THE CITY OF EDINBURGH COUNCIL

Air Quality Action Plan
Progress with Actions 2015

For City of Edinburgh Council

In fulfillment of Part IV of the Envionment Act 1995 – Local Air Quality Management

August 2015

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Report Reference number	AQAPU2015
Date	August 2015

Executive Summary

City of Edinburgh Council's Air Quality Action Plan (AQAP) 2003 was revised in 2008 to remove congestion charging as an Action and to include the new Air Quality Management Area (AQMA) at St John's Road. The council recognise that the current AQAP requires to be revised and this will include new AQMA declarations and extensions of the existing AQMAs

This report provides an update on progress achieved for measures contained in the AQAP and City of Edinburgh Council's Local Transport Strategy 2014 to 2019. The document requires to be read in conjunction with the Updating and Screening Assessment Report for City of Edinburgh Council 2015.

This report concludes that steady progress has been achieved with respect to management of emissions from buses and freight via a voluntary approach. However, it is evident that the VERP proposed target of buses to be 100% Euro 5 by the end of October 2015 will not be achieved.

Lothian Buses is the main local service provider in Edinburgh. It is anticipated that 66% of the fleet will be Euro 5 or better by December 2015. The company continues to deploy their cleanest vehicles on high- frequency routes that transit AQMAs.

ECOSTARS Edinburgh fleet recognition scheme is progressing well and assists the Council encourage and facilitate emission improvements from the goods and passenger transport sector operating in the city. To date, the scheme has attracted 84 operators and a total of 5,048 vehicles are registered. The Council has approved expenditure of up to £25,000 to continue the scheme until 31st March 2016.

The Council is also setting a positive example by reducing emissions from its own fleet. Currently 77% of the fleet are Euro 5 or better - 3% of these vehicles are electric. A vehicle Telematics system was trialled in 2011 on a number of Council vehicles. Overall outcomes were positive. Telematics is currently being considered in greater detail by the Council.

With respect to implementation of a mandatory Low Emission Zone, it is the Council's intention to await release of the Scottish Government's National Low Emission Zone Framework, and associated guidance, prior to undertaking any further work in this area.

The Council continues to procure and install infrastructure to support electric vehicles. Currently there are 49 charging points located at 24 Council premises. It is the Council's intention to run a pilot scheme for the provision of on-street electric charging points in the south-centre of the city. Details of the scheme, including costs and funding streams, will be presented to the Council's Transport and Environment Committee later in 2015.

Data gathered from 20 charging point sites shows a steady increase in electricity usage and number of charging sessions from January 2014 to April 2015.

Traffic management improvements have been progressed for the AQMA at Glasgow Road/ Newbridge. Following a feasibility study, the Council decided that installation of a Microprocessor Optimised Vehicle Actuation (MOVA) system would be the most cost effective option. The scheme has been estimated to reduce NO_x emissions by 44% and queue lengths by 556m. Works are expected to be completed by September 2015.

Split Cycle Offset Optimisation Technique (SCOOT) system at Ardmillan Triangle (Gorgie Road, Dalry Road, Angle Park Terrace), Slateford Road and Shandon was completed towards the end of 2014. Other intended SCOOT installations within the AQMAs were not progressed due to staff resourcing and this is being addressed by the Council.

Enabling works to expand the existing Park and Ride site at Hermiston to provide up to 1000 spaces is expected to commence in June 2015.

Following the success of the trialled Priority Parking Zones (PPZs) in 2010, seven additional zones have been established in the city and two new zones are scheduled to be operational in 2015. The introduction of future Controlled Parking Zones (CPZs) and PPZs are kept under regular review by the Council.

Analysis of residential car parking permit charging data following the introduction of a tiered pricing system in 2010 shows an element of behavioural change by residents with a move towards the purchase of smaller engine vehicles which produce less CO_2.

The Council is committed to deliver a significant increase in the numbers of pedestrian and cycling journeys in the city. A further £1.064 million of capital funding and £371 thousand of revenue for 2015/16 has been dedicated towards cycling and substantial funding from Scottish Government and Sustrans has been allocated towards cycling and walking projects.

The re-instated rail link between Galashiels in the Scottish Borders and Waverley Station Edinburgh is due to become operational in September 2015. It is anticipated that this Scottish Government-led project will deliver air quality benefits to the city as a result of commuter modal shift, from road to rail.

Edinburgh Tram came into service 30 May 2014. Since commencement of passenger operations, patronage on the route has exceeded business-case projections. The Council is currently considering possible options for extending the current tramline to Leith Ocean Terminal or Newhaven, from its present temporary terminus at York Place.

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1 Introduction

This report details progress made on implementing measures contained in the City of Edinburgh Council's Air Quality Action Plan (AQAP). The report supplements the Council's Updating and Screening Assessment 2015.[1]

1.1 Air Quality Action Plan summary

City of Edinburgh Council's initial AQAP was approved in 2003 following declaration of the Central Air Quality Management Area for exceedences of the annual mean nitrogen dioxide objective. This plan contained a number of radical transport measures; including Congestion Charging and a Tram network, which if fully implemented were estimated to reduce nitrogen oxides (NO_X) by 40%.[2]

An additional 40% reduction in NO_x emissions were expected to occur without intervention, due to improvements in vehicle engine technology and subsequent fleet replacement. The overall reduction in NO_x emissions which could be achieved was estimated at 80% from a baseline year of 2001.[2]

The required reduction in roadside NO_x concentrations to meet the 2005 annual mean air quality objective within the Central AQMA were calculated between 33% and 68%.[3] Therefore, the proposed actions within the AQAP 2003 were expected to deliver the required improvement.

Source apportionment work undertaken in 2002 within the Central AQMA identified that the majority of NO_x emissions were derived from buses; Leith Walk (56%), Gorgie Road (55%), and West Maitland Street (63%).[3]

Thus the main challenge for the Council was to stimulate a vehicle clean-up programme, targeting bus operators in the city.

A key element of the AQAP 2003 was the introduction of a vehicle congestion charging scheme. In addition to reducing traffic and congestion levels in the city centre, the scheme was expected to generate sufficient revenue to enable provision of grants to assist a clean-up of older more-polluting vehicles. However, following a Council Referendum in 2005, congestion charging was not progressed. The AQAP was revised in 2008 to remove Congestion Charging as an Action and include the new AQMA designation at St John's Road (2006).[4]

The main focus of the current AQAP is to have cleaner bus and road freight vehicles operating in the city. A Low Emission Strategy Feasibility study, commissioned by the Council was undertaken in 2007 by the consultancy Transport and Travel Research Ltd (TTR).[5]

That study concluded that the greatest reductions in NO_X and PM_{10} emissions for the Council's administrative area would be achieved by implementing a mandatory emissions reduction scheme for bus and road freight operators. Voluntary Partnership Agreements were deemed the next best option, depending on the percentage of fleet improvement that could be achieved.

Further Assessment studies at St John's Road AQMA and Great Junction Street AQMA, also identified that buses were the main contributors of NO_X emissions. [6]

As well as targeting bus and freight vehicles it was considered that the Council should lead by example and strive to operate cleaner, low emission vehicles.

The current AQAP also highlighted a failure to address cumulative impacts associated with development. Therefore, to gain a more accurate understanding of cumulative impacts, a Policy Initiative to develop a Land Use and Traffic model capability was included in the AQAP. No progress has been achieved with this initiative, primarily due to the high capital and revenue costs involved. However, a National Modelling Framework is proposed in the draft Low Emission Strategy for Scotland 2015 which aims to address this issue. [7]

Further Assessment work undertaken for the new AQMAs declared for Glasgow Road and Inverleith Row, and both Central and Great Junction Street extended areas in 2014, identified that the NOx contribution from each of the vehicle classes was varied. Cars were shown to contribute the most NO_x at Glasgow Road and bus the least in Cowgate and Grassmarket to having the largest impacts at London Road, Gorgie /Chesser and Inverleith Row. The report concluded that all motor vehicle classes would require to be kept under review.[8]

To meet the 40µg/m^3 Air Quality Objective, local road NO_x emissions would need to fall between 12% and 30% within the extended Central AQMA, 21% at Bernard Street (Great Junction Street AQMA), 28% at Inverleith Row AQMA and 43% at Glasgow Road AQMA.[8]

1.2 Local Transport Strategy 2014 to 2019

Local authorities are advised in Technical Guidance LAQM TG (09) to align AQAPs with those local transport polices which contribute towards improving air quality. The Council's Local Transport Strategy (LTS) 2014 to 2019 was formally adopted in January 2014.[9]

The revised LTS recognises that air quality is an issue and acknowledges the adverse impacts of increasing use of car vehicles in the city:

'The Council recognises that cars are the most effective way to undertake many journeys. It seeks to implement a transport strategy that enables cars to be used efficiently for those tasks which they are well suited and at uncongested times and locations. However, there is simply not enough space in the city to accommodate all possible demands for movement by car at all times. It is therefore necessary to manage this demand. '

Edinburgh's Local Transport Strategy 2014 to 2019.

Key synergistic policies identified in the Council's LTS are listed in Appendix 1A.

Several other significant policy issues are covered by separate processes which inform the LTS. These include development of specific Action Plans covering Public Transport and Active Travel (walking and cycling).

As well as the LTS, the City of Edinburgh Council's Transport 2030 Vision provides an overarching strategy for the future development of transport in Edinburgh over a 20 year period from 2010.[10]

This document provides the framework for the development of the LTS. A number of its outcomes and indicators include reductions in nitrogen dioxide and carbon dioxide emissions and overall traffic volumes. It also states that LEZs will be introduced if all other measures fail to improve air quality. The measures in the Transport 2030 Vision that will assist the delivery of improvements in local air quality are listed at Appendix 1B.

The Scottish Environment Protection Agency (SEPA) and Transport Scotland (TS) jointly established a new national forum in October 2012: the Scottish Transport Emissions Partnership (STEP) to promote and share 'best practice' between key organisations and individuals with an interest and capability to influence the delivery of improvements in local air quality in Scotland. The forum consists of a range of partners, including Scottish Government, Local Authorities and representatives from the transport, planning and road users sectors.

1.3 Low Emission Strategy for Scotland Consultation January 2015

A draft Low Emission Strategy (LES) for Scotland was issued for consultation by the Scottish Government in January 2015, to which a range of parties have responded, including City of Edinburgh Council. The final version of the Strategy is scheduled to be released in November 2015.

The key aim of the evolving LES is to deliver more effective and efficient policy direction and guidance, alongside a number of 'actions' that local authorities, agencies and other partners will be expected to embrace in order to achieve the

required reduction in emissions by 2020. A National Framework for Low Emission Zones will be embodied within the LES; it is Scottish Government's intention that, should a local authority choose to implement an LEZ, vehicle emissions standards and management systems deployed should be uniform across the country.

2 Progress made with Actions

2.1 National Overview

It is recognised that the expected NO_x emission reductions from improvements in vehicle technology have not been delivered in 'real life' driving situations. This is one of the reasons why Edinburgh, like the majority of other cities with air quality issues has not observed the anticipated decrease in concentrations of roadside nitrogen dioxide. In addition, there are now a greater proportion of diesel vehicles in the national car fleet which emit more direct NO_2 compared with petrol vehicles.

