Town and Country Planning (Environmental Impact Assessment) Regulations 2017

Network Rail

Oxford Corridor Phase 2 Capacity Improvement Scheme

Environmental Impact Assessment – Environmental Statement: Chapter 15: Cumulative Effects

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15. CUMULATIVE EFFECTS

15.1 Introduction

15.1.1 This chapter of the Environmental Statement reports the potential cumulative effects resulting from the construction and operation of the Scheme.

15.1.2 There is a requirement under the Environmental Impact Assessment (EIA) Directive and Schedule 4, Part 1 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 for an Environmental Statement to include:

"*The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, … effects of the development…*"

15.1.3 The cumulative effects assessment considers the following:

- effects which may occur as a result of the interaction or accumulation of effects, which in isolation may not be significant; and
- cumulative effects during both the construction and operation of the Scheme.

15.1.4 Cumulative effects fall into two categories (Institute of Environmental Management and Assessment (IEMA)), 2020), as follows:

- intra-project effects: "*combined effect of individual development – for example, noise, dust and visual on one particular receptor*"; and
- inter-project effects: "*several developments with insignificant impacts individually but which together represent a significant cumulative effect*".

15.1.5 This chapter is supported by the following:

- Volume 3 – Figure 15.1 – Short List Developments; and
- Volume 4 – Appendix 15.1 – Long List of Developments.

15.1.6 Some Intra-project cumulative effects assessments have been completed within topic assessments, as required by legislation or as specified within topic specific guidance. Table 15.1 shows cumulative assessments covered within topic assessments, which will not be separately reported within this cumulative assessment chapter.

Table 15.1: Cumulative assessments completed elsewhere within the Environmental Statement

Receptor	Cumulative effect on	Other topics considered	Where it is reported
Heritage assets	Setting on heritage assets.	• Landscape visual • Noise and vibration	Chapter 8 – Historic Environment
Ecological receptors	Special Areas of Conservation	• Air quality and odour	Chapter 6 – Air Quality and Odour; and
Community assets and recreational or tourism receptors	Amenity of community assets, public rights of way, parks and other relevant tourism or recreational receptors.	• Air quality and odour • Landscape visual • Noise and vibration • Traffic and transport	Chapter 11 – Population
Human Health Receptors	Health outcomes for communities within the study area.	• Air quality and odour • Pollution • Landscape and visual • Noise and vibration • Traffic and transport • Population	Chapter 12 – Human Health

15.2 Legislation, Policy and Guidance

15.2.1 The following section outlines the relevant legislation, planning policies and guidance relevant to this assessment.

15.2.2 Table 15.2 sets out the relevant legislation; whilst Table 15.3 provides a summary of relevant guidance for this cumulative effects assessment. There is no relevant planning policy for the assessment of cumulative effects.

Table 15.2: Legislation relevant to cumulative effects

Legislation	Description in relation to cumulative effects	Relevance to the Scheme
Town and Country Planning (Environmental Impact Assessment) Regulations 2017	In relation to inclusion within an Environmental Statement, Schedule 4 of the EIA Regulations states that a description of likely significant effects "should cover the direct effects and … cumulative, … positive and negative effects of the development".	An assessment of intra-project and inter-project cumulative effects has been completed as reported in this chapter.

Table 15.3: Guidance relevant to cumulative effects

Guidance Document	Description in relation to cumulative effects
Advice Note Seventeen: Cumulative Effects Relevant to Nationally Significant Infrastructure Projects (Planning Inspectorate, 2019)	Although the Scheme is not a Nationally Significant Infrastructure Project, Advice Note 17 provides a useful basis for the assessment. Advice Note 17 identifies the nature of projects (referred to as 'other developments') that should be within a cumulative effects assessment and sets out a staged process to adopt in cumulative effects assessments.

15.2.3 The legislation, and guidance listed have been taken into account in the assessment of the likely significant effects on cumulative effects as a result of the Scheme and the development of appropriate mitigation measures.

15.3 Methodology

Introduction

15.3.1 This Section reports the consultation undertaken, defines the study area, temporal scope, the sources of baseline data, and the methodology and significance criteria. The limitations and assumptions of the study are also described.

Consultation

15.3.2 The scope and method of assessment for this cumulative assessment was presented in the Environmental Impact Assessment Scoping Report (Network Rail, 2020). Oxford City Council issued a Scoping Opinion in response to the Scoping Report in January 2021. The Scoping Opinion included a requirement for cumulative effects to be included in the EIA and further direction on the content of the assessment.

15.3.3 An overview of consultation undertaken on the Scheme is summarised in Chapter 4 – Approach to Environmental Assessment.

15.3.4 In relation to the cumulative effects assessment there has been engagement with Oxford City Council. Table 15.4 summarises the consultation responses that were received regarding the scope and methodology to be applied in the EIA.

15.3.5 The methodology for this assessment has considered the feedback received and where appropriate the scope and method has been revised.

Table 15.4: Summary of EIA Scoping Report consultation responses for cumulative effects scope and methodology

Consultee	Issues raised in response to the Scoping Report	Summary of the response to issues raised
Oxford City Council	The Council noted that "*the development of the East West Rail link may impact on the immediate station environment and give rise to an increase in vehicle movement, noise, vibration and other environmental impacts.*"	The East West Rail development has been separated into four stages. The ongoing proposals are outside of the Zone of Influence of this cumulative assessment.
	The Council also noted that "*The Oxford Flood Alleviation Scheme, if this goes ahead would be a large construction project taking place approximately half a mile from the Oxford Station area and could significantly impact on vehicle movements particularly on Botley Road and the A34.*"	The Oxford Flood Alleviation Scheme is within the search area but has not been consented nor is there any information available about its likely environmental effects.
	The Council also stated that "*There are wider urban development projects that could take place at the same time as this development that are at various stages of planning consideration. These include developments in the West End of Oxford City Centre, land south of Oxpens Road and the Osney Mead Industrial Estate redevelopment. All these projects could give rise to an increased environmental impact if they take place at the same time as the proposed Oxford Phase 2 works.*"	All developments proposed to Oxford City Council, The Vale of the White Horse and Oxfordshire County Council, within the study area of 2km have been considered. These are shown in Appendix 15.1 – Long list of Other Developments.
Natural England	Natural England noted that "*It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES* [Environmental Statement]. *All supporting infrastructure should be included within the assessment.*"	The Oxford Corridor Phase 2 EIA has considered the cumulative effects of all elements of the Scheme. These are reported in Sections 15.6 and 15.7 of this chapter.

Study Area

15.1.1 The study areas for intra-project effects and inter-project effects are defined as described here.

Intra-projects Effects

15.1.2 The study area for intra-project cumulative effects was defined by the study areas of each of the environmental topic assessments. These are identified in Chapters 6 to 14. Intra-project effects can occur within the areas where two or more topic study areas interact.

