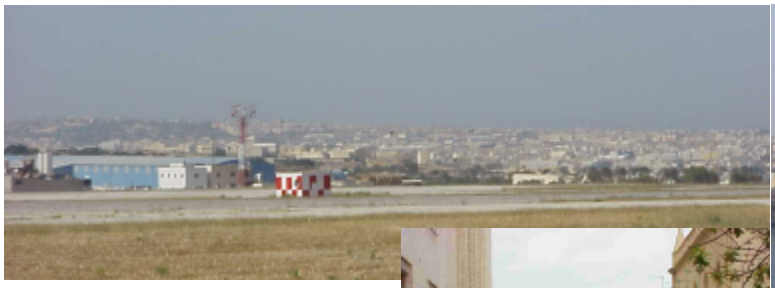
TINA VIENNA -
TRANSPORT STRATEGIES

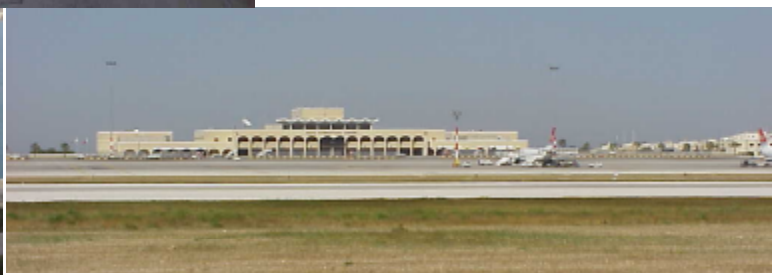
EUROPEAN COMMISSION
DIRECTORATE GENERAL FOR
ENLARGEMENT

REPUBLIC OF MALTA

T I N A

TRANSPORT INFRASTRUCTURE NEEDS ASSESSMENT FOR MALTA





FINAL REPORT

April 2002

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TINA
a Common Transport Infrastructure Needs Assessment

Identification of the network components for a future Trans-European Transport Network
in
MALTA

Drafted by **TINA VIENNA – Transport Strategies**

Auerspergstrasse 15, 1082 - Vienna, Austria

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INTRODUCTION

1.1 PREAMBLE

This document concludes the Transport Infrastructure Needs Assessment (TINA) in Malta, as it was carried out between April 2001 and March 2002. The whole work was undertaken, based on the Terms of Reference of the Contract MLT-01-002.00 of the European Commission. The Report would be never concluded without the fruitful co-operation with the Maltese authorities and the European Commission. The data included in the database are fully based on the information provided by the Maltese authorities. The elaboration of the data, and the conclusions and recommendations throughout the report – although they have been exhaustingly discussed with the Maltese authorities - reflect the opinion of the Study Team.

The whole work, including the methodology, the structure of the report, the elaboration of the data, all the assumptions and the GIS are in line with the TINA principles, as they were approved at the TINA Senior Officials Group meeting 27/28 June 1999 in Potsdam by the 15 Member States and the candidate countries for accession and documented in the "Transport Infrastructure Needs Assessment Final Report, November 1999".

The present report follows the "Inception Report, May 2001" and the "Progress Report, November 2001". It includes the latest data and information by the Maltese authorities, a new analysis of the administrative structures related to transport in Malta, a new evaluation of costs and an analysis of the suggested priorities. The Report is completed with the database and GIS, provided electronically. Additional useful information (e.g. the complete ToR, the Mission Reports, etc.) are not included in this Report, but anyone can find them in the Inception or Progress Report for the TINA in Malta.

1.2 TRANSPORT INFRASTRUCTURE NEEDS ASSESSMENT IN MALTA

The first Structured Dialogue between the Transport Council of the EU and the Transport Ministers of the associated countries, in September 1995, recommended inter alia undertaking a Transport Infrastructure Needs Assessment (TINA) for the candidate countries for accession.

In July 1996, the European Parliament and Council adopted, based on Article 155 of the Treaty, a Decision on Guidelines for the development of the Trans-European Transport Network[1]. This contains outline plans for the land transport networks and criteria for network nodes such as airports or seaports. The Guidelines constitute a declaration of intent by the Union for the development of a single multi-modal transport network to meet the needs of the transport sector.

In April 1997, the European Commission proposed a structure for European transport networks serving the entire continent to the Third Pan-European Transport Conference at Helsinki 1997, in which the Trans-European Transport Network of the European Union, and its extension to the future new Members plays a prominent role (reference COM 97(172)). This structure was eventually included into the declaration of the Helsinki Conference.

On the basis of this environment, the Commission launched the TINA process, with a view to defining the future Trans-European Transport Infrastructure Network in the enlarged European Union, using the criteria of Decision 1692/96/EC. The Commission has throughout ensured that this multilateral process remained consistent with the overall Pre-Accession

[1] Decision No 1692/96/EC of the European Parliament and of the Council of 23 July 1996 on Community Guidelines for the development of the trans-European transport network, OJ L228 September 1996

Strategy, notably the Accession Partnerships and the National Programmes for the Adoption of the Acquis.

The Transport Infrastructure Needs Assessment (TINA) process was designed to initiate the development of a multi-modal transport network within the territory of the candidate countries for accession: Estonia, Latvia, Lithuania, the Czech Republic, Slovakia, Hungary, Poland, Slovenia, Romania, Bulgaria, and Cyprus. The work was completed in November 1999. The defined network, or the TINA Network, has thereafter been the basis of the discussion for the future extension of the TEN, and its financing. This network development complies with the principles, objectives and criteria as set out in the Guidelines for the development of a Trans-European Transport Network in the territory of the European Union (Decision 1692/96/EC).

During screening for the Transport Chapter of the Acquis in November 1999, Malta formally expressed its interest to the Commission, in the development of the Trans-European Transport Network (TEN-T) and, as a candidate accession country, in the extension of the Transport Infrastructure Needs Assessment (TINA) activities to the Maltese Islands. Although the TINA process commenced in 1996 and Malta was at that time not one of the eleven candidate countries selected for participation, the integration of Malta into European transport networks is considered to be vital from a regional, social and economic perspective.

The Maltese government was interested in participating in the specific undertaking of a TINA exercise (or similar exercise) at a national level. To this end, the government has agreed to allocate funds under the 4th Financial Protocol for the carrying out of a TINA study. This study comprises apart from the tasks carried out in the first stage, which was the setting up of a transport databank and transport network analysis with indicative prioritisation the assessment of local administrative infrastructures.

The procedures for Malta's accession to the European Union have already started and Malta is soon expected to become a full member. This event will play an important role to the future of the country and will influence the status in many sectors of the economy. The extension of the TINA process to Malta is a first step to assess the transport infrastructure of the Maltese islands, in relation to the provisions of the TINA Network in the other acceding countries, and the TEN Guidelines (European Parliament and Council's Decisions 1692/96 and 1346/2001). The current project – Transport Infrastructure Needs Assessment in Malta - first intends to identify the transport network that can be considered as the basis for the future extension of the Trans-European transport network on the island. The identification of this multi-modal network (consisting of roads, ports and one airport) takes into consideration the needs of the country, its specific characteristics and its economic capacity to realise the proposed infrastructure (based on the same realistic assumptions of TINA, i.e. allocation of 1.5% of annual GDP for transport infrastructure). The definition of the network is followed by the identification of those investment measures, which - in a horizon up to 2015 - will modernise and upgrade the existing transport infrastructure to a level, which complies with the European requirements.

The TINA project for Malta has been based on two main phases: The first phase concerns the definition of the network; the second phase concerns the identification of investment measures by which the identified network would be brought up to a desired quality level.

The first phase was developed with the intention to define the TINA multi-modal transport network, which could be realised in the time horizon of 2015, taking into consideration the expected development of the country.

To define the network, parameters like the political vision, the economic framework, the cost of the investment measures, the existing financing opportunities, the traffic forecast and the efficient operation of the network were amongst the factors which were taken into consideration. The definition of the transport infrastructure that can be part of the enlarged

TEN was followed by a parallel examination of the administrative structure that rules the transport operations in the country.

The second phase concerned the identification of possible investment measures, and their pre-assessment in view of a first prioritisation of their importance. Costs estimates for the identified measures are also included in the Report.

All the parts of the multi-modal transport network, its main technical and operating characteristics, and all the reported investment measures are part of the TINA database and GIS, developed in the context of this project, linking geographical, technical (infrastructural) and traffic information.

The general steps of the process, as they were set in the Terms of Reference, were:

- Setting up of a transport databank and development of the TINA GIS for Malta
- Traffic forecast
- Assessment of local Administrative Infrastructures
- Pre-assessment of projects - Prioritisation

2 DESCRIPTION OF THE EXISTING SITUATION IN TRANSPORT INFRASTRUCTURE

2.1 MALTA'S PROGRESS TOWARDS ACCESSION[2]

2.1.1 PREAMBLE

With a view to the Helsinki European Council - following the February 1999 update of the Commission's opinion on Malta's application for membership - the Commission issued its first Regular Report on Malta's progress towards accession in October 1999.

After the request of the European Council, the Commission presented a second Regular Report on Malta in November 2000 before the Nice European Council.

Now the Commission has prepared this third Regular Report on Malta's progress towards accession with a view to the Laeken European Council in December 2001.

This Report shows also the considerable progress since the 2000 Regular Report and covers the period until 28 February 2002 as it examines new initiatives. In addition, the Report provides an overall assessment of the global situation for each of the aspects, which remain to be taken by Malta in preparing for accession.

2.1.2 RECENT DEVELOPMENTS UNDER THE ASSOCIATION AGREEMENT (INCLUDING BILATERAL TRADE)

On the 9th of July the 6th meeting - the first meeting since July 1990 - of the Malta-EU Association Committee was held in Valletta. One of the covered main points was the monitoring of Maltese commitments with respect to the Accession Partnership and the National Programme for the Adoption of the Acquis.

The Joint Parliamentary Committee comprising representatives of the Maltese and European Parliaments has met in November 2000 in Strasbourg and in May 2001 in Malta.

The EC remains Malta's major trading partner, with around 33% of Malta's exports and 60% of imports in 2000, compared to 49% and 65%, respectively, in 1999.

Malta has continued to implement a plan aiming at dismantling all levies on EC imported products by 2003, except for agricultural products. On the basis of a mandate from the Council, the Commission held discussions with Malta in April 2001 with a view to fully liberalising trade in fish and fishery products between Malta and the EC. The Commission is proposing to the Council an agreement for that purpose.

2.1.3 COMMUNITY ASSISTANCE

The Commission proposed a pre-accession regulation for Malta in October 1999 following a request by the Council in March 1999. This contract provided for total pre-accession aid to Malta of € 38 million for the period 2000-2004 and made Malta's participation in MEDA regional programmes available. In addition, Malta is eligible for the EIB pre-accession facility and for the € 6.425 billion EIB facility for Mediterranean countries.

The total pre-accession aid allocated to Malta in 2001 was € 7.5 million.

[2] Source: Regular Report 2001, Brussels 13.11.2001, from the Commission on Malta's progress towards accession

2.1.4 NEGOTIATIONS / SCREENING

By the end of January 2000 the analytical examination of the acquis with Malta was completed, by June 2001 negotiations on all chapters (with the exception of chapter 7 – Agriculture- chapter 30 - Institutions and chapter 31 – Other) had been opened.

Then the following 17 chapters had been provisionally closed, already by the end of September 2001:

Industrial Policy, SMEs, Science & Research, Education & Training, Culture & Audio-visual policy, Common Foreign & Security Policy, External Relations, Telecommunications, Company Law, Economic & Monetary Union, Statistics, Consumers and Health Protection, Financial control, Energy, Free movement of Goods, Freedom to provide services, Free movement of persons.

The transport chapter was provisionally closed in October 2001.

2.1.5 TRANSPORT POLICY

While transport is a key factor in modern economies, Malta continued to align its legislation with the *acquis* and achieved some progress, in particular in the fields of road transport safety and maritime safety, while only limited progress was achieved in air transport.

As demand for **Trans-European Transport Networks,** a methodology for the collection and collation of information for the compilation of Community road infrastructure accounts has been established to bring Malta's accounting system for expenditure on infrastructure in line with the requirements of the *acquis.*

For preparing Malta's transport system to meet the demands of enlargement and sustainable development it needs a high standing on an economic, social and environmental viewpoint.

2.1.5.1 LATEST DEVELOPMENTS

Land transport sector, its progress was achieved in the field of *road transport* with regard to driving licences - aligning on the *acquis* by new legislation in January 2001 - and administrative capacity.

The new Malta Transport Authority consists of four Directorates (Road, Public Transport, Traffic Management and Licensing and Testing) and is responsible for all land transport issues including inspections and controls. A supervisory board is in place, already fully operational from the second half of 2001.

Air transport: On January 1st 2002, a new company (Malta Air Traffic Services Ltd.) was set up to administer the air traffic services in Malta. Regulations transposing the EC Regulation on the denied boarding compensation system for scheduled were published in April 2001. Other legislation was enacted throughout the period under review included:

- Act XIX of 2001 - Code of Conduct for Computerised Reservation Systems. This ACT implements the provisions of Council Regulation 2299/89
- LN 78 of 2001 - Civil Aviation (Denied Boarding Compensation) Regulations, 2001. This relates to Regulation Council 295/91.
- LN 161 of 2001 - Definition and Use of Compatible Technical Specifications for the Procurement of Air Traffic Management Equipment and Systems Regulations, 2001. This relates to Commission Directive 97/15, Council Directive 93/65 and Commission Regulation 2082/2000.
- LN 162 of 2001 - Air Navigation (Noise Certification and Operation of Aircraft) Order, 2001. This relates to Council Directives 92/14,80/51 and 89/629.

Maritime transport: Malta has made progress, including with regard to maritime safety. In May 2001 a Maritime Transport Action Plan with the aim of establishing a timetable for alignment with the *acquis* was submitted to the Commission. Malta's efforts to enforce EU maritime safety standards were increased. It has implemented a reform of Port State control records and an increase of flag state inspections. The Pilotage and Mooring Regulations were amended in June 2001 to introduce a tax differential in favour of tankers with segregated ballast tanks in line with the corresponding EC regulation.

The Malta Maritime Authority (MMA) has a clear view of the technical problems and future opportunities. It is strengthening its administrative capacity with fifteen new flag and Port State control inspectors, as well as supporting clerical staff. Officials and inspectors of the MMA have undertaken training activities related to maritime safety, flag state implementation and marine engineering.

In 2000, a number of ships representing 1.5 million gross tonnages were deleted from the Maltese ship register or refused entry. Nevertheless, Malta still has the biggest commercial fleet of all accession countries (1505 ships with 28 170 010 gross tonnage as of 31.12.2000) and the average age of Malta's fleet has not changed significantly as compared to 1999. According to 2000 statistics under the Paris Memorandum of Understanding (MoU), the percentage of Malta flag vessels detained following port State control was11.81%, an increase compared to 1999 (10.63%). This compares to an average for EU-flagged vessels of 3.9% in 2000. The MMA is in the process of concluding agreements with its authorised classification societies to regulate the relationship.

2.1.5.2 OVERALL ASSESSMENT

Malta's transport infrastructure is a key element in the functioning of economy, internally and external trade. Therefore Malta is extremely interested to be in line with the EC *acquis.* So important parts of road and air transport law remain to be transposed, and sustained efforts are needed as regards maritime safety.

Malta still has to finalise the report that should form the basis for extending the Trans-European Transport Networks to Malta after accession.

On road transport, Malta still needs to adopt the necessary legislation on fiscal harmonisation, market access, access to the profession, dangerous goods and passenger transport. The administrative capacity of the new Malta Transport Authority will have to be strengthened, in particular by training its staff for the new responsibilities arising from the *acquis and also setting up the required systems of training for transport operators and contractors*.

On air transport, the legislation to comply with the *acquis* on slot allocation, ground handling and accident investigation still needs to be adopted.

As regards maritime safety, Malta's vessel detention rate as a result of Port State Controls remains very high, and has increased from 1999 to 2000. In the Paris Memorandum of Understanding 2000 annual report, Malta is ranked a one of the medium-to-high risk flag States. Malta should further single out old ships with lower safety standards and efforts should be continued to further strengthen the administrative capacity of the MMA and improve the safety record of the Maltese commercial fleet.

3 THE TINA METHODOLOGY

The Transport Infrastructure Needs Assessment (TINA) process has been initiated through the first structured dialogue, held in September 1995 between the Transport Council and the Transport Ministers of the associated countries, resulted inter alia into a recommendation to perform a Transport Infrastructure Needs Assessment for, at that time eleven, candidate countries for accession. The process has been designed to initiate the development of a multi-modal transport network within the territory of the candidate countries for accession: Estonia, Latvia, Lithuania, the Czech Republic, Slovakia, Hungary, Poland, Slovenia, Romania, Bulgaria, and Cyprus. This network development should comply with the principles, objectives and criteria as set out in the Guidelines for the development of a Trans-European Transport Network in the territory of the European Union (Decision 1692/96/EC of the European Parliament and of the Council on Community Guidelines for the development of the Trans-European Transport Network).

The general TINA process can be divided in two main stages: The first stage concerns the definition of the network where cost estimates play a major role. The second stage concerns the identification of investment measures by which the identified network would be brought up to a desired quality level.

The first stage was developed with the intention to define the TINA multi-modal transport network, which could be realised in the time horizon of 2015, taking into consideration the expected economic development of the countries concerned. In this respect, all the necessary parameters that play a role while designing a network were identified and investigated. The political vision, the economic framework, the cost of the investment measures, the existing financing opportunities, the traffic forecast and the efficient operation of the network were amongst the factors which were investigated in the process of defining the TINA network.

The second stage concerned possible investment measures. The reported measures were analysed comparing cost estimates of the different countries with unit cost estimates provided under a separate project financed under PHARE MCTP[3]. This analysis led to a fairly solid basis of cost estimates for the network.

The TINA Final Report for the eleven candidate countries for accession (November 1999) sets the basic reference framework for future project assessment. This project assessment, to be done in the context of future TINA work and under ISPA will generate a dynamic list of projects in order of their priority for the development of the network. The TINA process led to the identification of viable investment projects, which will, in the future extended TEN-T, be candidates for projects of common interest. In the context of pre-accession financing, the ISPA team, on the basis of the TINA findings, in now performing a more detailed project analysis of all the proposals, which will be considered for financing.

The general steps of the TINA process, as they are analysed, were:

(a) to set the main rules on which the hypothesis of constructing the network should be built;
(b) to identify a multi-modal backbone network using global criteria, such as those which led to identification of the Crete Corridors and their adjustments and additions as endorsed at the third Pan-European Transport Conference of Helsinki;
(c) to identify those additional network components (i.e. links (rail, road, inland waterways) and nodes (airports, ports, terminals)), which are necessary to transform the Helsinki "Corridor approach" into a real transport “network approach”, with similar attributes to those described in Decision 1692/96/EC for the TENs;

[3] “Updating of Transport Unit Costs in Acceding Countries”, COWI Consult

(d) to identify all possible investment measures which contribute to develop the TINA network as defined in the previous steps; to make an estimation of their cost;
(e) to report on the network development in certain years (2000, 2005, 2010 and 2015);
(f) to develop a GIS for the TINA network linking geographical, economic and traffic information.

In more detail:

3.1.1 THE MAIN ASSUMPTIONS

The definition of the TINA network was based on a certain number of assumptions:

- the network should be in line with the criteria laid down in the EU Guidelines for the Development of the TENs (Council Decision 1692/96/EC), according to the objectives described in Article 154 of the Treaty;
- the technical standards of the future infrastructure should ensure consistency between the capacity of network components and their expected traffic. To achieve this, it was accepted that these standards should be in line with the recommendations of the UN/ECE Working Party on Transport Trends and Economics (WP.5) on the definition of transport infrastructure capacities (Trans/WP.5/R.60);
- the time horizon for achievement of the network should be 2015;
- the cost of the network should be consistent with realistic forecasts of financial resources, so that average costs should not exceed 1.5% of each country's annual GDP over the period up to 2015.

3.1.2 THE BACKBONE NETWORK

The backbone network was the starting point of the TINA process for a differential network design. This network was defined by the Commission, so as to be identical with the links and nodes of the ten multi-modal Pan-European Transport Corridors on the territory of the TINA countries, as endorsed at the Third Pan-European Transport Conference in Helsinki, June 1997. In Estonia and Latvia the backbone network also included one major East-West link from Corridor I towards Corridor IX in each country. The routing of the Crete/ Helsinki Corridors was provided by the TINA Secretariat, using relevant information from the Steering Committees or other working groups of the Crete/ Helsinki Corridors, and by consulting the UN TEM and TER Offices, etc. The alignment of the backbone network was endorsed by the TINA Senior Officials´ Group at their June 1998 meeting in Vienna. For certain Corridors the respective Steering Committees might still present adjustments to the network, which should be assessed by the Group about their appropriateness for the TINA network.

3.1.3 ADDITIONAL NETWORK COMPONENTS

In addition to the backbone network, during the TINA process additional network components were proposed to be included in the final TINA Network. Special consideration was given to the continuation of the existing Trans-European Transport Network beyond the present borders. The very first candidates for additional network components, subject to the assessment of the Group and the subgroups, were the proposals for Corridor adjustments assigned to the TINA Group by the ad hoc Group for the preparation of the Helsinki Conference. Each proposal was accompanied by sufficient information on its economic viability. The network components were proposed by the delegates of the TINA subgroups, the TINA Secretariat and the Commission. The proposing country or body or both, was responsible for submitting all the relevant information, together with the proposal.

The additional network components needed to:

- be in line with the given financial framework;
- give priority, where possible, to the better use of existing infrastructure;
- be able to comply with the set time-period for the development of the network (2015);
- be able, together with the backbone network, to form a network which would be in line with the criteria laid down in the EU Guidelines for the TENs.

All the proposals were discussed in the three regional subgroup meetings; the TINA Secretariat compiled all these proposals into one, and incorporated this into the TINA Network that was addressed by the TINA Group in June 1998 and in the latest meeting of the Group in Potsdam in June 1999.

The backbone network and the additional network components form the total TINA network, which will constitute the basis of the proposal for the extension of the TENs in the enlarged Union.

3.1.4 THE INVESTMENT MEASURES - COST OF THE NETWORK

For the cost estimation of the network, possible investment measures had to be identified by which the existing infrastructure is brought to a level which complies with the UN-ECE recommendations (WP.5) relating technical standards and features of infrastructure with capacities and expected traffic on the network. Each country reported its proposals for such possible investment measures. In some cases the investment measures as proposed by the countries, are designed to satisfy national strategic interests, not always coinciding with European perspectives. Seeing the TINA network as the future extension of the TENs in an enlarged Union, one should always recall the TEN-Tr Guidelines requirements, about the criteria, which refer to “projects of common interest”. In this respect, and in order to apply the Decision's 1692/EC requirements, the European Commission has to identify those possible investment measures that are of particular interest for the Union as a whole.

The cost of the entire network results from the addition of all the reported individual measures. First estimations for the cost of the network were presented in the first TINA Progress Report and in the Draft Final TINA Report. In the Final Report, a final estimate appears (€ 91.6 billion), based on new information, updated by the countries. The completion of the backbone network constitutes about three-quarters of the total. From the results of a PHARE Study[4] concerning the construction unit costs in the acceding countries, an independent indication for this cost was derived (according to the results of this Study, the costs of the railway and road components of the network might be substantially reduced).

Working for the design of the TINA network, the countries made their proposals identifying a number of measures, which contribute to the realisation of an infrastructure, which should have standards and technical characteristics according to their views. However, in case of common financing, these proposals should be also looked under the light of the recommendations of the UN-ECE Working Party on Transport Trends and Economics (WP.5) on the definition of transport capacities, taking into consideration the future traffic forecast. Ambitious plans may be useful for the countries and the future users, but the failure of investment in transport infrastructures to keep up with growth in demand for mobility can have severe economic and social consequences. In the TINA process, the future demand should define the needs of the infrastructure to be constructed. This future demand was investigated for all modes, from the results of a relevant PHARE Study[5]. The TINA Final Report based some conclusions on the network design on the results of this Study, using a traffic scenario with the maximum forecasted traffic per section.

[4] Updating of Transport Unit Costs in Acceding Countries, COWI Consult
[5] Traffic Forecast on the ten Pan-European Corridors of Helsinki, NEA

Before any decision on financing/funding individual projects is taken, the projects proposed for implementation should be subject to a socio-economic assessment.

The TINA Group has recommended establishing a common method for socio-economic project assessment, which the funding and financing institutions would endorse. In addition, environmental assessment needs to be incorporated into this socio-economic appraisal at both network and project level. A relevant proposal for a common methodology has been approved, after its elaboration by the European Commission and the TINA Secretariat, using the expertise of the main IFIs (World Bank, EIB and EBRD) and representatives of the academic community.

In order to obtain compatible results, the methodology of the Transport Infrastructure Needs Assessment (TINA) in Malta was fully based on the assumptions and principles of the TINA process for the other eleven candidate countries for accession.

4 THE ECONOMIC FRAMEWORK

4.1 GDP DEVELOPMENT

According to the information of EUROSTAT[6] and OECD economic survey the following table illustrates on one hand the last years' economic development (percent change on previous year) in the 13 candidate countries for accession and their produced GDP per capita at current prices and exchange rates in EURO (same unit as used in TINA FINAL Report, November 1999):

	GDP growth rates					GDP per capita
	in %	in %	in %	in %	in %	in EURO
	1996	1997	1998	1999	2000	2000
BULGARIA	-10.1	7.0	3.5	2.4	5.8	1,590
CYPRUS	1.9	2.5	5.0	4.5	4.8	14,290
CZECH REPUBLIC	4.3	-0.8	-1.2	-0.4	2.9	5,360
ESTONIA	4.0	10.4	5.0	-0.7	6.9	3,810
HUNGARY	1.3	4.6	4.9	4.2	5.2	5,030
LATVIA	3.3	8.6	3.9	1.1	6.8	3,270
LITUNANIA	4.7	7.3	5.1	-3.9	3.9	3,320
MALTA	**4.0**	**4.9**	**3.4**	**4.1**	**5.4**	**10,030**
POLAND	6.1	6.8	4.8	4.1	4.0	4,450
ROMANIA	3.9	-6.1	-4.8	-2.3	1.6	1,770
SLOVAKIA	6.2	6.2	4.1	1.9	2.2	3,890
SLOVENIA	3.5	4.6	3.8	5.2	4.6	9,810
TURKEY	7.0	7.5	3.1	-4.7	7.2	3,230
CC-13	**5.0**	**4.7**	**2.9**	**0.0**	**5,0**	**3,600**
EU15	**1.6**	**2.5**	**2.9**	**2.6**	**3.3**	**22,500**

Table 4-1: Annual GDP growth rates and GDP per capita in €

Table 4-1 illustrates that the GDP per capita produced in Malta exceeds by far the average of the thirteen candidate countries. Malta has been catching-up with the EU; the produced gross domestic product in Malta reaches, with a figure of € 10,030 (12,600 at Purchasing Power Standards (PPS)), already 45% (53.2% at PPS) of the capita GDP produced in the European Union and exceeds the average one in the other accession countries by a factor of 2.8.

The average growth rate of the GDP for the last five years in Malta was in general terms stable with an annual growth between 3.4 and 5.4 percent. The figures of the first three quarters of the year 2001 with minus 1.4 to plus 2.0 percent are resulting from the global and European economic development in this period. Nevertheless the Maltese economy is performing and a number of important structural reforms are being gradually implemented. Trade liberalisation continued with the removal of import levies. The government is progressively reducing its weight in the economy although the privatisation of several public enterprises has been delayed. The financial sector has been strengthened after the introduction of new legislation reinforcing the regulatory and supervisory framework. Interest rates were fully liberalised in 2000 and the liberalisation process with respect to exchange controls will be completed by the first quarter of 2002.

[6] Statistic in focus: The GDP of the Candidate Countries; figures for the third quarter of 2001; February 2002

Diagram 4-1 shows the total GDP per capita at current prices and exchanges rates in Euro for the 13 candidate countries for accession and the European Unions' average.

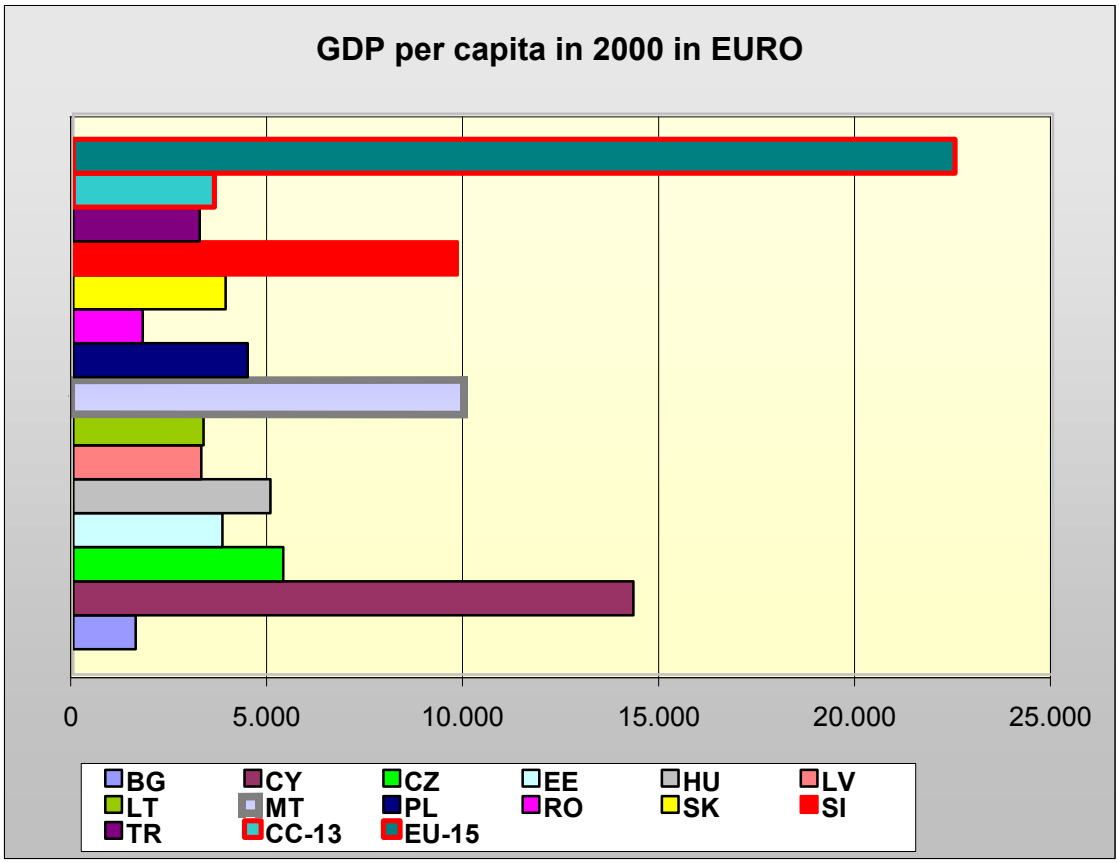


Diagram 4-1: GDP per capita

These data constitute a starting point for extrapolation for the future. According to the Forecasts by European Commission/ Directorate General Economic and Financial Affairs[7] – the situation in Malta was positively evaluated.

The outlook for real output growth for the period 2001 to 2004 remains with 3.3 percent stable at slightly lower level than those of the previous three years. Further improvement of the public finances is expected over the next years, in line with the sharp decrease of the public deficit experienced in 2000. The budget deficit could be decreased from 1998 (10.9 percent of GDP in 1998) to 2000 (6.8 percent of GDP in 2000) and it is further expected to keep this trend towards the end of the forecast period (3.9 percent of GDP in 2004).

The GDP growth over 2001-2004 is supported by an increase in the contribution of net exports to growth and moderate increases in domestic demand. In 2000, output growth has been driven primarily by a good export performance led by growth in the EU and a large investment activity, which was mainly induced by manufacturing companies expanding within the electronics sector. An increase in consumer demand contributed further to growth. Besides this major negative contribution, the net surpluses in the services account have decreased significantly. This is mainly due to the negative developments in the transport and other services account, which is very much linked to the abrupt increase in imports of goods.

Foreign direct investment is expected to increase during the forecast period. If the contribution of privatisation deals is excluded, foreign direct investment in 2000 has remained broadly stable in comparison to 1999. The environment for domestic investment

[7] Evaluation of the 2001 pre-accession economic programmes of candidate countries, January 2002

will improve with the new package of incentives provided by the Business Development Act. Further privatisation deals are expected to increase foreign investment in 2001-2002.

The outlook for public finances in 2001-2002 remains positive and implies a further reduction of the budget deficit. Higher revenues due to relatively robust real GDP growth and a better tax enforcement will underpin the decrease, while expenditure growth will decrease primarily as a result of strong controls aiming to reduce social security benefits fraud.

For the future trends in Malta (2002-2015), the same assumptions as used in the assessment process of the 11 other acceding countries have been applied. These preconditions for the future development have been discussed in various fora with the European Commission, the TINA Senior Officials' Group, EUROSTAT and representatives from OECD.

The extrapolation to the future years was made under the assumption that growth rates gradually converge with average growth rates in the Union. The possible evolution of the whole economy of the countries for the future was built for each of the considered forecast periods in three scenarios (high, moderate and low). With this assumption, it is likely that the GDP in Malta will nearly double between now and the year 2015.

The moderate scenario, which was taken as the reference scenario assumes that average growth rates in the acceding countries will reach level of 3 to 6%. The level of 4 to 6% will be reached at the stage of accession and be maintained for 5 years and will then slowly converge with EU levels.

The optimistic scenario assumes that average growth rates in the acceding countries will reach the level of 6 to 7%. The preconditions for this optimistic scenario are mainly a strict policy of structural reform and a compensation for the increase in salaries by an increased labour productivity; this would have several consequences: competitiveness of exports secures benefits of the current balance, interest rates remain relatively low and would assist as a consequence direct investments, reducing the dependency on foreign investments. The optimistic scenario is therefore based on the assumption that the accession process will follow the optimistic plan of the European Commission.

A more negative scenario would assume that GDP growth rates would be equal to or slightly less than the EU average growth rate of 2.5% expected for the next 15 years. This very negative assumption would imply that the acceding countries would not benefit at all from the accession process, a fairly unlikely scenario.

Using the moderate scenario, the total accumulated produced GDP in Malta (starting with € 3.9 billion in 2000) in the period 2002 to 2015 (14 years) is about € 80 billion.

Nevertheless the differences between the optimistic or the pessimistic scenario vis à vis the moderate scenario on average do not exceed 12 %. The pessimistic scenario will amount to about 90% of the moderate one; the optimist scenario will in total be only 10% higher than the moderate scenario.

Growth scenario	MALTA
Low	**€ 1,015 million**
Moderate	**€ 1,160 million**
High	**€ 1,320 million**

Table 4-2: 1,5% accumulated GDP 2002 – 2015

As in the TINA process for the eleven acceding countries, it appears justified to take, as a working hypothesis for the TINA in Malta process, the forecast figures derived from the moderate growth scenario.

Again like TINA, it is assumed that as an indicator for a realistic ceiling of planned infrastructure investments, their cost should not on average exceed 1.5% of the GDP in the coming years.

5 THE TINA NETWORK FOR MALTA

5.1 GENERAL ASSUMPTIONS FOR THE DEFINITION OF THE NETWORK

Similar to the first phase of the TINA process for the 11 candidate countries for accession, the definition of the TINA network in Malta was based on certain assumptions:

- the network should be in line with the criteria laid down in the EU Guidelines for the Development of the TENs (Council Decision 1692/96/EC and 1346/2001 for the assessment of transport infrastructure in Malta), according to the objectives described in Article 154 of the Treaty;
- the technical standards of the future infrastructure should ensure consistency between the capacity of network components and their expected traffic. To achieve this, it was accepted that these standards should be in line with the recommendations of the UN/ECE Working Party on Transport Trends and Economics (WP.5) on the definition of transport infrastructure capacities (Trans/WP.5/R.60);
- the time horizon for achievement of the network should be 2015;
- the cost of the network should be consistent with realistic forecasts of financial resources, so that average costs should not exceed 1.5% of each country's annual GDP over the period up to 2015.

