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Network Rail

Oxford Corridor Phase 2 Capacity Improvement Scheme

Environmental Impact Assessment – Environmental Statement: Chapter 11 – Population

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Contents

11. POPULATION 1

11.1 Introduction 1

11.2 Legislation, Policy and Guidance 2

11.3 Methodology 5

11.4 Baseline Conditions 12

11.5 Design and Best Practice Measures 14

11.6 Assessment of Population Effects 16

11.7 Additional Mitigation Measures 22

11.8 Summary of Residual Population Effects 22

11.9 Conclusions 25

References 26

Tables

Table 11.1: Planning policy relevant to population 3

Table 11.2: Guidance relevant to population 4

Table 11.3: Summary of EIA Scoping Report consultation responses for population scope and methodology 5

Table 11.4: Population geographical scope 6

Table 11.5: Criteria to determine sensitivity of land use receptors, based on DMRB LA 11210

Table 11.6: Criteria to determine the magnitude of change of land use receptors, based on DMRB LA 112 11

Table 11.7: Summary of design measures for this Population assessment 15

Table 11.8: Summary of construction management measures relevant to this population assessment 16

Table 11.9 Summary of residual traffic effects relevant to the Access Assessment 17

Table 11.10 Land use effects during construction 19

Table 11.11: Residual effects for population 23

11. POPULATION

11.1 Introduction

11.1.1 This chapter of the Environmental statement reports the potential population effects resulting from the construction and operation of the Scheme. For the purpose of this assessment, 'population' refers to the potential socio-economic and community effects.

11.1.2 The assessment has taken the following approach:

- identification of relevant baseline conditions;
- details of relevant mitigation embedded within the Scheme and construction management measures;
- assessment of potential population effects arising from the Scheme;
- proposals for appropriate additional mitigation measures if possible; and
- conclusions on the likely significant residual population effects arising from the Scheme.

11.1.3 A full description of the Scheme is given in Chapter 2 – Description of the Scheme. All technical terms used in this chapter are explained within Appendix 1.5 – Glossary and Acronyms.

11.1.4 The population assessment considers the following:

- changes in access to community facilities, recreational assets, residential properties and commercial businesses;
- changes in amenity at community, commercial and recreational receptors;
- direct and indirect job creation and expenditure in the local economy; and
- direct land take of community, commercial or residential assets.

11.1.5 This chapter is supported by the following assessments within Volume 2:

- Chapter 6 - Air Quality and Odour;
- Chapter 9 - Landscape and Visual;
- Chapter 10 - Noise and Vibration;
- Chapter 12 - Human Health; and
- Chapter 13 - Traffic and Transport.

11.1.6 This chapter is supported by the following figure within Volume 3:

- Figure 11.1 - Community Facilities and Commercial Businesses.

11.2 Legislation, Policy and Guidance

11.2.1 The following section outlines the relevant national legislation, regional and local planning policies and guidance relevant to this assessment.

11.2.2 There is no legislation that is specifically focused on the assessment of population effects in the context of the Environmental Impact Assessment (EIA) process. Table 11.1 sets out relevant planning policy for the population assessment whilst Table 11.2 provides a summary of relevant guidance for this population assessment.

11.2.3 The policies and guidance listed have been taken into account in the assessment of the likely significant population effects as a result of the Scheme and the development of appropriate mitigation measures.

Table 11.1: Planning policy relevant to population

Policy Document	Policy Description	Relevance to the population assessment
National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2019)	The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced.	This policy attempts to ensure all planning policies promote healthy and safe communities. It is therefore highly relevant to the population assessment, which considers whether the needs of the local community are being met by the proposed development.
Oxford Core Strategy 2026 (Oxford City Council, 2011)	This policy acts as an overarching 15-year strategy for the development of Oxford. The Core Strategy sets out the scale and general location of development and policies which contribute to delivery of the vision and objectives for the development of Oxford up to 2026.	This policy is considered within the population chapter due to its focus on the role of strategic infrastructure development in benefitting Oxford's population.
Oxford Local Plan 2016-2036 (Adopted 2020) (Oxford City Council, 2020)	This forward-looking policy offers consideration as to how Oxford City Council can best address the pressures and challenges in Oxford between 2016-2036.	Pressures and challenges detailed in the plan include changes in quality of life, improvements in amenity value of development areas, and safer networks for active travel users. Amenity is considered within the population assessment. Other issues are covered within Chapter 12 - Human Health
West End Area Action Plan (Oxford City Council, 2008)	This action plan was produced in accordance with the Oxford core strategy and is the basis for all planning applications in the West End.	This policy is considered within the population chapter as sections of the West End Design code area are within the population study area. This chapter considers whether the Oxford Station capacity improvements align with the objectives of the local West End Area community.

