

Annual Environmental Authority Report – April 2010 to March 2011

Merseyside Fire and Rescue Service

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Foreword

I am pleased to be able to present this our third annual environmental report, which comes at a time when there is an increasing recognition that good environmental performance makes good business sense. This is at a time where the consequences of not acting is well understood in terms of Climate Change impacts like flooding and extreme weather events, which not only threaten to bring challenges the operational role, but threaten the resilience of the Fire Service, the Community and Local Authorities, as well as challenges to the UK economy and infrastructure.

Outlined within the report is our progress as it relates to Transport, Waste, Water, Energy, Recycling and Emissions over the last twelve months along with an insight into our future objectives. We are proud to be making continual environmental improvements, which is a fundamental requirement of an Environmental Management System, which sits well with our own approach to delivering an ‘excellent’ service.

Our commitment to sustainability was endorsed by the Fire Authority in the late 1990’s with the production of our first policy document, having been born from initiatives such as Local Agenda 21 and the Kyoto Protocol. This has since been reinforced over subsequent years with us achieving certification of our Environmental Management System to the international standard ISO 14001:2004.

The time is now right to also include some of the valuable and innovative work being done with both new equipment, and in forming community partnerships, to not only reduce the incidence of fires, death, and injury, but also reduce damage to the environment.

Over the next year, we are investing heavily in replacing old, inefficient building stock with new, state of the art Fire Stations, incorporating features innovative to Fire Services including Air Source Heat Pumps, rainwater harvesting and solar panels. Seven of the new stations are being funded through PFI partnerships, whilst the most exciting project – Toxteth FireFit Hub (a sports centre combined with active Fire Station to facilitate community cohesion) is even being looked at for the feasibility of a biomass district heating scheme.

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It was particularly pleasing that our efforts have been recognised by external awards across many topics, including Green Travel, Behaviour Change, Carbon emission reduction and innovation.

I hope that you find the report both interesting and informative and clearly demonstrative of our organisational commitment to sustainability, continual improvement and reporting publicly on what we've done.

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Kieran Timmins (Assistant Chief Executive and Treasurer) and Authority Champion for the Environment

Introduction

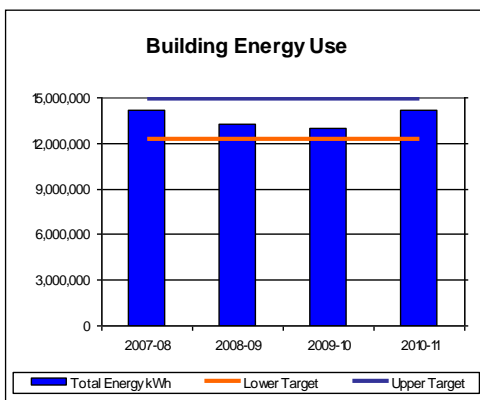
Merseyside Fire and Rescue Service was the first Fire Service to develop a formal Environmental Management System, receiving accreditation to the international standard ISO14001 in October 2004.

Merseyside Fire Authority remains committed to the environmental agenda and has committed MFRS to the Environmental Policies that have been put in place since 2003.

MFRS signed up to the Nottingham Declaration on Climate Change in 2008 and entered a partnership with The Carbon Trust, which resulted in the approval of a Carbon Management Plan, committing The Authority to an ambitious 30% reduction in Carbon Emissions from a 2007/08 baseline to 2013.

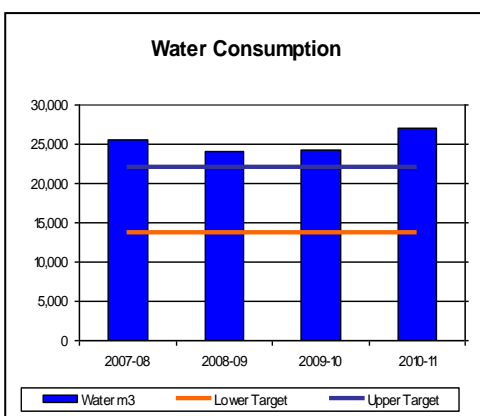
Such organisational commitment has driven impact reducing and cost saving work including High efficiency boilers, Building Management Systems, Cycle to Work Schemes, Environmental Champions (all sites), Pollution Prevention, Waste Minimisation, Water Efficiency, Hazardous Waste Management and partnerships with Northwest and UK Fire Services, Local Authorities and Public Sector Organisations.

