East Midlands Gateway
Phase 2 (EMG2)

Document DCO 6.17/MCO 6.17

ENVIRONMENTAL STATEMENT

Main Statement

Chapter 17

Population and Human Health

August 2025

17

The East Midlands Gateway Phase 2 and Highway Order 202X and The East Midlands Gateway Rail Freight and Highway (Amendment) Order 202X

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17. Population and Human Health

17.1. Introduction

17.1.1. This chapter presents the findings of the assessment work undertaken concerning potential impacts of the EMG2 Project, as described in full in **Chapter 3: Project Description (Document DCO 6.3/MCO 6.3)**, on population and health matters. In brief, the EMG2 Project comprises three main components as described in **Table 17.1**.

Table 17.1: The EMG2 Project Components

Main Component	Details	Works Nos.
DCO Application made by the DCO Applicant for the DCO Scheme		
EMG2 Works	Logistics and advanced manufacturing development located on the EMG2 Main Site south of East Midlands Airport and the A453, and west of the M1 motorway. The development includes HGV parking and a bus interchange. Together with an upgrade to the EMG1 substation and provision of a Community Park.	DCO Works Nos. 1 to 5 as described in the draft DCO (**Document DCO 3.1**). DCO Works Nos. 20 and 21 as described in the draft DCO (**Document DCO 3.1**).
Highway Works	Works to the highway network: the A453 EMG2 access junction works (referred to as the EMG2 Access Works); significant improvements at Junction 24 of the M1 (referred to as the J24 Improvements), works to the wider highway network including the Active Travel Link, Hyam's Lane Works, L57 Footpath Upgrade, A6 Kegworth Bypass/A453 Junction Improvements and Finger Farm Roundabout Improvements, together with other works.	DCO Works Nos. 6 to 19 as described in the draft DCO (**Document DCO 3.1**).
MCO Application made by the MCO Applicant for the MCO Scheme		
EMG1 Works	Additional warehousing development on Plot 16 together with works to increase the permitted height of the cranes at the EMG1 rail-freight terminal, improvements to the public transport interchange, site management building and the EMG1 Pedestrian Crossing.	MCO Works Nos. 3A, 3B, 5A, 5B, 5C, 6A and 8A in the draft MCO (**Document MCO 3.1**).

17.1.2. In recognition that this chapter forms part of a single ES covering both the DCO Scheme and the MCO Scheme, it makes a clear distinction between the component parts and, consistent with the dual application approach**,** separately assesses the impacts arising from:

i. The DCO Scheme (Section 17.5);

ii. The MCO Scheme (Section 17.6);

iii. The EMG2 Project as a whole, comprising the DCO Scheme and MCO Scheme together (Section 17.7); and

iv. The EMG2 Project as a whole in combination with other planned development (i.e. the cumulative effects) (Section 17.8) using the list of projects identified in **Appendix 21B** to **Chapter 21: Cumulative Impacts (Document DCO 6.21B/MCO 6.21B)**.

17.1.3. Population and health can be influenced (both adversely and beneficially) by a number of environmental and socio-economic determinants which can vary on a project by project basis, and are further modified by local community circumstance and existing health burden.

17.1.4. The purpose of the population and health chapter is to draw from and build upon the key outputs provided in the project description and within each relevant ES topic chapter to further test potential risk to local communities, and where appropriate, to set such risk into context. The principles of Health Impact Assessment (HIA) have been fully embedded in the assessments of this ES chapter. This approach is agreed with LCC, as detailed in **Table 17.3**, and is in line with the Institute of Environmental Management and Assessment (IEMA) Guide to Effective Scoping of Human Health in EIA, which states that the practice of a separate standalone HIA report being appended to the EIA Report to meet the EIA requirement is not recommended as it can result in inconsistencies or duplication, additional demand on stakeholder resources, less clearly secured health mitigation or enhancement measures, and lack of clarity as to how the EIA statutory requirements (assessment of likely significant effects) are met.

17.1.5. The chapter is supported by the following technical appendices:

- **Appendix 17A: Informal Scoping Exercise with LCC (Document DCO 6.17A/MCO 6.17A);**
- **Appendix 17B: Population and Health Baseline (Document DCO 6.17B/MCO 6.17B);**
- **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C); and**
- **Appendix 17D: Baseline Study Area (Document ref: 6.17D/MCO 6.17D**).

17.2. Scope and Methodology of the Assessment

Introduction

17.2.1. This section of the chapter is common to both the DCO Application and the MCO Application.

Study area

17.2.2. Environmental health determinants (such as changes to air quality and noise exposure) typically have a local distribution pattern, where the hazards are limited by their concentration and physical dispersion characteristics. Likewise, changes in transport nature and flow rate have a particular distribution on the local road network.

17.2.3. As baseline data is limited to administrative boundaries, the collection of health data (relevant to environmental health determinants) focusses upon all administrative wards that fall within 500m of EMG2 Project. This comprises:

- Castle Donington Central;
- Castle Donington Castle;
- Castle Donington Park[1];
- Daleacre Hill;
- Kegworth;
- Long Whatton & Diseworth; and
- Worthington & Breedon.

17.2.4. It should be noted that trend data is not readily available at the ward level and therefore data presented in the population and health baseline primarily relates to the administrative area of North West Leicestershire District Council, which all of the above wards are located within and is therefore considered to be representative of the communities living in these wards. Despite district level data being used for presentation purposes, data at the lowest geographic level possible is used for any quantitative assessment to ensure the highest levels of accuracy possible.

17.2.5. Socio-economic health determinants (such as employment and related income generation) have a wider geographic scope of influence than environmental health determinants due to the willingness to commute significant distances to work. The study area for socio-economic baseline statistics is consistent with the socio-economic technical discipline **(Chapter 5: Socio-Economic, Document DCO 6.5/MCO 6.5)**, extending beyond just North West Leicestershire.

17.2.6. The study area defining the relevant sensitive receptors identified for assessment purposes is consistent with the inter-related technical aspects which inform the assessment of population and human health. For example, noise and air quality will assess different

[1] Located marginally beyond the 500m criteria for inclusion, but scoped in for completeness to capture the entire community of Castle Donington.

receptors as they have different distribution characteristics; the population and health assessment will use key outputs at the receptor level for both noise and air quality to establish the secondary effect on health and wellbeing.

17.2.7. A study area of 500m from the EMG2 Project has been used in order to identify receptors that will be the focus of **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C)**. Within this area, OS Address Base data will be analysed to identify community facilities that are primarily used by individuals with protected characteristics and could therefore experience disproportionate or differential effects (for example, schools, care homes and places of worship), consistent with the Equality Act 2010.

Consultation

17.2.8. **Table 17.2** summarises all comments made by PINS and the relevant statutory consultees during scoping consultation and contained within the Scoping Opinion which are relevant to health and equality matters, outlining how/where they will be addressed in the ES.

Table 17.2: Summary of scoping consultation with PINS and statutory consultees

ID	Consultee	Summary of comment	Applicant Response
3.0.1	PINS	The Scoping Report does not confirm whether population and human health impacts will be considered in relation to other environmental topics such as (but not limited to) electromagnetic fields (EMF), ground conditions, lighting (including landscape and visual impacts), or flood risk. Not all details of the Proposed Development are yet defined, and this has affected the Inspectorate's ability to comment on this matter.	This chapter of the ES considers population and human health. The inclusion of all health determinants listed have been explored as part of the informal scoping exercise provided in **Appendix 17A**, with the rationale for scoping in/out also detailed. The Applicant has engaged and agreed with LCC on the proposed scope and focus.
3.0.1	PINS	In light of comments raised by consultation bodies in relation to the assessment of human health, the Inspectorate considers that a broader range of potential population and human health effects than air quality, noise and socio-economics could arise. As such, the Inspectorate considers this is best addressed together in a comprehensive human health and population chapter.	An assessment of a broader range of health determinants than those listed has been included in this chapter.
n/a	Kegworth Parish Council	Kegworth Parish Council would like to see the following included in the ES: • A description of the production processes (manufacturing) at the main site, and a description of the effects on human health	As outlined in **Appendix 17A**, potential human health effects from air quality and noise have been scoped into the population and health assessment. The assessment in this chapter provides a more in depth

ID	Consultee	Summary of comment	Applicant Response
		from any such air pollution and radiation • An estimate of expected noise from the expanded rail freight interchange and a description of the noise's likely significant effects on human health • A description of the expected significant adverse effects of the development on the environment (including to human health) deriving from the vulnerability of the development to risks of accident and disaster	analysis than **Chapter 7: Noise and Vibration (Document DCO 6.7/MCO 6.7)** and **Chapter 8: Air Quality (Document DCO 6.8/MCO 6.8)**, because impacts are considered beyond pre-defined thresholds. Radiation has been scoped out on the basis that there are no significant existing or proposed sources of ionising or non-ionising radiation. The potential impacts on human health from major accidents and disasters will be considered within its own independent chapter **(Chapter 20: Major Accidents and Disasters (Document DCO 6.20/MCO 6.20)**.
n/a	LCC	The Applicant has justified the scoping out of population and human health on the basis that noise, air quality and socioeconomic impacts will be considered in separate chapters. However, air quality, noise and socio-economic impacts do not cover the full extent to which this proposal would impact on health. Chapters on air quality, noise and socio-economic impacts may not specifically look through the lens of health in the same way that a dedicated population and human health chapter would. This could result in the chapters failing to consider the health needs of the local population, current challenges to health, and the likely cumulative impact to health on the local population, therefore missing the opportunity to mitigate any risks identified and/or enhance any positive impacts.	This population and human health chapter includes a health specific baseline which identifies any existing burdens of poor health. This chapter draws from key outputs across a range of technical disciplines (such as those listed: air quality, noise and socio-economic) to robustly consider the potential impacts, including cumulative impacts, from a public health perspective.
n/a	LCC	LCC consider that the following would be assessed more fully if a population health chapter or health impact assessment were to be included within the scope of the ES:	The principles of HIA have been fully embedded within the Population and Human Health ES chapter. An informal scoping exercise has been undertaken, and catalogued in **Appendix**

ID	Consultee	Summary of comment	Applicant Response
		• Direct influences on health and behaviour – including but not limited to physical activity and mental wellbeing. • Community and Social Influences - including but not limited to local pride, divisions in community, social isolation, community identity, cultural and spiritual ethos, design for low crime. • Living environmental conditions potentially affecting health – including factors such as built environment, noise, air and water quality, flooding risk, attractiveness of area, street furniture, shade and rest, green space, blue space, outdoor physical activity, community safety, smell/odour, waste disposal, road hazards / safety, community severance, cycling and walking facilities and infrastructure, public transport, prioritise pedestrian and cyclists, traffic calming, walkability including connectivity, mixed land use, injury hazards. • Economic conditions and links affecting health - including unemployment, income, economic inactivity, type of employment and workplace conditions. • Access to and quality of services - including public amenities, transport including parking; public transport including stops, education and training and information technology. • Macro-economic, environmental and sustainability factors - this domain considers factors such as Government policies, gross domestic product, economic development, biological diversity, climate.	**17A**, to establish which health determinants outlined in IEMAs Guide to Effective Scoping of Human Health in EIA are considered relevant to the EMG2 Project, with the rationale for scoping in/out also detailed. The Applicant has engaged with LCC and agreed the proposed scope and focus of this chapter.
n/a	LCC	LCC request that the following areas (middle layer super output areas), which are identified as high risk in terms of potential health inequalities,	While we appreciate that the MSOAs listed by LCC are identified as high risk in terms of potential health

ID	Consultee	Summary of comment	Applicant Response
		to be considered more fully in a dedicated population and human health chapter and supported by a Health Impact Assessment: • Charnwood: Loughborough Lemyngton & Hastings, Storer and Queens Park, University, Shelthorpe & Woodthorpe, Syston West and Shepshed East • Harborough: Market Harborough Central • Hinckley and Bosworth: Barwell, Hinckley Central and Hinckley Clarendon Park • Melton: Melton Mowbray West • North West Leicestershire: Agar Nook, Coalville • Oadby and Wigston: Wigston Town, South Wigston	inequalities, all fall outside the proposed study area for baseline data collection in relation to environmental determinants of health and some are located at large distances from the site. It should be reiterated that the wards which make up the proposed study area for baseline data collection in relation to environmental determinants of health are those located within 500m of the Order Limits and are likely to experience the most impacts. As the study area for the socio-economic assessment extends beyond North West Leicestershire (and includes the Unitary and County Council areas of Leicester, Leicestershire, Derby, Derbyshire, Nottingham and Nottinghamshire), the MSOAs listed are captured in this part of the assessment, where existing high levels of deprivation may result in disproportionate benefits to these communities through employment opportunities associated with the EMG2 Project.
n/a	LCC	Implications to the following groups should be explored: • People who identify as Lesbian, Gay, Bisexual or Transgender (LGBT) • People with a disability, including people with a learning disability • People who are homeless • Victims of modern slavery • Sex workers • Vulnerable migrants • Carers	The potential impact (adverse and beneficial) on vulnerable receptor groups (as defined by LCC) will be considered in the population and health assessment where appropriate. As discussed with LCC, some groups have been scoped out from analysis – the rationale for this is provided in **Table 17.7**.

ID	Consultee	Summary of comment	Applicant Response
		• People with severe mental illness • Prisoners • People who have experienced trauma • Looked after children and care experienced adults • People living in poverty/deprivation • A complex picture was identified around race and ethnicity but evidence of health inequalities being most common for people who are Bangladeshi, Pakistani or Gypsy or Irish Travellers	
n/a	LCC	We would ask for the proximity to Traveller sites near to the development and potential health impacts to be scoped within a population health chapter or health impact assessment. At least two traveller sites appear to be close to the development area.	LCC have provided local insight on the location of gypsy/traveller sites, which are included in the equality assessment (Receptor IDs: LCC1, LCC2, LCC3).
n/a	LCC	In relation to air quality and noise, consideration should be given to the cumulative impacts on the health and wellbeing of local residents during both construction and operational phases.	Consistent with the regulatory requirements of EIA, cumulative population and human health effects are assessed within **Section 17.8** of this chapter.
n/a	LCC	The air quality chapter (in addition to a standalone population health chapter) should examine current health outcomes for the area including links to air pollution, for example Dementia rates. Dementia rates in North West Leicestershire are significantly higher than the England average. Asthma QOF prevalence (6 years plus) in North West Leicestershire (at 7.8%) is also higher than the value for East Midlands and England. The chapter should also consider population groups most vulnerable to the impacts of poor air quality on health as per the Chief Medical Officer Annual Report on Air Quality 2022. Taking into consideration areas of vulnerability indicated by the Health Inequalities JSNA and likely	Baseline health circumstance is explored as part of the baseline assessment and includes an analysis of health outcomes relevant to air pollution, for example dementia and hospital admissions for respiratory disease. It should be noted that while data has been collected at the lowest geographic level possible, trend data is not readily available at the ward level and therefore data presented in the population and health baseline primarily relates to administrative area of North West Leicestershire.

