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Greater Manchester Air Quality Action Plan

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Chapter 1
The Background to the Greater Manchester Air Quality Action Plan

The Greater Manchester Area

1.1 Greater Manchester is one of the largest conurbations in the Country, with a total population of almost 2.5 million. Historically employment in the area was based around heavy industry, particularly cotton and engineering works. Following the decline of traditional industry in the area, a significant amount of effort is being made to regenerate run down areas.

1.2 Much of the area is urban, with thriving residential, industrial and commercial areas. There are however substantial green spaces, including large parks and countryside. The transport network serving the area includes a number of motorways such as the M60, M6, M56, M61 and M62. Manchester Airport is located in the south of the conurbation, and is the third busiest airport in the country.

1.3 The ten Greater Manchester authorities of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford and Wigan have all been involved in the production of this plan

National Air Quality Strategy

1.4 In 1997 a National Air Quality Strategy for the UK was published. This set out the Government's proposals for improving and protecting ambient air quality and set out health-based standards for eight pollutants.

Table 1.1: Summary of the Air Quality Objectives

Substance	Air Quality Objective Levels	Date by which objective to be achieved
Benzene	16.25 micrograms per cubic metre or less when, expressed as running annual mean	31 December 2003
1,3 – Butadiene	2.25 micrograms per cubic metre or less, when expressed as a running annual mean	31 December 2003
Carbon Monoxide [#]	10 milligrams per cubic metre or less, when expressed as a running 8 hour mean	31 December 2003
Lead	0.5 micrograms per cubic metre or less, when expressed as an annual mean	31 December 2004
	0.25 micrograms per cubic metre or less, when expressed as an annual mean	31 December 2008
Nitrogen dioxide	200 micrograms per cubic metre or less, when expressed as an hourly mean, not to be exceeded more than 18 times a year	31 December 2005
	40 micrograms per cubic metre or less, when expressed as an annual mean	31 December 2005
PM_{10} [#] **(Fine particles)**	50 micrograms per cubic metre or less, when expressed as a 24 hour mean, not to be exceeded more than 35 times a year	31 December 2004
	40 micrograms per cubic metre or less, when expressed as an annual mean	31 December 2004
Sulphur dioxide	266 micrograms per cubic metre or less, when expressed as a 15 minute mean, not to be exceeded more than 35 times a year	31 December 2005
	350 micrograms per cubic metre or less, when expressed as an hourly mean, not to be exceeded more than 24 times a year	31 December 2004
	125 micrograms per cubic metre or less, when expressed as a 24 hour mean, not to be exceeded more than 3 times a year	31 December 2004

[#] - The objectives for PM_{10} and Carbon Monoxide are currently under review.

1.5 In 1999 the National Air Quality Strategy was amended, taking into account directives from the European Union on Air Quality. New Air Quality Regulations were made which set out objectives for seven pollutants that all local authorities must meet in their areas. These are set out in Table 1.1. The eighth pollutant, ozone, was not included in the regulations because of its transboundary nature. The requirement to achieve the ozone objective remains with the Government.

Health Effects of Poor Air Quality

1.6 High levels of air pollution are known to affect health and the environment. Individuals with pre-exisiting medical conditions such as heart disease, bronchitis, asthma and other types of lung disease are most at risk of suffering adverse health effects from poor air quality. Very high concentrations of some pollutants are associated with the development of cancer, in particular leukaemia. Summaries of the health effects associated with different pollutants are shown in Table 1.2.

1.7 The air quality objectives have been set at a level to safeguard the health of the population. The health effects shown in the Table are only likely to occur at much higher levels than those found in the air we breathe. Nitrogen dioxide and fine particles have been identified as the only pollutants where the air quality objectives may not be met (See Figure 2.2).

Table 1.2: Health effects of the pollutants in the Air Quality Regulations

Pollutant	Main Sources	Health Effects
Benzene	Petrol vehicles	Carcinogenic, in particular associated with development of leukaemia.
1, 3 Butadiene	Road transport	Carcinogenic linked to bone marrow cancer, lymphomas and leukaemia.
Carbon monoxide	Petrol vehicles and industry	Interferes with transport of oxygen around the body. Affects the heart and brain.
Lead	Industry	Causes brain impairment in young children.
Nitrogen dioxide	Road transport and power generation	Linked to respiratory problems e.g. altered lung function, increased prevalence of respiratory illness.
Particles (PM10)	Road transport, power generation and industry	Associated with respiratory problems e.g. coughs, colds, shortness of breath and bronchitis. PM_{10} is made up of many substances, some of which may increase the risk of developing cancer.
Sulphur dioxide	Power generation and industry	Linked to respiratory problems, people with asthma are most at risk.

Local Air Quality Management

1.8 Local Authorities were given the following responsibilities, under the Environment Act 1995, for Air Quality Management:

- *Review and Assessment of Air Quality.*
Local Councils must review and assess air quality in their area, to determine whether the air quality objectives will be met. Review and Assessment results for the Greater Manchester authorities are summarised in Chapter 2.

- *Designation of Air Quality Management Areas (AQMAs)*
If the air quality Review and Assessment reveals that one or more of the air quality objectives is unlikely to be met on time the Council must declare an Air Quality Management Area (AQMA) covering the part (or parts) of the city/borough where the objectives may not be met.

- *Further Review and Assessment of Air Quality*
Local authorities that have declared AQMAs are also required to carry out a 'Stage 4' Review and Assessment to determine whether the assumptions made in the earlier Review and Assessments were correct and to identify which sources contribute to exceedances of the objectives. A further detailed air quality assessment, for all the pollutants covered by the air quality objectives, will need to be produced by April 2004.

- *Development of an Action Plan*
Once an AQMA has been declared the Council must develop an Action Plan, which sets out how the air quality objectives will be met. The Action Plan should describe the policies and powers the Council intends to develop and utilise in pursuit of the air quality objectives. All the Greater Manchester authorities have declared AQMAs.

1.9 Many important actions needed to improve air quality are outside the Councils control. In these circumstances the Council has to make it clear that their powers are limited and that compliance with the air quality objectives is reliant on action by other agencies and individuals.

The Greater Manchester Air Quality Strategy

1.10 In Greater Manchester, a regional approach to dealing with air pollution has been adopted, recognising that the sources of pollution do not respect political boundaries.

1.11 A Greater Manchester Air Quality Strategy, 'Clearing the Air', was produced in 1997 setting out the framework for improving air quality in the region. It links air quality to planning, transport, sustainability and environmental health functions.

1.12 It was identified that there would be benefits from the authorities in Greater Manchester working together on some aspects of the air quality Review and Assessment. The authorities have worked with ***aric*** and the Greater Manchester Transportation Unit (GMTU) to annually update the emissions inventory for Greater Manchester (EMIGMA) originally prepared by consultants on behalf of the Government. In addition joint bids have been successfully made to DEFRA for Supplementary Credit Approval funding to carry out atmospheric dispersion modelling to predict ground level pollution concentrations.

European and National policies to reduce pollution

1.13 There are a number of European and National policies that are expected to contribute to improving air quality over the next few years. These include tighter emission standards for new vehicles and additional controls over certain industrial processes. Some of the relevant policies are summarised below.

Table 1.3: European and national policies to reduce pollution

Policy	Summary
Air Quality Framework and Daughter Directives	The Framework Directive establishes the principle that the European Union can set limit values for specified pollutants. The Daughter Directives set out what those limit values are.
Auto Oil programme	All new vehicles must comply with stringent emission standards. There are also controls over fuel quality, which also reduce emissions.
Acidification strategy	This is a strategy which aims to reduce areas at risk of acid rain by reducing emissions of SO_2, NO_x, and ammonia. It consists of: • A Directive which limits the sulphur content of liquid fuels. • Emission limits for new large combustion plant and a national limit for total SO_2 emissions from existing plant.
EC Solvents Directive	This aims to reduce emissions of volatile organic compounds from certain industrial installations.
Integrated Pollution Prevention and Control Directive	This limits emissions from certain industrial installations, requiring them to take steps to ensure that EC objectives are met. Many of these processes are already controlled under national legislation (Environmental Protection Act 1990).
UNECE convention on long range transboundary air pollution	This aims to reduce the impact of transboundary pollution from one country to another by requiring emission reductions. It covers heavy metals, including cadmium, lead and mercury as well as some of the pollutants with objectives in the national air quality strategy.
Planning framework	The land use planning system and the transport framework are expected to have regard to the national air quality strategy.

1.14 Although air quality is expected to improve as a result of these initiatives, local action will also be necessary to reduce pollution in Greater Manchester to meet the levels set in the Governments air quality objectives.

Links to other Greater Manchester Plans and Strategies

1.15 The Greater Manchester Air Quality Steering Group was set up in 1996. The group is made up of senior local government officers from a variety of different professions representing each of the 10 Greater Manchester Authorities. It was this group that was responsible for the Greater Manchester Air Quality Strategy described previously. Ensuring that air quality is fully integrated into other strategies and that these strategies also complement the air quality initiatives is a key objective of the Group.

1.16 By means of this multi-disciplinary approach the Air Quality Action Plan is clearly linked to other important areas of work including the Local Transport Plan, development planning, energy conservation, community plans and environmental strategies such as Local Agenda 21 plans. Some of the key strategies and policies are given below:

Greater Manchester Strategy

1.17 The Association of Greater Manchester authorities has produced a draft strategy for Greater Manchester. It sets out the key issues, which AGMA believes, need to be addressed in order for Greater Manchester to become:

- A world class city region at the heart of a thriving North West, capable of successfully competing internationally for investment, jobs and visitors; and
- A vibrant, safe and healthy environment in which to live work and earn, in a cohesive manner which enables people of all ages, communities and cultural backgrounds to reach their full potential.

Corporate Plans

1.18 A corporate plan has been produced by each of the GM authorities. The plans set out what each Council's core values and corporate priorities are over the coming years.

1.19 The content of the corporate plans varies between authorities but each recognises the importance of sustainability and improving the environment, aims which link directly to the Air Quality Action Plan.

Community Strategies

1.20 Community strategies are produced by local strategic partnerships made up of representatives from a variety of organisations within each Borough. They represent the communities' aspirations for the borough. The Air Quality Action Plan is consistent with the objectives of improving the quality of life and producing a healthier environment.

Local Transport Plan

1.21 The Greater Manchester Local Transport Plan (LTP) is a five year strategy which sets out how the transport network will be improved in the period up to 2005/6. Improving air quality is one of the key objectives of the LTP. A number of strategies have been developed through the LTP to encourage and improve public transport, cycling and walking. Chapter 4 contains more information on the programmes within the LTP that are expected to contribute to improving air quality.

Unitary Development Plans and Development Control

1.22 Each of the 10 GM authorities has a Unitary Development Plan (UDP) that establishes policies that guide the general location of development in the Borough and ensure that such development does not adversely affect its surroundings.

1.23 The impact of air quality on or by new development is a material consideration and is therefore taken into account in the planning system.

Home Energy Conservation Act (HECA) 1995

1.24 The Greater Manchester Authorities are all producing HECA Strategies, these aim to improve the energy efficiency of the residential properties in their area. Improving energy efficiency reduces the need to burn fuel, thus reducing domestic emissions.

Regeneration initiatives

1.25 The Greater Manchester authorities are committed to the regeneration of run down areas and creating opportunities for economic growth. Many of the designated Air Quality Management Areas lie within the poorer areas of the conurbation targeted for regeneration. This often means development takes place within AQMAs. However, regeneration initiatives give the Greater Manchester authorities the opportunity to improve the wider environment and provide sites for employment.

Local Agenda 21 / Environment Strategies

1.26 The sustainable development principles introduced through Local Agenda 21 have, in most authorities, now been incorporated into other plans, such as Community Strategies. Many of the actions contained in this Plan have strong links to sustainable development and are also expected to improve the wider environment.

The Greater Manchester Air Quality Action Plan

1.27 This Action Plan is made up of two parts. The first part details the actions that will be taken across the Greater Manchester area and summarises how the Plan will be evaluated. Each of the 10 Greater Manchester authorities have also produced a local annex setting out what they intend to do within their own area. These can be found in the second part of the plan, along with Appendix A11, which assesses the proposed actions in more detail and describes why some actions that were identified during the consultation programme are not currently included in the Plan.

1.28 The report is currently in draft form, there will be a three-month consultation period once it has been released. Evaluation of the final Action Plan, using the criteria laid out in Chapter 5, will initially be carried out 12 months after publication.

1.29 The air quality objectives have target years of 2004/05, however some of the actions contained in the Plan will not be completed until after the relevant dates. Large capital projects, such as Metrolink, will take several years to plan and build and cannot be introduced in the short term. They will not therefore contribute to meeting the objectives in the initial target years.

1.30 There are, however, a number of planned actions that can and will be introduced before 2004/05, including bidding for funding for a comprehensive ‘Cleaner Vehicles Campaign’. The Greater Manchester authorities believe that the combination of actions set out in this plan, in conjunction with the national initiatives, will significantly improve air quality in the area.

