Oxfordshire County Council

Zero Emission Bus Regional Area

Expression of Interest

July 2021

OXFORDSHIRE COUNTY COUNCIL

Contents

Department for Transport

Zero Emission Bus Regional Areas Scheme – 2021 to 2022 Application Form

Call for Expressions of Interest

Applicant Information

Local transport authority: Oxfordshire County Council

(For joint bids only) Which local transport authority is the lead bidder: n/a

Area within authority covered by bid: Oxford 'SmartZone' area

Bid Manager Name and position: Joanne Fellows, Growth Manager Central

Contact telephone number: Redacted

Email address: Redacted

Postal address: Oxfordshire County Council, County Hall, New Road, Oxford OX1 1ND

Submission of proposals:

Applications to the Scheme will be assessed against the criteria set out here and in the guidance document. Please adhere to word limits. We will not accept any additional information unless specifically requested.

Proposals must be received no later than 17:00 on the following days:

- **Fast track process** - 5pm on 21st May 2021
- **Standard process** – 5pm on 25th June 2021.

You will receive confirmation that we have received your proposal within 1 working day.

An electronic copy only of the bid including any supporting material should be submitted to buses@dft.gov.uk.

Please include "**ZEBRA (Fast track Process) Local Transport Authority name**" in the subject line of the email if you are applying under the fast track process.

Please include "**ZEBRA (Standard Process) Local Transport Authority name**" in the subject line of the email if you are applying under the standard process.

Enquiries about the Fund may be directed to buses@dft.gov.uk.

Transparency and privacy

Please refer to the guidance for this scheme before completing the application form to understand how DfT will manage your data.

SECTION A: Mandatory Questions

Areas must satisfactorily answer all of the questions in this section to be eligible to progress to Phase 2 of the scheme. If you would like further information, please contact the Department for Transport at buses@dft.gov.uk.

Areas must provide the information requested in questions A1-A5.

A1. In total, how many new zero emission buses will your proposal deliver?

166

A2. Total DfT funding sought (£m)

£32,111,294

A3. Third party funding contributions (£m)

Go Ahead - £Removed - commercially sensitive

Stagecoach – £Removed - commercially sensitive

Oxfordshire County Council – £5,782,543

A4. Funding from other government schemes (£m)

None

A5. Total cost of the proposal (£m):

£78,744,436

Areas must be able to answer yes to question A6-A12 to be able to progress to Phase 2.

A6, If your bid is successful, are you able to invest DfT funding within the time outlined by your scheme?

Yes

A7. If your bid is successful, are you able to capitalise DfT grant funding?

Yes

A8. Have you considered whether additional zero emission buses are needed to replace existing buses?

Evidence suggests that replacing diesel buses with zero emission buses can require additional zero emission buses to provide the same level service as provided by diesel buses. Areas should set out how many additional zero emission buses are needed to replace existing buses. If areas are of the view that additional zero emission buses are not required please set out why.

Yes. The buses to be provided through the scheme include 22 charging and engineering spares, so that the routes included in the proposal can be operated with zero emission buses at all times.

A9. Have you provided a breakdown of infrastructure costs for your proposal?

Infrastructure costs could include (but are not limited to): cost of charging unit or refuelling stations electrical or other power components; civil engineering works, labour costs (for installation); hardware costs; capital costs of developing associated software systems; surveys at the point of procuring the infrastructure provided they can be capitalised; upgrades to the energy grid to cater for increased energy demand.

Yes, infrastructure costs are itemised in the value for money pro-forma.

A10. Does your proposal have the support of bus operator(s) in the area?

Yes, the two bus operators operating services within the defined scope of our ZEBRA area both support the proposal. Please see letters of support at Annex 2.

A11. Have you spoken with any energy companies when preparing your proposal?

Energy companies could include Distribution Network Operators, Independent Distribution Network Operators, energy supplier, energy storage companies, smart charging providers or hydrogen fuel providers.

Yes, we have engaged with Pivot Power, part of EDF Renewables, who are developing an Energy Superhub in Oxford with an associated private wire network serving the city.

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A12. Does your proposal comply with the accessibility requirements set out in the scheme guidance?

The scheme guidance sets out a number of accessibility requirements including: requiring buses to incorporate equipment to identify the route, each upcoming stop, and the beginning and end of diversions: providing an induction loop to aid direct communication between drivers and passengers who use a hearing aid and providing an additional flexible space in addition to the mandatory wheelchair space, suitable for a second wheelchair user and/or at least two unfolded pushchairs or prams.

Yes, all vehicles to be purchased under our proposal will comply with the accessibility requirements set out in the scheme guidance.

SECTION B. Defining the place

This section will seek a definition of the area to be covered by the Zero Emission Bus Regional Area. Areas should:

- Include information setting out the extent of the area to be covered by the proposal – the **defined area**. If the defined area is different to the area covered by the local transport authority please make this clear. Please provide maps if required.
- Provide details on the bus sector including naming **all** operators who operate services in the defined area, their market share and fleet sizes. This should include both operators who are supporting your proposal and will be operating the zero emission buses and other bus operators in the defined area.
- Clarify what proportion of bus services in the defined area will be operated using zero emission buses.

Please limit your response to 500 words. Please provide maps as Annex documents if required.

Defined area

The defined area to be covered by the ZEBRA scheme is the area covered by the 'Oxford SmartZone', a multi-operator bus ticketing zone which includes:

- All of Oxford City
- Wytham, Botley, Cumnor and Kennington (Vale of White Horse District);
- Sandford-on-Thames, Horspath and Wheatley (South Oxfordshire District); and
- Yarnton, Begbroke and Kidlington (Cherwell District).

The SmartZone has an area of about 99 sq. km (38 sq. miles) and a resident population of approximately 190,000 people (2019 mid-year estimate).

Only services operating wholly within the Oxford SmartZone area are included.

The defined area and services included are shown at Annex 1.

Bus sector in the defined area

Before COVID-19, the SmartZone area had high levels of bus use with large numbers of people both commuting and using buses for other journeys. Oxfordshire has the highest per capita bus use of any shire county in England.

The city's excellent bus network has helped contain traffic growth while Oxfordshire's population and economy has grown. In the morning peak hour, some 7,500 people enter Oxford city centre by bus.

However, high bus flows (some 320 buses enter or leave Oxford city centre every hour during the day) – coupled with the city's narrow streets – have contributed significantly to Oxford's air quality challenge (see Section 2).

Because bus flows and bus use in the SmartZone are so high, the impact of electrifying a large proportion of buses operating in the city would be transformational, delivering

substantial local air quality benefits across Oxford and beyond, major fossil fuel and CO_2 savings, and a greatly improved passenger experience for the tens of thousands of daily bus passengers in the city.