The TINA process provides a reference framework for the transport network in the enlarged EU. As such, it should reflect transport needs at trans-national level, and would therefore need to be complemented by national and regional development strategies, developed in each candidate country, for their transport sector investments. In the case of Malta, such strategies are included in the present Report, mainly for the road network. In this respect, the complete TINA road network (including the TINA Main Road Network and the Access Road Network) in Malta mostly reflects national needs, **but it is by all means complementary to and consistent with the feature of the TEN and the rest of the TINA network.**

5.2 THE IMPORTANCE OF TOURISM AS JUSTIFICATION OF A HIGH QUALITY ROAD NETWORK

Between 1995 and 2000, there has been a steady growth in the influx of tourists by around 1.5% per annum, and in the year 2000, the total number of tourist arrivals in Malta reached 1.2 million i.e. three times more than Malta's residential population.

Statistical analysis of data collected as part of an expenditure survey carried out in 1998 indicated that tourism earnings in the Maltese Islands' amounted to around € 800 million each year; this may be broken down as follows:

Aviation related (AirMalta and airport) Revenue	€	175.88 million
Passenger handling Revenue	€	14.88 million
Accommodation Revenue	€	314.75 million
Catering (food and beverage) Revenue	€	133.90 million
Domestic Transport Revenue	€	35.75 million
Recreation Revenue	€	48.85 million
Shopping Revenue	€	66.90 million
Other Revenue	€	7.72 million
TOTAL	**€**	**798.63 million**

Source: The Economic Impact of Tourism in Malta, Malta Tourism Authority, 2000

Tourism has an impact on the four main aspects of the Maltese economy; namely: employment, Gross National Product, Government income and imports and outflows. In 1998 its impact was estimated as follows:

a) *Employment: 41,451 persons (34% of the total working population) were employed directly or indirectly within the tourism sector.*
b) *Gross National Product:* The direct impact of €348 million accounting for 10.45% of the national total GNP.
c) *Government Income:* the maximum impact contribution of tourism sector components to government income in 1998 was 21%.
d) *Import + Outflows:* Slightly more than 9% of total imports and outflows are as a direct result of tourism earnings, this rises to 13.69% when indirect earnings are taken into account.

The 1998 expenditure survey was also used to get an idea of what further expenditure tourists would be prepared to indulge in during their stay in Malta if no financial or time constraints were existent and what type of facilities and attractions they would like this destination to offer. From the responses, it is clearly evident that transport and its infrastructure play the most important role in the tourists' perception of staying in Malta (accounting 33.6% of responses). 28.9% of tourists felt that more investment should be made in improving road infrastructure, its signage, pavements, footpaths and the quality and frequency of bus services (used by 80.6% of tourists). A further 4.7% of respondents felt that further investment should be made to improve the quality of car hire and taxi services.

In conclusion, it can be seen that in a small country such as Malta that has few natural resources, the economy is almost totally dependent on the service sector and, in particular, on tourism. In highly competitive tourism market, a poor perception by the visitor of a country's transport system can, in the medium to long term, cause irreparable damage to the tourist industry and, through the multiplier effect, to the economy as a whole.

5.3 THE NETWORK

The TINA process in Malta was designed to initiate the development of a multi-modal transport network within the territory of the country. The Transport Infrastructure Needs Assessment in Malta resulted in a TINA Main Road Network and a network of access roads to the TINA main road network. In the consultants view only this complete network would satisfy the international needs of transporting goods arriving at the ports to its destinations on the island on one hand and to facilitate movements of international travels on the other hand. In another – future - stage, Malta together with the European Commission and the other Member States will decide (during the revision of the TEN Guidelines, starting probably in 2003), which parts of the complete TINA network in the island will be considered as a part of the extended TEN.

5.3.1 THE TINA MAIN ROAD NETWORK

Defining the TINA Main Road Network and estimating its cost were the first steps of the elaboration of a network for Malta. In order to link the international ports and the international airport, which represent the link to the Trans-European Transport Network, with the main centres of the islands of Malta and Gozo, Road No. 1 has been taken as basis for the main network definition. It was understood that all parties concerned agreed on the need of this network connection so that further justifications were not required.

According to the above assumptions the TINA Main Network has been defined as follows (from West to East):

Victoria (capital of Gozo) – Mgarr (ferry station on Gozo) – Cirkewwa (ferry station on Malta) – Bugibba – St. Julian's – Marsa – Valletta (including the links to Grand Harbour; Passenger Sea Terminal) – Luqa (airport) – Birzebbugia (Freeport)

5.3.2 ACCESS ROAD NETWORK

Following the methodology elaborated within the TINA process further network elements facilitating the access to the TINA Main Road Network have been proposed. These network components were proposed by the consultant in close cooperation with the Maltese authorities. The following justifications, which are in line with the criteria as established during the first phase of the TINA process are the basis of this network proposal.

The alignment and its justification (from North/West to South/East):

San Lawrenz (Gozo) – Victoria (Gozo)

San Lawrenz is a new resort that is being developed particularly for upmarket tourists. Tourist access to San Lawrenz from the Mgarr ferry service or the helicopter terminal in Xewkija necessitates traffic passing through the historical centre of Victoria, a centre which is now becoming congested and heavily polluted by road traffic, particularly in the Summer months. The link to San Lawrenz incorporates a city by-pass road project that would serve to mitigate these growing traffic problems.

Marsalforn (Gozo) – Victoria (Gozo) – Xlendi (Gozo)

Marsalforn and Xlendi are the two main tourist accommodation centres in Gozo. According to the survey carried out by Tour Operators and Travel Agents Association in 1997, 55% of tourists visit these two localities.

Bugibba – Rabat

This additional component links the country's main tourist accommodation centre St. Paul's Bay, Bugibba and Mellieha (20,000 beds) with the Country's old capital Mdina and its suburbs Rabat.

This link is of primary importance for the development of cultural-tourism in Malta. Mdina, 'The Silent City' is a living-museum and houses masterpieces of baroque architecture, Norman palaces and Roman archaeology and catacombs. A survey by Tour Operators and Travel Agents Association in 1997 identified that 85% of all tourists to Malta visit Rabat and Mdina.

The link is of a poor quality and many sections fall below acceptable design-safety standards. A high number of different scheduled bus services that are mainly used by tourists travel along this link at frequent intervals. The usage of this link by tourists staying in the northwest of Malta is expected to grow in relation to the expected increase in peak and off-peak season tourism over the next 15 years.

Rabat – Marsa

This link for most of its length is a high quality, dual-two lane carriageway that was newly constructed in the early 1990s. It is considered to be a very important access road to the TINA Main Road Network for three principal reasons: agricultural, warehousing and tourism.

- Agricultural – Ta' Qali, the centre for trading, importing and exporting agricultural produce is directly connected onto this link. Over recent years Malta's export market particularly in potatoes, onions and other perishable products such as flowers has been steadily growing. Such a market is dependant on a fast delivery and seamless transport connections to Europe to ensure the maintenance of high quality of produce being sold
- Warehousing – the link between Rabat and Marsa has been zoned in the Structure Plan for the Maltese Islands for land uses of goods storage and warehouse-distribution. The link is lined with warehouses and storage areas for machinery, industrial parts, timber and new cars that have arrived in Malta by sea via the port area.

- Tourism – the link provides important access between tourist resorts in the South of Malta and the historical centre of Rabat and Mdina.

Birkirkara By-pass (Mosta – Birkirkara – Msida)

This link has an important role as a relief road for a critical central section of the TINA Main Road Network for north–south traffic. The section of the Main Network between nodes EA12 (Paceville) and EA15 (Kappara Roundabout) has a capacity constraint imposed upon it by the existence of a site of special scientific interest on the coastal side of the route. This constraint means that accommodation of future traffic growth would not be fully realised on this part of the link and that, instead, a parallel link would be required to alleviate some of the congestion on the TINA Main Network. The Birkirkara by-pass link currently fulfils this network function during the morning peak and evening hours. This additional network component is also the main access route to the national hospital (800 bed), University (8,000 students) and a major import/export oriented manufacturing Industrial Estate.

Link to Manoel Island (Msida – Manoel Island)

The North Harbour area is the second largest centre for tourist accommodation -with well over 15,000 beds. Since 1998, a major ten-year tourism development project for the area has been underway which involves the renovation of Fort Manoel on Manoel Island and the development of a tourist complex accommodating 1,000 new apartments and a 340-berth yacht marina on Manoel Island and Tigné Point at a cost of € 350 million.

Tourist arrivals at the International airport and sea passenger terminal are transported by road along the TINA Main Road Network to the periphery of this area and then access the North Harbour area (with a certain degree of difficulty) by three narrow and unsuitable access roads.

Even with the present traffic impact of tourist-related traffic on the access roads leading to the area serious bottlenecks to traffic have developed. The projected increase in tourism emanating from new development in the area shall undoubtedly necessitate road upgrade link underneath the built-up area between the TINA Main Network to the coastal north Harbour area, along which, most tourist accommodation and entertainment establishments are situated.

Link to Marsamxett (Msida – Marsamxett – Valletta)

The link from the TINA Main Road Network to the Port of Marsamxett is considered to be an important additional network component in terms of both international and regional transport.

Marsamxett Port is used as the main bulk or containerised terminal for internal inter-island traffic; in 2001, this port handled over 100,000 tonnes of freight. The Port is conveniently close to the main network that directly serves the international seaports of Valletta and Marsaxlokk and is very often used as the initial or final leg in an international journey between Europe and Gozo.

This link also connects the country's main international yachting marina to the backbone network.

Link to Cottonera

The additional component link from the TINA Main Network to the Cottonera area is important for several reasons; namely: access to Port of Valletta, cultural tourism, industrial and conservation of heritage.

- Access to Laboratory Wharf (Port of Valletta) – the link provides access to the part of the Port of Valletta that handles the international sea transportation of grain, cement, new vehicles and some of the containers.
- Cultural Tourism – much of the building in Cottonera area, particularly in the town centres and around the coast, dates back to the time of the Knights of Malta (mid 16th Century). There are a number of historically significant buildings such auberges, palaces and fortification structures (most of which have now become museums) that are promoted and marketed for international cultural tourism purposes. According to a recent survey carried out by the Malta Tourism Authority, 80% of tourists visit historical sites in Malta. A major new tourism project is currently being implemented in this area, which involves the restoration and refurbishment of historic buildings around Dockyard creek. This project aims at generating economic activity and creating jobs in the area and further developing Cottonera from a tourist, cultural and historical point of view. The project shall increase the number of hotel beds from 700 to 1,100 and holiday residences by 160 units; other features include an international yacht marina accommodating 274 berths and retail, office and leisure facilities. A high number of different scheduled bus services travel along this link at frequent intervals that are well patronised by tourists.
- The Cottonera area is also important from an industrial perspective as it houses Kordin Industrial Estate for which connection to the port area is essential in the import and export of essential materials and products. Another thriving industry in the locality is the Mediterranean Film Studio (MFS) located in Kalkara, which has been servicing film producers from around the world for over 35 years. MFS continues to host blockbuster films as well as a wide range of low budget features, television series, commercials and music videos.
- Conservation of Heritage – the anticipated growth in cultural tourism in this part of Malta shall, without a doubt, exert considerable pressure on the existing local road network centre due to its traditional narrow layout of street and the expansion constraints of fortifications. To meet future transport needs, a by-pass road has been planned to help alleviate the weak links or bottlenecks that may develop over the next 15 years.

Concluding the TINA Main Network and the Access Roads to the TINA Main Network consists of (for a detailed description of all the sections see Annex II):

- **1 airport**
- **5 ports (Valletta, Marsaxlokk, Cirkewwa, Mgarr, Marsamxett)**
- **51 km of TINA Main Roads**
- **45 km of Access Roads**

The detailed description of every section including technical characteristics, traffic flows, projects and cost estimations can be found in Annex II.

The total network as presented in the map seems to be quite dense. Nevertheless, the index showing the density of Malta's Main road network versus the population reaches not more than about 65% of the ration in the Union. The ratio of the total road network in Malta versus its population exceeds the ratio in the European Union by about 20%.

However, there are two strong arguments that can justify this "density":

Malta's urbanisation covers the most of the island, with a very high diversity over the total area, and the population needs a dense road network to cover its social needs for transport.

To serve the population, the European Union and the candidate countries for accession use two types of "longitudinal" networks: roads and railways. If we consider the lack of railways in Malta, then the road network is by far not as dense as in the other countries. The density of the TINA Main road network in Malta compared with the total (rail and road) network in the

Union reaches only 32 %. If one calculates with the length of Malta's total road network and compares this index with Unions' one for the total road and rail network Malta reaches only 61% of the density in the Union.

	Surface Area	Population	Length		Km per million Inhabitants		
			Roads	Rails	Roads	Rails	Road and Rail
	In km²	in mil. inh.	in km	in km			
Cyprus	9,250	0.60	425	-	708.33	-	708.33
Malta - Main Network	**316**	**0.39**	**51**	**-**	**130.77**	**-**	**130.77**
Malta - Total Network	**316**	**0.39**	**96**	**-**	**246.15**	**-**	**246.15**
TOTAL TINA (without Malta)	1,087,617	105.90	18,638	20,924	176.00	197.58	373.58
EUROPEAN UNION	2,238,700	372.10	75,300	73,900	202.36	198.60	400.96
Ratio CEEC/EC	48.58%	28.46%	24.75%	28.31%	86.97%	99.49%	93.17%
Ratio Malta (main net.)/EC	**0.01%**	**0.10%**	**0.07%**		**64.62%**		**32.61%**
Ratio Malta (total net.)/EC	**0.01%**	**0.10%**	**0.13%**		**121.64%**		**61.39%**
Ratio Malta (main net.)/TINA	**0.03%**	**0.37%**	**0.27%**		**74.30%**		**35.00%**
Ratio Malta (total net.)/TINA	**0.03%**	**0.37%**	**0.52%**		**139.86%**		**65.89%**

Table 5-1: Main indices for the TINA network in Malta (Main network and total network), Cyprus, CEECs and EU

5.4 COST OF THE NETWORK

The cost of the entire network results from the addition of all the reported individual measures, as reported by the responsible authorities in Malta. Working for the design of the TINA network, Malta made its proposals identifying a number of measures, which contribute to the realisation of transport infrastructure elements, which comply with the current and future economic and social needs. The identified investment measures have to be further elaborated to form concrete projects, ready for financing. In line with the international practice, before any decision on financing/funding individual projects, the projects proposed for implementation should be subject to a socio-economic assessment, and environmental impact analysis.

The costs to realise the multi-modal TINA Main Network in Malta (including main roads, ports and one airport) are estimated with **€ 399.62 million.** The additional costs to realise the Access Road Network is estimated with **€ 90.66 million.**

The costs to realise the total TINA Network till 2015 sum up to **€ 490.28 million.**

Table 5-2 below has been elaborated using the figures for forecasted GDP per country (period: 1999 to 2015, for the first 11 candidate countries, TINA Final Report, November 1999) and the forecast for Malta (see Chapter 4). The table illustrates the comparison of the expected accumulated GDP with the construction costs for the TINA network for each country. Thus, the table shows the economic capacity of each country to construct the TINA network in its territory, under the TINA assumptions.

Countries	1.5 % of the accumulated GDP 2002 – 2015	Cost in € billion
Bulgaria	3.0 - **3.2** - 3.8	5.3
Cyprus	2.8 - **2.9** - 3.2	1.1
Czech Republic	12.0 - **13.2** - 14.4	10.2
Estonia	1.3 - **1.3** - 1.6	0.6
Hungary	13.4 - **14.8** - 17.2	10.2
Latvia	1.4 - **1.5** - 1.7	2.0
Lithuania	2.1 - **2.2** - 2.5	2.3
Malta – Main Network	1.02 **– 1.16 –** 1.32	**0.40**
Malta – Total Network	1.02 **– 1.16 –** 1.32	**0.49**
Poland	42.1 - **47.4** - 49.3	36.4
Romania	7.8 - **9.5** - 10.3	11.2
Slovak Republic	6.1 - **6.3** - 6.8	6.5
Slovenia	5.9 - **6.4** - 6.7	5.8

Table 5-2: accumulated GDP versus construction costs of the network

Diagram 5-1 illustrates the results of Table 5-2, showing the construction costs of the TINA Network per country, versus the financial ceiling.

An assessment on costs shows that Malta is fare below the threshold of 1.5 % of the accumulated GDP set in the TINA process.

The possible ceiling for the construction of the network is about € 1.16 billion (moderate scenario) while the reported costs (calculated with the main network) sum up to € 399.62 million. This represents with 34% about 1/3 of the accepted framework. Even, if one calculates with the total network costs of € 490.28, the ceiling is far not touched (42%).

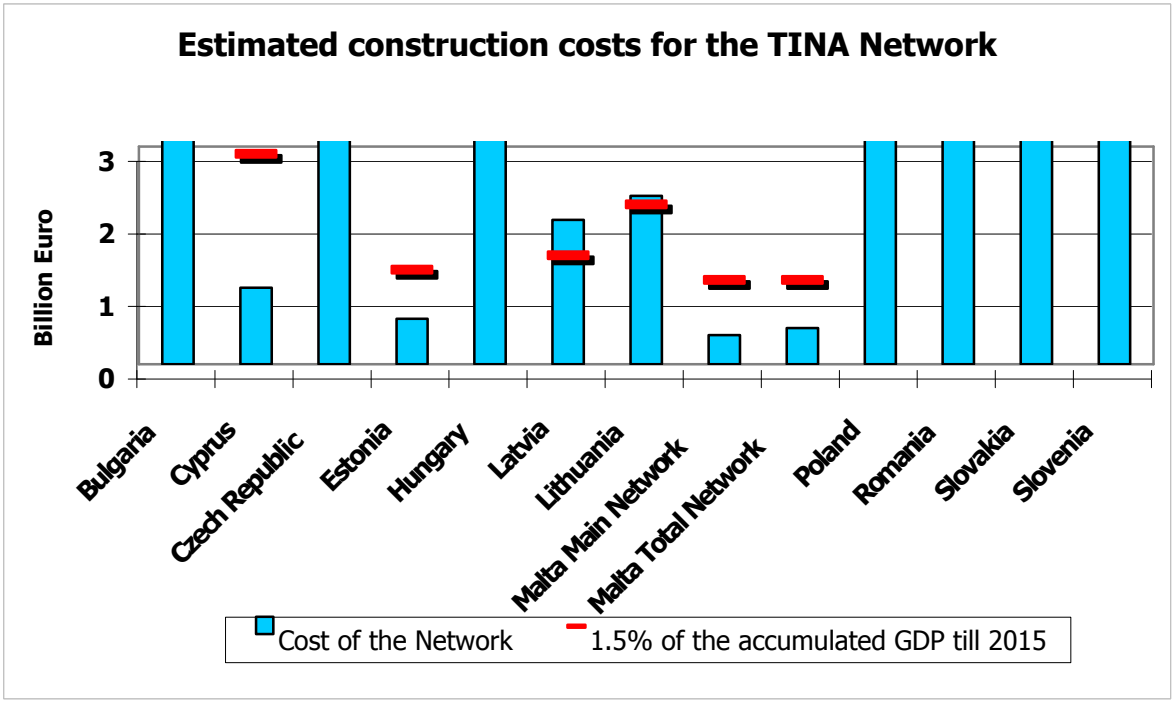


Diagram 5-1: Estimated construction cost for the TINA Network

6 THE DATABASE

The purpose of the TINA Information System (TIS) is to provide a display and query tools as well as information management capabilities for the TINA process. Using the system, the users can maintain and review both a graphical and a textual transport database and perform simple analyses and reports. The System offers tools for creation, editing, management, analysis, display and mapping of technical transport information on personal computer. It includes a high quality map and transport database for the entire TINA territory out of which the countries' data can be extracted. The System supports data collection and is used to create transport maps, analyses and reports. It can save, update, elaborate and retrieve the received information and print various reports. The user can review networks based on actual transport infrastructure and traffic data, and generate overview maps, statistical reports and technical analyses.

The TINA Network on Malta is described through a specific database developed by TINA VIENNA for the needs of the study.

This database focuses on the necessary background information of the existing situation of the transport network, and provides information about the future development of the network. The detailed information of foreseen development and future status of the network includes key financial and alignment information on the per year basis. It contains information for the following transport modes:

- roads
- seaports
- airports
- sealinks
- airlinks

The Malta transport database is composed of two main data sets: textual and graphical. The textual database stores detailed information about the transport infrastructure, traffic flows and projects; the graphical part includes cartographic description of transport networks covering all the area of Malta.

The textual database is organized in a tabular way, with each table consisting of group of fields related to a specific type of information (i.e. a road section, projects, etc.).

It is implemented in a relational database environment.

For details about database structure see Annex III.

The geographical database consists of two main data types: nodes, representing airports and seaports; and links, representing roads, sealinks and airlinks. All items are connected to textual attributes presenting technical information, projects and traffic flows. These attributes are the main source of information used in preparation and validation of transport models.

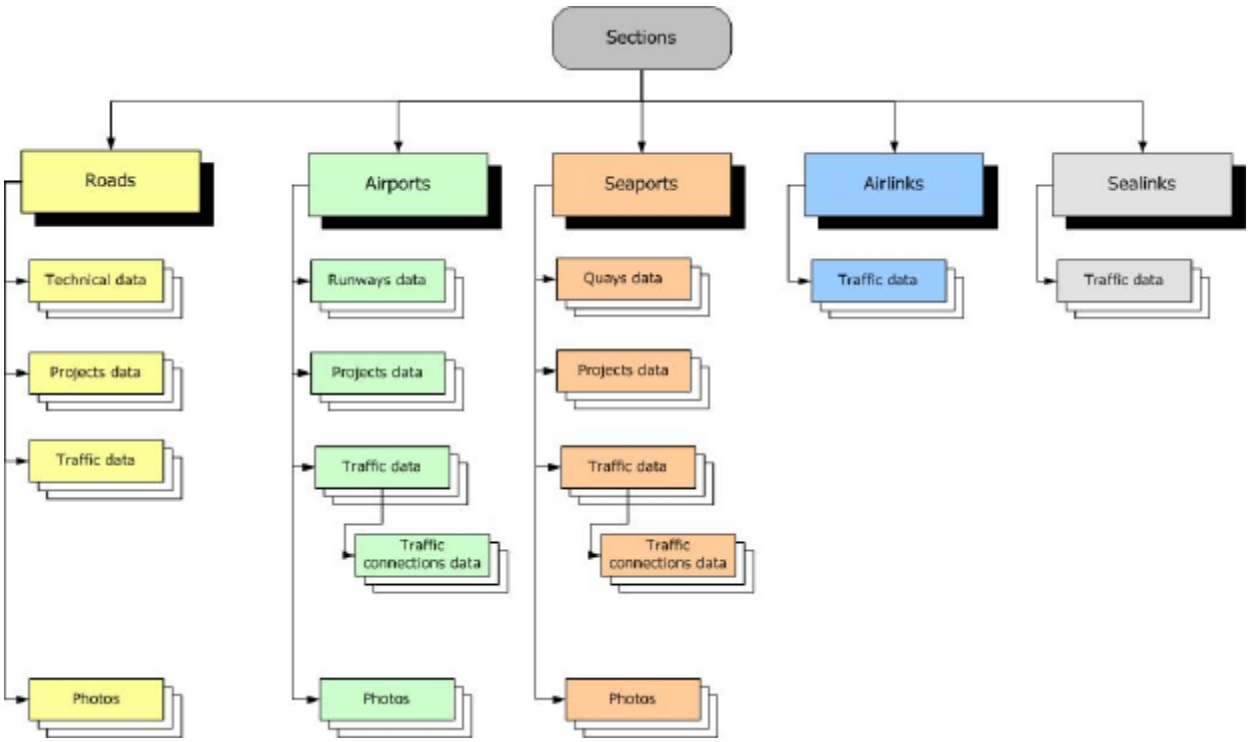
The whole database is based on a specific concept with the same functionality used for all transport modes. For each mode, the geographical information can be overlapped with detailed thematic data on infrastructure, traffic, type of environment, terrain and sections' condition. This specific information can also be accessed both through data queries and directly by pointing on the map.

The database can be accessed, queried, displayed and modified with broad range of commercial and custom-made GIS software platforms. The network elements were identified in a way compatible with the geographic information systems used in the European Commission and during the TINA exercise. The geographical location of all segments has been carefully represented.

The modular architecture makes easy to add new information and accommodate any specific requirements of further work whenever necessary. Designed to improve the data collection process, it also provides the built-in flexibility for further data management as well as mapping, reporting and data querying.

In the present status, the database contains information on 60 road sections, 5 seaports, 1 airport, 22 internal sealinks and 1 internal airlink.

The data structure is illustrated on the following schema:



7 TRAFFIC FORECAST

A transport infrastructure needs assessment is strongly linked to traffic forecast.

In the TINA for the eleven candidate countries for accession (1997-1999) the countries made their proposals identifying a number of measures, which would contribute to the realization of an infrastructure, which had standards and technical characteristics according to their needs. However, practice shows that in case of common financing, proposals should be also looked under the light of common recommendations. UN-ECE Working Party on Transport Trends and Economics (WP.5) provides reliable common basis for the definition of transport capacities, taking into consideration the future traffic forecast.

Although ambitious plans may be useful for the countries and the future users, the failure of investment in transport infrastructures to keep up with growth in demand for mobility can have severe economic and social consequences. In the TINA process for the eleven countries, the future demand defined the needs of the infrastructure that should be constructed. The need for detailed future traffic forecasts (based on common sources and assumptions) led the European Commission to launch a specific Study for Traffic Forecasts on the TINA network. The Study was concluded in July 1999 and covers the future planning needs, while also providing basic information for the purpose of project linked cost-benefit analysis (reference: ToR of the PHARE Study "**Traffic Forecast on the ten Pan-European Transport Corridors of Helsinki**", NEA – IWW – INRETS, July 1999).

Based on the base year databases, forecasts were made. Several scenarios were developed, containing descriptions of socio-economic development, of the integration process in Central Europe and of the completion of infrastructure. The forecasting techniques used contained growth models, partly based on developments of transport times and costs and partly based on the effect of the harmonisation of the transports markets within Europe. Before applying the assignment phase, the tons of freight transport and the number of passengers have been translated into number of vehicles.

As the traffic volumes play a significant role in investment allocation, the traffic forecast is a procedure with direct economic impacts and has to be dealt efficiently, minimizing the risks of miscalculation and wrong judgement.

In the case of Malta, the necessary investment to upgrade the capacity of the transport infrastructure has been undertaken during the last years, regarding air and maritime transport.

The present air terminal became fully operational on 25 March 1992, closing down the old terminal after 35 years. This relatively new terminal has been designed to serve annual volumes of 5.0 million passengers. The current traffic is about 3.0 million passengers as reported in the last annual report of MIA, with a rate of increase of 10% during the past six years (from 2.7 million passengers in 1995 to 3.0 million passengers in 2001).

Under these circumstances the airport is bound not to face capacity problems for the next 15 years.

Year	Total passenger movements (arrivals + departures)	Average annual change
1995	2,644,595	
1996	2,564,578	-3.03%
1997	2,752,635	7.33%
1998	2,875,473	4.46%
1999	2,984,558	3.79%
2000	3,004,714	0.68%
2015 if current trends continue	*Less than 4,000,000*	

Table 7-1: annual passenger growth; Source: MIA, Annual Statistical Review, 2000

Regarding maritime transport, the port of Valletta has the problem of expansion as it does not have the necessary space. However, a certain amount of expansion of the port hinterland could be possible with the acquisition of property and land in the port area from third parties.

As far as Freeport is concerned, the recently (1999) constructed Terminal Two, Malta Freeport's second container terminal is one of the largest infrastructure projects ever undertaken in Malta. Terminal Two is capable of handling three mother vessels, one feeder and a ro-ro vessel simultaneously. With such an additional capacity the Freeport has limited needs of expansion.

However there is a plan of expansion through new constructions concerning the distripark facilities. An additional 36 warehousing units will be constructed. Each unit will have a covered area of 500m^2 with clear headroom of 8m and an uncovered area of 395m^2. Larger units can be made available by liking adjacent warehouses.

154,967m^2 of land is available for the further expansion of the Terminal One yard area increasing the number of container ground slots by 3,578. It will also provide a Magazine Area to support the Terminal Two volumes.

Port	Year	Total freight traffic volumes (1000 tonnes)	Number of passenger movements	Trans-shipment facilities for short distance shipping	Seaport open to any user on a non-discriminatory basis	Major role in international maritime transport	Seaport category (Art. 12 of amended Guidelines (A, B or C)
Valletta	1998 1999 2000 2001 2005 2010 2015	2,497 2,374 2,817 2,832 2,950 3,000 3,010	494,976 483,352 384,860 447,517 560,000 650,000 800,000	Yes	Yes	Yes	A
Marsaxlokk	1998 1999 2000 2001 2005 2010 2015	13,053 12,784 13,797 15,278 20,000 27,000 32,000	Nil Nil Nil Nil Nil Nil Nil	Yes	Yes	Yes	A
Cirkewwa	1998 1999 2000 2001 2005 2010 2015	83 87 90 92 105 115 120	2,850,794 2,933,479 3,047,101 3,138,514 3,500,000 4,100,000 4,460,000	No	Yes	No	C
Marsamxett	1998 1999 2000 2001 2005 2010 2015	92 85 67 101 115 125 135	25,990 23,824 21,519 22,210 25,000 30,000 40,000	No	Yes	No	C
Mgarr (Gozo)	1998 1999 2000 2001 2005 2010 2015	175 172 157 193 220 240 255	2,876,784 2,957,303 3,068,620 3,160,724 3,525,000 4,130,000 4,500,000	No	Yes	No	C

Table 7-2: Seaport Traffic Forecasts

In contrast to the other modes of transport, road transport faces severe congestion problems in Malta. It has been reported that there are a lot of problems due to the inadequate physical capacity of the road system all over the Maltese islands. The problem is expected to become worsen the coming years, if no measures are taken to expand the existing capacity.

One of the main rules underlying the TINA process is that the technical standards of future infrastructure should ensure that there is consistency between the capacity of network components and their expected traffic. To achieve this, it was accepted that these standards should be in line with the recommendations of the UN/ECE Working Party on Transport Trends and Economic (WP.5) on the definition of transport infrastructure capacities (Trans/WP.5/R.60).

The efficiency of a traffic network depends, on the one hand, on the structure and density of the network and, on the other, on the quality of single network elements -sections and points of interconnection. The level of service concept and the relations between capacity and quality of transport service is an indicator drawn upon in order to identify deficient parts of a network.

The main cause of infrastructure bottlenecks is insufficient infrastructure capacity. In order to eliminate bottlenecks of this kind, measures to extend capacity are, therefore, necessary. A quantifiable and practical bottleneck criterion that is to be found in all European countries is that of road capacity. It allows for the comparison of bottlenecks in various countries.

The capacity of a road is generally defined by the maximum number of vehicles capable of passing a section of a road. Capacity always relates to a set of operating conditions concerning infrastructure on the one hand and traffic on the other.

When defining the elements of bottlenecks and missing links the quality of service of a transport infrastructure is implicitly determined. On the other hand, the notion of capacity is related to the explicit description of corresponding quality levels of transport service which may be defined by the values of a number of quality indices such as vehicle speed, travel time, regularity of transport, comfort and convenience, cost of vehicle movement etc. If a high quality of transport service is to be obtained, a somewhat reduced capacity must be accepted. Conversely, if the acceptable quality level is lowered, a higher capacity will be achieved. From this interrelationship, it follows that for each mode of transport a compromise has to be achieved between capacity and level of service, which is specific for each particular case. Thus, the precondition for the identification of bottlenecks is the determination of the desired quality of transport service required. The capacity can be determined depending on this quality.

In the case of roads, the term "quality of transport service" is used to refer to a number of parameters, such as travel speed and travel time, traffic interruptions, and freedom of manoeuvre, safety and comfort.

Between these different parameters of influence, there are multiple interrelations. On the other hand, the quality of transport service depends on the infrastructure situation, as there are the concepts of horizontal and vertical alignments, number of lanes, width of lanes, quality of road surface, etc. In addition, the volume and composition of traffic plays a decisive role in the quality of transport service.

To forecast the future traffic in Malta, the use of a sophisticated model was necessary and most recommended. The TRIPS model had already been installed and developed by the Planning Authority since 1999. The necessary software was loaded onto the Planning Authority network and the use of the model was already tested, therefore the use of this model suited perfectly the needs of the current project.

The model was initially created based on the Household Travel Survey conducted by Price Waterhouse Coopers in co-operation with the Maltese Authorities, on 25 November 1998. Survey forms were sent to 15,165 households. The target sample was 8,000 households,

with at least a 33% return rate from each locality. The survey resulted in 7,855 responses, covering 20,929 people and over 51,000 trips. This represented the 51.3% of the sample and reached over 33% in each locality. The Transport Planning Unit considered the results satisfactory.

After the data was collected it first had to be calibrated with the help of the latest census (1995). The next step for the development of the model was to calculate and forecast the car ownership, which is usually done by taking into account data concerning the increase of household income or GDP. However, in this case, data to construct a relationship between car ownership and household income or GDP was not available, therefore the rate of growth in car ownership was derived from the registration records of the Driver and Vehicle Licensing Department (DVLD). A simple exponential curve was projected to rise towards the saturation level. The growth rate of the past years as well as the effects of the saturation level was the main factors assessed during the calculations. The saturation levels for vehicle ownership were determined by setting the model so that all adults hold driving licenses.

The next major item needed for travel demand forecasts was the number of trips generated by households. The use of public transport and the occupation categories were the main elements used for the build of the car and bus trips matrices for the morning peak hour and for all day. The morning peak trips were taken from the period between 06:00 and 09:00 and then factored by 3/7 to represent a peak hour from 07:30 to 08:30.

Trip rates and vehicle ownership were related to household composition by fitting linear regression models to the Household Travel Survey data. The models were then used to predict changes in trip rates and vehicle ownership from the projected changes in household composition.

The travel forecasting was based on Structure Plan Review projections of population, households and employment.

A number of different scenarios were run in order to test the sensitivity of the model.

A trips project had been created to run the transport model for different land use scenarios. A single project can produce forecasts for both highways and public transport in both 2010 and 2020. The initial scenarios assumed that housing and employment would remain in the same locations. Increases in housing and employment over and above the initial levels represented developments that could be disposed according to planning policy. The scenarios were defined by the location of these disposable land uses. The scenarios tested had the same population and employment forecasts, therefore the total number of trips was always the same. What the scenarios specified, was the location of the trip ends, since the model allows for them to be proportioned according to different land uses specified by zone, representing the development options of the scenario. The model provides the ability of comparing any two scenarios.

The prime output is a small file of total travel costs. There are four lines of data, each preceded by a heading line. The four lines are:

1. Public Transport data for 2010
2. Public Transport data for 2020
3. Highway data for 2010
4. Highway data for 2020

Each line has three items of data. For Public Transport they are:

1. Total Travel time, in passenger minutes
2. Total Travel distance, in passenger kilometres
3. Total Travel time in vehicle, in passenger minutes

Walking and waiting time can be deduced from the difference between the first and last of these. No weighting is applied to walk or wait time.

For highways, the three items of data are:

1. Total Travel time, in vehicle minutes
2. Total Travel distance, in vehicle kilometres
3. Total generalized cost, in vehicle minutes,

where cost = time in minutes + $^1/_2$ distance in kilometres

The model was used to forecast the future (2010) road traffic in Malta. The results were based on traffic counts (daily 2 hours counts in 1999), and were transformed to AADT[8] using parameters specially selected for Malta[9]. For 2015 the forecast was made by extrapolation of the 1999 and 2010 figures

The final outcome in AADT is shown in a separate map in Annex I. The results can also be seen in the TINA database, where they were also used for the TINA GIS.