Inter-project Effects

15.1.3 The study area for inter-project cumulative effects has been defined on an environmental topic by topic basis. For each topic a Zone of Influence (ZoI) is defined, being the area over which effects of the Scheme would be noticeable. Each topic is summarised in Table 15.5.

Table 15.5: Zones of Influence for each environmental topic

Environmental Topic	Zone of Influence (ZoI)	Rationale for ZoI
Air Quality and Odour	350m from the Scheme (dust). 200m of affected roads (traffic derived effects). Adjacent to the red line boundary (Odour).	This is the maximum likely effect of site-based construction activities. This was the likely affected area from construction traffic. Odour is not expected to cause an effect beyond this area.
Geology and Soils	500m from the Scheme.	A margin has been added to allow for other developments which may affect the same the Scheme.
Historic Environment	200m from the Scheme.	Direct effects are likely to be limited to the red line boundary or adjacent areas. Wider effects within 200m are considered for setting effects.
Landscape and Visual	2km from the Scheme.	This is the likely extent of local views and landscape impacts of other developments in combination with the Scheme.
Noise and Vibration	200m (Construction). 300m (Operation).	This combines the maximum likely effect of site-based construction activities. This is the likely extent of rail noise effects as defined within Chapter 10 – Noise and Vibration.
Population	2km (Access).	Based on the extent of the traffic and transport assessment.

Environmental Topic	Zone of Influence (ZoI)	Rationale for ZoI
	2km (Employment). The red line boundary (Land use).	Based on regional context and the extent of the Oxford Travel to Work Area. All changes to land use are within the red line boundary.
Traffic and Transport	2km from the Scheme.	Comprises the primary routes which may be impacted by the Scheme during the construction period only (operation phase scoped out).
Water Resources and Flood Risk	2km (Flood Risk and Groundwater). 500m (Surface Water).	This represents the Scheme and the surroundings where effects to water resources could reasonably occur, as per Chapter 14 – Water Resources and Flood Risk.

Temporal Scope

15.3.6 The construction phase of the Scheme would begin in 2022. The construction period would take a total of three years (scheduled to be 2022 – 2025). The first year of operation would be 2025. The consideration of landscape and visual effects also requires the definition of operational year 15 as 2040.

Baseline Data

15.3.7 The baseline data collated as part of the topic assessments within Chapters 6 to 14 of this Environmental Statement were used for the assessment of intra-cumulative effect.

15.3.8 Information about other developments, used for the assessment of inter-project cumulative effect, has been collected from:

- The Planning Inspectorate Register of Applications;
- Oxfordshire County Council ePlanning system;
- Oxford City Council Planning Service; and
- The Vale of the White Horse District Council Planning Application Register.

The output of this has resulted in the long list of other developments as presented within Volume 4 – Appendix 15.1.

Assessment Methodology

15.3.9 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. The methods used to assess the effects are as described in this section.

Intra-project Effects

15.3.10 The methodology for the assessment of intra-project effects of the Scheme used a two-stage approach.

15.3.11 Stage 1:

- A checklist matrix was produced, which provided an indication of the type and scale of the impacts on groups of receptors.
- Each effect identified in Chapters 6 to 14 was checked against the list of receptor groups to identify which receptors were forecast to experience multiple effects.

15.3.12 Stage 2:

- The conclusions of the scale, extent and nature of effects from each topic were considered, taking account of all proposed mitigation.
- The adverse residual effects identified within Chapters 6 to 14, were assessed qualitatively to identify potential cumulative effects using professional judgement.

15.3.13 A significant effect may arise from the combination of several simultaneous effects, or from multiple effects occurring sequentially such that the duration of effect on a receptor would be increased.

Inter-project Effects

15.3.14 For the assessment of inter-project effects, a four-stage approach has been adopted based on the guidance set out in the Planning Inspectorate's *Advice Note Seventeen: Cumulative Effects Assessment* (Planning Inspectorate, 2019). The stages used were as follows:

- Stage 1: a long list of 'other existing and/or approved development' was collated.
- Stage 2: a short list of 'other developments' was identified by applying inclusion/exclusion criteria to the long list of other developments.
- Stage 3: information on the short listed 'other developments' was compiled to inform Stage 4. This included, where available: the proposed design and location; programme of construction; operation and decommissioning; and environmental assessment information.
- Stage 4: the cumulative effects of the Scheme with the other developments identified in Stages 2 of the process were assessed. Some

developments may be judged to not interact with the Scheme for a particular topic and would therefore not be included in the assessment.

Significance of Effects

15.3.15 The following criteria have been applied to determine the significance of potential cumulative effects:

- whether the effect would be temporary or permanent;
- the geographical area of an effect;
- the frequency of the effect;
- whether additive (e.g., loss of two areas of habitat of 1ha, resulting in 2ha habitat loss) or combined (e.g., two discharges combine to have an effect on a species not affected by discharges in isolation);
- the 'value' and 'resilience' of the receptor affected; and
- the likely success of mitigation.

15.3.16 In accordance with the general methodology in Chapter 4 – Approach to Environmental Assessment, effects have been identified as direct, indirect, short term or long term, permanent or temporary. This assessment has taken account of topic-specific EIA methodologies to determine the level of significance of each effect.

Intra-project Effects

15.3.17 In addition to the significance criteria described, an intra-project effect was considered significant if several effects which were not themselves significant combine to create an effect at a receptor. This would mean that overall, the receptor would be significantly affected.

Inter-project Effects

15.3.18 An inter-project effect was considered significant if a receptor would be significantly affected by an additional effect which would not be caused directly either by the Scheme in isolation or by the other development in isolation, but which would occur, or be increased in magnitude, due to the influence of the interaction of the other development and the Scheme.

Limitations and Assumptions

Intra-project Effects

15.3.19 It has been assumed that none of the issues scoped out of the assessment of the Scheme need to be considered in the assessment of cumulative effects. This is on the basis that there is no potential to result in likely significant effects.

Inter-project Effects

15.3.20 The assessment of inter-project cumulative effects relied upon publicly available information regarding other developments. This information varied between projects, which therefore leads to a degree of uncertainty in the inter-project cumulative effects.

15.3.21 The cut off for identifying other developments was 31 March 2021. Any applications submitted or determined, or new proposals brought forward after this date have not been included within this assessment.

15.4 Baseline Conditions

15.4.1 The baseline data collated as part of the topic assessments within Chapters 6 to 14 of this Environmental Statement were used for the assessment of intra-cumulative effects. Information about other developments, is provided in Volume 4 – Appendix 15.1: Long List of Developments.

15.5 Design and Best Practice Measures

15.5.1 The measures taken into account, for the assessment of whether cumulative significant effects would be likely to occur, have been described in the topic chapters on which the assessment has been based in Chapters 6 to 14 of this Environmental Statement. The assessment also considers the Scheme would be constructed in accordance with a Code of Construction Practice, which is submitted as part of the Environmental Statement (Appendix 2.1).

