framptons

FURTHER ENVIRONMENTAL INFORMATION STATEMENT

THE TOWN AND COUNTRY PLANNING
ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS 2017

Outline planning application for a residential development of up to 850 dwellings; green infrastructure including formal (playing fields with changing rooms, allotments) and informal open space, landscaping; and associated infrastructure including a balancing pond; on land off the A4260, with access off the existing Longford Park access off the A4260 (Oxford Road), and a new access off the A4260 (Banbury Road). All matters of detail reserved, save for access.

ON BEHALF OF

HALLAM LAND MANAGEMENT LTD

March 2020

PF/10159

Chartered Town
Planning Consultants

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1.0 SUMMARY

1.1. This Further Environmental Information Statement (FEIS) has been prepared by Framptons on behalf of Hallam Land Management Ltd to support an outline planning application for the residential development known as Bankside Phase 2. A planning application (Planning Ref: 2019/01047/OUT) setting out the Proposed Development and accompanied by an Environmental Statement (ES) was submitted to Cherwell District Council in May 2019.

1.2. The FEIS has been prepared to address refinements to the Parameters Plan and additional information in response to statutory responses received during the planning process. This FEIS only considers those effects that are likely to have a significant impact on the envirfonmental topics included in the ES. This FEIS does not replace the original ES and should be read alongside the original.

1.3. This FEIS is accompanied by the following revised/additional plans and documents;

- Appendix 1 Dwg no: 6394-P-01 rev AT - Parameters plan
- Appendix 2 Dwg no: 6394-P-05 Rev Q Illustrative Layout
- Appendix 3 Dwg no: 6394-P-09 Rev AT Open Space Plan
- Appendix 4 Dwg no: 6394-P-16 Rev B Proving Layout
- Appendix 5 Flood Risk Assessment Rev 4
- Appendix 6 Schedule of Approved (under consultation) Planning Approval Jan 2019 – March 2020
- Appendix 7 Transport Technical Note (March 2020)
- Appendix 8 Noise Assessment Rev 5
- Appendix 9 Air Quality Rev 4

1.4. The proposed refinements to the Parameters Plan include:

- A reduction in the number of dwellings from 'up to 850' to 'up to 825'
- A corresponding reduction in land take for the built development from 23.08ha to 22.74h;
- Relocation of the NEAPS and LEAPS;
- Increase in the safeguarded land for the secondary school;
- Reduction in the sports provision area from 4.65ha to 2.73ha.
- Minor changes to the landscaping around the Infiltration basin and the eastern boundary.

1.5. Section 3 of this FEIS assesses the implications of each of these changes upon the findings of the May 2019 ES. The assessment concludes that the proposed changes will not give rise to any significant effects, and the finding of the May 2019 ES remain valid, as such, no further work to the ES is required.

1.6. The LHA are promoting a future south east link road (SELR) that will create a connection between Bankside and Ermont Way, to be operational by 2031. The additional modelling requested by the LHA involves an assessment of 'a 2031 with development' and 'with the SELR' scenario. Updated 2031 SATURN model data has been provided by OCC and their Consultants which has been used to undertake the assessment.

1.7. Chapter 8 of the May 2019 ES dealt with transport matters. The assessment considered the effects of the Proposed Development with the proposed mitigation measures, that includes a number of adjustments to the junctions along the Oxford Road, as set out in Dwg no: 16052-01-107 Rev B, and Dwg

no: 16052-01-106 Rev B. These road improvements remain valid. There is no change to the proposed access off Banbury Road, as shown on Dwg no: 16052-01-124.

1.8. The amended Transport ES Chapter, subject of the FEIS, sets out two options for mitigating the impact of the development traffic; localised improvements as set out in paragraph 1.7 above, or a contribution towards the delivery of the more strategic highway infrastructure, the South East Link Road (SELR). To underpin this, the FEIS has included an assessment, taking account of the proposed mitigation measures, and an additional assessment of the impact of the SELR as described in paragraph 1.6 above.

1.9. The assessment has demonstrated that, with the SELR, there would be a negligible change in delays compared to the baseline at the Oxford Corridor signals in the AM peak, but in the PM peak would result in a moderate beneficial effect at the Horton View / Hightown Road section of the corridor, and a moderate beneficial effect at the Horton View / Hightown Road section of the corridor. The impact of the Proposed Development on the SELR would result in a negligible change at Cherwell St / Bridge St in the AM peak and a moderate beneficial effect on delays in the PM peak.

1.10. The assessment is further explained in the amended Transport ES chapter in Section 5 of this FEIS and the Transport Technical Note ***(Appendix 7).*** The Proposed Development is not reliant on the delivery of the SELR, and the Applicant's preferred method to mitigate the Proposed Development in relation to traffic impacts is to deliver the adjustments to the junctions along the Oxford Road, but would make a financial contribution towards the SELR, in lieu of making the improvements proposed as part of the application, if requested.

1.11. Chapter 9 and 10 of the May 2019 ES assessed the effects of the Proposed Development on Noise and Vibration and Air Quality. As the finding of the Air Quality and Noise and Vibration are underpinned by the traffic flow data, these ES Chapters have been updated to assess the effect of the SELR. The amended ES Chapters conclude that the Proposed Development will not give rise to any significant effects on the provision of the SELR, and the Chapter findings remain valid. The assessment is further explained in Section 6 and 7 of the FEIS.

1.12. The Technical Information included in the FRA has been updated in response to a request for further clarification by the LLFA with respect to the drainage proposals. The amendments include the following, as indicated on the revised Dwg no: 10327-DR-05 Rev E Illustrative Surface Water Drainage Strategy:

- Minor increase in the total hard area, from 15ha to 15.28ha and approximate run off rate from 19.38 (l/s) (100 years) to 19.38 19.74 (l/s) (100 years).
- Minor increases in the size of the size of the infiltration basin from 6,478m2 to 7,266m2 to take account of 10% urban creep;
- Details of the Exceedance Route; and
- Examples of Conveyance swales dimensions.

1.13. The revisions to the drainage strategy can be found in the Flood Risk Assessment at ***Appendix 5***. The minor changes that underpin the drainage strategy and included in paragraphs 1.12 above do not significantly impact the finding of the Water and Drainage ES Chapter, as such, no further work is required to the ES in respect of hydrology.

1.14. There have been no changes to; the environmental setting of the Proposed Development, or the local development projects included in the cumulative site assessment. ***Appendix 6***sets out the residential

planning approvals granted between May 2019 and March 2020. The majority of the approvals have been developments on allocated strategic sites, and so have been included within the SATURN traffic data. As the refinements to the Parameters Plan do not result in any significant environmental impacts identified in the May 2019 ES, it is not considered that they will result in any significant cumulative impacts.

1.15. CDC has recently published its Local Development Scheme. The LDS updates the program for the production of the Council's keys planning policy documents. There is no replacement Core Strategy to which weight can be given in the development management process of this planning application. The LDS does not change the planning policy context in which the planning application will be determined.

Non-Technical Summary (NTS)

1.16. The May 2019 ES was accompanied by a NTS. The refinements to the Parameters Plan and the amendments to the Transport, Noise and Vibration and Air Quality ES Chapters, as a result of the additional modelling of the SELR do not impact the conclusions of ther NTS. For completeness an updated NTS accompanies this amended scheme submission.

Other Documents

1.17. A revised Design and Access Statement, whilst not forming part of this ES Addendum, accompanies this revised submission.

2.0 THE PROPOSED DEVELOPMENT

2.1 Introduction

2.1.1 Following on from the Applicant's continued dialogue with Cherwell District Council Officers through the planning process and in response to statutory and neighbourhood responses, the Parameters Plan has been refined and some topic areas of the original ES have been revisited.

2.1.2 The following planning issues, explained further within the Statement, have been assessed by the Project team:

- Quantum of dwellings and impact of housing density on the character of the development;
- Quantum and location of open space particularly LEAPS and NEAPS;
- Primary road layout across the Site;
- Safeguarded land required for the new secondary school;
- Minor changes to the landscaping around the Infiltration basin and to the eastern boundary.

2.2 Quantum of dwellings and impact of housing density on the character of the development.

2.2.1 The quantum of development has reduced from 'up to 850 dwellings' to 'up to 825 dwellings', with the resulting land take falling from 23.08ha to 22.74ha. This slight reduction in dwellings and land take was in response to CDC's concerns relating to the need for a clear framework to identify character areas across the Site.

2.2.2 The Council suggested that the housing density across the Site could be broken up rather than just at the edges to create different character areas across the Site. The preparation of proving layouts based on the character areas could then confirm whether the quantum of development (up to 850 dwellings) could be achieved alongside the required character areas.

2.2.3 The Design Team considered the level of detail included in the Parameters Plan and how effectively it could inform the character of the development at the Reserved Matters Stage. In line with the Council's comments, the Design Team particularly looked at the density of development across the site and how density could inform 'character areas'.

2.2.4 The DAS at Section 10, page 45, sets out a series of character areas and features across the Site based upon a combination of design elements such as; frontage depths, street widths, shared surfaces, building types and heights, landscaping and choice of materials. The character areas follow the density arrangements across the Site, and together with the Key Spaces Plan will assist in defining the character areas and the overall site identity.