Aims and Objectives of the Action Plan

1.31 The main aim of the Action Plan is clearly to deliver improved air quality across Greater Manchester, and in particular those locations which have been designated as Air Quality Management Areas. In order to achieve this the Action Plan has the following aims and objectives:

- To ensure that air quality is integrated into other local authority plans, strategies and activities;
- To develop closer relationships with organisations that can help deliver improved air quality;
- To identify new partners that can work with the Greater Manchester authorities to improve air quality;
- To raise awareness of air quality issues amongst the population of Greater Manchester; and
- To encourage individuals to recognise that they can make choices which can lead to improved air quality.

Delivering the Action Plan

1.31 The report focuses on the actions that the Greater Manchester authorities and the Greater Manchester Passenger Transport Executive/Authority are already taking, and intend to take in the future, to improve air quality. It considers in detail those actions that the Greater Manchester authorities can implement or influence directly.

1.32 The Greater Manchester authorities have been working with other agencies that also have a role to play in achieving improved air quality. In particular a significant amount of pollution is created by vehicles travelling on motorways in the area. The Highways Agency has control over motorways and the air quality objectives may not be met without action to deal with emissions from traffic on the motorway network.

1.33 The Environment Agency has responsibility for emissions from certain larger industrial processes. The Greater Manchester authorities are therefore working with the Environment Agency to ensure that emissions from new or existing processes do not lead to exceedances of the air quality objectives.

1.34 Manchester Airport has also contributed to the Air Quality Action Plan. The Airport already does a lot of work to try to reduce the impact it has on air quality, this includes encouraging more people to travel to the Airport by public transport and reducing pollution from Airport activities.

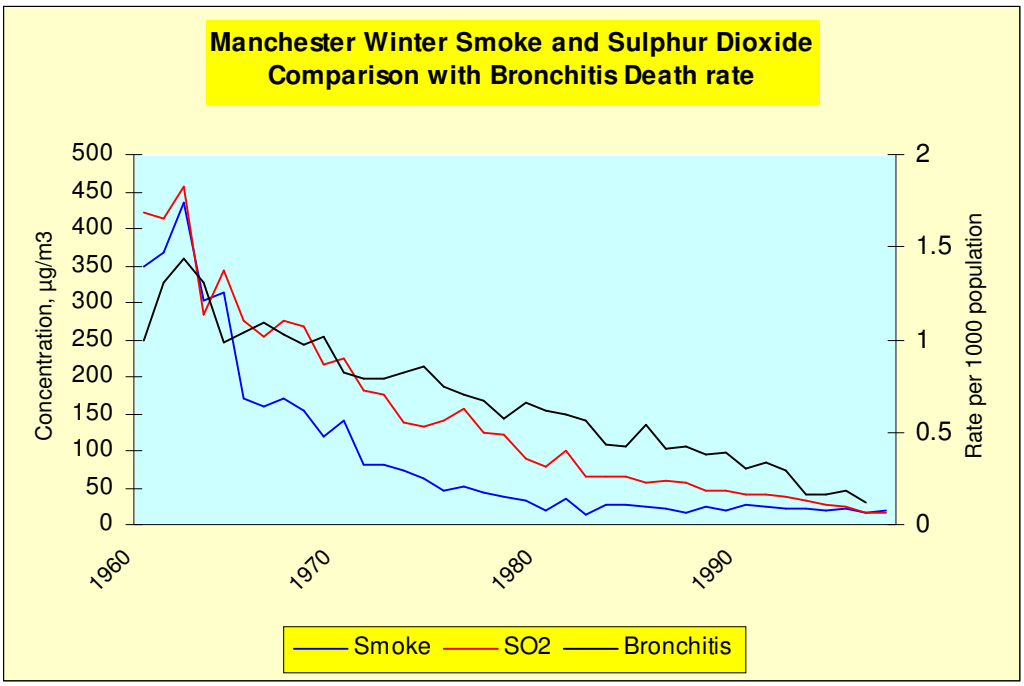
1.35 The Greater Manchester authorities believe that the Government continues to have an important role to play in ensuring that air quality continues to improve. In particular the Greater Manchester authorities would like the Government to do more to tackle traffic growth and develop more sustainable transport policies, including controlling emissions from Heavy Goods Vehicles.

Chapter 2
Pollution sources in Greater Manchester

Air Pollution in Greater Manchester

2.1 Over the last 40 years significant progress has already been made to improve air quality in Greater Manchester. In particular the introduction of Smoke Control Areas and the trend away from domestic coal/wood burning has significantly reduced levels of smoke and sulphur dioxide in the area. Figure 2.1 shows how levels of smoke and sulphur dioxide have fallen in Manchester since 1960 and compares these figures with the death rate from bronchitis. It can be seen that the bronchitis death rate closely follows the trend of reducing smoke and sulphur dioxide, particularly during the 1960s and 70s.

Figure 2.1: Comparison of winter smoke and sulphur dioxide concentrations with bronchitis death rate in Manchester

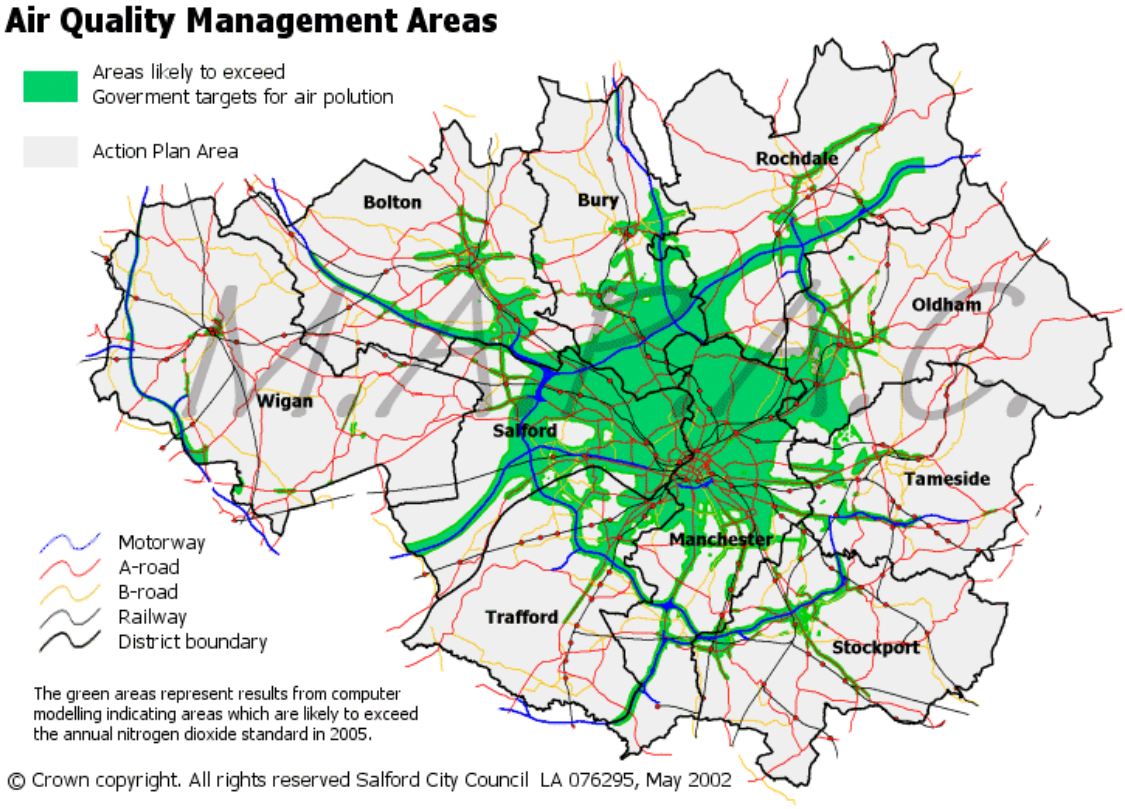


2.2 Local Councils have all recently completed their first detailed Review and Assessment of air quality in their areas. This work demonstrated that without any action there would be a widespread exceedance of the annual average nitrogen dioxide objective across the Greater Manchester conurbation. The objective is predicted to be exceeded in busy urban centres and close to the major routes of the highway network.

2.3 The daily particulate objective is also predicted to be exceeded, but on a much smaller scale. Exceedances are expected at busy road junctions and along routes with high congestion levels.

2.4 Air Quality Management Areas (AQMAs) have been declared which cover the areas in Greater Manchester where the air quality objectives are unlikely to be achieved. These are shown in Figure 2.2. The major highway routes, including motorways, can clearly be seen on the map as areas where the air quality objectives are not expected to be met.

Figure 2.2: Air Quality Management Areas in Greater Manchester



2.5 Domestic sources now contribute towards a much smaller proportion of pollution emissions in the area. The challenge facing Councils, communities, businesses and other organisations in Greater Manchester is tackling pollution from other sources. A lot of work has gone into identifying what the major pollution sources are across Greater Manchester, so that the action plan can be targeted towards these areas. This 'source apportionment' work helps to focus actions and provide a cost-effective approach to improving air quality.

Emissions of pollution in Greater Manchester

2.6 Across the whole of the United Kingdom in 1999 approximately 44% of oxides of nitrogen were estimated to come from road transport and approximately 40% from industry, particularly the energy sector (NETCEN 2002).

2.7 Figure 2.3 depicts the percentage of nitrogen oxides (NO_x) and particulate matter that would be emitted from various sources within Greater Manchester in 2005. The highest contributor to emissions of NO_x within Greater Manchester is road traffic (53%) of which 38% of all NO_x emissions are from goods vehicles. Emissions from domestic and industrial sources are also significant (17% each).

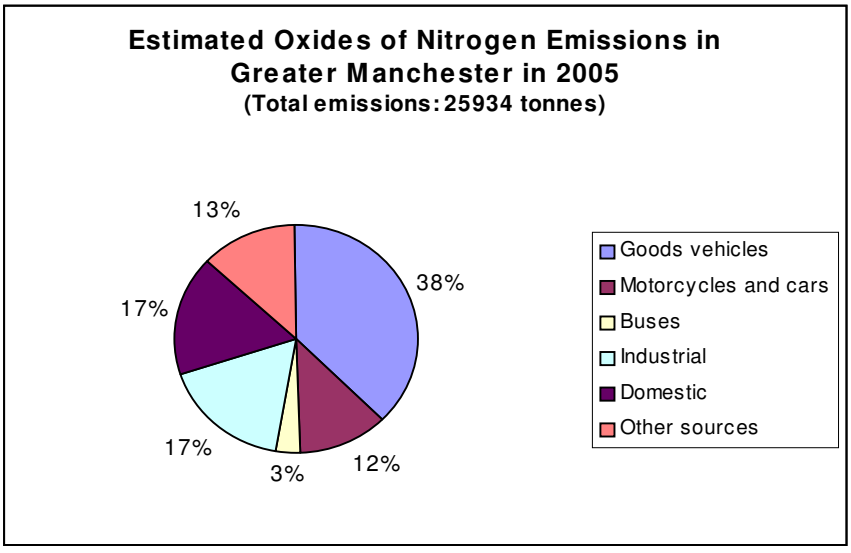
2.8 It is widely predicted that emissions from individual petrol and diesel engines will fall between now and 2005 as vehicle and fuel technologies improve. However, these improvements may be partly offset by the predicted increase in the amount of traffic using the highway network, particularly motorways, by 2005.

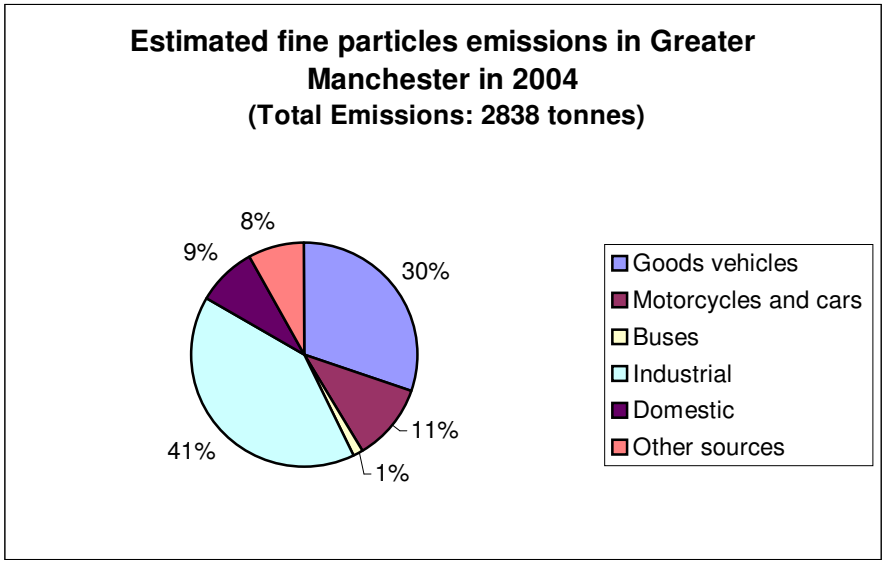
2.9 Emissions from road traffic tend to have their main effect at local level, elevated pollution concentrations are found close to busy roads. They are released at ground level preventing widespread dispersion or dilution. This means that concentrations can build up locally over a period of time. Industrial emissions however tend to be released at a much higher level (typically over 15m). This means that the pollution travels a greater distance from the source and is therefore subject to more dilution before reaching ground level. The relative contribution to ambient air concentrations from industrial sources is likely to be far less localised than that of road traffic sources, even though for certain industrial processes they are released in much higher concentrations.

