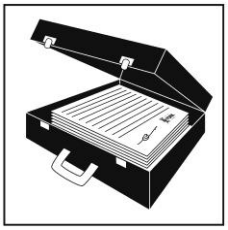

Notice of a public meeting of
Decision Session - Cabinet Member for Transport & Cabinet Member for Environmental Services, Planning and Sustainability

To: Councillors Levene & Merrett

Date: Thursday, 30 October 2014

Time: 1.00 pm

Venue: The Giles Room - 1st Floor West Offices (F022)

A G E N D A

Notice to Members - Calling In:

Members are reminded that, should they wish to call in any item* on this agenda, notice must be given to Democracy Support Group by **4:00 pm** on **Monday 3rd November 2014**.

*With the exception of matters that have been the subject of a previous call in, require Full Council approval or are urgent which are not subject to the call-in provisions. Any called in items will be considered by the Corporate and Scrutiny Management Committee.

Written representations in respect of items on this agenda should be submitted to Democratic Services by 5.00pm on Tuesday 28th October 2014.

1. Declarations of Interest

At this point in the meeting, Members are asked to declare:

- any personal interests not included on the Register of Interests
- any prejudicial interests or
- any disclosable pecuniary interests

which they may have in respect of business on this agenda.

2. Minutes (Pages 1 - 4)

To approve and sign the minutes of the Decision Session held on 20th March 2014 (Cabinet Member for Transport to sign).

3. Public Participation - Decision Session

At this point in the meeting, members of the public who have registered their wish to speak at the meeting can do so. The deadline for registering is **5:00pm on Wednesday 29th October 2014**.

Members of the public may speak on:

- An item on the agenda,
- an issue within the Cabinet Member's remit,

Filming or Recording Meetings
Residents are welcome to photograph, film or record Councillors and Officers at all meetings open to the press and public. This includes the use of social media reporting, i.e. tweeting. Anyone wishing to film, record or take photos at any public meeting should contact the Democracy Officer (whose contact details are at the foot of this agenda) in advance of the meeting.

The Council's protocol on Webcasting, Filming & Recording of Meetings ensures that these practices are carried out in a manner both respectful to the conduct of the meeting and all those present. It can be viewed at http://www.york.gov.uk/downloads/download/3130/protocol_for_webcasting_filming_and_recording_of_council_meetings

4. A Draft Framework for York's third Air Quality Action Plan (AQAP) 2014 to 2020. (Pages 5 - 72)

This report presents the Cabinet Members' with a draft framework for approval for York's third Air Quality Action Plan (AQAP3). This will be the main delivery plan for measures in the York Low Emission Strategy (LES). The draft framework takes into account the findings and recommendations of the York LEZ study, the York anti-idling study and the York electric bus study.

5. Urgent Business

Any other business which the Chair considers urgent under the Local Government Act 1972.

Democracy Officer:
Name: Laura Bootland
Contact Details:

- Telephone – (01904) 552062
- Email – laura.bootland@york.gov.uk

For more information about any of the following please contact the Democratic Services Officer responsible for servicing this meeting:

- Registering to speak
- Business of the meeting
- Any special arrangements
- Copies of reports and
- For receiving reports in other formats

Contact details are set out above.

This information can be provided in your own language.

我們也用您們的語言提供這個信息 **(Cantonese)**

এই তথ্য আপনার নিজের ভাষায় দেয়া যেতে পারে। **(Bengali)**

Ta informacja może być dostarczona w twoim własnym języku. **(Polish)**

Bu bilgiyi kendi dilinizde almanız mümkündür. **(Turkish)**

یہ معلومات آپ کی اپنی زبان (بولی) میں بھی مہیا کی جاسکتی ہیں۔ **(Urdu)**

☎ **(01904) 551550**

City of York Council	Committee Minutes
Meeting	Decision Session - Cabinet Member for Environmental Services
Date	20 March 2014
Present	Councillor Levene (Cabinet Member)
In attendance	Councillors Reid and Richardson

16. Declarations of Interest

The Cabinet Member was asked to declare any personal interests not included on the Register of Interests, any prejudicial interests or any disclosable pecuniary interests which he might have in respect of business on the agenda. None were declared.

17. Minutes

Resolved: That the minutes of the Decision Session held on 11 March 2014 be approved and signed as a correct record.

18. Public Participation/Other Speakers

It was reported that there had been no registrations to speak at the meeting under the Public Participation Scheme but that two Members of Council had registered to speak.

Councillor Reid spoke in support of the Dringhouses and Woodthorpe Ward Winter Maintenance Petition (agenda item 4). She stated that this was the third time that she had spoken on the issue of salt bins and that it was fortunate that it had been a mild winter. She understood that there had been a budget overspend in the winter maintenance budget and hence there would be a need to review this budget. Although some Residents' Associations had chosen to fund some salt bins, not all of the ward was covered by a Residents Association or Parish Council. The changes in respect of ward committee funding was also a factor. Whilst supportive of the efforts of involving residents through the snow wardens initiative, it was important that there was adequate provision of salt bins.

Speaking in respect of agenda item 5 – Annual Highway Maintenance Report, Councillor Reid stated that she welcomed the extra funding that the Government had announced for road repairs and hoped that York would receive its share.

Councillor Richardson, speaking in respect of agenda item 5 – Annual Highway Maintenance Report, stated that he welcomed the fact that Windsor Drive had been included in the proposed Surface Treatment Programme 2014/15 but raised concerns regarding the condition of South Lane in Haxby. He stated that the poor condition of the road markings meant that parking restrictions could not be enforced and that this was causing real problems in the area. Referring to the winter maintenance programme, Councillor Richardson expressed concern at the lack of salt bins on the main thoroughfare to Ralph Butterfield Primary School. He requested that, at the very minimum, a bin be provided on Usher Lane.

19. Dringhouses and Woodthorpe Ward Winter Maintenance Petition

The Cabinet Member considered a report in response to a petition, with 179 names and addresses of residents, submitted to the Council by Councillor Reid. The petition requested that the Council retain the existing salt bin and gritting position in the Dringhouses and Woodthorpe wards.

The Cabinet Member considered the following options:

Option 1: Consider the petition and reinstate the winter maintenance service to the 2012/13 arrangements
Option 2: Maintain the approved winter maintenance service for 2013/14

The Cabinet Member stated that he was satisfied that the current gritting regime was safe and effective.

Resolved: (i) That the petition be noted.

(ii) That Option 2 (Maintain the approved winter maintenance service for 2013/14) be approved.

Reason: The revised policy is derived from consultation and best practice guidance and allows for routes and grit bin locations to be prioritised and ranked accordingly providing a safe, efficient and effective service.

20. Annual Highway Maintenance Report

The Cabinet Member considered a report that provided a review of the service performance in highway maintenance over the last year. The report examined issues arising and proposed programmes of work to be undertaken in the financial year 2014/15.

The Cabinet Member stated that every effort would be made to ensure that York secured a fair share of the funding for road maintenance that had been announced by the Government.

Referring to concerns that had been raised regarding road markings on South Lane, the Cabinet Member stated that he would discuss this issue with officers. He would also ask officers to consider whether they could work with snow wardens in that area to address issues that had been raised regarding the situation on the route to the school.

The Cabinet Member thanked officers for their work in preparing the comprehensive report.

Resolved: (i) That the review of 2013/14 and proposals for 2014/15 be noted.

(ii) That the allocation of budgets for 2014/15, as detailed in the report, be approved.

(iii) That the implementation of the proposed programme be approved.

Reason: To ensure delivery of highway maintenance services in an efficient and cost effective manner.

Councillor Levene, Cabinet Member
[The meeting started at 4.00 pm and finished at 4.10 pm].

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CITY OF YORK COUNCIL	
Meeting of the Cabinet Member for Environmental Services, Planning and Sustainability & Cabinet Member for Transport.	30 October 2014
Report of the Assistant Director – Housing and Community Safety	

A Draft Framework for York's Third Air Quality Action Plan (AQAP3) 2014 to 2020

Summary

1. This report presents a draft framework for York's third Air Quality Action Plan (AQAP3). This will be the main delivery plan for measures in the York Low Emission Strategy (LES). The draft framework takes into account the findings and recommendations of the York LEZ study, the York anti-idling study and the York electric bus study.

2. Central to the proposed framework is the concept of a '*Clean Air Zone (CAZ)'* where bus emissions will be regulated, based on the frequency of which they enter the inner ring road. The most frequent and hence most polluting services will be required to meet higher emission standards than less frequent services. If a CAZ is introduced, over 80% of bus movements in York will be made by ultra low emission buses, by 2018.

3. Other proposed measures include; reducing vehicle idling, developing a strategic electric vehicle (EV) recharging network, a compressed natural gas (CNG / biomethane) refuelling station, a freight improvement plan and further measures to reduce emissions from taxis and the CYC vehicle fleet. The Cabinet Member is asked to approve the development of a CAZ and the wider framework for AQAP3.

Background

4. Based on national estimates, pro rata, between 94 and 163 people die prematurely in York each year due to the impacts of poor air quality[1]. This is more than the combined estimate of those who die prematurely from obesity and road accidents. Public health framework indicator 3.01 states that the fraction of mortality in York attributable to anthropogenic (man-made) $PM_{2.5}$ particulate air pollution alone is 4.8% of all deaths (82 deaths). The average for this indicator across England is 5.1%.

5. Poor air quality puts the health of York's residents at risk, creates an unpleasant environment for visitors and may damage historic buildings. The health impacts of poor air quality place additional financial burdens on the local health service. The main air pollutants of concern in York are nitrogen dioxide (NO_2) and particulate matter (PM), linked to lung diseases (asthma, bronchitis and emphysema), heart conditions and cancer. The main source of these pollutants in York is traffic; other lesser sources are commercial and domestic heating, with a small contribution from industry and rail.

6. The Environment Act 1995 requires all local authorities to review and assess air quality in their areas and to declare Air Quality Management Areas (AQMAs) where health based air quality objectives are not being met. Where an AQMA is declared, an Air Quality Action Plan (AQAP) must be developed to demonstrate how the local authority intends to improve air quality. York currently has three AQMAs (the inner ring road area, A19 Fulford and Salisbury Terrace/Leeman Road) and has drawn up two AQAPs (2004, 2006). The *'Air Quality Update Report 2013'* provided a more detailed update on air quality in each of the AQMAs and progress with delivering air quality improvement measures.

7. Following the publication of AQAP2 (2006) average concentrations of NO_2 continued to rise across the city (until 2010) and new AQMA declarations became necessary at Fulford Road and Salisbury Terrace. The continued deterioration in air quality prompted a review of AQAP2 in 2009 to identify:

    - sources of emissions and the reasons for the continued deterioration in local air quality

[1] Committee on medical effects of air pollution (COMEAP, 2009) estimate 29,000 premature deaths each year in UK. Environmental Audit committee estimate up to 50,000 premature deaths (Environmental Audit Committee Report, March 2010). UK population in 2010 - 62,262,000, York population in 2010 – 202,400 (Office of National Statistics 2011)

- additional measures to improve air quality

The review process prompted the development of York's Low Emission Strategy (LES).

8. The York LES was adopted in October 2012 and was the first overarching LES in the UK; it sets out a low emission based approach to air quality improvement using a variety of incentive, technology and enforcement based methods to further reduce emissions of air pollutants. The LES recognises the particular need to reduce NO_2 from diesel vehicles, including buses, HGVs and taxis that fall outside the scope of previous modal shift based AQAPs.

9. The LES recommended that studies should be undertaken to investigate the feasibility of including the following measures in a revised AQAP:

   (a) introduction of a Low Emission Zone (LEZ) bus corridor

   (b) introduction of low emission buses

   (c) introduction of anti-idling technology and enforcement

   These feasibility studies have been completed and the results have informed the development of the draft AQAP3 framework presented here. A summary of the main findings from each of these feasibility studies can be found at Annex 1 and are discussed further within this report.

10. There was a slight reduction in average NO_2 concentrations across the city centre between January 2010 and December 2013. This suggests that air quality may be starting to improve. It is too soon to determine if this is the start of a long term downward trend or the result of changes in weather patterns, economic activity and/or changes in traffic conditions. It is a positive position from which to commence the delivery of a new AQAP, but significant air quality challenges remain, especially within the AQMAs.

11. In February 2014 the European Commission formally launched infraction proceedings against the UK for breach of NO_2 limit values under the EU Air Quality Directive. Whilst the UK Government is responsible for ensuring compliance with EU air quality obligations, Defra has now written to local authorities warning of possible fines being passed on to those with elevated NO_2 concentrations to pay all or part of the infraction fine, using a discretionary power in Part 2 of the Localism Act. No details have been released to date about how these fines will be imposed, but it is understood these will be recurring annual fines.

Air Quality Challenges in York

12. York continues to experience breaches of the annual health based air quality objectives for NO_2 because:

    a) Emissions of NO_2 from diesel vehicles have not reduced as rapidly as originally predicted by national emission factors. Technology to reduce emissions from diesel vehicles has to date been aimed at reducing emissions of PM and carbon dioxide (CO_2). A direct and previously unforeseen consequence of this is that modern diesel engines (particularly Euro 5 diesel cars) produce a greater fraction of NO_2 at the point of emission than older diesel vehicles.

    b) The ratio of diesel to petrol cars in York has increased in recent years. The increased uptake of diesel cars is a national phenomena driven by:
        i. taxation systems that have until recently favoured diesel vehicles (on grounds that they are more fuel efficient and produce lower CO_2 emissions)
        ii. the vehicle scrappage scheme of 2009 that offered financial incentives to replace vehicles over 10 years old with new vehicles, many of which were new, heavier diesel vehicles.

    c) The previous modal shift approach enabled the council to introduce some congestion and air pollution mitigation measures, but did not address emissions from diesel vehicles such as buses, HGVs and taxis. Buses (1%) and HGVs (2%) make up a small proportion of the total vehicle fleet in York, but have a disproportionate impact on total traffic derived NO_2 emissions. As numbers of public transport vehicles increase, so do emissions. Even if additional bus services are provided by new diesel buses (or diesel buses fitted with particulate traps and/ or other exhaust after-treatment systems) these additional vehicle movements still contribute significantly to NO_x emissions and can add to existing NO_2 air quality problems rather than improve them. Lower emission vehicle technologies such as electric and gas need to be employed to mitigate the impact of growth in diesel vehicles.

    d) York has over 750 vehicles licensed to operate as hackney carriages and private taxis. Approximately 80% of these are diesel vehicles which operate intensively in and around the city centre and the AQMAs.

e) New development brings jobs, housing and other benefits, but, can lead to an underlying 'creep' in traffic emissions and a deterioration in air quality. This can be mitigated if low emission strategy measures are applied to new developments.

f) There is currently widespread vehicle idling in the city which adds unnecessary emissions to the existing air quality problems

Main considerations for the development of AQAP3

13. To achieve further air quality improvement in York all emissions must be minimised as far as possible and there must be a significant shift away from the reliance on diesel vehicles to provide essential public transport and delivery services.

AQAP3 must therefore:

(a) Tackle as a priority the disproportionate impact that buses and HGVs have on air quality in the city by:

- Rapidly reducing the number of diesel buses operating in the city (whilst maintaining current or better levels of service)
- Tackling unnecessary idling emissions
- Providing funding opportunities and infrastructure that will allow vehicle operators to switch to alternative fuels (e.g. electric, CNG / bio-methane)
- Progressing delivery of a freight transhipment centre to reduce the number of HGVs entering the city centre
- Providing recognition and reward to those operators that lead by example

(b) Encourage and incentivise the use of hybrid vehicles and other low emission vehicles to reduce the number of diesel taxis

(c) Ensure CYC continues to lead by example by undertaking further emission reduction measures within its own fleet

(d) Minimise further increases in emissions as the result of future development (by requiring greater emission mitigation by developers)

(e) Encourage and facilitate a reduction in the number of diesel vehicles used by individuals and other private fleets by:

- Linking and highlighting the emission consequences of vehicle choice and driving style to impacts on public health
- Providing information, advice and training to help people make more informed vehicle purchase / lease choices and drive more responsibly (eco-driver training)
- Providing access to grants and other incentives to support cleaner vehicle choice by the general public and other fleets
- Providing easy public access to alternative refuelling and recharging infrastructure
- Recognising and rewarding those who lead by example

14. AQAP3 must also continue to recognise the important role sustainable transport and climate change policies have in delivering air quality improvements and identify how air quality improvement policies can help support economic growth and job creation. There are many economic opportunities arising from the development of AQAP3 and these are considered further in paragraph 46.

