Town and Country Planning (Environmental Impact Assessment) Regulations 2017

Network Rail

Oxford Corridor Phase 2 Capacity Improvement Scheme

Environmental Impact Assessment – Environmental Statement: Chapter 4 – Approach to Environmental Impact Assessment

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4. APPROACH TO ENVIRONEMENTAL IMPACT ASSESSMENT

4.1 Introduction

4.1.1 This chapter explains the approach taken for the Environmental Impact Assessment (EIA) of the Scheme. It sets out the EIA process, the scope of the EIA presented in the Environmental Statement and the methodology for predicting impacts and assessing their likely significant effects. All technical terms used in this chapter are explained within Appendix 1.5 – Glossary and Acronyms.

4.2 EIA Process

4.2.1 EIA is a process for identifying the likely environmental effects (beneficial and adverse) of proposed developments, and their significance, before approval for the development is given.

4.2.2 The aim of EIA is to ensure a thorough assessment of likely significant effects and that a consideration of mitigation and alternatives in light of these potential significant effects has been undertaken. Through this process, the development should include measures to prevent, reduce or offset any significant, adverse environmental effects of the proposals, and enhance the beneficial ones.

4.2.3 The findings of the assessment are presented in an Environmental Statement. The purpose of the Environmental Statement is to help the decision maker, statutory consultees, other stakeholders and the public to properly understand the predicted effects and the scope for reducing them, before a decision is made as to whether to approve the development.

4.2.4 The general approach to the EIA is based on the following steps:

- Existing data review to collate readily available information about the study area, the Scheme and likely environmental effects.
- Screening – which determines the need for EIA.
- Scoping – which identifies significant issues, determine the subject matter of the assessment and the methodologies for undertaking the assessment. Specially commissioned baseline surveys are undertaken to characterise the existing environmental conditions.
- Consultation with the local authorities and statutory environmental bodies (e.g. Environment Agency, Natural England and Historic England) to request data, inform third parties of the proposals, and seek feedback on the Scheme.

- Assessment of Environmental Effects, presented in the Environmental Statement, to evaluate the magnitude of the impacts, evaluate alternatives, develop mitigation, and assess the significance of the residual effects of the mitigated Scheme.

- Preparation of an Environmental Statement and Non-Technical Summary ensuring that all of the information required to be included in the Environmental Statement is as specified in Schedule 4 to the EIA Regulations.

4.3 Standards and Guidance

4.3.1 The general impact assessment methodology mainly followed the approach set out in the Environment and Sustainability Appraisal section of the Design Manual for Roads and Bridges (DMRB) (Highways England, 2021). Although the DMRB guidance is intended to be used to assess highway schemes, it provides a useful basis for the environmental assessment of other transport schemes.

4.3.2 The exception to this is within the Landscape and Visual assessment in Chapter 9 of this document. It was specifically requested by Oxford City Council (OCC) in their Scoping Opinion (see Volume 4 – Appendix 1.1) that the guidance of the Landscape Institute was used. This was agreed to with minor alterations so that the terms for significance were consistent with those used within the other chapters. This allows for direct comparison across chapters.

4.3.3 This Environmental Statement has also been prepared in accordance with the requirements specified in Network Rail's procedures for the environmental assessment of rail infrastructure works and the demanding requirements of the Governance for Rail Investment Projects (GRIP) procedures.

4.3.4 Guidance specific to each topic and its relevance to that assessment is provided in Section 2 of the respective chapters (Chapters 6 – 15 of Volume 2).

4.4 Screening

4.4.1 Screening is a procedure, undertaken at the beginning of the EIA process, for projects which are not in Schedule 1 of the Town and Country Planning (Environmental Impact Assessment) Regulations (2017) ('*the 2017 Regulations*'). The 2017 Regulations state that for the Local Planning Authority (OCC) to determine whether the Scheme is an EIA development, it must take the following into account:

"(a) any information provided by the applicant;

(b) the results of any relevant EU environmental assessment which are reasonably available to the relevant planning authority…; and

(c) such of the selection criteria set out in Schedule 3 as are relevant to the development"

4.4.2 The Oxford City Council Screening Opinion (see Volume 4 – Appendix 1.1) states that the Scheme is an EIA development and that the application for consent should be submitted with an Environmental Statement.