2.2.5 The revised Parameters Plan includes 3 density thresholds: higher density, up to 40dph; medium density, up to 35dph; and lower density up to 30dph. The higher density areas are located around the NEAPS and LEAPS and around the primary road areas to the east, adjacent to the existing Longford Park development; and, to the south, adjacent to the proposed new secondary school. Medium density development extends from these points, with lower density development on the north and western boundary, that will create the new urban edge to Banbury.

2.2.6 Rather than increasing the high and medium density locations to maintain the 850-dwelling quantum, it has been decided to reduce the housing number to 'up to 825 dwellings'. A proving layout included at ***Appendix 4*** for a parcel of land to the south of the Site, that includes the range of dwelling densities from high, through to low, demonstrates the Site can satisfactorily accommodate up to 825 dwellings, whilst maintaining effective character areas.

2.2.7 As a consequence of the submission of this further environmental information, the Applicant acknowledges that on grant of permission, a condition could be attached to restrict the Development to 'no more than 825 dwellings' on the Site.

2.3 *Quantum and location of LEAPS and NEAPS*

2.3.1 The quantum of public open space and green infrastructure complies with the local requirements, as included in Table 7 of the Cherwell District Local Plan. The distribution of the NEAPS and LEAPS have been relocated across the Site in response to comments from the CDC Landscape Officer, who sought the play areas to be distributed more evenly around the Site. The play areas have also been used as 'features' to create character areas across the Site

Table 2.01 Public Open Space/ Green Infrastructure Provision

Typology	Local Requirement (850 dwellings)	Original Provision (850 dwellings)	Amended Provision	Compliance
General green space (Parks and gardens/natural/amenity green space	2.4ha per 1000 population = 4.75ha	5.51	5.24ha	yes
Play space (combining provision for younger and older children including MUGAs	0.78ha per 1000 = 1.54ha	1.97ha	1.97ha	yes
Outdoor sport provision (tennis, bowling, golf, playing pitches)	1.13ha per 1000 2.23ha	4.65ha	2.30ha	yes
Allotments	0.37ha per 1000 = 0.73ha	0.75ha	0.74ha	yes

2.4 *Primary road layout across the Site*

2.4.1 The alignment of the internal primary road through the Site was amended in line with comments from the LHA to facilitate an effective bus route through the Site. The bus route will link to the south from Longford Park as a through-route rather than loop back on itself for entry and exit. The amended primary road alignment will reduce the length required of the more robust street width /typology to accommodate buses.

2.4.2 The amendments to the primary road alignment will improve the bus route and will not significantly impact the finding of the ES chapter topics.

2.5 *Safeguarded land required for the new secondary school*

2.5.1 The Applicant agreed with Oxfordshire County Council (OCC) that 4.88ha of land should be safeguarded for a new secondary school. The safeguarded land is shown outside of the application red line (within the blue line as land under the control of the Applicant) on the Parameters Plan that accompanied the planning application.

2.5.2 Following further consultation with OCC, an additional 1.92ha of land is required to be safeguarded for the future expansion of the secondary school. This additional parcel of land is shown adjacent to the main safeguarded land to the south of the Site. Both the safeguarded land for the school and its expansion are located within the land allocated within the strategic allocation BAN 12.

2.5.3 The location of the sport pitches to serve the Proposed Development in the southern corner of the application site, adjacent to the safeguarded land for the secondary school, has been agreed during pre-application discussions between the Applicant and the Council. The sports pitches shown on the submitted Parameters Plan extend to include 4.65ha of land.

2.5.4 The additional 1.92ha of land to be safeguareded reduces the provision of sport pitches to 2.73ha (4.65ha-1.92ha), which is still in excess of the Council's local outdoor sports provision. The additional land required for the expansion of the secondary school (1.92ha) and provision of sports pitches is shown on the revised Parameters Plan (Dwg no: 6394-P-01 Rev U).

Minor changes to the landscaping around the Infiltration basin and the eastern boundary.

2.5.5 The location of the Infiltration Basin to the north east of the Site has been agreed with the CDC. The Parameters Plan submitted with the planning application encloses the basin with landscape screening. The revised Parameters Plan subject of this FEI has removed the hedge that separates the basin from the residential development. The removal of this hedge will integrate the basin more effectively into the development.

2.5.6 There is additional landscape planting to the north and eastern boundary of the basin which will compensate for the loss of the hedge, in terms of screening and biodiversity value.

2.5.7 On the request of the Council, the landscape buffer to the eastern boudary will remain 20m, but will be planted with trees and shrubs that will allow glimpses of the countryside beyond. This is to present a softer urban edge, and a more natural transition from the urban to a rural character.

3.0 SCOPE OF THE ENVIRONMENTAL STATEMENT

3.1 The scope of this FEIS is twofold; (i) assessment of the impact of the refinements to the Parameters Plan on the environmental topics included in the ES ; and, (ii) the environmental impact of the further information that is submitted in response to statutory consultees, specifically; Oxfordshire County Council Local Highway Authority.

3.2 The remainder of this FEIS is structured as follows:

- **Section 4**: Impact of the proposed changes to the Parameters Plan on the environmental topics included in the environment statement;
- **Section 5**: Chapter 8 Transport (Amended)
- **Section 6**: Chapter 9 Noise and Vibration (Amended)
- **Section 7**: Chapter 10 Air Quality (Amended)

4.0 IMPACT OF THE PROPOSED REFINEMENTS TO THE PARAMETERS PLAN ON THE ENVIRONMENTAL TOPICS INCLUDED IN THE MAY 2019 ENVIRONMENTAL STATEMENT.

4.1 The Project Team has considered the extent to which the proposed amendments will have on each of the topic areas, in terms of their conclusions, scope and baseline covered in the original Environmental Statement, and whether their findings remain valid. Table 4.01 considers the impact of each environmental topic included in the May 2019 ES. The following paragraphs expand futher on those environmental Chapters and matters where there will be an enviromental effect, but the effect will not be significant. As such, these conclusions do not warrant amendments to the ES Chapters.

Population Change

4.2 Chapter 11 of the May 2019 ES considered the likely significant socio-economic effects of the Proposed Development, and Chapter 18 on Health Impacts. Both Chapters assessed the likely significant effects of the Proposed Development, of up to 850 dwellings. Such a development will increase the local population by 2,006 people (based upon a household size of 2.34 people (2011 Census)).

4.3 The reduction in the number of dwellings proposed, up to 825, will generate an increase in the local population by 1,947. It is not considered that the small-scale reduction (59 people) will have a significant impact on the finding of either Chapter 11 or 18, as such no further work is required on the ES in respect of these chapters.

Sports Provision

4.4 Planning policy sets out the requirement (ha per 1000 population) of sports provision to ensure that there is sufficient provision for the population. The additional land safeguarded for the secondary school results in a reduction in provision of sports area, but as the provision complies with planning policy, it is considered that this reduction will not have a significant impact on the provision of sports facilities for the future population of the Proposed Development.

Summary

4.5 This FEIS has concluded that there will be no significant environmental effects that arise from the proposed refinements to the Parameters Plan explained in paragraphs 4.1 to 4.4 above, and as set out in Table 4.01 below, as such no further work to the ES is required.

Table 4.01: Changes to the Parameters Plan – Impacts on the ES topic Chapters			
CHAPTER	**TOPIC**	**ES Topic**	**Notes**
2	Masterplan and Design: The Proposal	No significant impact	The change is limited to the minor reduction in the number of dwellings from *'up to 850'* to *'up to 825'*
3	Planning Policy	No significant impact	There has been no planning policy changes that would impact the decision-making process in the determination of this planning application.
4	Landscape and Visual Impacts	No significant impact	The refinements to the Parameters Plan would not alter the significance effects identified in the May 1029 ES.
5	Ecological Effects	No significant impact	
6	Agricultural Effects	No impact	The refinements to the Parameters Plan do not increase the amount of agricultural land take of the development.
7	Archaeology/Cultural Heritage Effects	No significant impact	No change to the treatment of the proposed sports area in the south which would protect a known sub-surface feature, the 'cursus'.
8	Transportation Effects	No significant impact	The realignment of the primary road will enhance the effectiveness of the proposed bus route through the Site.
9	Noise Effects	No significant impact	The refinements do not impact those features that would impact air quality.
10	Air Quality	No significant impact	The refinements do not impact those features that would impact air quality.
11	Socio- Economic Effects	No significant impact	The reduction in population generated by the development will reduce the impact on school and health provision – see paragraphs 4.2 and 4.3.
12	Water and Drainage	No significant impact	The reduction in population generated by the development will reduce the water uptake.
13	Ground Conditions	No significant impact	None
14	Utilities	No significant impact	None
15	Waste	No significant impact	The reduction in population generated by the development will reduce the impact on waste produced in the operational phase
16	Climate Change	No significant impact	The SUDs will manage the risk of flooding in a sustainable manner.
17	Lighting	No significant impact	None
18	Health Impacts	No significant impact	The reduction in population generated by the development will reduce the impact on school and health provision - see paragraphs 4.2 and 4.3.
19	Overall Cumulative Impact	No significant impact	No impact

5.0 **TRANSPORT** (To be read in conjunction with Chapter 8 of the May 2019 ES and *Appendix 7 Transport Technical Note*)

5.1 Introduction: **no *change***

5.2 Assessment Methodology

5.2.1 This section of the May 2019 ES described the scope of the assessment, the data sources used (including scoping undertaken) and the assessment approach adopted.