Source apportionment summary

2.10 Widespread exceedences of the annual nitrogen dioxide objective were identified by each of the Greater Manchester authorities. During 2001/02 source apportionment work was commissioned to determine the relative contribution from each source to the overall total. This was carried out by computer modelling of the emissions across Greater Manchester and prediction of the resulting concentrations in the air. The study determined the relative contribution of each of the major sources to the overall ground level nitrogen dioxide and particulate matter concentrations, taking into account the dispersion of the emissions and 'typical' weather parameters.

Figure 2.3: Emissions of nitrogen oxides and fine particles in Greater Manchester (***aric***, 2002)





2.11 Road and non-road sources were split into 9 categories. The road sources included cars and motorcycles, heavy and light goods vehicles, buses, car journeys under 3km (distances that could easily be walked or cycled), car journeys between 3 and 8km (distances for which public transport such as buses or trams could be used) and car journeys over 8km (longer distances for which public transport such as trains would need to be used). Non-road contributions have been estimated in terms of industrial sources and domestic fuel burning.

2.12 The spatial contribution to annual average NO_x concentration from the various sources is shown in Figures 2.4 to 2.6 at the end of this Chapter. By comparing the individual plots to the total NO_x plot, an indication of the relative contribution of each of the source sections can be ascertained. This has helped the Greater Manchester authorities to identify the emission sources in the areas the Air Quality Action Plan needs to concentrate on.

2.13 Interpretation of the maps shows that goods vehicles contribute the most to ground level pollution across Greater Manchester. Pollution from cars and motorcycles is also a significant source. The major road network, in particular the motorways, are identified as areas where ground level pollution concentrations are highest.

2.14 Whilst emissions from buses contribute to only a small proportion of the total, in some locations buses can contribute to elevated pollution levels. Since improvements to the public transport system are needed to encourage modal shift, it is therefore important that the Action Plan addresses emissions from buses as well as other road traffic.

2.15 Emissions from industrial sources and domestic fuel burning contribute towards a much lower proportion of ground level pollution concentrations than road traffic. Emissions from these sources may not lead to exceedances of the air quality objectives on their own, but in combination with other sources they do contribute to the problem.

Stage 4 Review and Assessment

2.16 The Environment Act 1995 requires that every authority that has declared an Air Quality Management Area must carry out a further Review and Assessment of air quality in their area. This Stage 4 Review and Assessment, should be prepared 12 months from the date the authorities' AQMA comes into effect.

2.17 Each of the 10 Greater Manchester authorities has, or is in the process of, preparing a Stage 4 assessment. The Stage 4 assessment goes into much more detail about local sources of pollution than the Air Quality Action Plan. Copies of the Stage 4 assessments are available from each local authority, whose contact details can be found on the http://www.mapac.org.uk website.

Sources Outside Local Authority Control.

2.18 Pollution from major industrial processes, rail, aviation and motorways is not within Local Authority control. However, through consultation with process operators and regulators some influence can be exerted. In particular the Greater Manchester authorities are working in partnership with the following organisations:

- The Highways Agency to identify ways of reducing the impact of major routes such as motorways;

- The Environment Agency in their control of large Industrial Processes; and
- Manchester Airport in their commitment to increasing the use of public transport for Airport related journeys and reducing pollution from other airport related activities wherever possible.

Figure 2.4: Predicted ambient oxides of nitrogen sources in Greater Manchester 2005.

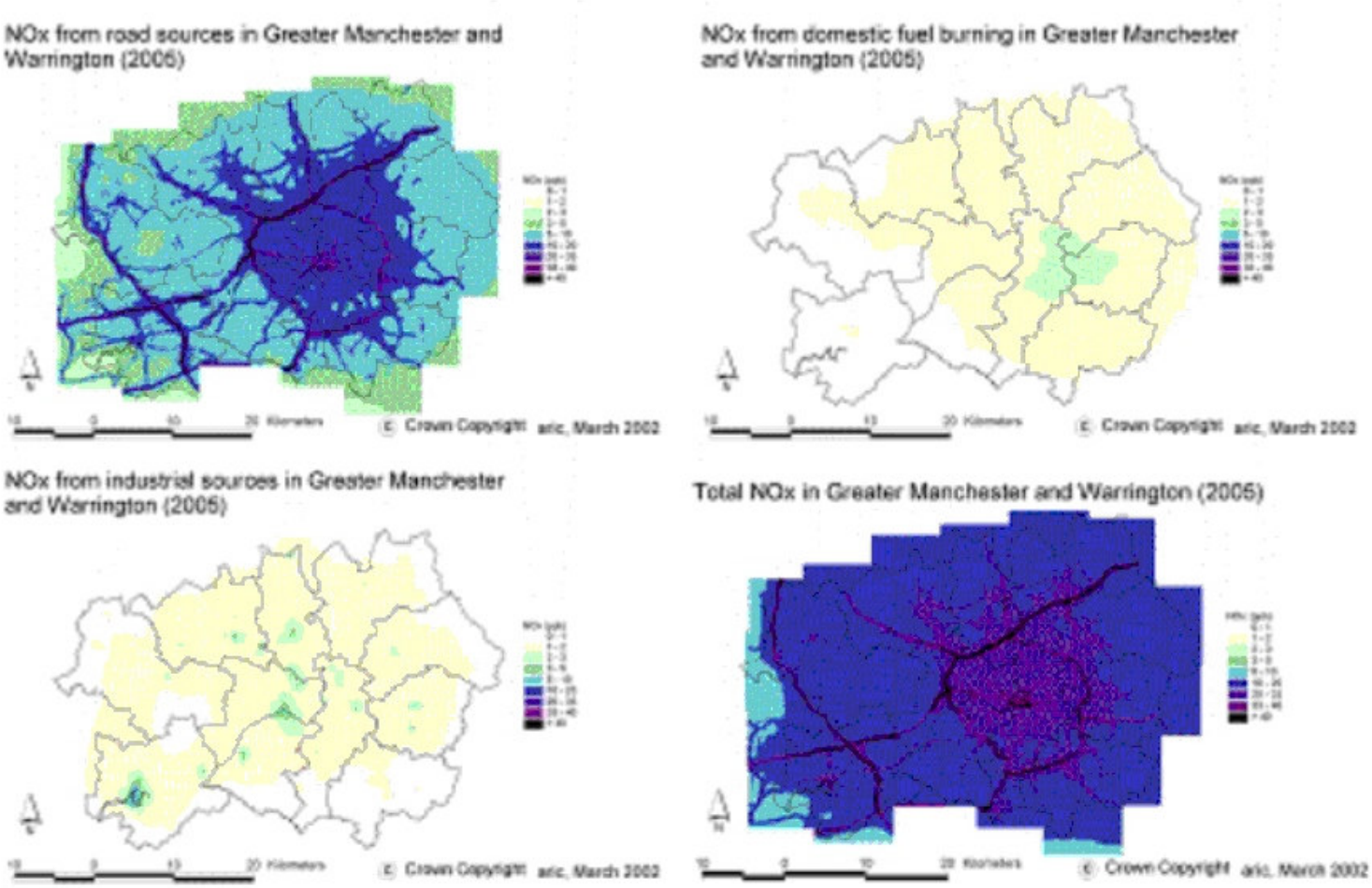


Figure 2.5: Predicted oxides of nitrogen levels from road traffic sources in Greater Manchester 2005.

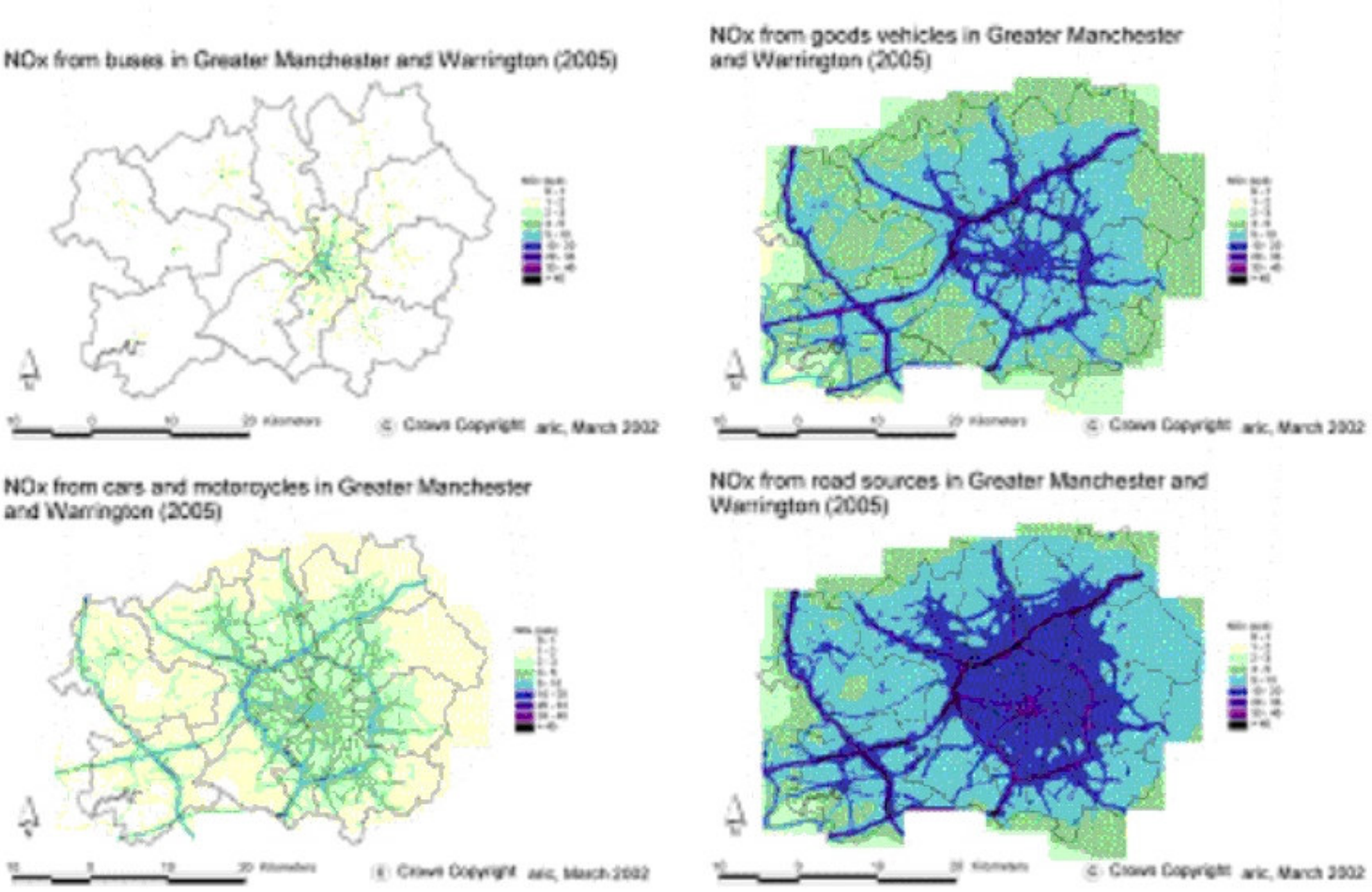
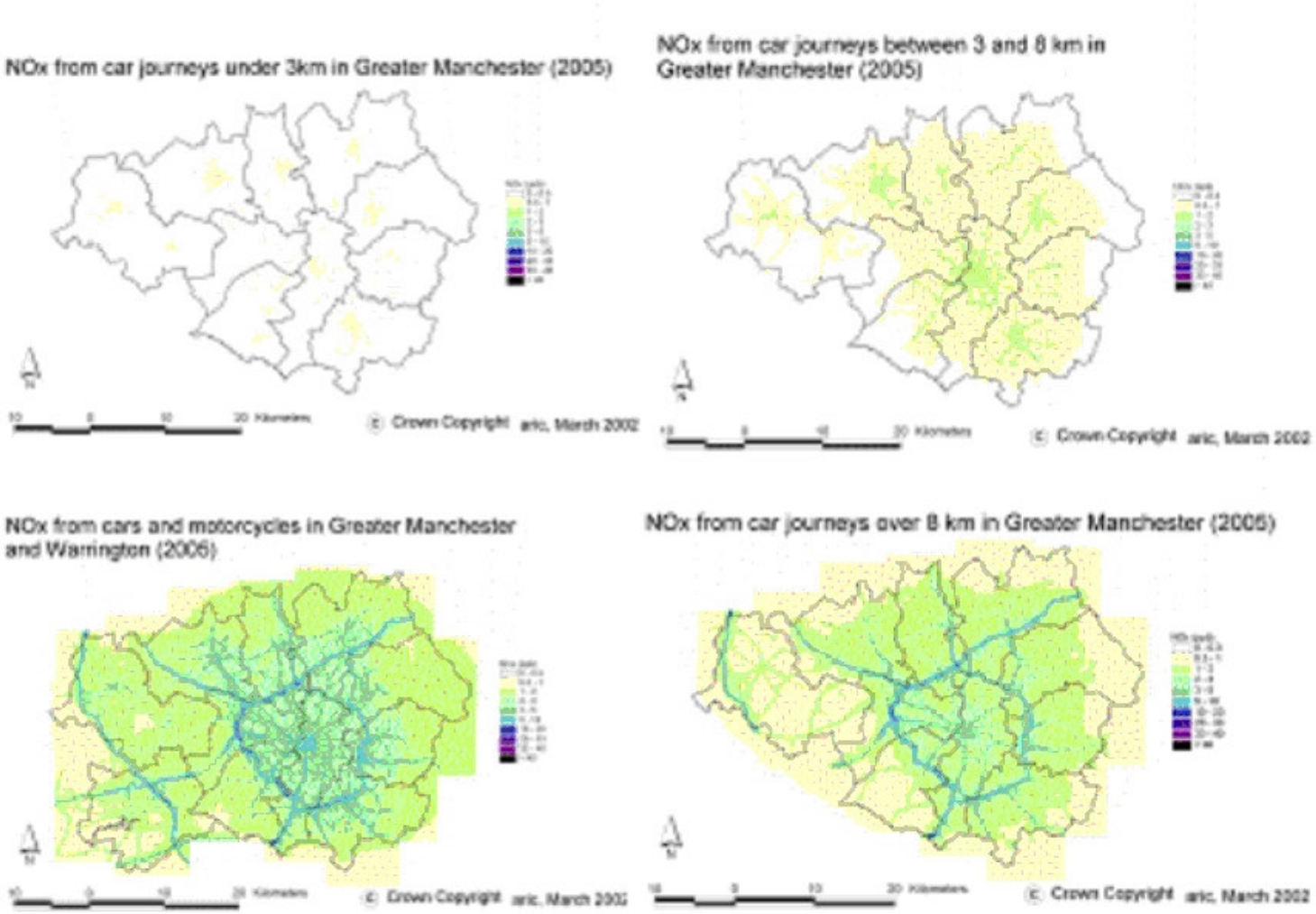


Figure 2.6: Predicted oxides of nitrogen levels from car journeys in Greater Manchester 2005.



