
Title: High-level transport assessment of spatial options
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1 INTRODUCTION

- 1.1 This Technical Note sets out findings from a high-level assessment of the transport implications of development at 36 sites in Oxfordshire that could potentially accommodate Oxford City's estimated unmet housing need to 2031 of ~15,000 homes. It was prepared on behalf of the Oxfordshire Growth Board¹ and a first draft fed-in to a Check and Challenge workshop on 15th April 2016 led by LUC as part of their wider work to consider the general viability of the 36 different spatial options for accommodating Oxford's future unmet housing need. Based on comments and questions at this workshop an updated high-level assessment was prepared for an Executive Officer's Group meeting on 12th May 2016. The note was subsequently updated to include refined housing number trajectories (to 2031) and 30 minute travel time accessibility calculations for jobs in Oxford.
- 1.2 ITP understands that this transport-focused assessment will be considered alongside similar exercises covering other forms of infrastructure (education, health and other emergency services, waste management, energy & utilities, flooding & water management, and broadband & connectivity) to identify which sites will be given further consideration and more detailed assessment as part of an emerging preferred strategy. The work undertaken to inform this initial transport-focused appraisal has been carefully documented, to provide transparency in respect of the sources of evidence that underpin each criterion.
- 1.3 Once an emerging strategy, or set of options, has been identified it will be appropriate to use the Oxfordshire Strategic Transport Model (STM) to test the impact of a preferred strategy (or a small number of option packages). The outputs from the model will be used to refine the strategy(ies) and identify, at a high-level, which transport interventions can optimally and sustainably support the accommodation of Oxford City's unmet housing need across a number of preferred spatial options.

Structure of this Technical Note

- 1.4 The remainder of this Technical Note is structured as follows:
- Section 2 sets out a map showing the 36 spatial options considered, and the scale of potential housing development associated with each one.
 - Section 3 contains the Red/Amber/Green analysis against the methodology agreed with the Oxfordshire Growth Board. Each site option has been assessed against a set of eight transport-related metrics. The evaluation against the road safety metric is presented in Appendix E, rather than alongside the other metrics, since road safety considerations are typically easier to resolve through access design and mitigation measures.

¹ Cherwell District Council, Oxford City Council, South Oxfordshire District Council, Vale of White Horse District Council, and West Oxfordshire District Council. Oxfordshire County Council sits alongside these LPAs on the Oxfordshire Growth Board.

- Section 4 summarises key datasets and assumptions used to complete this assessment, with cross-references to the appended evidence base.
- Section 5 summarises potential next steps that could be pursued in respect of defining packages of spatial options to accommodate Oxford City’s unmet housing need and supporting transport schemes.

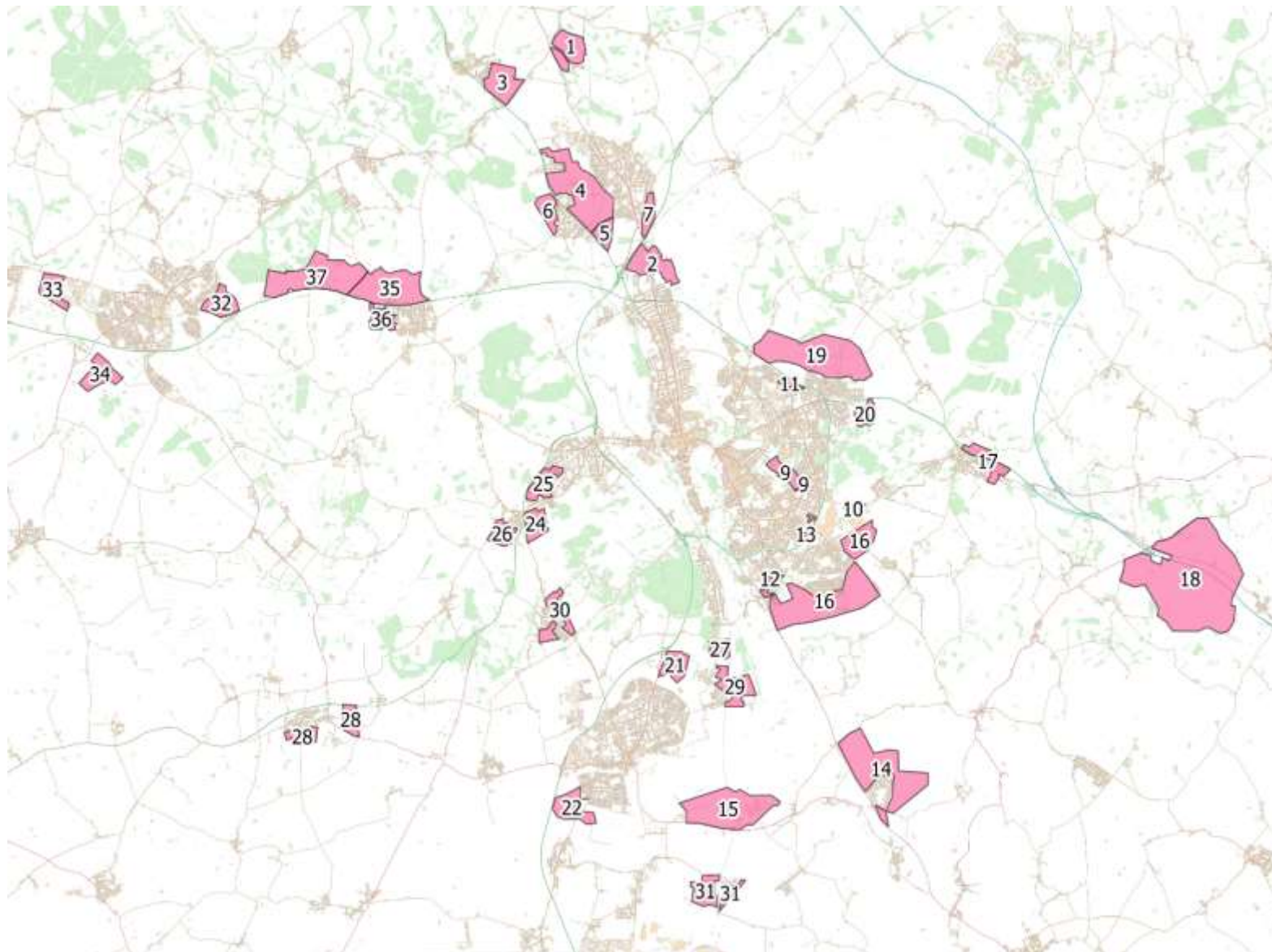
2 LOCATION MAP OF THE 36 SPATIAL OPTIONS

2.1 A total of 36 sites have been appraised through the course of this assessment, as shown in Table 2-1 and Figure 2-1. The site numbering follows that used by the Oxfordshire Growth Board in its initial appraisal of the potential spatial options, with site 23 being removed prior to the commencement of this transport-focused assessment.