Policy Document	Policy Description	Relevance to the population assessment
Oxford Station Area Supplementary Planning Document (Oxford City Council, 2017)	This planning document provides a comprehensive and coherent policy framework to maximise the development potential of the station site and generate a positive dynamic with surrounding opportunity sites.	The policy establishes the objective of developing a fully integrated transport interchange system which links Oxford Station with the wider city and beyond. The focus upon improved connectivity within this framework and its benefits to local populations is considered within the population chapter. Development of active travel infrastructure and improved access to rail transport as part of the Scheme would be beneficial for low-income users and aligns with this policy.
Connecting Oxfordshire: Local Transport Plan 2015-2031 (Oxfordshire County Council, 2015)	This policy from Oxford County Council outlines their strategy for the development of the county's transport system.	The Local Transport Plan encourages a shift towards sustainable transport options. The Scheme is designed to encourage such a modal shift. This would have positive impacts upon economic growth, public health, air quality, safety and individual wellbeing that is captured across the population and health assessments (see also Chapter 12 – Human Health).

Table 11.2: Guidance relevant to population

Guidance Document	Description in relation to Population	Relevance to the Scheme
Design Manual for Roads and Bridges (DMRB) LA 112 Population and Human Health	This document provides a framework for assessing, mitigating and reporting the effects of motorway and all-purpose trunk road projects on population and human health. It introduces significance criteria that aid consistent and proportionate assessment to support the reporting of significant effects of population and human health. This guidance is considered appropriate for rail projects for the assessment of population effects.	The DMRB guidance has provided the sensitivity and magnitude for the assessment on land use as discussed in Section 11.3.

11.3 Methodology

Introduction

11.3.1 The approach followed in this Chapter 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

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

11.3.3 The scope and method of assessment for this population assessment was presented in the EIA 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 further direction on the content of the assessment. Consultation feedback related to the Scoping Report and the Scoping Opinion are summarised in Table 11.3, and where appropriate, identifies how the scope and method has been revised in response.

Table 11.3: Summary of EIA Scoping Report consultation responses for population scope and methodology

Consultee	Issues raised in response to the Scoping Report	Summary of the response to issues raised
Oxford City Council	The identified areas of access, amenity, employment and local economy and land use and displacement are all areas that need to be scoped in for the Environmental Statement.	Access, amenity, employment and the local economy have all been scoped into the population assessment. Displacement is no longer assessed, the reasons given in paragraphs 11.3.4 and 11.3.5.

11.3.4 The Scoping Report (Network Rail, 2020) stated that the impact of displacement on any businesses requiring removal to accommodate the Scheme should be assessed. Three businesses were identified during the EIA that would be required to temporarily close or be relocated. Network Rail has agreed a standalone option agreement with the Youth Hostel Association (YHA) which will enable Network Rail to acquire the freehold, to align with the operational project programme. Network Rail will work with the YHA to find an appropriate replacement site. As the process is underway to find another suitable alternative site the YHA has not been assessed for displacement or land use effects.

11.3.5 In addition, a similar agreement for compensation is in place for the two other businesses that are affected by the Scheme on the basis that they are relocated to a similar building in the same or nearby locality. These businesses may not relocate locally and therefore are still assessed for land use effects in Section 11.6.

Geographical Scope

11.3.6 The study area for the population assessment varies for the different aspects of the population assessment and these variations are presented in Table 11.4.

Table 11.4: Population geographical scope

Topic	Geographical scope
Access	The access assessment is determined by the extent of the traffic and transport study area which is described in Chapter 13 - Traffic and Transport.
Amenity	The amenity assessment is determined by the study areas within each of the environmental assessments that feed into the amenity assessment – Chapter 6 - Air Quality and Odour, Chapter 9 - Landscape and Visual, Chapter 10 - Noise and Vibration and Chapter 13 - Traffic and Transport.
Employment and the local economy	Effects on employment and the local economy has been considered in the regional context, using the Oxford Travel to Work Area (TTWA).
Land use	The land use assessment has been assessed against the Scheme red line boundary, see Figure 11.1.

Temporal Scope

11.3.7 Baseline conditions are described using available data sources, including consideration of how this baseline may change from present day to the year of construction (i.e. the future baseline in the absence of the Scheme).

11.3.8 This EIA has been prepared during the 2020/2021 global COVID-19 coronavirus pandemic. As a result of the pandemic it is considered that 2020 would not be a true baseline for this topic. Therefore, the year 2019 has been used as a more representative year.

11.3.9 The temporal scope of this assessment was:

- Baseline year: 2019
- Future baseline year (first year construction): 2022
- Future baseline year (first year operation): 2025

Baseline Data

11.3.10 The population baseline has been established using the following sources of information:

- Office for National Statistics (ONS) and Nomis;
- Oxford City Council website;
- Higher Education Student Statistics (HESA); and
- Google Maps.

Assessment Methodologies

11.3.11 The assessment follows the general methodology outlined in the Scoping Report (Network Rail, 2020) and described in Chapter 4 – Approach to Environmental Assessment in that it considers whether potential effects are likely to be significant based on the sensitivity of the receptors and the magnitude of the impact.

11.3.12 The methodology for the population assessment has primarily used the Design Manual for Roads and Bridges (DMRB) LA 112 'Population and Human Health' guidance (Highways England, 2020). DMRB guidance has been used when assigning sensitivity, magnitude and significance to community receptors as part of the land use and access assessments. As outlined in Chapter 4 - Approach to Environmental Assessment, effects of Moderate significance or greater are considered significant in the context of the EIA Regulations 2017.