The main results are shown in the following tables:

site - node number - TINA code / year	**Rabat - GA32-GA34 - MTR006, MTR007**	**Xewkija - GA34-GA35 - MTR008**	**Mgarr - GA37-GA38 - MTR011**	**Marsalforn - GA41-GA32 - MTR013, MTR014**	**Rabat - GA32-GA14 - MTR015 (one way)**	**Xlendi - GD17-GD16 - MTR016**
1999	14605	16413	8251	6863	7708	2652
2005	16447	18484	9293	7729	8681	2987
2010	18159	20408	10260	8533	9584	3298
2015	19085	21449	10783	8969	10073	3466

Table 7-3: Traffic forecast for road sections on Gozo

site - node number - TINA code / year	**Cirkewwa - NA1-NA2 - MTR020**	**Bugibba - NA8-NA9 - MTR025, MTR026**	**St. Julians - EA12-EA14 - MTR029**	**Marsa - EA20-EA21 - MTR036**	**Luqa - WA22-WA23 - MTR037**	**Hal-Far - WA26-SA27 - MTR041**
1999	3615	20469	81382	135779	35048	7570
2005	2999	22982	80930	159970	35437	6364
2010	2486	25076	80553	180129	35762	5360
2015	2650	26123	81737	190209	36901	5406
Burmarrad - ND2-ND3 - MTR042	**Mdina - NA14-NA15 - MTR045**	**Attard - WA9-WA8 - MTR046**	**Birkirkara - WA7-WA6 - MTR047**	**L-Iklin - WA2-WA1 - MTR050**	**Valletta - EA7A-EA5 - MTR052**	**Paola - EA21-SA11 - MTR056**
14715	14681	39834	46623	20706	95028	14036
21731	29333	55192	58942	34437	84929	46906
27578	41543	67990	69208	45879	76512	74297
30502	47648	74389	74341	50667	76512	87993

Table 7-4: Traffic forecast for road sections on Malta

[8] AADT: Annual Average Daily Traffic
[9] These parameters were provided by the Planning Authority of Malta

8 ASSESSMENT OF LOCAL ADMINISTRATIVE INFRASTRUCTURES

8.1 TRANSPORT POLICY

Policy on transport was always one of the very significant points for discussion in the Union, characterised by many peculiarities, as the many options of this field often mislead the rational development of the various transport structures, at least on a national level. After thirty years of continuous partial interventions, Common Transport Policy has now taken a concrete shape, with clear objectives, which can be very broadly summarised in the principle of "*sustainable mobility*".

Transport is a key factor in modern economies. But there is a permanent contradiction between society, which demands ever more mobility, and public opinion, which is becoming increasingly intolerant of chronic delays and the poor quality of some transport services. As demand for transport keeps increasing, the Community's answer cannot be just to build new infrastructure and open up markets. The transport system needs to be optimised to meet the demands of enlargement and sustainable development, as set out in the conclusions of the Gothenburg European Council. A modern transport system must be sustainable from an economic and social as well as an environmental viewpoint.

Plans for the future of the transport sector must take account of its economic importance. In the Union, total expenditure runs to some 1,000 billion Euro, which is more than 10% of gross domestic product. The sector employs more than ten million people. It involves infrastructure and technologies whose cost to society is such that there must be no errors of judgment. Indeed, it is because of the scale of investment in transport and its determining role in economic growth that the authors of the Treaty of Rome made provision for a common transport policy with its own specific rules.

For a long time, the European Community was unable, or unwilling, to implement the common transport policy provided for by the Treaty of Rome. For nearly 30 years the Council of Ministers was unable to translate the Commission's proposals into action. It was only in 1985, when the Court of Justice ruled that the Council had failed to act, that the Member States had to accept that the Community could legislate. Later on, the Treaty of Maastricht reinforced the political, institutional and budgetary foundations for transport policy. On the one hand, qualified majority replaced unanimity, in principle, even though in practice Council decisions still tend to be unanimous.

The European Parliament, as a result of its powers under the co-decision procedure, is also an essential link in the decision-making process, as was shown in December 2000 by its historic decision to open up the rail freight market completely in 2008. Moreover, the Maastricht Treaty included the concept of the trans-European network, which made it possible to come up with a plan for transport infrastructure at European level with the help of Community funding.

The Commission's first White Paper on the future development of the common transport policy was published in December 1992. The guiding principle of the document was the opening-up of the transport market. Over the last ten years, this objective has been generally achieved, except in the rail sector. Nowadays, lorries are no longer forced to return empty from international deliveries. They can even pick up and deliver loads within a Member State other than their country of origin. Road *cabotage* has become a reality. Air transport has been opened up to competition, which no one now questions, particularly as our safety levels are now the best in the world. This pening-up has primarily benefited the industry and that is why, within Europe, growth in air traffic has been faster than growth of the economy. The first real advance in common transport policy brought a significant drop in consumer prices, combined with a higher quality of service and a wider range of choices, thus actually changing the lifestyles and consumption habits of European citizens. Personal mobility,

which increased from 17 km a day in 1970 to 35 km in 1998, is now more or less seen as an acquired right.

The co-ordinated infrastructure modernisation and the development of sophisticated transport control systems came as results of the dynamic policy for transport efficiency. Interoperability is still an important goal to be achieved, though there was a big progress in this field as well.

However, it is a matter for regret that modern techniques and infrastructure have not always been matched by modernization of company management (particularly rail companies). Despite the successful opening-up of the transport market over the last ten years, the fact remains that completion of the internal market makes it difficult to accept distortions of competition resulting from lack of fiscal and social harmonisation.

The fact that there has been no harmonious development of the common transport policy is the reason for current problems such as: – unequal growth in the different modes of transport. While this reflects the fact that some modes have adapted better to the needs of a modern economy, it is also a sign that not all external costs have been included in the price of transport and certain social and safety regulations have not been respected, notably in road transport. Consequently, road now makes up 44% of the goods transport market compared with 41% for short sea shipping, 8% for rail and 4% for inland waterways. The predominance of road is even more marked in passenger transport, road accounting for 79% of the market, while air with 5% is about to overtake railways, which have reached a ceiling of 6%;

- congestion on the main road and rail routes, in towns, and at airports;
- harmful effects on the environment and public health, and of course the heavy toll of road accidents.

In an effort to resolve some fundamental differences between its Member States, the Commission argues, road controls play an essential role in ensuring compliance with the rules, and they should, therefore, be made more effective and uniform. The introduction of the electronic tachograph in the near future is one element of this. Moreover, a paper on inspections and penalties, to be put forward, will draw attention to the need for a systematic exchange of information, coordination of inspection activities, regular consultations between national administrations and training of inspectors.

Regarding short sea shipping, the European Parliament has adopted a comprehensive policy statement on this issue. It stresses the need to develop appropriate infrastructure, and calls for environmental laws on ship's engines and bunker oil. It also proposes more flexible rules on waste and the use of pilot services for short sea shipping.

The European Parliament supports the use of key performance indicators (KPI): "The development of best practices and KPIs can make a very important contribution towards enhancing the performance of short sea shipping; once established, KPIs can be used to compare performance between operators and other modes of transport and will help to identify infrastructure bottlenecks and highlight where improvements can be made. Support for more infrastructure development is one of the main considerations of the European policy. The European Parliament calls the Commission to consider more closely the question of the links between short sea shipping and other means of transport or infrastructures for access by land, so as to ensure that both the industrial and commercial sectors enjoy the infrastructures necessary to sustain their economic activities properly. It also welcomes the Commission's attention to the problems of bottlenecks. Moreover, the European Parliament calls on the European Investment Bank and the European Commission to ensure that port infrastructure investment projects are adequately represented in the development of the Trans-European Networks.

The European Parliament asks for measures to eliminate the environmental shortcomings of short sea shipping, even if it also recognizes the environmental advantages of this sector.

One important piece of policy is the necessary complementarity between various forms of transport and the value of opting for maritime transport wherever it is competitive. According to the European Commission, the private sector plays an important role in short sea activities, but nevertheless, there are certain aspects of market conditions which require the intervention of public authorities at regional, national and European level. They need to:

- Ensure that there is no distortion of competition
- Review and, if necessary, abolish the compulsory use of certain port services
- Tackle any abuse of dominant positions in port services
- Simplify and streamline administrative formalities and documents
- Optimise infrastructure for links with the hinterland

The European Parliament has expressed its will for joint investment programs in the Mediterranean area, in the Adriatic and in the ports of the Canary Islands, the Azores and Madeira, taking account in particular of incentives for short sea shipping lines and simplification of customs and embarkation procedures. More generally, it calls for administrative requirements to be harmonized and applied effectively by the national port authorities, for more precise application of European customs legislation and for closer cooperation between all parties involved (customs and transport services). Further clauses in the Parliament's Resolution stress the importance of collecting appropriate statistics and of more effective promotion campaigns for short sea shipping, and the need for technological research and for encouraging electronic data exchanges between all involved in the sector.

8.2 EXISTING CAPACITY OF ADMINISTRATIVE INFRASTRUCTURES FOR TRANSPORT IN MALTA

In Malta, transport infrastructure and operations are a key element in the effective functioning of its economy, internally, as well as for external trade. Especially the maritime transport capability, due to Malta's location on an important central point, provides a revenue-earning service that contributes significantly to economic activity and growth.

The Government and the private sector have sought to develop this capability by building and maintaining efficient transport structures that can in general satisfy the demand. The existing structures that manage the transport business in Malta are individually well organized, with good performance and staff and equipment that meet the modern challenges. However, the whole system has some problems, mainly due to the diversity of responsibilities between several bodies and the lack of additional staff, especially necessary in view of Malta's accession in the Union.

The transport sector plays a major role in providing employment, accounting for approximately 15% of the total work force, but the excellent perspectives due to the improving position of the country in the international competition results in increased needs for qualified employment in the sector. From the public administrative point of view, the sector is structured in three legs, i.e. its main activities and responsibilities are shared between the portfolios of the Ministries of Transport and Communications, Environment and Public Works and the Ministry of Finance. This is a common structure for many European countries, which distinguish the state responsibilities for transport strategy and policy making (Ministries of Transport) from public financing (Ministries of Finance) and construction business (Ministry of Environment/ Public Works). It is also a rather common practice to separate some vital fields of transport business (like Civil Aviation, railways, ports, etc.) from the pure public sector, establishing either state owned companies or separate divisions (unfortunately with limited autonomy the most of the times). In this respect, the European problems that remain unsolved for many years (combination of a public strategy with private capitals, environmental respect, autonomy in the management of state enterprises, privatisation with the public and social interests being ensured, etc.) can be also seen in the case of Malta.

A peculiarity in the structure of the Malta transport sector is the Planning Authority. The Planning Authority is under the Ministry of Home Affairs and reports directly to the Prime Minister's Cabinet. It has a very important and active role in the transport planning, combining the expertise and databases of several Ministries[10].

Some more details on the transport structures in Malta follow:

8.2.1 MINISTRY OF TRANSPORT AND COMMUNICATIONS

The principal role of the Ministry is to formulate policy in the fields of Transport and Communications. The functions emanating from this role include monitoring and controlling the economy efficiency and effectiveness of the organisations and departments falling within the portfolio, with the scope of ensuring that the desired goods and objectives are achieved. The Portfolio of the Ministry includes the regulation of civil aviation, maritime transport, passenger transport, traffic and roads planning, vehicle licensing and testing, postal services, and telecommunications.

The structure of the Ministry includes the following organisations:

1. Malta Transport Authority
2. Malta Maritime Authority
3. Department of Civil Aviation
4. Wireless Telegraphy Department
5. Malta Communications Authority

A new Law, enacted by the Parliament set up the new **Transport Authority** comprising four Directorates:

- the Roads Directorate,
- the Public Transport Directorate,
- the Traffic Control Directorate and
- the Licensing and Testing Directorate.

The functions of the **Malta Transport Authority** include:

- to plan, provide, secure, and promote the provision of, a properly integrated, safe, economical and efficient transport system by road by any means presently obtaining or that may be available in the future
- to occupy, construct, re-construct, administer, maintain, repair and restore the road system
- to establish codes, standards and specifications for road construction
- to be responsible for the testing, registration and licensing of motor vehicles and the drivers thereof;
- to be responsible for the regulation, management, safety and control of road traffic and the transport of persons and goods;
- to determine the short term and long term objectives for the performance of the above functions;
- to develop the necessary strategy and policies to achieve these objectives;
- to provide, secure and promote the proper training for persons engaged or to be engaged in the public transport services and to promote the welfare of such persons;
- to compile and keep up-to-date records and the necessary data for its functions;

[10] The existence of an agency with this political power (out of the traditional Ministries of Transport) is not common in Europe; however, the cooperation with it gave us an overall excellent impression.

The **Malta Maritime Authority** comprises three Directorates:

- Merchant Shipping Directorate
- Ports Directorate
- Yachting Directorate

The main objectives of the Malta Maritime Authority are:

- to market Malta as a world maritime centre
- to facilitates foreign trade
- to render the administration, services and operation of ports and the yachting centres more efficient and cost effective
- to standardize practices in line with the European Union
- to attract cruise liner traffic
- to market the Malta flag abroad

Principal functions and responsibilities of the Malta Maritime Authority are:

- to ensure efficient operation and further improvements of ports and yachting centres
- to register ships and carry out the administration of services contemplated in the Merchant Shipping Act
- the overall control for the preservation of good order in territorial and internal waters of Malta in the ports and their land and sea approaches
- to develop the human resource of port personnel and seafarers
- the prevention and control of pollution of ports
- the provision of appropriate safety measures related to ports and shipping
- to advise Government on any matter relating to ports, merchant shipping, marine pollution prevention and control, and on any matter relating to its functions and duties

The **Ports Directorate** is considered as the Port Authority in Malta. Besides its commercial role of developing business opportunities in local ports, particularly in the port of Valletta, it also has the regulatory role of ensuring:

- the safety of navigation in ports and territorial waters;
- the provision of maritime services;
- the prevention and control of maritime pollution; and
- the planning and development of local transport needs in respect of cargo and passengers.

The Directorate is headed by an Executive Director and is assisted by the Harbour Master and the Deputy Executive Director. It comprises six departments, namely: Marine, Operations, Administration, Research and Development, Maintenance and Port Workers Office.

Malta Freeport

The Malta Freeport is a corporation under the portfolio of the Ministry of Economic Services. The Maltese Government set up Malta Freeport in January 1988, with the specific scope of developing the port of Marsaxlokk into a commercially viable hub port on international levels. Since the start up of operations, Malta Freeport has established itself as a major maritime transhipment logistic centre in the Mediterranean region. The main facilities that have been established, namely two container terminals, an oil products terminal and the distripark facilities are all functioning well, contributing to the port's excellent perspectives for the future.

Malta Freeport Corporation is the Authority administrating Malta Freeport's operational activities. It enjoys a distinctive regulatory role with special regard being given to ensure compliance with the Company's policies. Malta Freeport Terminals Ltd. is the single operating company, amalgamating the activities of container handling, industrial storage and

investment. The Company fulfils its role efficaciously and harmonises the port operations thereat, guaranteeing clients minimum bureaucracy in all its activities to enhance their business operations.

Malta Freeport has also invested in other related activities, namely:

- CMC Ltd., which provides coastal management consultancy services, including engineering services; it is made up of Malta Freeport Corporation and Svasek Ingineurs of Holland.
- Freeport Training Centre, which is responsible for the training of all Freeport personnel; it operates in close collaboration with the Port of Rotterdam College for Transport and Shipping.

The Ministry of Finance is in process of privatising the operations and the management of the Malta Freeport by way of the sale of up to 100% of the share capital of Malta Freeport Terminals Limited.

The Malta Freeport's Act established part of the port of Marsaxlokk as the free trade zone. Goods transferred out of the Freeport into Malta are subject to duty. Licensed companies operating within Malta Freeport's free trade zone enjoy various fiscal benefits including exemption from paying income tax on the gains and profits arising from its trade or business exercised in the Freeport. According to the Malta's Freeport's Act, for the lease of a storage area in the Freeport Zone, a licence may only be granted to a limited liability company constituted and registered under the law of Malta and which does not issue shares to bearer.

The principal functions and responsibilities of the **Department of Civil Aviation** include:

- regulation of all aviation activities to ensure compliance with ICAO, ECAC, EUROCONTROL and JAA international standards and conventions;
- ensuring the airworthiness of Malta registered aircraft as well as the technical capabilities and medical fitness of aircrew;
- issuance of licences or certificates of validation to pilots and aircraft maintenance engineers and air traffic controllers employed by Malta International Airport plc.;
- monitoring the technical operation of aircraft owned by Air Malta, Medavia, and other aircraft operators ensures that their operations were conducted in conformity with international standards;
- issuance of traffic rights to aircraft operators for the operation of scheduled and non-scheduled air services to and from Malta;
- approval of air fares charged by the scheduled carriers and monitoring the application of air services agreements;
- negotiation of bilateral agreements with other countries

In the air transport field, the Ministry of Finance holds a shareholding in commercial entities, which includes Air Malta p.l.c. and the Malta International Airport p.l.c.

Air Malta, the Maltese National Airline company was registered as a limited liability company and from December 1997 is registered as Air Malta p.l.c. increasing its share capital to 33 million Lm. Subsidiaries of Air Malta p.l.c include Air Supplies and Catering Co. Ltd, which provide duty free goods and Malta Air Charter that operates the inter-island helicopter service.

8.2.2 PLANNING AUTHORITY

The Planning Authority is under Ministry of Home Affairs. Planning is administered at the national level by the Planning Authority together with the subsidiary commissions and committees set up through the provisions of the Development Planning Act. The Board of the Authority is composed of 15 members, appointed by the Prime Minister, and includes official representatives of the Ministries of Environment, Social Policy, Finance, Agriculture

and Infrastructure, plus two Members of Parliament, one appointed by the Prime Minister and one by the Leader of the Opposition. The other eight members (who include the Chairman and Deputy Chairman) are independent, representing private interests, including commercial and industrial activities, social and community affairs and the environment.

The Authority is accountable to Cabinet for all matters of strategy and policy, the Structure Plan and any matter affecting more than one ministerial portfolio.

The **Public Works Division** is one of the Divisions of the **Ministry for the Environment**. The Public Works is structured in seven Departments, with each Department having distinct roles and responsibilities. The seven Departments are the following:

1. Building and Engineering
2. Building Construction Industry
3. Construction and Maintenance
4. Drainage
5. Manufacturing and services
6. Waste Management strategy Implementation
7. Finance and Administration

The construction and maintenance of the principal roads are under the authority of the Construction and Maintenance Department. Contracts for public transport infrastructure constructions are under the aegis of the Works Division/Projects, Works and Supplies for Bid.

8.3 INTERNATIONAL PRACTICE

Figure 8-1 presents a typical organization chart of the Ministry of Transport and Communications of a Union's State. This is a common structure between many European countries; it provides a satisfactory overall control of all the transport questions that are handled directly from the Ministry.

Normally, the strategic questions and the political guidelines come from the Political level (Minister, Vice Minister(s), General Secretaries) while, all the technical matters are monitored by the Ministry's hierarchy. The structure foresees four main Divisions-Directorates, that in our example are the Passengers Traffic, the Freight Traffic, the Technical Control Directorate and the Informatics (Computing) Directorate. One can notice that critical fields of the transport business are out of this structure. Thus, Railways system is ruled by an autonomous Railway Company (a State Company having the form of a Societe Anonyme), and Civil Aviation is an totally autonomous Directorate. However, the Minister of Transport and Communications has the responsibility for their performance. The Urban public transport is structured into several state companies (buses, tram, metro), under the aegis of a co-ordinating body that gives the overall guidelines. The Ministry of Transport is responsible for all these companies as well.

Finally, maritime transport and roads management belong to different Ministries (Maritime and Public Works-Environment, respectively). Big airports and ports function autonomously, sometimes as Societes Anonymes.

In comparison to the case of Malta, this structure provides for some more autonomy of certain fields, like Civil Aviation and Urban transport. If we compare the structures of the pure Ministries' organisation, we can see that two strong independent Directorates are missing, i.e. the International Affairs Dpt. (also covering the Union's questions and the Informatics Dpt.). A similar like Informatics Dpt. in Malta can be found in another authority (Planning), but the International Affairs Dpt. is a unit that could be very useful and could be created the sooner possible[11].

[11] All the candidate countries have established Departments in their Ministries of Transport, dealing with the European affairs

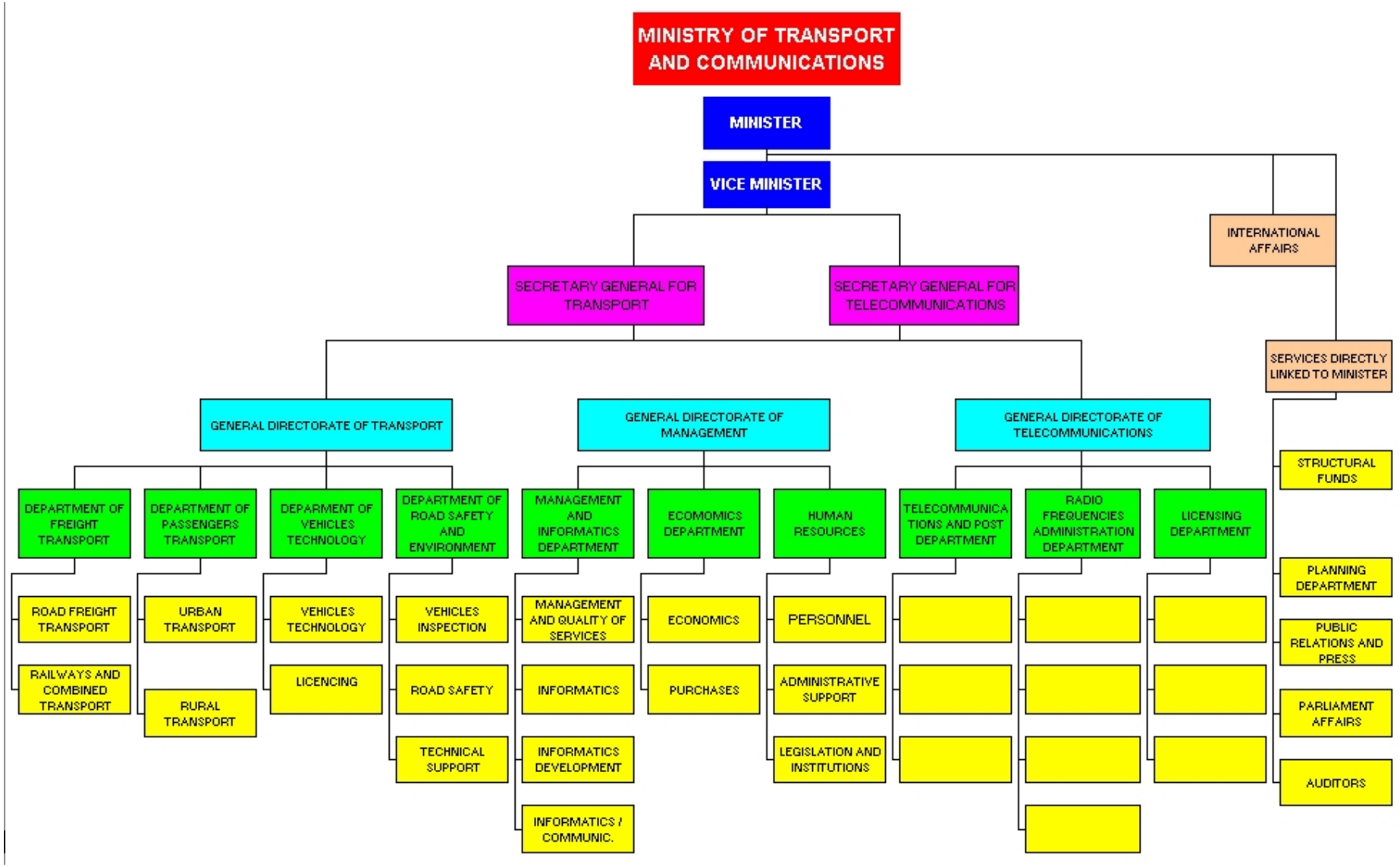


Figure 8-1: Typical organization chart of the Ministry of Transport and Communications

Another useful unit that could be created in the frame of the Malta Transport Authority is a unit responsible for the co-financing of transport infrastructure projects. Its duties could include elaboration of financing regulation (Community Funds, IFIs regulations, etc.), co-operation with private investors, concessions, etc.

Due to the British cultural influence in Malta, some details of the United Kingdom organisation of public transport business are mentioned herewith:

Within the United Kingdom there are a number of Acts that have shaped transport and planning dating back to the Transport Act of 1555, which obligated parishioners to contribute towards maintenance of roads. Government intervention, however, was kept to a minimum until after the Second World War, with the nationalization of the railways in 1947. Before General Election in May 1997, there were two main government departments with direct influence on transport: the Department of Transport and the Department of the Environment. These two departments have now been merged to form part of a new **Department of the Environment, Transport and the Regions**, which is headed by a Secretary of State.

The Department of the Environment, Transport and the Regions is responsible in England for all transport matters that are functions of national government. It is responsible throughout the United Kingdom for airports policy; railways; major ports; road traffic law and the Highway Code; the taxation, safety and testing of road vehicles; the licensing and resting of drivers; the licensing of lorry and bus operators and the registration of bus services; civil aviation (including international air service agreements) and vehicle licensing and registration. The Department is directly responsible for capital investment in motorways and other trunk roads and it provides financial support and exercises controls on investment in other public sector transport projects.

The **Department for Transport, Local Government and the Regions** (DTLR) has been created as a part of the Ministry for Transport to bring together key responsibilities for the sustainable development of transport in communities. The main aim of the DTLR is to contribute to the development of prosperous and safe communities by improving the current transport system, which is regarded as an essential factor of people's lives.

DTLR's main objectives supporting its aim are:

- reliable, safe and integrated transport for everyone, which respects the environment;
- a sustainable pattern of land use, promoted by an efficient planning system;
- a high quality of life for all in our towns and cities;
- the renewal of our most deprived communities;
- a decent home for everyone;
- effective community leadership and high quality public services through elected local government;
- successful regions, which develop a strategic vision for the future;
- improved health and safety by reducing risks from work activity, buildings and fire;
- improved transport safety and crime prevention.

The Department is responsible for some £56 billion of public expenditure in 2001-02. It manages some £19 billion allocated to its programmes, including transport, housing and regeneration. It provides on behalf of central Government as a whole just under £37 billion of funding for local government. Developing a better transport system is essential for sustainable economic success. The goal is to have villages, towns and cities where businesses can thrive and people have access to all the services they need. To do this most effectively, there is an effort to integrate transport needs with policy on planning, housing, and urban renewal. The Neighbourhood Renewal Unit has been set up to address the problems of the most deprived communities. DTLR works closely with every local government.

Safety is a central theme, thus, DTLR sponsors the Health and Safety Executive, amongst other important agencies, non-departmental public bodies and nationalised industries. As well as implementing the key programmes, DTLR plays a major part in achieving the Government's priorities in public health, crime prevention and employment. They develop their policies within the framework of sustainable development and the Government's environmental targets. DTLR has a good cooperation with other European partners.

Regarding planning, the main objective is that local planning authorities and developers should adopt a realistic approach to achieving mixed-use development. In order to encourage mixed-use development, local planning authorities should adopt a flexible approach to planning standards, including, for example, reducing the level of parking provision and allowing increased densities, while having regard to the availability of alternative modes of transport, residential amenity and the needs of local businesses.

Unnecessary delays in the planning system can result in extra costs, wasted capital, delayed production, reduced employment opportunities, and lost income and productivity. The Government and local planning authorities therefore have a responsibility to ensure that delays in preparing development plans, and in determining planning applications and appeals are minimised. The Government has set local planning authorities the target of deciding 80% of planning applications within 8 weeks. Performance against this target is monitored and the results published on a regular basis. The Audit Commission also requires local authorities to publish certain planning performance indicators. Targets have also been set for central government. The Planning Inspectorate has been set a series of demanding targets for its main business areas. Where the Secretary of State takes the decision on appeals, he aims to decide 80% of cases within eight weeks of receiving the Inspector's report. Speed of decision is one factor in the overall quality of service provided by local planning authorities. The Government is concerned that overall quality is maintained and enhanced. Where local authorities are unable to meet the eight week target, they should give the applicant reasons and set a date by which they expect to make a decision. In the few cases where this is not possible, they should explain what still needs to be done and how long this is likely to take.

The examined examples gave an idea of how State transport business can be organized. However, in Malta, the transport has many peculiar needs that –normally-cannot totally be covered by the structures of a European State. The main peculiarity of Malta is its small size and the high density of the urban environment. So, Malta's transport profile resembles more to an urbanized area than to an average European country's landscape. The rural areas seem to disappear as the development of the built-up areas increases every year. This is something that has been pointed out from the beginning of this study, when problems, stemming from the urbanization of nodes initially planned to serve rural traffic, were mentioned.

In this context and for this particular case, it would be very interesting and helpful to examine the organizational structure used in the transport business of very extended cities. Figure 8-2, Figure 8-3, Figure 8-4 and Figure 8-5 show the organization of the transport in the cities of London, Paris, New York and Tokyo respectively[12]. Each of the four cities has different organizational structures that relate to the planning and provision of transport. These are either influenced by strong centralism tendencies of national government or by a strong sense of regionalism. A brief description of each of the four transport systems follows:

[12] Source: "*The Four World Cities Transport Study", London Research Centre*, 2000

8.3.1 LONDON

The Department of the Environment, Transport and the Region has a number of executive agencies, including the Highways Agency, the Driving Standards Agency, the Driver and Vehicle Licensing Agency, the Vehicle Certification Agency and the Vehicle Inspectorate. The Department works closely with many other bodies -particularly local highway authorities that are responsible for all roads other than motorways and trunk roads, which are the responsibility of the Highways Agency.

In London responsibilities are fragmented, with a number of non-government organisations involved. This has resulted in decision-making powers being concentrated at national level. The fragmentation of responsibilities has often meant that decisions are not being taken and, overall, the result has been a weakened planning system.

Figure 8-2 summarises the range of services managed by various organisations in London. Responsibility for some services is shared. Ultimate responsibility for strategic and local planning lies with the Secretary of State for the Environment, Transport and the Regions. ? statutory joint committee of the London boroughs, the London Planning Advisory Committee, advises both the Secretary of State and the boroughs on strategic planning and transport issues and on major development proposals. Other organisations, such as London Transport, which currently manages the metro system and procures bus services in the capital, have boards directly appointed by national government.

Although there are a number of national government sources of finance for transport, the role of the private sector in capital projects is strongly encouraged in order to reduce government subsidy. The government has encouraged the private sector involvement in projects ranging from road building to development of light rail, as well as major non-transport related projects. Car user taxes include car registration tax, fuel tax, and value-added tax, which are all processed through national government general accounts. Road construction and improvement funds are then allocated through the national budget. The Highways Authority is for motorway and trunk roads, while local roads are constructed and maintained by local authorities using grants from national government. London Transport, which receives no government subsidy for running the metro system, receives funds for bus operations, new line construction and renovation of existing track, stations and rolling stock.

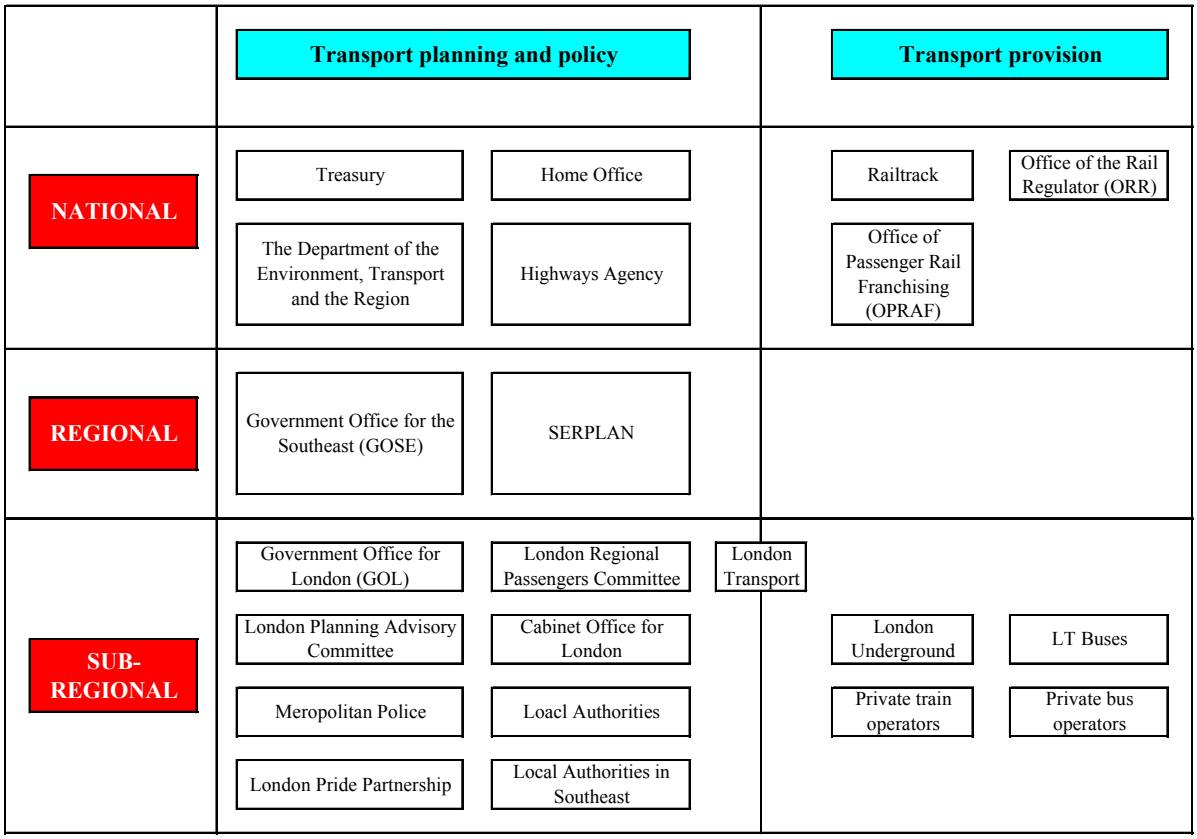


Figure 8-2: Organisation chart - London

8.3.2 NEW YORK

The government of the United States is a federal system, in which the states cede power to the national government, a tri-partite structure of the President, the Congress and the Judiciary. Until the early 196Os, the national government's participation in transport came solely through its powers to handle interstate and foreign commerce and provide post offices and post roads. There was no provision for contributing to public transport except by providing airports and their safety mechanisms. The states actually built the highways; national highway funds were granted to the states through the Department of Commerce.

The New York region covers parts of three of the nation's 50 states: New Jersey, New York and Connecticut. Each stare has the same three branches of government as the national government: Governors negotiate state budgets, executive agencies report to the governor, and quasi-independent authorities are usually controlled by governors through appointment of a majority of their boards.

All three states of the New York region have delegate the power to regulate land-use to municipalities, through both New Jersey and Connecticut have state land-use plans that ought to guide local decisions. Traffic enforcement is usually performed by local police within a municipality and by state police on state-operated motorways.

The New York region is, like London, fragmented, between three States and numerous other jurisdictions, so no co-ordinated planning takes place. The lack of effective planning in both London and New York is leading to a growth of scattered low density developments, nearly always car-based, taking hold throughout the regions.

