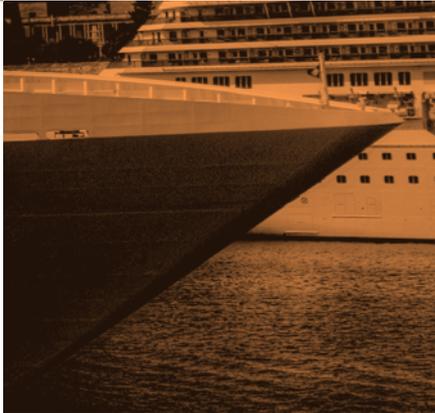


NATIONAL TRANSPORT STRATEGY

2050

MALTA



NATIONAL TRANSPORT STRATEGY 2050



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Development of a National Transport Model Supporting Strategy
Development in Malta:

National Transport Strategy, 2050

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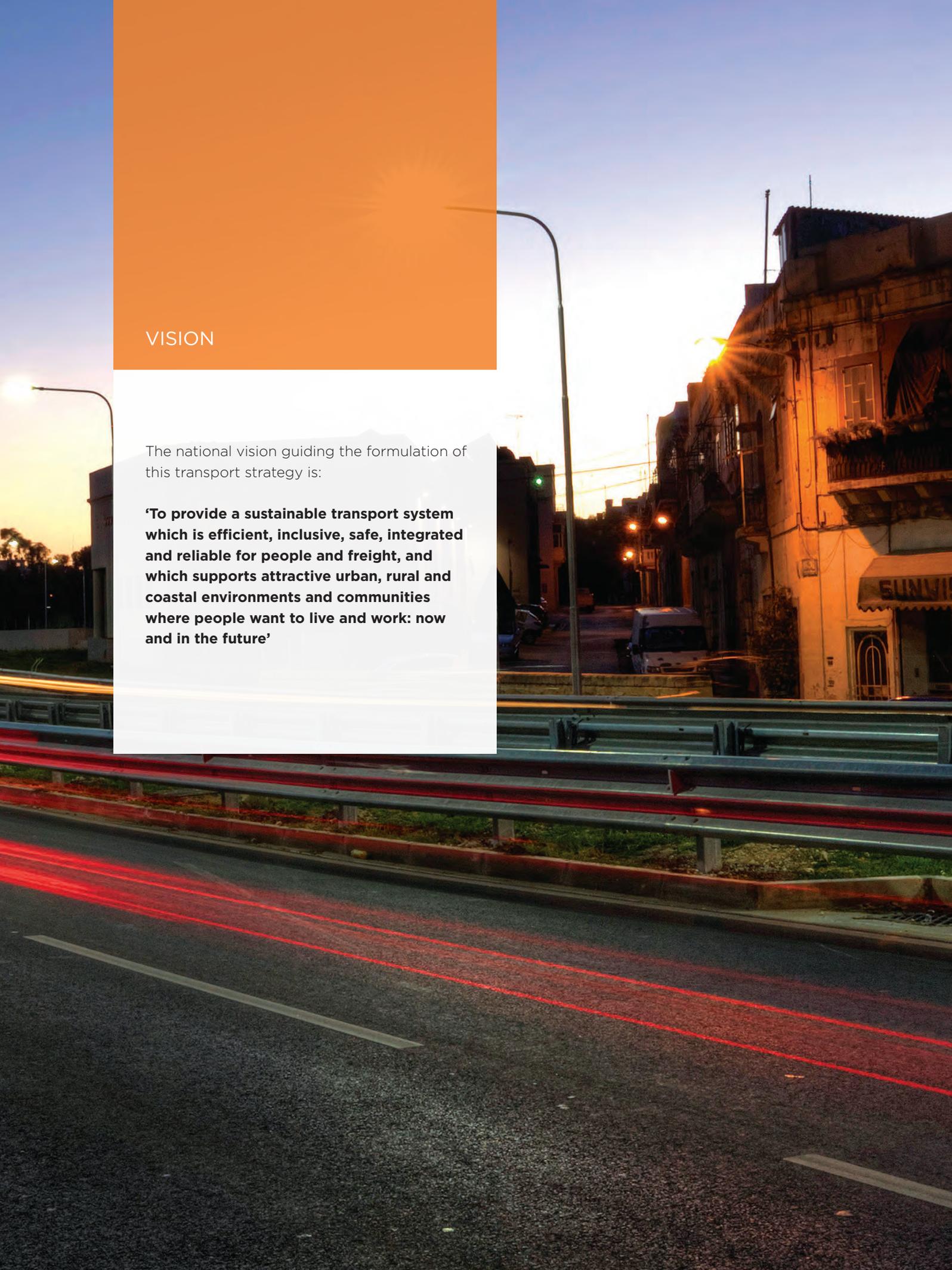
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EXECUTIVE SUMMARY

Following its establishment in 2010 under Chapter 499 of the laws of Malta (Authority for Transport in Malta Act (Act XV of 2009)), the Authority for Transport in Malta embarked on preparations to establish a strategic approach to transportation which would integrate the planning of the different transportation sectors.

These preparations laid the ground for the development of an integrated National Transport Strategy (NTS) with a time horizon of 2050 together with a Transport Master Plan (TMP) with a time horizon of 2025. The NTS consists of a vision outlining where Malta wants to be in the long term, the strategic goals, the strategic direction on how to get there and the indicators necessary to measure the progress of this strategy.





VISION

The national vision guiding the formulation of this transport strategy is:

'To provide a sustainable transport system which is efficient, inclusive, safe, integrated and reliable for people and freight, and which supports attractive urban, rural and coastal environments and communities where people want to live and work: now and in the future'

WHAT IS THE PURPOSE OF THE NATIONAL TRANSPORT STRATEGY?

This National Transport Strategy creates the strategic framework for the development of Transport Master Plans. The Transport Master Plan in turn provides the planning framework for implementing measures which could take the form of policies, action plans or measures that are shorter term in nature. The interaction of the various documents and their respective timelines is shown in Figure i.

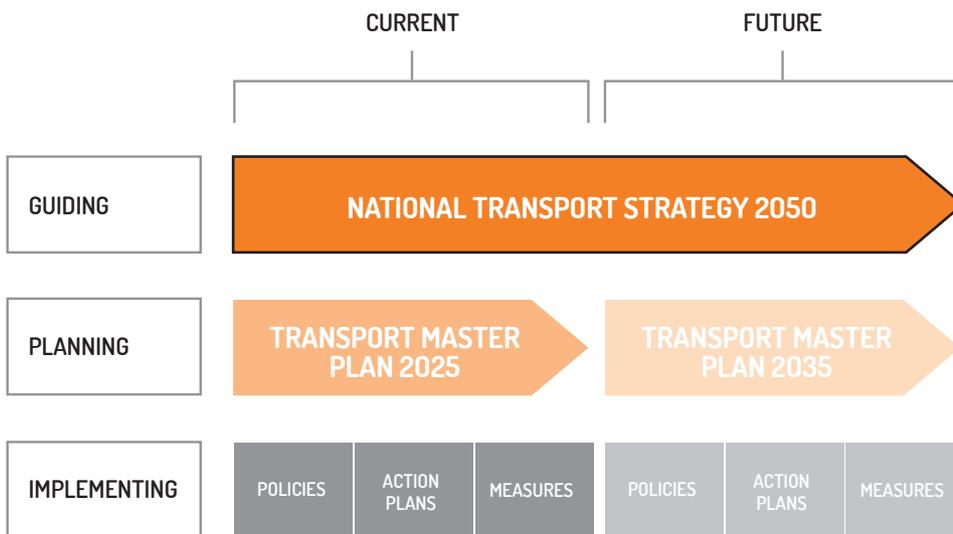


Figure i.
Purpose of this Document

HIERARCHY

The National Transport Strategy is naturally a high level, longer term document, in this case with a time horizon of 2050. The “National Transport Strategy guides Transport Master Plans that are medium term and usually 10 years in duration, in this case with a time horizon of 2025.”

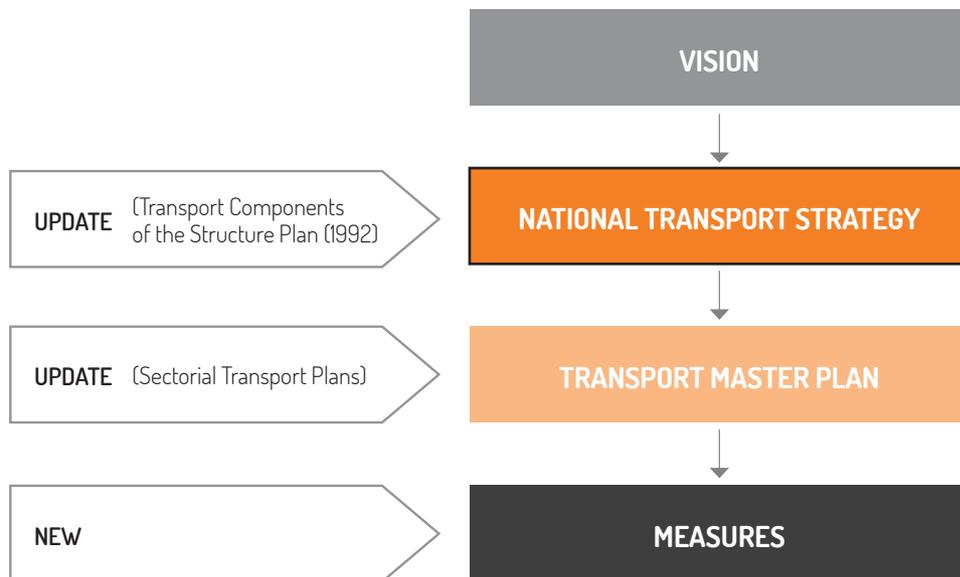


Figure ii.
Hierarchy of the Strategic and Planning Framework

THE LOGICAL FRAMEWORK OF THE NATIONAL TRANSPORT STRATEGY

The National Transport Strategy has a logical framework of goals, guiding principles, targets and monitoring. This is shown in Figure iii.

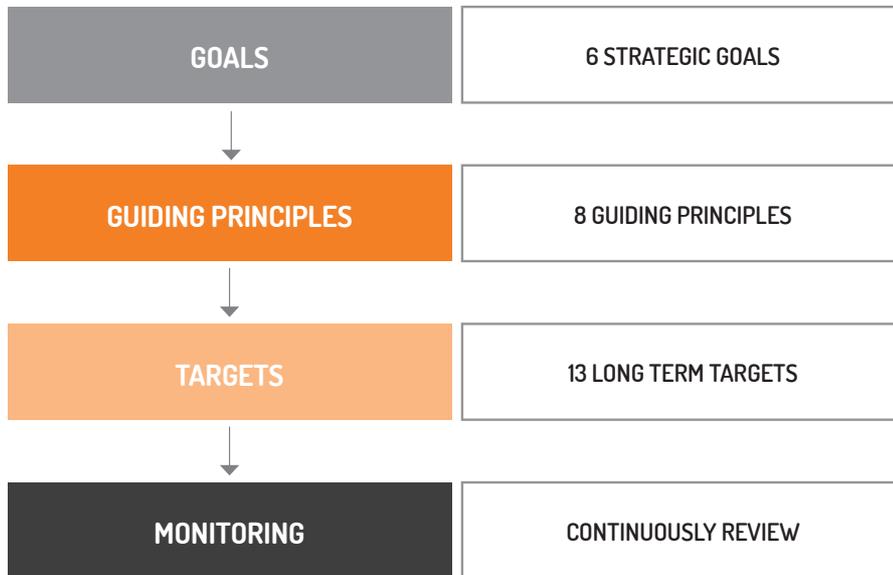


Figure iii.
The logical framework of the Strategy

WHAT THE NATIONAL TRANSPORT STRATEGY DOCUMENT CONTAINS

Chapter 1 of this document presents the Strategic Context and Planning Framework for the National Transport Strategy. It provides a review of National and European Strategic Policy.

The tools used to elaborate the National Transport Strategy also include in-depth analyses of internal and external factors influencing the transportation system, as well as of the development of trends on an international, national and local level. This analysis is summarised in **Chapter 2**.

Chapter 3 presents the Vision and Strategic Goals which have been defined for the strategy based on the analyses in Chapter 2 and the strategic review in Chapter 1.

In **Chapter 4** we set out the Guiding Principles for the Transport Master Plan. For each strategic goal a number of aspects have been developed to further explain the intention of each goal. Chapter 5 concludes this document by identifying long term targets and the requirement to monitor progress of the Transport Master Plans that are established by Government to meet the strategic goals of this National Transport Strategy.



01

INTRODUCTION: STRATEGIC CONTEXT AND PLANNING FRAMEWORK



01.1 NATIONAL AND STRATEGIC CONTEXT

Transport plays a major role in the development of every modern society as a means for economic development and a prerequisite for achieving social and regional cohesion. The transport sector in Malta is particularly important as it is a crucial aspect of competitiveness of the national economy, provides access to services to its citizens and has to fit in the most complex constraints of space and population density of any EU country.

Malta is located in the central Mediterranean Sea and consists of an archipelago of five islands: Malta being the largest followed by Gozo, Comino, Cominotto (Kemmunnett) and Filfla; the latter two being uninhabited islets. The population of Malta at the end of 2013 was approximately 425,000 including approximately 31,400 Gozo residents². Being the smallest EU member state with an area of only 316 square kilometres, Malta has a population density of more than 1,320 inhabitants per km², or over 10 times the EU country average.

Malta is served by one international Airport which provides the main gateway for people movements to and from Malta. In 2014, there were over 4.3m passenger movements at Malta International Airport³. The airport also provides logistic services and transports freight and goods.

There are two international ports in Malta: Valletta and Marsaxlokk, and they provide for a combination of leisure, freight, industry and fishing services.

These ports handle most of the goods that are imported and exported to and from Malta. In 2014, almost 2.3m tonnes of unitised cargo were unloaded and approximately 630,000 tonnes of cargo loaded in Malta's TEN-T ports⁴.

These key airport and maritime port transport infrastructures, as well as the inter-modal arterial road connection between Marsaxlokk, Luqa and Valletta represent Malta's TEN-T Core network which now forms part of the Scandinavian-Mediterranean European Corridor.

The TEN-T Core Network is complemented by a TEN-T Comprehensive network which comprises the main domestic ports used in inter-island ferry transport and the primary roads which link regions of Malta and Gozo to the TEN-T Core network.

As an archipelago of islands, ferry services are an important mode of transport. The ferry connection between Malta and Gozo transports both passengers and goods. In 2014 over 4.6m passengers and approximately 1.0m vehicles were transported by the Malta-Gozo ferry service⁵.

Domestic transport in Malta is predominately served by road. Private car ownership and usage is high in Malta with the number of private car vehicle registrations at the end of 2014 standing at 257,000 out of a total of 335,000 total vehicle registrations⁶.

The resulting private car ownership rate of approximately 619 licensed private vehicles per 1000 population⁷ is one of the highest of the 28 European Union (EU) member states. Most internal movement of freight is mainly by road.

² National Statistics Office, Malta (2013) Malta in Figures 2014

³ National Statistics Office, Malta (2013) Transport Statistics 2015

⁴ National Statistics Office, Malta (2013) Transport Statistics 2015

⁵ National Statistics Office, Malta (2015) Transport Statistics 2015

⁶ National Statistics Office, Malta (2015) Transport Statistics 2015

⁷ National Statistics Office, Malta (2015) Transport Statistics 2015; Population from <http://hso.gov.mt/statdb/start>

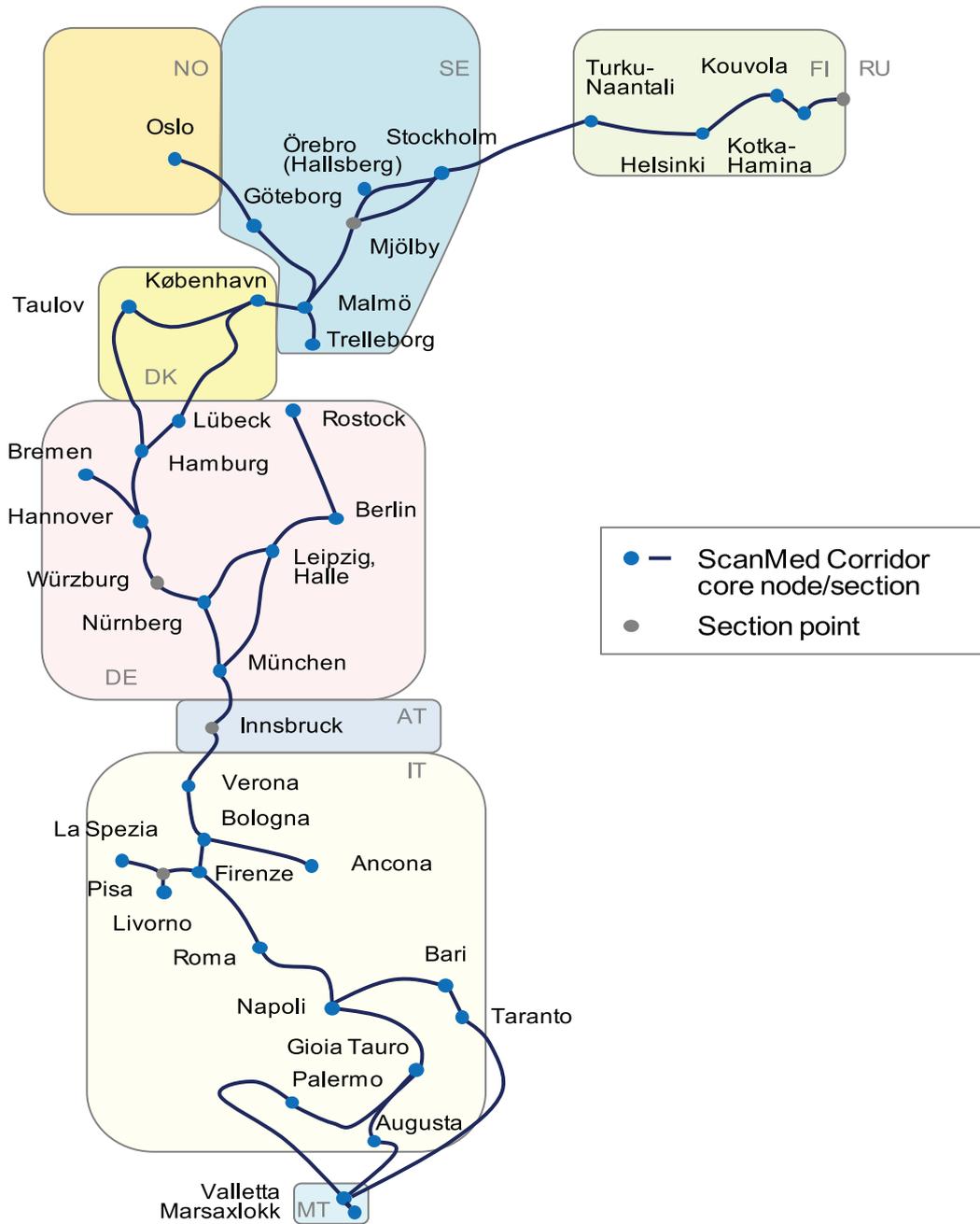


Figure 1.
Alignment of
Scandinavian-Mediterranean
Corridor

Traffic volumes on the TEN-T road network range from below 10,000 Annual Average Daily Traffic (AADT) in rural areas, to 100,000 on the more congested areas. The TEN-T section north of Valletta to Cirkewwa is generally between 15,000 and 20,000 AADT⁸.

Public transport in Malta consists mainly of a network of buses operated by a private company under a concession contract. The bus service performs a vital social and economic service and many routes are well patronised. Cross harbour passenger ferry services were introduced across the Grand Harbour and re-introduced for the Sliema-Valletta route in 2012⁹. Malta has no railways or inland waterways. The National Transport Strategy (NTS) is intended to set the basis for transport policy in Malta. A well

designed and successfully applied transport policy contributes to improving the quality of life while preserving the environment and safeguarding public health. However, this policy needs to set strategic goals and approaches for the long term based on research, a clear understanding of the issues and challenges currently facing the transport sector, as well as a scenario analysis of the future situation. This document aims to outline a long term vision and provide strategic direction for the development of the transportation system up to 2050. All existing Government strategic documents for each sector have been taken into consideration and in turn, following its approval and publication, future sectoral policy and development plans should take into account relevant policies and plans arising from this National Transport Strategy.

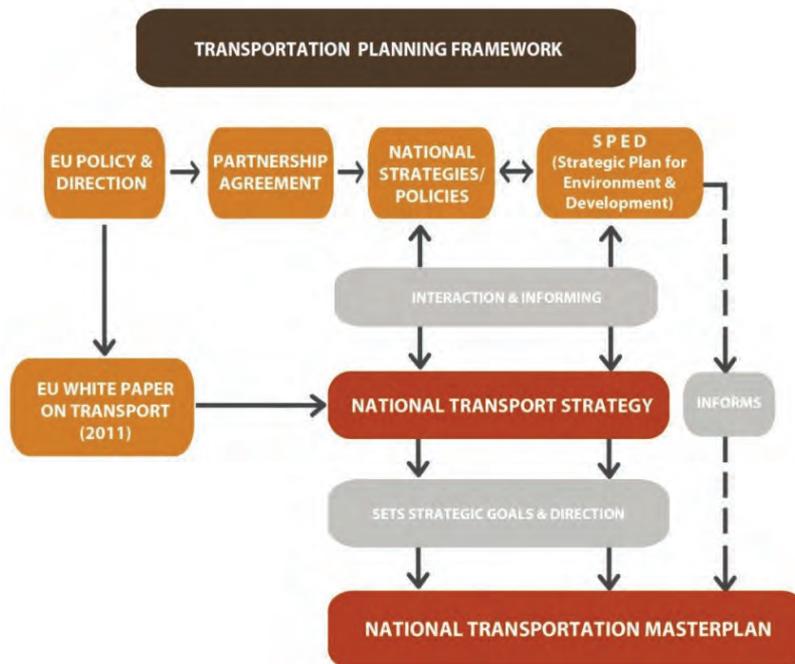


Figure 2.
Strategic Transportation Planning Framework

⁸ Transport Malta (July 2010) Traffic count data on TEN-T

⁹ <http://www.transport.gov.mt/ports-marinas/passenger-transport-by-sea/ferry-service-grand-harbour-marsamxett>

Figure 2 outlines the proposed framework for transport planning and policy making in Malta and illustrates the relation of the National Transport Strategy to the EU and National Strategies and policy making. Given the high level of inter-dependency between transport and land use planning, specific reference is made to the recently published national Strategic Plan for the Environment and Development. The Transport Master Plan will define the medium and short-term programmes which will be based on the strategic priorities set out in the NTS. Medium-term programmes (10 years) will schedule the measures (activities, projects and tasks) for present and future administrations, including implementation plans for the current operational programming period (2014-2020). The next section outlines the European Transport Policy which informs this strategic document.

01.2 EUROPEAN TRANSPORT POLICY

Transport plays a major role in the development of every modern society as a means for economic development and a prerequisite for achieving social and regional cohesion. The transport sector in Malta is particularly important as it is a crucial aspect of competitiveness of the national economy, provides access to services to its citizens and has to fit in the most complex constraints of space and population density of any EU country.

1.2.1 THE WHITE PAPER - ROADMAP TO A SINGLE EUROPEAN TRANSPORT AREA - TOWARDS A COMPETITIVE AND RESOURCE EFFICIENT TRANSPORT SYSTEM (2011)

This roadmap of 40 concrete initiatives for the period 2011-2020 was developed by the European Commission to guide the building of a competitive transport system that will increase mobility, remove major barriers in key areas and fuel growth and employment for the European Union. The Transport 2050 roadmap to a Single European Transport Area sets out to remove major barriers and bottlenecks in many key areas across the fields of: transport infrastructure and investment, innovation and the internal market.

The aim is to create a Single European Transport Area with more competition and a fully integrated transport network which links the different modes with the aim of facilitating a profound shift in transport patterns for passengers and freight. To this purpose, the EU roadmap puts forward 40 concrete initiatives at EU level for the next decade.

The Transport 2050 roadmap sets different goals for different types of journey - within cities, between cities, and long distance.

1.2.2 ROAD TRANSPORT AND INTELLIGENT TRANSPORT SYSTEMS

The main objective of the European transport policy is to create a sustainable transport system, matching the economic and public needs of society and favouring the further development of an integrated and competitive Europe. Improved integration between transport modes can be achieved by accelerating the development and commissioning of innovative technological solutions which will contribute to improving

the overall efficiency of the transport system. One of these innovative solutions is the application of information and communication technologies for creating intelligent transport systems (ITS), which is emerging as a major contributor towards optimising the utilisation of integrated transport networks, to improving safety and security of transport, to increasing mobility, to reducing the negative impact on the environment and climate, and raising the energy efficiency. At the same time, ITS supports the functioning of the domestic market, and raises competitiveness and employment.

In line with the objectives of this policy, the European Commission drafted an Action plan for the deployment of Intelligent Transport Systems in Europe supported by a Directive¹⁰ laying down the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other transport modes. Four priority areas have been identified: optimal use of road, traffic and travel data, continuity of traffic and road freight management ITS services, ITS road safety and security applications and linking the vehicle with the transport infrastructure.

1.2.3

MARITIME TRANSPORT

In 2009, the European Commission presented the main strategic objectives for the European maritime transport system up to 2018¹¹, identifying key areas where action by the EU will strengthen the competitiveness of the sector while enhancing its environmental performance.

With a 10-year horizon, the objectives are set in the broader context of the EU Transport Policy and recommended actions to ensure the:

- ability of the maritime transport sector to provide cost-efficient maritime transport services adapted to the needs of sustainable economic growth of the EU and world economies, and
- long-term competitiveness of the EU shipping sector, enhancing its capacity to generate value and employment in the EU, both directly and indirectly, through the whole cluster of maritime industries.

The further development of the EU Internal Market policy to the wider to intra-EU maritime transport as the “EU maritime transport space without barriers”¹² aims to eliminate or simplify administrative procedures in intra-EU maritime transport. In doing so, the attractiveness for maritime transport is enhanced and its efficiency and competitiveness is reinforced, at the same time contributing to improved protection of the environment.

¹⁰ Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport

¹¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Strategic goals and recommendations for the EU's maritime transport policy until 2018 COM (2009) 0008 Final

¹² http://europa.eu/legislation_summaries/transport/waterborne_transport/tr0014_en.htm

1.2.4

AIR TRANSPORT

EU policy relating to air transport aims to address four key areas:

- Single Market - gradual liberalisation including air carrier licensing, market access and fares
- External Aviation – development of a coordinated EU external aviation policy as a logical consequence of the creation of the EU internal market and associated common rules.
- Single European Sky – dealing with airspace congestion to reduce delays, and extending airport capacity by organising and coordinating flight paths and scheduling.
- SESAR - the air traffic management research programme SESAR, which aims to modernise infrastructure and raise efficiency by optimising capacity of existing resources.

In 2011, the Commission's High Level Group on Aviation Research published a report on Europe's Vision for Aviation – Flightpath 2050¹³ which aims to ensure that “the European aviation community leads the world in sustainable aviation products and services meeting the needs of EU citizens and society”. The aviation sector continues to be challenged by the need to address environmental and climate change targets. Within the globalised business of aviation, the EU is seeking bi- and multilateral agreements that both address these environmental needs and that of the users of the aviation sector.

1.2.5

URBAN TRANSPORT

Over 60% of EU citizens live in urbanised areas, living and working in the same space, and sharing the same infrastructure. Efficient and effective urban transport can significantly contribute to achieving objectives in a wide range of policy domains for which the EU has an established competence. The success of policies and policy objectives that have been agreed at EU level, for example on the efficiency of the EU transport system, socio-economic objectives, energy dependency, or climate change, partly depends on actions taken by national, regional and local authorities. Mobility in urban areas is also an important facilitator for growth and employment and for sustainable development across the European Union.

In 2009, the European Commission published its Action Plan on urban mobility¹⁴ as a result of the follow up to the mid-term review of the 2001 Transport White Paper ‘European transport policy for 2010: time to decide’. The Action Plan proposed twenty measures to encourage and help local, regional and national authorities in achieving their goals for sustainable urban mobility. These were successfully implemented in 2012.

In December 2013, the Commission presented an urban mobility package, consisting of the Communication “Together towards competitive and resource-efficient urban mobility” (COM(2013)913) and annexed Staff Working Documents on specific, urban-mobility related topics, as follows:

¹³ *Flightpath 2050: Europe's Vision for Aviation - Maintaining Global Leadership & Serving Society's Needs* <http://ec.europa.eu/transport/modes/air/doc/flightpath2050.pdf>

¹⁴ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009DC0490:EN:NOT>

- A call for smarter urban vehicle access regulations
- A call to action on urban logistics
- Targeted action on urban road safety
- Mobilising Intelligent Transport Systems for EU cities

With the urban mobility package, the Commission set out how it will continue and reinforce its support for local action on urban mobility between 2014 and 2020. As part of this package the commission is actively promoting the concept of Sustainable Urban Mobility Plans as a tool for supporting sustainable urban mobility.

1.2.6 FURTHER DEVELOPMENT OF THE TEN-T

While traditional transport infrastructures have been developed for national policy requirements, a clear need to establish a single, multimodal network that integrates land, sea and air transport networks throughout the Union became evident.

The EU aims to develop an efficient Trans-European Transport Network (TEN-T) as a key element for competitiveness and employment in Europe, by developing a dual layer network structure, comprising a comprehensive and a core network.

The comprehensive network as defined in Regulation (EU) 1315/2013¹⁵ represents the basic layer of the TEN-T and includes components for all transport modes – rail, road, inland waterway, air and maritime as well as their connecting points and

corresponding traffic information and management systems. The core network represents the strategically most important nodes and links of the trans-European transport network. It is multi-modal (including all transport modes and their connections as well as relevant traffic management systems) and the infrastructure included in this network will be a subset of the comprehensive network. The Core Network is to be completed by 2030 while the Comprehensive Network is to be completed by 2050.

Malta's TEN-T Core Network forms part of the Scandinavian-Mediterranean Corridor which is an inter-modal crucial north-south axis for the European economy. Crossing the Baltic Sea from Finland to Sweden and passing through Germany, the Alps and Italy, it links the major urban centres and ports of Scandinavia and Northern Germany to continue to the industrialized high production centres of Southern Germany, Austria and Northern Italy further to the Italian ports and Valletta. This north-south corridor will integrate Priority Projects (1, 11, 12 and 20), ERTMS corridor B and Rail Freight Corridor 3. The last section connects Italy with Malta via Motorways of the Sea. Projects on the Core Network are therefore eligible for EU funding under the Connecting Europe Facility. A number of priority projects have already been identified as eligible under this fund.

¹⁵ Regulation (EU) N° 1315/2013 of the European Parliament and the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network, repealing Decision 661/2010/EU

1.2.7 EUROPEAN COMMISSION PROGRAMMING PERIOD AND COHESION AND STRUCTURAL FUNDS

1.2.7.1

Accession Period 2004-2006

Malta joined the EU in 2004 and under Cohesion Policy 2004-2006 envisaged an urgent need to address the socio-economic infrastructure, in particular the environment and transport sectors. The paramount importance of achieving economic competitiveness and ensuring sustainable environment remain important cornerstones of Malta's development objectives for the next round of Cohesion Policy¹⁶.

Three national objectives were identified for the period 2004 – 2006, namely: to promote an open and competitive economy; to ensure that the growth in social and economic development is spread equitably across the Maltese Islands, both socially and geographically; and to promote a sustainable use of the environment and to assist in the implementation of EU environmental directives and regulations¹⁷.

1.2.7.2

Programming Period 2007-2013

The National Strategic Reference Framework was the result of an extensive assessment of the country's needs and challenges, setting strategic objectives for development for the medium and longer term. It provided the goals and the strategic framework for

the operational programmes that were developed, and structural funds committed, for the 2007-2013 period.

Through the Cohesion Fund and European Regional Development Fund, Malta, with the support of EU co-financing had implemented a number of transport infrastructure and mobility projects.

The National Strategic Reference Framework had identified improving and expanding the transport infrastructure (including TEN-T) and sustainable mobility as one of the means to “Improving Malta's attractiveness and Quality of Life”¹⁸. It also considered that accessibility and inter-island transport would be important in addressing Gozo's regional distinctiveness¹⁹.

1.2.7.3

Programming Period 2014-2020

Under Regulation (EU) No 1303/2013 laying down common provisions for European Structural and investment funds (ESIF), Member States seeking to participate in ESIF funding instruments (including Cohesion Fund and European Regional Development Fund) are required to fulfil a set of ex-ante conditions (Annex XI) of which the thematic ex-ante objective 7, related to transport, specifically “Promoting sustainable transport and removing bottlenecks in key network infrastructures” requires that Member States evidence:

¹⁶ National Strategic Reference Framework – Malta 2007-2013 (2006)

¹⁷ National Strategic Reference Framework – Malta 2007-2013 (2006)

¹⁸ NSRF Strategic 2007-2013: Strategic Objective 2

¹⁹ NSRF Strategic 2007-2013: Strategic Objective 4

7.1 Transport: The existence of a comprehensive plan or plans or framework or frameworks for transport investment in accordance with the Member States' institutional set-up (including public transport at regional and local level) which supports infrastructure development and improves connectivity to the TEN-T comprehensive and core networks, (and)

7.3. Other modes of transport, including inland-waterways and maritime transport, ports, multimodal links and airport infrastructure: the existence within the comprehensive transport plan or plans or framework or frameworks of a specific section on inland-waterways and maritime transport, ports, multimodal links and airport infrastructure, which contribute to improving connectivity to the TEN-T comprehensive and core networks and to promoting sustainable regional and local mobility.

The comprehensive transport plan is expected to provide a clear fixed methodological approach that takes into consideration a wide range of stakeholder interest to establish the necessary framework for:

- prioritisation of investments in the core TEN-T network, the comprehensive TEN-T network and secondary connectivity. The prioritisation should take into account the contribution of investments to mobility, sustainability, the reduction of greenhouse gas emissions and contribution to the Single European transport area;
- a realistic and mature project pipeline (including timetable, budgetary framework);

In relation to the ex-ante conditionality for railways and inland-waterways, as Malta does not have these transportation modes, these sections of the thematic areas do not apply. The National Transport Strategy and the Transport Master Plan which will be developed by Malta under the transportation planning framework outlined in the previous section will fulfil this ex-ante conditionality requirement.

A strategic environmental assessment of the Transport Master Plan will be carried out.

An important criterion²⁰ required to be fulfilled in ex-ante conditionalities 7.1 and 7.3, relates to the identification and outlining of measures to strengthen capacity of intermediary bodies and beneficiaries to deliver the project pipeline.

01.3 NATIONAL STRATEGIES AND POLICIES

The National Transport Strategy for Malta (NTS) is based on the analysis of the existing situation (as of 2014) and on the trends for development, as well as on factors, which are internal or external for the sector. The National Transport Strategy therefore takes into account the specific domestic conditions and needs as outlined in Chapter 2, as well as other national strategies and sectoral policy documents. The following documents have provided the guiding framework for the development of the strategy:

²⁰ Annex XI of Regulation (EU) No 1303/2013.