11.3.13 Bespoke methodologies have been created for the assessment of amenity and employment. These are supported by professional judgement and best practice on projects of a similar scale and nature.

Access

11.3.14 The access assessment has been informed by the DMRB LA 112 'Population and Human Health' guidance (Highways England, 2020). This assessment considers the change in access to community facilities, recreational assets, residential properties and commercial businesses. Sensitivity of these receptors to a change in access depends on the type of receptor, availability of suitable alternatives, level of expected use and importance to the local community. Sensitivity can be classed as very high, high, medium, low or negligible. Where a receptor is important to the local community, used by a high number of users (particularly vulnerable users) and where there is a lack of a suitable alternative, a very high sensitivity has been assigned.

11.3.15 For the assessment of access, the residual effects on 'severance', 'driver delay', 'public transport delay' and 'pedestrian/cyclists delay' from Chapter 13 – Traffic and Transport have been used to inform the magnitude of change on a receptor. These effects can cause a change in access for the local population as outlined below:

- Severance: This is the perceived division that can occur within a community when it becomes separated by a major traffic artery. It may lead to difficulty of crossing a heavily trafficked road and therefore inhibit access to a community facility. Changes in volume, composition or speed of traffic can also affect people's ability to cross roads, leading to increased queuing and a delay in access to community facilities.

- Driver Delay and Public Transport Delay: Increases in traffic flow could lead to a delay for private vehicles and public transport. Significant increases in journey times can discourage people from taking certain routes and potentially create isolation within the community.

- Pedestrian/Cyclists Delay: Temporary closures of pedestrian footpaths and cycle lanes can lead to pedestrian and cycle delay.

11.3.16 The significance of effects on access to community facilities, commercial businesses and residential properties has followed the general approach to determining significance in Table 4.2 in Chapter 4 - Approach to Environmental Impact Assessment.

11.3.17 Changes to walking and cycling anticipated as a result of the Scheme design that could have beneficial impacts on access to and from Oxford Station have been assessed qualitatively.

11.3.18 Access to community facilities, recreational assets, commercial businesses and residential properties have been assessed during both the construction and operation phases of the Scheme.

Amenity

11.3.19 Amenity describes the perceived character or attractiveness of an area. The amenity assessment has assessed the potential for people to change how they perceive their communities or how they use community facilities and recreational resources as a result of the Scheme. The amenity assessment draws on the residual effects reported in other assessments within this EIA, as follows:

- Air quality effects (Chapter 6 – Air Quality and Odour);

- Visual effects (Chapter 9 – Landscape and Visual);

- Noise effects (Chapter 10 – Noise and Vibration); and
- Traffic amenity effects (Chapter 13 – Traffic and Transport).

11.3.20 For both construction and operational effects, the amenity assessment uses the residual effects reported by these assessments i.e. effects remaining after the proposed mitigation measures are accounted for. Therefore, no bespoke sensitivity and magnitude criteria are assigned in the amenity assessment.

11.3.21 A significant amenity effect is assumed to occur if two or more environmental effects (e.g. air quality and noise) identify significant residual effects on the same receptor (typically of moderate or major significance). In cases where there is a combination of three or four minor effects on an individual receptor, this could also result in a significant amenity effect. Professional judgement has been applied in these instances to ensure that effects are not over or understated.

11.3.22 Amenity of community facilities, commercial businesses, recreational assets and residential properties has been assessed during both the construction and operation phases of the Scheme.

Employment and the Local Economy

11.3.23 During construction, direct employment effects and the impact on the local economy from the Scheme are assessed based on the profile of construction activities and associated worker numbers. Indirect employment effects are assessed based on additional jobs generated because of increased supply chain activity and local spending by construction workers in the area. Induced employment effects (also referred to as consumption or income effects) are jobs that are created as a result of those who profit from the Scheme e.g. shopkeepers employing extra staff.

11.3.24 During operation, direct employment effects occur from job creation within Oxford Station as a result of new businesses. While indirect employment effects occur from improvements to the train station improving access to the Oxford labour market, generating further job opportunities.

11.3.25 The magnitude of impact on employment is considered within the context of the local labour market -Oxford travel to work area (TTWA). Local labour markets are conventionally defined as relatively self-contained commuting areas in which the demand and supply flows of labour occur on a regular basis. The local labour market is considered medium sensitivity as the Oxford TTWA is a large area and therefore not very sensitive to change. The final significance of effect has followed the general approach to determining

significance in Table 4.2 in Chapter 4 - Approach to Environmental Impact Assessment.

11.3.26 Access to wider employment opportunities because of the Scheme has been assessed qualitatively in the context of the Oxford TTWA.

11.3.27 Effects on employment and the local economy have been assessed during the construction and operation phases of the Scheme.

Land Use

11.3.28 The land use assessment draws on guidance from the DMRB LA 112 'Population and Human Health' guidance (Highways England, 2020). This land use assessment only considers direct land take (loss of land) as 'severance' impacts are considered within the access assessment. Land use sensitivity criteria relevant to the types of land present in the red line boundary are provided in Table 11.5.

