricultural holdings are expected to be affected by the Banwell Bypass section of the Scheme, with a further nine holdings affected by the wider mitigation (cycleway improvements). All the agricultural land (in 2022) is down to grass and used for grazing cattle, sheep and horses; much is used for hay and haylage production.

12.7.28 Brief details are provided at Table 12-11, further details are provided at ES Volume 3 - Appendix 12.C – Agricultural Holdings, and ES Volume 2 Figure 12.5

Table 12-11 Agricultural land holdings

Holding No	Holding type	Tenure	Area farmed (ha)	Other enterprises	Sensitivity
Holding 1	Rotational arable/ grassland	AHA tenancy	131.0	None	Medium
Holding 2	Grassland, let for forage and cattle grazing	Owned, let to grazier	3.0	None	Low
Holding 3	Grassland, let for hay making and winter sheep grazing	Owned, let to grazier	2.5	None	Low
Holding 4	Grassland, let for forage harvesting and recreation	Owned, let to grazier	2.8	Residential caravan park	Low
Holding 5	Grassland, let for grazing and harvesting	Owned, let to grazier	13.6	None	Low
Holding 6	Grassland used for beef cattle	Owned	40.0	Touring caravan site (50 pitches)	Medium
Holding 7	Grassland used for beef cattle and pedigree sheep	Owned	43.7	Farm attraction, weddings and events	Medium
Holding 8	Grassland used for beef cattle and pedigree sheep, hay making for horses	Owned and rented	72.8	Holiday cottage	Medium
Holding 9		Owned and rented	6.5	None	Medium
Holding 10	Grassland used for horse grazing and	Owned and rented	25.9	DIY equestrian	Medium

Holding No	Holding type	Tenure	Area farmed (ha)	Other enterprises	Sensitivity
	hay making, winter sheep			livery, logging business	
Holding 11	Grassland let for grazing	Owned	3.6	None	Low
Holding 12*	Grassland paddock	Unknown	6.2	Not known	Medium
Holding 13	Horse grazing paddock	Owned	0.8	None	Low
Holding 14	Grassland used for sheep grazing and hay making	Owned (in probate)	4.5	None	Low
Holding 15	Horse grazing paddock and occasional sheep	Owned	0.7	None	Low
Holding 16	Apple orchard	Owned	1.3	None	Low
Holding 17	Grassland used for beef production	Owned	93.0	None	Medium
Holding 18	Grassland used for beef production and hay making	Owned	24.0	None	Medium
Holding 19	Grassland let for grazing	Owned	48.6	None	Low
Holding 20	Grassland used for alpacas, sheep, horses	Owned	1.6	None	Low
Holding 21	Grassland used for sheep and haylage production	Owned	20.0	Solar pVa, Christmas trees	Medium
Holding 22	Grassland used for beef cattle	AHA tenancy	16.2	None	Medium
Holding 23	Grassland used for grazing and haylage production	Owned	16.0	None	Medium

Note *: No interview undertaken, details obtained from views from the highway and aerial imagery

12.7.29 A further 10 holdings will be affected by the wider mitigation /

cycleway improvements, set out in Table 12-12 and ES Volume 2 Figure 12.5. Details of most of these holdings are based on views from the highway and aerial imagery, and the Land Registry.

Table 12-12: Additional agricultural land holdings

Holding No	Holding type	Tenure	Area farmed (ha)	Other enterprises	Sensitivity
Holding 21	Grassland	Owned	20.0	Solar pVa	Medium
Holding 8	Grassland	Owned and rented	72.8	Holiday cottage	Medium
Holding A*	Grassland	Owned	5.3	Not known	Medium
Holding 18	Grassland used for beef production and hay making	Owned	24.0	None	Medium
Holding B*	Grassland	In probate	6.6	Not known	Medium
Holding C*	Grassland	Owned	2.6	Not known	Medium
Holding D*	Grassland	Owned	2.1	Not known	Medium
Holding E*	Grassland	Owned	5.3	Not known	Medium
Holding F*	Grassland	Owned	2.4	Not known	Medium
Holding G*	Grassland	Owned	5.7	Not known	Medium

Walkers, cyclists and horse-riders (WCH)

- 12.7.30 The baseline scenario considers all routes in the area surrounding the Scheme which have a legal status (e.g. PRow), are promoted for use by WCH. For clarity, the section considers all groups of NMUs and is not restricted to walkers, cyclists and horse riders.
- 12.7.31 For the majority of the rural sections of the A371 and A368 primary link running through the village of Banwell, there is a footway on one side of the carriageway only. This creates an intimidating environment for pedestrians wanting to reach facilities on the opposite side of the carriageway.
- 12.7.32 There are 26 recorded Public Rights of Way within 500m of the Scheme. These are depicted in ES Volume 2 Figure 12.6. Of these, only one PRow (Footpath AX3/06/10) is directly impacted by the Scheme. Additionally, two frequently used paths would be severed by the Scheme. These are identified with their frequency

of use and sensitivity in Table 12-13 below.

Table 12-13 Existing PRow and frequently used paths that interact with the Scheme

PRow/Path	Location	Frequency of use	Sensitivity
Footpath AX3/06/10	Running between Cook's Lane and Moor Road.	Daily	Medium
Moor Road	Runs from Riverside North West	Daily	Medium
Goding Lane	Linking Wolvershill Road, Moor Road, and Riverside	Daily	Medium

12.7.33 A WCH assessment (Planning Document - Walking Cycling Horse-riding Assessment Report) has been carried out with a study area of 5km from the Scheme, including Banwell, Sandford, Winscombe and Churchill. To the west of Banwell (A371) there is a segregated shared-use footway / cycleway however there are many facilities (e.g. bus stops) located on the opposite side of the road with no dedicated crossing facilities and no clear access routes. The pedestrian facilities observed in Sandford are generally in good condition. The condition of some of the pedestrian facilities around Churchill Gate Junction was poor in some areas and in need of updating or more regular maintenance. Footpaths are generally narrow. There is a significant lack of pedestrian crossing facilities within Winscombe. There is a lack of coherent footway along Sandford Road.

12.7.34 There is a lack of dedicated cycle facilities at Churchill Gate Junction. There is currently no dedicated cycle infrastructure within/ surrounding Banwell separate from the local highway network.

12.7.35 There are an additional 20 recorded PRow and frequently used paths within the study area of the additional mitigation works in Sandford, Winscombe and Churchill. These are identified in Table 12-14 below and also depicted in Figure 12.6.

Table 12-14: Existing PRow and frequently used paths within additional mitigation study area

PRow/Path	Location	Frequency of use	Sensitivity
Strawberry Line	Runs north to south crossing the A368 at Sandford Station Retirement Village.	Daily	High

PRoW/Path	Location	Frequency of use	Sensitivity
Footpath AX29/41/20	Runs along the Strawberry Line south of the A365.	Unknown	Medium
Footpath AX29/49/20	Runs north of A368 adjacent to Thatcher's Cider and connect to Footway AX29/49/05.	Unknown	Medium
Footpath AX29/47/10	Runs north from A365 adjacent to Dabinett Drive and connects to Footpath AX29/45/50.	Unknown	Medium
Footpaths AX14/21/20 and AX29/51/10	Runs north to south connecting the A368 and Churchill Green.	Unknown	Medium
Footpath AX14/19/10	Runs south of A368 opposite Hillier's Lane.	Unknown	Medium
Footpath AX14/20/10	Runs south of A368 opposite Hillier's Lane.	Unknown	Medium
Footpath AX14/18/40	Runs south of A368 where it and Front Street converge.	Unknown	Medium
Footpath AX14/39/10	Runs north from A368 opposite Nelson Arms Churchill.	Unknown	Medium
Footpath AX14/26/10	Runs west from Church Lane adjacent to St John the Baptists Church	Unknown	Medium
Footpath AX14/29/10	Runs east from Church Lane opposite to St John the Baptists Church	Unknown	Medium
Footpaths AX14/36/30, AX14/36/20, AX14/36/10 and AX14/34/10	Runs east to west connecting Church Lane and Ladymead Lane.	Unknown	Medium
Footpath AX14/42/20	Runs east of Ladymead Lane.	Unknown	Medium
Footpath AX14/42/30	Runs west of Ladymead Lane.	Unknown	Medium
Footpath AX29/20/10	Runs north-east of Barton Road.	Unknown	Medium
Footpath AX29/15/10	Runs north-east between A371 and Knapps Close.	Unknown	Medium
Note: For PRoW where the frequency of use is unknown. Professional judgement has been used to classify their sensitivity.			

12.7.36 A range of equestrian facilities is known to be located within or just outside the study area, including the Banwell Equestrian Centre. The area is known to be popular amongst equestrian users, particularly to the north of Banwell. Goding Lane appears to be a well-used bridleway with good equestrian facilities. Goding Lane is believed to be used as part of a circular equestrian route linking Wolverhill Road to Moor Road and

Riverside. Another popular equestrian route, based on observations appears to be the restricted byway connecting Towerhead Road and Ilex Lane (Sandford) which runs along the eastern edge of Banwell Fort hilltop.

- 12.7.37 An Equality Impact Assessment (ES Volume 3 - Appendix 12.A - Equality Impact Assessment) has been carried out to capture concerns from vulnerable groups and those more likely to use given routes and be impacted by any change e.g. wheelchair users and school children. The assessment identified concerns around narrow paths and limited accessible crossing points for people with disabilities and the elderly within Banwell and Sandford. Specifically, near Sandford Station Retirement Village and multiple points along the A371 through Banwell, some areas have no pavement provision, with the road only wide enough for one vehicle at a time. Also identified were concerns around accessibility and shelter at multiple bus stops. Some with no designated crossing points, limiting access to those with physical disabilities, people who are visually impaired and people who may struggle with mobility (e.g. the elderly).

Human health

Population estimates

- 12.7.38 The Office for National Statistics (ONS) 2020 mid-year population estimates show the North Somerset has a population of 215,574, with 577 people per sq km. Population projections indicate that by 2050, the population of North Somerset is likely to rise to 250,000¹².
- 12.7.39 The total population in 2020 of the two wards (Banwell & Winscombe, and Hutton & Locking) that the Scheme runs through is 15,140 (7,813 and 7,327 respectively)¹³.
- 12.7.40 Table 12-15 sets out the population and population densities for each LSOA within the study area. North Somerset 023B has greater population density when compared to the other LSOAs within the study area. A reminder of which LSOAs the villages sit within is also set out within Table 12-15. Whilst not totally up-to-date (the 2021 mid-year population estimates are expected to be published in June 2022), it does provide more recent data than the 2011 census which is the latest data for the villages.

Table 12-15 Population and Population density of the Study Area ^{12.14}

Ward	Location	Mid-2020 Population Estimates	Population Density (people per sq km)	Village
Banwell & Winscombe	North Somerset 023A	1,477	128	Banwell
	North Somerset 023B	1,436	1,483	
	North Somerset 024A	1,402	221	
	North Somerset 024B	1,563	502	
	North Somerset 024C	1,598	258	Sandford
	North Somerset 024F	1,301	201	Churchill
	North Somerset 026B	1,282	126	
Hutton & Locking	North Somerset 023C	3,379	637	
	Sandford Village			
	Churchill Village			

Age profiles

- 12.7.41 Table 12-16 below shows the breakdown of the population by age group. Population distribution across the different age groups is largely in line with the North Somerset and England averages. The largest population group within the study area are those aged between 25 to 64 years.
- 12.7.42 In general, the proportion of the population aged under 5 years and 5 to 15 years in the study area is lower than the North Somerset and England averages, particularly in Banwell and Winscombe ward. The proportion of the population aged 65 years and over in the study area is higher than the average for North Somerset and significantly higher than for England. This identifies a significant older population group that would be more susceptible to impacts/ effects arising from the Scheme.
- 12.7.43 In general, across the whole of the study area, the proportion of the population aged under 5 years, aged 16 to 24 years and 25 to 64 years are lower than the North Somerset and England averages.

Table 12-16 Population by age group ^{12.13}

	Population aged under 5 years	Population aged 5 to 15 years	Population aged 16 to 24 years	Population aged 25 to 64 years	Population aged 65 years and over
Banwell & Winscombe	3%	12%	8%	44%	32%
Hutton & Locking	5%	12%	7%	47%	29%
North Somerset	5%	13%	8%	49%	24%
England	6%	13%	11%	52%	18%

Ethnicity

12.7.44 The population of North Somerset is predominately white. According to the 2011 Census ^{12.15}, 97% of residents in North Somerset are White, which is higher in comparison to the England average of 85%. Asian/ Asian British residents make up the largest minority group at 1%, which is much lower than the England average of 8%. Population for other ethnicities in North Somerset are generally lower than the England average. This indicates that North Somerset is significantly less ethnically diverse when compared to the general population in England.

12.7.45 In both the Banwell & Winscombe ward and Hutton & Locking ward, the black and minority ethnic population is significantly lower than the England average. Just 2.4% of the population in Banwell & Winscombe ward and 1.3% in Hutton & Locking ward were recorded as Black and Minority ethnic in 2011 ^{12.16}.

Gender

12.7.46 The 2018-2020 average life expectancy at birth in North Somerset (80.5 years for men and 84.6 years for women) is higher than the England average (79.4 and 83.1 years respectively). It is also noted that the life expectancy is higher for women than for men in North Somerset ¹⁷ which is similar to the national picture.

12.7.47 In both the Banwell & Winscombe ward and Hutton & Locking ward, the life expectancy for males is significantly better than the England average (2015 - 2019) (81.3 and 83.8 years respectively). Life expectancy at birth for females in the Hutton & Locking ward is significantly better than the England average

(85.1 years). The Banwell & Winscombe ward has a similar life expectancy at birth for females as the England average (83.4 years) ^{12.16}.

Sexual Orientation

12.7.48 The Annual Population Survey 2019 found that 2.7% of the population in England aged 16 years and over (1.4 million people) identified themselves as lesbian, gay or bisexual. A statistically significant increase of 2.2% from 2018 ^{12.18}.

12.7.49 In North Somerset, 2.4% of the population are Lesbian, Gay or Bisexual ^{12.19}, which is slightly lower than the England average. There is no ward level or LSOA data available.

Religion or belief

12.7.50 In the 2011 Census, the majority of the population in North Somerset identified as Christian (61%), with no religion as the second largest group (30%). These figures are similar to the England averages reported, with 59% identified as Christian and 25% recorded as having no religion ^{12.20}.

Deprivation

12.7.51 The English Index of Multiple Deprivation (IMD) 2019 ^{12.21} measures relative levels of deprivation at LSOA level and is made up of seven 'domains' of deprivation

- a) income;
- b) employment deprivation;
- c) health deprivation and disability;
- d) education, skills and training deprivation;
- e) crime; barriers to housing and services;
- f) and living environment.

12.7.52 Table 12-17 sets out the deprivation levels for each LSOA and ES Volume 2 Figure 12.7^{12.13} shows the location of each LSOA.

12.7.53 North Somerset is one of the least deprived local authorities nationally, ranking 221 out of 317 local authorities (where 1 is the most deprived). North Somerset 024B and North Somerset 024F (which includes Churchill) are amongst the least deprived neighbourhoods in the country.

Table 12-17 Deprivation levels in each of the study area LSOAs ^{12. 22}

LSOA Name	IMD	Income Deprivation Affecting Children Index (IDACI)	Income Deprivation Affecting Older People Index (IDAOPI)	Barriers to housing and services domain	Living environment deprivation domain
North Somerset 023A	40% least deprived	40% least deprived	30% least deprived	20% most deprived	50% most deprived
North Somerset 023B	40% most deprived	20% most deprived	50% most deprived	20% least deprived	20% least deprived
North Somerset 024A	20% least deprived	40% least deprived	40% least deprived	40% least deprived	20% least deprived
12.7.44 Somerset 024B	10% least deprived	10% least deprived	10% least deprived	20% least deprived	10% least deprived
North Somerset 024C	30% least deprived	30% least deprived	40% least deprived	40% most deprived	20% least deprived
North Somerset 024F	10% least deprived	10% least deprived	10% least deprived	50% least deprived	30% least deprived
North Somerset 026B	50% least deprived	50% least deprived	50% least deprived	40% least deprived	30% least deprived
North Somerset 023C	50% least deprived	50% most deprived	50% least deprived	50% most deprived	10% least deprived

12.7.53 The 2021 level of unemployment in North Somerset was 3.3%, which is lower than the South-West (3.6%) and Great Britain (4.8%) levels ²³. Economic activity data within North Somerset shows that 83.9% of residents are economically active, which is higher than the South-West and Great Britain levels (80.2% and 78.5% respectively).