15. Annex 2 sets out the proposed framework for AQAP3 showing how each of the key considerations (as outlined in paragraph 13) will be addressed. Paragraphs 16 to 46 of this report provide more information on each of the main elements of the proposed AQAP3 framework. Further information on the supporting studies can be found in Annex 1 and full copies of all documents are available on line at www.jorair.gov.uk or from EPU upon request.

Recommended approach – a Clean Air Zone (CAZ)

16. Consideration was given to a Low Emission Zone in York and a feasibility study was commissioned (see Annex 1). A LEZ is based solely on the emission standard of the vehicle, irrespective of the frequency that it operates. However, it was found that a LEZ based on a Euro 3 standard would actually make air quality worse in some areas, whilst a Euro 4/Euro5 standard was found to be prohibitively expensive for smaller bus companies and would threaten the financial viability of some of the more rural routes, thereby having a negative social and economic impact.

17. Central to the proposed AQAP3 framework is the concept of a Clean Air Zone (CAZ). A CAZ differs fundamentally to a LEZ in that bus emissions are controlled within the CAZ based on the frequency with which individual services enter a designated area. The CAZ therefore targets those vehicles that have the greatest impact in terms of air

pollution. The CAZ will become the main delivery mechanism for achieving a rapid reduction in the number of diesel buses operating in the city centre. The most frequent services will be required to upgrade to ultra low emission buses by 2018. Infrequent services will be set lower interim targets based on Euro emission standards; this reflects the smaller impact they have on York's air quality and the economic viability of these services. Suggested emission standards for entry into the CAZ can be found in Annex 3. The extent of the CAZ boundaries and the required emission standards will be subject to further consultation with bus operators. As a minimum the CAZ will need to cover the inner ring road and all the roads within it, but could be extended to reflect the existing Better Bus Area. Support will be given to operators to help them access grants and loan schemes to upgrade their vehicles.

18. The CAZ concept has been developed based on the findings of two key documents:

    - Low emission bus corridor feasibility study (LEZ study)
    - Electric bus feasibility study

19. The LEZ study examined the potential impact of introducing a variety of blanket emission controls (Euro 3, Euro 4 or Euro 5) to all buses operating along the Ouse Bridge / George Hudson Street/ Rougier Street / Lendal Bridge corridor. The study assumed that a single emission standard would be applied to all buses entering the LEZ corridor irrespective of their frequency or age. An emission standard control of this type would require as a minimum the replacement of all older diesel buses with newer diesel models or the fitting of exhaust abatement equipment to ensure compliance with the specified emission standard. As a separate scenario, the LEZ study also considered what would happen if all Park & Ride buses were able to operate on electric within the LEZ corridor and other AQMAs.

20. The LEZ study indicated that blanket style application of Euro 4 or Euro 5 emission controls to buses could result in some sizeable reductions in NO_2 at some locations in the city centre. However, even with these emission controls in place, exceedances of the annual average NO_2 air quality objective would still exist in some areas. The study also showed that applying a zero emission standard (electric bus requirement) to a smaller number of frequent bus services might be more effective than requiring the whole fleet to upgrade to Euro 4. A further study was commissioned in January 2013 to examine the feasibility of introducing electric buses into the York fleet.

21. The electric bus feasibility project with ARUP in 2013 engaged the major local bus operators. The Quality Bus Partnership has been briefed (16 December 2013, 7 March 2014 and 14 July 2014) on the electric bus project and the Clean Air Zone (CAZ) as an alternative to a Low Emission Zone (LEZ) and this has been well received. The electric bus feasibility study identified around 65 scheduled bus routes currently operating through the city centre. These routes are operated by approximately 200 buses of varying type, age and emission standard. 82% of all bus movements are carried out by only 49% of the buses and these buses operate on only 20 routes (including all the P&R services). As demonstrated by the LEZ study these 'frequent' flyer services have a disproportionate impact on local air quality; however the electric bus feasibility study has identified that due to their short, frequent duty cycles these frequent services are generally well suited to the adoption of electric bus technology. Converting the majority of the frequent flyer services to electric would offer substantial benefits for air quality as well as 60% reduced greenhouse gas impact and reduced noise levels. The report included a 'roadmap' for reducing emissions from buses in York upon which the concept of the CAZ has been based. It is anticipated that all local service buses (including both tour buses) will fall within the CAZ requirements. Where necessary bus emissions will be improved through purchase of new vehicles and/or conversion of existing vehicles to electric and /or CNG. Further information on which buses would require upgrading under the current CAZ proposals can be found in Annex 3.

22. Significant progress has already been made towards electrification of York's buses. Electric buses have recently been introduced at the new Poppleton Park & Ride (P&R) site and the Transdev university service and those for the Monks Cross P&R service and the Derwenthorpe development are awaited. In addition, Transdev is now operating the world's first retrofitted electric double decker tour bus. All these projects have been made possible through Greener Bus Fund (GBF) and Cleaner Bus Technology Funds (CBTF) bids written by officers within the council's environmental protection unit (EPU) and sustainable transport teams.

23. Annex 3 provides further information on the proposed CAZ including the proposed minimum area, draft emission control proposals and the expected implications of these for current bus operators (based on current levels of service). These proposals are provided for indicative purposes only and will be subject to further consultation with bus operators as part of the wider AQAP3 consultation.

Anti-idling Measures

24. Unnecessary or excessive vehicle emissions can arise from both poor driving techniques and vehicle idling when a vehicle is left parked with its engine running for a prolonged period of time. Following recommendations made in the LES, a study into the extent of idling emissions in York and the options for reducing it was commissioned in 2013. The study provided evidence of many incidences of vehicle idling currently taking place across the city and has indicated that by adopting basic anti-idling policies, a significant reduction in emissions (both local air pollutants and CO_2) could be achieved, along with even greater fuel cost savings for operators.

25. Anti-idling campaigns can take various forms and may include one or all of the following:

    - Anti-idling signage (either with or without enforcement)
    - Anti-idling promotion and marketing campaigns
    - Negotiation and joint working with vehicle operators to achieve a reduction in idling
    - Adoption of anti-idling legislation

26. Evidence obtained from other cities indicates that in the first instance working with transport operators to highlight the air quality impacts and additional fuel costs associated with idling may be enough to significantly reduce incidences of idling. This type of work could be supported in York by 'spot checks' undertaken by existing bus monitoring officers resulting in reports being sent back to transport operators regarding observed incidences of excessive idling. The framework for AQAP3 suggests a partnership and awareness raising approach to anti-idling in the first instance with a focus on a number of clearly defined 'anti-idling zones'. These would be locations where unnecessary idling is currently known to occur, both on the roadside and at coach parks. Further consultation will be required on the levels of signage (if any) to be provided and the most effective way to engage with transport operators on this issue. AQAP3 will retain an option to adopt anti-idling legislation at a later date. As a greater number of vehicles are converted to electric under the requirements of the CAZ preventing idling will become less of a priority for the city. Further information on the anti-idling feasibility study and initial proposals for anti-idling zones can be found in Annex 1.

ECO-stars

27. The ECO-stars Fleet Recognition Scheme is a free**,** voluntary scheme aimed at providing recognition and guidance on operational best practice to operators of goods vehicles, buses and coaches whose fleets spend a significant proportion of time operating within York. It is an excellent way to achieve positive engagement with hard to reach groups such as coach operators and road hauliers whose diesel vehicle fleets contribute significantly towards air quality problems in York.

28. An ECO-stars scheme was launched in York in March 2013. Since then over 30 operators have joined the scheme and taken advantage of the free operational advice and publicity offered to them. Membership of ECO-stars is currently completely voluntary with members often being those who are already adhering to industry best practice and striving to meet their environmental responsibilities.

29. To achieve engagement with a wider range of operators, and reduce the amount of marketing resources needed, it is recommended that AQAP3 requires mandatory membership of ECO-stars for any vehicle operator wishing to provide a CYC funded transport service (e.g. school buses or personal home to school transport), or any operator that undertakes a service on behalf of the council which involves using a large fleet of vehicles e.g. housing repairs, street lighting, waste removal contracts etc. This would be a requirement at the service procurement stage and would not apply to current providers until their contracts are due for renewal. Mandatory membership is only possible if there is continued funding to support the Eco-stars scheme.

30. By requiring mandatory ECO-stars membership CYC can ensure that all transport providers are accessing good quality advice on operational best-practice and can monitor progress and attitudes towards reducing emissions and improving environmental performance. This will ensure that in the future CYC can readily identify and work with organisations that support LES principles and other council priorities in relation to protection of the environment and vulnerable people.

31. There is no cost to join ECO-stars other than the time taken to complete the application process. A mandatory membership system would therefore not place any additional financial burden on potential service providers. In most cases the free advice available to operators through ECO-stars membership will help them to reduce operating costs as well as reducing emissions. Initially operators would not be required to meet

a specific ECO-stars standard (although this could become a longer term requirement to drive operational improvement).

32. ECO-stars could be expanded to cover taxis, similar to the scheme in Mid-Devon. This could be used in conjunction with the current taxi incentive scheme to help York taxi drivers identify ways of reducing both emission and fuel costs. The use of ECO-stars as a means of reducing taxi emissions will be considered as part of the development of a wider taxi emission strategy proposed for inclusion in AQAP3. The ECO-stars taxi scheme is a standalone scheme that will involve additional set up and running costs over and above those of the existing scheme, although no current costs are available. It will only be possible to implement this scheme if additional funding can be identified.

LES Planning Measures

33. New development can often result in increased vehicle trips and emissions. Currently air quality assessments are generally only undertaken for the largest developments and are focused on changes in ambient air pollution concentrations. There are very few developments that considered in isolation can be shown to give rise to a 'significant' change in ambient air pollution concentration, yet almost every development has a 'hidden' emission increase associated with it. If not controlled this hidden emission 'creep' gives rise to cumulative impacts on local ambient air pollution concentrations and may counteract the effectiveness of AQAP and other emission reduction measures.

34. The LES recommended the development of new LES based planning guidance to help address the issue of emission 'creep'. As a result the required policy hooks to allow the development of this guidance have already been incorporated into the emerging Local Plan. The next step is to prepare the guidance document. The draft AQAP3 framework sets out a proposed timetable for this work.

35. New LES planning guidance would follow a similar format to that currently being developed in West Yorkshire, and already in operation in Bradford and Wakefield. Under this system most developments are required to make some provision for electric vehicle recharging and ensure suitable emission controls during the development phase. Larger developments are required to undertake emission impact assessments and provide suitable on-site emission mitigation measures to off-set the additional emissions. This mitigation can include normal travel planning requirements such as walking and cycling facilities, but can also be expanded to include items such as low emission delivery

vehicles or low emission community or staff transport. Where it is not possible to provide physical mitigation measures at the site developers can be asked to provide a further financial contribution towards city wide emission reduction projects, such as cleaner service buses and refuse collection vehicles. It may also be appropriate in some cases to obtain a contribution towards the cost of air quality monitoring in the city. Developer contributions could potentially provide a significant source of income to support the upgrading of buses for use in the CAZ.

36. Development of new planning guidance would be subject to wider consultation with CYC planners, developers and other interested parties. To allow time for this process AQAP3 recommends adoption of LES planning guidance as an addendum to AQAP3 during 2015. In the meantime officers will encourage applicants to submit emission impact assessments and will continue to negotiate low emission measures on new developments. A recent example of a successful negotiation includes provision of public electric vehicle recharging points at the Vangarde development at Monks Cross and a significant contribution towards air quality monitoring in the Heworth area.

Strategic EV charging network

37. The Office for Low Emission Vehicles (OLEV) strategy '*Driving the Future Today'* states that by 2040 almost every new car and van in the UK fleet will be an ultra low emission vehicle[2]. This means that vehicles that operate solely or partially on electric will form an increasing proportion of the vehicle fleet and it is anticipated that the demand for EV recharging points will rise considerably in coming years.

38. York has already made significant progress towards a strategic EV charging network in the city and is leading the way within the Yorkshire region. Ten fast charge 'pay as you go' public EV charging points are now available in public car parks and at Park & Ride sites (each able to charge two vehicles simultaneously). There are an additional 12 privately owned sites at hotels, supermarkets and other developments around the city. Further publicly accessible EV charging points have been achieved through a planning condition at the Vanguard site and funding has been secured to bring rapid charging facilities to York during 2014. Five rapid chargers have been installed to support low emission alternatives to high emission vehicles such as buses and taxis. The draft AQAP3 framework sets out timescales for further EV charging provision in York and the development of a strategic EV charging map against

[2] OLEVs definition of an Ultra Low Emission Vehicle (ULEV) is one which emits less than 75g/km of CO_2

which the need for further developer based EV provision will be considered. The locations of all EV charging points are on the i-Travel website and the map is currently being updated with the new locations.

Planning and delivery of Compressed Natural Gas (CNG) refuelling

39. Electric vehicles are not the only option for reducing transport emissions. Vehicles that operate on compressed natural gas (CNG) also offer considerable reductions in emissions of NO_2 and particulate when compared with a conventional diesel engine. CNG is the same fossil fuel derived methane gas that is used in domestic heating and cooking. Under the right pressure conditions (available at limited locations) it can be taken directly from gas mains and put into vehicles at purpose built re-fuelling stations. Methane gas can also be derived from the anaerobic digestion of waste, under these conditions it is referred to as 'bio-methane' and offers considerable additional CO_2 savings above the use of natural gas. Gas mains already routinely carry a blend of natural gas and bio-methane.

40. A CNG feasibility study is currently underway. This study has identified a small number of sites potentially suitable for the development of a CNG refuelling station but only one offers good access to the major road network. Officers are currently in discussion with a developer interested in providing a CNG refuelling station and freight transhipment centre at this site. Work is ongoing to identify potential users of the site and private investors.

Reducing emissions from taxis

41. The current focus of emission reduction work with taxis is the successful local incentive scheme through which taxi drivers can access a grant of up to £3000 (and half price licence fees) to help cover the cost of trading in their old diesel vehicles for a low emission alternative. The scheme has been in operation for over 12 months and has replaced 13 old diesel taxis with low emission petrol hybrid alternatives and one vehicle fully electric vehicle in 2013/14. The taxi and private hire trade are regularly consulted and made aware of the offer and there is still considerable interest in the scheme. This project has produced significant financial and emissions savings for taxi drivers. Funding through the Local Sustainable Transport Fund (LSTF) is available for a further 13 to 14 taxis in 2014/15 and 15 to 16 taxis in 2015/16. Due to the scheme reaching national recognition there is a possibility that a national funding scheme may become available in the longer term. The draft AQAP3 framework sets out a timetable for developing a further low emission

strategy for taxis. This will be subject to further consultation with taxi licensing and the taxi trade, but could include setting up of an ECO-stars taxi scheme which could include an Eco driving scheme, the development of further incentives for the uptake of low emission taxis and consideration of the potential for a loan scheme to allow purchase of electric / hybrid taxis.

Reducing emissions from freight

42. Reducing the total number of HGVs passing through the AQMAs, and reducing emissions from individual HGVs, are both important priorities for AQAP3. To date York has adopted the ECO-stars fleet recognition scheme (as detailed above) and has carried out a Freight Improvement Study. The draft AQAP3 sets out the timetable for preparing a Freight Improvement Action Plan (as recommended by the Freight Improvement Study). A key element of the freight action plan will be the mechanism and timetable for delivery of a freight transhipment / consolidation centre to help reduce the number of HGVs requiring to the city centre. There is a possibility that the development of a freight transhipment centre may be able to be linked to the development of a CNG refuelling facility, allowing goods to be taken off large diesel HGVs and brought into the city centre by smaller CNG fuelled and other low emission vehicles. Development of the freight strategy will be undertaken by the sustainable transport team.

Reducing Emissions from the CYC Fleet

43. It is essential that CYC continues to lead the way in reducing emissions of local air pollutants and CO_2 from its own vehicle fleet and from contractors. Over the past three years grey fleet mileage (that undertaken by staff in their own vehicles for which mileage payments are made) has been cut by 34 per cent and transport carbon dioxide emissions reduced by 47%. In recognition of this CYC was recently awarded the EST Fleet Heroes Award for grey fleet management. EV infrastructure has been installed to allow the charging of 12 CYC electric pool cars. AQAP3 sets out the headlines for further CYC fleet improvement measures over the next 5 years. These include introduction of further electric pool cars, trial of a ‘Light Foot’ system to warn against excessive breaking and acceleration, a programme of ECO-driver training for CYC staff and further measures to reduce grey fleet use and minimise overall mileage and emissions.