5.2.2 The only change to the methodology relates to the introduction of an additional modelling scenario using the OCC SATURN model. The updated modelling considers two mitigation options, the first, as proposed by the Applicant, includes a number of adjustments to the junctions along the Oxford Road corridor. In addition, as OCC is promoting the future introduction of a south east link road connecting between Bankside and Ermont Way by 2031 (and are requesting financial contributions towards its delivery from development proposals), a 2031 with development and with south east link road (SELR) scenario has been added to the assessments. Updated 2031 SATURN model data has therefore been provided by OCC and their Consultants and this has been used in this Addendum.

Figure 8.01 shows the locations of the above receptors. ***No change***

Table 8.01: Assessment Criteria for Magnitude of Effect **No *change***

Table 8.02: Significance Matrix ***No change***

5.3 Existing Conditions**: *No change***

Table 8.03: 2016 Observed Peak Hour Two-Way Traffic Flows ***No change***

Table 8.04: 2016 Peak Hour Junction Delay Per Vehicle (Seconds) ***No change***

Table 8.05: 2016 Pedestrian Crossing Delays at Locations without Crossing Control ***No change***

5.4 Potential Impacts

5.4.1 The potential impacts of the Proposed Development have been considered for both the construction and operational phase of the development.

Construction ***No change***

Operation

5.4.2 The operational stage of the Proposed Development will see the occupation of 825 residential units, though we have modelled 900 to ensure a robust assessment. The potential effects of the proposals are the increase in traffic associated with the Development Proposals, which would affect junction delays and journey times.

5.4.3 Looking firstly at the changes in traffic flows as a result of the Proposed Development, peak hour traffic flows for 2031 have been taken from the Banbury SATURN model for both with and without development scenarios. Tables 8.6 and 8.7 identifies the numeric and percentage change in two-way

peak hour flows as a result of the development. It also identifies the magnitude or significance of the effect.

Table 8.06: 2031 Change in AM Peak Hour Two-Way Traffic as a Result of the Proposed Development

	AM Peak				
	2031 Baseline Flow	2031 With Dev	Diff	%age Change	Magnitude
Horse Fair (north of High Street)	1912	1972	60	3%	Negligible
High Street	987	1015	28	3%	Negligible
West Bar Street	554	557	3	1%	Negligible
South Bar Street (south of High St)	1718	1829	111	6%	Negligible
South Bar Street (north of Bloxham Rd)	1921	2023	102	5%	Negligible
Bloxham Road (east of Oxford Road)	1405	1470	65	4%	Negligible
Queensway	1296	1320	24	2%	Negligible
Springfield Avenue	703	748	45	6%	Negligible
Oxford Road (south of Bloxham Road)	1658	1738	80	5%	Negligible
Oxford Road (north of Upper Windsor St)	1692	1774	82	5%	Negligible
Upper Windsor St (east of Oxford Rd)	1178	1210	32	3%	Negligible
Oxford Rd (south of Upper Windsor St)	1994	2070	76	4%	Negligible
Cherwell St (south of Bridge St)	2462	2634	172	7%	Negligible
Bridge St (west of Cherwell St)	522	579	57	10%	Minor
Cherwell St (north of Bridge St)	1977	2102	125	6%	Negligible
Bridge St (east of Cherwell St)	1318	1361	43	3%	Negligible
Oxford Road (north of Horton View)	1994	2060	66	3%	Negligible
Horton View	573	570	-3	-1%	Negligible
Hightown Road	526	530	4	1%	Negligible
Oxford Road (south of Hightown Rd)	1951	2023	72	4%	Negligible
Oxford Road (north of Farmfield Rd)	1951	2023	72	4%	Negligible
Farmfield Rd	256	259	3	1%	Negligible
Oxford Road (south of Farmfield Rd)	1917	1997	80	4%	Negligible
Oxford Road (north of Bankside)	1868	1752	-116	-7%	Negligible
Oxford Road (south of Bankside)	1913	1943	30	2%	Negligible
Bankside (west of site access)	630	670	40	6%	Negligible
Bankside (east of site access)	820	818	-2	0%	Negligible
Oxford Road (north of Weeping Cross)	1990	1890	-100	-5%	Negligible
Weeping Cross	150	181	31	17%	Minor
Oxford Road (south of Weeping Cross)	2124	2044	-80	-4%	Negligible
Oxford Road (north of Twyford Rd)	2067	2107	40	2%	Negligible
Twyford Road	298	342	44	13%	Minor
Oxford Road (south of Twyford Rd)	1787	1782	-5	0%	Negligible
Oxford Road (north of Aynho Road)	1680	1674	-6	0%	Negligible
Aynho Road	530	507	-23	-5%	Negligible
Oxford Road (south of Aynho Road)	1651	1650	-1	0%	Negligible

Table 8.07: 2031 Change in PM Peak Hour Two-Way Traffic as a Result of the Proposed Development

	PM Peak				
	2031 Baseline Flow	2031 With Dev	Diff	%age Change	Magnitude
Horse Fair (north of High Street)	2159	2206	47	2%	Negligible
High Street	840	840	0	0%	Negligible
West Bar Street	865	936	71	8%	Negligible
South Bar Street (south of High St)	1431	1489	58	4%	Negligible
South Bar Street (north of Bloxham Rd)	1638	1696	58	3%	Negligible
Bloxham Road (east of Oxford Road)	1043	1067	24	2%	Negligible
Queensway	1273	1299	26	2%	Negligible
Springfield Avenue	580	603	23	4%	Negligible
Oxford Road (south of Bloxham Road)	1787	1833	46	3%	Negligible
Oxford Road (north of Upper Windsor St)	1820	1866	46	2%	Negligible
Upper Windsor St (east of Oxford Rd)	991	986	-5	-1%	Negligible
Oxford Rd (south of Upper Windsor St)	2048	2103	55	3%	Negligible
Cherwell St (south of Bridge St)	2359	2451	92	4%	Negligible
Bridge St (west of Cherwell St)	530	583	53	9%	Negligible
Cherwell St (north of Bridge St)	1786	1840	54	3%	Negligible
Bridge St (east of Cherwell St)	1278	1294	16	1%	Negligible
Oxford Road (north of Horton View)	2048	2091	43	2%	Negligible
Horton View	451	437	-14	-3%	Negligible
Hightown Road	590	594	4	1%	Negligible
Oxford Road (south of Hightown Rd)	2038	2094	56	3%	Negligible
Oxford Road (north of Farmfield Rd)	2038	2094	56	3%	Negligible
Farmfield Rd	151	150	-1	-1%	Negligible
Oxford Road (south of Farmfield Rd)	1906	1968	62	3%	Negligible
Oxford Road (north of Bankside)	1687	1917	230	12%	Minor
Oxford Road (south of Bankside)	1971	1975	4	0%	Negligible
Bankside (west of site access)	603	609	6	1%	Negligible
Bankside (east of site access)	949	1053	104	10%	Minor
Oxford Road (north of Weeping Cross)	2083	2011	-72	-4%	Negligible
Weeping Cross	49	61	12	20%	Minor
Oxford Road (south of Weeping Cross)	2116	2049	-67	-3%	Negligible
Oxford Road (north of Twyford Rd)	2099	2124	25	1%	Negligible
Twyford Road	150	155	5	3%	Negligible
Oxford Road (south of Twyford Rd)	1949	1969	20	1%	Negligible
Oxford Road (north of Aynho Road)	1847	1877	30	2%	Negligible
Aynho Road	538	556	18	3%	Negligible
Oxford Road (south of Aynho Road)	1785	1829	44	2%	Negligible

5.4.4 As with the previous assessment the change in traffic flow in most locations in less than 10% and its effect would be considered negligible. In a total of 6 locations the SATURN model is predicting minor increases in flow (between 10% and 30%).

5.4.5 These links have low sensitivity in relation to severance, pedestrian amenity and road safety and therefore significance of the impact of change in peak hour traffic flow would be minor.

5.4.6 Turning next to the change in average junction delays per vehicle at each junction as a result of the development proposals, Table 8.08 sets out the average junction delays taken from the various junction models included in the TA.

Table 8.08: 2031 Peak Hour Average Junction Delay Per Vehicle (Seconds)

Junction	AM Peak			PM Peak		
	2031 Baseline	2031 With Development	Change	2031 Baseline	2031 With Development	Change
High Street / South Bar Street / West Bar St Roundabout	12	14	2	13	14	1
Oxford Road / Bloxham Road Signals	33	33	0	27	40	13
Oxford Road / Upper Windsor Street Signals	28	30	2	28	31	3
Oxford Road / Horton View / Hightown Road Signals	33	49	16	48	44	-4
Oxford Road / Farmfield Road / Sainsburys Signals	45	64	20	64	55	-9
Oxford Road Corridor in Total	35	45	10	44	43	0
Cherwell Street / Bridge Street /	400	447	47	382	408	25

Concord Avenue Signals						
Bloxham Road / Queensway Signal Junction	26	27	1	25	26	1
Bloxham Road / Springfield Avenue Priority Junction	3	5	1	8	12	3
Oxford Road / Bankside Slip-Roads	1	1	0	1	1	0
Bankside / Bankside Phase 1 Roundabout	7	7	0	7	9	2
Oxford Road / Weeping Cross / Bankside Phase 1 Signals	14	23	9	12	14	2
Oxford Road / Twyford Road Priority Junction	1	1	0	0	0	0
Oxford Road / Aynho Road Signals	30	28	-2	52	52	0

5.4.7 It can be seen that the change in average delay per vehicle are generally small, with the largest increase of almost 47 seconds occurring at the Cherwell Street / Bridge St signals, which would be considered a moderate increase in delay

5.4.8 With regard to pedestrian delays, Tables 8.09 and 8.10 set out the pedestrian crossing delay under 2031 baseline and with development traffic flow.