In the New York region decision-making organisations and operators are concentrated at the State or sub-regional level. The United States Department of Transport is the main organisation with decision-making powers at national level, but planning and provision are decentralised to the States. There are no uniform structures for the planning or operation of

transport. The existing legislative framework provides flexible use of Transportation Trust Fund revenues among all transport modes. About 83% of the Trust Fund revenues come from fuel taxation and the rest from other motor vehicle related fees and taxes. National funds represent only a portion of total transport funding on a state level. State funding from vehicle-related taxes and tolls is matched by local contributions, generated by property and sales taxes and parking fees and fines. Each of the three states in the New York region has a dedicated source of transport funds, generated primarily by state petrol taxes and motor-vehicle related fees. Except for Connecticut, tolls are an important source of revenues. However, the levels of taxation are quite different, as are the sources and reliability of supplementary funds.

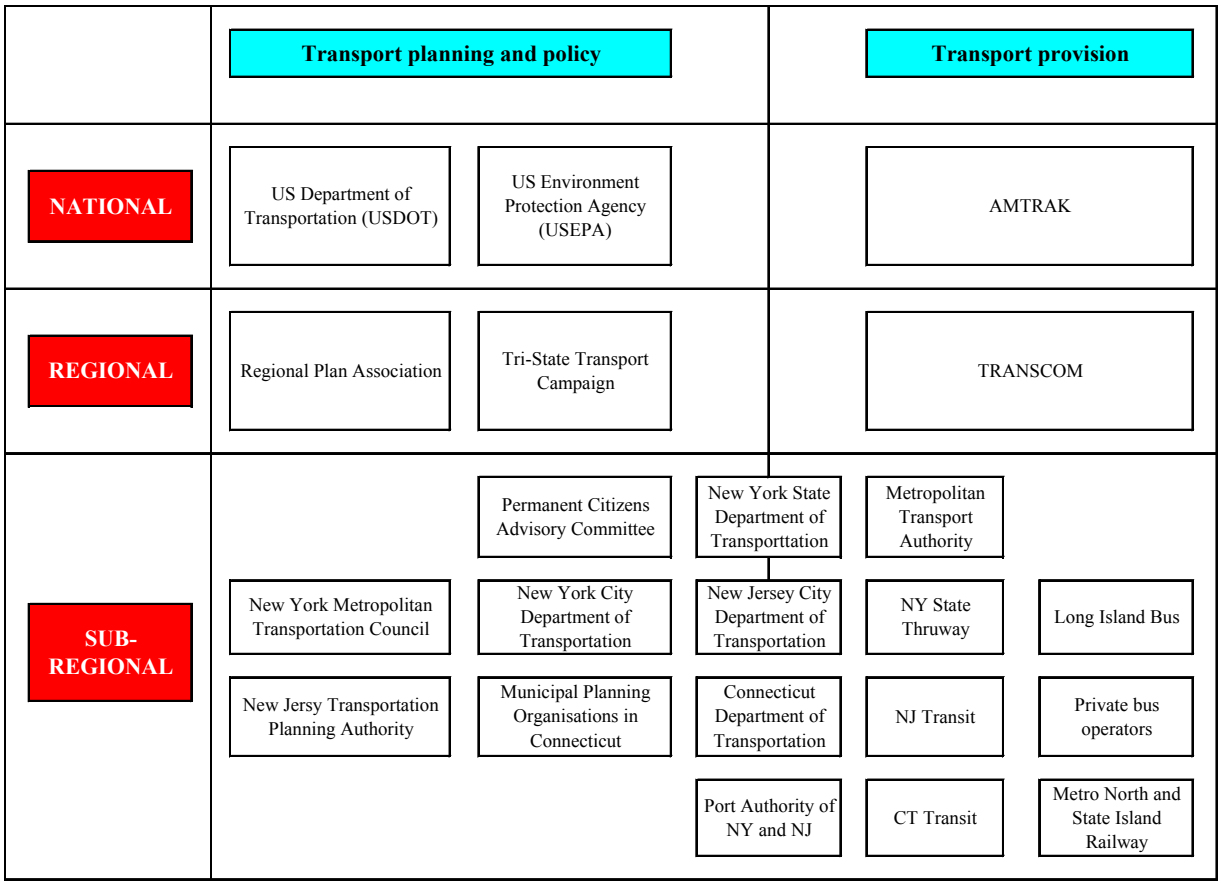


Figure 8-3: Organisation chart - New York

8.3.3 PARIS

The National Government in France is made up of two bodies: the National Assembly (Assemblee Nationale), with directly elected deputies, and the Senate (Senat), with members elected indirectly through local authorities. At regional level, functions are divided between three levels of Authority: regions (régions), departments (départements), and municipalities (communes).

The Regional Council (Ile-de-France for the Paris region) is composed of directly elected members, each elected for a period of six years and who elect the President of the Regional Council (President du Conseil Regional). The Council is consulted on the preparation of the national plan; and makes decisions to encourage regional development.

The General Council of a department acts under the authority of its President who is elected by members of the council. The eight departments of the Ile-de-France

are the Ville de Paris (which is uniquely both a department and a municipality), Hauts-de-Seine, Val-de-Marne, Yvelines, Val d' Oise, Seine-et-Marne, and Essonne.

Each Municipal Council elects a mayor from amongst its members. Since 1973, municipalities have been strongly encouraged to form associations, which are organisations of a group of municipalities or a mixed association of municipalities, departments, and other organisations. In areas outside the Ile-de-France, these associations can play a major role in transport planning as the «organising authority". Responsibility for urban public transport rests with municipalities or associations of municipalities wherever an «urban transport perimeter" has been set; they then become the organising authority. In the Paris region the set up is significantly different with the national government taking a direct organisational and managerial role. The decentralisation laws of 1982 redefined the powers of French local authorities, transferring some national government responsibilities to a more local level.

The French system seeks to avoid overlapping jurisdictions. National government, therefore, has sole, regulatory authority and can impose obligations on the regions, departments and municipalities. Main roads are in the responsibility of the national government, which therefore acts as contracting authority, through the Direction Departementale de l'Equipement (a national government technical service operating at departmental level). National government is represented at local level by the regional prefect, and the departmental prefects. In the Ile-de-France the regional prefect is also the prefect of Paris. In contrast with the other French regions, overall authority for enforcement of traffic law rests with the Director of Police (Prefet de Police), rather than the mayor or the president of the Regional Council.

Unlike the two previous cities in Paris geographical and political remit of major transport-related organisations can be met. Although national government has a strong input through the Regional Prefect, transport provision is planned centrally at regional level, covering the whole of the Ile-de-France. Non-government organisations do not have a significant impact.

There are a number of different mechanisms in France to fund transport, based on users, employers, local authorities and national government. Much of the budget comes from a hypothecated employer's tax, the "versement de transport". This payment is made by employers with 10 or more salaried employees within the Ile-de-France. It varies in different areas of the region but it is 2.2% of the payroll. A "planning contract" is made between the national government and the region concerning public transport and road capital investment. As part of the "planning contract", the Ile-de-France contributes between 75% and 80% of the funding and subsidies for public transport and road programmes. It thus contributes far more than the national government to the funding of major regional transport infrastructures and the running of the public transport system.

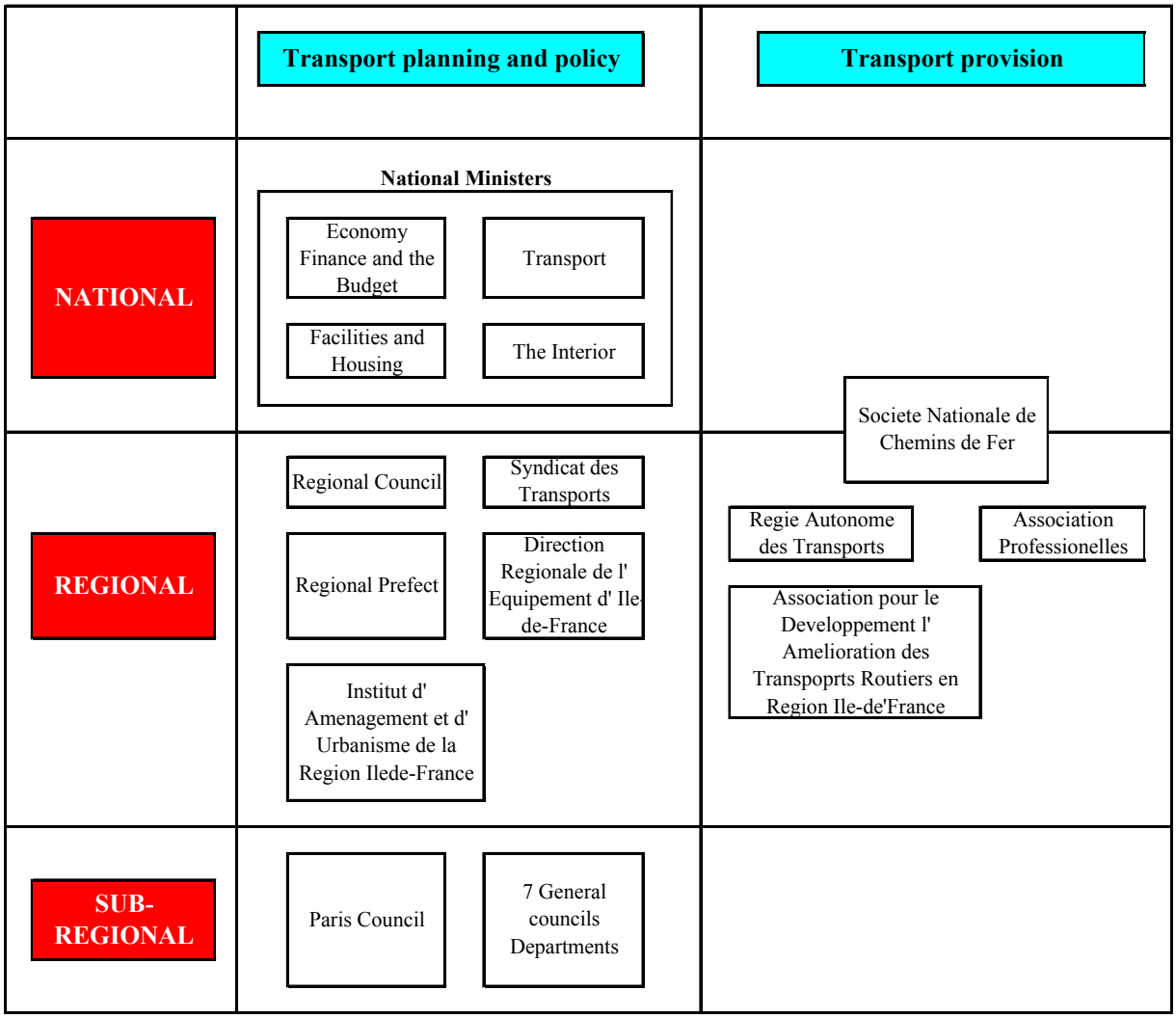


Figure 8-4: Organisation chart - Paris

8.3.4 TOKYO

The national government of Japan, the Diet, consists of the House of Councillors (the Upper) and the House of Representatives (the Lower House). The Japanese constitution applies the principle of autonomy to local government. ? special law, applicable to only one local government area, cannot be enacted by the Diet without the consent of the majority of the voters in the area. The Tokyo region consists of the Tokyo Metropolis and three neighbouring prefectures, Saitama, Kanagawa and Chiba. Together they account for 26% of Japan's total population. The Tokyo Metropolis is a self-governing unit (the Tokyo Metropolitan Government) at the prefectural level consisting of 23 special wards, the Tama area and a string of islands in the Tokyo bay.

In Japan, national government has a strong influence on regional transport planning and policy. Transport policy is formulated and implemented by various national government agencies particularly by the Ministry of Transport and the Ministry of Construction. Policies are usually formulated and implemented with reference to the policies of a number of ministries. For example, for road transport, in addition to the Ministry of Transport, which has jurisdiction over registration, inspection and maintenance of vehicles, and the Ministry of Construction, which has jurisdiction over construction and maintenance of roads, the National Police Agency has jurisdiction over road traffic, the Ministry of Labour over administration of professional drivers, the Ministry of International Trade and Industry over manufacturing of vehicles and the Ministry of Finance over vehicle tax.

Currently, the Ministry of Transport has jurisdiction over not only transport including railways, private cars and aviation, but tourism and development of harbour districts. It monitors transport systems, through various laws including the Railway Operations Law and the Road Transportation Law.

The aims of the Ministry of Construction are to aid new developments, to balance developments between different areas, and to tackle urban and housing problems. The Ministry of Construction is also responsible for managing most of the toll and national roads (within designated sections, that constitute the main arterial routes).

Tokyo has a centralised policy system. Like Paris, non-government organisations have little impact. Tokyo also has strong national planning networks. It's planning system is characterised by the seeking of a consensus. Planning is based on shared powers and responsibilities amongst the national ministries, the local governments and the private sector.

The level of funding of transport schemes is decided annually by the Tokyo Metropolitan Government as part of its annual budget process. Then, decisions on specific new projects and allocations of funds are made. Transport funding also comes from taxes on petrol, private car acquisition, and petrol delivery tax. Money raised from these taxes go to local authorities. In addition there is an extensive toll road system encompassing all expressways, some general roads, tunnels and bridges. In Tokyo the Metropolitan Express Public Corporation has authority for toll roads within the region, working within the basic plan provided by the Ministry of Construction. Toll roads themselves are financed through guaranteed government bonds, public enterprise bonds and private placement bonds. Both for the construction of new roads and railways there is a substantial financial input from private developers.

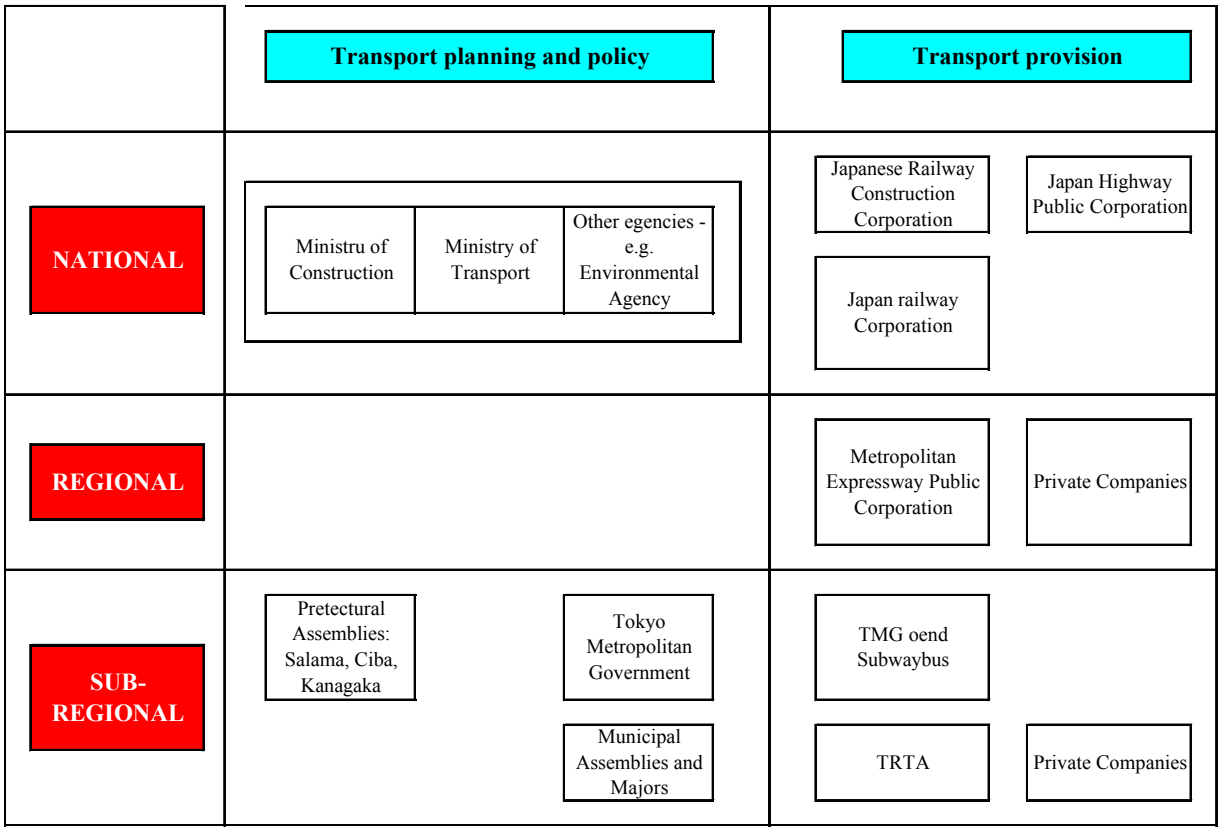


Figure 8-5: Organisation chart - Tokyo

8.4 CONCLUSIONS - RECOMMENDATIONS REGARDING THE ADMINISTRATIVE STRUCTURES

Some general statements for the Maltese transport structures are that the general frame is comprised by two sets of "responsibilities":

- The first set of political responsibilities refers to the direct government interventions, i.e. direct state participation by using public funds for providing and securing
  - transport infrastructure
  - transport services
  - administrative structures (institutions)
- The second set of responsibilities refers to the implementation, control and harmonization of rules governing the
  - market entry conditions, including the access to the profession
  - price regulation
  - fiscal conditions
  - social regulation of transport
  - technical vehicle and equipment standards
  - transport operations

Both objectives are **sufficiently covered by the existing structures**. The existing problems are not more serious than the ones that can be found in any European country. However, to mention some of these problems, we once more have to refer to the diversity of authorities, responsibilities and duties between several Ministries, Authorities and Departments. With the existing structures, an effective, global and coherent transport policy sometimes becomes a difficult task, and the setting of basic guidelines turns to be a subject for time consuming discussions. A good example on duplicating responsibilities is the field of roads constructions and maintenance, where the administrations of the Malta Transport Authority/ Road Directorate and Ministry of Environment/ Public Works Division share, not so clearly, their authorisation.

The data[13] collection and their proper elaboration and use is a remarkable problem, which must be solved. The current process encourages the diversity of data sources, the lack of compatibility and the misuse of the existing information. One sole centre for collecting, elaborating and distributing data could be an effective tool for better planning[14]. In general, and if the present system does not radically change, the existing Planning Authority can play the role of the co-ordinating body, even for transport questions.

In addition, the main idea to improve the existing situation is based on a number of general principles, which will determine the future course of the national economy, and include the liberalisation of the economy and its institutions, the elimination of distortions, and the development of an appropriate investment climate. These are to be realised through:

- Activating the role of the private sector in the areas of infrastructure and basic services
- Restructuring public sector institutions undergoing financial difficulties; improving their efficiency; and gradually implementing measures to eliminate subsidies, recover costs, free prices, production and wages, and adopt commercial performance criteria.
- Increasing the efficiency of Government departments, promoting decentralisation and delegation of authority and preventing duplication and overlapping in the functions of various departments (especially between the Planning Authority and the Ministry of Transport and Telecommunications).

[13] All kind of data, like traffic flows, existing infrastructure, maintenance needs, vehicles, finance, road capacities and performance, etc.

[14] The present Report makes a relevant suggestion on this issue

Malta is restructuring its legislative and institutional framework, to be completely in line with the *acquis communautaire*. However, after the completion of the restructuring process, when the barriers will have been removed, special care must be taken (from both central and peripheral administrative bodies) in order to issue –without delays- the necessary acts that will ensure the application of the new rules. This necessity is mentioned, as it has been a negative experience in other countries, that lost precious time even when they moved their legislative barriers, simply because there were delays in issuing the relevant administrative acts.

One of the Government's key aims is to encourage continued economic development in a way, which is compatible with its stated political, social and environmental objectives. Industry and commerce have always sought locational advantage in response to various external factors. The capacity of the existing (or planned) transport network is therefore an important factor to be taken into account in the preparation of every development plan. In defining suitable locations for development, plan policies should take into account:

- the contribution to regenerating existing urban areas;
- access to the transport network;
- links with other businesses;
- the workforce catchment area;
- the availability of adequate infrastructure; and
- various transport considerations including the particular needs of the freight industry.

In every case, a competitive tendering system –compatible to the European provisions- can contribute to the effectiveness of the whole construction and operation process.

In the construction and operation field (for transport as well), the cooperation between public and private partnership is encouraged by the Union's policies[15]. In this context, there are several forms of cooperation; some of the common forms that the PPP can take, are:

- B.O.T. (Build-Operate-Transfer)
- B.O.O.T. (Build-Own-Operate-Transfer)
- B.T.O. (Build-Transfer-Operate)
- B.O.O. (Build-Own-Operate)
- B.O.L.T. (Build-Own-Lease-Transfer)
- Turn-key contracts
- Private Services Contracts
- Developer Financing
- Leveraged Leasing

Developing its transport infrastructures, Malta can study and chose the scheme that each time can match better with its strategies.

In order to achieve sustainable patterns of development and to help reduce the environmental impacts of transport, local authorities should try to integrate their transport programmes and land-use policies in ways which help to:

- reduce growth in the length and number of motorised journeys;
- encourage alternative means of travel which have less environmental impact; and hence
- reduce reliance on the private car
- create the necessary (and currently missing) parking spaces for private cars and trucks

[15] Public-Private Partnership (PPP): see Opinion of the Economic and Social Committee (ECOSOC) "Renforcement des droits de concesions et des contrats de Partenariats publics-prives"

A main prerequisite for the reduction of the use of the private cars is the improvement of the quality and efficiency of the public transport means (buses). All over Europe the public transport systems are based on the State subsidies, and it cannot be differently in Malta. However, the European provisions for public service obligation contracts, based on clear rules for all the actors must also apply for Malta. In the same context, the provision of the proper space to create buses stations and good interchange facilities is a vital detail to run efficiently the whole system. The public sector can co-operate with the private sector for the best possible operation of the bus stations.

In preparing transport development plans, authorities should take account of economic and social considerations, such as serving current and future needs, revitalizing and broadening the local economy respecting the environment. The European experience has shown that better organization of transport can bring many more benefits than constructing new infrastructure. Especially in the case of dense urban areas like Malta, new constructions might mean huge costs and serious negative impacts on the environment.

All local economies are subject to change and the planning system should make adequate provision for this. Authorities need to take into account the future needs of transport, especially after the enlargement of the Union, when the new environment may influence the Maltese patterns in transport business.

A very peculiar point for Malta is the unique character of many of its regions, like the greater Valletta region. The old buildings and the impressive surrounding ask for special consideration and treatment. New constructions have a significant effect on the character and quality of an area. They define public spaces, streets and vistas and inevitably create the context for future development. These effects can be for the benefit of an area but they can also have very negative effects. As a general rule, transport interventions in sensitive urban environment must be very careful and very well designed. The key objective for the planning should be to foster forms of development which encourage walking, cycling and public transport use. Good design should be the aim of all those involved in the development process and should be encouraged everywhere. Good design can help promote sustainable development; improve the quality of the existing environment; attract business and investment; and reinforce civic pride and a sense of place. It can help to secure continued public acceptance of necessary new development. In this context, an individual “planning authority”[16] for the greater Valletta region could contribute towards these objectives.

In the past, the transport sector has been developed without full recognition of the socio-economic costs and benefits to the Maltese economy as a whole. This is now reflected by the following pressing concerns in the sector:

- to reduce the burden the transport sector imposes on the Government’s budget;
- to rationalize the regulations of transport sector;
- to increase accountability and commercial orientation of public enterprises in the sector
- to maximize the positive social effects of the private transport entities
- to control the serious negative social impacts of the transport sector on a particularly sensitive area like Malta (i.e. safety, congestion, environment, etc.)

Addressing these concerns the Government must undertake better-cost recovery in the whole transport sector and improve efficiency, mainly through organizational and financial restructuring of the public entities. Privatisation is also a concrete step towards better efficiency. A study on institutional issues in the transport sector can identify a number of alternatives managerial structures to best formulate and implement transport policy, particularly with regard to the various sub-sectors while achieving effective cost and quality control. A policy study is concerned with cost recovery from the transport system’s users in order to offset the Government’s expenditure on transport infrastructure (including new

[16] In the framework of the existing Planning Authority, or in the framework of the Malta Transport Authority

construction, reconstruction and maintenance). A review of the present transport regulatory regime addresses issues of tariff setting, overloading and penalties, licensing and import-exports controls.

The country's civil aviation has also good levels regarding cost recovery. The main problem is the road sector, where the road use costs are still a grey area for public administration (despite the very serious work of the two last years). The charging system for the use of the road is an interesting question, but the following basic principles –taken by the theory- should be followed:

According to the State of the Art on the nature of road use costs, there are four main categories that form what is called "road use costs":

- Private Cost (a): the direct operating cost of the vehicle, borne by the motorist himself;
- Social Cost (b): the variable road maintenance cost, borne by the public road authority;
- Social Cost (c): congestion cost, borne by all other users of the road; and
- Environmental Cost (d): atmospheric and noise pollution, severance of communities by busy roads, etc.

The central problem in formulating a policy for user charges is to deal with (b), (c) and (d). Private cost (a) can be generally disregarded: it is self-financing.

Since the sum of these elements comprises the resources foregone because of the vehicle journey, it is clear that all these costs should be reflected in the user's accounts.

It is considered that social cost category (b) –the monetary cost to highway agencies that should be recovered from road users, if economic efficiency is to be maximized- should comprise only variable road (maintenance) costs. On a direct interpretation, this has been taken to mean only the cost of physically repairing damage to the roads caused by the passage of vehicles, leaving all other costs of the road network –construction, maintenance due to climatic degradation or non-vehicular users, and the administration and policing of the roads- to be met from other sources.

Last but not least, the problem with the proper training in road business should be mentioned. It has been stated that there is a serious problem with the inadequate skills of the local people who are involved in the transport infrastructure construction business. This is directly reflected to the poor quality and the cost of transport infrastructure development, in every stage of the process (planning, maintenance, monitoring, new constructions). A main suggestion that can be stated on this item is that the Academic Community, the public sector and the private sector should cooperate in order to provide the proper means for the best possible academic and technical education and training of the people that are currently (or they will be in the future) involved in the transport business. State aid –compatible to the Union's principles[17]- can be used for this purpose.

8.5 A PROPOSAL FOR ACTIONS IN ORDER TO ASSIST THE FORMATION AND IMPLEMENTATION OF NATIONAL TRANSPORT POLICY

In the framework of the present TINA Report for Malta, and examining the administrative structures regarding the transport business in Malta, the Study Team felt that the various steps to collect and elaborate data, and formulate a certain transport policy can follow a well defined framework, which could ensure effectiveness, compatibility and continuity. In this context, the following proposal has the character of a contribution that presents certain

[17] Council Regulation (EC) No 659/1999 of 22 March 1999 laying down detailed rules for the application of Article 93 of the EC Treaty

practices, actions or ideas, that the Maltese authorities can consider for implementation, during their long effort to improve the monitoring of the transport system.

Objectives

In Malta, the strategic planning of the transport system (which includes all transport modes) is characterized by a "multi-level" approach, as the various responsible authorities make their plans and programmes with an excellent knowledge of their field, but with a questionable knowledge of the global needs.

The Ministry of Transport and Communications has the responsibility to define the national transport policy (a branch of the Ministry -a Secretariat- covers a lot of transport questions for Gozo).

In the land transport sector, the implementation of transport policy and the programming of works is the responsibility of the Malta Transport Authority. Land transport policy is developed within the existing frameworks of the Structure Plan for the Maltese Islands', national development plan and is continuously being kept in line with government environmental policies.

In the maritime sector, the Malta Maritime Authority has a clear view of the technical problems and future opportunities, but it is not clear whether its ideas have effective access to the decision making level. The Freeport is a different case, as its privatisation underlines its individual function and development; its main objective is its best positioning in the international competition, and this viewpoint should be encouraged. It is for this reason that the Ports Consultative Council, recently set-up by Government is recommending the development of a National Ports Policy with clear guidelines as to the objectives and functions of each port, but at the same time highlighting the importance that ports catering for international traffic should be complimentary to each other. It also recommended that establishment of one authority for the management and development of port assets and the harmonisation of port related legislation.

In the air transport field, Malta's structures follow the common international model, with the public Civil Aviation authority and the "privatised" (or functioning like private) air company. Once more, the various development scenarios must be synchronized in a common transport policy, in order to avoid frictions that can be avoided (the concept for a new airport at Gozo shows the need for synchronization).

The current system of transport planning lacks of a permanent working "*system*"[18] -dedicated only to transport- whose main responsibility would be the collection of data and information, the analysis of trends and capabilities, the identification of the weaknesses, the analysis of various scenarios and the reporting to the decision makers. The data collected will be the main input -on a permanent basis- for the process of transport policy making. Good current examples indicating the need for coordinated policy are the discussions on the need of a new airport at Gozo, the southern road corridor and the question of the ferry tunnel from Sliema to Valletta.

The Ministry of Transport and Communications must keep the total responsibility to define the national transport policy. It is also the body that represents the country to all international fora, and has under its supervision the main authorities of transport in Malta. It has the total responsibility for issues like safety, training, licensing, technical inspection, etc. All these duties must be kept and further strengthened. The vital question on the impacts of transport on environment must be emphasized, and the separate division in the Ministry must be further supported.

Thus, the establishment of the working "system" that can permanently survey the transport business in the country must be also within the responsibilities of the Ministry.

[18] In another terminology, "a surveillance and planning mechanism for rationalisation of the business of transport"

The establishment and promotion of this system prerequisites the agreement between the Ministry and the various existing authorities dealing with transport on the necessity of such an effort. This agreement can be based on a *Memorandum of Understanding* (i.e. on a paper describing the positive intentions for cooperation) to be signed between the Ministry and the various transport authorities.

This MoU will clarify the responsibilities, actions and necessary negotiations that each of the parties must undertake in the process of forming the national transport policy.

Necessary actions

To achieve the objectives of this system, it is necessary to undertake concrete actions that will draw the terms, apply, develop, and evaluate a pilot operation of the system.

One of the main parts of the system will be the "*Decision Support Mechanism*". This mechanism will be in reality a common reference of data, evaluation methods and modern analysing tools, that can be used by all the authorities to form scenarios on compatible assessments, to analyse these scenarios, to evaluate their impacts, and finally, to draw conclusions that will be based on compatible and comparable bases. The potential users of this "*Decision Support Mechanism*" are the four Directoratesof the Malta Transport Authority, the Maritime Authority, the Department of Civil Aviation , as well as the transport companies that operate in Malta like the Malta Airways, the Freeport, etc.

The whole action to establish the full system can follow the following eight stages:

Phase 1
1. Description and evaluation of present condition. Analysis of the users' needs

Phase 2
2. Structure of the system – Business plan
3. Structure of the Decision Support Mechanism – Business plan
4. Drafting, finalization and signing of the Memorandum of Understanding

Phase 3
5. Development of the necessary software for the system
6. Establishment of the mechanism for data collection

Phase 4
7. Pilot implementation of the system
8. Evaluation of the system, amendments and finalization

During phase 1 the existing situation must be surveyed and analysed. The actions will focus on the structures, working methods, staff and administration of the existing authorities that deal with transport, and on the relevant institutional and legislative statutes that govern their legal existence.

Main achievements out of this phase will be the identification of the labour and training needs, the needs of equipment, the level of cooperation between divisions and authorities, etc. Concerning the data and information, this first phase will analyse the existing databanks, the layout of data, missing data, duplication of work, etc. Every information for Malta will be compared to the relevant statistic requirements set up by the European Community.

One of the main purposes of phase 2 will be the definition of the structure of the working "system" as well as the description of its implementation. The main concept is that a suitable architecture structure should be identified, capable to meet the current and future requirements. At this point, it is very important to define the system's parameters as accurate as possible. The system will be supported by peripheral computer units that will be installed, connected to a central unit and to each other via an appropriate network. The exact number and location of all the above units will be defined in accordance to the needs and purposes of the Ministry. During this phase, the structure of the whole "system" will be described in terms of data flow diagrams, data dictionaries, etc., while specific emphasis will be given to the elaboration of collected data according to user's requirements. The business plan of the "system" will be described and will include, among others, the daily function of the "system", the way of data input, the format of the results and in general every aspect concerning the operation of the "system".

The description of the whole "system" will be based on the two main categories of tools, which are necessary for the analysis:

- Tools, which allow the elaboration of the available databanks and create useful quantitative and qualitative information
- Tools, which permit the geographical elaboration of data, connecting the collected information with maps. Due to the nature of the transport data, the implementation of such a geographic information system (GIS) is necessary for a clear concept of the data information.

The existing GIS in Malta can be a very good basis for such an exercise. However, there are many more data and new fields that must be incorporated into the GIS, to include all transport parameters and make the GIS a real dynamic tool not only for effective presentation but also for analyses and policy formulation.

In addition, the phase 2 will include the signing of the above described MoU, which will define in detail the necessary contribution of all the involved parties and will guarantee their commitment and full participation.

During phase 3 the identified architecture of the necessary software for the system will be constructed. The new software must be adjusted to the specific needs of the system that cannot be fulfilled by existing software. This is a typical procedure for every software development and includes definition of the tools that will be used and description of the procedures that will follow.

In the same stage, the mechanism for data collection will be established. The participation of all involved parties as well as the type and format of the data they will provide will be under MoU's surveillance. It must be ensured that all necessary information will be collected, avoiding at the same time useless overlapping. In case that the above data provided by the parties cannot meet the demands of the system, the way of how the system will respond with new data collection, input into the system and databank maintenance has to be defined.

As a regular procedure, the system will first be implemented on a pilot basis. This will be the first part of the last phase (phase 4). The central and a couple of peripheral units as well as the developed software will be installed in places provided by the Ministry. This pilot implementation will not be a simple test with hypothetical situations but it will be based on real data, therefore it will reveal possible inadequacies of the system and will indicate the needed adjustments, which will be made.

The second part of this stage concerns the evaluation of the whole system, which will be made in parallel to the pilot implementation. This evaluation must be in line with the standards set in previous stages and will include all parameters of the system such as technical adequacy, functional liability, ease in use, etc. After the final amendments that might be necessary the system will be ready for full installation and use.

It is estimated that the whole circle of designing, developing, testing and implementing the system will take 18 months.

9 PRE-ASSESSMENT OF PROJECTS – PRIORITISATION

9.1 IN GENERAL

A report about transport infrastructure needs normally includes all those necessary measures to bring an existing infrastructure to an upgraded "new" level, which will be able to satisfy the existing and future demands. However, an assessment of the needs has to go one step beyond, i.e. to suggest an investment strategy, which will take into consideration the urgent needs vis-à-vis the available resources. In this context, a preliminary prioritisation process has to be undertaken among the already identified necessary investment measures, based on certain basic parameters and assumptions. This assessment will clearly define the priority fields of action for the country, and will identify those projects, which can be first studied in order to implement the projects pipeline, which will be proposed for immediate financing. The investment measures which will be defined as priorities will form a new "basket" for short term action; the remaining investments measures identified during the TINA process will form the "medium" or "long" term needs. However the "baskets" of projects are not strictly locked, without being the subject of future new considerations. Any change in the existing socio-economic or political conditions can raise once more the priorities question, in a dynamic and flexible assessment process.

So, the TINA list of possible investment measures for Malta will form the basis for the identification of socio-economically and financially viable investment projects, which in the future will be considered and eventually co-financed as appropriate by the various international financial institutions (IFIs). Investment needs of the order of EURO 490.28 Million have been identified for the completion of the TINA network in Malta by 2015, comprising road, airport and sea port infrastructures. In the description of these investment needs, no clear distinction has been made between actual projects and possible investments. In the next stage of the process, socio-economically and financially viable projects need to be identified from the list of possible investment measures. This project screening process will require inter alia a solid socio-economic cost benefit analysis so that they can be forwarded for consideration of financing through European funding or the various IFIs.

In a world of limited budgets, however, this is not sufficient to justify a transport investment project - it must also be financially viable for those on the supply side of the transport market, including transport operators, infrastructure providers and government finance ministries. The secondary aim of the appraisal framework is therefore to report clearly on the financial implications or financial non-viability of the project from the viewpoint of these organisations.