Chapter 3
Consultation and Participation – How the plan has evolved

Introduction

3.1 The views of a wide range of people have been sought during the preparation of the Action Plan. The Greater Manchester authorities recognise that for the Action Plan to be successful its actions will need to impact upon the lives of residents, businesses and organisations in the area. The results of the key Greater Manchester consultation initiatives are set out below. Consultation has also taken place within the districts. This work is summarised in the Local Annexes. More detailed reports of the consultation results have been produced and are available separately[1].

3.2 Consultation on potential options to improve quality in Greater Manchester began in November 2000, with the publication of a leaflet entitled 'Clearing the Air'. The main purpose of this leaflet was to inform the public about the findings of the air quality Review and Assessment process and to seek views about the extent of Air Quality Management Areas in Greater Manchester. A total of 100,000 leaflets were published and distributed across the area. A questionnaire was included which asked respondents what they thought their local Councils should be doing about air quality.

Table 3.1: Summary of results of 'Clearing the Air' consultation

What do you think your Local Council should be doing about air quality?			
Policy	Number of responses	% of responses	% of respondents
Encouraging people to use public transport	651	18.0	63.0
Reducing emissions from industry	572	15.8	55.6
Emission testing of vehicles	474	13.1	46.1
Providing more park and ride facilities	430	11.9	41.8
Providing more information about air quality	390	10.8	37.9
Persuading people to walk or cycle more	383	10.6	37.3
Providing special car occupancy, bus or cycle lanes	311	8.6	30.3
Charging motorists to enter towns and using the money for public transport	278	7.7	27.7
Charging firms who provide free parking	122	3.4	11.9
Total responses	3611	100	351.3
Total respondents	1028		

3.3 The most popular options were encouraging people to use public transport, reducing emissions from industry and emission testing of vehicles. Less popular options included

[1] If you would like to obtain a copy of these reports please contact Caroline Greenen on Tel: 0161 911 4486.

charging firms that provide free parking and charging motorists to enter towns. The results can be seen in Table 3.1.

3.4 The Greater Manchester element of the Air Quality Action Plan has subsequently undergone further consultation. A focus group meeting with interested parties and organisations was held in December 2001, the Transport Matters Newsletter was circulated across Greater Manchester during May 2002 and the Manchester Area Pollution Advisory Council (MAPAC) website was further developed to provide summaries of the key actions and progress with air quality in Greater Manchester.

Greater Manchester Air Quality Action Plan Focus Group

3.5 The Greater Manchester Air Quality Action Plan Focus Group was held on 6th of December 2001 at The Lowry Centre, Salford. It was a consultation exercise with the aim of generating ideas and determining acceptance of a range of possible options for inclusion in the Greater Manchester Air Quality Action Plan. The group was invited from a wide range of the public, industrial, transport and commercial sectors across Greater Manchester. The session was facilitated by Tim Williamson from the National Society for Clean Air and Environmental Protection.

3.6 A list of options for inclusion in the Action Plan were drawn up and their level of acceptance determined by delegates through a number of workshops. Each group within the workshop considered a specific range of options, which were split into various classifications, including:

- Traffic Management & Restrictions;
- Public Transport;
- New Options 1 (suggested by delegates);
- Travel Plans & Domestic Emissions;
- Planning and Industry; and
- New Options 2 (suggested by delegates).

Delegates worked in groups to discuss possible options within their subject area. The results were compiled in a table, with consideration given to the potential impact of each option, and their feasibility, cost and timescale.

3.7 Each group then moved in a carousel session in order to comment on other groups' options. A scoring exercise was then undertaken, where delegates added a tick, cross or question mark to the different options to indicate their view on the acceptability of each option.

3.8 The results of the focus group were collated and have been used as the basis for wider consultation across Greater Manchester both within the Transport Matters newspaper and the website (http://www.mapac.org.uk).

Summary of the Results of the Focus Group

3.9 A Consensus was reached on many of the focus group options. Over 90% of participants on the day agreed that the Plan should include the following options:

- Improvements to public transport (100%);
- Public education and raising awareness of air quality issues (96%);
- Improved cycling and walking facilities (96%); and
- Greater consideration of air quality in the planning process (91.6%).

The figures in brackets give the percentage of people who agreed that the option should be included in the Plan.

3.10 Other options receiving a high level of support (between 50 -90%) included:

- Subsidised public transport services (88.5%);
- Electric tram systems (87.5%);
- Pedestrianisation (84.8%);
- Home insulation schemes (78.6%);
- Speed restrictions (76.9%); and
- Introduction of Low Emission Zone (62.9%).

3.11 Participants were given the opportunity to indicate whether they felt more information was needed before they could decide if a particular option should be included in the plan. Many of the options where less than 50% of the participants agreed that they should be included in the plan were identified as needing more detailed consideration. These included:

- Bypasses and road building (40.6%);
- Congestion charging (40%);
- High occupancy vehicle lanes (39.2%);
- Park and ride schemes (37.5%);
- Car free days (34%);
- Bonfire bans (30%);
- Traffic calming (27%); and
- Restrictions on private vehicles (25%).

Transport Matters Newsletter

3.12 In May 2002 the Greater Manchester Local Transport Plan Team produced a newspaper - 'Transport Matters'. About 100,000 copies of the newspaper were produced. These were circulated to members of the public through outlets including supermarkets, community centres, council offices, GMPTE Travelshops and local bus and train stations. They were also distributed by hand at Manchester Piccadilly train station and at selected car parks in Manchester City centre.

3.13 The newspaper contained a four page section, which followed on from the 'Clearing the Air' leaflet and gave the opportunity for members of the public to think about the various options in more detail. A questionnaire was included, which asked for views on which measures would best help reduce air pollution from road transport. The questionnaire was also available electronically, through the MAPAC website (http://www.mapac.org.uk).

3.14 Just over 1500 completed questionnaires were returned and the responses have been analysed by the Greater Manchester Transportation Unit (GMTU). Questionnaires were returned from people living throughout Greater Manchester.

3.15 The respondents returning the questionnaires had the following profile:

- 44.8% were female, 55.2% male;
- 60.1% had use of a car;
- 91% were aged 26 or over;
- 92.9% gave their ethnic origin as white; and
- 15.1% said they had a disability which affected travel.

Overall there were a higher proportion of responses from males and a lower proportion of responses from the under 26 age group than found in the Greater Manchester population as a whole. The proportion of respondents having use of a car was similar to that of the wider population.

3.16 Respondents were asked to select the transport measures that they thought would most help to reduce air pollution. A summary of their responses is as follows:

Which traffic management measures do you support?

Opinions were fairly evenly divided but the three most selected measures were:

1. Using computer controlled traffic lights to improve traffic flow (47.3%);
2. Improving conditions for pedestrians (40.4%); and
3. Building bypasses around congested areas (39.0%)

The least popular measures, selected by under 20% of respondents, were 'Reducing speed limits on busy high speed routes to smooth out traffic flows' and 'Reserving lanes for vehicles with more than one occupant.

Which public transport measures do you support?

The clear winner was 'Building new Metrolink lines' selected by 61.2% of respondents. Opinion on other measures was more evenly divided although 'Providing electronic information at stops to tell you when the next bus, train or tram will arrive' came second, selected by 47.0% of respondents. More or longer trains came last, chosen by 27.4% of respondents.

Which traffic restriction measures might we use?

The majority of respondents (73.3%) selected 'Creating pedestrian only areas' as one of their favoured options. The introduction of Low Emission Zones had a moderate amount of support (40.8%). The least favoured option was 'Raising Parking Fees in town centres' (16.6%).

Which individual vehicle emission controls should we introduce?

The top three most selected options were:

1. Encouraging public transport and taxi operators to achieve the lowest possible emission levels (64.8%);
2. Encouraging drivers to switch to cleaner fuels (53.2%); and
3. Enforcing new laws to stop drivers leaving engines running (47.0%).

The least popular option was 'Publicity campaigns to raise awareness of traffic pollution issues' (31. 1%).

What can we do to limit pollution resulting from housing, shopping, industrial and leisure developments?

The four measures aimed at encouraging businesses to reduce pollution or giving a higher priority to air quality in land use planning were all voted for by more than 60% of respondents.

The only option voted for by less than 60% of respondents was 'Limiting parking spaces at new developments' which was selected by only 19% of respondents.

Further Consultation

3.17 Consultation on the proposals contained in the draft Air Quality Action Plan will take place by the 10 Greater Manchester authorities in spring 2003. A summary document will be circulated to those individuals and organisations that have been involved in the production of the plan to encourage further comments on the draft plan.

3.18 Any comments made during the consultation period will be taken into account in preparing the final version of the plan, which will be available in summer 2003.

Chapter 4
Actions to improve air quality

Introduction

4.1 This chapter sets out the measures that will be introduced by the 10 Greater Manchester Authorities and the Greater Manchester Passenger Transport Authorities/Executive (GMPTA/E) to improve air quality. The results of the source apportionment study and the consultation detailed in Chapters 2 and 3 have been used in the production of the Plan.

4.2 The local annexes contain more details on the specific actions being taken by each local authority, while Appendix A11 contains more information about all the measures included in the Action Plan.

4.3 Many of the actions the Greater Manchester authorities intend to implement in order to improve air quality are taking place through other existing plans and strategies. In particular many of the actions are taking place through the Local Transport Plan. The Greater Manchester authorities are committed to taking action to improving air quality in the area and believe that many of the actions contained in the Plan will also have a beneficial effect by improving quality of life for residents and making activities in the area more sustainable.

4.4 The Greater Manchester authorities have also been working with the Environment Agency, the Highways Agency and Manchester Airport to improve air quality in the area. The work these organisations are doing is described later in this Chapter.

4.5 The Chapter ends with Table 4.1, which summarises the action the Greater Manchester authorities intend to take. The Table includes a column which estimates the likely air quality improvement of the action. This gives an indication of whether the impact of the proposed action is expected to be high, medium or low. The determination of likely air quality improvement is not straightforward. It depends on the scale of a particular scheme, which may have an effect over a large or small geographic area.

4.6 The table also sets out who has responsibility for ensuring that the actions are carried out. It also includes a column setting out whether the schemes are to be implemented locally or across the whole of Greater Manchester.

Implementation of the Action Plan

4.7 The timescale for implementing the actions contained in the plan will vary for individual schemes and may be different for each local authority. Appendix A11 summarises the likely timescale for the implementation of the key initiatives being introduced and co-ordinated across Greater Manchester.

4.8 The Local Annexes consider the timescales for implementing the local actions separately. Currently the Local Annexes state whether the Actions will be carried out over the following time periods; Short (up to 2 years), Medium (2-5 years) or long (over 5 years). The Greater Manchester Authorities recognise that a more definite timetable for the specific Actions contained within the Local Annexes needs to be provided so that progress in implementing the Action Plan can be more fully assessed. The Greater Manchester Authorities intend to include more explicit timescales when the final version of the Action Plan is published. The cost of

implementing the schemes has been ranked as High, Medium or Low (High = More than £500,000 to implement, Medium = £100,000 - £500,000, Low = £100,000). The local annexes contain a column where the costs for each of the proposed Actions are ranked in this way.

4.9 The Greater Manchester authorities are working with ***aric*** to do more work to quantify what the air quality improvement will be from certain schemes. This includes the effect of speed limit reductions and the introduction of Metrolink. The results of these studies are due to be published in 2003. The likely air quality improvement from all the actions contained in the Plan have been estimated and have been ranked as either High, Medium or Low.