12.7.54 North Somerset 023A and North Somerset 026B rank amongst the top 30% and 50% most deprived LSOAs in terms of income and employment ^{12.22}. In contrast, North Somerset 024B ranks amongst the top 10% least deprived for income and employment. According to the 2011 Census, 39.4% of residents within North Somerset have attained a post-secondary qualification (NVQ4 and above), which is slightly lower than the South-West (40%) and Great Britain (43%) ^{12.23}.

- 12.7.55 Barriers to housing and services domain measures the physical and financial accessibility of housing and local services. This includes 'geographical barriers' which relates to the physical proximity of local services, and 'wider barriers' which includes issues relating to access to housing such as affordability. Three LSOA within the study area sit within the 20-50% most deprived (023A, 024C and 023C).
- 12.7.56 The Living Environment deprivation domain measures the quality of the local environment and falls into two sub-domains. The 'indoors' living environment which measures the quality of housing (not relevant to this assessment) and the 'outdoors' living environmental which includes measures of air quality and road traffic accidents. As can be seen from Table 12-17 only one LSOA (023A) falls within the 50% most deprived areas in relation to this domain. This is also considered in relation to Access to nature (see para. 12.7.69).

Health and wellbeing status

- 12.7.57 In the 2011 Census, 80% of individuals from North Somerset reported to be in very good or good health ^{12.24}. Data is also available at ward level:
- a) Banwell and Winscombe: 82%
 - b) Hutton and Locking: 80%
- 12.7.58 This is in line with the England and Wales value of 81% ^{12.25}.

Physical health

- 12.7.59 The Health Profile of North Somerset ^{12.17} shows that the health of the population performs better than the England average. Some key behavioural indicators include:
- a) The proportion of adults classified as overweight or obese in North Somerset (60.5%) is lower than the England average (62.8%) in 2019/20.
 - b) This is correlated with the higher rate of physically active adults in North Somerset (69.1%) to the England average (66.4%) in 2019/20.
 - c) In addition, the prevalence of obesity in children is lower in North Somerset than in England in 2019/20, 18% compared to 21% in 2019/20.

- d) Smoking prevalence in adults (aged 18+) in North Somerset (11.3%) is also lower than the England average (13.9%) in 2019.
- e) The proportion of statutory homelessness (based on 2017/18 data) in North Somerset is the same as the England average (0.8 people per 1000) in 2017/18.

Disability

12.7.60 The health domain of the IMD expresses the health deprivation and disability of a community, measured by the level of possible risk posed by poor physical or mental health and its contribution to early death or reduction in quality of life. The IMD health profile shows the majority of the study area falls between the 30-50% least deprived in the country in terms of health deprivation and disability²¹. North Somerset 024B and North Somerset 024F are the exception ranking amongst the 10%-20% least deprived in the country.

Table 12-18 Disability health deprivation and residents with long term health problems within the study area ^{12.21 12.26}

LSOA Name	Health deprivation and disability	Residents with a long-term health problem or disability that limits their day-to-day activities a lot	Residents with a long-term health problem or disability that limits their day-to-day activities a little
North Somerset 023A	30% least deprived	8.7%	11.8%
North Somerset 023B	50% most deprived	10.4%	10.7%
North Somerset 024A	30% least deprived	9.9%	13.8%
North Somerset 024B	10% least deprived	6.3%	13.1%
North Somerset 024C	50% least deprived	14.6%	12.2%
North Somerset 024F	20% least deprived	5.0%	7.7%
North Somerset 026B	40% least deprived	6.5%	10.6%
North Somerset 023C	40% least deprived	7.1%	9.6%

12.7.61 The proportion of residents with a disability that limits their day-to-day activities a lot in Banwell & Winscombe is 8.3%, the same as the England average. Hutton & Locking has a similar

proportion of residents with a disability that limits their day-to-day activities a lot as North Somerset's average (8.7% to North Somerset's 8.6%). Both Hutton & Locking, Banwell & Winscombe and North Somerset have higher rates of residents with a disability that limits their day-to-day activities a little (12.8%, 11.0% and 10.6% respectively) than England (9.3%)^{12.26}.

Table 12-19 Residents with long term health problems within the study area

	Residents with a long-term health problem or disability that limits their day-to-day activities a lot	Residents with a long-term health problem or disability that limits their day-to-day activities a little
Banwell & Winscombe	8.3%	11.0%
Hutton & Locking	8.7%	12.8%
North Somerset	8.6	10.6
England	8.3%	9.3%

12.7.62 In 2019/20 the Quality and Outcomes Framework (QOF) prevalence of residents in North Somerset with a learning disability was 1,074 (0.5%). This is the same percentage as for England^{12.27}.

12.7.63 883 children were reported to have learning difficulties known to schools in North Somerset in 2020, a value of 28.7. This is lower than the England value of 34.4.

Rate of incidence of diseases

12.7.64 Table 12-20 below shows that the standardised mortality rates from cancer, heart diseases and respiratory diseases are lower in North Somerset than the England averages. Deaths from circulatory disease in Hutton & Locking is significantly lower in comparison. In addition, deaths from coronary heart disease in Banwell & Winscombe are also significantly lower.

Table 12-20 Mortality rates from cancer, heart diseases and respiratory diseases in 2015 – 2019 (Standardised mortality ratios)^{12.16}

Mortality and causes of death	Standardised Mortality Ratios			
	Banwell & Winscombe	Hutton & Locking	North Somerset	England
Deaths from all cancer	86.4	81.8	94.0	100.0
Deaths from circulatory disease	84.0	68.6	85.6	100.0

Deaths from coronary heart disease	68.7	74.4	78.6	100.0
Deaths from respiratory disease	83.5	84.3	89.6	100.0

Mental Health

- 12.7.65 The estimated dementia diagnosis rate in North Somerset (aged 65 and over) was 65.3% in 2019, which is lower than the England average of 68.7% ^{12.28}. The prevalence of dementia reflects the relatively elderly population within this area.
- 12.7.66 Results from the 2021 Annual Population Survey ^{12.29} on personal wellbeing show that the majority of residents from North Somerset believe they are satisfied with their lives (7.3 out of 10), feel their lives are worthwhile (7.7 out of 10), are happy (7.2 out of 10) and have low levels of anxiety (3.3 out of 10). For the anxiety question, ratings are grouped differently to reflect the fact that higher anxiety is associated with lower personal well-being. The ratings for anxiety are grouped as follows: 0 to 1 (very low), 2 to 3 (low), 4 to 5 (medium), 6 to 10 (high).
- 12.7.67 In 2010/11 ³⁰ North Somerset had a higher level of GP diagnosed depression (16.5%) than England (11.7%). In addition, emergency hospital admissions for intentional self-harm are increasing, with 280.6 per 100,000 reported in North Somerset in 2019/20 compared to 192.6 per 100,000 in England ^{12.17}. The suicide rate is lower than the England average (9.3 per 100,000 compared to 10.4 per 100,000 people) in 2018 - 2020.
- 12.7.68 Admission episodes for alcohol-related conditions are on the rise. In 2018/19 North Somerset reported 728 per 100,000 admission episodes for alcohol-related conditions, which is higher than the England average of 664 per 100,000.

Living environment and access to nature

- 12.7.69 The IMD living environment profile shows that North Somerset 023A ranks amongst the 50% most deprived neighbourhoods, whereas the North Somerset 023B and North Somerset 026B rank amongst the 20% and 30% least deprived neighbourhoods in terms of living environment. The other LSOAs within the local community range from 10% - 20% least deprived

neighbourhoods in the country in terms of the IMD living environment domain which suggests that the area is not deprived in terms of living environment, with the exception of North Somerset 023A ^{12.31}.

Sensitive receptors

12.7.70 The following sensitive receptors, many of which are used and accessed by vulnerable groups, are located within the study area, and shown in ES Volume 2 Figure 12.8 which relates to noise sensitive receptors:

- a) There are two schools within 1km: Banwell Primary School (mixed gender community school for children aged 4 to 11) with 181 pupils; and Banwell Buddies Pre-school (pre-school for children aged 2 to 4 situated on the Banwell Primary school site) with 45 children.
- b) There are three places of worship within 1km: St. Andrew's Church Banwell, Banwell Methodist Church and All Saints Church.
- c) Banwell Village Pharmacy and Winscombe & Banwell family Practice are located within 1km of the Scheme. Weston General Hospital is the closest hospital, 4km to the west of the Scheme.
- d) Two large scale employment centres; Knightcott Industrial Estate and Thatcher's Cider are located within 1km of the Scheme.
- e) There are two care homes located within 1km of the Scheme; Sandford Station Retirement Village which provides general nursing care services for up to 32 residents, and the Russets Care Home which provides care services for people with dementia for up to 73 residents.

Green Spaces and Open Spaces

12.7.71 The northern extent of the Mendip Hills Area of Outstanding Natural Beauty (AONB) lies directly to the south of the main Scheme with the Southern Link between the A368 and A371 entering into the AONB to the southeast of Banwell around Banwell Castle. The Mendip Hills AONB Management Plan ^{12.32} states:

"The AONB landscape is a resource to be enjoyed by all sectors of our diverse society, for active, and quieter recreational pursuits. Outdoor recreation is proved to benefit people's health and wellbeing through exercise, and

opportunities to escape the pressure of everyday life. Being within a 30-minute drive from Bristol, Weston-super-Mare, and Bath, the Mendip Hills AONB is accessible to these urban populations, as well as the local rural communities.”

- 12.7.72 The AONB includes recreational routes for walking, cycling and horse-riding activities, including the Strawberry Line (national cycle route 26), Limestone Link, the Mendip way, Monarchs Way and West Country Way (National Cycle Route 30).

Townscape/ landscape and Local Character

- 12.7.73 The landscape of the study area is described in detail in ES Volume 1 Chapter 7 - Landscape and Visual Amenity. This section provides an overview of landscape character.

- 12.7.74 Banwell Village is a village and civil parish in North Somerset. The centre of Banwell village is covered by a Conservation Area. There are several villages in the vicinity of Banwell, including Sandford and Winscombe to the east and Locking and Hutton to the west. The immediate surrounding land use is predominately agricultural, with the Mendip Hills Area of Outstanding Natural Beauty (AONB) to the south of the village.

- 12.7.75 The Scheme is contained within National Character Area (NCA) 142: Somerset Levels and Moors. It is a landscape of rivers and wetlands, artificially drained, irrigated and modified to allow productive farming. The NCA is predominantly a flat landscape much influenced by historic water management and subsequent agricultural use. The surrounding often wooded higher ground acts as a backdrop and contains far-reaching views. The Scheme also lies within two local character areas: Mendip Ridges and Combes and River Yeo Rolling Valley Farmland.

Mendips AONB

- 12.7.76 Mendip Hills AONB lies to the south of the Scheme and within the southern section of the Study Area. The Mendip Hills AONB Management Plan ^{12.32} covering the period 2019 to 2024 highlights the tranquillity and remoteness of the area, and the need to protect the unique characteristics of the landscape from development pressures which might bring the urban fringe closer to the AONB boundary. Special qualities that define the landscape of the AONB include:

- a) dark skies, tranquillity, sense of remoteness, naturalness of the area.
- b) distinctive limestone ridges and scarp slopes, rising from the Somerset Levels and Moors, and windswept plateau
- c) views towards the Mendip Hills and the distinctive hill line and far-reaching views and panoramas out over the adjacent levels and Severn Estuary.

12.7.77 While the Mendip Hills AONB is not a designated International Dark Sky Reserve (IDSR), it is well known for its dark sky environment. An environment which is becoming rarer all the time due to increasing light pollution. As such, measures to preserve the dark sky environment should be taken.

Transport and Accessibility

12.7.78 There are three bus stops on Knightcott Road in the area of Summer Lane that would be affected:

- a) Westbound bus stop opposite Summer Lane – re-provided as part of the Scheme.
- b) Eastbound bus stop, opposite Well Lane – re-provided as part of the Scheme.
- c) Westbound bus stop 200m east of Well Lane (known as Boulters) – removed as part of the Scheme. shared use path provides alternative connectivity to provided Well Lane bus stops.

12.7.79 No new bus stops would be provided on the Banwell Bypass; bus routes would be through Banwell village (not using the Banwell Bypass). There are no train stations at Banwell, Sandford or Churchill villages. The nearest railway stations are Worle station and Weston Milton Station, both on the Weston-super-Mare to Bristol line, which are approximately 4km and 5km northwest respectively. Weston-super-Mare main line station is 6.5km to the northeast.

12.7.80 There are no designated cycle routes within the Scheme. However, National Cycle Network Route 26 (the Strawberry Line) is located within the Study Area.

12.7.81 There are numerous Public Rights of Way (PRoW) ^{12.33} within the Study Area (ES Volume 2 Figure 12.6), particularly within the AONB to the immediate south of the Scheme. One PRoW

(Footpath AX3/06/10) would be crossed by the Scheme.

Crime

- 12.7.82 The study area sits within the Avon and Somerset Constabulary, in the Weston Villages area. The Avon and Somerset Violence Reduction Unit Annual Report 2020/2021 ^{12.34} reported the crime rate in North Somerset as 73.0 per 1,000 people between April 2018 – March 2020, the second highest in the Avon and Somerset region. The rate of serious violence across the same time frame was 8.9 per 1,000 people, the third highest in the Avon and Somerset region. However, these rates are expected to be skewed by, and more relevant to, the main settlements rather than the villages such as Banwell.
- 12.7.83 Hospital admissions in North Somerset for violence are 40.3 per 100,000 people which is higher than the Southwest (35.2 per 100,000) but lower than the England rate (45.8 per 100,000) in 2017/2018 – 2019/2020^{35,36}. Statistics published by Police.UK ^{12.37} also confirm that violence and sexual offences have been the most common crime within the area over the last three years.
- 12.7.84 The Scheme falls within North Somerset 023A, North Somerset 023B and North Somerset 026B. Statistics show that the risk of crime in North Somerset 023A is less than in the other areas.

Air quality

- 12.7.85 There are no Air Quality Management Areas (AQMAs) in the study area that have been designated for nitrogen dioxide (NO₂) and particulate matter (PM_{2.5} and PM₁₀) or for exceedance of UK Air quality objectives and Limit Value thresholds.

Noise environment

- 12.7.86 There is one Noise Important Area (NIA ID 3502) that lies within the Banwell study area on the M5 (refer to ES Volume 2 - Figure 11.1). There are a group of residential receptors located to the west of the M5, on Trenchard Road approximately 0.7km west of the Scheme.
- 12.7.87 Existing baseline noise levels are predominantly influenced by traffic levels along the existing A371.

12.8 Embedded Mitigation

- 12.8.1 This section identifies the Scheme's embedded mitigation in relation to each of the subtopics identified in paragraph 12.7.1. A summary of the wider mitigation measures is presented in Table 2-14 of ES Volume 1 Chapter 2 - Scheme Description.
- 12.8.2 In subsequent paragraph within Section 12.8, embedded mitigation is considered for both the Scheme's construction and operational phases. If there is no reference to the Scheme's operation phase, it indicates that there is no embedded mitigation as part of the Scheme's operational phase. Essential mitigation is outlined as part of the assessment process.

Land use and accessibility Private property and housing

Mitigation during construction

- 12.8.3 To mitigate for the potential effects on private property and housing, the below actions are proposed as part of the Scheme. Further details to be provided in the CEMP and Public Engagement Strategy.
- a) Minimise the impact on private properties by ensuring (wherever possible) continued safe access to Banwell and alternative routes are provided where severance occurs.
 - b) Ensure access routes from properties to public transport (e.g. bus stops) is accessible throughout the construction phase to those with disabilities and limited mobility.
 - c) Minimise the duration of any temporary diversions (for vehicles and pedestrians).
 - d) Select construction traffic routes with the lowest levels of disruption to impacted properties, avoiding (wherever possible) larger vehicles traveling through Banwell. Access routes to the East and West main compounds are from the A38 only and M5 only respectively, avoiding travel through Banwell. These are identified in the Construction Traffic Management Plan (ES Volume 3 - Appendix 2.A - Construction Traffic Management Plan).

Community land and assets

Mitigation during construction

- 12.8.4 To mitigate for the potential effects on community land and assets, the following actions are proposed as part of the Scheme.
- a) Access to Banwell Equestrian Centre on Moor Road is to be maintained.
 - b) Limit construction traffic to essential travel through Banwell during peak traffic (e.g. school drop off and pick up times) hours to minimise disruption caused during the construction and maintain safety on the already busy roads.
 - c) Ensure access routes to community land and assets are accessible to all throughout the construction phase e.g. to those with disabilities and limited mobility, and parents with push chairs.

Mitigation during operation

- 12.8.5 The shared use path along the Scheme would provide new travel route opportunities for people to access community land and assets. Through placemaking measures in Banwell and measures designed to enhance WCH safety in Sandford, Churchill and Winsome, routes to community assets (particularly schools and healthcare facilities) would be improved and made safer. Improvements include the widening of pavements, improved crossing points (e.g. inclusion of signalised junctions) and the introduction of 20mph speed limits through the villages. These measures would benefit by some of the more vulnerable groups in society to include schoolchildren, elderly, those with a disability or limited mobility.