15.6 Assessment of Intra-project Cumulative Effects

15.6.1 This section reports the assessment of intra-project cumulative effects. Table 15.6 summarises the topics causing intra-project effects at the different receptors. A cross indicates at least one adverse effect; two crosses indicate at least one significant adverse effect; and a tick indicates at least one beneficial effect.

Table 15.6: Intra-project effects at the different receptor groups

Discipline Effect		Receptor Groups			
		Co-operative Childcare	Cripley Road Residents	Abbey Road Residents	Botley Road Users
Construction Phase	Air quality and Odour		×	×	
	Geology and Soils				
	Historic Environment				×
	Landscape and Visual		××	××	××
	Noise and Vibration		×		
	Population	×			
	Traffic and Transport				×
	Water Resources and Flood Risk				
Operation Phase	Air quality and Odour			×	
	Geology and Soils				
	Historic Environment				
	Landscape and Visual		×*		✓
	Noise and Vibration	×	×	×	
	Population				
	Traffic and Transport				✓
	Water Resources and Flood Risk				××

Key: × = adverse effect; ✓ = beneficial effect; ×× = at least one significant adverse effect

* Effect at full maturation of mitigation planting at 15 years of operation

15.6.2 The intra-project cumulative effects assessment identified significant effects on receptors which would be affected by more than one mechanism, where those effects are reported in different chapters. The assessment of intra-project cumulative effects identified in Table 15.6 are described here according to groups of receptors.

Co-operative Childcare

15.6.3 The Co-operative Childcare business is expected to experience minor disruption as it would be re-located for construction and would also experience a temporary increase in noise at its proposed location within Becket Street station car park. The relocation would enable childcare provision to continue throughout construction. When returned to its permanent location on Roger Dudman Way, it is predicted to experience a 1.2 dB increase in noise during the daytime as a result of the operation of the Scheme.

15.6.4 Although it is predicted that Co-operative Childcare would experience an increase in noise at the temporary location and then also increased noise when it is returned to its permanent location, the operational increase is unlikely to be noticeable by staff or children. These effects are not likely to combine significantly through construction to operational phases and would result in a neutral cumulative effect.

Cripley Road Residents

15.6.5 The residents on Cripley Road are likely to experience a significant visual effect, increased noise and negligible impacts on human health due to dust throughout construction. Following the construction management measures within the CoCP would mean the cumulative effect would not be likely to increase the already significant visual effect to Cripley Road Residents due to the noise and dust impacts.

15.6.6 During operation there would be a loss of privacy screening and change to the entire view due to removal of trees and vegetation along Cripley Road. The addition of an operational noise effect is likely to result in a significant cumulative effect to the residents of Cripley Road. However, proposed additional noise mitigation and mitigation planting maturing over time would reduce these effects over time but would likely remain moderate adverse in combination.

Abbey Road Residents

15.6.7 During construction there would be a moderate/major visual effect as well as minor air quality effect due to dust, and noise effects on Abbey Road Residents. The intra-project cumulative effect would result in an overall major adverse effect. However, as the visual effect would already have been significant, no new significant effects would result.

15.6.8 The potential air quality effects on human health due to increase in pollutant concentrations from rail emissions in combination with noise effects would not likely be led to a significant cumulative effect.

Botley Road Users

15.6.9 During construction, the loss of the Botley Road Pedestrian Tunnel (of historic value), would coincide with increases in construction traffic due to HGVs using Botley Road, temporary road closures and diversions, and the major adverse visual effect to the pedestrian, cyclist and motorist users of Botley Road. The effect to the users may be increased but as there would already be a significant effect to the users, this would not change and would be temporary.

15.6.10 During operation of the Scheme, there would be a major adverse effect to Botley Road users due to the impacts of flooding but also moderate/major beneficial effects due to the creation of new public space in front of the western entrance and additional pedestrian and cycling provision. However, these effects are not likely to be realised at the same time and would therefore not interact. There would be no adverse intra-project cumulative effect. The combination of beneficial effects would lead to an increase in magnitude of effect from moderate/major to major but would not alter the significance of the beneficial effect.

Summary of Intra-project Effects

15.6.11 Table 15.7 summarises the residual cumulative effects, after additional mitigation, identified in the topic chapters. The table is arranged by affected receptor group. Neutral and minor cumulative effects have not been included on the basis that they have no potential to result in likely significant cumulative effects on the environment.

Table 15.7: Intra-project cumulative effects

Topic area	Phase	Description and nature of impact (Ref.)	Residual topic effect	Intra-project effect?
Co-operative Childcare				
Population	Construction	Land Use	Minor adverse – not significant	No change Cumulative effect not likely to combine from land use construction effects to operation noise effect.
Noise and Vibration	Operation	Operational Noise	Below significant observed adverse effect level (SOAEL) threshold – Not significant	
Cripley Road Residents				
Landscape and Visual	Construction	High magnitude of visual effect on these receptors during construction,	Major adverse – significant	No change already significantly affected, no intra-project cumulative effect with the proposed construction management measures the cumulative effect would not be greater in magnitude.
Air Quality and Odour		Impacts on amenity and human health from construction dust	Not significant	
Noise and Vibration		Construction noise	Minor – Not significant	
Landscape and Visual	Operation	Significant loss of privacy screening due to removal of trees and vegetation along Cripley Road causing a substantial change to the entire view.	Minor adverse– Not significant	Moderate Adverse – Significant Noise and visual impact would be experienced together but effects to be mitigated though landscaping growth and

Topic area	Phase	Description and nature of impact (Ref.)	Residual topic effect	Intra-project effect?
Noise and Vibration		Operational Noise	Major adverse effect in terms of noise change but overall noise level is below the fixed SOAEL threshold. With the identified mitigation in place there are residual effects but these have been mitigated as much as possible in line with the context of sustainable development and the Noise Policy Statement for England.	noise barrier. Also, effects of change in noise levels decrease over the longer term.
Abbey Road Residents				
Landscape and Visual	Construction	Medium magnitude of visual effect on these receptors during construction	Moderate/major adverse significance	Major adverse – Significant Already significantly affected, air quality dust, and noise considerations may make adverse effect slightly worse and become a major cumulative effect
Air Quality and Odour		Impacts on amenity and human health from construction dust	Not significant	
Noise and Vibration		Construction noise	Minor adverse – Not significant	
Air Quality and Odour	Operation	Increase in pollutant concentrations from rail emissions impacting human health	Not significant	Minor adverse – Not significant Cumulative effect likely but would not be significant and would reduce through time.
Noise and Vibration		Operational Noise	Below SOAEL threshold – Not significant	
Botley Road Users				
Historic Environment	Construction	Removal of asset (Botley Road Pedestrian Tunnel) during construction	Minor adverse – Not significant	