- National Reform Program under the Europe 2020 Strategy, 2014
- Strategic Plan for Environment and Development, 2015
- Aviation Policy for Malta 2014-2020
- Consultation Operation Programme, 2014
- National Strategy for the Introduction of Electro mobility in Malta and Gozo, 2012
- National Environment Policy 2012 – 2020
- National Tourism Policy 2012 – 2016
- Gozo Tourism Policy 2012-2016
- A Healthy Weight for Life: A National Strategy for Malta 2012-2020
- Vision 2015
- National Strategic Reference Framework 2007 – 2013
- Operational Programme I 2007 – 2013
- Operational Programme II 2007 – 2013
- Operational Programme I 2014 – 2020²¹
- A Structure Plan for the Maltese Islands, 1990
- The National Energy Policy for the Maltese Islands, 2012
- National Climate Change Adaptation Strategy, 2010
- National Renewable Energy Policy, 2006
- Sustainable Land Transport: White Paper, 2003
- National Sustainable Development Strategy, 2006
- National Strategy for Cultural Heritage, 2006
- National Strategy for Policy and Abatement Measures relating to the reduction of Greenhouse Gas emissions, 2009
- Cultural Policy, 2011
- National Biodiversity Strategy and Action Plan 2012-2020
- A Report on Malta's Creative Economy and a Strategy for the Cultural and Creative Industries, 2012
- Active Labour Market Policy, 2012

The above documents have been reviewed and the following table summarizes their content in relation to the National Transport Strategy.

²¹ Cohesion Policy 2014-2020. Operational Programme I. Fostering a competitive and sustainable economy to meet our challenges.

Documents relating to Policy Area	Policy Area	How can the National Transport Strategy support this area?
<p>Vision 2015</p> <p>A Civil Aviation Policy for Malta 2014-2020 (Consultation Document)</p> <p>A Report on Malta's Creative Economy and a Strategy for the Cultural and Creative Industries (2012)</p> <p>Active Labour Market Policy (2012)</p> <p>National Research and Innovation Strategy 2020</p> <p>National Digital Strategy 2014 - 2020</p> <p>Operational Programme I 2014-2020</p>	<p>Economy</p>	<p>Ensure that high-quality transport networks which allow for smooth passenger and freight movement flows.</p> <p>Ensure that all communities have ease of access to employment areas.</p> <p>Ensure that the transport system provides efficiency which supports import and export market both in relation to maritime services as well as aviation.</p> <p>Support the development of Malta's image as an attractive, contemporary and stimulating creative hub within the Mediterranean region, with strong emphasis on exchange and access to international markets through its transportation system.</p> <p>Take on board the goals established in the research and Innovation Strategy and ensure that the strategic priorities identified in this strategy support research and development in relation to the transportation industry. Particularly the strategy should support Malta's development in becoming a Maritime Hub and developing services related to Aviation and Aerospace.</p> <p>Taking on board the objectives and principles identified the Civil Aviation Policy for Malta 2014-2020 within the outcomes and strategic priorities of this strategy.</p> <p>Ensuring the transportation system develops further with respect to use of ICT to improve its services and support the economy in this field. Special emphasis should be given to the deployment of Intelligent Transportation Systems for improving road safety, traffic flow and in-country travel as identified in the National Digital Strategy 2014 - 2020.</p> <p>Taking on board the objective specified in priority Axis 11 of the OPI 2014-2020 to invest in (TEN-T) both land transport and maritime with a view to reduce journey time, including the facilitation of movement of goods. This investment priority will also include investment in customs infrastructures to improve efficiency and safety in cross border transactions.</p>

Documents relating to Policy Area	Policy Area	How can the National Transport Strategy support this area?
<p>Tourism Policy for the Maltese Islands 2012-2016</p> <p>A Civil Aviation Policy for Malta 2014-2020 (Consultation Document)</p>	Tourism	<p>Ensure that aviation, maritime and public transport services continue to provide the capacity necessary to meet demand and plan for forecasted growth.</p> <p>Ensure that transport supports a positive and quality experience for tourists.</p> <p>Maximise access and ease of movement to tourism hot spots and visitor attractions.</p> <p>Support the development and quality of international links in relation to maritime and aviation.</p>
<p>National Environment Policy (2012)</p> <p>Strategic Plan for Environment and Development (2015)</p> <p>The National Energy Policy for the Maltese Islands (2012)</p> <p>National Strategy for the Introduction of Electromobility in Malta and Gozo (2012)</p> <p>National Climate Change Adaptation Strategy (2010)</p> <p>National Renewable Energy Policy (2006)</p>	Environment	<p>Maximise opportunities in which transport development can contribute to improving the quality of the environment. Environment being aspects such as natural habitats, bio-diversity, cultural heritage and urban areas.</p> <p>Carry out Strategic Environmental Assessments, Environmental Impact Assessments and Appropriate Assessments as may be required and ensure that where negative impacts due to transport development cannot be avoided, these are minimized and mitigated.</p> <p>Ensure that the transportation system contributes to improving the attractiveness of urban areas so as to encourage people to move towards urban areas rather than away from them.</p> <p>Develop strategic priorities which determine the role in which transport will work towards adaptation to climate change and reducing greenhouse gas emissions.</p> <p>Modelling the transport network such that information can be provided to better monitor emissions.</p> <p>Ensure that development of the transport systems continues in a manner which promotes the efficient use of natural resources.</p>

Documents relating to Policy Area	Policy Area	How can the National Transport Strategy support this area?
<p>The National Strategy for Policy and Abatement Measures Relating to the Reduction of Greenhouse Gas Emissions 2010-2020 (2009)</p> <p>National Biodiversity Strategy and Action Plan 2012-2020 (2012)</p> <p>Operational Programme I 2014-2020</p>	<p>Tourism</p>	<p>Ensure that transportation development respects the Natura 2000 sites and aims to reduce pollution resulting from transport which has an impact on biodiversity.</p> <p>Explore opportunities for transportation infrastructure to support the provision of green infrastructure.</p> <p>Ensure infrastructural investment in collective public transport to increase patronage through: multi-modal transport including sea landing spaces, investment in green public transport, information systems, greening of public spaces in urban areas as well as campaigns earmarked to influence behavioural patterns. These actions will contribute towards better air quality.</p>
<p>Framework for the Educational Strategy for Malta 2014-2024</p>	<p>Social Development</p>	<p>Support the provision of apprenticeship, traineeship, work-based and work-placed learning initiatives in transport so as to strengthen knowledge and interest in progressing in this field such that resources and expertise may be strengthened.</p>
<p>A Healthy Weight for Life: A National Strategy for Malta 2012-2020</p>	<p>Health</p>	<p>Promote transportation modes which support healthy lifestyles such as walking and cycling for short journeys. Work towards reducing air pollution resulting from transport.</p> <p>Consider input from Health Department in policy development.</p> <p>Ensure ease of access for all to health facilities.</p>
<p>Strategic Plan for Environment and Development (2015)</p> <p>A Structure Plan for the Maltese Islands (1990)</p>	<p>Planning</p>	<p>Work in parallel with the development planning system to ensure an integrated approach to land use and transport planning.</p> <p>Ensure that sustainable travel modes are promoted for areas of higher development and support policies from the local plans which work towards reducing use of unsustainable travel modes and reducing unsustainable development.</p>
<p>Draft National Strategy for Cultural Heritage (2012)</p>	<p>Culture</p>	<p>Ensure that the transportation system supports and preserves our cultural heritage and helps in developing our cultural offer. Besides historical heritage this also refers to the quality of our built environment in general.</p>

Documents relating to Policy Area	Policy Area	How can the National Transport Strategy support this area?
National Cultural Policy (2011)		<p>Ensure ease of access to cultural sites and museums using sustainable transportation modes and catering for all user groups.</p> <p>Ensure that the transportation system anticipates and supports mobility demand throughout Valletta Capital of Culture designation in 2018.</p>
<p>National Sustainable Development Strategy 2007-2016 (2007)</p> <p>Sustainable Land Transport: Working Paper (2003)</p>	Sustainable Development	<p>Develop strategic priorities which determine the role in which transport will work towards adaptation to climate change and reducing greenhouse gas emissions.</p> <p>Encourage use of sustainable modes of transportation and work towards reduced car ownership levels.</p> <p>Explore opportunities to use transportation infrastructure as means for generating electricity and use of renewable energy sources.</p> <p>Adopt an integrated approach to the development of transportation planning and design.</p> <p>Support development of safer and healthier travel for all users ensuring accessibility for all and placing users at the heart of transport policy.</p> <p>Support the European development of Motorways of the Seas to ease road traffic congestion on European roads.</p> <p>Work towards removing any constraints hindering the accessibility and competitiveness in Valletta and Marsaxlokk ports.</p> <p>Support the strategic directions with regard to transport as outlined in the National Sustainable Development Strategy 2007-2016.</p>

Table 1.
Other Strategy Documents in relation to the Transport Strategy



PRIPVEN
PHOTO VOLTAIC ELECTRIC VEHICLE





STANTOUR

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CSST TRAVELLER CITY CLASSIC
ALL SEASON COMPACT

01.4 STRATEGIC PLAN FOR ENVIRONMENT AND DEVELOPMENT (SPED) 2015

Under the Development Planning Act 1992, as amended in 2001, the Malta Environment and Planning Authority is legally obliged to review the Structure Plan to address issues that are relevant now, or that would become relevant over the next 20 years. Since the inception of the Structure Plan in 1990, significant social, demographic and economic changes have taken place necessitating the need for a new policy framework for planning, the environment and development. Many of these changes over the years have had a direct or indirect impact on Malta's transport system.

In 2015 a new planning document which provides strategic guidance for the future development of the Maltese Islands was published the 'Strategic Plan for the Environment and Development' (SPED). This strategic plan now replaces the Structure Plan.

1.4.1 SPED ANALYSIS

The SPED identifies four key thematic issues which emerged from a synthesis of the National Reform Programme, the Vision 2015, and the National Environment Policy, as well as consultations with Ministries and Government entities and the Structure Plan Review process. These themes are: Socio-Economic Development; Environment; Climate Change and Travel Patterns. The national spatial framework outlined in

the SPED addresses the issues identified through a set of Strategic Objectives which include a set of Thematic Objectives that permeate these four themes as well as a set of Spatial Objectives for Urban, Rural, and Coastal Zone and Marine Areas and Gozo. An exercise was carried out as part of the analysis of strategic national documents whereby, for each objective identified in the SPED, the role which the National Transport Strategy could play in supporting each objective was identified.

The detailed analysis is included in Annex 1 of this document and it sets out the key elements from the SPED which have a direct or indirect relationship with the Transportation System. These elements have been taken into account in the development of the National Transport Strategy.

01.5 THE NATIONAL TRANSPORT STRATEGY AND TRANSPORT MASTER PLAN

Following its establishment in 2010 under Chapter 499 of the laws of Malta (Authority for Transport in Malta Act (Act XV of 2009)) the Authority for Transport in Malta here in after referred to as Transport Malta²², embarked on preparations to develop an integrated National Transport Strategy with a time horizon of 2050.

²² Transport Malta is the Authority for Transport in Malta as established by Cap 499.

1.5.1
ANALYTICAL AND SCIENTIFIC BASIS FOR PLANNING

A prerequisite for a sound transport strategy is a comprehensive and in-depth analysis of the current situation complemented by a longer term forecast. Most European Union member states implement and operate transport planning and forecasting tools as a basis for their short, medium and long term transport sector strategies. These planning and forecasting tools enable an integrated approach to transport policy development that covers all relevant transport modes, land-use planning, demographic as well as economic processes. In this sense, the National Transport Strategy will set out the long-term vision and strategic direction while the Master Plan will focus on the short to medium term measures.

The short to medium term measures will be subjected to technical transport modelling to support the effective selection and prioritisation of investments to be set out in the Transport Master Plan. This modelling exercise will result in a sustainable multimodal plan for transport covering the period covering up to 2025. The current development of the National Transport Strategy and Transport Master Plan using a transportation modelling process is graphically depicted as follows:

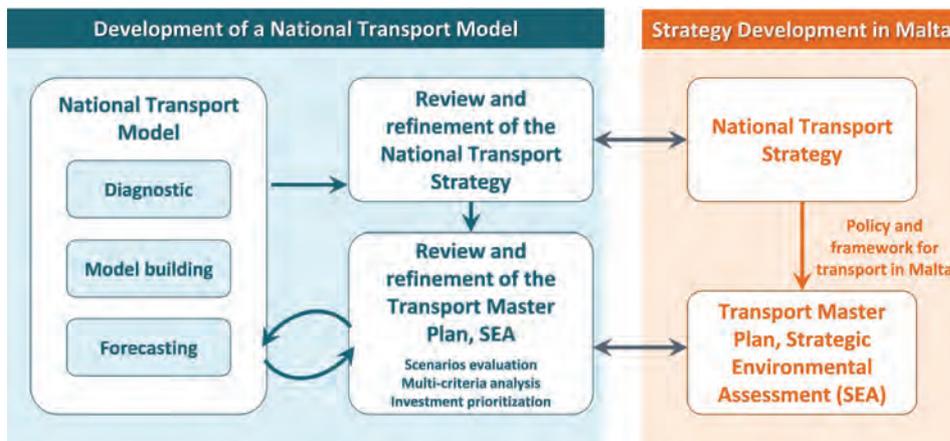


Figure 3.
 Transport Modelling
 as a tool for Strategy
 Development

The National Transport Strategy and its associated National Transport Master Plan covers all transport modes in Malta: road (including public transport), maritime, and air for both internal and external transport. Besides the transport modelling, other methods of data gathering, review and analysis were carried out. Figure 4 outlines the process in more detail.

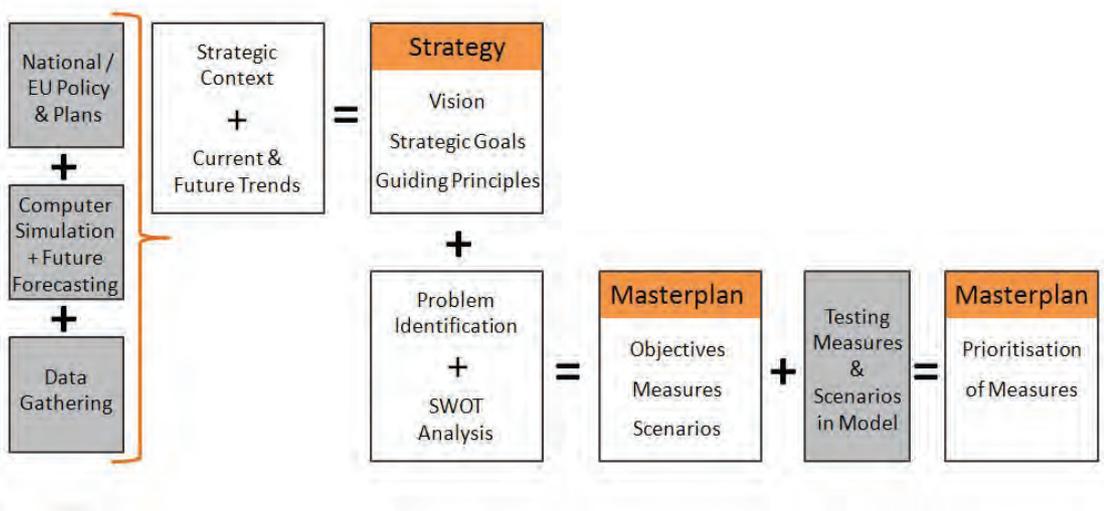


Figure 4.
Formulation of the
National Transport
Strategy and Transport
Master Plan

1.5.2 DEVELOPMENT OF THE NATIONAL TRANSPORT STRATEGY

The National Transport Strategy (NTS) consists of a vision outlining where Malta would want to be in the long term, the strategic goals and the strategic direction on how to get there and the indicators necessary to measure the progress of this strategy.

Malta has committed to a number of EU and international targets, such as those relating to EU2020, air quality or related to climate change (mitigation), road safety, etc. These form part of the strategic and policy direction which have been critically assessed through the NTS development process and are reflected in the strategic goals and guiding principles in Chapters 3 and 4 and through targets set out in Chapter 5.

The tools used to elaborate the NTS also include in-depth analyses of internal and external factors influencing the system, as well as of the development trends on an international, national and local level.

1.5.3 DEVELOPMENT OF THE TRANSPORT MASTER PLAN

The Transport Master Plan (TMP) will focus on transport sectors including land transport, public transport, ports, ferries and air transport and will include a detailed and prioritised list of measures: studies and works (infrastructure interventions), operational initiatives, policy and regulatory changes, and organisational restructuring and capacity changes - for each sector.



Figure 5.
Timeline of the process

In parallel, a Strategic Environmental Assessment (SEA) will be undertaken on the TMP in accordance with legal requirements. Once initially approved by Government, the SEA process will serve to inform on the Environmental impacts of the Master Plan. The Environmental report will be published for wider public consultation and feedback, prior to the final approval by Government and eventual deployment.

The TMP will outline transport investment, regulatory change, safety improvement measures and institutional strengthening required to achieve the transport strategy for the period up to 2025. It will also identify the need for further studies or development of action plans in specific areas. The strategic direction for transport will be established in the strategy and will also define both quantitative and qualitative indicators to assess impacts. The targets for these indicators will be established in the TMP.

The TMP will fulfil the ex-ante conditionality under Regulation (EU) No 1303/2013 objective 7, related to transport, specifically “Promoting sustainable transport and removing bottlenecks in key network infrastructures”.

The TMP will be developed according to the strategic goals set out in the strategy and will cover initiatives including infrastructure, telematic applications²³, modal integration, road safety, modal shift, etc. The constraints, costs, affordability, social and environmental impact of particular interventions to address transport issues (e.g. capacity shortfall and congestion) will be tested, appraised and prioritised.

For each scenario, the plan will determine expected costs, benefits and revenues generated by the transport sector, costs to maintain the infrastructure, and the impact of the plan on government budget and consideration of any non-government financial support or non-financial guarantees required.

Operational aspects of the different sectors identified in the TMP will also be taken into account, with a view to improving interoperability, efficiency, safety and cost. Actions contemplated under the TMP will be subjected to multi-criteria analysis, socioeconomic cost/benefit analysis demonstrating financial feasibility and potential funding sources, environmental impact, and state aid assessment.

1.5.4 DEVELOPMENT OF THE TRANSPORT MODEL

1.5.4.1

Past Passenger Transport Models

Analysis and assessment of the current and future situation in Malta is required to be carried out so as to be able to test and refine the projects and measures identified for assessment as part of the TMP development process. The previous model developed in the late 1990s was developed in TRIPS (Citilabs). Figure 6 shows the extent of the zone system of the previous national model.

²³ Telematic Applications (TA) include Intelligent Transport System for land transport (ITS), Vessel Traffic Services for maritime transport (VTS) and Air Traffic Control for aviation (ATC)

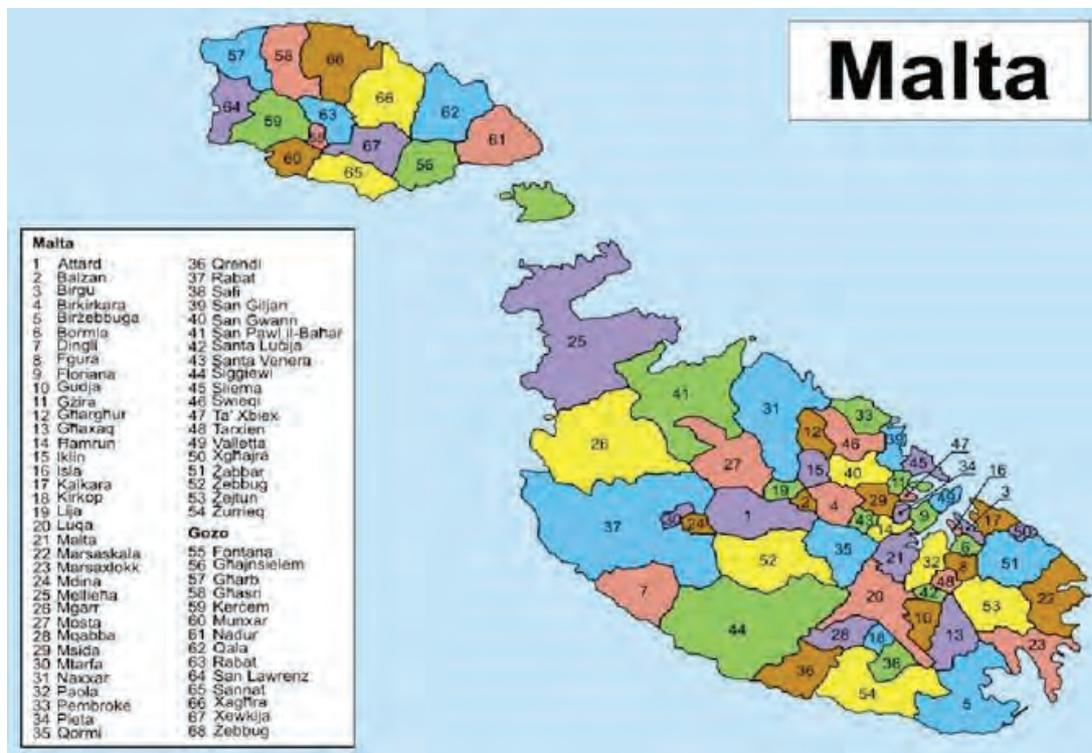


Figure 6.
*Previous National
 Transport Model Zones*
 (Source: *Transport Malta,*
 2012)

1.5.4.2

Developing a Multi-modal National Transport Model

For current transportation planning needs, a multimodal national transport Model has been constructed to inform policy and provide an integrated transport analysis. The model will be used for the testing and appraisal of transport scenarios and provision of transport forecasts which will be used to refine the TMP for Malta. Another key application of the model is to produce outputs for more detailed local or project models as input into the engineering design process, economic and financial analysis, environmental assessment, and

for monitoring of projects. The outputs of the transport model will also be inputs for national climate change and air quality models utilised by the respective agencies.

The selection, appraisal, affordability and prioritisation of investments – including the MCA methodology – will be refined and developed as part of this project and will take account of prior stages of work on the NTS, national transport model and forecasting.

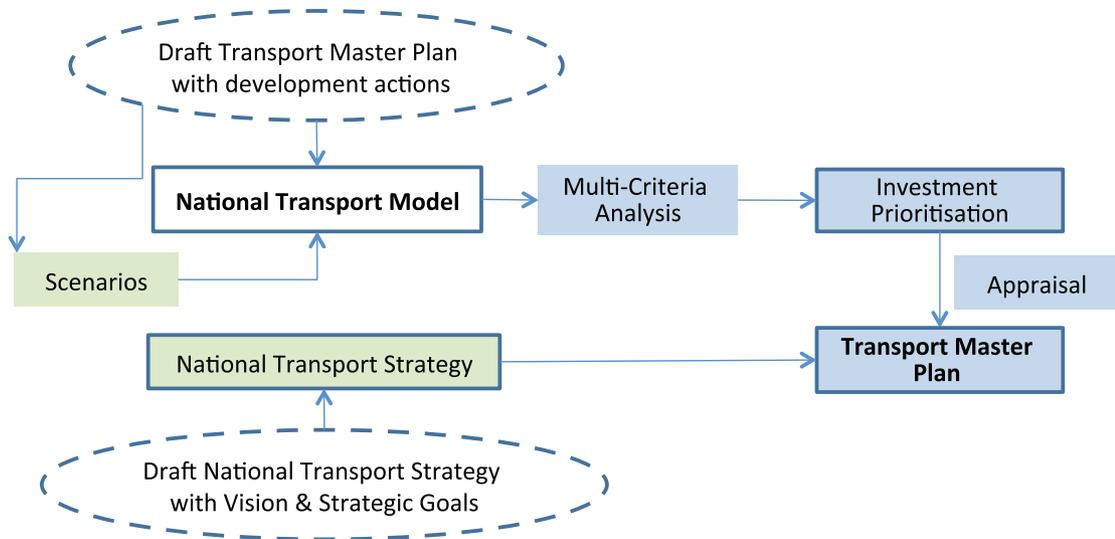


Figure 7.
 Development of the
 Master Plan using the
 National Transport model

Figure 7 shows the relationship between the different components of the development of the NTS and NTM, and shows the iterative interaction between the NTM and the TMP.



02

MALTA'S TRANSPORT NEEDS



02.1 CONTEXT OF THE TRANSPORT SECTOR

The transport sector is a strategic part of the structure of a country. Transport affects economic development by influencing the relations between resources, businesses, services and customers, but it also impacts the quality of both the natural and built environment and all its components.

The transport sector represents around 9% of the Maltese labour market and ranks among the ten most important sectors affecting Maltese employment. The transport sector also contributed 6.3% to Maltese GVA in 2014²⁴.

The transport network and services are key to ensure the accessibility of a territory. With Malta being an archipelago of islands, a complete road network is not enough to provide acceptable levels of accessibility. Ferry connections are vital to communicate the different islands, and space restrictions necessitate the efficient prioritisation of public transport services, which are able to move larger numbers of travellers without causing congestion on the road network.

Congestion is one of the main problems of Malta and impacts both private vehicles and public transport, as both kinds of services share road infrastructure; it is estimated that with no change to the current transport policy and no additional transport measures being implemented, congestion will cost the economy over €1.28 billion per year in 2050, equating to a loss of 8.2% of Malta's GDP.

Pollution stands out among the environmental impacts of transport. The transport sector is responsible for 21.1% GHG emissions generated

in Malta. In particular, road transport is the main source of particulate matter and noise, and represents important shares in the emissions of a number of other pollutants, including nitrogen oxides, volatile organic compounds, ozone, sulphur dioxide, metallic compounds and benzene. These effects - common to road transport in other countries - are especially severe in Malta due to the high car dependency and old car fleet.

Therefore, increasing the sustainability of the transport sector is essential to comply with Malta's commitments and obligations under EU law regarding emissions, renewable energy sources, etc.

The impacts of the transport sector on Maltese people are especially acute in the main urban agglomeration. Streets are seen as an extension of the road network and car parking is everywhere. The lack of attractiveness of the urban environment, together with the lack of integration between transport planning and land use development has led to urban sprawl, which makes it even more complicated to provide efficient and effective public transport services. Minimising transport impacts requires a holistic approach, which is missing in Malta nowadays. To this end, long-term planning should be implemented in transport and other areas related to the territory, as well as communication channels between them.

This chapter presents the early evolution of Malta's transport system, key trends and projections for the future of the transport sector.

²⁴ Comprises all direct transport under Statistical analysis NACE 49-53

02.2 SETTING THE SCENE: HISTORICAL DEVELOPMENT OF TRANSPORT IN MALTA

02.2.1 EARLY EVOLUTION OF MALTA'S TRANSPORT SYSTEM

Malta's transport system has greatly evolved over time. Malta's early network of transport services was originally developed to take local produce to market by foot, boat or by horse, to service the ships in the harbour areas and to facilitate the rapid deployment of military personnel to coastal defence positions.

At the end of the 19th century first mechanised forms of land transport were introduced.

The construction of a twenty kilometre single track railway connected the capital city of Valletta with the old capital of Mdina.

This was quickly followed by the introduction of a tram, powered electrically through overhead wires, which linked Valletta with main towns of Zebbug, Qormi, Birkirkara, Hamrun, Paola, Vittoriosa and Cospicua. Accessibility between settlements in the harbour areas was facilitated through cross-harbour sea transport (left above) with inter-modal connectivity between sea level and city level using karozzini (horse and carriages - centre above) and, following its construction in 1905, a passenger lift Barrakka Lift on the Valletta side of the Grand Harbour (far right above).



Figure 8.
*Scenes of
Transportation
Infrastructure in the
1900s*





Figure 9.
The railway and tram line alignments prior to 1931

The relative convenience and shorter journey times brought about by rail-based transport had a profound effect on population distribution and on the urban morphology of settlements along their routes. By 1931, however, both rail and tram services had ceased their operations as they could no longer compete with the growing network of omnibus services which were both cheaper to operate and more flexible to adapt to the changes in travel and urban settlement patterns.

During the post-war years, the spatial development of urban areas went hand in hand with transport infrastructure development to facilitate connectivity.

Road networks in Malta and Gozo were further developed for road-based public transport based on a hub and spoke principle which centred on the respective capitals of Valletta and Victoria. Increased levels of accessibility to Valletta facilitated through bus network and service frequency improvements, combined with the attraction of space availability for new housing, resulted in further urban sprawl away from the inner harbour areas relieving, at the time, the increasingly overcrowded living conditions in the Valletta and Floriana Peninsula.

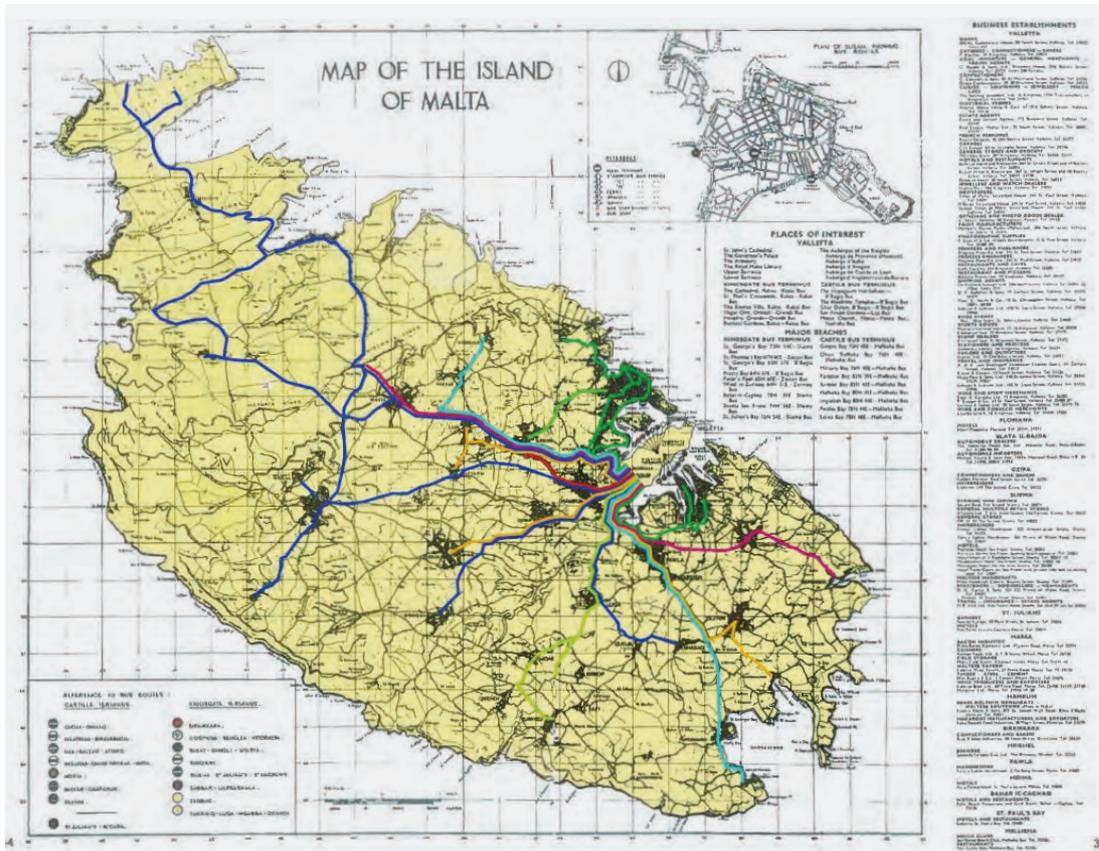
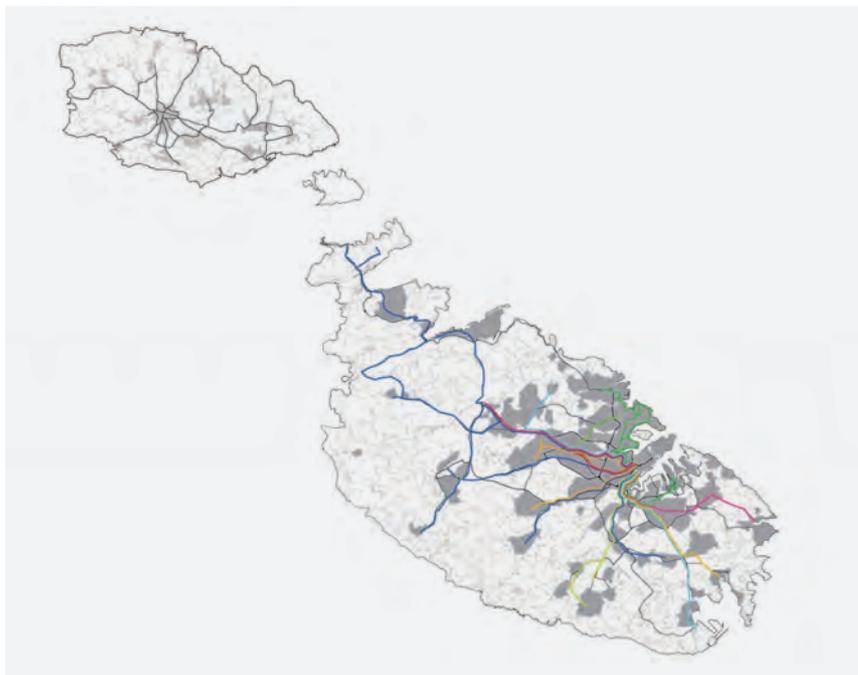


Figure 10.
The network of bus routes in the 1950s

Figure 11.
The network of bus routes in the 1950s and today's urban development



The period from 1970 to 1990, saw a doubling of the number of cars on Maltese roads. The corollary to such a rapid increase in private motorisation was the significant drop in public transport patronage, growth of urban residential areas away from the central harbour areas, increased geographical separation between homes and workplaces and increased pressure being exerted on the road network system.

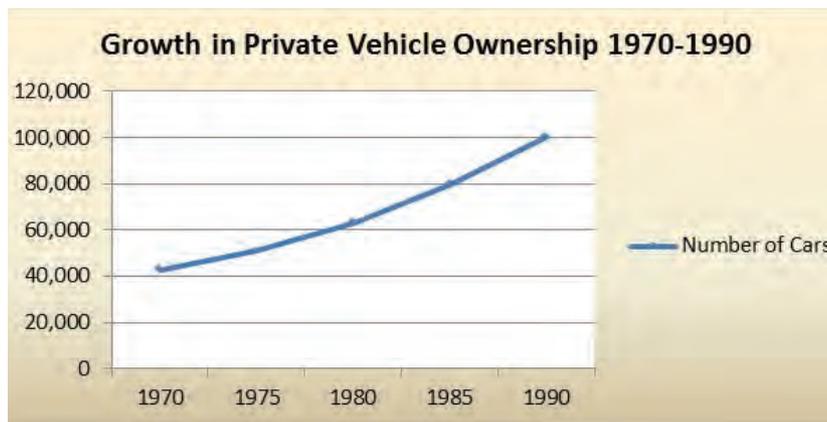


Figure 12.
Growth in number of cars 1970 - 1990

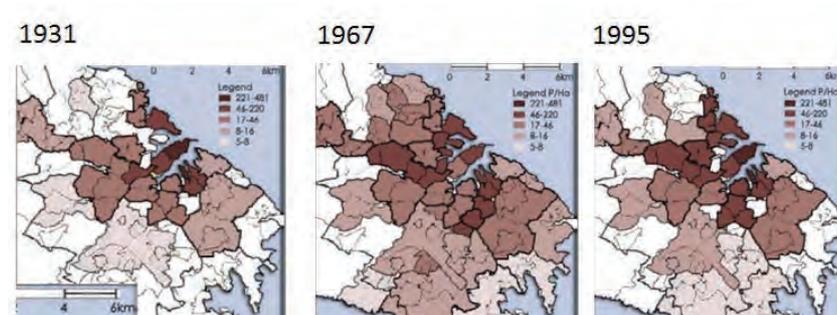
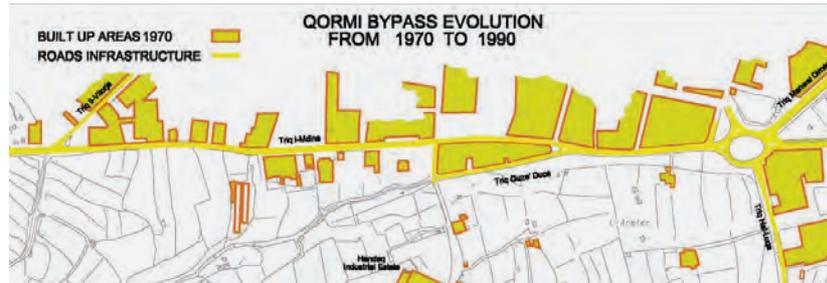


Figure 13.
Density per locality illustrating trends of Decentralisation 1931 - 1995

Much of the traditional road network linking towns and villages was not designed to handle high volumes of vehicles and, as a result of the growth in car ownership levels, several new bypass roads needed to be constructed to alleviate growing traffic problems in the towns and villages with the aim of providing faster routes for inter-regional traffic.

