

Air Quality Action Plan for
Nitrogen Dioxide (NO₂) and Fine Particulate Matter (PM₁₀)

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1. Introduction and Aims of the Action Plan

1.1 Description of the Local Authority Area

Dundee City is located on the north bank of the River Tay in the Tay Valley. The Dundee City Council area covers 6,300 hectares (24 square miles) and is geographically the smallest local authority area in Scotland. It is bordered by Perth and Kinross Council to the west and by Angus Council to the north and east. The former Tayside Regional Council area previously covered all three councils and Dundee continues to serve as the regional centre for this area and north-east Fife, with an estimated catchment population of some 400,000 people.

Dundee is the fourth largest city in Scotland and the most recent estimate of Dundee's population is 142,470 (General Register Office for Scotland (GROS) 2008 Mid Year Population Estimate). This equates to 2261 people per square kilometre.

Dundee is served by an airport which has daily flights to London City. Dundee also has a modern deep-water port and large harbour area. The port area has been a major industrial and commercial source of employment and wealth creation for Dundee and the Central Waterfront project is one of the key priorities in terms of re-connecting the city and its people with the river.

The City is almost entirely urban and suburban in character and is a hub for many routes. It is connected to Fife by the Tay road and rail bridges. The A92 crosses the Tay and emerges in the centre of Dundee. There is an inner ring road, the Marketgait, and five arterial routes - Broughty Ferry Road, Arbroath Road, Riverside Drive, Lochee Road and Forfar Road. There is a by-pass, the Kingsway, which consists of the A90(T), the main route from Edinburgh/Perth to Aberdeen, and the A972(T), the route to Arbroath. There are a significant number of busy road junctions across the City. A large proportion of roads in the City have a gradient due to a central topographical feature, an extinct volcano (height 174 metres above sea level). The main sources of pollution in the area are from the road traffic emissions from these routes, with additional emissions from industrial sources

In common with many Scottish cities the architecture consists of a significant number of 4 or 5-storey tenemental properties creating numerous street canyons. In the commercial centres, a common feature of these tenemental properties is that commercial premises are located on the ground floor with residential premises on the floors above. The main shopping area in the city is pedestrianised. Most of the industrial processes are located around the periphery of the city and in the port area.

An Air Quality Management Area (AQMA) covering the entire city was declared in 2006 following the second round of review and assessment of air quality. Assessment of a number of busy roads and junctions within the city indicated a risk of exceedence of the annual mean objective for nitrogen dioxide. Following consultation, a single AQMA rather than several connecting AQMAs was declared to enable wider consideration of air quality improvements in Dundee.

1.2 Legislative Background

The air quality objectives applicable to Local Air Quality Management (LAQM) in Scotland are set out in the Air Quality (Scotland) Regulations 2000 (Scottish SI 2000 No 97), the Air Quality (Scotland) (Amendment) Regulations 2002 (Scottish SI 2002 No 297), and are shown in

Table 1. This table shows the objectives in units of micrograms per cubic metre $\mu\text{g}/\text{m}^3$ (milligrams per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

The EU Directives are applicable to the whole of the UK. The 2008/50/EC Directive describes statutory limit values for air pollutants; the NO₂ and PM₁₀ limit values are indicated in Table 1.

This Action Plan focuses on those pollutants included in Air Quality Regulations for the purpose of LAQM, in respect of the key identified pollutant sources affecting air quality within the Council's administrative area – namely nitrogen dioxide (NO₂) and fine particles (PM₁₀).

Table 1 – Air Quality Objectives Included in the Air Quality Regulations for the Purpose of Local Air Quality Management in Scotland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m ³	Running annual mean	31.12.2003
	3.25 µg/m ³	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m ³	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m ³	Running 8-hour mean	31.12.2003
Lead	0.5 µg/m ³	Annual mean	31.12.2004
	0.25 µg/m ³	Annual mean	31.12.2008
Nitrogen dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year*	1-hour mean	31.12.2005
	40 µg/m ³ *	Annual mean	31.12.2005
Particles (PM ₁₀) (gravimetric)	50 µg/m ³ , not to be exceeded more than 35 times a year*	24-hour mean	31.12.2004
	40 µg/m ³ *	Annual mean	31.12.2004
	50 µg/m ³ , not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg/m ³	Annual mean	31.12.2010
Sulphur dioxide	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

*The NO₂ standards are contained in the EC Directive 2008/50/EC as statutory limits values with a compliance date of 1 Jan 2010, the PM₁₀ limit values had a compliance date of 1 Jan 2005.

Where the results of the review and assessment process highlight that problems in the attainment of health-based objectives for air quality will arise, the authority is required to declare an AQMA – a geographic area defined by high levels of pollution and exceedences of Air Quality Strategy (AQS) objectives. The local authority must carry out a further assessment and draw up an action plan specifying the measures to be implemented within the AQMA, and the time-scale for doing so, to move towards attainment of the air quality standards and objectives.

The compliance with the EU Limit Values is a statutory requirement for all the member states. The failings to meet the targets would result in fines imposed by the European Commission on the Scottish Government. The size of the fine and whether it has to be paid by the local authority or the Scottish Government is not determined yet. However, the possible large fines provide a fiscal stimulus, both for the local authority and the Scottish Government, to formulate, fund and implement measures in the AQAP to achieve compliance.

1.3 Scope of the Action Plan

Where local authorities have designated an AQMA, they have a duty to produce an Action Plan. This plan must set out what measures the authority intends to introduce in pursuit of the AQS objectives. The principal aim of the Air Quality Action Plan is to minimise the effects of air pollution on human health within the local authority area using all reasonable measures, within reasonable time frames and by working towards achieving the AQS objectives and standards. In order to comply with the AQS objectives it may be necessary to include measures beyond the boundaries of the areas of exceedence. Some of the measures may also benefit areas out-with the areas of exceedence thereby improving the health of the population as a whole.

The Further Assessment provides the technical backup for the measures to be included within the Action Plan. The Action Plan should refer to the findings of the Further Assessment in terms of source apportionment (i.e. where emissions are coming from) so that action plan measures may be targeted appropriately.

An air quality Action Plan must include the following¹:

- quantification of the source contributions to the predicted exceedences of the relevant objectives; this will allow the Action Plan measures to be effectively targeted;
- evidence that all available options have been considered;
- how the local authority will use its powers and also work in conjunction with other organisations in pursuit of the air quality objectives;
- clear timescales in which the authority and other organisations and agencies propose to implement the measures within its plan;
- where possible, quantification of the expected impacts of the proposed measures and an indication as to whether the measures will be sufficient to meet the air quality objectives. Where feasible, data on emissions could be included as well as data on concentrations where possible; and
- how the local authority intends to monitor and evaluate the effectiveness of the plan.

Dundee City Council has a legal requirement to produce an action plan to work towards air quality objectives under Part IV of the Environment Act 1995 and relevant regulations made under that part. The Environment Act 1995 does not prescribe any timescale for preparing an Action Plan. However, the Scottish Government expect them to be completed between 12-18 months following the designation of any air quality management areas. The prime responsibility for preparing and submitting the Action Plan rests with the Local Authority.

¹ Policy Guidance LAQM.PGS (09) (2009), Part IV of the Environment Act 1995, Local Air Quality Management, Published by the Scottish Government, the Stationery Office.

This draft Action Plan has been developed, in partnership with other relevant bodies, particularly Tayside and Central Scotland Transport Partnership (TACTRAN), to incorporate the localised measures at the AQMA. The completed action plan will be circulated to all relevant authorities and strategic partners and to the members of the public.

1.4 Review of Air Quality Management Area Boundary

The entire Dundee City has been declared as an Air Quality Management Area (AQMA) for nitrogen dioxide (NO₂) and particulate matter (PM₁₀). The declaration of a whole city is typically beneficial in respect of administration of the AQMA. In reality, it is likely that exceedences would be typically experienced within close proximity to major arterial routes with high volumes of traffic – road vehicles being the main source of both pollutants - and in areas where the dispersion of pollutants is not as efficient such as street canyons. Dundee City Council aims that the Air Quality Management Area boundary will be reviewed in accordance with the Local Air Quality Management process on an ongoing basis.

2 Overview of Air Quality in Dundee

2.1 Local Air Quality Management – Review and Assessment

The first and second round assessments of air quality in Dundee City concluded that there were likely to be exceedences of the annual mean objective for NO₂ as a result of traffic sources in Dundee in the following areas:

- Seagate
- Nethergate / Marketgait Junction
- Dock Street
- Commercial Street
- Victoria Road / Hilltown/ Meadowside Junction
- Lochee Road / Rankine Street Junction
- Lochee Road / Dudhope Junction
- Logie Street / Loons Road Junction

Following the detailed modelling of NO₂ and PM₁₀ concentrations in Dundee in 2005, DCC declared the whole of Dundee city centre as an AQMA for NO₂ in July 2006. The results of the 2005 Detailed Assessment were inconclusive for PM₁₀ as there was insufficient confidence in the verification of the modelled predictions for 2010. It was concluded that additional monitoring and modelling would be required to determine whether an AQMA for PM₁₀ would be required. The Scottish Environment Protection Agency (SEPA) and the Scottish Government accepted the conclusions of the Detailed Assessment and funded the expansion of the PM₁₀ monitoring network. This included OSIRIS particulate monitoring in potential areas of exceedence, a new background site and a local gravimetric factor inter-comparison study. The outcome of the Updating and Screening Assessment 2006 showed that the monitored PM₁₀ concentrations in Union Street were predicted to exceed the annual mean objective (2010). However, this result was adversely influenced by major construction projects in the vicinity and may not have been truly representative of ambient concentrations present at this location.

The 2007 Annual Progress Report analysis of the 2006 data for nitrogen dioxide confirmed the need for continuance of the AQMA and development of the Action Plan. Two new areas of potential exceedence of the annual mean were identified at the Kingsway/Forfar Road and Arbroath Road/Albert Street Junctions, which were considered in the 2009 Further Assessment.

Dundee City Council's 2006 PM₁₀ monitoring results indicated exceedences of the 2010 PM₁₀ annual mean objective at the following locations:

- Victoria Road / Hilltown Junction
- Seagate
- Logie Street
- Lochee Road

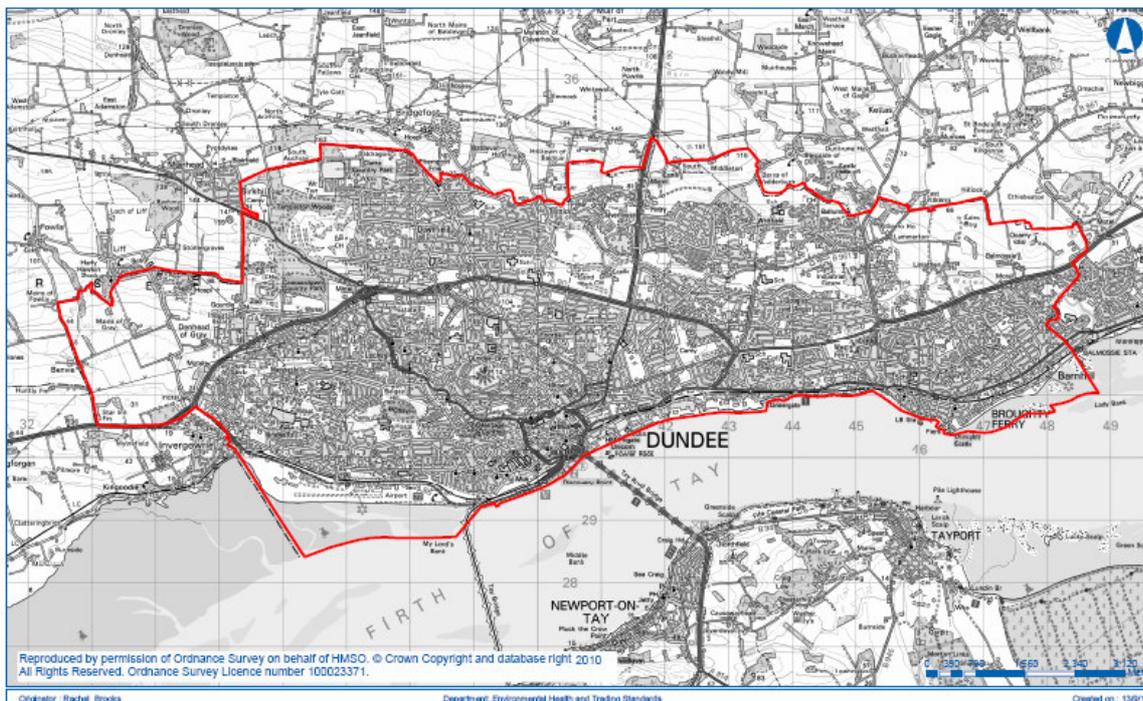
Union Street was also very close to exceeding the annual mean objective in 2010, and remains an area of concern due to increasing PM₁₀ concentrations at this city centre location. More than seven exceedences of the 24-hour mean standard were also recorded at the above locations during 2006. However, PM₁₀ concentrations out-with Union Street were measured using the recently installed OSIRIS monitors, which are not recommended for detailed assessments. In addition, it was predicted that the extra traffic and necessary junction works associated with a new superstore may lead to an exceedence of the PM₁₀ annual mean objective (2010) at existing receptors close to the Kingsway/Forfar Road junction. A six-month monitoring study was commenced in 2009 in the area following completion of the junction works to check the accuracy of the modelled predictions.

The 2006 PM₁₀ monitoring results indicated that a detailed assessment of PM₁₀ should be carried out. The 2009 Detailed Assessment modelled the areas identified as at risk and confirmed that there were predicted exceedences of the 2010 PM₁₀ annual mean objective and recommended that the Council should declare an AQMA for PM₁₀.

The Further Assessment for the Dundee City AQMA for NO₂ was completed in November 2009 and Air Quality Action Planning process is underway. The Further Assessment has confirmed the need to maintain the AQMA for NO₂. The Further Assessment also identified significant exceedences of the 2010 annual mean objective of PM₁₀. Based on the risk of exceedence the assessment recommended the Council to consider declaring an AQMA for PM₁₀.

The Fourth Round commenced in 2009 with the Updating and Screening Assessment. This has reconfirmed the risk of exceedence of the 2010 particulates (PM₁₀) objectives at a number of busy roadside sites. The Detailed Assessment of PM₁₀ undertaken in 2009 also confirmed this risk of exceedence at relevant receptor locations. Accordingly, the existing AQMA was varied on 25th October 2010 to include PM₁₀ for the Local Authority area.

Figure 1 – Dundee City AQMA for NO₂ and PM₁₀



2.2 Monitoring Data

There is currently automatic monitoring of nitrogen dioxide (NO₂) at four sites and particulates (PM₁₀) at seven sites in the AQMA. The automatic monitoring sites results are shown in

Table 2 for 2007, 2008 and 2009. The monitoring results show widespread measured exceedences of the NO₂ annual mean objective. Between 2007 and 2009 there were exceedences of the 2010 PM₁₀ objectives at four out of the seven monitoring sites.

In addition, between 2007-2009, there were 85 nitrogen dioxide diffusion tube sites in the AQMA; the results of which are shown in Table 3 for 2007, 2008 and 2009.

The areas of measured exceedence in 2007/8/9 for NO₂ include:

- Union Street
- Whitehall Street
- Nethergate
- Commercial Street
- Seagate
- St Andrews Street
- Dock Street
- Broughty Ferry Road
- Meadowside
- Victoria Road
- North Marketgait (Abertay)
- Westport
- Arbroath Road
- Albert Street
- Dura Street
- Kingsway
- Forfar Road
- Strathmore Avenue
- Lochee Road
- Logie Street
- Loons Road
- Rankine Street
- Perth Road
- West Marketgait

Of these, the highest measured levels of NO₂ (>50µg/m³) are along Meadowside, Victoria Road, Lochee Road, Logie Street, Seagate, Nethergate, Whitehall Street and Forfar Road.

The areas of measured exceedence in 2007/8/9 for PM₁₀ include:

- Union Street
- Seagate
- Lochee Road
- Logie Street

Table 2 - Dundee Continuous Analyser Concentrations ($\mu\text{g}/\text{m}^3$) in 2007 - 2009

Location	Description	2007	2008	2009
Lochee Road Romon x=338861, y=730773	Hourly Mean $\text{NO}_2 > 200 \mu\text{g}/\text{m}^3$ (18 times per year permitted)	0	4	23
	Annual mean NO_2 (Objective $40\mu\text{g}/\text{m}^3$)	52.8	52.9	54.2
	%Data capture	93	92	87.5
	99.8th Percentile	157.5	175.6	206.2
Seagate Romon x=340487, y=730446	Hourly Mean $\text{NO}_2 > 200 \mu\text{g}/\text{m}^3$ (18 times per year permitted)	1	0	1
	Annual mean NO_2 (Objective $40\mu\text{g}/\text{m}^3$)	49.1	51.4	51.0
	%Data capture	93.9	81.6	74.3
	99.8th Percentile	141.2	141.3	152.8
Union Street Rollalong x=340235, y=730091	Hourly Mean $\text{NO}_2 > 200 \mu\text{g}/\text{m}^3$ (18 times per year permitted)	0	11	2
	Annual mean NO_2 (Objective $40\mu\text{g}/\text{m}^3$)	35.8	42.9	45.2
	%Data capture	99.3	99.7	99.7
	99.8th Percentile	132.1	182.3	165.2
	Daily mean $\text{PM}_{10} > 50 \mu\text{g}/\text{m}^3$ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	3	0	0
	Annual mean PM_{10} (Objective $40\mu\text{g}/\text{m}^3$ in 2004, $18\mu\text{g}/\text{m}^3$ in 2010)	17.9	15.9	16
	%Data capture	90	98	99.4
Broughty Ferry Rollalong PM_{10} x=341970, y=730977	Daily mean $\text{PM}_{10} > 50 \mu\text{g}/\text{m}^3$ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	2	1	2
	Annual mean PM_{10} (Objective $40\mu\text{g}/\text{m}^3$ in 2004, $18\mu\text{g}/\text{m}^3$ in 2010)	14.6	14.2	14.3
	%Data capture	99	96	99
	98.08th Percentile	30.9	29.1	34.5
Whitehall Street Romon X=340278, y=730156	Hourly Mean $\text{NO}_2 > 200 \mu\text{g}/\text{m}^3$ (18 times per year permitted)	0	0	0
	Annual mean NO_2 (Objective $40\mu\text{g}/\text{m}^3$)	42	46.7	37.8
	%Data capture	90.6	75.6	93.2
	99.8th Percentile	136.8	139.4	111.3
Broughty Ferry Partisol PM_{10} x=341971, y=730978	Daily mean $\text{PM}_{10} > 50 \mu\text{g}/\text{m}^3$ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	4	1	1
	Annual mean PM_{10} (Objective $40\mu\text{g}/\text{m}^3$ in 2004, $18\mu\text{g}/\text{m}^3$ in 2010)	14.7	13.9	14.3
	%Data capture	100	98	99
	98.08th Percentile	38.1	35.4	34.5

Location	Description	2007	2008	2009
Mains Loan TEOM PM ₁₀ x=340972, y=731893	Daily mean PM ₁₀ >50 µg/m ³ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	2	0	0
	Annual mean PM ₁₀ (Objective 40µg/m ³ in 2004, 18µg/m ³ in 2010)	11.9	10.3	11.8
	%Data capture	100	100	84.2
	98.08th Percentile	26.3	22.2	25.2
Osiris Victoria Road PM ₁₀ x=340230, y=730673	Daily mean PM ₁₀ >50 µg/m ³ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	5	4	5
	Annual mean PM ₁₀ (Objective 40µg/m ³ in 2004, 18µg/m ³ in 2010)	17.8	16.5	16.5
	%Data capture	91	93	92.1
	98.08th Percentile	43.7	38.9	46.8
Osiris Lochee Road PM ₁₀ x=338920, y=730694	Daily mean PM ₁₀ >50 µg/m ³ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	4	6	1
	Annual mean PM ₁₀ (Objective 40µg/m ³ in 2004, 18µg/m ³ in 2010)	22.3	20	17.9
	%Data capture	91	93	87.6
	98.08th Percentile	46.2	46.5	40.2
Osiris Logie Street PM ₁₀ x=338176, y=731298	Daily mean PM ₁₀ >50 µg/m ³ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	8	4	0
	Annual mean PM ₁₀ (Objective 40µg/m ³ in 2004, 18µg/m ³ in 2010)	20.2	17.9	15.2
	%Data capture	87	92	92.1
	98.08th Percentile	53.3	45.2	38.7
Osiris Union Street PM ₁₀ x=340235, y=730090	Daily mean PM ₁₀ >50 µg/m ³ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	9	3	4
	Annual mean PM ₁₀ (Objective 40µg/m ³ in 2004, 18µg/m ³ in 2010)	17.9	15.8	16.1
	%Data capture	90	93	86.3
	98.08th Percentile	54.4	37	43
Osiris Seagate PM ₁₀ x=340539, y=730528	Daily mean PM ₁₀ >50 µg/m ³ (35 times per year permitted in 2004, 7 times per year permitted in 2010)	1	7	6
	Annual mean PM ₁₀ (Objective 40µg/m ³ in 2004, 18µg/m ³ in 2010)	16.4	19.1	17.7
	%Data capture	92	93	74.5
	98.08th Percentile	42.7	50.3	51.1

*PM₁₀ Analyser results are gravimetric equivalent; TEOM data has been corrected based on Dundee local correction factor from TEOM-Partisol collocation. Local factors: 2007 – 1.06, 2008 - 1.01, 2009 – 1.079.