ID	Consultee	Summary of comment	Applicant Response
		population changes to the districts shown in the Demography JSNA.	The equality assessment has considered impacts on people with protected characteristics (e.g. young people, older people and people with existing health conditions/disabilities).
n/a	UKHSA	We believe the summation of relevant issues into a specific section of the ES provides a focus which ensures that public health is given adequate consideration. The section should summarise key information, risk assessments, proposed mitigation measures, conclusions, and residual impacts, relating to human health.	Detailed consideration of all topics from a public health perspective are considered in this chapter unless otherwise stated.
n/a	UKHSA	UKHSA and OHID's predecessor organisation Public Health England produced an advice document 'Advice on the content of Environmental Statements accompanying an application under the NSIP Regime', setting out aspects to be addressed within the Environmental Statement.	The advice document 'Advice on the content of Environmental Statements accompanying an application under the NSIP Regime' is noted and has been taken into consideration, although the main guidance documents of reference when undertaking the population and human health assessment are the more recent IEMA Guide to Effective Scoping of Human Health in EIA and IEMA Guide to Determining Significance for Human Health in EIA.
n/a	UKHSA	Please note that where impacts relating to health and/or further assessments are scoped out, promoters should fully explain and justify this within the submitted documentation.	The justification for scoping out health determinants is included in **Appendix 17A**.
n/a	UKHSA	With regards to air quality, our position is that pollutants associated with road traffic or combustion, particularly particulate matter and oxides of nitrogen are non-threshold; i.e, an exposed population is likely to be subject to potential harm at any level and that reducing public exposure to non-threshold pollutants (such as particulate matter and nitrogen dioxide) below air quality standards will have potential public	Air quality is specifically assessed in **Chapter 8: Air Quality**. However air quality is a key determinant of health and exposure to non-threshold pollutants is assessed in this chapter. Embedded mitigation measures to reduce air quality impacts are considered in the assessment of significance

ID	Consultee	Summary of comment	Applicant Response
		health benefits. We support approaches which minimise or mitigate public exposure to non-threshold air pollutants, address inequalities (in exposure) and maximise co-benefits (such as physical exercise). We encourage their consideration during development design, environmental and health impact assessment, and development consent.	and detailed in **Chapter 8: Air Quality** (**Document DCO 6.8/MCO 6.8**).
n/a	UKHSA	The applicant should assess the potential public health impact of Electromagnetic Fields (EMF) associated with electrical equipment on the development, or, alternatively, provide a statement or explain why EMFs can be scoped out. Further UKHSA advice is available in the document Advice on the content of Environmental Statements accompanying an application under the NSIP Regime'.	The rationale for scoping out EMF is provided in **Appendix 17A** (**Document DCO 6.17A/MCO 6.17A**).
n/a	UKHSA	The following wider determinants of health and wellbeing we expect the ES to address, to demonstrate whether they are likely to give rise to significant effects, are: • Access • Traffic and Transport • Socioeconomic • Land Use	As detailed in **Appendix 17A** (**Document DCO 6.17A/MCO 6.17A**), the listed health determinants have been assessed in this chapter.
n/a	UKHSA	Diseworth will be the most likely affected community, where the residents will already be subject to effects from East Midlands Airport in addition to any East Midlands Gateway intra-project cumulative effects.	The existing impacts of East Midlands Airport have been taken into consideration through establishing the current baseline circumstance for public health and all relevant determinants of health (e.g. air quality, noise and transport). Therefore, the main assessment has taken into consideration the inter-project effects.
n/a	UKHSA	Within a population health chapter consideration should be given to the cumulative impacts of multiple changes in determinants of health cross all potential impacts. These collectively can have the potential be significantly affect the population,	Consistent with the regulatory requirements of EIA, cumulative, inter-related and in-combination population and human health effects have been

ID	Consultee	Summary of comment	Applicant Response
		and vulnerable population groups, and the combined effect should be identified, considered and appropriately mitigated.	assessed within this chapter.
n/a	UKHSA	Environmental noise can cause stress and sleep disturbance, which over the long term can lead to a number of adverse health outcomes. The Noise Policy Statement for England (NPSE) sets out the government's overall policy on noise. Its aims are to: • avoid significant adverse impacts on health and quality of life; • mitigate and minimise adverse impacts on health and quality of life; and • contribute to the improvement of health and quality of life. UKHSA's consideration of the effects of health and quality and life attributable to noise is guided by the recommendations in the Environmental Noise Guidelines for the European Region 2018 published by the World Health Organization and informed by high quality systematic reviews of the scientific evidence including the UKHSA' Spatial Assessment of the Attributable Burden of Disease due to Transportation Noise in England. For noise exposure, UKHSA expects assessments of significance to be closely linked to the associated impacts on health and quality of life in line with the NPSE, and not on noise exposure per se.	Noise is a key determinant of health and has been assessed in this chapter. The overall significance of effect has taken into consideration the NPSE aims. The study area for assessing the population and health impacts of changes in the noise environment remains consistent with the noise assessment to ensure that all areas that are impacted are captured.

17.2.9. A summary of the key issues raised during consultation activities undertaken to date specific to health and equality matters is presented in **Table 17.3** below, together with how these issues have been considered in the production of this Chapter. This includes the relevant comments received from statutory consultees during the statutory consultation process, which was undertaken over a six-week period between Monday 3rd February 2025 and Monday 17th March 2025 as well as the additional consultation over a four-week period between Tuesday 1st July and Tuesday 29th July and provides a response to the issue raised as required.

Table 17.3: Summary of consultation comments and responses

Consultee	Summary of consultation comment	Applicant Response
LCC	LCC advised at a meeting in January 2025 that potential impacts on diet and nutrition, and on community safety should be assessed for both the construction and operational phases of development. This approach was agreed by the Applicant team. However, this assessment appears to be missing from section 17.5.	Both diet and nutrition and community safety are scoped into the population and health assessment on the advice of LCC. In relation to diet and nutrition, LCC were concerned specifically with access to food banks, should severance impacts arise. This is a secondary impact, dependent on the assessment of severance in **Chapter 6: Traffic and Transportation (Document DCO 6.6/MCO 6.6)**. The population and health assessment has drawn from these conclusions to assess the impact on access to food banks during construction and operation. In relation to community safety, the Applicant advised LCC that measures to deter trespassing on the site would be detailed in **Chapter 3: Project Description (Document DCO 6.3/MCO 6.3)**. Despite this, on the advice of LCC, the population and health assessment includes a section on this with relevant cross-references to where this information is detailed.
UKHSA	The UKHSA recommends that once the assessments have been completed, both the technical and non-technical documentation clearly outline the quantified health impacts from the Scheme.	On the basis that the magnitude of change in noise exposure from the EMG2 Project is small, whereby a significant noise effect is predicted only at one residential receptor, it is not considered proportionate to undertake a quantitative health assessment of changes in noise in this instance.
UKHSA	UKHSA notes that EMFs have been scoped out of the project and that the reasoning for this is to be provided in Appendix 17a. This appendix will be made available once the Environmental Statement (ES) has been finalised, when another consultation will take place. We thus have no comments at this stage.	As outlined in **Appendix 17A**, radiation has been scoped out on the basis that no significant sources of ionising or non-ionising radiation (e.g. electric and magnetic fields) would be introduced during construction or operation of the EMG2 Project.
UKHSA	It is noted that a separate population and human health chapter is included within the ES in accordance with the SoS scoping opinion. It is	Informal engagement with LCC has been undertaken throughout the DCO process as the assessment of population and

Consultee	Summary of consultation comment	Applicant Response
	further noted that a health impact assessment and equalities impact assessment will also inform the chapter. However, this chapter (Chapter 17) is still undergoing development, in particular, sections 17.5 on potential impacts, 17.8 on cumulative effects, 17.9 the summary and conclusions, and all the appendices with supporting data are currently incomplete. Therefore, there is insufficient detail in the (PEIR) to make a comprehensive or constructive response. We therefore recommend further consultation, regarding population and human health, with appropriate stakeholders, is undertaken prior to the submission of the ES.	health effects has developed. While a HIA appendix was provided for statutory consultation, it has since been agreed with LCC that the principles of HIA will be fully embedded within the Population and Human Health ES chapter.
UKHSA	As well as residents [the traffic noise assessment] should include an assessment of the potential health impacts of the noise on noise sensitive non-residential receptors.	As part of the equality assessment, consideration of sensitive non-residential receptors within 500m of the EMG2 Project have been circulated for inclusion in noise modelling. These receptors are listed in Table 1.5 of **Appendix 17A**.
UKHSA	The UKHSA recommends that the assessment is not limited to these documents and acknowledges the growing evidence of the links between road traffic noise and health. Estimates of the positive or negative noise impacts of the proposed scheme on health and quality of life need to be shown. The UKHSA recommends that the numbers of dwellings and people impacted by the scheme are shown in noise exposure bands where relevant.	The link between road traffic noise and health is acknowledged. Chapter 17 is informed by the noise assessment with the methodology for this set out at Section 7.2 of **Chapter 7: Noise and Vibration** (**Document DCO 6.7/MCO 6.7**).
UKHSA	Chapter 17 (pages 8 and 9) states, “Noise is a key determinant of health that will be assessed in the chapter.” How this will be done has not been explained fully yet. The UKHSA recommends this chapter gives a clearer acknowledgement of the strengthening body of evidence that noise is associated with adverse health effects, including cardiovascular and metabolic health outcomes.	The potential health effects from changes in noise exposure will be assessed qualitatively on the basis that the magnitude of noise impacts are small, whereby a significant noise effect is predicted only at one residential receptor, and therefore it would not be proportionate to undertake a quantitative assessment.

Consultee	Summary of consultation comment	Applicant Response
UKHSA	Chapter 17 should also acknowledge that noise from the scheme could have an adverse impact on people's use of, and the restorative benefits associated with, green space in the study area.	Chapter 17 is informed by the noise assessment with the methodology for this set out at Section 7.2 of **Chapter 7: Noise and Vibration** (**Document DCO 6.7/MCO 6.7**).
UKHSA	Table 17.2 lists the summary of desktop study sources. The UKHSA believes this should include the Public Health Outcomes Framework (PHOF) indicators for - The rate of complaints about noise (B14a), daytime noise (B14b) and night-time noise (B14c) and include an estimation of the potential impact of the Scheme on these indicators.	The data in the PHOF is based on the results of strategic noise mapping, and covers transportation noise only. Furthermore, the PHOF provides data for the whole of a local authority area and refers to the situation in 2021. On this basis is unclear how referencing the PHOF would help with the decision-making process.
UKHSA	The are already a number of noise sources surrounding the scheme including the M1, M42/A42, A50 and East Midlands Airport. The cumulative impact of noise on areas such as Diseworth should be included in the health assessment.	Existing noise sources such as the strategic road network and East Midlands Airport are considered as part of the baseline in Sections 7.5 and 7.6 of **Chapter 7: Noise and Vibration** (**Document DCO 6.7 / MCO 6.7**). A cumulative assessment in respect of other proposed and consented developments that may come forward in the future is provided in Section 17.8 of this Chapter.
LCC	LCC agrees to the reporting preference requested by Savills on behalf of the Applicant which includes the removal of the separate Health Impact Assessment (HIA) appendix. This approach is accepted on the premise that all information that would have been included in a separate HIA appendix is fully integrated into the Population and Human Health chapter of the ES. Savills have confirmed that no analysis will be lost or omitted.	The HIA appendix has been removed, and all analysis integrated within the population and human health ES chapter. No analysis has been lost or omitted.
LCC	LCC has raised concerns that the health and equalities impact assessment is based on transport modelling that is not currently complete or agreed. Therefore, conclusions reached in the Population and Human Health chapter of the ES will need to be rechecked once the modelled data is	The population and human health assessment is based on the latest version of transport modelling. A review of all health determinants influenced by this modelling has been undertaken. It should be noted that the following health determinants listed

Consultee	Summary of consultation comment	Applicant Response
	complete and agreed. Otherwise, conclusions reached on likely health and equality outcomes related to numerous matters may be inaccurate. This review will need to be carried out for the construction and operational phases of the development, and for the cumulative assessment, as well as the equality assessments. All the aspects currently included in the ES chapter and HIA will require review as listed below: Health effects from changes in air quality Health effects from changes in transport, access and connections Health effects from changes in noise and vibration Health effects from changes in diet and nutrition Community safety Health effects from access to open space and PROW for physical activity, leisure/play and recreation Health effects from changes in socio-economic factors (employment and income) Visual environment	by LCC are not influenced by transport modelling: Community safety Health effects from access to open space and PROW for physical activity, leisure/play and recreation Health effects from changes in socio-economic factors (employment and income) Visual environment

Baseline study

17.2.10. Information on population and health was collected through a detailed desktop review of existing studies and datasets. These are summarised at **Table 17.4**.

Table 17.4: Summary of desktop study sources

Indicator	Source	Year
Population estimates	NOMIS	2021
Employment	OHID Fingertips	2022/23
Life expectancy at birth	OHID Fingertips	2020-22
Healthy life expectancy	OHID Fingertips	2018-20

Indicator	Source	Year
Mortality rate (all-cause, cancer, circulatory disease, respiratory disease)	NOMIS	2022
Hospital admissions (respiratory disease, coronary heart disease)	OHID Fingertips	2022/23
Hospital admissions (coronary heart disease)	OHID Fingertips	2022/23
Suicide rate	OHID Fingertips	2020-22
Dementia diagnosis rate	OHID Fingertips	2024
Hospital admissions for intentional self harm	OHID Fingertips	2022/23
Admission episodes for alcohol-specific conditions (under 18s)	OHID Fingertips	2020/21 – 2022/23
Admission episodes for alcohol-related conditions	OHID Fingertips	2022/23
Smoking prevalence	OHID Fingertips	2022/23
Physically active adults	OHID Fingertips	2022/23
Year 6 prevalence of obesity	OHID Fingertips	2022/23
Adults classified as overweight or obese	OHID Fingertips	2022/23

Assessment criteria

17.2.11. The significance of an effect is determined based on the magnitude of an impact and the sensitivity of the receptor. This section describes the criteria applied in this Chapter to characterise the magnitude of potential impacts and sensitivity of receptors. It is similar to that set out in **Chapter 1: Introduction (Document DCO 6.1/MCO 6.1)** but refined for the purposes of the assessments within this Chapter.

Magnitude of impact

17.2.12. Magnitude of impact, based on the change that the EMG2 Project would have upon the receptor, is considered within the range of major, moderate, minor and negligible. Consideration is given to scale, duration and frequency of impact, and reversibility with reference to the definitions in **Table 17.5**.

Table 17.5: Criteria for magnitude of impact

Magnitude of impact	Description
Major	High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/injury outcomes; majority of population affected; permanent change; substantial service quality implications.
Moderate	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or major change in quality-of-life; large minority of population affected; gradual reversal; small service quality implications.
Minor	Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality-of-life; small minority of population affected; rapid reversal; slight service quality implications
Negligible	Negligible exposure or scale; very short-term duration; one-off frequency; severity predominantly relates to a minor change in quality-of-life; very few people affected; immediate reversal once activity complete; no service quality implication.

Sensitivity of receptors

17.2.13. Within a defined population, individuals will range in level of sensitivity due to a series of factors such as age, socio-economic deprivation and the prevalence of any pre-existing health conditions which could become exacerbated. These individuals can be considered particularly vulnerable to changes in environmental and socio-economic factors (both adversely and beneficially) whereby they could experience disproportionate effects when compared to the general population.

17.2.14. As an example, the elderly, young children and individuals with chronic pre-existing respiratory conditions would be more sensitive to adverse changes to air quality, with the potential for emergency admission to hospital more likely than for someone of working age who has good respiratory health. On the other hand, an individual who has been unemployed for a long period of time would benefit more from employment opportunities generated by the EMG2 Project in comparison to an individual who is already employed.

17.2.15. A scale for sensitivity of the relevant receptors is identified in **Table 17.6**. The thresholds have been derived with reference to the IEMA Guidelines, best practice and professional judgement.

Table 17.6: Criteria for sensitivity

Sensitivity	Description
High	High levels of deprivation (including pockets of deprivation); reliance on resources shared (between the population and the project); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt.
Medium	Moderate levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt.
Low	Low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt.
Negligible	Very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

17.2.16. Extensive baseline data has been collected in order to interpret local health circumstance and consequent population sensitivity. This information is provided in **Appendix 17B: Population and Health Baseline (Document DCO 6.17B/MCO 6.17B)**. Overall, it is concluded that baseline local health circumstance in the study area is comparable to or better than the regional and national averages.

17.2.17. As such, when looking at the population in general, the existing burden of poor health and sensitivity of the population within the study area is “low”. However, this does not exclude the probability that there will be individuals within a defined population who are particularly sensitive and could experience disproportionate effects.

17.2.18. Consistent with IEMA guidance, vulnerable groups have also been considered in the population and health assessment. The Leicestershire Inequalities Joint Strategic Needs Assessment has been used to inform the assessment of vulnerable groups, which are outlined in **Table 17.7**. These vulnerable groups will be assessed as having “high” sensitivity. As discussed with LCC, some vulnerable groups are not considered relevant to the EMG2 Project; the rationale for scoping these vulnerable groups is provided where this is the case.

Table 17.7: Vulnerable group analysis

Vulnerable group	Scoped in/out (including rationale)
People who identify as Lesbian, Gay, Bisexual or Transgender (LGBT)	Scoped out – gender reassignment and sexual orientation are both protected characteristics. While no specific receptors have been identified where LGBT people are the priority user, LGBT people are considered within the thematic assessment provided in **Appendix 17C: Equality Statement**.
People with a disability, including people with a learning disability	Scoped out – disability is a protected characteristic. Residential institutions and medical facilities, where people with disabilities are likely to be a primary user group, have been identified in receptor-led assessment provided in **Appendix 17C: Equality Statement**. In addition, disabled people are considered within the thematic assessment provided in **Appendix 17C: Equality Statement**.
People who are homeless	Scoped out – construction and operational activities would not have an impact on people who are homeless.
Victims of modern slavery	Scoped out – dealt with at a strategic level through compliance with The Modern Slavery Act 2015 to address modern slavery in businesses and their supply chains.
Sex workers	Scoped out – it has been established during the informal scoping process with LCC that the construction and operational workforce would commute on a daily basis and would not contribute to risk taking behaviour. As a result, construction and operational activities would not have an impact on sex workers.
Vulnerable migrants	Scoped out – vulnerable migrants are not considered to be disproportionately or differentially affected by changes in environmental factors but may experience socio-economic deprivation. Consideration of this is embedded in the assessment of people living in poverty/deprivation which has been scoped in.
Carers	Scoped out – construction and operational activities would not have an impact on carers.
People with severe mental illness	Scoped out – disability (including mental illness) is a protected characteristic. Residential institutions and medical facilities, where people with disabilities (including those with mental illness) are likely to be a primary user group, have been identified in receptor-led assessment provided in **Appendix 17C: Equality Statement**. In addition, disabled people are considered within the thematic assessment provided in **Appendix 17C: Equality Statement**.
Prisoners	Scoped out – there are no prisons located close enough in proximity to the EMG2 Project to be impacted by changes in environmental factors. Furthermore, ex-prisoners are not considered to be disproportionately or

Vulnerable group	Scoped in/out (including rationale)
	differentially affected by changes in environmental factors but may experience socio-economic deprivation. Consideration of this is embedded in the assessment of people living in poverty/deprivation which has been scoped in.
People who have experienced trauma	Scoped out – construction and operational activities would not have an impact on people who have experienced trauma.
Looked after children and care experienced adults	Scoped out – age is a protected characteristic. Elderly people (including those who are under care in residential institutions) have been identified in the receptor-led and thematic assessments provided in **Appendix 17C: Equality Statement**. Similarly, children (including those attending education facilities) have been the receptor-led and thematic assessments provided in **Appendix 17C: Equality Statement**.
People living in poverty/deprivation	Scoped in
Racial and ethnic minorities (particularly those who are Bangladeshi, Pakistani or Gypsy or Irish Travellers)	Scoped out – several nearby gypsy/traveller sites have been identified by LCC. As race is a protected characteristic, an assessment on this vulnerable receptor is provided in **Appendix 17C: Equality Statement**.