For a time, these bypass roads had served their purpose well. But over the years, a weak and ineffective, regulatory framework for planning and development control has not prevented commercial and residential development of land along both sides of several main arterial bypasses. The need to provide junctions and crossing facilities for safety reasons consequently changed the function, speed and capacities of these roads.

1970



1990

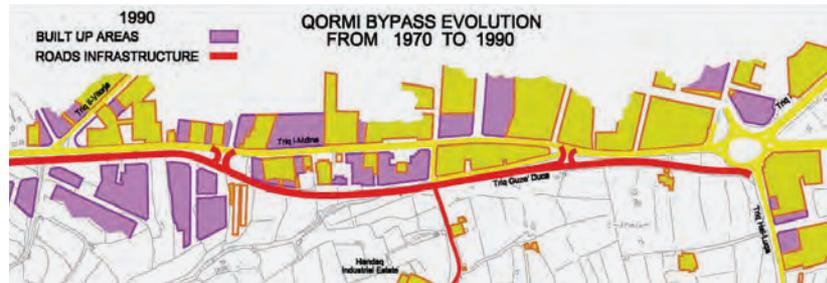


Figure 14.
Evolution of the Qormi Bypass 1970 - 1990

Between 1970 and 1990 inter-island traffic between Malta and Gozo also increased and more vessels were introduced into the ferry service. By 1990, five vessels, including a fast ferry service between Mgarr, Sliema and Sa Maison were being operated, performing an average of 27 round trips per day, carrying 1.93 million passengers and 370,000 cars per year.

While Malta's population had only increased by around 60,000 between 1970 and 1990, the promotion of Malta as a tourist destination had resulted in a 20.5% average annual growth rate in tourist arrivals over the same period²⁵. The increase in tourism over this period had catalysed the strengthening of Malta's external connections through infrastructure investment and facilitation of transport services.

²⁵ Blue Plan Regional Activity Centre Malta, 2002

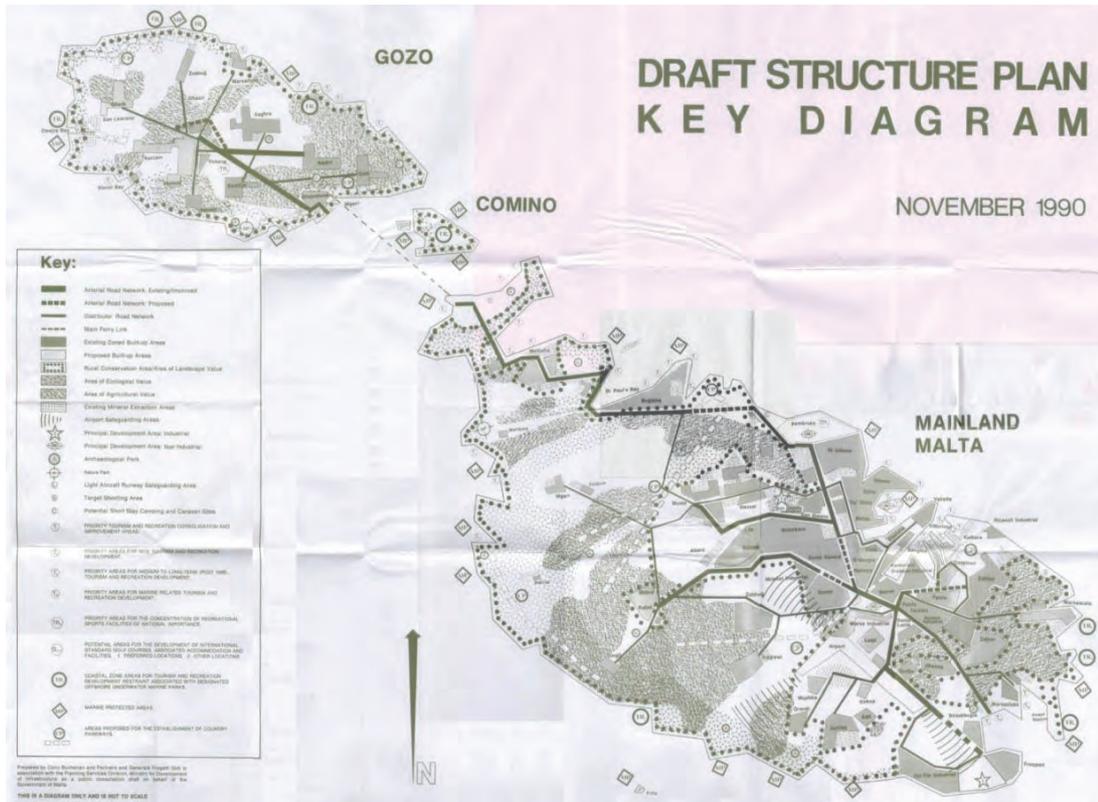
Tourists to Malta mainly arrived by air and, towards the end of the 1980s the old airport infrastructure was starting to become a bottleneck to the national plans for the further development of the tourism sector. This combined with increased demand for international travel by residents, had led to the planning of a new airport terminal and upgrade of the airport system (runway, taxiway, parking and air traffic control) to increase operational capacity.

Economic growth over this period depended heavily on the efficient freight transport connectivity with mainland Europe to offset any competitive disadvantages resulting from geographical peripherality. Heavy investment in structural improvements to existing cargo handling facilities in the Port of Valletta coupled with the development of the first Mediterranean transshipment hub in the port of Marsaxlokk helped sustain this economic growth.

2.2.2
KEY TRENDS SINCE 1990

The national transport strategy framework for the past 25 years was that set out in the 1990 Structure Plan for the Maltese Islands. The Structure Plan aimed to provide a strategic direction and context to guide both Government and the private sector in matters concerning Malta's development. It contained 320 policies on settlements, the built environment, housing, social and community facilities, commerce and industry, agriculture, minerals, tourism and recreation, transport, urban and rural conservation and public utilities. This was the first time that a holistic plan was prepared to guide development in Malta and Gozo.

Figure 15.
Road Hierarchy from the Structure Plan for The Maltese Islands (1990)
(Source: Planning Authority)



It was drawn up at a time when the stock of private cars in Malta amounted to less than 100,000; however society was already becoming more mobile and increasingly car dependent. At the time, best practice considered that the growth in car ownership levels was coupled with Malta's economic growth. Similarly, the tourism sector was developing at the time and increasing numbers of visitors to the islands were starting to exert pressure on the operational capacities of Malta's airport and maritime infrastructures.

The transport strategy underpinning the Structure Plan was based on exhaustive data collection and analysis of supply and demand for different transport sectors, as well as an extensive process of public and stakeholder consultation. The strategy contained five main elements relating to surface transport and additional policy elements relating inter-island transport and aviation.

The development of the NTS has necessitated the collection, collation and analysis of identical transport data and travel information to that used back in 1990 as the basis for transport strategy development in the Structure Plan. This process has enabled transport planners and policy makers to examine and quantify the changes that have taken place in the Maltese transport system over the last 25 years, to identify trends and to critically assess the effectiveness of past policy measures in achieving their strategic objectives. By doing this, lessons can be learnt from the successes and failures of past transport policies and plans and a more robust transport strategic framework can be developed in the future. The following sections summarise the key trends that have taken place in the transport sector and appraise the effectiveness of the policy elements in the transport strategy of the Structure Plan.

2.2.2.1

The better co-ordination of land use and transport

This policy element had aimed to address the increasing spatial separation between home and work place that had resulted from urban sprawl and lack of planning in the development of employment centres. The Structure Plan had assessed different land use options for both housing and employment with a primary view to reducing home-work travel times.

The land use strategy finally adopted in the Structure Plan aimed to better match the numbers of homes and jobs in different localities. This would be achieved by locating new houses in localities where there was an excess in jobs over households and vice versa with new jobs. This land use strategy was spatially translated into increasing residential development in the Inner Harbour area while giving greater priority to the establishment of new jobs in the outer residential areas.

Within this policy element specific parking principles were applied to land use development with the objective of easing traffic problems. These included: parking restriction measures in Valletta and Floriana, application of parking standards establishing the minimum level of provision of parking spaces for new development in the remaining harbour areas (coupled with the creation of new public car parks) and parking standards for minimum provision of parking spaces to be applied in the rest of Malta.

On the whole, the land use and transport strategy advocated in the Structure Plan failed to achieve the desired objectives. The migration of residents moving away from Valletta Peninsula had continued unabated after 1990. Work places had decentralised away from the inner area to outer residential areas however, as access to private cars increased, the proximity of work place to homes had little bearing on the choice of residential areas by home buyers.

Since 1990, trip distances have generally increased and travel patterns for commuters between work and home have become more complex. In Malta, travel patterns have moved away from the 'hub and spoke' system centring on Valletta and have become highly complex.

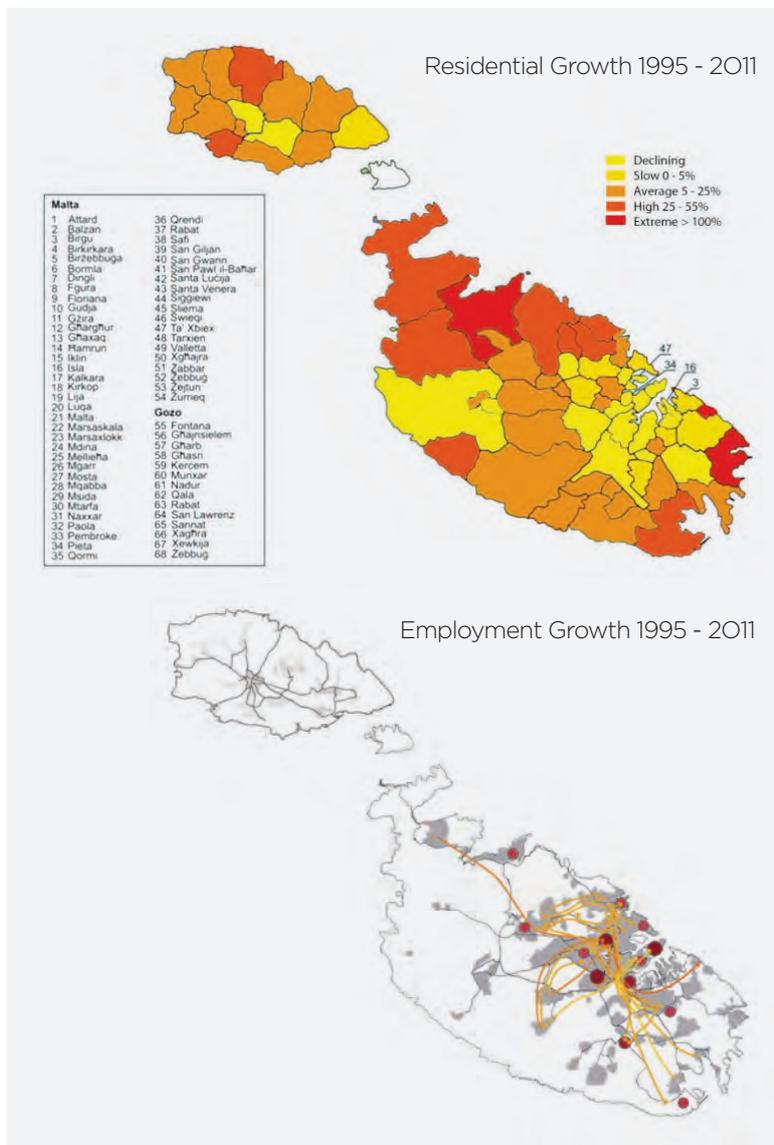


Figure 16. Evolution of Residences and Employment in Malta 1995-2011 (Source: Planning Authority / TM)

As a consequence, public transport has lost patronage on the busy commuter corridors leading Valletta and successive operators have tried to adapt by providing direct services between homes and other major activities which attract trips. However, the complexity of travel behaviour today with its fragmented pockets of travel demand renders provision of public transport services, as an alternative to the car, very challenging.

2.2.2.2

The improvement of roads and the development of a road hierarchy

The Structure Plan had created a hierarchy of roads in which each element of the hierarchy has a particular function. The highest element in the hierarchy is the arterial network: this takes fast, heavy, longer

distance flows and feeds these to the next level in the hierarchy, the distributor roads, and so on down the hierarchy to local roads and access roads.

Policy measures were put in place to safeguard the arterial road network from any future development that could prejudice the function of the road type, or compromise the possibility to increase road capacity through road widening. These measures included the establishment of road design standards, which back in 1990 did not exist.

The Structure Plan also put forward a high, medium and low priority works programme for junction and link improvements based on the future forecasting of traffic conditions carried out at the time using land use and transport model.

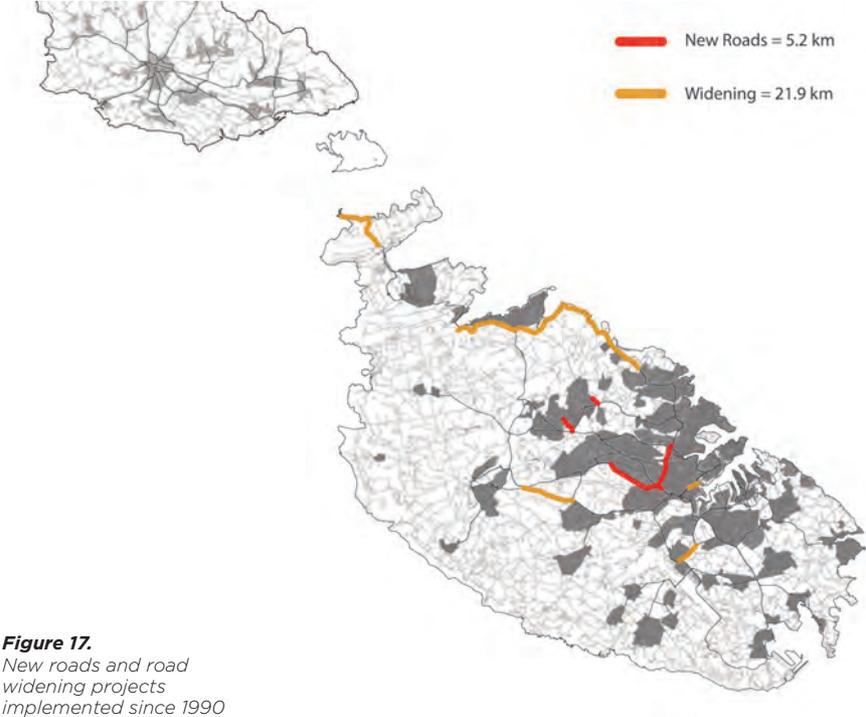


Figure 17.
New roads and road widening projects implemented since 1990

Overall, the strategy policy framework for setting up of a road hierarchy in Malta and Gozo has been successful. The classification of arterial, distributor, local access and access only roads was defined by law and responsibilities for planning, design, construction and maintenance of these roads were assigned at national and local authority levels. Road design standards based on international best practice were drawn up during the late 1990s and have been consistently applied to road projects since that time. The establishment of the functionally strategic road network was further refined and, on Malta's accession to the European Union, was promulgated into EU legislation through the TEN-T guidelines. This enabled Malta to benefit from EU funding for studies and works to upgrade road transport infrastructure on the TEN-T (see Annex I). Most of the pre-identified road and junction improvements were implemented during the 20 year period following the publication of the Structure Plan. However, only 5km of new roads were actually constructed due to environmental (green-field restrictions) urban and heritage constraints.

The policy of safeguarding of land adjacent to strategic single carriageway arterial roads was planned for through creation of buffer zones between the edge of development and the edge of existing road to facilitate their upgrade to dual carriageway. However, this safeguarding policy has largely failed due to the critical sections of buffer zone being released, over the years, for private development as a result of weak development control or court decisions. Similarly, sections of arterial road schemed for road widening in urban areas requiring demolition of houses and businesses never actually took place due to issues of expropriation. Over the last two decades, only 22km of roads (mainly in rural areas) were widened. The failure of this

policy has led to the development of major traffic congestion problems resulting from capacity reduction where dual carriageways bottleneck into single carriageway.

2.2.2.3

Effective management of the road system and of the traffic using it, and the control of the impact of both on the environment;

Within this policy element measures targeted better management of the existing road environment to ensure effective, efficient and safe use by all road users, and to complement and minimise the need for new road building.

Parking principles were applied to land use development with the objective of easing traffic problems. These included: parking control measures which would seek restraint on peak hour car journeys to the Valletta / Floriana peninsula; the application of parking standards minimum provision of parking spaces for new development in the remaining harbour areas (coupled with the creation of new public car parks) and parking standards for minimum provision of parking spaces to be applied in the rest of Malta.

The policy element outlined the need to establish clear priority and to introduce traffic signals at junctions and to develop and introduce bus lanes and bus priority measures where the time savings benefits to bus users would outweigh the cost to other road users.

Road safety also featured as a policy priority area with measures including review of speed limits, improved enforcement and introduction of traffic calming measures and environmental management measures in streets.

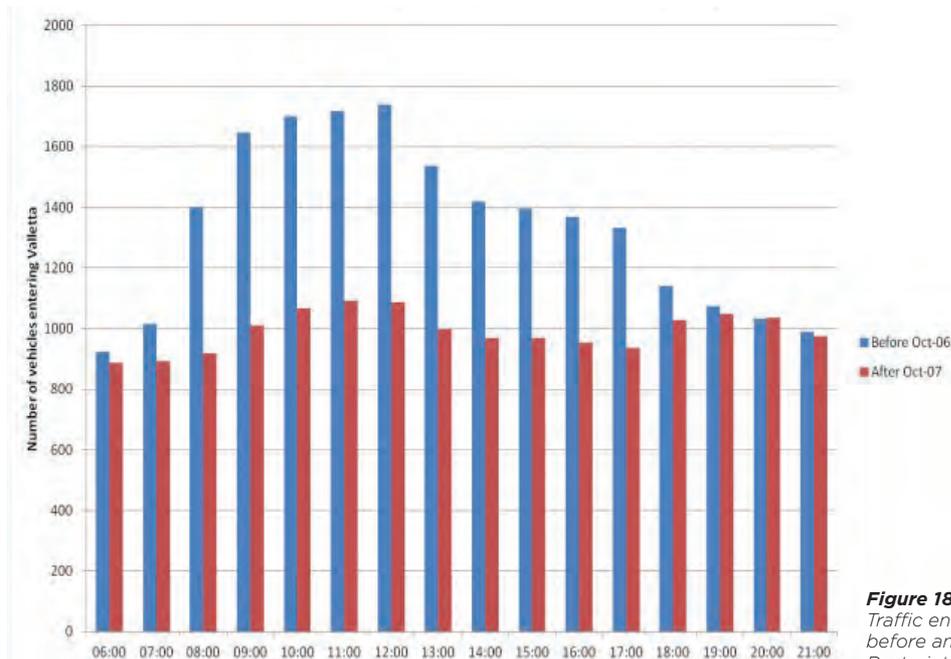


Figure 18.
Traffic entering Valletta before and after Vehicle Restraint Scheme

With the exception of the parking restraint policies in Valletta (which were introduced through part of a sustainable urban mobility plan 2006-2010), the land use and parking strategy has failed in its objective to ease traffic problems.

The ad hoc application parking principles in the remaining harbour localities and other congested areas and the lack of effective parking control and restraint, over the years, only served to encourage increased car use. This in turn led to an overspill of parking onto roads and the conversion of many urban roads to one-way streets to provide more parking which effectively resulted in the narrowing of urban roads, limiting space for buses, pedestrians and cyclists. The environmental management of roads is generally poor and in most urban areas the allocation of limited road space is prioritised towards the private car, rather than alternative road users such as pedestrians and cyclists.



Figure 19.
Urban roads converted to one-way streets to provide more parking and less vehicle manoeuvrability

In the mid-1990s traffic signals replaced many critical priority junctions and roundabouts, increasing road capacities and operational efficiency during peaks. A limited number of bus lanes were also introduced, but not without controversy. Some bus lanes were removed as a result of public pressure.

The introduction of rationalised speed limits, speed enforcement and traffic calming measures over the past 25 years has undoubtedly had a positive impact on Malta's road safety performance. As, although motorisation levels have more than trebled since 1990, the number of road traffic fatalities in that year was the same as in 2014 - one of the lowest rates per capita in the European Union.

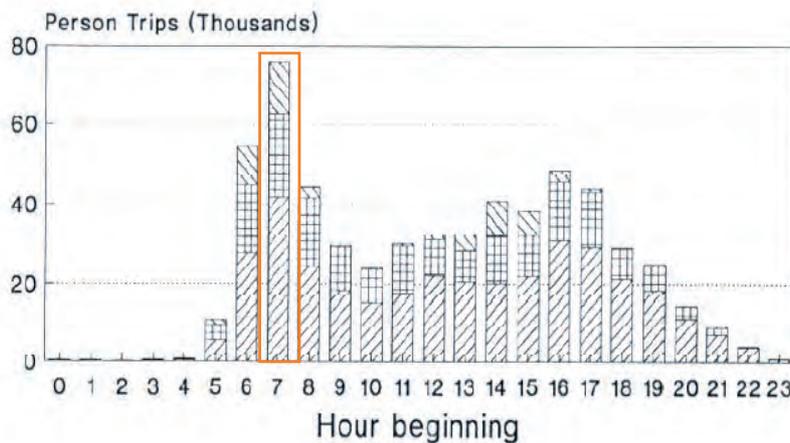


Figure 20.
Week Day Trip Profile 1990
(Source: Planning Authority)

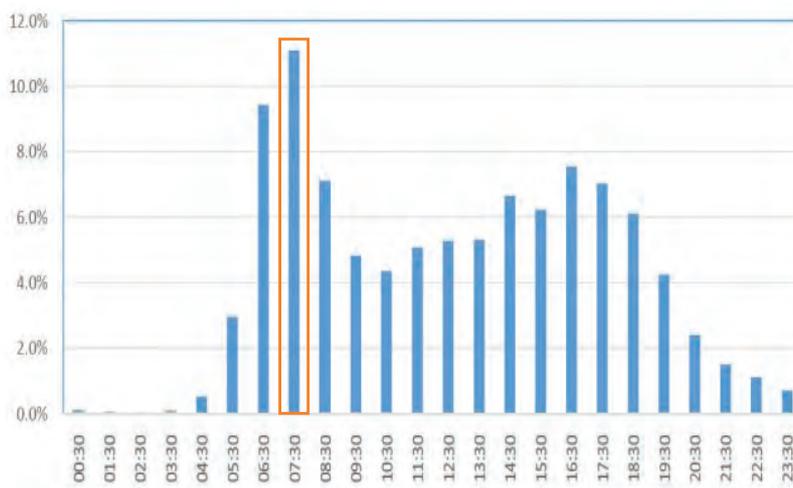


Figure 21.
Week Day Trip Profile 2014
(Source: TM)

In hindsight, the policies aimed at restraining peak hour journeys were not sufficiently developed in the Structure Plan. The traffic profile over a typical weekday has largely remained unchanged since that recorded in the Structure Plan in 1990. The morning peak hour (07.30-08.30hrs) continues to be pronounced and represents around 11% of the total daily trips. The evening peak exhibits a more spreading of traffic loads over the early evening hours in 2014, probably resulting from increased after work activities e.g. transporting children to private school lessons, later shopping hours.

Between 1990 and 2014, the number of trips carried out during the AM peak hour has increased from 75,000 to 117,000 (average growth in traffic of 2.3% p.a.). As this traffic is concentrated during a peak hour, this is exerting tremendous pressure on the capacities of road transport infrastructures. The composition of traffic during the AM peak hours has also remained unchanged since 1990, with the private car representing 83% of all traffic on the roads.

New roads are being designed to accommodate the private car and traffic volumes during the peak periods. The 'Predict and Provide' approach that was adopted in practice for transport infrastructure provision and the general policy failure to effectively tackle peak hour demand and traffic composition (promotion of alternative modes such as cycling, walking, buses etc.) through appropriate traffic management and parking control measures, has proved to be both expensive for the economy and short-sighted.

The future vehicle ownership levels were forecasted in the Structure Plan on the basis of demographic, socio-economic and likely transport trends and policy impacts. As of 2015, it is clear that the 20 year high-growth scenario forecast for Malta's motorisation was seriously underestimated when compared to the actual growth in vehicle ownership that took place between 1990 and 2010. The reasons for this are various, but are indicative of a general failure of policy and fiscal measures to control growth to more sustainable levels and to decouple vehicle ownership from economic growth.

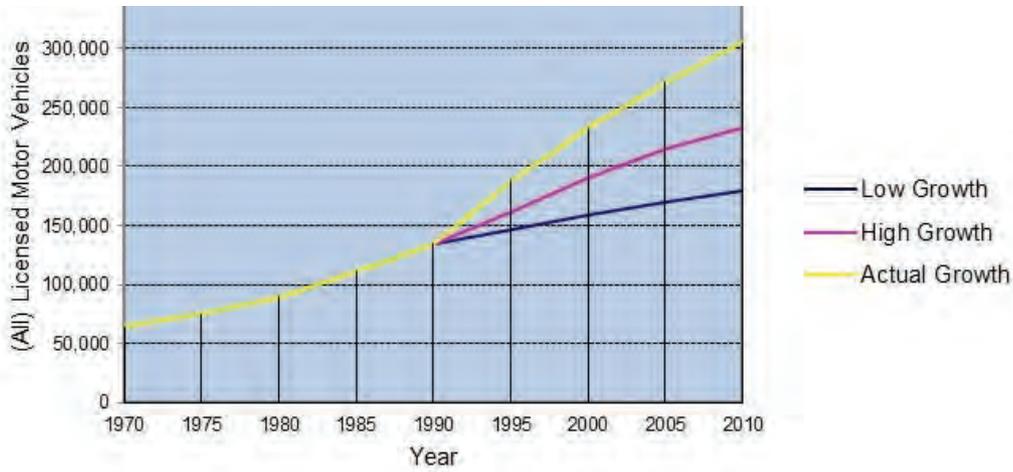


Figure 22.
Vehicle Ownership Growth Rates estimated in Structure Plan in 1990

2.2.2.4

Element 4: Improvement of public transport, especially where this can provide reasonable alternative to the car;

The fourth surface transport strategic element concerned public transport. By 1990, the national bus services (both in Malta and Gozo) were in rapid decline. Service levels had deteriorated substantially due to inherent inflexibilities in the system (which, at the time, was being operated monopolistically in both Malta and Gozo by associations of bus owners) and the lack of re-investment by these owners back into the system.

A number of radical policy measures were identified for the overhaul of the service; these included structural measures (such as need to rationalise bus ownership and introduce competition), service quality measures (such as the need to replace buses, introduce direct services away from Valletta, improve fare collection and

ticketing) and infrastructural measures (such as reducing the scale of Valletta bus terminus, improving bus stops / shelters, Park & Ride for Valletta and setting up centralised bus depot and maintenance facilities).

Before 2010, it is fair to say none of the public transport policies set out in the Structure Plan had been introduced. This failure to modernise the bus service contributed to the significant decline in public transport patronage from 40 million passengers in 1990 to 31 million passengers in 2010.

1990

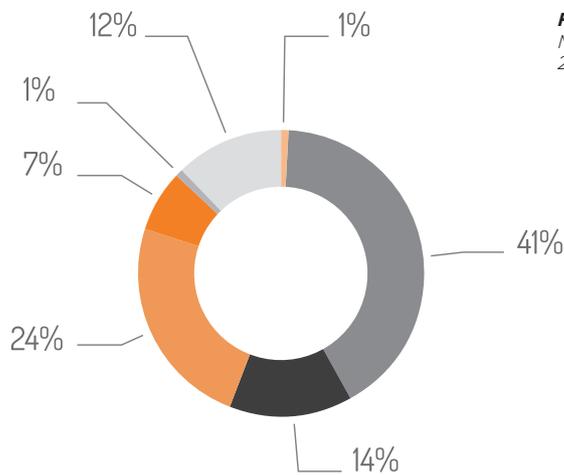
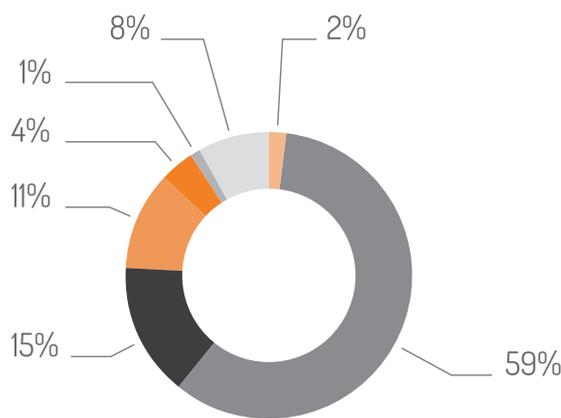


Figure 23.
Modal Split 1990 & 2010 (NHTS)

2010



Additionally, there was a 13% decrease in modal share of public transport in all parts of the country, with the exception of Valletta which had actually experienced a 9% growth in public transport usage over the same period as a result of the sustainable urban mobility measures introduced in this locality between 2006 and 2010.

It was only when the public transport reform took place in 2011 that all of the public transport policies from the Structure Plan could then be introduced.

As a result, the downward trend has now been reversed with annual patronage now exceeding 1990 levels. However, this increase in patronage is unlikely to have been the result of a major modal shift from car to public transport.





The dispersal of land uses leading to further separation between homes, work and from other activities has meant that many of the travel needs in Malta and Gozo today cannot be cost-effectively catered for by public transport services in the short term and inevitably much of society continues to be car dependant.

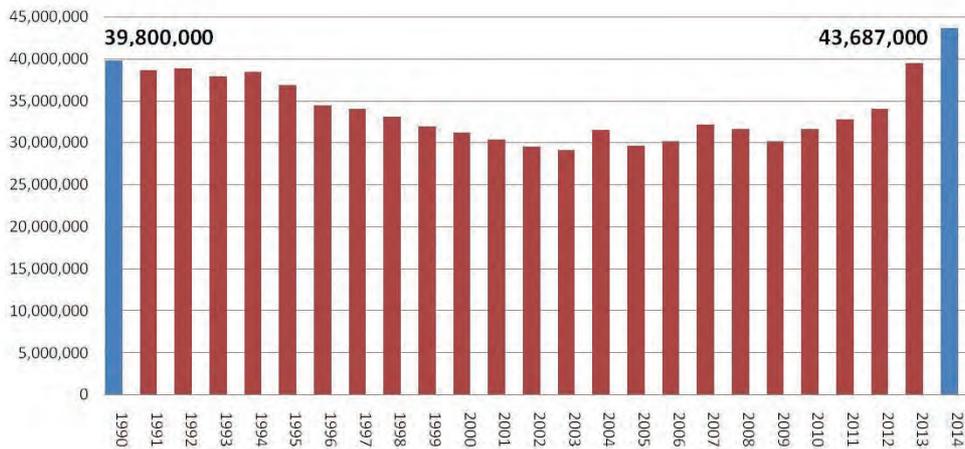


Figure 24.
Bus Patronage 1990 - 2014²⁶

2.2.2.5

Element 5: Legal and educational measures aimed at road safety and efficiency of road use

The fifth strategic element concerned the need to improve the driver education and to modernise the legal framework for both road users and road vehicles, as back in 1990 these were at a very rudimentary level. The new legal framework relating to this strategic element was effective.

New regulations were introduced for driver training, testing, and licensing, the carriage of dangerous goods by road, wearing of seat belts, speed enforcement and drink driving which, combined with improved awareness and training have all contributed in improved driver behaviour. New requirements which aimed to improve the safety of motor vehicles and environmental performance of vehicles were successfully promulgated through vehicle type approval and vehicle roadworthiness regulations.

²⁶ Note: Different transport operators have used differing data collection methods for these figures

2.2.3 MARITIME AND AIR TRANSPORT STRATEGIC POLICY ELEMENTS

For maritime links between the two islands, the Structure Plan had advocated a number of options to improve the resilience and reliability of the service, especially in the case of inclement weather. This included improving links from the Inner Harbour region for freight transport, and the introduction of high-speed ferry services in the early 1990s, albeit for a short operational period.

There has been heavy investment in port infrastructure and in the ferries operating between the islands. Both the number of ferries and the frequency of ferry services between the islands have been significantly increased over the past 25 years to keep up with passenger demand which rose from 1.6 million in 1990 to nearly 4.4 million in 2013.

Policies relating to Malta's external maritime transport sector had largely focused on the development of the Freeport as a container port with dry bulk facility and on the relocation of heavy port and industrial uses (including oil and gas activities) from Grand Harbour to the Marsaxlokk Bay area. Since 1990 the Freeport was successfully developed as major container port and transshipment facility. Several of the port and industrial activities previously carried out in the congested and highly urbanised Port of Valletta were transferred to Marsaxlokk where more space was available. Interestingly, there were no Structure Plan policies and measures relating to the development of cruise liner services in the Port Valletta. This tourism and transport sector has become very significant over the last 10 years.

Sustainable airport operation back in 1990 was a concern. In 1988 the total number of air passenger movements amounted to 1.6 million passengers and, over the 20 year life span of the Structure Plan, had more than doubled to 3.3m. At the time of drafting the Structure Plan, new airport terminal facilities were under construction. With this new air terminal in operation, the Structure Plan had forecasted a low growth scenario of 4% average passenger growth per annum and high growth scenario of 8.4% per annum. This forecasting was fairly accurate as the actual average growth during this period was 5.3% per annum. Flight operations projected for 2010 in the Structure Plan were again very accurately predicted, with the expected and the actual maximum aircraft movement per hour being approximately the same.

The Structure Plan had examined the impact of passenger growth on capacities of new airport infrastructure components (airport access and vehicle parking, terminal buildings, aircraft parking, facilities, Runway and taxiway system and airspace). It had accurately predicted that an increase to the operational capacity would be required in the terminal buildings and the number of aircraft stands and a reconfiguration of the taxiways F and C may be required. Most of these measures to increase airport capacity were carried out in recent years.