Bus operators in the defined area

Two bus companies with eligible vehicles will be operating within the area when the scheme is likely to come into operation. These are:

Bus Operator	Fleet Size	Market Share
A. Operators participating in the ZEBRA proposal		
Go Ahead Group (Oxford Bus Company/Thames Travel/City Sightseeing)	166	51.9%
Stagecoach West	137	42.8%
B. Other operators in the SmartZone area not participating in the ZEBRA proposal		
Arriva Beds and Bucks	10	5.3%
Stagecoach East	10	
Diamond Bus	2	
Red Rose Travel	1	
Charlton Services	1	
Pulhams Coaches	1	

Proportion of bus operation in the defined area to be zero emission

Within the defined area, zero emission buses will be used to operate:

- 48% of bus services;
- 67% of total hourly bus flows; and
- 72% of total daily bus mileage.

SECTION C: Ambition

This section will seek evidence of the level of ambition from the local transport authority to decarbonise their bus fleets, support bus services and decarbonise transport.

C1. Public transport ambitions

Areas should:

- *Provide clear explanation of your ambition to decarbonise the bus fleet in the defined area and how this proposal will support this ambition. If the defined area is different to the local transport authority area please explain your ambitions to decarbonise the bus fleet in your local transport authority area and how this proposal will support this ambition.*
- *Provide evidence of existing plans to support the provision and operation of local bus services in the area. This could include existing partnership working between the local transport authority and bus operators, bus priority measures, improvements to information about bus services.*
- *Include complementary policies to decarbonise transport in the area.*
- *Explain how the proposal supports wider ambitions to increase public transport use and active travel in the area.*

Please limit your response to 500 words.

Transport decarbonisation ambitions

Oxfordshire County Council aims to be a carbon neutral council by 2030, and enable a zero carbon Oxfordshire by 2050. Transport decarbonisation will support this.

Oxford Zero Emission Zone (ZEZ)

- The 2015 Oxford Transport Strategy sets an ambition to "start a zero emission zone for all vehicles by 2020".

- The first phase of the ZEZ will start in August 2021 (delayed from October 2020 due to COVID-19). The ZEZ is a local charging scheme in which only 100% zero emission vehicles may drive in the zone free of charge. In 2022/3 the ZEZ is due to expand to cover all of Oxford city centre.

- Buses and taxis are not included in the ZEZ, as they are covered by separate requirements.

Zero emission buses

- Oxford's Euro V bus low emission zone (LEZ) started in January 2014.

- A Euro VI LEZ was approved in June 2019 and was due to start in December 2020 but has been delayed until December 2021 due to COVID-19.

- In January 2020, the councils set a target as part of an Oxford Zero Emission Zone consultation (page 6) for **buses operating in Oxford to be 100% zero emission by 2030**, with a final 'backstop' date for most bus services of 2035, and a few more rural services by 2037.

- With recent improvements in technology and increased government funding for zero emission buses we expect to meet or exceed our 2030 target.

- As the majority of bus mileage in Oxfordshire is to, from or within Oxford, achieving this target will also mean a largely zero emission bus fleet across Oxfordshire by 2030.

Plans to support local bus services

The County Council and local bus operators are responding to the National Bus Strategy by agreeing to enter into an Enhanced Partnership. This includes both the major operators covered by this EoI.

A Bus Service Improvement Plan (BSIP) is in preparation which will set out ambitious plans for bus priority measures (such as Connecting Oxford, see below), service enhancements and ticketing schemes. This document will be submitted for Government approval in October 2021 and is expected to result in transformational funding for local bus services.

Specific measures being implemented or in development to support local services in Oxfordshire include:

- Connecting Oxford – an ambitious proposal to reduce traffic levels in the city, combining traffic restrictions with a workplace parking levy and supporting transport improvements, boosting bus speeds and patronage, and supporting active travel. A draft Strategic Outline Business Case for Connecting Oxford has been submitted to DfT. Connecting Oxford is currently due to be implemented from 2023 but we are investigating the feasibility of accelerating this. Commitments to deliver Connecting Oxford are expected to form part of the Enhanced Partnership and be incorporated in the Bus Service Improvement Plan.

- £80 million for new sustainable transport schemes in and around Oxford.

- The Council has an excellent record in securing funding from development for bus service improvements and new bus routes, with nearly £10m in contracts secured in 2020/21 alone.

C2. Community benefits

Please highlight any community benefits from your proposal. This could include economic development in the area or the creation and/or retention of jobs and apprenticeships related to the maintenance of zero emission vehicles, including batteries and fuel cells, and supporting infrastructure.

Please limit your response to 500 words.

Our ZEBRA proposal will:

- Improve public health in the defined area by reducing exposure to nitrogen dioxide pollution
- Address health inequalities by reducing transport emissions in areas of deprivation.

According to the 2019 Index of Multiple Deprivation, 10 of Oxford's 83 neighbourhood areas ('Super Output Areas') are among the 20% most deprived areas in England. These neighbourhoods, which are in the Leys, Rose Hill, Littlemore, Barton areas of the city, experience multiple levels of deprivation – low skills, low incomes and relatively high levels of crime. Most of these areas are served by high frequency bus services which will become emission-free under the ZEBRA scheme.

- Support the local economy and in particular the recovery of Oxford city centre and the city's district centres from the impact of the COVID-19 pandemic. Pre-pandemic around two-thirds of shopping and leisure visitors to Oxford city centre arrived by bus. Boosting the image of buses and the passenger experience will therefore directly support footfall.

  Zero emission buses will also reduce air and noise pollution from the high bus flows in Oxford's city centre and district centres, improving the shopping and leisure environment for all visitors.

- Help ensure existing bus industry jobs are retained and increased as part of our proposals to promote bus use and deliver a thriving commercial bus network in the county.

C3. Support for your proposal and wider vision

Provide evidence of support for your proposal and wider vision, such as letters of support or evidence of engagement, from partners.

*This **must** include evidence of support from the bus operator(s) who will operate the zero emission buses. You **do not** need to include evidence of support from all bus operators within the area, only the operator(s) who will be operating the zero emission buses. This evidence must be a signed letter by both the CEO/equivalent level of the company and the local MD, committing to investing in the buses and operating them in the defined area for a minimum of 5 years.*

Local transport authorities that have not included this evidence must clearly set out the reasons for this.

*You **must** also include evidence of engagement with an energy company. Energy companies could include Distribution Network Operators, Independent Distribution Network Operators, energy supplier, energy storage companies, smart charging providers or hydrogen fuel providers.*

Areas may also wish to include evidence of support from other relevant bodies, depending on the proposal, for example:

- *other tiers of local government;*
- *Local Enterprise Partnerships;*
- *Local Energy Hub;*
- *leasing companies; and*
- *finance companies.*

Please limit your response to 1000 words. Evidence of support, such as letter of support, can be included as Annex.

Letters of support

Letters of support have been received from the following and can be found at Annex 2.

- **Bus Operators:** The bus operators involved in the ZEBRA proposal (Go Ahead and Stagecoach) have been involved in the preparation of this EoI. Both support our proposal and are prepared to make the necessary investments. They have both committed to operating the zero emission buses funded through the ZEBRA scheme in the defined area for at least five years.