17.2.19. In addition to considering the above vulnerable groups generally as part of the population and health assessment, specific community receptors within 500m that may have protected characteristics have been considered in **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C**).

Significance of effect

17.2.20. The predicted level of effect is based on the consideration of magnitude of impact and sensitivity of the receptor to come to a professional judgement, in line with IEMA Guidance, as to how important this effect is, using **Table 17.8** as a guide.

17.2.21. For the purposes of this assessment the level of impact is considered significant in circumstances when the overall significance of effect is moderate or above. In addition to the significance of the impact, the nature of the impact, being either beneficial or adverse, has also been considered accordingly.

Table 17.8: Significance of effect

Receptor sensitivity	Magnitude of impact			
	Major	**Moderate**	**Minor**	**Negligible**
High	Major*	Major/moderate*	Moderate/minor	Minor/negligible
Medium	Major/moderate*	Moderate	Minor	Minor/negligible
Low	Moderate/minor	Minor	Minor	Negligible
Negligible	Minor/negligible	Minor/negligible	Negligible	Negligible

* These effects are typically considered significant for the purposes of the EIA Regulations

Uncertainties and/or limitations

17.2.22. The population and health assessment draws from and builds upon the technical outputs from several inter-related technical topics (most notably the air quality, noise and vibration, transport and socio-economic assessment chapters), to investigate changes in environmental and socio-economic conditions directly attributable to the EMG2 Project. As a consequence, the limitations of the supporting assessments, and the conservative assumptions applied to address them, are inherent to the assessment of health.

17.2.23. As per paragraph 17.2.4, it should be noted that trend data is not readily available at the ward level and therefore data presented in the population and health baseline primarily relates to administrative area of North West Leicestershire District Council, which all of the above wards are located within and is therefore considered to be representative of the communities living in these wards. Despite district level data being used for presentation purposes, data at the lowest geographic level possible is used for any quantitative assessment to ensure the highest levels of accuracy possible.

17.3. Policy, Guidance and Legislative Context

17.3.1. This section of the chapter is common to both the DCO Application and the MCO Application.

17.3.2. While a wide range of environmental, social and economic factors have the potential to influence population and health, to ensure a focused list, the policy, guidance and legislation referenced in this section have been included only if they explicitly relate to health and/or wellbeing.

Legislation

17.3.3. There is no legislation directly relevant to the assessment of population and human health beyond Paragraph 5(2)(a) and Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, that requires an EIA to assess the effects likely to be significant on population and human health.

National Policy

National Policy Statement for National Networks (NPSNN)

17.3.4. The National Networks National Policy Statement (NPS) (Department for Transport, 2024) sets out the UK Government's policy for the delivery of nationally significant road and rail networks. Health is a key theme of the National Policy Statement for National Networks (NPSNN), whereby paragraph 4.71 states that new or enhanced national network infrastructure may have direct impacts on health because of traffic, noise, vibration, air quality and emissions, light pollution, community severance, dust, odour, polluting water, hazardous waste and pests. They may also have indirect health impacts: for example, if they affect access to key public services, local transport, opportunities for walking, cycling and wheeling, or the use of open space for recreation and physical activity.

17.3.5. Paragraph 4.72 states that effects on human beings should be assessed, identifying any potential adverse health impacts, and identify measures to avoid, mitigate or as a last resort compensate for adverse health impacts as appropriate. Enhancement opportunities are also mentioned, and should be identified by promoting local improvements for active travel and horse riders driven by the principles of good design to create safe and attractive routes to encourage health and wellbeing; this includes potential impacts on vulnerable groups within society.

National Planning Policy Framework

17.3.6. The National Planning Policy Framework (NPPF) sets out the planning policies for England.

17.3.7. Promoting healthy and safe communities is a central theme, whereby the NPPF states that planning policies and decisions should aim to achieve healthy, inclusive and safe places and beautiful buildings which promote social interaction (including opportunities for meetings between people who might not otherwise come into contact with each other), are safe and accessible, and enable and support healthy lifestyles (Paragraph 96).

17.3.8. Furthermore, the NPPF (Paragraph 98) states that to provide the social, recreational and cultural facilities and services that communities need, planning policies and decisions should:

- plan positively for the provision and use of shared spaces, community facilities and other local services;
- take into account and support the delivery of local strategies to improve health, social and cultural wellbeing;
- guard against the unnecessary loss of valued facilities and services;
- ensure that established shops, facilities and services are able to develop and modernise, and are retained for the benefit of the community; and
- ensure an integrated approach to considering the location of housing, economic uses and community facilities and services.

17.3.9. Paragraph 101 also states that to ensure faster delivery of other public service infrastructure, such as healthcare infrastructure, local planning authorities should work proactively and positively with delivery partners and statutory bodies to plan for required facilities and resolve key planning issues before applications are submitted. Significant weight should be placed on the importance of new, expanded or upgraded public service infrastructure when considering proposals for development.

Local Policy

North West Leicestershire Local Plan (2021)

17.3.10. Objective 1 of the adopted North West Leicestershire Local Plan is to promote the health and wellbeing of the district's population. Beyond this, there are limited references to human health which largely relate to hot food takeaways (not relevant to the EMG2 Project) and provision of community health infrastructure to support residential development (also not relevant to the EMG2 Project).

Draft North West Leicestershire Local Plan 2020-2040

17.3.11. NWLDC consulted on the Regulation 18 draft Local Plan in February and March 2024, the below sets out the relevant matters to healthy and equality.

17.3.12. Objective 1 of the draft North West Leicestershire Local Plan 2020-2040 is also to enable the health and wellbeing of the district's population. In addition, objective 11 is to maintain access to services and facilities including jobs, shops, education, sport and recreation, green space, cultural facilities, communication networks and health & social care and ensure that development is supported by the physical and social infrastructure the community needs and that this is brought forward in a coordinated and timely way; of most relevance to the EMG2 Project is maintenance of access to jobs, education, green space and cultural facilities.

17.3.13. The following draft policies are considered relevant to the EMG2 Project.

17.3.14. Policy AP5 – Health and Wellbeing (Strategic Policy) is a new draft policy, the draft text for which states that development that maintains and improves the health and wellbeing of our residents, encouraging healthy lifestyles by tackling the causes of ill health and inequalities will be supported. Health considerations will be embedded in decision making and the Council will support the creation of a high quality, accessible and inclusive environment. Of relevance to the EMG2 Project, the policy goes on to state that to achieve this, the Council will: support the delivery of a safe walking and cycling network to increase access to active travel, considering active design within development and connections with the wider community, services and employment opportunities; promote and increase access to, and the protection and improvement of, green and blue spaces, sports facilities and play and recreation opportunities; prevent negative impacts on residential amenity and wider public safety from noise, ground instability, ground and water contamination, vibration and air quality; and support healthy eating and promote healthy food choices.

17.3.15. Policy AP6 – Health Impact Assessments is a new draft policy. While no draft text is provided, this is directly relevant to the population and human health assessment, which would embed the methods and principles of health impact assessment within the regulatory requirements of EIA.

Guidance

17.3.16. The assessment has been carried out with reference to the following guidance:

- Planning Practice Guidance; and
- IEMA Guide to Determining Significance for Human Health.

17.3.17. The Planning Practice Guidance (PPG) supports the NPPF and provides guidance across a range of topic areas. As stated in the PPG, planning and health need to be considered firstly in terms of creating environments that support and encourage healthy lifestyles, and secondly in terms of healthcare capacity. In addition, engagement with individuals and/or organisations, such as the relevant Director(s) of Public Health, will help ensure local public health strategies and any inequalities are considered appropriately.

17.3.18. Furthermore, the IEMA guidance on ‘Determining Significance for Human Health in EIA’ responds to gaps and inconsistencies across existing guidance as to how health, particularly regarding significance (including sensitivity and magnitude classifications), is assessed in EIA. This promotes greater consistency in the assessment process; particularly in how EIA health conclusions are reached, interpreted, defended and applied to the greatest positive effect.

17.4. Approach to Assessment of Applications

17.4.1. In recognition that this chapter forms part of a single ES covering both the DCO Application and the MCO Application (as explained in Section 17.1 and in full within **Chapter 1: Introduction and Scope, Document DCO 6.1/MCO 6.1**) it makes a clear distinction between the component parts and, consistent with the dual application approach, assesses the impacts arising from the DCO Application and MCO Application separately and then together as the EMG2 Project in combination. An assessment of the cumulative impacts of the EMG2 Project with other existing and, or approved developments, has also been completed using the list of projects identified in **Appendix 21B** to **Chapter 21: Cumulative Impacts (Document DCO 6.21B/MCO 6.21B)**.

17.4.2. Accordingly the remaining sections of this Chapter are structured as follows:

- An Assessment of the DCO Scheme within Section 17.5;
- An Assessment of the MCO Scheme within Section 17.6;
- An Assessment of the EMG2 Project as a whole, comprising the DCO Scheme and MCO Scheme together, within Section 17.7;
- An Assessment of the EMG2 Project as a whole in combination with other planned development (i.e. the cumulative effects), within Section 17.8; and
- An overall summary and conclusions of the above within Section 17.9.

17.5. Assessment of DCO Application

17.5.1. As set out in **Section 17.1** of this Chapter, and at **Table 17.1**, the DCO Scheme comprises of the following component parts:

- The EMG2 Works: Logistics and advanced manufacturing development located on the EMG2 Main Site together with the provision of a community park, HGV parking, a bus interchange, and an upgrade to the EMG1 substation;

- The Highway Works**:** Works to the highway network: the A453 EMG2 access junction works; significant improvements at Junction 24 of the M1 (referred to as the J24 Improvements) and works to the wider highway network including active travel works.

17.5.2. Within this Section, reference to EMG2 Works excludes the upgrades to the EMG1 Substation except where these works are specifically referenced.

Baseline Conditions

Current Baseline

17.5.3. Individuals and communities have varying susceptibilities to adverse and/or beneficial population and health effects associated with changes in environmental and socio-economic conditions as a result of: demographic structure (for instance, age); existing burden of poor health; behaviours (for instance, lifestyle choices which constitute risk factors); and socio-economic circumstance.

17.5.4. The current baseline is provided in full in **Appendix 17B: Population and Health Baseline** (**Document DCO 6.17B/MCO 6.17B**). In summary, the population living in the ward study area are more elderly than the national average. Life expectancy in the district study area is comparable to (male) or higher than (female) the regional and national averages; consistent with this, mortality rates in the ward and district study area are comparable to or lower than the regional and national averages. District-level hospital admissions for coronary heart disease are also lower than the national average, while hospital admissions for respiratory disease are higher than the national average (data only available for the NHS Region). At the ward level, hospital admissions are also either comparable to or better than the regional and national averages.

17.5.5. Mental health statistics show that the district study area has comparable mental health to the regional and national averages. Dementia diagnosis on the other hand is comparatively low.

17.5.6. Alcohol specific conditions (under 18s) and adult smoking prevalence in the district study area are better than regional and national averages, while alcohol related admissions in the adult population has increased to a level which is worse than regionally and nationally. Physical activity in adults has fluctuated over the years and recently shows an increase to a level which is higher than all relevant comparators. While this is the case, the percentage of adults classified as overweight or obese in the district study area has been consistently higher than the regional and national averages and has increased over time. The prevalence

of obesity in children has also been increasing in the district study area, consistent with regional and national trends, but remains consistently lower than all relevant comparators.

17.5.7. Overall, the majority of indicators are either comparable to or better than the regional and national averages. As such, it can be concluded that the population living in the study area is not considerably more or less sensitive to changes in environmental and/or socio-economic conditions.

Future Baseline Conditions

17.5.8. Consistent with recent local and national trends, the health of the population living within the study area is likely to improve over the lifetime of the DCO Scheme. This will be the case with or without the DCO Scheme.

17.5.9. While this is the case, any improvement is challenging to predict with high confidence and unlikely to be substantial. On this basis, it is considered appropriate and precautionary to use present-day statistics for the purpose of this assessment.

Potential Impacts

Embedded Mitigation

17.5.10. For the purposes of this assessment, public health is by definition preventative in nature. Therefore, mitigation measures adopted as part of the construction and operation of the DCO Scheme will focus on precursors to health and wellbeing outcomes, thereby providing an opportunity for intervention to prevent any adverse impacts. The mitigation measures are set out within this assessment below.

Construction phase

Health effects from changes in air quality

17.5.11. As outlined in **Chapter 8: Air Quality (Document DCO 6.8)**, there is potential for dust emissions from earthworks, on-site construction activities and trackout. However, as stated in **Chapter 8: Air Quality**, with the implementation of appropriate mitigation measures, the residual effect from dust at nearby receptors is expected not to be significant.

17.5.12. There is also the potential for changes in local air quality from construction related traffic movements. These have been assessed for the EMG2 Project as a whole.

17.5.13. On the basis that only small changes in the air quality environment are predicted and would be temporary in nature, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.5.14. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement** (**Document DCO 6.17C**). Considering

the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in noise and vibration

17.5.15. There is the potential for changes in noise exposure at residential receptors from construction activities and traffic movements during the day and night time periods, which has the potential to cause annoyance and sleep disturbance if in exceedance of specific thresholds that are set to protect the environment and human health.

17.5.16. Changes in noise exposure at hotels have been excluded from the population and health assessment on the basis that users of these resources would only be exposed to changes in noise for a short period of time.

17.5.17. **Chapter 7: Noise and Vibration (Document DCO 6.7)** assesses noise impacts during the construction phase in the context of Lowest Observed Adverse Effect Level (LOAEL), 50dB during the daytime period and 40 dB during the night time period, and Significant Observed Adverse Effect Level (SOAEL) thresholds, 63 dB during the day time period and 55 dB during the night time period.

17.5.18. Changes in the noise environment from the DCO Scheme do not exceed the SOAEL at any nearby receptors. While there are exceedances of the LOAEL at four of the 10 residential receptors assessed[2], such exceedances would be short-term and temporary in nature, and would not persist for long enough for there to be any material impact on health and wellbeing.

17.5.19. It should be noted that some of the Highways Works will need to take place outside of the core construction working hours (07:00-19:00 hours Monday to Friday and 07:00-16:00 hours Saturday) and as such, may occur at night. Depending on the works being undertaken, there is potential for exceedances of the night time LOAEL and SOAEL. However, as previously stated, such exceedances would be short-term and temporary in nature; considering the limited duration and scarcity of these occasions, it is not considered that such exceedances would persist for long enough for there to be any material impact on health and wellbeing.

17.5.20. There is also the potential for changes in noise exposure from construction related traffic movements. As outlined in **Chapter 7: Noise and Vibration** (**Document DCO 6.7**), initial calculations indicate that changes in noise exposure from construction road traffic would be up to 1.6 dB in a few areas. Noting the temporary nature of the construction road traffic, no significant effects are indicated.

17.5.21. Overall, the changes in the noise environment described above would generally be below the level required for the onset of human health effects to occur (LOAEL). Where the LOAEL is exceeded at a small number of receptors, such changes in exposure (short-term and temporary in nature) are not considered to persist for long enough to result in any material impacts on human health. On this basis, the magnitude of impact on population and human

[2] Receptors 2, 3, 4, 5 and 14 assessed in Chapter 7: Noise and Vibration have been excluded on the basis that they are hotels, which are not relevant to the assessment of human health as users of these resources would only be exposed to changes in noise for a short period of time

health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.5.22. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement** (**Document DCO 6.17C**). Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in transport, access and connections

17.5.23. As outlined in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6**), traffic impacts during the construction phase would be lower than during operation. As a result, consistent with the approach in **Chapter 6: Traffic and Transportation**, the worst-case population and health assessment in relation to changes in transport, access and connections relates to the operational phase of the EMG2 Works which is considered at paragraphs 17.5.63 to 17.5.80 in this Section of the Chapter.

Health effects from changes in diet and nutrition

17.5.24. As outlined in **Appendix 17A: Informal Scoping Exercise with LCC (Document DCO 6.17A),** the assessment of impacts on diet and nutrition relates the impacts from changes in severance on accessing food banks. However, as outlined above and consistent with the approach in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6**), the worst-case population and health assessment in relation to changes in transport, access and connections relates to the operational phase of the EMG2 Works which is considered at paragraphs 17.5.81 to17.5.83 in this Section of the Chapter.

Health effects from changes in community safety

17.5.25. The CEMP provides the framework with which all Phase and construction component specific Construction Environmental Management Plans (P-CEMPs) required for each component of development must accord.

17.5.26. There would be 24/7 security at the EMG2 Works, supplemented by CCTV. The off-site Highway Works would have visiting security via patrols from the EMG2 Works. Fencing would also be installed to secure each compound area, where each P-CEMP would include details of this.