Environmental Performance (Utilities and Carbon Reduction)



Building Energy

- Energy use within Carbon Trust Building Energy benchmarks.
- Positive steady downward trend in annual usage during 5 year Carbon Management Plan.
- Slight increase in Energy use 2010/11 due to excessively cold and prolonged winter.
- Replacement of worst performing buildings is currently taking place via PFI rebuilds.



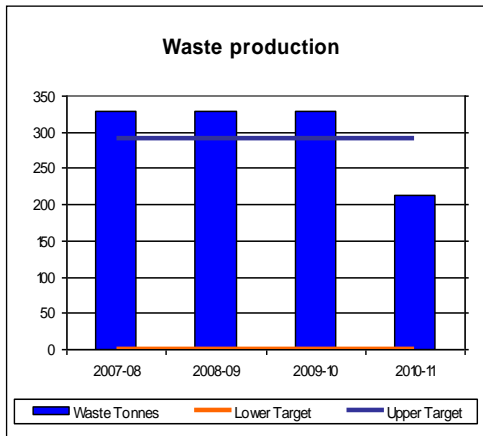
Water Consumption

- Water use exceeds Environment Agency benchmarks (Fire Stations - 15m³/person/yr)
- Worst performing buildings are again those Stations, currently being replaced through the PFI Project.

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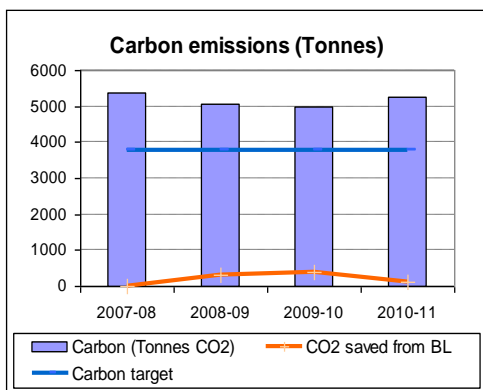
- Excellent performance observed at HQ of 4m³/person/yr (benchmark 6.4m³/person/yr).

Production of Waste to Landfill



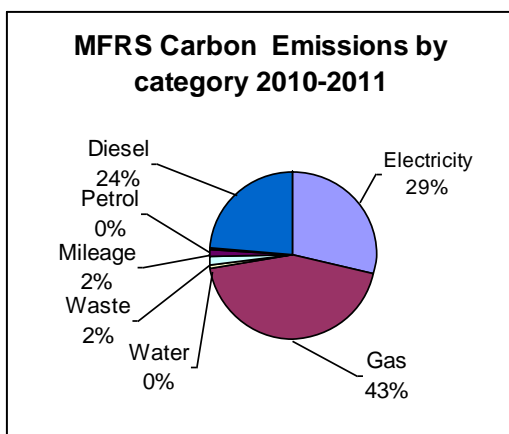
waste), to reduce landfill impacts.

- Excellent improvement in both quality of data and recycling rates.
- Local Authority recycling in place at majority of Fire Stations.
- Authority waste contractor instructed to empty only full bins to ensure value for money on waste disposal/transfer
- Due to efficient waste management techniques savings of approximately £3k have been observed despite rising costs and increase in recycling and hazardous waste disposal.
- Recycling and Treatment of all hazardous waste streams in place (oils, chemicals, electrical



Carbon Emissions

- Positive downward trend in first 3 years (Boiler replacement, BMS and insulation projects)
- Increase in emissions due to heating during excessively cold and prolonged winter 2010/11
- Voltage reduction (buildings), Photovoltaic panel installation and Energy Policy (2011/2012) is anticipated to deliver significant reductions to help meet 30% reduction target by 2013.