Other Supporting Measures

Marketing campaign

44. Work is ongoing with public health and marketing colleagues to develop a marketing and communications campaign that will:

    a) Highlight the impacts of vehicle pollution on health
    b) Provide advice on how to choose vehicles that are better for local air quality and cheaper to operate

    This work will support the sustainable travel messages provided under the current I-Travel York campaign. It will include an update of the nationally acclaimed JorAir website to provide more information on emissions, health, and low emission vehicles.

Incentive development

45. Since York now has electric buses and an EV charging network, the next phase in the roll out of LES measures will include development of an incentive plan to encourage members of the public to move towards the use of alternatively fuelled vehicles. Development of the incentive plan has not yet commenced but ideally will include a package of financial incentives and rewards such as addressing the purchase / loan arrangements of vehicles, reduced public parking / residents parking charges, creation of preferential parking at new and existing developments, shopping vouchers and reduced entrance fees for attractions etc. The incentive plan will be closely linked to the marketing strategy and must be sustainable in the longer term as the numbers of electric vehicles grows and more people want to access the incentives provided. The type and extent of incentives offered will be highly dependant on available funding and the ability to generate interest from potential sponsors / partnership organisations. These will be key considerations in drawing up the incentive plan.

Attracting Low Emission Industries, Business and Jobs to York

46. The LES and AQAP3 provide considerable opportunities for the development and growth of a low emission vehicle and alternative fuel industry in the city, providing more jobs and business opportunities. Already a recognised leader in the delivery of low emission measures, York has the potential to attract growth in the areas of low emission vehicle sales and maintenance, EV charging point manufacture,

installation and maintenance, CNG refuelling, production of bio-methane from waste and low emission tourism. The electric buses recently introduced into York are Optare vehicles built at Sherburn in Elmet, so there is also an opportunity to support manufacturing jobs within the Leeds City Region. Demand for low emission vehicles will rise significantly in the future if other cities follow York's lead. EPU are working with the economic development unit to determine how these opportunities can be best exploited both nationally and internationally.

Can we meet the EU AQ Objectives and avoid potential fines?

47. As outlined in paragraph 11 it is anticipated that potentially substantial fines could be passed on to local authorities that fail to demonstrate a commitment to air quality improvement and delivery of the national air quality objectives. It is therefore essential that AQAP3 delivers substantial reductions in NO_x emissions at a local level, which together with anticipated national improvements in vehicle emission technology will deliver the best opportunities for compliance with the national air quality objectives in York.

48. Future traffic levels and emissions from individual vehicles are the two main factors influencing air quality in the city and both can be influenced by council policy and decisions. However weather conditions also have a significant impact on air quality.

49. DEFRA's Emission Factor Toolkit (EFT) has been used to predict changes in NO_x emission levels in the AQMA areas in 2021 (compared with a 2014 baseline) for 'do-nothing' and 'do-something' scenarios.

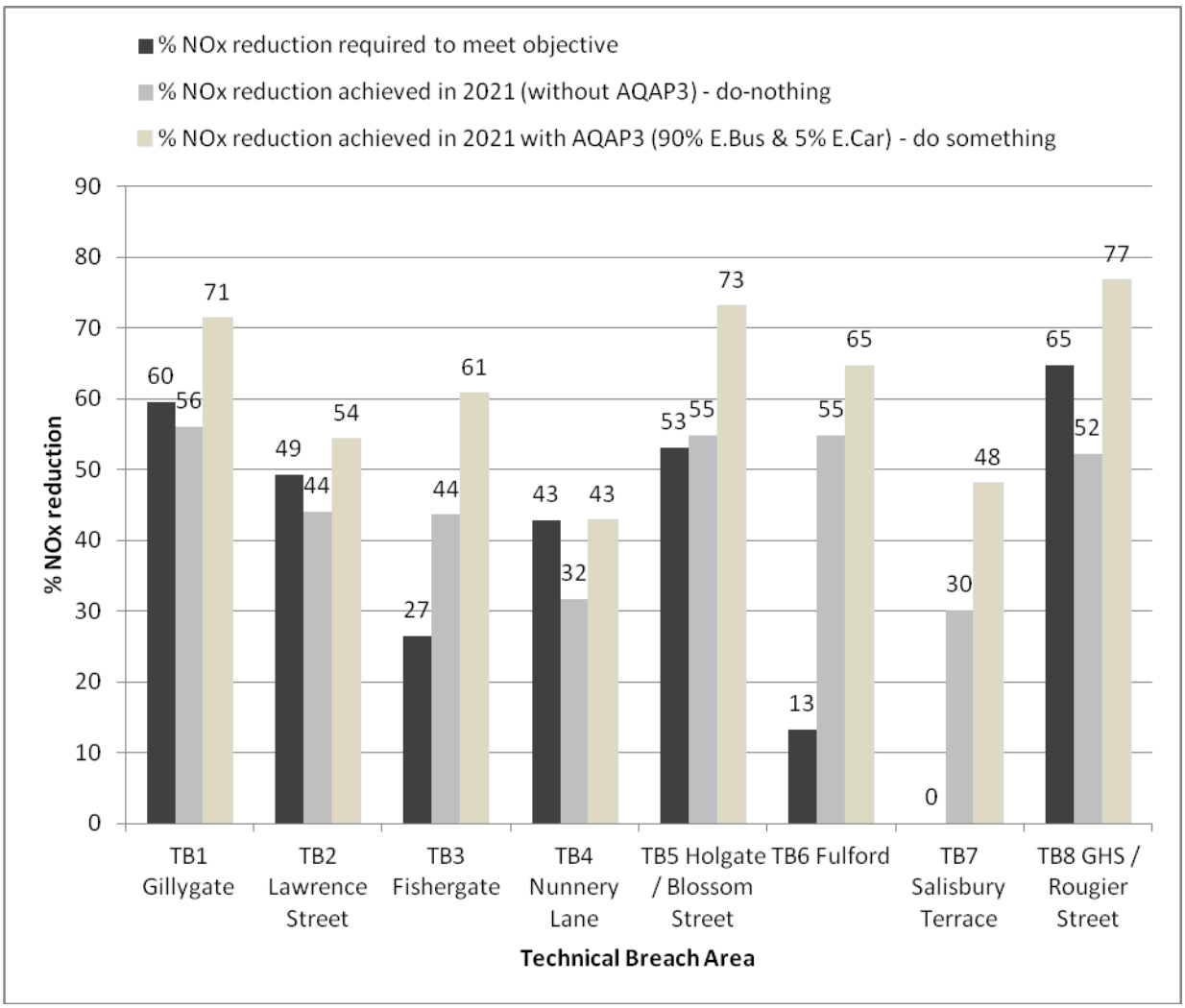
- The 'do-nothing' scenario assumes that between 2014 and 2021 the only improvement in vehicle emissions in York will arise from national improvements in vehicle emissions driven by higher Euro emission standards. These estimates include the impact of local traffic growth (associated mainly with the emerging Local Plan) that has been factored into the modelling. Local traffic growth is expected to offset some of the emission reductions that would otherwise arise from national emission technology improvements, but a net reduction in NO_x emissions is still expected. Further information on the emissions modelling assumptions can be found in Annex 5.

- The 'do-something' scenario assumes that the proposed AQAP3 measures (including the CAZ) are implemented alongside the national measures such that the equivalent of 90% of the local bus

fleet is assumed to be running on electric and 5% of the local car fleet.

The resulting % change in NO_x emissions arising from the 'do-nothing' and 'do-something' scenarios are then compared with the % of NO_x reduction needed to meet the air quality objectives in each of the AQMAs at the present time (this is based on the highest pollutant concentrations measured in each of the AQMAs during 2012 and 2013 so represents the worst case emission reduction requirement). The results of this work are shown in Figure 1.

Figure 1: Expected level of NO_x reduction under 'do-something' and 'do-nothin' AQAP3 scenarios compared with required level of NOx reduction to meet the AQ objectives



50. Figure 1 shows that under a 'do-nothing' scenario without the AQAP3 measures in place, the annual mean NO_2 air quality objective may be met in Fishergate, Fulford, Salisbury Terrace and Holgate (more

borderline) due to national improvements in vehicle emission technology alone. However, to meet the annual average NO_2 objective in Gillygate, Lawrence Street, Nunnery Lane and George Hudson Street the additional impact of the local AQAP3 measures will be essential.

51. By rolling out AQAP3 to the extent that it delivers an equivalent of 90% electric buses and 5% electric cars, the annual mean NO_2 objective may possibly be met in all the current AQMAs with the possible exception of Nunnery Lane where the situation is likely to remain borderline. Less NO_x reduction is predicted for Nunnery Lane because it carries relatively little bus and HGV traffic compared to the other technical breach areas. The impact of low emission bus measures are therefore less effective in this location.

52. Emission reduction figures presented in Figure 1 should be considered very much a best case scenario as they assume that national vehicle emission improvements will be delivered in full and that AQAP3 will be fully implemented locally. Past experience has shown that vehicle emission factors for future years have a high level of uncertainty associated with them, particularly in relation to national vehicle emission standards where the standard expected to be met by a new vehicle at point of sale is often not reflected by the actual emissions from that vehicle in the street. This is particularly the case if the vehicle is poorly maintained, badly driven and/or used in a congested urban environment where emission abatement equipment does not operate to its full capacity.

53. Whilst it is impossible to accurately predict the exact levels of air pollution in 7 years time (in the same way that it is impossible to accurately predict weather conditions) it can be said with certainty that the implementation of the proposed AQAP3 measures will deliver significant emission improvements over and above those that will arise under a ‘do-nothing’ scenario. Without them, compliance with the national air quality objectives in at least four of the current technical breach areas is highly unlikely.

54. By implementing the proposed AQAP3 measures York will be able to present to DEFRA a robust evidence base to show that it has developed and delivered an ambitious, targeted and quantified local emission improvement programme that tackles the main sources of pollution in the city and represents the best possible course of action that the council could reasonably be expected to take at this time. This should place the authority in the strongest possible position should it be presented with

the possibility of air quality related fines in the future. It will also help to maintain the current reputation York has within DEFRA and DfT as an authority that delivers in relation to air quality management and will help to ensure that York continues to be successful in attracting external funding opportunities for local transport improvements.

Links to other policies and programmes

55. Like the LES, AQAP3 will have strong links with a number of other policies and programmes currently being delivered within CYC. The main areas of overlap are:

- Modal shift and network improvement measures being delivered through LTP3, the Access York Programme and the I-Travel York campaign
- Traffic congestion is recognised as a significant impediment to the economic prosperity of the city. However a consensus on measures to resolve the issues are harder to agree. A cross-party traffic congestion commission to review options for tackling traffic levels in the city is due to be considered at Audit & Governance Committee in late September and Cabinet in November.'
- The Climate Change Framework and Action Plan and the sustainable energy roadmap
- Other emission reduction work carried out routinely by EPU, such as control of emissions from industrial premise (IPPC), control of smoke emissions from bonfires (prevention of dark smoke and nuisance) and enforcement of smoke control areas (prevention of smoke emissions from domestic property in designated Smoke Control Areas (SCAs).

Options

56. (a) Approve the draft AQAP3 framework set out in Annex 2 and summarised in paragraphs 16 to 44 of this report (subject to amendments requested at this meeting) and allow officers to proceed directly to the development of a draft consultation AQAP3.

57. (b) Request revisions to the draft AQAP3 framework set out in Annex 2 and summarised in paragraphs 16 to 44 of this report to be brought back before the Cabinet Member prior to development of a draft consultation AQAP3.

Analysis

58. Option(a) will enable a consultation draft of AQAP3 to be brought to the Cabinet Member for approval by December 2014 and a full consultation to commence shortly after (subject to minor amendments being requested by the Cabinet Member). This will allow a final report to adopt AQAP3 to be brought to the Cabinet Member and the CAZ to be introduced shortly after.

59. Option (b) will delay the consultation phase and set back the date for final adoption of AQAP3. Uncertainties about the timescale for adoption of AQAP3 will have implications for the development of the CAZ and may result in York missing out on further investment in low emission buses and ability to attract other low emission industries and jobs.

Corporate Priorities

60. The LES and AQAP3 contribute to the council's corporate strategy as follows:

- Protect the environment – protecting the local and global environment
- Protect vulnerable people – protecting the public health (respiratory, cardiovascular and carcinogenic impacts of diesel emissions)
- Create jobs and grow the economy – opportunities for inward investment by low emission industries and support for sustainable development and tourism. Contributes significantly towards creating a cleaner environment and better visitor experience.
- Get York moving – creates low and zero emission alternative modes of transport
- Build strong communities – promotes a unified approach to air quality issues across the city
- A relentless focus on our priorities – promotes partnership working and reduces CYC travel and fuel costs

Financial Implications

61. Indicative costs and potential sources of funding for the draft AQAP3 measures can be found in Annex 4. Funding for a number of the measures has already been secured through DEFRA air quality grant funding, LSTF funding and other grants available to support low emission transport improvements e.g. Green Bus Fund, Better Bus Fund, Cleaner Bus Technology Fund etc. Officers will continue to pursue funding from

these sources whenever possible but the availability and success of future grant applications is uncertain and may impact on the rate at which some of the measures in AQAP3 can be delivered, particularly the CAZ requirements and associated bus emission upgrades. At present no funding source has been identified for continuation of the ECO-stars fleet recognition scheme.

Human Resources

62. Consultation on AQAP3, overseeing delivery of measures, and progress monitoring can currently be delivered with existing staff resources within EPU. However, as is the case with the majority of the councils services an ongoing departmental review is taking place and this work needs to be factored into the work priorities along side all other priorities, this may impact on the proposed timetable for adoption of AQAP3, delivery of measures and monitoring of the impact of the AQAP3 measures. The post of Low Emission Officer is a temporary post currently funded until 2015. This post is essential to support the successful introduction of the CAZ, further development of the EV charging network and development of CNG facilities in the city. The successful LSTF bid included ongoing funding for this post.

Equalities

63. An assessment of the impacts of the various measures on communities is considered within the annexes.

Legal Implications

64. These relate mainly to the potential for EU fines (paragraph 72) and whether or not the CAZ or anti idling measures would require to be enforced at a future date. The report recommends that these be achieved with the co-operation of service operators; any changes to this would require detailed consultation and cabinet member approval.

Crime and Disorder

65. There are no crime and disorder implications.

Information Technology (IT)

66. There are no IT implications.

Property

67. Poor air quality can mean that certain sites may be unsuitable for certain sensitive uses e.g. residential.

Other

68. Development of the CAZ will require new emission based access restrictions on the inner ring road for buses. These will be developed in full consultation with the traffic commissioner and bus operators.

69. Anti-idling measures may require erection of new signage. This will be undertaken in consultation with colleagues in the transport team. Anti-idling measures may require future adoption of anti-idling legislation, any issues arising from adoption of legislation will require further consultation with members and key stakeholders before any decision is taken.

70. Further control of emissions from development requires publishing of new local guidance for developers and greater contributions towards physical emission reduction measures and/or financial compensation to mitigate emission 'creep'. This guidance will be developed in conjunction planning and sustainability staff at CYC and will be subject to a separate round of public consultation.

Risk Management

71. In compliance with the Council's risk management strategy, failing to meet the health based air quality targets, considering the likelihood and impact, the current net risk rating is 21 or high. The development of AQAP3 should reduce the risk to Medium.

72. Paragraph 11 mentions the potential for EU fines to be passed on to local authorities with elevated NO_2 concentrations to pay all or part of the infraction fine. Whilst the level of potential fines is unknown, it is anticipated that they could be substantial.

73. The ability to deliver the Low Emission Strategy and AQAP3 in accordance with the timetables in this report is dependent on continued funding and the retention of the expertise of current staff; reductions due to budget savings and restructures would mean that some or all of the measures within this report will not be delivered or that their delivery will be delayed.

74. Reducing emissions form public transport via the LES and AQAP3 will allow bus operators to put on additional services using low emission vehicles to meet the needs of the increased transport infrastructure that is associated with the emerging Local Plan aspirations, without having a detrimental impact on air quality.

75. The Cabinet Member is advised to:

Approve option (a) – Approve the draft framework for AQAP3, set out in Annex 2 and summarised in paragraphs 16 to 46 of this report (subject to amendments requested at this meeting) and allow officers to proceed directly to the development of a draft consultation AQAP3.

Reason*:* This option will allow the draft consultation AQAP3 to be drawn up by December and a final AQAP3 to be adopted by the end of 2014. This will allow the CAZ to be introduced by April 2015 ensuring external funding to support low emission buses and the attraction of low emission industry and jobs can be maximised.