- **Oxford City Council** strongly support the introduction of schemes to reduce congestion and improve air quality in the city and have been partners on Connecting Oxford, the bus Low Emission Zone and Zero Emission Zone. They support our proposals.
- **Cherwell District Council** supports the ZEBRA proposals, which cover part of the Cherwell District Council administrative area.
- **Anneliese Dodds, Member of Parliament for Oxford East,** supports the ZEBRA proposals, which include her whole constituency

- **Pivot Power** (PP) is an EDF Renewables UK company which develops and operates grid-scale batteries, providing power infrastructure required for electric vehicle (EV) charging throughout the UK. A well advanced project with Oxford City Council and other partners will introduce a dedicated EV charging network which will connect directly to National Grid's high voltage transmission network via the substation near Cowley and, unusually, will use a private wire to deliver large volumes of power for EV charging to several locations including a public Superhub at Redbridge Park & Ride and council depots.

  This approach enables Pivot Power to bypass capacity constraints on the local distribution network and offer fleet operators multi-megawatt connections, with the option to scale quickly and easily at a known cost. Commercially sensitive text removed

  Pivot Power supports our ZEBRA proposals.

- **Oxfordshire Local Enterprise Partnership** is supportive of the proposals which are in keeping with its own aims and objectives.
- **England's Economic Heartland (EEH)** is supportive of the proposals which are in keeping with its own aims and objectives.

SECTION D: Air Quality

This section will seek evidence of the air quality challenges in the area and how your plans tackle air quality in the area. Areas should:

- *Set out the air quality challenge in the area, such as whether the area is identified in the national assessment as exceeding statutory limits.*
- *Set out how the proposal would address the local air problem.*
- *Provide evidence of existing transport plans to tackle air quality and greenhouse gas emissions.*

Please limit your response to 500 words.

We will not accept bids covering places that cannot show that they have air quality issues.

Air quality challenge

The defined area for our ZEBRA proposal includes three Air Quality Management Areas (see map at Annex 3), all declared for exceedances of the annual mean objective for nitrogen dioxide (NO_2):

- Oxford citywide AQMA
- Botley AQMA
- Kidlington AQMA

Road transport is the main source of emissions at all locations within the defined area which exceed the annual mean objective for nitrogen dioxide.

Across Oxford as whole road transport accounts for approximately 40% of NOx (oxides of nitrogen) emissions and around 10% of particulate matter emissions.

However, at roadside locations traffic accounts for a much higher proportion. For example, at St Clements (a busy roadside location in Oxford), traffic accounts for around 76% of NOx emissions and around 20% of particulate matter emissions.

How the ZEBRA proposal would improve air quality

Buses are a source of NOx emissions in the three AQMAs within the defined area, so our ZEBRA proposal will contribute to air quality improvements in all three AQMAs.

The improvement will be most significant in Oxford, where a high proportion of NOx comes from buses due to the high bus flows in many parts of the city. Maps at Annex 3 show 2019 NO_2 levels at monitored locations in Oxford, and the estimated reductions in transport NO_x emissions within Oxford as a result of our ZEBRA proposals.

Table 1: bus emissions as % of total road transport emissions at selected representative locations in Oxford (2018)			
Location	NOx	PM10	PM2.5
St Clements (High bus flows – typical of several major city centre streets)	69.9%	56.7%	56.2%
Botley Road (Moderate bus flows – typical of Oxford arterial routes)	31.3%	17.3%	17.2%
Worcester Street (City centre, high traffic flows; low bus flows)	18.4%	9.2%	9.2%

Within the defined area, our ZEBRA proposal will lead to electrification of 72% of total daily bus mileage.

In the locations with the highest bus flows, this could reduce NOx emissions from road transport by up to approximately 50%, and particulate matter emissions by up to 4-5%.

Electrification of the 166 buses included in our proposal could save around 6,000 tonnes of CO_2 each year compared to diesel buses.

Existing plans tackling air quality and greenhouse gas emissions

Oxford has ambitious plans to improve air quality and tackle climate change, including:

- Oxford City Council's new Air Quality Action Plan, which sets a target of 30 ug/m3 nitrogen dioxide at all monitored locations in Oxford, by 2025.
- The Oxford Zero Emission Zone, due to start in August 2021. All but zero emission vehicles will be charged a daily fee to drive in the ZEZ.
- Connecting Oxford, which will reduce traffic in the city through a workplace parking levy and new traffic filters on major traffic routes
- An £80m programme of sustainable transport schemes in and around Oxford
- Low traffic neighbourhoods across the city as part of a wider package of enhancements to boost active travel
- Our Climate Action Framework target to be a carbon neutral council by 2030, and to enable a zero carbon Oxfordshire by 2050.

SECTION E: Value for Money

This section will seek evidence how you meet the Value for Money criteria, as set out in the guidance. Areas are also required to submit a separate value for money proforma that

has been published alongside the application form. This spreadsheet requests basic information about the proposed investment to enable the value for money to be assessed using the Department's "**Greener bus model**".

The information in a completed pro forma, enables the model to estimate the greenhouse gases (GHG) emissions savings, other environmental & social impacts such as reduction in particulate matter (PM) and nitrogen oxide (NoX) emissions and savings & costs in the public and private sectors. By quantifying the key impacts of a proposed investment, this model helps provide decision-makers with as full a view as possible, about impacts on the environment, society, transport operators and the government finances.

The model provides a measure of the 'Value for Money', in the form of a benefit cost ratio (BCR) alongside other metrics such as the total estimated GHG savings and a cost effectiveness indicator estimating the net cost per tonne of carbon saved. These outputs will be used to score bids based on value for money.

The model does not capture every possible impact from a proposed investment, such as impacts from any resulting increases in patronage, improvement to the quality of journeys, or increased reliability. Where wider impacts (positive or negative) from investment are expected these should be stated, in the pro forma, as non-monetised impacts. These will be considered when making a value for money judgement, as set out in the Department value for money framework.

SECTION F: Deliverability

This section will seek evidence of how the Zero Emission Bus Regional Area will be delivered, and demonstrate that plans are credible and deliverable.

F1. Method of delivery and timescale for implementation

Establish the method of delivery, to cover:

- How you will work with local bus operators and other partners to deliver the proposal
- Any public consultation or third-party permission that will be required (e.g. for infrastructure)
- Explain any mitigations put in place for SMEs.
- Timescales for implementation, including when orders will be placed for zero emission buses and when supporting infrastructure will be delivered.
- Please demonstrate how your plans are credible and deliverable in the time proposed, and that any risks have been understood and mitigated

Please limit your response to 1,000 words.

Working with local bus operators and other partners

Enhanced Partnership & Governance

A successful ZEBRA bid will be a cornerstone of the forthcoming Enhanced Partnership with our main bus operators and decarbonising the city's transport system will be a key deliverable of the agreement and Bus Service Improvement Plan, allied to improvements in bus priority measures and ticketing systems.