Topic area	Phase	Description and nature of impact (Ref.)	Residual topic effect	Intra-project effect?
Landscape and Visual		High magnitude of visual effect on these receptors during construction in the short term,	Major adverse – significant	No change Already significantly affected, no intra-project cumulative effect
Traffic and Transport		Temporary road closures	Minor adverse – Not significant	
Landscape and Visual	Operation	Public realm improvements which benefit the character of Botley Road and western approach into the city.	Moderate / major beneficial - Significant	No change to adverse effects. The Major adverse effect and moderate/major beneficial effect to user of Botley Road do not cancel one another out as the effects would occur at different times. Major beneficial – Significant Already significantly moderate/major beneficial effect due to public realm improvement in addition to improvements for WCH, may make beneficial effect slightly better and become a major cumulative effect.
Traffic and Transport		Additional pedestrian and cycling provision	Minor beneficial – Not significant	
Water Resources and Flood Risk		Fluvial Flooding to Development	Major – Significant flooding would still occur to development, but impacts would be reduced.	
		Surface Water Flooding to the Development	Minor - Not significant if drainage can be designed to 1% (1 in 100) Annual Exceedance Probability plus climate change event. Major – significant if it cannot.	

15.7 The Assessment of Inter-project Cumulative Effects

Stage 1

15.7.1 The long list of other developments considered for the inter-project assessment is presented in Volume 4 – Appendix 15.1. The long list consists of developments which satisfy broad criteria based on their size or nature and their distance from the Scheme. Developments within the largest ZoI (2km from the Scheme) have been considered. Longlisted developments were selected based on the definition of a 'major development' within the Town and Country Planning (Development Management Procedure) (England) Order 2015.

15.7.2 These are developments which:

- occupy more than 1ha or 0.5ha of residential property;
- more than 1000m^2 of building floorspace or 10 dwellings,
- any minerals developments; or
- any waste developments.

15.7.3 Projects that did not satisfy these criteria were excluded on the basis that they would not be likely to result in cumulative significant effects.

Stage 2

15.7.4 The criteria used in Stage 2 to determine whether a development, included within the long list was to be included in the short list for the assessment were as follows:

- The other development is to have an overlapping construction or operational timeframe with the Scheme. The construction timing was not always available but for the purposes of the assessment, developments without a timeframe have been included.
- Developments for which consent has been refused were not included.
- Developments likely to result in environmental effects were included unless excluded due to another criterion.

15.7.5 Developments which have the potential to result in cumulative effects with the Scheme were therefore short listed and are included in Table 15.8.

Table 15.8: Short list of other developments

ID Code	Scheme (Planning Ref) - Authority	Status	Proposal Brief	Approx. Distance from Scheme (m)	Criteria for Stage 2 Selection	
					Temporal Scope Overlap?	Development likely to have an environmental effect?
PA1	Lucy Faithful House (19/03106/FUL) - Oxford City Council	Approved	Erection of 36no. dwellings (C3 Use Class) including 50% affordable housing with associated access, parking, and landscaping on the site of the former Lucy Faithfull House.	700	No information available, assumed yes	Yes
PA2	Two storey retail unit at 135 - 137 Botley Road (16/00882/NMA (amendment to 16/00882/FUL)) - Oxford City Council	Approved	Erection of a two-storey retail unit (Use Class A1) and reconfiguration of existing car park.	850	No information available, assumed yes	Yes
PA3	St Paul's House Redevelopment (19/02531/FUL) - Oxford City Council	Approved	Partial demolition of existing buildings. External alterations and additions to St Pauls House, including external cladding and roof extension to form a fourth floor. Erection of new four storey building fronting Cranham Street. Change of use of extended ground floor to Class A1 (retail), Class A2 (professional and financial services) and Class B1 (office), and provision of nine new Class C3 dwellings (including 4x2 bedroom flats and 5x3 bedroom flats). Provision of four car parking spaces.	600	No information available, assumed yes	Yes

ID Code	Scheme (Planning Ref) - Authority	Status	Proposal Brief	Approx. Distance from Scheme (m)	Criteria for Stage 2 Selection	
					Temporal Scope Overlap?	Development likely to have an environmental effect?
PA5	Tumbling Bay (18/03176/FUL) - Oxford City Council	Approved	Formation of new naturalistic flowing stream will be created on the north bank of Tumbling Bay to provide a route for fish migration. Part removal of existing scrubs and smaller trees either side of the new channel to be replaced with seeded area with a native wildflower mix and trees.	80	No information available, therefore assumed yes	Yes
PA9	Redevelopment of Former Conservative Club Building at Castle Hill House (19/02306/FUL) - Oxford City Council	Approved	Redevelopment of former conservative club building at Castle Hill House comprising demolition of existing building and erection of new building to provide 52 student study rooms, along with internal and external amenity space; landscaping improvements including the reconfiguration of the Fellows car park.	550	No information available, therefore assumed yes	Yes
PA13	Clarendon Centre Redevelopment (21/00110/FUL) - Oxford City Council	Registered	Proposed redevelopment involving partial re-use and extension of existing buildings and erection of new buildings to form retail, offices, research and development, and student accommodation	650	No information available, therefore assumed yes	Yes
PA14	Oxford Business Centre Redevelopment (18/01206/VAR (16/02945/FUL)) - Oxford City Council	Approved	Demolition of units 1-15 Oxford Business Centre and redevelopment including erection of purpose-built student accommodation with small-scale A1, A3,	175	Currently under construction – Potential operational overlap	Yes

ID Code	Scheme (Planning Ref) - Authority	Status	Proposal Brief	Approx. Distance from Scheme (m)	Criteria for Stage 2 Selection	
					Temporal Scope Overlap?	Development likely to have an environmental effect?
			A4 and B1 units, with associated landscaping.			
PA15	Simon House Apartments (18/03370/FUL) - Oxford City Council	Approved	Demolition of existing building and construction of 30 apartments	450	No information available, therefore assumed yes	Yes
PA16	Student Accommodation at The Mitre (18/03199/VAR (18/00896/FUL)) - Oxford City Council	Approved	Erection of two storey infill lodge building	900	Currently under construction – Potential operational overlap	Yes
PA19	Land at Jericho Canal Side and Community Centre (20/01276/FUL) - Oxford City Council	Registered	demolition of existing structures and garages, redevelopment to provide residential, community centre and boat yard uses	200	No information available, therefore assumed yes	Yes
PA20	Redevelopment and extension of Osney Power Station (18/02982/FUL) - Oxford City Council	Approved	The conversion, redevelopment and extension of Osney Power Station to a Centre of Executive Education to be run by Said Business School	100	No information available, therefore assumed yes	Yes
PA21	Dragon School (20/02434/VAR (17/02419/FUL)) - Oxford City Council	Approved	Erection of new Music School, construction of link to Lynam Hall, landscaping including the formation of a new courtyard, garden area to Lane House and entrance courtyard.	1500	No information available, therefore assumed yes	Yes