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Report Approved	✓	**Date**	26 August 2014

Wards Affected: **All** ✓

For further information please contact the authors of the report

Background Papers:

CYC Papers

A Low Emission Strategy for York - Executive Member for Communities and Neighbourhoods (8 June 2010)

Draft Framework for York Low Emission Strategy - Executive (15 March 2011)

Low Emission Strategy Consultation - Cabinet (3 April 2012)

Adoption of the Low Emission Strategy - Cabinet (9 Oct 2012)

Air Quality Update Report 2013 - Meeting of Cabinet Member for City Strategy and Air Quality (14 Nov 2013)

CYC external feasibility studies

York Low Emission Zone Feasibility Study - Halcrow / ITS (July 2013)

City of York Council Electric Bus Study – ARUP (July 2013)

City of York Idling Vehicle Study - TTR Ltd (January 2014)

York Freight Improvements Study – JMP (2013)

National policy and guidance

Air Quality Strategy for England, Scotland, Wales and Northern Ireland – DEFRA (July 2007)

Low Emission Strategies – Using the Planning System to reduce transport emissions – DEFRA Good Practice Guidance (January 2010)

Public Health Outcomes Framework, Healthy lives, healthy people – Improving Outcomes and Supporting Transparency (2013)

Driving the Future Today – a strategy for ultra-low emission vehicles in the UK – OLEV (Sept 2013)

Full copies of all reports are available on request from Environmental Protection Unit

Annexes

Annex 1 - Overview of feasibility studies supporting the development of the draft AQAP3 framework

Annex 2 – AQAP3 draft framework

Annex 3 – Clean Air Zone (CAZ) proposal

Annex 4 – AQAP3 costs

Annex 5 – NO_x reduction modelling assumptions

Annex 1

Overview of feasibility studies supporting the development of the draft AQAP3 framework

York Low Emission Zone Feasibility Study (July 2013)

Halcrow and Institute of Transport Studies (University of Leeds)

What is a LEZ?

1. A LEZ is an area where only vehicles meeting a specified emission standard are allowed to enter. Vehicle emission standards are set by the EU: new vehicles have to meet increasingly more stringent emission standards for specific pollutants over time. Oxford and Norwich already operate LEZs for buses. London has a much larger LEZ which applies to large vans, minibuses, buses and HGVs. Brighton has also recently introduced a LEZ. A large number of other local authorities are currently undertaking LEZ feasibility studies. These include the West Yorkshire Integrated Transport Authority (Bradford, Calderdale, Kirklees, Leeds and Wakefield) and Sheffield City Council.

Why was a LEZ feasibility study undertaken for York?

2. Buses are known to be responsible for over 40% of the road transport derived NO_2 in some areas of York even though they typically only make up about 3% of the total vehicle fleet. They are also responsible for high levels of diesel particulate emissions for which there is no known safe level. As buses have a disproportionately high impact on NO_x emissions, reducing emissions from buses is a priority for AQAP3.

3. CYC commissioned a LEZ feasibility study in November 2011 to investigate the level of air quality improvement that might be achievable through the creation of a low emission bus and coach corridor in the city centre. This project was partially funded from a DEFRA air quality grant.

How was the study undertaken?

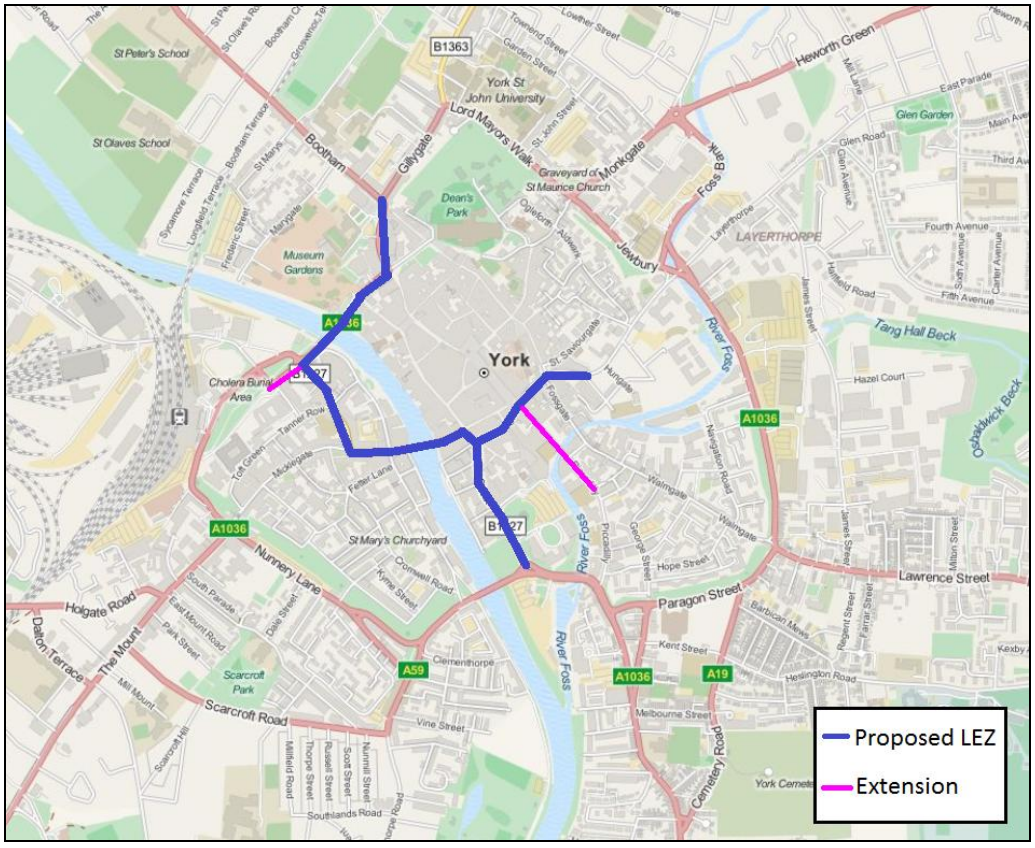
4. The project was undertaken in conjunction with Halcrow and the Institute of Transport Studies (ITS) at the University of Leeds. The study used a traffic micro-simulation model (PARAMICS) linked to a detailed emissions model (PHEM) to allow emissions from individual vehicles on the network to be modelled. The model could take account of factors such as the age of the vehicles, the number of stops made along the route and the level of congestion encountered along a typical journey. The emission factors used by the model were linked to real life measured bus emissions making this study one of the most detailed LEZ studies undertaken in the UK to date. For the majority of the modelled scenarios an air pollution dispersion model was also used to predict

what impact reducing emissions from individual vehicles would have on ambient pollutant concentrations in the city.

Scope of the study

5. The area assessed covered 2km of roads in the city centre through which all current scheduled bus services pass through (figure 1). Because most scheduled bus services pass through this small area any LEZ policy applying emission controls to this area would effectively create a city wide LEZ for scheduled bus services. The study also included a cost-benefit analysis which considered the cost to operators and CYC of implementing the LEZ bus corridor and the likely air quality / health benefits that would be achieved.

Figure 1 – Area considered in the York LEZ study



6. The York LEZ feasibility study considered the following scenarios:

   - Euro 3 LEZ for buses and coaches (all bus services in the study area assumed to be upgraded to meet the criteria)
   - Euro 4 LEZ for buses and coaches (all bus services in the study area assumed to be upgraded to meet the criteria)

- Euro 5 LEZ for buses and coaches (all bus services in the study area assumed to be upgraded to meet the criteria)
- A hybrid P&R scenario which could reflect either the use of full electric buses or hybrid diesel-electric buses on all P&R routes (with battery operation within the AQMAs). This scenario was modelled separately from the other LEZ scenarios and could be implemented in conjunction with any of the other scenarios.
- Some further emission scenarios were also run looking at the emission impact of including HGVs in the emission controls (the impact of these on air quality concentrations were not modelled).

Results of the study

7. The study showed that implementation of LEZ style controls in the city for buses and coaches has the potential to significantly reduce average NO_x emissions in the city centre and beyond. LEZ policies restricting access to buses and coaches that did not comply with the Euro 3, 4 and 5 emission standards, were predicted to reduce the total NO_X emitted in the city centre AQMA by 4.0%, 11.8% and 14.3% respectively. If the LEZ policy was widened to also restrict access to all Euro 3, 4 and 5 heavy-duty vehicles (rigid- and articulated-HGVs), average reductions in total NO_X emissions of 5.1%, 13.9% and 18.1% were predicted.
8. However, the impact of LEZ style controls is not consistent across the entire road network. This is because emissions are strongly influenced by the numbers and types of each vehicle operating in a certain areas and the amount of congestion individual vehicles encounter as they move around the network. The predicted change in emissions varied between the different air quality technical breach areas depending on the number of bus and HGV movements in these areas. Rougier Street for example is dominated by bus movements; therefore the bus / coach LEZ scenarios are forecast to deliver much greater reductions in NO_x (e.g. Euro 4 Bus LEZ, ≈26%) and even greater cuts in tail-pipe emissions of PM (e.g. Euro 4 Bus LEZ, ≈43%) on these critical streets than the average figures suggest.
9. The main pollutant of concern in York is NO_2. This can be emitted directly from the back of vehicles (primary NO_2) or can be formed in the atmosphere from nitric oxide (NO). Whilst all the LEZ scenarios predicted a total reduction in NO_x (NO + NO_2), some of the scenarios indicated that they might give rise to an increase in the amount of primary NO_2 . This is because some vehicle emission technology reduces the quantity of NO_x emitted but at the same time increases the proportion emitted as NO_2. On this basis it was found that scenarios

requiring a Euro 3 emission standard would not deliver significant reductions in NO_2 and in some locations could potentially increase the current NO_2 concentrations. All other scenarios were predicted to give rise to slightly lower primary NO_2 emissions than under the current situation.

10. Unlike the NO_x standards, Euro emission standards for PM (Particle Matter), have led to consistent improvements in the on-road emission performance of light and heavy-duty vehicles. All the LEZ scenarios considered were therefore expected to deliver significant PM benefits (including the Euro 3 scenario). As with NO_x the predicted impact of the LEZ scenarios on PM emissions is not consistent across the network with the greatest impacts likely to be in areas that have a high density of bus movements. Rougier Street was predicted to experience a 43% reduction in PM emissions with a Euro 4 emission standard in place for buses and coaches.

11. The introduction of Euro 4 and Euro 5 scenarios for all buses and coaches were predicted to give rise to sizeable reductions in NO_2 at some receptors. However, even with these restrictions in place some exceedances of the UK health based annual AQS objectives and the EU Limit values for NO_2 were still predicted to exist. It is therefore unlikely that blanket Euro 4 or Euro 5 LEZ controls applied to all buses and coaches would deliver the national air quality objectives at all locations in York.

12. The scenario considering the introduction of electric / hybrid P&R buses was shown to have the potential to deliver a reduction in NO_2 of 1.0 µg m^{-3} across the study area compared with 0.1 µgm^{-3} in the Euro 3 (all buses) scenario to 2.6 µgm^{-3} in the Euro 5(all buses) scenario. This indicates that applying zero emission controls to a small number of frequent bus services could potentially be more effective at reducing NO_2 concentrations than applying a blanket Euro 3 or 4 emission standard across the whole fleet. Whilst a blanket Euro 5 emission standard would be likely to give rise to a greater overall reduction in NO_2 it would require the entire bus fleet to be rapidly upgraded to a Euro 5 standard. This would be difficult and costly to achieve, particularly for smaller operators who normally buy their vehicles second hand.

Electric bus feasibility study July 2013 (ARUP)

Purpose of the study

1. Early results from the York LEZ study indicated that using electric P&R buses within the AQMAs could potentially offer similar or greater reductions in NO_2 concentrations than blanket Euro emission standard controls across the whole bus fleet. The purpose of this study was to examine the feasibility of operating electric buses in York.

Scope of study

2. In January 2013 ARUP were commissioned to :

    - Provide a full review of low emission bus technology (considering both electric and gas powered solutions)

    - Develop a realistic roadmap for introducing low emission buses into York based on matching the real life duty cycles of current services with the most suitable and available low emission technology.

    - Provide an operations and economic analysis to support the proposed low emission bus road map.

Study outcomes

Low emission bus technology review

3. This review has provided a detailed evidence base for the use of electric buses within urban environments. It provides examples of electric buses in use in a variety of different locations and using a variety of different battery and charging solutions. The review includes a case study for the Travel de Courcey Park & Ride site in Coventry. This site is already using three plug-in rapid charge pure electric buses to provide a successful 15 minute Park & Ride service along a 6 mile city centre route (including a number of stops on-route). This is a similar to the service in York using conventional diesel engines.

Development of a low emission bus roadmap

4. The York study identified around 65 scheduled bus routes through the city serviced by approximately 200 buses of varying age and emission standards. It was found that 82% of all bus movements are carried out by only 49% of the buses and that these buses operate on only 20 routes (including all the Park & Rides). As demonstrated by the LEZ study these 'frequent' flyers are having a disproportionate impact on local air quality.

5. Due to their short, frequent duty cycles the 'frequent flyer' buses operating on the 20 main routes have been found to be well suited to adoption of electric bus technology. Converting these services to electric would offer substantial benefits for air quality as well as 60% reduction in greenhouse gas impact. There would be additional benefits in that noise is greatly reduced and passenger experience enhanced.

6. Those buses which make less frequent journeys or pass through the city as part of a longer journey are not suited to the use of pure electric technology. In these cases hybrid, or even conventional diesel technology remain the most suitable options at the present time. There are also opportunities for the use of gas powered vehicles if suitable refuelling infrastructure is made available in the city.

7. Table 1 shows what is considered to be a challenging but achievable timetable for the introduction of electric buses into the York fleet based on the findings of the ARUP study. This timetable would ensure that by 2017 80% of all bus movements in the city will be made by electric vehicles. The economic analysis carried out in relation to the development of this proposed timetable has shown that there is a commercial case for upgrading buses based on fuel savings alone, however early engagement with bus operators is required if this timetable is to be pursued. The introduction of electric buses into York has already commenced and table 1 has informed the development of the Clean Air Zone (CAZ) proposals (see Annex 2).

Table 1: Timetable for introducing low emission buses into York (Electric Bus Feasibility Study 2013)

Year	Percentage of Bus Movements Electric
2014	6%
2015	8%
2016	45%
2017+	87%

Progress to date

8. Significant progress has already been made towards electrification of York's buses. Electric buses have recently been introduced at the new Poppleton Park & Ride (P&R) site and the Transdev university service and those for the Monks Cross P&R service and the Derwenthorpe development are awaited. In addition, Transdev is now operating the world's first retrofitted electric double decker tour bus. All these projects have been made possible through Greener Bus Fund (GBF) and Cleaner Bus Technology Funds (CBTF) bids written by officers within the council's environmental protection unit (EPU) and sustainable transport teams.

9. It is anticipated that the electric bus feasibility work and the resultant road map for low emission bus technology will help CYC and the relevant bus operators to continue to take maximum advantage of further rounds of GBF and CBF funding. The inclusion of a CAZ in the AQAP3 framework can only strengthen this position as it will allow York to formalise its commitment to cleaner bus technology and provide greater confidence and certainty in the market to bus operators. Whilst the cost of electric bus technology (in the absence of grant funding) currently remains a challenge to operators it is expected that the cost effectiveness of green bus technology will rapidly improve as the cost of battery technology continues to fall and the price of diesel rises. A full copy of the electric bus feasibility study and the roadmap for low emission buses can be obtained on request from EPU.

York idling study

Transport & Travel Research Ltd (January 2014)

Purpose of the study

1. York's LES identified adoption of an anti-idling policy as another potential measure to support emission reduction and air quality improvement. Anti-idling policies aim to prevent unnecessary emissions from stationary vehicles and can take a variety of forms ranging from provision of basic advice and signage through to adoption of anti-idling legislation. In February 2013 CYC commissioned an anti-idling feasibility study to determine the extent of idling emissions in York and to consider the cost-effectiveness of introducing anti-idling policies. The study was carried out by TTR Ltd and funded by a DEFRA air quality grant.