Development land and business

Mitigation during construction

- 12.8.6 To mitigate for the potential effects on development land and business the following actions are proposed as part of the Scheme.
- a) Stonebridge Farm Caravan Park – loss of land would make the caravan park unviable, the operators of the park would be appropriately compensated.
 - b) Rowtech Engineering – the Scheme design would avoid the business buildings, through the construction of a retaining

wall to the north of the building and take land that would not impact on the business' operating conditions.

- c) Court Farm Country Park - during construction, access routes to/ from Banwell would be maintained where possible. Where required alternative routes would be provided.
- d) Safe access to businesses listed in Table 12-10 would be maintained throughout the construction phase of the project, including for access by delivery vehicles.

Agricultural land holdings

Mitigation during construction

- 12.8.7 Where land used temporarily for construction is to be reinstated to agricultural use, reinstatement works would be implemented in accordance with Defra guidance where appropriate.
- 12.8.8 Continued access to agricultural land is an important consideration and bespoke access arrangements have been included for:
 - a) Holding 2 – roadside gateways from A371 installed to maintain access;
 - b) Holding 3 – roadside gateways from A371 installed to maintain access;
 - c) Holding 5 – provision of agricultural access track to severed land from A371;
 - d) Holding 6 – use of Wolvershill Road Southern Arm for private agricultural access and provision of roadside gateways to severed agricultural land from Wolvershill Road to the north of the Banwell Bypass, including livestock handling facilities.
 - e) Holding 7 – use of Wolvershill Road Southern Arm for private agricultural access and provision of roadside gateways to severed agricultural land from Wolvershill Road to the south, including livestock handling facilities;
 - f) Holding 12 - roadside gateways from Moor Road Link to maintain access to severed field parcels.
 - g) Holding 23 - roadside gateways from Southern Link to maintain access to field.
- 12.8.9 Compliance with the Code of Construction Practice (CoCP) would avoid or reduce agricultural impacts during construction.

Walkers, cyclists and horse-riders (WCH)

Mitigation during construction

- 12.8.10 To mitigate for the potential effects on WCH, the following actions are proposed as part of the Scheme.
- Maintain access (wherever possible) to identified journeys/routes and PRow impacted by the construction of the Scheme. Where this is not possible, alternative WCH routes are to be created, within the vicinity of the impacted route, to avoid severance during construction.
 - Minimise the duration of temporary diversions.

Mitigation during operation

- 12.8.11 To mitigate for the potential effects on WCH, the following actions are proposed as part of the Scheme.
- Ensure Footpath AX3/06/10 is connected to the new shared-use path to the north of the Scheme.
 - Where the shared use path crosses the Banwell Bypass at Summer Lane/ Wells Lane and Wolvershill road these would be signalised suitable for walkers, cyclists, and horse riders (Toucan/ Pegasus) to maintain existing north-south WCH routes.
 - New footpaths between Banwell and bypass alignment to link existing PRow, Banwell village and new development locations.
 - New shared use path to the east of Banwell, linking eastern Banwell Bypass junction with Sandford, including the Strawberry Line (either along A368 or utilising existing restricted byway between A368 and Hill Road).
 - Signalised junctions are being added at multiple points across the Scheme. These are being provided at the southern end of Summer Lane and Wolvershill Road creating safer routes and crossing opportunities to WCH.
 - New footways on A368 Dinghurst Road linking existing properties, bus stops, footpaths, and side roads, (including Hillier's Lane, for access to Churchill Academy, and 'missing link' footway to the east of the Railway Inn in Sandford).
 - Reduced traffic flows through Banwell village enable traffic calming measures to support walking and cycling, potentially including:
 - reduction of speed limit to 20mph;
 - increased footway widths and additional dropped kerbs;

- raised table crossings and/ or build-outs for improved pedestrian crossings, including new dropped kerbs.

12.8.12 ES Volume 1 – Chapter 2 – Scheme Description and Banwell Placemaking Drawings (Planning Documents - Banwell Placemaking Drawings) indicates locations for proposed measures through Banwell village including new/ extended footways, shared footpath and cycle path, and pedestrian crossing points.

Human Health

12.8.13 Access for residents and communities to residential properties, community services and facilities, local businesses, open space and greenspace, and transport and active travel networks will be maintained as far as is reasonably practicable to do so, and the duration of any severance or loss of access will be minimised, including during the establishment of new solutions or alternative provision, where required.

Access to health and social care services

Mitigation during construction

12.8.14 Any diversions and new access routes would consider accessibility for people in wheelchairs and pushchairs, the elderly and the young e.g. the use of ramps, hand railing and lifts. Diversions and new access routes should also consider the turning circle and space for wheelchair manoeuvres. There are also particular needs for the sight impaired that need to be considered: mitigation for this group should be developed in advance with key stakeholder groups and be specified in the CEMP (refer to ES Volume 3 - Appendix 16.A - Outline CEMP).

Air quality, noise and neighbourhood amenity (including crime and community safety)

Mitigation during construction

12.8.15 Construction sites would be well lit and secured with CCTV (where appropriate) to prevent sites from attracting antisocial behaviour and activities such as graffiti and fly tipping, and to

reduce concerns about personal safety and security among local residents.

12.8.16 Embedded Mitigation would include measures to manage and control dust, noise and vibration, and pollutants, as set out in the various ES chapters. These measures would be set out in the CEMP.

12.8.17 Good working practices would be used that minimise effects on sensitive receptors and ensure that as far as possible dust, noise and vibration, and pollutants do not cause undue nuisance.

Accessibility and active travel

Mitigation during construction

12.8.18 During construction, monitoring should be undertaken to ensure that existing and diverted PRoW and pedestrian and cyclist routes impacted by the Scheme are working and accessible as planned.

12.9 Predicted Environmental Effects

12.9.1 The following section assesses the effects of the Scheme on the broad topic of land use and accessibility, and human health. Both the construction and operation phases are assessed. The assessment follows guidance described in LA112^{12.1} and LA104-^{12.2}. The effects are assessed taking into consideration the embedded mitigation outline in Section 12.8 above.

Land use and accessibility Private property and housing

12.9.2 This section provides an assessment of effects on private property and housing. It considers the potential effects on residential properties and residential development land within the vicinity of the Scheme. As stated in the baseline, the following properties have been identified as having potential impacts. There are no private residential properties within the footprint of the Scheme. Effects on these properties would result from proximity to the works and changes in access.

Effects during construction

12.9.3 The potential significant effects on private property during the Scheme's construction phase are presented in Table 12-21 in accordance with LA 104 ^{12.2}. ES Volume 3- Appendix 12.E - Private properties within 500m of the Bypass provides the effect significance classifications of all properties identified in above.

Table 12-21 Effects on residential properties – construction

Property	Sensitivity	Potential effect(s)	Magnitude	Significance
COACH HOUSE, WOLVERSHILL ROAD	Medium	Severance from Banwell and substantial amendment to access to/from Banwell	Moderate	Moderate adverse
COURT FARM, WOLVERSHILL ROAD	Medium	Severance from Banwell and substantial amendment to access to/from Banwell	Moderate	Moderate adverse
PARK FARM, WOLVERSHILL ROAD	Medium	Severance from Banwell and substantial amendment to access to/from Banwell	Moderate	Moderate adverse
WOLVERSHILL COURT, WOLVERSHILL ROAD	Medium	Severance from Banwell and substantial amendment to access to/from Banwell	Moderate	Moderate adverse
109, 111, 113, 115 KNIGHTCOTT ROAD	Medium	Substantial amendment to access to properties.	Moderate	Moderate adverse
CHESTNUT HOUSE, KNIGHTCOTT ROAD	Medium	Disruption from close proximity to works. Substantial amendment to access.	Moderate	Moderate adverse
WAITS COTTAGE, KNIGHTCOTT ROAD	Medium	Disruption from close proximity to works. Substantial amendment to access.	Moderate	Moderate adverse
TEMPORARILY OCCUPIED CARAVAN, RIVERSIDE	Medium	Demolition or removal.	Major	Large adverse
COURT FARM	Medium	Severance from Banwell and substantial amendment to	Moderate	Moderate adverse

Property	Sensitivity	Potential effect(s)	Magnitude	Significance
		access to/from Banwell		
MOORLAND FARM	Medium	Severance from Banwell and substantial amendment to access to/from Banwell	Moderate	Moderate adverse

- 12.9.4 It should be noted that there is currently no demolition or direct land take of private property or land by the Scheme. Therefore, effects on private property and housing during construction would be temporary for the duration of the construction phase, with appropriate mitigation and management to be put in place.
- 12.9.5 During construction, the identified properties at Castle Hill, Dark Lane, East Street and High Street, would experience potential effects on access roads to the properties. Due to the realignment and instatement of the Southern Link for the Scheme, access from 'the top' (southern access route to the properties along Castle Hill Road and Dark Lane) would be disrupted and eventually removed. Following construction, access to the impacted properties along Castle Hill and Dark Lane would be from East Street. These construction impact will be a permanent change in access and remain during the Scheme's operation phase. Pedestrian access will be maintained via 'the top' of Castle Hill with steps to connecting Castle Hill and Dark Lane at the southern end.
- 12.9.6 Properties at Summer Lane are within 200m of the Scheme alignment. There would potentially be some minor disruption during the construction phase. The Scheme alignment passes between these properties and Banwell, which causes severance for their occupiers from the community. However, access to Banwell from the road (south on Summer Lane then east along A371) would see a minor change but not impact access.
- 12.9.7 Properties identified along Knightcott Road would be subject to minor access disruption during the roundabout construction at the western end of the Scheme.
- 12.9.8 For the properties on Wolvershill Road south of the Scheme, there would be an introduction of severance with adequate accessibility provision. This would result in approximate 2.5km extra journey if residents need to travel north-west on Wolvershill

Road or access the properties from the north-west.

- 12.9.9 Construction of the Scheme would cause an amendment to access to properties identified on Moor Road via the new Riverside to Moor Road link.
- 12.9.10 The temporarily occupied caravan at Riverside within the Scheme footprint would be removed during the construction phase.
- 12.9.11 The 421 properties identified within the additional mitigation study area will experience slight adverse or neutral impacts during the construction phase. This will come from minor disruption due to short term works and potential temporary diversions.

Effects during operation

- 12.9.12 Private property and housing has been scoped out during the operation phase of the Scheme as there are no anticipated further significant effects as identified in the WSP EIA Combined Scoping and Screening Report (refer to ES Volume 3 - Appendix 1.B - WSP EIA Combined Screening and Scoping Report).

Community land and assets

- 12.9.13 This section of the assessment considers effects on the community land, assets, and facilities within the study area.

Effects during construction

- 12.9.14 Table 12-22 below indicates the significant impacts of the Scheme on community land and assets during the construction phase.

Table 12-22 Effects on community assets during construction

Receptor	Sensitivity	Magnitude of impacts	Significance
Banwell Football Club	Medium	Moderate – partial loss of land leased by the club as training fields.	Moderate adverse
Banwell Village Pharmacy	High	Minor - minor change given construction activities in the surrounding areas – assumed that access would be maintained at all times.	Moderate adverse
Banwell Equestrian Centre	Medium	Minor –amendment to access via Moor Road.	Slight adverse

- 12.9.15 During the construction phases it is anticipated that there would be limited impact on local community land and assets with the exception of Banwell Football Club. A potential effect of minor disruption during the construction phase due to materials and plant transport through Banwell has been identified.
- 12.9.16 Banwell Football Club is the only community asset that would be directly impacted by the Scheme. Land north of the main pitch at the football club is currently used as training fields (see Agricultural Holding No.22, refer to ES Volume 2 Figure 12.5). Approximately 2.5ha of this field would be inaccessible during the construction phase as the Scheme passes through the training fields.
- 12.9.17 Banwell Equestrian Centre would see a change in access along Moor Road from the south. Access to Moor Road from Riverside will be moved approximately 650m north via a new link running east to west. The existing routes would be diverted for the Scheme's construction.
- 12.9.18 An assessment of the significance of impacts for all receptors identified in Table 12-23 during the construction phase can be found in ES Volume 3 - Appendix 12.F - Community land and assets significance.
- 12.9.19 The additional mitigation receptors will experience either no impacts or minor disruption during the construction of new footpaths, the narrowing of the roads and junction improvement. The works will be completed over a short timescale so any minor disruption to access due to the works will be limited. All receptors have been assessed potentially experiencing either neutral or slight adverse impacts during construction, and therefore are not classified as significant within this assessment.

Effects during operation

- 12.9.20 Table 12-23 below indicates the significant impacts of the Scheme on community land and assets during the operation phase of the Scheme.

Table 12-23 Effects on community assets during operation

Receptor	Sensitivity	Magnitude of impacts	Significance
Banwell Buddies Preschool	High	Minor – improvements in access due to changes to operating	Moderate beneficial

Receptor	Sensitivity	Magnitude of impacts	Significance
		conditions (reduction in traffic flows through Banwell)	
Banwell Primary School	High	Minor – improvements in access due to changes to operating conditions (reduction in traffic flows through Banwell)	Moderate beneficial
Banwell Village Pharmacy	High	Minor – improvements in access due to changes to operating conditions (reduction in traffic flows through Banwell)	Moderate beneficial
Churchill Academy	High	Minor – improvements in access to the academy for students who walk or cycle due to new shared use path.	Moderate beneficial

12.9.21 The majority of assets and community land would likely experience varying levels of beneficial effects due to the change in motorised access through Banwell. Reduced traffic along the A371 would improve access and allow for safer access to the identified community land and assets.

12.9.22 During operation, the potential impacts to the additional mitigation receptors will be improvement to access due to a reduced speed limits to 20mph. This has been assessed as slight beneficial and not considered significant as part of this assessment. Access to Churchill Academy will be improved for students walking and cycling to school by the improvements to footpaths, crossing points and the new shared use path. This has been classed as moderate beneficial.

Development land and business

12.9.23 The consideration of effects on development land and businesses focusses on businesses at risk (including severance) or from which land would be required to facilitate construction and/ or operation of the Scheme. It also considers potential effects on land allocated for development or subject to a planning application, within the study area.

Effects during construction

12.9.24 There is no direct impact anticipated on development land from the Scheme. The following Table 12-24 identifies the significant effects of the Scheme on the identified businesses within the study area. The full assessment of effects on all receptors identified in Table 12-10 are presented in ES Volume 3 -

Appendix 12.G - Development land and assets significance

Table 12-24 Significant effects on businesses during construction

Receptor	Sensitivity	Magnitude	Significance
Stonebridge Farm Caravan Park	High	Major – loss of caravan park	Large adverse
Court Farm Country Park	High	Moderate – introduction of severance and with changes to accessibility provision	Moderate adverse

12.9.25 The Scheme would require land take from the main field of Stonebridge Farm Caravan Park, which would result in the unviability of the business. This is assessed as a large adverse effect.

12.9.26 To minimise landtake at Rowtech Engineering a retaining wall would be constructed on the northern boundary. There would be the requirement for an easement to the north of the building. This would have a discernible change to the site attributes but would not compromise overall viability of the business. This would result in a slight adverse effect.

12.9.27 The Scheme alignment would be close to Court Farm Country Park and would result in disruption to access during construction. Also, the change in private motor vehicle access along Wolvershill Road would introduce severance between Banwell and Court Farm Country Park, lengthening the journey into the centre of Banwell by approximately 0.8km by car and changing accessibility provision. The journey length into the centre of Banwell would remain the same via public transport or active travel. This is assessed as a moderate adverse effect.

12.9.28 The additional mitigation receptors will experience either no impacts or minor disruption during the construction of new footpaths, the narrowing of the roads and junction improvement. The works will be completed over a short timescale so any minor disruption to access due to the works will be limited. All receptors have been assessed potentially experiencing either neutral or slight adverse impacts during construction, and therefore are not classified as significant within this assessment.

Effects during operation

- 12.9.29 Court Farm Country Park would have both adverse and beneficial potential effects during the Scheme's operation phase. There would be a better passing trade via the Banwell Bypass, but closure of southern section of Wolvershill Road to private motorised vehicles could have an adverse impact on visitor numbers from within Banwell due to an increase in journey length by car. Considered collectively, the Scheme would result in moderate beneficial effects due to the overall improved access to the farm during operation. Vehicles accessing from the south, east and west would no longer need to travel through the narrow Banwell streets, improving access to Wolvershill Road. The close proximity of the Scheme to the Farm would likely have an additional slight adverse impact due to a potential discernible change in characteristic and setting of the country park.
- 12.9.30 During operation, the potential impacts to the additional mitigation receptors will be improvement to access due to a reduced speed limits to 20mph. This has been assessed as slight beneficial and not considered significant as part of this assessment.