** OSIRIS data has been corrected in two stages based on OSIRIS-TEOM collocation: Osiris-TEOM correction factor and TEOM-Partisol correction factor

***Exceedences of objectives are highlighted in bold.

Table 3 - Diffusion Tube Results ($\mu\text{g}/\text{m}^3$) in Dundee, 2007-2009

	Location	Annual mean concentrations 2007 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.86)	Data %	Annual mean concentrations 2008 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.87)	Data %	Annual mean concentrations 2009 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.84)	Data %
1	Abertay	46.5	92	48.5	100	n/a	n/a
	Abertay 2	n/a	n/a	n/a	n/a	47.8	100
4	Albert Street (Fish)	30.7	100	32.8	100	35.1	100
5	Albert Street (Shandon Place)	34.3	100	39	100	39.5	91.7
2	Albert Street 1	33	100	37.9	100	37.8	100
6	Arbroath Road (13)	38	100	40.2	100	46	100
8	Arthurstone Terrace (10)	23.1	100	25.4	100	25.5	100
9	Balgavies Place	17.6	100	18.9	83	18.8	100
0	Bank St/ Reform St	29.4	92	28.2	100	31.2	100
12	Birnam Place	10.8	100	11.7	92	11.2	100
14	Brook Street (B.F.)	22.9	100	23.1	25	n/a	n/a
16	Broughty Ferry Road (141)	40.4	100	45.3	100	47.5	100
18	Claypotts Junction	24.6	100	28	100	27.8	100
19	Cleington Road/Forfar Road	36.8	100	38.5	100	41.2	100
20	Commercial St	33.5	100	36.2	100	34.7	100
21	Commercial Street (Waterstones)	40.2	100	47.4	100	43.7	100
24	Crichton St	31.6	100	34	100	34.1	100
25	Dens Road Crossing	35.2	100	36	100	37	100
26	Dock St (14)	46.7	100	43.8	93	43.6	100
29	Dock St (Unicorn)(No.60)	37.6	92	40.8	100	41.9	75
32	Dura Street (Forte) (No.98)	39.4	100	41.6	100	43.5	100
34	Earl Grey Place (Park)	20.6	100	20.7	100	22.1	100
35	Eastport Roundabout	35.5	100	35.9	100	35.6	100
36	Harefield Road (35)	32.6	92	36	100	32.9	100
42	Hilltown (Suites)	33.2	100	35.4	100	36	100
44	King St (12 & 14)	28.7	100	30.1	92	31.5	100
45	Kingsway E. Roundabout	40	83	42.6	100	45.4	83.3
46	Kingsway/ Mains Loan 1	34.1	100	37.8	83	35.5	100
48	Kingsway/ Pitkerro Rd	30.7	100	26.7	25	n/a	n/a

	Location	Annual mean concentrations 2007 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.86)	Data %	Annual mean concentrations 2008 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.87)	Data %	Annual mean concentrations 2009 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.84)	Data %
49	Kingsway/ Strathmartine Rd (S)	43.3	100	45	100	43.8	100
51	Lochee Rd (138)	52.6	100	57.4	100	57.6	100
34	Lochee Rd (140) Traffic Lts	53.4	100	57	100	57.9	100
58	Lochee Rd (184)	38.1	100	39.1	100	40.7	100
37	Lochee Rd (Romon 1)	49.2	100	51.4	100	51.8	100
59	Lochee Rd/Polepark Rd	30.9	100	32.3	100	34.3	100
61	Logie Street (114)	52.2	100	58.2	100	57.7	100
60	Logie Street (98)	35.2	83	34.5	92	35.4	91.7
63	Loons Road (1)	39.1	100	45.3	100	44.5	100
64	Marketgait	33	100	35.8	100	35.1	100
44	Meadowside	61.4	100	63.5	100	56.5	91.7
66	Muirton Road (6)	28.4	100	29.2	100	30.8	100
67	Myrekirk Road	32.9	100	32.3	100	35.5	100
68	Nethergate (B&B)(88)	43.1	100	49.1	83	49.2	100
69	Nethergate (Bradford)	37.4	100	43.2	100	42.4	100
70	Nethergate (Charlie T)	39.1	100	38.4	100	38.7	100
72	Nethergate (Trades House)	39.6	100	44.6	100	42.3	100
73	Nethergate/ Marketgait	36	100	35.2	100	35.9	100
54	Rankine St (2)	39.9	100	42.6	92	45.4	91.7
78	Seagate	42.3	100	45.9	100	45.4	100
56	Seagate(Romon)	47.5	100	50.8	100	51.9	100
83	Seagate (Yates)(7-9)	40.5	100	38.3	100	42	100
84	Soapwork Lane	35	100	35.8	92	37.4	100
87	St Andrews St (JAF)	34.8	100	40.4	100	37.3	100
88	St Andrews St (PB)	41.5	100	41.6	100	42	100
63	St Mary Flats	20.6	100	19.8	25	n/a	n/a
95	Strathmore Avenue (353)	38	100	42.6	92	40.8	91.7
97	Trades Lane (31)	36.3	100	33.3	100	33.1	100
98	Union St (Rollalong)	43.4	100	44.7	100	45.8	100
101	Union Street (Goodfellows)	32.4	100	34.1	100	33	100
102	Union Street (Mcintyres)	32.7	100	33.2	100	33.9	100

	Location	Annual mean concentrations 2007 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.86)	Data %	Annual mean concentrations 2008 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.87)	Data %	Annual mean concentrations 2009 ($\mu\text{g}/\text{m}^3$) adjusted for bias (0.84)	Data %
103	Victoria Road	36.7	100	38.4	100	38	100
73	Victoria Road (10)	32.9	100	34	100	38.9	91.7
60	Victoria Road (60)	41.1	100	43.8	100	44.5	100
104	Victoria Road / Cotton Road	36.6	100	37.4	100	38.6	91.7
105	Victoria Road/Hilltown	55.8	100	60.9	100	60.2	100
76	Victoria St	34.1	100	35.2	100	36.9	100
106	Westport (2)	38.9	100	41.3	100	42.7	91.7
107	Whitehall Cr (Xpresso)	30.3	100	30.6	100	30.8	100
111	Whitehall St (Brj)	36.3	100	37.8	100	36.3	100
112	Whitehall St (Bus)	48.6	100	51.7	93	49.2	100
113	Whitehall St (Deb A)	43.4	100	50.3	100	47.4	100
114	Whitehall St (Deb E)	36.9	92	39.6	100	38.8	100
82	Whitehall St (Romon)	38.5	100	42.7	92	39.4	100
115	Whitehall St (Tiso)	38.8	100	42.6	100	40.7	100
116	Woodside Avenue	18.1	92	18.5	100	17.9	100
	Forfar Road	45.7	100	50.2	83	53.2	100
	Commercial St / Dock St 2	38.6	100	41.9	100	42.7	91.7
	Dock St Carol Whyte (2)	37.8	100	37.5	100	38.6	100
	Perth Rd / Hawkhill	25	100	22.9	25	n/a	n/a
	Nethergate / South Tay St	29.6	100	30.1	83	29.7	100
	Perth Rd 320	n/a	n/a	36.5	67	40.4	100
	Ward Rd	n/a	n/a	34.5	75	36.2	100
	West Bell St	n/a	n/a	36.0	75	n/a	n/a
	Queen St B/F	n/a	n/a	29.8	50	31.7	100
	West Marketgait	n/a	n/a	n/a	n/a	44.6	83.3

*Annualisation undertaken for data capture Less than 9 months

**Exceedences of the annual mean objective are highlighted in bold

2.3 Source Apportionment

The source apportionment work carried out in the Detailed and Further Assessment 2009 at seven hotspot modelled receptor locations provided the following results.

Source apportionment of oxides of nitrogen (NO_x), indicates road traffic emissions of NO_x are the main contribution to total NO_x concentrations, as across the hotspots they account for 74-91% of the total NO_x concentrations at receptors. Heavy-duty vehicles (HDVs), which include HGVs and buses, contribute around 38 - 77% to the total NO_x concentrations at receptors. HDV contributions are disproportionately high given their proportion within the vehicle fleet in the AQMA. At many locations where there are large bus movements such as Commercial Street and Seagate, buses make most of the HDV contributions, up to 60% of total NO_x concentrations. Light duty vehicles (LDVs), which include cars, taxis and vans, contribute 11 - 44% to the total NO_x concentrations at receptors. Background concentrations account for 8% to 23% of the total NO_x concentration at receptors, with 1 - 4% due to regional background concentrations outside the local authority's influence.

The highest modelled PM₁₀ concentrations were predicted at properties along:

- Commercial Street
- Seagate
- Arbroath Road
- Albert Street
- Dock Street
- West Marketgait
- Victoria Road/ Meadowside
- Lochee Road

Source apportionment of PM₁₀, indicates background sources of PM₁₀ make a significant contribution to total PM₁₀ concentrations, as across the hotspots they account for 28-59% of the total PM₁₀ concentrations at receptors, with the majority of this being made up of secondary particulates (~30%), residual and salt contributions (~53%), while man-made sources make about 17% of the PM₁₀ background concentrations. Road traffic contributes 41% to 72% of the total PM₁₀ concentration at receptors. Light duty vehicles (LDVs) contribute around 7- 24% and heavy-duty vehicles (HDVs) contribute around 11-36% to the total PM₁₀ concentrations at receptors. HDV contributions are disproportionately high given their proportion within the vehicle fleet in the AQMA. On Commercial Street and Seagate, where there are significant bus movements the bus contributions are in the range of ~20-25% of total PM₁₀ concentrations and the HDV contribution exceeds the LDV contribution. Brake and tyre wear contribute around 13-29% to the total PM₁₀ concentrations at receptors. This proportion will become more significant with time, as the brake and tyre wear component is not expected to decrease its contribution with time, whereas vehicle exhaust emissions of PM₁₀ are expected to reduce.

Figure 2 – Contribution of Pollutant Sources to Annual Mean NO_x Concentration in the Various Areas in AQMA

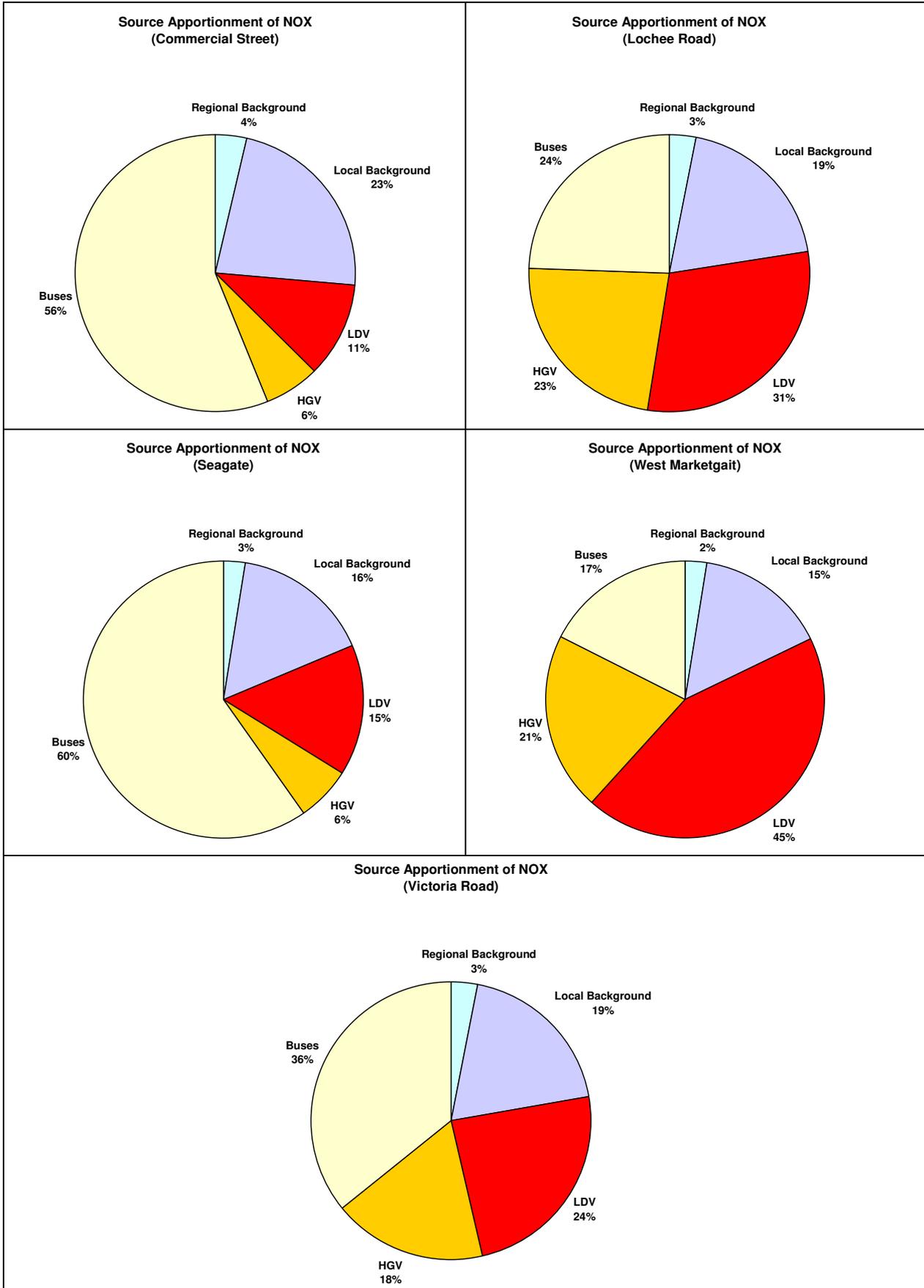
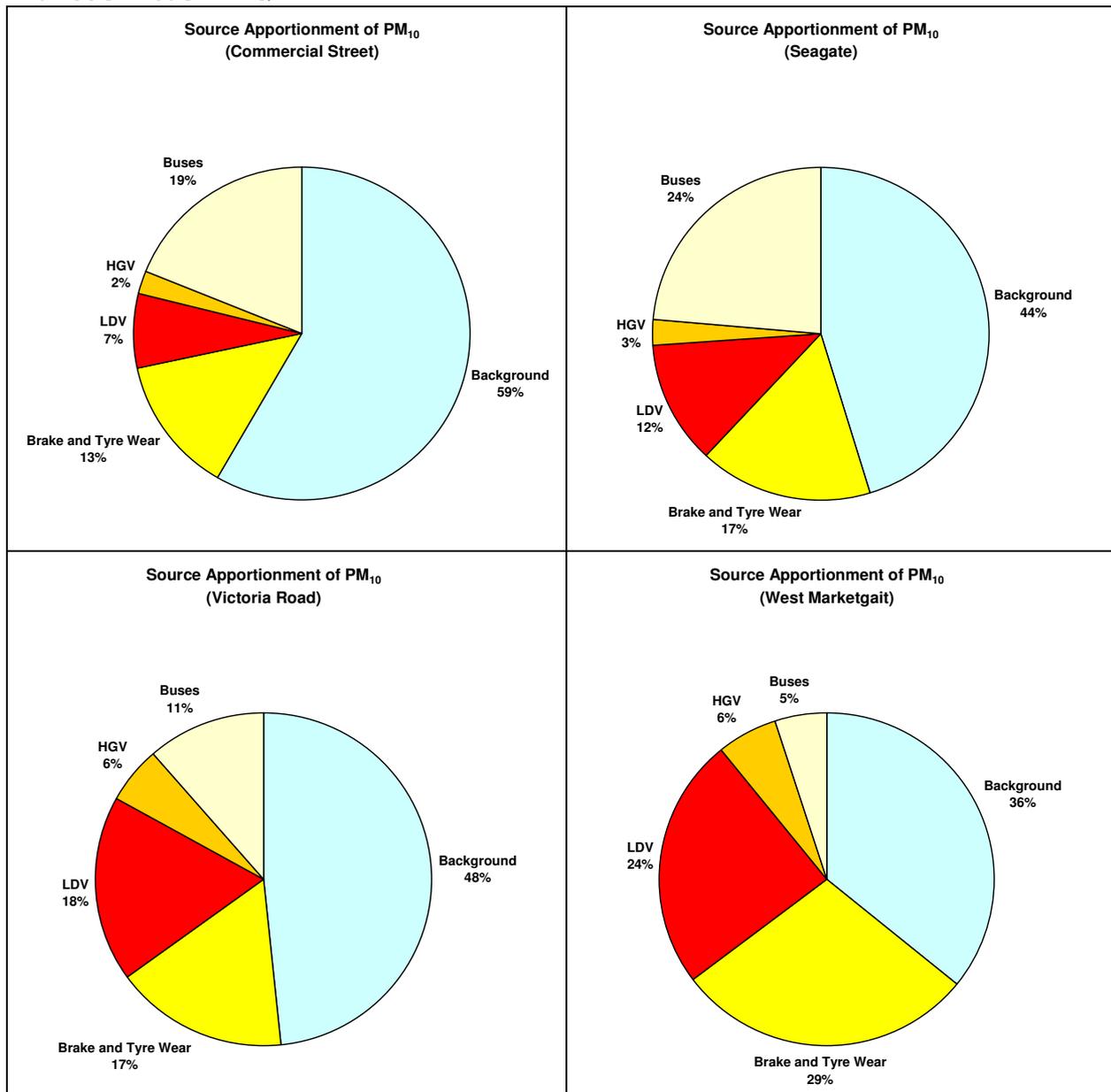


Figure 3 – Contribution of Pollutant Sources to Annual Mean PM₁₀ Concentration in the Various Areas in AQMA



2.4 Required Reductions in NO₂ and PM₁₀

In order to make a decision on the best options to employ, it is first necessary to calculate the exact reduction of NO₂ reduction (as NO_x) and PM₁₀ reduction that would be required in order to meet the AQS objectives. This approach highlights the maximum reduction in NO₂ (as NO_x) and PM₁₀ required and assumes that all other specific receptors will require less of a reduction.

The required reductions vary across the AQMA, as shown in Table 4 and

Table 5 for NO₂, NO_x and PM₁₀.

Table 4 – Required NO_x/NO₂ Reduction in Dundee City AQMA

Receptor Location	Modelled NO _x 2007 (µg/m ³)	Reduction NO _x required µg/m ³ (83.6 µg/m ³ NO _x equivalent to achieve objective)	% Reduction NO _x	Modelled NO ₂ 2007 (µg/m ³)	Reduction NO ₂ required (µg/m ³) to achieve objective (40µg/m ³)	% Reduction NO ₂
R206 Commercial Street	105.2	21.6	20.5%	46.1	6.1	13.2%
R1006 Arbroath Road	141.8	58.2	41.0%	54.7	14.7	26.9%
R2229 Doig Court, Lochee Road	124.4	40.8	32.8%	50.9	10.9	21.4%
R5296 Seagate	148.3	64.7	43.6%	56.1	16.1	28.7%
R5300 Dock Street	304.1	220.5	72.5%	83.3	43.3	52.0%
R5309 West Marketgait	157.2	73.6	46.8%	58.0	18.0	31.0%
M2 Victoria Road/ Meadowside	125.1	41.5	33.2%	51.0	11.0	21.6%

Table 5 – Required PM₁₀ Reduction in Dundee City AQMA

Receptor Location	Modelled PM ₁₀ 2010 (µg/m ³)	Reduction PM ₁₀ required (µg/m ³) to achieve 2010 objective (18µg/m ³)	% Reduction PM ₁₀
R206 Commercial Street	18.8	0.8	4.3%
R1006 Arbroath Road	26.4	8.4	31.8%
R1943 Albert Street	18.8	0.8	4.3%
R5125 Victoria Street	19.4	1.4	7.2%
R5296 Seagate	23.2	5.2	22.4%
R5300 Dock Street	37.1	19.1	51.5%
R5309 West Marketgait	31.1	13.1	42.1%
M2 Victoria Road	22.2	4.2	18.9%

3 Local and Regional Policies and Strategies

There are a number of related policies and strategies, at the local and regional level, that can be tied in directly with the aims of the Air Quality Action Plan. Many of these policies and strategies are focused on transportation issues, and may help contribute to overall improvements in air quality in the Dundee City AQMA.

3.1 Strategic Development Plan for the city region: The TAY Plan

The Planning etc. (Scotland) Act 2006 provides for the removal of structure plans and the creation of strategic development plans (SDPs). The Act gives Scottish Ministers powers to designate Strategic Development Planning Authorities (SDPAs), which are groups of planning authorities working together to prepare these plans.

The SDPA for the TAY Plan was designated by Scottish Ministers in June 2008 and covers the local authority administrative areas of Dundee, Perth and Kinross, Angus and the north part of Fife. The role of the SDPA is to prepare and maintain a SDP for the area covered by the four Councils. When completed, the Strategic Development Plan will replace the existing Dundee and Angus Structure Plan 2002, the Perth and Kinross Structure Plan 2003 and the Fife Structure Plan 2009 (specifically the NE area of Fife) and guide development in the area up to 2032.

Information on the TAY Plan is available at <http://www.tayplan-sdpa.gov.uk>.

A Development Plan Scheme² was published in March 2009, which sets out the framework for preparing the SDP. It contains information regarding consultations and timetables for the Plan preparation.

The TAY Plan Project Plan³ sets out the proposed timeframe for the key stages of the Plan preparation; as set out below:

ID	Task Name	Duration	Date of completion
1	Monitoring Statement	48 weeks	Feb-2010
2	Development Plan Scheme	Ongoing	Jul-2012
3	Key Drivers, Outcomes & Vision (draft)	8 wks	Jul-2009
4	Awareness Raising Initial Consultation	38 wks	Nov-2009
5	Research Studies	Ongoing	Aug-2012
6	Main Issues Report Preparation	Ongoing	Dec-2011
7	Proposed Plan		Jan-2012
8	Strategic Environmental Assessment		Jan-2012
9	Examination of Proposed Plan and Consideration of Report	52 wks	Mar-2013
10	Ministers Approve/Modify/Reject Plan	4 wks	Apr-2013
11	Publish Plan	13 wks	May-2013
12	Publish Action Programme	13 wks	May-2013

The Environmental Assessment (Scotland) Act 2005 requires development plans and programmes developed by public bodies to be subject to Strategic Environmental Assessment (SEA). An SEA Scoping Report⁴ (September 2009) has been drawn up, which sets out the background information that will be used in the preparation of the Environmental Report.

² <http://www.tayplan-sdpa.gov.uk/DevelopmentPlanScheme09.pdf>

³ [http://www.tayplan-sdpa.gov.uk/Project%20Plan%202009%20Version%2011.0%20WEB%](http://www.tayplan-sdpa.gov.uk/Project%20Plan%202009%20Version%2011.0%20WEB%20) (Version 11.0)

⁴ http://www.tayplan-sdpa.gov.uk/TAYplan_Scoping_Report_September_vFinal_web.pdf

The TAY Plan will set out policies which will be important in securing future air quality benefits in Dundee and are therefore relevant to this Action Plan. The TAY Plan will provide a strategic framework within which the Local Development Plan will be prepared.