ID Code	Scheme (Planning Ref) - Authority	Status	Proposal Brief	Approx. Distance from Scheme (m)	Criteria for Stage 2 Selection	
					Temporal Scope Overlap?	Development likely to have an environmental effect?
PA22	Rhodes House (20/00166/FUL) - Oxford City Council	Approved	Demolition of Lodge buildings, garden works buildings, existing hard landscaping on Ramparts and internal elements. Refurbishment, alteration and extension of existing building Erection of a single storey glazed pavilion building (with new basement) within the grounds (west) to provide additional teaching and office accommodation. Erection of new gardeners' outbuildings. New landscaping of garden and Ramparts; removal and re-instatement of boundary walls; removal and reinstatement of front ramps; and provision of cycle parking.	1000	No information available, therefore assumed yes	Yes
PA23	New College School (20/00834/VAR (17/03330/FUL)) - Oxford City Council	Approved	Proposed demolition of Warham House, New College School hall and partial demolition of Savile House rear extension. Erection of three new buildings and reconstruction of Savile House rear extension	1000	Currently under construction – Potential operational overlap	Yes
PA24	Tinbergen Research and Teaching Building (20/02471/FUL) - Oxford City Council	Approved	Erection of research and teaching building (Use Class F.1) over five storeys plus basement level including associated café, offices, laboratories and roof level greenhouses, plant, PV panels and flues	1250	Yes	Yes

ID Code	Scheme (Planning Ref) - Authority	Status	Proposal Brief	Approx. Distance from Scheme (m)	Criteria for Stage 2 Selection	
					Temporal Scope Overlap?	Development likely to have an environmental effect?
PA25	Sir Geoffrey Arthur Building Redevelopment Project (19/02032/FUL (19/02032/CND4)) - Oxford City Council	Approved	Erection of replacement buildings to create 77 student bedrooms, 8 studio rooms and ancillary provision for Pembroke College on the Geoffrey Arthur Site	750	No information available, therefore assumed yes	Yes
PA26	Fairfield House (20/00116/FUL) - Oxford City Council	Approved	Full planning application for the erection of 7 x three storey buildings and internal and external alterations to old Fairfield House	1500	No information available, therefore assumed yes	Yes

Stages 3 & 4

15.7.6 Further information was gathered regarding the short-listed developments. The locations of the short-listed developments are shown on Volume 3 – Figure 15.1. Once details of the developments had been obtained, some of the short-listed developments were assessed for inter-project cumulative effects but were judged to not to interact with the Scheme for any of the topics included within this assessment. These developments were;

- PA2 – Two storey retail unit at 135 - 137 Botley Road;
- PA3 – St Pauls House Redevelopment;
- PA13 – Clarendon Centre Redevelopment;
- PA14 – Oxford Business Centre Redevelopment;
- PA16 – Student Accommodation at The Mitre;
- PA22 – Rhodes House;
- PA23 – New College School;
- PA24 – Tinbergen Research and Teaching Building; and
- PA25 – Sir Geoffrey Arthur Building Redevelopment Project.

15.7.7 Information about the remaining short-listed developments was used to assess the potential inter-project cumulative effects. The Projects and the potential effects are described below and summarised in Table 15.9.

PA1 – Lucy Faithful House

15.7.8 This development is an approved planning application located approximately 700m southeast of the Scheme at Littlegate Street. It would consist of 36 new apartments and the height of the proposed housing blocks vary.

15.7.9 There is a possibility of an inter-project cumulative adverse effect on the local townscape character during construction. Both the Scheme and PA1 would directly impact on the Western Fringe Town Character Area (TCA) 2B. The two schemes would likely lead to the loss of landscape features and introduction of construction plant and activities at both schemes. Once both schemes are in operation the effects would likely reduce with the removal of construction activity, completion of developments and implementation of mitigation planting. As such, the cumulative effect is likely to be significant only during construction. No significant cumulative visual effects would likely remain during operation.

15.7.10 There could be an adverse visual effect during construction on views from Visual Receptor 15 – users of Raleigh Park (See Figure 9.5 for location of Visual Receptors). The effects would be due to views associated with the intensification of construction activity seen above the city roofline. However, once construction is complete, building re-development would most likely be hidden in the view by intervening built form and vegetation. As such, no significant cumulative visual effects would continue during operation.

PA5 – Tumbling Bay

15.7.11 This development is a naturalistic bypass channel which would provide a fish migration route between the Bulstake Stream and the River Thames approximately 80m to the west of Sheepwash Bridge works of the Scheme.

15.7.12 With regard to air quality, the increase in dust deposition and PM_{10}/$PM_{2.5}$ concentrations from the construction activities of both schemes could potentially impact on amenity and human health, respectively. However, through the use of appropriate good practice construction measures on both schemes, this would not likely lead to a significant effect.

15.7.13 There is also potential for an increase in pollution to groundwater and surface water during the Sheepwash Bridge works and PA5, and therefore also damage to human health receptors from a combination of these works. However, there is no record of known contamination at the PA5 site so this would not likely be significant.

15.7.14 For dwellings along the northern section of Abbey Road, there is a potential for minor increase in noise from a combination of works to Sheepwash Bridge and construction works at PA5. Both these works are proposed over short time scales, thus would not be significant.

15.7.15 There would likely be landscape effects on the Oxford Green Blue Infrastructure Network (GBIN) during construction and early operation years. This would be due to the localised removal of trees and vegetation to enable the work at the Scheme and PA5.

15.7.16 However, GBIN enhancement opportunities are proposed as an integral part and function of the new fish pass at PA5 including; new naturalised channel for fish migration and the creation of riverbed features for enhanced aquatic habitats. There would be mitigation planting and vegetation management to improve accessibility and recreation. The mitigation planting proposed for both schemes, would also likely lead to beneficial long-term effects.

15.7.17 There could be visual effects during construction, and during operation, on views from public rights of way (PRoWs) and public open space at Visual

Receptors 2 and 10. These are: Public Right of Way (PRoW) 320/10/10 east of Sheepwash Bridge which is also representative of views from Rewley Road properties; and users of Botley Park, public open space, respectively.

15.7.18 At both locations, views could be opened up due to the proposed loss of vegetation. The cumulative effects at both visual receptors would be significant during construction and operational year 1. However, by year 15 of operation, with proposed mitigation planting reaching maturity, effects would reduce, and no significant cumulative visual effects would remain.

PA9 – Redevelopment of Former Conservative Club Building at Castle Hill House

15.7.19 PA9 is approximately 500m east of the Scheme and would- consist of the redevelopment of Castle Hill House on New Road. It would require the demolition of existing buildings on site to allow for new buildings which would provide accommodation for 53 student bedrooms and ancillary accommodation.

15.7.20 There is the potential for ground gas to travel from PA9 to the Scheme. This could increase the potential for a build-up of this gas within enclosed spaces causing a risk to human health. However, gas levels are low in this area and it would be unlikely that ground gas would travel from Castle Hill House to the Scheme.