The measures and progress made during 2014/2015 are summarised in Appendix 3 Table 3 and supplementary information is described under the following headings;

2.2 Managing emissions from buses

During 2009, all bus companies operating services in the city were invited to enter into a Voluntary Emissions Reduction Partnership (VERP) with the Council. The proposal was to eliminate vehicles below Euro 4 from the AQMAs by October 2012, with the aim of achieving 100% Euro 5 standard buses by October 2015. However, the two main bus companies operating in the city, Lothian Buses and First Scotland (East) considered the proposal too onerous in the absence of substantial financial support. Consequently no formal agreement was reached.

The Low Emissions Strategy Feasibility study undertaken by Transport and Travel Research (TTR) on behalf of City Edinburgh Council was based on the fleet profile in 2005/2006. Due to the significant improvement of the bus fleet operating in Edinburgh, introduction and expansion of Park and Ride services and an increase of bus frequency on some routes, it was deemed necessary to re-visit the original study outcomes.

An update was commissioned in 2011 to take account of these changes. The new study focussed on the total number of bus movements and their NO_x and PM_{10} emissions in each of the three AQMAs. It concluded that the optimistic scenario (Euro 5) as set out in the VERP would provide the greatest reductions in NO_x and PM_{10} emissions by 2015.[11]

2.3 Bus improvements 2014/2015

All bus companies operating in Edinburgh continue to improve their fleet, although it is evident that it will not be possible to achieve the draft VERP target of 100% Euro 5 by October 2015. It is recognised that substantial financial support is needed to deliver continuing improvement.

Lothian Buses (Transport for Edinburgh / TfE)

Lothian Buses are the main service provider in the urban areas of the local authority. Significant improvements have been achieved since 2006 with the assistance of Scottish Government funding shown in Table 2.1. In 2015, the company was successful in obtaining £1.5M from the Scottish Government Green Bus Fund (Round 5) which enabled the purchase of 20 Euro 6 Double Deck hybrid vehicles. Currently, 55% of the service fleet are Euro 5 or better.

The degree of year-on-year fleet improvement is illustrated in Table 2.2.

It is anticipated that by the end of 2015, 66% of Lothian Buses fleet will be Euro 5 standard or better, as shown in Table 2.3.

There was a slight increase in the use of Euro 3 buses from the reserve fleet in 2014, due to expansion of routes which had been previously primarily operated by First Bus. These numbers have now fallen due to new buses purchased and brought into service in 2014.

In 2014, 25 Euro 4 single deck and one Euro double-deck Volvo vehicles were converted to Euro 5 emission standard by a process of engine management system re-mapping. The re-mapped engines certified by the Vehicle and Operators Services Agency (VOSA) as were operating at Euro 5 standard. The Scottish Government assisted towards the costs of this exercise through a 30% grant from the Air Quality Action Plan Retrofit Vehicle Programme – and facilitated by City of Edinburgh Council.

A further 49 double deck vehicles will undergo engine management system remapping during 2015.

Lothian Buses deploy their highest Euro standard vehicles on high-frequency services and those routes which transit AQMAs e.g. Airlink100 and Service 26, which pass through both the Central and St John’s Road AQMA. The new fleet of Euro 6 diesel-hybrid double deck buses will be used on the Airlink Service from June 2015.

Euro 5 standard buses are also used on the high-frequency service 22 route which passes through both the Central and Great Junction Street AQMAs.

Euro 5 standard or better vehicles which operate frequently within AQMAs are shown in Table 2.4.

Table 2.1 Number of older vehicles retrofitted and number of new buses purchased

Technology	2011 (Funding)	2012 (Funding)	2013 (Funding)	2014 (Funding)	2015 (Funding)
Retro fit using SCRT (EMINOX) Euro 3 to Euro 5/6 (EEV standard)	43 (A) In service				
Hybrid Double Deck vehicles Euro 5 standard	15 (B) In service				
Hybrid Single Deck vehicles Euro 5 standard		10 (C) In service			
Double Deck EEV standard	60 (D) In service				
Single Deck EEV standard		5 (D) In service			
Hybrid Single Deck vehicles Euro 6 standard			20 (E) In service	20 (F) In service	
Hybrid Double Deck vehicles Euro 6 standard					20 (G)
Double Deck vehicles Euro 6				25 (D) In service	
Euro 4 to 5 upgrades via engine management alteration				26 (D) In service	49 (D)

A Lothian Buses contributed to total cost of £500,000 (Lothian Buses £243,000, CEC £50,000 and Scottish Government £207,000)
B Total cost £5M (Scottish Government £1M Green bus fund round 1)
C Total cost £2.65M (Scottish Government £750,000 Green bus fund round 2)
D Lothian Buses self-funding
E Scottish Government £1.5M Green bus fund round 3
F Scottish Government £1.05M Green bus fund round 4
G Scottish Government £1.5M Green bus fund round 5

Table 2.2 Euro Standard of service bus fleet (Lothian Buses 2006 to 2015)

Euro Standard	Base 2006	Sept 2010	Oct 2011	Aug 2012	May 2013	May 2014	March 2015
Pre Euro	63 10%	0	0	0	0	0	0
Euro 1	33 5%	0	0	0	0	0	0
Euro 2	202 32%	64 10%	7 1%	12 2%	0	0	0
Euro 3	317 52%	307 52%	257 43%	254 42%	251 41%	273 43%	233 36%
Euro 4	0	79 13%	79 13%	81 13%	81 13%	75 12%	55 9%
Euro 5	0	136 23%	141 23%	141 23%	141 23%	147 23%	186 29%
EEV (5/6)	0	1 0.1%	117 20%	117 19%	142 23%	146 23%	104 16%
Euro 6						1 <1%	65 10%
Total	**615**	**587**	**601**	**605**	**615**	**642**	**643**

Data provided by Lothian Buses (TfE) May 2015.

Table 2.3 Lothian Bus Euro Standard projection for December 2015

Euro Standard	December 2015
Euro 3	211 (33%).
Euro 4	6 (1%)
Euro 5	235 (36%)
EEV	94 (15%)
Euro 6	97 (15%)

Data provided by Lothian Buses (TfE) May 2015

Table 2.4 Lothian Buses (TfE) - deployment of Euro 5 or better in AQMAs June 2015

Service Number	Euro bus standard June 2015
Central AQMA	
30, 12, 24	Euro 6 hybrid single deck
Airlink100 , 34	Euro 6 hybrid double deck
3	Euro 6 double deck
10	Euro 5 hybrid
1	Euro 5 hybrid single deck
22	Euro 5
26	Euro 5
St John's Road AQMA	
Airlink	Euro 6 hybrid double deck
26	Euro 5
Great Junction St AQMA	
22	Euro 5
10	Euro 5 hybrid
Inverleith Row AQMA	
21	E3 SCRT and Euro 5
23	Euro 5 and EEV
27	Euro 5 and EEV

Data provided by Lothian Buses (TfE) May 2015

Although improvements in the main fleet service have been achieved it is recognised that the majority of the company's City Tour fleet consists of Euro 2 vehicles as shown in Table 2.5.

Lothian Buses has commissioned two separate trials to test the potential for retrofitting this fleet with EMINOX SCRT technology in an endeavour to improve its emissions standards. However, both trials have proved unsuccessful due to difficulties in maintaining the required temperature for the adapted exhaust system to operate effectively throughout the daily drive cycle.

The tour bus fleet has a high operational presence in the City Centre AQMA and other adjoining areas. It is therefore the intention of both City of Edinburgh Council and Lothian Buses to continue exploring options for improving the emissions standards of these vehicles.

Table 2.5 Euro Standard of City Tour Bus fleet (Lothian Buses) 2010 to 2015)

Euro Standard (Lothian Bus)	Sept 2010	Oct 2011	Aug 2012	May 2013	May 2014	March 2015
Pre Euro	9	0	0	0	0	0
Euro 1	0	0	0	0	0	0
Euro 2	37	45	38	38	44	44
Euro 3	0	0	1	1	1	1
Euro 4	0	0	0	0	0	0
Euro 5	0	1	1	1	2	2
Total	**47**	**46**	**40**	**40**	**47**	**47**

Data provided by Lothian Buses (TfE), May 2015

Transport for Edinburgh (TfE) has recently approved a project involving an enhanced deployment of specially adapted Lothian diesel-electric hybrid buses. These buses will deliver substantial emission savings and will operate in full-electric mode through the City of Edinburgh's Council's Central AQMA and East Lothian Council's AQMA in Musselburgh.

A fleet of new diesel-electric hybrid vehicles will be purchased to facilitate this technology. The buses will be engineered to receive and store electric charge via an adapted pantograph system on the roof of the vehicles. The service route selected for this project will require specifically designed, rapid electric charging infrastructure to be installed at each terminus, where the vehicles' large capacity batteries will be fast-charged. It is envisaged that with the enhanced electric storage capacity, the buses will switch automatically to electric-only mode when operating in AQMAs (and other areas where air quality is a consideration) utilising GIS 'Geo Fencing' SMART technology.

Lothian Buses continues to be committed to reducing the emissions from their fleet and to the deployment of new, cleaner vehicle technologies wherever possible.

First Scotland (East)

First Scotland (East), continues to be second major operator of bus services in Edinburgh. Following a business review in 2012, a number of services operating in the east of Scotland were withdrawn or reduced in the spring of that year. Although the immediate effect was a reduction in the number of First Scotland (East) services operating in or through Edinburgh, there have been a recent increase in the number of fleet vehicles.

The majority of the First Scotland (East) fleet operating in Edinburgh is of Euro 3 standard (54%), but there is also now a sizeable proportion (24%) of Euro 5 vehicles deployed in their services entering the city as shown in Table 2.6.

Table 2.6 First Scotland (East) fleet operating in Edinburgh 2011 to 2015

Euro Standard	2011	2013	2014	2015
Euro 1	23 (7%)	0	0	0
Euro 2	149 (45%)	0	0	0
Euro 3	116 (35%)	75 (69%)	53 (52%)	84 (54%)
Euro 4	33 (10%)	24 (22%)	31 (30%)	32 (21%)
Euro 5	9 (3%)	10 (9%)	18 (18%)	37 (24%)
Total vehicles	**330**	**109**	**102**	**153**

Data provided by First Bus (East) February 2015

Stagecoach Ltd.

There are 58 buses in the Stagecoach fleet operating on services into the centre of Edinburgh. These services pass through the Queensferry Road and Corstorphine Road corridors, as well as the 747 Airport Service from Fife (Glasgow Road). The majority (59%) of the Stagecoach fleet into Edinburgh are of Euro 4 standard.

The total number of Stagecoach vehicles operating in Edinburgh has increased since 2012, due to the introduction of new services and increased frequency of existing services.

Stagecoach has 12 Euro 6 coaches on order. It is anticipated that this investment will eliminate the remaining Euro 3 vehicles from regular use into Edinburgh within the next 12 months.