3.2 Dundee and Angus Structure Plan (2001 – 2016)

The Dundee and Angus Structure Plan was approved by Scottish Ministers in 2002 and sets out the strategic land use planning framework for the region comprising Dundee and Angus over the period 2001-2016. This Plan will remain in force until the TAY Plan is in place.

While air quality is considered as an important part of the strategy for Dundee (p9 '*maintain and enhance the high quality of the environment of the City including monitoring air quality.*'), there are no specific policies in the Plan with respect to air quality. However, there are relevant policies within the Structure Plan with respect to transport which can be considered as relevant to the AQMA Action Plan.

One of the guiding principles of the Structure Plan (p6), to work towards achieving sustainable development in Dundee and Angus, is to:

Integrate land use and transport to improve accessibility for everyone between home, work, leisure and services with a view to maintaining air quality, reducing pollution and unnecessary travel.

The monitoring and review section of the Plan (p61) sets out how this will be achieved through transport policies and proposals T1, T3 and T4, which relate to provision of strategic transport links, enhancement of sustainable transport systems and consideration to development location in terms of access to public transport, walking and cycling routes. Development proposals that generate significant traffic must be supported by Transport Assessments and Travel Plans where necessary.

The development of the TAY Plan SDP presents an opportunity to generally strengthen the air quality considerations at a regional level.

3.3 TACTRAN Regional Transport Strategy (2008 – 2023)

Tayside and Central Scotland Transport Partnership (TACTRAN) was established on 1st December 2005 as one of seven statutory Regional Transport Partnerships across Scotland. TACTRAN includes the local authority areas of Angus, Dundee City, Perth and Kinross and Stirling.

TACTRAN has a key role in advising the Scottish Government on significant transport issues in the Tayside and Central Scotland region. It is responsible for the Regional Transport Strategy (RTS), under the Transport (Scotland) Act 2005, which sets out a vision and objectives over a 15 year period for meeting the transport needs of communities throughout the region and ensures transport projects in the region complement and support sustainable development. The Regional Transport Strategy will help inform the emerging TAY Plan.

The TACTRAN RTS 2008-23⁵, published in November 2008, aims to deliver "a transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all". The Environment and Health and Well-Being are two of the six broad themes within the Strategy, and have the following overarching objective and supporting sub-objectives:

⁵ <http://www.tactran.gov.uk/documents/TACTRANRTS-FinalNov2008.pdf>

Environment: To ensure that the transport system contributes to safeguarding the environment and promotes opportunities for improvement.

- Contributing to the achievement of the Scottish national targets and obligations on greenhouse gas emissions;
- Promoting a transport system that respects both the natural and the built environment;
- Promoting a shift towards more sustainable modes.

More specifically, the RTS refers to air quality under the Health and Well-Being Theme: Health and Well-Being: To promote the health and well-being of communities.

- *Helping to meet or better all statutory air quality requirements in the TACTRAN area;*
- Promoting a culture of active and healthy travel.

The main policies and proposals defined within the Strategy relevant to the Air Quality Action Plan are outlined below:

- development of a Regional Bus Strategy that will provide a policy and delivery framework for specific interventions and promotion of Quality Bus Partnerships;
- managing growing demands on our road system in a more sustainable way, including reducing the need to travel, increased emphasis on demand management techniques and managing how road space is allocated between transport modes to ensure that the most efficient use is made of the resources we have available;
- establishing a Strategic Regional Parking Policy that will address areas where parking demand currently or in the future will exceed supply. This will also consider parking standards for the provision of parking in new developments;
- improving the quality and integration of our public transport services across the region, including development of improved/new multi-modal interchanges at key locations including Dundee, Perth and Stirling, integrated ticketing and improved travel information;
- developing a Regional Park and Ride Strategy which will outline a programme for Park and Ride/ Park and Choose networks serving the region's main towns and enhancement to railway station car parks;
- developing a Regional Travel Information Strategy that will identify the detailed measures and policies to improve access to travel information;
- developing a Walking and Cycling Strategy to ensure that the two modes form part of an integrated transport system;
- ensuring that improvements in the movement of passengers and goods are sustainable, including maximising the use of public transport and rail and water-borne freight;
- ensuring that development proposals include Travel Plans that maximise the potential for walking, cycling, public transport and other sustainable travel choices, including through continued use of planning agreements;
- liaising closely with the appropriate Planning Authorities to ensure that the RTS is fully integrated within land use planning processes across the region;
- taking a lead in the promotion and development of active Travel Plans at major centres of employment, hospitals and other main health establishments, in partnership with Councils, Health Boards and the private sector;
- promoting a range of SMART measures, including Travel Plans, travel awareness campaigns, high quality travel information, region-wide car-sharing schemes, cycling and walking infrastructure and initiatives, development of tele-working etc.

TACTRAN have commissioned consultants JMP to undertake a Health and Transport Action Plan. This Plan will seek ways to:

- promote active travel;
- reduce the adverse impact of transport on public health;
- improve access to healthcare.

The first stage of the work being undertaken in 2009 was one of evidence-gathering to gain an understanding of the key pressures and issues that affect transport and health in the TACTRAN region. DCC will be contributing to the development of the Plan and ensure that air quality issues are given appropriate consideration.

3.4 Central Dundee Parking Strategy

The strategy was produced in 2006 and details the objectives and measures with regard to Council's parking services provision. The strategy was prepared in response to increases in the economic activity in the city and changes in travel patterns. The strategy has been drawn upon the review of best practice in terms of parking strategies adopted in other UK cities available at the time. The strategy consists of the following eight wider strategy objectives and thirteen specific measures to achieve the objectives.

Parking Strategy Objectives

- Objective 1 (OB1): To support the economic vitality of the city by encouraging high turnover of car parking for shoppers and visitors
- Objective 2 (OB2): To ensure that the provision and management of parking encourages and facilitates walking, cycling and public transport use
- Objective 3 (OB3): To provide safe and attractive parking facilities and contribute to improved road safety
- Objective 4 (OB4): To ensure that residents without off-street parking facilities in residential areas surrounding the city centre or major trip attractors are able to park their vehicles near their homes
- Objective 5 (OB5): To ensure the effectiveness of the parking strategy through enforcement of parking restrictions. Objective 6 (OB6): To ensure that there is no net increase or decrease in existing car parking facilities
- Objective 7 (OB7): To facilitate ease of access for all users to and from parking facilities including mobility impaired people, pedestrians, cyclists, motorcyclists and public transport users
- Objective 8 (OB8): To assist in meeting the National Air Quality Standards

Parking Strategy Measures

- *Measure 1: Promote a car parking prioritisation and tariff regime*
- *Measure 2: Agree maximum parking standards*
- *Measure 3: Implement the parking strategy within a wider strategy to improve public transport, walking and cycling facilities*
- *Measure 4: Provide accessible parking facilities for people with disabilities*
- *Measure 5: Undertake marketing of transport and travel in Dundee*
- *Measure 6: Maintain parking provision in city centre*
- *Measure 7: Implement Residents' Parking Zones*
- *Measure 8: Review the City Centre Residents' Parking Zone*
- *Measure 9: Impose planning conditions on new privately owned parking facilities*
- *Measure 10: Provision of Park & Ride*
- *Measure 11: Improve the security of car parks*
- *Measure 12: Improve Variable Message Signs*
- *Measure 13: Improve/introduce naming and signage of car parking*

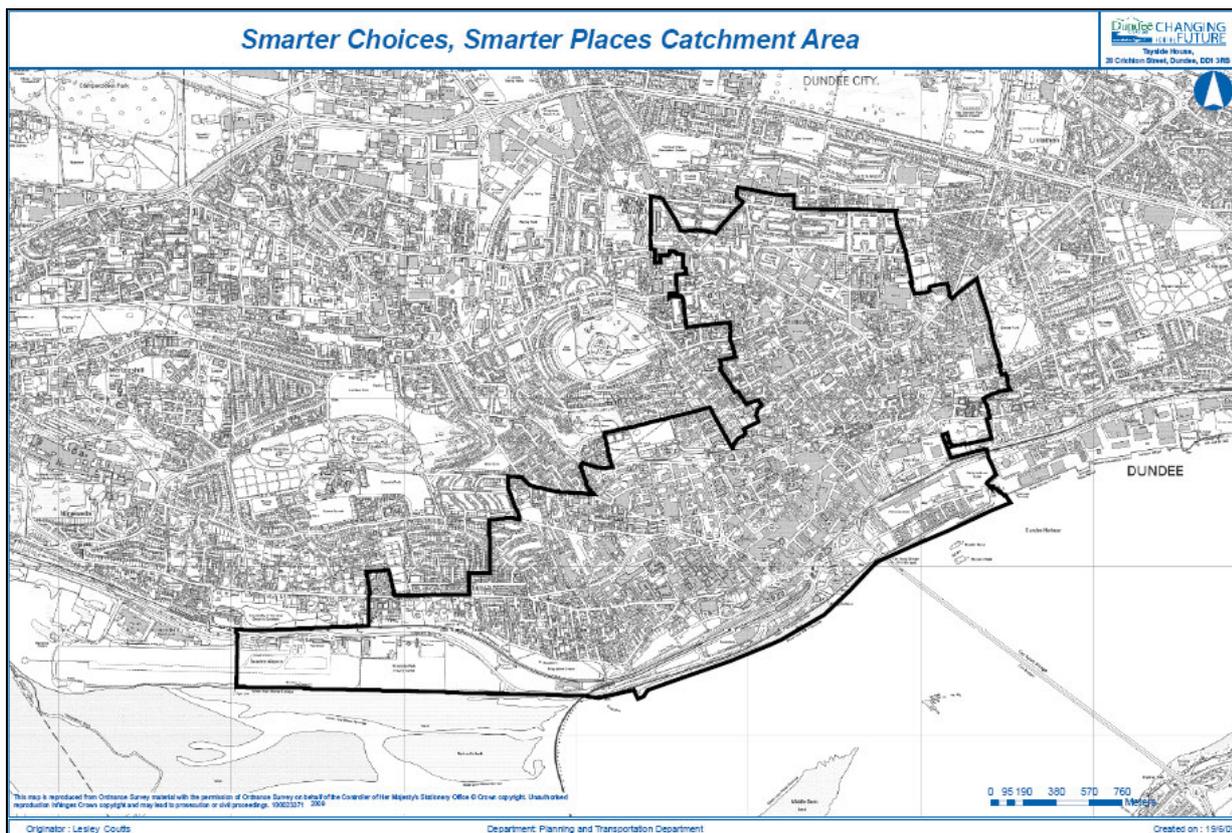
The strategy tries to balance and address sometimes conflicting priorities such as to cater for the increased demand due to increased economic activity and car travel and the environmental objectives. For example the strategy recognises the impact of road traffic on local air quality and statutory requirement to achieve the air quality objectives and aims to demand management and reducing congestion. The strategy also recommends the Council to consider if the provision of Park & Ride facilities as outlined in TACTRAN would be beneficial for Dundee. The strategy suggests that such facilities would reduce a substantial part of commuter journeys, long stay parking and congestion.

3.5 Smarter Choices, Smarter Places: Dundee Travel Active

The aim of Smarter Choices, Smarter Places (SCSP) is to achieve increased proportions of active travel and public transport use as contributions to Healthier, Greener and Safer and Stronger outcomes specified in the National Performance Framework⁶ (Concordat Annex A) through the use of Smarter Choices and associated demand management mechanisms.

The part of Dundee covered by SCSP, as shown in Figure 4 below, covers a significant area within the city centre. Dundee Travel Active Programme was launched in 2008, following the successful bid by DCC to the Scottish Government's SCSP fund.

Figure 4 - Smarter Choices, Smarter Places Catchments Area



The programme objective is to “encourage active travel to promote healthy lifestyles for residents of and visitors to central Dundee” and there are nine projects being progressed:

⁶ <http://www.scotland.gov.uk/Publications/2007/11/13092240/concordat>

- Personalised travel planning (PTP)
- Improved active travel networks
- Public realm and open space enhancements
- Bicycle hire scheme
- Network condition rangers
- Dundee active travel brand and promotional activities
- Active travel information
- Active kids- active parents
- Public transport ticketing incentives

The Dundee Travel Active programme is well into its third year of funding and results are becoming available to highlight where and how we are succeeding with encouragement of increased use of active and sustainable travel. The results are being monitored by Scottish Government and we will use the interim analysis to inform decision making and targeting of effort beyond the three year funding period.

Dundee Travel Active is planning a stakeholder event in autumn 2010 to discuss the key benefits and the measures that have been less successful. The aim is to attract commitment to continue some the most effective measures into the future.

The benefits of the SCSP to date include:

- Dundee citizens have been identified as the most multi modal in Scotland, they have propensity to try and use a range of travel options
- Travel Advisors will have visited / contacted all residents within West End, City Centre, Hilltown and Stobswell areas by Autumn 2010
- Bike Boost has allowed 100 residents to 'borrow' a bike and to try cycling as their main mode of transport, if they can demonstrate regular use the bike will be gifted to them. Similar scheme to be rolled out to students in October 2010
- Support given to the 'Safe Parking Around School' initiative to encourage road safety (and reduced car based trips to school) and more active travel
- Schools and Employers supported in encouraging more use of active and sustainable travel
- Significant investment from SCSP and existing budgets from Cycling Walking and Safer Streets, TACTRAN and Sustrans capital grants targeted at improving pedestrian and cycling infrastructure.

The Programme complements the aims of the AQAP and will be incorporated into the AQAP measures.

3.6 Partnership work with Bus Operators

Dundee City Council, Angus Council, Stagecoach and National Express Dundee entered into Scotland's first Bus Punctuality Improvement Partnership (BPIP) in January 2009. The strategy behind the BPIP is to make bus journey times more reliable resulting in more attractive bus journey times, more efficient use of vehicle resources and in relation to air quality less congestion means less vehicles needed to operate the services and those that are in operation the engine is operating more efficiently

The BPIP is main partnership 'vehicle' with local bus operators and has superseded the intent to enter into a full Statutory Quality Bus Partnership in the meantime. Supporting information about the BPIP can be found at

<http://www.dundee.gov.uk/reports/reports/486-2008.pdf>

<http://www.angus.gov.uk/ccmeetings/reports-committee2010/infrastructure/406.pdf>

http://www.tactran.gov.uk/documents/Item52008_09CapitalProgrammesProgressUpdateRTP_09_16.pdf

<http://www.scotland.gov.uk/Publications/2009/03/30120224/16>

3.7 Dundee Local Development Plans

3.7.1 Dundee Local Plan Review

The Dundee Local Plan Review⁷ was adopted in August 2005. This sets out detailed policies and proposals for land-use and development in the city for the period up to 2011. Housing land allocations for Dundee in the Structure Plan for this period is for 750 houses in the Dundee Western Gateway and 2,495 houses in the remaining Dundee City area, the majority of which is brownfield site development. The focus of development outside the Western Gateway is Central Dundee, Stobswell/Baxter Park and Caird Suburb/North West, north of Kingsway and west of Forfar Road. Other significant development supported in the Local Plan includes the Dundee Central Waterfront Development⁸, a 30 year plan to re-integrate the City with the waterfront with mixed-use development, re-opened dock, improved access for non-car modes and a new rail station. The sustainable development of these significant proposals for Dundee is important to the Air Quality Action Plan aims of working towards achieving the AQS objectives.

There are no specific policies with respect to air quality in the Local Plan. However, the Local Plan states (p19) that *"...it is the strategy of the Local Plan to: encourage an improvement in air quality through the promotion of appropriate transport choice and promotion of sustainable transport modes. Consider Air Quality impacts when undertaking construction or management of the transport network."*

In addition, Local Plan Review Planning Advice on Air Quality and Land Use Planning was published in January 2007. This offers guidance to developers and applicants on when and where air quality issues may arise in Dundee and what this entails for them, such as when and how to undertake air quality impact assessments for developments.

⁷ www.dundee.gov.uk/localplan

⁸ http://www.dundee.gov.uk/dundee/uploaded_publications/publication_77.pdf and <http://www.dundee waterfront.com/media.htm>

3.7.2 Dundee Local Development Plan Preparation

The first document prepared under the new development planning system for Local Development Plan (LDP) is the Development Plan Scheme. This document sets out the timeframe for the preparation of the new plan and includes key dates/stages within the process. It also sets out the consultation strategy that will be followed in preparing the plan.

The Development Plan Scheme is updated annually and the latest version was published in March 2010. An initial pre-main issue consultation exercise was carried out over September and October of 2010. The information received from this will feed into the preparation of the Main Issues Report which is programmed to be published in August 2011. The Main Issues Report is the main consultation phase in the preparation of the LDP. Currently the LDP is programmed for adoption and publication in summer/late 2014.

The LDP will set out the strategy for future development within the City over the next five years. The plan will contain policies and proposals for the principle land uses. Supplementary Planning Guidance will also be prepared providing more detailed guidance on specific areas identified in the plan.

Air quality will be part of the assessment of the entire plan and in particular any proposals that are taken forward. There may be a need for Policies and/or SPG but this will need to be considered through the formal plan preparation process.

3.8 Dundee City Council Single Outcome Agreement

In 2007 the Scottish Government and local government signed an agreement for Single Outcome Agreements (SOAs). The SOAs aims to improve the quality of life and opportunities in life for people across Scotland. This is achieved through public services working together with private and voluntary sector partners. The SOAs underpin the funding provided to local government over the period of 2009-2012.

The SOA for Dundee was produced in May 2009. The wider strategic priorities outlined in the SOA include:

- Jobs and Employability
- Children and Young People
- Inequalities
- Physical and Mental Well-Being

One of the outcomes of the agreement, Dundee Outcome 11 - Dundee will have a sustainable environment, include a number of outputs that will have either direct or indirect impact on air quality such as:

- Increase safety, inclusivity and accessibility of public transport
- Minimise private car use and the impact of transport
- Increase energy efficiency and renewable energy usage
- Meet National air quality standards and address other air pollution issues
- Reduce the impact of waste production and improve the efficiency of the City's resource use

An intermediate outcome specifically requires the authority to identify areas of exceedence within the Dundee area and implement mitigation measures as appropriate in accordance with the Local Air Quality Management framework.

3.9 Dundee Partnership Community Plan for Dundee City 2005 - 2010

The Community Plan⁹ drawn up by the Dundee Partnership for the period 2005-2010 describes how Dundee City Council, Scottish Enterprise Tayside, NHS Tayside, Tayside Police, academic institutions and representatives of the private, community and voluntary sectors have all agreed to work together to make Dundee a better place.

One of the key themes of the Community Plan under the Environment strategic theme is *Minimising Pollution* with the objective to 'Work towards meeting the National Air Quality Standards and address air pollution issues.' Sustainable Transport is also a key theme with objectives to: promote safe, affordable and accessible public transport, develop and promote alternative modes of travel, minimise private car use and impact of transport and integrate new development with sustainable transport options.

The actions under Environment of most relevance to the AQMA Action Plan are:

- Develop and implement an Environmental Strategy for Dundee (completed 2008).
- Take active enforcement to address air pollution issues within the domestic, commercial and industrial sectors.
- Continue to develop and monitor Sustainable Travel Plans for Dundee University, Dundee City Council, Scottish Enterprise Tayside and NHS Tayside, and other major employers in the city
- Continue improvements to Green Circular (city's cycle path) and Outdoor Access Strategy.

3.10 Dundee Environment Strategy 2008 - 2011

The Dundee Environment Strategy¹⁰ was drawn up by Dundee Partnership for the Environment in 2008 and includes actions under the themes of Climate Change, Pollution and Transport likely to have air quality benefits and are therefore of relevance to the AQMA Action Plan.

Climate Change

- Publicly declare a plan, with targets and timescales to achieve a significant reduction in greenhouse gas emissions from the Council's operations (Plan in place). Key measure - To achieve a 10% reduction in annual carbon emissions from a baseline of 51,081 tonnes in 2007/08 to 45,973 tonnes of carbon by 2012/2013.

Transport

- Develop the Smartcard initiative to introduce integrated ticketing;
- Establish and promote a Staff Travel Plan for Dundee City Council;
- Monitor the implementation of Travel Plans for the University of Dundee, SET and NHS Tayside;
- Continue to develop and promote Tactran Liftshare and investigate opportunities for 'Conference Share';
- Assist schools in the Safer Routes to School initiative and in developing School Travel Plans;
- Ensure there is easy available travel information for non-car journeys through Dundee Travel Information website and at all bus stops;
- Undertake Core Path Planning consultations to develop a Core Path Network that will provide a framework of routes for non motorised access in Dundee;

⁹ <http://www.dundeepartnership.co.uk/file.php?id=1092>

¹⁰ <http://dundeepartnership.co.uk/file.php?id=1838>

- Raise awareness of routes in and around Dundee for walkers, cyclists and horse riders and other forms of non-motorised access;
- Installation of messaging systems for car parking in Dundee to increase the efficiency of the road network;
- Continue ongoing improvements and maintenance of the green circular route.

Pollution

- Following the declaration of the AQMA, undertake assessments and consultation with stakeholders and produce and implement an appropriate corporate Action Plan to address high Nitrogen Dioxide levels;
- Undertake further monitoring and assessment of PM₁₀ to determine whether a further AQMA is required;
- Continue to assess specified pollutants in line with National Air Quality Strategy Framework;
- Adoption of monitoring for population exposure reduction of PM_{2.5} as required by the Scottish Government;
- Carry out effective enforcement and interagency working to address other air pollution issues within the domestic, commercial and industrial sectors.

The Dundee Environment Strategy Progress Report¹¹ (Oct 2009) provides an update with respect to progress with these actions. Achievements to date include:

- Approval of the Climate Change Framework and Action Plan in 2008. Work has commenced on implementing the Plan;
- Dundee City Council Staff Travel Plan adopted on 8th September 2008;
- DundeeTravelInfo.com refreshed during 2009 in support of the Smarter Choices Smarter Places Project;
- The Core Paths Plan was adopted on 26th January 2009, which identifies strategic routes for walking, cycling and horse riding and can be viewed at www.dundee.gov.uk/outaccess/corepaths;
- A programme of projects has been developed under the Smarter Choices Smarter Places scheme to promote active travel in central Dundee. This will launch in May 2009 and run until March 2011;
- A new updated cycle map was produced in April 2009;
- Car park variable message signage has been installed throughout the City Centre and is now fully operational

Since the October 2009 update further assessment of PM₁₀ has demonstrated the need for an AQMA. The responsibility to monitor for PM_{2.5}, in order to assess the population exposure reduction target, has fallen to DEFRA and the Scottish Government.