PA19 – Land at Jericho Canal Side and Community Centre

15.7.21 PA19 is a multipurpose development 200m northeast of the Scheme. It would comprise canal facilities such as a dry dock and workshop facilities, community facilities such as meeting rooms, childcare, sport facilities, and housing.

15.7.22 With both Schemes under construction concurrently, there is a potential for an increase in pollution to groundwater and surface water and a risk of ground gas damage to human health receptors. This would be from a combination of works to Sheepwash Bridge and the works at PA19. The presence of contamination at Jericho Canal (PA19) and at the Scheme? was confirmed by a previous ground investigation. However, mitigation proposed for the Scheme and PA19 should be sufficient to reduce risk to human health receptors.

15.7.23 There is also a potential for minor increase in noise at residential receptors from a combination of Scheme works to Sheepwash Bridge and construction works at Jericho Canal as part of PA19. However, as both these works are proposed over a short period of time, this would not likely be significant.

15.7.24 There would be an increase in dust deposition and PM_{10}/$PM_{2.5}$ concentrations from the construction activities of both schemes. This could potentially impact on amenity and human health, respectively within 350m of each development. However, through the use of appropriate good practice construction measures at both developments, this would not likely lead to a significant effect.

PA20 – Redevelopment and extension of Osney Power Station

15.7.25 PA20 would redevelop the Osney Power Station site, approximately 100m west of the Scheme, into a teaching facility for the Said Business School. It would have associated accommodation and some leisure facilities for students.

15.7.26 There could be an adverse effect on the local townscape character during construction as the Scheme and PA20 would directly impact on the New Osney TCA:4E. This would be due to the loss of landscape features and introduction of construction plant and activity at both schemes. Upon completion of construction however, the effects would likely reduce with the removal of construction activity, and implementation of mitigation planting. As such, no significant cumulative effects would likely remain.

15.7.27 There could also be adverse visual effects during construction and operation on views from tourist destinations, PRoWs and public open spaces at the following representative Visual Receptors (See Figure 9.5 for location of Visual Receptors):

- Visual Receptors 6: Thames Path National Trail and pedestrians and motorists on Botley Road;
- Visual Receptors 8: local residents and users of St Thomas Martyr Church;
- Visual Receptors 9: visitors on top of Oxford Castle Mound and St Georges Tower;
- Visual receptors 12: users of Frideswide Square; and
- Visual receptors 15: users of Raleigh Park.

15.7.28 From Visual Receptor 6, both the Scheme and PA20 redevelopment would be seen near to one another and close to the viewer as they move across Osney Bridge. The visual effects for this receptor would be due to the concentration of construction activity of both schemes within the view, in combination with the substantial tree and vegetation removal around the station area associated with The Scheme. This would remain significant into year 1 operation primarily due to the changes in the view associated with tree losses around the station area. The changes into year 1 operation of the view

toward PA20 would likely go unnoticed. As such, no significant cumulative visual effects would remain.

15.7.29 From Visual Receptors 8 and 9 the upper most parts of the power station (PA20) are clear and are viewed within close context of The Scheme. The visual effects on these receptors would be due to the intensification of construction activity across the views. The development of both schemes would be seen near one another and within close proximity of the viewer with greater exposure in winter months. By operation year 1 both schemes would be complete and construction activity would be removed. The Landscape and Visual Appraisal submitted with PA20 assesses views from Oxford Castle Mound to be minor adverse; from Becket Street to be negligible and from Osney Lane footbridge to be minor beneficial by year 1 operation. As such, it is judged that no significant cumulative visual effects would remain.

15.7.30 From Visual Receptor 12, the power station (PA20) is viewed beyond Becket Street station car park and seen in context with the Scheme. The Scheme requires a large amount of tree removal along Botley Road exposing construction activity of both schemes across most of the view. By year 15 of operation, with proposed mitigation planting reaching maturity, effects would reduce and no significant cumulative visual effects would remain.

15.7.31 From Visual Receptor 15, the roof and upper storeys of PA20 are obvious, due to its large mass and light colour. In this view the visual effects would mainly be due to intensification of construction activity seen above the city roofline viewed from this very high sensitivity receptor. By year 1 operation both schemes would be complete and construction activity would be removed. The Landscape and Visual Appraisal submitted with PA20 assesses views from Raleigh Park to be negligible by year 1 operation. As such, no significant cumulative visual effects would remain.

15.7.32 The proximity of PA20 to the Scheme would likely lead to an increase in dust deposition and PM_{10}/$PM_{2.5}$ concentrations from a combination of construction activities of both schemes. However, the use of appropriate good practice construction measures would mean that these effects are not likely to be significant.

15.7.33 Although the presence of contamination in made ground at Onsey Power Station (PA20) was confirmed with ground investigations, it is unlikely that there is a migration path which would result in an in combination effect to human health due to the Scheme's works to Botley Bridge and PA20.

PA21 – Dragon School

15.7.34 The Dragon School proposals are approximately 1.5km to the northeast of the Scheme at Bardwell Road where new facilities for a music school would be built. There could be adverse landscape effects on the Oxford GBIN during construction and operation due to the removal of some high and moderate quality trees (as surveyed to BS5837) at the Dragon School site.

15.7.35 The Dragon School site lies within the North Oxford Victorian Suburb Conservation Area. Trees in conservation areas hold a higher degree of protection even where not formally protected under Tree Preservation Order (TPO). Tree removal at this development could partially undermine the integrity of the city's tree canopy cover as a whole and this would add to effect of the Scheme's fragmentation of the green infrastructure, caused by the tree removal around the station area. Proposed mitigation planting at both sites would reduce these effects by year 15 operation as such no significant cumulative visual effects would remain.

PA26 – Fairfield House

15.7.36 The PA26 development, approximately 1.6km northeast of the Scheme, involves the construction of seven new student accommodation buildings along with the refurbishment of the Fairfield House building to provide housing for 150 students. It also includes the construction of a new nursery building and associated landscaping.

15.7.37 There is potential for adverse landscape effects on the Oxford GBIN during construction and operation of the two schemes due to the removal of large number (135 approx.) of moderate and low-quality trees (as surveyed to BS5837) at the PA26 site. The University College Oxford North (PA26) site lies within the North Oxford Victorian Suburb Conservation Area. Trees in conservation areas hold a higher degree of protection even where not formally protected under TPO.

15.7.38 Tree removal at this development could partially undermine the integrity of the cities tree canopy cover as a whole. This would add to effect of The Schemes fragmentation of the green infrastructure, caused by the tree removal around the station area. Proposed mitigation planting at both sites would reduce these effects by year 15 operation as such no significant cumulative visual effects would remain.

<u>Summary of Inter-project Cumulative Effects</u>

15.7.39 Table 15.9 provides a summary of effects as described in Section 15.7 separated by topic. Interproject cumulative effects were not identified for

historic environment, population or human health. Traffic and transport information was generally not available for the other developments and operational traffic was scoped out of the Scheme. Therefore, cumulative effects could not be assessed.