Table 2-1: Oxford unmet housing need site options under consideration

Planning Authority	No.	Spatial Option	Estimated dwellings by 2031
Cherwell District Council	1	Shipton quarry	1,100
	2	Land north of Oxford	2,200
	3	Land SE of Woodstock	1,300
	4	Begbroke	1,650
	5	Land E of Yarnton	550
	6	Land W. of Yarnton	550
	7	Land SE of Kidlington	550
Oxford City Council	8	Enhanced growth	-
	9	Oxford Golf Club	1,100
	10	Horspath site (BMW/Mini site) land	550
	11	Land N of Old Headington	550
	12	Land at Oxford Science Park	350
	13	Land at Oxford Business Park	400
South Oxfordshire District Council	14	Berinsfield	2,200
	15	Culham	2,200
	16	Land SE of Oxford (Grenoble Rd)	2,200
	17	Land at Wheatley	550
	18	M40 J7	2,200
	19	Wick Farm	2,200
Vale of the White Horse District Council	20	Land adj to Thornhill P&R	550
	21	North Abingdon	1,100
	22	South Abingdon	1,100
	24	Botley	550
	25	Chawley	550
	26	Cumnor	550
	27	Kennington	550
	28	Land S and E of Kingston Bagpuize	1,100
	29	Radley	2,200
	30	Wootton	1,100
West Oxfordshire District Council	31	Appleford	1,100
	32	Witney NE	1,300
	33	Witney Downs Road	550
	34	Witney South	1,100
	35	Eynsham North	2,200
	36	Eynsham West	550
	37	Eynsham Park	2,200

Figure 2-1: Map showing the 36 spatial options considered through this appraisal



3 'RAG' ASSESSMENT OF TRANSPORT IMPLICATIONS FOR SPATIAL OPTIONS

3.1 Table 3-2 contains the outputs of the Red/Amber/Green assessment of the transport implications associated with housing development at each of the 36 spatial options under consideration. A series of metrics were used as the basis for the assessment, which have been described in Table 3-1.

Table 3-1: RAG Assessment Metrics

No.	Metric	Red/Amber/Green measure
1	Existing public transport mode share for people living close to each proposed development site	Car mode split derived from Commuter travel Census 2011 data was used to determine R/A/G status: <ul style="list-style-type: none"> • Green = Less than 55% by car • Amber = 56% to 69% by car • Red = 70% or more
2	Proximity to current sustainable transport	Qualitative geospatial comparison of each site in relation to current sustainable transport routes: <ul style="list-style-type: none"> • Green = located along existing strategic walk/cycle routes, rail lines or high frequency bus routes. • Amber = served by lower frequency bus routes, or an interchange away from higher frequency services. Not directly on, but linked to strategic walk/cycle routes. • Red = divorced from existing strategic walk/cycle routes, rail, or frequent bus corridors that serve central Oxford and other key employment sites.
3	Access to jobs by walking and public transport	Number of jobs (Census 2011) accessible in the Oxford urban area within 30 mins travel time by public transport from central point (centroid) of site option: <ul style="list-style-type: none"> • Green = More than 20,000 jobs • Amber = 2,500 - 20,000 jobs • Red = Less than 2,500 jobs
4	Access to jobs by road	Number of jobs (Census 2011) accessible in the Oxford urban area within 30 mins travel time by road (using average speeds) from central point (centroid) of site option: <ul style="list-style-type: none"> • Green = More than 75,000 jobs • Amber = 15,000 - 75,000 jobs • Red = Less than 15,000 jobs
5	Traffic conditions on key nearby routes	Qualitative geospatial comparison of each site in relation to current and forecast (to 2031, no improvement) road network capacity during the AM peak: <ul style="list-style-type: none"> • Green = spare capacity on major roads in vicinity of site, but not likely to encourage car use to the site • Amber = some congestion on major roads in vicinity of site, or with clear potential for capacity to be increased • Red = Significant congestion and lack of capacity on major roads in vicinity of site, meaning additional car-based trips will worsen existing delays

No.	Metric	Red/Amber/Green measure
6	Proximity to proposed future transport investments	Qualitative geospatial comparison of each site in relation to all proposed future transport investments: <ul style="list-style-type: none"> • Green = in the vicinity of fully-funded and programmed transport investments, or those which are currently being delivered • Amber = in the vicinity of more than 50% funded transport investments identified in the Connecting Oxfordshire Local Transport Plan (LTP) / Local Plan Infrastructure Delivery Plans • Red = Either not in the vicinity of proposed future transport investment, or in the vicinity of proposed investments that are less than 50% funded
7	Proximity to future transport investment needed for other strategic development	Qualitative geospatial comparison of each site in relation to proposed future transport investments, identified housing/employment growth sites, and Local Plan Evidence of Transport Impacts/Infrastructure Delivery Plan completed by District Councils in respect of existing housing and employment land allocations: <ul style="list-style-type: none"> • Green = Site is directly served by/likely to benefit from transport investments that are considered <u>critical</u> to unlocking other housing/employment sites, or are in the current LTP capital funding programme • Amber = Site is directly served by/likely to benefit from transport investments that are considered <u>necessary</u> to unlocking other housing/employment sites, or in the vicinity of those considered critical. • Red = Site is not in the vicinity of proposed transport investments that are required to unlock other housing/employment sites
8	Road safety incidents near to site (See Appendix E)	Quantitative geospatial comparison of latest available (2010-2014) KSI statistics on local roads: <ul style="list-style-type: none"> • Green = Under 10 serious incidents in the site's vicinity with no fatal incidents • Amber = Over 10 serious incidents in the vicinity of the site with no fatal incidents • Red = Any sites where fatal incidents have occurred in the vicinity of the site between 2010-2014

3.2 The findings from the RAG assessment have also been summarised for quick reference comparison in **Error! Reference source not found.** Appendix A to this report contains summary maps that illustrate the RAG scores for each site on maps framed on a District-by-District (planning authority) basis.

3.3 Findings from analysis against the road safety metric are reported in Appendix E to this note. They have been presented separately from the other metrics since most of the spatial options are located close to sites of fatal KSIs. The mitigation of such locations is also considered likely to be a likely component of any package of transport measures designed to accommodate access and movement at each spatial option site. As a result, the road safety challenges presented can be considered less strategically relevant than the other metrics being considered through this high-level review.

Table 3-2: Red/Amber/Green transport assessment of the 36 Oxford unmet housing need sites

Site Ref and location	Scale (units)	1 - Sustainable location	2 - Proximity to existing sustainable transport	3 – Walk + public Transport accessibility	4 - Highway accessibility	5 - Congestion	6 - Proximity to all proposed future transport investments	7 – Proximity to future transport investment needed for other strategic development
Cherwell District								
1 - Shipton Quarry, Cherwell	1,100	This site would be an extension of the village Shipton-on-Cherwell ~ 75% of commuter trips are made by car.	Existing bus links are fair. Close to the railway line between Banbury and Oxford but has no station. Limited connections by bike to the city centre, and divorced from cycle routes.	915 jobs accessible in Oxford within 30mins	11,681 jobs accessible in Oxford within 30mins	Signs of heavy congestion along the A4165 route into Oxford, which are expected to be mitigated through planned capacity enhancement measures.	3.5km from Rapid Transit Line 1 + Banbury Rd cycle route. 7km from Kidlington Park & Ride site (A34 North) and 9km from Kidlington roundabout upgrade proposal. All with high funding gaps	None of the closest transport investments are identified as critical or necessary to support other development sites
2 - Land north of Oxford	2,200	This site would be an urban extension of Oxford ~ 42% of commuter trips made by car.	Excellent bus links to Oxford, while services to Kidlington and Bicester are good. Close to Oxford Parkway rail station and next to the NCN57 cycle route ~3 miles to city centre.	42,402 jobs accessible in Oxford within 30mins	108,227 jobs accessible in Oxford within 30mins	Existing and planned sustainable transport investment may help mitigate congestion. Proximity to A34 is a concern, but could be mitigated through a development-specific transport strategy.	Served by RT Lines 1&3, EW rail and several cycle routes. Peartree P&R within 1.5km. Several road / junction schemes 2-3km of site. All with med/high funding gaps except funded Northern Gateway site link road & RT line 3	Northern Gateway link road and RT line 3 funding is necessary to unlock housing and employment land at this site
3 - Land SE of Woodstock	1,300	This site would be an extension of Woodstock which lies immediately to the north where ~ 75% of commuter trips are made by car.	Bus services are limited. Hanborough rail station is a short drive but not . Mut more than 5 miles from Oxford city centre.	493 jobs accessible in Oxford within 30mins	10,103 jobs accessible in Oxford within 30mins	Pockets of congestion exist in the Woodstock area. Preliminary concerns in relation to the heavily congested A34.	3km from Rapid Transit 1/Langford Lane P&R + Banbury Rd cycle route. 10km from Peartree Park & Ride site and Peartree interchange upgrade proposal. All with med/high funding gaps	None of the closest transport investments are identified as critical or necessary to support other development sites
4 - Begbroke	1,650	This site would be an expansion of Begbroke village where ~ 56% of commuter trips are by car.	Existing bus services are limited, but good from Kidlington. Close to Oxford - Banbury rail line but the site has no station. Adjacent to NCN5, ~5 miles to Oxford city centre	6,057 jobs accessible in Oxford within 30mins	50,939 jobs accessible in Oxford within 30mins	Congestion along the A44 between Begbroke and the junction with the A34 is notably high.	3km from RT Line 1, premium cycle route along A4260, and Langford Lane P&R. 3.5km from Peartree P&R. 4km from EW rail and 6.5km from several road/junction improvements. All med/high funding gaps except funded Northern Gateway site link road and RT line 3.	Northern Gateway link road funding necessary to unlock housing and employment land at this site. EW Rail necessary for unlocking development in local area.
5 - Land E of Yarnton	550	Site near Yarnton village ~62% of commuter trips made by car.	Existing bus services limited, but those along nearby A4260 are good. Oxford Parkway station is within 1km, but a considerable walk from the site. Next to NCN5 cycle route and within 5 miles of Oxford City Centre.	97,550 jobs accessible in Oxford within 30mins	68,397 jobs accessible in Oxford within 30mins	Congestion along the A44 between Yarnton and the A44/A34 junction is high. Site would add traffic to the heavily congested A34.	1km to Peartree P&R & A40-A44 link road. 2km to Peartree interchange, Oxford Parkway access and Kidlington roundabout improvements. 3km to Northern Gateway site link scheme & 3.5km from Wolvercote roundabout upgrade. All med/high funding gaps except Northern Gateway and Wolvercote (funded).	Northern Gateway link road necessary to unlock housing and employment land at this site, but limited wider impact. EW Rail necessary for unlocking development in local area. Wolvercote roundabout improvement necessary for Northern Gateway.