¹¹ <http://dundeepartnership.co.uk/file.php?id=2150>

3.11 Climate Change Framework 2008-2015 and Action Plan 2008-2011

The Climate Change Framework 2008-2015 and Action Plan 2008-2011 was approved on 14th April 2008. The Framework sets out how the Council will tackle climate change by reducing carbon dioxide emissions and adapting its services to the impacts of climate change. Work has commenced on implementing the action plan and aligning this with the Council's Carbon Management Programme. The Carbon Trust's Public Sector Carbon Management plan was approved in April 2009, and an Implementation Plan has been prepared and is being taken forward.

One of the objectives of the Action Plan is Air Quality - *“Ensure that actions taken to reduce greenhouse gases do not have an adverse impact on air quality and vice versa.”*

Energy efficiency is a key part of the Climate Change Framework and Action Plan and actions are proposed to reduce energy and improve efficiency within Council buildings, investigate and, where feasible, install renewable energy sources for Council properties, and improve the energy efficiency performance of new and existing housing.

Planning is also highlighted as a key area where climate change considerations must be integrated to ensure sustainable development and adaptation to future climate change impacts.

Many actions being taken forward with respect to climate change will additionally secure local air quality benefits and therefore are of relevance to the Air Quality Action Plan.

3.12 Sustainability Policy for Dundee City Council

The Sustainability Policy for Dundee City Council March 2006 sets out the Council's commitment to improving its environmental performance in undertaking its duties. Principles 4 (Transport and Travel) and 9 (Minimising and Remediating Pollution) are of particular relevance to local air quality and the aims of the Air Quality Action Plan.

TRANSPORT & TRAVEL

- Support the Council's emerging Travel Plan particularly in respect of journeys to and from work and during office time;
- Promote opportunities for sustainable transport and encourage citizens to walk, cycle or use accessible public transport to reduce private car dependency;
- Explore opportunities for using clean fuel resources in Council vehicles.

MINIMISING & REMEDIATING POLLUTION

- Minimise the impact of Council activities on air and water quality and adopt measures to reduce noise intrusion.

4 Consultation

Local Authorities are required to consult on their draft LAQM Action Plan. It is important for the success of the Action Plan to seek involvement from all local stakeholders including local residents, community groups and local businesses in the drawing up the Action Plan in addition to their active participation in achieving the action plan measures. The Action Plan has been drawn up for consultation by the Air Quality Steering Group, which includes relevant environmental and planning representatives from Dundee City Council and representatives from Tayside and Central Scotland Transport Partnership.

The following is a list of statutory and non-statutory consultees to whom the final draft Plan is also to be sent:

1. Scottish Government
2. Scottish Environmental Protection Agency (SEPA)
3. Tayside and Central Scotland Transport Partnership
4. Dundee City Council Councillors and Officers
5. Neighbouring local authorities
6. Local health authorities
7. Local transport operators
8. Local residents within and bordering the AQMA through network of Community Councils and other relevant Community Groups
9. Relevant local businesses, community groups and forums
10. Other relevant local stakeholders

All comments from both statutory and non-statutory consultees received on the draft Action Plan will be considered and incorporated where appropriate into the final Action Plan. The Plan will be presented to Dundee City Council for endorsement and subsequently placed on the Dundee City Council website at <http://www.dundee.gov.uk> and will be available for online access.

4.1 Prioritisation of Measures Steering Committee Meeting

A meeting of the Steering Committee was held on 17th Sep 2010. The following were the objectives of the meeting:

- To fine-tune measures and actions included in the AQAP
- To remove and add measures considered appropriate for the AQAP
- To prioritise measures based on cost, effect and feasibility

The feedback from the meeting is summarised in Appendix 2, which ought to be considered by the Council when implementing the measures included in the AQAP.

4.2 Public Consultation Workshop

Dundee City Council held a Public Consultation Workshop on 16 November 2010 to gather views of the local community. The participants were provided with a simple questionnaire. The purpose of this questionnaire was to gather public opinion about the quality of air in Dundee and how they believe the measures included in the AQAP would benefit air quality in Dundee. A simple flyer accompanied the questionnaire to briefly explain to a laymen about the LAQM process, air quality in Dundee and about the AQAP. The questionnaire was also made available on-line for those who wanted to provide their feedback. The outcome of the public consultation workshop and responses to the questionnaire is summarised in Appendix 3.

4.3 Stakeholder Consultation Workshop

Dundee City Council organised a Stakeholder Consultation Workshop on 17 November 2010 to gather views of the stakeholders. The workshop was aimed to get feedback about the measures and actions included in the AQAP from the relevant stakeholders. These included TACTRAN, local businesses including local bus operators, local community organisations, neighbouring local authorities, Dundee University and local health authorities . The feedback from was also made available online. An example of the feedback form and feedback received from the stakeholders is provided in Appendix 4.

5 Action Plan Proposals for Dundee AQMA

It is essential that all relevant authorities provide the Council with the necessary information on their proposals that will help work towards the attainment of the AQS Objectives and EU Limit values, to be achieved by 2010. In particular, as the major source of pollution in the AQMA is transport related, those relevant authorities with responsibilities for transport have a very important role to play.

5.1 Cost Effective and Feasibility Score and Prioritisation of Measures

A summary of these proposals is outlined in the following pages, including the impact and timescales for these proposals. In order to inform the action planning process a simple assessment of the cost and benefit of each proposal has been undertaken. The following table gives an indication of the scoring used. A simple multiplication of the cost and impact, (score X score), gives some indication as to the cost effective score of the proposals. The prioritisation of measures is based on considering the feasibility of implementation and funding together with the cost effective score.

Table 6- Scoring used to Assess and Prioritise Proposals

Costs		Air Quality Impacts		Timescale	
Score	Approximate cost	Score	Indicative impact		Years
7	<£100k	7	>5 µg/m ³	Short (S)	1- 2
6	£100-500k	6	2-5 µg/m ³	↓ Medium (M) ↓	↓ 3-5 ↓
5	£500k-1million	5	1-2 µg/m ³		
4	£1-10 million	4	0.5 - 1 µg/m ³		
3	£10-50 million	3	0.2 – 0.5 µg/m ³		
2	£50-100 million	2	0 - 0.2 µg/m ³	↓ Long (L) ↓	↓ 6+
1	>£100million	1	0		

Feasibility of Implementation/Funding Score:

1 > > > > > 5

- 1 being the least feasible and 5 being the most feasible
- Feasibility requires to consider feasibility for implementation and funding

Cost Effective Score = Cost Score X Effect Score

Prioritisation Score = Cost Effective Score + Feasibility Score

5.2 Quantification of AQAP Measures

The quantitative appraisal has been carried out for some traffic measures included in the AQAP for implementation. The measures were selected if these lend themselves for quantification and required data for assessment was available. The results of the quantification of measures is provided as a separate report.

5.3 Action Plan Measures to be implemented in the AQMA

To work towards achievement of the AQS objectives in the AQMA, the following measures will be/are proposed to be implemented. The summary table of the measured proposed for implementation including their feasibility is provided in Table 7.

5.3.1 TRANSPORT MEASURES

The statutory review and assessment of local air quality carried out by the council identifies that road traffic is the most significant source of NO₂ in Dundee city. Road traffic contributes up to 74%-91% of the total NO_x concentration. The contribution from HDVs (Heavy Duty Vehicles (include heavy goods vehicles and buses and coaches) is disproportionately high, 38-77%. The review and assessment has identified seven hotspots in the city, Meadowside, Victoria Road, Lochee Road, Logie Street, Seagate, Nethergate, Whitehall Street and Forfar Road, where annual mean NO₂ concentrations in 2007/8 were in excess of 50µg/m³ against the annual mean objective of 40µg/m³.

For PM₁₀, the proportion of background is significantly higher compared to background NO_x. Still the road traffic contributed 41%-72% of the total predicted PM₁₀ concentrations.

A number of policies, plans, proposals and strategies aim to reduce or deal with road traffic and transport in Dundee. These have been discussed in detail in Section 3. Many elements of these policies, plans and strategies could directly benefit air quality as it is currently primarily a traffic related issue within Dundee.

To minimise and control air pollution from road traffic, Dundee City Council gives a commitment to work with relevant partners to take forward the following schemes:

Measure M1: Existing Road Infrastructure Improvements

City Centre Street Improvements - Union Street

In order to facilitate environmental improvements in Union Street a number of possible changes to the streetscape, road carriageway alignment and traffic priorities are being investigated. Options that involve extending the width of the pavement could deliver improvements in air quality at the facade of residential properties as the vehicle exhausts will be further from the building frontages and the emissions may be better dispersed. Other considerations such as reducing the traffic to one-way will reduce the numbers of vehicles and hence pollution in the street. Whilst this delivers benefits to Union Street it would be necessary to account for the impact of the displaced traffic in the surrounding streets. DCC will scenario test the options for their air quality impacts to help inform future road infrastructure changes in streets where NO₂ and PM₁₀ have been found to be a problem.

Measure M2: Urban Traffic Management and Control (UTMC) Enhancements

A UTMC system is operational in Dundee city centre. Dundee City has a modern Scoot (Split Cycle and Offset Optimisation Technique) traffic management system, which is used to improve congestion and give priority to buses at junctions. This has been further developed, with variable message signs showing real time information on parking spaces available in the city centre. Air quality issues are linked to congestion as slow moving, stop-start traffic generate more pollution than free-flowing traffic. Therefore improvements through UTMC to relieve congestion through improved traffic flow could secure air quality benefits. The UTMC will be developed further to identify any missing junctions relevant to air pollution problems, manage local traffic more effectively and provide better journey time information for all road users. Future enhancements could involve the following:

- Intelligent technology with potential improvements to on-street and in-car driver information to assist in avoiding incidents and congestion
- Automatic number plate recognition that could be used to derive journey times and speeds across the network as the current receivers only detect vehicle flows
- Widen the coverage by expanding CCTV
- Real-time monitoring of traffic
- Improve control regime to smooth out peak traffic
- Upgrading junctions with known traffic problems to SCOOT control

Measure M3: Smarter Choices/Smarter Places: Dundee Travel Active Programme

Dundee Travel Active 2008/9 – 2010/11 is a three year programme with over £2 million funding from the Scottish Government to deliver the Smarter Choices/Smarter Places agenda and encourage active travel in Dundee. The programme is aimed to raise travel awareness and behavioural changes. Sustainable transport initiatives are being delivered through the following nine projects:

- Personalised Travel Planning (PTP);
- Dundee Travel Active (DTA) brand and promotional activities;
- Improved active travel networks;
- Public realm and open space enhancements;
- Active travel information;
- Bicycle hire scheme;
- Active kids- active parents;
- Network condition rangers;
- Public transport ticketing incentives.

Dundee CC anticipates that smarter measures in Dundee will have significant impacts. In recent years the city has been successful in increasing retail footfall¹². During this time the requirements of the Road Traffic Reduction Act (RTRA) to monitor and report traffic volumes have shown that there has been a stabilisation of traffic volumes. The influence of sustainable transport measures is considered to have contributed to the reduction in car trips. Further enhancement of Smarter measures through the Dundee Travel Active programme will deliver further improvements and help secure air quality benefits in the city centre.

Funding for this programme runs out in March 2011. The Council would engage with the Dundee University, Tayside Health Board and would identify wider partnership in order to continue the benefits of smarter choices for people of Dundee. The emphasis would be for those aspects of the programme, which have shown greater impact in terms of air quality improvements.

Measure M4: Measures to Improve Bus Emissions and Services

The Further Assessment showed that buses are significant contributors of air pollution in some areas within the AQMA, such as Seagate. Therefore, improving bus services and reducing congestion and emissions from buses will help to improve air quality.

Statutory Bus Quality Partnership

The Council will explore opportunities with the bus operators in developing a statutory bus quality partnership.

Voluntary Bus Quality Partnership

A Bus Punctuality Improvement Partnership (BPIP) is a voluntary agreement between local authorities and bus operators that promotes a co-operative approach to identifying the root causes of poor punctuality with a framework for developing appropriate solutions. The additional benefits include: improved accessibility and air quality and reduction in bus congestion.

The BPIP is also seen as a positive step towards developing a Quality Partnership between Angus Council and Stagecoach Strathtay - an aspiration of both parties for driving up quality on the Tayway (Arbroath - Monifieth - Dundee) corridor.

Successful partnership working between local bus operators, Dundee City Council and Angus Council has delivered significant enhancements to both local public transport systems in recent years. The Dundee and Angus BPIP commenced on 1st January 2009 and will operate for a period of five years. Initially, four services are covered under the agreement, although the aim is to expand the BPIP to cover all corridors and services in Dundee and other cross boundary services into Angus. Real Time Passenger Information and Urban Traffic Control systems will be the principal methods of identifying where problems exist. The success of the BPIP between Local authorities and the bus operators is the key in developing a future quality partnership.

¹² Tactran Freight Consolidation Feasibility Study- Draft Feasibility Report March 2010

Fleet Renewal – Emissions Improvements

Travel Dundee is the main bus company in Dundee, renewed much of its fleet in 2004 to 100 per cent low-floor fleet, and therefore many buses are about half to two thirds of the way into their expected lifespan. There is therefore maybe scope for reduction in pollution through fleet renewal. The council will encourage uptake of alternate fuels that have lower emissions for air and climate pollutants, particularly for buses in the AQMA. This would also result in improvement of air quality in the wider area.

The council will explore ways of delivering improvements to the bus fleet with local operators and investigate identifying funding and incentives to encourage these improvements.

Tackling Idling Bus Emissions

The vehicle idling causes increased emissions of exhaust pollutants and greenhouse gases due to inefficient fuel combustion.

Low Emission Zones for Buses

The Further Assessment work has identified buses on particular routes as being a significant contributor to emissions, for example on Seagate. It is recognised that in Dundee city centre pedestrianised streets provide a safe, high quality environment for those living, working and visiting in Dundee. The main bus routes surround this area to provide good access, and as such there are limited alternative routes that buses could take.

Where re-routing of buses to reduce overall numbers, and thus emissions, is not feasible alternatives such as a 'Low Emission Zone' could be considered. The council will consider the feasibility of implementing a Low Emission Zone within the City.

Measure M5: Park and Ride Facilities

The main aim of Park and Ride facilities is to reduce traffic congestion in urban areas with attendant benefit of improvements to air quality. Dundee CC is working in partnership with TACTRAN to investigate potential and appropriate sites to deliver Park and Ride facilities for Dundee. Three areas are being investigated, which include: south of the Tay Bridge in Fife, to the west of the city in Perth and Kinross, and to the north of the city within the Council's administrative area. The sites are being investigated to prioritise with the view of maximum benefits to traffic reduction and air quality improvements. To enhance the use of Park and Ride facilities bus priority routes will be provided together with economic incentives such as free or low cost car parking at these facilities. It is known that Park and Ride schemes developed by other authorities have sometimes contributed to a worsening of air quality as a consequence of the use of many older or more polluting buses. Dundee CC will consider the lessons learned by other local authorities in order to help avoid inadvertent adverse impacts on air quality.

Measure M6: Measures Targeting Heavy Goods Vehicles

Further Assessment has clearly shown the disproportionately high contribution from HDVs to NO₂ and PM₁₀ concentrations in the AQMA.

Perth & Dundee Retail Freight Consolidation Centre

TACTRAN, is working in partnership with Dundee CC, Perth and Kinross Council and local businesses, to investigate setting up a retail freight consolidation scheme which could include one or more freight consolidation centres to serve Perth and Dundee.

A draft feasibility study¹³ has looked into the possibility of freight consolidation with larger heavy goods vehicles dropping off freight on the outskirts of Dundee and having smaller less polluting vehicles delivering to the final drop off point in the city centre. The feasibility study report states the following main objectives for establishing the Freight Consolidation Centre:

- *To address air quality issues and environmental targets in Perth and Dundee;*
- *To improve the environmental and operational efficiency of freight distribution in the region.*

The study reviewed local, regional and national relevant policy documents and consulted strategic and local stakeholders and outlined the following Transport Planning Objectives (TPO) for the scheme:

- *‘Contribute to an improvement in Air Quality in the target area;*
- *Improve distribution efficiency and sustainability in the Tactran region;*
- *Reduce the number of delivery vehicles travelling in to the target area;*
- *Contribute to enhancing the retail environment of the target area;*
- *Reduce conflict between delivery vehicles, other road users and pedestrians;*
- *Provide an improved delivery service to retailers; and*
- *Provide the opportunity for value added services such as off-site storage and collection of waste and packaging material.’*

The main objectives and TPOs recognise the importance of the air quality issues and benefits of the Freight Consolidation Centre scheme in improving the local air quality.

With regard to plans for Dundee, the report states ‘*A tri-modal interchange provides facilities for rail, road and water interchanges. In Dundee, a tri-modal interchange is being investigated in the Port area, accessed via Broughty Ferry Road, which could incorporate such a freight consolidation scheme. This is part of a wider strategy for the Port of Dundee to facilitate further development of the Port, through improvements to road links, and potential for development of a tri-modal railhead. A site of 25 hectares adjacent to the deep-water terminal has been identified to accommodate this use.*’ A detailed study of tri-modal interchanges at docks will be carried out to formulate a holistic view of the development and air quality and associated issues and to inform the scheme about the wider implications for air quality in Dundee.

¹³ Tactran Freight Consolidation Feasibility Study – Draft Feasibility Report, March 2010

Freight Quality Partnership

Dundee CC will explore the possibility to formulate a Freight Quality Partnership with the support of relevant stakeholders such as local businesses and large operators. Possible HGV time restrictions through the AQMA will be investigated as part of the Freight Quality Partnership and review of HGV routes in the city centre e.g. large waste and recycling vehicles routes to the waste management site and routes through the hotspot areas, as described above for Albert Street. Possible investigation of city centre freight transport movements, notably with respect to the largest operators to develop a freight transport strategy for the city centre.

Measure M7: To Improve Emissions from Council Fleet

DCC will seek improvements in emissions standards for NO₂ and PM₁₀ for the council fleet and public service vehicles. Dundee City Council is measuring emissions from the council fleet as part of the Council's Travel Plan and Carbon Management Programme. In addition, a green fleet review of the Council's waste management vehicle fleet has been undertaken.

Currently there are 606 vehicles on corporate fleet database, 200 vehicles within Dundee Contract Services Department have tracker devices and Waste Management there are 2 electric vehicles.

DCC will establish travel policy and investigate the uptake of alternate fuels for its fleet. The council will formulate a Corporate Fleet Management Group that will periodically review the status of council fleet and provide recommendations to improve its emissions.

As yet no targets have been set for emissions standards for the council fleet, but proposals will be explored for the council fleet e.g. for lease cars and waste collection fleet (Euro 4 for all vehicles).

Measure M8: To Target Taxi Emissions

The latest Emission Factors (EF) data suggests that in London taxis on average emit about 5 times more NO_x and three times more PM₁₀ compared to an average car. Therefore, their contributions to air quality are significantly higher compared to their numbers in the urban area fleets. In addition, idling is relatively more common practice with the taxis and buses, which is considered to result in increased pollutant emissions compared to emissions under normal driving conditions.

Currently there are 758 licensed taxis in Dundee City, 184 of which are classed as Private Hire. Every taxi has to comply with an age-based testing regime i.e. MOT standard tests are undertaken more frequently the older the taxi:

- up to 5 years old – annual test
- between 5 – 8 years old – tested twice a year
- over 8 years old – tested three times a year

The taxi plates display the expiry date of the most recent test.

Dundee City Council will further tackle taxi emissions through licence conditions, only allowing taxis that fulfil certain Euro requirements, such as minimum Euro 4. The idling emissions from taxis will also be targeted. The council will explore a programme of no idling enforcement, which is in place in a number of LAs in the UK. The council will install 'No Idling' signage in AQMA at appropriate locations. Additionally, awareness activities will be carried out for taxi and private hire operators and general public to inform about the harmful effects of vehicle idling.

Measure M9: Roadside Emission Testing (RET)

Poorly maintained vehicles could result in significantly higher levels of pollutant emissions. Local Authorities (LAs) are empowered to test emissions from vehicles on public roads. The Regulations allow local authorities to issue Fixed Penalty Notice (FPN) to vehicles that exceed the maximum emission limit prescribed in the Regulations and provisions to waive the FPN if the failed vehicle fulfils the emission limit within a defined time such as 28 days.

The experience and data from the RET carried out by LAs in the UK show that taxis and private hire vehicles are more likely to fail the test compared to privately owned cars.

Dundee CC will investigate to initiate such a RET scheme inside the AQMA and routes leading to AQMA. The council will use the large body of experience of similar RET schemes carried out by other LAs to maximise the benefits and impacts. The focus of RET will be taxis, buses and private hire vehicles.

5.3.2 POLICY MEASURES AND PARTNERSHIP WORKING

Measure M10: To Integrate Air Quality in LDP

DCC will ensure local air quality is fully integrated into the LDP process and development scenarios are appropriately assessed with respect to the potential impacts on air quality.

DCC is committed to developing air quality Supplementary Planning Guidance (SPG), which will guide the management of air quality in the planning process and aims to maximise the benefits of the AQMA declaration.

With significant development proposed in the area up to 2032, assessment of the impacts on the highways and transport networks (and resulting environmental impacts) and consideration to measures to deal with potential impacts will be crucial. Sustainable travel patterns will be a key driver to the achievement of sustainable development in the area and to minimising further deterioration in air quality.

Measure M11: To Effectively Coordinate Air Quality and Climate Change

DCC will ensure effective co-ordination between climate change and air quality strategies and action plan measures. There are significant overlaps between the two areas, so joint working will maximise the benefits. There are also some areas where carbon reduction strategies and improvements to local air quality are in conflict (e.g. fuel-use in the vehicle fleet and use of biomass).