4.5 Scoping

4.5.1 Regulation 15 of the 2017 Regulations states:

"*A person who is minded to make an EIA application may ask the relevant planning authority to state in writing their opinion as to the scope and level of detail of the information to be provided in the environmental statement (a "scoping opinion")*".

4.5.2 An outline of the scoping process is as follows:

- define study area for each topic;
- collate baseline and survey data;
- identify potential impacts (construction and operation);
- determine the EIA methodology;
- scope in those topics for further assessment in the EIA; and
- scope out those not to be included, with justification.

4.5.3 An EIA Scoping Report (Network Rail, 2020) was submitted to Oxford City Council in July 2020, along with a request for a Scoping Opinion in accordance with Regulation 15 of the 2017 Regulations. The Scoping Report outlined details of the Scheme and the proposed scope and methodology for the assessment.

4.5.4 The 2017 Regulations, Part 5, Regulation 18 (4) (a) states that:

"*where a scoping opinion or direction has been issued in accordance with regulation 15…'* an Environmental Statement must ...*'be based on the most recent scoping opinion…*"

4.5.5 OCC provided a Screening and Scoping Opinion on 28th August 2020. A response to this was submitted by Network Rail on 15th December with clarifications regarding the Scheme an updated design and clarifications on scoping and methodologies. A final Screening and Scoping Opinion was provided by OCC on 5th January 2021 and can be found in Volume 4 – Appendix 1.1.

4.5.6 Table 4.1 provides a summary of the topics which have been scoped in and out of the EIA by the Oxford City Council's Scoping Opinion (the 'Scoping Opinion') (OCC, 2021).

Table 4.1: Topics which have been scoped in and out of the EIA

Topic	Element	Scope of EIA	
		Construction	Operation
Air Quality and Odour	Rail operations	N/A	Out
	Odour	In	Out
	Site emissions	Out	N/A
	Dust	In	Out
	Traffic emissions / changes	In	Out with additional justifications.
Biodiversity and Ecology	Statutory designated sites	Out	Out
	Non-statutory designated sites	Out	Out
	Reptiles	Out	Out
	Breeding birds	Out	Out
	Bats	Out	Out
	Riparian mammals	Out	Out
	Aquatic ecology	Out	Out
	Invasive non-native species (Plants)	Out	Out
	Biodiversity net gain	N/A	In
Geology and Soils	Soils	Out	Out
	Minerals	Out	Out
	Geological designations	Out	Out
	Contaminated land	In	Out
Historic Environment	Archaeological Remains	In	Out
	Historic Buildings	In	In
	Historic Landscape	In	In
	Users of PRoWs	In	Out

Topic	Element	Scope of EIA	
		Construction	Operation
Landscape and Visual	Residential Properties	In	In
	Westgate Hotel	In	In
	Said Business School	In	Out
	Green Belt	Out	Out
	National Character Area	Out	Out
	National Cycle Route	Out	Out
Materials and Waste	Material Assets	Out	Out
	Waste	Out	Out
Noise and Vibration	Vibration - People	In	Out
	Vibration - Buildings	Out	Out
	Tranquil areas	Out	Out
	Airborne Noise	In	Out
	Ground-borne Noise	Out	Out
	Traffic	In	Out with additional justifications
	Railway Noise	Out	In
	Railway Vibration	Out	Out
	Industrial noise	Out	Out
Population	Supply chain	Out	Out
	Access	In	In
	Amenity	In	In
	Employment and the local economy	In	In
	Land use and displacement	In	In
Human Health	Air quality and odour - exposure to dust	In	Out
	Air Quality - new air quality impacts on human health	N/A	Out with additional justifications
	Biodiversity and Ecology	Out	Out
	Noise - disturbance	In	In
	Pollution	In	In
	Landscape, Visual Amenity and Lighting - human health impacts	In	In
	Contaminated land	In	Out