Table 8.09: Pedestrian Crossing Delays at Locations without Crossing Control AM Peak (seconds)

	2031 Baseline	2031 With Development
Horse Fair (north of High Street)	18	18
High Street	5	6
West Bar Street	2	2
Bloxham Road (east of Oxford Road)	10	11
Queensway	9	9
Springfield Avenue	3	4
Bankside (west of site access)	3	3
Bankside (east of site access)	4	4
Twyford Road	1	2

Table 8.10: Pedestrian Crossing Delays at Locations without Crossing Control PM Peak

	2031 Baseline	2031 With Development
Horse Fair (north of High Street)	22	22
High Street	5	5
West Bar Street	5	5
Bloxham Road (east of Oxford Road)	6	6
Queensway	9	9
Springfield Avenue	3	2
Bankside (west of site access)	3	4
Bankside (east of site access)	5	9
Twyford Road	2	2

5.4.9 The development proposals make very little difference, increasing pedestrian delays by no more than 1 second in the AM peak and 4 seconds in the PM peak.

5.5 Mitigation

Construction ***no change***

Operational Phase

5.5.1 The Transport Assessment Modelling Addendum sets out the options for mitigating the impact of development traffic. Two approaches are available:

- Localised improvements on the Oxford Road Corridor as set out in Dwg no: 16052-01-107 Rev B, and Dwg no: 16052-01-106 Rev B that were submitted as oart of the planning application.; or

- Contribution towards the delivery of more strategic highway infrastructure i.e. the south east link road.

On the Oxford Road corridor these consist of

- Increasing the southbound flare on Oxford Road north of Upper Windsor Street to 25 PCUS;
- Increasing the non-blocking right turn queue storage at Horton View to 2 PCUS;
- Increasing the northbound two-lane section south of Farmfield Road to 25 PCUS long.

5.5.2 The effects of the Oxford Road measures on junction delays when compared the 2031 baseline scenario is set out in Table 8.11.

Table 8.11: 2031 Peak Hour Average Junction Delay Per Vehicle (Seconds) with Mitigation in Place

Junction	AM Peak			PM Peak		
	2031 Baseline	2031 With Development	Change	2031 Baseline	2031 With Development	Change
Oxford Road / Bloxham Road Signals	33.29	34.21101	0.920377	27.43087	27.22715	-0.20372
Oxford Road / Upper Windsor Street Signals	28.35	28.22161	-0.12543	28.28466	29.43076	1.146106
Oxford Road / Horton View / Hightown Road Signals	33.29	36.74419	3.451684	48.27505	36.3762	-11.8988
Oxford Road / Farmfield Road / Sainsburys Signals	44.77	48.50605	3.736623	64.13974	45.75	-18.3897
Oxford Road Corridor in Total	34.53	36.74766	2.221705	43.58185	35.21765	-8.3642

5.5.3 On the Oxford Road corridor between Bloxham Road and Farmfield Road, which is modelled as a single network of signals, with the mitigation in place the overall delays would be brought back to a similar level as they are in the baseline situation.

5.5.4 Alternatively, the delivery of the south east link road, which the Development may (as an alternative) be making a financial contribution towards, would have the effects on traffic flows and junction delays shown in Tables 8.12 to 8.14.

Table 8.12: 2031 Change in AM Peak Hour Two-Way Traffic with Development and South East Link Road

	AM Peak				
	2031 Baseline Flow	2031 With Dev and SELR	Diff	%age Change	Magnitude
Horse Fair (north of High Street)	1912	2009	97	5%	Negligible
High Street	987	959	-28	-3%	Negligible
West Bar Street	554	560	6	1%	Negligible
South Bar Street (south of High St)	1718	1541	-177	-11%	Minor
South Bar Street (north of Bloxham Rd)	1921	1791	-130	-7%	Negligible
Bloxham Road (east of Oxford Road)	1405	1348	-57	-4%	Negligible
Queensway	1296	1259	-37	-3%	Negligible
Springfield Avenue	703	593	-110	-19%	Minor
Oxford Road (south of Bloxham Road)	1658	1724	66	4%	Negligible
Oxford Road (north of Upper Windsor St)	1692	1758	66	4%	Negligible
Upper Windsor St (east of Oxford Rd)	1178	1201	23	2%	Negligible
Oxford Rd (south of Upper Windsor St)	1994	1958	-36	-2%	Negligible
Cherwell St (south of Bridge St)	2462	2500	38	2%	Negligible
Bridge St (west of Cherwell St)	522	547	25	5%	Negligible
Cherwell St (north of Bridge St)	1977	1962	-15	-1%	Negligible
Bridge St (east of Cherwell St)	1318	1274	-44	-3%	Negligible
Oxford Road (north of Horton View)	1994	1955	-39	-2%	Negligible
Horton View	573	521	-52	-10%	Minor
Hightown Road	526	497	-29	-6%	Negligible
Oxford Road (south of Hightown Rd)	1951	1884	-67	-4%	Negligible
Oxford Road (north of Farmfield Rd)	1951	1884	-67	-4%	Negligible
Farmfield Rd	256	228	-28	-12%	Minor
Oxford Road (south of Farmfield Rd)	1917	1855	-62	-3%	Negligible
Oxford Road (north of Bankside)	1868	1844	-24	-1%	Negligible
Oxford Road (south of Bankside)	1913	1969	56	3%	Negligible
Bankside (west of site access)	630	851	221	26%	Minor
Bankside (east of site access)	820	1280	460	36%	Moderate
Oxford Road (north of Weeping Cross)	1990	1895	-95	-5%	Negligible
Weeping Cross	150	158	8	5%	Negligible
Oxford Road (south of Weeping Cross)	2124	2027	-97	-5%	Negligible
Oxford Road (north of Twyford Rd)	2067	2008	-59	-3%	Negligible
Twyford Road	298	156	-142	-91%	Major
Oxford Road (south of Twyford Rd)	1787	1869	82	4%	Negligible
Oxford Road (north of Aynho Road)	1680	1761	81	5%	Negligible
Aynho Road	530	527	-3	-1%	Negligible
Oxford Road (south of Aynho Road)	1651	1561	-90	-6%	Negligible

Table 8.13: 2031 Change in PM Peak Hour Two-Way Traffic with Development and South East Link Road

	PM Peak				
	2031 Baseline Flow	2031 With Dev and SELR	Diff	%age Change	Magnitude
Horse Fair (north of High Street)	2159	2142	-17	-1%	Negligible
High Street	840	847	7	1%	Negligible
West Bar Street	865	936	71	8%	Negligible
South Bar Street (south of High St)	1431	1414	-17	-1%	Negligible
South Bar Street (north of Bloxham Rd)	1638	1622	-16	-1%	Negligible
Bloxham Road (east of Oxford Road)	1043	1038	-5	0%	Negligible
Queensway	1273	1289	16	1%	Negligible
Springfield Avenue	580	536	-44	-8%	Negligible
Oxford Road (south of Bloxham Road)	1787	1749	-38	-2%	Negligible
Oxford Road (north of Upper Windsor St)	1820	1776	-44	-2%	Negligible
Upper Windsor St (east of Oxford Rd)	991	946	-45	-5%	Negligible
Oxford Rd (south of Upper Windsor St)	2048	2004	-44	-2%	Negligible
Cherwell St (south of Bridge St)	2359	2319	-40	-2%	Negligible
Bridge St (west of Cherwell St)	530	569	39	7%	Negligible
Cherwell St (north of Bridge St)	1786	1806	20	1%	Negligible
Bridge St (east of Cherwell St)	1278	1107	-171	-15%	Minor
Oxford Road (north of Horton View)	2048	2001	-47	-2%	Negligible
Horton View	451	425	-26	-6%	Negligible
Hightown Road	590	578	-12	-2%	Negligible
Oxford Road (south of Hightown Rd)	2038	2104	66	3%	Negligible
Oxford Road (north of Farmfield Rd)	2038	2104	66	3%	Negligible
Farmfield Rd	151	134	-17	-13%	Minor
Oxford Road (south of Farmfield Rd)	1906	1902	-4	0%	Negligible
Oxford Road (north of Bankside)	1687	1862	175	9%	Negligible
Oxford Road (south of Bankside)	1971	2033	62	3%	Negligible
Bankside (west of site access)	603	801	198	25%	Minor
Bankside (east of site access)	949	1327	378	28%	Minor
Oxford Road (north of Weeping Cross)	2083	2056	-27	-1%	Negligible
Weeping Cross	49	83	34	41%	Moderate
Oxford Road (south of Weeping Cross)	2116	2115	-1	0%	Negligible
Oxford Road (north of Twyford Rd)	2099	2189	90	4%	Negligible
Twyford Road	150	122	-28	-23%	Minor
Oxford Road (south of Twyford Rd)	1949	2067	118	6%	Negligible
Oxford Road (north of Aynho Road)	1847	2142	-17	-1%	Negligible
Aynho Road	538	847	7	1%	Negligible
Oxford Road (south of Aynho Road)	1785	936	71	8%	Negligible