Table 12-25 Significant effects on businesses during operation

Receptor	Sensitivity	Magnitude	Significance
Court Farm Country Park	High	Minor - amendment to access resulting in changes to operating conditions that do not compromise overall viability.	Moderate beneficial

Agricultural land holdings

- 12.9.31 The acquisition and use of land for the Scheme would interfere with existing uses of agricultural 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.
- 12.9.32 Land used to construct the Scheme would fall into the following main categories when work is complete:

- a) part of the operational road and kept under the control of the highway operator;
- b) returned to unrestricted agricultural use (with aftercare management to ensure stabilisation of the soil structure); and
- c) used for ecological and/ or landscape mitigation with ownership ultimately open for negotiation; for the purposes of this assessment it is assumed that the land would be unavailable for agricultural production.

12.9.33 Land may be required for the Scheme from holdings temporarily during the construction period, and/ or permanently. Following construction, some agricultural land would be restored to unrestricted agricultural use and to the original agricultural condition, and the impact on individual holdings would reduce.

12.9.34 In other cases, land would be restored 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 the landowner's 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.

12.9.35 The effects of the Scheme on individual agricultural and related interests during the construction period are summarised in Table 12-26. The area of agricultural land that could be returned to the holding following the construction period (and available for unfettered agricultural use) is also indicated.

12.9.36 The effect of severance during construction is judged on the ease and availability of access to severed land (but excludes land already separated from the main holding and accessed from the public highway). It includes non agricultural land such as tracks. Air quality and noise and vibration effects on farm holdings are assessed in Chapter 5: Air Quality and Chapter 11: Noise and Vibration.

Table 12-26 Land holdings and land take during construction

Holding name	Sensitivity to change	Total area required from holding, scale of impact	Construction severance, magnitude of impact	Significance of construction effects	Area to be restored to agriculture
Holding 1	Medium	Negligible <0.1ha; <1%	Negligible	Negligible	0.0ha
Holding 2	Low	Negligible 0.1ha; 5%	Negligible	Negligible	0.0ha
Holding 3	Low	Low 0.2ha; 6%	Negligible	Negligible	0.0ha
Holding 4	Low	High 2.2ha; 77%	Minor	Moderate adverse due to the proportion of land required	1.9ha
Holding 5	Low	High 4.5ha; 33%	Moderate	Moderate adverse due to the proportion of land required and severance	0.6ha
Holding 6	Medium	Moderate (Excludes land used for caravan site) 4.0ha; 10%	Moderate	Moderate adverse due to the proportion of land required and severance	0.8ha
Holding 7	Medium	Moderate 5.2ha; 12%	Moderate	Moderate adverse due to the proportion of land required and severance	2.6ha
Holding 8	Medium	Negligible <0.1ha; 1%	Negligible	Negligible	0.0ha
Holding 9	Medium	Negligible 2.9ha; 4%	Negligible	Negligible	0.0ha
Holding 10	Medium	Moderate 4.4ha; 17%	Moderate	Moderate adverse due to the proportion of land required and severance	0.8ha
Holding 11	Low	High 3.5ha; 96%	Negligible	Moderate adverse due to the proportion of land required	0.0ha

Holding name	Sensitivity to change	Total area required from holding, scale of impact	Construction severance, magnitude of impact	Significance of construction effects	Area to be restored to agriculture
Holding 12	Medium	Low 0.3ha; >5%	Moderate	Moderate adverse due to severance	0.0ha
Holding 13	Low	High 0.4ha; 43%	Negligible	Moderate adverse due to the proportion of land required	0.0ha
Holding 14	Low	High 2.1ha; 47%	Negligible	Moderate adverse due to the proportion of land required	0.7ha
Holding 15	Low	High 0.7ha; 93%	Negligible	Moderate adverse due to the proportion of land required	0.0ha
Holding 16	Low	Low <0.1ha; 6%	Negligible	Negligible	0.0ha
Holding 17	Medium	Negligible 0.7ha; 1%	Negligible	Negligible	0.0ha
Holding 18	Low	Negligible <0.1ha; <1%	Negligible	Negligible	0.0ha
Holding 19	Low	High 1.2ha; 73%	Negligible	Moderate adverse due to the proportion of land required	0.0ha
Holding 20	Low	High 1.6ha; 100%	Negligible	Moderate adverse due to the proportion of land required	0.0ha
Holding 21	Medium	Negligible 0.5ha; 3%	Negligible	Negligible	0.0ha
Holding 22	Low	High 12.0ha; 74%	Negligible	Moderate adverse due to the proportion of land required	1.0ha
Holding 23	Medium	Negligible 0.2ha; 1%	Negligible	Negligible	0.0ha

12.9.37 Overall, 23 holdings would be affected during construction, of which 13 would experience a moderate adverse effect, which is

significant for each holding. For the majority of the holdings that are significantly affected the agricultural use is not relied upon for viability and have a low sensitivity to change. In these instances the existing low-key land use is likely to persist following the construction process across a reduced area of land.

12.9.38 Five of these holdings are classed as commercial holdings (with a medium of greater sensitivity to change):

- a) Holding 6. This is a 40ha grassland holding with beef cattle and sheep. The holding relies (in part) upon non-agricultural income from the caravan site for continued viability. The construction of the Scheme is likely to result in the closure of the caravan site and without this income stream the agricultural holding would cease to operate in its existing format.
- b) Holding 7. This is a 47ha grassland holding with beef cattle and sheep. The holding relies (in part) upon non-agricultural income from the visitor attraction for continued viability. The construction of the Scheme is unlikely to result in the closure of the attraction and the agricultural holding should continue to operate in its existing format.
- c) Holding 10. This is a 14ha holding with a further 12ha rented in for winter sheep keep. The holding includes non-agricultural income from logging and equestrian livery. The construction of the Scheme is unlikely to result in the cessation of the business and the agricultural holding should continue to operate in its existing format.
- d) Holding 12. No details are available for this holding which will be bisected by the Moor Road Link. The field affected extends to 6.2ha and the new road will pass through the middle of the field. A set of field gateways will be provided on either side of the road (directly opposite) to facilitate vehicle and livestock movements but this will still leave management of the field considerably disadvantaged.
- e) Holding 18. This is a 24ha grassland holding used for grazing beef cattle and hay making. The land to be acquired is needed as replacement playing fields for Banwell Football Club. The acquisition of this land is unlikely to result in the cessation of the business and the agricultural holding should continue to operate in its existing format.

12.9.39 Ten holdings will also be affected by the construction of shared use paths, set out in Table 12-27. Details of future land tenure are still in discussion but it is understood that the works will not require the removal of topsoil; rather a geotextile membrane will

be laid over the existing surface and covered with a suitable material for a cycleway. In such circumstances the works would be entirely reversible and there would be no permanent loss of agricultural land.

Table 12-27: Land holdings and land take during construction of additional mitigation (including non agricultural land such as tracks)

Holding name	Sensitivity to change	Total area required from holding, scale of impact	Construction severance, magnitude of impact	Significance of construction effects	Area to be restored to agriculture
Holding 21	Medium	Negligible 500m ² ; <1%	Low	Negligible	0.0ha
Holding 8	Medium	Negligible 200m ² ; <1%	Negligible	Negligible	0.0ha
Holding A	Medium	Negligible 100m ² ; <1%	Negligible	Negligible	0.0ha
Holding 18	Low	Negligible 900m ² ; <1%	Negligible	Negligible	0.0ha
Holding B	Medium	Negligible 900m ² ; 2%	Negligible	Negligible	0.0ha
Holding C	Medium	Negligible 400m ² ; 2%	Low	Negligible	0.0ha
Holding D	Medium	Negligible 500m ² ; 3%	Negligible	Negligible	0.0ha
Holding E	Medium	Negligible 700m ² ; 2%	Low	Negligible	0.0ha
Holding F	Medium	Negligible 500m ² ; 2%	Low	Negligible	0.0ha
Holding G	Medium	Negligible 100m ² ; <1%	Negligible	Negligible	0.0ha

Walkers, cyclists and horse riders (WCH)

12.9.40 The assessment of effects on WCH considers direct effects on routes where they are intersected by the Scheme and/ or affected during construction (e.g. used as construction accesses or crossed by construction routes).

Effects during construction

12.9.41 As outlined in the baseline scenario, only one PRow is intersected by the Scheme's alignment. Public rights of way are

shown in ES Volume 2 Figure 12.6. Table 12-28 below identifies potential effects on PRow.

Table 12-28 Assessment of effects on PRow and WCH paths

PRow / Paths	Sensitivity	Effects	Magnitude	Significance
Footpath AX3/06/10	Medium	Scheme intersects and severs the footpath	Major	Large adverse
Moor Road	Medium	Scheme intersects and severs the route	Major	Large adverse

12.9.42 The Scheme impacts the PRow and WCH path identified in Table 12-28 above. It would cause severance between Cook's Lane and Moor Road. The PRow is currently used predominantly by dog walkers with other immediately accessible routes connecting the two roads. Moor Road is commonly used by dog walkers and horse riders as it links to Banwell Equestrian Centre. During construction Footpath AX3/06/10 would be diverted approximately 100m east to the crossing point before joining the new shared use path to the north of the Scheme.

12.9.43 The PRow and footpaths within the additional mitigation study area (as identified in Table 12-14) will all either see minor or negligible impacts. There will be minor disruption to most of the footpaths identified, with journey lengths not anticipated to increase by more than 50m due to diversions throughout construction. This will result either slight adverse or neutral impact during construction which is not classed as significant.

12.9.44 Moor Road would be bisected by the Scheme, with access directly to Riverside moved approximately 650m north along Riverside. A new link road would connect Moor Road to Riverside north of the bypass, increasing the journey length to where Moor Road currently joins Riverside by approximately 975m.

Effects during operation

12.9.45 A new shared-use path along the Scheme extending to Sandford would be created. This path would accommodate all WCH including walkers, cyclers and horse riders.

12.9.46 With the reduced traffic levels within Banwell village centre from vehicles using a Banwell Bypass, the A371 through the village

may be more attractive to cyclists and safer for pedestrians providing a beneficial impact to NMUs. The placemaking works throughout Banwell (e.g. improved walkways, additional crossing points for pedestrians and horse riders) will also improve conditions through the village (Planning Document – Placemaking Drawings).

- 12.9.47 Additional works would be carried out in Sandford, Churchill and Winscombe to introduce traffic calming measures including a reduction of the speed limits to 20mph, new gateway features and road markings (e.g. dragon's teeth) to improve safety through the villages. In combination with additional crossing points, widening of select pavements and new improved links to the Strawberry line, routes through the villages would be more attractive and safer to NMUs. The PRoW and frequently used paths identified in Table 12-14 will see improved connectivity and safer access for users. Particularly for pupils who walk or cycle to Churchill Academy and members of the public who currently struggle with narrow footpaths and lack of safe crossing points (e.g. elderly, wheelchair users, parents with small children and pushchairs).

Human Health – assessment of impacts

Housing access and accessibility

- 12.9.48 Evidence shows that access to good quality housing has a direct positive effect on health. Most research is based on the quality of the internal environment of these homes, however, accessibility of housing is also important because without adequate and safe accessibility, community cohesiveness suffers and households can become isolated from services and support networks.

Effects during construction

- 12.9.49 Impacts on access to private properties is assessed in the population assessment of this chapter, which concludes that during construction 10 properties would be moderately adversely affected, and one would experience a large adverse effect. Other properties would also experience a level of disruption in accessibility, but this has not been identified as being significant. Therefore, construction activities in the study area have the potential to exacerbate or adversely impact access and

accessibility to housing and existing housing conditions. This could result in a negative health outcome from temporary distress and changes to physical and mental wellbeing.

Population sensitivity: Medium

Health outcomes category: Direct, negative, short-term effects during operation

Effects during operation

- 12.9.50 Overall, the Scheme would provide improvements to the local road network that would deal with existing congestion and capacity issues. In general terms, these improvements would result in the existing housing being easier to access (with less stress caused by congestion) and make accessibility to community services and others within the community (e.g. friends, family and neighbours) more pleasant and with less severance caused by the existing route through Banwell. These improvements would lead to positive health outcomes as people within the community and beyond feel connected to their local communities. However, depending on the location of housing in relation to the Scheme, there could be some localised negative effects compared to the baseline position.
- 12.9.51 Banwell has been identified as a location for future housing development within the Local Plan. The Scheme would therefore provide the additional road capacity required to minimise the additional pressure that new housing would inevitably place on the existing road network. Whilst the Scheme has the potential to facilitate future housing growth in the area, the Scheme's strategic objectives do not include the provision of new housing. Increased housing provision is therefore not considered as part of the assessment although it is considered and assessed within the cumulative effects assessment of the ES.

Population sensitivity: Medium

Health outcomes category: Direct, positive, long-term

Access to health and social care services and other social infrastructure

- 12.9.52 Evidence shows that access to good quality health and social

care and community facilities has a direct positive effect on health.

- 12.9.53 Groups impacted by disability, long term illnesses and older people are more dependent on health and social care services and are therefore more vulnerable if access to health and social care services becomes restricted^{12.38}. However, social infrastructure also includes services such as schools, libraries and nurseries.

Access to education infrastructure

- 12.9.54 Within the study area there are two schools; Banwell Primary School located in Banwell accessed off West Street (A371), and Banwell Buddies Pre-school which is situated south of Banwell Primary School (on the same site) and also accessed off West Street via the same entrance point.

Effects during construction

- 12.9.55 During construction, access to these schools would be maintained with minimal disruption likely to be experienced by the pupils and staff during the school day, meaning there would be no impact on child development or educational attainment which is important for growth, future success and wellbeing. Depending on how children and staff travel to school, there is potential for their journeys to be disrupted. For example, car journey times may increase due to construction traffic causing disruption and walking journeys may be experienced negatively in the presence of construction traffic and construction activities. There will also be an increased risk of accidents and injury. Also, walking journeys may be longer and less safe due to the introduction of construction traffic, localised increases in traffic levels and an unawareness of altered traffic movements. This may result in safety issues or young children becoming anxious during journeys to/ from school.

Population sensitivity: Medium

Health outcomes category: Direct, negative, short-term

Effects during operation

- 12.9.56 The Scheme would provide improvements to the local road

network that would deal with existing congestion issues. These improvements would result in more timely, convenient, pleasant and safer access to educational infrastructure (schools), particularly in Banwell where traffic congestion would be reduced once the Banwell Bypass is open, but also in other locations such as Sandford.

12.9.57 Other benefits that the placemaking measures and wider mitigation would bring include easier and more pleasant pedestrian access to a number of services in Banwell, Sandford, Winscombe and Churchill. For example, lowering speed limits and introducing road safety measures (including road widening, traffic calming, junction improvements, pavement extensions) creates safer environments and therefore better access for people (particularly children) to reach educational destinations, such as Banwell School.

12.9.58 These improvements can lead to improvements in mental and physical health as well as improved wellbeing outcomes. This would reduce the health burden within the population as people are better able to access health care and other services that maintain health and wellbeing. Better access would also help to reduce inequalities.

12.9.59 Population sensitivity: Medium

Health outcomes category: direct, positive, long-term

Access to spiritual services

12.9.60 There are three places of worship within 1km of the main Scheme: St. Andrew's Church Banwell, Banwell Methodist Church and All Saints Church.

Effects during construction

12.9.61 It is anticipated that access to these buildings would be maintained throughout the construction period and therefore people using these facilities are generally not likely to be impacted, except for potential disruption to journey times as a result of construction vehicles on the local network. It is likely that there would be more older people affected by any disruption, but this cannot be verified and is based on an assumption of the ages

of congregations generally across the country (in 2019 a third of regular church goers AGC team aged 70+) ^{12.39}. Health impacts from any short-term disruptions and a reduced ability to travel to these places of worship could negatively impact physical and mental health and reduce feelings of social cohesion, particularly for vulnerable individuals or groups.

Population sensitivity: Medium

Health outcome category: direct, negative, short-term

Effects during operation

- 12.9.62 The Scheme would provide improvements to the local road network that would deal with existing congestion issues. These improvements would result in more convenient and pleasant access to spiritual services, which could have benefits for physical and mental health, and social wellbeing, particularly for vulnerable groups.

Population sensitivity: Medium

Health outcome category: direct, positive, and long-term

Medical/ health services

- 12.9.63 Banwell Village Pharmacy and Winscombe & Banwell family Practice are located within the study area. Both are accessed on Westfield Crescent off West Street (A371) in Banwell. Weston General Hospital is the closest hospital, 4km to the west of the Scheme.

Effects during construction

- 12.9.64 Access to these services would be maintained throughout the construction phase although there may be disruption to journey times because of construction vehicles on the local road network. Health impacts relating to disruptions to access would predominantly relate to changes in the burden of disease within the population. However, the Scheme's influence on health outcomes would likely be reversible.

