Air Quality Plan

Proposed traffic measures as part of the plans and programmes in compliance with Directive 1996/62/EC

ministry for infrastructure transport and communications

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1.0 Introduction

1.1 The need for an air quality plan

The Air Quality Framework Directive requests Member States to put in place plans and programmes in cases where air quality concentrations for the regulated pollutants are exceeding limit values specified in the Daughter Directives.

Malta has been recording exceedances for pollutants related to traffic since 2004. This document, drawn up jointly by the Malta Environment and Planning Authority (MEPA) and the Malta Transport Authority (ADT), proposes short-term and medium-term measures to be able to comply with limit values for various pollutants. These traffic measures will be forming part of a consolidated document which will include additional measures from other pollution sources (such as the construction industry, small industry, power generation).

This is a working document that will be finalised following a consultation period. The document proposes a series of initiatives that may be undertaken to ensure Malta's compliance with the Directives. However it should be clear that it may not prove necessary that all of the suggested measures are implemented or, if they are, are all implemented at one go. This is an incremental programme that would be implemented in parallel with the results of continouos monitoring of progress in compliance with the Directives to ensure that no unnecessary burdens are created on the mobility and economic and social vibrancy within the community.

2.0 Air Quality Concentrations – Compliance

This document will be focusing on compliance of the Daughter Directives with respect to pollutants related to traffic, namely benzene, nitrogen oxides and particulate matter (PM10). Tables I and II in Appendix 1 to this document give an overview of the sites where traffic measures need to be implemented to reduce air quality concentrations with respect to benzene and nitrogen dioxide.

2.1 Benzene

Benzene is a pollutant which is emitted from petrol cars and is carcinogenic.
This data suggested that traffic management measures are desirable in Sliema, Floriana, Birkirkara and Hamrun.
Monthly trends in pollutants need to be taken into account in the implementation of traffic measures. A case in point is the monthly variation in benzene concentrations in St Anne's Street, Floriana, where a rise in concentrations is

experienced in the festive season, as shown in Graph I in Appendix 1. Isolating these occasional trends is important to ensure that measures adopted are strictly proportionate to the degree of the problem they are supposed to solve.

2.2 Nitrogen Dioxide (NO2)

NO2 is emitted from any combustion process and in the case of traffic, an indicator of both petrol and diesel cars.

The data suggests that the localities in which NO2 concentrations have been exceeded have increased between 2004 and 2007, from 10 to 21 localities from 2006 to 2007 respectively (See Graph II in Appendix 1). Most of these exceedances result from the diffusion tube fixed in a traffic site, which shows that the number of cars has increased over the years, resulting in higher NO2 emissions.

Apart from the localities mentioned in Section 2.1, traffic measures may need to be implemented in other localities, specifically those exceeding the annual NO2 limit value in the year 2008, as outlined in Table II in Appendix 1. This limit value is set out in Directive 1999/30/EC.

The measures should aim in reducing the number of cars passing through these specific roads, while providing for alternative means of transport.

2.3 Particulate Matter (PM10)

Particulate Matter (PM10) is a result of both anthropogenic and natural activities. Anthropogenic activities refer to combustion processes (power generation and transport, including non-road mobile machinery), small industry, quarrying and construction activities. With respect to transport; diesel cars are the major emitters of PM10, and even finer dust, PM2.5. The below figures show the recorded exceedances of the daily limit value in the air monitoring stations located in various parts around the island.

Year	Kordin	Floriana	Zejtun	Msida	Gharb
2004	5	36	NA	NA	NA
2005	33	39	NA	NA	NA
2006	30	32	2	51	NA
2007	8	NA	24	56	7

Table 2.3 PM10 exceedances of the daily limit value (50µg/m3) not to be exceeded 35 times in a year (Directive 1999/30EC)

The data suggests that in the traffic stations (Floriana and Msida) the allowed number of exceedances per year was not respected in each site.

PM10 data correlated with indicative1 traffic counts for Msida station suggests that a reduction ranging from 30 to 50% needs to be taken on board, depending on how measures are implemented, to comply with the daily limit value for PM10 (Graph IV in Appendix 1). The data also suggests that even more drastic measures are required for St Anne's Street, Floriana, where the characteristics of local meteorology make it even more difficult to reach the limit values (Graph VI in Appendix 1). For both sites, a good correlation between traffic counts and PM10 concentrations by time of day was achieved (Graphs V and VII in Appendix 1).

It is important to acknowledge, however, that the data referred to in Appendix 1 is based on very small samples of traffic behaviour that are statistically insufficient to reach firm conclusions. Indeed the traffic data in the Appendices is extrapolated from surveys conducted manually on the basis of data collected on single sample days several years ago (in some cases as far back as a single day in 1990). The implementation of any measures must, therefore, follow more accurate sampling and data analysis to verify the degree of correlation between PM10 values and traffic patterns and behaviour and the success of those measures must also be measured against continouous collection of data.

It is also important to respect PM10 limit values in urban background sites such as Zejtun and Attard (monitoring in the latter site is to commence in the near future) due to upcoming obligations with respect to PM2.5 limit values which Malta has to gradually reduce until a limit value is reached by 2015.

Similarly, as for NO2, traffic measures also have to take into account specific times of day when PM10 levels are exceeding limit values due to higher traffic counts as a result of rush hour periods, for example. This phenomenon is clearly shown in Graph III in Appendix 1 where the morning and evening rush hours are very clearly identified for NO2, PM10 and PM2.5.