Table 8.14: 2031 Peak Hour Average Junction Delay Per Vehicle (Seconds) with South East Link Road

Junction	AM Peak			PM Peak		
	2031 Baseline	2031 With Development	Change	2031 Baseline	2031 With Development	Change
High Street / South Bar Street / West Bar St Roundabout	12	9	-2	13	12	-1
Oxford Road / Bloxham Road Signals	33	32	-2	27	30	2
Oxford Road / Upper Windsor Street Signals	28	27	-2	28	28	0
Oxford Road / Horton View / Hightown Road Signals	33	24	-9	48	30	-18
Oxford Road / Farmfield Road / Sainsburys Signals	45	38	-6	64	59	-5
Oxford Road Corridor in Total	35	28	-6	44	36	-7
Cherwell Street / Bridge Street / Concord Avenue Signals	400	402	2	382	338	-44
Bloxham Road / Queensway Signal Junction	26	25	-1	25	25	0
Bloxham Road / Springfield Avenue	3	3	-1	8	8	-1

Priority Junction						
Oxford Road / Bankside Slip-Roads	7	14	6	7	23	16
Bankside / Bankside Phase 1 Roundabout	1	2	0	1	2	1
Oxford Road / Weeping Cross / Bankside Phase 1 Signals	14	21	7	12	14	2
Oxford Road / Twyford Road Priority Junction	1	1	0	0	0	0
Oxford Road / Aynho Road Signals	30	25	-5	52	49	-3

5.5.5 It can be seen that in most locations the change in traffic flow remains negligible. The SELR is shown to have minor to major beneficial effects on traffic flow in a number of locations, whilst there are minor to moderate adverse impacts in fewer locations (primarily on the stretch of Bankside between Oxford Road and the SELR).

5.5.6 In relation to junction delays, the scenario with development and the SELR results in negligible change compared to the baseline scenario and can therefore be said to be mitigating any adverse effects of development traffic. There are locations where it results in minor to moderate reductions in delay (Cherwell St / Bridge St signals and on Oxford Road in the PM peak) and can be said to be beneficial. This is partially offset by minor increases in delay at the Oxford Road / Bankside slip roads.

5.5.7 In addition to the physical improvement measures proposed to the above junctions, the Development will be supported by a Travel Plan that will encourage the use of sustainable modes of transport and discourage single occupancy vehicle trips. The Travel Plan will promote a range of measures including:

- The provision of a Travel Plan Co-ordinator prior to first occupation on site to implement, promote, administer and monitor the Travel Plan;
- Information sheets included in marketing offices and show homes to promote the fundamentals of the TP;
- Welcome Packs for new residents that will provide information on travel options for residents;

- Encourage the participation in local and national cycle awareness events and creation of a Bicycle User Group (BUGS).

5.6 Residual Effects

Construction Phase ***No change***

Operational Phase

5.6.1 For the operational phase of the Proposed Development, the change in two-way traffic flows (and hence the effect on severance and amenity) has negligible to minor impacts as shown in the Summary Table.

5.6.2 The implications for road safety are of minor significance as the locations where traffic flow increases are more than negligible do not suffer higher than typical accident rates.

5.6.3 With regard to average junction delays, all locations apart from the Oxford Road corridor signals and the Cherwell Street / Bridge St signals are experiencing a negligible change in average delay per vehicle.

5.6.4 The proposed mitigation measures at the Oxford Road corridor signals would result in a negligible impact in this area, but offer no benefit at Cherwell St / Bridge St.

5.6.5 The proposed Development is not reliant on the implementation of the SELR, it would result in negligible change in delays compared to the baseline at the Oxford Corridor signals in the AM peak, but in the PM peak would result in a moderate beneficial effect at the Horton View / Hightown Road section of the corridor. It would also result in negligible change at Cherwell St / Bridge St in the AM peak and a moderate beneficial effect on delays in the PM peak.

5.6.6 The residual effect of the development on pedestrian delays would be negligible.

5.7 Summary

5.7.1 Table 8.15 sets out a summary of the transport related effects of the Proposed Development

Table 8.15: Summary of Effects

Potential Effect	**Significance of Residual Effect**
Construction Phase	
Severance - Peak hour two-way traffic flows	Short-term minor adverse
Change in HGV proportions	Negligible
Driver Delay – Change in Journey Times	Negligible
Reduction in amenity and safety for pedestrians and cyclists	Short-term minor adverse
Pedestrian Delay – Peak Hour two-way traffic flows	Negligible
Operational Phase (with Oxford Road Improvements)	

Severance and pedestrian amenity – Change in two-way peak hour flows Bridge St east of Cherwell Street (AM), Weeping Cross, Twyford Road (AM), Oxford Road north of Bankside (PM peak) and Bankside east of site access (PM peak)	Long-term minor adverse
Severance and pedestrian amenity – Change in two-way peak hour flows - Elsewhere	Negligible
Road Safety – Change in two-way peak hour flows	Long-term minor adverse
Driver Delay – Change in Average Junction Delay – Cherwell St / Bridge St	Long-term moderate adverse
Driver Delay – Change in Average Junction Delay - Elsewhere	Negligible
Pedestrian Delay – Change in two-way peak hour flows	Negligible
Operational Phase (with SELR)	
Severance and pedestrian amenity – Change in two-way peak hour flows South Bar (AM), Springfield Avenue (AM), Horton View (AM), Farmfield Road, Twyford Road, Aynho Road (PM)	Long-term minor beneficial
Severance and pedestrian amenity – Change in two-way peak hour flows Bankside west of site access and Bankside east of site access	Long-term minor adverse
Severance and pedestrian amenity – Change in two-way peak hour flows - Elsewhere	Negligible
Road Safety – Change in two-way peak hour flows	Long-term minor beneficial
Driver Delay – Change in Average Junction Delay – Cherwell St / Bridge St	Long-term moderate beneficial
Driver Delay – Change in Average Junction Delay - Elsewhere	Negligible
Pedestrian Delay – Change in two-way peak hour flows	Negligible

REFERENCES *no change*

6.0 NOISE AND VIBRATION (To be read in conjunction with Chapter 9 of the May 2019 ES and Appendix 8 Noise Assessment)

6.1 Introduction

6.1.1 Chapter 9 of the May 2019 ES provided an assessment of the likely significant effects of the Proposed Development in respect of noise and vibration. This chapter of the 2020 FEIS takes account of the revised traffic modelling included within the Transport Technical Note attached at ***Appendix 8***

6.1.2 This chapter has only been updated where required, otherwise the original information contained in the May 2019 ES still stands, and has not been repeated here. This revised Chapter should be read in combination with the May 2019 ES.

6.2 Methodology: *No Change*

Noise Terminology ***No change***

Table 9.01**:** Familiar Noise Levels - ***No change***

6.3 Relevant Guidance: *No Change*

Table 9.02: Noise Exposure Hierarchy ***No change***

Table 9.03: Thresholds of Construction Noise - ***No change***

Table 9.04: Impact Significance Criteria for Increased Road Traffic Noise ***No change***

6.4 Baseline Conditions: *No Change*

Table 9.05**:** Noise Monitoring Results ***No change***

6.5 Impacts - *No Change*

Table 9.06: Construction Noise Threshold of Significant Effect ***No change***

Table 9.07**:** Assessment Matrix ***No change***

6.6 Mitigation and Monitoring

Direct and Indirect Noise and Vibration from Construction ***No change***

Assessment of Construction Effects ***No change***

Table 9.08**:** List of Construction Plant and Associated Sound Levels ***No change***

Table 9.09: Site Mobilisation Noise Levels ***No change***

Table 9.10**:** Levels Road Construction Noise levels ***No change***
Table 9.11: Site Clearance Noise Levels ***No change***

Table 9.12: Building Construction Noise Levels ***No change***

Assessment of Operational Effects

Local Network Traffic Noise Effects

6.6.1 Traffic noise predictions have been made using the CRTN prediction methodology. The methodology has been used to predict the magnitude of any change in noise level resulting from the project at the roadside of the local network. The traffic flows used in the assessment were provided by the Transport Consultant. Full details of which are provided in the Transport Chapter.

6.6.2 The predicted changes in noise level, identified with respect to the road traffic noise impact assessment criteria, are presented below showing the future with and without the completed project impact respectively.