Scope of study

2. TTR-Ltd were commissioned to undertake the following:

    - A review of current scientific evidence in relation to the advantages and disadvantages of switching off an idling engine
    - A review of anti-idling polices in place within other LAs and the legislative powers available to LAs to deal with idling
    - Consultation with operators (bus and HGV) to determine current practice, principles and policy options
    - A survey of observed vehicle idling at a number of key locations in the city
    - A cost benefit analysis of a basic package of anti-idling measures for York

Study outcomes

Scientific evidence to support anti-idling measures

3. The anti-idling study concludes that where a vehicle is expected to be stationary (parked, waiting or loading) for more than 1 minute it is both economically and environmentally advantageous to switch off the engine. In these situations research indicates that it is unlikely that any damage would be caused to the battery above and beyond normal driving behaviour. The report also addressed a number of other 'myths' surrounding the use of anti-idling policies including impact on catalytic

convertors, use of ancillary vehicle equipment and requirements to maintain in-vehicle temperatures. In all cases it was found that solutions exist which can operate alongside anti-idling polices.

Uptake of anti-idling measures by other LAs

4. The study provides many examples of anti-idling measures already in place in other areas e.g. North Lincolnshire, Croydon and Aberdeen. In the majority of cases promotional activity, erection of signs and polite requests by LA officers to switch off engines have been enough to reduce idling.

Consultation with operators

5. During the study consultation took place with operators of Heavy Duty Vehicles (HGV, Bus and Coach).

   Feedback from discussions with freight operators were that:
   - All operators were aware of cost of idling so were conscious of the activity as a negative influence to business;
   - All managers/owners wanted to reduce vehicle idling;
   - Technology is often used to either control or monitor idling;
   - Driver behaviour was recognised as the primary reason for vehicle idling, and raising driver awareness was part of all company policy.

   Feedback from discussions with local bus operators were that:
   - There was awareness of the direct cost of idling to the business;
   - Vehicles always remain idling whilst loading and unloading passengers;
   - Idling during laying over (non-operational periods) was targeted for reduction by some but not all operators;
   - All operators had some automatic shut-down varying between 2 and 7 minutes on their newer vehicles and larger operators had full telematics tracking and reporting on their vehicles, including idling;
   - Some older vehicles are never switched off during the working day due to likelihood of failed re-starting;
   - Vehicles in bus fleets tend to be older than road freight – due to purchase costs – so technology interventions are slower to be introduced.

Feedback from discussions and correspondence with coach operators was that:

- vehicles are reliant on engine power to operate heating and air conditioning. This results in vehicle engines being switched on up to 10-15 minutes prior to passenger loading. Operators stated this was a passenger expectation;
- Telematics were not as widespread as for freight
- Drivers were regularly briefed to minimise idling, but not at the expense of passenger comfort

Idling observations

6. In-depth observations were made of idling vehicles at 10 locations in York including the railway station, coach parks, Memorial Gardens, Coney Street and Rougier Street . Additional surveys were undertaken by observers located on buses travelling along various route throughout the city. These observations concluded that there are currently significant levels of bus and coach idling across the city centre, but less evidence of idling emissions arising from HGVs.

7. At one bus stop and one loading/unloading area outside the railway station in a typical morning period (3 hour, 20 minute observation) the total amount of time all vehicles spent idling waiting at bus, coach and loading bays was equivalent to 6 hours 30 minutes. This is equivalent to 20 g Particulate Matter (PM) and 861 g NO_x, 26.86 kg CO_2 emitted and 10.14 litres of fuel used unnecessarily. When factored across the city and over a year it can be seen that an anti-idling campaign has the potential to result in significant emission and fuel savings.

Cost –benefit analysis

8. An estimate has been made of the costs and benefits arising from one option for an anti-idling campaign which would include 20 street signs, a basic promotion and marketing campaign and minimal enforcement (4 days per month for first 2 months and 2 days thereafter). The option would also include a telephone hotline for public reporting of idling. The anti-idling campaign would focus mainly on buses, would run for a period of 5 years. It would aim to prevent vehicles idling for more than two minutes over the whole network. The benefits of a scheme of this type have been identified in terms of :

    - fuel saving (and value);
    - emissions saving (and value);

An additional benefit is likely to be reduced noise levels but this was outside the scope of the York anti-idling feasibility study.

9. If successfully implemented it is estimated that an anti-idling scheme of this magnitude could yield benefits worth around £200,000 over a 5 year period set against an investment of around £54,000. The possibility of some of this investment coming via the Better Bus Area Fund 2 is being investigated. The majority of this benefit would be to bus operators in terms of fuel savings. If all idling for greater than 2 minutes was anticipated and prevented before the 2 minute period had elapsed benefits would be much greater (in the range of £560,000). In reality benefits are likely to fall somewhere between these two figures. The cost of implementation could be reduced significantly if the enforcement role was undertaken by existing bus monitoring officers and/ or local operators made a contribution towards setting up the scheme.

10. The cost benefit analysis undertaken to date assumes the bus fleet remains a diesel fleet, the reported savings will be less if a large proportion of the fleet are switched to electric services over the coming years as recommended by the electric bus feasibility study. Under this scenario the length and extent of an anti-idling campaign could be scaled down to target in later years only those services expected to be still operating with hybrid or diesel technology.

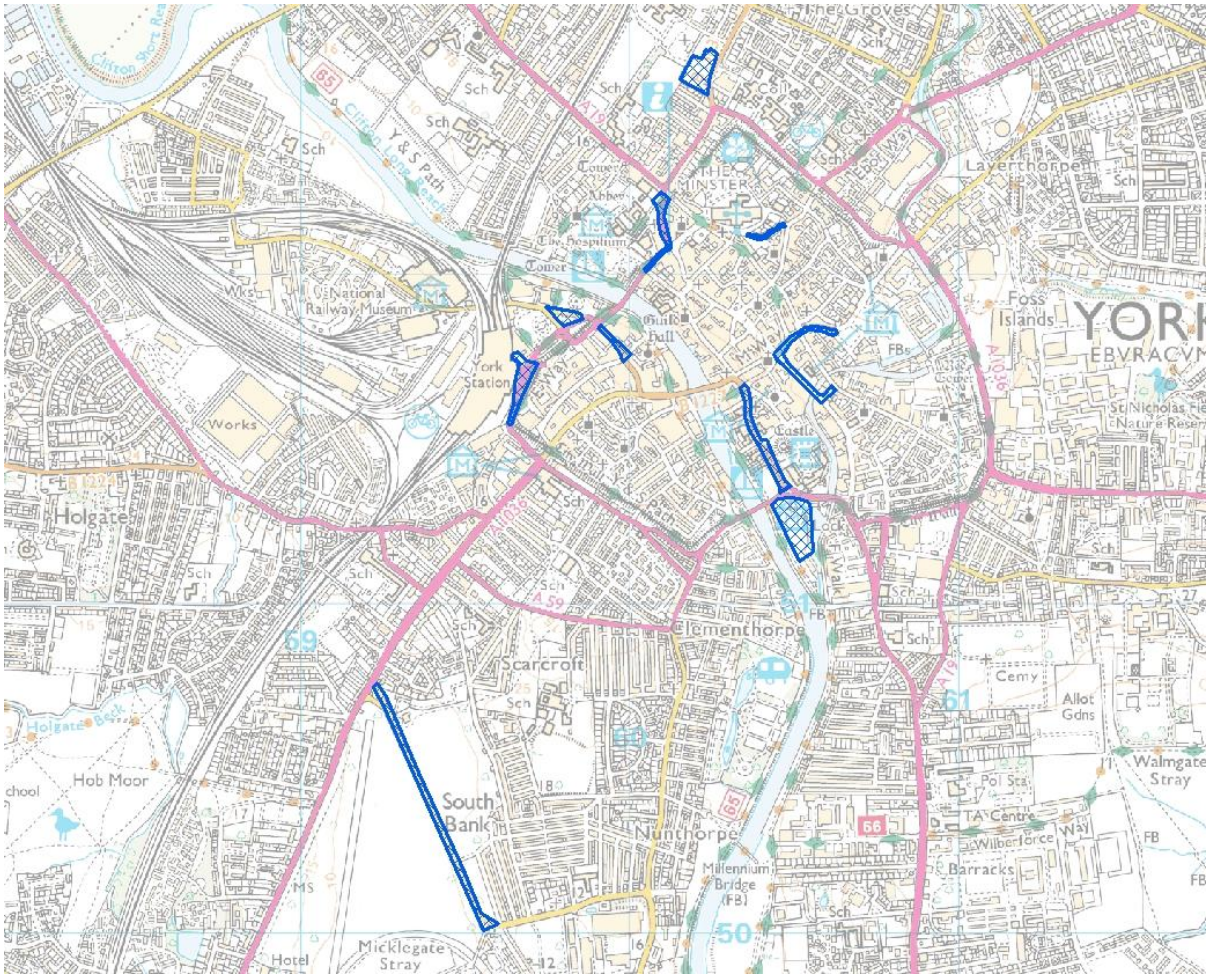
Progress to date

11. The anti-idling study provides compelling evidence of excess emissions currently arising from idling activities in the city which could be reduced significantly through the erection of anti-idling signage, further information and advice sessions with vehicle operators and some on-street spot checks combined with provision of anti-idling advice. It is recommended that all these actions should be progressed as part of the AQAP3 delivery programme. At this stage adoption of anti-idling legislation is not considered necessary to tackle the problem, but should be kept as an option within AQAP3 should other measures prove ineffective.

12. A number of locations around the city centre have been identified as potential anti-idling zones as shown in Figure 2 (these are in addition to the area to be included in the proposed CAZ). Further consultation with HGV, bus and coach operators to determine an appropriate level of anti-idling action within these zones will be undertaken over the coming

months and an anti-idling delivery programme drawn up. A full copy of the York idling study can be obtained from EPU.

Figure 2 – Potential anti-idling zones in York (subject to further consultation)



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Annex 2

AQAP3 – draft measures framework

HEADLINE MEASURES

Direct actions that can be implemented now to reduce emissions from existing vehicles:

Measure 1: Development and implementation of a Clean Air Zone (CAZ)

Measure 2: Development and implementation of anti-idling measures

Measure 3: Further development of Eco-stars fleet recognition scheme

FUTURE MEASURES

Plans and actions that will be implemented over the next 6 years to reduce emissions:

Measure 4: Development and implantation of LES based planning guidance

Measure 5: Planning and delivery of strategic EV charging network

Measure 6: Planning and delivery of CNG refuelling infrastructure in York

Measure 7: Reducing emissions from taxis

Measure 8: Reducing emissions from freight

Measure 9: Reducing emissions from CYC fleet

SUPPORTING MEASURES

That will help to win 'hearts and minds' and encourage local engagement in AQAP3 delivery

Measure 10: Marketing and communications strategy

Measure 11: Local incentives for low emission vehicles and alternative fuel use

Measure 12: Attracting low emission industries, business and jobs to York

That will lead to wider congestion reduction and transport improvements in the city

Measure 13: Modal shift and network improvement measures

That will deliver reductions in emission from non-transport sources

Measure 14: Other air quality improvement measures

Table key

Impact		Cost	
	Positive impact	**£**	**< £10,000**
	Neutral impact	**££**	**>10,000 < 50,000**
	Negative impact	**£££**	**>50,000 < 100,000**
		££££	**>100,000**

Measure 1	**Development and implementation of a Clean Air Zone (CAZ)**		
Key intervention			
Setting of differential emission standards for buses entering the inner ring road area based on frequency of service.			
Expected outcome			
82% of bus movements on inner ring road will be electric (zero emission) by 2018.			
Target			
Emission sources	Local buses		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace
Key Actions	**Responsibility**		**Target date**
(a) Develop a roadmap for low emission buses	CYC		completed
(b) Develop draft proposal for CAZ and consult with bus operators	CYC		May 2014
(c) Implement CAZ	CYC		2015
(d)Work with operators to secure funding / loans for vehicle upgrades	CYC		ongoing
(e) Monitor impact of CAZ on local air quality and emissions	CYC		ongoing
Estimated implementation cost	Direct costs to CYC (implementation and enforcement) = £TBA Cost of bus upgrades to meet requirements =£ TBA		
Estimated emission / fuel savings	Every electric bus introduced into the CAZ will completely remove local emissions of NO2 and PM10 and reduce CO2 emissions by approx 35 tons.		
Proposed funding streams	Routine operator investment Green Bus Fund bids	Developer contributions Cleaner Bus Technology Fund bids	
Related LES measures	9G,9I,8J,8L,4J		
Links to council plan	Get York Moving / Protecting vulnerable people/ Supporting economic growth / Protect the environment		

Expected impacts	**overall**	**comment**
Local economy		Low emission buses will improve the image of the city with positive implications for tourism and inward investment
Feasibility		Similar schemes already in place in Oxford and Norwich. Electric P&R scheme already in place in Coventry.
Congestion		No change to bus numbers, may be a slightly positive impact if electric buses appear more attractive to current car users or fares reduce as a result of fuel savings
Capital costs	££££	Upgrading of buses involves high costs but where possible these will be met or offset by grant applications
Revenue costs	£	After initial scheme set up resourcing costs will be low
Local air quality		Zero emission buses will result in significant emission reductions for NO_x and particles across the city, especially in AQMAs
Greenhouse gas emissions		Reduced emissions of CO_2 in York. Less CO_2 produced from generation of electricity needed to run electric buses than that generated by equivalent diesel bus engines. Use of green electricity tariffs can improve this further.
Planning and development		Improved air quality offers more opportunity for city centre living. Zero emission buses lessen environmental impact of increased demand on public transport from population growth. Contributions towards low emission buses can be sort from developers
Socio-economic		Impact on bus fares currently unknown. Some may pass on fuel cost savings to reduce fares, others may pass on cost of purchasing newer or retrofitted vehicles and increase fares
Communities		No loss of bus services anticipated as a result of this measure. May accelerate provision of easy access buses on some routes. Will improve public health and the environment.
Public perception		Replacement of older diesel buses with newer, cleaner, quieter buses likely to have positive implications
Other benefits		Reduced noise from vehicles, improved passenger experience

Measure 2	**Development and implementation of anti-idling measures**		
Key intervention			
Engagement with vehicle operators to highlight economic and environmental impacts of idling.			
Expected outcome			
Reduced idling emissions			
Target			
Emission sources		Local service buses, coaches, HGVs	
AQMAs where emissions are expected to reduce due to this measure		City centre	
Key Actions		**Responsibility**	**Target date**
(a) Undertake anti-idling feasibility study		CYC / consultant	completed
(b) Develop draft proposal and consult with stakeholders		CYC	May 2014
(c) Draw up delivery programme for anti-idling measures		CYC	Sept 2014
(d) Implement anti-idling measures		CYC	To be determined
(e) Evaluate impact of anti-idling measures		CYC	Ongoing after implementation
Estimated implementation cost	£34,500 (based on 3 years with enforcement), less without enforcement		
Estimated emission / fuel savings	At 5 busiest service bus locations in York estimated savings per annum of 1,526kg NOx, 36kg PM_{10}, CO_2 46555 kg and 17949 litres of fuel (assuming no idling from buses over 1 minute). Actual savings anticipated to be much higher if enforced at all locations and inclusive of all vehicle types.		
Proposed funding streams	To be determined		
Related LES measures	4B, 4F		
Links to council plan	Get York Moving /Protecting vulnerable people/ Supporting economic growth / Protect the environment		

Expected impacts	**overall**	**comment**
Local economy		Reduced idling will improve the image of the city with positive implications for tourism and inward investment.
Feasibility		Similar schemes already in place around the UK eg. North Lincs, Croydon, Scotland, Dudley
Congestion		May help to discourage waiting which could assist congestion
Capital costs	£	Some small costs associated with signage - possibly from Better Bus Area 2 Fund TBC
Revenue costs	£	Staffing costs – possibly from Better Bus Area 2 Fund TBC
Local air quality		Reduced emissions will have positive impact on local air quality
Greenhouse gas emissions		Significant reduction in local CO_2 emissions
Planning and development		Improved air quality offers more opportunity for city centre living. Anti-idling measures will help reduce impact of increased bus services associated with population growth.
Socio-economic		No implications
Communities		Will help protect public health and improve the environment.
Public perception		Control of idling emissions will reduce complaints about this issue and create a safer and more pleasant environment.
Other benefits		Will assist bus operators to enforce their own policies and could result in considerable fuel savings and reduced operating costs. Reduced noise from idling vehicles.