17.5.27. Construction working hours for each of the above components of the DCO Scheme will be confined to 07:00-19:00 hours Monday to Friday, and 07:00-16:00 hours Saturday. As active construction compounds, and considering installed measures for security purposes such as fencing and security patrol, any potential for trespassing and associated impacts on community safety during these construction hours would be unlikely.

17.5.28. As outlined in the CEMP, temporary task lighting will be provided in the contractor's compound for security and safety reasons. While most lighting will be switched off outside of construction working hours, low levels of security lighting would remain on where deemed

necessary. Such measures, in addition to security patrol, are implemented to reduce potential for trespassing and associated impacts on community safety during out of hours.

17.5.29. Furthermore, each P-CEMP shall set out details of advisory signage to be provided at each public access point (authorised or not) advising of possible hazards associated with each compound including:

- warnings that you are entering a construction site;
- warning of deep water adjacent to open bodies of water;
- the potential for sudden noise
- advisory signs that a PROW has been closed along with a plan of the substituted route;
- directional signs along substituted PROW;
- details on how to register a complaint; and
- emergency telephone numbers.

17.5.30. Overall, the above measures (security patrol, fencing, lighting and signage) would mitigate the potential for unauthorised access to construction compounds. As such, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.5.31. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that the mitigation measures employed for the EMG2 Works would be equally effective to deter unauthorised access to construction compounds.

Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)

17.5.32. Of relevance to health and wellbeing, **Chapter 10: Landscape and Visual** (**Document DCO 6.10**), have assessed the potential for visual effects on the following:

- settlements; and
- recreational routes.

17.5.33. The visual assessment relating to road users have been excluded on the basis that any impacts while travelling by car would not impact health and wellbeing. Visual impacts for users, workers and visitors to Pegasus Business Park and Hotel, Donington Park Services and East Midlands Airport have also been excluded on this basis.

17.5.34. It should be noted that existing landscape features and the visual amenity of the areas of land covered by the DCO Scheme and its context have been carefully considered throughout the planning and design process and have been important factors in informing and shaping the resultant DCO Scheme. This (primary mitigation) has included attention to the siting,

layout and heights of the proposed buildings and consideration of the earthworks and ground modelling/ mitigation mounding proposals.

17.5.35. A full list of visual impacts are provided in **Appendix 10F** (**Document DCO 6.10F**). In summary, construction of the EMG2 Works has the potential to cause changes in the visual environment for the following receptors:

- residents at Diseworth (principally residents on the north eastern side of the settlement and potentially others in the south east of the settlement);
- residents of other generally more scattered properties, including from Wood Nook Farm, West Barn, Dry Pot Lane and the north western edge of Long Whatton;
- users of Hyam's Lane PROW;
- users of Long Holden and the Cross Britain Way PROW; and
- users of other PROW.

17.5.36. Construction of the Highways Works (in particular the M1 – A50 link) has the potential to cause changes in the visual environment for the following receptors:

- residents at Kegworth (a relatively limited number of properties on the western/north western edge, including some on Windmill Way, Pritchard Drive and Ashby Road);
- a small number of individual properties at Long Lane (north of Kegworth) and limited properties and positions at Ratcliffe on Soar and Kingston on Soar;
- a stretch of PROW on top of and to the east of the existing EMG mounding (immediately west of Plot 16) (footpath); and
- users of the Midshires Way (at Long Lane) and another PROW (running parallel to this but west of Long Lane).

17.5.37. The extent of visual impacts summarised above will vary, with some experiencing greater visual impact over a longer period of the construction process and others more limited impacts. Additionally, visual impacts from receptor locations will vary throughout the course of construction depending on the phasing and working arrangement of activities.

17.5.38. It should be noted that there will be no views towards the construction of the site proposals from the majority of properties/streets within Diseworth (affected by the construction of EMG2 Works), due principally to its relative low lying position, the landform variations and the intervening properties, buildings and planting within the settlement itself.

17.5.39. This, combined with the relatively limited number of properties visually impacted by the Highways Works within Kegworth and other limited properties in Ratcliffe on Soar and Kingston on Soar, suggest that while such effects may be significant, only a small number of people would be affected in the context of the total nearby population.

17.5.40. Similarly, while significant visual effects may be experienced from PROW, people use these resources in a transient way and therefore would only be subjected to such views temporarily.

17.5.41. Overall, the construction visual impacts described above have the potential to affect the quality of life for a relatively small number of residents with no potential for physical health impacts associated with changes in the visual environment (including deterrence of use of PROW for physical activity and recreation due to changes in the visual environment, whereby reasonable and accessible alternative PROW exist locally and can be used instead). As such, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.5.42. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that changes in the visual environment does not disproportionally affect people with varying socio-economic circumstance and so this factor would not alter the sensitivity classification.

Health effects from access to open space and PROW for physical activity, leisure/play and recreation

17.5.43. The EMG2 Works currently comprises undeveloped, predominantly arable, land; as such, there is no publicly accessibly open space being lost.

17.5.44. One PROW (L45/L46) generally follows the route of Hyam's Lane, which dissects the EMG2 Works. As stated in **Chapter 3: Project Description** (**Document DCO 6.3**), this PROW will become integrated into the upgraded Hyam's Lane, which will be resurfaced to enhance cycle access.

17.5.45. Although the intention will be to open the footpath as soon as practically possible, this will be limited to a degree by health and safety. On this basis, there will be temporary disruption to the use of affected PROW for physical activity, leisure/play and recreation during this period.

17.5.46. However, the network of PROW to the west of Diseworth provides reasonable and accessible alternatives for physical activity, leisure/play and recreation. As such, the temporary disruption would not have a material impact on the ability of the local population to access PROW for physical activity, leisure/play and recreation, or associated impacts on health and wellbeing.

17.5.47. In addition, there are proposed improvement works to PROW L57 to the west of EMG1 between Diseworth Lane and the edge of Castle Donington at Eastway to upgrade this route to cycle track standards, which would enhance the use of this for physical activity and recreation.

17.5.48. On this basis, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.5.49. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that access to open space and PROW in the context of the DCO Scheme remains the same for everyone and so this factor would not alter the sensitivity classification.

Health effects from changes in socio-economic factors (employment and income)

17.5.50. Having consistent income and being in long-term employment are two of the most important wider determinants of health.

17.5.51. **Chapter 5: Socio-economics** (**Document DCO 6.5**) estimates that construction of the DCO Scheme would result in result in an average of:

- 390 full-time equivalent (FTE) on-site direct employment opportunities per annum; and
- a further 195 FTE net additional off-site indirect and induced employment opportunities per annum once displacement have been taken into account.

17.5.52. Construction employment would peak in 2027 and 2028, with:

- 430 FTE on-site direct employment opportunities; and
- an additional 215 FTE net additional off-site indirect and induced employment opportunities, once displacement has been taken into account.

17.5.53. Construction of the DCO Scheme is anticipated to take 4.25 years. As such, the employment direct, indirect and induced opportunities provided can be considered medium term and temporary in nature.

17.5.54. On the basis that these employment opportunities would be temporary and medium term in nature, it is considered that the health and wellbeing benefits would only have an impact at the individual level rather than at the population level. As such, the magnitude of impact would be minor. Considering the low sensitivity of the general population, the resultant significance of effect is minor beneficial (not significant).

17.5.55. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation, which would enhance the benefits in this instance. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is moderate (significant) for this subset of the population.

Operation phase

Health effects from changes in air quality

17.5.56. Potential changes in air quality during the operation phase relate to changes in traffic movements only and have been assessed for the EMG2 Project as a whole and therefore is assessed in Section 17.7 of this Chapter.

Health effects from changes in noise and vibration

17.5.57. Once operational, there is potential for changes in noise exposure from operational activity, fixed plant and changes in traffic flows during the day and night time periods, which has the potential to cause annoyance and sleep disturbance if in exceedance of specific thresholds that are set to protect the environment and human health.

17.5.58. As previously stated, changes in noise exposure at hotels have been excluded from the population and health assessment on the basis that users of these resources would only be exposed to changes in noise for a short period of time.

17.5.59. For the DCO Scheme, significant noise effects occur where the rating level exceeds the background sound level by 10 dB. This would not occur at any receptor analysed from operational activities taking place during the day and night time periods. A LOAEL of 60dB L_{AFmax} and SOAEL of 70 dB L_{AFmax} has also been applied for the night time period, which is also not exceeded at any residential receptor analysed (only at hotel receptors, which are not considered relevant to the assessment of human health on the basis that there would be no long-term or consistent exposure to such noise impacts).

17.5.60. Target noise rating levels have been defined for fixed noise plant and substations that are equal to the typical background sound level at each receptor (or sensitivity test if relevant). However, at this stage, no assessment has been undertaken and instead it is proposed that this would form part of the discharge of requirements. As such, it is not possible to undertake an assessment in the context of human health at this stage.

17.5.61. There is also the potential for changes in noise exposure from operational traffic movements. As outlined in **Chapter 7: Noise and Vibration (Document DCO 6.7)**, operational traffic noise from the EMG2 Works will have no significant effect on any of the identified receptors.

17.5.62. Overall, the changes in the noise environment from the DCO Scheme would be below the level required for the onset of human health effects to occur (LOAEL) during the day and night time period at residential receptors. On this basis, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.5.63. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in transport, access and connections

17.5.64. As outlined in **Chapter 6: Traffic and Transportation (Document DCO 6.6)**, this section relates to the operational effects of the EMG2 Works (Stage 1B Core Scenario), and excludes the Highways Works which is covered in Section 17.7.

17.5.65. The following assessment themes in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6**) are considered relevant to the assessment of population and health and are considered further:

- severance;
- non-motorised user delay;
- non-motorised user amenity;
- fear and intimidation; and
- road user and pedestrian safety.

Severance

17.5.66. As outlined in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6**), severance occurs where there is a 30% increase in AADT flows or HGVs, which would occur at the following road links:

- Links 5, 23, 24, 25, 26 and 27 – A42/M1 on/off-slips at M1 Junction 23A (Finger Farm);
- Link 6 – Long Street, Belton;
- Links 11 – unnamed road, Diseworth;
- Link 20, 49 and 52 – A453 between Hunter Road and Finger Farm;
- Links 28, 42, 43, 44, 45, 50 and 53 – A453 between Finger Farm and M1 Junction 24; and
- Link 33 – Beverley Road, East Midlands Airport.

17.5.67. However, it is important to consider the local context before concluding as such. The results of this contextual assessment are provided in **Table 17.9**.

Table 17.9: Population and health impacts from severance

Road link	Assessment
Links 5, 23, 24, 25, 26 and 27 – A42/M1 on/off-slips at M1 Junction 23A (Finger Farm)	Dedicated vehicular routes connecting traffic with the strategic road network at the M1 and A42 meaning there is no pedestrian or cycle desire line, nor any demand for crossing movements.
Link 6 – Long Street, Belton	A residential road through the village, which provides footways on both sides bound by residential properties. During the morning peak hour there would be just over two additional movements per minute which retains regular opportunities for people to cross the road.
Links 11 – unnamed road, Diseworth	A rural road bound by undeveloped land at both sides with no footway or cycle facilities. On this basis, there is little demand for crossing or turning movements other than for vehicular access into the adjacent fields.

Road link	Assessment
Link 20, 49 and 52 – A453 between Hunter Road and Finger Farm	This section of the network currently has little demand for crossing movements because of the limited amount of development to the south but provides a footway/cycleway along the northern side of the road. The EMG2 Main Site will increase demand for crossing movements at this location for journeys to East Midlands Airport, EMG1 and Kegworth. Mitigation is considered in **Section 17.6.61**
Links 28, 42, 43, 44, 45, 50 and 53 – A453 between Finger Farm and M1 Junction 24	
Link 33 – Beverley Road, East Midlands Airport	The road is industrial in nature at approximately 7.3 metres wide and provides footways on both sides. There are also controlled crossings (zebra crossings) which prioritise pedestrians crossing the carriageway.

17.5.68. Overall, the majority of road links affected have limited pedestrian or cycle desire lines, limiting the demand for crossing. Where there is a desire line to cross, or new desire line created, sufficient infrastructure exists to facilitate this. As a result, the impacts on severance would be negligible from a population and health perspective.

Non-motorised user delay

17.5.69. As outlined in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6**), non-motorised user delay also occurs where there is a 30% increase in AADT flows or HGVs, and so affects the same road links referenced above. As previously stated, it is important to consider the local context before concluding as such. The results of this contextual assessment are provided in **Table 17.10**.

Table 17.10: Population and health impacts from non-motorised user delay

Road link	Assessment
Links 5, 23, 24, 25, 26 and 27 – A42/M1 on/off-slips at M1 Junction 23A (Finger Farm)	Form part of the strategic road network where there is no facilities or demand for pedestrians or cyclists who are forbidden to travel on these roads.
Link 6 – Long Street, Belton	The changes in traffic flows would result in just over two movements per minute. As there are no capacity issues on this part of the network, so there are not expected to be any significant delays to non-motorised users.
Links 11 – unnamed road, Diseworth	A rural lane that is bound by undeveloped fields at both sides, with no pedestrian or cycle facilities.
Link 20, 49 and 52 – A453 between Hunter Road and Finger Farm	Provides a footway/cycleway along the northern side of the road. The EMG2 Main Site will increase demand for crossing movements at this location for journeys to East Midlands Airport, EMG1 and Kegworth. Mitigation is considered in Section 17.6.61.
Links 28, 42, 43, 44, 45, 50 and 53 – A453	The links on the A453 up to M1 Junction 24 including EMG1 access and Finger Farm are expected to experience a less

Road link	Assessment
between Finger Farm and M1 Junction 24	than 30% increase in total AADT flows but a greater than 30% increase in HGVs. Receptors on this link are considered to have negligible sensitivity.
Link 33 – Beverley Road, East Midlands Airport	The road is industrial in nature at approximately 7.3 metres wide and provides footways on both sides. There are also controlled crossings (zebra crossings) which prioritise pedestrians crossing the carriageway.

17.5.70. In conclusion, some affected road links have limited pedestrian/cyclist infrastructure. The road links that do have pedestrian/cyclist infrastructure would limit the potential for there to be any impact on non-motorised user delay. As a result, the impacts on severance would be negligible from a population and health perspective.

Non-motorised user amenity

17.5.71. Non-motorised user amenity relates to the relative pleasantness of a journey, where impacts arise where traffic flows are halved (beneficial) or doubled (adverse). The following links are expected to experience a 50% increase in AADT flows or HGVs:

- Links 5, 23, 24, 25, 26 and 27 – A42/M1 on/off-slips at M1 Junction 23A (Finger Farm);
- Link 6 – Long Street, Belton;
- Link 20, 49 and 52 – A453 between Hunter Road and Finger Farm;
- Links 28, 42, 43, 44, 45, 50 and 43 – A453 between Finger Farm and M1 Junction 24; and
- Link 33 – Beverley Road, East Midlands Airport.

17.5.72. As previously stated, it is important to consider the local context before concluding as such. The results of this contextual assessment are provided in **Table 17.11**.

Table 17.11: Population and health impacts from non-motorised user amenity

Road link	Assessment
Links 5, 23, 24, 25, 26 and 27 – A42/M1 on/off-slips at M1 Junction 23A (Finger Farm)	Do not allow pedestrian or cycle movements and are designed solely to accommodate vehicular movements.
Link 6 – Long Street, Belton	The changes in traffic flows would result in just over two movements per minute. As the absolute change is low, there would be no substantial impact on non-motorised user amenity.
Link 20, 49 and 52 – A453 between Hunter Road and Finger Farm	Expected to experience a less than 30% increase in total AADT flows, but a high increase in HGVs of over 100% at certain locations. While receptors on this link are considered to have negligible sensitivity, mitigation is considered in **Section 17.6.61**.

Road link	Assessment
Links 28, 42, 43, 44, 45, 50 and 43 – A453 between Finger Farm and M1 Junction 24	
Link 33 – Beverley Road, East Midlands Airport	The changes in traffic flows would result in less than five movements per minute. With the existing footway infrastructure and zebra crossings and general activity taking place nearby from the industrial/commercial units and airport, the overall change to the pleasantness of the journey would be small.

17.5.73. In conclusion, some affected road links have limited pedestrian/cyclist infrastructure. The road links that do have pedestrian/cyclist infrastructure would limit the potential for there to be any impact on non-motorised user amenity. As a result, the impacts on severance would be negligible from a population and health perspective.

Fear and intimidation

17.5.74. Fear and intimidation are often experienced by pedestrians and driven by volume of traffic, HGV composition, vehicle speeds and physical characteristics such as narrow pavements and obstructions. The following links are assessed:

- Links 1 and 34 along London Road in Kegworth;
- Link 3 along Hemington Road to the east of Hemington village;
- Link 4 along Baroon/Hemington Lane connects the villages of Castle Donington and Hemington;
- Links 5 to 27 comprise the on/off-slips at Finger Farm roundabout (M1 Junction 23A);
- Link 6 at Long Street in Belton;
- Link 9 comprises Grimes Gate, which extends south from the A453 into Diseworth;
- Links 10 and 11 form The Green and the unnamed road that extend around the western edge of Diseworth and out to the south towards the A42;
- Link 19 along Main Street;
- A453 corridor from Hunter Road to M1 Junction 24 and the on/off-slips at M1 Junction 23A; and
- Link 33 along Beverley Road in East Midlands Airport.

17.5.75. As previously stated, it is important to consider the local context before concluding as such. The results of this contextual assessment are provided in **Table 17.12**.