The Council and operators have already made significant progress in our partnership arrangements through the development of a Bus Board, which meets quarterly and is supported by a number of working groups, ensuring that all touch points between OCC and the bus operators have the right level of focus. The Board includes senior representation from bus companies (Managing Directors) and OCC (Assistant Directors). In addition, meetings take place between bus companies (MDs) and OCC (Corporate Director) biannually.

We anticipate that our new Enhanced Partnership will lead to refreshment of the Bus Board with additional members based on bus operator market share.

Connecting Oxford

Commitments to deliver Connecting Oxford are expected to form part of the Enhanced Partnership and Bus Service Improvement Plan. Initial public and stakeholder engagement has already been completed on this scheme, with further consultation on the details of specific elements due to take place over the next 12 months. Connecting Oxford is currently due to be implemented from 2023 but we are investigating the feasibility of accelerating this, including bringing specific schemes forward. We will continue to work in partnership with Oxford City Council and the bus operators, and with a range of stakeholders, on Connecting Oxford.

Charging infrastructure & power supply

Operators have confirmed they can accommodate the required charging infrastructure within their depots.

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The bus operators have experience in running electric fleets as detailed in Annex 4.

Public consultation or third-party permissions

None of our ZEBRA-funded proposals require consultation or third party permissions.

All electrical connection and charging infrastructure works at the two affected bus depots are expected to be permitted development. However, the local planning authority, Oxford City Council, supports our ZEBRA proposals and should the position regarding planning permission change for any reason we will engage with them at an early stage to minimise any risks to the timely delivery of the project.

Consultation with key stakeholders will be undertaken for the duration of the project.

Connecting Oxford and the ZEZ have consultation approaches in place though a coordinated communication and engagement strategy. The ZEBRA supports and enhances these schemes and communications will reflect that.

Mitigations for SMEs

No mitigation is anticipated for SMEs as none are involved in the bid.

Both bus operators involved in the bid are major plc organisations and Pivot Power are part of EDF Renewables. There are no SMEs operators providing bus services wholly within the Oxford SmartZone boundary and so there has been no exclusion of such companies from the bid for any reason.

Timescale for implementation
Please set out your indicative timetable for implementation in the table below.

Milestone	Expected date
Enhanced Partnership (including commitments to Connecting Oxford) introduced	April 2022
Funding awarded *All subsequent dates assume no delay to funding award*	March 2022
Go Ahead	
Infrastructure ordered	Commercially sensitive
Electrical connections completed	Commercially sensitive
Depot charging infrastructure completed	Commercially sensitive
Batch 1 buses ordered	Commercially sensitive
Batch 1 buses delivered	Commercially sensitive
Batch 2 buses ordered	Commercially sensitive
Batch 2 buses delivered	Commercially sensitive
Stagecoach	
Infrastructure ordered	Commercially sensitive
Electrical connections completed	Commercially sensitive
Depot charging infrastructure completed	
Batch 1 buses ordered	Commercially sensitive
Batch 1 buses delivered	Commercially sensitive
Batch 2 buses ordered	Commercially sensitive
Batch 2 buses delivered	Commercially sensitive

Risks and proposed mitigation

Risk	Likelihood	Impact	Mitigation
Electrical connections delayed	Low	Medium	Commercially sensitive
Depot charging infrastructure delayed	Low	Medium	Operator engagement with potential suppliers has already started and is continuing
Delivery of buses delayed	Medium	Medium	Operator engagement with manufacturers has already started and is continuing

F2. Monitoring and evaluation

Please provide indicative details of how monitoring and evaluation will be used to ensure learning about the project and inform future schemes. A detailed monitoring and evaluation plan is not required at this stage but should explain how the approach to delivering services will ensure that future learning is maximised.

Please limit your response to 500 words.

Effective monitoring/evaluation (M&E) is essential to efficient delivery of the project and deep learning by local authorities, bus operators and manufacturers. The delivery and success of the project will be monitored on an ongoing basis through established governance processes.

In addition, OCC has extensive experience through multiple R&D projects (Innovate UK and otherwise) as consortium leaders and/or partners.

To ensure independent and robust M&E, OCC will continue its successful collaborations with the University of Oxford (UoO), notably the Transport Studies Unit (TSU) and the Energy and Power Group in the Department of Engineering Science. The partnership has developed through transport innovation projects (Go Ultra Low Oxford, Vehicle-To-Grid Oxford, Park & Charge); guaranteeing a high quality M&E and dissemination among different stakeholders.

The M&E will be informed by a 'Theory of Change'; aims/objectives/targets, activities, criteria and indicators and developed by project partners, TSU and funders prior to the project. This includes:

- Mixed-method: integrating data that authorities / operators routinely collect, public surveys, one-to-one interviews, and workshops
- Multi-stakeholder: bus operators/drivers, existing / new bus passengers, and LAs
- Longitudinal: information from multiple moments in time: before (=baseline), after ±3, and after ±12 months
- Comparative: comparisons between parts of the defined area benefiting from the ZEBRA scheme and other comparable areas in Oxfordshire or elsewhere, where zero emission buses have not been introduced.

This will allow OCC to answer the following questions:

- What appeals to (or concerns) existing/potential passengers about a commitment to implementing electric zero-emission bus fleets? Will the presence of cleaner, quieter and smoother buses result in increased patronage and encourage modal shifts?
- What reductions in NOx, particulates and greenhouse gas emissions can be measured and attributed to the project?
- What are the practical and cost implications of running all-electric fleets in terms of charging, time-tabling/routing, maintenance/repair of buses and charging installations, bus acquisition /replacement etc.?
- To what extent/where will grid upgrades be required?
- To what extent/in what ways do bus drivers have to learn new skills/be trained?

Effective dissemination is key. Multiple, non-academic beneficiaries will be targeted: LAs, supra-LAs (e.g. DfT, TS, TfW,TfN), LEPs, passenger transport operators, bus industry/ users, and the wider public. Results and learnings will be shared in three ways:

- direct engagement at events/workshops organised by government (e.g. Connected Places, Catapult, Local Government Association), professional institutes (e.g. CILT, Cenex), charities (e.g. Energy Saving Trust) and the bus / vehicle industry (e.g. Bus and Coach UK);
- a series of policy briefing documents / newsletters on the OCC website;
- videos on a dedicated YouTube channel / social media and dissemination among academic beneficiaries in the UK and internationally at conferences/journal publications.

F3. Procurement, State Aid and subsidy rules

Please confirm you have received advice on legal requirements in relation to procurement, subsidy control and state aid.

Please also demonstrate how you will abide by legal requirements in relation to procurement, subsidy control and state aid, including an explanation, together with supporting evidence, of how you will comply with the principles under the UK-EU Trade and Cooperation Agreement.

Please limit your response to 500 words.

Independent legal advice has been sought on the state aid, subsidy control and procurement issues relating to the ZEBRA scheme; the main conclusions are summarised below.

- EU State aid rules now only apply in limited circumstances, which do not include this project. Therefore, consideration has being given to new subsidy rules contained in the UK-EU Trade and Cooperation Agreement ("TCA").