Site Ref and location	Scale (units)	1 - Sustainable location	2 - Proximity to existing sustainable transport	3 - Walk + public Transport accessibility	4 - Highway accessibility	5 - Congestion	6 - Proximity to all proposed future transport investments	7 - Proximity to future transport investment needed for other strategic development
6 - Land W. of Yarnton	550	An extension of Yarnton to the west of the village ~ 73% of commuter trips by car.	Existing bus services are limited. The site is located within 1km of a rail line but has no station, but is adjacent to NCN5 cycle route and within 5 miles of Oxford City Centre.	10,746 jobs accessible in Oxford within 30mins	40,556 jobs accessible in Oxford within 30mins	Congestion along the A44 between Yarnton and the A44/A34 junction is high. Development is likely to impact traffic conditions along the A34.	3.5km from RT Lines 1&3 + Langford Lane P&R. 4km to Peartree P&R. 5km from A40-A44 link road scheme & Peartree upgrade, 5.5km to Northern Gateway site road link scheme & 6km to Wolvercote junction upgrade. All med/high funding gaps except Northern Gateway & Wolvercote (funded).	Northern Gateway link road necessary to unlock housing and employment land at this site, but limited wider impact. EW Rail necessary for unlocking development in local area. Wolvercote roundabout improvement necessary for Northern Gateway.
7 - Land SE of Kidlington	550	An extension to the south east of Kidlington, and 1km from the urban edge of Oxford where ~62% of commuter trips are made by car.	Existing bus services to Oxford and Kidlington are good and fair to Bicester. Close to Oxford Parkway rail station and existing P&R. On the road adjacent to NCN57 cycle route ~4 miles from Oxford.	32,703 jobs accessible in Oxford within 30mins	87,288 jobs accessible in Oxford within 30mins	Existing and planned sustainable transport investment may help mitigate congestion. Proximity to A34 is a concern, but could be mitigated through a development-specific transport strategy.	Served by RT 1, several cycle routes, EW rail, Kidlington roundabout and Oxford Parkway access upgrades. Proposed P&R sites at Peartree and Kidlington are ~3km away. A40-A44 and Northern Gateway link road schemes are at ~3km. Wolvercote & Cutterslowe junction schemes are 4km away. All with med/high funding gaps save Northern Gateway & Wollvercote (funded).	Northern Gateway link road necessary to unlock housing and employment land at this site, but limited wider impact. EW Rail necessary for unlocking development in local area. Wolvercote roundabout improvement necessary for Northern Gateway.
Oxford City								
8 - Enhanced growth	-	Intensification within urban Oxford. Sustainable location.	Assumed green on basis of proximity to centre of Oxford. Will vary between sites.	-	-	Currently a major issue. Future road and sustainable transport schemes are forecast to have a positive impact.	Many and varied schemes taking place within this area. Some have funding, most do not.	Unknown.
9 -Oxford Golf Club	1,100	Urban intensification on eastern side of Oxford where ~ 37% of commuter trips made by car.	Bus services to Oxford are excellent. Linked to strategic quiet cycle routes into the city centre (~3 miles from site) and NCN57.	70,021 jobs accessible in Oxford within 30mins	99,589 jobs accessible in Oxford within 30mins	Currently a major issue. Future road and sustainable transport schemes are forecast to have a positive impact	RT3 and super cycle route serve the site. RT1, 2 premium cycle routes & Headington access improvement are ~1.5km away. Horspath Driftway and Horspath Road junctions are 2km from the site and the Cowley interchange scheme improvement is 3km away. Bus tunnel underpass is proposed to east of Oxford 4km away. RT3 funded	RT3 unlocks neighbouring development sites
10 - Horspath site (BMW/Mini site) land	550	This site would be an extension to the eastern edge of Oxford where ~ 45% of commuter trips are made by car.	Existing bus services are limited. Well situated for NCN 57 cycle route, and approximately 5 miles from city centre.	25,421 jobs accessible in Oxford within 30mins	96,229 jobs accessible in Oxford within 30mins	Moderate levels of congestion in the vicinity of the site. Planned road capacity enhancements are designed to mitigate congestion delays.	RT 3 is at 2.5km & RT 1 is 3.5km away. Oxford Biz Park is 2km away. Cowley interchange, Horspath Road and Horspath Driftway junction improvements all at ~2km. Headington access improvement scheme at 1.5km. 2 proposed cycle routes <3km away. RT 3 is fudned but distant from site.	Improvements serve BMW, Oxford Business Park, Horspath Industrial Estate and County Trading Estate employment sites