Table 17.12: Population and health impacts fear and intimidation

Road link	Assessment
Links 1 and 34	Would experience a 10% increase in traffic. The southern part of London Road is more rural providing a footway separated from the carriageway by a verge. Where the road enters the built-up area of Kegworth further north, footways are provided on both sides and directly abut the carriageway and are generally wider at 2 metres at most places. London Road is subject to a 30mph speed limit and the nature of the environment in the vicinity of the road, with direct frontage housing, bus stops and pedestrian activity to the nearby commercial uses helps to control speeds.
Link 3	Would experience an 11.3% increase in traffic, with only one HGV movement. The majority of pedestrian activity takes place at the western end of the link because of the presence of residential properties at the northern side of the road and a park at the southern side of the road. Hemington Primary School is also located nearby but not on the link itself. This section of Hemington Road is subject to a 30mph speed limit, with footways on both sides and is understood to experience on-street parking.
Link 4	Would experience a 16.4% increase in traffic (approximately one additional movement per minute in either direction). At either end, the link is urbanised with direct frontage housing, footways, and small commercial units present. These sections of the link are also subject to 30mph speed limit. The section of the link in between the villages is rural with no footway provision but remains at a 30mph speed limit. This section is expected to accommodate less pedestrian activity.
Links 5 to 27	Non-motorised users are not permitted to travel along these routes.
Link 6	Would experience a 102% increase in traffic. This part of the network provides footways at both sides of the carriageway and is subject to a 30mph speed limit. During peak hours there would be just over two additional movements every minute in either direction.
Link 9	Would experience a 13.7% increase in traffic, with HGVs remaining unchanged. The actual increase of 350 movements across an entire day would result in limited impacts in any single hour. The northern part of Grimes Gate is rural in nature, absent of footways and largely undeveloped at both sides. Pedestrian activity is therefore low as the main demand will be via Hyam's Lane, which is subject to significant improvements to its width and surface as part of the EMG2 Project proposals. The southern part of Grimes Gate where it extends into Diseworth becomes more urbanised, with properties along both sides of the road and footway infrastructure along the western side of the road. The speed limit in this section reduces to 30mph from the national speed limit.
Links 10 and 11	Would experience between a 18.3% and 30.9% increase in traffic. These roads are rural in nature with no footway provision and are largely undeveloped at both sides. The route

Road link	Assessment
	accommodates predominantly vehicular traffic with a very low number of pedestrian or cycle movements.
Link 19	Would experience a 12.2% increase in traffic. The road is largely rural in nature and undeveloped at both sides (except the section in Lockington which serves a small number of residential properties) subject to a 30mph speed limit. It forms part of a wider cycle route connecting settlements including Sawley, Shardlow, Castle Donington and Long Eaton and provides a shared footway/cycleway along one side.
A453 corridor from Hunter Road to M1 Junction 24 and the on/off-slips at M1 Junction 23A	Strategic and designed to accommodate large volumes of traffic and high HGV percentages. The A453 corridor provides footway/cycleway facilities that are segregated from the carriageways and connected with signal controlled crossings near the EMG1 access roundabout. The development would increase the composition of HGVs by over 200%, and so mitigation is considered in Section 17.7.
Link 33	Would experience a 191% increase in traffic. Provides footways on both sides connected with zebra crossings and subject to a 30mph speed limit.

17.5.76. Overall, while changes in traffic would vary across the road links assessed, for various reasons – such as low speed limits, crossing infrastructure, low absolute change in traffic movements, the resultant impact on fear and intimidation is not considered to be material on a case by case basis.

Road user and pedestrian safety

17.5.77. Based on analysis of Personal Injury Collision data, the following road links were assessed for impacts of the EMG2 Project on road user and pedestrian safety:

- Links 10 – The Green, Diseworth; and
- Links 28, 42, 43, 44, 45, 50 and 43 – A453 between Finger Farm and M1 Junction 24.

17.5.78. At Link 10, recent signage improvements on the A453 approaching the junction appear to have reduced the rate of PICs, which were primarily due to the junction sitting in a dip in the road restricting visibility. The 18.3% increase in traffic flows would comprise cars or light vehicles and is not anticipated to increase the risk of collision.

17.5.79. The EMG1 access and M1 northbound off-slip at Junction 24 have been identified as having safety problems; as a result, mitigation is considered within Section 17.7.

Conclusion

17.5.80. Overall, while changes in traffic would vary across the road links assessed, for various reasons – such as low speed limits, crossing infrastructure, low absolute change in traffic movements, the resultant impact on fear and intimidation is not considered to be material on a case by case basis and mitigation is considered within Section 17.6.61 where appropriate.

As a result, the magnitude of impact on population and human health would be at worst minor adverse. Considering the low sensitivity of the general population, the resultant significance of effect is minor (not significant).

17.5.81. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that changes in the traffic nature and flow rate do not differentially affect people with varying socio-economic circumstance and so this factor would not alter the sensitivity classification.

Health effects from changes in diet and nutrition

17.5.82. As outlined in the section above, in terms of severance, the majority of road links affected have limited pedestrian or cycle desire lines, limiting the demand for crossing. Where there is a desire line to cross, or new desire line created, sufficient infrastructure exists to facilitate this.

17.5.83. While there are potential impacts on severance at the A453 across the EMG2 Main Site frontage, mitigation is considered in Section 17.7. Even without this, the resultant magnitude of impact on population and human health from severance would be negligible on the basis that no population-level impact would occur. Therefore, the associated impacts on access to food banks and diet/nutrition would therefore also be negligible.

17.5.84. Those accessing food banks are inherently vulnerable, and are likely to experience higher than average levels of poverty/deprivation. Therefore in this instance, the receptor sensitivity classification is inherently high. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is minor (not significant).

Health effects from changes in community safety

17.5.85. During operation, the DCO Scheme will be managed from the existing management suite at EMG1, where there is a full-time security team that carry out regular patrols. The security officers also monitor CCTV from the camera located along the main estate roads.

17.5.86. Consistent with the security measures employed at EMG1, which have proven to be effective in deterring trespassing and anti-social behaviour, the extension of these measures to the DCO Scheme are considered to be protective of community safety.

17.5.87. On this basis, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.5.88. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that the mitigation measures employed for the would be equally effective to deter unauthorised access to the EMG2 Main Site.

Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)

17.5.89. As previously stated, existing landscape features and the visual amenity of the areas of land covered by the DCO Scheme and its context have been carefully considered throughout the

planning and design process and have been important factors in informing and shaping the resultant DCO Scheme. This embedded mitigation has included attention to the siting, layout and heights of the proposed buildings and consideration of the earthworks and ground modelling/mitigation mounding proposals.

17.5.90. The operational assessment of health effects from changes in the visual environment takes into consideration visual impacts both at the start of operation, and 15 years post completion, once new mitigation planting has matured.

17.5.91. At the start of operation, changes in the visual environment would impact the same/similar receptor groups as during the construction phase. The magnitude if these visual impacts are also likely to be the same/similar to those described in the construction phase assessment. However, the majority of visual impacts will reduce over time following the establishment and subsequent maturing/management of the proposed planting and habitats.

17.5.92. With regard to visual impacts from the EMG2 Works, the maturing and management of the existing and new perimeter planting will offer noticeable visual improvements through increased visual filtering and screening to the majority of the properties and receptors on the north eastern edge of Diseworth, from other relatively more distant properties and locations to the west and south of the site, users of Hyams Lane (PROW) and The Cross Britain Way.

17.5.93. For some other more distant and elevated receptors particularly to the south, west and east, the new planting will assist to varying degrees in filtering and assimilating the proposed buildings in the landscape and reducing views towards the more active and lower lying parts of the development, but to a lesser extent.

17.5.94. Overall, once matured, the mitigation planting would reduce the visual impacts at the majority of receptors and the operational impacts described above have the potential to affect the quality of life for a relatively small number of residents in Diseworth and other individual properties in the surrounding area. Furthermore, there is no potential for physical health impacts associated with changes in the visual environment (including deterrence of use of PROW for physical activity and recreation due to changes in the visual environment, whereby reasonable and accessible alternative PROW exist locally and can be used instead). As such, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.5.95. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that changes in the visual environment does not disproportionally affect people with varying socio-economic circumstance and so this factor would not alter the sensitivity classification.

Health effects from access to open space and PROW for physical activity, leisure/play and recreation

17.5.96. The DCO Scheme includes provision of an informal publicly accessible community park (approx. 14 ha) which connects to the eastern extent of Diseworth. On the basis that the existing site does not comprise any publicly accessible open space, this provision represents

a net addition to existing circumstance, providing opportunities for physical activity, leisure/play and recreation.

17.5.97. In addition to the integration of PROW L45/L46 into the upgraded Hyam's Lane, which will be resurfaced to enhance cycle access (as described in the construction phase assessment), the following additional improvement works are proposed to extend public access routes and improved pedestrian and cycle connectivity to the surrounding areas during operation, particularly to and from Diseworth, to the Airport and existing EMG1 site:

- Active Travel Link (EMG2 Works No. 14), providing a dedicated cycle track alongside the A453 between the existing EMG1 site and the EMG2 Works;
- A new footpath from the western end of Hyam's Lane and PROW L45/L46 northwards through the proposed community park connecting to the A453 Ashby Road by the Airport entrance junction via the western edge of the EMG2 Works. This will link to the proposed A453/EMA junction uncontrolled crossing (DCO Works No. 15). Currently there is no off road pedestrian access for this route;
- A new footpath from the western end of Hyam's Lane and PROW L45/46 southwards through the proposed community park connecting to Long Holden and PROW L48 via the western edge of the EMG2 Works. Connecting these two PROWs will create a valuable new publicly accessible route all the way from PROW L48 to the airport;
- A new footpath from the eastern end of Hyam's Lane, and PROW L45 southwards connecting to Long Holden via the eastern edge of the EMG2 Works, creating a further valuable new publicly accessible route and a circular walk around the southern part of the EMG2 Works; and
- Improvement works to PROW L57 to the west of EMG1 between Diseworth Lane and the edge of Castle Donington at Eastway to upgrade this route to cycle track standards.

17.5.98. As a result of these improvement works, operation of the DCO Scheme would result in long-term and permanent improvements in access to open space (the Community Park) and PROW for physical activity, leisure/play and recreation. Both quality and quantity of open space and PROW provision are taken into account; while the proposed Community Park is informal in nature, the provision would be larger than the existing publicly accessible open spaces in Diseworth and conveniently located in the eastern extent of the village which would balance out existing provision.

17.5.99. The resultant magnitude of impact on population and human health would be minor (beneficial). Considering the low sensitivity of the general population, the resultant significance of effect is minor (not significant).

17.5.100. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that access to open space and PROW in the context of the DCO Scheme remains the same for everyone and so this factor would not alter the sensitivity classification.

Health effects from changes in socio-economic factors (employment and income)

17.5.101. As stated in **Chapter 5: Socio-economics** (**Document DCO 6.5**), new employment opportunities are expected to result from the DCO Scheme, through the provision of 300,000 sqm GIA of warehousing floorspace and 200,000 sqm of mezzanine space within the EMG2 Works.

17.5.102. The reasonable worst case scenario is a mid-point estimate that takes into consideration floorspace provision, employment density and average vacancy rate. Based on the assumptions applied in **Chapter 5: Socio-economics** (**Document DCO 6.5**), the DCO Scheme would support approximately 3,700 FTE gross on-site employment opportunities.

17.5.103. Taking into account that 25% of occupiers at the DCO Scheme will be relocated from existing, functionally sub-optimal distribution premises and considering the multiplier employment effects of employment in the 'Transport and Storage' sector, a further 2,020 FTE net additional employment opportunities would be generated off-site.

17.5.104. Overall, the total number of FTE employment opportunities equates to 5,720. While these would be long-term and permanent in nature, many of these are off-site and therefore any health and wellbeing benefits would be considerably diffuse across the study area population (comprising the population of Derby, Derbyshire, Nottingham, Nottinghamshire, Leicester and Leicestershire). As a result, the magnitude of impact on population and human health would be minor (beneficial). Considering the low sensitivity of the general population, the resultant significance of effect is minor (not significant).

17.5.105. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation, which would enhance the benefits in this instance. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is moderate (significant) for this subset of the population.

Mitigation Measures

17.5.106. Public health is by definition preventative in nature. Therefore, mitigation measures adopted as part of the construction and operation of the DCO Scheme will focus on precursors to health and wellbeing outcomes, thereby providing an opportunity for intervention to prevent any adverse impacts.

17.5.107. The inherent mitigation measures relevant to the assessment of population and human health are described in the potential impacts section above. On the basis that no significant adverse population and human health effects are reported, no additional health-specific mitigation measures are proposed.

Residual Effects

17.5.108. On the basis that no additional health-specific mitigation measures are proposed, the residual population and human health effects remain the same as reported in the potential impacts section above.

17.6. Assessment of MCO Application

Baseline Conditions

Current Baseline

17.6.1. The current baseline for the MCO Scheme is as described for the DCO Scheme in Section 17.5 above, whereby the majority of indicators are either comparable to or better than the regional and national averages. As such, it can be concluded that the population living in the study area is not considerably more or less sensitive to changes in environmental and/or socio-economic conditions.

Future Baseline Conditions

17.6.2. The future baseline for the MCO Scheme follows the same logic as that described for the DCO Scheme, whereby the health of the population living within the study area is likely to improve over the lifetime of the MCO Scheme and therefore it is considered appropriate and precautionary to use present-day statistics for the purpose of this assessment.

Potential Impacts

Embedded Mitigation

17.6.3. For the purposes of this assessment, public health is by definition preventative in nature. Therefore, mitigation measures adopted as part of the construction and operation of the MCO Scheme will focus on precursors to health and wellbeing outcomes, thereby providing an opportunity for intervention to prevent any adverse impacts. The mitigation measures are set out within this assessment below.

Construction phase

Health effects from changes in air quality

17.6.4. As outlined in **Chapter 8: Air Quality (Document MCO 6.8)**, there is potential for dust emissions from earthworks, on-site construction activities and trackout. However, as stated in **Chapter 8: Air Quality**, with the implementation of appropriate mitigation measures, the residual effect from dust at nearby receptors is expected not to be significant.

17.6.5. There is also the potential for changes in local air quality from construction related traffic movements. These have been assessed for the EMG2 Project as a whole.

17.6.6. On the basis that only small changes in the air quality environment are predicted and would be temporary in nature, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.6.7. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is

acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in noise and vibration

17.6.8. As previously stated, there is potential for changes in noise exposure at residential receptors from construction activities and traffic movements during the day and night time periods, which has the potential to cause annoyance and sleep disturbance if in exceedance of specific thresholds that are set to protect the environment and human health.

17.6.9. Changes in noise exposure at hotels have been excluded from the population and health assessment on the basis that users of these resources would only be exposed to changes in noise for a short period of time.

17.6.10. As previously stated, **Chapter 7: Noise and Vibration** (**Document MCO 6.7**) assesses noise impacts during the construction phase in the context of LOAEL, 50dB during the daytime period and 40 dB during the night time period, and SOAEL thresholds, 63 dB during the day time period and 55 dB during the night time period.

17.6.11. As outlined in **Chapter 7: Noise and Vibration** (**Document MCO 6.7**), changes in the noise environment from the MCO Scheme would not exceed the LOAEL or SOAEL at any nearby receptor.

17.6.12. There is also the potential for changes in noise exposure from construction related traffic movements. As outlined in **Chapter 7: Noise and Vibration** (**Document MCO 6.7**), initial calculations indicate that changes in noise exposure from construction road traffic would be up to 1.6 dB in a few areas. Noting the temporary nature of the construction road traffic, no significant effects are indicated.

17.6.13. On this basis, and considering the temporary nature of construction phase noise impacts, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.6.14. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in transport, access and connections

17.6.15. As outlined in **Chapter 6: Traffic and Transportation (Document MCO 6.6)**, traffic impacts during the construction phase would be lower than during operation. As a result, consistent with the approach in **Chapter 6: Traffic and Transportation**, the worst-case population and health assessment in relation to changes in transport, access and connections relates to the operational phase, which for the MCO Scheme is discussed at paragraph 17.6.40 below.

Health effects from changes in diet and nutrition

17.6.16. As outlined in **Appendix 17A: Informal Scoping Exercise with LCC (Document MCO 6.17A**), the assessment of impacts on diet and nutrition relates the impacts from changes in severance on accessing food banks. However, as outlined above traffic impacts during the construction phase would be lower than during operation. Consistent with the approach in **Chapter 6: Traffic and Transportation** (**Document MCO 6.6**), the worst-case population and health assessment in relation to changes in transport, access and connections relates to the operational phase which for the MCO Scheme is discussed at paragraph 17.6.41 below.

Health effects from changes in community safety

17.6.17. The MCO Scheme will operate under the EMG1 DCO provisions and requirements which already include a CEMP and provisions for P-CEMPs. As a result, there would be no change to the impacts on community safety and on this basis, no additional assessment is required.

Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)

17.6.18. As previously stated, of relevance to health and wellbeing, **Chapter 10: Landscape and Visual** (**Document MCO 6.10**), have assessed the potential for visual effects on the following:

- settlements; and
- recreational routes.

17.6.19. Road users have been excluded on the basis that any impacts while travelling by car would not impact health and wellbeing. Visual impacts for users, workers and visitors to Pegasus Business Park and Hotel, Donington Park Services and East Midlands Airport have also been excluded on this basis.