Measure 3	**Further development of ECO-stars fleet recognition scheme**		
Key intervention			
Provision of advice and encouragement to fleet operators to help them reduce emissions from their fleets through the use of better driving techniques, improved fuel management and vehicle upgrading			
Expected outcome			
Reduced emissions from fleet vehicles			
Target			
Emission sources	buses, coaches, HGVs, LGVs (possible expansion to taxis)		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace
Key Actions	**Responsibility**		**Target date**
(a) Implement ECO-stars scheme in York	CYC / consultant		Completed (March 2013)
(b)Investigate opportunities to expand ECO-stars scheme to include compulsory sign up linked to CYC contracts and potential taxi scheme	CYC /consultant		December 2014
(c) Evaluate impact of current ECO-stars scheme	consultant		December 2014
(d)Investigate future funding for ECO-stars	consultant		ongoing
(e)Draw up action plan for ECO-stars beyond 2014 (if funding is obtained to continue the scheme)	CYC / consultant		December 2014

Estimated implementation cost	Eco-stars currently fully funded until November 2014 – additional costs approximately £30,000 annum
Estimated emission / fuel savings	A quantitative impact of the ECO-stars scheme in York will be provided by the current scheme managers in 2014.
Proposed funding streams	To be determined
Related LES measures	3A,4A,6A,3C,4E,6G, 7F,3E,4H,5G,6L,7N
Links to council plan	Get York Moving /Protecting vulnerable people/Supporting economic growth / Protect the environment

Expected impacts	**overall**	**comment**
Local economy		Improved driving behaviour and cleaner vehicles will improve the image of the city with positive implications for tourism and inward investment. The implementation of ECO-stars fleet roadmaps can result in considerable fuel cost-savings for local operators allowing them to become more competitive
Feasibility		Eco-stars is already operational in York. Feasibility of mandatory membership has not been fully explored or used elsewhere.
Congestion		No impact on congestion
Capital costs		Scheme already operational no further capital costs anticipated
Revenue costs	£££	Staffing /consultancy costs associated with continuing the scheme beyond Nov 2014 and expanding it to become mandatory for certain contracts / access. Holding of award ceremonies may also have some small costs associated but the aim would be to cover these through sponsorship.
Local air quality		Reduced emissions will have a positive impact on local air quality
Greenhouse gas emissions		ECO-stars membership also delivers reductions in emissions of greenhouse gases both in York and the wider areas travelled through by scheme operators
Planning and development		Eco-stars membership can help offset the impact of increased economic activity and population growth.
Socio-economic		ECO-stars is free to join and participate in. It is therefore equally accessible to all fleet operators as long as they are willing to provide the necessary fleet data.
Communities		No implications
Public perception		Improved driver behaviour and cleaner vehicles likely to have a positive impact on public perception of buses, coaches and HGVs.
Other benefits		Eco-driving techniques and the introduction of newer and alternatively fuelled vehicles can help reduce the noise impact of traffic

Measure 4	Development and implementation of LES based planning guidance

Key intervention
Development of local planning guidance that will require developers to fully demonstrate the emission impact of their development, calculate emission damage costs and provide emission mitigation in the form of on-site low emission measures and/or contributions towards the provision of wider low emission infrastructure
Expected outcome
Minimisation of development related emissions and financial support for low emission infrastructure projects
Target

Emission sources	Development related transport and vehicles that service new developments e.g buses, refuse collection		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace

Key Actions	Responsibility	Target date
(a) Embed low emission requirements into draft LDP	CYC	Completed
(b) Develop, consult on and adopt LES planning guidance	CYC	July 2015

Estimated implementation cost	No additional costs outside current staffing resources to develop guidance. Additional staff may be required to implement guidance.
Estimated emission / fuel savings	These will be calculated and reported per development. The cumulative emission savings per annum are likely to be very large for NO_x, PM and greenhouse gases.
Proposed funding streams	No additional funding required for development of guidance note
Related LES measures	2F,2G,1M,1G,2B,2C,2H,2I,2A,2D,2E
Links to council plan	Get York Moving / Protecting vulnerable people/ Supporting economic growth / Protect the environment

Expected impacts	overall	Comment
Local economy		Effective management and mitigation of development related emissions will help maximise development opportunities.
Feasibility		LES based planning guidance is already adopted and in use in Bradford. Other documents are at an advanced stage of development e.g. West Midlands, Sussex
Congestion		No impact on congestion
Capital costs		No capital cost implications
Revenue costs	££	Staff costs associated with assisting developers to comply with the new guidance and to check the accuracy and effectiveness of emission impact assessments and mitigation plans. In the longer term may need to increase staffing levels
Local air quality		Emission mitigation measures should help minimise further deterioration in local air quality as the result of development and may result in air quality improvement in some cases.
Greenhouse gas emissions		LES planning guidance will also help reduce greenhouse gas emissions
Planning and development		LES planning guidance principles already embedded into draft Local Plan. Enables low emission measures to be installed into new developments
Socio-economic		Developers may add on cost of emission mitigation to property purchase / rental costs which may exclude some buyers/ users
Communities		Enables low emission measures to be installed into new developments
Public perception		Provision of low emission vehicle infrastructure, low emission vehicles and travel planning measures on new developments will make developments more attractive to the end users and offer opportunities to showcase low emission measures to the wider population of York. In some cases the provision of low emission measures may improve public acceptability of a scheme.
Other benefits		Contributions towards low emission public transport, service vehicles and other low emission infrastructure will have positive air quality and climate change benefits beyond development sites and help to achieve a general improvement in public transport. Developers will have a clear indication of what is expected from them

		reducing the amount of pre-planning discussion required.

Measure 5	**Planning and delivery of strategic EV charging network**

Key intervention
Planning and provision of a strategic network of EV charging points to maximise the uptake of electric and plug-in electric hybrid vehicles in the city.
Expected outcome
Increased uptake of electric vehicles

Target			
Emission sources	Buses, LGVs, taxis and cars (fleet and privately owned)		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace

Key Actions	**Responsibility**	**Target date**
(a) Provide fast charge public EV charging capacity in CYC car parks	CYC	Achieved (October 2013)
(b) map existing EV charging infrastructure and identify further requirements needs	CYC	March 2014
(c) Provide rapid charge EV charging facilities	CYC	July 2014
(d) Develop a strategic approach to obtaining EV charging on new developments linked to EV infrastructure map	CYC	December 2014
(e) Pursue provision of privately owned EV charging points in areas where a need has been identified	CYC	Ongoing

Estimated implementation cost	10 fast chargers already provided in CYC car parks, £232,500 for 7 rapid chargers has already been secured, with provision already in place at Poppleton P&R
Estimated emission / fuel savings	Total Impact of implementing EV charging is difficult to quantify due to uncertainties over electric vehicle uptake but for every conventionally fuelled vehicle replaced local emissions of NO_x and PM_{10} are eliminated.
Proposed funding streams	Developer contributions / Local sponsorship / provision of open use points / grants
Related LES measures	2A,2B,2C,2D,2E,2H,2I,4D,5B,B,6C,6D,6E,6M,8F,8J
Links to council plan	Get York Moving / Supporting economic growth/ Protecting vulnerable people / Protect the environment

Expected impacts	**overall**	**comment**
Local economy		Good EV charging network provides EV drivers with more confidence to visit York for business or leisure trips and may influence destination choice. Development and maintenance of EV charging network creates jobs. Switching to EVs can offer considerable fuel and tax savings to local businesses and residents.
Feasibility		Public EV charging and a pay as you go back office system already in place in York
Congestion		No impact on congestion
Capital costs	££	Major capital costs already met through external grants. Future infrastructure provision needs to be met through developer contributions, local sponsorship and further grants.
Revenue costs	££	Revenue costs associated with operating the back-office systems to support public EV charging. As EV ownership increases revenue costs will be offset by profit made from electricity sales to become cost neutral or better.
local air quality		EVs have a positive impact on local air quality as zero emission at point of use
Greenhouse gas emissions		Electric vehicles will have a positive impact on greenhouse gas emissions especially if power is obtained through green tariffs.
Planning and development		LES planning guidance principles already embedded into draft Local Plan including requirement for EV infrastructure on new developments.
Socio-economic		Provision of a strategic EV network opens up the option of EV ownership to more people. Initial vehicle purchase price may currently be a barrier to some people.
Communities		Those unable to afford an EV will not be able to benefit from the provision of EV charging infrastructure but will be free to continue using their existing vehicles
Public perception		Initial concerns about need for EV charging infrastructure expected to decrease and become more positive as the public begin to recognise the benefits of EV ownership.

Other benefits		Widespread EV vehicle uptake will reduce traffic noise levels.

Measure 6	**Planning and delivery of CNG refuelling infrastructure in York**		
Key intervention			
Providing the infrastructure required to enable fleet operators to run their vehicles on compressed natural gas (CNG) and / or bio-methane which both offer reduced emissions of local and global air pollutants.			
Expected outcome			
Increased uptake of CNG and bio-methane as an alternative fuel within local fleets			
Target			
Emission sources	Local service buses, coaches, HGVs, LGVs (potential for expansion to other vehicles e.g. taxis)		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace

Key Actions	**Responsibility**	**Target date**
(a) Investigate feasibility of establishing a CNG refuelling plant in York and potential demand levels	CYC / external consultant	Ongoing project
(b) Work towards securing external investment in a CNG refuelling plant	CYC / external consultant	Ongoing
(c)Deliver a CNG refuelling plant in York	CYC / external consultant	End of 2016

Estimated implementation cost	To be determined
Estimated emission / fuel savings	To be determined. A vehicle running on CNG has significantly smaller emissions of NO_2, PM_{10} and CO_2 compared with a diesel equivalent. Exact reductions depend on the type of conversion, size of vehicle. Even greater reductions in CO_2 arise from use of bio-methane (gas derived from anaerobic digestion).
Proposed funding streams	Private investment, Developer contributions, Grant schemes
Related LES measures	2F,2G,2H,3D,3F,6N,6O,7M,8J,9E
Links to council plan	Get York Moving / Protecting vulnerable people/ Supporting economic growth / Protect the environment

Expected impacts	**overall**	**Comment**
Local economy		Reduces operator transport costs, creates new industry and jobs, allows late night deliveries and improvement of public realm, can help facilitate development of freight consolidation facilities, industrial units and office space.
Feasibility		CNG refuelling plants already operational in Leeds and Sheffield
Congestion		Quieter operation of CNG vehicles may allow some deliveries to occur later at night or earlier in the morning helping to free up road space during peak delivery periods.
Capital costs	~~£££~~	High capital costs involved but should be able to attract private investment
Revenue costs	~~£~~£	Some CYC staffing resources required to deliver the project but will be met from existing staffing resources. Longer term resource costs will be met by private operator.
Local air quality		CNG and bio-methane produce less NO_x and PM
Greenhouse gas emissions		CNG and bio-methane offers considerable CO_2 savings compared with diesel engines. Bio-methane can be produced from digestion of waste materials.
Planning and development		Work is ongoing to try and secure a site for CNG refuelling infrastructure within the Local Plan allocations
Socio-economic		Presence of CNG / bio-methane refuelling will offer cheaper and cleaner fuel to fleet operators which in turn should help reduce the cost of local goods and services.
Communities		No implications
Public perception		Cleaner, quieter vehicles likely to have a positive impact on public perception of buses, coaches and HGVs. May be some local objections to development of refuelling infrastructure.
Other benefits		Reduced vehicles noise levels, potential diversion of waste from landfill or

		incineration to produce bio-methane.

Measure 7	**Reducing emissions from taxis**		
Key intervention			
Introduction of incentives and licensing requirements that will encourage replacement of older diesel taxis (hackney and private hire) with newer hybrid vehicles. There are currently 750+ licensed vehicles operating in York.			
Expected outcome			
Removal of older diesel vehicles from taxi fleet			
Target			
Emission sources	Hackney and private hire taxis (particularly diesel vehicles)		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace

Key Actions	**Responsibility**	**Target date**
(a) Develop a local incentive for the uptake of hybrid vehicles in the taxi fleet	CYC	In operation
(b) Secure funding to continue hybrid taxi incentive	CYC	ongoing
(c) Investigate other options for reducing emissions from taxis, including possibility of expanding ECO-stars scheme to taxis	CYC	End of 2014
(d) Consider charging requirements for taxis	CYC	End of 2014
(c) develop a taxi emission reduction strategy including a possible loan scheme for electric and hybrid vehicles	CYC	End of 2015

Estimated implementation cost	TBC
Estimated emission / fuel savings	A hybrid taxi produces approx 8 tonnes per annum of CO2 less than a diesel equivalent and has considerably lower emissions of NOx and PM10. 10 new hybrid taxis have already been delivered through the existing grant scheme.
Proposed funding streams	Under investigation
Related LES measures	5A,5B,5C,5D,5E,5F,5G,5H,5I
Links to council plan	Get York Moving /Protecting vulnerable people /Supporting economic growth / Protect the environment

Expected impacts	**overall**	**comment**
Local economy		A cleaner taxi fleet will improve the image of the city with positive implications for tourism and inward investment. Use of hybrid vehicles offers considerable fuel cost-savings for local taxis operators.
Feasibility		Hybrid taxi incentive has been very successful to date. Eco-stars has been applied successfully to taxis in Devon.
Congestion		No impact on congestion
Capital costs	ffff	A high level of capital investment is needed to incentivise replacement of the majority of the taxi fleet with hybrids. Grant funding is needed to meet this cost.
Revenue costs	ff	Additional resourcing costs associated with introduction of ECO-stars for taxis and administration of local hybrid incentive. Currently being met through existing resources, any significant expansion of the scheme would require further resourcing.
Local air quality		Reduced emissions will have positive impact on local air quality
Greenhouse gas emissions		Reduced emissions will have a positive impact on greenhouse gas emissions
Planning and development		Cleaner taxis and ECO-stars membership can help offset the impact of increased economic activity and population growth.
Socio-economic		ECO-stars is free to join and participate in. It is therefore equally accessible to all fleet operators as long as they are willing to provide the necessary fleet data.
Communities		Need to ensure an adequate number of wheelchair accessible taxis remain in the fleet. Electric taxis are cheaper to run so could reduce costs.
Public perception		Cleaner, quieter vehicles likely to have a positive impact on public perception of taxis.

Other benefits		Reduced noise levels from late night taxis, newer vehicles improve taxi fleet image

Measure 8	**Reducing emissions from freight**
Key intervention	
Introduction of delivery and servicing plans for major organisations and key streets in the city and provision of a freight transhipment centre (FTC)	
Expected outcome	
Reduction in the number and size of delivery vehicles entering the city centre and other AQMAs. More deliveries being made by foot, cycle or low emission vehicle.	
Target	
Emission sources	HGVs, LGVs
AQMAs where emissions are expected to reduce due to this measure	City centre, Fulford, Salisbury Terrace

Key Actions	**Responsibility**	**Target date**
(a) Undertake a freight improvement study	CYC / external consultant	Completed (June 2013)
(b) Draw up an action plan for freight improvement based on finding of freight improvement study. To include mechanism and timescale for delivery of a FCC.	CYC (CS)	TBA

Estimated implementation cost	TBA
Estimated emission / fuel savings	TBA
Proposed funding streams	Private investment, Grant funds
Related LES measures	3B,9A,9C,9E
Links to council plan	Get York Moving /Protecting vulnerable people / Supporting economic growth / Protect the environment

Expected impacts	**overall**	**comment**
Local economy		Removal of some HGVs from the network and rescheduling of deliveries would improve reliability of deliveries for local businesses and create a more pleasant environment for shoppers and visitors. FTC would create new jobs.
Feasibility		FCC centres are operational in Newcastle and Bath. Ongoing discussions with a logistics company,
Congestion		Would help tackle city centre congestion particularly in shopping streets outside foot street hours
Capital costs	££££	Scheme would need considerable investment from private sector
Revenue costs	£££	Staffing and operation of the FTC.
Local air quality		Reduced HGV emissions will have positive impact on local air quality.
Greenhouse gas emissions		Reduced HGV emissions will have a positive impact on greenhouse gas emissions
Planning and development		The Local Plan recognises the need for freight consolidation facilities
Socio-economic		No implications
Communities		No implications
Public perception		Removal of queuing HGVs from city centre in the morning will improve public realm.
Other benefits		Removal of large HGVs from the city centre will help protect historic buildings. CNG refuelling and freight consolidation potentially can be linked together to provide delivery to city centre by low emission CNG vehicles.