Coordination of these two areas of work will increase the positives and reduce the negatives in both areas of work.

Measure M12: To Actively Involve and Support TACTRAN

DCC will continue its active involvement and support of TACTRAN. A number of policies and proposals of TACTRAN have direct impact on transport and air quality as described in Section 3.3. The council will increase its active partnership and a co-ordinated working approach with TACTRAN to facilitate the implementation of these policies and proposals.

5.3.3 LEADING BY EXAMPLE MEASURES

To ensure that the impact of Dundee City Council's operations have minimum impact on air quality, Dundee City Council gives a commitment to the following: -

- **Measure M13:** DCC will promote the uptake and use of cleaner or alternative fuels where possible and will explore the development of electric charging point infrastructure
- **Measure M14:** DCC will establish and implement a rolling programme for replacing older more polluting vehicles with newer cleaner vehicles, which comply with the prevailing EURO standard.
- **Measure M15:** DCC will improve the Council's vehicle fuel consumption efficiency by better management of fleet activities.
- **Measure M16:** DCC will promote options for better travel planning amongst Dundee City Council employees.
- **Measure M17:** DCC will continue to encourage their employees to consider the use of bicycles in their daily duties by providing cycle usage mileage.
- **Measure M18:** DCC will assess the Council's energy needs, make recommendations and implement reductions of carbon emissions which result in corresponding reductions of NO₂ and PM₁₀.

5.3.4 EDUCATION AND COMMUNITY INITIATIVES MEASURES

To ensure that members of the public have access to information about air quality and can make informed choices, Dundee City Council gives a commitment to the following: -

- **Measure M19:** DCC to promote and support localised electricity generation in both private households and public buildings.
- **Measure M20:** DCC will provide the public with relevant air quality information.

Currently such information is available through the following websites:

- Dundee Travel Information: <http://www.dundeetravelinfo.com/>
- Dundee Travel Active: <http://visuals.sdgworld.net/temp/dundeetravelactive/about.asp>
- Dundee Car Sharing: <http://www.dundeeliftshare.com/Default.asp?uxi=&cr=check>

Measure M21: To Increase the Uptake and Implementation of Travel Plans

DCC will continue its work to increase uptake and implementation of School and Workplace Travel Plans, particularly where likely to impact on the AQMA.

A Travel Plan is a general term for a package of tailored measures to encourage the use of sustainable methods of transport and reduce the reliance on the private car, particularly single occupancy travel. They can be for one or a group of organisations and involve the development of a set of mechanisms, initiatives and targets that together can reduce the environmental and health impacts of travel. Using alternative fuels and home working can also be included. Travel Plans are also being developed for schools, residential developments and area-wide, including mixed use developments.

A School Travel Plan is a set of measures to help cut the number of car journeys people make to school, encourage more journeys by public transport, and increase walking and cycling. There are a number of schools within the AQMA, where implementation of School Travel Plans will be of particular significance. To facilitate the uptake of School Travel Plans, the council will carry out awareness activities and explore possibilities of provision of safer cycle and walking routes to schools.

A Workplace Travel Plan should be tailored to the needs of individual businesses. It considers journeys from home to work, but can also include business journeys, travel by visitors, deliveries, contractors and company cars. Large organisations may benefit from a whole range of new ideas and changes, while small businesses may only need to make one or two very simple changes to make a big difference. Workplace travel plans are being implemented for large employers in Dundee, including Dundee CC, Dundee University and Ninewells Hospital.

The Smarter Choices, Smarter Places programme in Dundee to 2011 includes personalised travel planning (PTP). PTP aims to provide households, workplaces and visitors to Dundee with information on local transport facilities and active travel networks to encourage uptake of sustainable transport modes.

Measure M22: To Promote Cycling and Walking

DCC will continue working partnerships with TACTRAN and local active travel networks to ensure that walking and cycling initiatives are promoted and supported in Dundee.

Dundee Travel Active¹⁴ is a project that encourages residents of, or visitors to, Dundee to walk or cycle and improve people's health and the environment. Dundee Travel Active is funded by the Scottish Government's Smarter Choices, Smarter Places programme to 2011, in addition to contributions from DCC, TACTRAN and local bus companies. The council will also work with Sustrans to provide people of Dundee the facilities and options for sustainable travel.

¹⁴ <http://visuals.sdgworld.net/temp/dundeetravelactive/about.asp>

Measure M23: To Promote Uptake of Public Transport Modes

DCC will continue to work with TACTRAN and transport providers to support and promote increased uptake of public transport modes.

Schemes such as the Dundee National Entitlement Card provide free travel on buses to over 60s and disabled people and 50% discount for 16-18 year olds. The Tay Estuary Rail Study is exploring the provision of local services to encourage more people to commute by train. The council and TACTRAN have developed a park and Ride strategy to in order to reduce car use within the City of Dundee.

The ongoing provision of high quality passenger waiting facilities and information systems is designed to encourage use of the existing bus network in and around Dundee.

Development of smart card / 'e-purse' payment systems (based around the SQUID card) will encourage and simplify bus use, this work is being developed in partnership with National Express Dundee, Dundee City Council and Transport Scotland. It is hoped that once the initial model is proven successful that this could allow the introduction of multi modal and multi operator ticketing.

Measure M24: To Promote Energy Efficiency Measures

DCC will continue to work in partnership with the Energy Savings Trust and other organisations to promote and implement energy efficiency measures in Dundee.

DCC has established the Dundee Energy Efficiency Advice Project (DEEAP) which provides a service throughout the city advising householders on fuel tariffs, how to reduce bills, energy efficiency measures, advocacy work resolving individuals debts with energy suppliers, and other advice and referral work.

5.3.5 MEASURES SECURING AIR QUALITY BENEFITS THROUGH STATUTORY FUNCTIONS

To ensure that air pollution is controlled by legislation and targeted enforcement, Dundee City Council will continue the following: -

- **Measure M25:** DCC Environmental Health will comment upon planning applications to ensure that all relevant air quality issues are highlighted and mitigation measures are considered wherever possible.
- **Measure M26:** DCC will enforce statutory legislation to control smoke, dust, fumes or gas emissions from commercial and domestic premises which are causing a nuisance or are prejudicial to health.
- **Measure M27:** DCC will enforce relevant legislation to reduce the burning of commercial and domestic waste.
- **Measure M28:** DCC will promote composting in a bid to reduce pollution from domestic bonfires.

5.3.6 LOCAL AIR QUALITY MANAGEMENT MEASURES

To ensure that there is adequate air pollution monitoring data to inform the management of air quality across the City: -

- **Measure M29:** DCC will continue to monitor a range of air pollutants throughout Dundee and make the monitoring information freely available to the public in an easily understood form.
- **Measure M30:** DCC will ensure that all air quality monitoring data reported to the public is both accurate and precise by implementing quality control measures.
- **Measure M31:** DCC will establish additional monitoring sites across the City in locations where poor air quality is suspected.
- **Measure M32:** DCC will implement road traffic counts to inform the review and assessment process.

5.4 Measures Not Considered Feasible at This Time

The following measures were considered for implementation during the AQAP Steering Committee Meetings and consultation. It was decided not to take these measures forward as these were not regarded feasible in terms of implementation and benefits to improve air quality in Dundee City over short or medium timescales. These measures are long-term aspirations (+15 years) for which no definite commitment has yet been made or funding has been secured. The Council would carry on working together with TACTRAN and include these measures in revised AQAP at a latter date when their implementation becomes feasible.

Measure M1: New Road Infrastructure Provision

A90 Dundee Northern Relief Road

The A90 Northern Relief Road scheme is currently subject of a Strategic Transport Projects Review (STPR D19) by Transport Scotland. The objectives of the scheme include:

- to reduce the conflict between strategic and local traffic in Dundee, and
- to improve connectivity of Aberdeen to the Central Belt

The proposal has two actions::

- A new Northern Peripheral Bypass road around Dundee from the A90 west of Invergowrie to the A90 north of Dundee; and
- Upgrading of roundabouts and associated junctions on the A90 Kingsway.

The first action constitutes the provision of new road infrastructure, while the second would fall under existing road infrastructure improvement - See Measure 2 for discussion.

Both actions could incorporate a package of associated bus priority, cycle lanes and pedestrian measures on or across the Kingsway.

The bypass is a long-term aspiration (15+ years), but could deliver significant benefits for local air quality in Dundee, particularly along the A90 Kingsway.

The new outer bypass would reduce journey times between the Central Belt and Aberdeen and reduce conflict between long distance and local traffic by removing up to 50 per cent of traffic from the A90 Kingsway during the peak. This would have significant air quality benefits to residents adjacent to the A90 and potentially more widely across Dundee's Air Quality Management Area (AQMA).

Measure M2: Existing Road Infrastructure Improvements

Upgrading of roundabouts and associated junctions on the A90 Kingsway

This proposal is being considered as alternate to Measure 1 as part of the Dundee Northern Relief Road scheme to improve the existing road infrastructure. The recommendations will be provided in order to give due consideration to air quality.

As there is insufficient space on the Kingsway to provide grade-separated junctions so proposed changes will introduce controlled junctions with an increase in 'stop - start' traffic, which may have adverse impact on local air quality. The traffic management at these locations will need to be improved to counter any adverse air quality effects resulting from this proposal. These traffic management improvements should be considered as part of enhancements to Urban Traffic Management and Control (UTMC), M3. Additionally, provision of bus priority measures at the junctions, where the residences are close, and encouraging modal shift would help to improve the air quality.

Table 7 – Summary and Prioritisation of Action Plan Measures to be Implemented in the AQMA

Prioritisation Score Range	Priority Level	
≥25	High	
15-24	Medium	
< 15	Low	

For description of impact, cost and feasibility scores see Section 5.1

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
TRAFFIC MEASURES										
Measure M1: Existing Road Infrastructure Improvements	<ul style="list-style-type: none"> ➤ City Centre Improvements - Union St 	<ul style="list-style-type: none"> ▪ DCC City Development Department (Transport Division) 	MT	Funding identified	5	6	30	4	34	⊙ Implementation of improvements
Measure M2: DCC will enhance the Urban Traffic Management and Control (UTMC) system to reduce congestion	<ul style="list-style-type: none"> ➤ Real-time traffic monitoring ➤ Improve control regime to smooth out peak traffic 	<ul style="list-style-type: none"> ▪ DCC City Development Department (Transport Division) 	2011+ Ongoing	Funding required Revenue Funding has capacity Already Funded Capital Funding required for real-time monitoring	3	5	15	4	19	<ul style="list-style-type: none"> ⊙ 10% reduction in congestion (journey times) in targeted areas during peak times before and after implementation of measure. ⊙ Annual review of impact

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M3: DCC to identify partnership and funding to continue benefits of Smarter Choices/Smarter Places: Dundee Travel Active Programme	<ul style="list-style-type: none"> ➤ Identify and implement wider partnership to continue programme ➤ Identify funding 	▪ DCC City Development Department (Transport Division)	2011+ ongoing scaled down	Funding required	2	6	12	4	16	<ul style="list-style-type: none"> ⊙ Increase %of people who walk and cycle to work in Dundee ⊙ Identify funding for education
Measure M4: DCC will introduce measures to improve bus services and reduce emissions	<ul style="list-style-type: none"> ➤ Statutory Bus Quality Partnership ➤ Voluntary Bus Quality Partnership 	▪ DCC City Development Department (Transport Division)	2013 (Medium Term)	Ongoing improvements	4	7	28	1	29	<ul style="list-style-type: none"> ⊙ Identification of new corridors that directly benefit air quality ⊙ Average age fleet and Euro category, fuel type
			2011+ (Short Term)			3	7 ¹⁵	21	4	
	<ul style="list-style-type: none"> ➤ Fleet Renewal – Emissions Improvements 	▪ DCC City Development Department (Transport Division)	2011+	Ongoing Improvement and Encouragement	4	7 ¹⁵	28	4	32	<ul style="list-style-type: none"> ⊙ Fleet age, Euro class, fuel type ⊙ Lobby Scottish Government for fuel duty rebates for low carbon fleet

¹⁵ Costs to operators might be higher

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
	<ul style="list-style-type: none"> ▶ Tackling Idling Bus Emissions 	<ul style="list-style-type: none"> ▪ DCC City Development Department (Transport Division) 	2011+	Ongoing Funding for Enforcement Costs	3	7	21	4	25	<ul style="list-style-type: none"> ⊙ Traffic Regulation Conditions within the city centre ⊙ 'No-idling' signage on bus routes ⊙ Driver Training/ Awareness Raising
	<ul style="list-style-type: none"> ▶ Low Emission Zones for buses 	<ul style="list-style-type: none"> ▪ DCC City Development Department (Transport Division) 	Med Term 2015-2016+	Funding required	5	6 ^{Error! Bookmark not defined.}	30	1	31	<ul style="list-style-type: none"> ⊙ Investigate the Traffic Regulation Conditions for LEZ in City Centre ⊙ Route choice for clean buses see Park& Ride facilities
Measure M5: DCC will explore provision of Park and Ride facilities	<ul style="list-style-type: none"> ▶ Provision of Park and Ride (P&R) facilities 	<ul style="list-style-type: none"> ▪ DCC City Development Department (Transport Division) ▪ TACTRAN 	Med Term 2014+	Funding being sought from Regional Development Fund and Transport Scotland	4	4	16	4	20	<ul style="list-style-type: none"> ⊙ Report on identification and prioritisation of P&R facilities ⊙ Implementation of scheme ⊙ Passenger numbers
Measure M6: DCC will introduce measures to reduce emissions from Heavy Goods Vehicles	<ul style="list-style-type: none"> ▶ Perth & Dundee Retail Freight Consolidation Centre 	<ul style="list-style-type: none"> ▪ DCC City Development Department (Transport Division) ▪ TACTRAN 	2011+	Funding required	2	6	12	5	17	<ul style="list-style-type: none"> ⊙ Implementation of scheme ⊙ Vehicle fleet in the AQMA ⊙ Study for the alternate system of retail freight

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
	<ul style="list-style-type: none"> ➤ Freight Quality Partnership (FQP) 	<ul style="list-style-type: none"> ▪ DCC City Development (Transportation Division, Planning Division) 	Long term	Funding required	3	7	21	2	23	<ul style="list-style-type: none"> ⊙ Implementation of partnership ⊙ Changes in hourly profile of HGVs in AQMA
Measure M7: DCC will seek improvements in emissions standards, including NO ₂ and PM ₁₀ for the council fleet and public service vehicles	<ul style="list-style-type: none"> ➤ Development of Green Procurement Strategy ➤ To set target for Euro category/fuel type 	<ul style="list-style-type: none"> ▪ DCC Corporate Fleet Manager ▪ DCC Waste Management Department 	2011+	Funding required	3	6	18	5	23	<ul style="list-style-type: none"> ⊙ Approval of Strategy ⊙ Average age fleet and Euro category, fuel type
Measure M8: DCC in consultation with the Taxi Liaison Group will explore means of reducing emissions from taxis and private car hire vehicles in AQMA	<ul style="list-style-type: none"> ➤ Enforce No idling for taxis ➤ Increase cleaner taxis 	<ul style="list-style-type: none"> ▪ DCC Support Service ▪ DCC City Development Department ▪ Tayside Police 	2011+	Can be cost neutral	4	7	28	1	29	<ul style="list-style-type: none"> ⊙ Traffic Regulation Conditions for 'No Idling' of taxis ⊙ Explore the potential of introducing Licensing Conditions for minimum taxi Euro category for certain classes of vehicles ⊙ Provide 'No Idling' street signage ⊙ Monitoring for idling in place

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M9: Dundee CC will investigate to initiate a Roadside Emission Testing (RET) scheme inside the AQMA and routes leading to AQMA	<ul style="list-style-type: none"> ➤ To investigate into the establishment of a programme of RET in the AQMA 	<ul style="list-style-type: none"> ▪ VOSA ▪ Tayside Police ▪ DCC / Environmental Health and Trading Standards Department. 	2011+	Funding required	2	7	14	3	17	<ul style="list-style-type: none"> ⊙ Approval/non-approval of RET scheme ⊙ Traffic Regulation Conditions if necessary.
POLICY AND PARTNERSHIP WORKING MEASURES										
Measure M10: DCC will ensure local air quality is fully integrated into the LDP process and development scenarios are appropriately assessed with respect to the potential impacts on air quality	<ul style="list-style-type: none"> ➤ Provide AQ policy within Local Development Plan with commitment to improve air quality ➤ Produce air quality Supplementary Planning Guidance (SPG) 	<ul style="list-style-type: none"> ▪ DCC City Development (Planning Division) ▪ DCC Environmental Health Department and Trading Standards Department. 	2013 + Med Term	No Funding required	3	7	21	4	25	<ul style="list-style-type: none"> ⊙ Adoption of Local Development Plan ⊙ Adoption of Air Quality SPG
Measure M11: DCC will ensure effective co-ordination between climate change and air quality strategies and action plan measures	<ul style="list-style-type: none"> ➤ Strategy to be developed to improve co-ordination between climate change and air quality strategies and action plan measures 	<ul style="list-style-type: none"> ▪ DCC Corporate Planning Department ▪ DCC City Development -(Property Division) ▪ DCC Environmental Health Department and Trading Standards Department. 	2011+	Ongoing	2	7	14	4	18	<ul style="list-style-type: none"> ⊙ Implementation of co-ordination strategy ⊙ Reciprocal attendance of air quality and climate change working groups/steering committees

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M12: DCC will continue its active involvement and support of TACTRAN	<ul style="list-style-type: none"> ➤ Regularly attend meetings ➤ Provide feedback ➤ Provide necessary support 	<ul style="list-style-type: none"> ▪ DCC City Development Department. (Transport Division) 	Ongoing		1	7	7	5	12	<ul style="list-style-type: none"> ⊙ Number of TACTRAN policies and proposals implemented
LEADING BY EXAMPLE MEASURES										
<p>Measure M13: DCC will promote the uptake and use of cleaner and/or alternative fuels where possible for transport</p> <p>DCC will explore the development of electric charging point infrastructure</p>	<ul style="list-style-type: none"> ➤ Determine strategy/advise note and annually review content ➤ Install Electric Charging Facilities in Car Parks 	<ul style="list-style-type: none"> ▪ DCC City Development Department ▪ (Transport Division) 	2011	Ongoing improvements	3	6	18	4	22	<ul style="list-style-type: none"> ⊙ List of any promotion campaigns planned/implemented ⊙ Number/proportion of cleaner vehicles within fleets or clean fuels infrastructure in each financial year ⊙ number of electric charging points installed
<p>Measure M14: DCC will establish and implement a rolling programme for replacing older more polluting vehicles with newer cleaner vehicles, which comply with the prevailing EURO standard</p>	<ul style="list-style-type: none"> ➤ Development of Green Procurement Strategy 	<ul style="list-style-type: none"> ▪ DCC Corporate Fleet Manager 	2011	Ongoing improvements	2	7	14	5	19	<ul style="list-style-type: none"> ⊙ Number/proportion of new/improved vehicles within fleets in each financial year

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M15: DCC will improve the Council's vehicle fuel consumption efficiency by better management of fleet activities	<ul style="list-style-type: none"> ➤ Develop fleet management plan to improve fuel efficiency; ➤ Investigate fleet activities in relation to pollution hotspots e.g. waste management fleet routes 	<ul style="list-style-type: none"> ▪ DCC Corporate Fleet Manager DCC Waste Management Department 	2011+	Ongoing improvements	2	7	14	4	18	<ul style="list-style-type: none"> ⊙ Implementation of smarter driver programme ⊙ Preparation/ Implementation of Fleet management plan ⊙ 10% reduction by 2013 for staff business travel and Corporate Fleet
Measure M16: DCC will promote options for better travel planning amongst Dundee City Council employees	<ul style="list-style-type: none"> ➤ Review DCC Travel Plan ➤ DCC to investigate use of annual survey on how/what modes of transport employees use to travel to work 	<ul style="list-style-type: none"> ▪ DCC City ▪ Development (Transportation Division) 	2011+	Ongoing improvements Funding Required for Staff Resource	2	7	14	4	18	<ul style="list-style-type: none"> ⊙ Implementation of DCC Travel Plan & review of progress with targets ⊙ 10% reduction by 2013 in staff business travel ⊙ % DCC employees walking/cycling to work
Measure M17: DCC will continue to promote and encourage their employees to consider the use of bicycles in their daily duties by providing cycle usage mileage	<ul style="list-style-type: none"> ➤ Continue to investigate and develop the use of various incentive schemes ➤ Develop cycling strategies ➤ DCC to investigate use of annual survey on how/what modes of transport employees use to travel to work 	<ul style="list-style-type: none"> ▪ DCC City ▪ Development (Transportation Division) 	2011+	Ongoing improvements	2	7	14	2	16	<ul style="list-style-type: none"> ⊙ % DCC employees walking/cycling to work ⊙ Incorporate cycling measures within DCC Travel Plan in line with the new DCC Cycling Strategy to be developed

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M18: DCC will assess the Council's energy needs, make recommendations and implement reductions of carbon emissions which result in corresponding reductions of NO ₂ and PM ₁₀ .	<ul style="list-style-type: none"> ➤ DCC to implement annual energy reduction action plan 	<ul style="list-style-type: none"> ▪ DCC City Development (Property Division) 	2011+	Ongoing improvements	2	7	14	5	19	<ul style="list-style-type: none"> ⊙ 10% reduction by 2013
EDUCATION AND COMMUNITY INITIATIVES MEASURES										
Measure M19: DCC to promote and support localised energy generation that don't compromise Air Quality in private households	<ul style="list-style-type: none"> ➤ Determine strategy/advise note and annually review content 	<ul style="list-style-type: none"> ▪ DCC Housing Department ▪ Solar Cities 	2011+	Funding required	2	7	14	5	19	<ul style="list-style-type: none"> ⊙ List of any promotion campaigns planned/implemented
Measure M20: DCC will provide the public with relevant air quality information.	<ul style="list-style-type: none"> ➤ Investigating the potential for uptake of an air pollution information system, such as Air Alert ➤ Improvements to AQ website information ➤ Make up to date air quality information available to the public through Councils digital website 	<ul style="list-style-type: none"> ▪ DCC Environmental Health Department and Trading Standards Department. ▪ DCC City Development (Transport Division) 	2011+	Funding required for Air Alert type system	2	7	14	3	17	<ul style="list-style-type: none"> ⊙ Investigate funding sources ⊙ Implement Air Alert or similar service ⊙ Improved rating of website in peer review ⊙ Make AQ information available through Council's website ⊙ Real time Travel Information

