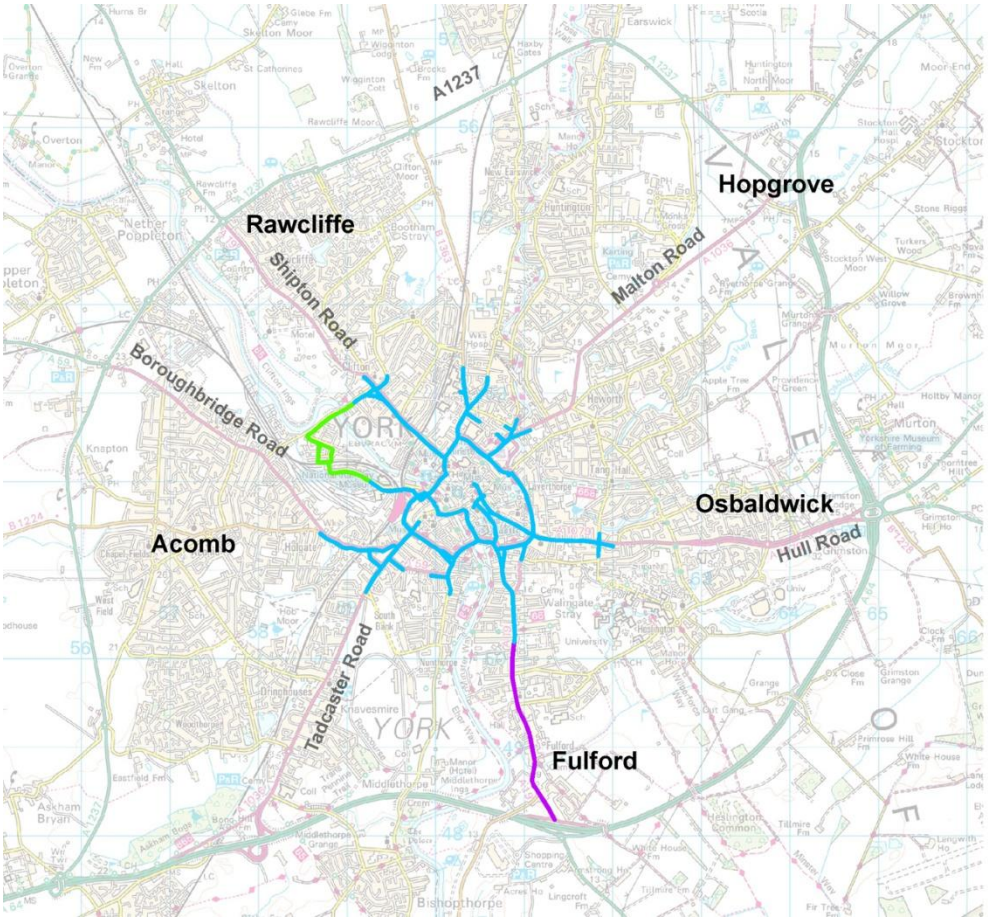
Annex 1 Map of AQMAs



Air Quality Management Areas (AQMAs)

AQMA Order No. 1 (declared Jan 2002, revised September 2012)

AQMA Order No. 2 (declared April 2010)

AQMA Order No. 3 (declared April 2012, decision to revoke 2017)

An AQMA is an area where breaches of the Government's Health Based Air Quality Objectives have been monitored in recent years.

The AQMA includes roads and some properties either side of the road.

Annex 2 Summary of LEZ study 2011

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 with new vehicles required to meet increasingly stringent emission standards for specific pollutants over time. Oxford and Norwich operate low emission zones for buses whilst London has a much larger LEZ which applies to large vans, minibuses, buses and HGVs. 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 along Ousegate, Rougier Street, George Hudson Street and round to Lendal Bridge. Because the majority of scheduled bus services pass through this small area any policy applying emission controls to this corridor was expected to effectively create a city wide LEZ for scheduled bus services. The study 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.