Site Ref and location	Scale (units)	1 - Sustainable location	2 - Proximity to existing sustainable transport	3 - Walk + public Transport accessibility	4 - Highway accessibility	5 - Congestion	6 - Proximity to all proposed future transport investments	7 - Proximity to future transport investment needed for other strategic development
11 - Land N of Old Headington	550	Wraps around the northern boundary of the village of Old Headington and the A40, where ~ 20% of commuter trips are made by car.	Currently no bus services, but good services to adjoining areas. Located along existing quiet cycle routes to the city centre ~2 miles away,	11,684 jobs accessible in Oxford within 30mins	97,411 jobs accessible in Oxford within 30mins	Currently a major issue. Future road and sustainable transport schemes are forecast to have a positive impact	RT 2&3 and 2 new cycle routes <1.5km. Adjacent Barton site access and bus link. Marsh Lane interchange and Headington roundabout schemes <2.5km. All with med/high funding gaps except Barton site access bus link & RT 3 (fully funded).	Barton site access improvements and bus link are funded and critical to developing the adjacent Barton site. RT line 3 is funded, unlocks development, but is distant from site
12 - Land at Oxford Science Park	350	Just outside the ring road in the Oxford Science Park, from where ~ 55% of commuter trips are made by car.	Existing bus services are limited. Site is on a branch line but no station. Located along existing quiet cycle routes to the city centre ~3 miles away.	25,650 jobs accessible in Oxford within 30mins	94,101 jobs accessible in Oxford within 30mins	Currently a major issue. Future road and sustainable transport schemes are forecast to have a positive impact	RT 3 serves site, RT1 is 2km away. New rail station (Cowley branch) on site. New super cycle route 1km away. P&R along A4074 at 2km, and Redbridge P&R is at 4km. A4074 & Heyford Hill/Littlemore r/abouts due to be improved. Mostly med / high funding gaps	Several improvements would also serve Barton housing site and, potentially, site 19 (Wick Farm)
13 - Land at Oxford Business Park	400	Urban intensification within Oxford Business Park from where ~41% of commuter trips are made by car.	Existing bus services to the site are limited. Close to a rail branch line but no station. Located along existing quiet cycle routes to the city centre ~3 miles from city centre.	66,068 jobs accessible in Oxford within 30mins	97,685 jobs accessible in Oxford within 30mins	Currently a major issue. Future road and sustainable transport schemes are forecast to have a positive impact	RT3 and premium cycle route serve site, RT1 and super cycle route 1km away. New rail station at 1km (Cowley branch). Upgraded Cowley interchange adjacent, Horspath Road junction upgrade at 1.5km. Littlemore r/about, Horspath Driftway & Headington access improvements ~2.5km. All unfunded	Improvements serve BMW, Oxford Business Park, Horspath Industrial Estate and County Trading Estate employment sites
South Oxfordshire District								
14 - Berinsfield	2,200	Extension to south, east and north of Berinsfield village where ~73% of commuter trips are by car.	Existing bus services to Oxford and Reading are fair, but limited to Abingdon. ~8 miles from strategic cycle routes to Oxford and key employment sites.	539 jobs accessible in Oxford within 30mins	25,966 jobs accessible in Oxford within 30mins	Little congestion on links to employment sites. A4074 forecast to become more congested over time into Oxford. Mitigating highway investments planned along A4074.	Next to Golden Balls roundabout improvement, B4015 Clifton Hampden to A4074 Capacity Improvements and 7.5km to Culham rail station. All have high funding gaps.	None of the closest transport investments are identified as critical or necessary to support other development sites
15 - Culham	2,200	Major intensification of the village of Culham where ~ 69% of commuter trips are made by car.	Close to Culham rail station; 30 min peak time service to Oxford, Banbury, Reading and London. Limited bus services. Linked to strategic cycle routes but NCN5 is 2miles away in Abingdon.	0 jobs accessible in Oxford within 30mins	6,479 jobs accessible in Oxford within 30mins	Congestion is not a major issue in the vicinity of this site, but is forecast to worsen along the A4074 into Oxford.	Adjacent to Culham rail station, Science Centre access improvement, Abingdon to Culham cycle route, South Abingdon bypass and new river crossing to Culham. All have high funding gaps.	Only Culham river crossing to science centre is identified as necessary for supporting other development

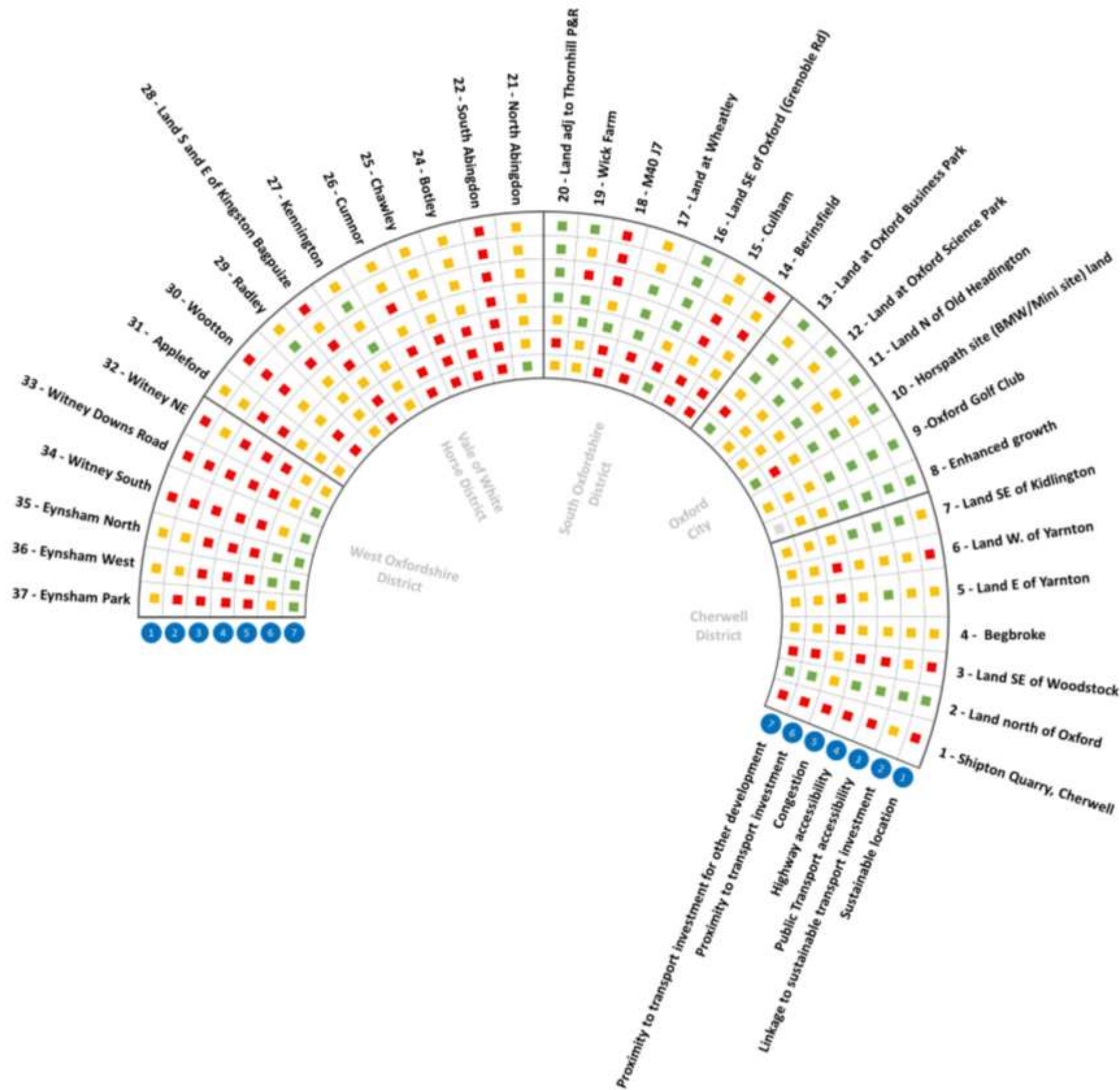
Site Ref and location	Scale (units)	1 - Sustainable location	2 - Proximity to existing sustainable transport	3 - Walk + public Transport accessibility	4 - Highway accessibility	5 - Congestion	6 - Proximity to all proposed future transport investments	7 - Proximity to future transport investment needed for other strategic development
16 - Land SE of Oxford (Grenoble Rd)	2,200	Large urban extension of Oxford outside the ring road, where ~ 55% of commuter trips are made by car.	Good bus services exist to nearby areas which could be extended into this site. Adjacent to strategic cycle routes. Short ride to NCN57.	21,021 jobs accessible in Oxford within 30mins	81,643 jobs accessible in Oxford within 30mins	Congestion is an issue along the A4074 into Oxford. Development is also likely to create additional traffic for the A34.	Served by proposed premium cycle route as part of RT line 1&3, and close to Cowley rail link. Close to RT1, Cowley Interchange, and Horspath Road junction schemes. All unfunded.	Improvements serve BMW, Oxford Business Park, Horspath Industrial Estate and County Trading Estate employment sites
17 - Land at Wheatley	550	Located to the north of Wheatley and dissected by the A40. ~66% of commuter trips are made by car from this area.	On bus route serving Oxford and Aylesbury. Slightly too far away from Oxford for cycling to realistically be feasible.	31,107 jobs accessible in Oxford within 30mins	91,769 jobs accessible in Oxford within 30mins	Congestion not a significant issue near site, with that on A40 approach to Oxford forecast to be mitigated by 2031.	6.5km from Thornhill P&R/Rapid Transit Line 2 terminus. Likely to benefit from A40 Headington roundabout upgrade. All unfunded	None of the closest transport investments are identified as critical or necessary to support other development sites
18 - M40 J7	2,200	Proposed new settlement, dissected by the A40 / M40. ~70% of commuter trips are made by car in this area.	Limited bus services Oxford tube passes through site on A40 and could stop. Site is not connected to cycle routes serving Oxford/ key employment sites.	0 jobs accessible in Oxford within 30mins	47,744 jobs accessible in Oxford within 30mins	Congestion not forecast to be an issue in the immediate vicinity of the site.	17.5km from Thornhill P&R/Rapid Transit Line 2 terminus. Likely to benefit from A40 Headington roundabout upgrade. All unfunded.	None of the closest transport investments are identified as critical or necessary to support other development sites
19 - Wick Farm	2,200	New settlement to the east of Oxford and north of Barton, where ~47% of commuter trips are made by car.	Good bus services nearby, but not to site. Scope to divert based on development size. Not on strategic cycle routes, but linked to quiet cycle routes into the city centre.	1,642 jobs accessible in Oxford within 30mins	93,863 jobs accessible in Oxford within 30mins	Currently an issue on London Road into Oxford, but forecast to be mitigated through public transport and road capacity investment in the vicinity of the site.	Served by Marsh Lane interchange improvement, Barton access/bus link, RT3. Close to Headington r/about phase 1 & 2 proposals. Thornhill P&R nearby. Only Barton access funded.	Barton site access improvements and bus link are funded and critical to developing the adjacent Barton site.
20 - Land adj to Thornhill P&R	550	This site is outside the ring road to the East of Oxford, where ~51% of commuter trips are made by car.	Good bus services to Oxford from Thornhill P&R. Buses to Thame & Aylesbury. Not directly on, but linked to quiet cycle routes into Oxford.	35,401 jobs accessible in Oxford within 30mins	95,709 jobs accessible in Oxford within 30mins	Currently an issue along A40 into Oxford. Forecast to be mitigated through public transport and road capacity investments.	RT2, Thornhill P&R and premium cycle route serve the site. Headington r/about improvement scheme at 2km. All unfunded.	Headington roundabout improvement necessary to unlock nearby Barton site.
Vale of White Horse District								
21 - North Abingdon	1,100	Slightly remote extension to Abingdon, where ~65% of commuter trips are made by car.	Fair bus services to Oxford and Abingdon Not directly on, but linked to strategic walk/cycle routes. 1 mile. Partial cycle routes on the A4183 and 1.4miles away from the NCN5.	9,189 jobs accessible in Oxford within 30mins	55,450 jobs accessible in Oxford within 30mins	Congestion on A34 into Oxford is a major issue. However, future public transport services, particularly BRT line 3 and Lodge Hill P&R, offer sustainable transport options for many trips.	Next to Rapid Transit Line 3 terminus/Lodge Hill P&R and freight park. Lodge Hill south-facing slips are funded, while P&R site is part-funded. RT line is not funded.	Lodge Hill interchange improvements and P&R are critical to unlocking other development sites