Table 11.5: Criteria to determine sensitivity of land use receptors, based on DMRB LA 112

Sensitivity	Criteria
High	• Residential properties; • Community facilities e.g. school, place of worship, suitable alternatives only available in the wider area and the level of use is frequent (weekly); • Commercial business/land which covers >1 – 5ha; or that attracts users nationally.
Medium	• Community land and assets with limited alternative facilities available at the local level of use is infrequent (monthly), the facility used by >=50% of the community. • Residential land (e.g. garden); and • Commercial business/land which covers <1ha.
Low	• Land owned by residential housing developers; • Land owned/occupied by utility companies; • Community land that is undesignated such as an area of recreational land owned by the local authority (e.g. local parks and playing fields); and • Derelict or unoccupied buildings.

11.3.29 The criteria used to determine magnitude of land use impacts is provided in Table 11.6.

Table 11.6: Criteria to determine the magnitude of change of land use receptors, based on DMRB LA 112

Magnitude	Criteria
High	• Loss of large proportion of land holding; and • Demolition of property, >50% loss of land due to land-take.
Medium	• Loss of moderate proportion of land holding; and • Between 15% and 50% loss of land due to land-take.
Low	• Loss of small proportion of the land holding; and • <15% land loss and/or partial severance due to land-take.
Negligible	• Very slight change to all the above factors; and • Very slight change from the baseline condition. Change hardly discernible, approximating to 'no change' in conditions.

11.3.30 The final significance of effect has followed the general approach to determining significance in Table 4.2 in Chapter 4 - Approach to Environmental Impact Assessment.

11.3.31 Land use has only been assessed during the construction phase of the Scheme as any permanent effects would be created during the construction phase and would remain the same during operation of the Scheme.

Matters Scoped out of the Assessment

11.3.32 The matters that have been scoped out of this topic assessment, in accordance with the Scoping Opinion (Appendix 1.2):

- Supply chain effects during construction and operation; and
- Land use during operation.

11.3.33 These matters have been scoped out on the basis that they would not be likely to result in a significant effect on population.

Limitations and Assumptions

11.3.34 The key limitations of the population assessment are described in this section.

11.3.35 At the time of writing, workforce numbers were not available. The assessment on employment and the local labour market has therefore been based on figures from a project of a similar scale and nature.

11.3.36 As the access and amenity assessments rely on the outcomes of the other environmental assessment chapters (air quality, noise and vibration, traffic and transport and visual) any limitations and assumptions stated within those assessments are also relevant to this population assessment.

11.3.37 Within the land take assessment, an assumption has been made on the magnitude of impact on commercial business that require demolition (excluding the YHA). As Network Rail has been in discussion with the business owners over potential compensation, the magnitude of impact for these businesses is considered 'low', which differs from the DMRB guidance which would consider demolition a 'high' impact.

11.4 Baseline Conditions

Characterisation of the Environmental Baseline

Population

11.4.1 The population of Oxford is approximately 152,400, a decrease of 4.5% since 2015 (ONS, 2019a). The population of Oxfordshire was 691,600 in 2019 (ONS, 2019a).

11.4.2 In 2018/2019 there were approximately 42,000 students enrolled at Oxford universities, roughly 33,000 in full-time study (HESA, 2019). Of these students, roughly 6,000 are known to have a disability (HESA, 2019). Students made up approximately 27% of the population in 2019.

Employment

11.4.3 In the 12 months to December 2019, the unemployment rate for Oxfordshire was 1.1% (ONS, 2019b). Within Oxford City Council area, 5% of the workforce was employed in the construction industry, slightly less than the percent in Oxfordshire (5.3%) and the South East (5.2%) (Nomis, 2019).

11.4.4 Oxford also has a notable level of in-commuting with 46,000 people travelling into the city daily to work. (Oxford City Council, 2014). Oxford TTWA had a population of 560,000 in 2016 (ONS, 2016). The employment rate across Oxford TTWA in 2019 was 81.9%, which was the fourth highest across the TTWAs in the South East of England (ONS, 2019b). The unemployment rate for Oxford TTWA was 1.8% at the end of 2019 (ONS, 2019b). In 2019, 5.7% of employees in the TTWA were employed in the construction industry and 7.2% were employed in sales and customer service occupations (ONS, 2019b).

Land Use

11.4.5 The Scheme is located approximately 400m to the west of the city centre. Oxford city centre is identified as one of 12 'Centres for Significant Change' in the South East Plan, where the range of town centre uses is expected to materially increase (Oxford City Council, 2011). Oxford Station is on the edge

of the identified West End renaissance area in the Oxford Core Strategy 2026 (Oxford City Council, 2011. The area is identified for public realm enhancements for the benefit of pedestrians and cyclists and the expansion of retail, leisure and cultural activities.

11.4.6 The main access to Oxford Station is from Botley Road, one of the main radial routes into the city centre. The area immediately surrounding the Scheme boundary includes residential land, community land and commercial land. Residential streets run parallel to the railway to the west, with small areas of residential land to the north of Sheepwash Channel along Roger Dudman Way. Beyond the immediate vicinity of the Scheme, larger residential areas include Osney to the southwest, and Jericho to the northeast.