Measure 9	**Reducing emissions from CYC fleet**		
Key intervention			
Further reduction in emissions from CYC fleet by reducing total mileage, using lower emission vehicles and encouraging better driver behaviour.			
Expected outcome			
Reduction in NO_x and PM_{10} emissions from CYC fleet vehicles and those operated on behalf of CYC (including staff owned vehicles). Reduced CO_2 emissions and significant fuel cost savings should also be achieved.			
Target			
Emission sources	CYC owned vehicles, CYC staff owned vehicles (grey fleet)		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace
Key Actions	**Responsibility**		**Target date**
(a) Introduction of further electric and hybrid vehicles into CYC fleet	Fleet manager		First replacements scheduled for summer 2014. Ongoing upgrades across the fleet to follow.
(b) Trial of 'Light Foot' system to reduce excessive breaking and acceleration	Fleet manager		2014
(c) ECO-driver training for CYC staff	Fleet manager		All LCV drivers to be trained within 2 years. Other staff to follow.
(d) Further use of route optimisation tools to reduce total mileage and emissions	Fleet manger		Ongoing
(e) Further reduction in grey fleet emissions and introduction of a CO_2 emission limit for personal vehicles eligible for mileage payments	Fleet manager		Ongoing
Estimated implementation cost	TBA		
Estimated emission / fuel savings	TBA		
Proposed funding streams	Fleet renewal funding, grants		
Related LES measures	4C,4G,5C,5F,6F,6K,7A,7B,7C,7D,7E,7F,7H,7J		
Links to council plan	Protecting vulnerable people /Supporting economic growth /Protect the environment		

Expected impacts	**overall**	**comment**
Local economy		A cleaner CYC fleet improves city image and reduces operating costs. Uptake of new technology can promote local green job creation.
Feasibility		There are already a number of low emission vehicles within CYC fleet and links to car clubs are well established. Good progress has already been made with reducing grey fleet trips.
Congestion		May reduce unnecessary vehicle journeys.
Capital costs	ffff	Requires investment in new vehicles. Where possible this will be offset using grant funding for alternatively fuelled vehicles.
Revenue costs		Fleet improvements to be delivered by existing staff.
Local air quality		A cleaner CYC fleet will contribute towards improving local air quality
Greenhouse gas emissions		A cleaner CYC fleet will help contribute towards reducing local CO_2 emissions
Planning and development		A larger CYC fleet will be needed to service an expanding population and new developments. Cleaner CYC vehicles will help reduce the impact of a growing population.
Socio-economic		No implications
Communities		Fleet improvements help to protect the health of vulnerable residents
Public perception		A cleaner CYC fleet improves public perception of CYC and may encourage uptake of low emission vehicles by others
Other benefits		Alternatively fuelled vehicles can provide a better driving experience for operator,

		potential for considerable financial savings for CYC

Measure 10	**Marketing and Communications Strategy**		
Key intervention			
Raising awareness of air quality and health issues and providing information and advice on the purchase and use of low emission vehicles			
Expected outcome			
Increased awareness of the health impacts arising from vehicle emissions and behavioural change in relation to the purchase and use of low emission vehicles			
Target			
Key Audiences		Local residents, businesses and visitors	
AQMAs where emissions are expected to reduce due to this measure		No direct impact but will support wider AQMA improvement measures	
Key Actions		**Responsibility**	**Target date**
(a) Develop a marketing and communications strategy		CYC EPU and public health	TBA
(b) Undertake a public information campaign		CYC EPU and public health	TBA
(c) Upgrade JorAir website		CYC EPU and public health	TBA
Estimated implementation cost	£45,000 (air quality grant)		
Estimated emission / fuel savings	Not quantifiable		
Proposed funding streams	Air quality grant (secured funding)		
Related LES measures	1A,1B,1C1D,1E,1F,1H,1I, 1J,1K,1L1N,8A,8B,8I		
Links to council plan	Protect vulnerable people		

Expected impacts	**overall**	**comment**
Local economy		Increasing awareness of air quality and health issues and providing advice can help reduce sick days and reduce pressure on local health facilities. Savings made on personal transport costs may result in more spending in other areas eg. shopping, eating out.
Feasibility		Air quality and health campaigns are taking place in other cities
Congestion		Campaign will link to existing I-travel York sustainable travel initiatives.
Capital costs		AQ grant funding has been secured to support this work
Revenue costs		To be met from existing staff resources and grant fund
Local air quality		The campaign will encourage investment in cleaner vehicles that will help reduce emissions of local air pollutants
Greenhouse gas emissions		The campaign will encourage investment in cleaner vehicles that will help reduce emissions of CO_2
Planning and development		Not applicable
Socio-economic		Campaign will provide economic advice based on vehicle choice and access to grants
Communities		Campaign will provide information and advice on the impact of poor air quality on health
Public perception		A successful campaign will be perceived as worthwhile and informative.
Other benefits		Potential for increased support for CYC work on air quality and transport issues

Measure 11	**Local incentives for low emission vehicles and alternative fuel use**		
Key intervention			
Providing incentives for the purchase and use of low emission vehicles by residents, visitors, commuters and businesses			
Expected outcome			
Increased uptake of low emission vehicles by residents, visitors, commuters and businesses			
Target			
Key Audiences	Residents, visitors, commuters, businesses		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace
Key Actions	**Responsibility**		**Target date**
(a) Develop a low emission vehicle incentive plan to include parking incentives, vehicle purchase incentives and vehicle use incentives	CYC		June 2015
(b) Implement low emission vehicle incentive plan and report against delivery timescales within it.	CYC		Ongoing beyond June 2015

Estimated implementation cost	TBA
Estimated emission / fuel savings	TBA
Proposed funding streams	To be investigated
Related LES measures	5E,6N,6I,8F
Links to council plan	Get York Moving /Protecting vulnerable people /Supporting economic growth / Protect the environment

Expected impacts	**overall**	**comment**
Local economy		Financial savings made through purchase and use of low emission vehicles will reduce fuel costs for users leading to improved competiveness for local business and greater consumer spending in other areas e.g. leisure, shopping etc. Low emission vehicles will help improve public realm with benefits for tourism and inward investment. Links to an “Oyster” type card
Feasibility		The incentives will be innovative and there will be previously untested risks and challenges associated with implementation.
Congestion		No impact on congestion
Capital costs	£	There may be some small capital costs relating to signage, leaflets, point collection cards etc
Revenue costs	££	Provision of incentives will have some ongoing revenue costs e.g. potential loss of parking income, provision of rewards etc.
Local air quality		Increased uptake of low emission vehicles will have positive implications for local air quality
Greenhouse gas emissions		Increased uptake of low emission vehicles will have positive implications for greenhouse gases
Planning and development		Some incentives may be able to be linked to developer emission mitigation measures
Socio-economic		Can be applied to walking, cycling, public transport and low emission vehicle use to ensure all positive behavioural changes are rewarded and not limited only to those able to afford low emission vehicles.
Communities		Incentives to be accessible to all, including non-drivers and those with disabilities
Public perception		Opportunities for financial or material gain are likely to be viewed positively by the majority
Other benefits		Incentives can be linked through to tourism and inward investment opportunities

Measure 12	**Attracting low emission industries, business and jobs to York**		
Key intervention			
Promotion of York as a supportive and welcoming environment for low emission businesses and industries, including the provision of relevant education and skills development.			
Target			
Key Audiences		Potential inward investors and existing low emission businesses and industries. Educational establishments and other training providers.	
AQMAs where emissions are expected to reduce due to this measure		No direct impact but will support wider AQMA improvement measures	
Key Actions		**Responsibility**	**Target date**
Creation of a designed 'green hub' development area to encourage investment by 'green' and 'low emission' industries		EDU	ongoing
Creation of more high value / high productivity jobs in the 'green' business sector		Task and Finish Working Group – York Economic Partnership Board	ongoing
Estimated implementation cost	Facilitation by existing staff resources in EDU		
Estimated emission / fuel savings	Not quantifiable		
Proposed funding streams	To be investigated		
Related LES measures	1C,6D,6H,7I,8A,8C,8D,8G,8L		
Links to council plan	Supporting economic growth		

Expected impacts	**overall**	**comment**
Local economy		Development of new job and training opportunities
Feasibility		York has already successfully marketed itself as a 'science city' a similar approach can be take to place an emphasis on low emission / green technology
Congestion		Inward investment may result in traffic growth, but this can be minimised through the use of sustainable sites and good travel planning.
Capital costs		Small levels of additional investment may be needed to support promotional and marketing activities. Larger capital projects such as provision of new training facilities are likely to be met through private investment or partnerships with other organisations.
Revenue costs		Measures to be facilitated by existing EDU staff resources and partner organisations
Local air quality		Presence of low emission industries will help raise the profile of the Low Emission Strategy and promote further use of low emission vehicles and renewable energy sources. This will help reduce emissions of local air pollutants
Greenhouse gas emissions		Presence of low emission industries will help raise the profile of the Climate Change Action Plan and promote the use of low emission vehicles and renewable energy sources. This will help reduce emissions of greenhouse gases.
Planning and development		Opportunities for low emission industries can be incorporated into the planning system
Socio-economic		Creates new high value / high productivity jobs and training opportunities
Communities		Employment and other opportunities will be available to all
Public perception		Creation of new job and training opportunities likely to have a positive impact
Other benefits		Opportunities to divert waste from landfill and incineration if gas industries can be attracted to the area. Potential for increased uptake of wind and solar energy production at a local level.

Measure 13	Modal shift and network improvement measures

Key intervention

Continued application of modal shift and congestion reduction measures through Local Transport Plan 3, Better Bus Area and Local Sustainable Transport Fund initiatives. Capital funding for larger transport infrastructure interventions such as an upgrade of the Outer Ring Road, providing an alternative route for city centre through traffic, Bus improvement measures and a further P&R site at Clifton Moor are dependent on the success of the £83.5m West York Plus Transport Fund bid.

Target

Emission sources	All vehicles,		
Key audiences	walkers, cyclists, public transport users, motorists		
AQMAs where emissions are expected to reduce due to this measure	City centre	Fulford	Salisbury Terrace

Key Actions	Responsibility	Target date
Continued delivery of I-travel York sustainable travel programme which includes walking, cycling and public transport improvements, personalised journey planning, provision of travel information, promotional events etc. http://www.itravelyork.info/	Sustainable Transport Service	On going
Implementation of Access York Phase 1 - delivery of P&R sites at Poppleton and Askham, improvements to the A59/A1237 roundabout and creation of bus priority route	Sustainable Transport Service	Completion June 2014
Public Transport schemes. City centre bus stop improvements, off bus ticket machines, interchange improvements, Real Time Information provision.	Sustainable Transport Services	On going

Estimated implementation cost	Access York £22.7m, BBAF £2.5m, LSTF £4.6m. New funding from BBA2 Approx. £1.2m up to 2017/18
Estimated emission / fuel savings	Not quantified
Proposed funding streams	LTP3, LSTF, Major Schemes Funding, Better Bus Area, Local Growth Fund (Dependent on Strategic Economic Plan bid by LEPs)
Related LES measures	9F,9L,9R
Links to council plan	Get York Moving /Protecting vulnerable people/Supporting economic growth / Protect the environment

Expected impacts	overall	comment
Local economy		Reduced congestion and improved public transport improve the public realm and support economic growth
Feasibility		Measures are included in existing CYC policies
Congestion		LTP3 aims to control congestion increases by encouraging use of sustainable modes. LSTF programme aims to increase cycling levels by 20%, walking by 10% and bus use by 10%
Capital costs	££££	To be confirmed. Major Transport interventions such as an upgrade of the Outer Ring Road, Bus improvement measures and a further P&R site at Clifton Moor are dependent on the success of the £83.5m West York Plus Transport Fund.
Revenue costs	££	To be confirmed. £1.2m from the Better Bus Area 2 package will provide revenue resource to support Public Transport in the City. Continuation of the LSTF project beyond 2014/15 is dependent on the success of a bid to the DfT in March 2014.
Local air quality		Congestion reduction and sustainable transport measures support local air quality improvement
Greenhouse gas emissions		Congestion reduction and sustainable transport measures support greenhouse gas reduction
Planning And development		Measures to reduce congestion and encourage sustainable travel can help offset traffic impact of new development
Socio-economic		Some measures may improve access to some areas of the city for some users
Communities		Modal shift measures support provision of accessible transport for all
Public perception		Some measures to reduce congestion and improve access for public transport may be unpopular with the general public.

Other benefits		None identified

Measure 14	**Other air quality improvement measures**	
Key intervention		
Control of emissions to air from PPC regulated industries, enforcement of Clean Air Act provisions in relation to dark smoke and smoke control areas		
Target		
Emission sources	Industrial and domestic point source emissions	
AQMAs where emissions are expected to reduce due to this measure	City centre	Salisbury Terrace

Key Actions	**Responsibility**	**Target date**
(a) Active regulation of industries subject to PPC regs	CYC EPU	ongoing
(b) Active enforcement of dark smoke offences under Clean Air Act	CYC EPU	ongoing
(c) Active enforcement of smoke control areas	CYC EPU	ongoing

Estimated implementation cost	Ongoing costs delivered by existing staff resources
Estimated emission / fuel savings	Not quantified
Proposed funding streams	Existing staff resources
Related LES measures	Wider air quality measure not related directly to LES delivery
Links to council plan	Supporting economic growth Protecting the environment

Expected impacts	**overall**	**comment**
Local economy		EPU provides advice and support to local industries to help them to meet emission regulation requirements. This can also reduce costs.
Feasibility		All measures are currently ongoing and resourced
Congestion		No impact on congestion
Capital costs		No capital costs
Revenue costs	ff	Ongoing CYC staffing resources only
Local air quality		Control of domestic and industrial emissions helps to protect and improve local air quality
Greenhouse gas emissions		Control of domestic and industrial emissions helps to reduce and control greenhouse gas emissions
Planning and development		No issues arising
Socio-economic		Legislation applies to everyone irrespective of socio-economic status. Large fines can arise if offences take place.
Communities		Legislation exists to protect the health and environment of local people
Public perception		Most people are generally supportive and comply with controls on industrial and domestic emissions
Other benefits		Control of smoke can help to avoid occurrence of smoke nuisance and odours and identify occurrences of illegal waste disposal

Annex 3 – Proposed CAZ requirements

What is a Clean Air Zone (CAZ)?

1. Like a LEZ the proposed CAZ will control the types of vehicles able to be used in certain areas of the city. However, unlike a LEZ, the entry criteria will not be a blanket Euro emission standard for all vehicles. The CAZ will set different entry standards for vehicles based on the frequency per day at which they enter the CAZ. The entry criteria will be set in a way that requires the most frequent (and hence the most polluting) vehicles to upgrade to operate on ultra low emission technology, whilst less frequent services work towards meeting achievable minimum Euro emission standards.

2. Under the current proposals only local service buses and tour buses are proposed to be subject to the CAZ requirements; there is scope to extend the principle to other vehicles such as HGVs, coaches and taxis at a later date. Other vehicles have not been included at this stage due to the complexity of the administration that would be associated with tracking and approving all types of vehicle for entry into the CAZ. This is particularly the case for coaches and HGVs that do not form part of easily identifiable and relatively static local fleets.

Why has this approach been suggested?

3. The CAZ approach has been developed because:

   (a) It requires emission improvement costs that are more proportionate to the frequency at which vehicles travel through AQMAs and the impact they have on local air quality.

   (b) It is likely to achieve greater overall air quality benefits than a blanket Euro emission standard based LEZ applied to all buses, but will limit the financial impact on smaller operators and infrequent rural services.