The current Euro class status of the Stagecoach fleet operating in Edinburgh is presented in Table 2.7

Table 2.7 Stagecoach Fleet operating in Edinburgh 2012 to 2015

Euro Standard	2012 (%)	2013 (%)	2014 (%)	2015 (%)
Euro 1	0	0)	0	0
Euro 2	2 (5%)	0	0	0
Euro 3	4 (10%)	4 (10%)	8 (14%)	5 (9%)
Euro 4	27 (69%)	27 (64%)	33 (59%)	34 (59%)
Euro 5	6 (15%)	11 (26%)	15 (27%)	19 (33%)
Euro 6	-	-	-	-
Total vehicles	**39**	**42**	**56**	**58**

Data provided by Stagecoach May 2015

Citylink

Citylink operate a number of 'inter-city' type coach services between destinations across Scotland. The services are subcontracted to a range of different bus operators, consequently many of the vehicles are not directly owned by Citylink. There are 47 buses operating on services entering Edinburgh, the vast majority of which (96%) are at Euro 5 emissions standard or better.

The current Citylink-managed fleet operating into Edinburgh is shown in Table 2.8

Table 2.8 Citylink fleet operating in Edinburgh 2015

Euro Standard	May 2015
Euro 1	0
Euro 2	0
Euro 3	2 (4%)
Euro 4	0
Euro 5	43 (92%)
Euro 6	2 (4%)
Total	**47**

Data supplied by Citylink May 2015.

2.4 Managing emissions from the road freight sector

The road freight sector is extremely diverse, with a large number of individual and corporate operators, a variety of fleet types and sizes and a substantial range of operating models. As a result, it has been a more demanding group for the local authority to access and co-ordinate with. In previous reports, the Council believed

that the most feasible way of delivering voluntary reductions in emissions, from road freight vehicles in Edinburgh, was through engagement with the South East Scotland Regional Transport Authority (SESTRAN) Regional Freight Quality Partnership. However, SESTRAN's regional remit means that it is more challenging for Edinburgh-centred actions to be pursued and alternative options have been considered.

2.4.1 ECOSTARS Edinburgh Fleet Recognition Scheme

In an attempt to encourage road freight operators to voluntarily reduce their emissions, City of Edinburgh Council became a partner in an EU-funded project, ECOSTARS Europe through which the ECOSTARS Edinburgh scheme was established. This is a voluntary, free-to-join fleet recognition scheme that provides bespoke guidance on environmental best practice to operators of goods vehicles, buses and coaches whose fleets regularly serve the Edinburgh area. The project is an extension of a similar scheme which had been trialled successfully by a consortium of South Yorkshire local authorities, in partnership with Transport Travel Research Ltd (TTR).

The ECOSTARS Edinburgh scheme was launched in January 2012 and to date 84 operators have joined with a total of 5,048 vehicles registered. The majority of members are goods vehicle operators (65), followed by passenger transport operators (14) and public sector fleets (5).

The Edinburgh scheme was part-funded until June 2014 by Intelligent Energy Europe (EU) after which it received support funding from the Scottish Government Air Quality Action Plan grant. Funding of up to £25,000 was approved by the Council in March 2015 to enable the scheme to continue for a further year. Proposals to establish a regional or national ECOSTARS scheme in Scotland are still under discussion and it is possible that further developments will evolve once the national Low Emission Strategy (LES) for Scotland has been finalised.

The ECOSTARS Edinburgh scheme offers a relatively low-cost, 'partnership' mechanism to assist the Council encourage and facilitate emission and operational improvements in the goods and passenger transport sectors operating in the city. Progress is detailed in Table 2.9

Table 2.9 ECOSTARS Edinburgh - progress from inception to 2015

Year	Number of vehicles in the scheme	Number of operators in the scheme
2012(May)	1,684	14
2013 (May)	2,900	35
2014 (May)	3,525	51
2015 (June)	5,048	84

Since the establishment of the Edinburgh scheme, six other ECOSTARS schemes have been established by local authorities in Scotland: Dundee, Falkirk, Fife, Glasgow, North Lanarkshire and South Lanarkshire. A number of other Councils have also expressed an interest in setting up similar schemes; potentially further widening the opportunity for realising regional or national synergies and benefits.

2.5 City of Edinburgh Council (CEC) – own fleet improvements

The Council is committed to leading by example through the acquisition of lower emission vehicles for its own fleet, as set out in Policy ENV2 of its updated Local Transport Strategy 2014 to 2019 shown in Appendix 1A.

In 2014, the Council purchased 16 new electric-powered vehicles, with the assistance of the Scottish Government's Low Carbon Vehicle Procurement Support Scheme. This brings the total number of electric vehicles operated by CEC to 27. Presently, 77% of the Council's operational fleet is at Euro 5 standard or better, while 3% is full electric. The degree of ongoing Council fleet improvement is set out in Table 2.10

2.6 Managing traffic emissions via a Mandatory Low Emission Zone

In 2009, the Council's Transport, Infrastructure and Environment Committee proposed that a stakeholder consultation take place on the feasibility of introducing a LEZ for managing traffic emissions in the city. Although this did not progress as anticipated, the current administration stated its commitment in 2012 to investigate the possibility of introducing an LEZ in Edinburgh. This process has necessarily been delayed due to the revision of Vehicle Emission Factors (VEFs) by the UK Department for Transport (DfT) as it is recognised that accurate VEFs are a crucial component in the development of a LEZ. Additionally, the UK Department for Environment, Food and Rural Affairs' (DEFRA) proposals for establishing a UK-wide LEZ Framework was not progressed.

Table 2.10 Improvement in City of Edinburgh Council fleet (including non-owned) 2003 to 2015

Euro Standard	2003	2011	2012	2013	2014	2015
Pre Euro	12 1%	0	0	0	0	0
Euro 1	96 12%	0	0	0	0	0
Euro 2	374 45%	0	0	0	0	0
Euro 3	338 41%	78 8.3%	45 4.6%	38 4%	44 5%	44 5%
Euro 4	12 1%	627 67.1%	561 58.2%	476 50%	476 49%	183 19%
Euro 5	0	227 24.2%	348 36.1%	430 45%	440 45%	708 73%
Euro 6	0	0	0	0	0	10 1%
Electric	0	3 0.3%	10 1%	10 1%	11 1%	27 3%
Total	**832**	**935**	**964**	**954**	**971**	**971**

Data provided by CEC Fleet April 2015

In January 2015, Scottish Government began consulting on its draft Low Emission Strategy for Scotland. Included in the draft is a proposal for a national LEZ Framework for Scotland, which aims to encourage the adoption of LEZs by local authorities. Devising a national LEZ Framework is a highly complex process and will require a large degree of development and testing in order to be fit-for-purpose.

Therefore, it is the Council's intention to await final development of the Scottish Government's LEZ Framework and guidance prior to assessing the potential for the introduction of an LEZ in Edinburgh.

2.7 Electric Vehicles/Plugged in places

Embodied within the LTS is a commitment from the Council that it *'will prepare an action plan for low emission vehicles that will:*

- *Cover the acquisition of low emission vehicles for its own fleet*
- *Set priorities for the location of electric vehicle charging points and alternative fuelling stations*

- *Develop pathways for enhancing the attractiveness of low emission vehicles including partnership working with external bodies and;*
- *Establish a regular monitoring process to ascertain the effectiveness of measures and the direction of technological trends.*

The United Kingdom Office for Low Emission Vehicles (OLEV) has provided funding for the third wave of its 'Plugged in Places' (PIP) programme, which part-funds electric vehicle infrastructure in all 32 of Scotland's Community Planning Partnership areas. Edinburgh was successful in securing funding to purchase and installa four Fast (22kW) charging units. These have been located at publicly accessible sites in the city: Ingliston, Blackhall Library and Wester Hailes Community Centre.

The PIP funding scheme for 2013/14 enabled Edinburgh Community Planning Partnership to procure and install Combi-Rapid Chargers for three Park and Ride sites that serve the City of Edinburgh at Ingliston, Hermiston and Straiton.

There are 49 electric vehicle charging points sited at 24 Council premises for a mix of public and non-public use. Locations and charging units are shown in Table 2.11

Table 2.11 Locations and number of charging units installed in Edinburgh

Location	Number of Charging Units
Council Premises	
Bankhead Depot (West)	2
Blackhall Library	2
Central Library (Cowgate)	1
City Chambers Quadrangle (City Centre)(A)	2
Cowan's Close (South)	1
Drumbrae Hub Garage (West)	1
East Neighbourhood Office Niddrie (East)	2
Inch Park (South)	1
Kirk Loan (St Johns Road)	1
Kirkliston Local Library (North West)	1
Morton Hall	2
Murrayburn Depot (South West)	2
North Edinburgh Office (North)	2
Peffer Place (East)	2
Portobello Town Hall	1

Table 2.11 Locations and number of charging units installed in Edinburgh

Location	Number of Charging Units
Powderhall Broughton Road (North)	2
Restalrig House Craigentinny (East)	1
Russell Road Depot (West)	5
Scientific Services Seafield Laboratory (East)	6
South Neighbourhood Office (South)	2
Waverley Court (City Centre)[(A)]	5
West Neighbourhood Office Drumbrae (West)	2
Westerhailes Healthy Living Centre	2
Westerhailes Wood Gate	1
Universities/Colleges	
Appleton Tower Edinburgh University (City Centre)	2
Edinburgh Napier Merchiston Campus (South)	2
Edinburgh College Milton Road Campus	5
Kings Buildings West Mains Road (South)	2
Queen Margaret University (East Lothian)	2
Western General (North West)	2
Other	
Airport Edinburgh	2
Fettes Lothian and Borders Police HQ (North)	4
Fountainbridge X Leisure	3
High School Yards Infirmary Street (City Centre)	2
Hermiston Park and Ride	3*
Straiton Park and Ride	3*
Ingliston Park and Ride (West)	7
Marriot Hotel (Glasgow Road West)	1

[(A)] Funding obtained from Scottish Government Air Quality Action Plan Grant

* Under construction

All public charging sites are listed on the following website http://chargeyourcar.org.uk

Progress regarding installation of electric charging infrastructure through the PIP funding scheme is charted in Table 2.12

Table 2.12 Electric charging infrastructure progress from 2012 to 2015

EV Infrastructure (units & sites)	2012	2013	2014	2015
Number of charging heads	8	14	58	89
Number of site locations	5	9	26	38