Topic	Element	Scope of EIA	
		Construction	Operation
	Landscape - landscape character	Out	In
	Historic Environment	Out	Out
	Population	In	In
	Traffic and Transport - congestion, disruption to public transport services, and changes in amenity	In	Out
	Material Assets and Waste	Out	Out
	Major Accidents and Disasters	Out	Out
Traffic and Transport	Road network	In	Out
	Public transport (bus routes)	In	In
	Non-motorised users (footpaths, cycle ways)	In	Out
Water Resources and Flood Risk	Flood Risk – Fluvial	In	In
	Flood Risk – Reservoir Breach	Out	Out
	Flood Risk – Canal Breach	Out	Out
	Flood Risk – Surface Water	In	In
	Flood Risk – Groundwater	In	In
	Superficial Aquifer – Groundwater	In	In
	Bedrock - Groundwater	Out	Out
	Water Quality - Groundwater	In	Out
	Water Quality – Surface Water	In	In
	Geomorphology	Out	Out
Major Accidents	Flood Risk	Out	Out
	Major road traffic accident involving construction plant or vehicles	Out	Out
	Ground contamination and landfill gas	Out	Out
	Train derailment / collision	Out	Out
Cumulative Effects	Intra cumulative	In	In
	Inter cumulative	In	In

4.5.7 A Scoping Response Register has been produced which can be found in Volume 4 – Appendix 1.2. In addition, Chapters 6 to 15 include details on how the Scoping Opinion has been addressed within specific topic assessments.

4.5.8 The scope and structure of the Environmental Statement and how the requirements of Schedule 4 of the EIA Regulations are fulfilled are described in Chapter 1 – Introduction and in Volume 4 – Appendix 1.3.

Biodiversity

4.5.9 As a result of the scoping process, biodiversity as a topic was scoped out due to the urban nature of the area and relatively small scale of change. Although biodiversity as a topic has been scoped out, further work has been undertaken including surveys and consideration of likely impacts and recommendations for mitigation. This is to ensure the protection of the Scheme's biodiversity and particularly its protected species.

4.5.10 The biodiversity documents can be found in the following appendices in Volume 4:

- Appendix 4.1 – Preliminary Ecological Appraisal Report.
- Appendix 4.2 – Habitats Regulations Screening Assessment Report.
- Appendix 4.3 – Bat Survey Report.
- Appendix 4.4 – Protected and Controlled Species Legislative Compliance Report.
- Appendix 4.5 – Biodiversity Unit Calculation Report.

4.5.11 One European designated site, Oxford Meadows Special Area of Conservation (SAC), was identified within the study area, that could potentially be affected by the Scheme. A draft Habitats Regulations Assessment (HRA) was carried out for the purposes of scoping and found no likely significant effects. The HRA has been updated to reflect the final air quality assessment and found no likely significant effects.

4.5.12 Other designated sites within 2km of the Scheme were not considered to have likely significant effects. There were no designated sites within the red line boundary. No confirmed bat roosts were found within the red line boundary.

4.5.13 A calculation of biodiversity Net Gain has been carried out using the Defra Metric 2.0 to demonstrate improvements. This has identified a Net Gain of 42% for the Scheme. This has been achieved through incorporation of a green roof, living wall and landscape planting including formal and informal shrubs and trees.

4.6 Consultation and Engagement

4.6.1 Formal and informal consultation has been undertaken with statutory consultees throughout the preparation of the Environmental Statement. Consultation has been used to:

- agree appropriate assessment methodologies;
- refine the scope of the assessment;
- obtain environmental data; and
- allow consultees an opportunity to inform the Scheme design.

4.6.2 The scope of the assessment was agreed with technical experts which has involved OCC planners formally consulting with their own officers as well as the following bodies:

- Canal and River Trust.
- Environment Agency.
- Control of major-accident hazards competent authority (COMAH).
- Garden History Society.
- Health and Safety Executive.
- Oxfordshire County Council (Local Highway Authority and Flood Authority).
- Highways England.
- Historic England.
- South Oxfordshire District Council, Cherwell District Council, Vale of White Horse District Council and West Oxfordshire District Council (as the neighbouring planning authorities).
- Natural England.
- Thames Water.
- Oxfordshire Fire Service.
- Thames Valley Police.