Site Ref and location	Scale (units)	1 - Sustainable location	2 - Proximity to existing sustainable transport	3 - Walk + public Transport accessibility	4 - Highway accessibility	5 - Congestion	6 - Proximity to all proposed future transport investments	7 - Proximity to future transport investment needed for other strategic development
22 - South Abingdon	1,100	Extension to the south of Abingdon and west of Caldecott, where ~73% of commuter trips are made by car.	Infrequent buses to Oxford, Abingdon, Wantage, Didcot & Wallingford. Not directly on, but linked to strategic walk/cycle routes 1 mile away, but 10 miles to Oxford	0 jobs accessible in Oxford within 30mins	4,848 jobs accessible in Oxford within 30mins	Currently an issue but forecast to be mitigated through South Abingdon bypass. Congestion on adjacent A34 is high and expected to remain in future.	Next to South Abingdon bypass and cycle routes to Abingdon, Harwell Science Park and Milton Park. All have high funding gaps.	None of the closest transport investments are identified as critical or necessary to support other development sites
24 - Botley	550	This site would be located to the South West of Oxford, where ~65% of commuter trips are by car.	Good bus services to Oxford, Abingdon and Wantage. Far from cycle routes to central Oxford and other key employment sites, but only ~3 miles from city	4,923 jobs accessible in Oxford within 30mins	58,552 jobs accessible in Oxford within 30mins	Currently an issue along the A420 into Oxford. Forecast to improve following the introduction of RT2 & Cumnor P&R.	Next to RT2/Cumnor P&R, A420 capacity improvements and Botley interchange upgrade/Botley Rd Cycle Super Route. All unfunded.	None of the closest transport investments are identified as critical or necessary to support other development sites
25 - Chawley	550	This site is to the north and west of Chawley, where ~61% of commuter trips are made by car.	Good bus services to Oxford, Abingdon and Wantage. Far from cycle routes that serve central Oxford & other key employment sites. ~4 miles to city	4,942 jobs accessible in Oxford within 30mins	38,391 jobs accessible in Oxford within 30mins	Currently an issue along A420 to Oxford. Forecast to improve following introduction of RT2 and Cumnor P&R facility.	Next to RT2/Cumnor P&R, A420 capacity improvements and Botley interchange upgrade/Botley Rd Cycle Super Route. All unfunded.	None of the closest transport investments are identified as critical or necessary to support other development sites
26 - Cumnor	550	South western extension to the village of Cumnor, where ~67% of commuter trips are by car.	Existing bus services to Oxford, Abingdon and Wantage are good. Far from cycle routes that serve central Oxford and other key employment sites, and ~4 miles from city centre	165 jobs accessible in Oxford within 30mins	28,303 jobs accessible in Oxford within 30mins	Currently an issue along the A420 into Oxford. Forecast to improve following the introduction of BRT line 2 and associated P&R facility at Cumnor.	Next to RT2/Cumnor P&R, A420 capacity improvements and Botley interchange upgrade/Botley Rd Cycle Super Route. All unfunded.	None of the closest transport investments are identified as critical or necessary to support other development sites
27 - Kennington	550	Extension to the south of Kennington, where ~59% of commuter trips are by car.	~1km from Radley rail station: 30 min peak service to Oxford, Banbury, Reading & London. Frequent buses to Oxford & Abingdon. On existing cycle route. Close to NCN5 into Oxford.	13,133 jobs accessible in Oxford within 30mins	77,740 jobs accessible in Oxford within 30mins	Congestion is not an issue in the vicinity of the site, but growth here may generate new car trips along Kennington Road on approaches to Oxford.	Close to Abingdon Rd Cycle Super route & Hinksey interchange upgrade. 2.5km from RT3 & Lodge Hill P&R/freight park. All have high funding gaps except Hinksey interchange upgrade.	Only Hinksey interchange is identified as critical to supporting development at other sites.
28 - Land S and E of Kingston Bagpuize	1,100	Extension to the east of Kingston Bagpuize and to the south to Southmoor ~ 75% of commuter trips are made by car.	Bus services from the site to Oxford are fair. Away from existing strategic cycle routes that serve central Oxford and other key employment sites	18 jobs accessible in Oxford within 30mins	1,629 jobs accessible in Oxford within 30mins	Pockets of traffic congestion exist in the area and congestion along the A420 is forecasted to worsen by 2031. Developing this site may add traffic to this link.	Next to A420 corridor improvements and 12km from RT2 / Cumnor P&R and Botley interchange upgrade. 6km from Grove station. All have high funding gaps.	None of the closest transport investments are identified as critical or necessary to support other development sites