Population sensitivity: High

Health outcome category: direct, negative, short-term

Effects during operation

- 12.9.65 The Scheme would provide improvements to the local road network that would deal with existing congestion issues. These improvements would result in more convenient and pleasant access to health services, particularly in Banwell where traffic congestion would be reduced once the Banwell Bypass is open, but also in other locations such as Sandford.
- 12.9.66 The Scheme may improve access to Weston General Hospital (the nearest A&E to Banwell) for populations located to the east of Banwell by reducing traffic congestion and improving the reliability of journey times, however, this is not likely to be a particularly noticeable benefit.
- 12.9.67 Other benefits that the placemaking measures and wider mitigation would bring include easier and more pleasant pedestrian access to health services in Banwell, Sandford, Winscombe and Churchill. For example, lowering speed limits and introducing road safety measures (including road widening, traffic calming, junction improvements, pavement extensions) creates safer environments and therefore better access for people to reach the services and destinations such as the village pharmacy and local surgery.
- 12.9.68 Benefits from improved access to medical/ health services for the local population will predominantly relate to changes in the burden of disease within the population. This could influence the onset of new health conditions or health related states, changes in existing health conditions and changes to day-to-day functioning.

Population sensitivity: High

Health outcome category: direct, positive, long-term

Care / residential homes

- 12.9.69 There are two care homes located within the study area; Sandford Station Retirement Village on Station Road (A368) which provides general nursing care services for up to 32 residents, and the Russets Care Home adjacent to the retirement village off the A368, which provides care services for people with

dementia for up to 73 residents.

Effects during construction

- 12.9.70 Access to these properties would be maintained throughout the construction phase although there may be disruption to journey times (which would impact staff more likely than residents), as a result of construction vehicles on the local road network.

Population sensitivity: Medium

Health outcome category: direct, negative, short-term

Effects during operation

- 12.9.71 The Scheme would provide improvements to the local road network that would deal with existing congestion issues. These improvements would result in more convenient and pleasant access to the care homes.
- 12.9.72 Other benefits that the placemaking measures and wider mitigation would bring include easier and more pleasant pedestrian access to health services in Banwell, Sandford, Winscombe and Churchill. For example, lowering speed limits and introducing road safety measures (including road widening, traffic calming, junction improvements, pavement extensions) creates safer environments and therefore better access for people to reach the services and destinations such as the village pharmacy and local surgery. For older people who reside in the care/ residential homes these improvements are likely to reduce anxiety related to traffic, helping this group increase levels of activity within the local community. This could influence the onset of new health conditions or health related states, changes in existing health conditions and changes in day-to day functioning.

Population sensitivity: Medium

Health outcome category: direct, positive, and long-term

Access to open space and nature

- 12.9.73 Evidence shows that access to open space and nature, including quality, proximity and size, positively influences physical and mental health outcomes.

- 12.9.74 Access to open / green space can lead to more physical activity and reduce levels of heart disease, strokes and other ill-health problems that are associated with both sedentary occupations and stressful lifestyles. Physical activity is particularly important for children's health. There is growing evidence that access to open spaces and nature can help to maintain or improve mental health.

Access to sporting facilities

- 12.9.75 There are a number of sporting facilities in the study area; Banwell Recreation Ground, Banwell Bowls club, Banwell Football Club and Banwell Equestrian Centre.

Effects during construction

- 12.9.76 During construction access to these sporting facilities would be maintained, except for the Equestrian Centre which would experience changes to access (but would remain accessible) as a result of severance (by the Scheme alignment) of Moor Road which currently provides access from the south of the centre.
- 12.9.77 During construction, as a result of the Scheme alignment, there would be loss of approximately 2.5ha of land leased by the football club and currently used as training fields. It is assumed that this would be a permanent loss. The close proximity of the remaining football pitches to the Scheme construction works is likely to result in disturbance to players and spectators although would not stop people playing on these pitches. It is assumed that alternative sporting facilities in the local area such as the Banwell Football Club compensation land could be used during the construction period. It is anticipated that the main pitches in Banwell would be accessible during construction, in which case significant impacts on physical and mental health from reduced access to sporting activities, along with any subsequent loss of social interaction and community cohesion would be avoided. However, the interruption of use and inconvenience may deter some users whose level of physical activity would therefore decrease during this time.
- 12.9.78 As a worst-case scenario this could negatively impact physical health, mental wellbeing, and social cohesion. For example, reduced interaction and activity can influence social networks

and lead to negative psychological and physical health effects such as loneliness, changes in stress levels, illness or disease

Population sensitivity: Medium

Health outcome category: Direct, negative, long-term

Effects during operation

- 12.9.79 The loss of the recreation fields to the north of Banwell Football club would continue to be a negative effect, but this is considered as a long-term effect under the construction assessment and would continue to occur during the operational phase.

- 12.9.80 In general terms, during operation, access to sporting facilities in the local and wider area would be improved which would have benefits for physical health, mental wellbeing, and social cohesion

Population sensitivity: Medium

Health outcome category: Direct, positive and long-term

Access to open space and nature

Effects during construction

- 12.9.81 During construction there would be loss of habitats and impacts on biodiversity where the Scheme alignment passes through greenfield sites. These ecological impacts are assessed within the biodiversity chapter of the ES (refer to ES Volume 1 Chapter 8 – Biodiversity). Access to nature for people in the study area is currently via existing footpaths or areas that are accessible to the public. This is therefore limited to what would be visible from the footpaths and other PRow described above. In this regard, any health impacts related to access to nature would relate to a person's perception of loss of habitat and species, as opposed to a physical loss of access to it. It is unlikely that there would be loss of access to nature to a scale that would result in changes to health outcomes.

- 12.9.82 Court Farm Country Park is a paid attraction which does offer access to nature (farm animals) for the public. It would not be directly affected, and access would be maintained, with

alternative access routes provided as needed.

Population vulnerability: Medium

Health outcome category: Direct, negative, short-term

Effects during operation

- 12.9.83 Once operational, improvements made to the active travel network will be available for use. Direct impacts related to increased physical activity are discussed below, but in terms of access to open space and nature, the shared footway / cycleway along the length of, (but separate from) the Banwell Bypass, in addition to the provision of further active travel links (between the eastern end of Banwell bypass and Sandford, and between Sandford and Churchill) is likely to encourage more people to utilise the link between settlements, especially as it joins up to the existing wider network. This would improve access to open space and associated nature along the routes for a wide range of the community, including those people who would otherwise feel vulnerable cycling or walking.
- 12.9.84 The provision of an access track between Moor Road and Riverside would provide continued access for vulnerable users (horse riders). Without this they would otherwise have to cross the Riverside bridge which would result in an extended journey to access Riverside road. In addition current popular circular routes for horse riders would be removed.
- 12.9.85 Whilst there could be some localised negative impacts, overall, the Scheme would improve access and accessibility to open spaces and nature which would have positive health impacts that can improve mood, decrease stress, and encourage physical activity, thus improving physical and mental health, and social wellbeing:

Population vulnerability: Medium

Health outcome category: Direct, positive, long-term

Neighbourhood amenity (air quality, noise, lighting, landscape, traffic)

- 12.9.86 During construction of the Scheme there would be direct impacts

on the neighbourhood amenity for residents in Banwell Village, and indirectly on communities within Sandford and Churchill undertaking journeys along the A371 and A368. This would be as a result of increased dust, construction emissions, noise, changes in visual amenity and construction traffic. Once operational the Scheme also has the potential to impact these determinants of health as a result of changes to traffic flows and location of traffic. Each of these components making up neighbourhood amenity are considered below.

Air Quality

Effects during construction

- 12.9.87 Dust produced during construction has the potential to impact on the health of local residents, particularly those who are more vulnerable to poor air quality such as older people, children and people in poor health or with respiratory health conditions such as asthma. Evidence has shown that short- and long-term exposure to air pollution is associated with various health outcomes such as small increases in the relative risk of mortality and hospital admissions (refer to ES Volume 3 Appendix 12.B for the HIA evidence base). The pollutants of key concern for health are particulate matter (PM_{2.5} and PM₁₀) and nitrogen dioxide (NO₂).
- 12.9.88 An air quality assessment has been prepared for the Scheme and is included in ES Volume 1 Chapter 5 - Air Quality. That assessment identifies a total of 79 human receptors within 200m of the affected road network (ARN) (the approach taken following assessment guidance (DMRB LA 105)). These receptors were selected based on:
- a) Proximity to affected roads
 - b) Representativeness of the maximum effects of the Scheme in that region; and
 - c) Whether they are at risk of exceeding the annual mean NO₂ Air Quality Objective (AQO).
- 12.9.89 The air quality assessment (refer to ES Volume 1 Chapter 5) identifies the change in air quality due to dust and concentrations of air pollutants from construction activities. The chapter provides quantitative outputs from models to understand changes in

concentrations relative to applicable standards. No health effects are reported in the Air Quality chapter, although reference is made to concentrations in relation to health-based air quality standards. The human health element of this population and human health chapter focuses on a qualitative discussion of the health consequences of the identified changes in air quality.

- 12.9.90 The air quality assessment confirms that with appropriate construction management practices in place (i.e. following measures set out in the CEMP) there would be no significant air quality impact from construction dust or construction vehicle emissions on identified sensitive receptors.
- 12.9.91 All receptors in the air quality assessment are treated as being equally sensitive. However, as highlighted above, this is not the case in relation to health as some groups of people are more sensitive to changes in air quality than others. For example, children at Banwell School and nursery and residents in the care homes are likely to be more sensitive to changes in air quality than others. People of older age and particularly those with existing respiratory or cardiovascular conditions are also particularly sensitive. This group is likely to already have been exposed to poorer air quality over time and may already be experiencing poor health. Where existing health conditions relate to existing respiratory conditions such as asthma, it is likely to be the peaks in air pollution that pose the greatest risk to health.
- 12.9.92 Despite no significant negative impact being identified in relation to human health in the air quality assessment, some negative impacts would be experienced, and it is likely that negative perceptions of air quality would generate concerns about the health effects of construction emissions, particularly regarding children's health and people with existing respiratory conditions. This could lead to increased levels of worry or stress which can adversely impact health and wellbeing, however this would not be significant.

Population sensitivity: Low (based on a medium vulnerability and low exposure)

Health outcome category: Direct, negative, short-term

Effects during operation

- 12.9.93 The air quality chapter of the ES (chapter 5) concludes that in relation to particulate matter, increases at all receptors modelled would be negligible in both the opening year (2024) and in 15 years' time (2039). In relation to NO₂ concentrations, levels through the village of Banwell are likely to improve because of the Scheme, as vehicles are moved out of the village and onto the Banwell Bypass. Whilst most receptors experience a reduction in NO₂ as a result of the Scheme, there are a couple of receptors (H78 and H79) that are located on the route of Banwell Bypass and therefore new emissions sources move closer to these receptors (refer to ES Volume 2 Figure 5.2 for receptor locations used in the air quality assessment). In particular, land close to the Scheme alignment is designated for future housing development which would bring more residential receptors closer to sources of NO₂. However, none of the receptors are predicted to experience increases in NO₂ concentrations that are above the relevant air quality objectives and increases in PM_{2.5} and PM₁₀ have been assessed as negligible in the air quality assessment.
- 12.9.94 Children, older people, and people with ill health or with disabilities affected more by air quality may nonetheless experience negative effects because of increases in particulate matter and NO₂, and conversely benefit more from the improvements, particularly in Banwell. It is not yet possible to predict who would be living in the new developments planned close to the proposed Banwell Bypass, although it can be assumed that there would be people more vulnerable to air quality than others who move to the new development, such as children and adolescents (as well as those who are less vulnerable). Within Banwell, where there is a mix of people from all ages and in various states of health, it can be assumed that these people would benefit from the improved air quality in and around Banwell that would result from the Scheme.
- 12.9.95 Air quality improvements in Banwell, and in other locations as a result of wider network mitigation (e.g. Sanford and Churchill where 20mph speed limits are being proposed in addition to improved cycling and walking provision in the form of better routes) would benefit the whole population, but in particular those who are more sensitive to changes in air quality. This would contribute to better neighbourhood amenity.

- 12.9.96 Whilst there may be some localised disbenefits, overall, the Scheme improves the current situation in terms of air quality. The impact on health as a result of changes in air quality is assessed as:

Population vulnerability: High

Health outcome category: Direct, positive, long-term

Noise

Effects during construction

- 12.9.97 Construction has the potential to increase levels of noise and vibration which can have actual or perceived negative effects on physical, social and mental wellbeing.
- 12.9.98 The noise and vibration assessment carried out for the Scheme (refer to ES Volume 1 Chapter 11) considers noise effects arising from construction noise, construction vibration and construction traffic. Evidence identifies that potential health effects from noise and vibration can include sleep disturbance, cardiovascular and physiological effects, mental health effects and behavioural effects, such as poor school performance by school children.
- 12.9.99 Changes in noise are most likely to impact people who live, work or spend long periods of time close to the activities causing noise, in this case, construction activities.
- 12.9.100 The Russets Care Home may be disproportionately sensitive to noise impacts during construction due to residents with underlying health conditions that would increase their sensitivity to negative impacts arising from the Scheme. Residents at Sandford Retirement Village would also be particularly susceptible to change.
- 12.9.101 ES Chapter 11 Noise and Vibration concluded that there is likely to be a temporary (ranging from 10 - 15 consecutive days or 40 days in any consecutive six-month period) significant adverse effect at 7 out of 11 representative receptor locations during the daytime. This includes the following receptor locations (refer to ES Volume 2 Figure 11.1 for locations):
- a) (Receptor 1) Properties lying south of Ch 0+000

- b) (Receptor 3) NW corner of Banwell Village
- c) (Receptor 4) NW corner of Stonebridge Village
- d) (Receptor 6) Cook's Lane
- e) (Receptor 7) Riverside
- f) (Receptor 10) Towerbrook Farm
- g) (Receptor 11) Castle Hill/ Park Lane

- 12.9.102 In addition, there would be other properties that experience noise increases that are not identified as being significant within the noise assessment, but none the less represent an increase in noise levels from the baseline condition.
- 12.9.103 A high-level assessment of vibration was also undertaken as part of ES Volume 1 Chapter 11. Of the 11 receptor locations considered, 3 were identified as potentially likely to experience temporary significant adverse effects (these were Receptors 1 [Properties lying south of Ch 0+000], 7 [Riverside] and 11 [Castle Hill / Park Lane]), – refer to ES Volume 2 Figure 11.1).
- 12.9.104 Measures would be implemented to reduce noise and vibration from construction activities wherever possible, as set out in the CEMP, refer to ES Volume 3 - Appendix 16.A - Outline CEMP.
- 12.9.105 People have different sensitivity to noise, and what may cause distress or disturbance for one person, may not affect another person in the same way. Adverse impacts can include sleep disturbance, cardiovascular, physiological, and mental health effects in addition to behavioural effects such as poor school performance by children. In particular, people who are more sensitive to changes in noise include children, people with long-term illnesses, those sensitive to noise or tinnitus (ringing of the ears), people with mental health problems, and people who live with specific conditions such as autism.

Population sensitivity: High

Health outcome category: Direct, negative, short-term

Effects during operation

- 12.9.106 ES Volume 1 - Chapter 11 - Noise and Vibration provides an assessment of likely changes in (traffic) noise as a result of the Scheme. As would be expected with the removal of large

volumes of traffic through Banwell and onto the Banwell Bypass, noise levels within Banwell are predicted to drop and therefore result in significant beneficial effects for residents in this location. Non-residential receptors would also benefit from reduced noise levels including Banwell Primary School, Banwell Village Hall, and Banwell Bowls Club. This reduction in traffic noise is likely to be beneficial for all groups in these locations (residential and non-residential), not only through improved noise environments but also from improved mental health that is associated with lower levels of noise. Children, older people, and those more sensitive to noise are likely to benefit the most from reduced levels of noise, including benefits for physical and mental health, and social wellbeing.