Our Carbon emissions in 2010-11 were due to the following energy uses:

- Gas (43%) to heat our buildings and water. Boiler replacement, Building Management System and Solar Hot Water projects are being continued in 2011-12 to address our highest source of CO₂ emissions
- Electricity (29%) to light and ventilate our buildings and to drive plant and equipment is being addressed by Voltage reduction and efficient lighting replacement projects
- Transport emissions (26%) are being

addressed with the adoption of a Travel Hierarchy and workshops vehicle efficiency projects and purchasing strategies. We also hope to undertake a biodiesel project/ chip pan amnesty in 2011-12 to link together vehicle emission reduction and Community Fire Safety

To put our Carbon emissions into perspective, the operational role of MFRS in preventing and extinguishing fires is contributing to a far larger picture of carbon reduction:

Year	Number of Incidents per year
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	Secondary Fires	Car Fires	Dwelling Fires	Industrial Fires
2005	12,690	3,217	2,004	753
2006	13,358	2,815	1,961	742
2007	11,058	2,095	1,836	647
2008	9,311	1,800	1,790	591
2009	8,632	1,624	1,772	528
2010	7,729	1,346	1,581	482
Grand Total	62,778	12,897	10,944	3,743

The research completed by Dr Jim Marsden (Greater Manchester Fire and Rescue Service) in calculating the emissions produced by fire types, together with the annual assessment carried out by Knowledge and Information Management Team shows that year on year Fire prevention work and rapid response are mitigating fire derived CO₂ emissions on a significant scale, which overshadow our own organisational emissions:

Year	Tonnes of CO ₂ emissions from each fire type				Total CO ₂ emissions
	Secondary Fires	Car Fires	Dwelling Fires	Industrial Fires	
2005	3,173	1,341	2,926	11,243	18,683
2006	3,429	1,134	2,998	9,916	17,477
2007	2,548	923	2,815	10,096	16,382
2008	2,330	802	2,703	9,978	15,813
2009	2,066	787	2,782	11,112	16,747
2010	2,054	899	2,766	9,195	14,914
Grand Total	15,600	5,886	16,990	61,540	100,016

Environmental Aspects

'Aspects' is an assessment of the ways in which an organisation and its activities interacts with the Environment. It is a fundamental part of an Environmental Management System which allows us to assess all environmental impacts, and prioritise efforts in reducing these impacts. The risks are captured comprehensively and range from energy use in buildings and vehicles to the environmental impacts of Firefighting. The risks are re-assessed according to mitigating steps in place (e.g. Carbon Management Plan, Operational Procedures etc).

Number of Environmental Risks & Aspects 2010-11			
	Before Mitigation	After Mitigation	Change
Total Number of Aspects	101	101	
Number of Low Environmental Risks	4	46	42
Number of Medium Environmental Risks	28	50	22
Number of High Environmental Risks	69	5	-64

The data clearly shows an almost complete removal of High Environmental Risks by the mitigation measures, procedures and improvement projects. This positive work is to continue with all key stakeholders of the Authority

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Carbon Management Board

This governance and strategy board, first mandated and described in the original Carbon Management Plan, has been formed, with membership in Estates, ICT, Strategy and Member Development, MFRA, Operational functions and Executive Leadership Team.

The Board provides: Carbon Project Approval, Ownership of Environmental Compliance and Environmental Performance review functions.

Carbon Management and Environmental Projects

£144k of Carbon reduction projects have been completed in all buildings (except those being replaced under PFI Project):

Project Type	Sum of Loan Value	Predicted Annual Savings £	Predicted Annual CO2 Savings (Tonnes)	Average payback (years)
Boilers	£69,751	£14,156	98.0	4.6
Building Management Systems	£40,094	£10,014	67.7	4.8
Heating	£1,828	£609	4.0	3.0
Insulation - Other	£1,636	£545	3.5	3.0
Insulation - Pipework	£20,349	£4,854	33.5	4.3
Lighting - Upgrades	£10,842	£2,184	15.6	5.0
Total	£144,499	£32,363	222.3	

Operational projects completed include:

- Firebikes and Automatic Fire Alarm Bikes to displace the heavy fuel consumption of appliances (around 8mpg) with high efficiency response motorbikes (around 60mpg), where false alarms (known as Unwanted Fire Signals) are suspected at potential low risk incidents. Approximately 30,000 miles are driven each year by our fleet of 4 motorcycles, which will displace the use of up to 15,000 Litres of diesel (in appliances), representing an emissions saving of 40 Tonnes of CO₂ per year.
- Pacliders (mobile firefighting backpacks issued to Wirral Rangers to allow early intervention on grassland fires) have delivered significant savings, with over 50 incidents contained by Wirral Rangers during 09/10, preventing the deployment of multiple Fire Appliances, saving around 400 appliance miles per year and 0.6 Tonnes of CO₂ emissions and also preventing the release of an estimated 160 Tonnes/ year of CO₂ from the combustion of scrub and grassland.