In general, and from the experience of other Member States, effective traffic measures result in the lowering of concentrations for both NO2 and PM10, if effectively implemented, enforced and monitored.

This PM10 daily limit value had to be met by 1 January 2005. In view of the publication of the new Directive on ambient air quality and cleaner air for Europe (2008/50/EC, coming into force in 11 June 2010), Member States can apply for a 3-year time extension in meeting the limit values, only if specific conditions are proven . In addition to this request for time extension, Member States are required to submit an air quality plan which identifies the policy measures that are proposed to be implemented and quantified reductions in the PM10 concentrations to meet limit values by May 2011.

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1 Traffic counts for specific streets were extrapolated and / or scaled to obtain these results.
Article 22(2): Adverse climatic conditions, transboundary contributions, site-specific dispersion characteristics.

3.0 Proposed measures

The traffic measures proposed in this document consist of short-term and medium-term measures.

Short-term measures should be implemented immediately once approved and subject to budgetary allocation where this is required, by the end of 2010.

Medium-term measures should be implemented once the appropriate planning and funding is dedicated to each and every measure. The years 2009/2010 should be dedicated to the planning of those measures while implementation should start later on in 2010 to produce the required results by mid-2011.

It is significant to note that these proposed measures are being suggested against the background of a radical public transport reform that has already been approved, procurement for which is underway and the implementation of which is due for 2010. If not, any restrictions on the use of private cars will not work since any individual will not be ready to give up the use of his/her personal car without an alternative which works in an efficient manner and at the same time having minimal impact on air pollution. The public transport reform includes a replacement of all pre-Euro III buses and ensures a continuous refresh of the fleet with minimum standards applicable in European Directives and Regulations.

The measures aim to achieve the following goals:

- Reduction in vehicle emissions;
- Encouraging modal shift;
- Reduce traffic impact of new developments;
- Managing the road network;
- Promote cleaner vehicle technologies.

The individual measures targeted to achieve the above are presented in Tables III and IV found in Appendix 2. The opportunity to acquire EU funds for the implementation of specific measures should be considered.

4.0 Timeframes and additional studies

As mentioned in previous sections, Malta needs to comply with limit values of benzene and nitrogen oxides by 2010. The situation with PM10 is more serious. If Malta is not granted the time extension (which would allow compliance by May 2011), limit values for PM10 would need to be complied with immediately.

In view of this urgency in complying with limit values it is crucial that the proposed measures are analysed in detail in terms of costs, quantified reductions in PM10 concentrations and effective planning with specific deadlines and goals to comply with the above timeframes. Additionally, these measures may be subject to a Strategic Environmental Assessment (SEA) to assess their impact on the environment.

5.0 Monitoring of traffic measures

It is of prime importance that the impact of the proposed traffic measures is monitored throughout the implementation period. The lower quality of the availability of traffic data utilised for this exercise has shown that better data needs to be acquired such that the impact of the measures is monitored effectively.

The final indicator used to measure the effectiveness of each measure will be the air quality concentration in the respective area. The effectiveness of traffic measures implemented in Msida will be monitored by MEPA by means of the existing traffic station, the siting of which is fixed. Trends in the existing diffusion tube network will also aid in determining whether the measures implemented at the various traffic sites have been effective in reducing air pollution concentrations.

Traffic data is also important so as to be able to relate the air quality concentrations to traffic counts present in the area. It is, therefore, deemed necessary to establish the emission profile of the Maltese vehicle fleet, profiling it according to a classification based on the year of manufacture, model and type, emission level; establishing an emission level per classification (according to published emission levels per vehicle); and estimating the vehicle emission of the fleet.

In order to achieve this, ADT will need to commission econometric studies related to the establishment of emission levels per vehicle and the research into estimating the vehicle fleet emission levels.

It is also necessary to establish the procedure to capture and analyse the profile of traffic on Maltese roads; identifying key locations for data capture for both fixed and temporary data monitoring systems; implementing an integrated and comprehensive system of data monitoring based on volume of traffic, classified by time of day and type of vehicles; establishing a database where traffic data is collated; developing analysis tools to profile the traffic using particular roads in the network.

Furthermore ADT will need to analyse the traffic data along the network and correlation with air quality data collected by MEPA.

In order to achieve the above, necessary studies will need to be undertaken to establish the key locations that need measuring and monitoring; the equipment necessary to collect traffic data (both fixed counters and temporary counters) and the technologies required to determine the weights and dimensions of the vehicle and the speed at which the vehicles using that road are passing; the database structure required to collate and effectively manipulate the data; and the outputs of the data as required for the analysis of traffic data and the correlation with MEPA's air quality data.