The Structure Plan had also considered the importance of land use restrictions to ensure that aviation safety and environmental impact outside the airport boundaries continues to be managed sustainably during the lifetime of the plan through establishing a Public Safety Zone. On the whole, the establishment of this public safety zone has achieved its safety and environmental objectives. Safety clearance from the competent authority for aviation is required to be given to any new development application lying within this Public Safety Zone.

02.3 TRANSPORT IN MALTA - TODAY

Transport infrastructure in Malta comprises roads, maritime ports and one airport. Whereas land transport is the preferred mode for internal trips, air and maritime transport are essential for inter-island transport and for external communication with other countries.

Regulation (EU) No. 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU



Figure 25.
Malta's TEN-T Network 2014

2.3.1 HOW WE TRAVEL INTERNALLY

The coastal area around the Valletta and Floriana Peninsula (hereinafter referred to as the 'Valletta Hub') is a remarkable focus of trips in Malta. When examining the peak hour for internal travel on weekdays between 7:30hrs and 8:30hrs (which accounts for over 11% of the daily travel demand), some 30,000 people movements are observed to involve the Valletta Hub either as an origin or destination of a trip - see Figure 26.

Within the Valletta Hub, the Inner Harbour is the main destination (refer to Figure 27) and the main inter-regional connectivity is with the North West region, which accounts for some 68% of people movements to and from the Valletta Hub. There is also significant amount of mobility that takes place solely within the Valletta Hub area, with more than 9,400 short-distance trips occurring within this limited geographical area in the morning peak alone. These trip patterns mainly occur inside the North Inner Harbour and between the North Inner Harbour and the South Inner Harbour.

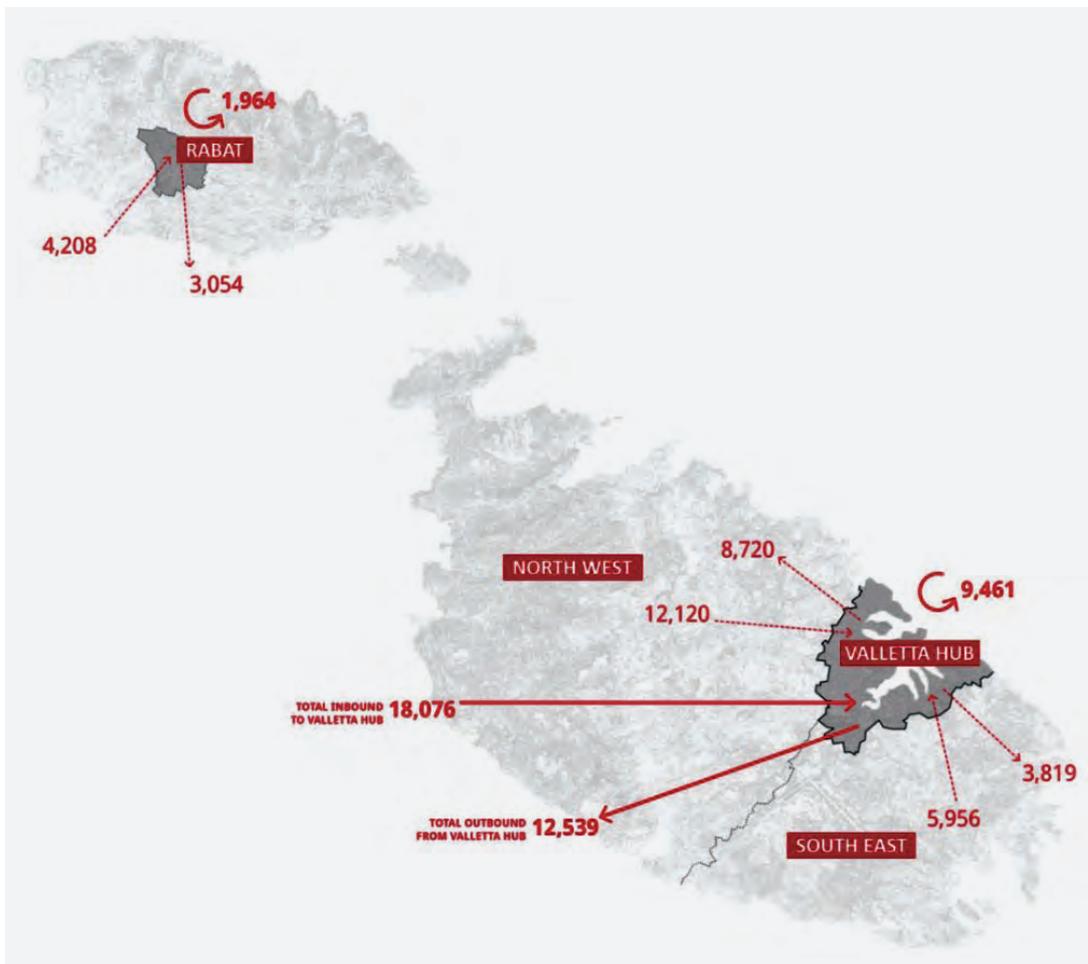


Figure 26.
Valletta Hub movements
(AM Peak 07:30-08:30hrs)

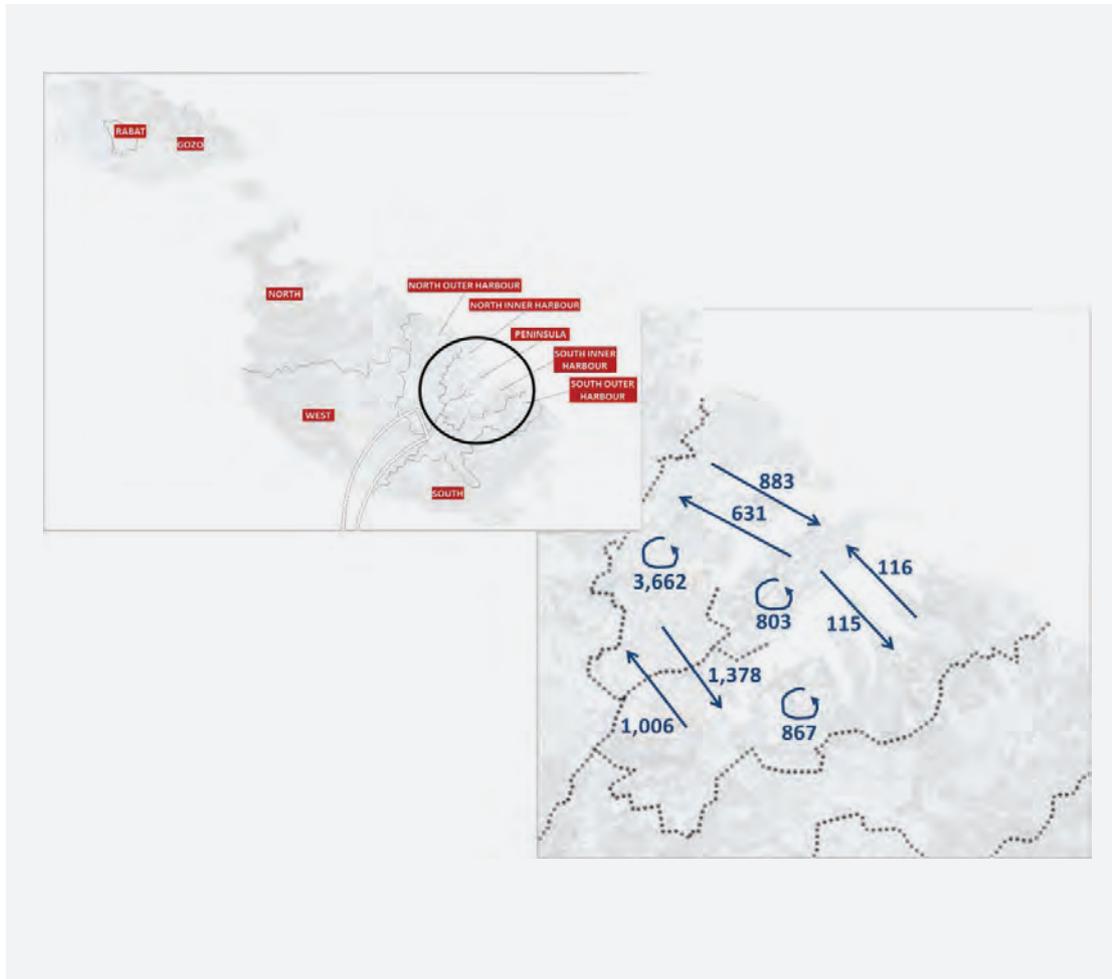


Figure 27.
Valletta Hub internal
movements (AM Peak
07:30-08:30hrs)

However, the Valletta Hub is not the main trip generator and attractor in Malta. The gradual decentralisation of jobs and homes from the Valletta / Floriana peninsula has now led to the North Outer Harbour region which accounts for nearly 34,000 people movements being the most important

attractor and generator of personal trips in the morning. Internal movement within the North Outer Harbour region is also increasing in importance with more than 6,200 people travelling only within this region (Figure 28) during the AM peak.

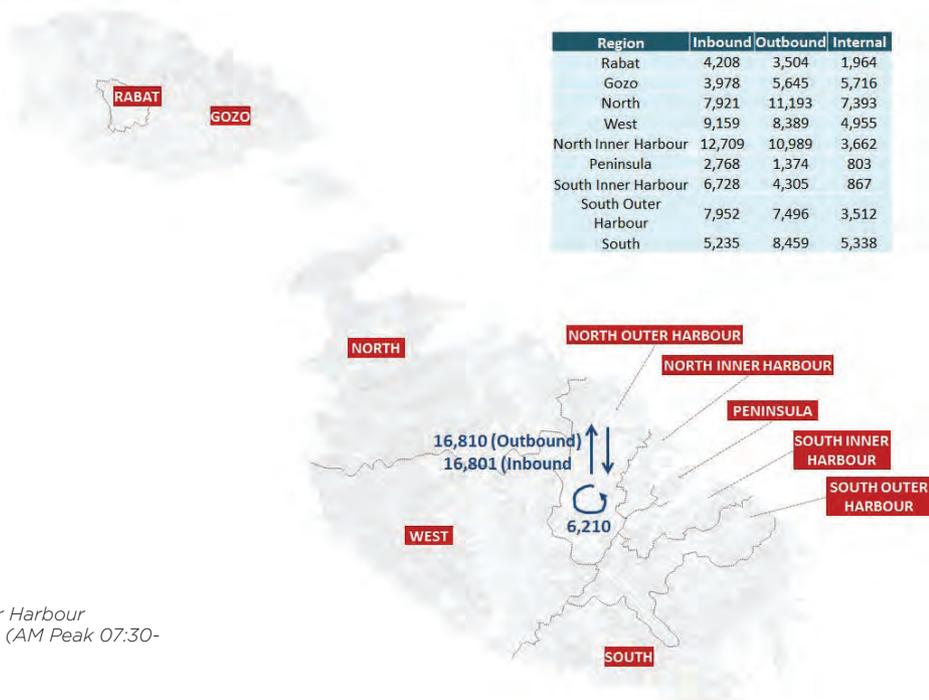


Figure 28.
 North Outer Harbour
 movements (AM Peak 07:30-
 08:30hrs)

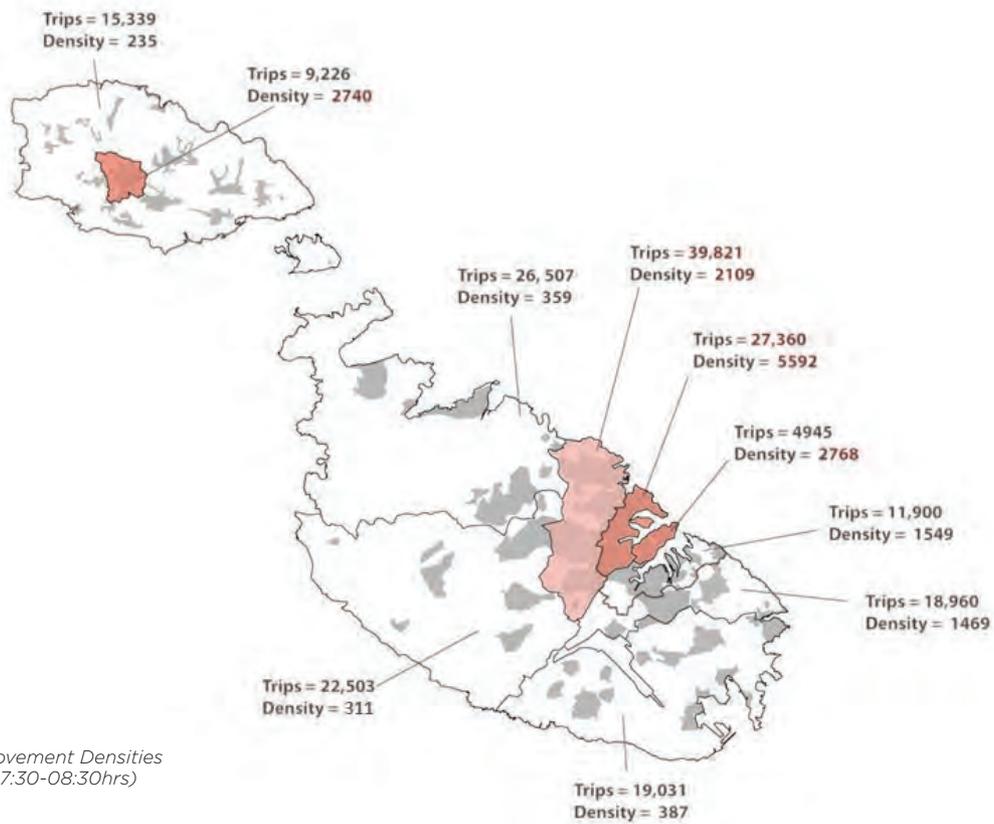


Figure 29.
 Regional Movement Densities
 (AM Peak 07:30-08:30hrs)

The densities of the peak hour travel movements as illustrated in Figure 29 show that the North Inner Harbour and Peninsula followed by the North Outer Harbour region are the highest and this is also where the spatial impact of transportation is highest. With respect to personal trips between Gozo and other Maltese Regions during the main peak hour, the most important regional relation is with the Northern Region.

All these figures refer to the peak hour in the morning, as demand for trips during the afternoon is spread over a longer period, resulting in fewer trips per hour.

Private vehicles represent the main mode of transport in Malta, with modal shares that range from 50% (movements inside the peninsula) to 90% (interzonal movements not involving the Harbour). Despite the lower use of private vehicles inside a region, the public transport modal share is not usually over 20%, as soft modes such as walking or cycling have a higher modal share within a region than at a national level due to the relatively short distances of travel. The higher share of public transport (25-30%) is obtained when connecting the Valletta and Floriana peninsula with other regions.

Key sections of the Maltese road network form part of the Trans-European Network – Transport (TEN-T) (Figure 30). This network will be developed through a dual-layer structure: the Comprehensive network to ensure the accessibility and connectivity of all regions in the EU; and the Core network (as a subset of the Comprehensive network) which represents the most important nodes and links of the TEN-T, according to traffic needs. The following figure shows the progress of works on the TEN-T in Malta. Both the airport and the international ports of Valletta and Marsaxlokk belong to the Core network, so the road connecting these infrastructures belongs to this category too.

DID YOU KNOW THAT, IN 2014?

- Total length of paved road network was 2,410km*
- Total length of TEN-T was 112 km*
- Total length of dual carriageways 57.7km*
- Busiest section: Triq Aldo Moro 116,000 vehicles per day*
- 5 tunnels and 5 bridges more than 50m in length*
- 70 public electric vehicle charging points*
- 11 roads with speed cameras installed*
- 19 traffic signal junctions*
- Road capital and maintenance expenditure €55m*

2.3.2
LAND TRANSPORT

2.3.2.1
Network

Malta has an extensive road network stretching over 2,400 kilometres of road in 2014. Malta also has one of the densest networks in the world with 762 km of roads in every 100 km² of land area.

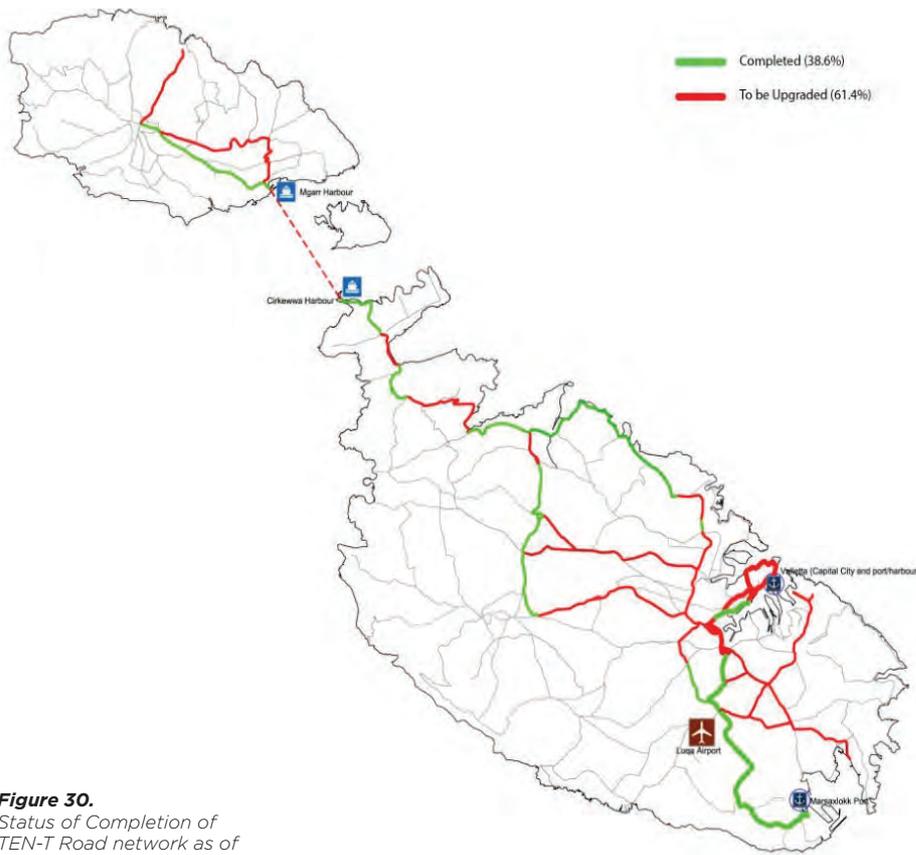


Figure 30.
 Status of Completion of
 TEN-T Road network as of
 2015

Roads are also organised according to their function in Strategic roads and Supporting roads. Strategic roads consisting of Arterial roads and Distributor roads represent the backbone of the road network. Secondary roads (Local Access roads) provide access to the different localities (Figure 31). Dual carriageway roads account for 30% of the length of the Arterial and Distributor network.

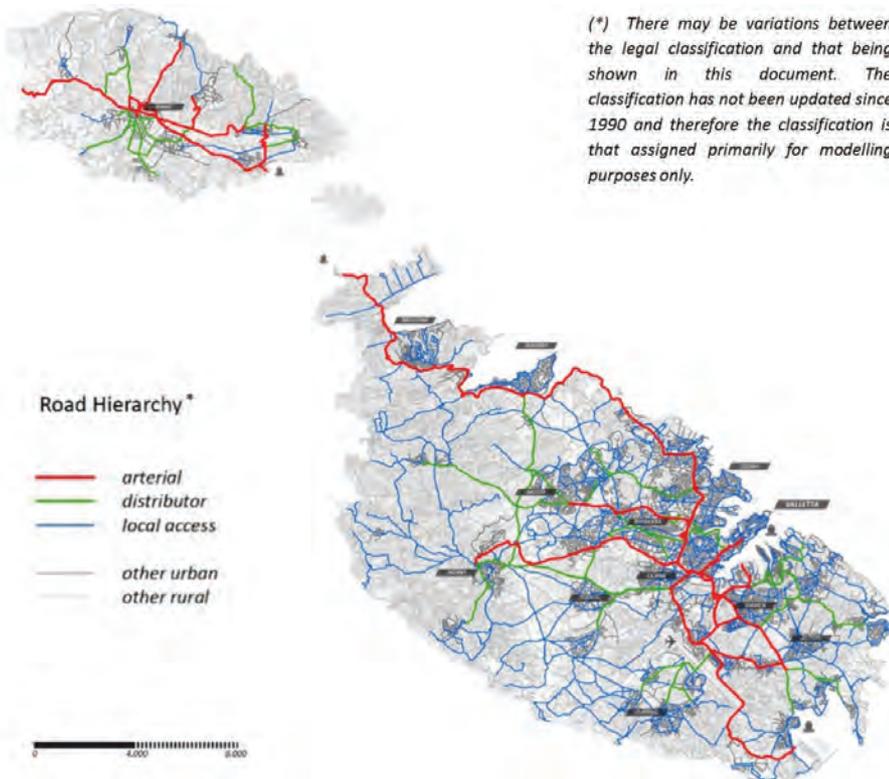


Figure 31.
Maltese road network hierarchy

The strategic network is managed by Transport Malta (TM), whereas the maintenance and upkeep of the local network falls within the competence of Local Councils. Both networks are property of the National Government.

Revenue generated from road transport taxation, licences and users fees has no direct relationship with the budgets made available by central government for infrastructure works and maintenance. The lack of hypothecation of financial resources for road infrastructure often leads to priority being given to new construction rather than maintenance works.

2.3.2.2
Traffic

Despite continued land use decentralisation away from the Valletta hub area, the average length of car trips during the morning peak is quite short - 5.5km, this compares well with commuter journey distances within most other European towns and cities but is much lower when compared at a national level. The average number car trips made by drivers on a typical weekday in Malta is 3.20 which is notably higher than averages for other selected countries reported in the 2012 JRC study²⁷ for which daily car trip averages range from 2.4 in Spain to 2.9 trips in France.

²⁷ *Driving and parking patterns of European car drivers - a mobility survey, JRC 2012.*

Around 74% of trips are made by car and bus travel only accounts for 11% of the national modal split. Most car trips are made as drivers, which equates to very low average car occupancy (1.25 people per car). About 50% of trips take less than 15 minutes; business car trips take an average time of 19 minutes which is notably less the average time for sample of countries reported which ranges from 25-30 minutes. Trips by bus take 33.5 minutes on average (excluding time waiting for the bus and walking to and from bus stops)²⁸.

The predominance of road transport is confirmed by the high rate of motorisation, which is 759 licensed vehicles/1,000 inhabitants in 2013²⁹. Other features of the private vehicle fleet are the high average vehicle age of 13.6 years (two-thirds of which

are petrol engine) and the low penetration of low-emission technologies (0.22% of the stock of licensed vehicles in 2013).

The comparison between traffic flows and road capacity (Figure 32) indicates that congestion problems³⁰ during the most critical morning peak hour arise primarily in the central section of the TEN-T network, particularly around Marsa, Santa Venera, Qormi and Kappara, as well as the distributor linkage between the airport and the urban centre of Qormi. There are also congestion problems on certain sections of the roads in the coastal area of Sliema, on the radial axis towards the Valletta / Floriana Peninsula as well as on different urban sections in the Inner Harbour.

DID YOU KNOW THAT, IN 2014?

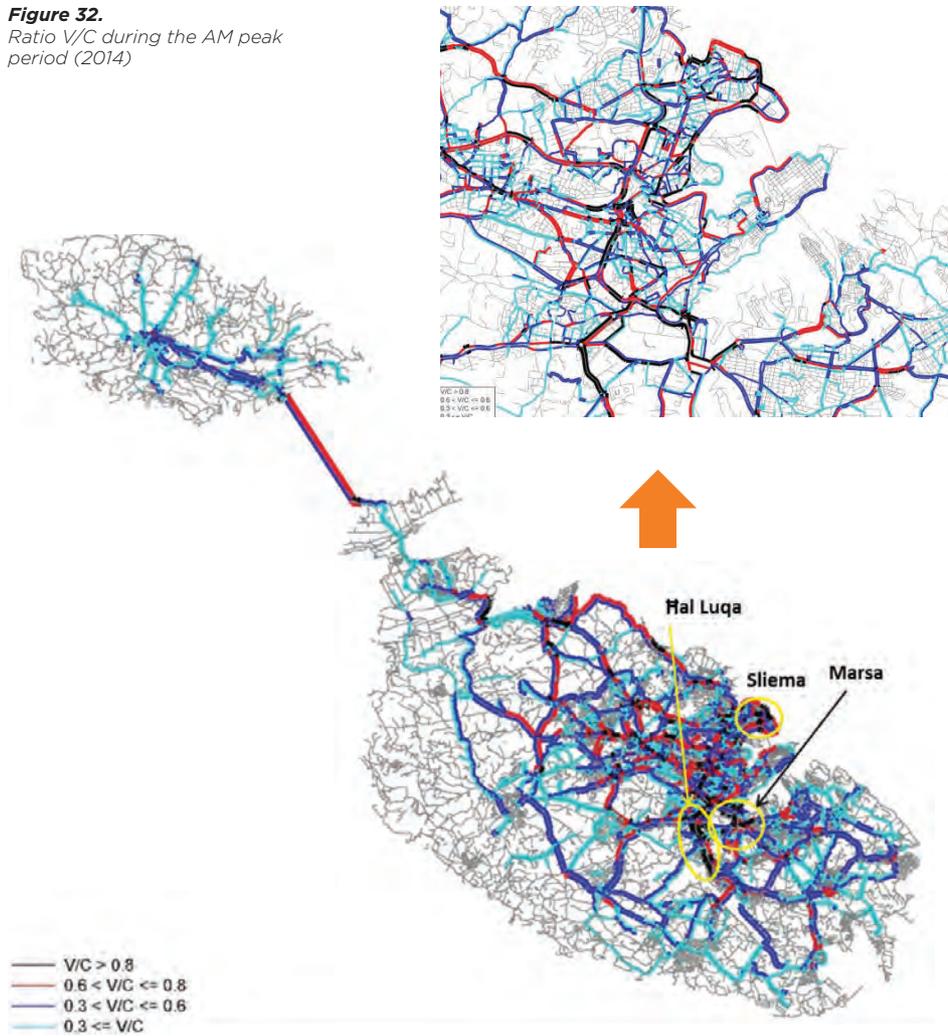
83% of all traffic in morning peak was made of private cars
Morning peak hour (07.30-08.30hrs) 11% of all daily traffic / 117,000 person trips
Average speed of cars in peak hours was 22.4km/h in AM & 24.9km/h in PM
Average journey time by car in morning peak was 19 minutes
Morning peak 35% of all trips were journey to work and 13.5% to education
Average distance travelled by car was 5.5km
Car drivers make an average of 3.20 car trips each day
Modal share of car trips during a typical weekday was 74% of all trips
Average car occupancy was 1.25 persons
Nearly 20% of households owned 3 or more cars
Average age of cars was 13.6 years (5 years higher than EU average)
Average age of goods carrying vehicles was 18.2 years (2013)
Average of 42 cars were newly registered and average of 7 cars scrapped each day
Less than a third of all licensed cars are diesel engine
Only 0.22% of vehicles in total fleet were low or zero emission
Number of road traffic fatalities was 10
93% population claimed never to cycle
Only 2.7% of car drivers pay for parking at their destination

²⁸ National Household Travel Survey (NHTS) 2010

²⁹ NSO, Transport Statistics 2015

³⁰ Congested conditions are generally assumed when the ratio traffic volume/road capacity is over 0.8 as indicated in black in Figure 32.

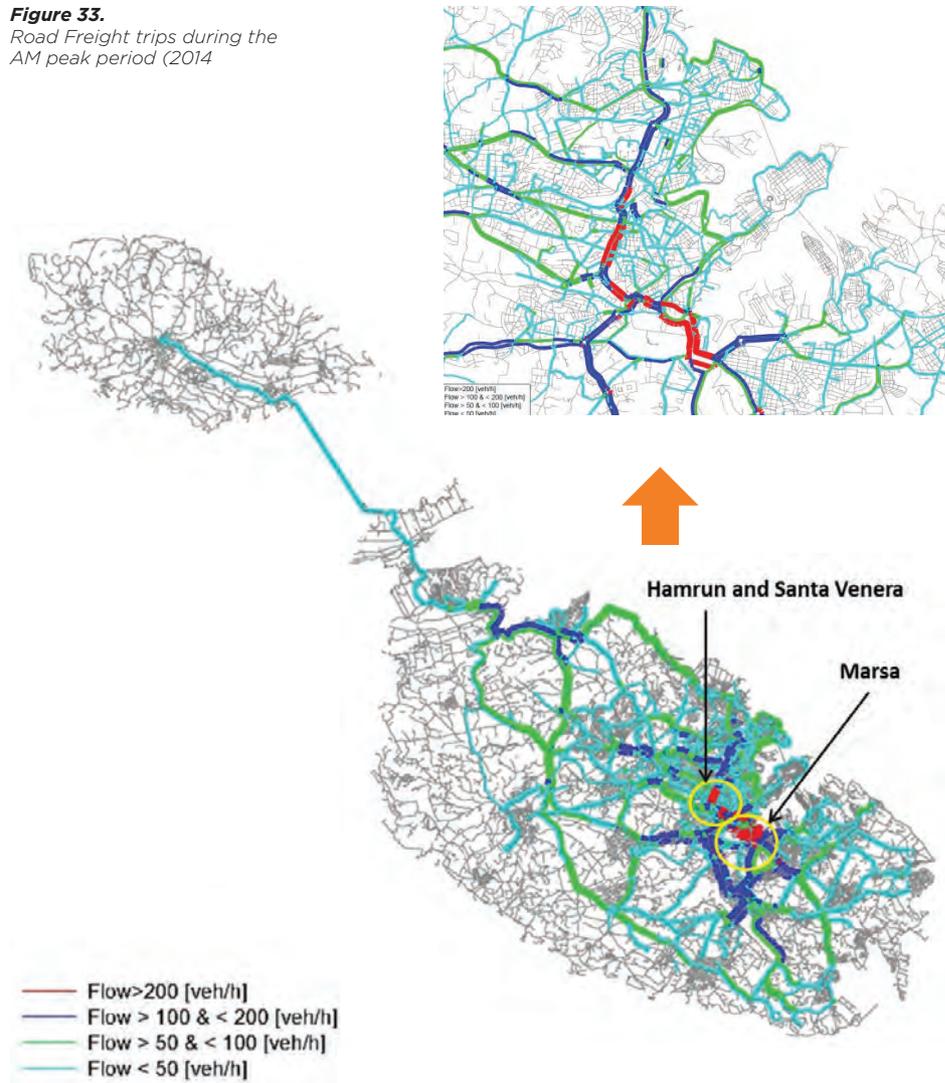
Figure 32.
Ratio V/C during the AM peak period (2014)



Road freight movements are mainly related to short-medium range deliveries across the Maltese territory. Traffic with industrial estates/ports/airport, and the transportation of goods between Malta and Gozo accounts for small shares of total freight movement (<10%).

Freight movements are largely concentrated around the central sections of the Maltese TEN-T network, especially across the critical road system of Marsa, Hamrun and Santa Venera (Figure 33). These movements are higher during the AM peak hour.

Figure 33.
Road Freight trips during the
AM peak period (2014)



Basic Intelligent Transportation Systems (ITS) have been implemented in recent years to address traffic congestion and safety issues, especially in the main urban agglomeration. However, further steps could be taken to make the most of this technology, such as implementing an asset management system and enforcing regulations.

The main impacts of high levels of private vehicle ownership are experienced in the main urban agglomeration where streets are considered an extension of interurban roads and, with the exception of Valletta, are free from any direct user charges. Streets are not pedestrian-friendly (Figure 34) and there is little or no dedicated infrastructure aimed at promoting public transport services or cycling.



Figure 34.
Poor pedestrian environment

Most of the urbanised area in Malta is within a ten-minute walk from a town centre since the main agglomeration is the result of the growth of a series of towns and villages (Figure 35). This create a significant potential for walking as a travel option provided that services such as health centres, schools, groceries, etc. are available within each town centre. In order to make this potential a reality, planners in Malta should focus on improving pedestrian infrastructure and mix of uses in town centres.

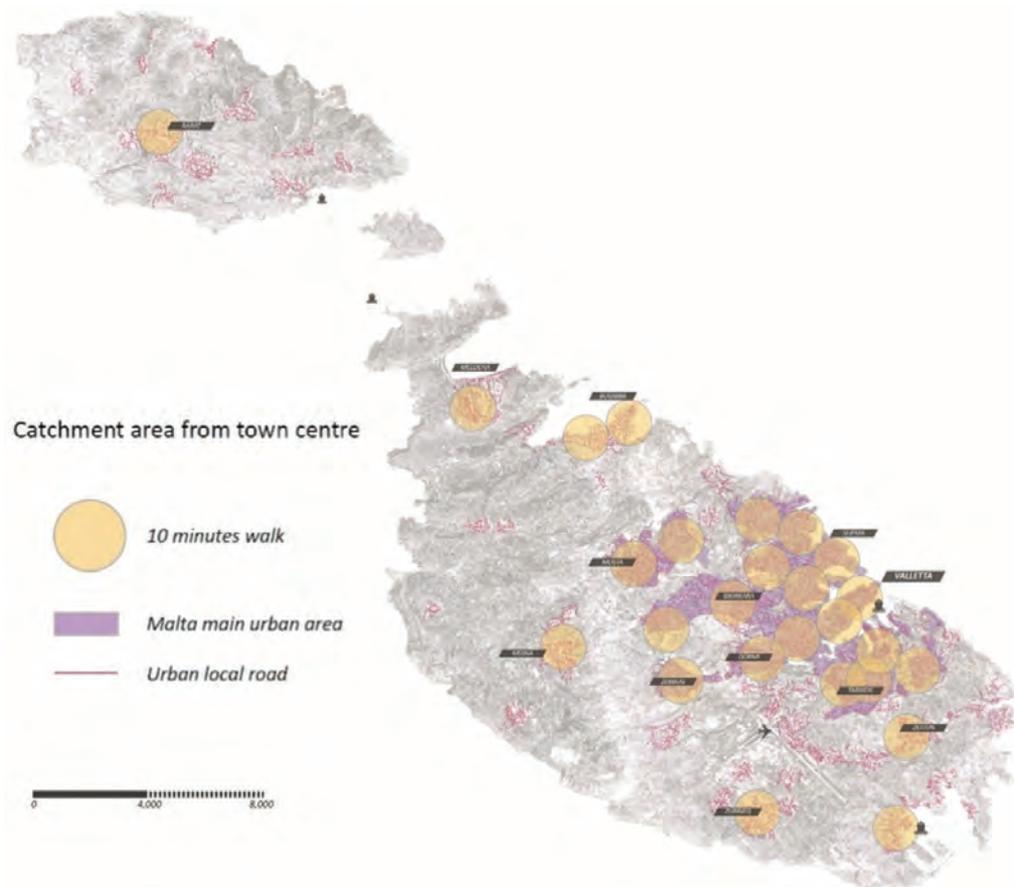


Figure 35.
Areas within a ten-minute walk from a town centre (2014)

Although some cycle lanes have been implemented in Malta (Figure 36), improvements should be made in terms of connections, integration with other transport modes and penetration in urban areas. According to the Eurobarometer on mobility survey carried out in 2013, Malta has one of lowest levels of cycle usage in the

European Union. Given that the average car commuting journey length is only 5.5km and the average journey times during the peaks of around 20 minutes cycling, if seriously developed as a mode, could offer a faster, more environmentally-friendly alternative to the car for many commuters.