4.6.3 In addition, Network Rail has engaged with a wider variety of local stakeholders to increase awareness and understanding of the Scheme. Table 4.2 provides a summary of this engagement. Due to the coronavirus pandemic, no face to face meetings have been possible. The majority of communication has therefore been via on-line meetings and events. In addition, letters have been sent to all residents and businesses within 300m of the red line boundary and a press release has been issued. Information about the Scheme is available on the Network Rail webpage at: https://www.networkrail.co.uk/running-the-railway/our-routes/western/oxfordshire/.

Table 4.2: Summary of engagement

Organisation engaged with	Key interest	Date
Oxford City Community Relations Officer and local Councillors for Cripley Road and Mill Street.	Residents interests	20/1/21
Cripley Road residents (via Residents Association)	Impact on residents along Cripley Road	26/1/21
Mill Street residents (via Residents Association)	Impact on residents along Mill Street	12/2/21
Network Rail and Oxford design review panels	Architecture and design of the station	24/3/21
Oxford Councillors	Phase 2 and its wider strategic context	23/2/21
BEAP Panel	Accessibility issues related to the design	18/2/21
Oxford Preservation Trust	Implications for the historical context of Oxford	10/2/21
Oxford Civic Society	Implications of the Scheme for the city of Oxford	10/2/21
Oxfordshire Local Enterprise Partnership (OxLEP)	Phase 2 and its wider strategic context	20/01/21
Cherwell College	Implications for the College	17/2/21
General public	Implications of the Scheme	25/3/21
Rail Industry Stakeholder Group	Public engagement information	January 2021

4.7 Scope of the Assessment

Study Area

4.7.1 The minimum extent of the study area is the extent of any permanent land required for the operation for the Scheme, and any temporary land take required for its construction. There is no single study area which is applicable to all topic areas in this Environmental Statement. The spatial scope is based on the geographic extent of potential impacts for each topic and is defined

within each topic as the study area. The individual study areas for each environmental topic are defined in Chapters 6 to 15 of Volume 2.

Temporal Scope

4.7.2 The temporal scope covers the duration of construction and operational phases (for defined year scenarios).

4.7.3 The baseline year for the assessment has been defined as 2019. The start of the Scheme's construction works would be 2022. The first year of operation of the Scheme would be 2025. These dates would constitute the future baselines within the topic chapters. More information as to the reasons for using these dates can be found within Section 4.8 Environmental Baseline.

4.8 Environmental Baseline

4.8.1 The baseline environment comprises the environmental characteristics and conditions of the area likely to be affected by the Scheme that are present at the time of the assessment.

4.8.2 Baseline data have been collected from various statutory and non-statutory sources, as identified in the relevant topic chapters. Specially commissioned surveys were undertaken to identify, biodiversity, land use, landscape and views of the Scheme, and noise levels.

4.8.3 Air quality and traffic surveys have not been completed to inform the baseline of this assessment. Due to restrictions imposed because of the COVID-19 pandemic, air quality and traffic data collected after March 2020 would not be considered to represent the usual conditions. Therefore, the air quality and traffic and transport assessments were informed by data provided by Oxford City Council. A more detailed explanation of the effects of the COVID-19 pandemic on the air quality and traffic and transport assessments can be found in Chapters 6 and 13 respectively.

4.8.4 The baseline information is used to describe the environmental and social characteristics of the study area at the time of the assessment as well as to identify on-going trends. This allows a comparison of the construction and operation of the Scheme against the existing conditions and a "Do Nothing" scenario in the future years' assessment.

Future Baseline

4.8.5 The EIA has considered how the baseline features may change if the Scheme were not to be built. It has then considered whether these changes would affect the conclusions of the assessment. Each topic assessment has

described how their baseline environment is expected to change. However, the main considerations were;

- other developments;
- increased flooding; and
- changes/growth to train services.