The 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)
- All the scenarios above but also including HGVs
- A hybrid P&R scenario which could reflect either the use of full electric buses or hybrid diesel-electric buses on the 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.

The study showed that the introduction of 'blanket' Euro 4 and Euro 5 emission controls for all buses and coaches passing through the modelled LEZ corridor would be unlikely to deliver the national air quality objectives at all locations in the city centre AQMA. However, some sizeable reductions in NO_2 concentrations could be expected in areas with the highest concentration of bus movements such as Rougier Street. The introduction of a Euro 3 standard was found to be unacceptable as this had the potential to increase NO_2 concentrations (due to changes in the operation of vehicle

abatement technologies following the introduction of successive Euro emission standards).

The scenario considering the introduction of electric / hybrid P&R buses demonstrated a 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 indicated 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 (assuming that the use of electric vehicles in York could be practically achieved).

Annex 3 Low Emission Bus feasibility study 2013

The study included:

- A low emission bus technology review - considering both electric and gas powered solutions

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

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

The study identified around 65 scheduled bus routes through the city serviced by approximately 200 unique buses of varying age and emission standards. It was found that at the time of the study 82% of all bus movements were carried out by only 49% of the bus fleet and that these buses operated on only 20 routes (including all the P&Rs). As demonstrated by the LEZ feasibility study these 'frequent' flyers were shown to be having a disproportionate impact on local air quality.

Due to their short, frequent duty cycles the 'frequent flyer' buses operating on the 20 main routes were found to be well suited to adoption of electric bus technology. Converting these services to electric was predicted to offer substantial benefits for air quality as well as 60% reduced greenhouse gas impact with additional noise reduction benefits and enhanced passenger experience. This comprehensive evidence base was use to support external funding bids and resulted in the introduction of electric buses at the Poppleton Road and Monks Cross P&R sites. These services have now been operating successfully for over 2 years and have clearly demonstrated that with the right level of investment and operator commitment electric buses can play a significant role in the future delivery of York's P&R services.

Annex 4 Original CAZ emission control proposals (AQAP3, 2016)

	High frequency bus services (10 times per day or more)	**Medium frequency bus services** (5 – 9 times per day)	**Low frequency bus services** (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	Zero emission (82% of bus traffic)	Euro 4 (11% of bus traffic)	Euro 3 (7% of bus traffic)
April 2021	Zero emission (85% of bus traffic)	Euro 5 (9% of bus traffic)	Euro 4 (6% of bus traffic)
April 2024	Zero emission (87% of bus traffic)	Euro 6 (8% of bus traffic)	Euro 5 (5% of bus traffic)

Annex 5 York local bus operator vehicle emissions improvements to date and future proposals

Operator	Improvements achieved to date	Planned improvements	Fleet size (Number)	Euro 6	ULEV
Arriva	• All Arriva buses operating into or in York are Euro 5 standard; • All vehicles are fitted with 'Econospeed', which is a fleet fuel saving system, using dynamic acceleration control to reduce fuel consumption and cut CO2 emissions. By limiting acceleration to simulate that of a fully laden or part laden vehicle, EconoSpeed removes the ability of the driver to waste fuel with excessive acceleration demand. Best performance is delivered on frequent stop-start journeys and in variable driving conditions.	• No specific vehicle improvements planned, but the vehicle engine quality will improve as the fleet is replenished over time.	29	0	0
Connexions	• Use of 'Dipetane' fuel additive across fleet - reduces Nox and other emissions as well as delivering a 10% fuel saving;	• Euro 6 bus deployed on CYC tendered route 16 from September 17;	9	1	0
EYMS	• Across the fleet of 275 buses, 80 EYMS buses are built to Euro 5 or 6 standard (21 of which are Euro 6); Average fleet age is 9 years; • Euro 6 investment has been focussed on York with the conversion of the main Hull – York X46 corridor completed in 2017; • Use of the 'Green Road' system which has delivered fuel use, engine idling and safety improvements.	• This will rise to 97 Euro 5 or 6 (38 of which will be Euro 6) – a £3m investment; • Two Pocklington based services operating in to York (routes 45/46) will be converted to Euro 6 late 2017. • Full conversion will take some time, so some non-Euro 5 buses will still be seen in the City for	275	21	0