Appendix 1 – Tables and Graphs

Table I Localities exceeding benzene annual limit value of 5 µg/m3 from 2004 to 2008

Year	Localities exceeding benzene limit value	Street name	Annual average concentration in µg/m3
2004	Floriana	St Anne's Str	7.35
	Pieta	St Luke's Str	5.29
	Hamrun	St Joseph High Str	5.94
		Railway Str	5.39
		Annunciation Str.	5.40
	Fgura	Zabbar Road	5.00
	Bugibba	Triq il-Makku	5.50
	Zurrieq	Vjal Blue Grotto	5.24
	Sliema	Triq Manwel Dimech	5.39
	Rabat	Triq Nikol Sawra	5.14
2005	Floriana	St Anne's Str	6.85
2006	Floriana	St Anne's Str	7.14
	Hamrun	Railway Str	5.08
	Mosta	Eucharistic Congress Rd	5.02
	Sliema	Triq Manwel Dimech	5.20
	San Gwann	Naxxar Road	5.16
2007	Floriana	St Anne's Str	6.50
2008	Floriana	St Anne Str.	6.40
	Birkirkara	Valley Rd	5.14

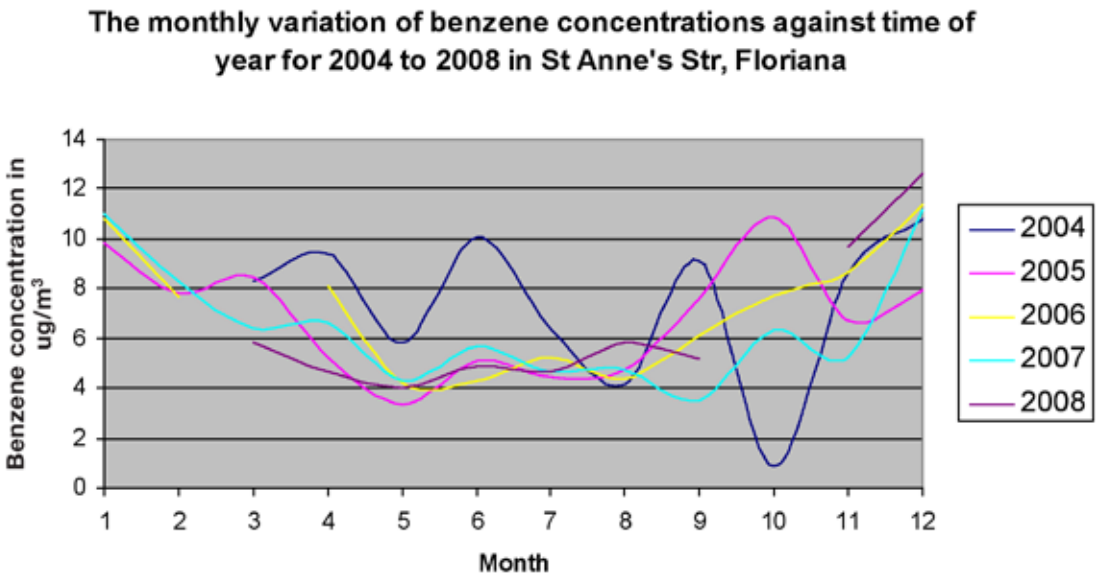
Source: MEPA diffusion tube network.

Table II Localities exceeding nitrogen dioxide annual limit value of 40 µg/m3 from 2004 to 2008

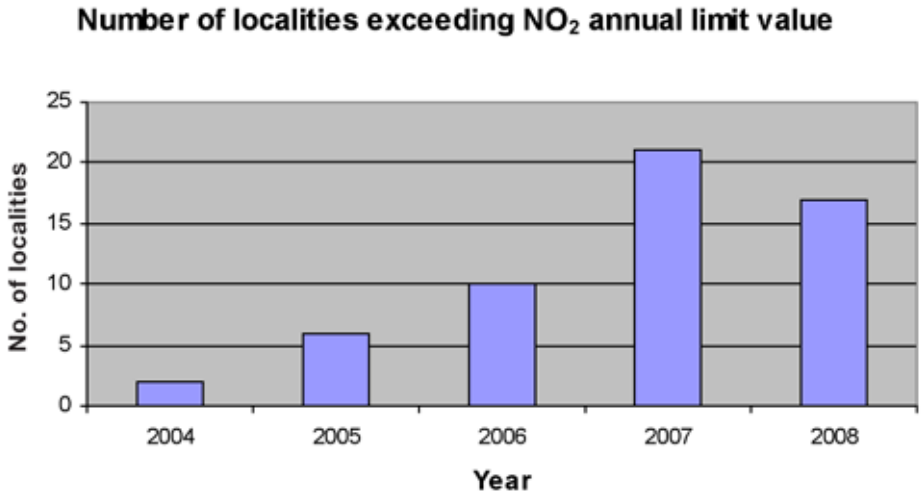
Year	Localities exceeding NO2 limit value	Street name	Annual average concentration in µg/m3
2004	Floriana	St Anne's Str	68.55
2005	Hamrun	St Joseph High Str	44.17
	Floriana	St Anne's Str	79.96
	Hamrun	St Joseph High Str	49.54
		Railway Str	42.72
	Cospicua	Cospicua Str	40.38
	Mosta	Eucharistic Congress Rd	66.28
	Swieqi	Triq Sant'Andrija	40.77
		Pjazza Qalb ta' Gesu	42.23
	Rabat	Triq Nikol Sawra	40.45
2006	Floriana	St Anne's Str	92.89
	Hamrun	St Joseph High Str	54.37
		Railway Str	53.27
	Fgura	Zabbar Rd	47.14
	Sliema	Triq Manwel Dimech	50.30
	Swieqi	Pjazza qalb ta Gesu	49.13
	Msida		40.32
	San Gwann	Naxxar Road	45.87
	Gzira	Sliema Str	40.91
	Mellieha	G.Borg Olivier Str	41.92
	Rabat	Triq Nikol Sawra	47.97
2007	Floriana	St Anne's Str	98.40
	Pieta	St Luke's Street	42.33
	Hamrun	St Joseph High Str	56.39
		Railway Str	53.02
	Marsa	Aldo Moro Str	46.57
	Cospicua	Cospicua Str	49.97
	Fgura	Zabbar Rd	55.63
		Vjal Cottoner	42.69
	Zabbar	Triq Hompesch	41.40
	M'Skala	Triq Sant Antnin	43.76
	Gudja	Triq Dawret il-Gudja	44.36
	M'Xlokk	Zejtun Road	42.58
	B'Kara	Valley Road	43.56
	Qormi	Manwel Dimech Str	45.31