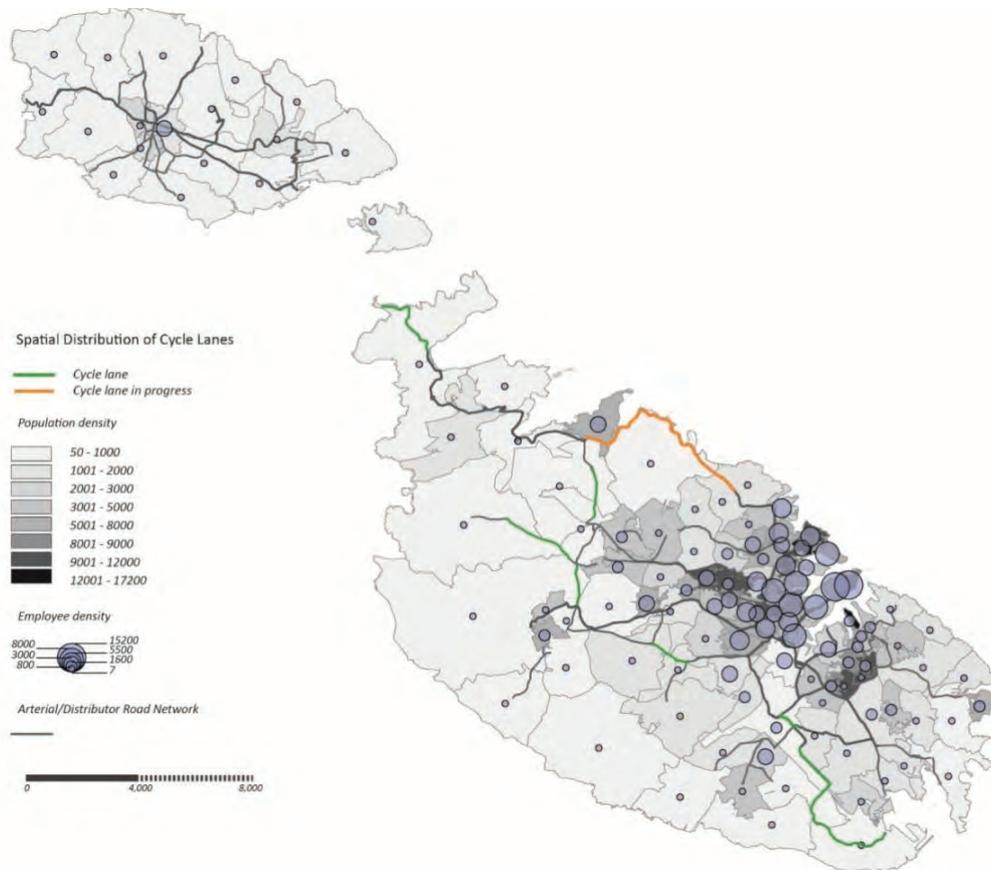


Figure 36.
Spatial distribution of cycle lanes (2014)

2.3.2.3

Public Transport

The Maltese road-based public transport system comprises both scheduled and unscheduled bus services. Due to the small size of Malta, scheduled public transport services are not divided into intercity services and urban services but separate bus networks operate on Malta and Gozo.

DID YOU KNOW THAT, IN 2014?

Extent of bus network was 2,600km

Average distance between bus stops was 445 metres

Average bus journey time was 48 minutes (incl. walking, waiting and stopping)

For 42% in Eurobarometer survey- bus reliability and punctuality was main problem

Number of bus passenger trips was 43,6 million

19,000 passengers carried during morning peak hour utilising 73% of bus capacity

National modal share of bus trips during a typical weekday was 11.3% of all trips

Modal share to bus trips to /from Valletta was 50.4% of all Valletta trips

Over one-third of Maltese population never use public transport

Only 16.5% of bus passengers use bus for work

One fifth of bus stops have shelters

60% of regular bus users are female

Nearly half of regular bus users are under 18 yrs or over 61 yrs old

Scheduled public transport services consist of an extensive network of bus routes which include route services operating to / from Valletta and between other interchange hubs; express routes and night services.

After early termination of the 10 year service concession contract with private bus operator Arriva Malta Ltd, Government, as a transitional measure, had taken over the operation of bus services in Malta and Gozo in 2014.

At the end of 2014, following a competitive tendering process, a new service concession contract was awarded to Spanish operator Autobuses de León which started to operate bus services under brand name Malta Public Transport from 2015.

The extent of the bus network in 2014 was about 2,600 km – this figure includes the extension of each bus line in both directions. The average distance between stops is 445m, fully in line with most typical European urban and peri-urban contexts. The analysis of accessibility on foot to bus corridors with a good frequency (Figure 37) - and to bus stops in general - shows that areas with higher densities of population and employment are provided with a higher frequency of bus services.

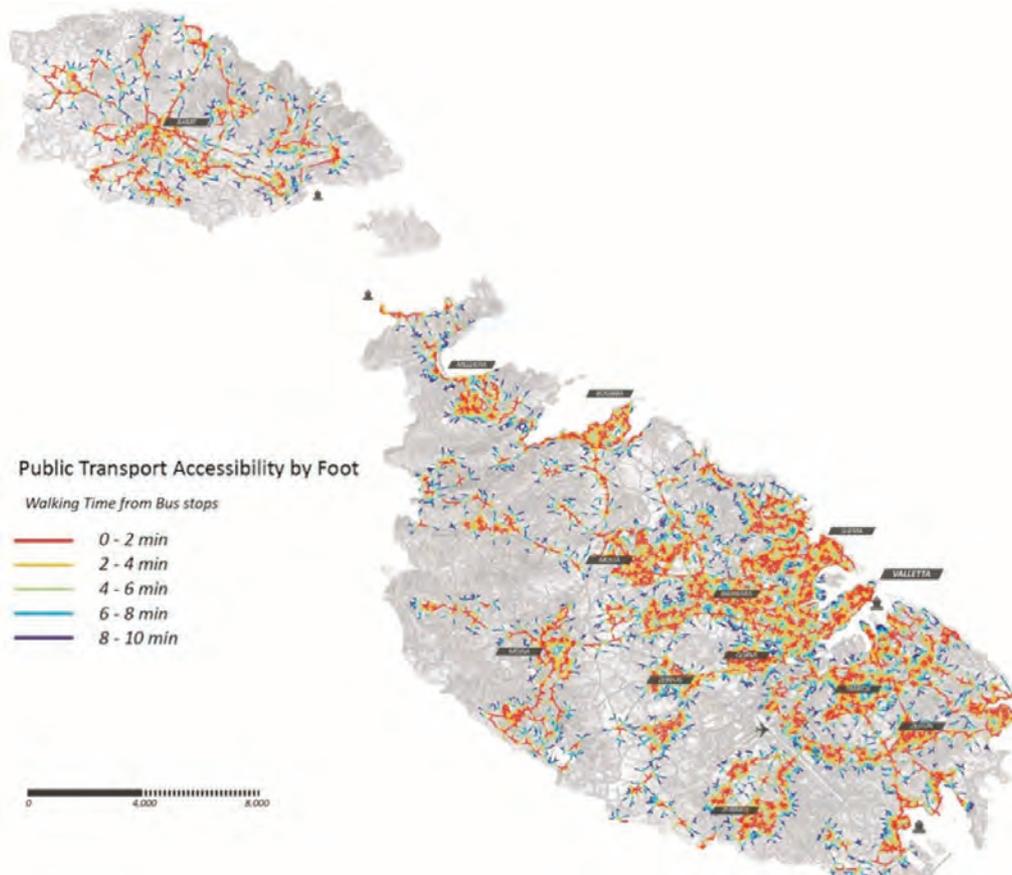
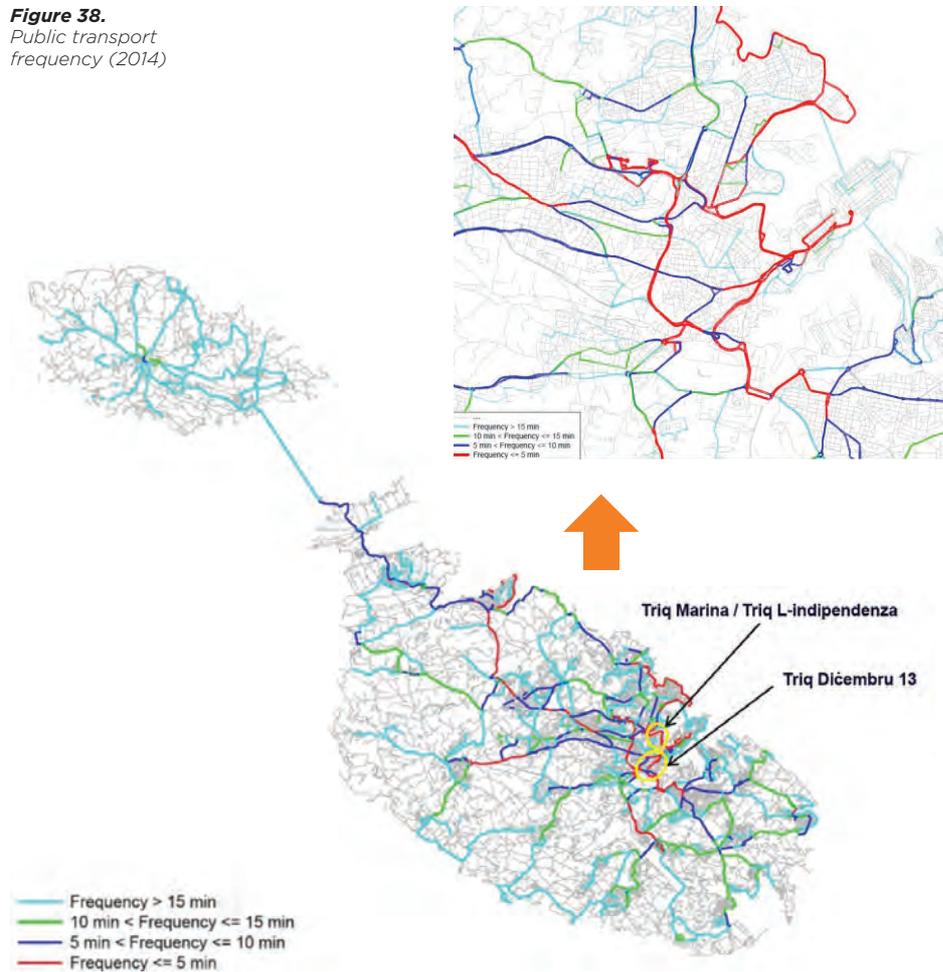


Figure 37.
Walking accessibility to overall public transport services (2014)

The Harbour region – where a number of services heading to the Valletta hub converge – stands out in relation to bus service provision, with more than 20 bus passages per hour along the corridors Triq Marina, Triq L-Indipendenza and Triq Dicembru 13. The following figure confirms an adequate spatial distribution, as bus routes connect dense urban areas, and converge along strategic corridors and within Inner and Outer Harbour regions.

Figure 38.
Public transport
frequency (2014)



Regarding public transport infrastructure, buses usually have to share infrastructure with private vehicles as there is limited provision of bus lanes (Figure 39). There are two major bus interchanges and termini stations – Valletta and Victoria (Gozo) - but other secondary interchanges have been established across Malta to allow bus users to switch between different bus routes. Intermodal interchanges at Cirkewwa, Mgarr (Gozo) and Malta International Airport allow bus users to transfer to ferry services and air services, respectively. There are also

three Park & Ride facilities located on the peripheries of the main urban agglomeration, which allow car users to transfer to bus services.

Figure 49 shows the location of the above-mentioned intermodal interchanges. Finally, all bus stops display the route numbers stopping at each bus stop and their schedule, but only 22% have shelters and 5% provide real-time information.



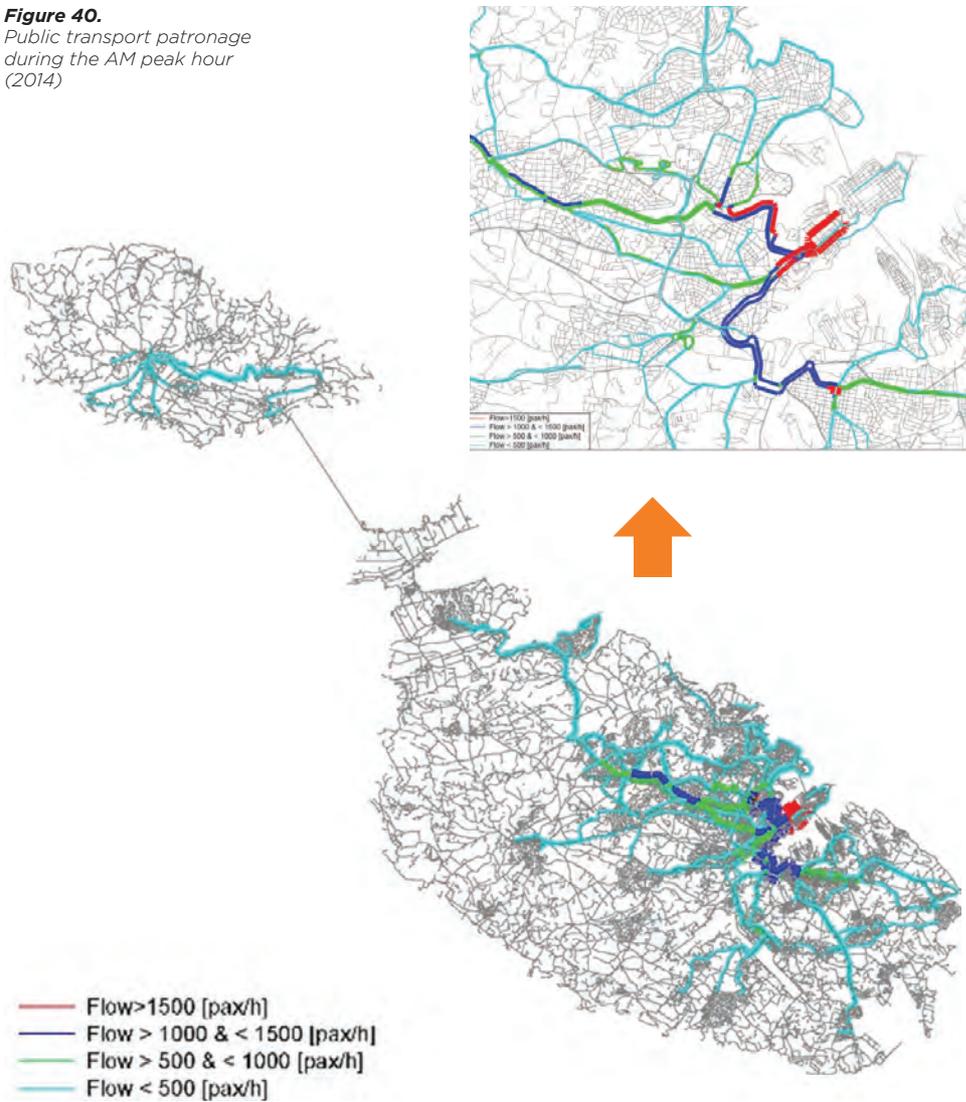
Figure 39.
*Bus dedicated lanes
 (as of 2015)*

The demand for these services had experienced a negative trend since the 1970s that only turned into positive after the reforms in public transport from 2011 onwards, which included the change from a single-hub structure to a network structure and the purchase of modern, fully equipped, low floor buses. According to the latest statistics available (2014), the demand for public transport was over 43.6 million passengers, which represented an 11% share.

The ratio passengers/capacity is around 73% during the period of maximum demand, so the current capacity is enough to deal with the existing demand. Having said this, localised capacity issues occur on certain sections of the network at certain times of day.

The patronage is higher during the AM peak hour (over 19,000 passengers / hour) and is concentrated on the central section of the TEN-T network and the main corridors connecting the Valletta interchange with the rest of the island (Figure 40).

Figure 40.
Public transport patronage
during the AM peak hour
(2014)



The analysis of the average ride travel time by bus and by car shows that public transport takes 8 minutes more. This comparison does not take into account the time required to access to the bus stop, waiting time and the time to reach the destination from the bus stop. When all these components of a bus journey are taken into consideration, the average travel time by this mode increases from 22 to 48 minutes, which means on

average using public transport takes 34 minutes more than a car.

Unscheduled public transport includes services such as coaches, open top buses, minibuses, taxis, cabs, etc. These services are mostly concentrated in Valletta and serve the main touristic hotspots. Fares are deregulated except for taxis.

2.3.2
MARITIME TRANSPORT

Maltese ports (Figure 41) are the main gateways for imports and exports, as well as a key infrastructure for the communication between the islands, especially Gozo and Comino. They can be split into two groups:

- International ports (TEN-T Core)
 1. Port of Valletta
 2. Port of Marsaxlokk
- Domestic ports (TEN-T Comprehensive)
 1. Port of Cirkewwa
 2. Port of Mgarr
- Domestic ports (Secondary)
 1. Port of Marsamxett

Both international ports are TEN-T Core ports and Cirkewwa and Mgarr form part of the Comprehensive TEN-T network, together with the sea connection between Malta and Gozo.

Maritime infrastructures in the ports of Malta are property of the Government of Malta and are managed by Transport Malta, with a number of exceptions. Ro-Pax terminals (inter islands), International passenger terminals (Valletta), and Malta Freeport Terminals (Marsaxlokk) are subject to concession agreements. A number of freight handling infrastructures are also subject to concession agreements between Government and the private sector. Other maritime infrastructures relating to commercial fishing are managed by the Department of Fisheries with Transport Malta's assistance.

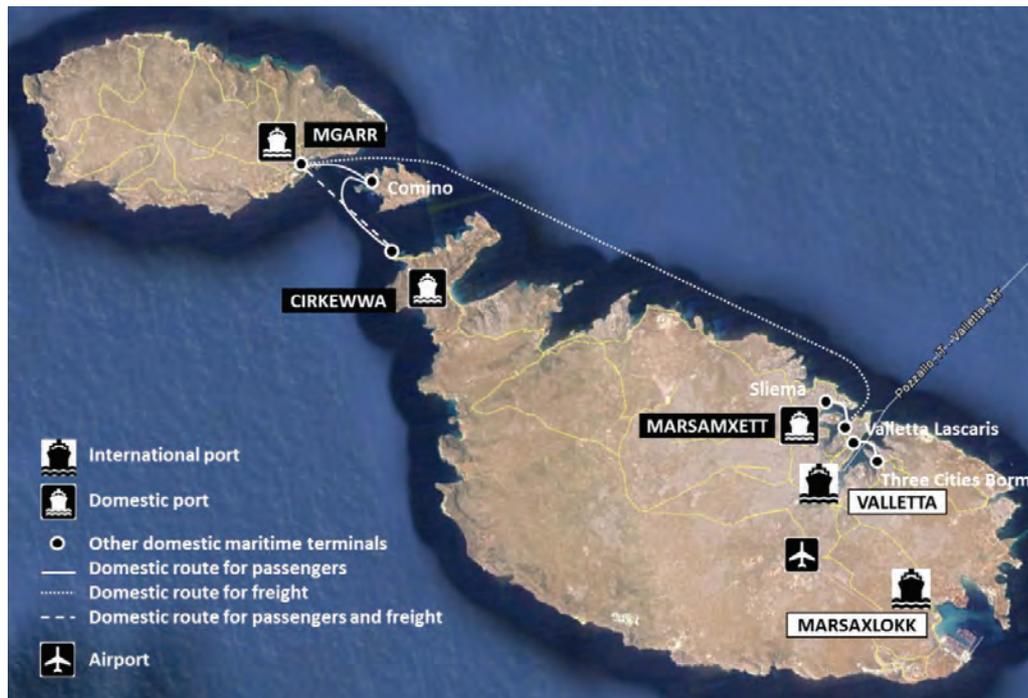


Figure 41.
Maltese TEN-T Core, Comprehensive and Secondary Ports

2.3.3.1

Internal Maritime Transport

Ferry services are the main mode of transport between the two major islands, Malta and Gozo, for both passengers and freight. A scheduled ferry service also exists in the harbours of both sides of Valletta

The routes provided by Maltese internal ports are listed below:

Interisland:

- Mgarr – Cirkewwa (passengers and freight)
- Mgarr – Comino (passengers)
- Cirkewwa – Comino (passengers)
- Mgarr – Sa Maison (freight) – discontinued in 2016

Cross-Harbour:

- Sliema – Valletta (passengers)
- Valletta – Cospicua (passengers)

Other seasonal transport routes, mainly tourism based, operate from Sliema, St Julians, Marsaxlokk, St Paul's Bay and Marfa in Malta; Sta Maria Bay in Comino; and Xlendi and Marsalforn in Gozo. These generally have limited quality infrastructure and operate in calmer weather.

The port of Cirkewwa, located on the northern coast of Malta, handles both passengers and goods with a Ro-Pax terminal. It is mainly used for inter-island ferry, leisure transport to Comino and as a base for diving.

The port has two quays located on the north side of the harbour and a back up quay - used during north easterly bad weather - on the southern end of the harbour.

The north quay has two main operational berths and also a third berth which is used occasionally. The south quay has one berth is also used for the loading or unloading of certain freight destined for the north of the island of Malta. The south quay shows signs of requiring extensive maintenance or reconstruction because of its exposure to the prevailing storm direction. It is however a crucial quay to maintain year round connectivity with Gozo.

The port of Mgarr, the only port in Gozo, also includes a Ro-Pax terminal for passengers and freight. The port provides 3 berths for the inter-island ferries. Two are used operationally while the third is used as a sleeping berth and also as a shared berth for the Armed Forces of Malta vessels.

DID YOU KNOW THAT, IN 2014?

Inter-island ports had a capacity to handle 900 passengers and 200 cars per hour

Malta-Gozo ferry carried 4.6 million passenger trips and 1.2 million vehicles

Nearly 20,000 ferry trips were made between the islands

Peak month of August accounted for nearly 12% of annual passenger demand

Average of 225 heavy goods vehicles a month used the Sa Maison freight service

Over 500,000 passengers crossed to /from Valletta using harbour ferries

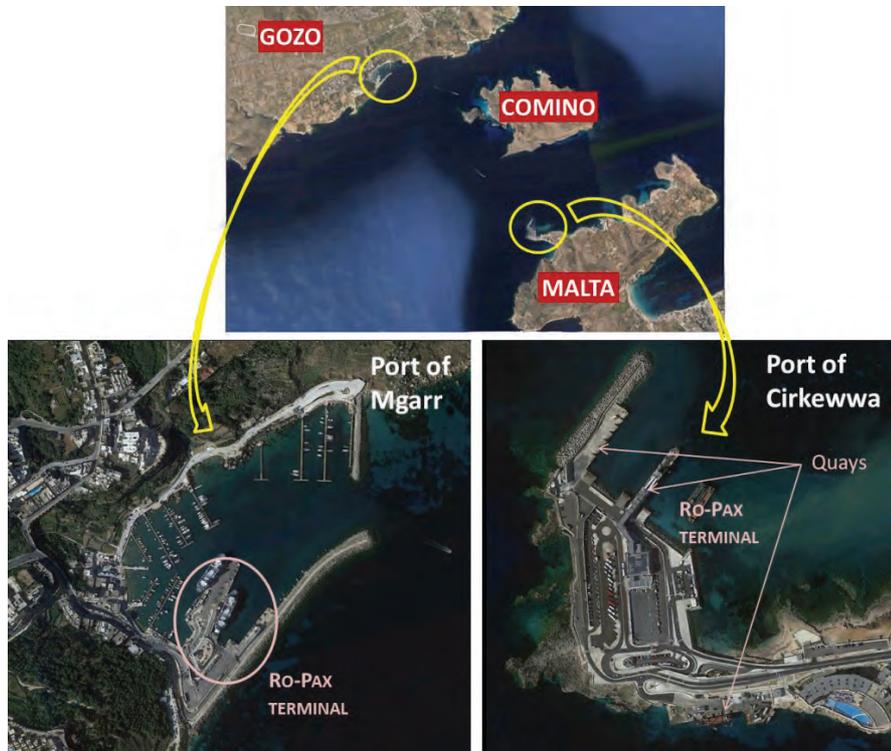


Figure 42.
TEN-T Comprehensive Ports of
Mgarr and Cirkewwa

The Mgarr-Cirkewwa route is oriented to passengers (on foot or by car), but commercial vehicles are also carried. Crossings are regular and become more frequent during peak periods and/or high season to cope with demand; crossing time is approximately 25 minutes.

Ro-Pax terminals have a capacity of 900 passengers and 200 cars per hour. However, this capacity is sometimes limited due to the inadequacy of the ports.

The port of Marsamxett is primarily dedicated to touristic services, but it also includes the port of Sa Maison, which has one berthing place for a dedicated Ro-Ro freight service to Gozo.

The Mgarr-Sa Maison route is cargo oriented, and normally operates twice a week on a return basis. Passengers and cars are sometimes carried on this route, when space permits. Crossing time is approximately 90 minutes. This service was terminated at the beginning of 2016 and plans to shift this service to the Port of Valletta are being developed.

Regular ferry services operate between Sliema and Valletta within the Marsamxett harbour.

Services between Malta and Gozo are under operated concession through a Public Service Contract with Gozo Channel Company Ltd. This company utilises three purpose-built vessels to provide these services.

The port of Valletta, despite being an international port, hosts ferry services that operate between both sides of Valletta harbour (Valletta – Three Cities).

Ferry services within Marsamxett harbour and Valletta harbour have basic landing infrastructure, and facilities such as those provided at bus stops are missing (shelter, timetable, seats, etc.). Both ferry services are provided by Marsamxetto Steam ferry Services Limited, through a concession contract with Transport Malta. These services are provided with two new purpose-built ferry vessels, each with a capacity of 120 passengers. The average frequency is 30 minutes and each trip takes approximately 5 minutes.



Figure 43.
Ferry services within the Grand Harbour

In 2014, Gozo Channel Company Ltd carried more than 4.6 million passengers and transported over 1.2 million vehicles between the islands.

The demand for ferry services within the Marsamxett harbour was over 420,000 passengers and between Valletta and Three Cities was just under 114,000 passengers in 2014. Despite being scheduled services, these harbour ferry services are primarily used by tourists.

All ferry services provide adequate capacity to meet the existing demand.

2.3.3.2

External Maritime Transport

The Port of Valletta (also known as the Grand Harbour) is the main multi-purpose port in Malta. The passenger maritime routes provided at the port are mainly three types: 1) international cruises with several destinations; 2) regional sea link to Sicily, and; 3) domestic Inner Harbour Ferries connecting Valletta's peninsula with Three Cities, on the East, and to Sliema, on the West (see Internal Maritime Transport).

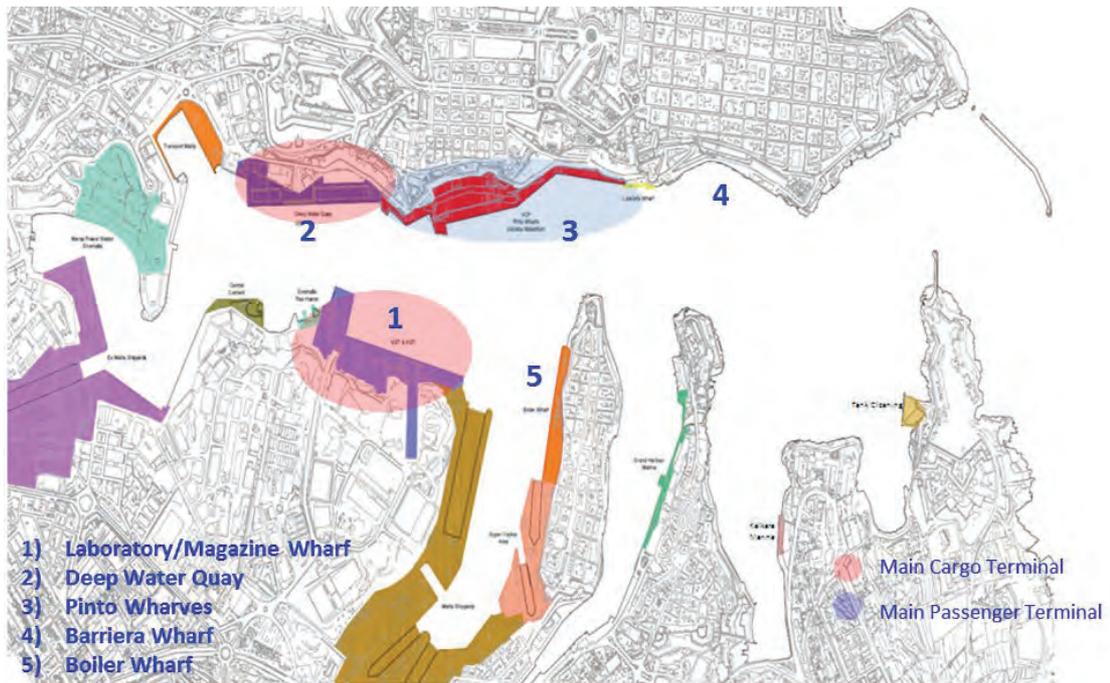


Figure 44.
Main Terminals of the TEN-T
Core Port of Valletta

DID YOU KNOW THAT, IN 2014?

No. of cruise liner passengers arriving in Malta was more than 520,000

Malta-Sicily catamaran carried over 265,000 passengers

Port of Valletta handled 75,000 tonne equivalent units of trailers

Marsaxlokk Freeport has doubled its container traffic in the last ten years

Marsaxlokk Freeport handled 14% of containerised traffic in the Mediterranean

- Cruise vessels berth mainly at Pinto Wharf, which has 4 berths dedicated to the cruise market. Occasionally, when these wharves are at capacity, Boiler Wharf and Deep Water Quay act as spill-over wharves for these vessels.
 - General cargo is handled at the quays of Laboratory Wharf, Magazine Wharf and Deep Water Quay (DWQ) by Valletta Gateway Terminals (VGT), which was awarded a thirty-year-old concession in 2006. VGT has 3 general cargo berths, 2 at Laboratory/Magazine Wharf and 2 at DWQ but due to its state of disrepair at DWQ, only 50% of its original capacity can be used.
 - Dry bulk cargo is currently handled at Magazine, Laboratory and Fuel Wharves. This cargo includes (grain), various bulk cargo used for the construction industry (cement, aggregates, sand) and also scrap metal exports.
 - Wet bulk cargo is currently handled at Ras Hanzir and Flagstone wharf, however Laboratory wharf and DWQ also have wet bulk superstructure for hydrocarbon fuels.
 - Most Ro-Ro vessels and containers are handled at Laboratory Wharf – it is the only quay with railed superstructures (one gantry crane). Occasionally, Ro-Ro vessels and container vessels are handled at Deep Water Quay.
 - Enemalta, MOBC and other private operators such as Falzon Group have liquid bulk terminals and some offer storage and blending services as freight or bunkers.
- The Port of Marsaxlokk hosts a number of freight terminals – primarily Malta Freeport Terminals Ltd (MFT) and Oil-tanking Malta Ltd. MFT hosts the container transshipment terminals and industrial storage facilities as follows:
- Terminal One has 2 quays. The North Quay is 1,000m long and is equipped with 9 quayside cranes, some of which are able to handle 24 containers across. The West Quay is 290m long.
 - Terminal Two has 4 quays offering 1,100m of operational berths, which are equipped with 11 super post Panamax quayside cranes. Some of these cranes can reach 23 containers across and are capable of handling twin 40-foot containers simultaneously.
 - Oiltanking Malta Ltd offers almost 1,000m of quay length (in three bulk liquid berths handling both black and white petrochemical products) and also services the Liquid Petroleum Storage and processing plant just south of the port.



Figure 45.
Port of Marsaxlokk

Other entities such as Enemalta and San Lucian Oil Company Ltd also have liquid bulk terminals in the Port.

While the concessionaires in the Port of Valletta are responsible for superstructure maintenance and some aspects of quay maintenance, the concessionaires in the Port of Marsaxlokk are fully responsible for maintenance of both quays and superstructures. However there are a number of disused fuel storage installations around the Port of Marsaxlokk

In 2014 the Port of Valletta handled 446,000 tons of trailers, 237,000 tons of general cargo, 166,000 tons of cereals, 270,000 tons of cement 14,000 TEUs and 23,400 vehicles. A high percentage of traffic in this port is domestic, i.e. it is aimed at meeting the supply needs of the country.

Capacity analyses of the Port of Valletta indicate particular bottlenecks for sea freight operations at DWQ and that the rehabilitation and upgrading of this quay is required to increase capacity in order meet the growing demand.

Cruise liner passenger traffic is also showing increasing trends and operational bottlenecks in the Port of Valletta exist on the road network adjacent to the port terminal facilities. This mainly occurs in the organisation of public transport in the vicinity of Valletta Cruise Port where, during peak days for cruise liner activity, thousands of people may disembark from the ship at this same time; or in the vicinity of DWQ due to warehousing and associated operations.

The main constraint to removal of hinterland traffic bottlenecks in the Port of Valletta is the 16th century fortification structure on the north shore which precludes any road widening or better organisation of facilities due to its heritage-protected status. Marsaxlokk has seen the doubling of its container traffic in the last ten years, registering more than 2.8m TEUs in 2014 – 96% of this traffic is transshipment, i.e. the port is not the origin or destination of goods, but an intermediate stage in their trip.

This traffic represented around 10-14% the container transshipment in the Mediterranean. Around 4% of all traffic to Malta Freeport Terminals (MFT) is domestic.

Since the capacity of the container terminals at MFT is 3.2m TEUs per year, the terminals are working near to their operational capacities.

Revenues from port charges are not exclusively dedicated to port undertakings, and current resources are not always enough to meet the costs. Terminal charges are regulated at Port of Valletta (while at Marsaxlokk the charges are negotiated), and among other factors this seems to impact on the relative competitiveness of this port compared to that of Marsaxlokk.

2.3.4 AIR TRANSPORT

There is only one airport, Malta International Airport (MIA), which is the main gateway for international passengers to travel to and from the islands (Figure 46).

It is a node of the TEN-T Core network and is also used as military airport.

The airport passenger terminal was inaugurated in 1992, with the former passenger terminal then being converted into the main cargo terminal.

The airport has two runways, 3,544 and 2,377 metres long, respectively. The main runway (the longest) is served by a system of taxiways, enabling aircraft to access the aircraft apron associated with the terminal building. The aprons in front of the passenger and cargo terminals (aprons 8 and 9) are used for terminal operations. The airport has 9 aircraft parking areas and 2 maintenance parks.

A small heliport exists on the island of Gozo (with a 174m long runway). There used to be scheduled helicopter flights between MIA and this heliport. Currently, no commercial flights take place from the heliport.

DID YOU KNOW THAT, IN 2014?

*4.3 million passengers used Malta International Airport
Air passenger movement increased by 6.4% from 2013
15,000 tons of freight was transported by air
Peak periods had an average of 17 aircraft movements per hour
Flights in Malta's airspace reported 0.00 minutes of delay*

The structure of air transport governance in Malta is described briefly below:

- Passenger and freight terminal operations are part of a concession agreement with Malta International Airport plc which in turn is responsible for the terminal operations and maintenance.
- Ground handling services and freight handling are fully liberalised.
- Air Navigation Services are provided by Malta Air Traffic Services Ltd. (MATS Ltd), a Government company

Passenger and freight terminal operations, ground handling and air navigation services are regulated by Transport Malta under the Ministry for Transport and Infrastructure, whereas air transport policy making, Air Malta (MIA's main client) and MATS Ltd. fall under the Ministry for Tourism.