Site Ref and location	Scale (units)	1 - Sustainable location	2 - Proximity to existing sustainable transport	3 – Walk + public Transport accessibility	4 - Highway accessibility	5 - Congestion	6 - Proximity to all proposed future transport investments	7 – Proximity to future transport investment needed for other strategic development
29 - Radley	2,200	Extension to the village of Radley where ~ 59% of commuter trips are made by car	Close to Radley rail station, with 30 min peak frequencies to Oxford, Banbury, Reading and London. Existing bus services to Abingdon and Oxford are good. Located on existing cycle route & linked to the NCN5 (on road) and later off road.	2,116 jobs accessible in Oxford within 30mins	19,558 jobs accessible in Oxford within 30mins	Congestion is not currently an issue. Development may generate localised congestion along Kennington Road – a primary route into both Oxford and Abingdon.	Close to Abingdon Road Cycle Super route and upgraded Hinksey interchange. 2.5km from RT3 terminus/Lodge Hill P&R and freight park. All have high funding gaps except Hinksey interchange upgrade which is fully funded.	Only Hinksey interchange is identified as critical to supporting development at other sites.
30 - Wootton	1,100	Village extension to Wootton where ~71% of commuter trips are made by car.	Bus services to Oxford and Abingdon pass by the site but are limited. Away from existing strategic cycle routes that serve central Oxford and employment sites	1,766 jobs accessible in Oxford within 30mins	49,838 jobs accessible in Oxford within 30mins	Congestion is not an issue in the vicinity of the site. Traffic likely to load predominantly onto A420 and A34 at congested points on the network.	Close to A420 corridor improvements and 4.5km from both RT 2/Cumnor P&R and Rapid Transit Line 3/Lodge Hill P&R. likely to benefit from Botley interchange upgrade. All have high funding gaps	None of the closest transport investments are identified as critical or necessary to support other development sites
31 - Appleford	1,100	Village extension on two sites east and west of Appleford ~67% of commuter trips are made by car.	Served by Appleford rail station with 30 minute peak services to Oxford, Banbury, Reading and London. No bus services currently and away from existing strategic cycle routes to Oxford (11 miles away).	326 jobs accessible in Oxford within 30mins	0 jobs accessible in Oxford within 30mins	Congestion is not an issue in the vicinity of the site. Traffic likely to load predominantly onto A4074 and A34 at congested points on the network.	Next to South Vale Road Phase 2 (option 2) and close to Culham rail station. Both have high funding gaps. Close to Science Bridge, A4130 capacity upgrades, and Didcot northern perimeter road. These are funded / part funded.	Science Bridge and A4130 improvements, as well as Didcot northern perimeter road identified as critical to supporting development of other sites.
West Oxfordshire District								
32 - Witney NE	1,300	North easterly extension of Witney ~ 73% of commuter trips made by car.	Existing bus services to Oxford are good and fair to Witney and Carterton. Away from existing cycle routes to Oxford (12 miles away)	0 jobs accessible in Oxford within 30mins	0 jobs accessible in Oxford within 30mins	Congestion on the A40 into Oxford is heavy and is forecasted to remain so. This site is likely to generate additional traffic on this route.	May benefit from A40/Shores Rd junction improvement, and North Witney Distributor Road which are fully funded. Oxford travelers may benefit from Eynsham P&R/RT3 (funded)	Shores Rd scheme identified as desirable rather than necessary or critical. North Witney Relief Rd is critical for other development.
33 - Witney Downs Road	550	Extension to the west of Witney. ~75% of commuter trips made by car.	Existing bus services in the area are limited. Away from existing cycle routes to Oxford (12 miles away).	0 jobs accessible in Oxford within 30mins	0 jobs accessible in Oxford within 30mins	Little congestion in Witney, but the site is likely to generate extra traffic along the A40 towards Oxford which is already heavily congested.	May benefit from A40/Downs road junction improvement which is fully funded. Also close to B4477 upgrade which is part-funded. Oxford travelers may benefit from Eynsham P&R/Rapid Transit Line 3 (funded)	A40/Downs Rd junction identified as critical for unlocking wider development. Other improvements not linked to wider development.

Site Ref and location	Scale (units)	1 - Sustainable location	2 - Proximity to existing sustainable transport	3 - Walk + public Transport accessibility	4 - Highway accessibility	5 - Congestion	6 - Proximity to all proposed future transport investments	7 - Proximity to future transport investment needed for other strategic development
34 - Witney South	1,100	Located to the south of Witney. ~ 74% of commuter trips are made by car.	Existing bus services are fair but don't serve the site. Away from existing cycle routes to Oxford (12 miles away).	0 jobs accessible in Oxford within 30mins	0 jobs accessible in Oxford within 30mins	Little congestion in Witney, but the site is likely to generate extra traffic along the A40 towards Oxford which is already heavily congested.	May benefit from A40/Downs road junction improvement which is fully funded. Also close to B4477 upgrade which is part-funded. Oxford travelers may benefit from Eynsham P&R/Rapid Transit Line 3 (funded)	A40/Downs Rd junction identified as critical for unlocking wider development. Other improvements not linked to wider development.
35 - Eynsham North	2,200	Lies north of Eynsham. ~ 61% of commuter trips are made by car.	Existing bus services from Eynsham to Oxford, Witney and Carterton are good. Away from existing cycle routes to Oxford (8 miles away).	869 jobs accessible in Oxford within 30mins	10,258 jobs accessible in Oxford within 30mins	Congestion is currently an issue along the A40 into Oxford and is forecasted to remain so to 2031.	Close to Eynsham P&R/Rapid Transit Line 3 (funded) and A40 junction and capacity improvements (not funded)	A40 long-term strategy identified as critical to supporting development of other sites.
36 - Eynsham West	550	Extension to the western fringe of Eynsham. ~ 67% of commuter trips are made by car.	Existing bus services from Eynsham to Oxford, Witney and Carterton are good. Away from existing cycle routes to Oxford (8 miles away).	82 jobs accessible in Oxford within 30mins	11,301 jobs accessible in Oxford within 30mins	Congestion is currently an issue along the A40 into Oxford and is forecasted to remain	Close to Eynsham P&R/Rapid Transit Line 3 (funded) and A40 junction and capacity improvements (not funded)	A40 long-term strategy identified as critical to supporting development of other sites.
37 - Eynsham Park	2,200	New settlement to west of Eynsham and north of A40 ~ 66% of commuter trips are made by car from nearby locations.	Currently no sustainable transport provision directly serving the area, but could be divered based on scale of development. Away from existing cycle routes to Oxford (8 miles away).	0 jobs accessible in Oxford within 30mins	8,776 jobs accessible in Oxford within 30mins	Congestion is currently an issue along the A40 into Oxford and is forecasted to remain	Short distance from Eynsham P&R/Rapid Transit Line 3 (funded) and A40 junction and capacity improvements (not funded) which the site may benefit from	A40 long-term strategy identified as critical to supporting development of other sites.

Figure 3-1: At-a-glance summary of spatial options RAG transport assessment findings



4 SOURCES OF EVIDENCE AND ASSUMPTIONS USED IN THIS ASSESSMENT

4.1 The following sources of evidence and working assumptions have been used by the ITP team in order to complete the R/A/G assessment set out in Table 3-2. Relevant sources of evidence have been appended to the report to establish an evidence base that underpins the RAG assessment.