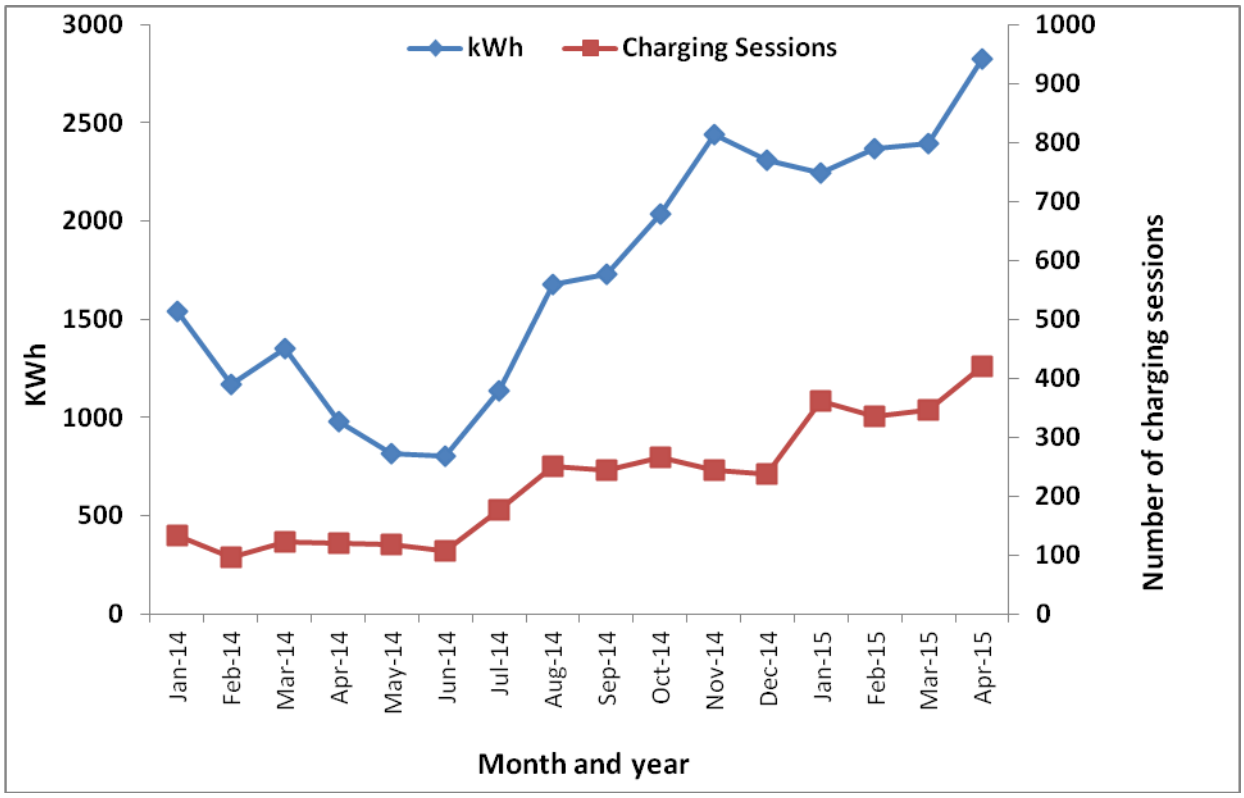
Since 2014, data has been compiled for the number of charging sessions and amount of electricity used at 20 locations across the city.

As expected, with additional infrastructure provision and more electric vehicles in the fleet there has been an increase in usage. The amount of power in KWh and number of charging sessions per month is charted in Fig 2.1

City of Edinburgh Council has recently reviewed its Parking Standards policy. The policy now expects developers to consider provision for encouraging electric vehicle charging infrastructure throughout all types of development. This is currently being progressed through the inclusion of an informative on planning consents, rather than Section 75 Legal Agreements or use of planning conditions. It is recognised that the Council will need to provide stronger encouragement if increased electric charging provision is to be realised through new development.

Although Transport Scotland has provided financial support for the provision of electric vehicle charging points, these are primarily at off-street locations. So far, there has been little indication of funding for or prioritisation of on-street charging points. Consequently, such facilities will require action at a local level. Transport Scotland has indicated however that it would be willing to be a partner in a pilot scheme.

Figure 2.1 Power (KWh) used and number of charging sessions from January 2014 to April 2015.



In March 2015, a report recommending priority options for installing on-street electric vehicle charging points in the city was approved by the Council's Transport and Environment Committee. The main recommendations, in order of priority are:

- *To pilot a number of on-street charging points to commence in 2016 in an area of high density development. The proposed area is Marchmont / Sciennes.*
- *The provision of charging points at parking bays for use by plug-in car club vehicles.*
- *The provision of on- street charging for electric buses and taxi fleets.*
- *To provide public charging points in areas that are not currently served, to encourage the use of electric vehicles.*

A further report will be submitted to the Council's Transport and Environment Committee later this year (2015) with details of the pilot scheme, estimated costs and potential funding sources.

2.8 Traffic Management

Improving traffic flow and reducing idling time are measures which help to improve air quality.

2.8.1 SCOOT

Spilt Cycle Offset Optimisation Technique (SCOOT) systems are automatically responsive to traffic flows and demand and help ease congestion by providing more effective control of traffic signals.

SCOOT infrastructure is in place on a number of road networks in the city. However, due to ongoing utility works and road improvements, many of the inductive loops have been damaged and require repair. Lack of staff resources during 2014/15 led to an extensive backlog of loop repairs and validation of systems. This has prevented the full operational benefits of SCOOT in a number of locations where air quality is a concern. The staff resource issues are being addressed and it is hoped that a number of systems can be brought to a good operational level within the next 12-18 months.

Within the Central AQMA, SCOOT is currently only fully operational at three major links on the network;

- Gorgie Road, Chesser Avenue and Balgreen Road
- Gorgie Road, Westfield Avenue and Robertson Avenue
- Ardmillan 'Triangle' (Gorgie Road, Dalry Road, Angle Park Terrace) and Slateford Road and Shandon. Completed end of 2014 (see below)

Scottish Government air quality grant funding has enabled installation of SCOOT in the area described as the Ardmillan Triangle. This includes Shandon and Slateford Road, locations that fall within the boundary extension to the Central AQMA.

The current status of SCOOT within the AQMAs is detailed in Table 2.13

Programme of ongoing SCOOT work.

St John's Road AQMA

It was anticipated that SCOOT at St John's Road AQMA would be complete and commissioned by 2013, in association with the MOTES trial (see section on E-motes). However, cabling works are still incomplete at Manse Road and due to recent footway improvements at Clermiston Road, loops require to be re-checked for damage.

Inverleith Row and Ferry Road junction

Loop repairs and subsequent validation are required on Ferry Road to address the following junctions: Inverleith Row, Granton Road, East Fettes Avenue and Pilton Drive. The data phone line has now been reconnected at Ferry Road / Granton Road Junction.

Programme of proposed SCOOT work in AQMAs for 2015/2016.

Central AQMA (Easter Road and London Road)

SCOOT repair work has been delayed at Easter Road and London Road due to road resurfacing and junction refurbishment. It is anticipated that the loops will be re-cut by early 2016.

Central AQMA (Grassmarket, Cowgate and West Port) and Great Junction Street AQMA (Bernard Street)

SCOOT infrastructure will be progressed at both these locations during 2015 with assistance from the Scottish Government air quality grant scheme.

SCOOT locations outwith AQMAs

The Council's Transport service has identified the following additional locations outwith the AQMAs where SCOOT systems will be deployed and which are expected to become active by end of March 2016;.

- Morningside Road (Holy Corner to Comiston Road and Greenbank Crescent)
- Portobello High Street (from Fishwives Causeway to Bellfield Street)

Installations at Seafield Road (Seafield Place and Craigentinny Avenue North) are now operational.

Seafield Street, Salamander Street, Bath Road will be linked to the Leith (Shore & Commercial Street) SCOOT system by March 2016.

Table 2.13 Status of SCOOT in AQMAs 2015

SCOOT Status	Locations
Central AQMA	
Fully operational	Gorgie Road, Chesser Avenue, Balgreen Road
Fully operational	Gorgie Road, Westfield Avenue and Robertson Avenue
Fully operational	Ardmillan Triangle including Gorgie Road/ Dalry Angle Park Terrace*, Slateford*
Infrastructure installed, but loop repairs and re-validation required	The Bridges, London Road, Easter Road Nicholson Street*, Clerk Street/ South Clerk Street*
Loops and validation required	Roseburn
Unlikely to be re-installed due to Tram priority	Queen Street, Princes Street, Haymarket, Leith Walk, St Andrews Square
Not installed	Grassmarket, Cowgate and West Port
St John's Road AQMA	
Infrastructure installed Cabling work, configuration and revalidation required	St Johns Road, Corstorphine Manse Road / St Johns Road [(A)]
Great Junction Street AQMA	
Infrastructure not installed	Bernard Street / Shore Ocean Terminal / Commercial Street
Inverleith Row/ Ferry Road junction	
Infrastructure installed Loop repairs and validation required	Inverleith Row (Goldenacre) Ferry Road

***** Air Quality Management Area Extensions

[A] Clermiston Road /St Johns Road (potential loop repair and revalidation following recent footway improvements)

2.8.2 Newbridge Roundabout / (Glasgow Road AQMA)

The traffic signalling which controls Newbridge Roundabout is a 'non cable linked fixed-time (CLF) system. It operates a fixed green (go) time for each junction link. This system is very inflexible and is unable to respond to fluctuations in the volume of traffic on each approach, which results in lost time under low flow conditions and causing congestion under heavy flow conditions.

Funding was secured from the Scottish Government Air Quality Action Plan Grant Scheme to undertake a feasibility modelling study which considered three options for Newbridge Roundabout to reduce congestion on the A8 approach.

The options were as follows:

Option 1 Optimisation of Signal Timings
Option 2 Implementation of Microprocessor Optimised Vehicle Actuation (MOVA)
Option 3 Road Widening on A8 approach to 3 lanes.

All three options were evaluated with respect to emission reductions of NO_x, PM_{10}, carbon dioxide and traffic queue lengths for the PM period on the A8 approach.[12]

The modelling study showed significant emission reductions and reduced vehicle queue lengths for all three options. Table 2.14 and Table 2.15.

Table 2.14 Emission reductions for NO_x, PM_{10} and CO_2 for afternoon peak period.

Options	NO_x	PM_{10}	CO_2
Option 1	43%	26%	38%
Option 2	44%	26%	40%
Option 3	47%	29%	43%

Table 2.15 Vehicle queue length reductions during afternoon peak period

Options	Afternoon vehicle queue length in metres
Average current afternoon vehicle queue length = 790 m	
Option 1	173m
Option 2	134m
Option 3	72m

The Council has evaluated the three options and decided to implement option 2.

Implementation works at Newbridge roundabout have commenced and the estimated completion date is September 2015.

2.8.3 E-MOTES (Real-time Remote Sensor System)

E mote sensors provide instant qualitative real-time NO_x data, which can be linked to SCOOT systems and govern traffic signalling with respect to ambient concentrations of NO_x. It is anticipated that improvements in traffic flow, coupled with the knowledge of real time NO_x data will led to a reduction in hourly exceedences and the annual mean.

A trial involving MOTES sensors was commissioned early 2013 and a number of units were installed in March 2013 along St John's Road, within the AQMA. The initial phase of the trial involved the assessment of NO_x data gathered from a co-located MOTEs unit at the real time air quality monitoring station at St John's Road, prior to linking with traffic signalling. Data obtained did not correlate well with real-time data from the reference analyser. Through review it transpired that the electrochemical sensor deployed in the unit for measuring NO_2 was faulty. Although new sensors have since been developed there are still issues with consistency between the different units and cross-sensitivity with ozone.

The Council will be seeking assurances that the NO_x data gathered by the sensor units is reliable prior to continuing (or extending) this trial.

2.8.4 Telematics trial

Scottish Government air quality grant funding was provided to the Council during 2010/2011 to enable a trial of a vehicle Telematics system, in order to assess its ability to deliver fuel efficiencies through improved vehicle and driver management. The trial was carried out on a collaborative basis with the system provider Masternaut (Cybit) UK Ltd.

The aim was to reduce fuel consumption through better and more efficient driving, better route planning and improved utilisation of vehicles.