- The Council will not itself receive unlawful subsidy as it will pass the ZEBRA Grant in full to the bus operators ("Operators") and therefore the subsidy control rules will not be engaged.

- The ZEBRA Grant will fall within the definition of "subsidy" when paid by the Council to the Operators, which means the Council must satisfy itself that the ZEBRA Grant is consistent with the six TCA principles. The Council has undertaken an initial assessment against the TCA principles using the proforma checklist and a draft of this is attached at Annex 5 as supporting evidence. There are reasonable grounds for concluding that the ZEBRA Grant would comply with TCA principles.

- The Council wishes to provide an Additional Council Grant to Operators, and has already started to put in place evidence to demonstrate how doing so would be consistent with the six TCA principles, in particular around compliance with those concerning proportionality, necessity and the positive benefits outweighing the negative effects. This evidence will be further developed if the proposal progresses to the full business case stage. Further legal advice will be sought as more detailed evidence

becomes available and if any new legislation/subsidy control guidance comes into effect.

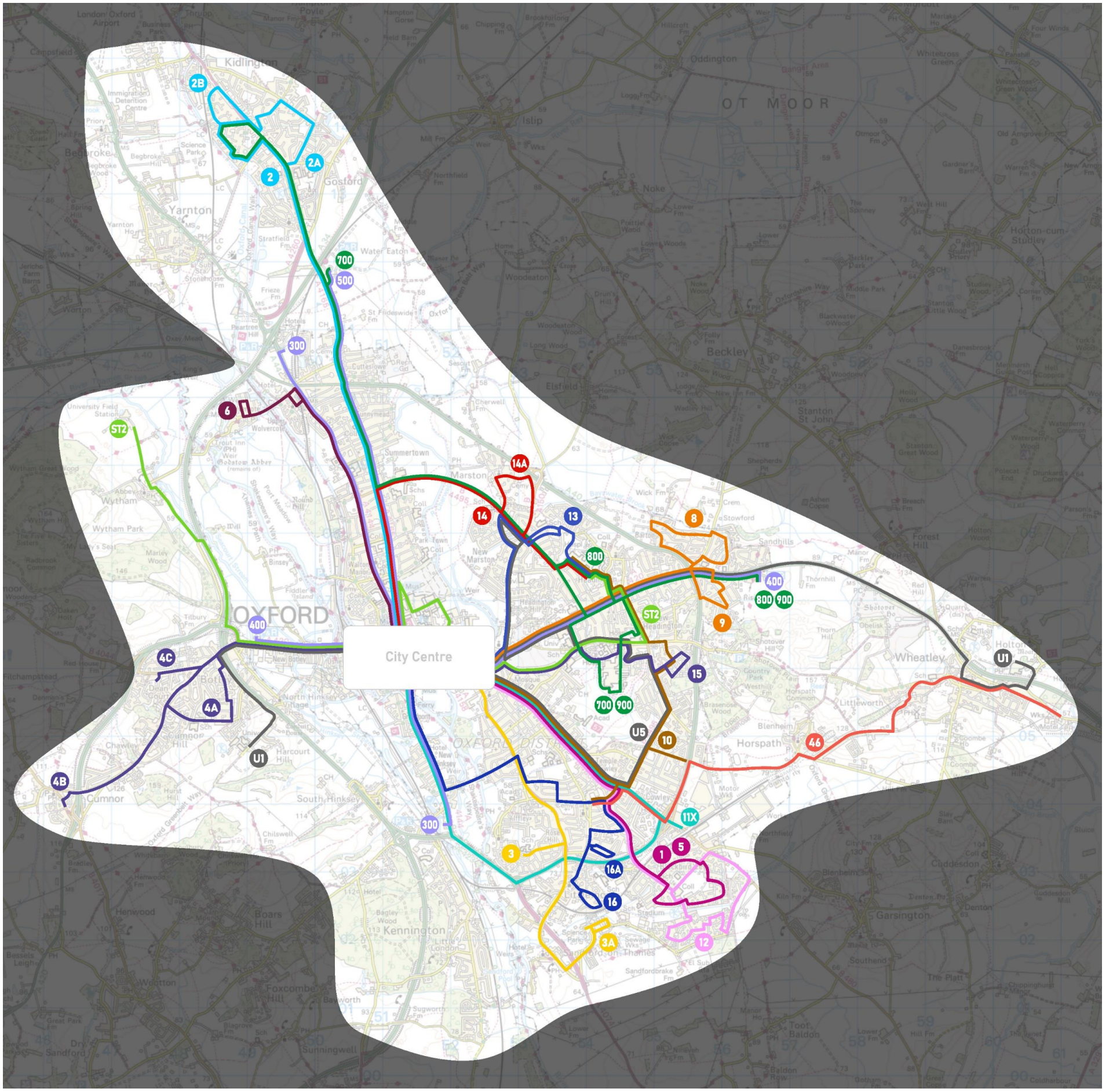
- Risks relating to indirect subsidy can be mitigated by compelling Operators to tender the contracts for the buses and related infrastructure using a transparent competitive procedure equivalent to one under the Public Contracts Regulations 2015.

- The transfer of the ZEBRA Grant to the Operators would not trigger the public procurement rules. It is unlikely that Operators would be obliged to comply with the Public Contract Regulations 2015, although there is a possibility that any works contracts for the charging infrastructure above the works procurement threshold could be subject to the Regulations if more than 50% is funded by contracting authorities.

- If the Council's bid is successful, and a subsidy is granted to the Operators, the Council will comply with the subsidy control transparency requirements.

Annex 1 – map of proposed ZEBRA area and bus routes included

Extent of defined area and bus routes included in Oxfordshire ZEBRA proposal (See overleaf for route list)