Aviation fuels are unloaded at the Port of Marsaxlokk and are piped to various aviation fuel storage locations in the vicinity of the airport. The pipelines are mainly post-World War II era installations and are in a poor state of repair.

The airport has completed the certification process required by EU regulations and ICAO. It has also repeatedly received several awards for service quality. However the passenger terminal is designed to handle up to 5 million passengers annually, and is near capacity.

While it is difficult to estimate the maximum runway capacity due to peak landings only occurring at certain times of day, it is estimated that the runway subsystem can handle around 40 movements per hour. Air Malta has been MIA's main client, operating 16,000 flights a year, alongside a mix of other airlines.



Figure 46.
Malta International Airport and its key components

According to 2012 figures, MIA's main markets were the United Kingdom, Italy and Germany. The number of passengers at Malta International Airport (Figure 47) has almost doubled in the last decade, increasing in number from 2.7 million in 2004 to 4.3 million in 2014, which equates to an annual growth rate of 4.6%.

Contrary to passenger air traffic, air cargo has experienced a decreasing trend in the last decade (Figure 48). The number of tons handled at MIA has fallen from 18,263 in 2006 to 15,547 in 2014.

Figure 47.
Passengers passing through Malta International Airport

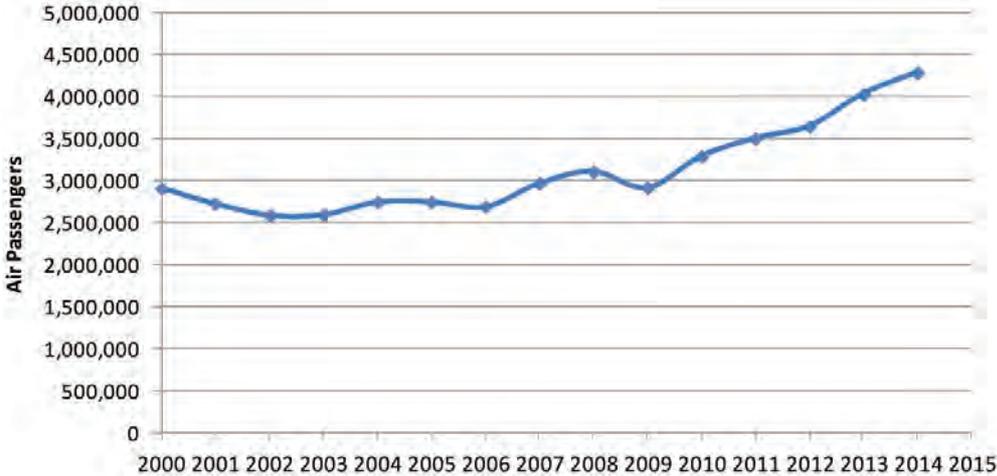
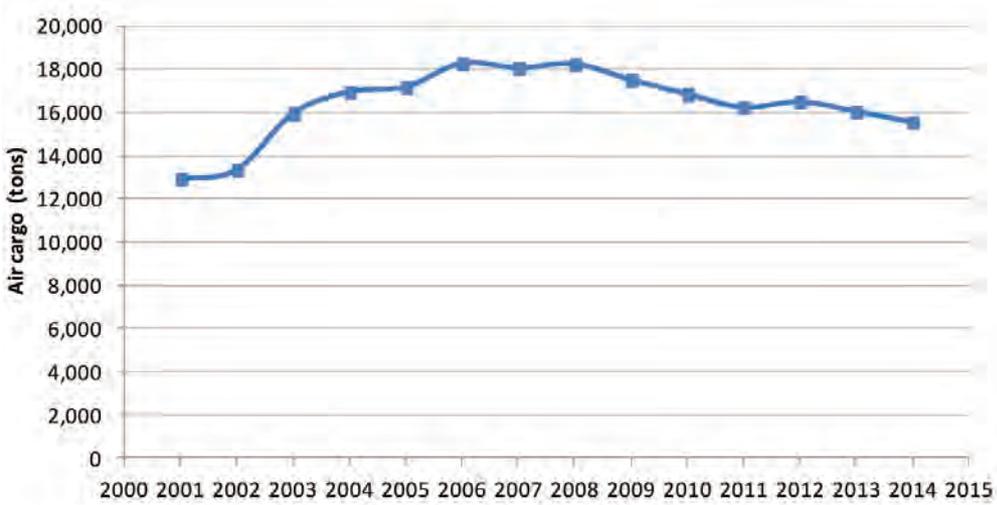


Figure 48.
Cargo (tons) passing through Malta International Airport



The peak period for airport operations takes place between 10am and 1pm, with 17 movements per hour. This period does not correspond with the peak period for road traffic and therefore aviation passengers are not severely impacted by traffic congestion in the vicinity of the airport, albeit that staff working at the airport are.

A simplified analysis of supply and demand shows that the passenger terminal is near its capacity (degree of utilisation of 86% in 2014), whereas the runway system is at 42.5% of its capacity. In order to assess properly the degree of utilisation, the master plan for the airport should comprise demand forecasts and capacity analyses of the airside operation. Currently, the MIA master plan only refers to the airport landside commercial development, and fails to address the near critical passenger terminal limitations with any significant improvements for current and forecast demand.

2.3.5 INTERMODAL TRANSPORT

Intermodal transport involves the use of more than one mode of transport for a journey. Intermodal transport in Malta takes place at main port terminals, the airport and Park & Ride facilities (Figure 49).

No specific governance structures exist for intermodal transport in Malta, but the various land, sea and air governance structures interact to support this cross-over. This section focuses on intermodality between internal modes, which takes place in Park & Ride facilities and ferry landing places. The smooth connection between internal modes is especially important because travel time in internal trips is lower than in international trips.

Park & Ride facilities are car parks with connections with public transport services and are aimed at encouraging car users to leave their cars and transfer to e.g. a bus to travel to the city centre. There are three Park & Ride facilities in Malta.

- Floriana Park & Ride: located in Floriana, out of the walled city of Valletta, it offers 750 parking places and a regular high frequency shuttle service to Floriana and the Valletta Bus Terminal - average waiting time of 5 minutes.
- Pembroke Park and ride: is located on the outskirts of the busy tourist and entertainment centre of St. Julian's. Frequent services are operated to here from Valletta, Sliema and St. Julian's. However there is a low utilisation if this P+R, albeit that it operates for no charge.
- Marsa Park & Ride: allows commuters to travel to several destinations to the south of Malta, avoiding congested roads. Buses stopping at this location can bypass traffic by making use of the bus priority lane in Triq Aldo Moro.

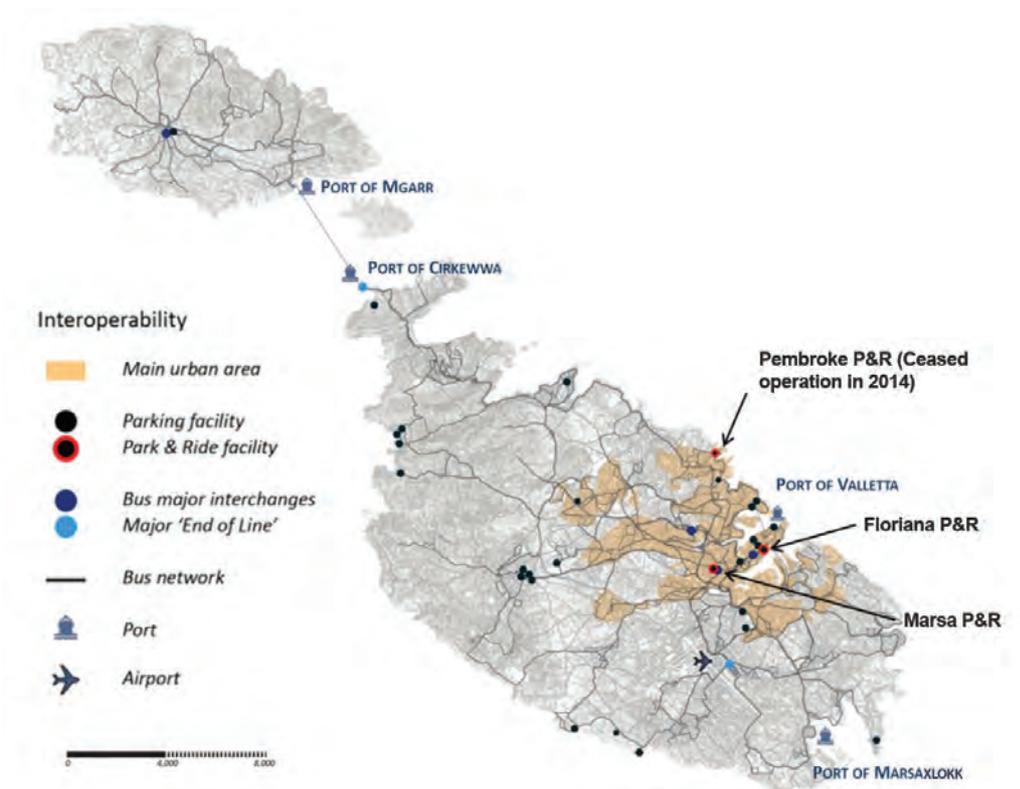


Figure 49.
*Intermodal transport system
 for passengers*

Ferry services in the Grand Harbour interchange with bus services at four different points – Sliema, Valletta (Lascaris), Cospicua and Sliema (Marsamxett). The landing place for the ferry between Valletta and the Three Cities is linked to the city centre by a passenger lift. However, there is no permanent vertical connectivity to Valletta city level on the Marsamxett Harbour side which probably acts as a deterrent to the less mobile passengers, as most of the city is elevated and there is a very steep uphill walk from the ferry landing places to the city centre. Neither is there a link to the public transport network, albeit that enterprising bus and cab operators offer a service from the ferry landing place to various parts of Valletta at peak times.

The ferry service between Cirkewwa and Mgarr is well connected with bus services with direct buses to and from various locations as well as an express bus service to the Airport.

Internal freight interoperability takes places at the ports of Mgarr, Cirkewwa and Marsamxett (Sa Maison until 2015), which allow the interchange of freight between the road network and ferry services.

02.4 PREDICTING FUTURE TRENDS

This section reviews historical data on key variables as a basis to the forecasting of future travel demand and behaviour. The forecasting exercise will provide an outlook of the future functioning of the transport system in Malta, which is essential to set long-term strategic goals and objectives.

2.4.1 POPULATION/AGE PROFILE

The forecasting of demographic changes is one of the most important components in the estimation of the future demand for transport. According to latest figures available, in 2014, Malta had 423,670 inhabitants.

The forecasts for the year 2050 (long-term horizon) show that Maltese population will increase by 7%, pessimistic scenario, or by 12% in the optimistic scenario, which means a 2050 national population ranging from 453,095 to 474,759 inhabitants.

These scenarios are based on the reduced migration variant population dataset of Eurostat and the higher life expectancy variant population dataset of Eurostat, respectively, and consider annual growth rates similar to historic ones (0.5 - 0.6%) for the short-term horizon (2020), and less optimistic rates (0.1 - 0.3%) for the long-term horizon (2050).

As for the breakdown by age group (Eurostat), a decrease in the rate of population under 17 years old (from 22% in 2006 to 17% in 2013) and between 41 and 60 years old (from 29% in 2006 to 26% in 2013) was experienced. Conversely, the proportion of the citizens aged 61 or over had increased from 18% in 2006 to 23% in 2013.

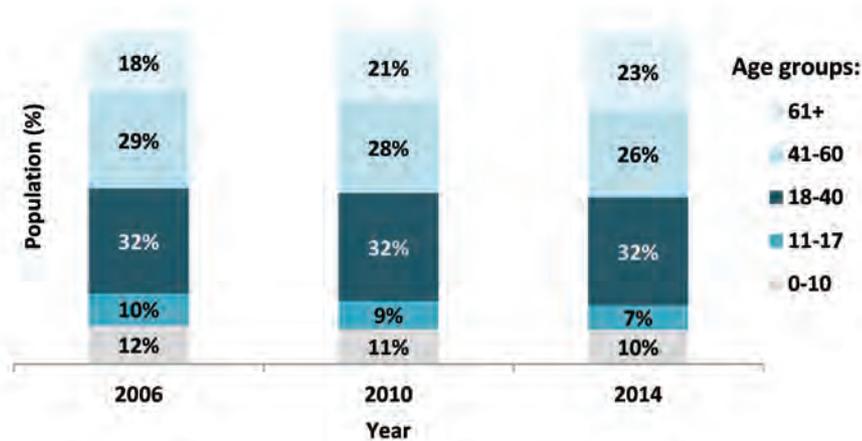


Figure 50.
Age distribution of the Maltese population. Historical data

Figure 51 illustrates the disaggregation for the year 2014 (estimated from the Census 2011) and for the long term horizon (2050, most likely scenario). It shows a reduction of the central age groups (18-40 and 41-60), representing 59% of the population in 2011 but only 51% in 2050, and at the same time an increase of citizens aged 61 or over and aged 17 or less to a lesser extent. This is aligned with the European trend of an ageing population.

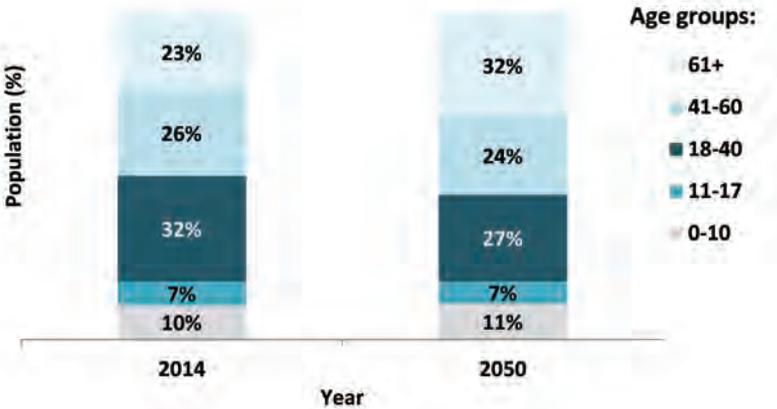


Figure 51.
Age distribution of the Maltese population. Forecast

2.4.2
SPATIAL DISTRIBUTION OF RESIDENCES

Transport is a service driven by the demand, in turn generated by where the resident population lives and works (among other mobility reasons). The ability for transport to meet the demand requirements is very reliant on sound spatial planning and the allocation of appropriate space to the transport networks that are required to support the economy and its residents.

In the long range forecasting of residential population density, increased decentralisation is noted while at the same time intensification of certain already congested areas (e.g. Sliema, Bugibba/ Qawra) is noted as shown in Figure 52 below.

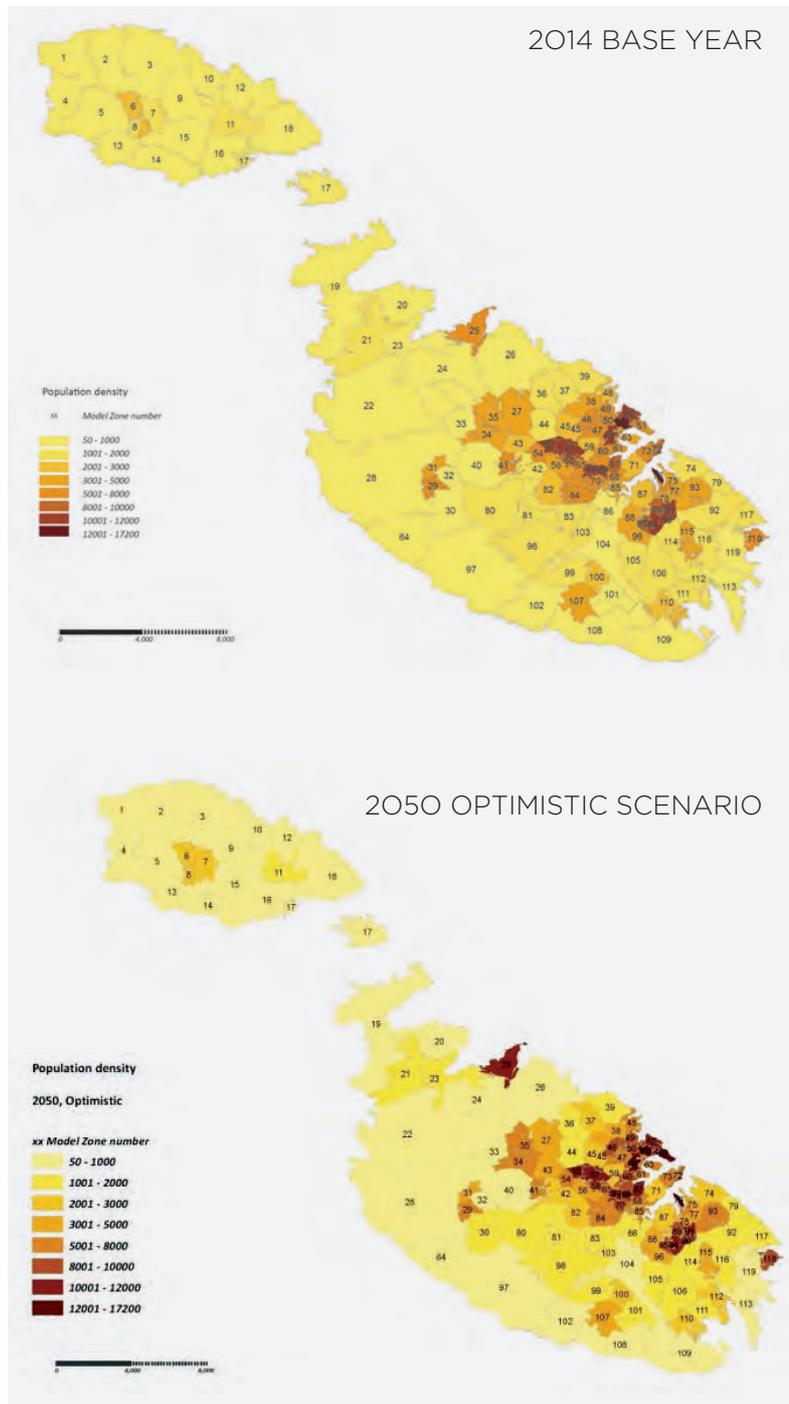


Figure 52.
Base Year and Future
Population density
(inh/km²)(NSO 2014,
NTM; Elaboration)

2.4.3

GROSS DOMESTIC PRODUCT

Socioeconomic variables such as GDP or employment are key indicators when it comes to estimating the future demand for transport. The GDP of Malta has experienced strong fluctuations in the last decade due to the economic crisis that hit European countries in 2008. It can be noted that these fluctuations are common to the European Union as a whole (see Figure 53 below).

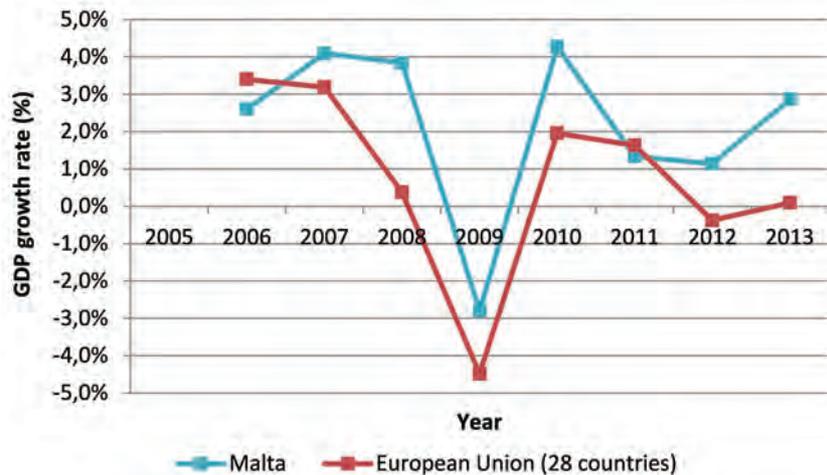


Figure 53.
GDP historical growth rate (Eurostat, Elaboration)

In the years up to 2014, the Maltese economy grew at 3.0-3.5%, which was above the average rate of growth for the European Union. Recent European Commission forecasts show that Malta's GDP growth in the short-term will be stronger than previously expected, albeit that it will slow down in the medium to long term. Therefore, to manage the high short term growth and the longer lower growth, a GDP forecast was built upon two main databases for purposes of transport demand forecasting³¹:

- Short-term forecast (2014-2017): based on European Economic Forecast (Spring 2015)³²
- Transition phase (2018-2024)
- Medium and long-term forecast (2025-2050): based on the forecast elaborated by the Economic Policy Committee and the European Commission together with Malta³³

³¹ It should be noted that the GDP forecast presented above has been done for transport demand forecasting purposes only, and should not be taken as a source for other studies. The complete database is presented in the annexes of Transport Malta (2015), National Transport Strategy - Forecasting Report.

³² European Commission (DG ECFIN)

³³ Partially published in the EU Ageing Report 2015 (European Economy 3, May 2015, Brussels, PDF, 424pp)

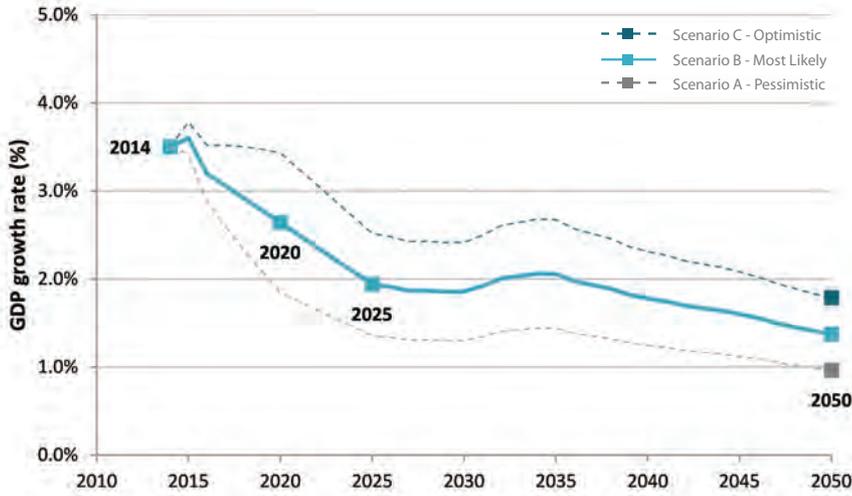


Figure 54.
GDP forecast growth rate, % (Eurostat; Ageing Report + EPC-EC; Elaboration)

As a result, the GDP is forecast to be in the range of €12.85bn and €18.9bn by 2050. This estimate is important as a driver both for passenger and freight transport demand, as well as affluence of society affecting spending patterns and the value of time.

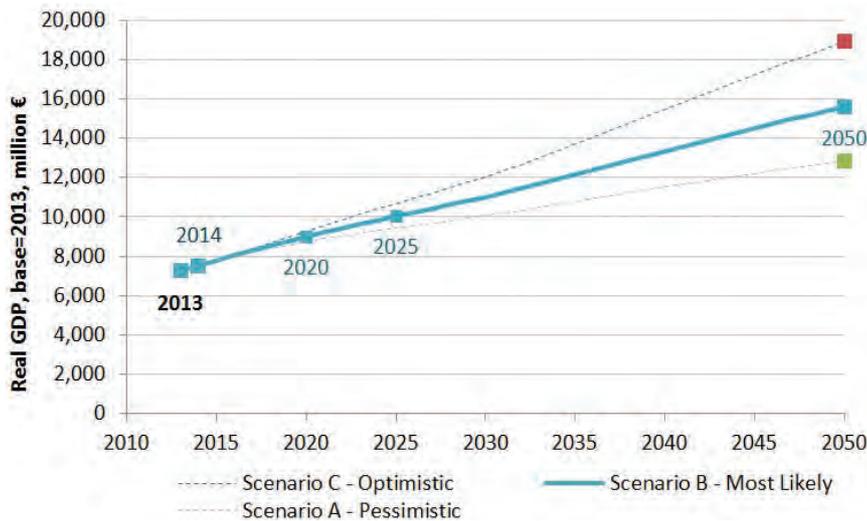


Figure 55.
GDP forecast (Eurostat; Ageing Report + EPC-EC; Elaboration)

2.4.4 EMPLOYMENT

According to the Census figures, in 2011, 171,855 people were employed in Malta. This differs slightly from the information NSO collects from other sources, however it has been assessed to be suitable for developing the forecasts used in the National Transport Model.

The forecasts developed for the year 2050 indicate that the people employed in Malta will vary between 190,126 and 217,071 inhabitants depending on the scenario considered. These forecasts are based on those generated for the population and the employment rate by the Economic Policy Committee and the European Commission in collaboration with Malta. The comparison of the previous figures with the forecasts for the age group 15-64 shows that the employment rate will increase from 66% in 2014 to 75% in 2050.

2.4.5 SPATIAL DISTRIBUTION OF WORK PLACES

Transport is a service driven by the demand, and transport patterns (especially during peak hours) are heavily influenced by the relationship of where people live and work. The ability for transport to meet the demand requirements is very reliant on sound spatial planning and the allocation of appropriate space to the transport networks that are required to support the economy and its residents.

In the long range forecasting of work places intensification in certain already congested areas (e.g. Valletta, Marsa, Mriehel & Bugibba/Qawra) is noted as shown in Figure 56.

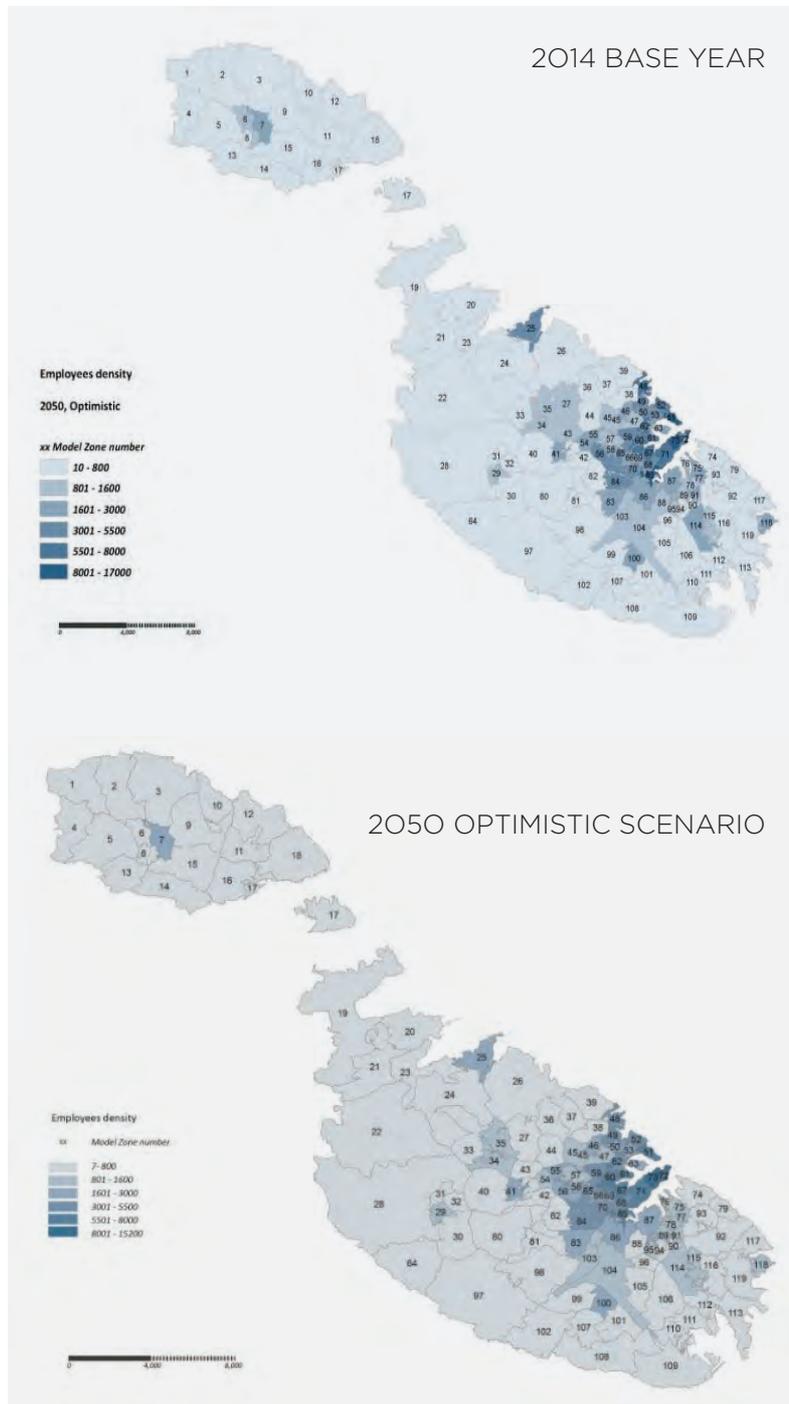


Figure 56.
Employment density
(employees/km²)(NSO 2014,
NTM; Elaboration)

2.4.6 TOURISM

The contribution of Travel and Tourism to GDP represented 25.5% of total GDP in 2013. It was forecast to rise by 4.5% in 2014, and then to rise by 3.2% per annum, between 2014 and 2024, reaching 30.4% of total GDP in 2024³⁴.

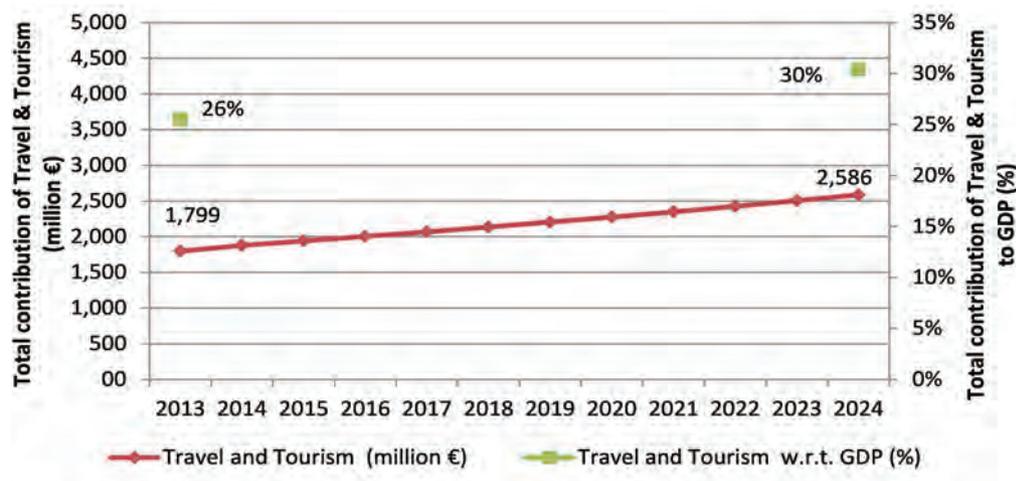


Figure 57.
Total contribution of Travel and Tourism to the GDP
(World Travel and Tourism Council; Elaboration)

The contribution of this sector to employment was 26.4% of total employment in 2013, and is expected to rise by 4% in 2014 and to rise by 1.7% per annum in 2024 (32.6% of total).

Therefore, the evolution of this sector influences directly, through the number of tourists, and indirectly, through its impact on the economy, the demand for transport in the country.

Since 2000 the numbers related to the Maltese tourism industry have been increasing with an average annual growth rate of 0.9% until 2009 and then 13% between 2009 and 2010. In 2013, 1,582,153 tourists visited Malta, which represents 18% more than 2010 figures. The World Travel and Tourism Council published a forecast of the number of foreign tourists visiting Malta in 2011 and 2021, forecasting an average annual growth of approximately 3.2% per annum, thus confirming once more the positive trend of Maltese tourism industry.

³⁴ World Travel and Tourism Council, 2014

In order to forecast the number of tourists visiting Malta in 2050, the following assumptions have been made:

- **Short term** (2015-2021): an annual growth of approximately 3.2% was considered until 2021 (World Travel and Tourism Council).
- **Long term** (2022-2050): an annual growth of 0.9% was adopted in line with the average annual growth registered in the 2000-2009 period.

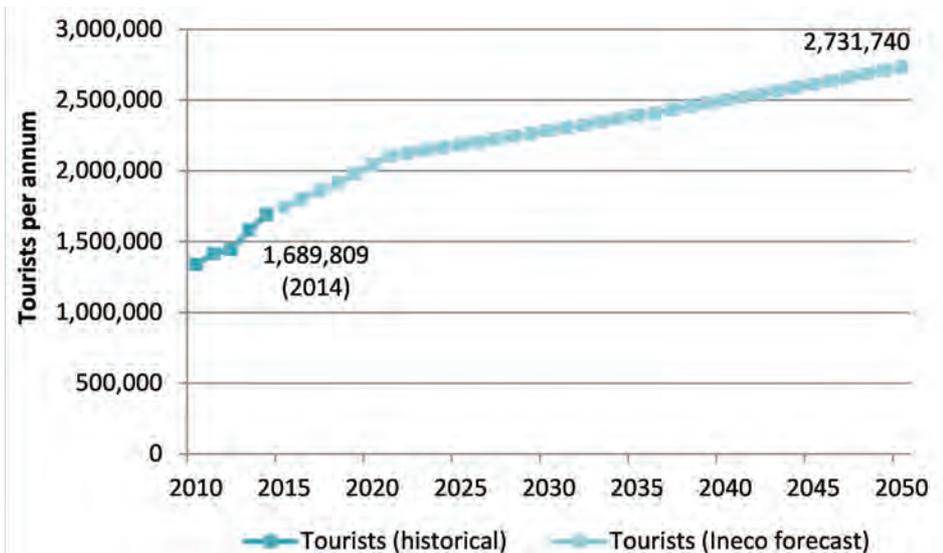
Under these assumptions, Malta will be expected to receive more than 2.7 million tourists in 2050.

2.4.7
AVIATION

The number of passengers at Malta International Airport has nearly doubled in the last decade. Passenger volumes have increased from 2.7 million in 2004 to 4.3 million in 2014, which equates to an annual growth rate of 4.6%. Forecasting air traffic is very complex and this is reflected in the dispersion of expected future volumes found in a number of reliable sources (IATA³⁵, Eurocontrol³⁶, D-Air Project³⁷).

On this basis, three growth scenarios were developed for the year 2050. The pessimistic and optimistic scenarios adopted consider an annual growth rate of 1.4% and 2.6%, respectively. In terms of annual passengers, this equates to an annual tourism arrival of between 7.2 million and 11.0 million by 2050.