Fifteen vehicles which operate primarily within the AQMAs were selected for the trial and fitted with the necessary components and software. Following commissioning, the system was run for a period of three months without intervention, to obtain baseline information. Eco Driving training was then provided to the vehicle drivers and post-training data gathered.

Relevant real-time data from the vehicle as it operated was fed back to a web-based collation system. The council obtained weekly reports on driver/vehicle performance e.g. speeds, braking, idling and fuel consumption.

As per the trial contract, an analysis report has been prepared by Masternaut (Cybit) on behalf of the Council and the overall outcomes are positive.[13]

Telematics is currently being considered in greater detail by the Council. A summary of the findings is shown in Table 2.16.

Table 2.16 Changes observed following Eco- Driving instruction

Parameter measured between Benchmark and Go live	Percentage Change
Decrease in average miles	30.5%
Reduction in average idling time	26.5%
Reduction in harsh events	18.5%
Improvement in MPG	4.3%
Reduction in average weekly fuel litres	4.1%
Reduction in CO_2 output	4.2%

3 Progress with policies/initiatives in Local Transport Strategy

Progress on Local Transport Strategy (LTS) policy measures which are included in AQAP and aim to reduce car traffic are detailed below:

3.1 Park and Ride

Edinburgh is served by a number of Park and Ride locations around the periphery of the city and beyond. The current number of spaces available has the potential to reduce the daily work commuter traffic journeys by 11,280 if operated at maximum capacity. Table 3.1

Table 3.1 Park & Ride Sites serving Edinburgh & number of Parking Spaces

Park and Ride Site	Number of Parking Spaces
Wallyford, East Lothian	321
Hermiston	450
Sheriffhall, Midlothian	561
Newcraighall	565
Straiton	600
Ingliston	1082
Ferrytoll, Fife	1040
Halbeath, Fife*	1021
Total	**5640**

Data on usage rates for bus based Park and Ride sites in Edinburgh is collected by automated counting equipment and verified by twice daily manual counts.

Hermiston has the highest utilisation, which at times reaches 100% of existing spaces. Ingliston currently has utilisation of approximately 56%. However, this is post-expansion and there is evidence of recent growth to fill the additional capacity. Straiton and Newcraighall (operated by Network Rail) have lower utilisation levels, but offer opportunity of spare capacity to meet future demand. Ferrytoll (operated by Fife Council) has shown steady increase in patronage since it was established in 2007 (expanded 2010). Data on usage shows that the site is approaching capacity during periods of peak demand.

Current average peak occupancy rates at Sheriffhall (Midlothian) vary between 60% and 75%, whilst near-capacity occupancy is observed during Edinburgh Festival and Christmas period.

In September 2009, the Council's Transport, Infrastructure and Environment Committee approved a requirement for land to be safeguarded at Hermiston, Lasswade Road and Hermiston Gait for future expansion of Park and Rides.

Planning permission was granted for the expansion of Hermiston to provide up to 1000 spaces in July 2012. Informatives and conditions attached to the planning consent placed a requirement to investigate the installation of electric vehicle charging points and stipulated that the site be serviced by Euro 5 (or better) buses.

The land has now been acquired at Hermiston for development of the Park and Ride extension and the associated enabling works are expected to commence in June 2015.

A new Park & Ride facility for Lothianburn (Hillend) at Midlothian's boundary with Edinburgh was initially a stand-alone project proposed by Midlothian Council to provide additional capacity should Straiton become fully utilised. However, concerns were raised due to the close proximity of underground infrastructure owned by Scottish Water, which had the potential to be damaged during construction. In addition, the anticipated growth had not been observed at Straiton.

This proposal has now been subsumed into a wider project known as the Edinburgh Orbital Bus Project. It is likely that this will be taken forward by Transport once funds become available. The project has a number of partners, including Transport Scotland.

Halbeath Park and Ride opened in November 2013. This is an important interchange - as well as serving local communities in Fife, it provides additional capacity for commuters travelling to Edinburgh.

Edinburgh is a major employment centre and therefore car travel associated with development outside the administrative boundary will impact on Edinburgh's road network. To reduce further impacts, it will be necessary for strategic development plans to deliver effective, sustainable transport options and reduce reliance on travel by car into the city.

3.2 Promotion of walking and cycling

The LTS contains a number of cycling and walking policies intended to encourage modal shift. In further support of these ambitions the Council also introduced an Active Travel Plan (ATAP) in 2010. The plan aims to deliver significant increases in the numbers of pedestrian and cycling journeys travelled within Edinburgh and sets

targets of 35% for walking and 10% for cycling for all trips in the city by 2020. A core element of the plan is the development of a 'Family Network' of cycle routes that enable people to travel around the city on safe routes away from the busier roads.

Several major and smaller cycling and pedestrian schemes have been delivered and additional schemes are in progress. Table 3.2

Table 3.2 Active Travel Plan Cycling and Pedestrian Schemes

Delivered	In Progress
Leith to Portobello (Phase 1, 2 and 3)	Leith to Portobello (Phase 4)
Quality Bike Corridor	George Street segregated cycleway
Roseburn to Forth Bridge (NCN1) Sections 1,2,3,4 and 5	Leith Walk segregated cycleway
Restalrig railway path	Roseburn to Leith Walk
Corstorphine railway path	Roseburn to Union Canal
Craigleith to Royal Botanical Gardens	Meadows to Innocent cycle route (NCN75)
Improvements South Meadow walk and North Meadow Walk widening and resurfacing	Loanhead to Gilmerton
Union Canal provision of solar LED lights	Cultins Road shared footway
Meadows to canal cycle Route (NCN75)	

The Council has committed to spending 8% of its transport budget on cycling in 2015/16, which equates to £1.064 million of capital funding and £371 thousand of revenue funding. In addition:

- £242K of Council funding has been allocated to capital walking projects
- £370K of Scottish Government 'Cycling, Walking and Safer Streets' funding has been allocated towards cycling
- £580K of funding has been secured from Sustrans towards cycling and walking projects.

Since implementation of the ATAP levels of cycling have increased in Edinburgh. Between 2010 and 2012 there has been a rise of 16% on off road paths and a 25% increase has been recorded around the city centre cordon between 2009 to 2012. This data is collected by automatic cycle counters on off road paths and at various points on the city centre cordon as part of the annual Central Edinburgh Passenger and Transport Study (CEPATS).

The Council's Transport service has not released further data regarding cycle use or pedestrian foot fall. However, new software is currently being investigated to make this analysis easier.

The Council also secured European funding for a cycling project, 'Cycling Heroes Advancing sustainable Mobility Practice' (CHAMP, previously' Managing Energy Reduction through Cycling e**X**cellence' (MERCX)). This project has funded cycling promotion through marketing and promotional activities, including the development and distribution of publicity materials, as well as helping to support the piloting of on-street residential bike parking and the planning and delivery of workplace initiatives. This project commenced in October 2011 and ran for three years.

3.3 Controlled Parking Zones

Controlled Parking Zones (CPZs) provide a number of on-road parking spaces for residents and therefore assist in discouraging car commuting into city centres. The boundary of Edinburgh's Controlled Parking Zone (CPZ) was substantially extended in 2006-2007.

An alternative form of CPZ, a Priority Parking Zone (PPZ) was trialled in the south-central area of the city during 2010. The operational times of the PPZ were aligned with peak travel periods and, as with the standard CPZs aim to deter commuter travel. The trial delivered positive outcomes and has been made permanent. As a result several new areas in the city have been designated PPZs. The areas are shown in Table 3.3

Table 3.3 Priority Parking Zones within City of Edinburgh Council

Code	Area	Implementation Date
B1	South Grange /Newington	September 2011
B2	South Morningside	March 2013
B3	Arboretum/Kinnear/Inverleith	March 2013
B4	Craigleith	November 2013
B5	Blinkbonny	March 2014
B6	Netherliberton/Blackford	March 2014
B7	Priestfield	November 2014
B8	Craiglockhart	November 2014

It is anticipated that two new PPZ's will become operational later this year; Murrayfield and Bangholm/ Wardie/Telford.

Introduction of new and extensions to existing CPZs or PPZs are kept under regular review by the Council. Locations of residential CPZs and PPZs can be downloaded from the following website;
http://www.edinburgh.gov.uk/info/20083/parking_permits/577/parking_permit_map

3.4 Differential Residential Car Parking Permits

In October 2010, the Council implemented a 'Park Green' scheme; a tiered pricing system for residential parking permits with charges based on vehicle CO_2 emissions (or engine size for vehicles registered prior to March 2001). The scheme aims to encourage those living in residential parking zones to buy and run lower emission vehicles. The scheme's effectiveness is assessed through the Permit Charges data.

The CPZs and PPZs are split into three groups; central zone, peripheral and extended zones and PPA zones.

The scheme's effectiveness with respect to assessment of behavioural change by residents has been evaluated by analysis of parking permit data from 2011/12 to 2014/15. Parking permit data was proportioned as a percentage of the total number of permits purchased for each of the zoned groups. The bulk of the parking permits issued for vehicles in all three zoned groups fall within the following ranges; 101 - 150 CO_2 g/km and 151 - 185 CO_2 g/km.

The trends for each of the three zoned groups suggest that there has been some behavioural change with respect to a move towards the purchase of smaller engine vehicles producing less CO_2. The greatest change is in the 101 to 150 CO_2 g/km emission categories. There is also a notable decrease in the purchase of vehicles which are in the 151 to 185 CO_2 g/km range. There appears to be no or little change regarding the vehicle category producing the most CO_2 (226+). The trends for each grouping from 2011/12 to 2014/15 are illustrated in Figures 3.1, 3.2 and 3.3

Figure 3.1 Percentage of differential parking permits purchased in Central Zone from 2011/12 to 2014/15

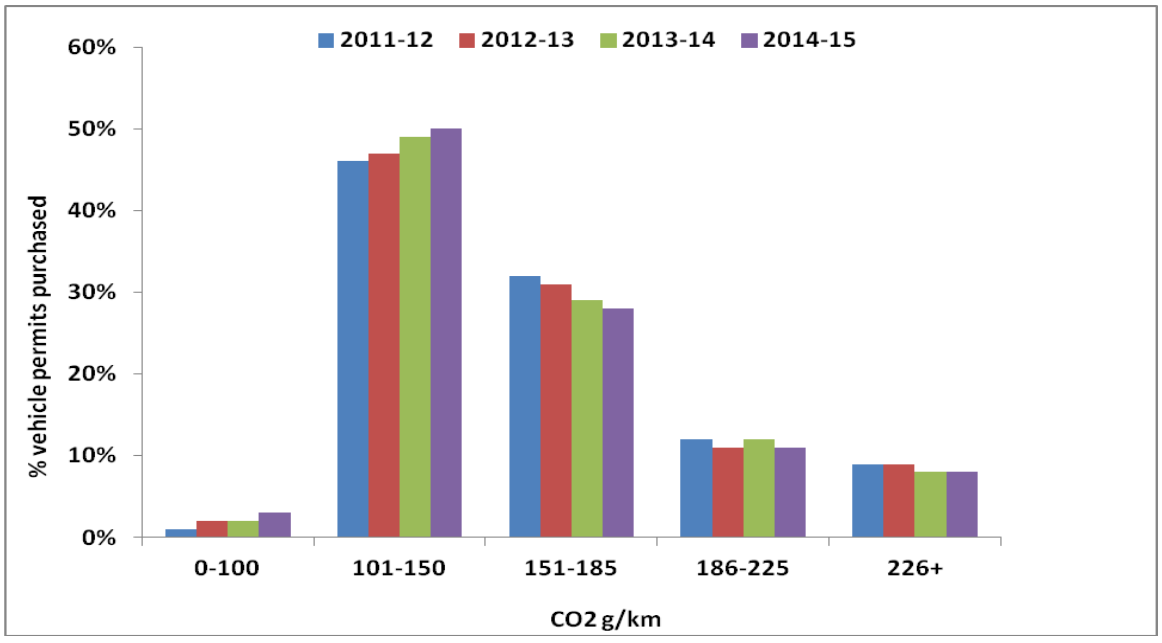


Figure 3.2 Percentage of differential parking permits purchased in Peripheral and Extended Zones from 2011/12 to 2014/15