Table 9.13: Predicted Long Term Noise Levels Within Local Road Network

Link	2031 Basic Noise (dB) without Development	2031 Basic Noise (dB) with Development	Noise Impact (dB)	Long Term Effect
Horse Fair (north of High Street)	72.8	72.9	**0.1**	Negligible
High Street	69.3	69.2	**0.0**	Negligible
West Bar Street	68.4	68.4	**0.0**	Negligible
South Bar Street (south of High St)	71.7	71.4	**-0.3**	Negligible
South Bar Street (north of Bloxham Rd)	72.2	72.0	**-0.2**	Negligible
Bloxham Road (east of Oxford Road)	70.6	70.5	**-0.1**	Negligible
Queensway	70.8	70.7	**0.0**	Negligible
Springfield Avenue	67.8	67.2	**-0.6**	Negligible
Oxford Road (south of Bloxham Road)	72.0	72.1	**0.0**	Negligible

Link	2031 Basic Noise (dB) without Development	2031 Basic Noise (dB) with Development	Noise Impact (dB)	Long Term Effect
Oxford Road (north of Upper Windsor St)	72.1	72.2	**0.0**	Negligible
Upper Windsor St (east of Oxford Rd)	70.0	70.0	**0.0**	Negligible
Oxford Rd (south of Upper Windsor St)	72.7	72.7	**-0.1**	Negligible
Cherwell St (south of Bridge St)	73.5	73.5	**0.0**	Negligible
Bridge St (west of Cherwell St)	66.9	67.2	**0.3**	Negligible
Cherwell St (north of Bridge St)	72.4	72.4	**0.0**	Negligible
Bridge St (east of Cherwell St)	70.8	70.4	**-0.4**	Negligible
Oxford Road (north of Horton View)	72.7	72.6	**-0.1**	Negligible
Horton View	66.8	66.4	**-0.3**	Negligible
Hightown Road	67.1	67.0	**-0.2**	Negligible
Oxford Road (south of Highton Rd)	72.7	72.7	**0.0**	Negligible
Oxford Road (north of Farmfield Rd)	72.7	72.7	**0.0**	Negligible
Farmfield Rd	62.8	62.3	**-0.5**	Negligible
Oxford Road (south of Farmfield Rd)	72.5	72.4	**-0.1**	Negligible
Oxford Road (north of Bankside)	72.4	72.4	**0.0**	Negligible
Oxford Road (south of Bankside)	72.6	72.7	**0.1**	Negligible
Bankside (west of site access)	67.6	68.9	**1.3**	Negligible

Link	2031 Basic Noise (dB) without Development	2031 Basic Noise (dB) with Development	Noise Impact (dB)	Long Term Effect
Bankside (east of site access)	69.2	70.8	**1.7**	Negligible
Oxford Road (north of Weeping Cross)	72.8	72.6	**-0.1**	Negligible
Weeping Cross	59.7	60.5	**0.8**	Negligible
Oxford Road (south of Weeping Cross)	72.9	72.8	**-0.1**	Negligible
Oxford Road (north of Twyford Rd)	72.9	72.9	**0.0**	Negligible
Twyford Road	63.2	61.1	**-2.1**	Negligible
Oxford Road (south of Twyford Rd)	72.4	72.6	**0.2**	Negligible
Oxford Road (north of Aynho Road)	72.1	72.4	**0.3**	Negligible
Aynho Road	67.0	66.7	**-0.2**	Negligible
Oxford Road (south of Aynho Road)	72.0	71.8	**-0.2**	Negligible
Concord Avenue	72.4	72.4	**0.0**	Negligible
Bridge Street East	70.8	70.4	**-0.4**	Negligible
Cherwell Street (north of Swan Close)	73.5	73.5	**0.0**	Negligible
Bridge Street West	66.9	67.2	**0.3**	Negligible
Hightown Rd North	69.5	69.1	**-0.4**	Negligible
Bankside	68.1	67.3	**-0.8**	Negligible

Link	2031 Basic Noise (dB) without Development	2031 Basic Noise (dB) with Development	Noise Impact (dB)	Long Term Effect
Hightown Rd South	66.0	66.1	**0.1**	Negligible
Lambs Crescent	45.9	45.3	**-0.6**	Negligible
Cherwell Street (south of Swan Close)	70.0	70.0	**0.0**	Negligible
Swan Close Rd	70.2	70.1	**-0.1**	Negligible
Upper Windsor St	71.9	72.0	**0.0**	Negligible

6.6.3 This demonstrates that the predicted magnitude of impact on noise levels from any changes on the wider road network would be negligible. In the short term, some of the impacts may be of low magnitude. The significance of effect for high sensitive receptors (residents) would be negligible to minor adverse. This would not be significant in EIA terms.

BS:8233: Assessment of Exterior Noise Levels

6.6.4 BS8233 indicates that for traditional external areas that are used for amenity space, such as gardens and patios, an upper guideline value of 55 dB LAeq,T is acceptable. However, BS8233 also recognises that the guideline values are not achievable in all circumstances, such as city centres or urban areas adjoining the strategic transport network.

6.6.5 BS8233 identifies that in such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but external noise should not be prohibitive on development delivery.

6.6.6 A review of the noise environment across the site has indicated that the external noise without mitigation exceeds 55 dB along the site boundary. However, there are no properties that lie within the 55dB area. There some properties to the north that lie on the 55dB, but the dwellings will provide natural noise screening, such that the back gardens will not experience unacceptable noise levels.

BS:8233 Assessment of Day Time Noise Levels in Living Rooms

6.6.7 BS8233 indicates that a daytime noise level of 35 dB LAeq represents the desired standard. The calculated noise levels have been used to determine likely noise levels and the extent of attenuation required.

6.6.8 The actual location of housing within the project would be determined at detailed design stage. Therefore, potential housing locations have been selected. The results of the assessment are presented below.

Table 9.14: Predicted Noise Levels Within Living Rooms

Link Fronting Property	Internal noise without window screening	Internal noise with window screening
A4260 Oxford Road	53.8	20.8
Eastern Edge of Site closest to M40 Motorway	53.5	20.5

6.6.9 This indicates that appropriate attenuation can be achievable for all of the properties through the use of thermal double glazing, with facades of properties further into the site being protected and screened by other buildings. Orientating properties and considering the internal layout to avoid direct sight lines onto the main roads would further mitigate and reduce internal noise sources. Therefore, there would be no significant effects.

BS:8233 Assessment of Night Time Noise Levels in Bedrooms

6.6.10 BS8233 indicates that a night time noise level of 30 dB LAeq represents the desirable standard in bedrooms. The calculated noise levels have been used to determine likely noise levels and the extent of attenuation required.

Table 9.15: Predicted Noise Levels Within Bedrooms

Link Fronting Property	Internal noise without window screening	Internal noise with window screening
A4260 Oxford Road	50.6	17.6
Eastern Edge of Site closest to M40 Motorway	48.1	15.1

6.6.11 This indicates that appropriate noise attenuation will be achievable, with facades of properties further into the site being protected and screened by other buildings. Therefore, there would be no significant effects.

6.7 Cumulative Impacts ***No Change***

6.8 Residual Impacts ***No Change***

During Construction ***No change***

Post Construction ***No change***

6.9 Conclusions ***No Change***

Table 9.16: Summary of Likely Environmental Effects on Noise *No change*

Activity	Sensitivity of receptor	Likely impact	Short / medium / long term	Magnitude of impact	Significance of effect	Significant / Not significant	Indirect / direct	Notes
Noise								
Construction phase – Construction Activities	High	Construction/ Demolition Noise and Vibration	Short term continuous	Low	Minor Adverse	Not significant	direct	
Operational phase – Increased Road Traffic	High	Noise levels across the site	Long term continuous	N/A	Site suitability test passed – not significant	Not significant	direct	
Operational phase – Increased Road Traffic	High	Increased noise levels at existing receptors	Long term continuous	Negligible to low	Negligible to minor adverse	Not significant	direct	

7.0 AIR QUALITY (To be read in conjunction with Chapter 10 of the May 2019 ES and Appendix 9 Air Quality Assessment)

7.1 Introduction

7.1.1 Chapter 10 of the May 2019 ES provided an assessment of the likely significant effects of the Proposed Development in respect of air quality. This chapter of the 2020 FEIS takes account of the revised traffic modelling included within the Transport Technical Note attached at ***Appendix 9.***

7.1.2 This chapter has only been updated where required, otherwise the original information contained in the May 2019 ES still stands and has not been repeated here. This revised Chapter should be read in combination with the May 2019 ES.

7.2 Methodology

Scope of Assessment ***no change***

Construction Phase Methodology ***no change***

Construction Traffic ***no change***

Construction Dust ***no change***

Operational Phase Methodology

7.2.1 The prediction of air quality at the Site and surrounding area has been undertaken using the ADMS Roads dispersion model. This is a commercially available dispersion model and has been widely validated for this type of assessment and used extensively in the Air Quality Review and Assessment process.

7.2.2 The model uses detailed information regarding traffic flows on the local road network and local meteorological conditions to predict pollution concentrations at specific locations selected by the user. Meteorological data from the Church Lawford Meteorological Station from 2016 has been used for the assessment.

7.2.3 The model uses traffic flow data and vehicle related emission factors to predict road specific concentrations of oxides of nitrogen (NOx), PM_{10} and $PM_{2.5}$ at sensitive receptors selected by the user. The predicted concentrations of NO_X have been converted to NO_2 using the Local Air Quality Management (LAQM) calculator on the Defra air quality website (Ref. 10.3).

7.2.4 Traffic data for the road network in the vicinity of the Site have been provided by the transport consultants, Markides Associates Ltd, for the 2016 base year and the anticipated completion year of 2031 with and without development scenarios.