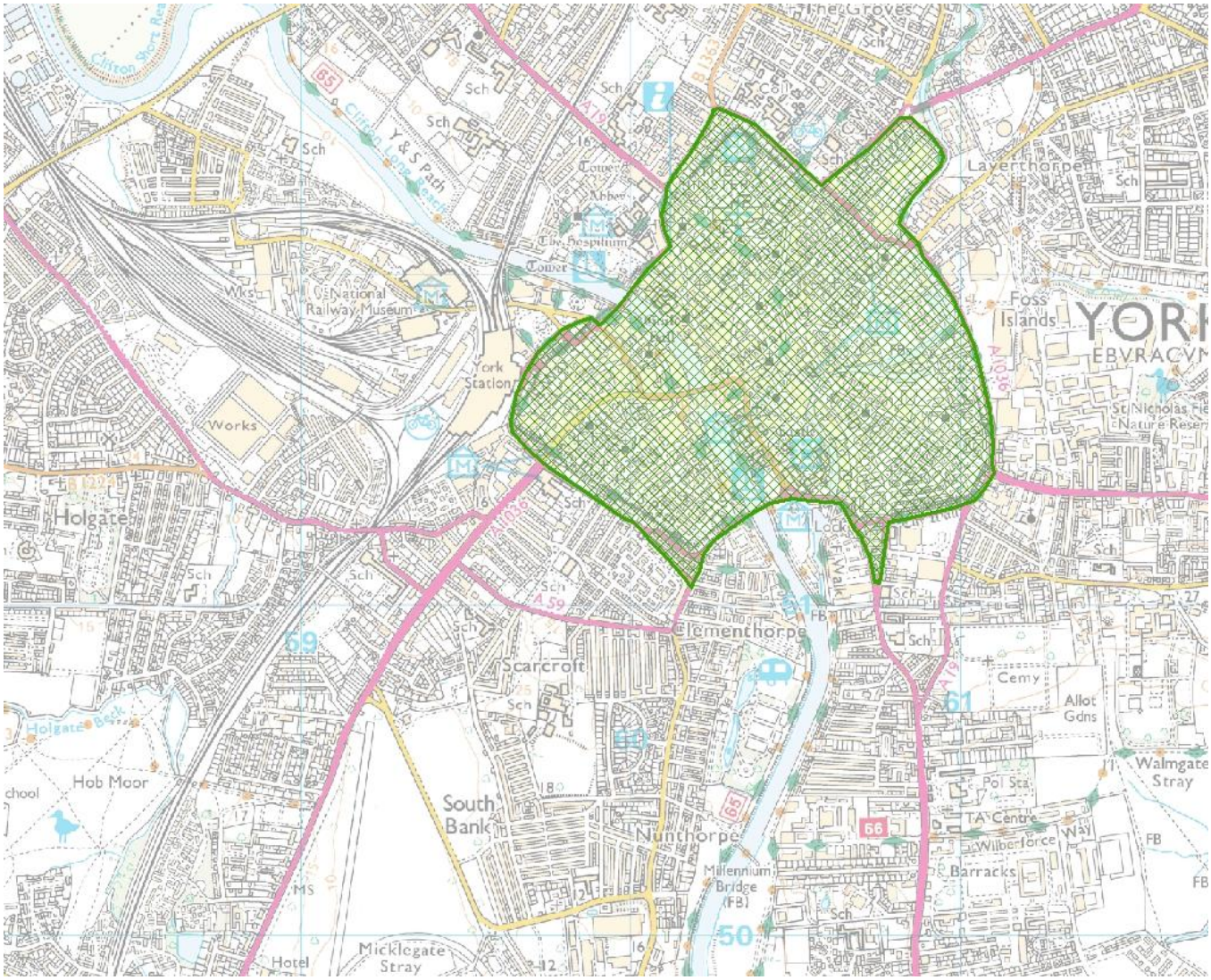
   (c) It will give operators a clear 10 year timetable from which to plan their upgrades and organise their fleets in a way that limits the number of vehicles that have to be exchanged or redirected to other cities.

   (d) It allows expansion of similar flexible emission entry controls for other vehicle types in the future if this becomes necessary

Where will the CAZ be?

4. It is recommended that as a minimum the CAZ should initially apply to the area shown in Figure 3. The area includes all roads that make up part of the inner ring road and any other roads that lie within the area shaded in green. This minimum area is suggested based on current bus routes and the need to improve air quality in all the AQMAs. An alternative approach may be to apply the CAZ requirements to the already established Better Bus Area which bus operators are already familiar with. The CAZ concept will be subject to further consultation with bus operators and the final location of the CAZ boundaries will form part of this process. The potential for future expansion of the CAZ to other vehicles also needs to be considered in determining the final location of the boundaries.

Figure 3: Proposal for minimum area to be covered by the CAZ (subject to consultation)



What are the CAZ entry requirements likely to be?

5. Based on an analysis of current bus routes and the type and age of vehicles operating on them a first draft of possible CAZ entry requirements is shown in Table 1. Like the boundaries these entry requirements are subject to wider consultation with bus operators and may change as a result of this process. They should only be considered indicative at this stage in the process.

Table 1: Indicative CAZ entry requirements (subject to consultation)

	High frequency buses (10 times per day or more)	Medium frequency buses (5 times per day or more)	Low frequency buses (under 5 times per day)
April 2015	Euro 3 (82% of bus traffic)	Euro 3 (11% of bus traffic)	No standard (7% of bus traffic)
April 2018	Ultra low emission (82% of bus traffic)	Euro 4 (11% of bus traffic)	Euro 3 (7% of bus traffic)
April 2021	Ultra low emission (85% of bus traffic)	Euro 5 (9% of bus traffic)	Euro 4 (6% of bus traffic)
April 2024	Ultra low emission (87% of bus traffic)	Euro 6 (8% of bus traffic)	Euro 5 (5% of bus traffic)

What are the implications for bus operators?

6. Table 2 shows the estimated emission standard of buses operating on current routes (based on baseline data from 2011). The accuracy of this baseline data will be further refined during the CAZ consultation work with bus operators.

Table 2: Emission standard of current bus fleet (based on 2011 data)

	High frequency buses (10 times per day or more)	Medium frequency buses (5 times per day or more)	Low frequency buses (under 5 times per day)
2011	**Euro 5 = 20** **Euro 4 = 23** **Euro 3 = 53** **Euro 2 = 5** **Euro 1 = 2** **Euro 0 = 3** **Total buses = 106**	**Euro 5 = 8** **Euro 4 = 24** **Euro 3 = 2** **Euro 2 = 0** **Euro 1 = 0** **Euro 0 = 0** **Total buses = 34**	**Euro 5 = 11** **Euro 4 = 23** **Euro 3 = 6** **Euro 2 = 4** **Euro 1 = 3** **Euro 0 = 0** **Total buses = 47**

7. Table 3 shows the predicted bus fleet composition in 2015 and 2018 without the CAZ intervention, but including the addition of the electric buses for which funding has already been obtained and taking into account normal rates of operator vehicle upgrade / vehicle replacement. As with the baseline data the accuracy of these assumptions will be subject to further consultation with operators during the CAZ consultation period. The total non-compliant buses for each year represents the number of vehicles that operators would have to upgrade or replace in order to continue providing the same level of service should the CAZ be introduced.

Table 3: Comparison of bus fleet composition with CAZ entry standards in 2015 and 2018 (based on 2011 data; including recent orders of Ultra low emission buses (ULEBs))

Year	High frequency buses (10 times per day or more)	Medium frequency buses (5 times per day or more)	Low frequency buses (under 5 times per day)
April 2015 high frequency – Euro 3 medium frequency – Euro 3 low frequency– No standard	**ULEB = min 16** **Euro 5 = 23** **Euro 4 = 21** **Euro 3 = 47** **Euro 2 = 3** **Euro 1 = 2** **Euro 0 = 3** **Total compliant = 107** **Total non-compliant = 8**	**ULEB = 0** **Euro 5 = 8** **Euro 4 = 24** **Euro 3 = 2** **Euro 2 = 0** **Euro 1 = 0** **Euro 0 = 0** **Total compliant = 34** **Total non-compliant = 0**	**ULEB = 0** **Euro 5 = 11** **Euro 4 = 23** **Euro 3 = 6** **Euro 2 = 4** **Euro 1 = 3** **Euro 0 = 0** **Total compliant = 47** **Total non-compliant = 0**
April 2018	**ULEB = min 16**	**ULEB = 0**	**ULEB = 0**

high frequency – ULEB medium frequency - Euro 4 Low frequency – Euro 3	**Euro 5 = 23** **Euro 4 = 21** **Euro 3 = 47** **Euro 2 = 3** **Euro 1 = 2** **Euro 0 = 3** **Total compliant = 16** **Total non-compliant = 99**	**Euro 5 = 8** **Euro 4 = 24** **Euro 3 = 2** **Euro 2 = 0** **Euro 1 = 0** **Euro 0 = 0** **Total compliant = 32** **Total non-compliant = 2**	**Euro 5 = 11** **Euro 4 = 23** **Euro 3 = 6** **Euro 2 = 4** **Euro 1 = 3** **Euro 0 = 0** **Total compliant = 40** **Total non-compliant = 7**

The 2015 and 2018 scenarios assume no natural replacement of buses. Total non-compliant buses are likely to be less than listed due to the business-as-usual sale/disposal of older buses and addition of new buses to the fleet over the period.

How would a CAZ be enforced?

8. CYC will work in partnership with local bus operators to develop a CAZ which all operators can comply with. There are two main options available:

   (a) Development of a voluntary agreement with local bus operators backed up by the implementation of a Traffic Regulation Condition (TRC) at an agreed date in the future. A TRC would prevent entry to certain roads for non-compliant vehicles and prevent new companies from opening up operations in the city that do not comply with the locally negotiated standards. This is the approach used in Oxford.

   (b) Development of a Statutory Quality Bus Partnership Scheme under which suitable entry requirements would be agreed in writing with bus operators and approved by the traffic commissioner. This approach has been used in Birmingham.

   The suitability of the two approaches and associated costs are currently under investigation and will be the subject of further consultation on AQAP3.

9. A CAZ enforced by a TRC or through a SBP agreement would be almost self enforcing, the main workload being administrative tasks associated with ensuring local buses meet the entry criteria and that any upgrading they have undergone is of the required standard. There may be

requirements for occasional on street spot checks or camera observations. The need and detail of this is yet to be established.

Annex 4 – AQAP3 funding

At the time of writing these are then main anticipated costs and resource implications associated with delivery of AQAP3. Work is ongoing to try to secure further funding for delivery of the AQAP3 measures. There is currently an ongoing departmental review process that is likely to have implications for future staffing resources within EPU (including air quality staff).

Measure	Activity / cost	Resources	Capital
CAZ	Development of TRC in conjunction with traffic commissioner and bus operators.	Officers from EPU and transport teams	n/a
	Charges made by TC and advertising costs	.	Currently unknown (if any)
	Signage		Amount and cost to be determined
	Record keeping of eligible buses	Significant additional administrative work anticipated which may require an additional staff resource	
	Enforcement activities	Method to be determined. May include use of existing bus monitoring staff.	Potentially some costs associated with automatic monitoring facilities
Anti-idling	Campaign planning and liaison with transport operators	Officers from EPU, Transport and Marketing and Communications	
	Delivery of marketing campaign		Campaign materials (existing AQ grant fund)
	Signage		Amount and cost to be determined. Funding source to be determined
	Advice to operators / spot checking	Existing bus monitoring staff	
ECO-stars	Continuation and expansion of existing scheme	Internal negotiations with procurement by EPU Consultant scheme management cost. Approx £26K per annum. No budget identified beyond 2014.	
LES planning guidance	Document preparation and consultation	EPU and planning officers	
	Checking of planning applications, conditioning of mitigation etc	Air quality staff (epu) Planning staff Likely to be a significant increase in workload	

Measure	Activity / cost	Resources	Capital
Strategic EV Network	Further development and deployment of EV charging facilities	Low emission officer (funded until 2015)	Grant funding already in place to further expand the network including introduction of rapid chargers. Future costs to be met through further successful grants and/or developer contributions
CNG refuelling	CNG feasibility study	Consultancy fees – covered by AQ grant funding	
	Liaison with potential developers and site delivery	EPU and planning officers	Anticipated that any future facility will be able to attract 100% private investment
Taxi emissions	Continuation of hybrid incentive scheme	Administration and publicity by EPU and other officers	Potential future funding sources being explored.
	Development of taxi emission strategy	EPU and licensing officers	
Freight Improvement study	Development of freight improvement plan	STS staff	
CYC fleet measures	*Measures not yet identified*	Fleet team	Likely to require investment in low emission vehicles and abatement technology
LES marketing and communications	Promotional and awareness raising activities	Marketing and communications staff Air Quality staff Public Health staff	Campaign materials and (existing AQ grant fund)
Incentives for low emission vehicle use	*Measures not yet identified*	Low emission officer Marketing and communications staff	Likely to require investment in campaign materials and support for financial incentives
Modal shift and Network improvements	Existing transport capital programme projects	As identified in transport capital programme	As identified in transport capital programme
Climate change framework and action plan	As set out in CCFAP	Existing sustainability staff and budgets	Existing sustainability grant programmes and capital funding
Other air quality improvement measures	Control of industrial emissions Domestic Smoke Control Enforcement of other Clean Air Act Provisions	Existing EPU staff	None anticipated

Annex 5: NO_x reduction emissions modelling assumption

Modelling approach

The Emissions Factors Toolkit (EFT v 4.2) published by Defra and the Devolved Administrations has been used to assess the likely levels of NO_x and PM_{10} reduction from some of the measures included in AQAP3. This toolkit has been developed specifically to assist local authorities with quantifying the impact of air quality improvement measures. More details about the model can be found at http://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html

The toolkit requires the following information:

- Annual Average Daily Traffic flows (AADTs) for each of the road links considered (for base and future year scenarios)
- Information about the composition of traffic in the base and future years i.e the relative emission contribution from different types and ages of vehicles.

These inputs can be varied to consider a range of different traffic conditions that might exist in future years due to national changes in the vehicle fleet and the impact of local policies and decisions.

Source of model inputs

- City of York Council's strategic transport model (SATURN) was used to estimate Annual Average Daily Traffic flows (AADTs) on each of the road links contained within the areas of air quality technical breach for a 2011 baseline and a 2021 future year scenario.

- Baseline traffic composition was based on ANPR traffic counts undertaken in the AQMAs during 2010 (relative proportions of each type of vehicle)

- The 2021 future year scenario included the predicted traffic growth impact of planned traffic schemes and development in the city. Table A5.1 identifies which development schemes have been accounted for in the assumed traffic growth figures.

Table A5.1: Development schemes accounted for within the 2021 SATURN model

Type	Description	Local Plan Reference
MAJOR SCHEMES	Manor Lane - Hurricane Way Link	-
	A59 Bus Corridor	-
	York Central Link	-
	James St Link	-
	A59 Poppleton roundabout	-
	Great North Way roundabout	-
	A19 Shipton Rd roundabout (Rawcliffe Bar)	-
	Clifton Moor Gate roundabout	-
	Haxby Road roundabout	-
	Wigginton Road roundabout	-
	Strensall Road roundabout	-
	Clifton Moor Park and Ride	-
	Wetherby Road roundabout	-
	Wiggington Road Bus Priority	-
	Clarence Street Bus Priority	-
	Poppleton Park and Ride	-
	Askham Bar Park and Ride	-
	Germany Beck pinchpoint	-
	New Askham Bar Park and Ride	-
	Haxby Station	-
RESIDENTIAL USES	British Sugar	-
	Nestle South (a)	ST17
	Nestle South (b)	ST17
	Land adjacent Hull Road	ST4
	Land at Grimston Bar	ST6
	York Central	ST5
	N Monks Cross	ST8
	E Metcalfe Lane	ST7
	Moor Lane, Woodthorpe	ST10
	North Haxby	ST9
	Former Civil Service Sports Ground	ST2
	New Lane, Huntington	ST11
	Moor Lane, Copmanthorpe	ST10
	Manor Heath Rd, Copmanthorpe	ST12
	Terry's	ST16
	Germany Beck	ST22
	Castle Piccadilly	ST20
	Designer Outlet	ST21
	N Clifton Moor	ST14
	Whinthorpe	ST15
EMPLOYMENT USES	Monks Cross North	-
	York Central	-
	Northminster Business Park	-
	Terry's	-
	Cement Works Monks Cross	-
	Ford Garage Jockey Lane	-
	Nestle South	-
	Hungate	-
	Plot 6b Monks Cross Drive	-
	Land N Monks Cross Drive	-

Scenarios modelled

A range of traffic composition scenarios for 2021 have been modelled to determine which AQAP3 measures are likely to have the greatest emissions impact. These included:

- Base 2021Business as usual (no AQAP3 interventions)
- 2021 with various levels of AQAP3 intervention including:
    - 2021 (with 1.5% and 5% electric cars in the fleet respectively)
    - 2021 with 90% hybrid buses in the fleet
    - 2021 with 90% electric buses in the fleet

2021 with various % combinations of electric cars and electric buses.

A more detailed account of the emission impact modelling work (including the results for a wider range of vehicle scenarios) will be provided as a technical annex to AQAP 3.

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Glossary of Abbreviations

AQMA – Air Quality Management Area

AQAP3 – Third Air Quality Action Plan

AQAP – Air Quality Action Plan

CAZ – Clean Air Zone

CBTF – Cleaner Bus Technology Fund

CO_2 – Carbon Dioxide

CNG – Compressed Natural Gas

CYC – City of York Council

DEFRA – Department for Environment, Food & Rural Affairs

DfT – Department for Transport

EFT – Emission Factor Toolkit

EPU – Environmental Protection Unit

EV – Electric Vehicle

GBF – Greener Bus Fund

HGVs – Heavy Goods Vehicles

LES – Low Emission Strategy

LEZ – Low Emission Zone

LSTF – Local Sustainable Transport Fund

LTP3 – Local Transport Plan 3

NO_2 – Nitrogen Dioxide

OLEV – Office for Low Emission Vehicles

PM – Particulate Matter

P&R – Park and Ride

SCA's – Smoke Control Areas

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