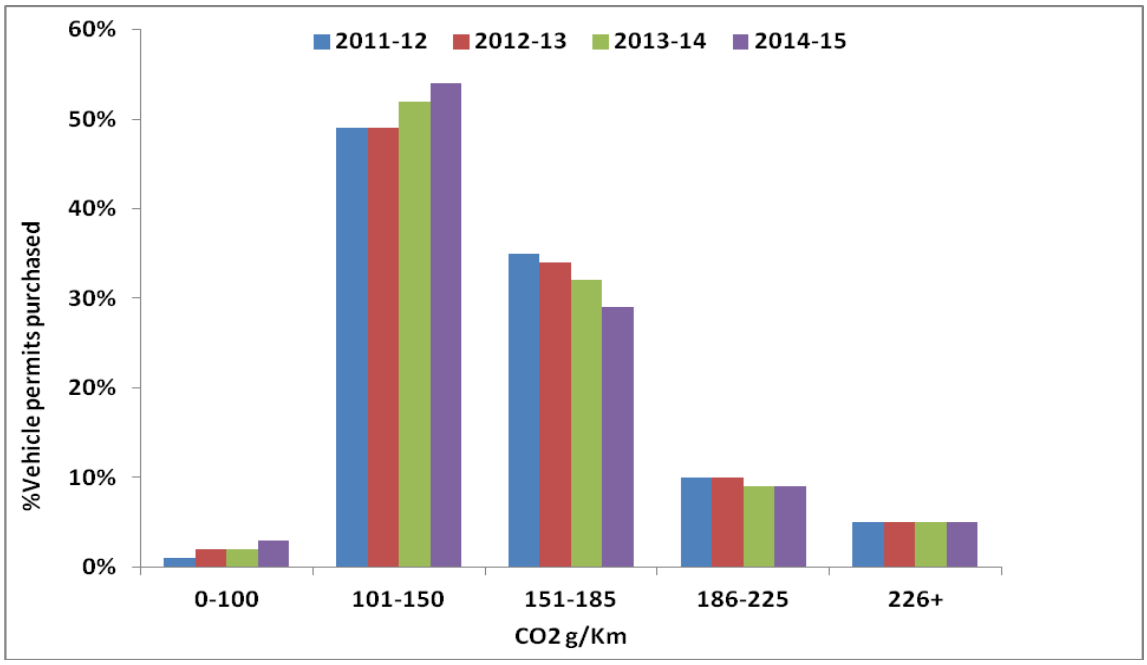
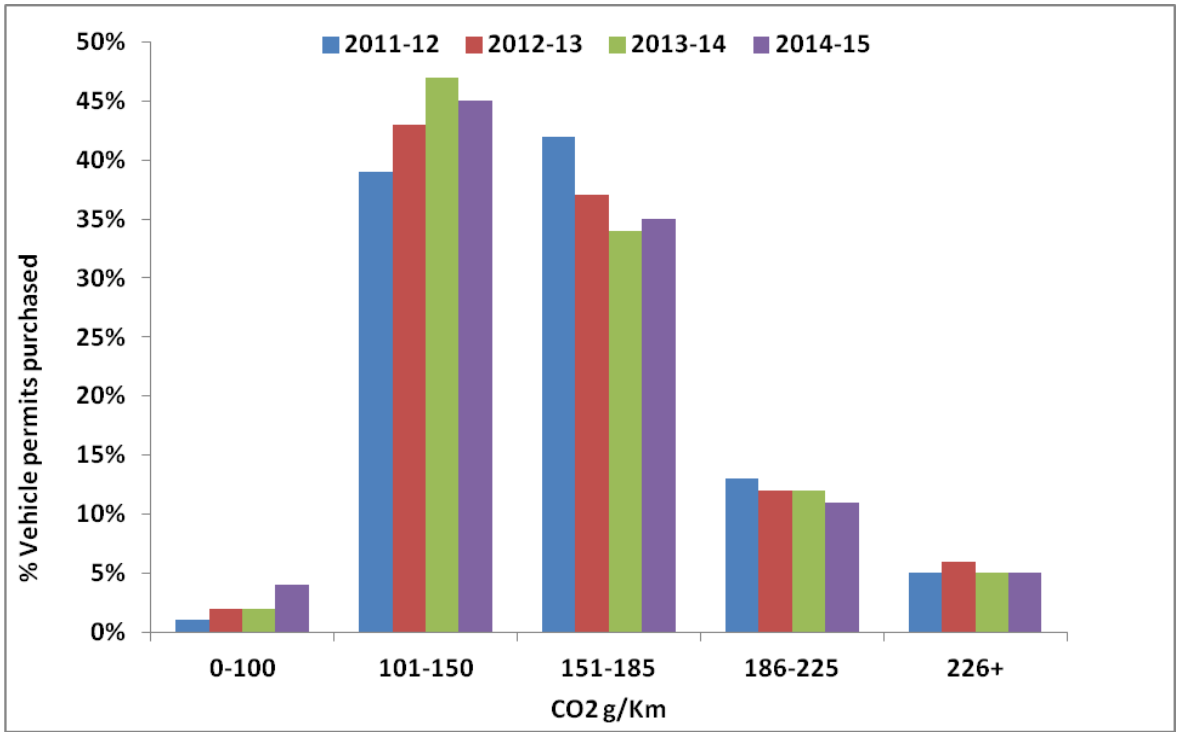


Figure 3.3 Percent of differential parking permits purchased in PPZs from 2011/12 to 2014/15



A summary of the findings are shown in Table 3.4

Table 3.4 Percentage change in move towards smaller engine vehicles, producing less CO_2 emissions from 2011/12 to 2014/15

CO2 g/Km and engine size	Central Zone	Peripheral and extended zones	PPA Zones
0 to 100 (0-1000)	1 to 3% ↑	1 to 3% ↑	1 to 4% ↑
101 to 150 (1001-1800)	46 to 50% ↑	49 to 54% ↑	39 to 45% ↑
151 to 185 (1801- 2500)	32 to 28% ↓	35 to 29% ↓	42 to 35% ↓
186 to 225 (2501-3000)	12 to 11% ↓	10 to 9% ↓	13 to 11% ↓
226+ (3001+)	9 to 8% ↓	5 to 5% ↔	5 to 5% ↔

↑ increase ↓ decrease ↔ no change

These findings are estimates, as no account has been taken of drivers' changing addresses, which can result in between 1000 and 2000 permits falling into multiple zones and bands. However, the general trend for all zoned areas is moving in the desired direction.

4 Major Infrastructure Projects

4.1 Borders Rail Link

The thirty mile rail-link between Galashiels in the Scottish Borders to Edinburgh Waverley Station is being reinstated. This major infrastructure project is likely to deliver air quality benefits in the city as a result of commuter model shift from road to rail. The line is due to become operational in September 2015.

4.2 Edinburgh Tram

The Tram operates from Edinburgh Airport to a temporary stop at York Place in the city centre. Trams became operational on 30 May 2014. Since commencement of passenger operations, patronage numbers have been above projections. Figures released at the end of May 2015 show that there were 4.92 million passenger journeys, 370,000 more than the 4.55 million projected for the first year of operation.

In December 2014, the Council approved recommendations presented in a report ‘Future Investment in Public Transport- Potential Tram Extensions’ This sets out the context for possible future investment in Tram and authorised the preparation of an Outline Business Case (OBC) to assess options for extending the current line north into Leith, Ocean Terminal or Newhaven.

The ‘Edinburgh Tram Extension – Draft Outline Business Case’ was presented to the Council on 25 June 2015. It describes the preliminary findings of work to date and identifies further required analysis in relation to project cash flows, funding options and an emerging procurement strategy.

5 Other policies & initiatives to improve air quality, not related to traffic sources

5.1 Planning Guidance on Biomass Installations in Edinburgh

The Council's Planning Committee introduced Interim Planning Guidance (IPG) in November 2009 to manage the introduction of unabated biomass combustion in development proposals in the absence of proven, cost-effective abatement technologies. The IPG 'Use of Biomass in Edinburgh of 50MW (e) or less in Edinburgh has discouraged the growth of commercial-scale biomass units within the city. Due to the challenges in meeting air quality standards in many parts of the city and ongoing absence of effective abatement technologies, continuation of this position is an important tool for managing emissions of fine particles and nitrogen dioxide.

5.2 Clean Air Act & Smoke Control Areas

Although Smoke Control Orders are in place across the whole of Council's administrative area, it is apparent from a range of information sources that increasing numbers of residents (the majority wishing to remain anonymous) are burning coal and wood in open fires. In an endeavour to address the issue, the Council has adopted a pro-active approach by running an awareness-raising exercise towards the end of each summer regarding the potential air quality impacts of solid fuel burning and the legal requirements of the Clean Air Act.

6 Conclusions

Steady progress has been achieved with respect to management of emissions from buses and freight via a voluntary approach. However, it is evident that the VERP proposed target of buses to be 100% Euro 5 by the end of October 2015 will not be achieved. For this to be realised, substantial financial support is required.

Lothian Buses is the main local service provider, with an operational fleet of 643 vehicles. It is anticipated that 66% of the fleet will be Euro 5 or better by December 2015. The company continues to deploy their cleanest vehicles on high-frequency routes that transit AQMAs

ECOSTARs Edinburgh provides a relatively low-cost partnership mechanism to assist the Council encourage and facilitate emission improvements from the goods and passenger transport sector operating in the city. In June 2015, 84 operators had joined and 5,048 vehicles had been registered.

The initial EU project which City of Edinburgh Council became a partner of concluded in June 2014. To continue the scheme for a further year, funding of up to £25,000 was approved by the Council in March 2015.

The Council is committed to lead by example and improve the Euro emissions standard of its fleet. All pre- Euro, Euro 1 and Euro 2 vehicles have now been eliminated and Euro 3 forms a very small proportion (5%) of the current fleet. In 2014, 16 electric vehicles were purchased via the Low Carbon Vehicle Procurement Support Scheme. Currently 77% of the fleet are Euro 5 or better and 3% of the vehicles are electric.

It is the Council's intention to await the release of the Scottish Government's National Low Emission Zone Framework and associated guidance prior to undertaking any further studies in this area.