In this context,

- effects on transport system efficiency and safety;
- environmental impacts;
- policy impacts beyond the transport system; and
- financial implications for transport providers.

are key factors that can justify or not, a possible future investment.

The process may be based on physical or institutional objectives. Physical planning may be summarised in the representation of the future infrastructure to be achieved, which will serve as a canvas to bring coherence in the selection, definition and programming of individual infrastructure development projects. Institutional objectives are usually mixed with physical objectives to provide the requested organisational, administrative, legal and regulatory framework in which the development of the system has to take place, and which may significantly influence the physical development.

A number of possible investment measures have been already identified. The competent authorities have proposed these measures aiming at improving the strategic transport infrastructure in Malta. These measures refer to all the transport modes of the island, i.e. roads, seaports and airports. The complete list of the identified measures is provided in the database of this report, including all the main features of these proposed investments.

The investment measures have been identified during the TINA process through discussions with all relevant Directorates responsible for infrastructure development, i.e.:

1. Malta Transport Authority
   - the Roads Directorate
   - the Public Transport Directorate
   - the Traffic Control Directorate and
   - the Licensing and Testing Directorate
2. Malta Maritime Authority
3. Department of Civil Aviation
4. Planning Authority

Any decision on setting priorities regarding infrastructure development, directly affects the nature and feature of the country's development for the next years. It is therefore unavoidable that, beside any technical approach, a "political touch" has to be taken into consideration when attempting to put infrastructure investments in a rank.

This is to say that in parallel to the methodology used for preliminary ranking of the identified projects, the opinion of the Maltese officials was decisive, especially as all those opinions were constructive, realistic and fully in line with the general principles of the European orientation of the country.

There are very good perspectives for an efficient plan to upgrade transport infrastructure in Malta. The most serious of the many existing advantages are the high level of administration, the good starting point of the infrastructure (Malta's transport infrastructure has a remarkable status, especially when compared to the relevant infrastructure of other candidate countries) and the high GDP (which provides the necessary background for investments). All these factors are in general sufficient to support the effective planning of transport infrastructure development.

On the other hand, there are some serious disadvantages as well. The most important of these disadvantages are the high variations of traffic between the seasons, the lack of space due to the high density of the population, the lack of alternative means of transport (metro, tram, rail), and the serious problems related to the poor quality of environmental conditions, which limit the spectrum of alternatives regarding infrastructure development. In addition, being an island, Malta is highly dependent on air and maritime transportation. The small size of the country limits the multimodal character of inland transport, as road modes have the total share of inland transport, and the limited space puts barriers on the potential of the Valletta port. The high level of urbanisation creates many problems with the traffic, and as a result, traffic jams are an often phenomenon in the island. The lack of parking areas (for private cars and lorries) is also a problem to be taken into consideration in any development plan. Even in small quantities, transferring the commodities from one mode to the other in the Maltese terminals (international airport, port of Valletta) requires handling and, sometimes warehousing operations which may be costly, time consuming and unsafe. Governmental policies towards facilitation and utilization of intermodal equipment should be more straightforward.

All the above points were among the topics in subsequent discussions with the relevant authorities of Malta, and they are taken into consideration to identify the relevant importance of the possible investment measures, proposed for Malta. During the discussions and the analysis, another consideration, useful in the pre-prioritisation process, was the comparison of the traffic forecasts with the existing capacities of the different sections of the network.

This immediately indicated the bottlenecks (i.e. where traffic congestion will appear) and thus, where upgrading existing infrastructure has to be envisaged.

9.2 METHODOLOGY FOR THE PRELIMINARY PRIORITISATION OF MEASURES

The already identified possible investment measures are not characterized by similar level of "maturity". Although there are measures already studied in detail, including accurate estimations of costs and economic viability, there are other measures of low maturity, i.e. either without any studies, or with older studies that need to be reviewed and updated. For the latter, their identification is mostly based on rough estimations and empirical assumption. The most of the measures are, though, well defined; they are simple interventions on infrastructure elements that need maintenance or upgrading. This is the case of the most of the proposed road projects, which mostly refer to maintenance and upgrading of road junctions. However, we have also some proposals that their maturity is questionable, like the proposed "*Connection Project/ intra-harbour ferry links*". These projects may be very important for the development of the country (and they may not), but, nevertheless, they need to be studied in detail.

For a clear picture of the proposed measures economic and social viability, some classic approaches like Cost – Benefit Analysis (CBA) or Multi-Criteria Analysis (MCA) could be used. However, such an approach would require time and availability of data, which are beyond the scale of this Report.

Without special analyses, the effects of the proposed investment measures are often difficult to be quantified. The estimation of economic indices and the assessment of external effects require a closer approach to the projects. However, sometimes, a rough estimation of their significance for the completion of the network can be assessed. Essential parameters like contribution of the project on the quality of service, safety or environment can be estimated. For this preliminary estimation, which on a large scale can provide an index of priority, the present Report largely adopts and maintains certain principles that have been used by ECMT in relevant papers. Also taking into account the lack of data in this stage of analysis, the criteria used, are grouped under three main categories:

- Quality of Service,
- Network Coherency,
- Effectiveness of Investment.

Under these main categories, sub-criteria have been introduced specific to fit the objectives and specifics of the TINA in Malta exercise. In this context,

Quality of Service includes the criteria:

- Improving transport safety and speed, and
- Environmental effects

Network Coherency

- Interconnection of existing networks and multimodal consistency

Effectiveness of Investment

- Degree of urgency

The measures were examined and their proposed priority is based on their compliance with the above criteria. In addition, the assessment was undertaken relative to a do-minimum base case. The do-minimum scenario should represent a realistic view of what is likely to happen in the absence of the proposals. The do-something scenario should be based on the preferred scheme, including, for example, alignment details, stop locations, journey time estimates, service frequency and fares.

9.3 ASSESSMENT AND PRIORITISATION OF MEASURES

A detailed list of all the proposed investment measures is included in the TINA database for Malta.

The construction cost of the TINA total network is estimated to € 490.28 million, out of which:

- € 233.60 million for investments on the road network (including € 90.66 for the access road network)
- € 40 million for investments on the international airport of Malta
- € 216.68 million for investments on seaports

The cost of realising the network has resulted from the Maltese authorities' estimations.

Table 9-1 shows the estimated cost of the required investments by mode.

Mode of transport	*Estimated cost (in MEURO)*
Roads (total network)	233.60
Ports	216.68
Airport	40.00

Table 9-1: estimated cost of the required investments

Table 9-2 shows the estimated cost allocation for all modes of transport in three time periods, 2001-2005, 2006-2010 and 2011-2015.

		Time Periods		
		2000-2005	*2005-2010*	*2010-2015*
Mode of Transport	*Roads*	122.69	47.38	63.51
	Seaports	72.99	32.60	111.09
	Airport	40.00	0	0
	All three modes	235.68	79.98	174.60

Table 9-2: estimated cost allocation for all modes

Table 9-3 shows the estimated cost allocation for roads in three time periods, 2001-2005, 2006-2010 and 2011-2015.

Years	*Estimated cost (in MEURO) for road projects*
2000 - 2005	122.69
2006 - 2010	47.38
2011 - 2015	63.51

Table 9-3: estimated cost allocation for roads

All the measures refer to the Malta TINA total Network, as defined by the Study, and have been identified by the Maltese authorities. The investment or capital costs include fees, design, land acquisition and other preliminary works, as have been estimated at this stage, by the Maltese authorities. For those proposed measures that are not yet properly studied, the investment costs might slightly change in the future.

The following diagrams give a visual presentation of the results of the above Table 9-1, Table 9-2 and Table 9-3.

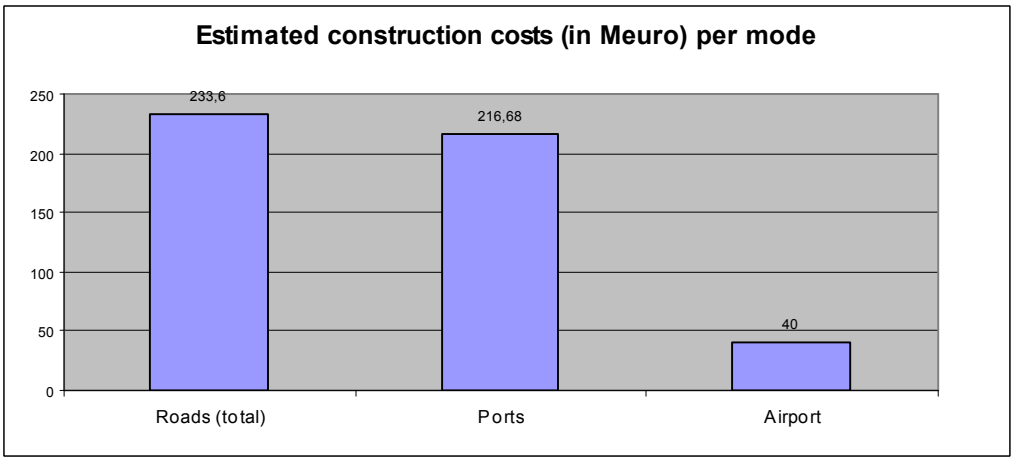


Diagram 9-1: estimated construction cost per mode

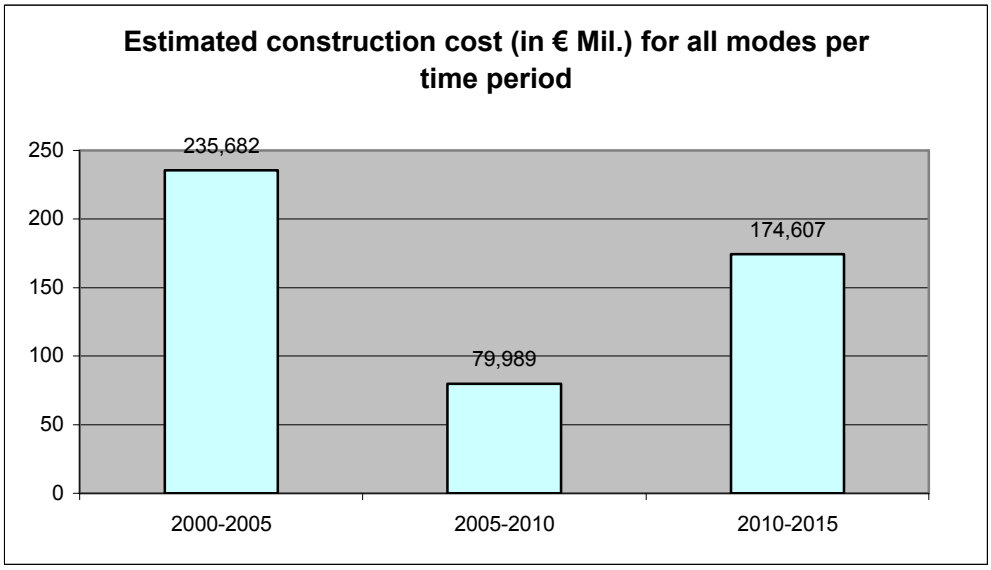


Diagram 9-2: estimated construction cost for all modes per time period

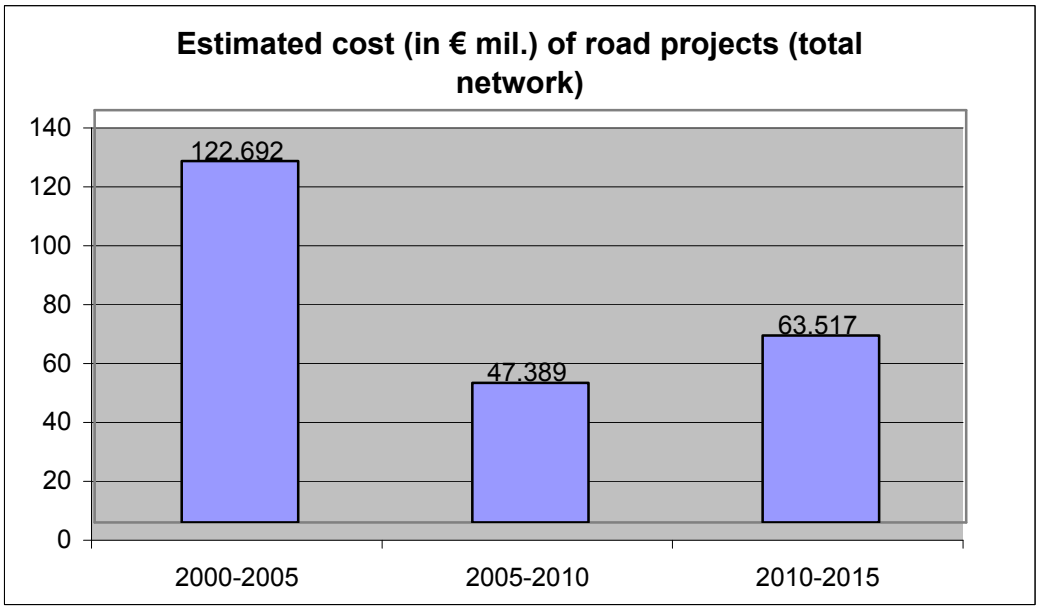


Diagram 9-3: estimated construction cost for road projects per time period

Cost estimation for the proposed measures by mode (all costs in € million)

	Road	*Airport*	*Sea ports*	*TOTAL*
Malta	196.90	40	209.04[19]	445.94
Gozo	36.70	-	7.64	44.34
TOTAL	233.60	40	216.68	490.28

Table 9-4: Cost estimation for the proposed measures by mode

Allocation of the money for the proposed measures between three time periods up to 2015, according to national plans

Period	*Total amount of money to be spent for the construction of the Network*
2001 – 2005	€ 235.68 million
2006 – 2010	€ 79.99 million
2011 – 2015	€ 174.61 million

Table 9-5: allocation of the money for the proposed measures, according to national plans

Normally, if the origin of the financing source is one common budget, the prioritisation process of transport infrastructure projects takes into consideration all the proposed measures, regardless the mode they are referring to, and identifies those which best correspond to the selected criteria. This was not the case for Malta; priorities were identified only between the proposed projects of the same "mode groups". This was done mainly for two reasons:

The first reason was that there was a considerable lack of data to allow an in depth analysis and a reasonable comparison between the effects that measures of different modes have on the overall country's transportation system.

The second reason was the significantly different importance and role that each mode of transport plays in Malta's transport scene. While road is the dominant mode for transport within the state (both for passengers and goods), the ports and airport are related to international transport (ports mainly for goods and the airport mainly for passengers). Therefore, each mode has its own unique contribution to the whole system and that makes the assessment and prioritisation of modes rather a political issue than a technical one.

9.3.1 ROAD PROJECTS

For the assessment and prioritisation of road projects, the recent analysis of the Malta Transport Authority, as it is presented in the "*Master Plan for the Roads of Malta and Gozo*"[20] was used According to this analysis, road safety is the critical priority in the development of the country's road network and this must be reflected in the prioritisation of relevant projects. Previous studies have shown that Malta is the country with the highest level of per capita motorization in Europe and that the number of road accident fatalities per vehicle-kilometre is consistently above European averages.

It is recognized that the road safety is the result of the contribution of three different "factors": the driver, the vehicle and the condition of the road itself. The Maltese Government has indeed taken certain serious initiatives in order to reduce the number of accidents and improve safety. Such measures, like the obligatory seat belt usage, the compulsory use of crash helmets for motorized two-wheelers, the installation of traffic lights, the protected pedestrian crossings, the intensified police presence on the roads, etc., have resulted in some improvement. However, the problem has not been solved. This problem, apart from the incalculable cost in human lives and grief, results (with conservative calculations) in very

[19] out of which, 115.62 is foreseen for the Valletta Port and 67.96 for the Freeport
[20] By GTZ (German consultants to the Roads Directorate)

high economic losses, equivalent to around Lm 12 Million per year (1999). This is about 3 times the annual budgetary allocation for roads in the country.

The Master Plan identifies the technical, financial and political issues that are the core of the problem for the poor condition of the road network in Malta and Gozo and proposes a reconstruction and upgrading programme for the country' s road network. This programme is based on an expected service lifetime of road, of between 15-20 years. The main objectives are to improve rideability of arterial and distributor network, increase the capacity of the system and introduce a viable rehabilitation and maintenance programme that insures the proper performance of the road system.

The programme is structured into six stages, which are correlated to the necessary interventions to the road system. Each stage is linked with a certain group of actions – phases (e.g. phase A focuses on rehabilitation and maintenance, phases B and C on upgrading, etc.). The phase A, which is related to the rehabilitation and maintenance, is subdivided into five sub-phases, A1, A2, A3, A4 and A5. This categorization took into consideration the mean condition of each road segment of the network, from the viewpoint of its “serviceability”. This allows a correct planning, handling and budgeting procedure. For example, a route with a mean value indicating a “good condition” situation has a life expectancy that asks for attention at a later stage than those segments with bad condition, which need urgent maintenance measures to be taken.

The elaboration of

a) the urgency for rehabilitation and maintenance measures and
b) the time horizons, as they are set in the national planning

defined six main priority groups of measures. An additional examination of the level that the measures fulfil the main performance criteria (described in the above paragraphs), defined more specific priorities.

More specifically, the six main priority groups of road projects are the following:

First Priority Projects

To the first priority belong all the proposed projects of Phase A1.

As it shown in Table 9-7 this category includes 10 projects, with a total cost of € 41.52 million.

Second Priority Projects

To the second priority belong all the proposed projects of Phase A2.

As it shown in Table 9-7 this category includes 12 projects, with a total cost of € 46.92 million.

Third Priority Projects

To the third priority belong all the proposed projects of Phase A3.

As it shown in Table 9-8 his category includes 12 projects, with a total cost of € 22.27 million.

Fourth Priority Projects

To the fourth priority belong all the proposed projects of Phase A4. To the same priority belong also the projects of the Phase A5, which are planned to be completed by the end of year 2005 as well as the projects, which are not included in the Master Plan and are also planned to be completed by the end of year 2005.

As it shown in Table 9-9 this category includes 18 projects, with a total cost of € 41.60 million.

Fifth Priority Projects

To the fifth priority belong all the proposed projects of Phase A5, which are planned to be completed after 2005 and by the end of year 2010 as well as the projects, which are not included in the Master Plan and are also planned to be completed after 2005 and by the end of year 2010.

As it shown in Table 9-10 this category includes 7 projects, with a total cost of € 17.77 million.

Sixth Priority Projects

To the sixth priority belong the rest of the projects, i.e. all projects planned to be completed after 2010 and by the end of year 2015.

As it shown in Table 9-11 this category includes 7 projects, with a total cost of € 63.52 million.

For the First Priority Projects (Phase A1), a further examination of the proposed measures, in relation with the defined criteria, gives the following recommendations:

All the proposals refer on projects aiming at improving transport safety and speed. Their positive environmental impacts are becoming of greater significance as the current expected traffic growths. The degree of urgency is also increasing, directly linked to the traffic, as well. In this respect, the projects P4, P5 and P10 (with a cost of € 6.181, € 4.087 and € 2.675 million respectively) seem to have a higher priority as they apply to the arterial road network, they refer to the main road from Valletta to Cirkewwa (Gozo)[21] and they serve very high traffic volumes.

It is worth mentioning that the list with the identified proposed measures, provided by the Maltese authorities, does not include fundamental measures of stage 2, i.e. upgrading of the network. Upgrading means increasing the capacity of the network, taking radical care for the bottlenecks elimination. The study showed that there are currently many bottlenecks on the road network, which are mainly results of the high density of population, the motorization level, the urbanization and the high (and seasonal) traffic volumes. The main identified bottlenecks refer to the parts of the network between Valletta and Gozo, and between Valletta and Zebbug and Rabat. The traffic flows on these sections sometimes reach AADT of about 80,000 – 100,000 vehicles, or even more. As a first urgent action, the reconstruction of all the junctions (roundabouts) is recommended[22]. But for radical solutions, it is recommended to carry out a study of the network and its capacity capabilities and needs, in order to propose a complete programme with new road elements constructions, such as multi level junctions, additional lanes, new alignments, etc. The assessment of the external benefits of this programme (reduction of congestions and VOC[23], travel time, environment, etc.) will justify the costs involved to solve the existing problems with bottlenecks.

[21] More accurately: Project P10 refers to the link Valletta-Mosta
[22] Already included in the proposals
[23] Vehicle operation cost

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P1	GD2 - Dwejra-GA28 - Gharb	MTR001	Arterial road	GD2 - Dwejra-GA28 - Gharb (2,7)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junctions GD2, GD1 (San Lawrenz) and GA28 Reconstruction of junctions GD2 (Dwejra), GD1 (San Lawrenz) and GA28 (Gharb)	2003	Reconstruction	4.261	A1	Gozo
P2	jct. to Gozo Heliport-GA36 - Ghajnsielem	MTR010	Arterial road	jct. to Gozo Heliport-GA36 - Ghajnsielem (0,7)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA36 Reconstruction of junction GA36	2002	Reconstruction	1.086	A1	Gozo
P3	GA36 - Ghajnsielem-GA38 - Mgarr (ferry station)	MTR011	Arterial road	GA36 - Ghajnsielem-GA38 - Mgarr (ferry station) (1,8)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junctions GA37a, GA37 and GA38 Reconstruction of junctions GA37a, GA37 and GA38	2002	Reconstruction	3.037	A1	Gozo
P4	NA7 -Xemxija Bay-NA8 - Bugibba Roundabout	MTR024	Arterial road	NA7 - Xemxija Bay-NA8 - Bugibba Roundabout (2,7)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA8 Reconstruction of junction NA8	2002	Reconstruction	6.181	A1	Malta
P5	NA10 - jct. to Splash&Fun-NA11 - St. Andrew's	MTR027	Arterial road	NA10 - jct. to Splash&Fun-NA11 - St. Andrew's (2,6)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction NA11 Reconstruction of junction NA11	2003	Extended Reconstruction	4.087	A1	Malta
P6	WA25 - jct. to Gudja-WA26 - jct. Peace Lab	MTR040	Arterial road	WA26 - jct. Peace Lab-WA26 - jct. Peace Lab (3,7)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA26	2005	Extended Reconstruction	5.328	A1	Malta
P7	WA26 - jct. Peace Lab-SA27 - jct. Freeport	MTR041	Arterial road	WA26 - jct. Peace Lab-SA27 - jct. Freeport (3)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction SA27 Reconstruction of junction SA27	2003	Extended Reconstruction	4.732	A1	Malta
P8	NA8 - Bugibba Roundabout-ND3 - Mosta Roundabout	MTR042	Distributor road	NA8 - Bugibba Roundabout-ND3 - Mosta Roundabout (3,8)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions ND1, ND2, ND3 and ND3a Reconstruction of	2003	Extended Reconstruction	6.012	A1	Malta

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
					junctions ND1, ND2, ND3 and ND3a					
P9	ND12 - Tal-Qlejja Roundabout-NA14 - jct. Saqqajja	MTR044	Distributor road	ND12 - Tal-Qlejja Roundabout-NA14 - jct. Saqqajja (2,5)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions ND13 and NA14 Reconstruction of junctions ND13 and NA14	2003	Extended Reconstruction	4.123	A1	Malta
P10	NA22 - Roundabout Mosta (monument)-WA2 - Roundabout to Lija	MTR049	Arterial road	NA22 - jct. rd.5/rd.17/rd.18-WA2 - jct. rd.5/rd.19 (2)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions NA21 and WA2 Reconstruction of junctions NA21 and Wa2	2001	Extended Reconstruction	2.675	A1	Malta

Total estimated cost for the First priority projects: 41.52

Table 9-6: First Priority Projects

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P1	GA28 - Gharb-GA29 - jct. to Gharsi	MTR002	Arterial road	GA28 - Gharb-GA29 - jct. Gharsi (1,3)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course	2004	Reconstruction	2.172	A2	Gozo
P2	GA41 - Marsalforn-GA40 - Capuchini Church	MTR013	Arterial road	GA41 - Marsalforn-GA40 - Capuchini Church (3)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA41 Reconstruction of junction GA41	2004	Reconstruction	4.762	A2	Gozo
P3	GA40 - Capuchini Church-GA32 - main Victoria jct.	MTR014	Arterial road	GA40 - Capuchini Church-GA32 - main Victoria jct. (0,3)	Removal of existing asphalt, recompacting of bse, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA40	2004	Reconstruction	0.511	A2	Gozo

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P4	NA1 - Cirkewwa (ferry station)-NA4 - jct. at Seabank Hotel (Mellieha)	MTR020	Arterial road	NA1 - Cirkewwa (ferry station)-NA4 - jct. at Seabank Hotel (Mellieha) (4,2)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstructions of junctions NA1, NA2, NA3 and NA4 Reconstruction of junctions NA1, NA2, NA3 and NA4	2004	Reconstruction	6.887	A2	Malta
P5	NA4 - jct. at Seabank Hotel (Mellieha)-NA5 - jct. to Manikata	MTR021	Arterial road	NA4 - jct. at Seabank Hotel (Mellieha)-NA5 - jct. to Manikata (1,8)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA5 Reconstruction of junction NA5	2003	Reconstruction	4.337	A2	Malta
P6	NA5 - jct. to Manikata-NA6 - Roundabout at Belleview	MTR022	Arterial road	NA5 - jct.to Manikata-NA6 - Roundabout at Belleview (1,4)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA6 Reconstruction of junction NA6	2003	Reconstruction	3.362	A2	Malta
P7	NA6 - Roundabout at Belleview-NA7 - Xemxija Bay	MTR023	Arterial road	NA6 - Roundabout at Belleview-NA7 - Xemxija Bay (2,9)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA7 Reconstruction of junction NA7	2003	Reconstruction	4.598	A2	Malta
P8	NA8 - Bugibba Roundabout-NA9 - jct. to Naxxar/Iklin	MTR025	Arterial road	NA8 - Bugibba Roundabout-NA9 - jct. to Naxxar/Iklin (1,2)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA9 Reconstruction of junction NA9	2003	Reconstruction	2.745	A2	Malta
P9	NA9 - jct. to Naxxar/Iklin-NA10 - jct. to Splash&Fun	MTR026	Arterial road	NA9 - jct. to Naxxar/Iklin-NA10 - jct. to Splash&Fun (4,4)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions NA10, NA10a and NA10b Reconstruction of junctions NA10, NA10a and NA10b	2003	Extended Reconstruction	7.025	A2	Malta
P10	ND3 - Mosta Roundabout-ND12 - Tal-Qlejja Roundabout	MTR043	Distributor road	ND3 - Mosta Roundabout-ND12 - Tal-Qlejja Roundabout (1,7)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions ND12 and ND12a Reconstruction of junction ND12 and ND12a	2003	Reconstruction	2.773	A2	Malta
P11	NA14 - jct. Saqqajja-WA9 - jct. Attard	MTR045	Arterial road	NA14 - jct. Saqqajja-WA9 - jct. Attard (3,6)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions NA15, WA10 and WA9 Reconstruction of	2003	Extended Reconstruction	5.775	A2	Malta

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
					junctions NA15, WA10 and WA9					
P12	WA9 - jct. Attard-WA8 - jct. to St. Anton Gardens	MTR046	Arterial road	WA8 - jct. to St. Anton Gardens-WA8 - jct. to St. Anton Gardens (0,9)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA8	2003	Extended Reconstruction	1.973	A2	Malta

Total estimated cost for the Second priority projects: 46.92

Table 9-7: Second Priority Projects

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P1	GA29 - jct. to Gharsi-GA30 - jct. at N.W. Rabat	MTR003	Arterial road	GA29 - jct. to Gharsi-GA30 - jct.at N.W. Rabat (9)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junctions GA29 and GA30 Reconstruction of junctions GA29 and GA30	2004	Reconstruction	1.441	A3	Gozo
P2	GA30 - jct. at N.W. Rabat-GA31 - jct. to Zebbug	MTR004	Arterial road	GA30 - jct. rd.1/rd.12-GA31 - jct. rd.1/rd.2 (0,3)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA31 Reconstruction of junction GA31	2004	Reconstruction	0.436	A3	Gozo
P3	GA31 - jct. to Zebbug-GA32 - main Victoria jct.	MTR005	Arterial road	GA31 - jct.to Zebbug-GA32 - main Victoria jct. (0,4)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA32 Reconstruction of junction GA32	2004	Reconstruction	0.575	A3	Gozo
P4	GA32 - main Victoria jct.-GA33 - jct. to Marsalforn	MTR006	Arterial road	GA32 -main Victoria jct.-GA33 - jct. to Marsalforn (0,7)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA33 Reconstruction of junction GA33	2004	Reconstruction	1.011	A3	Gozo
P5	GA33 - jct. to Marsalforn-GA34 - jct. to Xewkija	MTR007	Arterial road	GA33 - jct. to Marsalforn-GA34 - jct. to Xewkija (0,2)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA34 Reconstruction of junction GA34	2004	Reconstruction	0.287	A3	Gozo

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P6	GA34 - jct. to Xewkija-GA35 - Xewkija	MTR008	Arterial road	GA34 - jct. Xewkija-GA35 - Xewkija (1,2)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA35 Reconstruction of junction GA35	2004	Reconstruction	1.925	A3	Gozo
P7	GA35 - Xewkija-jct. to Gozo Heliport	MTR009	Arterial road	GA35 - Xewkija-jct. to Gozo Heliport (1,4)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction to Gozo heliport Reconstruction of junction to Gozo heliport	2004	Reconstruction	2.262	A3	Gozo
P8	GA32 - main Victoria jct.-GD16 - jct. to Xlendi	MTR015	Distributor road	GA32 - main Victoria jct.-GD16 - jct. to Xlendi (0,75)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, asphalt wearing course; reconstruction of junctions GD21, GD10, GD14 and GD16	2005	Reconstruction	0.972	A3	Gozo
P9	GD16 - jct. to Xlendi-GD17 - Xlendi Bay	MTR016	Distributor road	GD16 - jct. to Xlendi-GD17 - Xlendi Bay (2,2)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, asphalt wearing course; reconstruction of junction GD17	2005	Reconstruction	3.162	A3	Gozo
P10	WA23 - Roundabout Freight terminal (Luqa Airport)-WA24 - Roundabout Gudja Airport	MTR038	Arterial road	WA23 - Roundabout Freight terminal (Luqa Airport)-WA24 - Roundabout Gudja Airport (0,6)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA24 Reconstruction of junction WA24	2005	Extended Reconstruction	1.372	A3	Malta
P11	EA21 - Marsa traffic light jct.-EA9 - Ghajn Dwieli Roundabout	MTR056	Arterial road	EA21 -Marsa traffic light jct.-EA9 -Ghajn Dwieli Roundabout (1,2)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation Reconstruction of junctions EA8 and EA9	2005	Extended Reconstruction	2.825	A3	Malta
P12	EA9 - Ghajn Dwieli Roundabout-SD7 - Mediterranean Film Studios	MTR057	Distributor road	EA9 - Ghajn Dwieli Roundabout-SD7 - Mediterranean Film Studios (4,2)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions SD1, SD3, SD5, SD6 and SD7 Reconstruction of junctions SD1, SD3, SD5 SD6 and SD7	2005	Extended Reconstruction	5.998	A3	Malta

Total estimated cost for the Third priority projects: 22.27

Table 9-8: Third Priority Projects

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P1	NA11 - St. Andrew's-EA12 - Paceville	MTR028	Arterial road	NA11 - St. Andrew's-EA12 - Paceville (1,3)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course	2007	Reconstruction	2.968	A4	Malta
P2	EA12 - Paceville-EA14 - jct. to S. Gwann/St. Julian's	MTR029	Arterial road	EA12 - Paceville-EA14 - jct.to S. Gwann/St. Julian's (1,2)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions EA13 and EA12 (extended reconstruction; grade-separated intersection) Reconstruction of junction EA13 and EA12 (extended reconstruction; grade-separated intersection)	2007	Extended Reconstruction	2.486	A4	Malta
P3	EA14 - jct. to S. Gwann/St. Julian's-EA15 - Kappara Roundabout	MTR030	Arterial road	EA14 - jct. to S. Gwann/St. Julian's-EA15 - Kappara Roundabout (0,8)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction EA14 Reconstruction of junction EA14	2007	Extended Reconstruction	1.83	A4	Malta
P4	EA15 - Kappara Roundabout-EA16 - Tal-Qroqq jct.	MTR031	Arterial road	EA15 - Kappara Roundabout-EA16 - Tal-Qroqq jct. (0,8)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction EA16 Reconstruction of junction EA16	2007	Extended Reconstruction	1.83	A4	Malta
P5	WA18 - Hamrun-WA19A - jct. to Valletta	MTR034	Arterial road	WA18 - Hamrun-WA19A - Marsa (1)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions WA19 and WA19a Reconstruction of junctions WA19 and WA19a	2007	Extended Reconstruction	2.287	A4	Malta
P6	WA19A - jct. to Valletta-EA20 - Roundabout Match factory	MTR035	Arterial road	WA19A - jct. to Valletta-EA20 - Roundabout Match factory (0,5)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	2007	Extended Reconstruction	1.148	A4	Malta
P7	EA20 - Roundabout Match factory-EA21 - Marsa traffic light jct.	MTR036	Arterial road	EA20 - Roundabout Match factory-EA21 - Marsa traffic light jct. (1)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions EA20 and EA21 Extended reconstruction of junctions EA20 and EA21 (grade-separated	2007	Extended Reconstruction	3.887	A4	Malta

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
					intersection including bridge construction)					
P8	EA21 - Marsa traffic light jct.-WA23 - Roundabout Freight terminal (Luqa Airport)	MTR037	Arterial road	EA21 - Paola-WA23 - Luqa (2,3)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA23; extended reconstruction of junction WA22 (grade-separated intersection) Reconstruction of junction WA23 Extended reconstruction of junction WA22 (grade-separated intersection)	2007	Extended Reconstruction	5.266	A4	Malta
P9	WA24 - Roundabout Gudja Airport-WA25 - jct. to Gudja	MTR039	Arterial road	WA24 - Roundabout Gudja Airport-WA25 - jct. to Gudja (0,7)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA25 Reconstruction of junction WA25	2007	Extended Reconstruction	1.606	A4	Malta
P10	WA8 - jct.to St. Anton Gardens-WA18 - Hamrun	MTR047	Arterial road	WA8 - jct. to St. Anton Gardens-WA18 - Hamrun (0,8)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions WA6 and WA7 Reconstruction of junctions WA6 and WA7	2007	Extended Reconstruction	6.312	A4	Malta
P11	ND12 - Tal-Qlejja Roundabout-NA22 - Roundabout Mosta (monument)	MTR048	Distributor road	ND12 - Tal-Qlejja Roundabout-NA22 - Roundabout Mosta (monument) (2,3)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions ND12 and ND11	2005	Extended Reconstruction	3.311	A4	Malta
P12	EA5 - jct. Bieb il-Bombi-EA6 - Roundabout War Memorial	MTR053	Arterial road	EA6 - Roundabout War Memorial-EA6 - Roundabout War Memorial (0,9)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction EA6	2002	Extended Reconstruction	1.973	A5	Malta
P13	EA16 - Tal-Qroqq jct.-ED3 - Msida traffic light jct.	MTR059	Distributor road	EA16 - Tal-Qroqq jct.-ED3 - Msida traffic light jct. (0,5)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	2004	Extended Reconstruction	1.098	A5	Malta