Metric 1: Sustainable Location

4.2 The commuter travel mode split was derived from responses to the 2011 Census question related to 'Method of Travel to Work' for the Lower Super Output Area (LSOAs) within which each spatial option site is located (or an average taken across the most appropriate neighbouring LSOAs). Unemployed people's responses were removed from the dataset in order to derive a new total number of people travelling to work, from which the mode split for each site was calculated as follows:

- Car trips include car driver and car passenger data.
- Walk/cycle trips were calculated as 'active travel' modes.
- Bus/train trips were calculated as 'public transport' modes.
- Work from home trips were treated as an individual
- Other trips include taxi/private hire, motorcycle, and other trips from the Census data.

4.3 Appendix B contains mode split maps for the LSOA's closest to each site option, while Appendix F specifically identifies which neighbouring LSOA's were used to calculate the mode split data, along with tables containing the raw Census data from which the RAG scores were calculated. In locations where no comparable LSOA mode split data were available, a group of LSOA areas were selected on the basis of their likely similarity with the developed spatial option under consideration. This was particularly necessary for spatial options that will represent extensions on the fringe of the Oxford urban area, where development is expected to result in urban forms that are similar to nearby residential developments that make up the existing urban fringe.

Metric 2: Proximity to current sustainable transport:

4.4 A qualitative geospatial assessment of how well-connected each site option is to existing sustainable transport infrastructure and services drew on the following sources of information:

- TransXchange schedule data containing information about local bus services.
- Local rail service information and route maps.
- Oxfordshire cycling and walking maps available from the [County Council's website](#)
- Oxford City cycling and walking maps available from the [City Council's website](#).

4.5 The Red/Amber/Green scoring criteria defined in Table 3-1 were applied in relation to each site with the aim of highlighting which sites could utilise existing sustainable transport services and infrastructure. No account was taken of the capacity implications associated with transport infrastructure – simply whether it was present or not in relation to each site.

Metric 3 & 4: Public transport and highway accessibility

- 4.6 The number of jobs in the Oxford urban area (according to Census 2011 data) that are accessible by walking + public transport and road-based travel modes has been calculated for each of the 36 site options using the industry standard Visography TRACC software tool. This type of analysis provides an estimate of potential journeys that can be made at a given time of day/day of week, and does not make assumptions about the frequency of service (public transport) or capacity (public transport and highway accessibility) available at these times.
- 4.7 The following accessibility modelling settings were applied in Visography TRACC:
- PT network and services for Oxford and Oxfordshire included.
 - Trip destinations were constrained to Middle Super Output Areas in the urban area of Oxford (city centre, Science Park, Business Park) in which jobs are situated. These made up an Oxford employment area (see Appendix C).
 - Demographic data (employment levels) covering the Oxford urban area were derived from the 2011 census and used to limit the range of potential destination for trips.
 - Central point (centroid) of each spatial option site was used as a trip origin:
 - Inbound trips computed using TRACC to the Oxford employment area defined by the map found in Appendix C.
 - Road speed assumptions:
 - Average speeds taken from GIS data provided by Oxfordshire County Council on key road links wherever possible.
 - On other links average speeds taken for Oxford and Oxfordshire from were derived from report: OXFORDSHIRE & OXFORD CITY CONGESTION MONITORING 201414. These were 9.65mph for Oxford, and 13.99mph for Oxfordshire.
 - Calculations:
 - AM peak 07:00-09:00, weekdays.
 - Maximum walk distance to PT network 800m.
- 4.8 As well as a map showing the Oxford employment area defined for this analysis, Appendix C contains tables that set out the estimated number of jobs within 30 and 60- minutes travel time of the centre point all 36 site options by both public transport and road. It also contains accessibility maps for 3 x locations showing public transport and road-based access to employment opportunities within 30 and 60 minutes travel time of:
- Site 6: Land West of Yarnton
 - Site 18: M40 J7
 - Site 28: Kennington

Metric 5 – Congestion

- 4.9 Congestion maps (Figures 7, 8, 10, 11, 15, and 16) contained in the LTP 4 'Connecting Oxfordshire' document were consulted to determine whether each site option is located on parts of the highway network that are currently/forecast to be congested and experience constraints in respect of traffic volume in relation to available capacity. Appendix D contains Figure 15 from the Connecting Oxfordshire document.

- 4.10 Working assumptions used by the ITP team were that:
- Model forecasts shown in the LTP are correct and assumptions are realistic.
 - All existing transport schemes and committed development are captured in the model.
 - No localised congestion issues are observed on unclassified or B roads.
 - Oxfordshire's Knowledge Spine (incorporating Bicester; Begbroke, Culham, and Harwell Science Parks, Oxford City Centre, the Universities and 'Science Vale') will be the key trip attractors for morning peak travel from the 36 housing sites identified as possible locations for accommodating Oxford City's unmet housing need.
- 4.11 Further work is likely to be required, using the Oxfordshire Strategic Model, to perform select link analysis of the congestion impacts of packages of site options upon the county's strategic transport network.

Metric 6 - Proximity to all proposed future transport investments

- 4.12 Linkage to future transport investment drew on details of schemes proposed in:
- The LTP4 'Connecting Oxfordshire' document, and emerging sub-strategies focused upon key towns/cities and transport corridors.
 - The Devolution Deal transport investment and land-use maps provided by Oxfordshire County Council on behalf of the Growth Board.
 - An accompanying MS Excel file titled 'Master Spreadsheet and Corridor Mapping Templates combined', which was provided by Oxfordshire County Council on behalf of the Growth Board and updated through the course of ITP's work.
 - Transport evidence and Evaluations of Transport Impacts provided in support of existing Local Plans developed by the five District Planning Authority areas.
- 4.13 Each individual transport scheme listed in the MS Excel spreadsheet was considered by ITP in order to determine the extent to which they had been allocated funding through the LTP delivery programme:
- Schemes that were fully-funded/included in the LTP capital spending programme were considered to be at low risk of non-delivery through funding.
 - Schemes that have been allocated more than half the funding needed to implement them were considered to be at medium risk of non-delivery through funding.
 - Schemes that have been allocated less than half the funding required to deliver them were considered to be at high risk of non-delivery through funding.
- 4.14 These categorised transport schemes were subsequently mapped using QGIS software to facilitate a qualitative geospatial appraisal of their location in relation to proposed transport investments and their likelihood of delivery prior to commencing development based on current funding allocations. A Red/Amber/Green score was awarded on the basis set out in Table 3-1.
- 4.15 In completing this analysis, the ITP team made no firm assumptions in relation to:
- Whether all identified sustainable transport scheme proposals will be delivered by 2031. The likelihood is that not all of the proposed transport schemes will be funded, or deliverable due to other constraints within this timeframe. ITP's use of current funding commitments was intended to give greater weight to future transport improvements that are most likely to happen. Further work may be required, in collaboration with colleagues at Oxfordshire County Council, in order to prioritise a set

of transport investments based on recent average funding levels of ~£15m per annum² on transport schemes in Oxford, and other spending in the rest of the county.

- Whether proposed transport investments are intended to address existing capacity constraints and/or improve access to key employment and housing growth sites around Oxford. Evidence from transport impacts analyses conducted in relation to the Cherwell, South Oxfordshire, and Vale of the White Horse Districts Local Plans suggests transport investments that have been prioritised through supportive Infrastructure Delivery Plans are primarily addressing known capacity constraints. Many key highway links and junctions are forecast to continue operating at, or beyond, their design capacities during AM peak hours by the Strategic Transport model based on the existing allocations of housing growth assigned in the districts adjoining Oxford.
- The cost of supporting development at each site. ITP's team collated the costs of proposed transport schemes from devolution deal transport infrastructure investment mapping and the MS Excel file 'Master Spreadsheet and Corridor Mapping Templates Combined'. These costs were categorised in a matrix that is related to each site option for further consideration at a later stage in the Oxford Infrastructure Framework's development. When this work is undertaken, it will be important to consider facilitatory transport costs alongside other, non-transport, infrastructure costs associated with enabling development (e.g. water, waste, energy, digital connectivity, education and health).