Figure 58.
Tourists visiting Malta. Historical data and forecast (World Travel and Tourism Council; Elaboration)



³⁵ Air Passenger Forecasts Global Report (April 2015)

³⁶ Challenges of Growth 2013 Task 4: European Air Traffic in 2035

³⁷ D-Air Project, Decarbonising Airport Regions Regional Implementation Plan Malta (based on 2012 data)

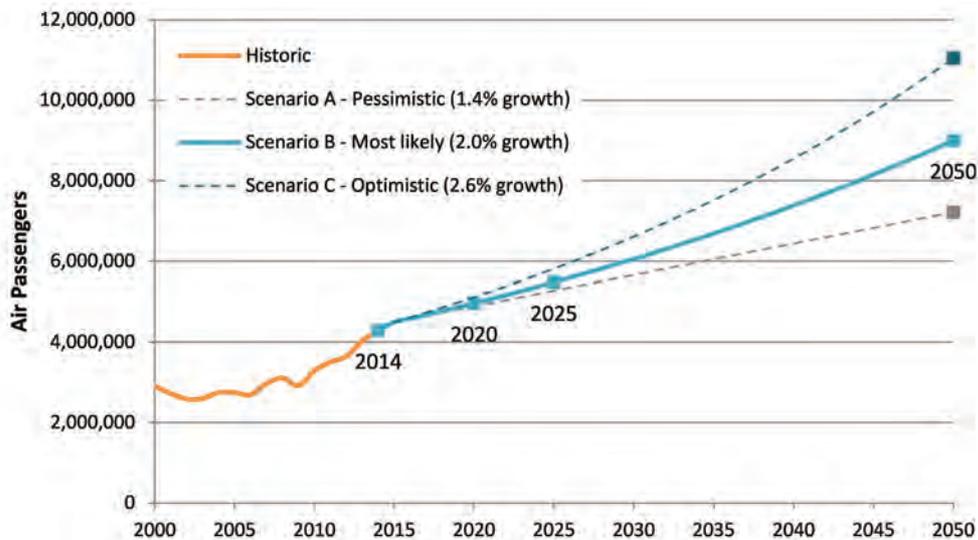


Figure 59.
MIA Annual Passenger Traffic
Forecast (NSO Transport
statistics; Elaboration)

The ratio number of passengers per aircraft movement is also expected to change over the coming years, for two main reasons being: aircraft renewal resulting in slightly larger aircraft, and the increase in the aircraft occupancy rate due to the increasing share of low cost carriers which manage a higher loading per flight.

Over the last decade, the loading of aircraft has increased from an average of 100 to 130 passengers per aircraft movement, and it is expected to reach 160 by the year 2050. On this basis, aircraft movements forecast for 2050 vary between 45,000 (pessimistic scenario) and 69,000 (optimistic scenario).

Contrary to passenger air traffic, air cargo has experienced a negative trend in the last decade. The number of tons of air freight handled at MIA has fallen from 18,263 in 2006 to 15,547 in 2014.

On this basis, the baseline scenario used was built based on the document World Air Cargo Forecast (Boeing), which forecasts the air cargo growth rate by region, and the current distribution of air cargo by region at MIA. Optimistic and pessimistic scenarios were developed by taking into account a higher or lower share of emerging countries in the distribution of air cargo at MIA. As a result, MIA will be expected to handle between 34,000 and 45,000 tons in 2050 – annual growth rates of 2.2 and 3.0%, respectively.

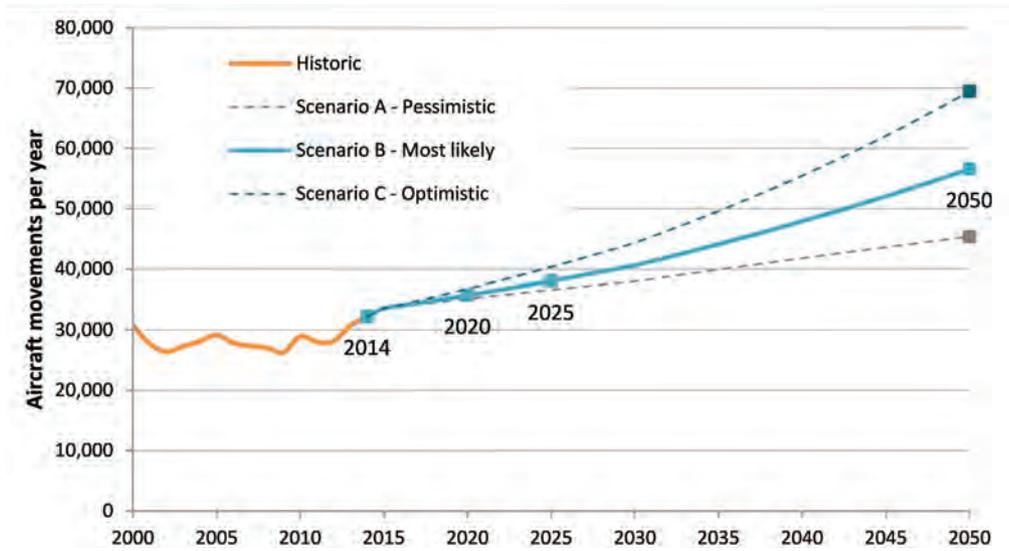


Figure 60.
MIA Annual Commercial Aircraft Movements Forecast (NSO Transport Statistics, Elaboration)

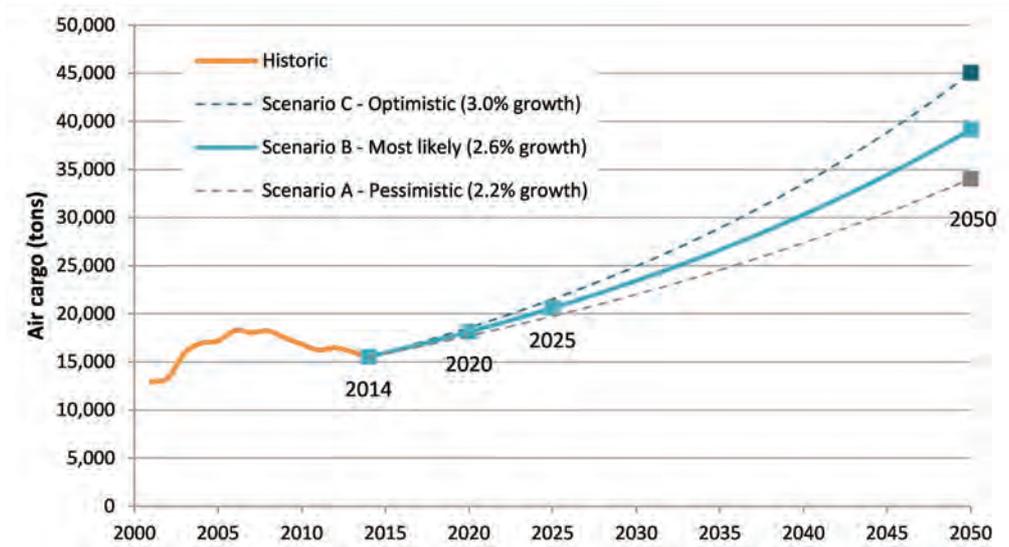


Figure 61.
MIA Air Cargo Forecast (MIA Annual Statistical Summary and Boeing; Elaboration)

2.4.8
SHIPPING

2.4.8.1
Passengers

The Port of Valletta is the main maritime access to Malta for international passengers, who reach the archipelago by travelling on board of cruise vessels or the high speed ferry that connects Malta with Sicily. The number of ferry passengers to/from Sicily has increased from 185,000 in 2004 to 289,000 in 2014. However, it was not a period of steady growth, as demand had dropped between 2005 and 2009.

Based on the methodology developed in past studies³⁸, this study assumes that the demand for these ferry services will grow at the same pace as the combined growth rate of GDP and population. As a result, the estimated demand for these ferry services is between 392,000 and 492,000 passengers annually by 2050, citing pessimistic and optimistic scenarios respectively.

Cruise liner passenger traffic impacts the immediate vicinity of the port, with the number of passengers disembarking in Malta increasing by 79% over the last decade. However, the growth in demand for this type of traffic was not constant and fluctuations were experienced, in proportion to the number of cruise liners calling at the port each year. Looking forward, the growth trend in the cruise market in the Mediterranean is expected to continue for the foreseeable future, albeit at a slower pace than in the past. The Deep Water Quay Feasibility Study forecast that the number of cruise passengers in Malta will grow at 4% annually until 2020, at 3% annually in the 2021-2025 period, and at 2% annually from 2025 onwards. Based on this previous analysis, the pessimistic and optimistic scenarios in this study were developed by decreasing or increasing the previous growth rates by 0.5%. On this basis, the number of passengers landing in Malta from a cruise vessel is expected to range between 1,046,000 and 1,487,000 in 2050.

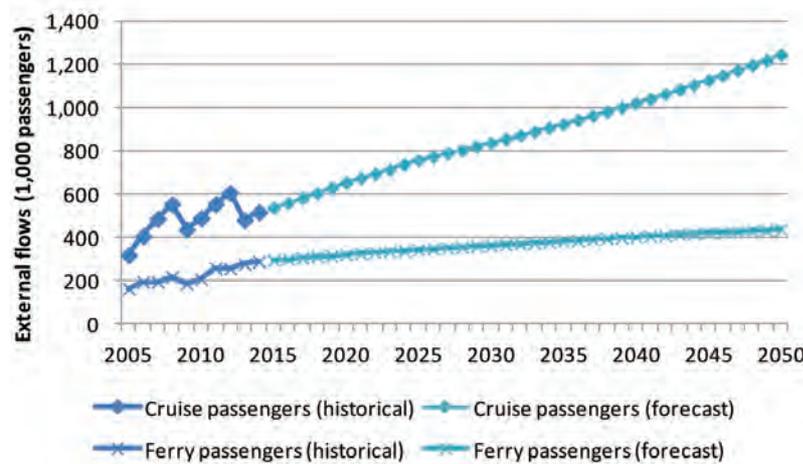


Figure 62.
External flows of passengers at the Grand Harbour (DWQ feasibility study, TM annual report 2014; Elaboration)

³⁸ Deep Water Quay Feasibility Study





2.4.8.2

Freight

The ports of Valletta and Marsaxlokk are the main access to Malta for international goods. International goods handled at the Port of Valletta are aimed mainly at supplying the Maltese Islands. However, it also hosts transshipment traffic. The Port also handles petroleum products mainly bound for the domestic market.

The Port of Marsaxlokk comprises the container terminals (Malta Freeport Terminals), whose traffic is mainly transshipment (handling more than 95% of the container traffic); and Oiltanking Malta Ltd which deals in a variety of black and white oil products as well as LPG on behalf of the LPG storage and distribution company Liquegas Malta Ltd.

Domestic traffic – Port of Valletta

The goods handled at the Port of Valletta (Grand Harbour) can be split in the following six groups:

- **Trailers on Ro-Ro ferries:** this traffic grew at an elasticity of 0.81 compared to GDP growth in the 2004-2009 period, reaching 365,000 tons in 2010. The Deep Water Quay Feasibility Study³⁹ relates this high growth to the entrance of Malta in the EU, and forecasts that the elasticity to GDP growth will decrease in the next years – 0.8 in the 2010-2015 period; 0.65 in the 2016-2025 period; 0.55 from 2026 onwards. This will mean traffic of around 580,000 tons in 2050 (most likely scenario).
- **General cargo:** this traffic has fluctuated between 150,000 and 220,000 tons in the last years. The DWQ Feasibility Study forecasts the current traffic (161,100 tons in 2009) will remain constant in the future. Changes in the use of materials in Malta may affect this, but would need further detailed studies to be able to propose a rate of increase.
- **Cereals:** despite the decreasing trend in the last years, it is expected this traffic will grow slowly in the future, with it reaching 224,000 tons in 2050 (in the “most likely” scenario). This growth is associated to population growth with a factor of 4.5 (DWQ Feasibility Study).
- **Containers:** this traffic fell from 26,000 TEUs in 2005 to 12,000 in 2010; this fall is associated with the development of the Freeport. The DWQ Feasibility Study forecasts container traffic in Malta will grow at the same level as GDP – a lower growth rate than in the previous period but common among developed economies. It is assumed that the share of the Port of Valletta will represent 15%. It will mean to reach 38,500 TEUs in 2050 (in the “most likely” scenario).
- **Cars (imports and re-exports):** the imports of passenger cars grew at a factor of 0.8 of a combined growth rate of GDP and population in the 2004-2009 period. It is expected this factor will be 0.5 in the future (DWQ Feasibility Study). Car re-exports, whose fall in the last years is the main responsible for car traffic fall, is expected to be 500 vehicles per year in the future. Therefore, car traffic is expected to reach 9,800 vehicles in 2050 (in the “most likely” scenario).

³⁹ Malta – Updated feasibility report for Deep Water Quay rehabilitation and upgrading project. Final report – revision 3 (February 2015). Client: Transport Malta

- **Other vehicles** (imports and re-exports): this traffic, which ranged from 1,000 to 3,000 units in the last years, is expected to settle down at 400 vehicles in the future (DWQ Feasibility Study).

Transshipment traffic - Port of Valletta

Using this same analysis, by commodity group, goods transhipped at the Port of Valletta (Grand Harbour) are:

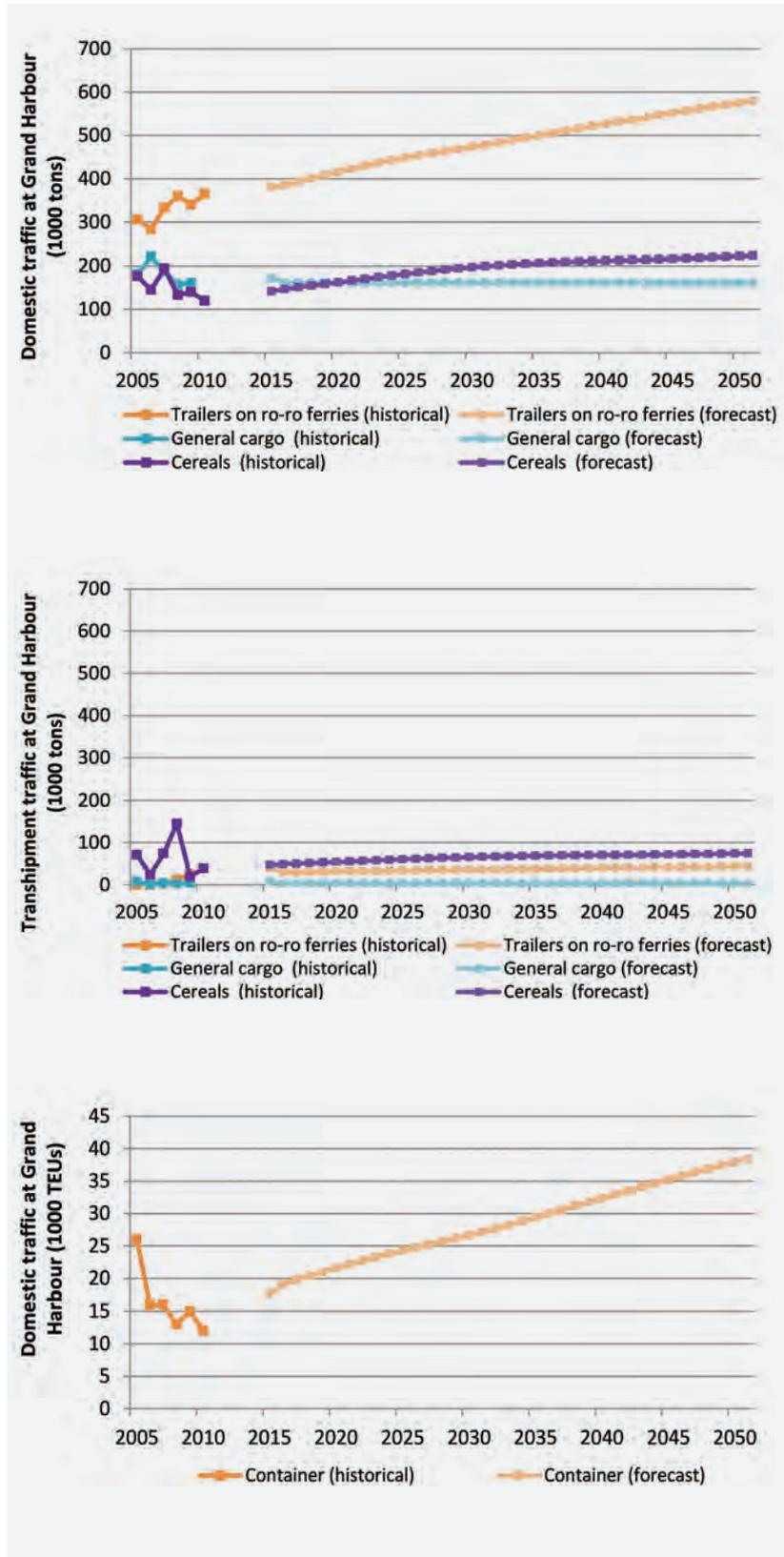
- Trailers on ro-ro ferries: this traffic grew from 2,000 tons in 2007 to 25,000 tons in 2009. According to 2009 traffic levels, transshipment traffic accounted for 7% of the total traffic of trailers. It is expected this rate will remain in the future, with trailer transshipment traffic reaching 43,600 tons in 2050.
- General cargo: this traffic remained at 3,000-4,000 tons in the 2007-2009 period. According to 2009 traffic levels, transshipment traffic accounted for 2% of the total traffic of general cargo (domestic and transshipment). It is expected this rate will remain in the future, with the transshipment traffic of general cargo reaching 3,200 tons in 2050.
- Cereals: this traffic showed important fluctuations in the last years. Future values were estimated by considering the current share transshipment/total will remain constant at 2010 level (25%). It will mean freight traffic of 74,600 tons by 2050 (in the “most likely” scenario).

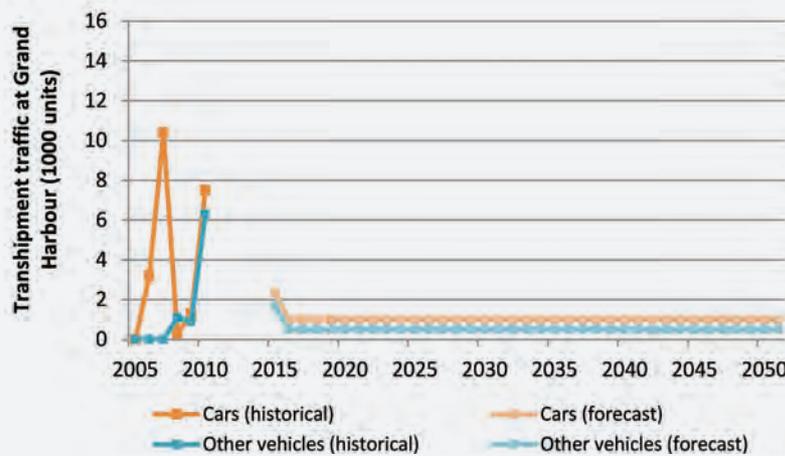
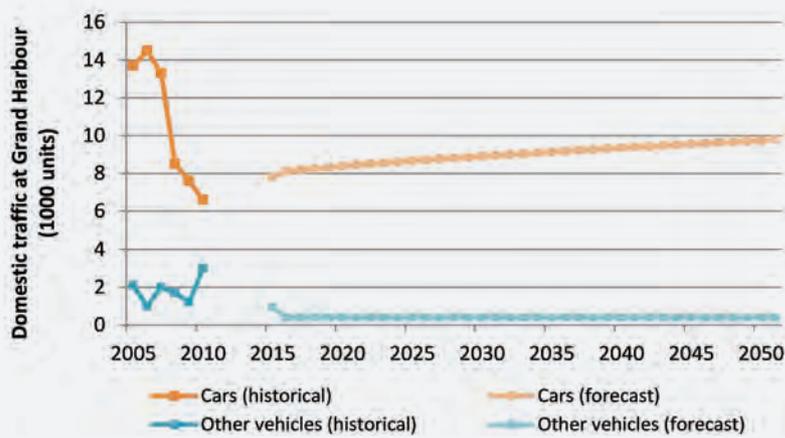
- Containers: at 2,000 – 4,000 TEUs in the last years, it is expected the share of container transshipment will remain at the same level as in the near past (10% of the total containers’ throughput in the Port of Valletta). It will mean increased throughput of 4,300 tons in 2050 (in the “most likely” scenario).

- Cars (imports and re-exports): this traffic is very volatile; it fluctuated from 300 to 10,400 units in the last years. The future volume of car transshipment is set constant to 1000 units per year.
- Other vehicles (imports and re-exports): this traffic is very volatile too; it fluctuated from 900 units in 2009 to 6,300 units in 2010. The future volume transshipment of other vehicles is set constant to 500 units per year.

The Figure 63 shows the traffic at the Port of Valletta by type of traffic (domestic vs. transshipment) and commodity group.

Figure 63.
Freight traffic at the Grand Harbour. Historical data and forecast







CMA CGM JULES VERNE
MARSEILLE

UASC

UASC

CMA CGM

COSCO

CMA CGM



CMA CGM

Transshipment traffic - Malta Freeport Terminals

Container transshipment at Malta Freeport Terminals has doubled in the last ten years, with them registering more than 2,750,000 TEUs in 2014. This traffic represented around 10-14% the container transshipment in the Mediterranean.

Container transshipment in Malta is expected to grow at a slower pace than in the Mediterranean due to the competition with other ports. The most likely scenario has been built on the assumption that the share of Malta in the container transshipment in the Mediterranean will be 8%. Therefore, the container transshipment at Malta Freeport Terminals will reach 9,800,000 TEUs in 2050.

Figure 64 shows the traffic at Malta Freeport Terminals by type of traffic (domestic versus transshipment). It can be appreciated that domestic traffic accounts for a small part (less than 5%) of the container traffic at Marsaxlokk.

Data availability on liquid bulk and gas has not been sufficient to allow an analysis of developments in these sectors, primarily due to commercial confidentiality.

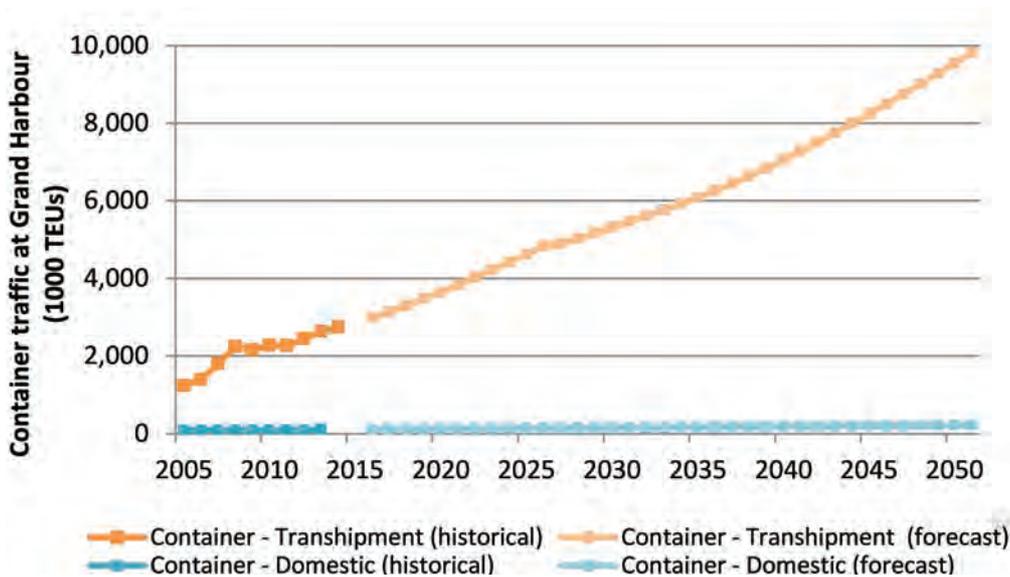


Figure 64. Container traffic at Malta Freeport Terminals. Historical data and forecast

2.4.9
CAR OWNERSHIP

The predominance of road transport is confirmed by the high rate of motorisation, which was 759 licensed vehicles/1,000 inhabitants in 2013.

Another way to determine the motorisation rate is as the number of passenger cars per 1,000 inhabitants. The following figure shows the change in the motorisation rate in Malta and other European countries. A discontinuous line means that the datum of one year is not available. Malta shows an important growth in the last decade, shifting from 500 to 600 passenger cars/1,000 inhabitants. Only Italy has a higher motorisation rate than Malta in the European Union, and the difference between these two countries is getting smaller.

It is worth noting that both Germany and the United Kingdom experienced a decrease around the year 2007. The economic crisis could be one of the reasons for this change. However, it is remarkable that the motorisation rate continues to grow in Germany, whereas the rate decreases in the United Kingdom.

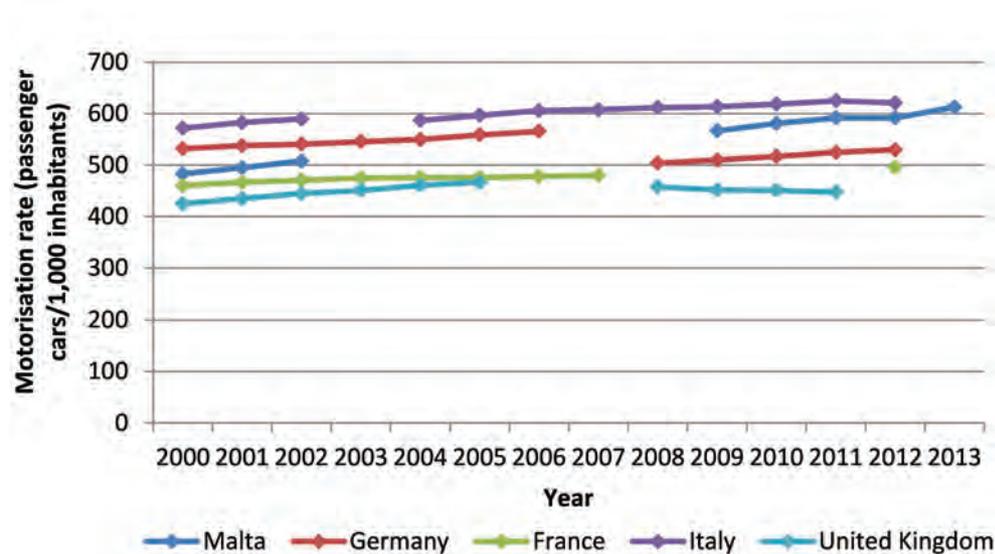


Figure 65.
 Motorisation rate in Malta.
 Historical data and comparison
 with other EU countries

The forecasts of the motorisation rate that are available are not broken down in countries. On the contrary, they show the change in the motorisation rate in Europe as a whole. In order to forecast the motorisation rate in Malta, two sources were taken into account:

- The document Observatorio Cetelem Auto 2015⁴⁰ analyses the motorisation rate in several countries. It describes the case of Japan, a country where the car use is high due to its spatial distribution and congestion problems constrain the growth in the motorisation rate. It is estimated that this rate will grow by 0.12% p.a. between 2012 and 2020.
- The document Modelling Future Mobility – Scenario simulation at Macro Level⁴¹ estimates the car fleet in the EU in 2030. It is estimated that the annual growth will range between 0.6 and 0.8% as several scenarios are considered.

It was considered that Malta is in a similar situation to that in Japan as both countries are reaching saturation level. With a 0.12% annual growth, Malta’s private car motorisation rate will rise from 619 in 2014 to 639 in 2050.

This rate is lower than the rates calculated by considering that car fleet in Malta will grow at the same pace as car fleet in the EU (697 - 740 cars per 1,000 inhabitants in 2050); this fact is coherent with Malta being near saturation level.

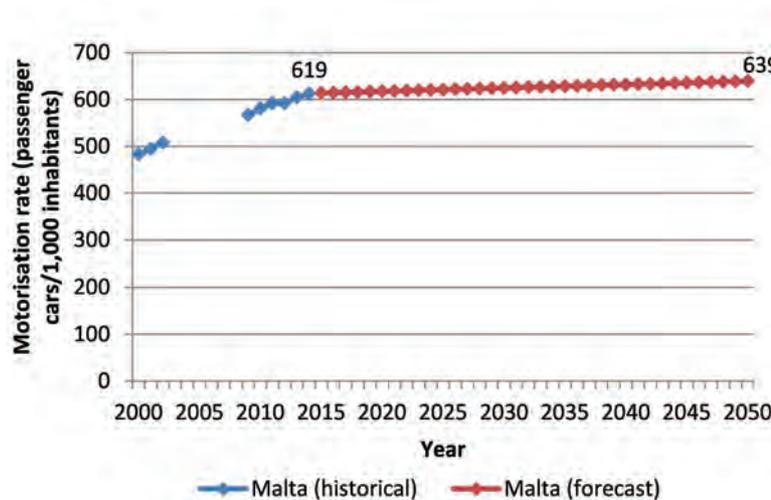


Figure 66. Motorisation rate in Malta. Historical data and forecast

⁴⁰ <http://www.elobservatoriocetelem.es/2015/02/observatorio-cetelem-auto-2015/>

⁴¹ European Union, 2013

2.4.10

Road network

Malta's road network is extensive, stretching over 2,400 kilometres in 2014. It represents one of the densest in the world (762 km/100 km²).

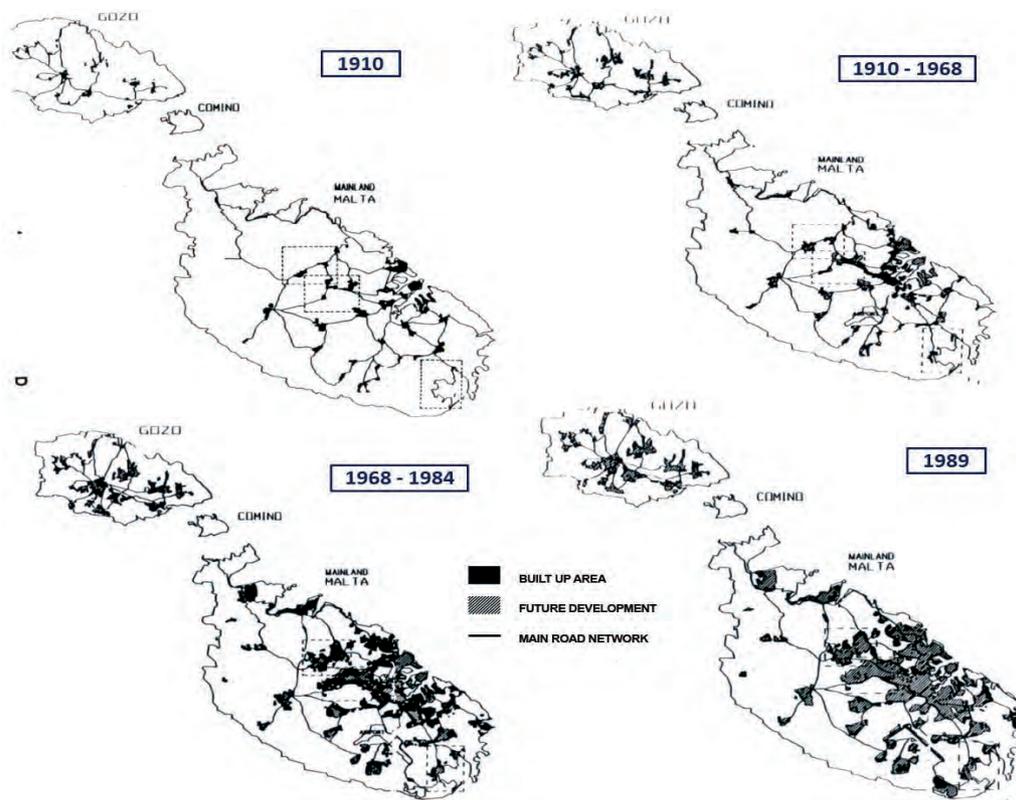


Figure 67.
Settlement pattern evolution
(source: MEPA)

As detailed in Chapter 2, the increase in urbanisation and urban sprawl that has taken place since the late 1960s and the significant percentage of open space subject to environmental protection presents a practical barrier to increasing the size of the road network.

In recent years, the provision of new bypass roads designed to alleviate traffic bottlenecks has slowed down considerably and there has been little growth in the road network. These constraints support the need for reviewing the traditional approach of widening current roads or building new roads to remove bottlenecks.

Therefore, future changes in the road network are unlikely to impact on the overall length of network, though it is expected for several critical road links to be vertically grade-separated within the same footprint in order to separate conflicts between heavy traffic flows.

2.4.11

Driving licences

The following figure depicts the evolution in the number of licence holders as well as in the population aged 18 or over (Eurostat). It can be noted that licence holders have increased by 7.9% in the last 5 years, whereas adult population has increased by 6.1%. In other words, the rate of adult citizens with a driving licence has varied from 67% in 2008 to 68% in 2013.

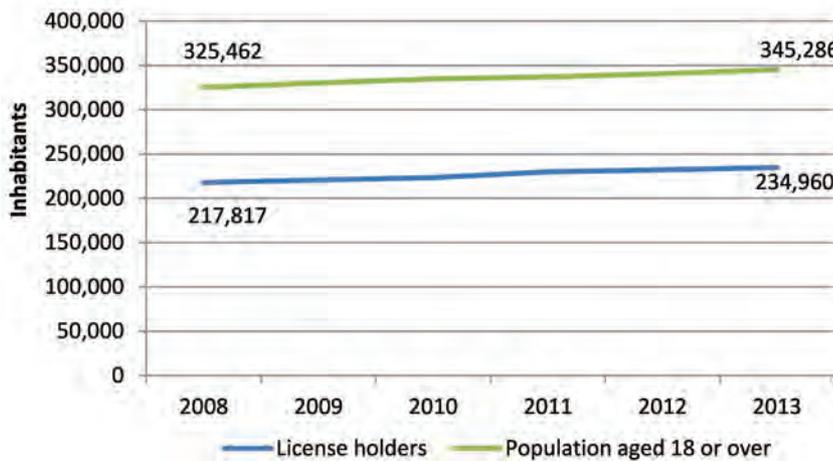


Figure 68.
Licence holders in Malta.
Historical data

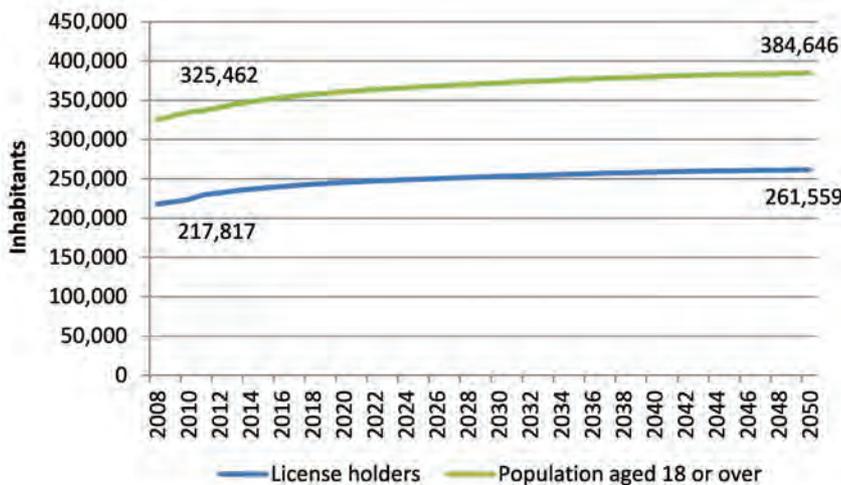


Figure 69.
Licence holders in Malta.
Historical data and forecast

No information has been found on a possible maximum rate of adult population with driving licence. Therefore, driving licence holders in 2050 have been estimated by considering that the current percentage of adult population with a driving licence (68%) remains constant in the future.

In the last decade, the economic resources devoted to transport in Malta (both expenditure on operations and infrastructure) have ranged between €60m and €100m annually. Nevertheless, peaks of expenditure took place in 2008 and 2014, with this expenditure reaching €160m and €127m respectively.