The Council continues to procure and install infrastructure to support electric vehicles. Currently there are 49 charging points located at 24 Council premises for mixed public and non-public use.

Data which has been compiled from 20 charging sites regarding electricity usage and number of charging sessions shows a steady increase from January 2014 to April 2015.

It is the Council's intention to run a pilot scheme for the provision of on-street electric charging points in the south-centre of the city. A report is to be submitted to the

Transport and Environment committee later this year, providing details of the scheme including costs and funding sources.

Progress with SCOOT installation, repairs and validation of systems has not progressed as intended within the AQMAs, due to staff resource issues. This is now being addressed by the Council.

Currently SCOOT is only fully operational in three areas within the Central AQAM. Ardmillan Triangle was completed at the end of 2014.

- Gorgie Road, Chesser Avenue,Balgreen Road
- Gorgie Road, Westfield Avenue and Robertson Avenue
- Ardmillan Triangle (Gorgie Road, Dalry Road, Angle Park Terrace), Slateford Road and Shandon.

It is anticipated that works will commence in the following areas of concern in late 2015:
Central AQMA
West Port, Grassmarket, Cowgate, London Road / Easter Road
Inverleith AQMA
Inverleith Row / Ferry Road junction
St John's Road AQMA
Clermiston / Manse Road
Great Junction Street AQMA
Bernard Street / Shore

The Council has evaluated three technical options from the results of a modelling study that aims to improve traffic flow and reduce emissions at Newbridge roundabout/Glasgow Road (A8). The Council decided that installation of the Microprocessor Optimised Vehicle Actuation (MOVA) system is the most cost-effective (option 2)

This option has been estimated to reduce NO_x emissions by 44% and reduce queue lengths by 556m. Installation works have now commenced and are expected to be completed by September 2015.

There has also been progress on a number of Local Transport Strategy (LTS) policy measures, which aim to reduce car traffic.

Land has now been acquired at Hermiston to expand the existing Park and Ride Site and provide up to 1000 spaces. Enabling works associated with this scheme are expected to commence in June 2015. A condition has been attached to the planning consent requiring that Euro 5 or better buses service the site and that electric vehicle charging infrastructure is investigated.

An additional Park and Ride site at Halbeath (Fife) opened in November 2013. This provides extra capacity of 1000 spaces, for commuters travelling to Edinburgh.

Priority Parking Zones (PPZs) were initially trialled in 2010. Due to their success, seven additional zones have been established in the city. Two new zones will become operational this year. The introduction of further Controlled Parking Zones (CPZs) and PPZs are kept under regular review by the Council.

A tiered pricing scheme for residential parking permits based on CO_2 emissions and engine size of the vehicle was introduced in 2010. This is to encourage residents to buy and run lower emission vehicles. Analysis of permit charging data from 2011/12 to 2014/15 has shown that there has been an element of behaviour change by residents with respect to a move towards the purchase of smaller engine vehicles producing less CO_2 (101 to 150 CO_2 g/Km range).

The Council is committed to deliver a significant increase in the numbers of pedestrian and cycling journeys in the city. A further £1.064 million of capital funding and £371 thousand of revenue for 2015/16 has been dedicated towards cycling and substantial funding from Scottish Government and Sustrans has been allocated towards cycling and walking projects.

It is anticipated that the rail link between Galashiels in the Scottish Borders and Waverley Station Edinburgh will be operational by the end of 2015. This major infrastructure project should deliver air quality benefits to Edinburgh as a result of commuter modal shift from road to rail.

Edinburgh Tram became operational in May 2014. The line operates from Edinburgh Airport to a temporary tram stop in the city centre, at York Place. Since commencement of passenger operations, patronage numbers have been above projections. Figures released at the end of May 2015 show 4.92 million passenger journeys, 370,000 greater than the 4.55 million projected for Tram's first year of operation.

A draft outline business case for extending the Tram to Leith was presented to the Council 25 June 2015. This identified that further analysis is required in relation to project cash flows, funding options and emerging procurement strategy. A finalised outline business case is due to be reported in autumn 2015.

It is recognised that the Council's current AQAP requires to be revised to address areas of concern within new and extended AQMAs. This work is being progressed.

7 References

1) Air Quality Updating and Screening Assessment 2015

2) Action Plan for Area Designated 31st December 2000 July 2003

3) City of Edinburgh Council: Review and Assessment of Air Quality Stage 4

4) Air Quality Action Plan (Revised 2008 / 2010)

5) Edinburgh Low Emission Strategy Feasibility Study: Transport and Travel Research Ltd. May 2007

6) Further Assessment Report for the following Air Quality Management Area Declarations: Great Junction Street, St Johns Road, West Port (extension of Central AQMA) August 2011.

7) Draft Low Emission Strategy for Scotland consultation 2015

8) City of Edinburgh Council Further Assessment 2014

9) Local Transport Strategy for City of Edinburgh Council 2014 to 2019.

10) Transport 2030 Vision, City of Edinburgh Council 2010

11) Edinburgh Low Emission Strategy – Bus Emission Analysis, Transport and Travel Research Ltd., March 2011

12) Newbridge Air Quality Improvement Study, CH2m-Hill March 2014

13) The City of Edinburgh Council – Trial Findings (Masternaut Ltd)

APPENDICES

A1 Local Transport Strategy Policies that assist in improving air quality

Policy	Statement
Sustaining a thriving city	
Thrive1	The Council will seek to ensure integration of land use planning and transport policies.
Thrive3	The Council will seek the implementation of travel planning measures proportionate to the scale and nature of developments. The Council will also seek to improve its monitoring of the implementation and impact of travel planning measures.
Protecting our environment	
Env1	The Council will ensure that its Air Quality Action Plan and Local Transport Strategy are adequate to address issues around air quality. It supports the use of emission reduction measures as a means of working towards the air quality standards set down in legislation.
Env2	The Council seeks to support increased use of low emission vehicles through: • working with partners to provide a network of electric charging points; • encouraging the purchase of low emission vehicles through its charges for resident parking permits; and • taking account vehicle emissions in its fleet purchasing policies.
Road Safety	
Safe1	The Council will maintain its commitment to education for young people with regard to road safety, user behaviour, active travel and travel planning by continuing its engagement with primary and secondary schools across Edinburgh. Where appropriate, it will work with partners such as Sustrans, Road Safety Scotland and Cycling Scotland and consider opportunities to involve the local community.
Managing and maintaining our infrastructure	
Streets2	The Council will use its Urban Traffic Control system and other ITS systems to prioritise public transport and facilities for pedestrians and cyclists, whilst ensuring efficient flow of traffic through the city.
Streets3	Before approving any road capacity increase, the Council will seek to ensure that all viable measures for shifting vehicle trips to walking, cycling, public transport and car sharing, or for managing demand have; • been fully adopted; and • been found not to meet model share or demand reduction needs.
Travel Planning, travel choices and marketing	

Policy	Statement
TravPlan1	The Council supports the development of flexible working lifestyles including homeworking and teleworking.
TravPlan2	The Council will seek to lead by example in the area of travel planning. In refreshing its Travel Plans, it will set mode targets for travel to work by Council employees in line with the outcomes and targets of this LTS.
TravPlan3	The council will seek the implementation of travel planning measures aimed at reducing the demand for car travel to and from new office, retail and wholly or predominantly residential developments.
Active Travel	
Walk1	The Council will seek opportunities to improve pedestrian facilities and will consider pedestrian priority, or partial or complete pedestrianisation in appropriate streets where there are high levels of pedestrian activity.
Walk2	There will be a presumption in favour of road maintenance, new traffic management schemes, new or revised controlled parking zones and new developments always incorporating measures for pedestrians and cyclists..
PCycle2	There will be a presumption in favour of new traffic management schemes always incorporating measures for cyclists, particularly: • exemptions from road closures • advanced stop lines (ASLs) with approach cycle lanes or cycle lanes where ASLs are not required at traffic signal controlled junctions • all new pedestrian crossings to be considered as potential toucans: and • cycle lanes or, where appropriate , cycle paths, in all schemes involving main roads with speed limits of over 20mph and with no bus lanes.
PCycle9	In the event of a private investor bringing forward proposals in line with the Council's central objectives, the Council would support a pedal/electric bike share scheme in the city.
Public Transport	
PubTrans1	The Council will presume in favour of giving buses and Trams priority over other motorised traffic.
PubTrans2	The Council will seek: • a fully accessible and environmentally – friendly bus fleet ahead of legislative requirements and • marketing of services targeted at persuading regular car commuters to use public transport (and where relevant active travel)

Policy	Statement
PubTrans3	The Council will investigate a budget proposal for increasing funding for supported bus services: to maintain or enhance bus services where commercial provision is not available or low frequency, allied to a package of changes e.g. pump-priming new services.
PubTrans4	The Council supports the provision of orbital bus services on the city bypass corridor and will favour such improvements and associated bus priority over any general increase in capacity on the bypass (See also Cars3, Connect1 and 2.
PubTrans11	The Council supports further enhancement of Waverley and Haymarket Stations and the rail route between them to facilitate further expansion of rail services into Edinburgh.
Car and motorcycle travel	
Cars1	The Council will encourage efficient use of cars, through measures such as parking management, management of the road network and promotion of car clubs.
Cars3	The Council will promote the expansion of car clubs, in particular by affording car club parking high priority and ensuring that lack of on-street parking does not cap the supply of car club vehicles.
Cars4	The Council will work with promoters/developers to facilitate car-free housing in appropriate locations.
Car Parking	
Park4	The Council will resist proposals for new car parking that are likely to encourage commuting by car.
Park9	The Council will consider less on-street parking as part of projects to enhance the City Centre environment and improve conditions for pedestrians, cyclists and public transport.
Park 23	The Council will keep under review the need for new CPZs/Priority Parking Areas and/or further extensions to the existing CPZ.
Park 26	Through the development control process, the Council will encourage the development of car-free housing with an emphasis on low car ownership and high membership of city car clubs
Park 30	The Council will continue to support and promote bus and rail-based Park and Ride, with a focus on sites that currently have lower utilisation. The Council will work with operators, seeking to ensure that the most attractive ticket packages are available to users.
Park 31	The Council will support the development and/or extension of station car parks at locations both within and outwith Edinburgh.
Park 32	Subject to consideration of the impact on longer distance bus and rail services, the Council will support new and enlarged P+R sites serving Edinburgh.
Park 33	The Council will promote access to P+R sites by bus, cycle and on