- 12.9.107 Conversely, there are receptors that are predicted to experience significant increases in levels of traffic noise because of the Scheme. This includes forty-five residential dwellings adjacent to Scheme roads. This includes properties on the eastern and western edges of Summer Lane Park Homes, properties to the north-east of Wolvershill Road and on Cooks Lane, properties on Moor Road, properties to the north of the Scheme on Riverside, Eastermead Lane and Dark Lane. Some of these changes are also attributable to the future HIF housing development which would result in increased traffic along roads such as Summer Lane as this development is included in the traffic model. Health impacts associated with increased noise in these locations includes sleep disturbance, cardiovascular and physiological effects, and mental health effects.
- 12.9.108 Traffic levels in Winscombe, Sandford and Churchill have also been assessed in terms of noise, and modelling showed that noise levels through these villages are not expected to meet the threshold of an increase in 1dB(A) in the opening year, or 3dB(A) in the future year and therefore would not experience any significant effects. From a health perspective, actual noise levels are not considered likely to cause any health effects within these villages, although perceived changes may affect mental wellbeing.
- 12.9.109 Due to there being both negative and beneficial impacts from changing noise levels, at a population level this is considered to be a neutral effect. However, the localised positive and negative impacts at specific receptors should not be ignored, particularly

where vulnerable people may live. The impact on population health from noise during operation is assessed as:

Population sensitivity: Medium

Health outcome category: Direct, neutral, long-term

Visual amenity/ lighting

Effects during construction

- 12.9.110 The construction of the new road, bridges and planted earthworks would require the use of machinery, cranes, plant, storage of material, and flood lighting in all construction areas. In addition, scaffolding, as well as temporary land take for site compounds and haul routes would be required. There would be removal of established existing tree and hedgerow vegetation, which would result in the loss of a landscape feature and disruption of the existing landscape pattern and framework. Fields would be stripped of topsoil and some stockpiling would occur with topsoil to be used at completion to create new landscaped areas.
- 12.9.111 ES Volume 1 Chapter 7 - Landscape describes the visual baseline in which the Scheme is being proposed and concludes that there would likely be a temporary significant adverse effect on several National and Local Landscape Character Areas (including NCA 141 Mendip Hills, NCA 142 Somerset Levels and Moors, LCA A1 Kingston and Puxton Moors, LCA A4 Locking and Banwell Moors, LCA E1 Mendip Ridges and Combes, LCA J2 River Yeo Rolling Valley Farmland).
- 12.9.112 These impacts would be because of the introduction of new large-scale infrastructure into a settled and undisturbed farmland landscape that currently is largely devoid of visual detractors. The introduction of the river crossing over the River Banwell would further emphasise the works as it creates a new built element at some height over the low-lying levels and moors landscape. Further effects include the removal of vegetation including hedgerow and mature trees of landscape value.
- 12.9.113 Visual impacts on Mendip Hills AONB are likely to be incurred as a result of lighting site working areas in winter and during night-

time works, although they are not considered as significant effects within the Landscape and Visual Assessment of the ES.

- 12.9.114 Actual or perceived negative change in aesthetic appreciation can result in potential negative effects on health and well-being, including psychological change. Therefore, the impact on visual amenity during construction is assessed as:

Population sensitivity: Medium

Health outcome category: Direct, negative, short-term

Effects during operation

- 12.9.115 The Scheme would introduce permanent changes to the landscape features such as changes to topography through the introduction of embankments and cuttings, creating a new visual barrier across the study area, new infrastructure elements and structures, in the form of the western Banwell Roundabout and the River Banwell bridge crossing and loss of existing vegetation would occur during construction, which would continue to be observed during the operational phase. The planting of vegetation and trees would mitigate some of these visual impacts, but this would take a few years to establish and would not hide the road from view entirely.
- 12.9.116 Lighting would be introduced at the western end of the Scheme, at Scheme tie ins to the A371. It is also proposed at the top of the Southern Link which ties into the A371. The Scheme is located on the northern edge of the Mendip Hills AONB, which has a particular designation for 'Dark Skies', which would be impacted by road/ street lighting. However, the lighting scheme would replicate the existing situation and therefore it is not anticipated that this would create additional impacts for most receptors. Low level lighting is also likely to be provided for the active travel routes at junctions or in the vicinity of Moor Road/ Wolvershill Hill Road junctions.
- 12.9.117 These visual changes in an area that is currently mostly agricultural represent a large change, particularly for people who live in sight of the Banwell Bypass and Southern Link Road and for users of the PRow with visual connection to the Scheme. This includes Moor Road, and Footpath AX3/06/10 as well as more generally within the area.

- 12.9.118 In addition to the Banwell Bypass and Southern Link Road, measures are proposed within Banwell and surrounding villages to improve placemaking. Full details are set out in ES Chapter 2: Scheme description), but includes bringing more vegetation, wider pavements and cycleways that intend to improve the visual amenity of the local areas.
- 12.9.119 Actual or perceived negative change in aesthetic appreciation can result in potential negative effects on health and well-being, including psychological change. Therefore, the impact of changes to the visual amenity and lighting in the area is assessed:

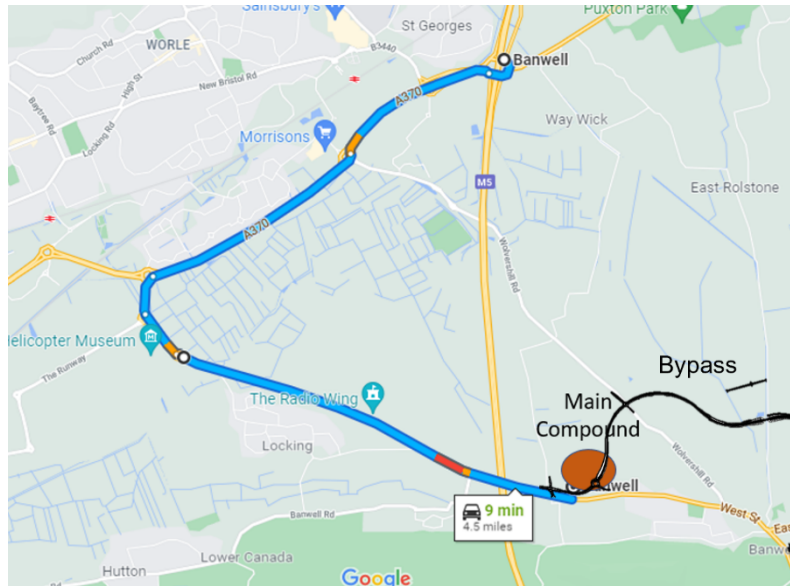
Population sensitivity: Medium

Health outcomes category: Direct, negative, long-term

Traffic volumes

Effects during construction

- 12.9.120 During construction, machinery and materials would be brought to the site via two compounds which would be located in two separate areas:
- a) Main compound to the west of the Scheme (Image 12-1)
 - b) Eastern compound (Image 12-2)
- 12.9.121 All deliveries would be made via approved construction routes which include the following:
- a) For the Main compound – access gained from M5 junction 21. Vehicles then head east on the A370 Somerset Avenue to airport roundabout, where they would turn left onto the A370. They would then carry on the A371 for approximately 4km where the main compound would be located. Access directly to the Wolverhill Road compound would be for cars and light vans only. There is an existing 7.5 tonne weight limit on Wolverhill Road. Access to the Banwell River bridge compound for construction machinery and construction materials would be via the main compound and along the site haul road. Access for cars and light vans only would be from the A370 via West Rolstone Road and on to Riverside Road. There is an existing 7.5 tonne weight limit on this road.



12-1 Main compound location (© Google Maps)

- b) For the Eastern compound access would be from the A38 junction with the A368 at Churchill. Construction traffic would travel approximate 4.3km in a westerly direction along the A368 to arrive at the Eastern compound and site entrance.

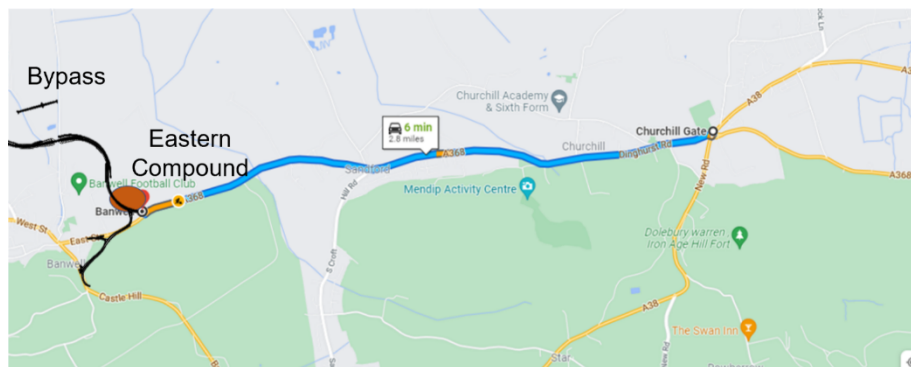


Image 12-2 Eastern compound location (© Google Maps)

- 12.9.122 With regard to volumes of construction vehicles, it is anticipated that there would be 30 two-way lorry loads (HGVs) per day accessing the main compound and 36 two-way lorry loads accessing the eastern compound.
- 12.9.123 Construction activities, increased traffic and the introduction of construction traffic (particularly in the residential areas), disruptions to existing traffic routes and patterns, and an unawareness of altered traffic movements have the potential to increase the risk of injury and death and worsen the baseline amenity conditions. However, the majority of construction traffic movement would be within the A370, A371 and A368 mainlines. The proposed compounds can also be accessed directly from

these routes without the need to use local roads.

- 12.9.124 Vulnerable road users, such as motorcyclists, older drivers, new drivers and cyclists, children, older people and pedestrians, would be most at risk from changes to the baseline conditions, albeit slower vehicle movements because of construction activities and traffic management (e.g. speed limits) may temporarily improve the situation in some locations.

Population sensitivity: medium

Health outcomes category: Direct, negative, short-term.

Effects during operation

- 12.9.125 The following list and Table 12-29 provides a description of what years have been considered in the traffic modelling and provides an overview at what is included within each modelled scenario.
- Base Year (2018) – to examine the performance of the existing highway network within the study area, prior to any changes being implemented.
 - Opening Year (2026) – to examine the performance of the highway network within the study area after planning and after the delivery of the Scheme.
 - Design Year (2039) – for cumulative impact assessment post HIF enabled development delivery.

Table 12-29 Traffic Assessment Scenarios

Scenario	Year	EIA Scenario	Committed Development/ Infrastructure	Banwell Bypass	TEMPO Growth	HIF Enabled Development	Other Local Plan Allocations	Local Highway Improvements
Without Banwell Bypass	2024	2024 Do minimum	Yes	No	Yes	No	No	No
With Banwell Bypass	2024	-	Yes	Yes	Yes	No	No	No
With Banwell Bypass	2024	2024 Do something	Yes	Yes	Yes	No	No	Yes

Without Banwell Bypass	2039	2039 Do minimum	Yes	No	Yes (outside NS)	No	Yes (inside NS)	No
Cumulative Impacts 1	2039	2039 Do something	Yes	Yes	Yes (outside NS)	Yes (HIF1)	Yes (inside NS)	Yes
Cumulative Impacts 2	2039	-	Yes	No	Yes (outside NS)	Yes (HIF1)	Yes (inside NS)	No

12.9.126 Table 12-30 summarises the total (all vehicles) for the existing and predicted traffic flows on the new road in the Base Year (2018), the Opening Year (2024) and the Design Year (2039).

12.9.127 Table 12-31 provides a summary of the existing and predicted flows of heavy goods vehicles (HGVs) on the trunk road network in the Base Year (2018), Opening Year (2024) and the Design Year (2039).

12.9.128 Further details of traffic flow are provided in the Traffic Forecasting Report.

Table 12-30 Existing and Predicted Traffic Flows: A summary of the total annual average daily traffic flow (all vehicles) for Base Year, Opening Year and Design Year.

Location	Direction	Base Year (2018)	Opening year 2024		Difference from Do Minimum	Design Year 2039		Difference from Do Minimum
			Do Minimum	Do Something		Do Minimum	Do Something	
A371 West of Banwell Road (Locking)	Eastbound	5115	6497	6680	2.8%	7286	10379	42.5%
	Westbound	4558	5786	5991	3.5%	6182	9393	51.9%
A371 Banwell - Between Wolvershill Road and Riverside	Eastbound	6652	7216	1327	-81.6%	8365	2004	-76.0%
	Westbound	6214	6607	1701	-74.3%	6834	2489	-63.6%
Banwell Bypass Western Section	Eastbound	n/a	n/a	5593	n/a	n/a	9235	n/a
	Westbound	n/a	n/a	4931	n/a	n/a	8844	n/a
Banwell Bypass Middle Section	Eastbound	n/a	n/a	7391	n/a	n/a	9145	n/a
	Westbound	n/a	n/a	6384	n/a	n/a	7631	n/a
Banwell Bypass Eastern Section	Eastbound	n/a	n/a	7391	n/a	n/a	9145	n/a
	Westbound	n/a	n/a	6384	n/a	n/a	7631	n/a
Wolvershill Road North of Banwell Bypass	Northbound	2469	2339	3343	42.9%	2645	5850	121.2%
	Southbound	2431	2657	3688	38.8%	3464	6709	93.7%
Riverside North of Banwell	Northbound	1215	1300	1242	-4.5%	1586	1761	11.0%
	Southbound	1464	1570	1407	-10.4%	1704	1457	-14.5%
Southern Link West of Banwell Junction	Northbound	n/a	n/a	3828	n/a	n/a	4827	n/a
	Southbound	n/a	n/a	4499	n/a	n/a	5525	n/a
Hill Road South of A368 (Sandford)	Northbound	1034	1078	1209	12.2%	1255	1341	6.9%
	Southbound	903	975	1063	9.0%	1529	1243	-18.7%
A368 West of A38 (Churchill)	Eastbound	4823	5010	5682	13.4%	5590	6767	21.1%
	Westbound	4373	4613	5382	16.7%	5195	6354	22.3%
A371 West of Sandford Road (Winscombe)	Eastbound	1973	2393	2870	19.9%	2404	3821	58.9%
	Westbound	2243	2636	2394	-9.2%	3437	3305	-3.8%
Church Road (Winscombe)	Eastbound	1511	1508	1541	2.2%	1612	1677	4.0%
	Westbound	1739	1654	1737	5.0%	1788	1859	4.0%
A368 (Sandford) East of Eastern Banwell Bypass Junction	Eastbound	3912	4062	5046	24.2%	4206	6254	48.7%
	Westbound	3740	3920	5006	27.7%	3916	6121	56.3%

Table 12-31 Existing and Predicted Heavy Goods Vehicle Flows: A summary of the annual average daily HGV flow in the Base Year, Opening Year and Design Year.

Location	Direction	Base Year (2018)	Opening year 2024		Difference from Do Minimum	Design Year 2039		Difference from Do Minimum
			Do Minimum	Do Something		Do Minimum	Do Something	
A371 West of Banwell Road (Locking)	Eastbound	208	233	230	-2%	296	355	20%
	Westbound	139	145	144	-1%	202	226	12%
A371 Banwell - Between Wolvershill Road and Riverside	Eastbound	338	342	62	-82%	373	91	-76%
	Westbound	259	250	40	-84%	270	58	-79%
Banwell Bypass Western Section	Eastbound	n/a	n/a	215	n/a	n/a	298	n/a
	Westbound	n/a	n/a	172	n/a	n/a	259	n/a
Banwell Bypass Middle Section	Eastbound	n/a	n/a	298	n/a	n/a	334	n/a
	Westbound	n/a	n/a	218	n/a	n/a	260	n/a
Banwell Bypass Eastern Section	Eastbound	n/a	n/a	298	n/a	n/a	334	n/a
	Westbound	n/a	n/a	218	n/a	n/a	260	n/a
Wolvershill Road North of Banwell Bypass	Northbound	89	85	95	12%	72	126	75%
	Southbound	100	101	132	30%	75	156	106%
Riverside North of Banwell	Northbound	0	0	0	0%	0	0	0%
	Southbound	0	0	0	0%	0	0	0%
Southern Link West of Banwell Junction	Northbound	n/a	n/a	59	n/a	n/a	66	n/a
	Southbound	n/a	n/a	98	n/a	n/a	126	n/a
Hill Road South of A368 (Sandford)	Northbound	24	24	26	8%	30	31	5%
	Southbound	28	29	32	11%	33	36	11%
A368 West of A38 (Churchill)	Eastbound	226	223	244	10%	261	281	8%
	Westbound	200	196	191	-2%	250	240	-4%
A371 West of Sandford Road (Winscombe)	Eastbound	11	13	13	5%	12	40	235%
	Westbound	8	9	7	-23%	17	16	-5%
Church Road (Winscombe)	Eastbound	59	55	52	-6%	49	51	5%
	Westbound	84	84	84	0%	73	86	18%
A368 (Sandford) East of Eastern Banwell Bypass Junction	Eastbound	229	225	262	16%	231	297	29%
	Westbound	200	196	200	2%	230	250	9%

- 12.9.129 From the data presented above, it is evident that there are some locations which would experience large increases in traffic volumes which would negatively impact on the local amenity of the areas affected, particularly in terms of safety and perceptions of safety, tranquillity and general enjoyment of space. Other areas would experience the opposite, with large reductions in traffic. At the population level, taken as a whole, these effects are likely to be neutral, although the localised positive and negative outcomes and their potential impacts on health should be noted.