17.6.20. Construction of the MCO Scheme has the potential to cause changes in the visual environment for the following receptors:

- residents at Kegworth (a relatively limited number of properties on the western/north western edge, including some on Windmill Way, Pritchard Drive and Ashby Road);
- a small number of individual properties at Long Lane (north of Kegworth) and limited properties and positions at Ratcliffe on Soar and Kingston on Soar;
- a stretch of PROW (footpath) alongside and immediately to the west of Plot 16; and
- users of the Midshires Way (at Long Lane) and another PROW (running parallel to this but west of Long Lane).

17.6.21. The extent of visual impacts summarised above will vary, with some experiencing greater visual impact over a longer period of the construction process and others more limited impacts. Additionally, visual impacts from receptor locations will vary throughout the course of construction depending on the phasing and working arrangement of activities.

17.6.22. The relatively limited number of properties visually impacted by the MCO Scheme within Kegworth and other limited properties in Ratcliffe on Soar and Kingston on Soar, suggest that while such effects may be significant, only a small number of people would be affected in the context of the total nearby population.

17.6.23. Similarly, while significant visual effects may be experienced from PROW, people use these resources in a transient way and therefore would only be subjected to such views temporarily.

17.6.24. Overall, the construction visual impacts described above have the potential to affect the quality of life for a relatively small number of residents with no potential for physical health impacts associated with changes in the visual environment (including deterrence of use of PROW for physical activity and recreation due to changes in the visual environment, whereby reasonable and accessible alternative PROW exist locally and can be used instead). As such, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.6.25. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that changes in the visual environment does not disproportionally affect people with varying socio-economic circumstance and so this factor would not alter the sensitivity classification.

Health effects from access to open space and PROW for physical activity, leisure/play and recreation

17.6.26. The MCO Scheme would be contained within the original EMG1 site and would not impact any existing publicly accessible open space (or PROW). As a result, there would be no change to the impacts on access to open space and PROW for physical activity, leisure/play and recreation and on this basis, no additional assessment is required.

Health effects from changes in socio-economic factors (employment and income)

17.6.27. Having consistent income and being in long-term employment are two of the most important wider determinants of health.

17.6.28. **Chapter 5: Socio-economics** (**Document MCO 6.5**) estimates that construction of the MCO Scheme would result in an average of:

- 130 FTE on-site construction jobs per annum; and
- a further 65 FTE net additional off-site indirect and induced employment opportunities per annum once displacement has been taken into account.

17.6.29. Construction of the MCO Scheme is anticipated to take 1 year. As such, the employment direct, indirect and induced opportunities provided can be considered short term and temporary in nature.

17.6.30. On the basis that these employment opportunities would be temporary and short term in nature, it is considered that the health and wellbeing benefits would only have an impact at the individual level rather than at the population level. As such, the magnitude of impact would be minor. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.6.31. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation, which would enhance the benefits in this instance. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is minor (not significant) for this subset of the population.

Operation phase

Health effects from changes in air quality

17.6.32. Potential changes in air quality during the operation phase relate to changes in traffic movements only and have been assessed for the EMG2 Project as a whole in Section 17.7.

Health effects from changes in noise and vibration

17.6.33. Once operational, there is potential for changes in noise exposure from operational activity, fixed plant and changes in traffic flows during the day and night time periods, which has the potential to cause annoyance and sleep disturbance if in exceedance of specific thresholds that are set to protect the environment and human health.

17.6.34. As previously stated, changes in noise exposure at hotels have been excluded from the population and health assessment on the basis that users of these resources would only be exposed to changes in noise for a short period of time.

17.6.35. For the MCO Scheme, significant noise effects occur where the rating level exceeds the background sound level by 5 dB. This would not occur at any receptor analysed from operational activities taking place during the day and night time periods. A LOAEL of 60dB L_{AFmax} and SOAEL of 70 dB L_{AFmax} has also been applied for the night time period, which is also not exceeded at any residential receptor analysed (only at hotel receptors, which are not relevant to the human health assessment as referenced above). When considering operational noise from the MCO Scheme in the context of current operations at the EMG1 site, the worst case increase is below 1 dB during both the day and night periods.

17.6.36. Target noise rating levels have been defined for fixed noise plant and substations that are equal to the typical background sound level at each receptor (or sensitivity test if relevant). However, at this stage no assessment has been undertaken and instead it is proposed that this would form part of the discharge of requirements. As such, it is not possible to undertake an assessment in the context of human health at this stage.

17.6.37. There is also the potential for changes in noise exposure from operational traffic movements. As stated in **Chapter 7: Noise and Vibration (Document MCO 6.7)**, operational road traffic

noise predictions for the MCO Scheme are the same as predicted for the EMG2 Works as the traffic data is not disaggregated into separate contributions. Therefore, the impacts are described in Section 17.5.

17.6.38. Overall, the changes in the noise environment from the MCO Scheme would be below the level required for the onset of human health effects to occur (LOAEL) during the day and night time period at residential receptors. On this basis, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.6.39. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in transport, access and connections

17.6.40. As outlined in **Chapter 6: Traffic and Transportation (Document MCO 6.6)**, operational traffic from the MCO Scheme (effectively Plot 16) alone would be negligible, at circa 53 two-way trips in the morning peak hour and 67 two-way trips in the evening peak hour. This equates to between 5.7% and 6.3% of the total EMG2 Project traffic and on its own would not result in any adverse or substantial environmental impacts and would not trigger the need for an EIA from a traffic and transport perspective. As a result, the population and health effects have not been assessed as they would not be significant.

Health effects from changes in diet and nutrition

17.6.41. As outlined in **Appendix 17A: Information Scoping Exercise with LCC (Document MCO 6.17A)**, the assessment of impacts on diet and nutrition relates the impacts from changes in severance on accessing food banks. However, as outlined above changes in traffic during the operation phase of the MCO Scheme on its own would not result in any adverse or substantial environmental impacts and would not trigger the need for an EIA from a traffic and transport perspective. As a result, the population and health effects have not been assessed as they would not be significant.

Health effects from changes in community safety

17.6.42. During operation, the MCO Scheme will be managed from the existing management suite at EMG1, where there is a full-time security team that carry out regular patrols. The security officers also monitor CCTV from the camera located along the main estate roads.

17.6.43. Consistent with the security measures already employed at EMG1, which have proven to be effective in deterring trespassing and anti-social behaviour, the extension of these measures to the EMG1 Works are considered to be protective of community safety.

17.6.44. On this basis, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.6.45. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that the mitigation measures employed for the would be equally effective to deter unauthorised access to the MCO Scheme.

Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)

17.6.46. As previously stated, existing landscape features and the visual amenity of the areas of land covered by the MCO Scheme and its context have been carefully considered throughout the planning and design process and have been important factors in informing and shaping the resultant MCO Scheme. This embedded mitigation has included attention to the siting, layout and heights of the proposed buildings and consideration of the earthworks and ground modelling/mitigation mounding proposals.

17.6.47. The operational assessment of health effects from changes in the visual environment takes into consideration visual impacts both at the start of operation, and 15 years post completion, once new mitigation planting has matured (additional mitigation).

17.6.48. At the start of operation, changes in the visual environment would impact the same/similar receptor groups as during the construction phase. The magnitude if these visual impacts are also likely to be the same/similar to those described in the construction phase assessment. However, the majority of visual impacts will reduce over time following the establishment and subsequent maturing/management of the proposed planting and habitats.

17.6.49. Visual impacts associated with the MCO Scheme would reduce following the maturing of planting principally associated with the mitigation undertaken as part of the original EMG1 development. After 15 years, the resultant visual effects are described as predominantly minor adverse and are strongly informed by the nature of the existing views, which already encompass large scale urbanising features and activities, including buildings, infrastructure and major roads and junctions. The most notable residual visual effect (minor/moderate adverse) will be experienced by users of the stretch of PROW alongside Plot 16 and for some residents on the western edge of Kegworth. As previously stated, people use PROW in a transient way and therefore would only be subjected to such views temporarily.

17.6.50. Overall, once matured, the mitigation planting would reduce the visual impacts at the majority of receptors and the operational impacts described above have the potential to affect the quality of life for a relatively small number of residents in Kegworth and other individual properties in the surrounding area. Furthermore, there is no potential for physical health impacts associated with changes in the visual environment (including deterrence of use of PROW for physical activity and recreation due to changes in the visual environment, whereby reasonable and accessible alternative PROW exist locally and can be used instead). As such, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.6.51. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that changes in the visual environment does not disproportionally affect people with varying socio-economic circumstance and so this factor would not alter the sensitivity classification.

Health effects from access to open space and PROW for physical activity, leisure/play and recreation

17.6.52. The MCO Scheme would be contained within the original EMG1 site and would not impact any existing publicly accessible open space (or PROW). As a result, there would be no change to the impacts on access to open space and PROW for physical activity, leisure/play and recreation and on this basis, no additional assessment is required.

Health effects from changes in socio-economic factors (employment and income)

17.6.53. As stated in **Chapter 5: Socio-economics** (**Document MCO 6.5**), new employment opportunities are expected to result from the MCO Scheme in relation to Plot 16, through the provision of 26,500 sqm GIA of additional warehousing floorspace and 3,500 sqm of mezzanine space.

17.6.54. The reasonable worst case scenario is a mid-point estimate that takes into consideration floorspace provision, employment density and average vacancy rate. Based on the assumptions applied in **Chapter 5: Socio-economics** (**Document MCO 6.5**), the MCO Scheme would support approximately 300 FTE gross on-site employment opportunities.

17.6.55. Taking into account that 25% of occupiers at the MCO Scheme will be relocated from existing, functionally sub-optimal distribution premises, a further 165 FTE net additional employment opportunities would be generated off-site.

17.6.56. The total number of FTE employment opportunities equates to 465. While these would be long-term and permanent in nature, many of these are off-site and therefore any health and wellbeing benefits would be considerably diffuse across the study area population (comprising the population of Derby, Derbyshire, Nottingham, Nottinghamshire, Leicester and Leicestershire).

17.6.57. As a result, the magnitude of impact on population and human health would be minor (beneficial). Considering the low sensitivity of the general population, the resultant significance of effect is minor (not significant).

17.6.58. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation, which would enhance the benefits in this instance. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is moderate (significant) for this subset of the population.

Mitigation Measures

17.6.59. Public health is by definition preventative in nature. Therefore, mitigation measures adopted as part of the construction and operation of the MCO Scheme will focus on precursors to health and wellbeing outcomes, thereby providing an opportunity for intervention to prevent any adverse impacts.

17.6.60. The inherent mitigation measures relevant to the assessment of population and human health are described in the “potential impacts” section above. On the basis that no significant adverse population and human health effects are reported, no additional health-specific mitigation measures are proposed.

Residual Effects

17.6.61. On the basis that no additional health-specific mitigation measures are proposed, the residual population and human health effects remain the same as reported in the potential impacts section above.

17.7. Assessment of EMG2 Project

Baseline Conditions

Current Baseline

17.7.1. The current baseline for the EMG2 Project which is common to the DCO Scheme and the MCO Scheme is as described in Section 17.5 above, whereby the majority of indicators are either comparable to or better than the regional and national averages. As such, it can be concluded that the population living in the study area is not considerably more or less sensitive to changes in environmental and/or socio-economic conditions.

Future Baseline Conditions

17.7.2. The future baseline for the EMG2 Project follows the same logic as that described for both the DCO Scheme and MCO Scheme, whereby the health of the population living within the study area is likely to improve over the lifetime of the DCO Scheme and MCO Scheme and therefore it is considered appropriate and precautionary to use present-day statistics for the purpose of this assessment.

Potential Impacts

Construction phase

Health effects from changes in air quality

17.7.3. As outlined above, there is potential for dust emissions from earthworks, on-site construction activities and trackout across all work packages. However, as stated in **Chapter 8: Air Quality** (**Document DCO 6.8/MCO 6.8**), following the implementation of appropriate mitigation measures, the residual effect from dust is expected not to be significant.

17.7.4. There is also the potential for changes in local air quality from construction related traffic movements, primarily from the DCO Scheme which is larger in nature than the MCO Scheme. Air quality modelling results are provided in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, whereby two scenarios have been assessed for the construction phase:

- 2028 Scenario 1a vs 1a; and
- 2028 Scenario 1b vs 1b.

17.7.5. For both the 2028 Scenario 1a vs 1a, and 2028 Scenario 1b vs 1b, the worst case change in traffic pollutants at residential receptors are summarised as follows:

- NO2: 0.7 µg/m^3;
- PM10: 0.4 µg/m^3; and
- PM2.5: 0.2 µg/m^3.

17.7.6. These temporary changes would not result in the exceedance of the relevant objective thresholds set to be protective of the environment and human health at any residential receptor assessed. Furthermore, these changes are lower than the permanent operational phases changes; on this basis, no quantitative exposure response assessment has been undertaken for the construction phase as the operational phase impacts are representative of the worst case scenario.

17.7.7. On the basis that only small changes in the air quality environment are predicted and would be temporary in nature, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.7.8. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in noise and vibration

17.7.9. There is potential for changes in noise exposure at residential receptors from construction activities and traffic movements during the day and night time periods, which has the potential to cause annoyance and sleep disturbance if in exceedance of specific thresholds that are set to protect the environment and human health.

17.7.10. Changes in noise exposure at hotels have been excluded from the population and health assessment on the basis that users of these resources would only be exposed to changes in noise for a short period of time.

17.7.11. As previously stated, **Chapter 7: Noise and Vibration** (**Document DCO 6.7/MCO 6.7**) assesses noise impacts during the construction phase in the context of LOAEL, 50dB during the daytime period and 40 dB during the night time period, and SOAEL thresholds, 63 dB during the day time period and 55 dB during the night time period.

17.7.12. The noise impacts of the EMG2 Project as a whole have been considered by comparing a selection of groups of activities taking place at the same time to represent the worst-case scenario in terms of construction noise. The results show that there would be potential exceedances of the LOAEL at the same four residential receptors affected by the DCO Scheme, which would be short-term and temporary in nature, and would not persist for long enough for there to be any material impact on health and wellbeing. As such, no additional adverse impacts are predicted.

17.7.13. There is also the potential for changes in local air quality from construction related traffic movements, primarily from the DCO Scheme which is larger in nature than the MCO Scheme. While this is the case, operation phase traffic movements are the focus of this assessment.

17.7.14. On this basis, and considering the temporary nature of construction phase noise impacts, the magnitude of impact on population and human health would be negligible. Considering

the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.7.15. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in transport, access and connections

17.7.16. As outlined in **Chapter 6: Traffic and Transportation (Document DCO 6.6/MCO 6.6)**, traffic impacts during the construction phase would be lower than during operation. As a result, consistent with the approach in **Chapter 6: Traffic and Transportation**, the worst-case population and health assessment in relation to changes in transport, access and connections relates to the operational phase of the EMG2 Project which is considered in paragraph 17.7.47 to 17.7.62 below.

Health effects from changes in diet and nutrition

17.7.17. As outlined in **Appendix 17A: Informal Scoping Exercise with LCC (Document DCO 6.17A/MCO 6.17A)**, the assessment of impacts on diet and nutrition relates the impacts from changes in severance on accessing food banks. However, as outlined above and consistent with the approach in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6/MCO 6.6**), the worst-case population and health assessment in relation to changes in transport, access and connections relates to the operational phase of the EMG2 Project which is considered in paragraph 17.7.63 to 17.7.65 below.

Health effects from changes in community safety

17.7.18. On the basis that no additional assessment is required in relation to the MCO Scheme (as community safety measure remain the same as what is currently being implemented), the assessment of community safety in the context of the EMG2 Project remains the same as for the DCO Scheme considered in **Section 17.5** above.

Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)

17.7.19. As outlined in **Chapter 10: Landscape and Visual (Document DCO 6.10/MCO 6.10)**, the construction visual effects of the EMG2 Project will reflect the combined effects of the DCO Scheme and MCO Scheme, however will principally be from the EMG2 Works.

17.7.20. It is noted that there are limited situations where the EMG2 Works will be seen in combination with the MCO Scheme. As a result, the assessment for the DCO Scheme is representative of the impact from the EMG2 Project as a whole.

17.7.21. On this basis, the construction visual impacts for the EMG2 Project have the potential to affect the quality of life for a relatively small number of residents in Diseworth, Kegworth and

other individual properties in the surrounding area. Furthermore, there is no potential for physical health impacts associated with changes in the visual environment (including deterrence of use of PROW for physical activity and recreation due to changes in the visual environment, whereby reasonable and accessible alternative PROW exist locally and can be used instead). As such, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.7.22. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that changes in the visual environment does not disproportionally affect people with varying socio-economic circumstance and so this factor would not alter the sensitivity classification.

Health effects from access to open space and PROW for physical activity, leisure/play and recreation

17.7.23. On the basis that no additional assessment is required in relation to the MCO Scheme (as the MCO Scheme would be contained within the original EMG1 site and would not impact any existing publicly accessible open space or PROW), the assessment of health effects from access to open space and PROW for physical activity, leisure/play and recreation in the context of the EMG2 Project remains the same as for the DCO Scheme.