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M21: DCC will continue its work to increase uptake and implementation of School and Workplace Travel Plans, particularly where likely to impact on the AQMA	<ul style="list-style-type: none"> ➤ DCC to ensure all relevant commercial planning applications have travel plan conditions applied in accordance with current best practice. ➤ DCC to produce Travel Plan Strategy which: ➤ Details procedure for tracking & possible requirement for enforcement of planning conditions requiring travel plans ➤ Details procedure for Travel Plan Information storage at DCC 	<ul style="list-style-type: none"> ▪ DCC City Development Department, (Planning Division, Transportation Division) ▪ DCC Education Department 	2011+	Ongoing Improvements Funding Required for Travel Co-ordinator and continued input from Education Department	3	7	21	4	25	<ul style="list-style-type: none"> ⊙ Develop Business Case for Travel Co-ordinator & identify potential funding streams ⊙ Number of new travel plans (need to show in terms of walking cycling-% of journey's saved) ⊙ Identify & report on any Air Quality related Travel Plan targets from travel plan strategy and any relevant Travel Planning Team targets ⊙ Promotion of Travel Plan initiatives e.g. Sustrans' Travel Smart ⊙ Implement & regularly review Travel Plan Strategy
Measure M22: DCC will continue working in partnerships with TACTRAN and local active travel networks to ensure that walking and cycling initiatives are promoted and supported in Dundee	<ul style="list-style-type: none"> ➤ Identify walking & cycling schemes (such as Park & Cycle) ➤ Identify walking & cycling promotional opportunities around Dundee City 	<ul style="list-style-type: none"> ▪ DCC City Development (Transportation Division) 	2011+	Ongoing improvements	2	6	12	4	16	<ul style="list-style-type: none"> ⊙ Number of walking and/or cycling initiatives in operation ⊙ Establish the use of cycle monitoring counts at key points on cycle routes

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M23: DCC will continue to work with transport providers to support and promote increased uptake of public transport modes	<ul style="list-style-type: none"> ➤ Promote schemes such as the SQUID card including Dundee and surrounding towns ➤ Introduce smart and integrated ticketing 	<ul style="list-style-type: none"> ▪ DCC City Development (Transportation Division) 	2011+	Ongoing improvements	2	7	14	4	18	<ul style="list-style-type: none"> ⊙ % uptake schemes ⊙ Passenger numbers
Measure M24: DCC will continue to work in partnership with other organisations to promote and implement energy efficiency measures in Dundee	<ul style="list-style-type: none"> ➤ To implement an Annual Action Plan of energy efficiency measures. 	<ul style="list-style-type: none"> ▪ DCC City Development (Property Division) 	2011+	Ongoing improvements	2	7	14	5	19	<ul style="list-style-type: none"> ⊙ Implementation of Annual Energy Efficiency Action Plan ⊙ Report reductions in energy use
MEASURES SECURING AIR QUALITY BENEFITS THROUGH STATUTORY FUNCTIONS										
Measure M25: DCC Environmental Health will comment upon planning applications to ensure that all relevant air quality issues are highlighted and mitigation measures are considered wherever possible	<ul style="list-style-type: none"> ➤ The Pollution Team will continue to work with Planning Development Control as Statutory Consultees 	<ul style="list-style-type: none"> ▪ DCC City Development Department (Planning Division) ▪ DCC Environmental Health Department and Trading Standards Department 	2011+	Ongoing improvements	3	7	21	4	25	<ul style="list-style-type: none"> ⊙ Total number of planning applications consultations responded to in each financial year ⊙ Percentage of the total planning applications with air quality conditions/ assessments

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M26: DCC will enforce statutory legislation to control smoke, dust, fumes or gas emissions from commercial and domestic premises which are causing a nuisance or are prejudicial to health	<ul style="list-style-type: none"> ➤ DCC will continue to monitor and enforce statutory legislation in this area 	<ul style="list-style-type: none"> ▪ DCC Environmental Health and Trading Standards Department. 	2011+	Ongoing improvements	2	7	14	5	19	<ul style="list-style-type: none"> ⊙ Number of relevant complaints in each financial year ⊙ %resolved
Measure M27: DCC will enforce relevant legislation to reduce the burning of commercial and domestic waste	<ul style="list-style-type: none"> ➤ DCC will continue to monitor and enforce legislation in this area 	<ul style="list-style-type: none"> ▪ DCC Environmental Health and Trading Standards Department/ Waste Management 	2011+	Ongoing improvements	2	7	14	5	19	<ul style="list-style-type: none"> ⊙ Number of relevant complaints ⊙ %resolved
Measure M28: DCC will promote composting in a bid to reduce pollution from domestic bonfires	<ul style="list-style-type: none"> ➤ Reintroduce discount/promotion campaign for compost bins 	<ul style="list-style-type: none"> ▪ DCC Waste Management Department 	2011+	Ongoing improvements	2	7	14	5	19	<ul style="list-style-type: none"> ⊙ % uptake composting bins
LOCAL AIR QUALITY MANAGEMENT MEASURES										
Measure M29: DCC will continue to monitor a range of air pollutants throughout Dundee and make the monitoring information freely available to the public in an easily understandable form	<ul style="list-style-type: none"> ➤ Continued support for Dundee Air Quality Monitoring Network 	<ul style="list-style-type: none"> ▪ DCC Environmental Health and Trading Standards Department. 	2011+	Ongoing improvements	1	7	7	5	12	<ul style="list-style-type: none"> ⊙ Number of monitoring sites ⊙ Identification of sites in new hotspots ⊙ Monitoring data via DCC website

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score (Impact * Cost)	Feasibility	Prioritisation Score	Targets/Indicators
Measure M30: DCC will ensure that all air quality monitoring data reported to the public is both accurate and precise by implementing quality control measures	<ul style="list-style-type: none"> ➤ Regular calibrations and filter changing of continuous monitoring equipment in DCC's air quality stations ➤ At least annual audit of air quality stations' equipment ➤ Appropriate use and care of NO2 diffusion tubes regularly deployed around the City Council area. 	<ul style="list-style-type: none"> ▪ DCC Environmental Health and Trading Standards Department/ Tayside Scientific Services 	2011+	Ongoing improvements	1	7	7	5	12	<ul style="list-style-type: none"> ⊙ QA/QC measures adopted ⊙ Auditing reports
Measure M31: DCC will establish additional monitoring sites across the City in locations where poor air quality is suspected	<ul style="list-style-type: none"> ➤ DCC will continue to carry out and report on their statutory duties under the Review & Assessment process for LAQM 	<ul style="list-style-type: none"> ▪ DCC Environmental Health and Trading Standards Department 	2011+	Ongoing improvements	1	7	7	5	12	<ul style="list-style-type: none"> ⊙ Poor air quality sites identified monitored and dealt with as through the process of Review & Assessment ⊙ Additional monitoring sites established as and when required
Measure M32: DCC will implement road traffic counts to inform the review and assessment process.	<ul style="list-style-type: none"> ➤ Undertake classified traffic counts 	<ul style="list-style-type: none"> ▪ DCC Environmental Health and Trading Standards Department 	2011+	Funding require(80K-150K)	1	7	7	4	11	<ul style="list-style-type: none"> ⊙ Classified traffic counts undertaken

6. Implementation and Monitoring

Dundee City Council will work jointly on the action plan measures with the relevant partners including TACRAN, transport operators, schools and local businesses. To secure the necessary air quality improvements, there must be involvement by all local stakeholders who should actively work to encourage community participation in the process.

The Air Quality Steering Group has been set up to take positive action in managing air quality in the City of Dundee and to ensure integration with regional and national perspectives. This will be achieved through partnership working between internal departments and external organisations that have a mutual interest in air quality issues. The group will assist in the fulfilment of DCC statutory functions in relation to air quality, including development of action plan measures and co-ordination of policies to ensure air quality within the City is effectively managed for future generations.

The implementation and effectiveness of the Action Plan will be carefully monitored through air quality monitoring of NO₂ and PM₁₀ at relevant locations within the AQMA. In addition, traffic flow changes on the key roads will also be assessed through the review and assessment process and as a result of the uptake of action plan measures. Targets and indicators have been set for measures to monitor progress with implementation.

The Air Quality Steering Group will ensure regular review of the action plan proposals to evaluate progress and this will be reported annually as part of the LAQM Action Plan Progress Report.

7. Glossary of Terms

Abbreviation	Full Name
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
DCC	Dundee City Council
HDV	Heavy-Duty Vehicles
HGV	Heavy-Goods Vehicles
LAQM	Local Air Quality Management
LDP	Local Development Plan
LEZ	Low Emission Zone
LGV	Light-Goods Vehicles
NAQS	National Air Quality Strategy
NO	Nitric Oxides
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
PM ₁₀	Particles of up to 10 µm diameter
SDP	Strategic Development Plan
SDPA	Strategic Development Planning Authority
SEPA	Scottish Environmental Protection Agency
TACTRAN	Tayside and Central Scotland Transport Partnership
µg/m ³	Micrograms per cubic metre

8. References

Air Quality (Scotland) Regulations 2000 (Scottish SI 2000 No 97)

Air Quality (Scotland) (Amendment) Regulations 2002 (Scottish SI 2002 No 297)

EPUK (Formerly NSCA) (2000) Air Quality Action Plans

EPUK (Formerly NSCA) (2001) Air Quality: Planning for Action

Dundee City Council and Angus Council (2002) Dundee and Angus Structure Plan (2001 – 2016)

Dundee City Council (2000) Dundee Local Transport Strategy

Dundee City Council (2005) Dundee Local Plan Review

Dundee City Council (2009) Local Development Scheme March 2009

Dundee City Council (2008) Climate Change Framework 2008-2015 and Action Plan 2008-2011

Dundee City Council (2006) Sustainability Policy for Dundee City Council

Dundee City Council (2009) LAQM Further Assessment

Dundee Partnership (2005) Community Plan for Dundee

Dundee Partnership (2008) Dundee Environment Strategy 2008 - 2011

Scottish Government (2009) Local Air Quality Management Policy Guidance LAQM.PGS (09)

TACTRAN (2008) Regional Transport Strategy 2008– 2023

TAY Plan Strategic Development Planning Authority (2009) Local Development Scheme March 2009

Appendix 1 - Action Planning Requirements Compliance Checklist

WORK AREA	CONSIDERED/INCLUDED	LOCATION IN ACTION PLAN/ COMMENTS
Adherence to Guidelines and Consideration of Policies		
Statutory Consultees consulted?	✓	p30
Consulted with other Local Authorities and internal departments?	✓	p30
Statement of Pollutant causing AQMA?	✓	pp7-8
Principle sources of pollutants identified?	✓	p15
Have other local authorities' plans and policies been considered?	✓	pp20-29
Options timetable included?	✓	pp44-54
Have options been costed?	✓	pp44-54
Have the impacts been assessed?	Qualitative at draft stage	pp44-54
Checklist of Measures		
Have options been considered?	✓	pp31-54
How many options considered?	✓ (36)	pp31-54
Transport impacts assessed?	✓	pp44-54
Have air quality impacts been assessed modelled or measured?	Qualitative at draft stage	pp44-54
Have socio-economic impacts been assessed?	✓	SEA being undertaken
Have other environmental impacts been assessed?	✓	SEA being undertaken
Have costs been considered?	✓	pp44-54
Appropriateness and Proportionality		
Do measures seem appropriate to the problem?	✓	
Have the measures been assessed?	Qualitative at draft stage	pp44-54
Are the measures likely to succeed?	Detailed work to be undertaken	
Have wider impacts been assessed?	✓	SEA being undertaken
Was the costing method appropriate?	✓	pp44-54
Is it likely that the AQMA objective will be met?	Detailed work to be undertaken	
Do the chosen options comply with Government Policies?	✓	pp31-54
Implementation		
Are measures realistic?	✓	
Have responsibilities been assigned to the relevant party?	✓	pp44-54
Does the assigned party have the necessary powers?	✓	pp44-54
Is the financing secure and identify who pays?	X - Not all funding secured at this stage	pp44-54

**Appendix 2 - Consultation Outcome: Steering Committee Meeting to Prioritise
AQAP Measures**

Table 8 – Feedback from the Steering Committee Meeting on Prioritisation of AQAP Measures

Measures Considered Feasible for Implementation

Measure	Actions	Prioritisation Comments
TRAFFIC MEASURES		
Measure M1: Existing Road Infrastructure Improvements	<ul style="list-style-type: none"> ➤ City Centre Improvements - Union St 	<ul style="list-style-type: none"> ○ Major benefits for AQ widely accepted by Steering Group through making it one way and widening the pavements
Measure M2: DCC will enhance the Urban Traffic Management and Control (UTMC) system to reduce congestion	<ul style="list-style-type: none"> ➤ Real-time traffic monitoring ➤ Improve control regime to smooth out peak traffic 	<ul style="list-style-type: none"> ○ Got traffic control where needed - in control of all junctions - but not CCTV ○ Whole system being moved to Scoot System ○ Limited journey times are available from manual studies ○ Capital investment required for real time data to improve classification and vehicle recognition data ○ Journey times from bus transponders can be accessed ○ Traffic lights can measure queue lengths
Measure M3: DCC to identify partnership and funding to continue benefits of Smarter Choices/Smarter Places: Dundee Travel Active Programme	<ul style="list-style-type: none"> ➤ Identify and implement wider partnership to continue programme ➤ Identify funding 	<ul style="list-style-type: none"> ○ End of October Wash-up event to be organised to identify projects that can be continued after current funding comes to an end on 31/3/2011 ○ Some of the projects will continue but will be scaled down. ○ Other measures will require hard funding to allow them to continue ○ May be able to target general population rather than Smarter Choices defined area
Measure M4: DCC will introduce measures to improve bus services and reduce emissions	<ul style="list-style-type: none"> ➤ Statutory Bus Quality Partnership ➤ Voluntary Bus Quality Partnership 	<ul style="list-style-type: none"> ○ To discuss both statutory and voluntary approach with Bus Operators in advance of formal public consultation. ○ Statutory aspiration 5 to 7yrs lock-in ○ Could be staged/phased implementation ○ Air Quality issue provides new impetus

Measure	Actions	Prioritisation Comments
	<ul style="list-style-type: none"> ➤ Fleet Renewal – Emissions Improvements 	<ul style="list-style-type: none"> ○ National Express are upgrading vehicles over next 3/4 years- euro 4/5 by 2015 ○ Stagecoach acquired 17 new buses this year. Under Disability /discrimination new buses required by 2015 ○ Tap into Carbon sustainability -Green Bus fleets - Scottish Government can apply fiscal support for urban operators ○ Voluntary Partnership more feasible but less impact
	<ul style="list-style-type: none"> ➤ Tackling Idling Bus Emissions 	<ul style="list-style-type: none"> ○ Prepared to look at enforcement-Parking Wardens/Tayside Police ○ Engine Management Systems already helping here red, green amber if idle for more than 2/3 minutes get a text to switch off engines ○ Driver training reduce emissions
	<ul style="list-style-type: none"> ➤ Low Emission Zones for buses 	<ul style="list-style-type: none"> ○ Possibility within inner ring road - political & business challenge to achieve right commercial balance ○ Difficult to persuade all stakeholders -Medium Term and should target all vehicles not just buses
<p>Measure M5: DCC will explore provision of Park and Ride facilities</p>	<ul style="list-style-type: none"> ➤ Provision of Park and Ride (P&R) facilities 	<ul style="list-style-type: none"> ○ Dundee South an West Park & Ride identified .Dundee East and North longer term ○ Route choices for clean buses to City Centre -need increase in bus priority, bus lanes, bus only sections of road
<p>Measure M6: DCC will introduce measures to reduce emissions from Heavy Goods Vehicles</p>	<ul style="list-style-type: none"> ➤ Perth & Dundee Retail Freight Consolidation Centre 	<ul style="list-style-type: none"> ○ Based on other discussions with retail/freight sector the current proposals will have limited impact ○ Convince City Centre Management Group about benefits of freight consolidation need commercial engagement ○ co-operation of medium sized stores
	<ul style="list-style-type: none"> ➤ Freight Quality Partnership (FQP) 	<ul style="list-style-type: none"> ○ Aspirational at this stage ○ investigate freight consolidation for major developments

Measure	Actions	Prioritisation Comments
<p>Measure M7: DCC will seek improvements in emissions standards, including NO₂ and PM₁₀ for the council fleet and public service vehicles</p>	<ul style="list-style-type: none"> ➤ Development of Green Procurement Strategy ➤ To set target for Euro category/fuel type 	<ul style="list-style-type: none"> ○ Corporate Fleet Manager will have responsibility for the development and implementation of Strategy ○ Template for tender procedures ○ Low Carbon procurement scheme
<p>Measure M8: DCC in consultation with the Taxi Liaison Group will explore means of reducing emissions from taxis and private car hire vehicles in AQMA</p>	<ul style="list-style-type: none"> ➤ Enforce No idling for taxis ➤ Increase cleaner taxis 	<ul style="list-style-type: none"> ○ Taxis & Private Hire Vehicles emissions checked regularly dependant on age ○ 1-5ys-annually ○ 5-8ys-twice/annum ○ Over 8yrs-3 times /yr ○ If we are going to introduce more stringent standards than statutory requirement need to consult Taxi Liaison Group
<p>Measure M9: Dundee CC will investigate to initiate a Roadside Emission Testing (RET) scheme inside the AQMA and routes leading to AQMA</p>	<ul style="list-style-type: none"> ➤ To investigate into the establishment of a programme of RET in the AQMA 	<ul style="list-style-type: none"> ○ Feasible during June July August ○ Certain strategic locations feasible- as for the census ○ Does not have to be peak ○ Difficult to pull in bus /in service &taxis with passengers ○ Avoid taxis buses as these are heavily regulated vehicles Need VOSA and Tayside Police on board

POLICY AND PARTNERSHIP WORKING MEASURES		
<p>Measure M10: DCC will ensure local air quality is fully integrated into the LDP process and development scenarios are appropriately assessed with respect to the potential impacts on air quality</p>	<ul style="list-style-type: none"> ➤ Provide AQ policy within Local Development Plan with commitment to improve air quality ➤ Produce air quality Supplementary Planning Guidance (SPG) 	<ul style="list-style-type: none"> ○ Any requirement for a Policy in the Plan or SPG on Air Quality will need to be considered through the formal plan preparation process. ○ Tay Plan unlikely to contain specific policy on AQ -very high level strategic document ○ Split to show <ul style="list-style-type: none"> - AQ as part of Local Development Plan and - SPG as part of the Plan ○ Don't have the development demand to justify development contribution via Section 75 agreements ○ Sitting of new developments considers connection to public transport network
<p>Measure M11: DCC will ensure effective co-ordination between climate change and air quality strategies and action plan measures</p>	<ul style="list-style-type: none"> ➤ Strategy to be developed to improve co-ordination between climate change and air quality strategies and action plan measures 	<ul style="list-style-type: none"> ○ This should be ongoing
<p>Measure M12: DCC will continue its active involvement and support of TACTRAN</p>	<ul style="list-style-type: none"> ➤ Regularly attend meetings ➤ Provide feedback ➤ Provide necessary support 	<ul style="list-style-type: none"> ○ This should be ongoing
<p>Measure M13: DCC will promote the uptake and use of cleaner and/or alternative fuels where possible for transport</p> <p>DCC will explore the development of electric charging point infrastructure</p>	<ul style="list-style-type: none"> ➤ Determine strategy/advise note and annually review content ➤ Install Electric Charging Facilities in Car Parks 	<ul style="list-style-type: none"> ○ DCC Transport Division funding for electric charging in car parks being investigated. If successful can be actioned quickly ○ SUSTAY looking at sustainable measures across Tayside. ○ Opportunities to encourage Bus operators to apply for Scottish Government Green Bus Fund

<p>Measure M14: DCC will establish and implement a rolling programme for replacing older more polluting vehicles with newer cleaner vehicles, which comply with the prevailing EURO standard</p>	<ul style="list-style-type: none"> ➤ Development of Green Procurement Strategy 	<ul style="list-style-type: none"> ○ Corporate Fleet Manager will have responsibility for the development and implementation of Strategy
<p>Measure M15: DCC will improve the Council's vehicle fuel consumption efficiency by better management of fleet activities</p>	<ul style="list-style-type: none"> ➤ Develop fleet management plan to improve fuel efficiency; ➤ Investigate fleet activities in relation to pollution hotspots e.g. waste management fleet routes 	<ul style="list-style-type: none"> ○ Corporate Fleet Manager will have responsibility for the development and implementation of plan
<p>Measure M16: DCC will promote options for better travel planning amongst Dundee City Council employees</p>	<ul style="list-style-type: none"> ➤ Review DCC Travel Plan ➤ DCC to investigate use of annual survey on how/what modes of transport employees use to travel to work 	<ul style="list-style-type: none"> ○ Introduction of flexible working arrangements for staff (compressed hours/home working) will provide benefit across the board ○ Promote sustainable travel
<p>Measure M17: DCC will continue to promote and encourage their employees to consider the use of bicycles in their daily duties by providing cycle usage mileage</p>	<ul style="list-style-type: none"> ➤ Continue to investigate and develop the use of various incentive schemes ➤ Develop cycling strategies ➤ DCC to investigate use of annual survey on how/what modes of transport employees use to travel to work 	<ul style="list-style-type: none"> ○ Walking big growth area, cycling not so much ○ Walking Cycle Safer Streets ○ Office Bike Shelters/Safe Storage in place at certain locations ○ Assisted Bike Purchase Scheme in place ○ More Cycle paths needed but limited road space available