Population sensitivity: Medium

Health outcomes category: Direct, neutral, long-term.

Accessibility and active travel

Effects during construction

- 12.9.130 During construction access to existing properties and businesses would be maintained. However, the introduction of construction activities and construction vehicles could act as a deterrent to pedestrian and cycling movements as a result of uncertainty, fear and intimidation. These impacts on pedestrians and cyclists may influence health and wellbeing by reducing active travel and therefore levels of physical activity. A reduction could lead to increased obesity, increased isolation, and reductions in general levels of fitness. Changes could also result in increased stress and anxiety for these travellers. However, impacts would be relatively localised, with any effects becoming increasingly dissipated on the wider highway network with greater distance from the site.
- 12.9.131 There are a couple of bus stops that would be affected by the Scheme during construction including bus stops on Knightcott Road in the area of Summer Lane. These are to be re-provided as part of the Scheme and would be designed to be accessible.
- 12.9.132 There are 25 recorded PRow within 500m of the Scheme although only one footpath (AX3/06/10 which runs between Cook's Lane and Moor Road) is intersected by the alignment of the Scheme and would be stopped up. This has been identified as being of medium sensitivity within Table 12-13, used primarily by dog walkers. Other routes that would be directly affected due

to severance include Moor Road (runs from Riverside North West) and Goding Lane (linking Wolvershill Road to Moor Road and Riverside). No alternative to these routes would be provided during the construction period, although replacements would be developed as part of the Scheme itself.

12.9.133 As well as disturbance from losing access to sections of these routes, users of the PRoW in the surrounding area are likely to experience impacts on their amenity which could lead to lack of enjoyment (and therefore wellbeing) for people using these routes. However, due to the limited number of PRoW, and predicted usage in the construction area this is not considered likely to be an effect which would affect many people.

12.9.134 During the Construction Stage, traffic congestion from construction vehicles would impact journey ambience, increasing levels of stress and frustration. Whilst temporary, these impacts would be present for the duration of construction.

12.9.135 Loss of access routes, changes to amenity, including changes in views, and increased vehicle movements, including the introduction of construction vehicles, would have negative impacts for people that use them. The impact on health resulting from changes in accessibility and active travel is assessed as:

Population sensitivity: Medium

Health outcome category: Direct, negative, short-term

Effects during operation

12.9.136 The Scheme includes several elements which aim to improve accessibility and active travel, as shown in Image 12-3

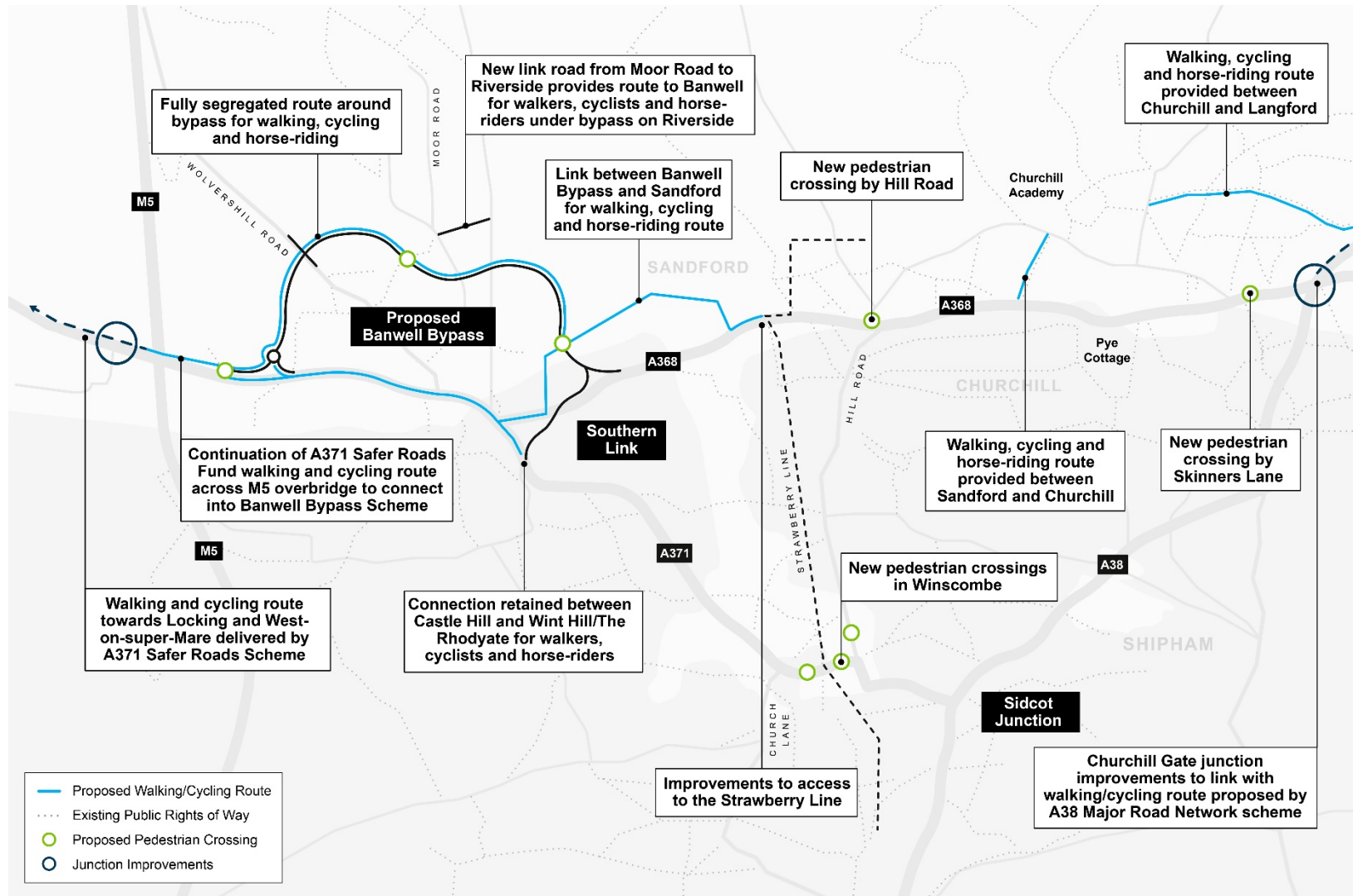


Image 12 - 3: Proposed Active Travel Plan

- 12.9.137 The Scheme would provide a fully segregated, traffic-free shared use path alongside the Banwell Bypass, and through to Sanford to enable a continuous traffic free route for pedestrians and cyclists between Weston-super-Mare, Sandford and onwards via the Strawberry Line which is part of the National Cycle Network (NCN 26). Regular crossings of the Banwell Bypass are proposed to maintain existing and enable new walking, cycling and horse-riding routes. This includes controlled crossings at Summer Lane junction and Wolvershill Road. There are also additional signal-controlled crossings at Banwell Road junction with the A371 and two in Sandford. Whilst these would maintain connection across the Banwell Bypass, for some vulnerable users the crossings may not be sufficient to avoid anxiety whilst crossing, as they are uncontrolled.
- 12.9.138 Knightcott Road and West Street will have lower levels of traffic and a lower speed limit (20mph) which would make this stretch of the A371 more attractive for WCH.
- 12.9.139 Where the Scheme has the potential to increase traffic flows, a range of measures is proposed to support walking and cycling, including new or improved pedestrian crossings in Sandford and Winscombe, and an upgraded PRow to form a new shared use path between Dinghurst Road and Churchill Green (across fields) instead of a new route alongside the A368 between Greenhill Lane and Hillier's Lane.
- 12.9.140 Within Banwell, a range of improvements are proposed, including a new active route created by widening the existing pavement where possible, as well as increased cycle parking.
- 12.9.141 Overall, the measures/ aspects mentioned in this section would help increase the accessibility, active travel and access to public transport. This is likely to encourage people to exercise more when travelling locally, provide opportunities for increased social contact, and reduce exposure to air pollutants and risk of injuries from traffic. Increased levels of physical activity would reduce the risk of chronic conditions such as cardiovascular disease, diabetes, cancer, obesity, musculoskeletal conditions, and mental health conditions. It also helps to improve and maintain good mood.
- 12.9.142 The impact on health resulting from changes to accessibility and

active travel is assessed as:

Population sensitivity: Medium

Health outcome category: Direct, positive, long-term

Crime and community safety

Effects during construction

- 12.9.143 For effects related to construction traffic see above in Section 12.9.120
- 12.9.144 Site security measures would be in place for each of the compounds as well as along the construction route itself. This would include lighting, security fencing, security patrols and on-going consultation with local crime prevention officers. These measures should minimise the risk of injury and death, particularly for groups such children and adolescents who are statistically more likely to trespass on such sites and suffer the consequences of such actions. The measures should also reduce fear of crime associated with construction.
- 12.9.145 For wider public realm measures and mitigation works on the wider network, the community would be kept safe through implementation of standard best practice construction methods.
- 12.9.146 In relation to crime, with appropriate mitigation measures such as security and secure access in place, it is not considered that the construction phase would have an influence on the level of crime in the area, particularly as the commonest type of crime reported (violence and sexual assault) would be unlikely to be influenced by construction activities.

Population sensitivity: Medium

Health outcomes category: Indirect and direct, negative, short-term

Effects during operation

- 12.9.147 It is unlikely that the existence of the Banwell Bypass would result in changes in crime within the local area, particularly in relation to violence and sexual crime which is the most prevalent crime

recorded in the study area.

12.9.148 Community safety in relation to traffic is likely to improve within Banwell where levels of traffic are predicted to reduce significantly as a result of the Scheme (see above under neighbourhood amenity). However, operational traffic volumes on the affected road network are predicted to increase significantly, partly as a result of the Scheme, but also as a result of other planned housing developments within the study area that would increase the level of traffic moving in and around the area. This does not automatically mean that traffic safety would reduce, as various mitigations are being put in place as part of the Scheme to address this (e.g. introduction of speed restrictions). However, it should be noted that perceptions of safety (positive and negative) may be affected regardless of the actual safety, simply by the increased level of traffic in some areas which could lead to behaviour changes. This could affect health and wellbeing through increased levels of stress whilst driving, walking, or cycling or indirectly through avoiding more active forms of travel such as walking and cycling as a result of the perception that roads are not safe. This 'activity avoidance' impacts on the level of physical health.

12.9.149 Overall, the impact on health resulting from changes to crime and community safety is assessed as:

Population vulnerability: low

Health outcome category: Direct, negative, long-term

Access to work and training

Effects during construction

12.9.150 Evidence shows there is a strong positive correlation between good employment, income levels and social and psychological wellbeing. Employment and training accrue a range of health benefits, improving life expectancy and enabling healthier lifestyle choices.

12.9.151 During construction there would be opportunities for construction jobs and construction related training opportunities. Direct jobs as well as further indirect and induced jobs could be supported

through the supply chain and income multiplier effects. This includes firms supplying construction materials and equipment, and construction workers spending part of their wages in the local economy. However, it is considered likely that the majority of these roles would need to be filled with expertise from across a wider area than that considered within the health assessment. Where feasible, local employment would be sought, however, from a population level this is unlikely to have a significant impact on this wider health determinant. However, notwithstanding this, at the individual level employment and skills gained on the Scheme could influence mental and physical health, reduce stress, improve self-confidence, and encourage healthy behaviours which would result in a positive health outcome.

12.9.152 During construction, temporary disruption effects could be experienced by some local businesses and there could be disruptions to residents and their economic activity. It is likely there would be temporary adverse impacts for people accessing work and training in the local and wider area from the works, and temporary disruptions to traffic flows. This could have particular impacts for people living closest to the proposed works and those without access to a car that are reliant on public transport, leading to increased stress.

12.9.153 Overall, although there will be some benefits and disbenefits for work and training during construction of the Scheme, on balance, a neutral health impact is predicted at the population level.

Population vulnerability: Low

Health outcome category: Direct, neutral, short-term

Effects during operation

12.9.154 The Scheme would provide improvements to the local road network that would deal with existing congestion issues therefore offering a better travel experience and improved travel reliability for those accessing work and training opportunities in the surrounding areas. This would help reduce travel induced stress and frustration and the associated physiological implications that this has on health, also noting the positive benefits that work and training has on health and wellbeing.

12.9.155 It is unlikely that once operational the Scheme would impact

access to work and training in any other aspect than the improved travel experience. The impact on health from improved access to work and training during operation is therefore assessed as:

Population sensitivity: Low

Health outcome category: Indirect, positive, long-term

Social cohesion and inclusive design

Effects during construction

- 12.9.156 The majority of the proposed works are offline, and these themselves, will have minimum impacts on day-to-day activities. However, temporary disruptions, severance effects, changes to, or loss of access to properties and facilities (e.g. Court Farm and football pitches/ playing field) has the potential to reduce interaction and activity which can influence social networks and lead to negative psychological and physical health effects such as increased levels of stress, illness or disease. Pre-commencement phase effects (positive and negative) may also be caused, such as stress and uncertainty for local residents etc., which may arise in anticipation of whether or not the Scheme will proceed.
- 12.9.157 There is also a possibility that some local residents will experience stress due to the uncertainty around whether the Scheme will proceed or not. Whilst this is only temporary, for some people this stress may translate into physical and mental wellbeing issues.
- 12.9.158 In relation to inclusive design, this is more relevant to the operation of the Scheme. However, during construction there may be a need to change access arrangements for some destinations (e.g. Court Farm and the Football pitches / playing field) which would need to take into consideration different inclusion requirements that users may have in order to avoid creating feelings of isolation, discrimination and exclusion which can lead to adverse mental health and wellbeing. Details of these have not yet been investigated and would be considered within the CEMP (ES Volume 3 – Appendix 16.A – outline CEMP)

12.9.159 The impact on social cohesion and inclusive design is assessed as:

Population sensitivity: Medium

Health outcome category: Indirect and direct, negative, short-term

Effects during operation

12.9.160 Some effects from the construction phase may continue to be observed during the operation phase. For example, residents in communities such as Banwell may form a more close-knit group due to a shared experience of change and improved accessibility and environmental conditions.

12.9.161 Once operational, there are several elements of the Scheme that may contribute to improved social cohesion. This includes the placemaking provisions within Banwell such as improved crossing points, improved cycle/ footpaths (of increased width from existing) providing links into Banwell Village, speed reduction measures, additional planting, and better crossing and access points at bus stops. The improved active travel network in the wider area may also contribute to people living within the local area feeling more connected to the communities around them, thereby improving the sense of social cohesion within the study area, benefiting from the health and wellbeing that this sense of connectedness brings.

12.9.162 The effect for the general population and vulnerable groups would generally be positive, with some individuals experiencing greater effects depending on the timeframe and vulnerable characteristics. The effect would be driven by any changes to social networks and support that the Scheme may have facilitated. The groups likely to benefit most could be older people, people with existing poor health, and people who may be more prone to isolation effects. The design of the Banwell Bypass itself is not considered in relation to inclusivity because it must meet required design standards. Other elements such as the active travel routes, road crossings, pavements, placemaking, and junction improvements have been designed with this in mind.

Population sensitivity: Low

Health outcome category: Direct and indirect, positive, long-term

12.10 Proposed Mitigation and Enhancement Measures

12.10.1 This section outlines the proposed essential mitigation and enhancement measures under the following subtopics:

a) Land-use and accessibility

- private property and housing;
- community land and assets;
- development land and businesses;
- agricultural land holdings; and
- walkers, cyclists and horse riders (WCH)

b) Human health

12.10.2 When assessing the proposed mitigation, the following mitigation hierarchy shall be implemented:

a) avoidance and prevention:

- identify alternative design/ route options that avoid the requirement to compulsory purchase property, land and assets; and
- identify alternative design/ route options that avoid introducing or worsening severance and avoid reducing WCH provision/ increasing journey times

b) reduction:

- minimise impacts on property, land and assets by selecting route alignments that avoid land take from the most sensitive receptors/ aspects of receptors thereby maintaining viability; and
- by altering alignment to minimise severance to communities and disruption to WCH provision.

c) remediation:

- where it is not possible to avoid or reduce a significant adverse effect, e.g. community sports pitches have to be acquired to facilitate construction, provide equivalent facilities as close to the original location as possible.

Land use and accessibility

Private property and housing

Mitigation during construction

Essential

- 12.10.3 No essential mitigation has been identified for private property and housing during the construction phase.

Mitigation during operation

- 12.10.4 Private property and housing has been scoped out during the operation phase as per the Combined Scoping and Screening report (ES Volume 3 - Appendix 1.B - WSP EIA Combined Scoping and Screening Report) – therefore no mitigation measures have been identified.

Enhancement

- 12.10.5 No enhancement measures have been identified.