Year	Localities exceeding NO2 limit value	Street name	Annual average concentration in µg/m3
2007	Mosta	Eucharistic Congress Rd	63.16
		Independence Avenue	42.45
	Zebbug	Triq l-Imdina	43.09
	Sliema	Triq Manwel Dimech	61.28
	Swieqi	Pjazza Qalb ta' Gesu	50.69
	Msida	Testaferrata Str	43.05
		University Entrance	44.70
	San Gwann	Naxxar Road	54.73
		Mensija Str	44.20
	Gzira	Rue D Argens	40.41
		Sliema Str	44.80
	Mellieha	G.Borg Olivier Str	41.39
	Rabat	Triq Nikol Sawra	58.61
2008	Floriana	St Anne's Str	87.56
	Hamrun	St Joseph High Str.	53.80
		Railway Str.	56.42
	Marsa	Aldo Moro Str.	45.03
	Cospicua	Cospicua Str .	50.24
		Triq Il-Polverista	46.63
	Fgura	Zabbar Rd	53.14
		Vjal Cottoner	43.57
	Zabbar	Triq Hompesch	40.64
	Marsascala	Triq Sant Antnin	45.14
	Gudja	Triq Dawret Il Gudja	45.72
	Birkirkara	Valley Rd	63.67
	Psaila Str.	40.32	
	Qormi	Manuel Dimech Str.	53.05
	Mosta	Eucharistic Congress Rd	56.04
		Indipendence Avenue	40.53
	Sliema	Manuel Dimech Str.	54.33
		Rue D'Argens	52.91
	Swieqi	Ix-xatt ta Spinola	49.45
	Msida	Msida Air Monitoring Station	44.40
	San Gwann	Mensija Str.	40.58
	Gzira	Sliema Str.	46.60
	Rabat	Triq Nikol Sawra	56.92

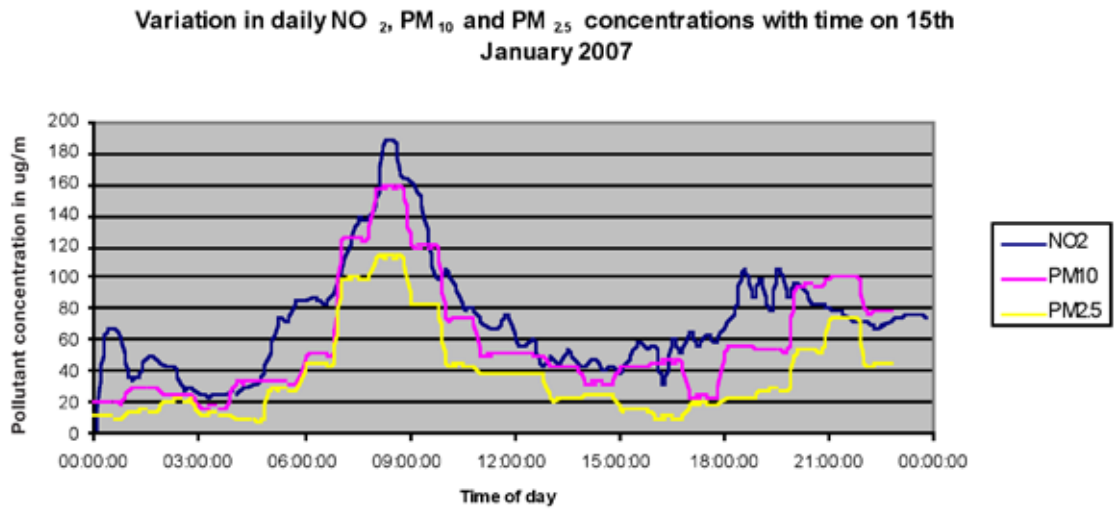
Graph I Monthly variation of benzene concentrations for 2004 to 2008 in St Anne's Str, Floriana