4.9 Identifying Potential Effects

4.9.1 'Impacts' are defined as the changes resulting from an action, and 'effects' are defined as the consequences of impacts. The 2017 Regulations requires:

"The description of the likely significant effects…should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development…"

4.9.2 These are described as:

- Direct or indirect/secondary: Direct effects occur because part of a scheme or its construction affect the environment or a receptor through no additional pathway e.g. removal of a tree. Indirect or secondary effects occur because of a, sometimes complex, pathway between the impact of a scheme and the effect on the environment or receptor e.g. accidental discharge into the ground causes reduction in water quality in a local watercourse.
- Permanent or Temporary: Permanent effects are effects which are not reversable e.g. a building would remain. Temporary effects are only in effect for a defined length of time e.g. a construction compound would be removed at the end of construction. These effects can vary in duration.
- Cumulative[1]: Cumulative effects occur due to multiple impacts on the environment or a receptor. The impacts may originate from a single scheme, or multiple schemes.
- Transboundary: Transboundary effects are impacts that can cause an effect across a National boundary. This is not expected to occur as a result of the Scheme.
- Duration of impacts (Short, Medium, or Long Term): The potential duration over which the impact would affect the environment or receptor.

[1] Further information on cumulative effect definitions can be found in Chapter 15 of this Environmental Statement.

- Beneficial or Adverse: Whether the effect would have a positive or negative effect on the receptor(s).
- Residual: Likely effects of the Scheme, after the application of all proposed mitigation.

4.10 Assessing Significance

4.10.1 The significance of an environmental effect is typically a function of the 'value' or 'sensitivity' of the receptor and the 'magnitude' or 'scale' of the impact. Each environmental receptor is allocated a value or sensitivity grade. The specific magnitude of impact on that receptor is then also allocated a level. To establish a consistent approach between technical assessment chapters, Table 4.2 shows a general approach to determining significance. For each receptor the matrix is used to produce a level of effect on that receptor. For example, an impact of low magnitude on a receptor of medium sensitivity would produce a minor effect. Any effect that is moderate or higher is considered a likely significant effect. These are anticipated to be material in the decision-making process and have been shaded in Table 4.3.

Table 4.3: General approach to determining significance

Magnitude	Sensitivity		
	Low	Medium	High
High	Moderate (Significant)	Moderate / Major (Significant)	Major (Significant)
Medium	Minor	Moderate (Significant)	Moderate / Major (Significant)
Low	Negligible	Minor	Moderate (Significant)
Negligible	Negligible	Negligible	Minor

4.10.2 Criteria for determining significance varies across topics but gives regards to whether impacts would be: beneficial/positive or adverse/negative; direct or indirect; secondary or cumulative; temporary or permanent; or short, medium or long term.

4.10.3 The criteria used for value or sensitivity and magnitude vary between disciplines (from a very formal set of criteria based on nationally recognised standards for air quality, to more qualitative criteria derived to assess landscape impact or heritage). Most topics use the common terminology set out in Table 4.2 alongside their topic-specific guidance and their professional judgement to assess the significance of effects.

4.10.4 For some topics this is not totally appropriate in the policy context (such as for noise). For other topics where it is very difficult to value an asset and/or quantify the magnitude of the effect (e.g. human health) a simple descriptor - beneficial, neutral or adverse is used to describe the significance of the effect. Where alternative bases of assessment apply, this is explained and set out in the appropriate chapter or appendix.

4.10.5 Significance of the effects arising from the Scheme has been categorised for each environmental topic and is presented in the technical assessment Chapters 6 to 15. The process of determining significance varies across topics; a full description of the method used is presented in each technical assessment chapter.

4.11 Design and Mitigation

4.11.1 In cases where the Scheme has potential to cause adverse effects exceeding best practice management, mitigation measures have been proposed. Mitigation measures aim to avoid effects at their source, perhaps through amendments to the Scheme design or by regulating the timing or location of activities. If effects cannot be avoided or reduced, it could be appropriate for compensatory measures to be taken, for example to provide a noise barrier.

4.11.2 Mitigation could take several forms as outlined in the following sub-sections.

Primary/ Embedded Mitigation

4.11.3 This type of mitigation is an intrinsic part of the Scheme design, included as part of the original design, or added during iterative design to reduce impacts. This type of mitigation seeks to remove impacts from the Scheme. A list of these measures can be found within Chapter 2 – Description of the Scheme.

Secondary/ Additional Mitigation

4.11.4 Secondary or additional mitigation is further mitigation required to reduce the impact of the Scheme on the environment. These mitigations have been developed during the assessment of impacts of each of the topic areas to off-set a significant effect. They are included within Chapter 2 and discussed in the relevant chapters.