Community land and assets

Mitigation during construction

Essential

- 12.10.6 To mitigate for the potential effects identified in Section 12.9 on community land and assets, the following actions are proposed:
- a) Appropriate alternative replacement land (like for like) is intended to be made available for use by Banwell Football Club as mitigation for disruption and loss of part of the training grounds. Refer to Planning Documents – Open Space Assessment. Appropriate alternative facilities would be sought as close to the existing training fields and clubhouse as possible, taking into account the other requirements of suitable alternative land. This may be by way of temporary facilities during the construction phase depending on the approach to land acquisition.

Mitigation during operation

- 12.10.7 The mitigation proposed during the construction phase for Banwell Football Club would continue over into the operational phase of the Scheme.

Enhancement

- 12.10.8 No enhancement measures have been identified.

Development land and business

Mitigation during construction

Essential

- 12.10.9 No essential mitigation has been identified for development land and business during the construction phase.

Mitigation during operation

Essential

- 12.10.10 No essential mitigation has been identified for development land and business during the operation phase.

Enhancement

- 12.10.11 No enhancement measures have been identified.

Agricultural land holdings

Mitigation during construction

Essential

- 12.10.12 During construction soils would be managed in accordance with best practice and double handling would be kept to a minimum. Upon completion of construction, soils replaced for agricultural, or landscape uses will be monitored to identify any unsatisfactory growing conditions during a five-year aftercare period.
- 12.10.13 Regarding agricultural holdings, there is no practical mitigation available for the loss of agricultural land other than financial compensation, and this will be assessed in line with the prevailing statutory requirements.
- 12.10.14 Access to land severed by the scheme has been considered and alternative means of access have been provided, where practicable. These include:
- a) An agricultural access track along the northern side of the bypass from Banwell West Junction (for Holding 5);

- b) Field gates and cattle handling facilities north of Wolvershill Road (for Holding 6);
- c) Field gates and cattle handling facilities south of Wolvershill Road (for Holding 7);
- d) Field gates across Moor Road Link (for Holding 12);
- e) Replacement field gateways (for Holdings 3, 4, 5 from the A371 and for Holdings 22 and 23 from the proposed new Southern Link).

Mitigation during operation

Essential

- 12.10.15 No essential mitigation has been identified for agricultural land holdings during the operation phase.

Enhancement

- 12.10.16 No enhancement measures have been identified.

Walkers, cyclists and horse-riders (WCH)

Mitigation during construction

Essential

- 12.10.17 No essential mitigation has been identified for development land and business during the construction phase.

Mitigation during operation

Essential

- 12.10.18 The shared-use path is to be maintained following construction to ensure it is fit for purpose.

Enhancement

- 12.10.19 Opportunities are to be identified to provide new footways to ensure that safe routes are provided to all bus stops (as a minimum) and other beneficial destinations throughout the community. These should be accessible to users of different physical abilities e.g. wheelchair users, elderly and children.
- 12.10.20 As part of the WCH Assessment (Planning Document - Walking Cycling Horse-riding Assessment Report), the following strategic opportunities have been identified for consideration:

- a) New shared use path to the west of Banwell across M5, linking western Banwell Bypass roundabout with existing shared use path towards Weston-super-Mare.
- b) New shared use path to south east of Banwell, including parallel to new link road, towards Winscombe.
- c) Traffic calming on lanes to the north of Banwell, to enable improved walking and cycle routes towards Worle station.
- d) Reduced traffic flows through Banwell village enable traffic calming measures to support walking and cycling, potentially including:
 - continuous crossover footways and / or reduced corner radii for side roads;
 - improved bus stops;
 - new cycle parking.
- e) Physical and signalling improvements for pedestrians and cyclists at Churchill Gate junction, potentially including:
 - Advanced Stop Lines and cycle approach lanes
 - Single stage pedestrian crossings
 - Cycle early release signal timings.
 - Improved footway width
- f) Opportunity for crossing the M5 to Locking Parklands via agricultural bridge and links along lanes to A370 with aspiration for path under M5 at Haybow Farm.

12.10.21 A full list of identified opportunities that have been considered is identified in Table 14 of Planning Document - Walking Cycling Horse-riding Assessment Report.

Human Health

12.10.22 Mitigation measures and enhancements have been proposed to minimise any negative health impacts and maximise any positive health impacts of the Scheme. These are outlined below.

Access and accessibility of housing

Mitigation during construction

Essential

12.10.23 Access to housing would be maintained to minimise disruption

as far as possible. This would include safe access to Banwell and the provision of alternative routes where severance occurs. Properties would also maintain access to public transport (i.e. bus stops) which would also be accessible for people with disabilities and mobility limitations.

- 12.10.24 Good design and best practice construction methods set out in the CEMP will be incorporated to minimise physical and disruption effects. North Somerset Council and the contractors will liaise with residents throughout the construction process to minimise the potential effects.

Mitigation during operation

Essential

- 12.10.25 Clear signage and provision of access information will be provided for all users before and during operation.

Access to health and social care services

Mitigation during construction

Essential

- 12.10.26 Where access is compromised during construction, provision would be made to maintain access to these services, paying attention to the need for accessibility for wheelchair users and pushchairs.

Mitigation during operation

Essential

- 12.10.27 Any diversions and new access routes would consider accessibility for people in wheelchairs and pushchairs, the elderly and the young e.g. the use of ramps, hand railing and lifts. Diversions and new access routes would also consider the turning circle and space for wheelchair manoeuvres. There are also particular needs for the sight impaired that need to be taken into account. These would be developed during detailed design.

Enhancement

- 12.10.28 No enhancement measures have been identified.

Access to open space and nature

Mitigation during construction

Essential

- 12.10.29 Access for residents and communities to open space and nature should be maintained as far as is reasonably practicable to do so, and the duration of any severance or loss of access to these areas should be minimised. Refer to 12.8.3 above.
- 12.10.30 Consideration should be given to ways in which physical activity can be enabled during construction, with limited closures and diversions to existing WCH routes.

Mitigation during operation

Essential

- 12.10.31 No essential mitigation has been identified for access to open space and nature during the operation phase.

Enhancement

- 12.10.32 Appropriate signage to nearby local and strategic cycle/ walking networks to be included.

Air quality, noise and neighbourhood amenity (including crime and community safety)

Mitigation during construction

Essential

- 12.10.33 Community engagement before and during construction to help alleviate residents' fears and concerns.
- 12.10.34 Perception of dust may contribute to a negative evaluation of the Scheme. Communities should be advised if particular activities are expected to create excess dust in the local area and the duration of the activity. Communities should be advised (where appropriate) of the dust management plan for the site.
- 12.10.35 It is recommended that the contractor should be signed up to the Considerate Contractors Scheme and their Code of Considerate Practice which established basic principles for securing site safety and respecting neighbours, this is in accordance with the

mitigation outlined in the draft CEMP.

- 12.10.36 Designated smoking facilities / areas for construction workers should not be located close to residential properties.
- 12.10.37 Ongoing communication to be undertaken with both care homes to ensure they are informed of when likely noisy activities will be taking place and to resolve any issues relating to noise impacts, should they arise.
- 12.10.38 Noise monitoring should be followed as defined by the ES Noise assessment monitoring requirements (ES Chapter 11).
- 12.10.39 Mitigation for landscaping should be followed as defined by the ES Landscape Assessment monitoring requirements (ES Volume 1 Chapter 7) and shown on planning Documents Environmental Masterplans.

Mitigation during operation

Essential

- 12.10.40 No essential mitigation has been identified for air quality, noise and neighbourhood amenity during the operation phase.

Enhancement

- 12.10.41 The Scheme should incorporate elements to help design out crime such as CCTVs, natural surveillance and active frontage. Feature lighting that draws the observers focus to access control points and potential hiding areas should be used.

Accessibility and active travel

Mitigation during construction

Essential

- 12.10.42 During construction, monitoring should be undertaken to ensure that PRoW and pedestrian and cyclist routes are working as planned and that disruption to users of PRoW is minimised. Details of proposed mitigation should be set out within the CEMP which should include the stipulation that where practicable, all WCH routes should be kept open wherever possible and diversion routes implemented via the shortest and most convenient alternative routes. In addition, local resident access

should be maintained at all times where possible and new temporary provision provided if required.

Mitigation during operation

Essential

- 12.10.43 No essential mitigation has been identified for accessibility and active travel during the operation phase.

Enhancement

- 12.10.44 Promotion of alternative methods of travelling to work via the shared use path along the Scheme.

Crime reduction and community safety

Mitigation during construction

Essential

- 12.10.45 Best practice construction techniques are to be followed and general mitigation is to be incorporated to form part of the standard construction and Health and Safety process. Additional requirements to be determined based on the risks arising from construction activities and set out in the CEMP.

Mitigation during operation

Essential

- 12.10.46 No essential mitigation has been identified for crime reduction and community safety during the operation phase.

Access to work and training

Mitigation during construction

Essential

- 12.10.47 General mitigation to be incorporated to ensure that any temporary disruptions to local businesses and access to work and training is minimised as much as possible, with details provided in the CEMP.
- 12.10.48 The client and contractors to liaise with local people and businesses throughout the construction process to minimise the potential effects.

- 12.10.49 Where possible during construction, employment and training opportunities for local people would be considered before recruiting from the wider contractor base.

Mitigation during operation

Essential

- 12.10.50 No essential mitigation has been identified for access to work and training during the operation phase.

Social cohesion and inclusive design

Mitigation during construction

Essential

- 12.10.51 Access to be maintained, avoiding loss of PRow, and including designs that are inclusive to all people.
- 12.10.52 Community engagement before and during construction could help alleviate residents' fears and concerns.

Mitigation during operation

Essential

- 12.10.53 No essential mitigation has been identified for social cohesion and inclusive design during the operation phase.

12.11 Residual Environmental Effects (following mitigation)

- 12.11.1 In relation to the land and accessibility, the residual effects would remain the same as the effects set out in the sections above. Permanent land take from the Scheme will remain and some access routes to properties, businesses, and community land and facilities will remain. Additional residual effect will be long term improvements to the safety and accessibility to WCH routes surrounding the Bypass and in neighbouring communities of Sandford, Winscombe and Churchill.
- 12.11.2 In relation to the health assessment, the residual effects would remain the same as the effects set out in the sections above. See section 12.9 for a summary of health outcomes.

12.12 Monitoring

- 12.12.1 As per the Combined Screening and Scoping Report (ES Volume 3 - Appendix 1.B - WSP EIA Combined Scoping and Screening Report), no monitoring is proposed for the land and accessibility components of this chapter.
- 12.12.2 In relation to the human health aspects of this chapter, noise monitoring is to be carried out as outlined in section 11.10 of ES Volume 1 - Chapter 11 - Noise and Vibration.

12.13 Summary and Conclusions

- 12.13.1 The scheme is compliant with all relevant legislation and policy for Population and Human Health. The Scheme's position to the north of Banwell, and the additional mitigation works through the village and neighbouring Sandford, Winscombe and Churchill, will have varying positive and negative effects on the local and surrounding populations. These effects will be observed during both the construction and operational phases.
- 12.13.2 Negative effects for most of the sensitive receptors identified are likely to occur during the construction phase of Scheme. The majority of these impacts stem from changes in access and potential disruption to travel routes during construction. The receptors with the large adverse effects identified are a temporary occupied caravan (not classed as a residential property) to be removed from the Scheme's footprint during construction, and Footpath AX3/06/10 which would be dissected during construction. Stonebridge Farm Caravan Park will see the largest effect. The park is within the footprint of the Scheme and would be rendered unviable as a caravan park.
- 12.13.3 The operation phase will bring largely positive effects. Most beneficial effects will derive from the reduced traffic flows through the centre of Banwell and the improvements to active travel routes running through the village and in neighbouring villages of Sandford, Winscombe and Churchill. Improvements including wider pavements, new crossing points and traffic calming measures will result in safer travel routes and access to key community assets. These include Banwell Buddies Preschool, Banwell Primary School and Banwell Village Pharmacy.

- 12.13.4 Some individual receptors such as Court Farm Country Park will experience significant beneficial effects due to the improvements in access the Scheme will provide. With the new shared-use path alongside the Banwell Bypass which extends to link into Sandford and the Strawberry Line improves active travel routes for WCH. Additional mitigation works throughout Sandford, Winscombe and Churchill including improved crossing points, footpath creation and improvements, and new 20mph speed limits will improve accessibility and safety for WCH.
- 12.13.5 In addition to these effects, Table 15.1 (ES Volume 1 - Chapter 15 – Cumulative Effects) provide the in-combination effects of more than one specialist assessment on specific receptors of the Scheme.
- 12.13.6 Land use and accessibility significant effects, as discussed in Section 12.9, are summarised in Table 12-32 below with relevant mitigation identified.

Table 12-32 Summary of the land use and accessibility significant effects during construction and operation phases of the Scheme

Receptor Group	Identified effects		Mitigation
	Construction	Operation	
Private property and housing	<p>Properties North of the Banwell Bypass - Severance from Banwell and substantial amendment to access (adverse).</p> <p>Knightcott Road properties - Substantial amendment to access (adverse).</p> <p>Temporarily occupied caravan - Demolition or Removal (adverse).</p>	N.A.	<p>Construction – maintain access to properties.</p> <p>Operation – N.A.</p>
Community land and assets	<p>Banwell Football Club – loss of land/training facilities (adverse).</p> <p>General – potential disruption from</p>	<p>General - improvements in access due to changes to operating conditions (reduction in traffic flows through</p>	<p>Construction – provide alternative facilities,, replacement land; maintain access assets.</p> <p>Operation – N.A.</p>

Receptor Group	Identified effects		Mitigation
	Construction	Operation	
	construction activities (adverse).	Banwell) (beneficial).	
Development land and business	Stonebridge Farm Caravan Park – rendered unviable (adverse). Court Farm Country Park – severance and change to access (adverse).	Court Farm Country Park – better passing trade via the Banwell Bypass (beneficial).	Construction – compensation for loss of business; maintain access assets. Operation – N.A.
Agricultural land holdings	Holdings – Five commercial agricultural holdings (with a medium or greater sensitivity to change) are likely to be significantly affected (adverse). In the majority of cases the existing agricultural use should continue post works, albeit on a reduced area of land. For Holding 6 the future operation of the holding is uncertain due to the loss of the diversified income from the caravan park,	No effect	Construction – compensation for loss of agricultural land; maintain access. Operation – N.A.
Walkers, cyclists and horse-riders (WCH)	Footpath AX3/06/10 – Scheme would dissect the path (adverse).	New shared-use path along the Scheme. Improved access and safety to footpaths throughout Sandford, Banwell and Churchill.	Construction – ensure connectivity of paths and maintain access. Operation – N.A.

12.13.7 Health assessment outcomes as discussed throughout the assessment above are summarised in Table 12-33 below.

Table 12-33 Summary of the health assessment by health determinant during construction and operation

Health determinant	Health outcome at population level	
	Construction	Operation
Access and accessibility to housing	Direct, negative, short-term	Direct, positive, long-term
Access to health and social care services	Educational facilities: direct, negative, short-term Spiritual services: direct, negative, short-term Medical/ health services: direct, negative, short-term Care/ residential homes: direct, negative, short-term	All facilities: direct, positive, long-term
Access to sporting facilities	Direct, negative, long-term	Direct, positive, long-term
Access to open space and nature	Direct, negative, short-term	Direct, positive, long-term
Neighbourhood amenity	Air Quality: direct, negative, short-term Noise: direct, negative, short-term Visual amenity/lighting: Direct, negative, short-term	Air Quality: direct, positive, long-term Noise: direct, neutral, long-term Visual amenity/lighting: Direct, negative, long-term
Accessibility and active travel	Direct, negative, short-term	Direct, positive, long-term
Traffic volumes	Direct, negative, short-term	Direct, neutral, long-term
Crime reduction and community safety	Indirect and direct, negative, short-term	Direct, negative, long-term
Access to work and training	Direct, negative, short-term	Indirect, positive, long-term
Social cohesion and inclusive design	Indirect and direct, negative, short-term	Direct and indirect, positive, long-term

12.14 References

- 12.1 Highways England, Transport Scotland, Welsh Government, and Department for Infrastructure, DMRB, LA 112 Population and human health, 2019.
- 12.2 Highways England, Transport Scotland, Welsh Government, and Department for Infrastructure, DMRB, LA 104 Environmental assessment and monitoring, 2019.
- 12.3 Ministry of Housing, Communities and Local Government, National Planning Policy Framework, 2019.
- 12.4 Department for Transport, Cycling and Walking Investment Strategy, 2017.
- 12.5 North Somerset Council, Core Strategy, 2018.
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³⁵ Due to an issue with HEs coding in East Sussex Healthcare NHS Trust in 2018/19, for which approximately 85,000 records erroneously had all diagnosis codes removed, this value should be treated with caution. In 2018/19, between 1 to 10% of patients that attended hospital from this area had records that were missing diagnosis codes.

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