Health effects from changes in socio-economic factors (employment and income)

17.7.24. Having consistent income and being in long-term employment are two of the most important wider determinants of health. As stated in **Chapter 5: Socio-economics** (**Document DCO 6.5/MCO 6.5**), the construction phase of the EMG2 Project would require a range of occupational levels including unskilled or labouring jobs to more senior positions, as well as across a range of professional disciplines.

17.7.25. The assessment provided in **Chapter 5: Socio-economics** (**Document DCO 6.5/MCO 6.5**) estimates that construction of the EMG2 Project would result in an average of:

- 420 full-time equivalent (FTE) net additional on-site direct employment opportunities per annum; and
- a further 210 FTE net additional off-site indirect and induced employment opportunities per annum once displacement has been taken into account.

17.7.26. Construction employment would peak in 2028, with:

- 545 FTE net additional on-site direct employment opportunities; and
- an additional 405 FTE net additional off-site indirect and induced employment opportunities, once displacement has been taken into account.

17.7.27. Construction of the EMG2 Project is anticipated to take 4.25 years. As such, the employment direct, indirect and induced opportunities provided can be considered medium term and temporary in nature.

17.7.28. On the basis that these employment opportunities would be temporary and medium term in nature, it is considered that the health and wellbeing benefits would only have an impact at the individual level rather than at the population level. As such, the magnitude of impact would be minor. Considering the low sensitivity of the general population, the resultant significance of effect is minor beneficial (not significant).

17.7.29. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation, which would enhance the benefits in this instance. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is moderate (significant) for this subset of the population.

Operation phase

Health effects from changes in air quality

17.7.30. Air quality modelling results are provided in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, whereby two scenarios have been assessed for the operation phase:

- 2028 Scenario 1a vs 2a; and
- 2028 Scenario 1b vs 2b.

17.7.31. For 2028 Scenario 1a vs 2a, the average and worst case change in traffic pollutants at residential receptors are summarised as follows:

- NO2: average change of 0.3 µg/m^3 and maximum change of 2.3 µg/m^3;
- PM10: average change of 0.1 µg/m^3 and maximum change of 1.7 µg/m^3; and
- PM2.5: average change of 0.1 µg/m^3 and maximum change of 0.9 µg/m^3.

17.7.32. For 2028 Scenario 1b vs 2b, the average and worst case change in traffic pollutants at residential receptors are summarised as follows:

- NO2: average change of 0.4 µg/m^3 and maximum change of 2.6 µg/m^3;
- PM10: average change of 0.2 µg/m^3 and maximum change of 1.9 µg/m^3; and
- PM2.5: average change of 0.1 µg/m^3 and maximum change of 1.0 µg/m^3.

17.7.33. While there are no exceedances of the relevant objective thresholds set to be protective of the environment and human health at any residential receptor assessed, as a precautionary measure, a quantitative exposure response assessment (for Scenario 1a and 1b[3]) has been undertaken to better understand the distribution of changes in air quality and potential effects on health outcomes across the population. The following health outcomes were assessed:

[3] The difference between Scenario 1a and 1b modelling is the inclusion (1a) or exclusion (1b) of the Ratcliffe Power Station site redevelopment proposals over and above that currently able to proceed without further approval, and the draft Local Plan allocation sites.

- annual natural cause mortality (aged 30+);
- annual respiratory disease emergency hospital admissions (all ages); and
- annual cardiovascular (coronary heart disease (CHD)) emergency hospital admissions (all ages).

17.7.34. The quantitative relationship between additional incidence or risk of a health outcome and long-term exposure to a pollutant is described by a concentration response function (CRF).

17.7.35. To quantify the health impact associated with changes in exposure to air quality, CRFs (for the health outcomes defined in the bullets above) are applied with the change in air quality across representative residential receptor locations, population estimates (for the affected area, which comprises between 62,583 people across 35 LSOAs (Scenario B) and 99,367 people across 58 LSOAs (Scenario A)), and locally-specific baseline health data for the assessed health outcomes in the study area. The average change across each LSOA has been applied to the whole population in that LSOA to allow for a robust assessment.

17.7.36. It should be noted that the effect on health outcomes is observed across the population studied as a whole, and the final impact (be it mortality or morbidity) is one shared across a population of between 62,583 and 99,367 people. In this context, care should always be taken when considering the calculated mortality and morbidity impact, as they are not individual impacts, but an aggregation of an impact shared across an entire population.

17.7.37. **Table 17.13** shows the potential health outcomes associated with the predicted change in air pollutant exposure for NO_2 and PM combined (which adds an additional level of conservatism to the assessment due to the overlap in health impacts associated with both these pollutants, and potential for double counting associated with this). The results indicate that the predicted changes in air quality will lead to an effect equivalent to less than one death or hospital admission brought forward across the population studied per annum (i.e. none).

Table 17.13: Impact on mortality and morbidity from changes in air pollution

Health outcome	Number of cases brought forward (Scenario A)	Number of cases brought forward (Scenario B)
Annual natural cause mortality (aged 30+)	0.77	0.79
Annual respiratory disease related emergency hospital admissions (all ages)	0.54	0.56
Annual cardiovascular disease related emergency hospital admissions (all ages)	0.02	0.02

17.7.38. On this basis, the effect on health is not considered to be measurable and there would be no material change in the baseline health for the population living in proximity of the EMG2 Project. As such, the magnitude of impact on population and human health would be

negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.7.39. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in noise and vibration

17.7.40. Once operational, there is potential for changes in noise exposure from operational activity, fixed plant and changes in traffic flows during the day and night time periods, which has the potential to cause annoyance and sleep disturbance if in exceedance of specific thresholds that are set to protect the environment and human health.

17.7.41. As previously stated, changes in noise exposure at hotels have been excluded from the population and health assessment on the basis that users of these resources would only be exposed to changes in noise for a short period of time.

17.7.42. The noise impacts from operational activities of the EMG2 Project as a whole have also been considered for the peak periods of operation during the day and night time periods. The results show that in no instances does the rating level exceeds the background sound level by 10 dB, and none of the predicted individual noise event levels exceed the LOAEL of 60dB L_{AFmax} or SOAEL of 70 dB L_{AFmax} at residential receptors (only at hotel receptors which are not relevant to the human health assessment as referenced above). As such, no additional adverse impacts are predicted.

17.7.43. As previously stated, target noise rating levels have been defined for fixed noise plant and substations that are equal to the typical background sound level at each receptor (or sensitivity test if relevant). However, at this stage no assessment has been undertaken and instead it is proposed that this would form part of the discharge of requirements. As such, it is not possible to undertake an assessment in the context of human health at this stage.

17.7.44. There is also the potential for changes in noise exposure from operational traffic movements. As stated in **Chapter 7: Noise and Vibration (Document DCO 6.7/MCO 6.7)**, operational road traffic noise predictions for the EMG1 Works are the same as predicted for the EMG2 Works as the traffic data is not disaggregated into separate contributions. Therefore, the impacts are described in Section 17.5.

17.7.45. Overall, the changes in the noise environment from the EMG2 Project would be below the level required for the onset of human health effects to occur (LOAEL) during the day and night time period at residential receptors. In relation to traffic specifically, the change in noise exposure at R11 Grimes Gate during the night time period would not result in any population-level human health impacts. On this basis, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.7.46. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is at worst minor (not significant).

Health effects from changes in transport, access and connections

17.7.47. As outlined in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6/MCO 6.6**), the proposed Highways Works would have a number of beneficial impacts, of which are taken into consideration in **Chapter 6: Traffic and Transportation** and as a consequence have been removed from further analysis within **Chapter 6: Traffic and Transportation** and the associated population and health assessment in this section. Furthermore, the proposed highway mitigation will result in traffic re-assigning along different routes because of capacity increases on the network; the assessment in this section is based on Stage 2B flows which are reflective of this.

17.7.48. As previously stated, the following assessment themes in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6/MCO 6.6**) are considered relevant to the assessment of population and health and are considered further:

- severance;
- non-motorised user delay;
- non-motorised user amenity;
- fear and intimidation; and
- road user and pedestrian safety.

Severance

17.7.49. As outlined in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6/MCO 6.6**), severance occurs where there is a 30% increase in AADT flows or HGVs, which would occur at the following road links:

- Link 16 – East Midlands Airport signal access road;
- Links 18 & 19 – Hemington Lane and Maon Street, Lockington;
- Link 21 & 48 – Kingston Lane and Kegworth Road, near Kingston on Soar;
- Link 46 – Gotham Road east of Kingston on Soar;
- Links 68, 100 & 126 – Ryecroft Road, Hemington;
- Link 124 – Kegworth Road up to Station Road, Kingston on Soar; and
- Link 158 – Nottingham Road, Kegworth.

17.7.50. However, it is important to consider the local context before concluding as such. The results of this contextual assessment are provided in **Table 17.14**.

Table 17.14: Population and health impacts from severance

Road link	Assessment
Link 16 – East Midlands Airport signal access road	Provides a footway/cycleway along the eastern side of the road but provides no infrastructure on the western side of the road. There is also no development on the western side of the road meaning no demand for crossing movements.
Links 18 & 19 – Hemington Lane and Maon Street, Lockington	There would be a reduction in traffic along these links as a result of the proposed Highway Works, resulting in a beneficial impact on severance.
Link 21 & 48 – Kingston Lane and Kegworth Road, near Kingston on Soar	Rural roads with limited footway provision and undeveloped on both sides. There is little demand for pedestrians and cyclists along the road, with limited crossing movements.
Link 46 – Gotham Road east of Kingston on Soar	Extends out of Kingston on Soar to the east and becomes more rural in nature and undeveloped on both sides. The demand for pedestrian and cycle trips therefore reduces and a footway partially exists along the eastern side of the road only.
Links 68, 100 & 126 – Ryecroft Road, Hemington	The overall traffic numbers would reduce as a result of the proposed Highway Works, leading to a beneficial scale of impact.
Link 124 – Kegworth Road up to Station Road, Kingston on Soar	This road serves predominantly residential properties and small commercial businesses. It provides a footway along the northern side of the road only, and demand for crossing movements is low.
Link 158 – Nottingham Road, Kegworth	Bound by residential properties on its western side and Kegworth Tennis Club and the Village Hall on the eastern side. It also provides bus stops on both sides meaning there is a demand for crossing movements on Nottingham Road between the residential properties, leisure facilities and bus stops. Whilst there would be a 65.1% increase in traffic, peak hour flows would be up to 420 movements, equating to seven movements per minute on average in either direction, which would continue to provide regular gaps allowing people to cross.

17.7.51. Overall, the road links affected would either experience a reduction in traffic, have limited pedestrian or cycle desire lines, or would maintain ample opportunities for crossing. As a result, the impacts on severance would be negligible from a population and health perspective.

Non-motorised user delay

17.7.52. As outlined in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6/MCO 6.6**), non-motorised user delay also occurs where there is a 30% increase in AADT flows or HGVs, and so affects the same road links referenced above. As previously stated, it is important to consider the local context before concluding as such. The results of this contextual assessment are provided in **Table 17.15**.

Table 17.15: Population and health impacts from non-motorised user delay

Road link	Assessment
Link 16 – East Midlands Airport signal access road	Predominantly rural roads with limited development and infrastructure for non-motorised users meaning pedestrian and cycle activity is limited or non-existent. There is a negligible demand for crossing movements and for journeys by non-car modes. These links are also not expected to experience any significant vehicular capacity issues that could impact non-motorised user delay.
Links 18 & 19 – Hemington Lane and Maon Street, Lockington	
Link 21 & 48 – Kingston Lane and Kegworth Road, near Kingston on Soar	
Link 46 – Gotham Road east of Kingston on Soar	
Links 68, 100 & 126 – Ryecroft Road, Hemington	
Link 124 – Kegworth Road up to Station Road, Kingston on Soar	During peak hours, changes in traffic flows would equate to up to 152 movements, or just over two movements per minute in either direction. Therefore, whilst crossing demands are low, there would still be gaps for pedestrians to cross the road without significant delay.
Link 158 – Nottingham Road, Kegworth	There will be up to 420 peak hour movements along the link, equating to seven movements per minute on average in either direction, which would continue to provide gaps in traffic for people to cross.

17.7.53. Overall, the road links affected have limited/non-existent pedestrian and cycle activity, or would maintain ample opportunities for crossing. As a result, the impacts on non-motorised user delay would be negligible from a population and health perspective.

Non-motorised user amenity

17.7.54. Non-motorised user amenity relates to the relative pleasantness of a journey, where impacts arise where traffic flows are halved (beneficial) or doubled (adverse). The following links are expected to experience a 50% increase in AADT flows or HGVs:

- Link 21 – Kingston Lane between Kegworth and Kingston on Soar;
- Link 46 – Gotham Road east of Kingston on Soar;
- Link 48 – Kegworth Road, Kingston on Soar (north of Kingston Lane);
- Link 124 – Kegworth Road up to Station Road, Kingston on Soar; and
- Link 158 – Nottingham Road, Kegworth.

17.7.55. As previously stated, it is important to consider the local context before concluding as such. The results of this contextual assessment are provided in **Table 17.16**.

Table 17.16: Population and health impacts from non-motorised user amenity

Road link	Assessment
Link 21 – Kingston Lane between Kegworth and Kingston on Soar	Provide no, or limited facilities for non-motorised user journeys and are rural distributor roads designed to primarily accommodate vehicular traffic travelling between settlements.
Link 46 – Gotham Road east of Kingston on Soar	
Link 48 – Kegworth Road, Kingston on Soar (north of Kingston Lane)	
Link 124 – Kegworth Road up to Station Road, Kingston on Soar	During peak hours, changes in traffic flows would equate to up to 152 movements, or just over two movements per minute in either direction. The village is relatively isolated from other settlements and there is no significant demand for non-motorised user journeys other than between residential properties and the village hall and the church, which are considered to have low sensitivity.
Link 158 – Nottingham Road, Kegworth	There will be up to 420 peak hour movements along the link, equating to seven movements per minute on average in either direction, which would have a negligible impact on non-motorised user amenity.

17.7.56. In conclusion, the affected road links have no/limited facilities for non-motorised user journeys, have limited demand for non-motorised user journeys, or would experience increases in traffic flows that would not materially affect non-motorised user amenity. As a result, the impacts on non-motorised user amenity would be negligible from a population and health perspective.

Fear and intimidation

17.7.57. Fear and intimidation are often experienced by pedestrians and driven by volume of traffic, HGV composition, vehicle speeds and physical characteristics such as narrow pavements and obstructions. The following links are assessed:

- Link 16 – East Midlands Airport signal access road;
- Links 18 & 19 – Hemington Lane and Maon Street, Lockington;
- Link 21 & 48 – Kingston Lane and Kegworth Road, near Kingston on Soar;
- Link 46 – Gotham Road east of Kingston on Soar;
- Links 68, 100 & 126 – Ryecroft Road, Hemington;
- Link 95 – Loughborough Road, Thringstone;

- Link 124 – Kegworth Road up to Station Road, Kingston on Soar; and
- Link 158 – Nottingham Road, Kegworth.

17.7.58. As previously stated, it is important to consider the local context before concluding as such. The results of this contextual assessment are provided in **Table 17.17**.

Table 17.17: Population and health impacts fear and intimidation

Road link	Assessment
Link 16 – East Midlands Airport signal access road	Pedestrian movements on this link are limited. The majority of uses along this road are industrial or commercial. Footway infrastructure is provided on the eastern side of the road, which whilst narrow in places is separated from the carriageway by a verge.
Links 18 & 19 – Hemington Lane and Maon Street, Lockington	The sections within the village are subject to a 30mph speed limit and where the road extends out of the village the speed limit increases to 60mph (national speed limit). There are footways along one side of the road which are free from obstructions but pedestrian demand is relatively limited. Whilst there would be a 41.4% increase in traffic, this would be car based vehicles travelling at slow speed within the main built-up area as the roads do not accommodate any HGVs.
Link 21 & 48 – Kingston Lane and Kegworth Road, near Kingston on Soar	Rural roads subject to a 60mph speed limit (national speed limit). Link 21 has a footway on the western side of the road which narrows in places and is directly against the carriageway. However, pedestrian volumes on the footway are low. Link 48 is absent of footways for most of its length. The increase in traffic on both links would not comprise any HGVs.
Link 46 – Gotham Road east of Kingston on Soar	Provides a partial footway on the eastern side of the road adjacent to the carriageway although accommodates limited pedestrian movements. There is expected to be a 51% increase in AADT flows with zero HGVs.
Links 68, 100 & 126 – Ryecroft Road, Hemington	The majority of this link is subject to a 30mph speed limit, except from the northernmost part approaching A50 Junction 1 which changes to 60mph (national speed limit). The road is absent of footways so pedestrian demand is low. It also only accommodates cars and light vehicles.
Link 95 – Loughborough Road, Thringstone	Subject to a 30mph speed and provides traffic calming features and footways on both sides. There is expected to be a 27.7% increase in AADT flows and a small increase in HGVs of 3.4% (four additional HGVs per day). There is adequate existing infrastructure for accommodating pedestrians along the road.
Link 124 – Kegworth Road up to Station Road, Kingston on Soar	Provides a footway on one side of the road and is subject to a 30mph speed limit. There are limited pedestrian movements, and journeys are made primarily to the village hall and church. The additional traffic would all be car based or light vehicles travelling at slow speed.