Community Facilities & Recreational Assets

11.4.7 There are a small number of community facilities within the vicinity of the Scheme, including the Saïd Business School, part of Oxford University, which is located to the east of the station, and Cherwell House, the accommodation section of Cherwell College (a GCSE and A-level tutorial college) which is located to the south-west, adjacent to the railway. Co-operative Childcare, a nursery, is located adjacent to the Sheepwash Bridge, in the northern part of the Scheme (see Figure 11.1).

11.4.8 A number of areas of recreational land and community land are located within the wider context of the Scheme, including parks, allotments, recreation grounds, public rights of way and cemeteries. Three of the most frequently used paths in the vicinity of Oxford Station are: the Thames Path, a national trail of approximately 184 miles long; Oxford Canal Walk connecting the cathedral cities of Oxford and Coventry; and the Sheepwash Bridge link, which forms part of the Thomas Path. These areas of open space are regularly used by the local population for physical activity, recreation and leisure purposes.

Commercial Businesses & Tourist Attractions

11.4.9 Commercial businesses around the Scheme boundary include small food retail units within Oxford Station, and food outlets and premises along Botley Road and Rodger Dudman Way. There is some provision of tourism accommodation in the vicinity of the Scheme boundary, including the YHA Oxford, the Westgate Hotel and Porterhouse Grill & Rooms (see Figure 11.1 in Volume 3 of the Environmental Statement). A number of other commercial businesses and business units are located along or off Botley Road to the east, and south-west, and several large retail stores to the west.

11.4.10 Oxford is a notable tourist attractor. The city receives around seven million visitors a year, generating £780m in income for local businesses (Oxford City Council, 2019). Most points of interest to visitors are located within and around Oxford city centre. These include:

- colleges within the University of Oxford;
- museums such as the Ashmolean Museum of Art and Archaeology; and
- Oxford Castle.

Future Baseline

11.4.11 According to 2016-based forecasts published by the ONS (ONS, 2019c), the population of Oxford was expected to remain unchanged between 2016 and 2026, before increasing by 1.4% to 2036. This contrasts to estimates for Oxfordshire County Council, where the population is forecast to increase by 3.6% between 2016 and 2026, rising by a further 2.5% to 2036 (ONS, 2019c). The outcomes of this population assessment are not expected to be impacted by predicated population growth.

11.4.12 The Oxford Local Plan 2036, adopted in 2020, highlights some of Oxford's issues and challenges. In addition to the rapid population growth already mentioned, Oxford City Council have identified pressure on infrastructure, declining affordability and skills shortages (Oxford City Council, 2020). There is also likely to be a continuation of existing travel behaviour as the population of the city grows. The burden on the transport network is expected to adversely impact the quality of life in the city and its economic success. Modal shift to active travel and public transport would greatly reduce this burden. Oxford City Council have identified that improving the aesthetic and modernising sustainable modes of travel would support this modal shift.

11.4.13 As a result of the COVID-19 pandemic, it is unknown at this point what the long-term implications of the trend will be, but there could be a decrease in people commuting to and from Oxford, London or elsewhere for work. This could also mean an increase in people spending money locally. As the extent of the trends described in relation to population growth and COVID-19 are not yet known, no additional weighting has been taken to allow for how these factors may affect the conclusions of the population assessment.

11.5 Design and Best Practice Measures

Design

11.5.1 The Scheme has been designed, as far as possible, to avoid and reduce impacts and effects on population through the process of design-development

considering good design principles. Embedded mitigation is defined within the DMRB as '*Design measures which are integrated into a project for the purpose of minimising environmental effects.*' The embedded mitigation is reported as part of the Scheme description in Chapter 2 – Description of Scheme.

11.5.2 The assessment of whether significant effects would be likely to occur has been based on the Scheme as described in Chapter 2 – Description of the Scheme and taken account of measures embedded within the design as described in that chapter.

11.5.3 The relevant measures embedded in the design of the Scheme for this Population assessment are listed in Table 11.7.

Table 11.7: Summary of design measures for this Population assessment

Measure	Outcome / Benefit
Enhanced access arrangements (including new western entrance) and provision for cycling and walking	Reduces the use of private car travel to the station and areas close to the station.
The track alignment has been designed to avoid any third-party land take to Abbey Road house gardens at the north end of the Scheme.	Reduces impacts on residents, houses and gardens in the vicinity of the northern end of Abbey Road.
The Scheme has been designed to retain and refurbish the existing Co-operative Childcare building. The facility would be temporarily relocated nearby to ensure that childcare provision would continue throughout.	Maintains the provision of childcare for the community and enables continuation of the business throughout construction.
The Sheepwash Bridge has been designed so that there is no permanent impact on the Sheepwash Channel, navigation, or towpath headroom.	Enables existing use of the Sheepwash Channel to be continued after construction of the Scheme.
Scheme designed to maintain access to the side of the Westgate Hotel.	Reduces access impacts on the Westgate Hotel.
Provision of additional bike stands on the western entrance forecourt.	The new facilities promote sustainable transport use. This aligns with Oxford County Council policy and supports carbon reduction targets within the city.
Provision of new footpath along the length of Roger Dudman Way connecting to the Sheepwash Bridge.	Provides a safe route for pedestrians, also reducing the need to drive.