Table 15.9: Summary of inter-project effects

Other Scheme ID Code	Receptor(s)	Assessment of cumulative effect with the Scheme	Residual cumulative effect
Air Quality			
PA5, PA19, PA20	Human receptors within 350m of the boundary of the construction area of the Scheme (see Figure 6.3)	Increase in dust deposition and PM_{10}/$PM_{2.5}$ concentrations from a combination of construction activities within the construction area of the Scheme and works associated with each other development. These would potentially impact on amenity and human health, respectively.	Not significant. Appropriate good practice dust mitigation would be applied to all schemes as required through the development control process.
Geology and Soils			
PA5	Human health - construction workers	Increase in potential pollution of groundwater and surface water and damage to human health receptors from a combination of works to Sheepwash Bridge and the construction works at Tumbling Bay.	Not significant: there is no recorded contamination present at Tumbling Bay.
PA9	Human health – construction workers	Increase in potential damage to human health through a build-up of gas within enclosed spaces of the Scheme.	Not significant: gas levels are low and unlikely that ground gas would travel from Castle Hill House to the Scheme.
PA15	Human health – construction workers	Increase in potential movement of contaminants potentially present in the made ground. This could impact human health receptors for a combination of works to Botley Road Bridge and Simon House.	Not significant: presence of contamination at Simon House site is not confirmed. Simon House is 450m distant from the Scheme and it is unlikely that potential contaminants would affect Botley Road Bridge.
PA19	Human health – construction workers	Increase in potential pollution of groundwater and surface water and damage to human health receptors from a combination of works to Sheepwash Bridge and the works at Jericho Canal.	Not significant: presence of contamination at Jericho Canal was confirmed by a previous ground investigation however mitigation in the Scheme and Jericho Canal scheme should be sufficient to reduce risk to human health receptors.

Other Scheme ID Code	Receptor(s)	Assessment of cumulative effect with the Scheme	Residual cumulative effect
PA20	Human health – construction workers	Increase in potential movement of contaminants potential present in the made ground with impact to human health receptors for a combination of works to Botley Road Bridge and Osney Power Station.	Not significant: presence of contamination in made ground at Osney Power Station was confirmed with ground investigations. It is unlikely that contaminants would migrate from Osney Power Station to Botley Road Bridge.
Landscape and Visual			
PA1	Landscape: TCA 2B: Western Fringe	If the timing of the construction phases overlap, both the Scheme and PA1 would directly impact on the Western Fringe TCA:2B. This is due to the loss of landscape features and introduction of construction plant and activity at both schemes.	Significant during construction: Once both schemes are in operation the effects would likely reduce with the removal of construction activity, completion of developments and implementation of mitigation planting. As such, no significant cumulative visual effects would remain.
	Visual Receptor 15	There could be inter-project cumulative adverse visual effects during construction, if the timing of the construction phases overlap, on views from Visual Receptor 15 (users of Raleigh Park). The visual effects would mainly be due to views associated with the intensification of construction activity seen above the city roofline.	Significant during construction: By operation Year 1, building re-development would most likely be hidden in the view by intervening built form and vegetation. As such, no significant cumulative visual effects would remain.

Other Scheme ID Code	Receptor(s)	Assessment of cumulative effect with the Scheme	Residual cumulative effect
PA5	Landscape: Oxford Green Blue Infrastructure Network (GBIN)	There could be inter-cumulative adverse effects on the Oxford Green Blue Infrastructure Network during construction and early operation years. This is due to the localised removal of trees and vegetation to enable the work at this development. GBIN enhancement opportunities are proposed as an integral part and function of the new fish pass including. There would be mitigation planting and vegetation management to improve accessibility and recreation.	Significant during construction and year 1 of operation: These opportunities along with the mitigation planting proposed at both schemes, would likely have beneficial, although not significant, long term effects.
	Visual Receptors 2 and 10	There could be inter-project cumulative adverse visual effects during construction, if the timing of the construction phases overlap, and during operation, on views from PRoWs and public open space at the following representative Visual Receptors: 2 (PRoW 320/10/10 east of Sheepwash Bridge, also representative of residents view from Rewley Road properties); and 10 (users of Botley Park, public open space). The visual effects would mainly be due to views associated with construction activity. At both locations, views could be opened up due to the proposed loss of vegetation. The cumulative effects at both visual receptors would be significant during construction and operation year 1.	Significant during construction and into year 1 of operation: By year 15 of operation, with proposed mitigation planting reaching maturity, effects would reduce. As such, no significant cumulative visual effects would remain.

Other Scheme ID Code	Receptor(s)	Assessment of cumulative effect with the Scheme	Residual cumulative effect
PA15	Landscape: TCA 2B: Western Fringe	There could be inter-cumulative adverse effects on the local townscape character during construction if the timing of the construction phases overlap. Both the proposed Scheme and this residential building development would directly impact on the Western Fringe TCA:2B. This is due to the loss of landscape features and introduction of construction plant and activity at both schemes.	Significant during construction: Once both schemes are in operation the effects would likely reduce with the removal of construction activity, completion of developments and implementation of mitigation planting. As such, no significant cumulative visual effects would likely remain.
	Visual Receptor 15	There could be inter-project cumulative adverse visual effects during construction, if the timing of the construction phases overlap, on views from Visual Receptor 15 (users of Raleigh Park). The visual effects would mainly be due to the intensification of construction activity above the city roofline viewed from this very high sensitivity receptor.	Significant during construction: By Operation year 1 the proposed new residential building would most likely be hidden in the view by intervening built form and vegetation. As such, no significant cumulative visual effects would remain.

Other Scheme ID Code	Receptor(s)	Assessment of cumulative effect with the Scheme	Residual cumulative effect
PA20	Landscape: TCA 4E: New Osney	There could be inter-project cumulative adverse effects on the local townscape character during construction if the timing of the construction phases overlap. Both the Proposed Scheme and the power station redevelopment would directly impact on the New Osney TCA:4E. This would be due to the loss of landscape features and introduction of construction plant and activity at both schemes.	Significant during construction: Once both schemes are in operation the effects would likely reduce with the removal of construction activity, completion of developments and implementation of mitigation planting. As such, no significant cumulative visual effects would likely remain.
	Visual Receptor 6	From Visual Receptor 6, both the proposed Scheme and the power station redevelopment would be seen near to one another and close to the viewer as they move across Osney Bridge. The visual effects on this receptor would be due to the concentration of construction activity within the view, in combination with the substantial tree and vegetation removal around the station area associated with The Scheme. This would remain significant into year 1 operation primarily due to the changes in the view associated with tree losses around the station area. The changes in the view toward the redeveloped power station would likely go unnoticed.	Significant during construction and year 1 operation: Effects would reduce by year 15 operation due to the maturing of mitigation planting proposed to Botley Road and the station area. As such, no significant cumulative visual effects would remain long term.