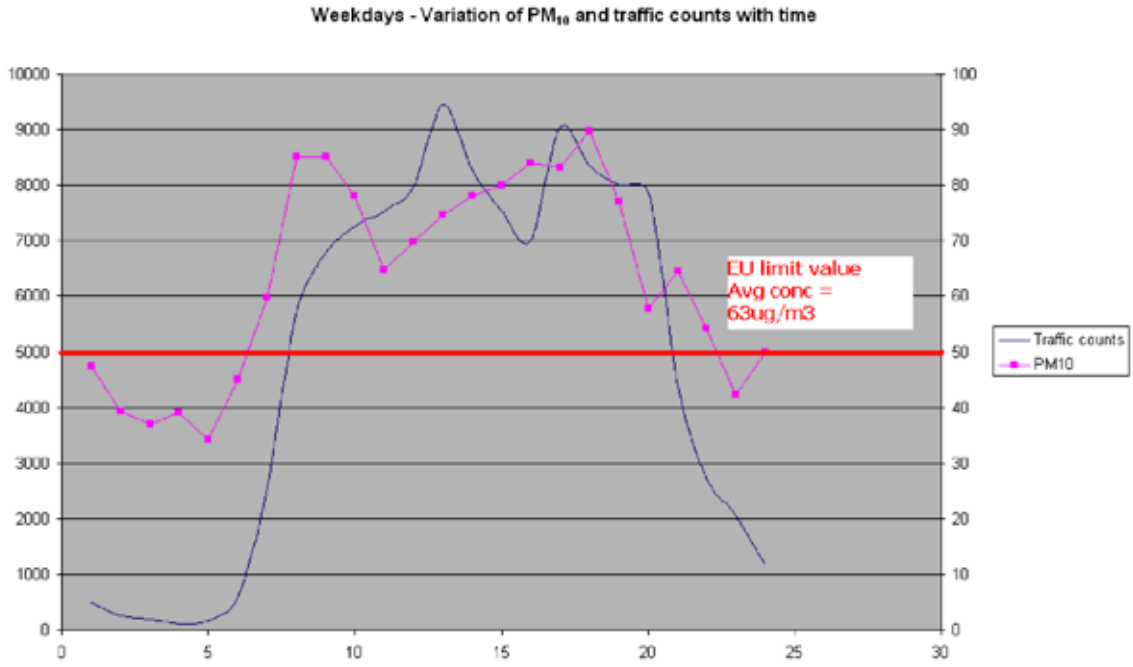
Graph II Number of localities exceeding NO2 annual limit value throughout the years



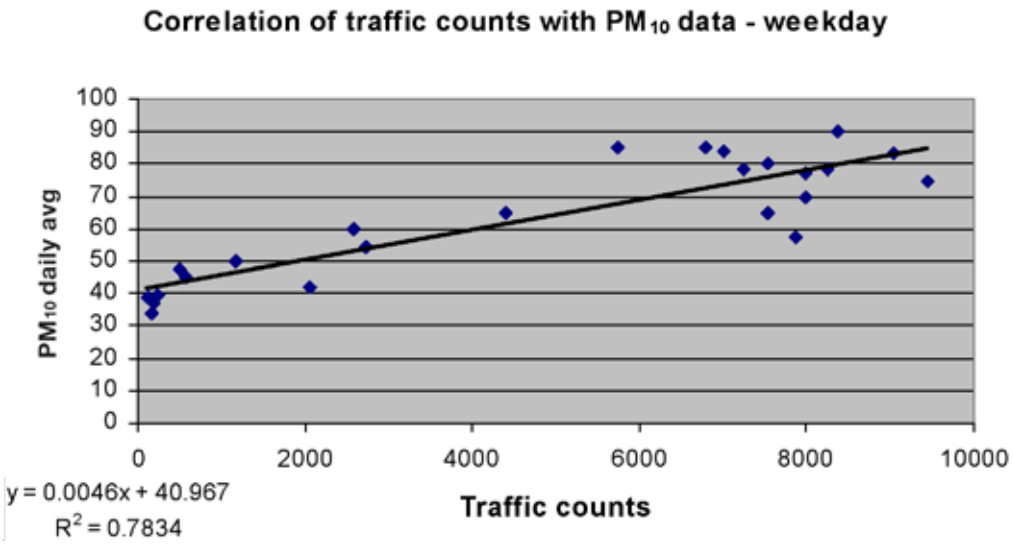
Graph III Variation in daily NO2, PM10 and PM2.5 concentrations with time on 15th January 2007, Msida traffic station



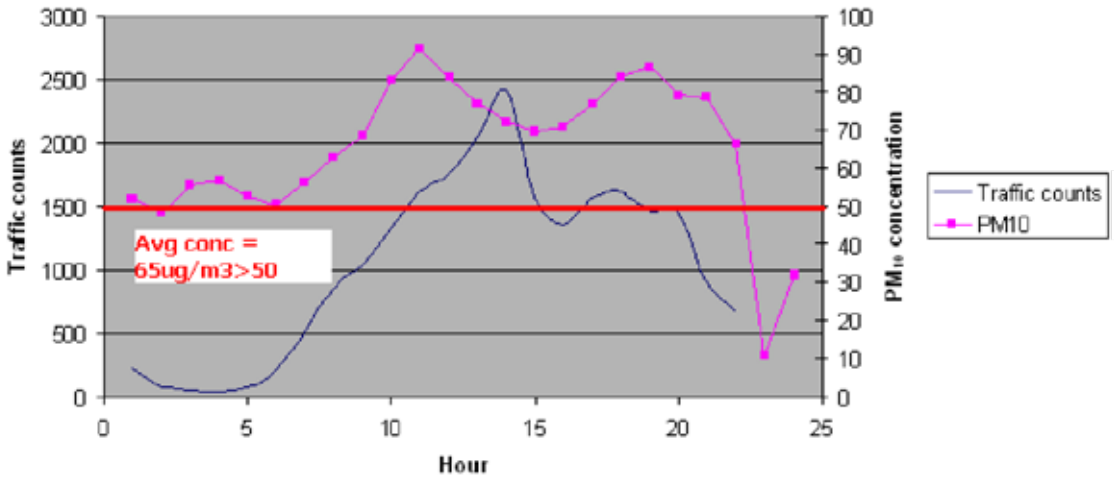
Graph IV Variation in PM10 and traffic counts with time (weekdays) at Msida station - 2007