4.16 At this stage of the project no attempt has been made to determine whether additional sustainable transport infrastructure investment will be required to unlock development at each of the 36 site options under consideration. Optimal consideration of this requires sites to be packaged so the costs associated with additional sustainable transport investment can be compared with the benefits that are delivered across multiple locations (and the wider transport impacts of development).

4.17 An envisaged future stage of work involves defining clusters of site options, based on the RAG assessment set out in this document, and LUC's wider work. These clusters could be sequentially tested in the Oxfordshire Strategic Transport Model to understand their forecast impact on local transport networks, and inform prioritisation on appropriate packages of transport investments that could be implemented to accommodate future housing growth at preferred sites.

Metric 7 – Proximity to future transport investment needed for other strategic development

4.18 Drawing on the same input data as for metric 6, each individual transport scheme listed in the MS Excel spreadsheet and was considered by ITP in relation to the published Infrastructure Delivery Programme's associated with each District Council Planning Authorities Local Plans. The aim of this task was to identify, where possible, which potential transport investments have been prioritised as being critical/necessary/desirable to support planned housing and employment growth to 2031. The varying state of progress and adoption of these plans meant it was easier to identify the degree of priority assigned to each transport scheme in Cherwell, West Oxfordshire, and South Oxfordshire/Vale of the White Horse Districts than in Oxford City - where work on the Local Plan is at an earlier stage.

² Connecting Oxfordshire Vol 2, Part i (2016) *Oxford Transport Strategy*, Pg 35.

- 4.19 Where evidence existed (which was not for all proposed transport schemes included in the MS Excel file received from Oxfordshire County Council) a Red/Amber/Green score was awarded on the basis set out in Table 3-1. In doing so the ITP team was able to map these transport schemes in relation to the 36 site options for accommodating Oxford's 15,000 dwelling unmet housing need to 2031. The RAG scoring was intended to highlight sites located close to infrastructure improvements that are already considered priorities to support development of housing and employment land allocated through the local plan development process. The locations (and housing/job numbers) for existing/committed housing and employment land allocations in each District were derived from a combination of Local Plan evidence (where available) and GIS data shared by Oxfordshire County Council and updated by the ITP team.
- 4.20 As with metric 6, ITP envisages further work will be needed to sequentially test potential sites that could accommodate Oxford's unmet housing need, and consider whether additional transport investment might be needed to mitigate the impacts of development.

Metric 8 – Road Safety

- 4.21 The [Crashmap](#) online tool was used to interrogate road traffic collision data for the period 2010-2014 (the latest year for which data are available) in relation to each of the 36 site options under consideration. An appropriate perimeter was drawn around each site, with its scale determined by:
- The proposed number of dwellings at each potential site.
 - Each site's proximity to major strategic roads and junctions.
 - The main anticipated directions of travel of traffic generated by development at each site (towards Oxford City Centre and along the Knowledge Spine).
- 4.22 The perimeters drawn were documented using a screenshot, and are contained in Appendix E to this technical note, along with the Red/Amber/Green scores for each site. As noted previously, the road safety scores have been reported separately to the other seven metrics since they are considered easier to address through access and movement mitigation, and less strategically important, than the other metrics.
- 4.23 Each site option was considered in isolation, so any potential cumulative effects were not considered. The following working assumptions were applied through the ITP team's analysis of incidents in the vicinity of each site:
- All incident 'hotspots' are causal in some way and have not occurred by chance.
 - Clusters of historical incidents are a reasonable indicator of the likelihood of future collisions.

5 NEXT STEPS FOR SIFTING AND PRIORITISING SITE AND TRANSPORT OPTIONS

- 5.1 The RAG assessment presented in this Technical Note represents an initial step in the process of sifting the wide range of potential spatial options and transport schemes that could accommodate Oxford's unmet housing need of 15,000 dwellings. In aggregate, the RAG scores applied to each site start to present a picture of how sustainable, or otherwise, development may be considered at each spatial option under consideration. It is well-recognised that a number of other infrastructure and policy considerations will affect District

Planning Authority decision-making around which sites will be preferred in respect of accommodating Oxford's unmet housing need.

5.2 The findings from this assessment were presented to Executive Council Officers at the next Check and Challenge workshop on 12th May 2016, and will be shared with the Oxfordshire Growth Board on 6th June 2016. Subject to discussion and critical appraisal at this workshop, the following pieces of follow-up work may be appropriate to refine the range of options under consideration and consider forecast transport capacity constraints that inform prioritisation of transport investment opportunities linked to local housing and employment growth:

- **Refining the initial GIS database created by Oxfordshire County Council** and updated through ITP's work so far in order to add detail on each proposed transport scheme, its funding requirement, anticipated sources of funding, and current funding gap. This would draw on data contained in the MS Excel schedule of transport schemes shared by Oxfordshire County Council, and establish a consistent geospatial evidence base that each District Planning Authority could draw on when developing or updating their sovereign Local Plans over the coming months and years.
- **Collating up-to-date data from District Planning Authorities and SQW (consultants working on behalf of the OGF) on the housing, employment, and mixed-use development land allocations;** so that these sites and numbers (of jobs and houses) can be included in the GIS database described above and any subsequent transport modelling work. A current concern is that the data included in current analyses does not fully encapsulate all of the adopted and proposed land-use allocations in Oxfordshire District Council's Local Plans.
- **Using the outcomes of the RAG assessment presented in this document to develop a set of initial proposals on how potential site options could be clustered to support significant local sustainable transport** (Bus, BRT, walk & cycle, Park & Ride) investments identified in Connecting Oxfordshire; the fourth Local Transport Plan for the county. This transit-oriented approach to focusing development in locations where investment could be targeted on improved transport connectivity may present an opportunity to establish the scale of funding needed to support major improvements (such as mass rapid transit lines) focused on Oxford. A separate Technical Note on potential site clusters has been prepared by ITP (Appendix G & Gi).
- **Using the [Department for Transport's Early Assessment and Sifting Tool \(EAST\)](#) as the basis for testing (in high-level terms) the strategic contribution that major transport schemes proposed in the Connecting Oxfordshire strategy.** This tool could be used to rapidly test the major transport schemes proposed through the LTP4, and in relation to the devolution deal proposal to Central Government, in order to:
 - Identify which transport investment options are likely to make the most significant contribution to existing local transport issues, support future growth site options, and deliver on the strategic objectives set out in the LTP.
 - Prioritise transport schemes that could support development at the spatial option sites being considered, based on their deliverability and likelihood of funding.
 - Identify trade-offs and adverse impacts/unanticipated consequences to aid package development.
 - Filter out 'non-runner' options at an early stage ahead of more detailed appraisal, which would ultimately be the responsibility of District Council's as part of their Local Plan development/review processes.
- **Liaise with the team responsible for maintaining the Strategic Transport Model for Oxfordshire, in order to understand the latest status of the model:**

- Validation reports should document the key assumptions and range of transport schemes and initiatives that have been included in the latest round of updates to the model.
- These would need to be verified with officers at Oxfordshire County Council and District Council planning officers so as to ensure the most recent version of the model provides a sound basis from which further option testing can be conducted.
- At this point it would be appropriate to define scenarios to be tested in the Oxfordshire Strategic Transport Model; drawing on the findings from the RAG assessment, DfT EAST tool sifting, and learning from LUC's broader assessment of site options (e.g. taking into account sustainability, deliverability, and other infrastructure requirements).