Projects committed for installation in 2011/2012, and funded with Salix funding are:

Site name	Project Description	Cost	Annual kWh savings	Expected Financial savings	Payback in years	tCO2 pa
HQ, City Centre, TDA/ Croxteth, Vesty 1, St Helens, Wallasey	Voltage Optimisation unit install	£60,175	139548	£16,327	3.7	75.93923
St Helens FRS	Radiator valves	£5,038	41105.2	£1,021	4.9	7.563357
MFERS Buildings	Various lighting upgrade	£17,842	40555	£4,745	3.8	22.06939
20 sites	Trend Phase 4	£41,808	302746	£13,745	3.0	55.70526

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Other Environmental opportunities being considered are:

- Rollout of Photovoltaic Panels and Low Energy Lighting is being considered for implementation in 2011/12, using external funding and loans
- Water Efficiency Project to be implemented across MFRS through funding partnership
- Waste reduction to Landfill project, with a positive aim to achieve zero waste to Landfill.
- MFRS Temperature Policy planned to reduce Building Energy Use by more than 10%.

Environmental Management System – ISO14001

ISO14001 is the International Standard for Management of an organisation's Environmental Impacts.

The final external audit for ISO14001 re-accreditation was conducted on 7th March at TADA. In conjunction with the audits conducted previously at SHQ and Workshops, MFRS 'successful re-accreditation awarded' and the ISO14001 Certificate was reissued in May 2011.

2011/2012 will see all sites subjected to detailed Environmental Audit, which will allow the opportunity to widen the scope of accreditation to all MFRS Premises and Activities. It is then planned to consider accreditation to 'EMAS' (Eco Management and Assessment Scheme), which is the highest standard of accreditation to demonstrate environmental performance and management.

Environmental awards

Date	Award	Awarding body	Notes
30/6/10	Sustainable Travel Award	Business in the Community	For Green and Healthy Transport Campaign
2/11/10	North West Climate Leaders Award: Influencing behaviour change and promoting sustainable behaviours	CLASP	For NW FRS Sustainability Network's joint approach to CMP, Champions Training and Handbook
21/11/10	North West Climate Leaders Award: Tackling transport & travel emissions	CLASP	Finalists
2/12/10	TravelWise Organisation of the Year 2010 – for best organisational travel plan/initiative	Merseytravel	Merseyside Transport Awards 2010. For Green and Healthy Transport Campaign and VEP
7/4/11	Transport & Logistics Award sponsored by Babcock International	Emergency Service Awards	Commended for Low CO2 initiatives, including Green and Healthy Transport Campaign and Vehicle Efficiency Project
7/4/11	Fire Service Innovation sponsored by Holmatro	Emergency Service Awards	Winner for Fire Motorbikes
18/5/11	Merseyside Environmental Awards: Carbon Champion Award	Daily Post & Echo	Nominated for/ special recognition of: Carbon Management Plan

Environmental Champions

- Environmental Champions are in place at almost all sites, following a recruitment drive in 2010/11, with over 200 Champions in place across all NW Fire Services.
- Champions Handbook produced in collaboration with NW FRS Sustainability Network, funded by North West Improvement and Efficiency Partnership.

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- 35 staff including Champions, Station and Locality Managers and Estates Team have received Environmental Training delivered in partnership with SE2 Consultants and NW FRS Sustainability Network.
- Monthly Environmental Checklists are now being conducted at sites with trained Champions in place.
- Champions are now active, identifying potential problems on site and developing / driving improvements i.e. recycling, pollution prevention and energy efficiency.

Partnerships and Networks and External Memberships

- NW Fire and Rescue Sustainability Network
- Liverpool and Wirral Climate Change Networks (Local Authority and Public Sector)
- Chief Fire Officers Association/ Environment Agency Environment Protection Group
- Liverpool City Region Energy Managers Group
- Bionic Project (International Biofuel Project) and TravelWise Wise Movers.
- Department for Transport (Alternatives to Travel group)

Summary and forward look

12 years on from the first Environmental Policy and the formalisation of the good environmental practice already carried out, the Environmental Management System is now reaching maturity with:

- Strong Environmental Policies and meaningful targets
- Good reductions against targets, but extreme weather impacts also observed
- Robust risk based approach to Environmental Impacts and Legal Compliance through the 'Aspects system' and Legal Register
- Strong ownership at Executive level with Authority and Executive owning Policies and Carbon Management Board
- Deep Site Audit programme in place to identify and rectify any issues
- Good level of awareness amongst all staff and high levels of involvement with 35 Environmental Champions in place and high levels of take up on initiatives like Cycle to Work Scheme (Almost 20% of staff participating)
- Revision of Operational Environmental Policy and partnerships with Environment Agency and Local Authorities to ensure Best Environmental Options considered on the Fire Ground, with membership of Local and National Environment Protection Groups.
- External recognition through awards and speaker initiations

The next 2 years will be a challenging time, with a final push towards completion of the 30% Carbon Reduction target and proposed accreditation to EMAS (Eco Management and Assessment Scheme – the highest level of Environmental Management System accreditation. This work will include (subject to internal approval channels):

- Voltage Optimisation pilot across 6 high usage sites, then implementation at all sites
- Implementation of a proposed zero waste to landfill system
- Energy policy designed to save 10-30% of gas use through cultural and system control
- Widespread rollout of Photovoltaic panels and Solar Hot Water systems throughout the Estate, through external funding partnerships
- Investment of £100,000 in water efficiency measures on all sites, through external funding partnerships

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- The provision of minimum 'BREEAM Very Good' ratings for all new builds delivered through PFI Project (7 new Stations) and Estates Projects (Toxteth FireFit Hub).
- Provision of food gardens and food foraging for Communities local to Fire Stations, following Incredible Edible's model at Todmorden
- Continuation of Green Transport Initiatives including Green Fleet Review (Energy Saving Trust), Biodiesel Trial in ancillary vehicles, Pool Bike projects
- Station specific campaigns and initiatives through the Environmental Champions network

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Appendix 1 – Environmental Policy

Environmental Policy

Merseyside Fire and Rescue Authority is committed to reducing environmental impacts from:

The construction, maintenance and use of MFRS buildings
The purchase of goods and services.
The fleet of Service and casual vehicles.
All activities carried out as a Fire and Rescue Service.

Ownership

The Fire Authority will lead the process with the Executive and Corporate Leadership Teams actively owning, supporting and implementing environmental policies, issues and licences. The Environmental Manager will advise, audit, report and provide solutions for all environmental matters and the Environmental Management System and accreditation. All staff are required to consider and actively reduce their environmental impacts in accordance with this and all other environmental policies, guidelines and legislation.

The Authority will continue to:

Reduce our building energy use through the Carbon Management Plan and other projects.
Reduce our vehicle emissions through the Vehicle Efficiency Project and other green transport initiatives.
Reduce our water consumption utilising efficiency devices and changing staff behaviours.
Reduce our waste sent to landfill, by reducing resource use and increasing, reuse, recycling and energy recovery.
Measure environmental performance to demonstrate and report against the targets of :
30% reduction in Carbon Dioxide Emissions (2008 – 2013)
Carbon trust building energy benchmarks
Environment Agency water use benchmarks
Waste to landfill reduction targets
Identify and exceed compliance with all legal environmental requirements.
Maintain accreditation of ISO14001 Environmental Management System, and to expand the scope of ISO 14001 to include all Service premises and activities and to seek the higher level of EMAS accreditation.
Reduce pollution risks from MFRS premises by adhering to Pollution Prevention Guidelines, maintaining training and emergency plans, auditing our sites and by learning lessons from incidents.
Reduce the social and environmental impacts of our goods and services by establishing a system of Sustainable Procurement, to:
Assess contractor competency to reduce environmental risk.
Reduce our indirect environmental impacts (through Lifecycle and supply chain analysis).
Prevent the purchase of unsustainable or unethical goods.
Continually review and improve our environmental policies, procedures and performance on an annual basis.

Our public commitment to the environment. We will continue to:

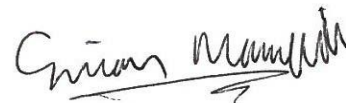
Reduce emissions by preventing fires and limiting fire damage
Reduce the impacts of accidents and incidents by deployment of pollution control equipment



Tony Newman
Chair of the Authority



Dan Stephens
Chief Fire Officer



Simon Mansfield
Energy & Environmental Manager

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