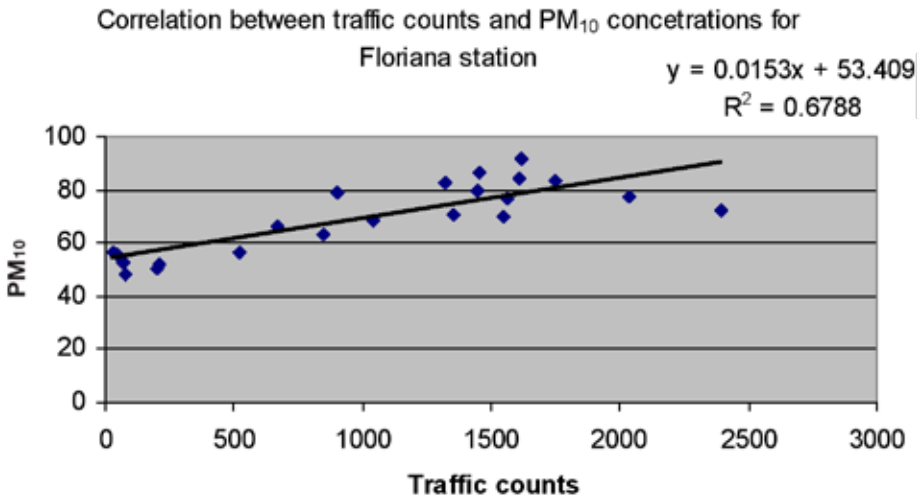
Graph V Correlation of traffic counts with PM_{10} at Msida station (weekdays) - 2007



Graph VI Variation in PM_{10} and traffic counts with time (weekdays) at Floriana station – 2004



Graph VII **Correlation of traffic counts with PM_{10} at Floriana station (weekdays) - 2004**



Appendix 2 – Proposed local traffic measures

Table III **Short-term measures**

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
1	Reduce vehicle emissions	Monitor effectively the transport measures proposed in this air quality plan with regular monitoring and data collection of traffic numbers and patterns of behaviour in affected areas.	Monitor air quality and traffic counts in identified areas where most traffic measures are implemented. Real time information panels are to be provided where real time monitoring of air pollution is carried out.	Malta Transport Authority (ADT) / Malta Environment and Planning Authority (MEPA) Regulated by ADT, enforced by Police and Local Councils.	Pros: Effective monitoring of policies which leads to better implementation	Areas where measures are being proposed.
2		Enforcement of the regulation of vehicle exhaust from polluting trucks, cars and buses.	Wardens issue penalties to offenders. This should be accompanied by a training programme to wardens so that they can understand the aims and objectives. This should also include public and visible spot checks, with emphasis on eventual fines. Eventually pass on part of revenue from fines to Local Council to encourage them to participate in this initiative. This measure should also involve the introduction of a point system which would include suspension of driving license.		Pros: (1) Encourages improved vehicle maintenance (2) Effective in terms of awareness raising (3) Potential to reduce noise by encouraging the repair of damaged exhausts and fining cars technically modified. Cons: Could be costly in terms of time and manpower.	Everywhere.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
			This measure should also involve the introduction of a point system which would include suspension of driving license.		costly in terms of time and manpower.	
3		Enforcement of quality of fuel used in cars, trucks and buses	Fuel samples should be taken and confiscation of vehicle considered when non-standard and polluting fuel types are used.	Malta Resources Authority (MRA)	Pros: (1) This could lead to immediate air quality improvements in street frequented by vehicles and buses that may be abusively using polluting fuel types (eg. kerosene, heating oil with a high sulphur content, untreated waste edible oils, and waste oils). Cons: (1) Could be costly in terms of time and manpower. (2) Amendments to the present legislation may be necessary.	Everywhere.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
4		Educational campaign targeting the general public on better driving practices, car maintenance etc	Correct driving techniques, fuel efficiency and economy, smoother driving, journey planning - TV, radio, newspapers. Inclusion bicycle weeks and car free days. Information area in bus stops. Incentives to convert private cars to LPG. Real time information near air monitoring stations through panels installed near air monitoring stations.	ADT with collaboration of Public Broadcasting Authority, Local Councils	Pros: Improves awareness on environmental considerations.	N/A
5		Regulate and enforce "engine switch off" powers to local wardens.	Car free days could be made more effective by combining them with festive activities. This could include incentivating Local Councils to organise local activities combined with car free days.	Regulated by ADT, enforced by Police and Local Councils.	Pros: This measure could help to prevent/ reduce exhaust odours in public places Cons: (1) A mandatory scheme could have negative public perception (2) Amendments to the present legislation may be necessary.	Everywhere with special attention (enforcement) on localities exceeding limit values.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
6		Develop or facilitate pool car and ride-sharing schemes.	Establish a car share database (example within Local Councils websites. See www.carsharederbyshire.com) including sub-group areas for individual businesses. This measure has to be accompanied by an educational campaign (same campaign as per measure No. 2)	ADT/Local Council Association/ MEPA	Pros: Reduces vehicle emissions by reducing number of km travelled. This also reduces fuel use and tackles congestion by reducing number of cars on the network.	Everywhere with special attention on localities exceeding limit values.Localities exceeding limit values
7		Restrict circulation of public transport vehicles to Euro 3 buses in localities where limit values are being exceeded		ADT	Pros: Helps to prevent increased emissions	Localities exceeding limit values.
8		Introduce traffic direction variable lane on roads which can accommodate this concept.	Temporary lane conversion in specific times of day. Traffic direction variable lane would become an additional lane in the direction of heavy traffic flow	ADT enforced by local wardens	Pros: Reducing congestion and thus emissions: An example is the 4 lane road system in Msida/ Pieta which could be converted to 3 lanes going one direction during morning peak hours and the reverse situation during the evening rush hour (a working committee needs to be set up on the implementation of this measure	Localities exceeding limit values.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
					with possible participation of respective authorities)	
9		Certification exercise for all VRT stations.	The VRT stations should undergo inspections to identify issues which need to be solved, especially in the emission testing part of the test. Certificates should not be awarded if the station does not comply following spot checks. In the near future, VRT stations should be compliant with specific standards and acquire accreditation for such.	ADT/Malta Standards Authority (MSA)	Pros: Better regulation of vehicle emissions through VRT testing.	N/A
10		Improving other forms of transport	(1) Improve marine connections via ferries. This measure should be accompanied by a mini-van service. (2) Introduce the Valletta electric city cabs to other areas (3) Incentivise taxi drivers to invest in cleaner vehicles (could also be mandatory for taxis operating in Floriana/Valletta) subject to consultations with operators and availability of budget.	ADT / Malta Maritime Authority (MMA)	Pros: Reduce vehicle emissions	Everywhere with special attention on localities exceeding limit values.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
11		Better management in timings and routes taken up by Refuse Collection Vehicles (RCVs) and entities conducting road / embellishment works.	(1) Ban domestic waste collection during the day and particularly during peak hours. (2) Liaise with Environmental Landscaping Consortia (ELC) to stop carrying out road / embellishment works during peak hours.	Local Councils / Office of the Prime Minister (OPM)	Pros: Reduce congestion and emissions from RCVs and all fleets	Everywhere with special attention on localities exceeding limit values.
12		Fiscal incentives for the acquisition of cleaner technology vehicles.	Incentives on registration tax and annual road license, subject to availability of budget.	Government	Pros: Encourage the use of cleaner vehicles	N/A
13		Modify vehicles that are still in Government fleet to use cleaner fuels.	Modification of existing vehicles or engines of vehicles to take cleaner fuels (e.g. LPG) or to install particulate traps/ filters on exhausts.	OPM		
14		Revision of the system of accident reporting.	(1) Issue instructions for drivers to fill up bumper to bumper form in the closest lay-by (2) Extend bumper to bumper form for other minor accidents	ADT (needs to amend regulations accordingly and to include enforcement by the Police Authorities and Local Councils).	Pros: Avoid congestion by (1) avoiding cars completing the forms while traffic jams increase (2) avoiding to wait for wardens to come on site	N/A