4.10 Monitoring and evaluation of the actions contained in the Plan are essential to quantify its effectiveness. Chapter 5 sets out how the Greater Manchester Authorities intend to assess and monitor the ongoing implementation of the Plan.

Reducing emissions from road traffic

4.11 Road traffic is a major source of pollution in Greater Manchester. The amount of pollution emitted from vehicles can be reduced by managing traffic, encouraging the use of alternative less polluting forms of transport, and encouraging the use of cleaner vehicles and fuels.

4.12 Improving air quality is a key objective of the Greater Manchester Local Transport Plan (LTP), a five-year strategy designed to improve the transport network in Greater Manchester. Most of the transport related measures included in this Air Quality Action Plan are being progressed through the LTP.

Local Transport Plan measures to reduce road traffic emissions

Promoting the use of public transport

4.13 A key element of the LTP strategy is to improve public transport and encourage its use. By getting more people to use public transport as an alternative to car travel, total vehicle emissions can be reduced. This work includes a number of major infrastructure projects such as Greater Manchester's Metrolink extensions and the Quality Bus Corridors (QBC) project, along with other schemes to support the use of public transport, such as the provision of Park and Ride facilities and better public transport information.

4.14 Greater Manchester's existing Metrolink network has been extremely successful in attracting people out of their cars. The first phase between Bury and Altrincham, via Manchester City Centre, was opened in 1992 and is estimated to have taken up to two and a half million car journeys off the road each year. A new line out to Salford Quays and Eccles was opened in July 2000, and funding has been secured for a third phase of expansion throughout Greater Manchester which will take several years to build and will include extensions to;

- Oldham and Rochdale;
- South Manchester and Manchester Airport;
- East Manchester and Ashton-under-Lyne; and

- Possible extensions to Trafford Park and the Trafford Centre, East Didsbury and Stockport, and The Lowry are also being promoted.

4.15 Metrolink is powered by electricity and does not produce any pollution at street level. Generating the electricity to power Metrolink produces two thirds less particulates per passenger kilometre of travel compared with using a car.

4.16 The Quality Bus Corridor (QBC) project is creating a network of high quality bus routes throughout Greater Manchester which give more priority to buses, pedestrians and cyclists, have better waiting facilities, more frequent and reliable bus services, and employ high quality buses. One such scheme has been completed on the Eccles Old Road/A57 in Salford, together with a section of the Hazel Grove corridor on the A6 in Stockport, and parts of the Leigh-Bolton route. Work is underway to complete these and several other corridors, including the Rochdale to Hyde, Manchester to Oldham/Lees/Grotton/Waterhead, and Manchester to Bury corridors.

4.17 Funding has also been secured to enable the full QBC network to be completed, including; a route between Leigh and Manchester; a set of orbital routes around the north of the conurbation linking Bolton, Bury, Rochdale and Middleton; and a major scheme in the south including Manchester Airport known as the 'SEMMMS' (South -East Manchester Multi-Modal Study) scheme.

4.18 Bus Quality Partnerships are agreements between local authorities and bus operators to work together to secure bus improvements. Agreements can include standards for environmental quality, for example local authorities can require buses to meet specified air quality emissions standards on certain designated bus routes.

4.19 A Quality Partnership Agreement has already been signed by the Greater Manchester District Councils, the Passenger Transport Authority and Executive and public transport operators, which covers all forms of public transport throughout Greater Manchester, and includes the provision of more 'low emission' buses. This Agreement will be reinforced by bringing forward individual agreements for each QBC.

4.20 In appropriate locations, Park and Ride facilities can encourage drivers to use public transport for part of their journey. This can lead to reduced traffic and less traffic generated pollution from the routes and in the locations served by Park and Ride.

4.21 Park and Ride facilities currently exist at a number of rail and Metrolink stations across Greater Manchester, and work is underway to identify further suitable sites, including sites linked to the QBC network. A Greater Manchester Park and Ride Strategy is being developed as part of the LTP to guide the provision of future sites. The Strategy will involve an assessment of the likely impact of sites, including their effect on air quality.

4.22 A programme has also begun to install a Real Time Passenger Information (RTPI) system at bus stops on the QBC network throughout Greater Manchester. The Government is part funding this project, which will provide accurate information on the actual arrival times of buses and make bus use more attractive. A bid has been made through the LTP for extra funding to ensure that the entire QBC network can be covered by the system.

Cleaning up bus emissions

4.23 In addition to promoting the increased use and availability of public transport, GMPTE is working to improve overall emissions from the existing public transport fleet. It has adopted an Environmental Strategy, which includes measures to reduce the contribution to pollution made by buses, including:

- Offering grants to fit particulate traps to older buses, which can reduce particulate emissions by up to 95%;
- Specifying that new contracts to operate subsidised services for GMPTA must be operated by vehicles fitted with traps, a requirement introduced in April 2002; and
- Purchasing and evaluating an alternative fuel vehicle for the Ring and Ride service.

4.24 Bus operators in Greater Manchester are also contributing towards improving air quality by implementing policies to reduce emissions from buses, including investing in new buses designed to the lowest emissions specification, such as buses with Euro III engines.

Encouraging walking and cycling

4.25 Improvements are being made throughout Greater Manchester to make it easier and safer for people to make their journeys by walking or cycling, rather than by driving. Encouraging people to switch to such non-polluting forms of transport will help Greater Manchester to meet its air quality objectives.

4.26 Greater Manchester strategies on cycling and walking have been developed as part of the LTP and include targets for increasing levels of walking and cycling. All Districts now have, or are working towards, their own local cycling and walking strategies, and will be identifying networks of key pedestrian routes and local cycle networks.

4.27 The sort of schemes that are being introduced to help pedestrians and cyclists include:

- Giving pedestrians greater priority in town centres through, for example, pedestrianisation;
- Improving existing footways and pedestrian routes and providing new ones where they are needed;
- Installing crossing facilities such as Pelicans and green man facilities at traffic signals;
- Providing cycle maintenance facilities and 'bike rescue'services;
- Providing information on routes and other promotional material;
- Creating new cycle routes and providing cycle parking facilities; and
- Introducing traffic calming.

Travel Plans

4.28 Car travel can also be reduced through the introduction of Travel Plans by businesses, hospitals, local authorities and other organisations. A Travel Plan is typically a package of practical measures to reduce reliance on the car for journeys to work or during work. In addition to commuting and business travel, a Travel Plan can aim to reduce the environmental impact of travel by customers and visitors, and of vehicle fleets.

4.29 Travel Plans should be tailored to a particular site and can include measures such as car sharing schemes, improvements to public transport services, offering cheaper public transport fares through subsidies or operator discounts, improving walking and cycling facilities, offering flexible working practices such as working from home, switching to alternative cleaner fuels, ensuring vehicles are regularly serviced, fitting emissions reducing technology to fleet vehicles or offering driver training.

4.30 A School Travel Plan is similar to a workplace Travel Plan and is a document setting out a package of measures for reducing the number of car trips made to a school, or group of schools, by parents and staff, and for improving safety on the school journey. By encouraging greater use of public transport, cycling and walking for school journeys, School Travel Plans can also help to reduce traffic and pollution, particularly during peak hours.

4.31 All Greater Manchester local authorities are developing their own Travel Plans or have them in place already, and an important part of the LTP strategy is to promote Travel Plans to schools, businesses and other organisations. The Government recognises the importance of this work and is funding a Travel Co-ordinator at each of the Greater Manchester local authorities. The local authority Travel Co-ordinators are available to offer help and advice to any organisation wanting to develop a Travel Plan and Travel Plan Co-ordinators throughout Greater Manchester share good practice with one another.

Freight Quality Partnership

4.32 Heavy goods vehicles (HGVs) are a significant source of exhaust emissions in Greater Manchester. As part of the development of a GMLTP Freight Strategy, a Greater Manchester Freight Quality Partnership has been set up. This includes representatives of both the haulage industry and the local authorities, who are working together to minimise the environmental impact of road freight, including emissions to air.

4.33 The partnership is looking at ways of reducing emissions from goods vehicles and is aiming to ensure that road freight is transported as efficiently as possible. The Partnership will carry out a variety of measures to reduce goods vehicle emissions and these will include measures such as encouraging the shift to the use of rail for freight transport deliveries, examining potential for changing from heavy to light goods vehicles in busy town centres and generally promoting best practise in relation to air quality.

4.34 It is important to emphasise that the movement of freight is a national issue and that HGVs travelling through Greater Manchester are likely to be based and operating throughout the country and possibly abroad. It will therefore be very difficult for the Greater Manchester Freight Quality partnership to have a direct major impact on freight nationally and this will limit their potential to achieve improvements in Greater Manchester. National measures are therefore essential to complement the ongoing and planned work in Greater Manchester.

Traffic management and traffic calming

4.35 As part of the Local Transport Plan, the Greater Manchester Authorities will continue to implement an extensive programme of traffic management and traffic calming schemes, particularly in residential areas. Although these are designed primarily to reduce accidents,

they also lead to reductions in through traffic, which can improve local air quality. The types of schemes introduced to date include area-wide traffic calming, 20 mph zones and Home Zones.

4.36 Home Zones are streets where use of the road is shared between motor vehicles and other road users. Phase 1 of Greater Manchester's first Home Zone has been completed, at Northmoor in Longsight. The Northmoor Home Zone is one of only nine pilot Home Zone schemes in the country. Greater Manchester has been awarded Centre of Excellence status by Government for its work on integrated transport planning, particularly its pioneering work on Home Zones.

4.37 Following successful bids to Government for funding, further Home Zones are planned, including: Oldham's Estate, a residential development in the Sharples area of Bolton; the Victoria Estate in Whitefield, Bury; Northmoor Phase 2; Wardleworth in Rochdale; Ashton West End in Tameside; the Addison Crescent Estate in Trafford and the Browning Street area of West Leigh in Wigan.

4.38 Following a change in the law, a number of local authorities in Greater Manchester have taken over responsibility for enforcing parking restrictions from Greater Manchester Police and the traffic warden service. Those districts that have not yet introduced Decriminalised Parking enforcement are all proposing to do so at some stage. Effective monitoring and enforcement of waiting restrictions will help to reduce traffic congestion and assist the operation of bus priority lanes, which in turn will help to work towards meeting the air quality objectives in Greater Manchester.

Additional transport measures included in the Air Quality Action Plan

4.39 In addition to the investment in transport infrastructure improvements being made through the LTP, the Air Quality Action Plan includes a number of new transport related initiatives that will contribute towards achieving the air quality objectives.

Roadside emissions testing

4.40 The Government has made new powers available to those local authorities that have declared Air Quality Management Areas to allow them to test vehicle emissions at the roadside. The powers allow a local authority to issue a fine in the form of a fixed penalty notice in the event of a vehicle not meeting the appropriate emissions standards. The Government has made grant funding available to help local authorities set up and carry out this testing.

4.41 The Greater Manchester Authorities has taken up these powers and have applied for grant funding to resource a roadside emissions testing scheme to operate throughout the Greater Manchester area. A total of £514,000 has been awarded by the Department for Transport to implement the scheme until the end of March 2004. The Authorities are working closely with the Greater Manchester Police in developing the scheme. The Police are the only organisation with the power to stop vehicles on the highway and therefore their full co-operation, participation and commitment is essential.

4.42 Roadside testing of vehicle emissions will be undertaken, with fines issued for vehicles failing the test. In addition, to help raise awareness of air quality issues, a number of

'voluntary' testing sessions are also be held at which motorists will be offered vehicle emissions testing, but without penalty in the event of failure. The scheme is to be widely publicised, with to encourage drivers to ensure that their vehicles are well maintained.

4.43 A partnership arrangement has been developed with the Automobile Association (AA) whereby drivers will be able to obtain free emission checks and advice at AA Service Centres. The AA will also assist in publicising the Scheme and raising awareness of the air pollution problems associated with excessively polluting vehicles.

4.44 The scheme will be assessed over 12 months to determine the proportion of vehicles failing the emission standard and identify the air quality benefits.

Low Emission Zones

4.45 The Greater Manchester Authorities are also proposing to investigate the feasibility of introducing one or more Low Emission Zones in Greater Manchester. A Low Emission Zone is an area which only certain types of vehicles, such as those that meet specified emission standards, can enter.

4.46 The purpose of a Low Emission Zone is to reduce vehicle emissions in a particular area in order to improve air quality. Low Emission Zones can operate in a number of different ways. They can, for example, be in operation for 24 hours a day, or at peak times only. The introduction of a Low Emission Zone would need to be supported by traffic management measures to restrict vehicles not eligible to enter the Zone, to manage traffic around the Zone and to provide alternative access to the Zone where necessary.

4.47 As part of this Action Plan, the Greater Manchester Authorities will attempt to secure funding to carry out a project which would identify potential Low Emission Zone areas, assess the contribution a Low Emission Zone could make to achieving the air quality objectives, and identify how a Zone might operate and be enforced.

Reviewing the regulation of taxi exhaust emissions

4.48 Emissions from taxi and private hire vehicle exhausts are checked annually as part of the MOT test, but they can be checked more frequently than this under the local authority licensing regime. Regular checks could encourage the use of cleaner fuels and reduce emissions. A number of Councils in the area already check taxi emissions twice a year.