11.5.4 The adoption of the embedded mitigation measures reported in Table 11.7 would reduce the potential environmental effects on population receptors.

Construction Management Measures

11.5.5 The Scheme would be constructed in accordance with a Code of Construction Practice (CoCP), which is submitted as part of the Environmental Statement (Appendix 2.1 within Volume 4). The CoCP sets out the principles for environmental mitigation, which would then be used as the basis for the Construction Environmental Management Plan (CEMP).

11.5.6 The CEMP would outline measures to be put in place to ensure that any identified effects on the population do not increase during the construction phase. In particular, the CEMP would detail pollution prevention and control measures for noise, vibration, air quality and dust pollution, as well as mitigation to reduce visual disturbance.

11.5.7 The Construction Traffic Management Plan (CTMP) would detail mitigation measures around temporary road and public rights of way closures and diversions and temporary traffic control measures. An outline CTMP is included in Section 7 of Appendix 13.1 – Transport Assessment.

11.5.8 This population assessment has identified management measures which would be required to control population effects during the construction phase. Mitigation measures identified in other environmental assessment chapters that form the basis of the access and amenity assessments are also considered within this assessment.

Table 11.8: Summary of construction management measures relevant to this population assessment

Measure	Outcome / Benefit
CEMP measures	Reduce potential noise, air quality, traffic and visual impacts which may lead to wider amenity effects. See individual chapters for detailed mitigation measures for each environmental assessment.
Production of a CTMP.	Reduce traffic impacts which may cause changes in access as a result of diversions and road closures.

11.6 Assessment of Population Effects

11.6.1 A review of the potential population effects related to the Scheme are presented in this section.

Construction Phase

11.6.2 With adoption of the embedded design measures and the construction management measures described in Section 11.5, the only potential for likely significant population effects during construction of the Scheme would arise from:

- temporary changes in access;
- temporary changes in amenity;
- job creation as a result of construction activity; and
- temporary land take at community facilities and commercial businesses.

Access

11.6.3 The access assessment is informed by the residual effects discussed within Chapter 13 – Traffic and Transport. A summary of this assessment is presented in Table 11.9.

Table 11.9 Summary of residual traffic effects relevant to the Access Assessment[1]

Topic	Traffic Assessment	Residual Significance of Effect
Severance	Considered the existing traffic flow and construction movements for the site for construction year 2023.	No residual significant effects
Driver Delay	Capacity assessments of the network not required.	No assessment
Public Transport Delay	Considered the change in traffic flows. Noticeable change on Botley Road which is operating with a single lane for 6 months.	To be investigated in collaboration with Oxford County Council at next stage of Scheme.
Pedestrian and Cyclist Delay	Considered footpath diversions and on-road cycle routes and adjacent pedestrian routes during construction.	No residual significant effects

11.6.4 Table 11.9 shows that no residual traffic effects have been identified that could affect access to community facilities, commercial businesses and residential properties. However, effects on traffic during realignment of the Botley Road Bridge have not been possible to assess at this stage. Overall, no significant effects on access to community receptors have been identified during construction of the Scheme.

Amenity

11.6.5 Amenity effects on community receptors are caused by a combination of environmental effects as discussed in paragraph 11.3.21. Chapter 6 - Air Quality and Odour did not identify any residual effects during construction. Chapter 10 - Noise and Vibration identified minor adverse (not significant)

[1] Note that the effects on traffic during realignment of the Botley Road Bridge have not been possible to assess at this stage

effects on receptors along Cripley Road, Abbey Road, Mill Street and the River Thames/Sheepwash Channel. Chapter 13 - Traffic and Transport identified a minor temporary adverse effect on traffic amenity for vehicles and non-motorised users at Frideswide Square.

11.6.6 Chapter 9 - Landscape and Visual states that during construction of the Scheme changes to views would be experienced by visual receptors within 100m approx. of the site boundary. Due to this proximity there would be immediately noticeable views and intrusion of construction activity upon the viewer. Mitigation to offset significant visual effects would not become effective for several years, therefore the amenity assessment considers the initial short-term visual effects pre-mitigation.

11.6.7 An amenity effect occurs where two or more residual environmental effects are experienced at the same receptor (or in proximity to the same receptor). The following amenity effects have been identified during construction of the Scheme:

- Frideswide Square: a minor traffic amenity effect and a short-term moderate / major adverse visual effect combine to create a temporary minor amenity effect on users of Frideswide Square. One community receptor, Saïd Business School, and multiple commercial businesses (including the Royal Oxford Hotel) are located on Frideswide Square and users of these receptors could be impacted by this amenity effect (see Figure 11.1).

- Cripley Road: a minor adverse noise effect and a short term major adverse visual effect combine to create a temporary minor amenity effect on pedestrians and residential properties on Cripley Road.