7.2.5 A summary of the traffic data used in the assessment can be found in Appendix 9. The data includes details of annual average daily traffic flows (AADT), vehicle speeds and percentage heavy duty vehicles (HDV).

7.2.6 Current year (2020) vehicle emission factors released by Defra in May 2019, provided in the Emissions Factors toolkit EFT2019_v9.0 and have been used within the ADMS model (Version 4.1.1.0) to predict pollutant concentrations in 2031. A year-on-year reduction in vehicle emissions is anticipated due to

improvements in vehicle emissions technologies and the gradual renewal of the vehicle fleet (including the increasing uptake in electric vehicles). The use of 2020 emission factors to predict pollutant concentrations in 2031 therefore provides a conservative assessment of potential impacts.

7.2.7 To predict local air quality, traffic emissions predicted by the model must be added to local background concentrations. Background concentrations of NO_X, NO_2, PM_{10} and $PM_{2.5}$ have been taken from the 2015 Defra background maps. 2016 background concentrations have been used for the future year scenarios in 2031 to ensure a worst-case prediction of future air quality. The background concentrations used in the assessment are provided in Figure 10.05.

7.2.8 It is recommended, following guidance set out in LAQM.TG(16) (Ref. 10.4), that the model results are compared with measured data to determine whether the model results need adjusting to more accurately reflect local air quality. This process is known as verification.

7.2.9 LAQM.TG(16) recommends that model predictions should be within 25% (preferably 10%) of monitored concentrations for the model to be predicting with any degree of accuracy. The model has been used to predict NO_2 concentrations at a number of monitoring locations in the vicinity of the Site to verify the model results. This includes monitoring sites located within the AQMA.

7.2.10 The emission factors released by Defra in December 2017, provided in the Emissions Factors toolkit EFT2017_8.0.1 and have been used within the ADMS model (Version 4.1.1.0) to predict traffic emissions in 2016 for verification purposes.

7.2.11 The results of the comparison are presented below in Figure 10.01.

Table 10.01: Comparison of Modelled and Monitored NO_2 Concentrations ($\mu g/m^3$)

Monitoring Locations	Measured Concentrations (NO_2)	Modelled Concentrations (NO_2)	% Difference
Bridge Street	33.0	40.3	22%
Bankside	17.9	22.3	25%
High Street	34.6	41.5	20%
Oxford Road / South	35.5	40.9	15%
Horsefair	38.8	40.9	5%
Oxford Road 2014	22.1	24.7	12%
Cherwell Street 2014	37.7	39.8	6%

7.2.12 The comparison of monitored and modelled concentrations indicates that the model is over-predicting annual mean NO_2 concentrations by up to 25%. The results of the modelling assessment have been adjusted using the methodology given in LAQM.TG(16). Full details of the verification and calculation of adjustment factors are provided in Appendix 9.

7.2.13 There is no suitable monitoring data for PM_{10} or $PM_{2.5}$ to allow verification of the PM model results. However, LAQM.TG(16) suggests applying the NO_X adjustment factor to modelled road-PM where no appropriate verification against PM data can be carried out. The adjustment factors calculated for the NO_X data have therefore been used to adjust the predicted PM_{10} and $PM_{2.5}$ data.

7.2.14 LAQM.TG(16) does not provide a method for the conversion of annual mean NO_2 concentrations to 1-hour mean NO_2 concentrations. However, research (Ref. 10.5) has concluded that exceedances of the 1-hour mean objective are generally unlikely to occur where annual mean concentrations do not exceed 60 µg/m^3. Care has been taken to ensure that locations where the 1-hour mean objective is relevant are included in the assessment.

7.2.15 Quantitative assessment of the impacts on local air quality from road traffic emissions associated with the operation of the development have been completed against the Air Quality Strategy objectives set out in Appendix 9 for NO_2, PM_{10} and $PM_{2.5}$.

Significance Criteria ***no change***

Table 10.02: Impact Descriptors for Individual Receptors ***no change***

Table 10.03: Location of Receptors used in Modelling Assessment ***no change***

Figure 10.01: Location of Receptors used in Modelling Assessment ***no change***

7.3 Legislation, Policy and Guidance

The European Directive on Ambient Air and Cleaner Air for Europe ***no change***

Air Quality (England) Regulations ***no change***

Local Air Quality Management (LAQM) ***no change***

National Planning Policy Framework ***no change***

Control of Dust and Particulates Associated with Construction ***no change***

Cherwell Local Plan 2011 to 2031 (adopted July 2015) ***no change***

EPUK & IAQM Land Use Planning and Development Control ***no change***

Assessment of Dust from Demolition and Construction ***no change***

7.4 Baseline Conditions

Cherwell District Council Review and Assessment of Air Quality ***no change***

Automatic Local Monitoring ***no change***

7.4.1 CDC currently operates 42 diffusion tube sites within the regulatory area monitoring concentrations of NO_2. Details of the sites that are considered relevant to the assessment are set out in Table 10.04 below. With the exception of Horsefair, the data indicates that annual mean concentrations in Banbury are generally within the air quality objective of 40 µg/m^3.

7.4.2 Whilst NO_2 concentrations within the AQMA have mostly declined over the five year period, there is no long-term trend in the data that would suggest that there has been a significant decline in concentrations at locations outside the AQMA.

Table 10.04: NO_2 Diffusion Tube Monitoring (bias corrected, µg/m³)

Location	Site Type	OS grid Ref	In AQMA	Annual Mean NO_2 Concentrations (µg/m³)				
				2014	2015	2016	2017	2018
Bridge Street	Kerbside	445961, 240595	N	33.0	33.1	33.0	33.1	32.0
Oxford Road 2014	Roadside	446774, 237620	N	22.1	20.3	22.1	20.3	20.0
Bankside	Roadside	446377, 239620	N	17.9	17.0	17.9	17.0	18.8
Oxford Rd / South Bar	Kerbside	445335, 240094	Y	35.5	33.4	35.5	33.4	36.1
High Street	Kerbside	445407, 240421	Y	34.6	35.0	34.6	35.0	23.3
Horsefair (triplicate)	Roadside	445351, 240578	Y	38.8	41.8	38.8	41.8	38.7
North Bar	Kerbside	445352, 240744	Y	36.5	36.9	36.5	36.9	34.5
Cherwell Street 2014	Roadside	445932, 240499	N	37.7	37.3	37.7	37.3	36.4
Cranleigh Close	Urban Background	444367, 239654	No	12.5	10.7	12.5	10.7	12.3
Sinclair Avenue	Urban Background	444274,241 289	No	16.8	14.4	16.8	14.4	14.3
The Green, Adderbury	Kerbside	447403, 235723	No	28.3	26.8	28.3	26.8	25.3

Defra Background Maps

7.4.3 In the absence of local monitoring data for PM_{10} and $PM_{2.5}$ and for comparison with the measured background NO_2 data, concentrations have been obtained from the Defra background pollutant maps. These 1 km grid resolution maps are derived from a complex modelling exercise that takes into account emissions inventories and measurements of ambient air pollution from both automated and non-automated sites. The latest background maps were issued in May 2019 and are based on 2017 monitoring data, however since the baseline traffic data for the assessment is 2016, mapped background concentrations have been obtained from the previously issued data, released in 2017 and based on 2015 measured data.

7.4.4 The maximum 2016 annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations at the proposed development site and the selected sensitive receptor locations have been determined from contour plots of the mapped data and are presented in Table 10.05. The mapped concentrations for all three pollutants are well within the relevant long-term air quality standards and the NO_2 concentrations are in good agreement with those measured at the urban background monitoring sites in Banbury.

7.4.5 The background concentration assumed for the assessment is the maximum mapped concentration over the study area, which represents a worst-case at the majority of the receptor locations. Furthermore, the 2016 data are assumed to be representative of existing and future (2031) background concentrations in the area, which is a highly conservative assumption.

Table 10.05: Estimated 2016 Annual Mean Background Concentrations from Defra Maps (µg/m^3)

Pollutant	Range over Study Area	Assessment value	AQAL
NO_2	9.0 – 14.0	14.0	40
PM_{10}	12.5 – 15.5	15.5	40
$PM_{2.5}$	8.6 – 11.3	11.3	25

7.5 Impacts

Construction Dust Impacts ***no change***

Figure 10.02**:** Windrose from Church Lawford for 2016 ***no change***

Table 10.06: Summary of Dust Risk Effects Before Mitigation Sensitivity of

Surrounding Area ***no change***

Table 10.07**:** Summary of Sensitivity of Surrounding Area ***no change***

Table 10.08**:** Summary of Dust Risk Effects Before Mitigation ***no change***

Construction Traffic Impact ***no change***

Operational Phase Impact

7.5.1 Annual mean NO_2 concentrations predicted at the selected receptor locations are presented below in Table 10.09.

7.5.2 The results of the modelling assessment indicate that annual mean NO_2 concentrations in 2031, following the completion of the development, will be well the annual mean objective of 40 µg/m^3 (the AQAL) at all of the identified receptor locations.

7.5.3 Traffic generated by the Proposed Development is predicted to result in a maximum increase in NO_2 concentrations of 1.2 µg/m^3 (3% of the AQAL) at the two receptors on Bankside. However, the predicted concentration (including the background) at this location is just 50% of the AQAL and therefore the significance of the impact is negligible.