ZEBRA route list

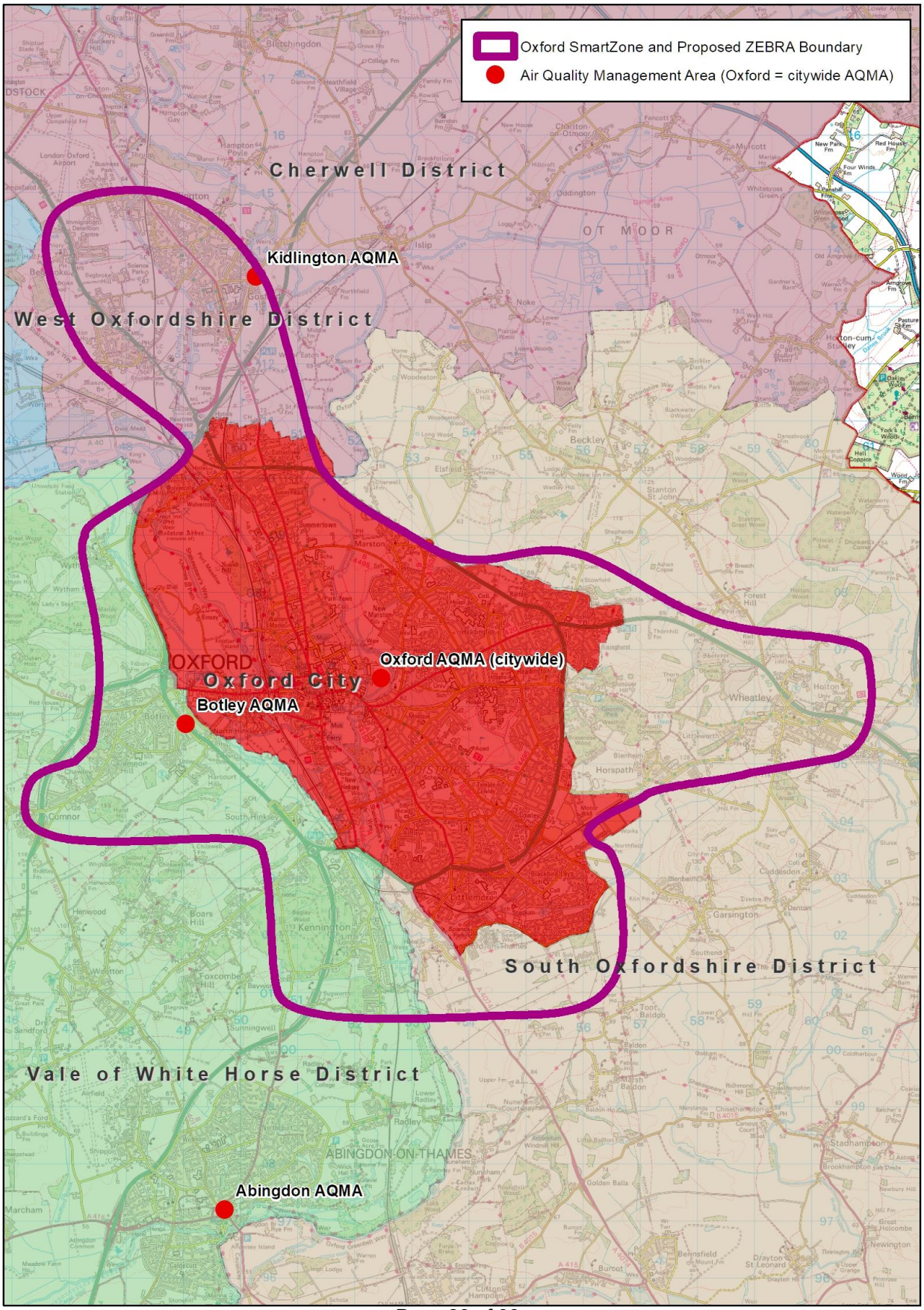
Route	Description
2, 2A, 2B	Kidlington – Summertown – Oxford city centre
500	Oxford Parkway P&R – Oxford city centre
300	Redbridge P&R – Oxford city centre – Peartree P&R
400	Seacourt P&R – Oxford city centre – Thornhill P&R
700	Oxford Parkway P&R – Headington hospitals
800	Thornhill P&R – Headington hospitals
900	Thornhill P&R – Headington hospitals
14, 14A	John Radcliffe Hospitals – Marston – Oxford city centre
13	John Radcliffe Hospitals – Marston Road – Oxford city centre
ST2	Wytham – Oxford city centre – University Science Area – Old Road Campus
1, 5	Blackbird Leys – Cowley – Cowley Road – Oxford city centre
3, 3A	Rosehill – Oxford city centre
U5	Oxford Brookes – Cowley – Cowley Road – Oxford city centre
10	John Radcliffe Hospital – Wood Farm – Cowley – Cowley Road – Oxford city centre
8	Barton – Headington – Oxford city centre
9	Risinghurst – Headington – Oxford city centre
46	Wheatley – Horspath – Cowley
16, 16A	Littlemore – Minchery Farm – Cowley – Oxford city centre
12	Greater Leys – Cowley – Cowley Road – Oxford city centre
U1	Wheatley - Headington - Oxford city centre - Harcourt Hill
4A, 4B, 4C	Cumnor – Botley – Oxford city centre
6	Wolvercote – Oxford city centre
11X	BMW Car Factory – Oxford City Centre