- Abbey Road: a minor adverse noise effect and a short-term moderate / major visual effect combine to create a temporary minor amenity effect on pedestrians and residential properties on Abbey Road.

11.6.8 Overall, no significant effects on amenity are identified during construction of the Scheme.

Employment and the Local Economy

11.6.9 Construction of the Scheme has the potential to generate direct and indirect employment. The construction and delivery of the project will require highly skilled workers and resources from the construction sector to provide, for example, security, plant hire, landscaping and fencing. At this stage of the Scheme assessment, details of potential construction workforce numbers are not available.

11.6.10 Of the total employment in Oxford TTWA, 5.7% were employed in the construction industry (Nomis, 2019). This equates to approximately 31,920 construction sector workers in Oxford TTWA. Construction workers required for the Scheme are unlikely to exceed 1% of the Oxford TTWA construction employment (319 workers), therefore the impact on the local labour market is not expected to be significant during construction.

11.6.11 Expenditure associated with an influx of construction workers is not expected to be significant during construction.

Land Use

11.6.12 There are two community facilities and two commercial businesses that are expected to experience a temporary land use change as a result of the Scheme (see Figure 11.1). Table 11.10 presents the temporary land take impacts during construction and the significance of effect for each receptor based on their sensitivities assigned using the DMRB guidance.

Table 11.10 Land use effects during construction

Receptor	Sensitivity	Land take impact	Significance of Effect (all temporary)
Community facilities			
Co-operative Childcare	High	Business to be relocated temporarily to Becket Street station car park for 3 months and returned to current location. Embedded mitigation to ensure childcare provision continues throughout construction	Minor adverse – not significant
Becket Street station car park	Low	Used for the temporary relocation of the Co-op nursery for 3 months and site cabins during construction (see Figure 11.1). Some of the car park would still be available for car parking during this time.	Minor adverse – not significant
Commercial businesses			
Visa and Immigration UK Ltd	Medium	Demolition of business, compensation agreed as discussed in Section 11.3.7.	Minor adverse - not significant
Grill Station (takeaway)	Medium	Demolition of business, compensation agreed as discussed in Section 11.3.7.	Minor adverse - not significant

11.6.13 Table 11.10 shows that no community or commercial receptors are expected to experience a significant temporary land take effect during construction. All commercial businesses, as discussed in paragraphs 11.3.7, would be

compensated giving them the ability to continue operation in a different location if they so choose.

Operational Phase

11.6.14 The assessment of potential population effects taking account of the design measures and the best practice measures described in Section 11.5, has identified that there would be the potential for likely significant effects to arise as a result of the operation of the Scheme, relating to:

- permanent changes in access;
- permanent changes in amenity;
- job creation in the local labour market; and
- access to wider employment opportunities.

Access

11.6.15 The purpose of the Scheme is to improve access to and from Oxford creating beneficial impacts on Oxford residents, commuters and tourists. Chapter 13 - Traffic and Transport scoped out traffic effects during operation and there are therefore no significant impacts on 'severance', 'driver delay', 'public transport delay' or 'pedestrian/cyclists delay'. Overall, no adverse effect on access to community facilities, commercial businesses and residential properties during operation is expected as a result of the Scheme.

11.6.16 In addition to the western entrance, the Scheme includes improvements to the public realm around Oxford Station, with greater walking and cycling provision. There would be segregated cycle and walking routes on each side of Botley Road and additional cycle storage provided as part of the Scheme. There would also be an additional pedestrian footpath along the length of Roger Dudman Way connecting to the Sheepwash Bridge. Access to the station and around the area in the vicinity of the station, for pedestrians and cyclists, would improve as a result of these interventions, although benefits are expected to be minor due to the small area which is being improved. Potential health benefits have been assessed in Chapter 12 - Human Health.

Amenity

11.6.17 Amenity effects are caused by a combination of environmental effects. During operation the following environmental effects were identified across the relevant environmental assessments:

- Chapter 6 - Air Quality and Odour identified no residual significant effects

during operation.

- Chapter 9 - Landscape and Visual identified a minor adverse effect on views onto Cripley Road due to tree loss, minor beneficial effects on views onto Botley Road from the Thames Path National Trail and moderate significant residual beneficial visual effects at Botley Road and the western approach to the city as a result of public realm improvements (see Figure 9.2 - Landscape Planning Designations).

- Chapter 10 - Noise and Vibration identified a residual significant change in noise levels at residential properties on Cripley Road as a result of the removal of the YHA. A noise barrier has been designed within the design to mitigate likely significant adverse operational environmental effects at Cripley Road and Abbey Road, but a major adverse residual change in noise remains. The overall noise level is however below the required noise level threshold and is therefore considered not significant. The impact of the change on noise sensitive receptors has been considered within the health assessment (Chapter 12 – Human Health).

- Chapter 13 - Traffic and Transport scoped out traffic effects during operation, therefore no effects have been carried through to the amenity assessment. However, there would be increased sustainable infrastructure including stands for bicycles and additional pedestrian and cycle provision under the Botley Road Bridge and a footpath along Roger Dudman Way. Standard double decker buses would be able to access under Botley Road Bridge once the Scheme is complete.