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P14	ED4 - Sa Maison jct.-EA5 - jct. Bieb il-Bombi	MTR061	Distributor road	ED4 - Sa Maison jct.-EA5 - jct. Bieb il-Bombi (0,5)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction ED4	2002	Extended Reconstruction	0.723	A5	Malta
P15	jct. to Gozo Heliport-Gozo Heliport	MTR012	Main connection road	jct. to Gozo Heliport-Gozo heliport (0,4)	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, asphalt wearing course, reconstruction of junction to heliport	2002	Reconstruction	0.575	Not included in Masterplan	Gozo
P16	EA7A - jct. Triq Dicembru 13-EA5 - jct. Bieb il-Bombi	MTR052	Arterial road	EA7A - jct. Triq Dicembru 13-EA5 - jct. Bier il-Bombi (0,8)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; extended reconstruction of junction EA5	2002	Extended Reconstruction	1.762	Not included in Masterplan	Malta
P17	EA6 - Roundabout War memorial-Sea Passenger Terminal	MTR054	Main connection road	EA6 - Roundabout War memorial-Sea Passenger Terminal (0,9)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	2003	Extended Reconstruction	1.531	Not included in Masterplan	Malta
P18	EA16A - jct. to St. Venera tunnels-ED3 - Msida traffic light jct.	MTR058	Main connection road	EA16A - jct. to St. Venera tunnels-ED3 - Msida traffic light jct. (0,7)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; extended reconstruction of junction ED3	2002	Extended Reconstruction	1.011	Not included in Masterplan	Malta
						Total estimated cost for the Fourth priority projects:		**41.60**		

Table 9-9: Fourth Priority Projects

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P1	EA16 - Tal-Qroqq jct.-EA16A - jct. to Msida Valley	MTR032	Arterial road	EA16 -Tal-Qroqq jct.-EA16A - jct. to Msida Valleay (0,5)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; extended reconstruction of junction EA16a and rooute re-alignment (including bridge construction) Extended reconstruction of junction EA16a and route re-alignment (including bridge construction)	2009	Extended Reconstruction	1.148	A5	Malta

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P2	EA16A - jct. to Msida Valley-WA18 - Hamrun	MTR033	Arterial road	EA16A - jct. to Msida Valley-WA18 - Hamrun (1,2)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions WA17 and WA18 Reconstruction of junctions WA17 and WA18	2009	Extended Reconstruction	2.825	A5	Malta
P3	WA2 - Roundabout to Lija-EA16 - Tal-Qroqq jct.	MTR050	Arterial road	WA2 - Roundabout to Lija-EA16 - Tal-Qroqq jct. (3,2)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions WA1 and EA22	2007	Extended Reconstruction	7.5	A5	Malta
P4	WA19A - jct. to Valletta-EA7A - jct. Triq Dicembru 13	MTR051	Arterial road	WA19A - jct. to Valletta-EA7A - jct. Triq Dicembru 13 (0,7)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	2006	Extended Reconstruction	1.523	A5	Malta
P5	ED3 - Msida traffic light-ED4 - Sa Maison jct.	MTR060	Distributor road	ED3 - Msida traffic light-ED4 - Sa Maison jct. (1,3)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	2008	Extended Reconstruction	2.211	A5	Malta
P6	ED4 - Sa Maison jct.-Marsamxett Harbour	MTR062	Main connection road	ED4 - Sa Maison jct.-Marsamxett Harbour (0,25)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	2008	Extended Reconstruction	0.364	Not included in Masterplan	Malta
P7	ED3 - Msida traffic light jct.-Manoel Island	MTR063	Main connection road	ED3 - Msida traffic light jct.-Manoel Island (1,3)	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	2006	Extended Reconstruction	2.198	Not included in Masterplan	Malta

Total estimated cost for the Fifth priority projects: **17.77**

Table 9-10: Fifth Priority Projects

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P1	Sea Passenger terminal-EA7A - jct. Triq Dicembru 13	MTR055	Main connection road	Sea Passenger Terminal-EA7A - jct. Triq Dicembru 13 (1,8)	Link to Sea Passenger Terminal The link road will pass through the existing infrastruture, which has to be upgraded between node EA7a and the Sea Passenger Terminal. The project will include a grade-separated junction at node EA7a.	2015	Upgrading	3.811	Not included in Masterplan	Malta
P2	GA28 - Gharb-GA29 - jct. to Gharsi	MTR002	Arterial road	GA29 - jct. to Gharsi-GA35 - Xewkija ()	By-Pass at Victoria Gozo The by-pass at Victoria will deviate the traffic from the city centre and includes a tunnel construction.	2015	New Construction	8.223	Long term project	Gozo
P3	NA4 - jct. at Seabank Hotel (Mellieha)-NA5 - jct. to Manikata	MTR021	Arterial road	NA4 - jct. at Seabank Hotel (Mellieha)-NA7 - Xemxija Bay ()	Major route re-alignment between Xemxija and Mellieha Bay This proposed re-alignment will improve on the currently steep gradients in the area. This re-alignment includes tunnel construction.	2015	New Construction	11.475	Long term project	Malta
P4	NA4 - jct. at Seabank Hotel (Mellieha)-NA5 - jct. to Manikata	MTR026	Arterial road	NA9 - jct. to Naxxar/Iklin-EA12 - Paceville ()	Major Route Re-alignment along the coast road at Bahar ic-Caghaq The route re-alignment between nodes NA9 and NA10 is proposed to eliminate the dangerous curves along the coast road. The proposed route passes through the Maghtab Landfill. The re-alignment between nodes NA11a and EA12 will include tunnel construction.	2015	New Construction	13.098	Long term project	Malta
P5	EA14 - jct. to S. Gwann/St. Julian's-EA15 - Kappara Roundabout	MTR030	Arterial road	EA15 - Kappara Roundabout-Manoel Island ()	Kappara Junction and Tunnel to Manoel Island The signalized roundabout at junction EA15 is to be upgraded to a grade separated junction with a new access tunnel to Manoel Island.	2015	New Construction	10.898	Long term project	Malta
P6	EA21 - Marsa traffic light jct.-WA23 - Roundabout Freight terminal (Luqa Airport)	MTR037	Arterial road	EA21 - Marsa traffic light jct.-WA22 - jct. to Santa Lucija ()	Marsa project Junction EA21 which is currently a signalized junction has to be developed as the main grade separated junction with other improvements being carried out on nodes EA20, EA20a, EA8 and SA11. The construction of a bridge is envisaged between nodes EA21 and WA22.	2015	Upgrading	9.325	Long term project	Malta

Code	Road	Code of road	Road Category	From-To (Length[km])	Description	Year of completion	Category	Cost (MEURO)	Phase	Island
P7	EA9 - Ghajn Dwieli Roundabout-SD7 - Mediterranean Film Studios	MTR057	Distributor road	EA9 - Ghajn Dwieli Roundabout-SD7 - Mediterranean Film Studios ()	By-Pass at the Cottonera Area The by-pass from node EA9 to SD7 will include stretches of new construction, a tunnel at Fgura and the upgrading of existing roads.	2015	New Construction	6.687	Long term project	Malta

Total estimated cost for the Sixth priority projects: **63.52**

Table 9-11: Sixth Priority Projects

9.3.2 SEAPORT PROJECTS

Fifteen projects have been identified by the Maltese authorities at this stage for the development of the seaports infrastructure. Nine of these projects refer to Valletta port, four refer to Marsaxlokk, while one project refers to each of the ports Cirkewwa and Mgarr (Malta – Gozo ferry link).

All these projects are shown in Table 9.12

It is clear that each of the above-mentioned ports plays its own role in Malta's maritime transport. The Grand Harbour of Valletta is without dispute Malta's main port for cruise passengers, being also an important freight and transshipment center. At the same time, the Malta Freeport has become a very important maritime transhipment center in the Mediterranean, being ranked as the third leading transhipment port in this region, and with even better perspectives. On the other hand, the ports of Cirkewwa and Mgarr although having no international character, they are very important ports for the interconnection of the Maltese islands, Malta and Gozo.

In this context, the prioritisation of Malta's seaport projects matches with the Maltese recommendations, which indicate a group of three projects as top priority: Projects P7 for Valletta port, with a cost of € 0.25 million, P8 for Valletta, with a cost of € 26.28 million and P15 for Cirkewwa, with a cost of € 25.46 million already committed. Projects P5 and P9 for Valletta and P14 for Mgarr are the second priorities.

It must be stated that projects referring to the Marsaxlokk cannot be considered as having competing priorities with the other projects, as –in general- they aim at different financing schemes and sources.

Code	Location	Description of project	Years	Category	Stage	Importance	Cost (MEURO)
P1	Valletta	"Connections" Project - This project aims to establish multi-modal links between towns and cities surrounding Valletta's ports. The project is being proposed by Government and envisages the establishment of intra-harbour ferry links, the construction of elevator systems to facilitate communication between the periphery and the city, tunnelling underneath the capital to ease communications and the construction of underground car parks to ease commuter problems.	NA	New Construction	Planned	Medium	50.00
P2	Valletta	Development of Barriera Wharf - The development of this area shall be required to accommodate the increase in cruise liners which are in Malta on a transit basis.	NA	Upgrading	Planned	Medium	7.76
P3	Valletta	Extension of Wine Wharf - The Authority is considering the extension of Wine Wharf and the construction of dedicated ramps thereon allowing also for the re-alignment of Gun Wharf and the extension of Pinto Wharf by a further 60 meters. Besides catering for cruise liners over 300 meters, this project will be mainly focused on accommodation of the ever increasing size of ferry passenger vessels.	NA	New Construction	Planned	Medium	2.59
P4	Valletta	Extension of Fuel Wharf - The Authority is considering the possibility of extending Fuel Wharf towards Laboratory Wharf by approximately 250 meters in order to increase the	NA	New Construction	Planned	High	13.00

Code	Location	Description of project	Years	Category	Stage	Importance	Cost (MEURO)
		open storage area and the berth availability for large ro-ro vessels.					
P5	Valletta	Refurbishment of Deep Water Quay - This quay is over 400 metres long and is furnished with 3 sheds offering a covered storage area of about 3000m2. The major part of the Deep Water Quay superstructure has been constructed on piles in the early 1960s, when the majority of cargo was handled in small packages. Therefore, there are strict weight limitations on what could be handled at this berth. In view of the above considerations the Authority is commissioning a study of the required maintenance to the piles and the alterations to upgrade the carrying capacity of the quay apron. The necessary upgrading works and the time-frame required shall only be established once the study is concluded.	NA	Upgrading	Under Study	High	5.17
P6	Valletta	Flagstone Wharf - Upgrading of this wharf and its facilities into an oil terminal	NA	Upgrading	Planned	High	0.58
P7	Valletta	Coal Wharf - The works consists of repairs and upgrading of this wharf at Marsa in Grand Harbour, locality of Paola. These works can be summarised as follows: - Excavation of existing dilapidated deck of cope beam; - Reinstating backfill with selected hard core material; - Reinstating the deck with reinforced concrete slabs; - Reinstating the coping with reinforced concrete beam; - Establishing port facilities like bollards, service trench, fender eyes, etc.	01.01.2001/ 30.06.2001	Reconstruction	Under Construction	High	0.25
P8	Valletta	Sea Passenger Terminal - The Valletta Sea Passenger Terminal Project covers an approximate land area of 45,000 sq.m, and is being developed to attract potential cruise passengers visitors to the Valletta Grand Harbour. The aim is to bring about a process of physical upgrading and enhancement of the existing facilities including the conservation of historical buildings also found in the area.	01.10.2001/ 30.04.2005	New Construction	Under Construction	High	26.28
P9	Valletta	Construction of Trade Center at Deep Water Quay - The concept behind the trade centre is to offer to port users the possibility of a one-stop shop where all port services can be availed of under one roof. Apart from housing the Malta Maritime Authority, the building will have space available for various port service providers. This should contribute to smoother and quicker bureaucratic processes and alleviate the road congestion that often occurs during office hours.	01.01.2002/ 31.12.2004	New Construction	Under Study	High	10.00

Code	Location	Description of project	Years	Category	Stage	Importance	Cost (MEURO)
P10	Marsaxlokk (Freeport)	Upgrading of Delimara Reporting Station - In order to improve the level of navigation system the Authority has drawn up plans to upgrade its stations which are used to control navigation within the Maltese territorial waters. This project involves investment in new infrastructure facilities particularly in the installation of a new station at the port of Marsaxlokk, within the Delimara lighthouse.	01.01.2001/ 31.12.2001	Upgrading	Planned	Medium	3.36
P11	Marsaxlokk (Freeport)	Installation of five new super post-Panamax quay cranes to reach full handling capacity at Malta Freeport	01.01.2004/ 31.12.2012	New Construction	Under Study	High	32.00
P12	Marsaxlokk (Freeport)	Container Yard Expansion and construction of additional distripark (warehousing) facilities	01.01.2008/ 31.12.2010	Upgrading	Under Study	High	10.40
P13	Marsaxlokk (Freeport)	Installation of 12 new Rubber Tyred Gantries at Malta Freeport to reach full handling capacity	01.01.2008/ 31.12.2010	New Construction	Under Study	High	22.20
P14	Mgarr	Construction of Mgarr (Gozo) berths - As part of the major project mentioned under the Cirkewwa entry, upgrading is also being carried out in the berthing and passenger handling facilities in the port of Mgarr (Gozo). This entails the extension of a quay and the building of a passenger terminal.	01.01.2002/ 31.12.2003	New Construction	Ready for Construction	High	7.64
P15	Cirkewwa	Construction of Cirkewwa berths - A major project is underway to upgrade the berthing and passenger handling facilities in the port of Cirkewwa. This port caters mainly for the ferry service, which operates between Malta and Gozo. The project involves construction of two berths and the extension of the breakwater and the building of a passenger terminal.	10.01.2000/ 30.04.2005	New Construction	Under Construction	High	25.46
						Total estimated cost for the seaport projects:	**216.68**

Table 9-12: Seaport projects

9.3.3 AIRPORT PROJECTS

The identified projects (as shown in Table 9-133) have the special characteristic that they all refer to the same airport, Luqa Airport, which is the only international airport in Malta. It is therefore obvious that all these proposed measures share a common objective, which is the development of the infrastructure of this particular terminal. It is also recognised that some of these measures can be characterised as urgent, from a technical viewpoint, even if the airport faces no capacity problems at present and it is not expected to face such problems in the near future.

In this context, the only appropriate way for the prioritisation of these projects is their technical analysis as well as the maturity for constructions they already have. The given importance (high and medium) by the Maltese authorities also defines the priorities.

To conclude the discussion on prioritisation, where a scheme definition (for example, the Valletta port development or the Luqa airport development) includes measures that all aim at the same objective, then, above all, only a technical examination of the proper sequence of actions can define the priorities.

Nr.	Code	Description of project	Years	Category	Stage	Importance	Cost (MEURO)
1	03	Resurfacing of Apron 9 pavement - Resurfacing of the main aircraft parking area (Apron 9) pavement is necessary since the present surface has deteriorated, testing and technical conclusions indicate that the most cost effective solution lies in the replacement of the present asphalt surface by a hard standing (concrete) pavement.	01.06.2001/ 31.12.2003	Reconstruction	Ready for Construction	High	3
2	06	Construction of Internal Flights' Gate - To construct new passenger flow pathways and additional gate for internal flights and prepare for the implementation of Schengen agreement requirements. The works include the construction of additional offices to cater for airline/ground handler/s office requirements.	01.10.2001/ 01.06.2002	New Construction	Ready for Construction	High	4
3	04	Resurfacing of Apron 8 pavement - Resurfacing of aircraft parking area, Apron 8 pavement is necessary since the present surface has deteriorated. The works comprises in the replacement of damaged hard standing areas of the apron pavement.	01.10.2001/ 31.12.2003	Reconstruction	Under study	Medium	1
4	01	Resurfacing of runway 06/24 pavement - Resurfacing of runway 06/24 pavement is necessary since the present surface has deteriorated, reaching the stage that closure of runway to heavy aircraft will be necessary. The present asphalt surface must be removed and the runway resurfaced.	01.10.2001/ 01.06.2002	Reconstruction	Under study	High	8
5	05	Construction of Taxiway Apron 9 to Apron 8 - To construct taxiway, parallel to runway 14/32, from apron 9 to apron 8, in order to improve access, particularly to manouvering aircraft between aprons 8 and 9. This taxiway will improve operations, increase the runway handling capacity and provide aircraft access from main aircraft park (apron 9) to runway 06/24 in the event of closure of main runway 14/32	01.01.2003/ 01.06.2004	New Construction	Planned	High	12
6	02	Resurfacing of the main runway 14/32 pavement - Resurfacing of the main runway 14/32 pavement is necessary since the present surface has deteriorated, testing and technical conclusions indicate that the expected lifetime of the present surface is 1-2 years. The present asphalt surface must be removed and the runway resurfaced.	01.01.2003/ 01.06.2004	Reconstruction	Under study	High	12
					Total estimated cost for the airport projects:		**40.00**

Table 9-133: Airport Projects

10 CONCLUSIONS, RECOMMENDATIONS

10.1 THE TINA NETWORK

The TINA Network in Malta, resulted from a number of essential considerations, such as the existing needs of the country, the economic limits to construct this network based on the current and future GDP of the country, the linkage of traffic forecasts to infrastructure needs, etc. However, the TINA road network in Malta may not be "automatically" considered as the Commission's proposal for the extended TEN in the country. This is because the road network in the Maltese islands is –normally- focused on national needs. Which parts of this TINA network can be considered as part of the TEN will be decided during the forthcoming major revision of the TEN Guidelines. On the contrary, the identified TINA network in Malta includes five ports, out of which, the two (Valletta and Marsaxlokk) should definitely be part of the revised TEN. The same applies for the one international airport in Malta.

The final TINA Network in Malta comprises 96 km of roads, 5 seaports and one airport. The outline of the Network has been finally defined; however, minor changes in its shape might occur, if future studies prove this necessity.

The Network seems to serve well the Maltese islands, from any viewpoint (economic, touristic, social).

The ratio of network length to surface area is significantly higher in Malta than inside the EU and the other candidate countries. However, the ratio of network length to population is far below than in European regions, if we take into consideration that there is no rail network in Malta, so all the transport needs are covered by roads.

The cost to construct the Network has been estimated by the Maltese authorities at € 490.28 million (€ 233.60 million for the total road network, € 40.00 million for the one airport and € 216.68 million for the five identified seaports).

10.2 DEVELOPMENT OF THE NETWORK

An essential element in the whole TINA planning process was that this Network would have a realistic prospect of its construction being financed, based on a perspective of an average construction cost of about 1.5% of GDP in the country.

From the Report it appears that, the complete realisation of the network in Malta is absolutely realistic in the time horizon of 2015.

Of course, things can be even more positive, if the involvement of the private sector or the IFIs can be ensured. In such a case, more ambitious options of the network can be scheduled, especially for the road network, where the many bottlenecks require more radical changes in the context of increasing the infrastructure capacity.

In its present stage, the development of the Network is scheduled according to the national plans. However, the national planning should concentrate more on the need for balanced development between modes, and thus, the synchronisation of the plans and actions between the several transport authorities must be strengthened. In this respect, the development of the maritime transport (through the strengthening of the two very important ports of the island) should go in parallel with the respective improvement of the road traffic that serves the social needs of the islands' inhabitants.

Certain necessary investment measures were identified as priorities. These priorities were described by mode; however, there is a common sense, that the road rehabilitation programme (including all the measures of phase A of the national roads Master Plan) must have a better position in every ranking regarding inter-modal priorities. The reason is simple, and is related to the poor existing condition of the pavement in many road sections, requiring

immediate action. If no action is taken, then, many sections will deteriorate rapidly and the rehabilitation cost will be automatically multiplied.

Furthermore, preference will be given to projects which lever additional forms of finance, e.g. combinations of grant and loan financing in public-private partnerships.

It is worth mentioning that any plan for the construction of the network requires the definition of concrete projects. This process will need detailed feasibility and environmental studies on a case by case basis, in order to define viable projects which can form an -as much as possible- viable network (*ref.: Article 2, point (f) of the Decision No 1692/96/EC*). The assessment of the projects can be based on the methodology for projects assessment, which was submitted as a part of the original TINA Final Report (November 1999).

10.3 OPERATION OF THE NETWORK

The operation of the Network is the second fundamental option of its existence. Even if the Network exists, it must be ensured that the infrastructure must be used in the most efficient way. For the proper operation of the Network, two separate options appear:

- The technical tools to be introduced on the Network to improve the level of its services and to make it more attractive. The introduction of the Intelligent Transport Systems (ITS) on the TINA Network can serve this objective.
- The sufficient legislative - institutional framework to ensure access under the best conditions, eliminating any administrative obstacles and barriers, and thus improving its exploitation. In this sense, the adoption of the EU acquis and the effective implementation of the relevant UN/ECE Agreements and Conventions are a prerequisite for the better functioning of the Network. However, the speed of implementation depends on the available financial means; intermediate solutions might be more adequate.

Based on the EU provisions for the European networks, it can be said that the absolute objectives are:

- An internal market which works efficiently and facilitates the free movement of goods and people
- A coherent, integrated transport system using the most appropriate technologies
- Social policies to protect and promote the interests of those working in and using transport

ANNEX I – MAPS

TINA NETWORK Malta

TINA NETWORK Malta – Network Status

TINA NETWORK Malta – Network Condition

TINA NETWORK Malta – Road Traffic 1999 (AADT)

TINA NETWORK Malta – Road Traffic 2005 (AADT)

TINA NETWORK Malta – Road Traffic 2010 (AADT)

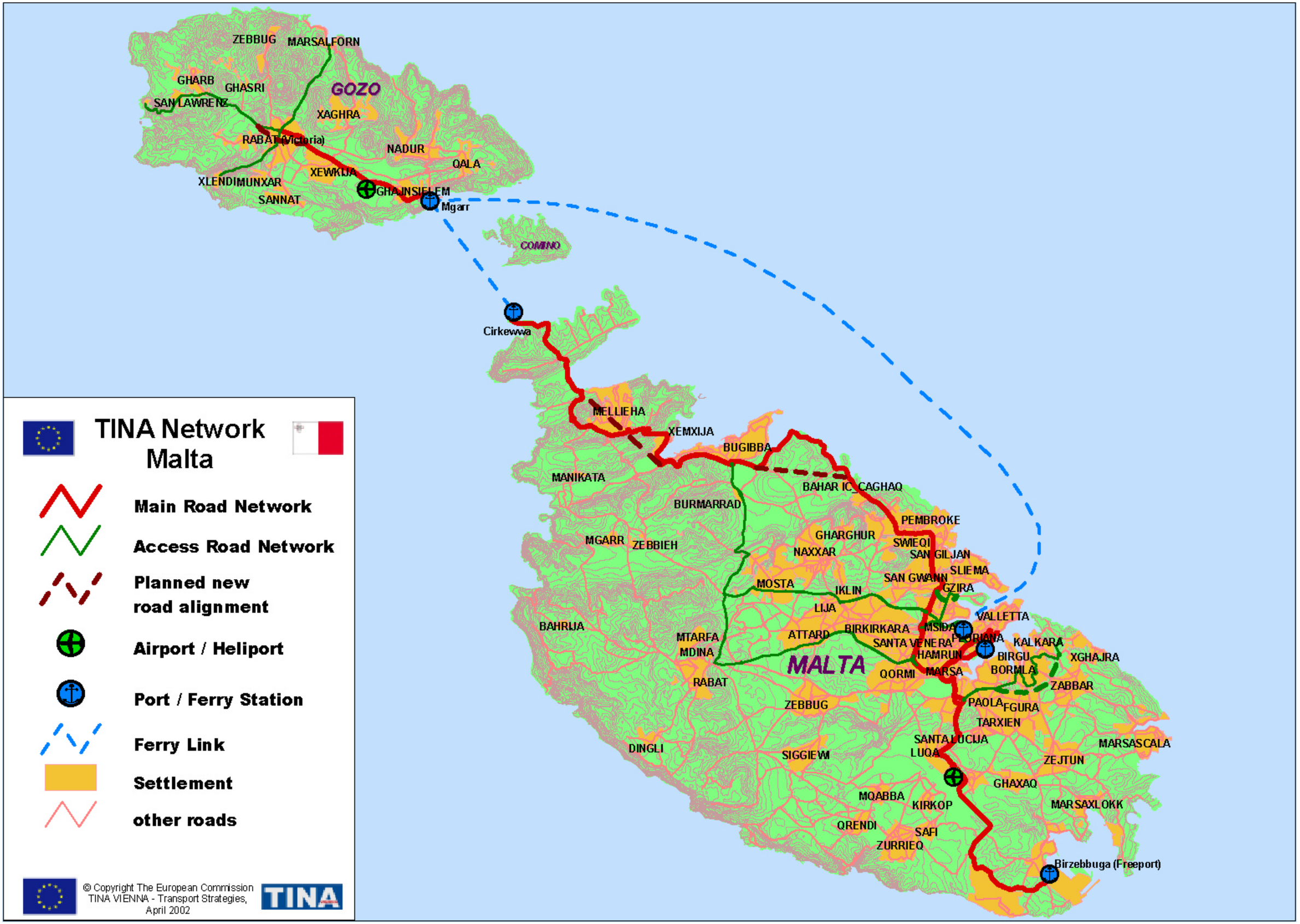
TINA NETWORK Malta – Road Traffic 2015 (AADT)

TINA NETWORK Malta – Bottlenecks 1999

TINA NETWORK Malta – Bottlenecks 2005

TINA NETWORK Malta – Bottlenecks 2010

TINA NETWORK Malta – Bottlenecks 2015


ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
NADUR
QALA
XEWKIJA
XLENDIMUNXAR
GHAJNSIELEM
SANNAT
Mgarr
COMINO
Cirkewwa
MELLIEHA
XEMXIJA
BUGIBBA
MANIKATA
BAHAR IC_CAGHAQ
BURMARRAD
PEMBROKE
GHARGHUR
MGARR
ZEBBIEH
NAXXAR
SWIEQI
SAN GILJAN
SLIEMA
SAN GWANN
MOSTA
IKLIN
GZIRA
LIJA
VALLETTA
BAHRIJA
BIRKIRKARA
MSIDA
ATTARD
FLORIANA
KALKARA
MTARFA
SANTA VENERA
HAMRUN
BIRGU
XGHAJRA
MDINA
MALTA
QORMI
MARSA
BORMLA
ZABBAR
RABAT
PAOLA
FGURA
ZEBBUG
TARXIEN
SANTA LUCIJA
MARSASCALA
DINGLI
SIGGIEWI
LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)
TINA Network
Malta
Main Road Network
Access Road Network
Planned new
road alignment
Airport / Heliport
Port / Ferry Station
Ferry Link
Settlement
other roads
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April 2002
TINA


TINA Network
Malta
Network Status
Arterial Roads
Distributor Roads
Main
Connection Roads
Airport / Heliport
Port / Ferry Station
Ferry Link
Settlement
other roads
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April 2002
TINA
ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
NADUR
QALA
XEWKIJA
XLENDIMUNXAR
SANNAT
Mgarr
Cirkewwa
MELLIEHA
XEMXIJA
BUGIBBA
MANIKATA
BAHAR IC-CAGHAQ
BURMARRAD
PEMBROKE
GHARGHUR
MGARR
ZEBBIEH
NAXXAR
SWIEQI
SAN GILJAN
SLIEMA
SAN GWANN
MOSTA
IKLIN
GZIRA
LIJA
VALLETTA
BAHRIJA
MTARFA
ATTARD
BIRKIRKARA
MSIDA
FLORIANA
KALKARA
MDINA
SANTA VENERA
HAMRUN
BIRGU
XGHAJRA
QORMI
MARSA
BORMLA
RABAT
ZABBAR
ZEBBUG
PAOLA
FGURA
TARXIEN
MALTA
SANTA LUCIJA
MARSASCALA
DINGLI
SIGGIEWI
LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network Malta

Network Condition

- Poor
- Medium
- Good
- Airport / Heliport
- Port / Ferry Station
- Ferry Link
- Settlement
- other roads

TINA

ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
NADUR
QALA
XEWKIJA
XLENDIMUNXAR
GHAJNSIELEM
SANNAT
Mgarr
Cirkewwa
MELLIEHA
XEMXIJA
BUGIBBA
MANIKATA
BAHAR IC_CAGHAQ
BURMARRAD
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SWIEQI
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FLORIANA
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SANTA LUCIJA
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LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network
Malta
Road Traffic 1999 (AADT)

- Less than 8000
- 8000 - 12000
- 12000 - 15000
- 15000 - 20000
- 20000 - 40000
- More than 40000
- No data
- Airport / Heliport
- Port / Ferry Station
- Ferry Link
- Settlement
- other roads

TINA

ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
NADUR
QALA
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Cirkewwa
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PAOLA
FGURA
ZEBBUG
MALTA
TARXIEN
SANTA LUCIJA
MARSASCALA
DINGLI
SIGGIEWI
LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network
Malta
Road Traffic 2005 (AADT)

- Less than 8000
- 8000 - 12000
- 12000 - 15000
- 15000 - 20000
- 20000 - 40000
- More than 40000
- No data
- Airport / Heliport
- Port / Ferry Station
- Ferry Link
- Settlement
- other roads

TINA

ZEBBUG
MARSALFORN
GHARB
GHASRI
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RABAT (Victoria)
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SLIEMA
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MARSA
BORMLA
RABAT
ZABBAR
PAOLA
FGURA
ZEBBUG
MALTA
TARXIEN
SANTA LUCIJA
MARSASCALA
DINGLI
SIGGIEWI
LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network
Malta
Road Traffic 2010 (AADT)

- Less than 8000
- 8000 - 12000
- 12000 - 15000
- 15000 - 20000
- 20000 - 40000
- More than 40000
- No data
- Airport / Heliport
- Port / Ferry Station
- Ferry Link
- Settlement
- other roads

TINA

ZEBBUG
MARSALFORN
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PEMBROKE
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ZABBAR
PAOLA
FGURA
ZEBBUG
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LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network
Malta
Road Traffic 2015 (AADT)

- Less than 8000
- 8000 - 12000
- 12000 - 15000
- 15000 - 20000
- 20000 - 40000
- More than 40000
- No data
- Airport / Heliport
- Port / Ferry Station
- Ferry Link
- Settlement
- other roads

TINA

ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
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FGURA
ZEBBUG
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SIGGIEWI
LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network
Malta
Bottlenecks 1999

- Yes
- No
- No Data
- Airport / Heliport
- Port / Ferry Station
- Ferry Link
- Settlement
- other roads

TINA

ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
NADUR
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XLENDIMUNXAR
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GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network
Malta
Bottlenecks 2005

- Yes
- No
- No Data
- Airport / Heliport
- Port / Ferry Station
- Ferry Link
- Settlement
- other roads

TINA

ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
NADUR
QALA
XEWKIJA
XLENDIMUNXAR
GHAJNSIELEM
SANNAT
Mgarr
Cirkewwa
MELLIEHA
XEMXIJA
BUGIBBA
MANIKATA
BAHAR IC-CAGHAQ
BURMARRAD
PEMBROKE
GHARGHUR
MGARR
ZEBBIEH
NAXXAR
SWIEQI
SAN GILJAN
SLIEMA
SAN GWANN
GZIRA
MOSTA
IKLIN
LIJA
VALLETTA
BAHRIJA
MTARFA
ATTARD
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MSIDA
FLORIANA
KALKARA
SANTA VENERA
HAMRUN
BIRGU
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MDINA
QORMI
MARSA
BORMLA
RABAT
ZABBAR
PAOLA
FGURA
ZEBBUG
TARXIEN
MALTA
SANTA LUCIJA
MARSASCALA
DINGLI
SIGGIEWI
LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network
Malta
Bottlenecks 2010

Yes

No

No Data

Airport / Heliport

Port / Ferry Station

Ferry Link

Settlement

other roads

TINA

ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
NADUR
QALA
XEWKIJA
XLENDIMUNXAR
GHAJNSIELEM
SANNAT
Mgarr
Cirkewwa
MELLIEHA
XEMXIJA
BUGIBBA
MANIKATA
BAHAR IC_CAGHAQ
BURMARRAD
PEMBROKE
GHARGHUR
MGARR
ZEBBIEH
NAXXAR
SWIEQI
SAN GILJAN
SLIEMA
SAN GWANN
GZIRA
MOSTA
IKLIN
LIJA
VALLETTA
BAHRIJA
MTARFA
MDINA
ATTARD
BIRKIRKARA
MSIDA
FLORIANA
KALKARA
SANTA VENERA
HAMRUN
MALTA
XGHAJRA
BORMLA
QORMI
MARSA
RABAT
ZABBAR
ZEBBUG
PAOLA
FGURA
TARXIEN
SANTA LUCIJA
MARSASCALA
DINGLI
SIGGIEWI
LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

TINA Network
Malta
Bottlenecks 2015

- Yes
- No
- No Data
- Airport / Heliport
- Port / Ferry Station
- Ferry Link
- Settlement
- other roads

TINA

ZEBBUG
MARSALFORN
GHARB
GHASRI
GOZO
SAN LAWRENZ
XAGHRA
RABAT (Victoria)
NADUR
QALA
XEWKIJA
XLENDIMUNXAR
GHAJNSIELEM
SANNAT
Mgarr
Cirkewwa
MELLIEHA
XEMXIJA
BUGIBBA
MANIKATA
BAHAR IC-CAGHAQ
BURMARRAD
PEMBROKE
GHARGHUR
MGARR
ZEBBIEH
NAXXAR
SWIEQI
SAN GILJAN
SLIEMA
SAN GWANN
GZIRA
MOSTA
IKLIN
LIJA
VALLETTA
BAHRIJA
MTARFA
ATTARD
BIRKIRKARA
MSIDA
FLORIANA
KALKARA
SANTA VENERA
HAMRUN
BIRGU
XGHAJRA
MDINA
QORMI
MARSA
BORMLA
RABAT
ZABBAR
PAOLA
FGURA
ZEBBUG
TARXIEN
MALTA
SANTA LUCIJA
MARSASCALA
DINGLI
SIGGIEWI
LUQA
ZEJTUN
GHAXAQ
MQABBA
KIRKOP
MARSAXLOKK
QRENDI
SAFI
ZURRIEQ
Birzebbuga (Freeport)

ANNEX II – PRINTOUT OF DATABASE

MALTA ROADS – Main Road Network

ROAD SECTION FROM GA32 - main Victoria jct. TO: GA33 - jct. to Marsalforn

Code	Length	Condition	Category	Road Number	Remarks
MTR006	0,7	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,7	2001	2	7,5	asphalt				0,7 / - / -	0,7 / - / -	
0 - 0,7	2004	2	7,5	asphalt				0,7 / - / -	0,7 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						14605
2005						16447
2010						18159
2015						19085

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA32 -main Victoria jct. TO GA33 - jct. to Marsalforn (0,7)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA33 Reconstruction of junction GA33	- / 2004	Reconstruction		Under Study / -	2004	1,011
							Total: 1,011	

ROAD SECTION FROM GA33 - jct. to Marsalforn TO: GA34 - jct. to Xewkija

Code	Length	Condition	Category	Road Number	Remarks

MTR007	0,2	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,2	2001	2	7,5	asphalt				0,2 / - / -	0,2 / - / -	
0 - 0,2	2004	2	7,5	asphalt				0,2 / - / -	0,2 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						14605
2005						16447
2010						18159
2015						19085

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
GA33 - jct. to Marsalforn TO GA34 - jct. to Xewkija (0,2)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA34 Reconstruction of junction GA34	- / 2004	Reconstruction		Under Study / -	2004	0,287
							Total: 0,287	

ROAD SECTION FROM GA34 - jct. to Xewkija TO: GA35 - Xewkija

Code	Length	Condition	Category	Road Number	Remarks
MTR008	1,2	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks

0 - 1,2	2001	2	10	asphalt	80		50	1,2 / - / -	1,2 / - / -	
0 - 1,2	2004	2	7,5	asphalt	80		50	1,2 / - / -	1,2 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						16413
2005						18484
2010						20408
2015						21449

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
GA34 - jct. Xewkija TO GA35 - Xewkija (1,2)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA35 Reconstruction of junction GA35	- / 2004	Reconstruction		Under Study / high	2004	1,925
							Total: 1,925	