4.49 The Greater Manchester Authorities are intending to review current practices and enforcement within Districts, and ensure that the regulation of taxi emissions is fully integrated into the taxi-licensing regime. A taxi and private hire strategy is also being developed as part of the Local Transport Plan, which could incorporate air quality issues and the contribution made by taxis and private hire vehicles to air pollution in Greater Manchester.

Protection of air quality through enforcement of air pollution legislation

4.50 Air Quality has improved significantly since the Clean Air Acts were introduced in the 1950s. The introduction of Smoke Control Areas, which were implemented through this legislation, was very effective in reducing emissions from domestic solid fuel burning. All the Greater Manchester authorities have declared Smoke Control Areas covering all, or a large

part, of their Borough and enforcement action is taken against those individuals who burn unauthorised fuels.

4.51 Legislation also exists to deal with a large number of other polluting sources including, dark smoke from chimneys or open fires on industrial sites and nuisance from bonfires arising from domestic or commercial activities. The Greater Manchester authorities respond to all complaints of this nature and take formal action where this is appropriate.

4.52 The Greater Manchester authorities also regulate emissions from certain industrial processes. Strict emission limits are placed on many of these processes, regular inspections and audits of monitoring reports are carried out to ensure that they meet the latest standards prescribed in the legislation.

Raising awareness of air quality issues

4.53 For the Air Quality Action Plan to be successful it is vital that the public is provided with information regarding the state of air pollution in Greater Manchester and its likely effects on health and the environment. It is also important that the public is advised of the air quality improvement actions proposed for Greater Manchester and also the actions that they as individuals can take to help clean their air.

4.54 Funding has already been identified for data from continuous air quality monitoring sites across Greater Manchester to be included on the MAPAC website (http://www.mapac.org.uk). Increasing awareness of air quality will also be achieved by initiatives such as circulating information leaflets, press releases, carrying out consultation exercises and taking part in campaigns that encourage people to use alternative forms of transport to the car. The intention is to help people to make informed choices about their lifestyle and its effect on air quality.

Action through building design and Land Use Planning

4.55 Each local authority sets out their policy relating to Land Use and Planning in their Unitary Developments Plan. By ensuring that air quality is considered in the planning process, the air quality impacts of proposed developments will be assessed and where appropriate, schemes can be redesigned or mitigation measures can be implemented.

4.56 Additionally by working together the Greater Manchester Authorities aim to produce air quality information for developers and to produce a Greater Manchester Protocol with a uniform approach across Greater Manchester for assessing the impact of developments.

Energy Efficiency

4.57 Increasing efficiency in domestic properties can benefit local air quality by reducing emissions.

4.58 The Home Energy Conservation Act 1995 (HECA) required all local authorities with housing responsibilities to prepare, publish and submit to the Secretary of State an energy conservation report identifying energy conservation measures which would result in a

significant improvement in the energy efficiency of all residential accommodation in its area. The Act also requires Local Authorities in England to annually report on progress in meeting a target of a 30% improvement in domestic energy efficiency (as compared to 1996 levels) over 15 years.

4.59 In accordance with this legislation the Greater Manchester authorities are planning and implementing HECA strategies, which aim to significantly improve the energy efficiency of the residential properties in their area. Actions include:

- Installing energy efficiency measures in local authority housing;
- Promoting improved energy efficiency in privately owned housing using measures such as grants, low cost loans and discount schemes for the installation of insulation products and improved heating systems and controls; and
- Changing the behaviour of residents by education and awareness raising.

4.60 To help local authorities implement their HECA strategies, the Government has set up a national network of Energy Efficiency Advice Centres. There are two such centres in Greater Manchester, The Greater Manchester (North) Energy Efficiency Advice Centre in Oldham and the Greater Manchester (South) Energy Efficiency Advice Centre in Manchester.

Actions by other organisations

Environment Agency

4.61 The Environment Agency controls emissions from certain large industrial processes, known as Part A processes. Emissions from these processes can increase ground level pollution concentrations in the surrounding area.

4.62 A representative from the Environment Agency attends the MAPAC air quality group in order to co-ordinate their work with that of the Greater Manchester authorities.

4.63 Across Greater Manchester as a whole, industrial sources are a much less significant source of pollution than road traffic. Where the source apportionment work, summarised in Chapter 2, shows a process regulated by the Environment Agency is contributing significantly to exceedances of the air quality objective the local authority in which the AQMA is located will identify the process and notify the Environment Agency.

4.64 The Environment Agency have stated that: - *' In those AQMAs in which Agency – regulated operations make a significant contribution to the exceedance of an objective the Agency will review and where appropriate amend operating conditions and BAT(NEEC)[2] for the processes making a significant contribution to the AQMA.'*

4.65 The Greater Manchester Authorities will also work with the Environment Agency to ensure that any new processes or changes to an existing process do not impact on air quality in the surrounding area.

Manchester Airport

[2] Best Available Techniques Not Entailing Excessive Cost

4.66 Manchester Airport is located in South Manchester, just off the M56 motorway. An AMA does not cover the Airport site. Passenger numbers and development in the area are expected to increase over the foreseeable future and a series of strategies are in place to ensure sustainable growth up to 2030 and beyond. These documents are the Development Strategy, the Environment Strategy and the Ground Transport Strategy.

4.67 The Ground Transport Strategy for Manchester Airport was published in 1997 and 2003 was updated. Revised targets project a 40% public transport share when the Airport reaches 40 million passengers. The objective of the strategy is to deliver a truly inter-modal airport with public transport at the heart of access to the site and its facilities. A new Ground Transport Interchange is due to open in 2003 linking rail, coach, local bus, cycle and eventually Metrolink with enhanced passenger information and retail and catering facilities.

4.68 Manchester Airport's first air quality policies were produced some 12 years ago. Manchester Airport continues to develop air quality policies and plans within the broader aims of assessing the Airport's contribution to local air quality, operating an emissions reduction programme and reporting on performance. The Airport's air quality policies and plans have been developed in co-operation with the Manchester Airport Environmental Health Officer Consultation Group. This Group comprises the Airport and representatives of the local authorities in Greater Manchester and Cheshire close to the Airport. The Group meets regularly to discuss and carry out joint work on air quality issues such as monitoring, assessment and action planning focused on the Airport region.

4.69 Atmospheric emissions associated with airport activities do not just arise from aircraft. Other sources of emissions include maintenance, fuelling, operational vehicles, power generation and vehicles accessing the site. Some of the measures included in the Airport's Emissions Reduction Programme are:

- The increased use of fixed electrical ground power (mains electricity supply) to power an aircraft's electrical systems whilst parked, thereby reducing the use of a jet aircraft's auxiliary power unit or mobile diesel generator and the resultant emissions;
- Airfield vehicles are required to meet MOT type emission standards and spot check vehicle emissions' testing is undertaken. In addition, the Airfield Infringement Scheme enables fines to be levied for vehicle engines left running whilst unattended and repeat offenders are banned;
- Policies on the purchase of a 'green' vehicle fleet have resulted in new, low emission airside buses and the trialling of alternative fuel such as liquefied petroleum gas; and
- The Ground Transport Strategy for Manchester Airport was published in 1997. Its objective is to deliver a truly inter-modal airport, with public transport at the heart of access to the site and its facilities. A target has been set to increase public transport use by passengers and staff to 25% by 2005.

Highways Agency

4.70 Traffic on the motorway and trunk road network is the responsibility of the Highways Agency. The map shown in Figure 2.2 clearly shows that most of the motorway network in Greater Manchester are included within AQMAs. There are a large number of homes and other sensitive properties very close to the motorways and trunk roads throughout the area.

4.71 The Greater Manchester authorities are working with the Highways Agency to address air pollution in the area. This includes developing an air quality monitoring strategy around the motorway. AGMA is also working to encourage the Highways Agency to carry out studies that identify schemes, including speed limit reduction, which may reduce air pollution.

Heavy Goods Vehicles

4.72 Heavy Goods Vehicles have been identified as the sector which contributes the most to pollution in the Greater Manchester area. The Greater Manchester authorities are trying to reduce the impact that HGV emissions have on pollution concentrations in the area, particularly through the Freight Quality Partnership. However the problem of HGV emissions is not confined to the Greater Manchester area, particularly since many HGVs may start or end their journey outside of the conurbation. The Greater Manchester authorities believe that HGV emissions are a national problem as well as a local concern and would like the Government to do more to encourage fleet operators to ensure that HGV emissions are reduced as far as possible

Action Plan Table

4.73 The Action Plan table describes the actions the Greater Manchester authorities and the Greater Manchester Passenger Transport Authority/Executive intend to take to improve air quality in the area. A detailed description of each of the actions in the table is given in Appendix A11, which also considers non - air quality impacts, funding and potential air quality improvement of the schemes across Greater Manchester.

4.74 Many possible actions to improve air quality were identified during the consultation process outlined in Chapter 3. Most of these have been included in the Action Plan, however there were a small number that have not been included in the Plan. These are listed in Appendix A11, with a brief explanation as to why they have not been included.

Table 4.1 – Proposed Actions

Proposed Actions	Air Quality Improvement High/Med/ Low	Responsibility	Local/ Area-wide
Vehicle Emissions			
AP1 Apply for grant funding to resource a roadside emissions testing scheme to operate throughout the area.	Medium	AGMA	Area-wide
AP2 Work with bus operators to reduce bus emissions. This will include grant-aid for low-pollution technology and changes to conditions for services that GMPTE procures.	Medium (locally) Low (overall)	GMPTE	Area-wide
AP3 Identify potential funding sources and seek funding to carry out a study to assess the feasibility of Low Emissions Zones in the Greater Manchester area.	Medium-High (if implemented)	AGMA (MAPAC)	Area-wide / Local
AP4 Review the regulation of private hire and hackney emissions and ensure it is fully integrated into the taxi-licensing regime.	Low	Individual LAs, Greater Manchester Licensing Managers Group	Local
AP5 Encourage shift to the use of rail transport for freight by:- • Highlighting the need for freight capacity improvements to the rail network • Tackling congestion at access points to existing intermodal terminals • Encouraging Development Plans/ Local Development Briefs to protect suitable intermodal sites and to retain private siding facilities wherever possible when sites are redeveloped.	Low/Med	Freight Quality Partnership	Area-wide

Proposed Actions	Air Quality Improvement High/Med/ Low	Responsibility	Local/ Area-wide
AP6 Promote reduced emissions from Goods Vehicles by: • Promoting the take up of grant funding for retro fitting of emissions reduction technology or switching to less polluting fuels such as LPG. • Encourage operators to speed up adoption of improved lower emission vehicle specification • Promoting sustainable transport by encouraging measures such as driver training, vehicle tuning and journey planning. • Produce an Air Quality Best Practice Guide for circulation amongst HGV and fleet operators.	Med	Greater Manchester Freight Quality Partnership, MAPAC	Area-wide
AP7 Examine the feasibility of night-time deliveries by investigating the relaxation of delivery curfews relating to existing or proposed commercial premises ensuring that there is a full consideration of potential noise/nuisance impact.	Low	Freight Quality Partnership	Area-wide
AP8 Promote reduced emissions resulting from home deliveries by: • Encouraging retailers to collect ordered goods at local stores rather than using more remote distribution centres wherever possible • Encouraging the use of light goods vehicles powered by low emission fuels such as LPG.	Low	Freight Quality Partnership	Area-wide
AP9 Examine the potential effect on air quality, the feasibility and acceptability of city-transshipment schemes which encourage the change from heavy to light goods vehicles in town centres.	Low/Med	Freight Quality Partnership	Area-wide

Proposed Actions	**Air Quality Improvement** **High/Med/ Low**	**Responsibility**	**Local/ Area-wide**
AP10 Identify and address key environmental impact points for freight on the road and rail network. .	Low	Freight Quality Partnership	Local
Alternative Modes of Transport			
AP11 Increase the capacity of Metrolink Phase 1 and continue to extend the existing Metrolink network to include: • Oldham and Rochdale • East Manchester and Ashton-under-Lyne • South Manchester and Manchester Airport • Trafford Park and the Trafford Centre • Lowry Spur • East Didsbury and Stockport.	Medium	GMPTE	Area-wide
AP12 Aim to ensure that public transport is co-ordinated, accessible and effectively integrated with other means of transport.	Low	GMPTE	Area-wide
AP13 Improve the safety and security of the public transport network.	Low	GMPTE in liaison with individual LAs	Area-wide
AP14 Continue with the programme of upgrading to provide real time information on the public transport network.	Low	GMPTE	Area-wide

Proposed Actions	Air Quality Improvement High/Med/ Low	Responsibility	Local/ Area-wide
AP15 Continue to implement Quality Bus Corridors as outlined in the Greater Manchester Local Transport Plan.	Low	GMPTE in partnership with LAs	Area-wide
AP16 Investigate the feasibility of and implement public transport that produces no pollution at street level.	Low	Individual LAs GMPTE	Area-wide
AP17 Set up Bus Quality Agreements that include challenging air quality standards.	Low	Individual LAs, GMPTE, Bus Operators	Area-wide
AP18 Implement new "Park and Ride" schemes wherever feasible and appropriate.	Low	GMPTE in liaison with individual LAs	Area-wide
AP19 Promote cycling and walking.	Low	Individual LAs	Local
Travel Plans			
AP20 Promote the development and implementation of Travel Plans among the companies and organisations in the area. Travel Plans will be aimed at reducing emissions from work activities as well as journeys to and from workplaces.	Low	Individual LAs	Local
AP21 Promote the development of School Travel Plans.	Low	Individual LAs	Local