11.6.18 As a result of the outcomes of these assessments there is no combination of environmental effects that could occur to create a significant adverse permanent amenity effect within the study area.

11.6.19 The Scheme is however, expected to improve overall amenity of Oxford Station. The improvements to the western entrance are expected to significantly improve the experience for users of the station as assessed in Chapter 9 - Landscape and Visual. More people are expected to move away from private vehicles and travel in and out of the city using a sustainable travel mode as discussed in Chapter 13 - Traffic and Transport. Overall, the effect on amenity at Oxford Station is considered to be a permanent significant beneficial effect during operation.

Employment

11.6.20 During operation of the Scheme there is the potential for local employment opportunities at the commercial businesses located within Oxford Station.

11.6.21 Job creation from projects of a similar scale and nature were reviewed to inform this assessment. It was considered that Network Rail's Maidstone East

station redevelopment is similar to the Scheme, as it involved the demolition of a building to make space for a spacious landscaped new entrance and new facilities. This redevelopment delivered 150 new jobs and 25 new apprenticeships (Network Rail, 2018). It is expected that a similar number of jobs would be created by the Scheme. Using this assumption, the magnitude of impact on the local labour market is considered low.

11.6.22 Given the medium sensitivity of the local labour market - Oxford TTWA, the overall effect is considered minor beneficial and not significant.

11.6.23 In addition to direct and indirect job creation the redevelopment of the western entrance has the potential to improve access to employment opportunities. However, it was considered that as Oxford Station already exists, the Scheme is not creating access to a new labour market (job opportunities), therefore it is unlikely that there would be a significant generation of employment in the context of Oxford City and the Oxford TTWA.

11.7 Additional Mitigation Measures

11.7.1 All population mitigation is embedded in the design of the Scheme to limit, reduce or offset potential effects. No significant adverse effects have been identified in the population assessment that would require additional mitigation measures.

11.8 Summary of Residual Population Effects

11.8.1 As no additional mitigation measures are provided for population, the residual effects remain the same as those identified in the assessment in Section 11.6.

11.8.2 Table 11.11 summarises the likely residual effects of the Scheme for population. It is considered that the Scheme can be implemented without any significant adverse population effects[2]. Following completion of the Scheme, there would be beneficial effects on access and amenity as a result of the western entrance and enhanced walking and cycling provision at Oxford Station.

[2] Note that the effects on traffic during realignment of the Botley Road Bridge have not been possible to assess at this stage

Table 11.11: Residual effects for population

Potential Effect	Receptor(s)	Likely effect without additional mitigation	Additional Mitigation Measure(s)	Residual Effects
Construction				
Access	Pedestrians and users of community facilities, commercial businesses and residential properties	No significant effects	Not required	No significant effects.[3]
Amenity	Pedestrians and users of community, commercial and residential receptors	Minor adverse – not significant (Frideswide Square)	Not required	Minor adverse – not significant (Frideswide Square)
		Minor adverse – not significant (Cripley Road)	Not required	Minor adverse – not significant (Cripley Road)
		Minor adverse – not significant (Abbey Road)	Not required	Minor adverse – not significant (Abbey Road)
Employment and local economy	Oxford TTWA	No significant effects	Not required	No significant effects
Land Use	Co-operative Childcare	Minor adverse – not significant	Not required	Minor adverse – not significant
	Becket Street station car park	Minor adverse – not significant	Not required	Minor adverse – not significant
	Visa and Immigration UK Ltd	Minor adverse – not significant	Not required	Minor adverse

[3] Note that the effects on traffic during realignment of the Botley Road Bridge have not been possible to assess at this stage.

Potential Effect	Receptor(s)	Likely effect without additional mitigation	Additional Mitigation Measure(s)	Residual Effects
				– not significant
	Grill Station (takeaway)	Minor adverse – not significant	Not required	Minor adverse – not significant
Operation				
Access	Pedestrians and users of community facilities, commercial businesses and residential properties	No effect	n/a	No effect
		Minor beneficial – not significant (Oxford Station)	Not required	Minor beneficial – not significant (Oxford Station)
Amenity	Pedestrians and users of community, commercial and residential receptors	No effect	n/a	No effect
		Significant beneficial (Oxford Station)	Not required	Significant beneficial (Oxford Station)
Employment	Oxford TTWA	Minor beneficial – not significant	Not required	Minor beneficial – not significant
	Access to wider employment opportunities	Not significant	Not required	Not significant

11.9 Conclusions

11.9.1 This chapter reports the potential population effects arising from the Scheme.

11.9.2 The implementation of design and construction management measures, as described in Section 11.5, has resulted in the reduction or avoidance of impacts on the surrounding population. These measures include designing the Scheme to retain and refurbish the existing Co-operative Childcare building, reducing land take on private gardens close to Sheepwash Bridge and Cripley Road and maintaining access to Westgate Hotel. There would also be improvements to sustainable transport infrastructure.

11.9.3 In conclusion, no likely residual adverse significant population effects are anticipated as a result of the Scheme. There would be locally beneficial effects to the amenity of Oxford Station due to visual improvements and the uptake of more sustainable transport modes.

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