		now.			
Operator	**Improvements achieved to date**	**Planned improvements**	**Fleet size (Number)**	**Euro 6**	**ULEV**
First York	• 2002 – all fleet fitted with automatic engine cut out to prevent idling; • 2010 – Bio-diesel use introduced; • 2010 - Use of the 'Green Road' system which has delivered fuel use, engine idling and safety improvements introduced; • 2014 – Introduction of 4 diesel/electric hybrid buses on York network; • 2014 – Introduction of 12 fully electric buses (EV) on Park & Ride accompanied with staff training to & support to improve energy efficient driving styles; • 2016 – 'Viricity' telematics remote vehicle management system introduced to maximise use of EV fleet (reducing the deployment of diesel substitute buses); • The York fleet totals 108 buses, all of which are Euro 2 or better.	• Further increase of EVs on later evening services planned for 2017. • Introduction of further EVs on the Park & Ride network.	102	0	12
Reliance	• One new Euro 5 and one new Euro 6 bus introduced in the past few years; • Conversion of two further buses to Euro 5 using Green Urban Technology. All four of these buses operate on routes in to the York area on a daily basis.		10	1	0
Stephensons	• Largely modern fleet • Stricter policies with regards engine idling introduced – Engines will be switched off for service buses waiting at any given stop for more than 1 minute	• Consideration of introducing an upgraded tracking system to more closely monitor driver behaviour and also consideration of ways to incentivise improved driver	10	0	0

		behaviour.			
Operator	**Improvements achieved to date**	**Planned improvements**	**Fleet size (Number)**	**Euro 6**	**ULEV**
Transdev	• 1x Fully electric converted City Sightseeing bus in operation; • 10x Euro 4 buses on Coastliner replaced with 10 x Euro 6 buses in January 2017; • Use of the 'Green Road' system which has delivered fuel use, engine idling and safety improvements.	• 2017/18: 5x City Sightseeing buses to be converted to fully electric operation (100% of City Sightseeing fleet in 2018) • 2018: 3 x Euro 3 City Zap buses to be upgraded to Euro 6 standard.	30	10	1
York Pullman	• 2 x Euro 6 mini-coaches operating extensively in the CYC area • 11 x Euro 5 coaches • 32 x Euro 4 coaches • All coaches are Euro 2 or 3 minimum • Euro 6 bus operating on CYC contracted local bus service	• 10 x Euro 5 buses on delivery for home 2 school transport;	2	1	0

Annex 6 Anti idling details

Service element	Option 1	Option 2	Option 3	Additional cost to CYC (£)	Source of funding	Comment
Write to owners of vehicles identified as idling (not applicable to unmarked vehicles)	✓	✓	✓	none	-	Already undertaken by air quality officers
Liaise with bus companies on idling issues	✓	✓	✓	none	-	Already undertaken by sustainable transport team via Quality Bus Partnership (QBP)
Updating of CYC website and JorAir websites to include anti-idling information and public reporting system	✓	✓	✓	none	-	Some anti-idling information is already available on Jorair and will be updated following decisions from this report.
Erection of anti-idling signage	**x**	✓	✓	**£4000** (estimated) 25 x Metal signs approximately £60 each (fitted) 10 x bus timetable signs approximately £250 (fitted)	Existing air quality grant fund	It is likely that a combination of metal 'dog fouling style' signs and larger 'bus timetable style' signs will be required. An initial survey has shown that locations for additional signage are limited. This is an upper estimate. It may not be possible to erect this amount of signage in practice.
Media campaign and ad hoc anti-idling events	**x**	✓	✓	**£7000**	Existing air quality grant fund	To be delivered mainly in house by air quality and marketing and communications staff using social media. Budget will allow for use of some external