Other Scheme ID Code	Receptor(s)	Assessment of cumulative effect with the Scheme	Residual cumulative effect
	Visual Receptors 8 and 9	From Visual Receptors 8 and 9 the upper most parts of the power station are clear and are viewed within close context of The Scheme. The visual effects on these receptors would be due to the intensification of construction activity across the views. The development of both schemes would be seen near one another and within close proximity of the viewer – with greater exposure in winter months. By Operation year 1 both schemes would be complete and construction activity would be removed.	Significant during construction: The Landscape and Visual Appraisal submitted with the power station planning application assesses views from Oxford Castle Mound to be minor adverse; from Becket Street to be negligible and from Osney Lane footbridge to be minor beneficial by year 1 operation. As such, it is judged that no significant cumulative visual effects would remain.
	Visual Receptor 12	From Visual Receptor 12, the power station is viewed beyond Becket Street car park and seen in context of The Scheme. The Scheme requires a large amount of tree removal along Botley Road exposing construction activity across most of the view. The cumulative visual effects during construction and on year 1 operation would likely be significant.	Significant during construction and year 1 operation: By year 15 of operation, with proposed mitigation planting reaching maturity, effects would reduce. As such, no significant cumulative visual effects would remain long term.

Other Scheme ID Code	Receptor(s)	Assessment of cumulative effect with the Scheme	Residual cumulative effect
	Visual Receptor 15	From Visual Receptor 15, the roof and upper storeys of the power station are obvious, due to its large mass and light colour. In this view the visual effects would mainly be due to intensification of construction activity seen above the city roofline viewed from this very high sensitivity receptor. By year 1 operation both schemes would be complete and construction activity would be removed.	Significant during construction: The Landscape and Visual Appraisal submitted with the power station planning application assesses views from Raleigh Park to be negligible by year 1 operation. As such, no significant cumulative visual effects would remain.
PA21	Landscape: Oxford Green Blue Infrastructure Network (GBIN)	There could be inter-cumulative adverse effects on the Oxford Green Blue Infrastructure Network during construction and operation. Due to the removal of some high and moderate quality trees (as surveyed to BS5837) at the Dragon School site. The Dragon school site lies within the North Oxford Victorian Suburb Conservation Area. Trees in conservation areas hold a higher degree of protection even where not formally protected under TPO. A good indicator that these trees are of some value. Tree removal at this development could partially undermine the integrity of the cities tree canopy cover as a whole. This would add to effect of The Schemes fragmentation of the green infrastructure, caused by the tree removal around the station area.	Significant during construction and year 1 operation: Proposed mitigation planting at both sites would reduce these effects by year 15 operation as such no significant cumulative visual effects would remain.

Other Scheme ID Code	Receptor(s)	Assessment of cumulative effect with the Scheme	Residual cumulative effect
PA26	Landscape: Oxford Green Blue Infrastructure Network (GBIN)	There could be inter-cumulative adverse effects on the Oxford Green Blue Infrastructure Network during construction and operation. Due to the removal of large number (135 approx.) moderate and low-quality trees (as surveyed to BS5837) at the University College Oxford North site. The University College Oxford North site lies within the North Oxford Victorian Suburb Conservation Area. Trees in conservation areas hold a higher degree of protection even where not formally protected under TPO. A good indicator that these trees are of some value. Tree removal at this development could partially undermine the integrity of the cities tree canopy cover as a whole. This would add to effect of The Schemes fragmentation of the green infrastructure, caused by the tree removal around the station area.	Significant during construction and year 1 operation: Proposed mitigation planting at both sites would reduce these effects by year 15 operation as such no significant cumulative visual effects would remain
Noise and Vibration			
PA5	Dwellings along northern section of Abbey Road:	Potential for minor increase in noise at residential receptors from a combination of works to Sheepwash Bridge of the Scheme and construction works at Tumbling Bay	Not Significant: Both these works are proposed over short time scales and would not be significant.
PA19	Land at Jericho Canal Side and Community Centre	Potential for minor increase in noise at residential receptors from a combination of works to Sheepwash Bridge of the Scheme and construction works at Jericho canal side.	Not Significant: Both these works are proposed over short time scales and would not be significant.

15.8 Additional Mitigation Measures

15.8.1 No additional mitigation has been proposed specifically in response to this cumulative assessment.

15.9 Conclusions

15.9.1 This chapter has looked at impacts on receptors identified in the environmental topic chapters, Chapters 6 to 14 of the Environmental Statement, which would experience either intra-project or inter-project cumulative effects.

15.9.2 The assessment in this chapter has taken as its starting point the residual effects identified in the topic chapters. Measures embedded within the design, construction management mitigation measures and additional mitigation measures identified in the chapters have also been taken into account.

Intra-project effects

15.9.3 Several groups of receptors would experience multiple effects for all or part of construction or during operation of the Scheme. The combination of the not significant noise and visual effects to Cripley Road users would be a moderate adverse significant effect. However, the landscape effect would reduce over time as mitigation planting matures and would likely reduce the cumulative effect. The effect of increase in noise would also decrease with time. The other combined effects identified in this assessment are judged to not be significant in their own right; in these cases, the overall effect on the receptor is similar to the effect of the most significant individual effect.

Inter-project Effects

15.9.4 Potential significant cumulative inter-project effects identified have been to landscape and visual receptors only. These effects (summarised in Table 15.9) however, would either only be significant during construction overlaps or during year 1 of operation and would not likely remain significant by year 15 of operation largely due to the maturation of mitigation planting.

References

Institute of Environmental Management and Assessment (IEMA). (2020). *Demystifying Cumulative Effects – Thought pieces from UK practice*.

Network Rail. (2020) *Oxford Corridor Phase 2: Environmental Impact Assessment Scoping Report.*

Oxfordshire County Council. (No date). *ePlanning system*. URL https://myeplanning.oxfordshire.gov.uk/. Accessed April 2021

Oxford City Council. (No date). *Planning Service*. URL https://public.oxford.gov.uk/online-applications/search.do?action=simple&searchType=Application. Accessed April 2021.

Planning Inspectorate (2019). *Advice Note Seventeen: Cumulative Effects Relevant to Nationally Significant Infrastructure Projects*

The Planning Inspectorate. (No date) *Register of Applications*. URL. https://infrastructure.planninginspectorate.gov.uk/projects/register-of-applications/. Accessed April 2021

The Vale of the White Horse District Council. (No date). *Planning Application Register*. URL https://www.whitehorsedc.gov.uk/vale-of-white-horse-district-council/planning-and-development/local-plan-and-planning-policies/planning-registers/planning-application-register/. Accessed April 2021

Town and Country Planning (Development Management Procedure) (England) Order. (2015).

Town and Country Planning (Environmental Impact Assessment) Regulations. (2017).

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