Tertiary/ Good Practice Mitigation

4.11.5 Good practice mitigation is that which would be required regardless of any EIA assessment because of legislative requirements and/or standard good practice guidance. For example, the requirement to damp down dusty operations during construction. Good practice mitigation measures are

assumed to be in place prior to the individual topic assessments taking place. They are included within the Code of Construction Practice (refer to Volume 4 – Appendix 2.1).

Enhancement

4.11.6 In addition to standard mitigation, consideration has been given to whether it is practicable to include enhancement. The term 'enhancement' refers to providing measures over and above those needed to mitigate the adverse effect, and/or maximising the opportunity for beneficial effects from the Scheme.

4.12 Residual Effects

4.12.1 Effects that would remain once mitigation measures have been considered, are referred to as residual effects. Mitigation measures which are desirable but cannot be committed to as part of the Scheme, at this stage, have not been considered in the assessment of residual effects. Where there is any doubt about the effectiveness of the mitigation, a worst-case scenario has been assumed and considered in the assessment of residual effects. Therefore, the key outcome of the EIA is the significance of the likely residual effects after mitigation or enhancement.

4.12.2 A table of residual likely significant effects is presented in Chapter 16 – Conclusion.

4.13 Assessment of Cumulative Effects

4.13.1 The EIA Regulations require assessment of cumulative effects. Cumulative effects may occur when effects caused by past, present and reasonably foreseeable future activities combine or interact in a particular location or within a particular timeframe to create additional impacts. Cumulative effects normally fall into two categories;

- Intra-project effects: The combined effect from multiple residual effects of the Scheme on a particular receptor, i.e. 'within scheme' effects for example air quality, noise and visual impacts on local residents; or

- Inter-project effects: The additive effects from other reasonably foreseeable developments in the area, when considered together with the Scheme, may result in a cumulative effect. For example if another building is under construction at the same time, it may have a cumulative effect on the road network.

4.13.2 For both intra-project and inter-project effects, a cumulative effect may arise when multiple environmental impacts affect the same receptor or group of receptors.

4.13.3 A matrix-based approach, in which sensitive receptors were checked against the various effects of the Scheme, was used to assess intra-project cumulative effects. The combination of several simultaneous non-significant effects, or multiple significant effects occurring sequentially could result in likely significant cumulative effects.

4.13.4 Inter-project effects were assessed by consideration of 'short listed' nearby projects' predicted effects combined with the effects of the Scheme. An inter-project effect was considered significant if a receptor would be significantly affected by an additional effect which would not be caused either by the Scheme in isolation or by the other development in isolation.

4.13.5 A more detailed description of the methodology of the Cumulative Effects assessment can be found in Chapter 15 – Cumulative Effects.

4.14 General Assessment Assumptions and Limitations

4.14.1 Paragraph 6 of Schedule 4 of the EIA Regulations requires "*an indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information*".

4.14.2 Limitations and assumptions that are relevant to a particular topic assessment are detailed within the relevant topic Chapters 6 to Chapter 15. The main matters relevant to the Scheme are summarised here.

- The construction information used for the purpose of this assessment has been based on an assumed construction methodology including an informed approach to likely construction sequencing, construction duration (or 'programme') and construction activities. If the contractor uses a different methodology, Network Rail would require it to undertake the works in a way that was not more environmentally damaging than the methods and assumptions made at this stage. Any proposed divergence in construction approach would be agreed with OCC and if required, reassessed for environmental impacts.

- Volumes of construction traffic have been based on movement of waste and materials to and from site. It has been assumed that railway related materials and waste would be transferred by rail. A degree of reuse/ recycling on site and efficiency in use of vehicles has also been assumed.

- Ecological surveys were carried out across the site. However, due to the nature of ecology, the baseline condition is always changing. A pre-

construction survey would be required directly before construction starts to ensure no unexpected biodiversity loss eg breeding birds.

- No traffic data were available for the EIA. The assumption has been made by OCC that as there is no additional parking provision, there would be no increase in traffic as a result of the Scheme.

- Groundwater levels under the Scheme are not known. Levels have therefore been assumed from existing nearby borehole information. Further ground investigations have been proposed that would give more certainty.

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