						advertising via posters, radio, cinema and attendance at ad-hoc events.
Ad-hoc anti-idling awareness raising patrols	**x**	✓	✓	**£2500**	Existing air quality grant fund	Patrols will be taken on an ad-hoc basis by CYC staff and volunteers. Budget will allow for provision of high visibility vests with anti-idling message and production of campaign materials to support patrols. To include stickers, give-aways etc.
Anti-idling enforcement patrols	**x**	**x**	✓	**£1000**	From within existing resources	Patrols will be taken on an ad-hoc basis by existing CYC staff. Budget will allow for additional officer training. Excludes any processing and legal costs for FPNs (expected to be insignificant).
Follow up FPN work – debt recovery etc	**x**	**x**	✓	unknown	Routine legal work	Would be incorporated into existing legal and debt recovery work within CYC

Signage

Although not legally required to support anti idling enforcement signage can act as a deterrent and provides a clear message to the general public that vehicle idling it is not a socially acceptable practice.

Signage would need to be erected on existing street furniture. An initial survey has indicated that available space for anti-idling signage is currently very limited and would probably need to be limited to existing blue bus stop posts. Signage cannot be placed in the windows of the bus shelters as these belong to JC Decaux. There are also constraints relating to the height at which signage needs to be placed to prevent accidents.

The following locations have been identified as possible initial signage locations but all are subject to further internal discussion with the appropriate officers.

Location	Comments
Bus stops outside railway station	Limited space for signs but at least 4 needed in this area. Further discussion needed with the station to establish if anything could be fixed to station building
Bus / coach pick up point near memorial gardens (Leeman Road)	Limited space but 1 sign needed in this location
Rougier Street / George Hudson Street	Some bus stops available. 3 signs in this locality.
Museum Street – Park and Ride bus stop near library	Erection of sign on P&R bus stop
Exhibition Square / Theatre Royal	3 signs needed in this area
Clifford Street / Tower Street	Some space available on bus stops. 3 signs in this area
Stonebow bus stops	Would aim to erect 2 signs in this location. To review once works at Stonebow house are complete.
Piccadilly – near Merchant Adventurer's Hall	2 signs (one either side of the road).
Merchantgate	One sign near bus stops
Barbican coach pick up point	One sign required – may require new street furniture
Coach waiting areas on Knavesmire Road	4 signs in this vicinity mounted on existing street lights.
	25 signs – mixture of metal plate and bus timetable style to suit individual locations. Further permissions to be sort prior to implementation.

Other potential sign locations:

- Wiggington Road level crossing
- Strensall level crossing
- Haxby level crossing
- Adjacent to taxi ranks
- Approach to Hazel court civic amenity site
- Outside schools

Widespread erection of anti-idling signage within key shopping streets such as Coney Street, Davygate, Petergate, Stonegate etc to address emissions from delivery vehicles will be difficult due to lack of available street furniture. Any signage in these areas would need to be erected on buildings through negotiation with owners which is likely to be costly and time consuming.

Sign designs

Three types of sign are proposed to be used. The exact wording and images on the signs will be determined on the level of enforcement to be applied in York:

1) Metal plate signs (similar to those used for dog fouling and litter).

Example of metal anti-idling sign from Windsor. Exact wording of York signs subject to further agreement. May or may not make reference to fines (subject to member decision on enforcement) Message can be updated at a later date if necessary using adhesive stickers.

2) Bus stop style signs

To be used where erection of metal plates is not possible due to height restrictions. Frames must be blue to match bus stops and would contain a suitable anti-idling message which could be easily updated as required.

3) Temporary banner signs

These could be used outside schools, in coach parks and at other anti-idling events to raise awareness and can be rotated to different locations throughout the year. Three are currently available following National Clean Air Day. More could be made at £25 each.