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
15		Re-schedule repair and maintenance to work to non-peak hours	Reduce artificially created congestion. This includes work at night in non-residential areas	Government	Pros: Reduce congestion Cons: This increases the costs which need to be budgeted for	Areas of major exceedance.
16		Introduce a water taxi system	Implement an effective water taxi system to shift from private to public modes of transport	MMA	Pros: Reduction in vehicle emissions	Wherever possible.
17	Reduce vehicle emissions/En-couraging modal shift	Monitoring and review of Valletta Strategy including Park and Ride Scheme.	Monitoring for traffic counts accompanied with air pollution monitoring should be carried out to revise the Valletta Strategy.	ADT/MEPA	Pros: (1) Achieve a better result from the present measure, resulting in a reduction of air pollution (2) Reduce emissions from vehicles repeatedly driving round to find a parking space in Valletta (3) Reduce congestion around the city centre by preventing repeated trips around the same busy area (4) VMS could be extended to include information about delays, pollution levels and promote the	Valletta/Floriana area.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
					use of park & ride. Cons: Relies on adequate funding and linking to compatible monitoring equipment in the case of VMS.	
18	Encouraging modal shift	Achieve set targets for tele-working and e-services	(1) Encourage and develop home working initiatives within all Government entities and Departments. Specific targets should be set and met. (2) Fiscal incentives should be provided to businesses which show interest to set up a system to provide customers with e-services (e.g. supermarkets - home delivery of shopping).	Government	Pros: (1) Minimise car trips and reduce vehicle emissions and congestion (2) Increase awareness	N/A
19		School travel plans	Formal plans developed in partnership with schools to encourage walking, cycling, or the use of efficient public transport for travel to and from school (especially for secondary schools). Delaying school starting time should also be considered to reduce congestion. Facilitate cycling by providing for secure cycle parking spaces.	Education Division	Pros: (1) Can have associated health benefits if non-busy roads are used to cycle/walk (2) Minimise exhaust emissions and congestion by reducing car journeys.	Everywhere with special attention on localities exceeding limit values.