Proposed Actions	Air Quality Improvement High/Med/ Low	Responsibility	Local/ Area-wide
AP22 Seek the support and guidance of central Government in relation to the promotion and implementation of Sustainable Distribution Plans amongst commercial operations and other agencies in the region.	Low	Individual LAs /Freight Quality Partnership	Local
Traffic Management			
AP23 Investigate the potential to create more pedestrianised areas within Greater Manchester.	High (locally) Low (overall)	Individual LAs	Local
AP24 Encourage the Highways Agency to identify schemes on motorways and trunk roads where speed control could improve air quality.	Medium	Individual LAs/ Highways Agency	Local
AP25 Continue to identify and secure funding to implement public transport priority schemes and assess their effect on air quality.	Low-Medium	GMPTE/ Individual LAs	Area-wide / Local
AP26 Use traffic control systems to reduce congestion and minimise pollution.	Low	All LAs, GMUTC	Area-wide
AP27 Investigate potential schemes to create "Home Zones" and implement where appropriate.	Low	Individual LAs	Local
AP28 Assess the air quality impact of all proposed bypasses and new roads.	Low	Individual LAs	Local
AP29 Investigate the feasibility of implementing high occupancy vehicle lanes / zones.	Low	GMPTE / Individual LAs	Local

Proposed Actions	Air Quality Improvement High/Med/ Low	Responsibility	Local/ Area-wide
AP30 Explore the contribution that road user and workplace parking charging might make to the improvement of air quality. Any consideration of any such charging schemes will take place in accordance with the following conditions • Full consultation with residents, businesses and other stakeholders will be carried out. • New high quality alternatives such as Metrolink and Quality Bus Corridors Must be significantly advanced before charges can be introduced. • A regional approach to charging must be taken to ensure that it does not harm overall competitiveness and areas introducing charges are not disadvantaged.	Low-Medium	All LAs, GMPTE	Area-wide
Buildings and Land Use Planning			
AP31 Develop Greater Manchester wide guidance for developers submitting planning applications, on air quality information to be provided on submission.	Medium	MAPAC / POG	Area-wide
AP32 Develop a checklist of mitigating measures. which could be included in section 106 agreements.	Medium	MAPAC / POG	Area-wide
Industrial Emissions			
AP33 Enforce The Pollution Prevention and Control (England and Wales) Regulations 2000.	Medium	Individual LAs, EA	Area-wide / Local

Proposed Actions	Air Quality Improvement High/Med/ Low	Responsibility	Local/ Area-wide
Domestic Emissions			
AP34 Continue to enforce Smoke Control Zones.	Low	Individual LAs	Local
AP35 Promote improved energy efficiency in domestic properties.	Low	Individual LAs and partner organisations	Local
AP36 Promote energy efficiency in industrial and commercial premises.	Low	Individual LAs	Local
Raising Awareness			
AP37 Publish more local air quality monitoring data.	Low	AGMA Individual LAs	Area-wide /Local
AP38 Continue to raise awareness of air quality issues with local authorities, AGMA and GMPTA/E.	Low	MAPAC / Individual LAs	Area-wide /Local
AP39 Improve links with health professionals.	Low	MAPAC	Area-wide
AP40 Raise awareness of the pollution and health effects of bonfires.	Low	Individual LAs / MAPAC	Local
AP41 Support promotional campaigns such as 'Don't Choke Britain' and 'European Car Free Day'.	Low	Individual LAs and GMPTE	Local
AP42 Promote actions to improve air quality using a variety of promotional methods including: - leaflets, displays, seminars, press releases, emission testing and supporting national and local campaigns.	Low	MAPAC, Individual LAs	Area-wide /Local

Chapter 5
Monitoring and evaluation

Introduction

5.1 The primary objective of this Action Plan is to improve air quality to Government standards by 2005. Changes in air quality across Greater Manchester will be monitored directly, as detailed below. Progress in implementing the Action Plan will also be assessed by reviewing the extent to which planned actions have been carried out, and by defining and then reviewing the achievement of related targets and indicators for each of these actions.

5.2 Existing data sources, and targets and indicators which local authorities and other organisations are already working to, have been identified for the three main sources of pollutants: road traffic; industry; and domestic sources. Such indicators are also complementary to the process of measuring the Action Plan. By making use of existing data in this way, the additional cost of monitoring the implementation of the Action Plan measures is kept to a minimum. The key monitoring and evaluation tools the Greater Manchester authorities will use to assess the Action Plan are set out in Table 5.1, below.

Table 5.1: Summary of the key monitoring and evaluation tools used to assess the action plan

Monitoring and evaluation method	**Description**
Monitoring pollution concentrations	The continuing programme of monitoring pollution concentrations, in locations throughout the area, will enable the Greater Manchester authorities to: • Measure trends in pollution concentrations and assess whether air quality is improving ; and • Ultimately determine if the air quality objectives are being met in the measurement locations. The air pollution monitoring data will be the real test of the effectiveness of Action Plan in reducing pollution concentrations.
Use of EMIGMA (Emissions Inventory for Greater Manchester and Warrington)	The Emissions inventory aims to identify and quantify significant sources of emissions to the atmosphere from across the area. It is updated annually and can therefore be used as a tool to help determine trends in pollution emissions from different sectors (e.g. road traffic, industry, domestic).
Air Quality Review and Assessment and Air Quality Modelling	Local authorities are expected to carry out a further Review and Assessment of air quality during 2003/04. This will include computer modelling of pollution concentrations using the most up-to-date information available. The results of the Review and Assessment will be used to help assess progress in meeting the air quality objectives.
The use of existing data sources, targets and indicators	Local authorities already have a number of targets and indicators in place, which relate to many of the actions contained in this Plan. This data will be collated and used to measure progress in implementing the Plan.
Annual Progress Report	An Annual Progress report will be published which will describe progress in implementing all the action points set out in Chapter 4. Each Local authority will be expected to report on the progress they have made in implementing the specific actions they have included in their Local Annexes.

Air quality review and assessment

5.3 The Greater Manchester Authorities have already completed a detailed review and assessment of air quality in their areas which has shown that the Government's targets for nitrogen dioxide and particulate matter will not be met in some parts of the Conurbation by the Government's target dates. The targets for these two pollutants are set out in Table 5.2 below.

Table 5.2: National air pollutant targets

	Objective		
Pollutant	Concentration	Measured as	To be achieved by
Particulate matter (PM_{10})	50 µg/m$^{3\#}$ not to be exceeded more than 35 times a year	24 hour mean	31 December 2004
	40 µg/m$^{3\#}$	Annual mean	
Nitrogen dioxide	200 µg/m$^{3\#}$ not to be exceeded more than 18 times a year	1 hour mean	31 December 2005
	40 µg/m$^{3\#}$	Annual mean	

$^{\#}$ µg/m^3 - micrograms (of pollutant) per cubic metre of air

5.4 Progress in meeting these air quality objectives will be monitored through a further review and assessment of air quality required by Regions April 2004.

Air quality monitoring in Greater Manchester

5.5 Air quality in Greater Manchester has been monitored routinely since the early 1960s, following the introduction of the Clean Air Acts. Smoke and sulphur dioxide were the pollutants of concern at that time and the main indicators of air quality. Daily monitoring recorded initial dramatic reductions in airborne concentrations, followed by continuing downward trends over the last three decades.

5.6 Today, the pollutants of most concern are nitrogen dioxide and particulate matter (PM_{10}). By measuring the concentrations of these two pollutants over the coming years we will be able to determine if the Air Quality Action Plan is having the desired effect upon air quality.

Current air quality monitoring

5.7 Air quality monitoring across the region can be split into two distinct categories, automatic and non-automatic monitoring.

5.8 Automatic monitoring involves the use of expensive and sophisticated equipment capable of giving almost real-time concentrations of pollutants. The monitoring instrument runs continuously, recording concentrations of the pollutant it is measuring and storing these results in its memory. These results can then be accessed and processed to give a time-series of pollutant concentrations throughout the day.

5.9 Currently, nine of the ten Greater Manchester Authorities possess at least one of these real-time monitoring stations, with a total of 13 stations across Greater Manchester. The majority of these are equipped to monitor for oxides of nitrogen and particulate matter (PM_{10}), with other monitored pollutants including sulphur dioxide, carbon monoxide and ozone.

5.10 Non-automatic monitoring involves the use of less sophisticated methods. These methods cannot produce the instantaneous results of real-time monitoring but are capable of characterising a range of different sites (e.g. roadside, town centre, urban background) and provide a picture of the spatial distribution of the pollutants across the Greater Manchester area.

5.11 The largest of the non-automatic monitoring networks is the Nitrogen Dioxide Passive Diffusion Tube Survey. All ten of the Greater Manchester Authorities participate in the survey, with a total of over one hundred and sixty sites currently in operation across the region.

Quality Assurance and Quality Control

5.12 To ensure that all the results from our monitoring networks are reliable, a strict Quality Assurance/Quality Control (QA/QC) regime is administered.

5.13 For the real-time monitoring, only data collected from those stations which are part of the Government's Automatic Urban and Rural Network (AURN) or which belong to the National Environmental Technology Centre's (NETCEN) Calibration Club will be considered robust enough to be used to assess the effectiveness of the Action Plan. All 13 of Greater Manchester's real-time monitoring sites referred to above are part of the Government's AURN or meet NETCEN's Calibration Club criteria.

5.14 Both these schemes employ very rigorous QA/QC regimes. Data is polled several times a day from these stations and must meet stringent requirements before it is accepted as being accurate. In addition to this, the site and the monitoring equipment undergo regular audits and scheduled services to ensure there are no problems with either the site or the data collected from it.

5.15 Data collected from the nitrogen dioxide passive diffusion tube survey also undergoes strict QA/QC analysis. Procedures regarding the selection of sites, transport of the tubes to and from sites and the storage of the tubes prior to analysis are covered in national guidance issued by NETCEN on behalf of the Government.

5.16 The tubes are analysed by specialist laboratories with all the Greater Manchester Authorities using the same laboratory. Their performance is assessed on a regular basis by NETCEN, using two different criteria. Results from these audits are published annually, with laboratories that are failing audits forced to take action to upgrade their performance to retain their accreditation on the scheme. In the last round of audits, the analyst used by the Greater Manchester Authorities performed satisfactorily.

Reporting the results

5.17 Local authorities who have their real-time monitoring stations affiliated to the AURN automatically have their results reported on the Department of the Environment Food and Rural Affairs (DEFRA) website (http://www.defra.gov.uk). The web-site updates concentrations every few hours and also contains historical data for the sites.

5.18 The website also contains results from many of the non-automatic networks, including lead, smoke and sulphur dioxide, nitrogen dioxide and acid rain.

5.19 Many local authorities publish the results from their own real-time and non-automatic monitoring sites on their own websites or as annual monitoring reports. Local information can be obtained from the relevant local Environmental Health Service.

5.20 In the near future the results from both the real-time monitoring stations and the nitrogen dioxide diffusion tube survey in the Greater Manchester area will be displayed on the Manchester Area Pollution Advisory Council (MAPAC) website (http://www.mapac.org.uk).

Quality of Life Indicator – Air Quality

5.21 Where monitoring data is available the Greater Manchester Authorities will report the number of days each year where air pollution is moderate or higher, using the Government's thresholds which are available from http//:www.airquality.co.uk. This will allow trends in air quality concentrations to be identified.

Air pollution emissions: EMIGMA (Emissions Inventory for Greater Manchester and Warrington)

5.22 Trends in pollution emissions will also be monitored through the Greater Manchester and Warrington emissions inventory (EMIGMA). EMIGMA is an inventory which aims to identify and quantify significant sources of emissions to the atmosphere. It is updated annually by ***aric*** on behalf of the 10 Greater Manchester Authorities and Warrington. Information on road traffic flows, industrial and domestic emissions, as well as other sources such as the Airport are included in EMIGMA. The data has been collected since 1997 and is used to quantify the major sources of emissions to air. The database has been upgraded and improved as part of the annual update, and it is now becoming possible to identify trends in pollution emissions for particular sectors and emissions sources.

Monitoring road traffic targets and indicators

5.23 It is predicted that road traffic in Greater Manchester will release 42% of the total emissions of particulate matter in 2004 and 53% of total oxides of nitrogen emissions in 2005. Goods vehicles, in particular, are a major contributor. Measures to reduce emissions from vehicles include:

- Reducing and controlling traffic;
- Providing improved public transport to encourage its use;
- Promoting walking and cycling; and
- Encouraging cleaner vehicles and fuels.

Road Traffic Reduction Act 1997

5.24 The Road Traffic Reduction Act 1997 required local authorities to assess levels of local road traffic and to consider setting targets to either reduce traffic levels or reduce the rate of traffic growth.

5.25 Greater Manchester has set targets for 2006 and 2011 that are intended to reflect investment being made in public transport, and walking and cycling facilities, through the Greater Manchester Local Transport Plan.