Annex 2 – Letters of support

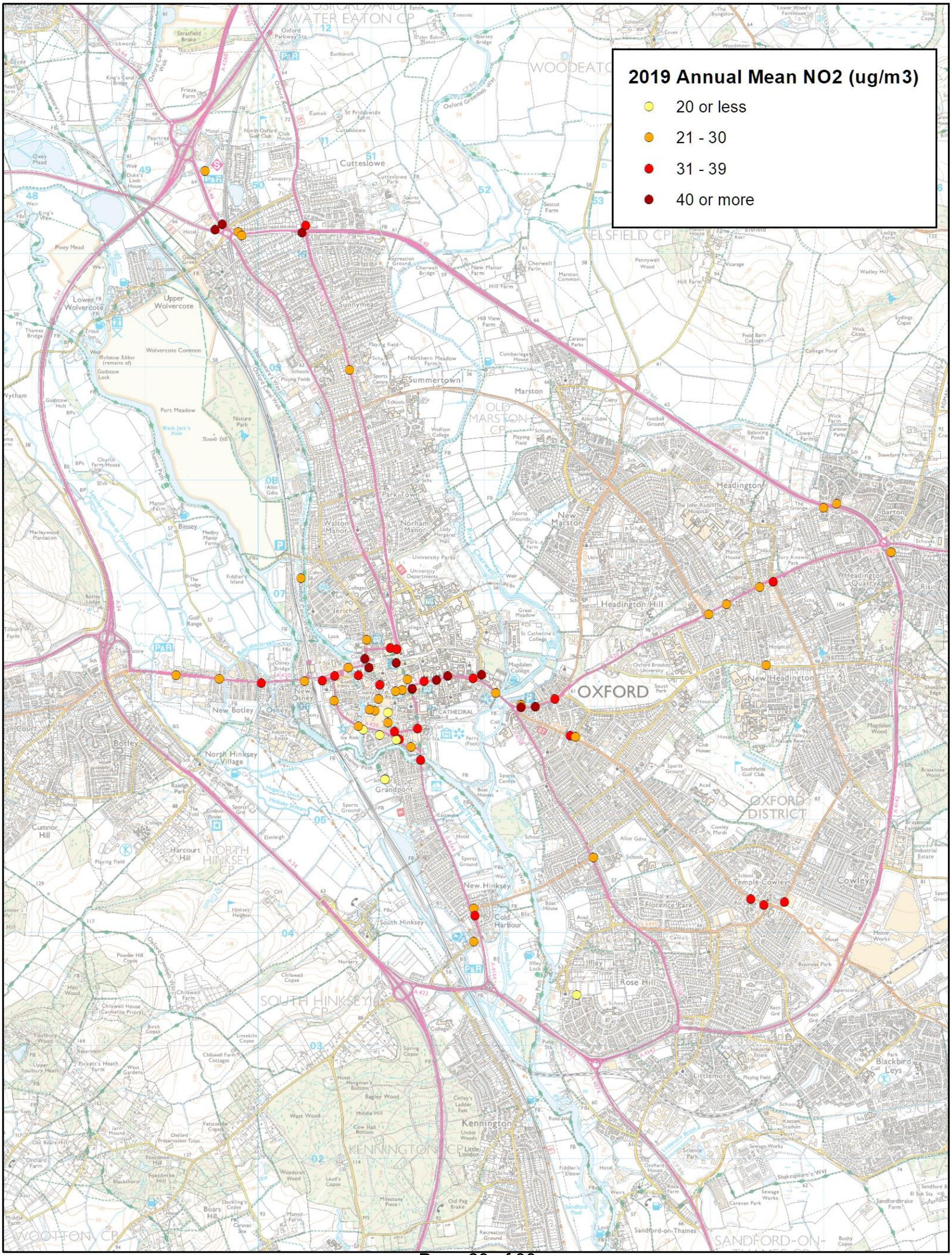
Removed - commercially sensitive

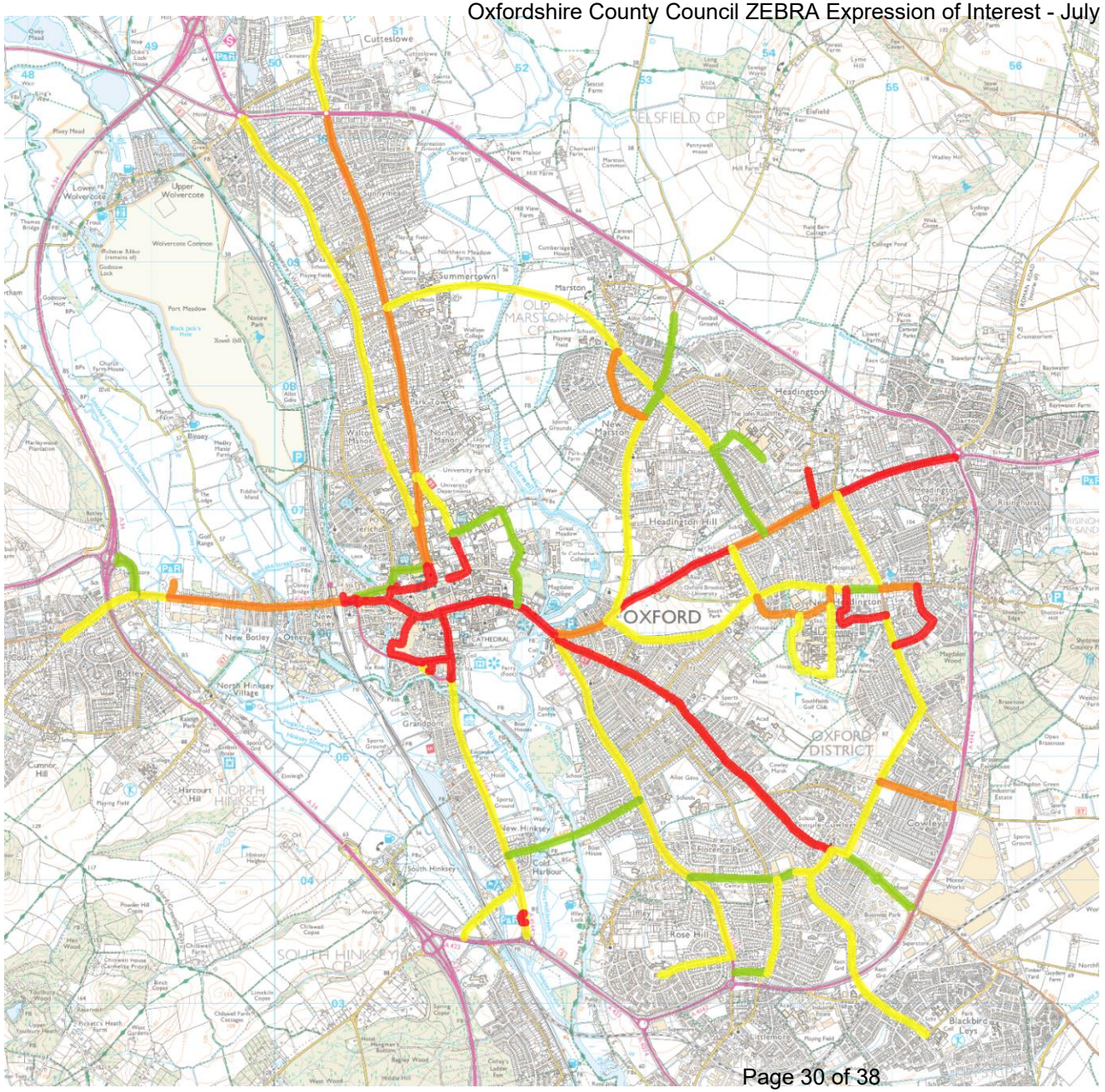
Annex 3 – Air quality

Air Quality Management Areas within proposed Oxfordshire ZEBRA boundary



2019 annual average nitrogen dioxide levels in Oxford
UK limit value = 40 ug/m3





Line colour	All buses (excluding inter-urban coaches) as % of all traffic	Likely range of transport NOx emissions reduction resulting from ZEBRA*
All figures are for an average weekday daytime hour (0700 – 1900)		
	0 – 1.00%	Less than 10% reduction
	1.01 – 5.00%	10 – 19% reduction
	5.01 – 10.00%	20 – 39% reduction
	More than 10.00%	40 – 50% reduction

*Based on comparison of bus-to-traffic flow ratios with the roads assessed in the Oxford Source Apportionment Study, Ricardo, December 2019

Figures are estimated reductions in NOx *emissions* from traffic sources in each street. Reductions in NO_2 *concentrations* will be lower.

Links with no buses are not coloured; links outside ring road not shown.

Potential impacts of ZEBRA on transport NOx emissions

Annex 4 – Oxfordshire bus operators' experience with electric buses

Oxfordshire bus operators' experience with electric buses

Oxford Bus Company

Oxford Bus Company (OBC) has been gaining experience in operating electric buses; and has conducted in-service trials with single deck electric buses from both Yutong and BYD over the past two years.

More recently the company has been retrofitting vehicles on its City Tour business to electric power, and the first of these entered service in February 2020. A further four such buses are in progress.

OBC's parent company, Go-Ahead group is the largest operator of electric buses in the UK and has introduced large numbers of electric buses to its London business, including the UK's first all-electric bus depot at Waterloo garage which opened in 2016. The group also has electric buses in service in Salisbury.

Go-Ahead has been gaining experience with geo-fenced hybrid range extender buses of the type required for the longer distance routes in Oxford; and has 30 of these vehicles operating in service on routes 5 and 6 in Brighton which were introduced in September 2019. This builds on the group's extensive experience in operating electric hybrid buses, including in Oxford where 34 such buses already operate today.

Go-Ahead's bus division is the first UK bus operator to gain ISO50001 accreditation for its energy management practices, reflecting the good work that has been done to reduce carbon emissions and improve the efficiency of operations over recent years.