ROAD SECTION FROM GA35 - Xewkija TO: jct. to Gozo Heliport

Code	Length	Condition	Category	Road Number	Remarks
MTR009	1,4	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,4	2001	2	10	asphalt	80		50	1,4 / - / -	1,4 / - / -	
0 - 1,4	2004	2	7,5	asphalt	80		50	1,4 / - / -	1,4 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA35 - Xewkija TO jct. to Gozo Heliport (1,4)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction to Gozo heliport Reconstruction of junction to Gozo heliport	- / 2004	Reconstruction		Under Study / high	2004	2,262
							Total: 2,262	

ROAD SECTION FROM jct. to Gozo Heliport TO: GA36 - Ghajnsielem

Code	Length	Condition	Category	Road Number	Remarks
MTR010	0,7	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,7	2001	2	10	asphalt	80		50	0,7 / - / -	0,7 / - / -	
0 - 0,7	2002	2	7,5	asphalt	80		50	0,7 / - / -	0,7 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
jct. to Gozo	01	Removal of existing asphalt, recompacting of base, recycling	- / 2002	Reconstruction		Under Study /	2002	1,086

Heliport TO GA36 - Ghajnsielem (0,7)		of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA36 Reconstruction of junction GA36				high	Total: 1,086

ROAD SECTION FROM GA36 - Ghajnsielem TO: GA38 - Mgarr (ferry station)

Code	Length	Condition	Category	Road Number	Remarks
MTR011	1,8	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,5	2001	2	10	asphalt	50			1,5 / - / -	1,5 / - / -	
1,5 - 1,8	2001	2	10	asphalt	50		76	- / 0,3 / -	0,3 / - / -	
0 - 1,8	2002	2	7,5	asphalt	80		76	1,5 / 0,3 / -	1,8 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						8251
2005						9293
2010						10260
2015						10783

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA36 -	01	Removal of existing asphalt, recompacting of base, recycling	- / 2002	Reconstruction		Under Study /	2002	3,037

Ghajnsielem TO GA38 - Mgarr (ferry station) (1,8)		of removed asphalt for base course, ashpalt wearing course; reconstruction of junctions GA37a, GA37 and GA38 Reconstruction of junctions GA37a, GA37 and GA38				high	Total: 3,037

ROAD SECTION FROM NA1 - Cirkewwa (ferry station) TO: NA4 - jct. at Seabank Hotel (Mellieha)

Code	Length	Condition	Category	Road Number	Remarks
MTR020	4,2	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 2,4	2001	2	10	asphalt	80		70	2,4 / - / -	- / 2,4 / -	
2,4 - 2,7	2001	2	7,5	asphalt	80		70	- / 0,3 / -	- / 0,3 / -	
2,7 - 4,2	2001	4	15	asphalt	80		101	- / 1,5 / -	- / 1,5 / -	
0 - 2,7	2004	2	7,5	asphalt	80		70	2,4 / 0,3 / -	- / 2,7 / -	
2,7 - 4,2	2004	4	15	asphalt	80		101	- / 1,5 / -	- / 1,5 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						3615
2005						2999
2010						2486
2015						2650

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
NA1 - Cirkewwa	01	Removal of existing asphalt, recompacting of base,	- / 2004	Reconstruction		Planned /	2004	6,887

(ferry station) TO NA4 - jct. at Seabank Hotel (Mellieha) (4,2)		recycling of removed asphalt for base course, ashpalt wearing course; reconstructions of junctions NA1, NA2, NA3 and NA4 Reconstruction of junctions NA1, NA2, NA3 and NA4				high	Total: 6,887

ROAD SECTION FROM NA4 - jct. at Seabank Hotel (Mellieha) TO: NA5 -jct. to Manikata

Code	Length	Condition	Category	Road Number	Remarks
MTR021	1,8	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,8	2001	4	15	asphalt	80		100	- / 1,8 / -	- / 1,8 / -	
0 - 1,8	2003	4	15	asphalt	80		100	- / 1,8 / -	- / 1,8 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
NA4 - jct. at Seabank Hotel (Mellieha) TO NA7 - Xemxija Bay (-)	02	Major route re-alignment between Xemxija and Mellieha Bay This proposed re-alignment will improve on the currently steep gradients in the area. This re-alignment includes tunnel construction.	- / 2015	New Construction		Planned / -	2015 Total: 11,475	11,475
NA4 - jct. at	01	Removal of existing asphalt, recompacting of base,	- /	Reconstruction		Planned /	2003	4,337

Seabank Hotel (Mellieha) TO NA5 - jct. to Manikata (1,8)		recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA5 Reconstruction of junction NA5	2003			high	Total: 4,337

ROAD SECTION FROM NA5 - jct. to Manikata TO: NA6 - Roundabout at Belleview

Code	Length	Condition	Category	Road Number	Remarks
MTR022	1,4	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,4	2001	4	15	asphalt	80		37	- / 1,4 / -	- / 1,4 / -	
0 - 1,4	2003	4	15	asphalt	80		37	- / 1,4 / -	- / 1,4 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
NA5 - jct.to Manikata TO NA6 - Roundabout at Belleview (1,4)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA6 Reconstruction of junction NA6	- / 2003	Reconstruction		Under Study / high	2003	3,362
							Total: 3,362	

ROAD SECTION FROM NA6 - Roundabout at Belleview TO: NA7 - Xemxija Bay

Code	Length	Condition	Category	Road Number	Remarks

MTR023	2,9	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,6	2001	2	7,5	asphalt	50		100	- / 1,6 / -	- / 1,6 / -	
1,6 - 2,9	2001	2	7,5	asphalt	50		93	- / 1,3 / -	1,3 / - / -	
0 - 2,9	2003	2	7,5	asphalt	50		100	- / 2,9 / -	1,3 / 1,6 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
NA6 - Roundabout at Belleview TO NA7 - Xemxija Bay (2,9)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA7 Reconstruction of junction NA7	- / 2003	Reconstruction		Planned / high	2003	4,598
							Total: 4,598	

ROAD SECTION FROM NA7 -Xemxija Bay TO: NA8 - Bugibba Roundabout

Code	Length	Condition	Category	Road Number	Remarks
MTR024	2,7	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 2,7	2001	4	15	asphalt	80		46	- / 2,7 / -	- / 2,7 / -	
0 - 2,7	2002	4	15	asphalt	80		46	- / 2,7 / -	- / 2,7 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
NA7 - Xemxija Bay TO NA8 - Bugibba Roundabout (2,7)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA8 Reconstruction of junction NA8	- / 2002	Reconstruction		Planned / -	2002	6,181
							Total: 6,181	

ROAD SECTION FROM NA8 - Bugibba Roundabout TO: NA9 - jct. to Naxxar/Iklin

Code	Length	Condition	Category	Road Number	Remarks
MTR025	1,2	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,2	2001	2	10	asphalt	80			1,2 / - / -	- / 1,2 / -	
0 - 1,2	2003	4	15	asphalt				1,2 / - / -	- / 1,2 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						20469
2005						22982
2010						25076
2015						26123

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
NA8 - Bugibba Roundabout TO NA9 - jct. to Naxxar/Iklin (1,2)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction NA9 Reconstruction of junction NA9	- / 2003	Reconstruction		Planned / -	2003	2,745
							Total: 2,745	

ROAD SECTION FROM NA9 - jct. to Naxxar/Iklin TO: NA10 - jct. to Splash&Fun

Code	Length	Condition	Category	Road Number	Remarks
MTR026	4,4	medium	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,9	2001	2	10	asphalt	80			1,9 / - / -	- / 1,9 / -	
1,9 - 3,1	2001	2	10	asphalt	80			1,2 / - / -	- / 1,2 / -	
3,1 - 4,4	2001	2	10	asphalt	80			1,3 / - / -	- / 1,3 / -	
0 - 4,4	2003	2	7,5	asphalt	80			4,4 / - / -	- / 4,4 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						20469
2005						22982
2010						25076
2015						26123

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost

NA9 - jct. to Naxxar/Iklin TO EA12 - Paceville (-)	02	Major Route Re-alignment along the coast road at Bahar ic-Caghaq The route re-alignment between nodes NA9 and NA10 is proposed to eliminate the dangerous curves along the coast road. The proposed route passes through the Maghtab Landfill. The re-alignment between nodes NA11a and EA12 will include tunnel construction.	- / 2015	New Construction		- / -	2015	13,098 Total: 13,098
NA9 - jct. to Naxxar/Iklin TO NA10 - jct. to Splash&Fun (4,4)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions NA10, NA10a and NA10b Reconstruction of junctions NA10, NA10a and NA10b	- / 2003	Extended Reconstruction		Planned / -	2003	7,025 Total: 7,025

ROAD SECTION FROM NA10 - jct. to Splash&Fun TO: NA11 - St. Andrew's

Code	Length	Condition	Category	Road Number	Remarks
MTR027	2,6	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 2,6	2001	2	10	asphalt	80		54	1,2 / 1,4 / -	- / 2,6 / -	
0 - 2,6	2003	2	7,5	asphalt	80		54	1,2 / 1,4 / -	- / 2,6 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
NA10 - jct. to Splash&Fun TO NA11 - St. Andrew's (2,6)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction NA11 Reconstruction of junction NA11	- / 2003	Extended Reconstruction		Planned / -	2003	4,087
							Total: 4,087	

ROAD SECTION FROM NA11 - St. Andrew's TO: EA12 - Paceville

Code	Length	Condition	Category	Road Number	Remarks
MTR028	1,3	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,3	2001	2	7,5	asphalt	50			1,3 / - / -	1,3 / - / -	
0 - 1,3	2007	2	7,5	asphalt	50			1,3 / - / -	1,3 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
NA11 - St. Andrew's TO EA12 - Paceville (1,3)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course	- / 2007	Reconstruction		Planned / high	2007	2,968
							Total: 2,968	

ROAD SECTION FROM EA12 - Paceville TO: EA14 - jct. to S. Gwann/St. Julian's

Code	Length	Condition	Category	Road Number	Remarks
MTR029	1,2	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,8	2001	4	15	asphalt	80			0,8 / - / -	0,2 / 0,6 / -	
0,8 - 1,2	2001	4	15	asphalt	80		60	- / 0,4 / -	0,2 / 0,2 / -	
0 - 1,2	2007	4	15	asphalt	80		60	0,8 / 0,4 / -	0,4 / 0,8 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						81382
2005						80930
2010						80553
2015						81737

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA12 - Paceville TO EA14 - jct.to S. Gwann/St. Julian's (1,2)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions EA13 and EA12 (extended reconstruction; grade-separated intersection) Reconstruction of junction EA13 and EA12 (extended reconstruction; grade-separated intersection)	- / 2007	Extended Reconstruction		Planned / high	2007	2,486 Total: 2,486

ROAD SECTION FROM EA14 - jct. to S. Gwann/St. Julian's TO: EA15 - Kappara Roundabout

Code	Length	Condition	Category	Road Number	Remarks

MTR030	0,8	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,8	2001	4	15	asphalt	80		45	- / 0,8 / -	0,8 / - / -	
0 - 0,8	2007	4	15	asphalt	80			- / 0,8 / -	0,8 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
EA15 - Kappara Roundabout TO Manoel Island (-)	02	Kappara Junction and Tunnel to Manoel Island The signalized roundabout at junction EA15 is to be upgraded to a grade separated junction with a new access tunnel to Manoel Island.	- / 2015	New Construction		Planned / high	2015	10,898
							Total: 10,898	
EA14 - jct. to S. Gwann/St. Julian's TO EA15 - Kappara Roundabout (0,8)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction EA14 Reconstruction of junction EA14	- / 2007	Extended Reconstruction		Planned / high	2007	1,83
							Total: 1,83	

ROAD SECTION FROM EA15 - Kappara Roundabout TO: EA16 - Tal-Qroqq jct.

Code	Length	Condition	Category	Road Number	Remarks
MTR031	0,8	medium	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,8	2001	6	22	asphalt	80		15	0,8 / - / -	- / 0,8 / -	
0 - 0,8	2007	6	22	asphalt	80		15	0,8 / - / -	- / 0,8 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA15 - Kappara Roundabout TO EA16 - Tal-Qroqq jct. (0,8)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction EA16 Reconstruction of junction EA16	- / 2007	Extended Reconstruction		Planned / high	2007 Total: 1,83	1,83

ROAD SECTION FROM EA16 - Tal-Qroqq jct. TO: EA16A - jct. to Msida Valley

Code	Length	Condition	Category	Road Number	Remarks
MTR032	0,5	medium	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,5	2001	4	15	asphalt	80		45	- / 0,5 / -	- / 0,5 / -	
0 - 0,5	2009	4	15	asphalt	80		45	- / 0,5 / -	- / 0,5 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
EA16 -Tal-Qroqq jct. TO EA16A - jct. to Msida Valleay (0,5)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; extended reconstruction of junction EA16a and rooute re-alignment (including bridge construction) Extended reconstruction of junction EA16a and route re-alignment (including bridge construction)	- / 2009	Extended Reconstruction		Planned / high	2009	1,148 Total: 1,148

ROAD SECTION FROM EA16A - jct. to Msida Valley TO: WA18 - Hamrun

Code	Length	Condition	Category	Road Number	Remarks
MTR033	1,2	medium	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,2	2001	4	15	asphalt	80		45	- / 1,2 / -	- / 1,2 / -	
0 - 1,2	2009	4	15	asphalt	80		45	- / 1,2 / -	- / 1,2 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
EA16A - jct. to	01	Removal of existing asphalt, recompacting of subbase Typ I,	- / 2009	Extended		Planned /	2009	2,825

Msida Valley TO WA18 - Hamrun (1,2)		introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions WA17 and WA18 Reconstruction of junctions WA17 and WA18		Reconstruction		high	Total: 2,825

ROAD SECTION FROM WA18 - Hamrun TO: WA19A - jct. to Valletta

Code	Length	Condition	Category	Road Number	Remarks
MTR034	1	medium	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1	2001	4	15	asphalt	80			1 / - / -	- / 1 / -	
0 - 1	2007	4	15	asphalt	80		30	1 / - / -	- / 1 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
WA18 - Hamrun TO WA19A - Marsa (1)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions WA19 and WA19a Reconstruction of junctions WA19 and WA19a	- / 2007	Extended Reconstruction		Under Study / high	2007	2,287 Total: 2,287

ROAD SECTION FROM WA19A - jct. to Valletta TO: EA20 - Roundabout Match factory

Code	Length	Condition	Category	Road Number	Remarks

MTR035	0,5	medium	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,5	2001	4	15	asphalt	50		30	- / 0,5 / -	0,5 / - / -	
0 - 0,5	2007	4	15	asphalt	80		30	- / 0,5 / -	0,5 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
WA19A - jct. to Valletta TO EA20 - Roundabout Match factory (0,5)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	- / 2007	Extended Reconstruction		Planned / high	2007	1,148
							Total: 1,148	

ROAD SECTION FROM EA20 - Roundabout Match factory TO: EA21 - Marsa traffic light jct.

Code	Length	Condition	Category	Road Number	Remarks
MTR036	1	medium	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1	2001	8	30	asphalt	80			1 / - / -	- / 1 / -	
0 - 1	2007	8	30	asphalt	80			1 / - / -	- / 1 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

1999						135779
2005						159970
2010						180129
2015						190209

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA20 - Roundabout Match factory TO EA21 - Marsa traffic light jct. (1)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions EA20 and EA21 Extended reconstruction of junctions EA20 and EA21 (grade-separated intersection including bridge construction)	- / 2007	Extended Reconstruction		Planned / high	2007	3,887
							Total: 3,887	

ROAD SECTION FROM EA21 - Marsa traffic light jct. TO: WA23 - Roundabout Freight terminal (Luqa Airport)

Code	Length	Condition	Category	Road Number	Remarks
MTR037	2,3	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,6	2001	4	15	asphalt	80		58	- / 1,6 / -	- / 1,6 / -	
1,6 - 2,3	2001	4	13	asphalt	80			0,7 / - / -	0,7 / - / -	
0 - 2,3	2007	4	15	asphalt	80		58	1,9 / 0,4 / -	1,9 / 0,4 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						35048
2005						35437
2010						35762

2015						36901

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
EA21 - Marsa traffic light jct. TO WA22 - jct. to Santa Lucija (-)	02	Marsa project Junction EA21 which is currently a signalized junction has to be developed as the main grade separated junction with other improvements being carried out on nodes EA20, EA20a, EA8 and SA11. The construction of a bridge is envisaged between nodes EA21 and WA22.	- / 2015	Upgrading		Planned / high	2015	9,325 Total: 9,325
EA21 - Paola TO WA23 - Luqa (2,3)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA23; extended reconstruction of junction WA22 (grade-separated intersection) Reconstruction of junction WA23 Extended reconstruction of junction WA22 (grade-separated intersection)	- / 2007	Extended Reconstruction		Planned / high	2007	5,266 Total: 5,266

ROAD SECTION FROM WA23 - Roundabout Freight terminal (Luqa Airport) TO: WA24 - Roundabout Gudja Airport

Code	Length	Condition	Category	Road Number	Remarks
MTR038	0,6	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,6	2001	4	15	asphalt	80			0,6 / - / -	- / 0,6 / -	

0 - 0,6	2005	4	15	asphalt	80			0,6 / - / -	- / 0,6 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
WA23 -Roundabout Freight terminal (Luqa Airport) TO WA24 - Roundabout Gudja Airport (0,6)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA24 Reconstruction of junction WA24	- / 2005	Extended Reconstruction		Planned / high	2005 Total:	1,372 1,372

ROAD SECTION FROM WA24 - Roundabout Gudja Airport TO: WA25 - jct. to Gudja

Code	Length	Condition	Category	Road Number	Remarks
MTR039	0,7	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,7	2001	4	15	asphalt	80			0,7 / - / -	- / 0,7 / -	
0 - 0,7	2007	4	15	asphalt	80			0,7 / - / -	- / 0,7 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
WA24 -	01	Removal of existing asphalt, recompacting of subbase Typ I,	- / 2007	Extended		Planned /	2007	1,606

Roundabout Gudja Airport TO WA25 - jct. to Gudja (0,7)		introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA25 Reconstruction of junction WA25		Reconstruction		high	Total: 1,606

ROAD SECTION FROM WA25 - jct. to Gudja TO: WA26 - jct. Peace Lab

Code	Length	Condition	Category	Road Number	Remarks
MTR040	3,7	good	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 3,7	2001	2	7,5	asphalt	80		37	- / 3,7 / -	- / 3,7 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
WA26 - jct. Peace Lab TO WA26 - jct. Peace Lab (3,7)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA26	- / -	Extended Reconstruction		- / -	2000 Total: 5,328	5,328

ROAD SECTION FROM WA26 - jct. Peace Lab TO: SA27 - jct. Freeport

Code	Length	Condition	Category	Road Number	Remarks
MTR041	3	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 3	2001	2	7,5	asphalt	80		40	- / 3 / -	- / 3 / -	
0 - 3	2003	2	7,5	asphalt	80		40	- / 3 / -	- / 3 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						7570
2005						6364
2010						5360
2015						5406

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
WA26 - jct. Peace Lab TO SA27 - jct. Freeport (3)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction SA27 Reconstruction of junction SA27	2002 / 2003	Extended Reconstruction		Planned / high	2003	4,732 Total: 4,732

ROAD SECTION FROM WA19A - jct. to Valletta TO: EA7A - jct. Triq Dicembru 13

Code	Length	Condition	Category	Road Number	Remarks
MTR051	0,7	medium	Arterial road	6	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,7	2001	4	15	asphalt	80		40	0,7 / - / -	0,7 / - / -	
0 - 0,7	2006	4	15	asphalt	80		40	0,7 / - / -	0,7 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Total Cost [MEURO] Cost
WA19A - jct. to Valletta TO EA7A - jct. Triq Dicembru 13 (0,7)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	- / 2006	Extended Reconstruction		Planned / high	2006	1,523
							Total:	1,523

ROAD SECTION FROM EA7A - jct. Triq Dicembru 13 TO: EA5 - jct. Bieb il-Bombi

Code	Length	Condition	Category	Road Number	Remarks
MTR052	0,8	medium	Arterial road	6	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,8	2001	4	15	asphalt	80		40	0,3 / 0,5 / -	0,8 / - / -	
0 - 0,8	2002	4	15	asphalt	80		40	0,3 / 0,5 / -	0,8 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						95028
2005						84929
2010						76512
2015						76512

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Total Cost [MEURO] Cost

EA7A - jct. Triq Dicembru 13 TO EA5 - jct. Bier il-Bombi (0,8)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; extended reconstruction of junction EA5	- / 2002	Extended Reconstruction		Planned / high	2002	1,762
							Total: 1,762	

ROAD SECTION FROM EA5 - jct. Bieb il-Bombi TO: EA6 - Roundabout War Memorial

Code	Length	Condition	Category	Road Number	Remarks
MTR053	0,9	medium	Arterial road	6	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,9	2001	4	15	asphalt	50			0,9 / - / -	0,9 / - / -	
0 - 0,9	2002	4	15	asphalt	50			0,9 / - / -	0,9 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA6 - Roundabout War Memorial TO EA6 - Roundabout War Memorial (0,9)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction EA6	- / 2002	Extended Reconstruction		Under Study / high	2002	1,973
							Total: 1,973	

ROAD SECTION FROM EA6 - Roundabout War memorial TO: Sea Passenger Terminal

Code	Length	Condition	Category	Road Number	Remarks
MTR054	0,9	poor	Main connection road		

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,9	2001	2	7	asphalt	50		80	- / 0,9 / -	0,9 / - / -	
0 - 0,9	2003	2	7	asphalt	50		80	- / 0,9 / -	0,9 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA6 - Roundabout War memorial TO Sea Passenger Terminal (0,9)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	- / 2003	Extended Reconstruction		Under Study / -	2003	1,531
							Total: 1,531	

ROAD SECTION FROM Sea Passenger terminal TO: EA7A - jct. Triq Dicembru 13

Code	Length	Condition	Category	Road Number	Remarks
MTR055	1,8	poor	Main connection road		

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,8	2001	2	7,5	asphalt	50			1,8 / - / -	1,8 / - / -	
0 - 1,8	2015	2	7,5	asphalt	50			1,8 / - / -	1,8 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To	Code	Remarks	Years	Category	IRR [%]	Stage /	Total Cost [MEURO]

(Length [km])						Importance	Year	Cost
Sea Passenger Terminal TO EA7A - jct. Triq Dicembru 13 (1,8)	01	Link to Sea Passenger Terminal The link road will pass through the existing infrastruture, which has to be upgraded between node EA7a and the Sea Passenger Terminal. The project will include a grade-separated junction at node EA7a.	- / 2015	Upgrading		Under Study / high	2015	3,811
							Total: 3,811	

MALTA ROADS – Access Road Network

ROAD SECTION FROM GD2 - Dwejra TO: GA28 - Gharb

Code	Length	Condition	Category	Road Number	Remarks
MTR001	2,7	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,1	2001	2	7,5	asphalt	50		146	- / 1,1 / -	- / 1,1 / -	
1,1 - 2,7	2001	2	7,5	asphalt	50		126	- / 1,6 / -	1,6 / - / -	
0 - 2,7	2003	2	7,5	asphalt	50		126	- / 2,7 / -	1,6 / 1,1 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GD2 - Dwejra TO GA28 - Gharb (2,7)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junctions GD2, GD1 (San Lawrenz) and GA28 Reconstruction of junctions GD2 (Dwejra), GD1 (San Lawrenz) and GA28 (Gharb)	- / 2003	Reconstruction		Under Study / -	2003	4,261
							Total: 4,261	

ROAD SECTION FROM GA28 - Gharb TO: GA29 - jct. to Gharsi

Code	Length	Condition	Category	Road Number	Remarks
MTR002	1,3	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,3	2001	2	7,5	asphalt	80		44	- / 1,3 / -	- / 1,3 / -	
0 - 1,3	2004	2	7,5	asphalt	80		44	- / 1,3 / -	- / 1,3 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA28 - Gharb TO GA29 - jct. Gharsi (1,3)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course	- / 2004	Reconstruction		Under Study / -	2004	2,172
							Total: 2,172	
GA29 - jct. to Gharsi TO GA35 - Xewkija (-)	02	By-Pass at Victoria Gozo The by-pass at Victoria will deviate the traffic from the city centre and includes a tunnel construction.	- / 2015	New Construction		Under Study / -	2015	8,223
							Total: 8,223	

ROAD SECTION FROM GA29 - jct. to Gharsi TO: GA30 - jct. at N.W. Rabat

Code	Length	Condition	Category	Road Number	Remarks
MTR003	0,9	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,9	2001	2	7,5	asphalt	80		44	- / 0,9 / -	- / 0,9 / -	
0 - 0,9	2004	2	7,5	asphalt	80		44	- / 0,9 / -	- / 0,9 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA29 - jct. to Gharsi TO GA30 - jct.at N.W. Rabat (9)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junctions GA29 and GA30 Reconstruction of junctions GA29 and GA30	- / 2004	Reconstruction		Under Study / -	2004 Total: 1,441	1,441

ROAD SECTION FROM GA30 - jct. at N.W. Rabat TO: GA31 - jct. to Zebbug

Code	Length	Condition	Category	Road Number	Remarks
MTR004	0,3	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,3	2001	2	7,5	asphalt				0,3 / - / -	0,3 / - / -	
0 - 0,3	2004	2	7,5	asphalt				0,3 / - / -	0,3 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA30 - jct.	01	Removal of existing asphalt, recompacting of base, recycling	- / 2004	Reconstruction		Under Study /	2004	0,436

rd.1/rd.12 TO GA31 - jct. rd.1/rd.2 (0,3)		of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA31 Reconstruction of junction GA31				-	Total: 0,436

ROAD SECTION FROM GA31 - jct. to Zebbug TO: GA32 - main Victoria jct.

Code	Length	Condition	Category	Road Number	Remarks
MTR005	0,4	poor	Arterial road	1	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,4	2001	2	7,5	asphalt				0,4 / - / -	0,4 / - / -	
0 - 0,4	2004	2	7,5	asphalt				0,4 / - / -	0,4 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA31 - jct.to Zebbug TO GA32 - main Victoria jct. (0,4)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA32 Reconstruction of junction GA32	- / 2004	Reconstruction		Under Study / -	2004 Total: 0,575	0,575

ROAD SECTION FROM jct. to Gozo Heliport TO: Gozo Heliport

Code	Length	Condition	Category	Road Number	Remarks

MTR012	0,4	poor	Main connection road		

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,4	2001	2	7,5	asphalt	50		55	- / 0,4 / -	- / 0,4 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
jct. to Gozo Heliport TO Gozo heliport (0,4)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, asphalt wearing course, reconstruction of junction to heliport	- / 2002	Reconstruction		Under Study / high	2002	0,575
							Total: 0,575	

ROAD SECTION FROM GA41 - Marsalforn TO: GA40 - Capuchini Church

Code	Length	Condition	Category	Road Number	Remarks
MTR013	3	poor	Arterial road	3	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 2,5	2001	2	7,5	asphalt	80		48	- / 2,5 / -	- / 2,5 / -	
2,5 - 3	2001	2	7,5	asphalt	50		83	- / 0,5 / -	0,5 / - / -	
0 - 3	2004	2	7,5	asphalt	80		48	- / 3 / -	0,5 / 2,5 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						6863

2005						7729
2010						8533
2015						8969

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA41 - Marsalforn TO GA40 - Capuchini Church (3)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA41 Reconstruction of junction GA41	- / 2004	Reconstruction		Under Study / -	2004	4,762
							Total: 4,762	

ROAD SECTION FROM GA40 -Capuchini Church TO: GA32 - main Victoria jct.

Code	Length	Condition	Category	Road Number	Remarks
MTR014	0,3	poor	Arterial road	3	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,3	2001	2	7,5	asphalt	50		83	- / 0,3 / -	0,3 / - / -	
0 - 0,3	2004	2	7,5	asphalt	50		48	- / 0,3 / -	0,3 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						6863
2005						7729
2010						8533
2015						8969

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA40 - Capuchini Church TO GA32 - main Victoria jct. (0,3)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, ashpalt wearing course; reconstruction of junction GA40	- / 2004	Reconstruction		Under Study / -	2004	0,511
							Total: 0,511	

ROAD SECTION FROM GA32 - main Victoria jct. TO: GD16 - jct. to Xlendi

Code	Length	Condition	Category	Road Number	Remarks
MTR015	0,75	poor	Distributor road	10	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,75	2001	2	6	asphalt	50		65	- / 0,75 / -	- / 0,75 / -	
0 - 0,75	2005	2	6	asphalt	50		65	- / 0,75 / -	- / 0,75 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						7708
2005						8681
2010						9584
2015						10073

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GA32 - main Victoria jct. TO GD16 - jct. to Xlendi (0,75)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, asphalt wearing course; reconstruction of junctions GD21, GD10, GD14 and GD16	- / 2005	Reconstruction		Under Study / -	2005	0,972
							Total: 0,972	

ROAD SECTION FROM GD16 - jct. to Xlendi TO: GD17 - Xlendi Bay

Code	Length	Condition	Category	Road Number	Remarks
MTR016	2,2	poor	Distributor road	10	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 2,2	2001	2	7,5	asphalt	80		60	- / 2,2 / -	0,5 / 1,7 / -	
0 - 2,2	2005	2	7,5	asphalt	80		60	- / 2,2 / -	0,5 / 1,7 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						2652
2005						2987
2010						3298
2015						3466

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
GD16 - jct. to Xlendi TO GD17 - Xlendi Bay (2,2)	01	Removal of existing asphalt, recompacting of base, recycling of removed asphalt for base course, asphalt wearing course; reconstruction of junction GD17	- / 2005	Reconstruction		Under Study / -	2005	3,162 Total: 3,162

ROAD SECTION FROM NA8 - Bugibba Roundabout TO: ND3 - Mosta Roundabout

Code	Length	Condition	Category	Road Number	Remarks
MTR042	3,8	poor	Distributor road	16	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 2,8	2001	2	10	asphalt	80		31	2,8 / - / -	0,8 / 2 / -	
2,8 - 3,8	2001	2	10	asphalt	80		79	- / 1 / -	- / 1 / -	
0 - 3,8	2003	2	7,5	asphalt	80		79	2,8 / 1 / -	0,8 / 3 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						14715
2005						21731
2010						27578
2015						30502

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
NA8 - Bugibba Roundabout TO ND3 - Mosta Roundabout (3,8)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions ND1, ND2, ND3 and ND3a Reconstruction of junctions ND1, ND2, ND3 and ND3a	- / 2003	Extended Reconstruction		ready for Construction / high	2003	6,012 Total: 6,012

ROAD SECTION FROM ND3 - Mosta Roundabout TO: ND12 - Tal-Qlejja Roundabout

Code	Length	Condition	Category	Road Number	Remarks
MTR043	1,7	poor	Distributor road	16	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks

0 - 1,7	2001	2	7,5	asphalt	80		35	- / 1,7 / -	- / 1,7 / -	
0 - 1,7	2003	2	7,85	asphalt	80		35	- / 1,7 / -	- / 1,7 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
ND3 - Mosta Roundabout TO ND12 - Tal-Qlejja Roundabout (1,7)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions ND12 and ND12a Reconstruction of junction ND12 and ND12a	- / 2003	Reconstruction		Planned / high	2003	2,773 Total: 2,773

ROAD SECTION FROM ND12 - Tal-Qlejja Roundabout TO: NA14 - jct. Saqqajja

Code	Length	Condition	Category	Road Number	Remarks
MTR044	2,5	poor	Distributor road	16	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,5	2001	2	7,5	asphalt	80		44	- / 1,5 / -	- / 1,5 / -	
1,5 - 2,5	2001	2	7,5	asphalt	80		133	- / 1 / -	0,2 / 0,8 / -	
0 - 2,5	2003	2	7,5	asphalt	80		133	- / 2,5 / -	0,2 / 2,3 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
ND12 - Tal-Qlejja Roundabout TO NA14 - jct. Saqqajja (2,5)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions ND13 and NA14 Reconstruction of junctions ND13 and NA14	- / 2003	Extended Reconstruction		Planned / high	2003	4,123 Total: 4,123

ROAD SECTION FROM NA14 - jct. Saqqajja TO: WA9 - jct. Attard

Code	Length	Condition	Category	Road Number	Remarks
MTR045	3,6	poor	Arterial road	7	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1	2001	2	7,5	asphalt	80		74	- / 1,6 / -	- / 1,6 / -	
1 - 2,4	2001	2	10	asphalt	80		11	1,4 / - / -	- / 1,4 / -	
2,4 - 3,6	2001	2	7,5	asphalt	50		18	0,6 / - / -	0,6 / - / -	
0 - 3,6	2003	2	7,5	asphalt	80		74	2 / 1,6 / -	0,6 / 3 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						14681
2005						29333
2010						41543
2015						47648

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]

							Year	Cost
NA14 - jct. Saqqajja TO WA9 - jct. Attard (3,6)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions NA15, WA10 and WA9 Reconstruction of junctions NA15, WA10 and WA9	- / 2003	Extended Reconstruction		Planned / high	2003	5,775
							Total: 5,775	

ROAD SECTION FROM WA9 - jct. Attard TO: WA8 - jct. to St. Anton Gardens

Code	Length	Condition	Category	Road Number	Remarks
MTR046	0,9	poor	Arterial road	7	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,9	2001	4	15	asphalt	80			0,9 / - / -	0,9 / - / -	
0 - 0,9	2003	4	15	asphalt	80			0,9 / - / -	0,9 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						39834
2005						55192
2010						67990
2015						74389

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
WA8 - jct. to St.	01	Removal of existing asphalt, recompacting of subbase Typ I,	- / 2003	Extended		Planned /	2003	1,973

Anton Gardens TO WA8 - jct. to St. Anton Gardens (0,9)		introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction WA8		Reconstruction		high	Total: 1,973

ROAD SECTION FROM WA8 - jct.to St. Anton Gardens TO: WA18 - Hamrun

Code	Length	Condition	Category	Road Number	Remarks
MTR047	3	medium	Arterial road	7	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,8	2001	2	7,5	asphalt	50		20	0,8 / - / -	0,8 / - / -	
0,8 - 3	2001	4	15	asphalt	80		45	2,2 / - / -	- / 2,2 / -	
0 - 0,8	2007	2	7,5	asphalt	50		20	0,8 / - / -	0,8 / - / -	
0,8 - 3	2007	4	15	asphalt	80		45	2,2 / - / -	- / 2,2 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						46623
2005						58942
2010						69208
2015						74341

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
WA8 - jct. to St.	01	Removal of existing asphalt, recompacting of subbase Typ I,	- / 2007	Extended		Planned /	2007	6,312

Anton Gardens TO WA18 - Hamrun (0,8)		introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions WA6 and WA7 Reconstruction of junctions WA6 and WA7		Reconstruction		high	Total: 6,312

ROAD SECTION FROM ND12 - Tal-Qlejja Roundabout TO: NA22 - Roundabout Mosta (monument)

Code	Length	Condition	Category	Road Number	Remarks
MTR048	2,3	poor	Distributor road	17	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 2,3	2001	2	7,5	asphalt	50			2,3 / - / -	1,2 / 1,1 / -	
0 - 2,3	2005	2	7,5	asphalt	50			2,3 / - / -	1,2 / 1,1 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
ND12 - Tal-Qlejja Roundabout TO NA22 - Roundabout Mosta (monument) (2,3)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions ND12 and ND11	- / 2005	Extended Reconstruction		Planned / high	2005	3,311 Total: 3,311

ROAD SECTION FROM NA22 - Roundabout Mosta (monument) TO: WA2 - Roundabout to Lija

Code	Length	Condition	Category	Road Number	Remarks
MTR049	2	poor	Arterial road	5	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,6	2001	4	15	asphalt	50		12	0,6 / - / -	0,6 / - / -	
0,6 - 1,6	2001	2	10	asphalt	80			1 / - / -	- / 1 / -	
1,6 - 2	2001	2	7,5	asphalt	50			0,4 / - / -	0,4 / - / -	
0 - 0,6	2002	4	15	asphalt	50		12	0,6 / - / -	0,6 / - / -	
0,6 - 2	2002	2	7,5	asphalt	80		12	1,4 / - / -	0,4 / 1 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
NA22 - jct. rd.5/rd.17/rd.18 TO WA2 - jct. rd.5/rd.19 (2)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions NA21 and WA2 Reconstruction of junctions NA21 and Wa2	- / 2001	Extended Reconstruction		Under Construction / high	2002	2,675
							Total: 2,675	

ROAD SECTION FROM WA2 - Roundabout to Lija TO: EA16 - Tal-Qroqq jct.