5.26 Targets have been set for daily car traffic, rather than traffic in general. Targets have also been set for car traffic in the morning rush hour, as this is when congestion, exhaust emissions and delays are at their highest.

5.27 These daily and morning peak hour targets have been set for three different types of area:

- All A and B roads in Greater Manchester combined;
- Manchester City Centre; and
- The other nine key town centres in Greater Manchester combined.

Table 5.3 sets out Greater Manchester's Road Traffic Reduction Targets.

Table 5.3 Road Traffic Reduction Targets for Greater Manchester

	Targets for car traffic			
	AM Peak hour		**Daily**	
Area	**2006**	**2011**	**2006**	**2011**
All A and B roads in Greater Manchester combined	No increase on 1996 levels	2% reduction on 1996 levels	Limit growth to 8% increase on 1996 levels	Limit growth to 10% increase on 1996 levels
Manchester City Centre	No increase on 1996 levels	5% reduction on 1996 levels	Limit growth to 3% increase on 1996 levels	Limit growth to 5% increase on 1996 levels
Other key town centres in Greater Manchester combined	No increase on 1996 levels	3% reduction on 1996 levels	Limit growth to 4% increase on 1996 levels	Limit growth to 6% increase on 1996 levels

5.28 Although the daily targets suggest that car traffic flows will continue to rise, they represent a reduction in the rate at which car traffic would be expected to grow were the investment in alternative modes, such as public transport, walking and cycling, set out in the Greater Manchester Local Transport Plan (GMLTP), not to take place.

5.29 Progress in achieving these targets is assessed annually as part of the Local Transport Plan process.

Greater Manchester Local Transport Plan (GMLTP)

5.30 The Greater Manchester Local Transport Plan contains measures to reduce the impact of motorised traffic and encourage more trips to be made by more environmentally friendly, less polluting modes. These include walking, cycling and public transport and as such they are also included in this Action Plan. A number of targets have been set within the LTP which will also indicate progress in implementing this Action Plan, including:

- Increasing the modal share of trips into the Regional Centre (Manchester City Centre) and the other nine key town centres in Greater Manchester;
- Increasing bus, rail and Metrolink patronage;
- Increasing cycle flows;
- Increasing rates of walking; and
- The take-up rate of travel plans.

5.31 Table 5.4 sets out the relevant LTP targets and indicators. As with the Road Traffic Reduction Targets, progress in achieving the GMLTP targets in table 5.4 is monitored annually.

Bus emissions

5.32 It is predicted that in Greater Manchester, buses will release 1% of the total emissions of particulate matter in 2004 and 3% of total nitrogen oxide emissions in 2005. As part of its Environmental Policy, GMPTE is carrying out a number of initiatives to reduce emissions from the existing public transport fleet, including providing grant aid to operators to fit clean vehicle technology. Around 1800 vehicles are in regular use on Greater Manchester's bus network, and GMPTE is aiming to ensure that half of these are fitted with particulate traps within three years i.e. by 1st April 2005. This target is included in the Greater Manchester Bus Strategy, and progress towards it will be monitored annually.

Heavy goods vehicles

5.33 Heavy goods vehicles are a major source of air pollution in Greater Manchester. It is predicted that they would account for 38% of total emissions of nitrogen oxides released in 2005 and 30% of total emissions of particulates released in 2004.

5.34 A freight strategy is being developed for Greater Manchester as part of the Local Transport Plan by the Greater Manchester Freight Quality Partnership. This strategy will consider the environmental impact of commercial vehicles, including that on air quality, and will include a monitoring regime. Suitable indicators are currently being developed, a number of which may help to monitor progress in implementing the goods vehicle measures included in the Air Quality Action Plan, such as;

- Annual goods vehicle kilometres on Greater Manchester's motorways, A roads and B roads;
- The number of goods vehicles entering Greater Manchester's town and city centres;
- The average age of the goods vehicle fleet in Greater Manchester; and
- The number of goods vehicle emission checks and failures in Greater Manchester.

5.35 As freight targets and indicators are adopted as part of the LTP, those relevant to air quality will also be included in the Air Quality Action Plan monitoring regime. The GMLTP freight strategy is due to be completed in Summer 2003.

Table 5.4: GMLTP targets and indicators

Indicator	**Indicator description**	**Baseline against which target has been set**	**Target**
Trips into key centres (LTP Headline Indicator (HI) GM1)	Modal split of car and public transport trips into Manchester City Centre and the other 9 key town centres in Greater Manchester between 7.30am and 9.30am.	Modal split to Manchester City Centre 1997: Cars 48% Public transport 52% Modal split to other 9 key town centres 1997: Cars 65% Public transport 35% All 10 key centres were surveyed in 1997 to provide baseline data. They are resurveyed to provide data for each key centre on a 3-yearly cycle	Modal split to Manchester City Centre by 2005/06: Cars 44% Public Transport 56% Modal split to other 9 key town centres by 2005/06: Cars 61% Public transport 39%
Public transport patronage (HI GM 2)	Number of passenger journeys / year on bus, rail and Metrolink Passenger km/year on bus, rail and Metrolink	<u>Bus</u> 223 million journeys (1998/99) 1024 million pass/km (1998/99) <u>Rail</u> 12 million journeys (1998/99) 92 million pass/km (1998/99) <u>Metrolink</u> 13.1 million journeys (1998/99) 115.9 million pass/km (1998/99)	3% increase in bus journeys by 2011, on 1998/99 base 58% increase in rail journeys by 2011, on 1998/99 base 221% increase in Metrolink journeys by 2011, on 1998/99 base
Cycle flows (HI GM4)	Average cycle flows at manual and automatic counting sites	Index of 100 in 1996 and 93 in 2000	200% increase in flows between 2002 and 2010; 30% increase in flows between 2002 and 2005
Walk journeys (HI GM5)	Individual walk journeys by distance travelled / year	Index of 100 in 1991	Maintain 1996/8 levels of walking journeys by 2003/5 Increase walking levels to 1989/91 level by 2012
Travel Plans (HI GM9)	Number of organisations operating workplace travel plans throughout Greater Manchester	40 organisations operating workplace travel plans at end of March 2002	120 organisations operating workplace travel plans at end of March 2006

Monitoring industrial emissions

5.36 Industrial processes are predicted to be responsible for 41% of the total particulate emissions in Greater Manchester in 2004, and 17% of predicted nitrogen oxides in 2005. Changes in the emissions from industrial sources will be monitored through the emissions inventory, which includes data on industrial processes authorised by both the Environment Agency and local councils.

Industrial processes authorised by the Environment Agency

5.37 The Environment Agency collects annual returns from the industrial processes it authorises. The returns include annual emissions to the atmosphere from these processes. Information collected by the Environment Agency is published on their website (http://www.environment-agency.org.uk).

Industrial processes authorised by local councils

5.38 Local councils are required to submit annual returns to DEFRA detailing the number of inspection visits made to authorised industrial processes (Part A2 and B processes) in their area to ensure compliance with the relevant emissions standards. The MAPAC Environmental Protection Act working group collects this information for the Greater Manchester Authorities.

Monitoring domestic emissions

5.39 In Greater Manchester, it is predicted that domestic sources would account for 5% of total emissions of particulate matter (in 2004) and11% of total nitrogen oxide emissions (in 2005), resulting primarily from the burning of fuel to heat space and water. Increasing the energy efficiency of domestic properties can lead to a reduction in the amount of fuel burned for space and water heating. This can lead to reductions in nitrogen dioxide and particulate matter, as well as the climate change gas, carbon dioxide.

5.40 The Home Energy Conservation Act 1995 and the Best Value regime provide an important source of monitoring data relating to energy efficiency and conservation in domestic properties.

Home Energy Conservation Act 1995

5.41 The Home Energy Conservation Act 1995 (HECA) required all local authorities with housing responsibilities to prepare, publish and submit to the Secretary of State an energy conservation report identifying energy conservation measures which would result in a significant improvement in the energy efficiency of all residential accommodation in its area. The Act covers all residential accommodation across all ownership and tenure.

5.42 HECA progress reports on the implementation of the measures identified must be produced annually by local authorities. The report must include an assessment of the extent to which emissions of carbon dioxide are being reduced as a result of the measures. It can also include an assessment of the extent to which emissions of oxides of nitrogen and sulphur dioxide are being reduced, should an authority wish to provide this information.

5.43 The Act does not require local authorities to implement all the measures it identifies, some of which will be outside its control. In some cases, the local authority's role is to encourage others to undertake the work. To help local authorities implement their HECA strategies, the Government has set up a national network of Energy Efficiency Advice Centres and makes grants available for energy efficiency measures in the home through the Warm Front grant scheme. Local authorities, however, are responsible for reporting the uptake of the Warm Front grant scheme in their area as part of their HECA reports.

5.44 The following information collected as part of local authorities' HECA reports will be monitored to assess the extent to which domestic emissions may be falling as a result of local authority activities to improve home energy conservation:

- Take-up of the Warm Front grant initiative; and
- Percentage improvement in energy efficiency and reduction in carbon dioxide emissions for each of the following housing sectors;
    - Owner occupied
    - Local authority
    - Private rented
    - Housing association
    - All housing types combined.

5.45 The above data will also be used to estimate reductions in annual nitrogen dioxide emissions in the EMIGMA database.

Energy Efficiency Best Value Performance Indicators

5.46 The Audit Commission has set Best Value Performance Indicators (BVPIs) for local authorities that allow local authority performance to be monitored. There are two BVPIs that can be used to give an indication of possible changes in air quality emissions from domestic properties as a result of changes in energy efficiency. These are:

- BVPI 63 Energy efficiency – the average SAP* rating of local authority owned dwellings; and

- BVPI 70 Energy efficiency – the average annual change in the SAP rating of local authority owned dwellings.

5.47 All local authorities set annual performance targets for BVPIs and report their progress in achieving these in annual Best Value Performance Plans. As part of the monitoring of this Action Plan, local authorities' progress in achieving their BVPI energy efficiency targets will be monitored.

Monitoring and reviewing the Action Plan

5.48 In addition to carrying out a further review and assessment of air quality at the end of 2003, progress made in implementing the measures identified in Chapter 4 of this Action Plan and in the district annexes, and in working towards the targets and indicators described above, will also be reviewed by April 2004.

* Note: SAP (Standard Assessment Procedure) is a measure of the energy efficiency of a property

Glossary and terms

AGMA	Association of Greater Manchester Authorities
APR	Annual Progress Report
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
ARIC	Atmospheric Research and Information Centre
AURN	Automatic Urban and Rural Network
BVPI	Best Value Performance Indicators
CEHO	Chief Environmental Health Officer
CNG	Compressed Natural Gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CZ	Clear Zone
DEFRA	Department of Environment, Food and Rural Affairs
DETR	Department of Environment, Transport and the Regions
DPE	Decriminalised Parking Enforcement
DTLR	Department of Transport, Local Government and the Regions
EA	Environment Agency
EMAS	Environmental Management System
EPAQS	Expert Panel on Air Quality Standards
ERDF	European Regional Development Fund
GMADE	Greater Manchester Association of District Engineers
GMLTP	Greater Manchester Local Transport Plan
GMPOG	Greater Manchester Planning Officers Group
GMPTA	Greater Manchester Passenger Transport Authority
GMPTE	Greater Manchester Passenger Transport Executive
GMTU	Greater Manchester Transportation Unit
GMUTC	Greater Manchester Urban Traffic Control
GONW	Government Office for the North West
HIA	Health Impact Assessment
HC	Hydrocarbons
LEZ	Low Emission Zone
LPG	Liquified Petroleum Gas
LTA	Local Transport Authority
LTP	Local Transport Plan
M60 JETTS	M60 Junctions Eighteen to Twelve (multi-modal) Study
MAPAC	Manchester Area Pollution Advisory Council
MidMan	Midlands to Manchester (multi-modal study)
MMS	Multi-Modal Study
NDC	New Deal for Communities
NEM	New East Manchester
NO	Oxides of nitrogen
NO_2	Nitrogen dioxide
NRA	Neighbourhood Renewal Area
NSCA	National Society for Clean Air
NWDA	North West Development Agency
NWRA	North West Regional Assembly
PM_{10}	Particulate matter
PPG13	Planning Policy Guidance Note 13
PSA	Public Service Agreement
QBC	Quality Bus Corridor

RDA	Regional Development Agency
RPG	Regional Planning Guidance
RTS	Regional Transport Strategy
SAP	Standard Assessment Procedure
SCA	Supplementary Credit Approval
SCP	Single Capital Pot
SEMMMS	South East Manchester Multi-Modal Study
SO_2	Sulphur dioxide
SPITS	South Pennines Integrated Transport Strategy
SRB	Single Regeneration Budget
TIF	Transport Infrastructure Fund
TRO	Traffic Regulation Order
UDP	Unitary Development Plan
UTC	Urban Traffic Control

Air Quality Management Area: An area designated by a Local Authority where the Government' s air quality objectives for certain pollutants are not expected to be met by 2005.

Air Quality Action Plan: The agreed measures by which Local Authorities will address the predicted levels of pollution identified in an AQMA.

Area-wide: Applying to the Greater Manchester area.

Local: Applying to one or more individual Greater Manchester local authority areas.