Stagecoach

For four decades Stagecoach have pioneered greener and smarter mobility, with a key focus on providing cleaner buses for the country's travelling public and boosting air quality for towns and cities right across the UK. They have invested £1 billion in 7,000 new greener vehicles in the past decade; more than any other operator in the UK. Delivering greener journeys remains a key priority and their investment in electric buses is helping to deliver cleaner air and reduced road congestion through a greener bus fleet, aiming to help generate further modal shift from the car to public transport.

Manchester
In March 2020, Stagecoach Manchester launched 32 all-electric double-decker buses, the first to arrive in the Greater Manchester area. The fleet will serve the 111 and 43 routes connecting Manchester city centre and the airport as well as five hospitals and three universities.

Cambridge
Stagecoach, in partnership with the Greater Cambridge Partnership, launched Cambridge's first electric buses in February 2020. The two new electric buses are

now running on the Citi 6 service. The two new vehicles are zero emission and can travel 160 miles on a single charge.

Guildford
In January 2019, Stagecoach rolled out a fleet of nine new fully electric, zero emission buses on its Guildford Park & Ride services. The BYD ADL Enviro200EV 10.8m electric buses, which represent an investment of £3 million, have a range of up to 150 miles and have a capacity for up to 36 passengers and one wheelchair user. Customers are also able to take advantage of free Wifi and USB charging which are featured onboard.

North-East Scotland
15 new electric hybrid double deck buses were introduced in the north-east of Scotland in 2019. Marking a £3.5 million investment from Stagecoach North Scotland, the fleet of electric-hybrids operate on service 35 between Aberdeen, Banff and Elgin.

Inverness
The first electric buses of their kind in Scotland were introduced by Stagecoach in 2015. Operating in Inverness, the five electric buses were introduced as the result of a successful partnership between Stagecoach, the Scottish Government Green Bus Fund and HiTRANS.

Annex 5 – Draft subsidy assessment

OXFORDSHIRE COUNTY COUNCIL

SUBSIDY ASSESSMENT

Project Name: ZEBRA

Potential Recipients: Bus Operators

For subsidies in scope of the UK-EU Trade and Cooperation Agreement (TCA) principles (within the subsidies chapter), the Council should complete the table below and retain for its records. The information should record how the Council has complied with the principles in designing their subsidy. Drafting notes included for information.

Principles	How does the subsidy comply with the principle?
The subsidy pursues a specific public policy objective to remedy an identified market failure or to address an equity rationale such as social difficulties or distributional concerns ("the objective").	In line with the Government's objective in establishing the ZEBRA scheme, the Council is seeking to reduce carbon emissions in bus transport within the Oxford Smartzone Area with the intention of supporting the Government to meet the statutory net zero target for the UK. It is noted that within the TCA the parties recognise the importance of environmental sustainability, including the fight against climate change. The ZEBRA grant would contribute significantly towards the Council's strategic objectives and priorities for transport improvement. It would support a number of the key corporate priorities related to health and well-being, climate action, air quality and healthy place shaping. A reduction in bus emissions in Oxford would contribute to better air quality, better environments for all users and a reduction in transport's contribution to climate change.
The subsidy is proportionate and limited to what is necessary to achieve the objective.	The Government has established the ZEBRA Scheme with a pre-defined intensity limit of 75% which we expect the Government has calculated as the amount necessary to achieve its objective of encouraging bus operators to acquire zero emission buses. [Drafting Note: For further discussion with DfT at business case stage] This level of intensity is consistent with the Government's previous scheme for ULEB which was approved by the EC as state aid compliant. The intensity levels for the vehicles will be calculated by reference to the cost difference between a zero-emission bus and a standard conventional diesel bus equivalent with the same total passenger capacity in

	order that only the difference will be funded i.e. the costs that are necessary to contribute to environmental protection. [Drafting Note: The Council wishes to provide Additional Council Grant available subject to being satisfied that this is proportionate and necessary and that the bus operators would not acquire the new vehicles without the Additional Council Grant]
The subsidy is designed to bring about a change of economic behaviour of the beneficiary that is conducive to achieving the objective and that would not be achieved in the absence of the subsidy being provided.	Bus operators in receipt of ZEBRA funding would not be able to proceed with the new vehicle purchases within the intended timescales in the absence of the ZEBRA Grant [and the Additional Council Grant] [Drafting Note: Evidence is being gathered from Operators to support this. Consideration is also to be given to the general take up levels of zero-emission buses in the UK and locally to Oxford. Drafting to be updated accordingly]
The subsidy should not normally compensate for the costs the beneficiary would have funded in the absence of any subsidy.	There is currently no legal requirement that the bus operators acquire the new vehicles and charging infrastructure.
The subsidy is an appropriate policy instrument to achieve a public policy objective and that objective cannot be achieved through other less distortive means.	It is considered that the provision of grant funding is an appropriate instrument in this case. The costs of acquiring the new vehicles and infrastructure are significant and also significantly exceed the cost of equivalent diesel buses. It is worthy of note that the GBER under the previous State aid regime (which still operates in the EU) aid for similar purposes under Article 36 is permitted which supports the view that grant funding is generally considered as an appropriate policy instrument to increase environmental protection.
The subsidies' positive contributions to achieving the objective outweigh any negative effects, in particular the material effect on trade or investment between the Parties.	The ZEBRA Grant would result in several positive contributions. The need to meet carbon reduction targets, and in turn address climate change, is widely recognised as of paramount importance by most governments and members of the public. The potential long term effects of not doing so are acknowledged by many as an existential challenge that the world must deal with quickly. In this context, the positive contributions of providing the Grants would outweigh any negative

	effects on trade or investment and without this type of financial support from the State the impact on trade and / or investment could be much more serious. The need to reduce pollution caused by diesel vehicles such as buses is also very important to the environment and our health generally. The Grant may well encourage the wider use of buses in the SmartZone area on the basis of their green credentials and the fact that the new buses are expected to be of a higher quality generally as well as meeting enhanced accessibility standards. Some of the additional users will be those who previously used private vehicles. It is a requirement of the ZEBRA scheme that all new buses should come into force no later than 12 months from their order date and in any event no later than two years after the award of funding. In addition, bus operators must commit to investing in the new buses and operating them in the defined area for a minimum of five years. Taken as a whole, these requirements should ensure that the intended positive benefits are achieved. The Government is using a transparent and competitive process to select grant recipients with bids assessed against objective and published criteria. This will reduce the extent to which the ZEBRA Grant could have any material effect on trade or investment, a point acknowledged by the European Commission in the ULEB approval (see paragraphs 77 – 79 of the approval). [Drafting Note: Many of the positive contributions would also be relevant to the Additional Council Grant but further consideration needs to be given to the potential impact on trade/investment depending on the additional sums that may be granted.]
Where relevant, record consideration against Article 3.5 [Prohibited subsidies and subsidies subject to conditions], including consideration of whether that subsidy has or could have a material effect on trade or investment between the Parties.	N/A

Value for money pro forma

Removed - commercially sensitive