Table IV **Medium-term measures**

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
1	Reduce vehicle emissions	Reform Public Transport	Provide better quality buses, increased frequencies, increased service hours, introduce night services, update transportation routes and generally overhaul public transport service.	ADT	Modal shift from private car use to public transport	Nationwide.
2	Reduce vehicle emissions	Extension of Controlled Vehicular Access (CVA) to Floriana	Extend CVA to Floriana as originally proposed to Cabinet prior to its implementation. The necessary consultations with stakeholders need to be carried out.	ADT	Pros: Reduces car use	Floriana/Valletta.
3		Introduce a system of cycle rental	Provision of cycle rental stands possibly subsidised by Government accompanied by road safety measures for cyclists.	ADT	Pros: Contribution to modal shift to non-polluting transport means for short distance trips.	Localities exceeding limit values.
4		Increase provision and use of park and ride facilities	Sensitive areas need to be tackled: Sliema, Hamrun amongst others. This measure should be implemented with parking and charging policies to encourage the use of park&ride. Traffic can be minimised by servicing congested areas such as Sliema, St Julians, Qormi, Hamrun, in addition to the existing one in Floriana.	ADT	Pros: Help tackle congestion	Localities exceeding limit values.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
5		Undertake roadside emission testing issuing penalties to those who continue to pollute excessively.	Wardens give a warning to first time offenders and issue penalties the second time. Allowed emissions need to be identified for different car types according to Euro standard. This should be accompanied by a training programme to wardens so that they can understand the aims and objectives.	Regulated by ADT, enforced by Police and Local Councils	Pros: (1) Encourages improved vehicle maintenance (2) Effective in terms of awareness raising (3) Potential to reduce noise by encouraging the repair of damaged exhausts and fining cars technically modified. Cons: (1) Could be costly in terms of portable equipment (portable emission monitors could be purchased through EU funding instruments), time and manpower (2) Amendments to the present legislation may be necessary.	Localities exceeding limit values.
6		Replace a percentage of Government old vehicle fleet	Replacement of current fleet with a cleaner fleet comprising Euro 5/electric/LPG/hybrid vehicles subject to availability of budget.	OPM	Pros: Sets a good example to businesses Cons: The purchasing of electric cars reducing air pollutant concentrations locally but requires power generation,	N/A

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
					which may result in pollution elsewhere. Additionally vehicle re-charging points would need to be made available.	
7		Declare low emission zones to manage access to more polluting vehicles and introduce regulations on access restrictions and controls	Heavy duty vehicles, private and commercial cars that do not comply with an established emission standard are prevented from entering towns exceeding limit values. This could be carried out either by payment for the more polluting vehicles or else by enforceable exclusion. Thus there are 2 options; further discussions on implementation have to take place.	Regulated by ADT, enforced by Police and Local Councils	Pros: Achieving limit values in the exceeding Councils (if appropriately enforced). Cons: Unpopular measure with the public and could be a disincentive for businesses to develop.	Localities exceeding limit values.
8		Feasibility study on the possible installation of a rail-based (electrically powered) transport connection/ tram. The implementation is to be undertaken as long as it is financially feasible. It is also a long term measure, if at all.	Connection to major employment hubs and the airport would greatly increase use and demand for this system, improving financial viability. This needs to be linked with park and ride facilities, and other transport modes.	ADT	Pros: Reducing congestion in urban areas	This would be applicable for the towns exceeding limit values, also densely populated towns such as Sliema, Valletta, B'Kara and the Three Cities.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
9		Training/ information course to operators of public transport network encouraging smoother driving, the importance of emission testing etc.	Increase awareness on problems related to air pollution including health effects and environmental concerns.	ADT/MEPA	Pros: Reduction in emissions through better driving practices	N/A
10	Reduce traffic impact of new developments	Set out land use zoning parameters in the approved local plans to set air quality targets.	Controlling land use in problem areas identifying mitigation measures (including traffic control mechanisms) which would be subject to review. These could include a complete ban in development within the areas which are exceeding limit values.	MEPA	Pros: Reducing congestion in urban areas Cons: Unpopular measure with the developer	Localities exceeding limit values.

No.	Aim	Description of measure	Implementation	Lead organisation/s	Benefits and disadvantages	Applicability
11	Reduce traffic congestion/ managing the road network Promote cleaner vehicle tech-nologies	Implementation of the Intelligent Traffic Management System (ITMS) depending on availability of budget.	Enable traffic flows to be managed, reduce congestion and favour bus routes at key traffic signals. This should specifically include lowering of speed and other traffic measures in case of high pollution peaks (i.e. short-term action plans).	ADT	Pros: Tackles congestion and improve air quality in sensitive areas Cons: ITMS moves emission around rather than removing them.	Everywhere.
12	Reduce traffic impact of new developments	Encourage local car dealers to promote the sale of cleaner technology vehicles. This would work well coupled with the new vehicle registration tax regime (Budget 2008).	Dealers could also invest in the conversion to and provision for the maintenance of cleaner technology vehicles.	ADT/MEPA	Pros: Raise public awareness of vehicle choices and therefore create more demand for cleaner technology vehicles.	N/A

Conclusion and Feedback

This document has been prepared with the intention of seeking your feedback on traffic measures to be able to comply with limit values for various pollutants. These measures will be forming part of a consolidated document which will include additional measures from other pollution sources (such as the construction industry, small industry, power generation).

You are invited to submit your views, comments and suggestions on this consultation paper by 6 weeks from the publication date of this document to Mr John Gatt, Permanent Secretary MITC on the following address:

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