Policy	Statement
	foot and will support the provision of high quality public transport services to link P+R sites to major destinations outside the city Centre.
Freight	
Freight3	The Council will work with road freight operators in the development of any proposals for emission control measures.
Freight5	The Council will support the use of rail and sea freight, in particular through the planning process. It will: • safeguard rail access to key industrial sites; • safeguard key distribution locations including the former Portobello freightliner terminal; • seek to ensure that any major new freight generating developments, including developments within Leith Docks, are accessible to the rail network; and • seek to ensure that any continuing bulk movement of waste and recycling products from Edinburgh continues to use rail.
Freight6	The Council will seek to ensure that its procurement procedures for freight transport ensure that services purchased have the least environmental and safety impacts.
Edinburgh's Connectivity	
Connect2	The Council will only support major road upgrades to or around Edinburgh, including on the city bypass, where the principle outcome is to prioritise public transport (and, where appropriate, high occupancy vehicles). Improvements should protect vulnerable road users.
Connect 3	The Council supports use of the existing Forth Road Bridge (after completion of the Queensferry Crossing) as a dedicated sustainable transport route carrying public transport, pedestrians and cyclists and possible future adaptation to carry Trams. It would not support further widening of the permitted categories of vehicle.
Connect 4	The Council will continue to support enhanced rail connections to other Scottish Cities, particularly increased capacity of the Edinburgh- Glasgow route as set out in the Edinburgh Glasgow Improvement Project. It supports action to reduce journey times and increase electrification
Connect7	The Council will work with the owners and operators of Edinburgh Airport and other partners to continue to increase significantly the use of sustainable travel modes for access to Edinburgh airport. Its guiding principle will be to seek a balanced package of interventions that minimises the number of motor vehicle movements per air passenger and per trip to work

A2 2030 Transport Vision Measures

- Low Emission Zones' if other measures do not make the necessary progress towards improved air quality.
- Working with operators towards an emissions-free public transport fleet and supporting initiatives for electric and hybrid vehicles.
- Air quality improvements in partnerships with the public transport and freight industries.
- Active Traffic Management to mitigate pollution hot-spots.
- Working through Planning and Economic Development initiatives to foster low impact development that reduces the need to travel by car.
- Engaging with the Scottish Government and other partners to encourage a shift to low carbon transport including supporting use of electric vehicles.
- Parking permit charges based on vehicle emissions.
- Green procurement when purchasing new vehicles for the Council's fleet.
- Promotion of ecological driving and slower speeds.
- Creating walk able and cycle able neighbourhoods through 20mph speed limits.
- Promote smarter travel through support for behaviour-change programmes including travel plans.
- Targeting the school run, school travel plans and safe routes to school.
- Improved cross-River Forth services to Fife.
- Expansion of Park and Ride facilities.
- Supporting growth of the 'City Car Club'.

Transport 2030 Vision, City of Edinburgh Council, 2010

Appendix 3
Table 3 - Summary of Action Plan Measures and Progress

No	Measure	Focus	Lead authority	Planning phase	Implem-ent phase	Indicator	Target annual emission reduction in AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
1	Manage bus emissions	Reduce Emissions through establishment of Voluntary Emissions Reduction Partnership, between City of Edinburgh Council and Bus Companies	CEC/ SFC	2009 - 2011	2011 - 2014	Euro 4 by 2012 Euro 5 by 2015 Formal agreement not reached. Bus operators consider too onerous in the absence of financial support	NOx Central 59% St Johns 48% Gt Junct 61% Target year 2015 (TTR study)	TTR study completed Lothian Bus Main Fleet: E 3 (36%) E 4 (9%) E 5 (29%) E 5/6(16%) E 6 (10%) No vehicles 643 First Scotland (East): Euro 3 (54%) Euro 4 (21%) Euro 5 (24%) No vehicles 153	Now in service; 20 Hybrid SD E6 25 DD E6 26 E5 engine upgrades	Ongoing	Further improvement will require substantial additional funding Lothian Bus proposals 2015/2016 Purchase 20 Hybrid DD from Scottish Green Bus fund Round 5 DD Engine Upgrade E4 to E 5 Electric/hybrid project for selected service route. Buses to switch to electric In AQMAs and areas of concern via Geo Fencing technology.
1a	Manage bus emissions and potentially emissions from other vehicle classes	Reduce emissions via implementation of a LEZ	CEC SFC/ transport	2010-2012	feasibility study / consultation outcomes will have influence	Euro 5 by 2015	Not calculated For AQMA This work will be central to feasibility study **Note** largest reduction in bus NOx emissions identified in LES study would be via **mandatory** scheme	CEC decision to consult with stake holders on feasibilty of LEZ Scottish Govt. support funding secured for consultation	Study delay until Scottish LEZ framework established Delayed for national re-evaluation of Vehicle Emission Factors & publication of DEFRA National LEZ.	Ongoing	Revised study in 2011 on buses within AQMAs show significant NOx reductions could be achieved with buses operating at Euro 5. LEZ feasibility study will also consider other vehicles classes Proposed LEZ Framework by end of 2015
2	Manage Road	Reduce	SESTRA	On going	On going	Euro 5	Not calculated			On going	Regional Freight Quality

No	Measure	Focus	Lead authority	Planning phase	Implem-ent phase	Indicator	Target annual emission reduction in AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
	freight emissions	emissions via establish--ment of Freight Quality Partnership	N								Partnership established by South East of Scotland Regional Transport Partnership. Progress to date has been limited with little direct impact in Edinburgh.
2a	Manage Road Freight Emissions	Edinburgh ECOSTARS Europe. Freight Recognition Scheme. Rating system includes - Emissions Stds; Types of Fuel; Driver training; Fuel efficiency; Scheduling techniques;	CEC	2010-11	2011 - 2014	Target number of vehicles to join scheme in each of the 3 funded years: Yr 1 3000 Yr 2 4000 Yr 3 1667	Not calculated	Number of vehicles joined scheme to June 2015 5,048 vehicles 84 operators Increasing emphasis in 2013 on bus and coach operators	Recruitment of operators and vehicles ongoing. Membership levels consistent with scheme targets.	Initial project completed 2014 On going	Further funding has being secured by CEC to continue with Scheme during 2015/2016 (Also part funding available from SG)
3	Council Fleet Cleaner Vehicles	Improve emissions by ensuring highest Euro std.for vehicle replacement. Increase uptake of electric vehicles		2003 onwards	Ongoing		Not calculated	Since 2003 all pre-Euro, Euro 1 and Euro 2 vehicles removed from fleet Current fleet profile Euro 3 5% Euro 4 19% Euro 5 73% Euro 6 1% Electric 3%	Purchase of 16 EV vehicles and 10 @ E6	Ongoing	
3a	Council Fleet Develop	Reduction in fuel usage	CEC/ SFC			Reductions in fuel		SG funding secured to trial	Completed	2013	Report trial findings,overall positive

No	Measure	Focus	Lead authority	Planning phase	Implem-ent phase	Indicator	Target annual emission reduction in AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
	driver eco training prog. / carry out trial of vehicle telematics system.	beneficial to air quality	Corporate			consumption		vehicle telematics in CEC vehicles; Eco-driving instruction integral component	15 vehicles selected which operate through all AQMAs Baseline for 3 months established (no Intervention) for 10 vehicles Eco-driving instruction provided to vehicle operators.		Report submitted to Scottish Government, Spring 2014 Will require to discuss outcomes internally regarding the installation of systems on other CEC vehicles
4	LTS Park and Ride sites established	Reduce emissions by easing traffic congestion at peak travel times	CEC/ Transport		Complete	Patronage rates	Not quantified NOTE Older buses were serving P&R; now minimum Euro 3 std.	Ferrytoll (1040) Ingliston (1082) Straiton (600) N'craighall (565) Sheriffhall (561) Hermiston (450) Wallyford (321) Halbeath (1021)	Hermiston and Ferrytoll sites approaching capacity Halbeath new P&R to support FRC and take strain from Ferry Toll	Planning Approval for land to be safe guarded at Hermiston Lasswade, Hermiston Gait for future expansion Total 1000 new spaces. Work started on Hermiston expansion	Continue to support and expand P&R Further improvements still necessary for bus standard
5	LTS Differential Parking	Carbon and LAQM pollutants	CEC Transport	2008	Oct 2010	Number of low carbon vehicles registered	Not quantified		Analysis of permit data shows move	Completed	

No	Measure	Focus	Lead authority	Planning phase	Implem-ent phase	Indicator	Target annual emission reduction in AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
									towards smaller, less CO_2 emission vehicles		
5a	LTS Controlled Parking Zones CPZ Priority Parking Zones PPZ	Discourage car commuting into city centre	CEC Transport					8 PPZ areas in city	4 new PPZ areas established		
6	LTS Tram	Reduced Emissions - Zero at Source	CEC Transport	2008-11 (revised to 2014)	Issues with funding	Patronage	Not quantified		Tram Line 1 between Edinburgh Airport and York Place Completed Report to CEC regarding proposals for extension	2014 Completed May 2014 (revised)	Not quantified Potential issues with bus and general traffic displacement Possible congestion where tram and bus routes coincide
7	LTS New rail line/station	Modal shift - to reduce road traffic entering Edinburgh from Airdrie / Bathgate and Newcraighall Borders (South)	CEC Transport Rail			Passenger numbers	Not quantified	Bathgate/ Airdrie and Newcraighall Borders Construction underway		Lines completed 2015	Passenger growth recorded for all stations Reinstate 30-mile rail link between Galashiels in Scottish Borders to Edinburgh Waverley station
8	LTS Cycle Initiatives	Modal shift Reduce emissions via Active	CEC Transport			Modal shift All trips by 2020 35% walking	Not quantified	Development of cycle routes to enable travel around the city on safe routes	From 2010 to 2012 Increase 16%	ongoing	

No	Measure	Focus	Lead authority	Planning phase	Implem-ent phase	Indicator	Target annual emission reduction in AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		Travel plan and MERCX cycling promotion project				10% cycling		CEC secured EU funding (MERCx project)	Cycling on off road paths 2009 to 2012 25% increase in cycling		
9 **9a**	Traffic Management systems **SCOOT** Improvement **E-MOTEs (trial)**		CEC/ SFC Transport			Reduce congestion	Not calculated Not calculated	Ferry Road, majority of loops re-cut and will now programme repairs from 2013. SG funding for loop repairs at St Johns Rd (on-going) Ardmillan 'Triangle' Junction Validation Summer 2013 Trial start date early 2013 in St John's Rd AQMA -.	Funding secured for Bernard St Westport/ Cowgate Issues with NOx sensors trial delayed	2015/16 Revised 2015/16 Revised Completed 2015? Will be dependent on reliability of sensors	Proposed SCOOT improvements did not progress due to lack of staff resources. Now being addressed by Transport Additional installation, subject to funding availability MOTEs – Series of 10 remote pollutant sensing devices to be connected to SCOOT. Trial will establish if real-time pollutant data can be successfully linked with reactive traffic management processes
9b	Newbridge Roundabout Improvements **NEW**		CEC				44% NO_x 26%PM_{10} 40% CO_2	Work has commenced To install MOVA	CEC evaluated and decided on option 2	Autumn 2015	Pm queue length estimated to reduce by 556m pm peak.NOx emission reduction 44%
10	Electric Charging Installation		CEC/SF C					Public E charging 89 charging heads 386 locations	31 new heads 12 new locations	Ongoing	Data showing increase in electricity usage and number of charging sessions

No	Measure	Focus	Lead authority	Planning phase	Implem-ent phase	Indicator	Target annual emission reduction in AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
11	Development of city-wide Land Use and Traffic (LUTi) model	Measure would enable more accurate prediction of air quality impacts from cumulative development	CEC / SFC			Manage density of development/ locate new development such that traffic emissions impacts can be minimised		Limited due to high capital & revenue costs involved. Model requires high output resolution to enable meaningful dispersion modelling of AQ pollutants.	CEC None LES proposal of National Modelling Framework		Land use and traffic modelling will continue to be considered. National model likely to evolve from LES