7.5.4 Annual mean NO_2 concentrations predicted at the receptors located within the development (28 to 33) are well below (less than 75%) the AQAL. It is expected that the 1-hour objective would also be met at all locations across the Site. As receptors located within the Development Site would not be exposed to NO_2 concentrations above the air quality objectives, the impact with regards new exposure is considered to be negligible.

Table 10.09: Annual mean NO_2 concentrations predicted at the selected receptor locations (µg/m^3)

Receptor	2031 Baseline	2031 Baseline + Development	Increase with Development (as a % of the AQAL)	Significance
4 South Bar Street	21.0	20.8	-1%	Negligible
21 South Bar Street	20.7	20.5	-1%	Negligible
Bus Stop South Bar	35.4	34.5	-2%	Negligible
6 Hightown Road	20.6	20.8	1%	Negligible
49 Queensway	17.4	17.3	0%	Negligible
125 Bloxham Road	19.4	18.9	-1%	Negligible
45 Horton View	18.4	18.3	0%	Negligible
Bus Stop on Oxford	26.4	26.3	0%	Negligible
24 Farmfield Road	16.9	16.8	0%	Negligible
Horton General	22.7	22.7	0%	Negligible
92 Oxford Road	21.7	21.6	0%	Negligible
132 Oxford Road	20.9	20.8	0%	Negligible
Bus Stop on corner of	23.9	23.9	0%	Negligible
The Grange County	17.8	17.9	0%	Negligible
The Grange County	20.4	20.4	0%	Negligible
59 St Annes Road	19.4	19.5	0%	Negligible
164 Oxford Road	22.3	22.4	0%	Negligible

27 Arbury Close	19.0	20.1	3%	Negligible
2 Farm Way	17.8	18.9	3%	Negligible
100 Oxford Road	20.2	20.3	0%	Negligible
Oxford Road opposite	19.1	19.0	0%	Negligible
Cotefield House	20.4	20.2	0%	Negligible
31 Twyford Road	17.4	17.1	-1%	Negligible
9 Twyford Gardens	25.6	25.6	0%	Negligible
Adderbury Bowls Club	19.8	19.7	0%	Negligible
Christopher Rawlins	21.9	22.2	1%	Negligible
Christopher Rawlins	26.7	27.4	2%	Negligible
Within proposed	-	18.0	-	-
Within proposed	-	16.0	-	-
Within proposed	-	15.6	-	-
Within proposed	-	16.4	-	-
Within proposed	-	15.8	-	-
Within proposed	-	16.5	-	-

PM_{10} Concentrations

7.5.5 Annual mean PM_{10} concentrations predicted at the selected receptor locations are presented below in Table 10.10.

Table 10.10: Predicted Annual Mean PM_{10} Concentrations ($\mu g/m^3$)

Receptor	2031 Baseline	2031Baseline + Development	Increase with Development (as a % of the AQAL)	Significance
4 South Bar Street	16.5	16.5	0%	Negligible
21 South Bar Street	16.5	16.5	0%	Negligible
Bus Stop South Bar	19.0	18.9	0%	Negligible
6 Hightown Road	16.7	16.8	0%	Negligible
49 Queensway	16.1	16.1	0%	Negligible
125 Bloxham Road	16.4	16.3	0%	Negligible
45 Horton View	16.3	16.2	0%	Negligible
Bus Stop on Oxford	17.7	17.7	0%	Negligible
24 Farmfield Road	16.0	16.0	0%	Negligible
Horton General	17.0	17.0	0%	Negligible
92 Oxford Road	16.8	16.8	0%	Negligible
132 Oxford Road	16.7	16.7	0%	Negligible
Bus Stop on corner of	17.3	17.3	0%	Negligible
The Grange County	16.2	16.2	0%	Negligible
The Grange County	16.6	16.6	0%	Negligible
59 St Annes Road	16.4	16.5	0%	Negligible

164 Oxford Road	17.0	17.0	0%	Negligible
27 Arbury Close	16.4	16.6	1%	Negligible
2 Farm Way	16.2	16.5	1%	Negligible
100 Oxford Road	16.6	16.6	0%	Negligible
Oxford Road opposite	16.6	16.6	0%	Negligible
Cotefield House	16.7	16.7	0%	Negligible
31 Twyford Road	16.1	16.0	0%	Negligible
9 Twyford Gardens	17.6	17.6	0%	Negligible
Adderbury Bowls Club	16.5	16.5	0%	Negligible
Christopher Rawlins	16.7	16.8	0%	Negligible
Christopher Rawlins	17.5	17.5	0%	Negligible
Within proposed	-	16.3	-	-
Within proposed	-	15.8	-	-
Within proposed	-	15.7	-	-
Within proposed	-	15.8	-	-
Within proposed	-	15.8	-	-
Within proposed	-	15.9	-	-

7.5.6 The results of the modelling assessment indicate that predicted annual mean PM_{10} concentrations are less than 50% of the AQAL at the selected receptor locations, both with and without the proposed development.

7.5.7 The Proposed Development is predicted to increase PM_{10} concentrations by a maximum of 0.26 µg/m^3, a negligible impact, in accordance with the IAQM & EPUK significance criteria as set out in Table 10.02.

7.5.8 The number of exceedances of 50 µg/m3, as a 24-hour mean PM10 concentration, hasbeen calculated from the annual mean following the approach set out by Defra in LAQM.TG(16):

A = -18.5 + 0.00145 x annual mean3 + (206/annual mean)

where A is the number of exceedances of 50 µg/m3 as a 24-hour mean PM10 concentration.

7.5.9 Based on the above approach, the maximum number of days where PM_{10} concentrations are predicted to exceed 50 µg/m^3 is between 0 and 2 days at the selected receptors with a change of less than one day as a result of the operational development. The impact on short-term PM_{10} concentrations is therefore also considered to be negligible.

7.5.10 The 24-hour objective is also expected to be met at all locations within the Site. The introduction of new receptors to the Site would not result in exposure to PM_{10} concentrations above the relevant AQS objective levels therefore the impact with regards new exposure is considered to be negligible.

$PM_{2.5}$ Concentrations

7.5.11 Annual mean $PM_{2.5}$ concentrations predicted at the selected receptor locations are presented below in Table 10.11.

Table 10.11 Predicted Annual Mean $PM_{2.5}$ Concentrations ($\mu g/m^3$)

Receptor	2031 Baseline	2031Baseline + Development	Increase with Development (as a % of the AQAL)	Significance
4 South Bar Street	11.9	11.9	0%	Negligible
21 South Bar Street	11.9	11.9	0%	Negligible
Bus Stop South Bar	13.4	13.3	0%	Negligible
6 Hightown Road	12.0	12.1	0%	Negligible
49 Queensway	11.6	11.6	0%	Negligible
125 Bloxham Road	11.8	11.8	0%	Negligible
45 Horton View	11.7	11.7	0%	Negligible
Bus Stop on Oxford	12.6	12.6	0%	Negligible
24 Farmfield Road	11.6	11.6	0%	Negligible
Horton General Hospital	12.2	12.2	0%	Negligible
92 Oxford Road	12.1	12.1	0%	Negligible
132 Oxford Road	12.0	12.0	0%	Negligible
Bus Stop on corner of	12.3	12.3	0%	Negligible
The Grange County	11.7	11.7	0%	Negligible
The Grange County	12.0	12.0	0%	Negligible
59 St Annes Road	11.9	11.9	0%	Negligible
164 Oxford Road	12.2	12.2	0%	Negligible
27 Arbury Close	11.8	11.9	1%	Negligible
2 Farm Way	11.7	11.9	1%	Negligible
100 Oxford Road	12.0	12.0	0%	Negligible
Oxford Road opposite	11.9	11.9	0%	Negligible
Cotefield House	12.0	12.0	0%	Negligible
31 Twyford Road	11.6	11.6	0%	Negligible
9 Twyford Gardens	12.5	12.5	0%	Negligible
Adderbury Bowls Club	11.9	11.9	0%	Negligible
Christopher Rawlins	12.0	12.1	0%	Negligible
Christopher Rawlins	12.5	12.5	0%	Negligible
Within proposed	-	11.7	-	-
Within proposed	-	11.5	-	-
Within proposed	-	11.5	-	-
Within proposed	-	11.5	-	-
Within proposed	-	11.5	-	-
Within proposed	-	11.6	-	-

7.5.12 The results of the modelling assessment indicate that predicted annual mean $PM_{2.5}$ concentrations are less than 50% of the AQAL at the selected receptor locations, both with and without the proposed development.

7.5.13 The Proposed Development is predicted to increase $PM_{2.5}$ concentrations by a maximum of 0.15 µg/m^3 which equates to less than 1% of the AQAL. In accordance with the IAQM & EPUK significance criteria as set out in Figure 10.02, the impact on local air quality with regards to this pollutant is considered to be negligible both within and outside of the AQMA.

7.6 Mitigation And Monitoring *No Change*
Construction Phase ***no change***

Operational Phase ***no change***

7.7 Cumulative Impacts *No Change*
Construction Phase Effects ***no change***

Operational Phase Effects ***no change***

7.8 Residual Impacts
Construction Phase ***no change***

Operational Phase ***no change***

7.9 Conclusions *No Change*

Table 10.12 Summary of Likely Environmental Effects in the Local Air Quality - ***no change***