Code	Length	Condition	Category	Road Number	Remarks
MTR050	3,2	poor	Arterial road	5	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,5	2001	4	15	asphalt	80		43	1 / 0,5 / -	1,5 / - / -	
1,5 - 3,2	2001	4	15	asphalt	80		30	1,7 / - / -	1,7 / - / -	
0 - 1,5	2005	4	15	asphalt	80		43	1 / 0,5 / -	1,5 / - / -	

1,5 - 3,2	2007	4	15	asphalt	80		30	1,7 / - / -	1,7 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						20706
2005						34437
2010						45879
2015						50667

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
WA2 - Roundabout to Lija TO EA16 - Tal-Qroqq jct. (3,2)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions WA1 and EA22	- / 2007	Extended Reconstruction		ready for Construction / -	2007	7,5
							Total: 7,5	

ROAD SECTION FROM EA21 - Marsa traffic light jct. TO: EA9 - Ghajn Dwieli Roundabout

Code	Length	Condition	Category	Road Number	Remarks
MTR056	1,2	poor	Arterial road	8	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,2	2001	4	15	asphalt	80		38	- / 1,2 / -	1,2 / - / -	
0 - 1,2	2005	4	15	asphalt	80		38	1,2 / - / -	- / 1,2 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT
1999						14036
2005						46906
2010						74297

2015						87993

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA21 -Marsa traffic light jct. TO EA9 -Ghajn Dwieli Roundabout (1,2)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation Reconstruction of junctions EA8 and EA9	- / 2005	Extended Reconstruction		Planned / high	2005	2,825 Total: 2,825

ROAD SECTION FROM EA9 - Ghajn Dwieli Roundabout TO: SD7 - Mediterranean Film Studios

Code	Length	Condition	Category	Road Number	Remarks
MTR057	4,2	poor	Distributor road	23	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 4,2	2001	2	9	asphalt	50		50	3 / 1,2 / -	2,7 / 1,5 / -	
0 - 4,2	2005	2	7,5	asphalt	80		50	3 / 1,2 / -	2,7 / 1,5 / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA9 - Ghajn Dwieli	02	By-Pass at the Cottonera Area	- / 2015	New		Under Study /	2015	6,687

Roundabout TO SD7 - Mediterranean Film Studios (-)		The by-pass from node EA9 to SD7 will include stretches of new construction, a tunnel at Fgura and the upgrading of existing roads.		Construction		high	Total: 6,687
EA9 - Ghajn Dwieli Roundabout TO SD7 - Mediterranean Film Studios (4,2)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junctions SD1, SD3, SD5, SD6 and SD7 Reconstruction of junctions SD1, SD3, SD5 SD6 and SD7	- / 2005	Extended Reconstruction		Planned / medium	2005 5,998 Total: 5,998

ROAD SECTION FROM EA16A - jct. to St. Venera tunnels TO: ED3 - Msida traffic light jct.

Code	Length	Condition	Category	Road Number	Remarks
MTR058	0,7	poor	Main connection road		

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,7	2001	2	7,5	asphalt	50			0,7 / - / -	0,7 / - / -	
0 - 0,7	2002	2	7,5	asphalt	50			0,7 / - / -	0,7 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA16A - jct. to	01	Removal of existing asphalt, recompacting of subbase Typ I,	- / 2002	Extended		Planned /	2002	1,011

St. Venera tunnels TO ED3 - Msida traffic light jct. (0,7)		introduction of asphalt base course, binder course and wearing course or cement stabilisation; extended reconstruction of junction ED3		Reconstruction		high	Total: 1,011

ROAD SECTION FROM EA16 - Tal-Qroqq jct. TO: ED3 - Msida traffic light jct.

Code	Length	Condition	Category	Road Number	Remarks
MTR059	0,5	medium	Distributor road	22	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,5	2001	4	15	asphalt	80		50	- / 0,5 / -	0,5 / - / -	
0 - 0,5	2004	4	15	asphalt	80		50	- / 0,5 / -	0,5 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
EA16 - Tal-Qroqq jct. TO ED3 - Msida traffic light jct. (0,5)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	- / 2004	Extended Reconstruction		Under Study / high	2004	1,098 Total: 1,098

ROAD SECTION FROM ED3 - Msida traffic light TO: ED4 - Sa Maison jct.

Code	Length	Condition	Category	Road Number	Remarks
MTR060	1,3	medium	Distributor road	22	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,3	2001	4	13,2	asphalt	50			1,3 / - / -	1,3 / - / -	
0 - 1,3	2008	4	13,2	asphalt	50			1,3 / - / -	1,3 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
ED3 - Msida traffic light TO ED4 - Sa Maison jct. (1,3)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	- / 2008	Extended Reconstruction		Under Study / -	2008	2,211
							Total: 2,211	

ROAD SECTION FROM ED4 - Sa Maison jct. TO: EA5 - jct. Bieb il-Bombi

Code	Length	Condition	Category	Road Number	Remarks
MTR061	0,5	medium	Distributor road	22	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,5	2001	2	7,5	asphalt	50		50	- / 0,5 / -	0,5 / - / -	
0 - 0,5	2002	2	7,5	asphalt	50		50	- / 0,5 / -	0,5 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
ED4 - Sa Maison jct. TO EA5 - jct. Bieb il-Bombi (0,5)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation; reconstruction of junction ED4	- / 2002	Extended Reconstruction		Under Study / -	2002	0,723
							Total: 0,723	

ROAD SECTION FROM ED4 - Sa Maison jct. TO: Marsamxett Harbour

Code	Length	Condition	Category	Road Number	Remarks
MTR062	0,25	poor	Main connection road		Connection to ferry station

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 0,25	2001	2	7,5	asphalt	50			0,25 / - / -	0,25 / - / -	
0 - 0,25	2008	2	7,5	asphalt	50			0,25 / - / -	0,25 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
							Year	Cost
ED4 - Sa Maison jct. TO Marsamxett Harbour (0,25)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	- / 2008	Extended Reconstruction		Under Study / -	2008	0,364
							Total: 0,364	

ROAD SECTION FROM ED3 - Msida traffic light jct. TO: Manoel Island

Code	Length	Condition	Category	Road Number	Remarks

MTR063	1,3	poor	Main connection road	127	

TECHNICAL INFORMATION:

From-To [km]	Year	Nr Of Lanes	Width [m]	Pavement	Des. Speed [km/h]	Max Axle Load [kN]	Max Gradient [m/km]	Terrain F/H/M [km]	Environment U/R/S [km]	Remarks
0 - 1,3	2001	2	10	asphalt	50		30	1 / 0,3 / -	1,3 / - / -	
0 - 1,3	2006	2	10	asphalt	50		30	1 / 0,3 / -	1,3 / - / -	

TRAFFIC INFORMATION:

Year	Pass. Cars	Trucks	Busses	Passengers	Tons	AADT

PROJECT INFORMATION:

From - To (Length [km])	Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO] Year	Cost
ED3 - Msida traffic light jct. TO Manoel Island (1,3)	01	Removal of existing asphalt, recompacting of subbase Typ I, introduction of asphalt base course, binder course and wearing course or cement stabilisation	- / 2006	Extended Reconstruction		Under Study / -	2006	2,198
							Total: 2,198	

MALTA AIRPORTS

AIRPORT: Luqa

Code	Capacity [Planes/day]	Passenger Terminals	Freight Terminals	Aircraft Stands	Navigational Aids	Load Type	Remarks
MTA001	200	1	1	24	2 ILS (14/32), 2 Radar, 1 VOR, 3 NDB, 3 DME	06/24: PCN 75; 14/32: PCN 100	

RUNWAYS INFORMATION:

Number	Width [m]	Length [m]
06/24	45	2377
14	60	3544
32	60	3355

TRAFFIC INFORMATION:

Year	Total turnover	Tons unloaded	Tons loaded	Passenger Arrivals	Passenger Departures	Connections			Remarks
						Type	%	Country	
1990					826471				
1991					958230				
1992					1080642				
1993	9374				1143216				
1994	11161			1277617	1287044				
1995	11468			1262455	1278775				
1996	12714			1216238	1227264				
1997	11989			1306271	1311417				
1998	11613			1367251	1375983				
1999	13699			1440844	1441507				
2000	13699			1460769	1451977	Origin	34,9	United Kingdom	
						Origin	16,9	Germany	
						Origin	11,5	Italy	

						Origin	5,4	France	
						Origin	4,6	Netherlands	
						Destination	34,8	United Kingdom	
						Destination	16,8	Germany	
						Destination	11,5	Italy	
						Destination	5,3	France	
						Destination	4,8	Libya	

PROJECT INFORMATION:

Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
						Year	Cost
01	Resurfacing of runway 06/24 pavement - Resurfacing of runway 06/24 pavement is necessary since the present surface has deteriorated, reaching the stage that closure of runway to heavy aircraft will be necessary. The present asphalt surface must be removed and the runway resurfaced.	2001 / 2002	Reconstruction		Under Study / high	2001	8
						Total: 8	
02	Resurfacing of the main runway 14/32 pavement - Resurfacing of the main runway 14/32 pavement is necessary since the present surface has deteriorated, testing and technical conclusions indicate that the expected lifetime of the present surface is 1-2 years. The present asphalt surface must be removed and the runway resurfaced.	2003 / 2004	Reconstruction		Under Study / high	2003	6
						2004	6
						Total: 12	
03	Resurfacing of Apron 9 pavement - Resurfacing of the main aircraft parking area (Apron 9) pavement is necessary since the present surface has deteriorated, testing and technical conclusions indicate that the most cost effective solution lies in the replacement of the present asphalt surface by a hard standing (concrete) pavement.	2001 / 2003	Reconstruction		ready for Construction / high	2001	0,5
						2002	1,5
						2003	1
						Total: 3	

04	Resurfacing of Apron 8 pavement - Resurfacing of aircraft parking area, Apron 8 pavement is necessary since the present surface has deteriorated. The works comprises in the replacement of damaged hard standing areas of the apron pavement.	2001 / 2003	Reconstruction		Under Study / medium	2001 2002 Total:	0,2 0,8 1
05	Construction of Taxiway Apron 9 to Apron 8 - To construct taxiway, parallel to runway 14/32, from apron 9 to apron 8, in order to improve access, particularly to manouvering aircraft between aprons 8 and 9. This taxiway will improve operations, increase the runway handling capacity and provide aircraft access from main aircraft park (apron 9) to runway 06/24 in the event of closure of main runway 14/32	2003 / 2004	New Construction		Planned / high	2003 2004 Total:	6 6 12
06	Construction of Internal Flights' Gate - To construct new passenger flow pathways and additional gate for internal flights and prepare for the implementation of Schengen agreement requirements. The works include the construction of additional offices to cater for airline/ground handler/s office requirements.	2001 / 2002	New Construction		ready for Construction / high	2001 2002 Total:	1 3 4

AIRPORT: Gozo Heliport

Code	Capacity [Planes/day]	Passenger Terminals	Freight Terminals	Aircraft Stands	Navigational Aids	Load Type	Remarks
MTA002							

RUNWAYS INFORMATION:

Number	Width [m]	Length [m]

TRAFFIC INFORMATION:

Year	Total turnover	Tons unloaded	Tons loaded	Passenger Arrivals	Passenger Departures	Connections			Remarks
						Type	%	Country	

PROJECT INFORMATION:

Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
						Year	Cost

MALTA AIRLINKS

AIRLINK: Luqa TO: Gozo

Code	Frequency	Travel Time [h]	Remarks
MTAL01	min. 6 times/day	0,25	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]
1995	55585	
1996	46051	
1997	47997	
1998	51422	
1999	47976	
2000	53675	

MALTA SEAPORTS

SEAPORT: Valletta

Code	Area [km2]	Remarks
MTP001	2,1	

QUAYS INFORMATION:

Number	Name	Length [m]	Depth [m]	Area [m2]	Remarks
	Coal Wharf (Inner)	110	6,5	7230	
	Pinto Wharf 2	264	8,4	25937	Length of Pinto Wharf 1&2; area of Pinto Wharf 1-5
	Pinto Wharf 3	171	10	25937	Area of Pinto Wharf 1-5
	Pinto Wharf 4	250	11	25937	Length of Pinto Wharf 4&5; area of Pinto Wharf 1-5
	Pinto Wharf 5	250	11	25937	Length of Pinto Wharf 4&5; area of Pinto Wharf 1-5
	Deep Water Quay 1	350	9,5	42268	Length of Deep Water Quay 1-3; area of Deep Water Quay 1-5
	Deep Water Quay 2	350	9,5	42268	Length of Deep Water Quay 1-3; area of Deep Water Quay 1-5; Grain handled by a 12 500 t capacity silo
	Deep Water Quay 3	350	9,5	42268	Length of Deep Water Quay 1-3; area of Deep Water Quay 1-5
	Pinto Wharf 1	264	8,4	25937	Length of Pinto Wharf 1&2; area of Pinto Wharf 1-5
	Deep Water Quay 5	74	5	42268	Area of Deep Water Quay 1-5
	Ras Hanzir Dolphins	80	7		No quay storage
	Coal Wharf (Outer)	120	4	1838	
	Laboratory and Magazine Wharf	443	12	42107	Area of Laboratory and Magazine Wharfs
	Laboratory Wharf (South Quay N° 1)	117	7,3	42107	Area of Laboratory and Magazine Wharfs
	Laboratory Wharf (South Quay N° 2)	72	7,3	42107	Area of Laboratory and Magazine Wharfs
	Flagstone Wharf	217	12	15899	
	Gun Wharf	92	7,4	5128	

	Wine Wharf	73	8	2486	
	Church Wharf	370	2		No quay storage
	Deep Water Quay 4	138	8	42268	Area of Deep Water Quay 1-5

TRAFFIC INFORMATION:

Year	Passenger Arrivals	Passengers Departures	Freight Loaded	Freight Unloaded	Trucks Loaded	Trucks Unloaded	Liquid Bulk [Tons]	Dry Bulk [Tons]	General Bulk [Tons]	Type		
										Type	%	Country
1990	64592	68525	90826	2247354	2352	4877	303000	596967	1438213			
1991	64655	61851	89302	2031452	2223	4599	221000	665231	1234523			
1992	90909	92033	247774	2031180	2199	4542	347000	579580	1352374			
1993	114500	116549	255323	1775027	2389	5059	310326	485595	1234429			
1994	112707	115654	187002	2116314	2440	4897	708081	466233	1129002			
1995	105630	110965	213692	2520930	2452	5115	925051	785604	1023967			
1996	149213	160052	228817	2157785	2265	4824	810806	630785	945011			
1997	215777	208307	257051	2641349	5047	5244	710655	496438	1691307			
1998	179864	167629	312215	2185274	6259	5689	553871	497112	1446506			
1999	145089	145478	296864	2078035	6552	6106	656752	520955	1197192			
2000	105840	105028	264492	2553395	6446	6945	894652	473825	1428235	Origin	12	Italy
										Destination	12	Italy

PROJECT INFORMATION:

Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
						Year	Cost
01	Flagstone Wharf - Upgrading of this wharf and its facilities into an oil terminal	- / -	Upgrading		Planned / high	2015	0,58
						Total: 0,58	
02	Sea Passenger Terminal - The Valletta Sea Passenger Terminal Project covers an approximate land area of 45,000 sq.m, and is being developed to attract potential cruise passengers visitors to the	2001 / 2005	New Construction		Under Study / high	2001	6,194612
						2002	10,87534
						2003	3,740491
						2004	5,47156

	Valletta Grand Harbour. The aim is to bring about a process of physical upgrading and enhancement of the existing facilities including the conservation of historical buildings also found in the area.					Total: 26,282	
03	Coal Wharf - The works consists of repairs and upgrading of this wharf at Marsa in Grand Harbour, locality of Paola. These works can be summarised as follows: - Excavation of existing dilapidated deck of cope beam; - Reinstating backfill with selected hard core material; - Reinstating the deck with reinforced concrete slabs; - Reinstating the coping with reinforced concrete beam; - Establishing port facilities like bollards, service trench, fender eyes, etc.	2001 / 2001	Reconstruction		Under Construction / high	2001	0,25
						Total: 0,25	
04	Refurbishment of Deep Water Quay - This quay is over 400 metres long and is furnished with 3 sheds offering a covered storage area of about 3000m2. The major part of the Deep Water Quay superstructure has been constructed on piles in the early 1960s, when the majority of cargo was handled in small packages. Therefore, there are strict weight limitations on what could be handled at this berth. In view of the above considerations the Authority is commissioning a study of the required maintenance to the piles and the alterations to upgrade the carrying capacity of the quay apron. The necessary upgrading works and the time-frame required shall only be established once the study is concluded.	- / -	Upgrading		Under Study / high	2015	5,1708
						Total: 5,1708	
05	Construction of Trade Center at Deep Water Quay - The concept behind the trade centre is to offer to port users the possibility of a one-stop shop where all port services can be availed of	2002 / 2004	New Construction		Under Study / high	2002	2
						2003	5
						2004	2
						2005	1

	under one roof. Apart from housing the Malta Maritime Authority, the building will have space available for various port service providers. This should contribute to smoother and quicker bureaucratic processes and alleviate the road congestion that often occurs during office hours.					Total: 10
06	Extension of Fuel Wharf - The Authority is considering the possibility of extending Fuel Wharf towards Laboratory Wharf by approximately 250 meters in order to increase the open storage area and the berth availability for large ro-ro vessels.	- / -	New Construction		Planned / high	2015 13 Total: 13
07	Extension of Wine Wharf - The Authority is considering the extension of Wine Wharf and the construction of dedicated ramps thereon allowing also for the re-alignment of Gun Wharf and the extension of Pinto Wharf by a further 60 meters. Besides catering for cruise liners over 300 meters, this project will be mainly focused on accommodation of the ever increasing size of ferry passenger vessels.	- / -	New Construction		Planned / medium	2015 2,5854 Total: 2,5854
08	Development of Barriera Wharf - The development of this area shall be required to accommodate the increase in cruise liners which are in Malta on a transit basis.	- / -	Upgrading		Planned / medium	2015 7,7562 Total: 7,7562
09	"Connections" Project - This project aims to establish multi-modal links between towns and cities surrounding Valletta's ports. The project is being proposed by Government and envisages the establishment of intra-harbour ferry links, the construction of elevator systems to facilitate communication between the periphery and the city, tunnelling underneath the capital to ease communications and the construction of underground car parks to ease commuter problems.	- / -	New Construction		Planned / medium	2015 50 Total: 50

SEAPORT: Marsaxlokk (Freeport)

Code	Area [km2]	Remarks
MTP002	3,7	Figures from Malta Freeport categorised under General Bulk are being disclosed in TEUs.

QUAYS INFORMATION:

Number	Name	Length [m]	Depth [m]	Area [m2]	Remarks
	Oil Tanking	650	16	14000	Depth of the oil tanking quay: 6 - 16 m
	Delimara Power Station	250	9,1	1250	
1	Terminal 2 - North Quay	480	15,5	210998	Area for whole Terminal 2
1	Terminal 1 - North Quay	1000	14,5	263648	Area for whole Terminal 1
2	Terminal 2 - South Quay	660	15,5	210998	Area for whole Terminal 2
2	Terminal 1 - West Quay	168	9,5	263648	Area for whole Terminal 1
3	Terminal 2 - West Quay/Ro-Ro Quay	220	15,5	210998	Area for whole Terminal 2

TRAFFIC INFORMATION:

Year	Passenger Arrivals	Passengers Departures	Freight Loaded	Freight Unloaded	Trucks Loaded	Trucks Unloaded	Liquid Bulk [Tons]	Dry Bulk [Tons]	General Bulk [Tons]	Type		
										Type	%	Country
1990							298824		94500			
1991							217186		157631			
1992							343507		259232			
1993							308071		288192			
1994							705892		383060			
1995							922868		514767			
1996							2192329		593013			
1997							2522534		662648			
1998							2220034		1071669			
1999							2221414		1044972			
2000							3354958		1033052	Origin	15	Italy
										Origin	3	United Kingdom

										Origin	3	Belgium
										Origin	2	Spain
										Origin	1	Netherlands
										Destination	26	Italy
										Destination	8	Spain
										Destination	2	United Kingdom
										Destination	2	Greece
										Destination	2	France

PROJECT INFORMATION:

Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
						Year	Cost
01	Upgrading of Delimara Reporting Station - In order to improve the level of navigation system the Authority has drawn up plans to upgrade its stations which are used to control navigation within the Maltese territorial waters. This project involves investment in new infrastructure facilities particularly in the installation of a new station at the port of Marsaxlokk, within the Delimara lighthouse.	2001 / 2001	Upgrading		Planned / medium	2001 2002 Total: 3,361	2 1,361
02	Installation of five new super post-Panamax quay cranes to reach full handling capacity at Malta Freeport	2004 / 2012	New Construction		Under Study / high	2004 2006 2008 2010 2012 Total: 32	6,4 6,4 6,4 6,4 6,4
03	Installation of 12 new Rubber Tyred Gantries at Malta Freeport to reach full handling capacity	2008 / 2010	New Construction		Under Study / high	2008 2009 2010 Total: 22,2	7 8 7,2

04	Container Yard Expansion and construction of additional distripark (warehousing) facilities	2008 / 2010	Upgrading		Under Study / high	2008 2010 Total: 10,4	5,4 5

SEAPORT: Mgarr

Code	Area [km2]	Remarks
MTP003	0,11	

QUAYS INFORMATION:

Number	Name	Length [m]	Depth [m]	Area [m2]	Remarks
1	Ro-Ro Berth	90	6	1800	
2	Pier	135	6	4800	

TRAFFIC INFORMATION:

Year	Passenger Arrivals	Passengers Departures	Freight Loaded	Freight Unloaded	Trucks Loaded	Trucks Unloaded	Liquid Bulk [Tons]	Dry Bulk [Tons]	General Bulk [Tons]	Type		
										Type	%	Country
1993					9564	9028						
1994					9713	9156						
1995					8843	9343						
1996	1314556	1413343			45358	9759						
1997	1348221	1462653			10158	10142						
1998	1392346	1458448			9199	12573						
1999	1439088	1494391			8951	12178						
2000	1548515	1498586			9977	8246						

PROJECT INFORMATION:

Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
						Year	Cost
01	Construction of Mgarr (Gozo) berths - As part of the major project mentioned under the	2002 / 2003	New Construction		ready for Construction /	2002 2003	3,8192 3,8192

	Cirkewwa entry, upgrading is also being carried out in the berthing and passenger handling facilities in the port of Mgarr (Gozo). This entails the extension of a quay and the building of a passenger terminal.				high	Total: 7,6384

SEAPORT: Cirkewwa

Code	Area [km2]	Remarks
MTP004	0,05	

QUAYS INFORMATION:

Number	Name	Length [m]	Depth [m]	Area [m2]	Remarks
1	Breakwater	100	6	1500	
2	New pier	100	6	1200	
3	Small craft berth	90	2	1350	

TRAFFIC INFORMATION:

Year	Passenger Arrivals	Passengers Departures	Freight Loaded	Freight Unloaded	Trucks Loaded	Trucks Unloaded	Liquid Bulk [Tons]	Dry Bulk [Tons]	General Bulk [Tons]	Type		
										Type	%	Country
1993					9028	9564						
1994					9156	9713						
1995					9343	8843						
1996	1314556	1413343			9099	9423						
1997	1348221	1462653			10142	10158						
1998	1392346	1458448			4589	9199						
1999	1439088	1494391			4830	8951						
2000	1498586	1548515			8246	9977						

PROJECT INFORMATION:

Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
						Year	Cost

01	Construction of Cirkewwa berths - A major project is underway to upgrade the berthing and passenger handling facilities in the port of Cirkewwa. This port caters mainly for the ferry service, which operates between Malta and Gozo. The project involves construction of two berths and the extension of the breakwater and the building of a passenger terminal.	2000 / 2005	New Construction		Under Construction / high	2000	1,9583
						2001	3,9166
						2002	7,8332
						2003	7,8332
						2004	3,9166
						Total: 25,4579	

SEAPORT: Marsamxett

Code	Area [km2]	Remarks
MTP005	1,24	

QUAYS INFORMATION:

Number	Name	Length [m]	Depth [m]	Area [m2]	Remarks
	Hay Wharf	140	6	2500	

TRAFFIC INFORMATION:

Year	Passenger Arrivals	Passengers Departures	Freight Loaded	Freight Unloaded	Trucks Loaded	Trucks Unloaded	Liquid Bulk [Tons]	Dry Bulk [Tons]	General Bulk [Tons]	Type		
										Type	%	Country
1996		28990										
1998					3992							
1999		23824			3674							
2000		21519			2946							

PROJECT INFORMATION:

Code	Remarks	Years	Category	IRR [%]	Stage / Importance	Total Cost [MEURO]	
						Year	Cost

MALTA SEALINKS

SEALINK: Valletta TO: Catania (I)

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL01	Freight	twice weekly	10	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	1272	22749		

SEALINK: Valletta TO: Catania [- Reggio Calabria (I)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL02	Freight	3-times a week	8	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	532	40151		

SEALINK: Valletta TO: Catania (I) [- Licata (I) - Pozzallo (I)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL03	Passenger	daily during summer season	3	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	26399			

SEALINK: Valletta TO: Genova (I) [- Tunis (TUN) - Marseille (F)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks

MTPL04	Freight	weekly	30	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	485	124440		

SEALINK: Valletta TO: Lisboa (P)

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL05	Freight	fortnightly	85	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		7269		

SEALINK: Valletta TO: Pozzallo (I)

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL06	Ferry	twice daily during summer season	1,5	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	85631			

SEALINK: Valletta TO: Pozzallo (I) [- Catania (I)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL07	Passenger	daily during summer season	1,5	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	20187			

SEALINK: Valletta TO: Reggio Calabria (I)

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL08	Freight	weekly	14	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	1222	14394		

SEALINK: Valletta TO: Reggio Calabria (I)

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL09	Freight	twice weekly	12	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	1099	54462		

SEALINK: Valletta TO: Salerno (I) [- Valencia (SP)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL10	Freight	weekly	20	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000	2337	39911		

SEALINK: Marsaxlokk (Freeport) TO: Southampton (UK) [- Hamburg (D) - Rotterdam (NL)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL11	Freight	weekly	240	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		7635		

SEALINK: Marsaxlokk (Freeport) TO: Pireas (GR) [- Thessaloniki (GR)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL12	Freight	weekly	24	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		7576		

SEALINK: Marsaxlokk (Freeport) TO: Thessaloniki (GR)

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL13	Freight	weekly	48	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		5080		

SEALINK: Marsaxlokk (Freeport) TO: Salerno (I) [- Genova (I) - Fos (F) - Barcelona (SP) - Lisboa (P)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL14	Freight	forthnightly	24	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		1915		

SEALINK: Marsaxlokk (Freeport) TO: Le Havre (F) [- Rotterdam (NL) - Hamburg (D) - Zeebrugge (B)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL15	Freight	weekly	144	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		7336		

SEALINK: Marsaxlokk (Freeport) TO: Hamburg (D) [- Rotterdam (NL) - Zeebrugge (B) - Le Havre (F)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL16	Freight	weekly	168	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		12118		

SEALINK: Marsaxlokk (Freeport) TO: Barcelona (SP) [- Fos (F) - Genova (I) - Napoli (I)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks

MTPL17	Freight	weekly	168	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		663		

SEALINK: Marsaxlokk (Freeport) TO: Gioia Tauro (I) [- Algeciras (SP)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL18	Freight	weekly	24	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		2176		

SEALINK: Marsaxlokk (Freeport) TO: Ancona (I) [- Gioia Tauro (I) - Trieste (I) - Venezia (I)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL19	Freight	weekly	60	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		2730		

SEALINK: Marsaxlokk (Freeport) TO: Liverpool (UK) [- Leixoes (P) - Lisboa (P) - Pireas (GR) - Salerno (I)]

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL20	Freight	every 10 days	456	Malta Freeport Corporation could not provide tonnage figures for freight, therefore figures are in TEU.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
2000		81		

SEALINK: Cirkewwa TO: Mgarr

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL21	Ferry	every 30 minutes	0,4	

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
1998	2850794		573938	17700
1999	2933479		635209	17372
2000	3047101		712976	16823

SEALINK: Marsamxett TO: Mgarr

Code	Connection Type	Frequency	Travel Time [h]	Remarks
MTPL22	Ferry	daily	1,5	During summer season a high speed catamaran is operated between Malta and Gozo. The figures for passengers relate to this S.E.S. Victoria Express Service.

TRAFFIC INFORMATION:

Year	Passengers	Goods [Tons]	Cars	Trucks
1998			5664	5809
1999	23824		7953	5532
2000	21525		3645	4348

ANNEX III – DATABASE STRUCTURE

Sections

Name	Description	Data Type	Input Values
Mode	Transport mode	Text	Roads Seaports Airports Sealinks Airlinks

Roads

Name	Description	Data Type	Input Values
From	Start node of the road segment.	Text	
To	End node of the road segment.	Text	
Length	Total length of the road segment	Number	Km
Category	Category of the road segment	Text	Motorway Expressway National road
Condition	The condition of the road	Text	Good Medium Poor
Code	Unique code of the road segment	Text	
Road Nr	Nr of the road (if applicable)	Text	
Description	Description of the road section i.e. bottlenecks, safety hazards, etc.	Text	

Roads Technical Data

Name	Description	Data Type	Input Values
From Km	Starting km	Number	
To Km	End km	Number	
Year		Date	
Nr Of Lanes	Number of lanes	Number	
Pavement	Type of pavement	Text	Asphalt Rigid
Design Speed	Designed speed of the section	Number	Km/h
Maximum Gradient	Maximum gradient of the section	Number	m/Km
Maximum Axle Load	Maximum axle load of the section	Number	kN
Width	Width of the section	Number	m
FlatKm	Total length of section in flat terrain	Number	Km
HillyKm	Total length of section in hilly terrain	Number	Km
MountKm	Total length of section in mountainous terrain	Number	Km
UrbanKm	Total length of section in urban areas	Number	Km
RuralKm	Total length of section in rural areas	Number	Km
SensitiveKm	Total length of section in sensitive areas	Number	Km
Remarks	Any additional remarks	Text	

Roads Traffic

Name	Description	Data Type	Input Values
Year		Date	
NrOfPass	Total nr of passengers per day	Number	passengers/day
NrOfPassCars	Total nr of passenger cars per day	Number	Cars/day
NrOfTons	Total nr of tons per day	Number	Tons/day
NrOfTrucks	Total nr of trucks per day	Number	Trucks/day

NrOfBusses	Total nr of busses per day	Number	Busses/day
Remarks	Any additional remarks	Text	

Seaports

Name	Description	Data Type	Input Values
Name	Name of port	Text	
Area	Port area	Number	Km²
Code	Unique code of the port	Text	
Remarks	Any additional remarks	Text	

Seaports Traffic

Name	*Description*	*Data Type*	*Input Values*
Year		Date	
Dry Bulk Tons	Dry bulk tons in total turnover	Number	Tons/year
General Bulk Tons	General bulk tons in total turnover	Number	Tons/year
Liquid Bulk Tons	Liquid bulk tons in total turnover	Number	Tons/year
Pass Arrivals	Nr of passengers arrivals	Number	Passengers/year
Pass Departures	Nr of passengers' departures	Number	Passengers/year
Freight Loaded	Total tons of freight loaded	Number	Tons/year
Freight Unloaded	Total tons of freight unloaded	Number	Tons/year
Trucks Loaded	Total nr of trucks loaded	Number	Trucks/year
Trucks Unloaded	Total nr of trucks unloaded	Number	Trucks/year
Remarks	Any additional remarks	Text	

Seaports Traffic connections

Name	*Description*	*Data Type*	*Input Values*
Type	Connection type	Text	Origin Destination
Country	Connection origin/destination country	Text	
Percentage	Percentage of total traffic	Number	%

Seaports Quays

Name	*Description*	*Data Type*	*Input Values*
Number	Quay number	Number	
Name	Quay name	Text	
Length	Length of quay	Number	m
Min. draught	Quay minimum draught	Number	m
Area	Quay area	Number	m²
Remarks	Any additional remarks	Text	

Airports

Name	Description	Data Type	Input Values
Name	Name of airport	Text	
Code	Unique code of the airport	Text	
Passenger Terminals	Nr of passenger terminals	Number	
Freight Terminals	Nr of freight terminals	Number	
Stands	Nr of stands	Number	
Capacity	Airport capacity	Number	Planes/day
Load Type	Airport load type	Text	
Navigational Aids	Airport navigational aids	Text	
Remarks	Any additional remarks	Text	

Airports Traffic

Name	Description	Data Type	Input Values
Year		Number	
Pass Arrivals	Nr of passengers arrivals	Number	Passengers/year
Pass Departures	Nr of passengers' departures	Number	Passengers/year
Freight Loaded	Total tons of freight loaded	Number	Tons/year
Freight Unloaded	Total tons of freight unloaded	Number	Tons/year
Remarks	Any additional remarks	Text	

Airports Traffic connections

Name	Description	Data Type	Input Values
Type	Connection type	Text	Origin Destination
Country	Connection origin/destination country	Text	
Percentage	Percentage of total traffic	Number	%

Airports Runways

Name	Description	Data Type	Input Values
Number	Runway number	Text	
Width	Runway width	Number	m
Length	Runway length	Number	m

Airlinks

Name	Description	Data Type	Input Values
From	Origin airport	Text	
To	Destination airport	Text	
Code	Unique code of the airlink	Text	
Frequency	Frequency of connection	Text	
Travel time	Connection travel time	Number	hours
Remarks	Any additional remarks	Text	

Airlinks Traffic

Name	Description	Data Type	Input Values
Year		Date	
Nr Of Tons	Total tons of freight	Number	Tons/year
Nr Of Passengers	Total nr of passengers	Number	Passengers/year
Remarks	Any additional remarks	Text	

Sealinks

Name	*Description*	*Data Type*	*Input Values*
From	Origin seaport	Text	
To	Destination seaport	Text	
Code	Unique code of the airlink	Text	
Service Type	Type of connection	Text	Freight Passenger Ferry
Frequency	Frequency of connection	Text	
Travel time	Connection travel time	Number	hours
Remarks	Any additional remarks	Text	

Sealinks Traffic

Name	Description	Data Type	Input Values
Year		Date	
Nr Of Cars	Total nr of cars	Number	Cars/year
Nr Of trucks	Total nr of trucks	Number	trucks/year
Nr Of Tons	Total tons of freight	Number	Tons/year
Nr Of	Total nr of passengers	Number	Passengers/year

Passengers			
Remarks	Any additional remarks	Text	

Projects

Name	Description	Data Type	Input Values
From	Start localization	Text	
To	End localization	Text	
Code	Unique code of the project	Text	
Length	Project total length	Number	km
Start Date	Project start date	Date	
End Date	Project end date	Date	
Total cost	Project total cost	Number	MEURO
Category	Project category	Text	Reconstruction Upgrading New construction
Stage	Project current stage	Text	Under construction Ready for construction Planned Under study
Importance	Project relative importance	Text	High Medium Low
Remarks	Any additional remarks	Text	

Projects COSTS

Name	Description	Data Type	Input Values
Year		Date	
Cost	Project cost in year	Number	MEURO
Remarks	Any additional remarks	Text	

Photos

Name	Description	Data Type	Input Values
Name	Name of the section	Text	
Description	Photo description	Text	
Remarks	Any additional remarks	Text	