Road link	Assessment
Link 158 – Nottingham Road, Kegworth	Provides a footway on both sides and experiences on-street parking. It is subject to a 30mph speed limit and accommodates cars and light vehicles only. The 65.8% increase in AADT flows would have a negligible impact on fear and intimidation.

17.7.59. Overall, the road links assessed have either low speed limits or limited pedestrian movements/demand. Furthermore, the change in transport movements are generally limited to cars and light vehicles. As a result, the impacts on fear and intimidation would be negligible from a population and health perspective.

Road user and pedestrian safety

17.7.60. As outlined in **Chapter 6: Traffic and Transportation** (**Document DCO 6.6/MCO 6.6**), there are no safety problems on any of the links assessed. There are however expected to be reductions in traffic on many parts of the network, which should therefore improve any existing safety problems. Furthermore, the added capacity benefits at Finger Farm diverts traffic away from The Green to the west of the EMG2 Main Site. As a result, the impacts on road user and pedestrian safety would be negligible from a population and health perspective.

Conclusion

17.7.61. Overall, while changes in traffic would vary across the road links assessed, for various reasons, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.7.62. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that changes in the traffic nature and flow rate do not differentially affect people with varying socio-economic circumstance and so this factor would not alter the sensitivity classification.

Health effects from changes in diet and nutrition

17.7.63. As outlined in **Appendix 17A: Informal Scoping Exercise with LCC (Document DCO 6.17A/MCO 6.17A)**, the assessment of changes in diet and nutrition relates to the impacts from changes in severance on accessing food banks.

17.7.64. As outlined in the section above, in terms of severance, the road links affected would either experience a reduction in traffic, have limited pedestrian or cycle desire lines, or would maintain ample opportunities for crossing. The resultant magnitude of impact on population and human health from severance would be negligible, whereby the associated impacts on access to food banks and diet/nutrition would therefore also be negligible.

17.7.65. Those accessing food banks are inherently vulnerable, and are likely to experience higher than average levels of poverty/deprivation. Therefore in this instance, the receptor sensitivity

classification is inherently high. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is minor (not significant).

Health effects from changes in community safety

17.7.66. During operation, the EMG2 Project will be managed from the existing management suite at EMG1, where there is a full-time security team that carry out regular patrols. The security officers also monitor CCTV from the camera located along the main estate roads.

17.7.67. Consistent with the security measures employed at EMG1, which have proven to be effective in deterring trespassing and anti-social behaviour, the extension of these measures to the EMG2 Project are considered to be protective of community safety.

17.7.68. On this basis, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.7.69. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that the mitigation measures employed for the would be equally effective to deter unauthorised access to the EMG2 Project.

Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)

17.7.70. As outlined in **Chapter 10: Landscape and Visual** (**Document DCO 6.10/MCO 6.10**), the operation visual effects of the EMG2 Project will reflect the combined effects of the DCO Scheme and MCO Scheme, however will principally be from the EMG2 Works.

17.7.71. It is noted that there are limited situations where the EMG2 Works will be seen in combination with the MCO Scheme. As a result, the assessment for the DCO Scheme is representative of the impact from the EMG2 Project as a whole.

17.7.72. On this basis, once matured, the mitigation planting would reduce the visual impacts at the majority of receptors and the operational impacts described above have the potential to affect the quality of life for a relatively small number of residents in Diseworth, Kegworth and other individual properties in the surrounding area. Furthermore, there is no potential for physical health impacts associated with changes in the visual environment (including deterrence of use of PROW for physical activity and recreation due to changes in the visual environment, whereby reasonable and accessible alternative PROW exist locally and can be used instead). As such, the magnitude of impact on population and human health would be negligible. Considering the low sensitivity of the general population, the resultant significance of effect is negligible (not significant).

17.7.73. It is not considered that the significance of effect would change for the vulnerable receptor groups in this instance. This is on the basis that changes in the visual environment does not disproportionally affect people with varying socio-economic circumstance and so this factor would not alter the sensitivity classification.

Health effects from access to open space and PROW for physical activity, leisure/play and recreation

17.7.74. On the basis that no additional assessment is required in relation to the MCO Scheme (as the MCO Scheme would be contained within the original EMG1 site and would not impact any existing publicly accessible open space or PROW), the assessment of health effects from access to open space and PROW for physical activity, leisure/play and recreation in the context of the EMG2 Project remains the same as for the DCO Scheme.

Health effects from changes in socio-economic factors (employment and income)

17.7.75. As stated in **Chapter 5: Socio-economics** (**Document DCO 6.5/MCO 6.5**), new employment opportunities are expected to result from the EMG2 Project, through the provision of 300,000 sqm GIA of warehousing floorspace and 200,000 sqm of mezzanine space within the EMG2 Works, and the provision of 26,500 sqm GIA of additional warehousing floorspace and 3,500 sqm of mezzanine space within the MCO Scheme.

17.7.76. Based on an average employment density of 95 sqm (considered worst-case, as it is the upper end of the employment density range applied), and taking into consideration the average vacancy rate at similar facilities in the region, the EMG2 Project would support approximately 4,000 FTE gross on-site employment opportunities.

17.7.77. Taking into account that 25% of occupiers at the DCO Scheme will be relocated from existing, functionally sub-optimal distribution premises, a further 2,185 FTE net additional employment opportunities would be generated off-site.

17.7.78. The total number of FTE employment opportunities equates to 6,185. While these would be long-term and permanent in nature, many of these are off-site and therefore any health and wellbeing benefits would be considerably diffuse across the study area population (comprising the population of Derby, Derbyshire, Nottingham, Nottinghamshire, Leicester and Leicestershire).

17.7.79. As a result, the magnitude of impact on population and human health would be minor (beneficial). Considering the low sensitivity of the general population, the resultant significance of effect is minor (not significant).

17.7.80. In addition, vulnerable receptor groups scoped in are considered as having high sensitivity. For the purposes of EIA, this includes people living in poverty/deprivation, which would enhance the benefits in this instance. While it is acknowledged that other receptors nearby are sensitive, and as outlined in **Table 17.7**, this is covered in **Appendix 17C: Equality Statement (Document DCO 6.17C/MCO 6.17C)**. Considering the high sensitivity of people living in poverty/deprivation, the resultant significance of effect is moderate (significant) for this subset of the population.

Mitigation Measures

17.7.81. Public health is by definition preventative in nature. Therefore, mitigation measures adopted as part of the construction and operation of the EMG2 Project will focus on precursors to

health and wellbeing outcomes, thereby providing an opportunity for intervention to prevent any adverse impacts.

17.7.82. The inherent mitigation measures relevant to the assessment of population and human health are described in the “potential impacts” section above. On the basis that no significant adverse population and human health effects are reported, no additional health-specific mitigation measures are proposed.

Residual Effects

17.7.83. On the basis that no additional health-specific mitigation measures are proposed, the residual population and human health effects remain the same as reported in the “potential impacts” section above.

17.8. Cumulative Effects

17.8.1. The shortlisted cumulative developments as identified in **Chapter 21: Cumulative Impacts (Document DCO 6.21/MCO 6.21)**.

17.8.2. Several residential/mixed-use cumulative developments (ID 7, 12, 20) have been scoped out (or partially scoped out where they are mixed use) on the basis that, while they would introduce new human receptors, the distance of each from the Order Limits is considered too far for there to be any interaction between environmental health determinants from both sites.

17.8.3. In addition, ID 10 has been scoped out on the basis that this development only has the potential to interact with the EMG2 Project once operational, and as a solar farm would have no material impact on any environmental or socio-economic determinants, and limited potential to interact with the EMG2 Project.

17.8.4. The remaining shortlisted cumulative developments outlined in **Table 17.18** (ID 1b, 3, 4, 12, 13, 14, 15, 16, 17, 20) are scoped in on the basis that they have the potential to contribute to socio-economic impacts relevant to the assessment of population and health, such as employment.

Table 17.18: Cumulative developments relevant to population and human health

ID	Application Ref	Description	Distance	Justification for scoping in/out
1b	24/01200/FULM	Employment building (Use Class B2/B8) with total floorspace of 59,910 sq.m.	2.5km to north of EMG1 Works	Scoped in – contributes to socio-economic determinants of health
3	20/00316/OUTM and 22/00954/REMM and 24/00575/VCIM	4no. Logistics buildings with a total floorspace of 77,480sq.m.	2.5km to north of EMG1 Works	Scoped in – contributes to socio-economic determinants of health
4	19/01496/OUT / APP/G2435/W22/ 3292404 and 24/00074/REMM	Employment development of up to 92,500sq.m. (E(g), B2, B8)	2km to north-west of EMG1 Works	Scoped in – contributes to socio-economic determinants of health
7	n/a	Residential development of approx. 1,076 dwellings	2.5km to north-west of EMG2 Works	Scoped out – while new human receptors are introduced, the distance is considered too far for there to be any interaction between environmental

ID	Application Ref	Description	Distance	Justification for scoping in/out
				health determinants from both sites
10	23/01712/FULM	Ground-mounted solar farm with a generation capacity of 7.15MW	Immediately adj. to EMG2 Works	Scoped out – once operational, there would be no material impact on environmental or socio-economic determinants of health
12	n/a	Residential development of approx. 4,500 dwelling and 23,000 sq.m. of employment floorspace	2km to west of EMG2 Works	Scoped in – contributes to socio-economic determinants of health Scoped out – while new human receptors are introduced, the distance is considered too far for there to be any interaction between environmental health determinants from both sites
13	n/a	Circa 6,000sq.m. of offices and 11,850sq.m. of B2/small scale B8	2km to north-west of EMG2 Works	Scoped in – contributes to socio-economic determinants of health
14	n/a	Circa 30,000sq.m. of B2/small scale B8	Immediately adj. to Highway Works	Scoped in – contributes to socio-economic determinants of health
15	n/a	Circa 40,000sq.m. of B2/small scale B8	Immediately adj. Highway Works	Scoped in – contributes to socio-economic determinants of health
16	n/a	Freeport designation for logistics and advanced manufacturing space	1-2km to west of EMG2 Works	Scoped in – contributes to socio-economic determinants of health
17	22/01339/LDO	Redevelopment of power station site	3km to north-east of EMG1	Scoped in – contributes to

ID	Application Ref	Description	Distance	Justification for scoping in/out
		for 810,000sq.m. of employment floorspace including up to 180,000 sq.m. of B8, energy storage and generation, and neighbourhood centre	Works and Highway Works at Jct 24 M1	socio-economic determinants of health
20	P/14/1833/2 and various RM approvals for both housing and employment	Sustainable Urban Extension to Loughborough comprising 3,200 homes and 16ha of employment land	5km to south-east of EMG2 Works	Scoped in – contributes to socio-economic determinants of health Scoped out – while new human receptors are introduced, the distance is considered too far for there to be any interaction between environmental health determinants from both sites

17.8.5. Construction and operation of all scoped in cumulative development sites will contribute to employment opportunities locally. While this is the case, there may be labour shortages in some occupation categories; however, there is the potential with training opportunities associated with this.

17.8.6. Overall, the contribution to socio-economic determinants of health would have a beneficial cumulative effect on health and wellbeing when considered in-combination with the EMG2 Project. As the direction of effect is beneficial, no mitigation is proposed; the resultant residual significance of effect for all cumulative developments is moderate beneficial (significant).

17.9. Summary of Effects and Conclusions

17.9.1. A summary of effects for the DCO Scheme, MCO Scheme and EMG2 Project is provided in **Table 17.19**, **Table 17.20** and **Table 17.21** respectively, overleaf.

17.9.2. In regards to the DCO Scheme, during the construction stage, the majority of the impacts are considered to be negligible and the health effects from changes in socio-economic factors (employment and income) is considered to be minor beneficial (not significant) to moderate beneficial (significant). In terms of the operational phase, the majority of the impacts are considered to be negligible to minor adverse with minor beneficial residual effects in regards to health effects from access to open space and PROW for physical activity, leisure/play and recreation and minor beneficial to moderate beneficial in regards to health effects from changes in socio-economic factors which is significant in EIA terms.

17.9.3. During the construction stage of the MCO Scheme, these residual health effects will largely be negligible to minor adverse and similarly, during the operational phase, the effects will largely be negligible aside from the changes in socio-economic factors which is considered to be minor beneficial to moderate beneficial for vulnerable receptors.

17.9.4. Overall, the construction stage of the EMG2 Project as a whole, will be negligible with the exception of health effects from changes in socio-economic factors which is considered to be minor beneficial to moderate beneficial. In regards to the operational phase, the EMG2 Project as a whole will have no significant adverse effects and is considered to result in a minor beneficial effect to access to open space and PROW for physical activity, leisure/play and recreation and minor beneficial to moderate beneficial (significant) for changes in socio-economic factors.

17.9.5. In regards to cumulative effects, construction and operation of all scoped in cumulative development sites will contribute to employment opportunities locally. While this is the case, there may be labour shortages in some occupation categories; however, there is the potential with training opportunities associated with this.

17.9.6. Overall, the contribution to socio-economic determinants of health would have a beneficial cumulative effect on health and wellbeing when considered in-combination with the EMG2 Project. As the direction of effect is beneficial, no mitigation is proposed; the resultant residual significance of effect for all cumulative developments is moderate beneficial (significant).

Table 17.19: Summary of effects (DCO Scheme)

Description of impact	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional mitigation	Residual effect
Construction					
Health effects from changes in air quality	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in noise and vibration	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in transport, access and connections	n/a	n/a	n/a	n/a	n/a
Health effects from changes in diet and nutrition	n/a	n/a	n/a	n/a	n/a
Community safety	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from access to open space and PROW for physical activity, leisure/play and recreation	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from changes in socio-economic factors (employment and income)	Minor (beneficial)	Low (high for vulnerable receptors)	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors	No health-specific mitigation proposed	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors

Description of impact	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional mitigation	Residual effect
Operation					
Health effects from changes in air quality	n/a	n/a	n/a	n/a	n/a
Health effects from changes in noise and vibration	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in transport, access and connections	Minor	Low	Minor (not significant)	No health-specific mitigation proposed	Minor (not significant)
Health effects from changes in diet and nutrition	Negligible	High	Minor (not significant)	No health-specific mitigation proposed	Minor (not significant)
Community safety	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from access to open space and PROW for physical activity, leisure/play and recreation	Minor (beneficial)	Low	Minor beneficial (not significant)	No health-specific mitigation proposed	Minor beneficial (not significant)
Health effects from changes in socio-economic factors (employment and income)	Minor (beneficial)	Low (high for vulnerable receptors)	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors	No health-specific mitigation proposed	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors

Table 17.20: Summary of effects (MCO Scheme)

Description of impact	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional mitigation	Residual effect
Construction					
Health effects from changes in air quality	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in noise and vibration	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in transport, access and connections	n/a	n/a	n/a	n/a	n/a
Health effects from changes in diet and nutrition	n/a	n/a	n/a	n/a	n/a
Community safety	n/a	n/a	n/a	n/a	n/a
Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from access to open space and PROW for physical activity, leisure/play and recreation	n/a	n/a	n/a	n/a	n/a
Health effects from changes in socio-economic factors (employment and income)	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors

Description of impact	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional mitigation	Residual effect
Operation					
Health effects from changes in air quality	n/a	n/a	n/a	n/a	n/a
Health effects from changes in noise and vibration	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in transport, access and connections	n/a	n/a	n/a	n/a	n/a
Health effects from changes in diet and nutrition	n/a	n/a	n/a	n/a	n/a
Community safety	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from access to open space and PROW for physical activity, leisure/play and recreation	n/a	n/a	n/a	n/a	n/a
Health effects from changes in socio-economic factors (employment and income)	Minor (beneficial)	Low (high for vulnerable receptors)	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors	No health-specific mitigation proposed	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors

Table 17.21: Summary of effects (EMG2 Project)

Description of impact	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional mitigation	Residual effect
Construction					
Health effects from changes in air quality	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in noise and vibration	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in transport, access and connections	n/a	n/a	n/a	n/a	n/a
Health effects from changes in diet and nutrition	n/a	n/a	n/a	n/a	n/a
Community safety	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from access to open space and PROW for physical activity, leisure/play and recreation	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from changes in socio-economic factors (employment and income)	Minor (beneficial)	Low (high for vulnerable receptors)	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors	No health-specific mitigation proposed	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors

Description of impact	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional mitigation	Residual effect
Operation					
Health effects from changes in air quality	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in noise and vibration	Negligible	Low (high for vulnerable receptors)	Negligible (not significant) to minor (not significant) for vulnerable receptors	No health-specific mitigation proposed	Negligible (not significant) to minor (not significant) for vulnerable receptors
Health effects from changes in transport, access and connections	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Minor (not significant)
Health effects from changes in diet and nutrition	Negligible	High	Minor (not significant)	No health-specific mitigation proposed	Minor (not significant)
Community safety	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from changes in the visual environment (with regards to community identity, culture, resilience and influence)	Negligible	Low	Negligible (not significant)	No health-specific mitigation proposed	Negligible (not significant)
Health effects from access to open space and PROW for physical activity, leisure/play and recreation	Minor (beneficial)	Low	Minor beneficial (not significant)	No health-specific mitigation proposed	Minor beneficial (not significant)
Health effects from changes in socio-economic factors (employment and income)	Minor (beneficial)	Low (high for vulnerable receptors)	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors	No health-specific mitigation proposed	Minor beneficial (not significant) to moderate beneficial (significant) for vulnerable receptors