<p>Measure M18: DCC will assess the Council's energy needs, make recommendations and implement reductions of carbon emissions which result in corresponding reductions of NO₂ and PM₁₀.</p>	<ul style="list-style-type: none"> ➤ DCC to implement annual energy reduction action plan 	<ul style="list-style-type: none"> ○ Progress against targets in Carbon Management Plan
<p>EDUCATION AND COMMUNITY INITIATIVES MEASURES</p>		
<p>Measure M19: DCC to promote and support localised energy generation that don't compromise Air Quality in private households</p>	<ul style="list-style-type: none"> ➤ Determine strategy/advise note and annually review content 	<ul style="list-style-type: none"> ○ Funding from Carbon Trust in commercial setting ○ HECA obligations ○ Promotional also need to include Solar Cities and Carbon Trust
<p>Measure M20: DCC will provide the public with relevant air quality information.</p>	<ul style="list-style-type: none"> ➤ Investigating the potential for uptake of an air pollution information system, such as Air Alert ➤ Improvements to AQ website information ➤ Make up to date air quality information available to the public through Councils digital website 	<ul style="list-style-type: none"> ○ Could be combined with Real Time travel information ○ i.e. don't go out if you have asthma ○ Update Dept website incorporating intelligent travel scheme

<p>Measure M21: DCC will continue its work to increase uptake and implementation of School and Workplace Travel Plans, particularly where likely to impact on the AQMA</p>	<ul style="list-style-type: none"> ➤ DCC to ensure all relevant commercial planning applications have travel plan conditions applied in accordance with current best practice. ➤ DCC to produce Travel Plan Strategy which: ➤ Details procedure for tracking & possible requirement for enforcement of planning conditions requiring travel plans ➤ Details procedure for Travel Plan Information storage at DCC 	<ul style="list-style-type: none"> ○ Focus this measure on Schools, unclear how we can monitor workplace ○ Requires ongoing commitment in terms of staffing resource from Education Department ○ Potential to make huge difference locally ○ Marketing /Promotion& Support ○ Monitor at Schools -hands up who walked/cycled /travelled by bus
<p>Measure M22: DCC will continue working in partnerships with TACTRAN and local active travel networks to ensure that walking and cycling initiatives are promoted and supported in Dundee</p>	<ul style="list-style-type: none"> ➤ Identify walking & cycling schemes (such as Park & Cycle) ➤ Identify walking & cycling promotional opportunities around Dundee City 	<ul style="list-style-type: none"> ○ Agree with other major groups /employers i.e. University and Colleges and NHS Tayside
<p>Measure M23: DCC will continue to work with transport providers to support and promote increased uptake of public transport modes</p>	<ul style="list-style-type: none"> ➤ Promote schemes such as the SQUID card including Dundee and surrounding towns ➤ Introduce smart and integrated ticketing 	<ul style="list-style-type: none"> ○ ERDF -1million for two cycle routes ○ Dundee is on the cusp of delivering on bus smart ticketing
<p>Measure M24: DCC will continue to work in partnership with other organisations to promote and implement energy efficiency measures in Dundee</p>	<ul style="list-style-type: none"> ➤ To implement an Annual Action Plan of energy efficiency measures. 	<ul style="list-style-type: none"> ○ Efficient staff travel ○ Encouragement of Public Transport=Energy efficiency

MEASURES SECURING AIR QUALITY BENEFITS THROUGH STATUTORY FUNCTIONS		
Measure M25: DCC Environmental Health will comment upon planning applications to ensure that all relevant air quality issues are highlighted and mitigation measures are considered wherever possible	<ul style="list-style-type: none"> ➤ The Pollution Team will continue to work with Planning Development Control as Statutory Consultees 	<ul style="list-style-type: none"> ○ Mechanism to measure this needs to be discussed with City Development
Measure M26: DCC will enforce statutory legislation to control smoke, dust, fumes or gas emissions from commercial and domestic premises which are causing a nuisance or are prejudicial to health	<ul style="list-style-type: none"> ➤ DCC will continue to monitor and enforce statutory legislation in this area 	
Measure M27: DCC will enforce relevant legislation to reduce the burning of commercial and domestic waste	<ul style="list-style-type: none"> ➤ DCC will continue to monitor and enforce legislation in this area 	<ul style="list-style-type: none"> ○ Still think building industry locally needs educating/enforcement ○ Opportunity to increase awareness
Measure M28: DCC will promote composting in a bid to reduce pollution from domestic bonfires	<ul style="list-style-type: none"> ➤ Reintroduce discount/promotion campaign for compost bins 	
LOCAL AIR QUALITY MANAGEMENT MEASURES		
Measure M29: DCC will continue to monitor a range of air pollutants throughout Dundee and make the monitoring information freely available to the public in an easily understandable form	<ul style="list-style-type: none"> ➤ Continued support for Dundee Air Quality Monitoring Network 	

<p>Measure M30: DCC will ensure that all air quality monitoring data reported to the public is both accurate and precise by implementing quality control measures</p>	<ul style="list-style-type: none"> ➤ Regular calibrations and filter changing of continuous monitoring equipment in DCC's air quality stations ➤ At least annual audit of air quality stations' equipment ➤ Appropriate use and care of NO2 diffusion tubes regularly deployed around the City Council area. 	
<p>Measure M31: DCC will establish additional monitoring sites across the City in locations where poor air quality is suspected</p>	<ul style="list-style-type: none"> ➤ DCC will continue to carry out and report on their statutory duties under the Review & Assessment process for LAQM 	
<p>Measure M32: DCC will implement road traffic counts to inform the review and assessment process.</p>	<ul style="list-style-type: none"> ➤ Undertake classified traffic counts 	<ul style="list-style-type: none"> ○ Upgrade ATC to classify the vehicle type plus GPRS to upload data continuously and for each site with low air quality capacity

Measures Not Considered feasible at This Time

<p>Measure M1: New Road Infrastructure Provision</p>	<p>➤ A90 Dundee Northern Relief Road</p>	<ul style="list-style-type: none"> ○ Scottish Gov funded (Project 29) threat of long delay owing to economic situation (timeframe 15-20 years). ○ Need other measure to tackle Kingsway hotspot ○ Would remove 50% of through traffic on A90 ○ Significant HDV/LGV pass through to/from/north of Dundee. Could assist future modal shift by improving bus movements across A90 ○ Recent review of traffic showed no sign of reduction on trunk roads-stable figures
<p>Measure M2: Existing Road Infrastructure Improvements</p>	<p>➤ Upgrading of roundabouts and associated junctions on the A90 Kingsway</p>	<ul style="list-style-type: none"> ○ Alternative to Measure 1 ○ Could encourage modal shift ○ Stop start nature of traffic could have negative impact on air quality ○ Better crossing facilities for buses could improve modal shift trade off hard to quantify ○ Development lead will happen in dribs and drabs

Appendix 3 - Consultation Outcome: Public Consultation Workshop

Public Consultation Flyer (page 1)



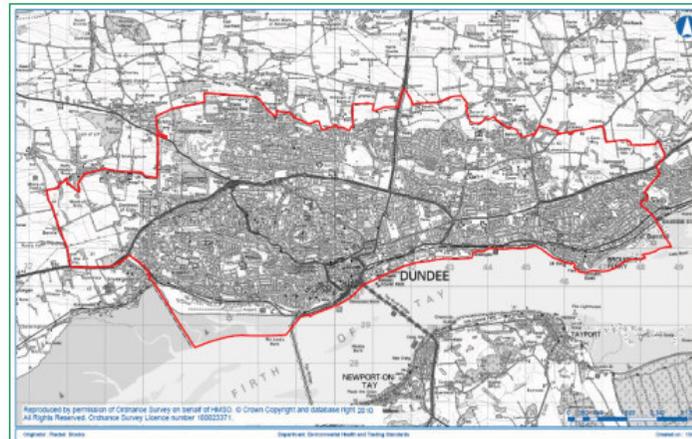
DUNDEE CITY AIR QUALITY ACTION PLAN

PUBLIC CONSULTATION



What is Dundee City Air Quality Action Plan?

- The assessment of local air quality has shown that in Dundee City levels of two pollutants, nitrogen dioxide (NO₂) and particulates (PM₁₀), are in breach of health-based objectives set out by the Government.
- Therefore, the Council has declared Dundee City as an Air Quality Management Area (AQMA) for these two pollutants. The boundary of the AQMA is shown in red.
- The Council has produced an Air Quality Action Plan (AQAP) with the main aim to reduce the pollution levels in order to achieve the objectives and minimise the effects of air pollution on human health in Dundee City.

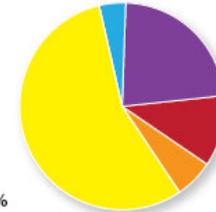


What are Sources of Air Pollution in Dundee?

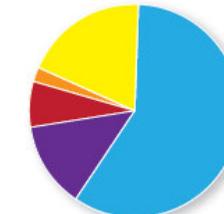
- Road traffic is the most important source of air pollution in Dundee. The contribution from heavy-duty vehicles (HGVs and buses) is disproportionately high. The figure below shows the source apportionment of nitrogen oxides (NO_x) and particulates (PM₁₀) at Commercial Street as an example.

Source Apportionment of NO_x (Commercial Street)

- Buses 56%
- Local Background 23%
- LDV 11%
- HGV 6%
- Regional Background 4%



Source Apportionment of PM₁₀ (Commercial Street)



- Buses 19%
- Brake & Tyre Wear 13%
- LDV 7%
- HGV 2%
- Background 59%

Public Consultation Flyer (page 2)

What is in the AQAP?

- The AQAP outlines a number of measures and actions targeted to reduce air pollution to acceptable levels.
- The AQAP considers measures and actions in terms of estimates of costs and effect and time-scales and feasibility of implementation
- The following are some of the main measures included in the Dundee City AQAP:

- **Reduce Traffic and Tackle Congestion and Idling**



- **Reduce Heavy Goods Vehicles**



- **Reduce Bus Emissions**

- **Provide Park & Ride Facilities**



- **Promote Walking and Cycling**

- **Promote Increased Use of Public Transport**



- **Raise Awareness Among Public**



How Can You Help?

- We all need to work together to improve the quality of air that we all breath in.
- You can provide your feedback on the measures and actions included in Dundee City AQAP by responding to the simple questionnaire.
- Your feedback will help us to refine measures and actions in the AQAP

Where To Find Further Information and Contacts?

- Council Website:
<http://www.dundee.gov.uk/ehts>
- Email Environmental Health:
pollution.control@dundee.gov.uk
- Full Draft Dundee Air Quality Action Plan:
Available online and copy at Central Library,
Wellgate Centre, Dundee



Public Consultation Questionnaire (page 1)



DUNDEE CITY AIR QUALITY ACTION PLAN

Assessment of local air quality in Dundee has established that levels of two pollutants, nitrogen dioxide (NO₂) and particulates (PM₁₀), are exceeding the health-based objectives set out by the Government. Road traffic emissions have been identified as the main source of air pollution. Dundee City Council has declared the entire City as Air Quality Management Area (AQMA). The Council has prepared a Draft Air Quality Action Plan (AQAP). The AQAP outlines actions and measures to improve the air quality.

Below we have provided a simple questionnaire. Your feedback on this questionnaire will help the Council to take into account your views to refine the measures in the AQAP.

Your Opinion Matters
We value your views and
we hope you enjoy participating!!!

The Air Quality in Dundee is: *(tick one only)*

- Excellent everywhere
- Excellent only in certain areas
- Fair everywhere
- Fair only in certain areas
- Poor everywhere
- Poor only in certain areas

Good Air Quality is: *(tick all that apply)*

- Important for your health
- Important for our quality of life
- Important, we all help improve it
- Dependant on the number of vehicles on the road
- Dependant on the type of vehicles on the road
- Dependant on the age of vehicles on the road
- Varies with the location and type of sources of pollution
- Other (please specify)



Public Consultation Questionnaire (page 2)

Please allocate points (0 to 5) if you think the following measures suggested in the Dundee AQAP would benefit air quality:

0 = no benefit, 1 = negligible benefit, 2 = very small benefit, 3 = small benefit, 4 = moderate benefit, 5 = large benefit

- Reduce peak-hour traffic flows
- Reduce traffic congestion in City Centre
- Improve road infrastructure
- Improve traffic management in City
- Improve freight distribution in Dundee
- Improve emissions of buses in Dundee
- Improve the Council fleet (newer and cleaner vehicles)
- Undertake emissions testing for vehicles at the roadside to remove polluting vehicles
- Provide Park & Ride facilities
- Tackle idling emissions from buses and taxis
- Promote the uptake of public transport
- Promote walking and cycling
- Improve uptake and implementation of schools and workplace travel plans
- Promote and support localised electricity generation in both private households and public buildings
- Reduce burning of commercial and domestic waste
- Educate communities about air quality issues
- Provide the public with regular and easy to understand information about air quality

How would you be prepared to help improve the air quality in Dundee? *(tick all that apply)*

- Be ready to share car journeys
- Walk or cycle for short journeys
- Buy a less polluting car
- Raise awareness in your workplace
- Raise awareness in your community
- Use public transport wherever possible
- Help the Council by sending your suggestions



Email: _____

Phone: _____

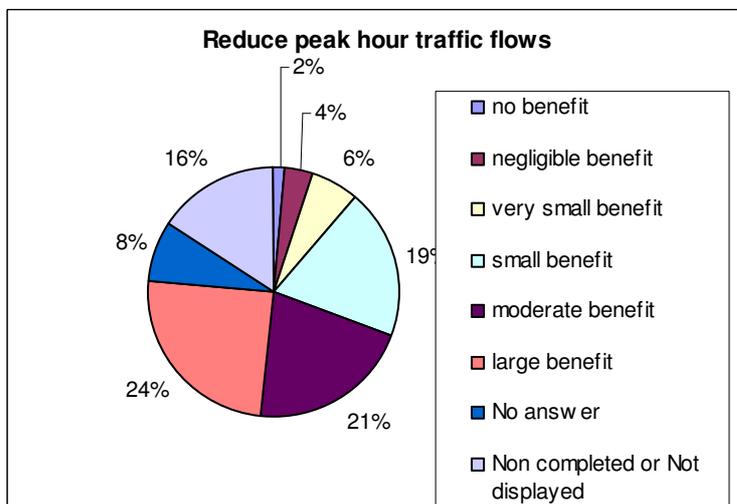
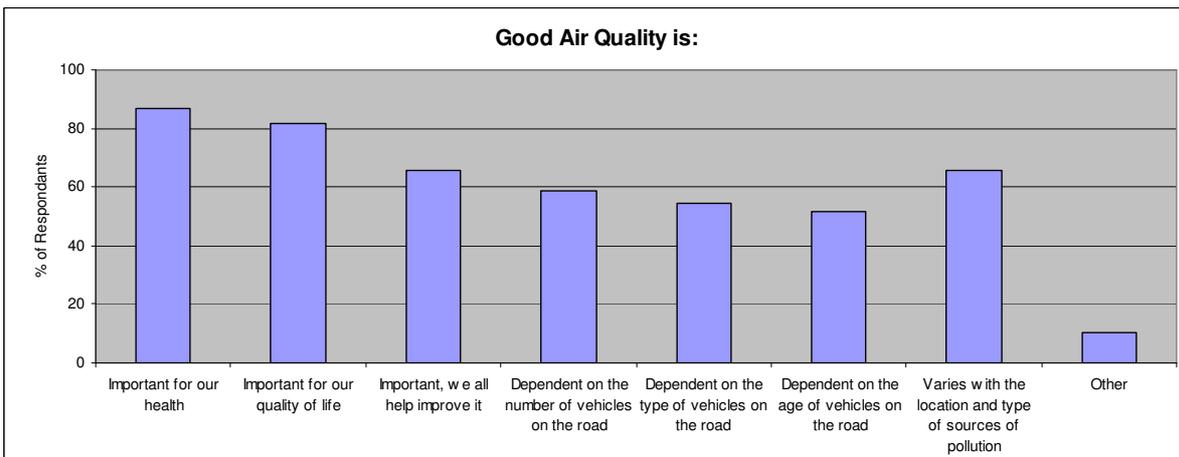
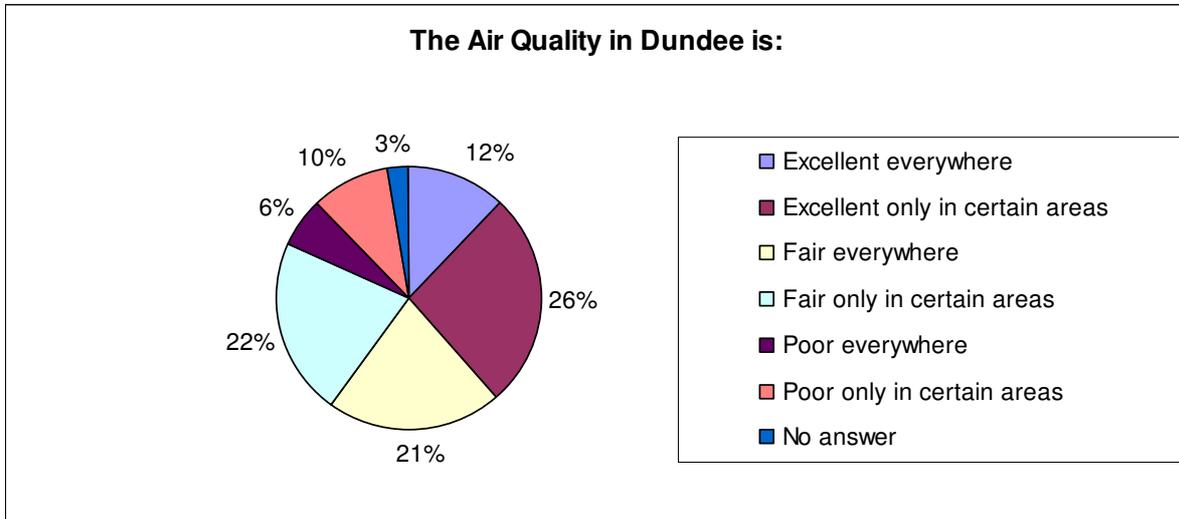
Any other comments:

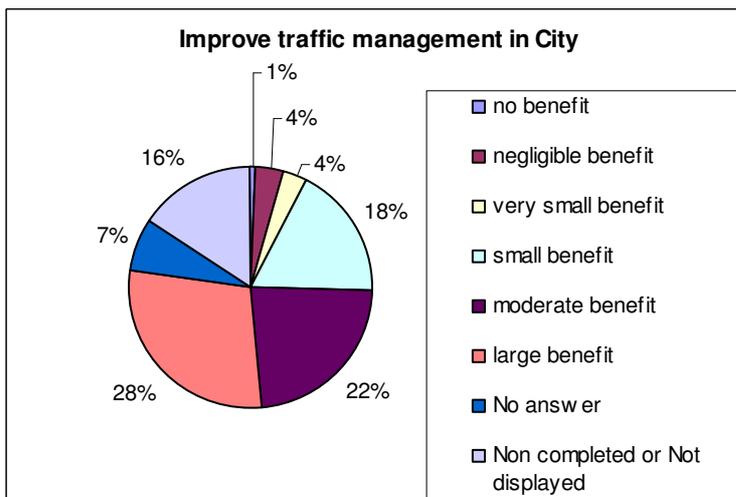
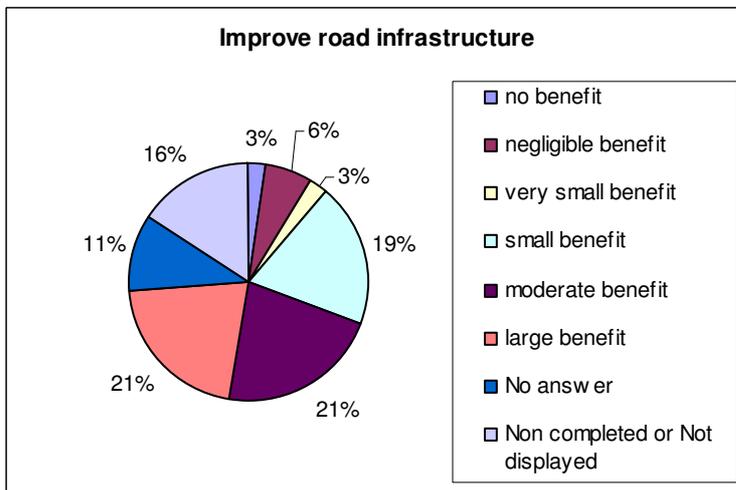
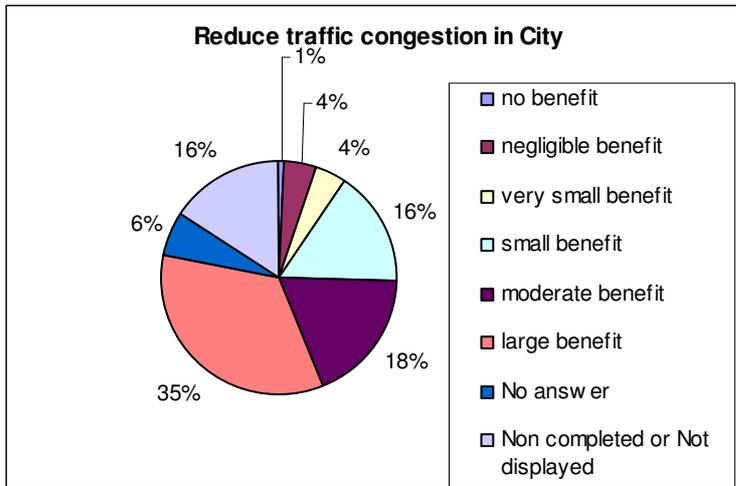
For Further Details Contact:

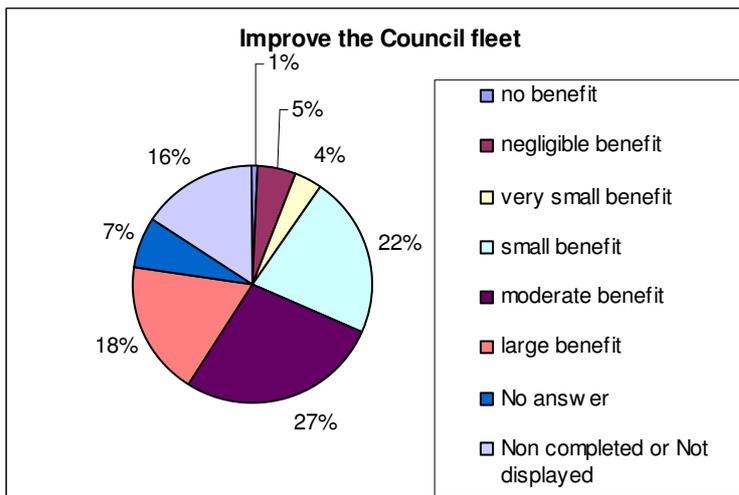
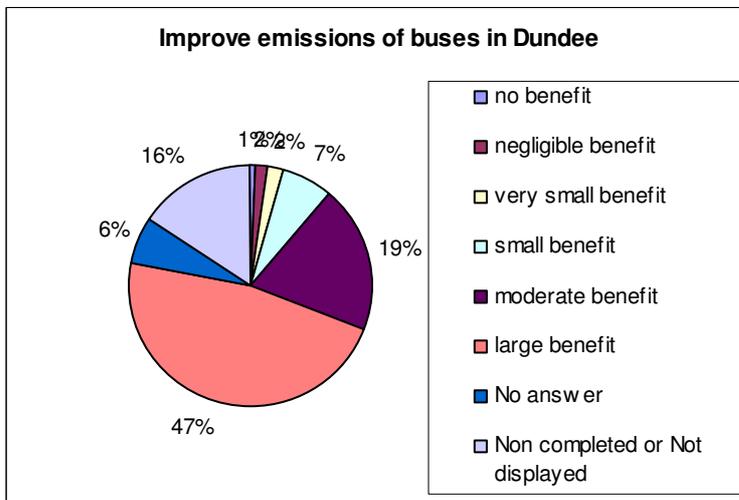
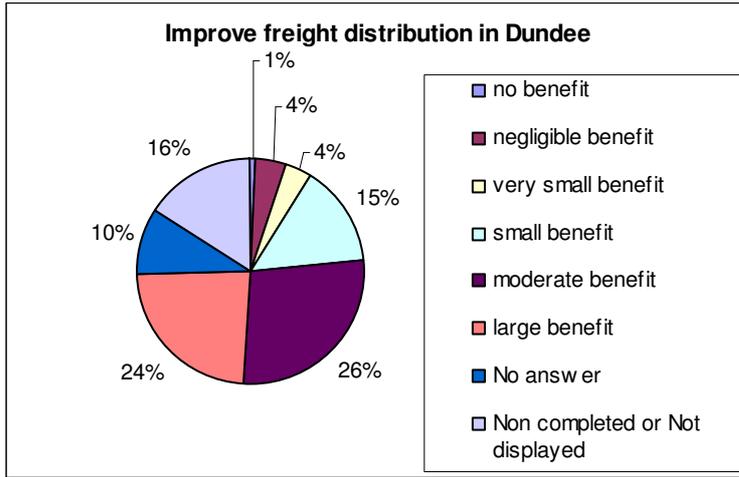
Iris Coghill, Environmental Manager, Dundee City Council
Environmental Health and Trading Standards Dept, 1 Highland ChiefWay,
Claverhouse West Industrial Park, Dundee DD4 9UA

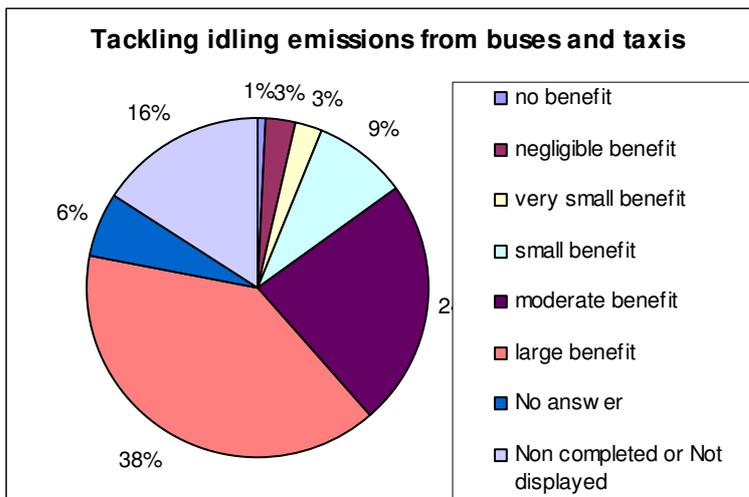
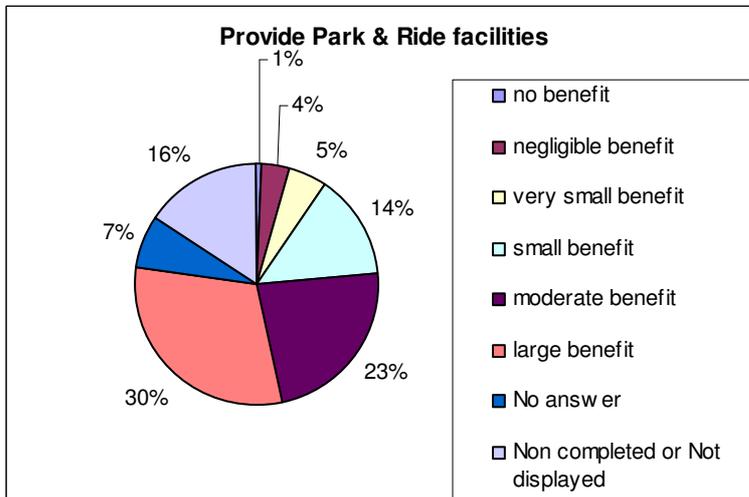
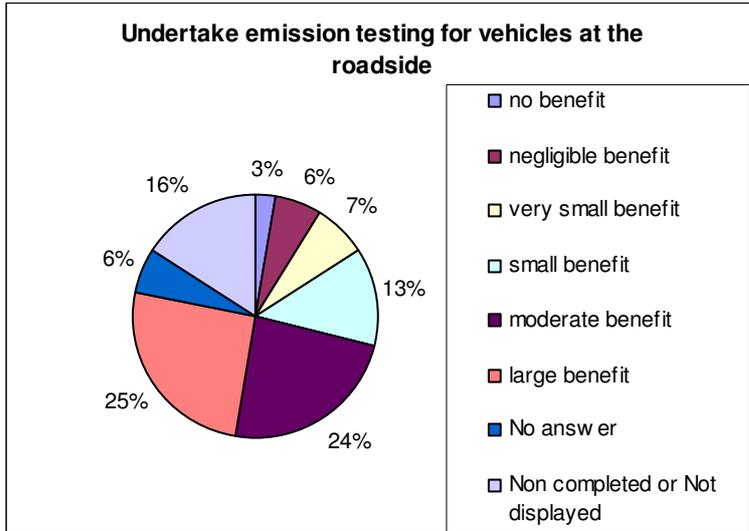
Public Consultation Outcome

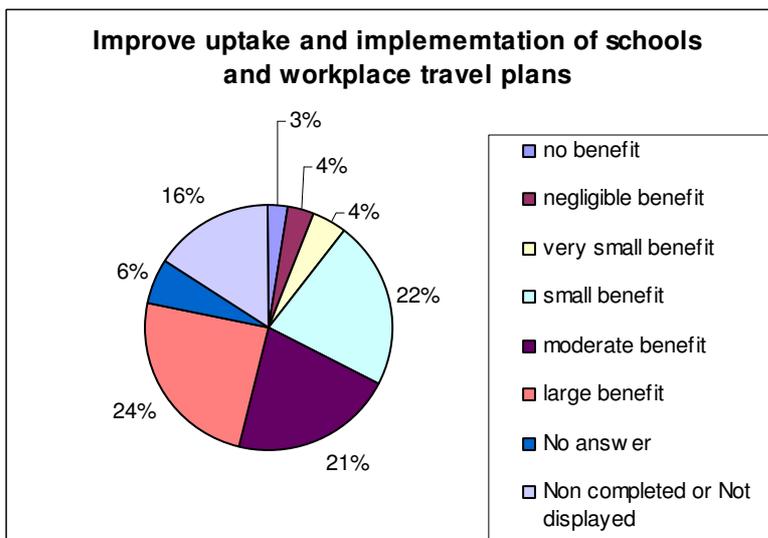
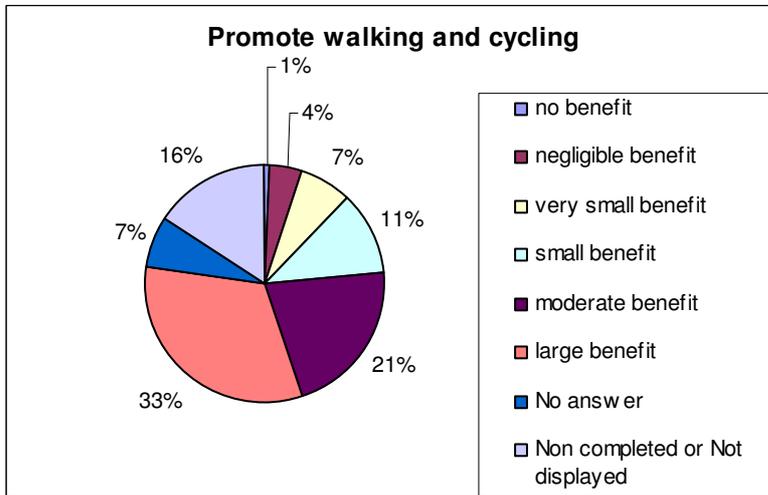
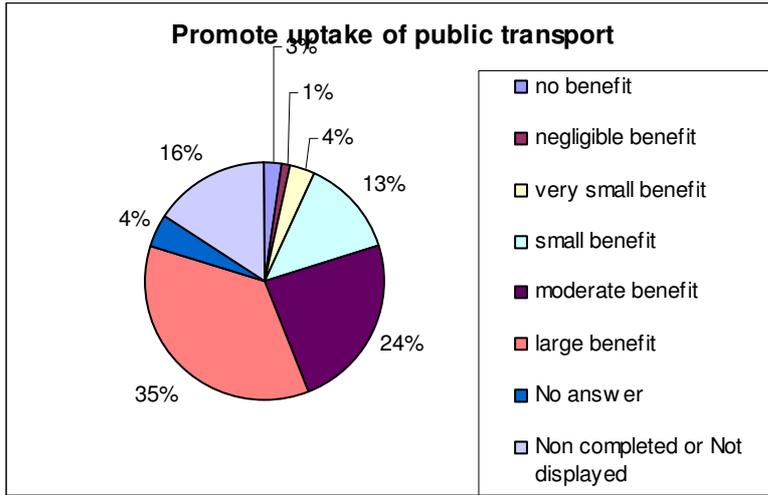
In total 114 responses were received. The outcome of the Public Consultation Questionnaire is summarised below.

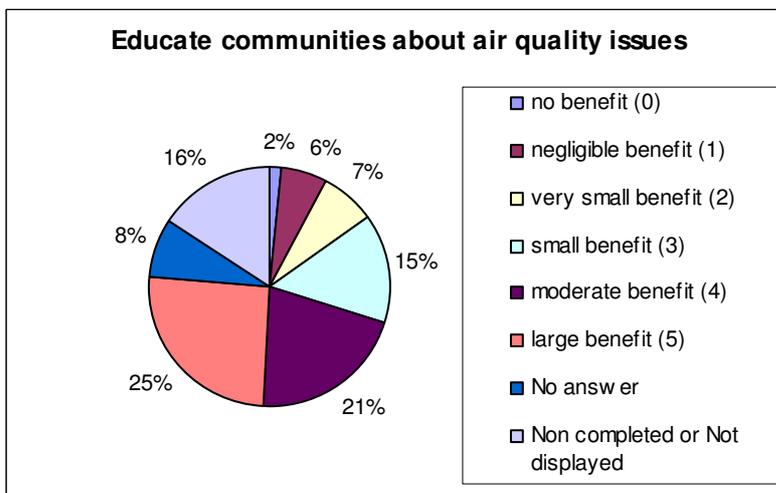
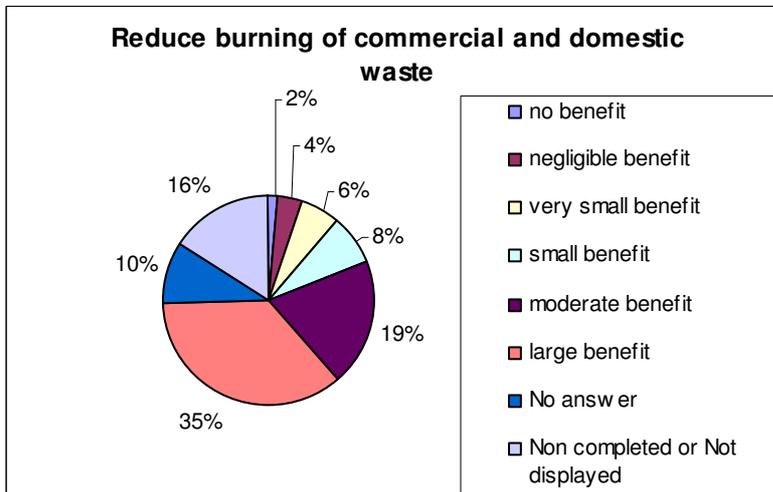
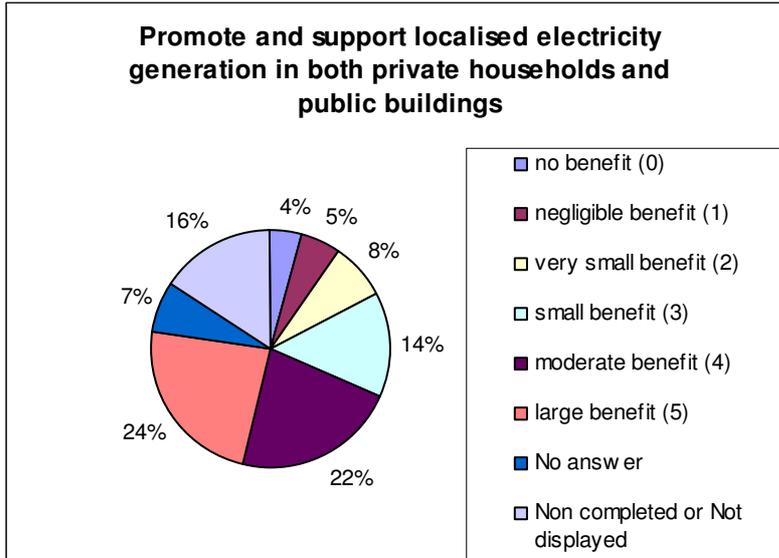


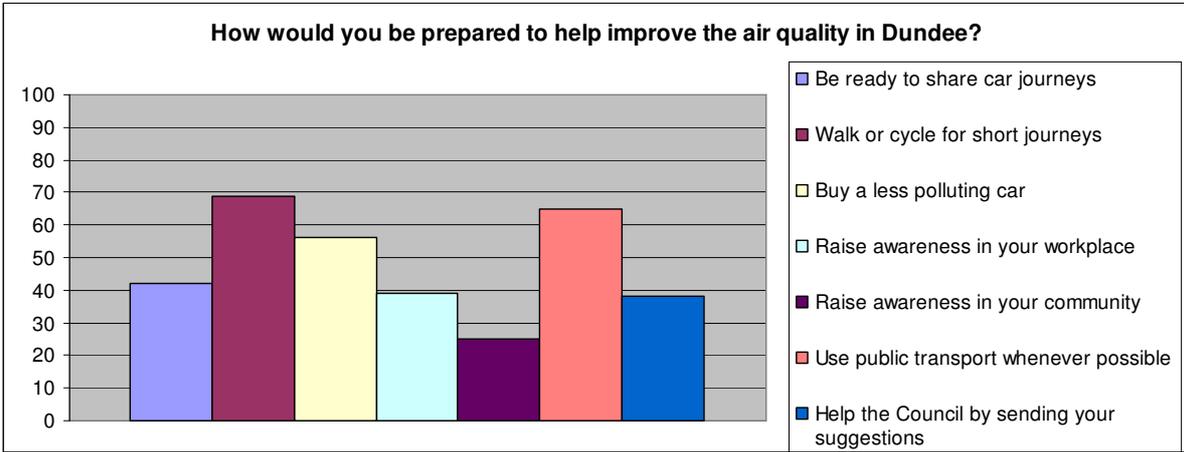
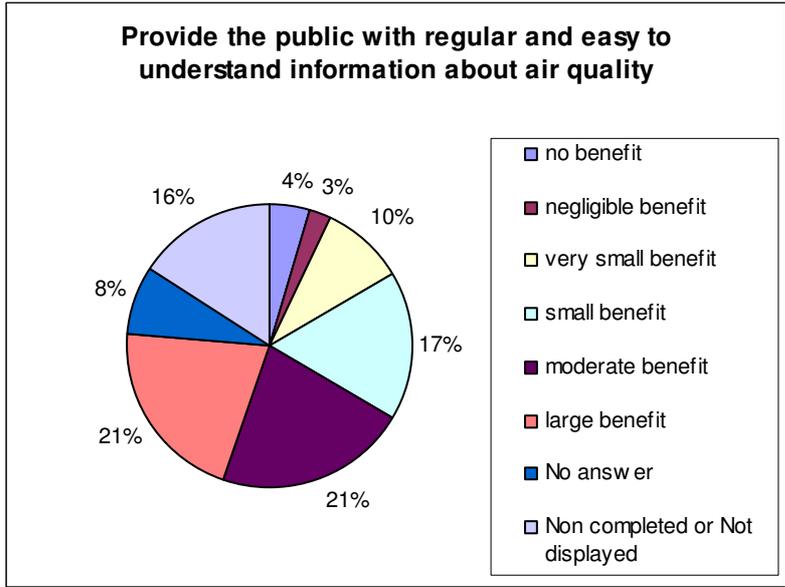












Appendix 4 - Consultation Outcome: Stakeholder Consultation Workshop

Stakeholder Feedback Form

Please allocate points (from 0 to 5) if you think the following measures suggested in the Dundee AQAP would benefit air quality: 0 = no benefit, 1 = negligible benefit, 2 = very small benefit, 3 = small benefit, 4 = moderate benefit, 5 = large benefit *

Measure	Actions	Should it be Included in AQAP (Y, N)	Benefit Score 0-5	Any Additional Benefit?	Any Disbenefit?	How to Overcome Disbenefit?	Any Other Comment
TRANSPORT MEASURES							
Measure M1: Existing Road Infrastructure Improvements	<ul style="list-style-type: none"> ➤ City Centre Improvements - Union St 						
Measure M2: DCC will enhance the Urban Traffic Management and Control (UTMC) system to reduce congestion	<ul style="list-style-type: none"> ➤ Real-time traffic monitoring ➤ Improve control regime to smooth out peak traffic 						
Measure M3: DCC to identify partnership and funding to continue benefits of Smarter Choices/Smarter Places: Dundee Travel Active Programme	<ul style="list-style-type: none"> ➤ Identify and implement wider partnership to continue programme ➤ Identify funding 						

* This is an example of the feedback form provided to the stakeholders. The complete feedback form had all the 33 measures considered within the AQAP

Feedback from Community Groups in Mayfield Area

The existing Maryfield Local Community Plan talks about the importance of air quality monitoring, action and reporting to the public. The draft AQP goes along way to addressing this. Specific concern was highlighted in relation to the impact on health due to the air quality in City Centre 'street canyons' as the AQP acknowledges. The Seagate, Commercial Street and Union Street were noted places of concern for those that contributed to the 2008-2011 local plan. The AQP indicates there are others in the City Centre. One area that is not mentioned is that between the Upper and Lower Dens Mills on Princes Street. There is also the additional adjacent problem of over parking in the Ladywell Avenue area.

Looking at the measures outlined I would make the following comments:

Measure 1: In relation to Union Street the suggest action is to be welcomed. I have been in communication with Catherine Houston, at City Development, about local consultation.

Measure 3: Smarter Choices. There has been little information on the overall impact of this project. I would be happy to assist with supporting that discussion and looking at how matters might be progressed beyond March 2011 (although as you acknowledge funding will be an issue).

Measures 29-32: Are again to be welcomed and any assistance I can give in relation to sharing information would be positively considered. The placing of monitoring sites and traffic counting, in the City Centre, but also on the Arbroath, Forfar (Cleington/Kingsway Junction) and Pitkerro Roads will be something that is of interest to local community groups and the Community Planning Partnership.

The Maryfield ward, like all others in the City, will be producing a new local community plan during next year. It may be advantageous for there to a local reflection of the AQP in the local plan, particularly where it chimes with local sentiment.

(The comments drawn by Stuart Fairweather, Communities Officer, from notes from City Centre Community Council, Stobswell Forum and Maryfield Community Planning Partnership meetings over the last couple of years).

Feedback from TACTRAN

The following feedback was provided by Eric Guthrie Director TACTRAN.

For purposes of clarification it is suggested that Measure M2 (in measures not considered feasible at this time) – Upgrading of roundabouts and associated junctions on the A90 Kingsway should refer to its status as STPR Project 29.

Measure M6 - Refer to the conclusion to introduce a trial consolidation scheme based on a shared facility serving Perth to allow the benefits and costs to be evaluated. Any such trial would indicate the viability of such a scheme in Dundee. Also under this heading, there is reference to formulating a Freight Quality Partnership (FQP). There is already a regional FQP which has been leading on the Freight Consolidation Centre study. Air quality issues figure prominently in the FQP's considerations and indeed one of the members of the FQP currently is Perth & Kinross Council's Environmental Health Manager. The City Council also has officer representation on the FQP and there are opportunities to consider issues at both a local and regional level.

Measures M19 and M20 - it is suggested that tactranconnect should be listed as this complements Dundee Travel Information in providing information on cross-boundary, regional and longer distance travel information outwith Dundee.

Measure M21- TACTRAN supports the uptake and implementation of Travel Plans including the provision of grant funding to public and third sector bodies through its Sustainable Travel Grant Scheme. This has supported bodies including the City Council, Dundee University and Dundee-based Solar Cities Scotland. TACTRAN is happy to consider further applications for its Sustainable Travel Grant Scheme in support of Travel Plans in Dundee.

The Partnership has recently completed an exercise to investigate, document and establish the extent of lorry movements on strategic roads in the region, including examining flows of HGVs and traffic congestion. We will be pleased to share this with you. The Regional Transport Strategy Monitoring Framework may also be of assistance in tracking trends in modal split and use of active travel modes.