2.4.12

Transport spending

Expenditure on transport in Malta takes place at two levels: Central government and Local government.

The Central government is the main contributor to transport expenditure, with it bearing more than 90% of transport expenditure in Malta (Eurostat).

In 2014, total transport expenditure accounted for 1.6% of the GDP, which represents a value close (85%) to the EU average. However generally, as seen in the years from 2009 and 2013, Malta's expenditure on transport was only about around 60% of the EU average. The higher expenditure in 2005 and 2008 (just after Malta's accession to the EU) are a result of significant EU infrastructure funding.

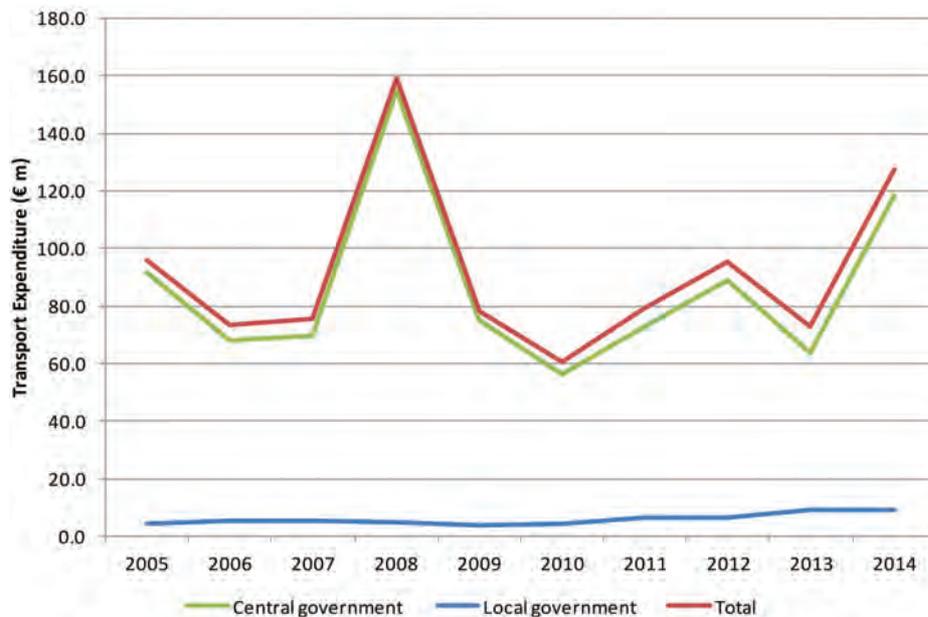


Figure 70.
Capital and Recurrent
Expenditure on transport in
Malta (source: Eurostat)

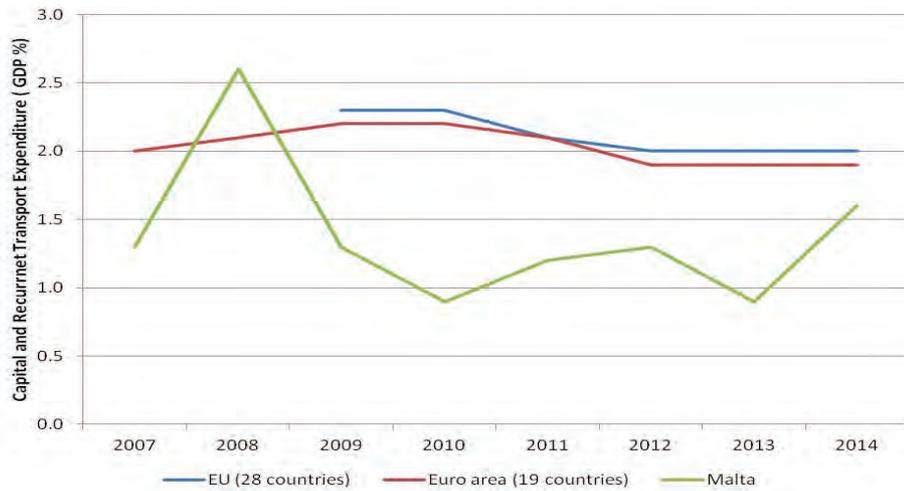


Figure 71.
Capital and Recurrent Expenditure on transport in Malta in relation to GDP
 (source: Eurostat)

While an investment level of 1% per GDP became a de facto political benchmark in Western European countries in the 1980s⁴², the new EU Member States have been seen to spend more than 1% of their GDP, as they catch up and complete their basic networks. Malta however, has invested the lowest percentage of GDP in transport infrastructure for many years⁴³.

⁴² Spending on Transport Infrastructure 1995-2011. International Transport Forum. 2013

⁴³ ITF/OECD Statistics Database http://stats.oecd.org/Index.aspx?DataSetCode=ITF_GOODS_TRANSPORT#

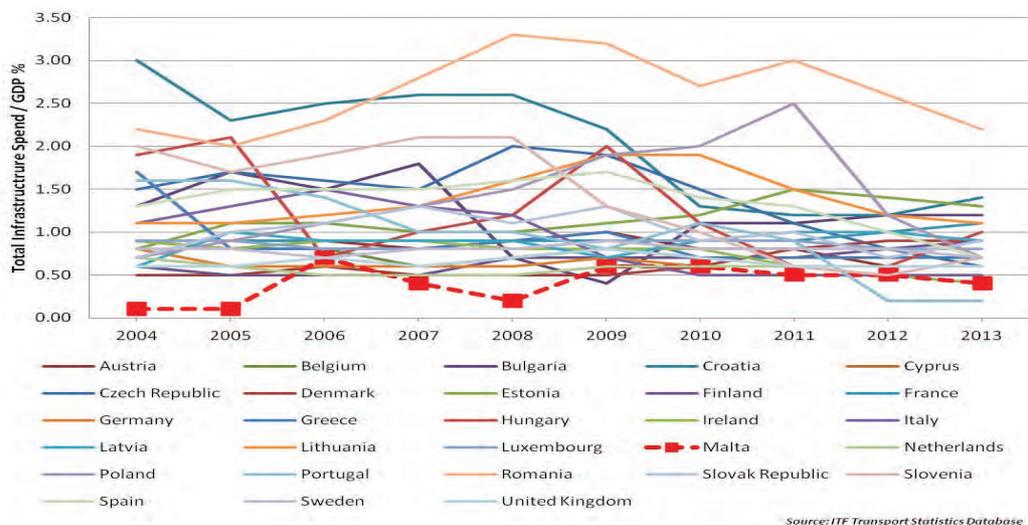


Figure 72.
Infrastructure Expenditure on transport in Malta in relation to GDP (source: ITF)

Following the benchmark indicated above, if Malta were to spend an average of 1% of its GDP on transport, and the forecast GDP for 2050 is € 15.6bn (most likely scenario), this would relate to an infrastructure investment of around € 156m p.a.

2.4.13

External Cost of Road Congestion

The forecast traffic increase under the Do Minimum scenario would have a profound impact from 2025 onwards. Roads on the strategic network in the main urban hub will approach near or be at their operational capacities. The slowing of traffic flows and increasing delay on the strategic network will spread to most of the road network including local roads.

As observed in recent years, the incremental increase in traffic congestion has an effect on far larger area, producing an accelerated deterioration of flows and performance of roads.

Figure 72 depicts the volume / capacity ratio estimated for 2050 in the AM peak period, where black signifies heavy congestion.

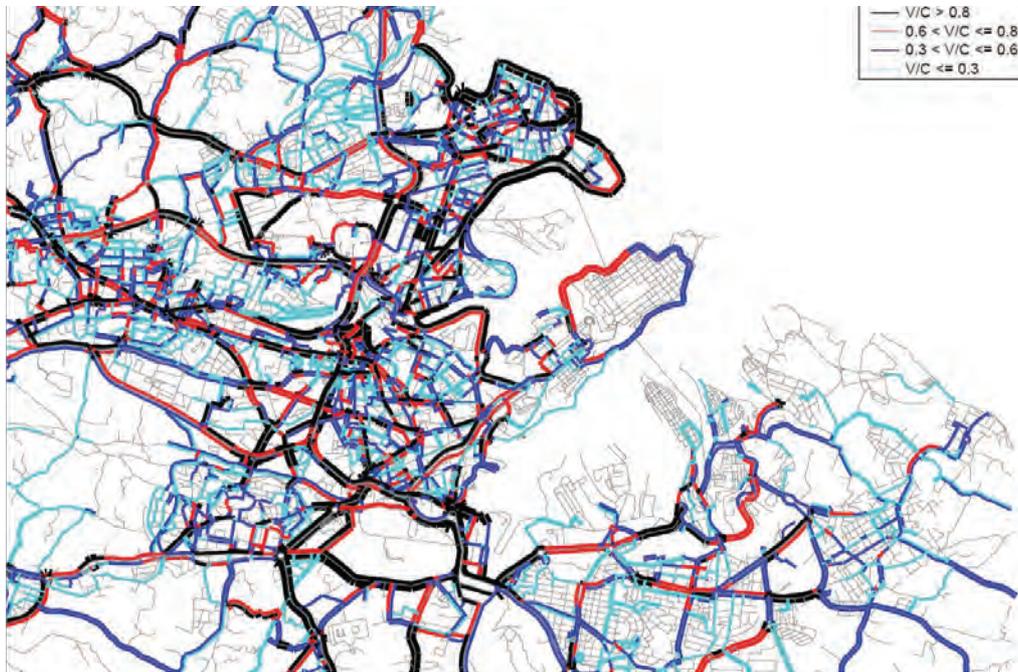


Figure 73.
Ratio of V/C during the
AM peak period (2050)

A fundamental scientific relationship in traffic engineering is that the more traffic that tries to use a road or a road network, the slower it goes (speed-flow curve). The method of calculating congestion costs is comparing the speed of free-flow conditions with the speed in congested conditions. The total delays caused by traffic congestion can be calculated and by multiplying this by the value of time, value of accidents and value of air pollution and emissions, and value of vehicle operating costs (fuel, oil, maintenance) results in an estimate of the total cost of congestion can be made⁴⁴.

Figure 74 shows recent estimates of the cost of congestion, as determined by the European Commission’s Joint Research Centre in conjunction with the University of Malta, and plotted in conjunction with future estimated costs of congestion that have been made as part of the study supporting the drafting of the National Transport Strategy under the “Do Minimum” assumption, in other words, assuming no further changes to transport policy or infrastructure from 2015 onwards. The methodology used in the European Commission study differs from that used by Transport Malta, hence the different trajectories (as indicated by the dotted line).

⁴⁴ Transport Malta (2015), National Transport Strategy - Forecasting Report

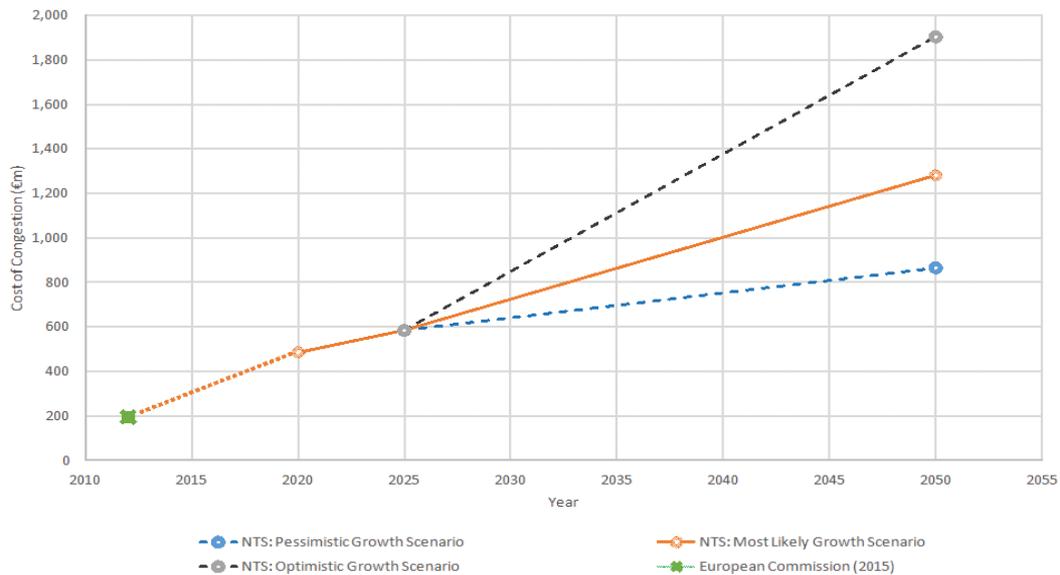


Figure 74.
Estimated External Cost of Congestion in future years (European Commission (2015), Transport Malta (2016), Elaboration)

Forecast GDP for 2050 is €15.6bn⁴⁵ in the most likely scenario the above trends would equate to 8.2% of GDP (optimistic 6.7%, pessimistic 10.1%).

2.4.14

Climate change

Global environmental change is one of the challenges for the present century, so transport planning should take into account the effects that such phenomenon will have on transport infrastructures.

The changes recorded by Malta Resources Authority (MRA) in the last years include the existence of convective rainfall, the increase

in the daily maximum rainfall, the decrease in the absolute number of days with rainfall in the range of 1-50 mm and the decrease in the duration of bright sunshine.

The following table summarises the effects of the climate change applicable to the region of the Maltese Islands. In particular, a sea level rise of 14 cm is forecast for the horizon year of this strategy.

IMPACTS	2050
Increase in temperature (°C)	2.0
Change in precipitation (%)	-4.4
Sea level rise (cm)	14

Table 2.
Impacts of the climate change on Maltese Islands

⁴⁵ Transport Malta (2015), National Transport Strategy – Forecasting Report

Such changes are unlikely to produce severe effects on Maltese road network, but they may begin to cause some problems in those roads located on the coast or flood areas, or where the drainage elements were not properly designed and maintained.

Ports are also sensitive infrastructures when dealing with sea level rise. As it was noted for the road network, the changes forecast for 2050 seem small however it is not known what impact a 14cm sea-level rise will have on port infrastructures. Nevertheless, these changes could demand maintenance works and should be also considered when it comes to planning new infrastructures.

02.5 FOCUS GROUP PARTICIPATION

In addition to the technical review of the current transport situation, a number of focus group discussions were held as part of the development of the NTS. The idea was for the development of the NTS and TMP to include various aspects of public involvement. Public consultation on the NTS and TMP is also taking place as per usual practice through this official published draft, however, in addition to this, pilot focus groups were organised at an early stage in the process together with the Faculty of the Built Environment of the University of Malta.

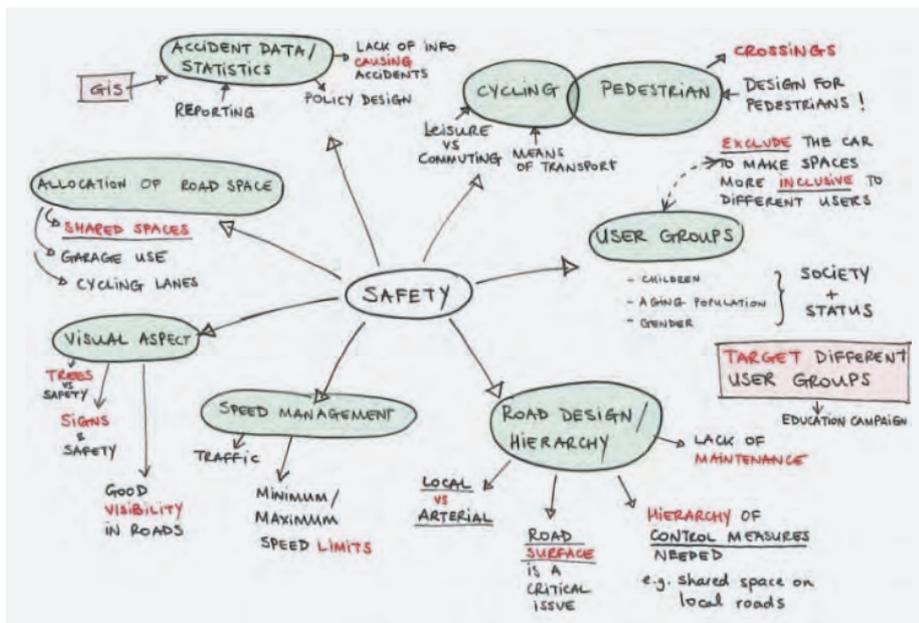


Figure 75.
Focus Group and sample of output

The aim of these focus groups was to bring together a small group of individuals with diverse expertise and from various sectors of society so as to form a 'think tank' for a limited number of sessions. The sessions were facilitated by various members of the Faculty of the Built Environment and the purpose was to brainstorm and discuss the issues and opportunities in relation to a number of themes relating to transport. The focus groups aimed to broaden the input and add value to the development of such an important national document in a 'forward thinking' manner. A summary of the outcome of the focus group discussions is presented in Annex III.



03

VISION
AND
STRATEGIC
GOALS

REMA



03.1 SETTING THE VISION

“Transport is fundamental to our economy and society. Mobility is vital for the internal market and for the quality of life of citizens as they enjoy their freedom to travel. Transport enables economic growth and job creation: it must be sustainable in the light of the new challenges we face.” (European Commission White Paper: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient system, 2011)

Transport brings significant benefits to us all, strongly influencing our prosperity but, on the other hand, transport can have nationally adverse impacts on people, the economy and the environment through accidents, pollution and its contribution to climate change.

Modernising the national transport system is a prerequisite for its successful integration within the European transport system. A multi-modal and efficient transport system contributes significantly towards improving the quality of life, maintaining high economic growth and safeguarding the environment.

This strategy recognises the importance of continuing to develop the transport system to shape and support the country, its culture, its prosperity and the quality of life, but is also fully cognizant of the external impacts that demand-led transport development may have on the Maltese environment (built and rural), on health, on the economy and on society. The strategy therefore also recognises the importance to work towards making urban areas conducive for active mobility such as walking and cycling, thereby reducing car dependency and its negative effects.

As a result, within the context of both National and European policy, visions and strategic frameworks, the vision for transport in Malta based on general government policy and expert input is:

‘To provide a sustainable transport system which is efficient, inclusive, safe, integrated and reliable for people and freight, and which supports attractive urban, rural and coastal environments and communities where people want to live and work: now and in the future’

03.2 OVERVIEW OF THE STRATEGIC GOALS

Based on the analysis of strategic documents in Chapter 1, as well as the transport diagnosis and trends summarised in Chapter 2, the vision is further developed by identifying six strategic goals which define what the transportation system should achieve. These goals are based on sustainable development principles considering economic, social and environmental factors. Sustainable development of the transport system has long been on the agenda, as reflected in the working paper on Sustainable Land Transport⁴⁶ in 2003. Building on the objectives established in this paper as well as further research, policy review and the analysis summarized in the previous chapters, the strategic goals have been further developed for all modes of transport as follows:

- Transport to support Economic Development
- Transport to promote Environmental and Urban Sustainability
- Transport to provide Accessibility and Mobility
- Transport to support Social Development and Inclusion
- Transport to remain Safe and Secure
- Transport to work towards Improved Public Health

These goals will not only inform the development of measures and subsequent projects brought forward for appraisal, but they will also form the basis of a framework against which all proposed interventions, projects and measures are appraised and, ultimately, prioritised.

For each of the above, a number of aspects have been developed in relation to Chapter 2 and the Existing Conditions and Data Diagnostic Report⁴⁷ to better explain the rationale behind these goals. These are outlined in the following sections.

03.3 Transport to support Economic Development

Efficient transport is a critical component of economic development. The availability of transport determines development patterns and can either be a boost or a barrier to economic growth within a country. Historically, cities have grown in response to accessibility to transportation networks including for example roads, rail systems or ports. Additionally, economic development creates new transportation demand. The two therefore go hand in hand. Locally, this is no different. As outlined in Chapter 2, urban development patterns clearly illustrate this phenomenon, reinforcing the important role which transport plays in supporting Economic Development.

⁴⁶ Sustainable Land Transport: White Paper 2003, Malta Transport Authority: 10 year transport strategy from 2004-2013

⁴⁷ Transport Malta (2015), National Transport Strategy – Existing Conditions and Data Diagnostic Report 2014

The aspects listed below encapsulate further this relationship:

- Reduced congestion and removal of traffic bottlenecks improves travel times thereby supporting competitiveness
- Improved reliability and efficiency can allow for better journey planning
- Strengthening transport links and connectivity, nationally and internationally increases access to markets
- Reduced operational costs and improved seamless interconnectivity increases profitability and can support competitiveness
- Improved experience and ease of access for non-regular users can support the tourism product

3.3.1

REDUCED CONGESTION AND REMOVAL OF TRAFFIC BOTTLENECKS IMPROVES TRAVEL TIMES THEREBY SUPPORTING COMPETITIVENESS

For businesses and personal travel reducing journey times will generally have more economic benefit through improving time performance and reducing economic drag resulting from congestion and traffic bottlenecking.

Infrastructure shapes mobility. Transport infrastructure investment has a positive impact on economic growth, however it needs to be planned in such a way that maximises positive impact and minimises negative impact on the environment (2011, EU White Paper).

Bottlenecks in Malta's airport and maritime ports can directly affect Malta's economic performance in tourism, industry and manufacturing sector and could put the many jobs that are dependent on the sustainability of these sectors into jeopardy. Internally, traffic congestion needs to be addressed to ensure smooth traffic flows and in such a way that facilities for other modes are provided as well as inter-modal connections so as to encourage more use of public transport. Facilitating walking and cycling should also become an integral part of infrastructure design so as to reduce congestion and travel times. Development of infrastructure also needs to provide for sufficient capacity of the network in as far as provision of such capacity is sustainable. The ten year Transport Master Plans therefore need to consider whether the funding for infrastructure development and maintenance is adequate and sustainable.

3.3.2

IMPROVE RELIABILITY AND EFFICIENCY CAN ALLOW FOR IMPROVED JOURNEY PLANNING

This aspect focuses on the need for the system to be reliable as opposed to reducing journey times as in the previous aspect. There are a number of factors which can lead to the transport system being unreliable. This is most evident when the demand for travel exceeds the supply or capacity of the systems. It tends to be particularly problematic at peak hours. It can also be due to inefficient management of the system.

Reliability is important to all transport users for businesses and freight, as well as for commuters and for leisure journeys. For businesses improving journey reliability will generally have more economic benefit by allowing more travel planning to take place resulting in more efficient use of the existing network as well as inter-modal travel. The transport network needs to be carefully managed so as to ensure efficient, reliable and sustainable movement. Under this management is also the need to consider appropriate maintenance.

Additionally, in ensuring efficiency the ten year Transport Master Plans need to consider whether appropriate regulations are in place and whether current regulations or market rigidities allow services to respond effectively to demand. Where regulations are in place, there is need to consider whether the necessary management is present to ensure enforcement. Observation of traffic rules contribute highly to keeping transport systems effective. The right skills and training for human resources also form an important part of ensuring efficiency of the transport sector.

3.3.3

IMPROVED TRANSPORT LINKS AND CONNECTIVITY, NATIONALLY AND INTERNATIONALLY INCREASES ACCESS TO MARKETS

Malta's strategic geographic location and its excellent harbours over the centuries have been a major attraction to the world's maritime powers. The development of maritime transport and (in the last 40 years) air transport have been heavily influential on Malta's industrial and economic development. The transition from heavy industry and manufacturing to service and tourism has been integral in the development of towns and cities and the internal transportation system.

Network effects of linking more locations increases the value and effectiveness of transport, particularly through the development of transshipment facilities as part of supply chains and transport networks developed with tourism in mind, which will bring added benefits for mainstream travel through better access, connections and convenience.

Market size-access to wider markets adds to economies of scale in production, distribution, and consumption and increased market access to the islands for tourists, thereby increasing economic growth. Additionally, transport increases productivity gained from access to a larger and more diverse base of inputs from abroad. This is particularly important given Malta's lack of certain natural resources where the national economy relies on efficient transport connections facilitate access to broader international markets to source raw materials, foodstuffs, parts, and energy.

3.3.4
REDUCED OPERATIONAL COSTS AND IMPROVED SEAMLESS INTERCONNECTIVITY (E.G. FREIGHT DISTRIBUTION) INCREASES PROFITABILITY AND CAN SUPPORT COMPETITIVENESS

Performance improvements which reduce cost and time for existing passenger and freight movements increase transport's contribution to economic growth. Businesses benefit from efficient logistics and access to markets for their goods and services. The freight sector is a particular sector where efficiency of distribution contributes to the economy's competitiveness, as well as impacting on congestion levels in urban areas thereby having an indirect effect on economic development. Smooth traffic flows on the TEN-T network are important in relation to longer distance and international connection. With the secondary network, efficient distribution and management of urban logistics is crucial in ensuring seamless interconnectivity for the first / last mile of international and domestic transport.

Due to the absence of a rail network and inland waterways, the road network and the operational aspects of ports are relevant to Malta, as are aspects of logistics management throughout the islands. With regard to passenger transport, the focus must be on reducing the operational costs of public transport both land and sea such that increased profitability can allow for an improved sustainable service. The aim is therefore to: move towards complete and seamless interconnectivity at our ports in relation to international transport (both sea and air); ensure efficiency of distribution within urban areas; and ensure efficiency of passenger transport including multimodal transport.

3.3.5
IMPROVED EXPERIENCE AND EASE OF ACCESS FOR NON-REGULAR USERS CAN SUPPORT THE TOURISM PRODUCT

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03.4

TRANSPORT TO PROMOTE ENVIRONMENTAL AND URBAN SUSTAINABILITY

Transport sectors, over the last 20 years, have displayed a number of unsustainable characteristics and trends. Both internally and externally the insatiable demand for mobility in passenger and freight travel and the continued expectations to maintain or improve journey times has exerted enormous pressure on the country's transport system. This has resulted in continued growth in the number of motor vehicles on the roads, higher levels of car dependency and increased traffic congestion.

Unfortunately, this dynamic has proved to be somewhat self-reinforcing. As vehicle prices fall and more people acquire personal transport, the pressure mounts to build more roads, overpasses, and expressways rather than investing in public transit or non-motorized transit infrastructure. Rather than solving the problem, this sort of auto-centric infrastructure development exacerbates it, prompting more people to switch to private vehicles, increasing traffic congestion, reducing bus service reliability and punctuality leading to declining modal shares for public and non-motorized transport.

Apart from the congestion issues which hinder continued urban development, the impact of today's transport system on the urban environment is evident both visually and spatially. The emissions from the burning of motor vehicle fuel contribute to global and local damage to ecosystems, adversely affecting health and the quality of life. High level of motorisation has other external costs such as high noise levels and land acquisition for infrastructure which interferes with habitats, animal migration patterns and ecosystem integrity if not designed appropriately.

Climate change is an issue with global significance. Transport is a contributor to climate change through the emissions of greenhouse gases. It also has to be resilient to the changes that climate impacts have on transport networks and services.

This goal therefore defines specific aspects as listed below, in relation to ensuring environmental and urban sustainability. This is not only in relation to mitigating or minimizing impact when developing the transport systems but also pro-actively supporting environmental and urban sustainability through the transportation system. The aspects identified to far are as follows:

- Reduce and mitigate green-house gas emissions
- Ensure efficient and sustainable use and management of resources
- Ensure adaptation to climate change
- Minimise impact of transport to enhance the landscape and townscape
- Preserve the natural habitats and biodiversity
- Respect historical and heritage resources

3.4.1 REDUCE AND MITIGATE GREEN-HOUSE GAS EMISSIONS

Climate change is mitigated by reducing emissions that increase atmospheric concentrations of CO₂ and other green-house gases. This Strategy and the ensuing 10 year Transport Master Plans will need to direct transport onto a less carbon intensive path by encouraging travel by more sustainable modes. Modes which are low or zero carbon options such as walking and cycling are particularly important, and have the added impact of contributing to the overall carbon efficiency of all modes.

While the contributions of air and maritime travel to green-house gas emissions are a global issue, there is need to continue to ensure that efforts are made to minimise the impact while taking developmental considerations into account.

Additionally, transport can also play a role by mitigating the production of green-house gas emissions. This can be done by enhancing the sinks of greenhouse gases where possible. Sinks are measures which remove greater amounts of carbon dioxide from the atmosphere. Increased use of vegetation in transport infrastructure could for example contribute to this. The Transport Master Plan should therefore develop opportunities for such measures. The NTS therefore sets a direction which aims to reduce contribution from transport to greenhouse gas emissions, reduce the carbon footprint of operations in all transport sectors and increase society awareness on the impact which mobility behaviours has on greenhouse gas emissions.

3.4.2 ENSURE EFFICIENT AND SUSTAINABLE USE AND MANAGEMENT OF RESOURCES

Natural resources are limited. There is need to work towards a more sustainable pattern of consumption and production with the aim of reducing our impact on the environment. Additionally, due to Malta's size, resources such as land are indeed finite.

The NTS needs to focus on being efficient in our use of construction materials, water and land consumption. There is room to improve the efficiency of operations, consider further means of recycling in construction of transport related infrastructure and constantly consider efficient ways of using land in the development of new infrastructure, particularly with respect to parking provision. Water management is also extremely important and further sustainable re-use of water through the transportation system needs to be considered.

The aim is also to reduce waste in the construction of transport infrastructure; explore the potential of using transport infrastructure for further catchments of storm-water run-off or production of electricity and constantly improve the use of efficient technologies such as LED's or solar powered lighting in our transportation system. There is also need to consider the efficient use of land when constructing transport infrastructure, and also to ensure that soil quality is not degraded.

3.4.3

ADAPTATION TO CLIMATE CHANGE

In the challenge to address climate change, mitigating or reducing the impact on climate change now needs to develop from words to actions. There is also the need to recognize that the impact of climate change over the coming years has already been set due to emissions which have already occurred and, therefore, future planning needs to take these foreseen changes into account.

Impacts which are need to be considered are the increased flooding of transport infrastructure due to heavier rainfall, potentially higher summer temperatures affecting road, runway and quayside surfaces, and rising sea water levels affecting coastal transport infrastructures. Our transport infrastructure will need to be designed keeping such changes and challenges in mind. The development of the transport systems will have to constantly work in parallel with the National Climate Change Adaptation Strategy to address these challenges.

The NTS identifies the need to adapt to climate change as essential so as to ensure increased resilience of the transportation system. Transport services need to be fully able to deal with climate change events without affecting their reliability or efficiency. An in depth understanding of the potential impact of climate change on the transportation system is not available. There is therefore the need to recognise the importance of locally increasing our understanding in this field.

3.4.4

MINIMISE IMPACT AND ENHANCE THE LANDSCAPE AND TOWNSCAPE

At a local level transport can have major impacts on the natural and built environments. Transport infrastructure development can impact the quality of the built environment or landscape value of our environment. It can also adversely affect people's ability to move around their communities as well as their daily experience of the built environment thereby having an impact on their quality of life. As the National Environment Policy (2012) states, the quality of our outdoor environment has been undermined by factors such as car dependency. It suggests that in order to address the livability of urban areas there is the need to address the overbearing presence of motor vehicles in urban spaces as one of its priorities.

This strategy therefore identifies the importance and need to minimize negative impacts of the transportation system on the quality of our landscapes at the macro scale, and our townscapes at the micro scale. Additionally, it goes further and recognizes the role which the planning and design of infrastructure can play in supporting the creation of high quality environments.

The aim is therefore to reduce traffic in town centres and support the creation of streets which create places for staying not just moving; make more space available for uses which support quality of life in preference to traffic or parking; reduce the visual impact of transport infrastructure (views and vistas); and reduce the noise impact of transport.

3.4.5 PRESERVE NATURAL HABITATS AND BIODIVERSITY

Land use and infrastructure for the movement, maintenance and storage of transport vehicles and vessels needs to be developed in such a way that objectives for ecosystem and biodiversity protection are also met.

Pollutants from transportation can affect the water table, water column and natural habitats, such as nature reserves. Water courses and columns can be polluted by particulate matter and polluted rain water runoff can get into the water table and near-shore seas. Further a field, we need to ensure that efforts are made to reduce international transport impacts on the marine environment and the atmosphere. The NTS therefore identifies the need to: protect and enhance biodiversity when developing transportation measures; work towards using transport infrastructure as a means for supporting urban biodiversity to promote the quality of urban environment through the presence of nature; and mitigate and provide compensatory measures when negative effects by the transportation system cannot be avoided.

3.4.6 RESPECT HISTORICAL AND HERITAGE RESOURCES

Malta is rich in cultural heritage, including world heritage sites, listed buildings and conservation areas. The NTS recognises the need to respect our local heritage and recognises the role which transport can play in strengthening its distinctiveness. In the same way that buildings are listed, the extent of the value of the public realm within urban conservation areas or around and within heritage sites needs to be considered and preserved in a similar way to that of listed buildings. The planning and design of the transportation system has an impact on this public realm and in turn our heritage. These impacts therefore need to be minimized or mitigated. Additionally, the development of the transportation system also needs to play a role in strengthening our heritage (where possible).

There is a growing awareness of the importance in respecting, protecting and strengthening our heritage as a resource. The NTS therefore aims to play a role in this by ensuring that the development of the transportation system has a minimal impact on our natural and built heritage and where it can enhances it.

03.5 TRANSPORT TO SUPPORT SOCIAL DEVELOPMENT AND INCLUSION

A transportation system essentially supports the desire for mobility. Network or service inadequacies in the transport system can reduce personal mobility: spatially - due to lack of available connections between different parts of Malta; temporally - through lack of access at the desired time for travel; financially - because it is too expensive to get there; and personally - as transport modes, equipment or facilities cannot be easily accessed by all travellers. This is relevant for both socially included and socially excluded people.

The specific aspects outlined under this objective address the need for transport to be inclusive meaning that all user groups and communities need to be able to move around and be provided with an appropriate transportation service. They also consider the broader perspective in that they address the need to work towards social development as a means of moving towards more sustainable practices in relation to transportation. The following are the specific aspects developed under this goal:

- Ensure travel options and journey quality are suitable for all user groups
- Ensure affordability for targeted social groups
- Increasing societal awareness on the need for sustainable travel choices
- Reduce severance and adverse impacts on specific communities
- Integration of isolated communities

3.5.1 ENSURE TRAVEL OPTIONS AND JOURNEY QUALITY SUITABLE FOR ALL USER GROUPS

Society is made up of different user groups. Utilising the transportation system may render some of these user groups vulnerable. In any case, the transportation system needs to provide a service for all user groups. It needs to address persons with reduced mobility or reduced abilities, persons of different gender, persons with specific needs such as mothers with young children, the elderly etc. This could be with respect to design of physical infrastructure but also with regards to operational aspects, information or user-facing telematic applications.

The NTS recognises the important role which the transportation system plays in creating an inclusive society by ensuring that it provides for all user groups. The aim is therefore to: improve the quality in the planning and design of transport infrastructure with regard to accessibility for persons with reduced mobility; ensure that the needs of wider user groups are addressed such as social or mental impairment, gender or cultural sensitivities, age sensitivities, etc.; carry out further studies so as to improve the understanding and create more awareness on how to ensure an inclusive transportation system.

3.5.2 INCREASING SOCIETAL AWARENESS ON THE NEED FOR SUSTAINABLE TRAVEL CHOICES

Integral to moving towards a more sustainable transport system is the need for improving societal awareness on the importance of travelling more sustainably. The importance for society to be willing to choose more sustainable travel modes as opposed to simply enforcing restrictions on unsustainable transportation modes cannot be stressed enough. Changing behavioural patterns is not simply about enforcing change but rather about providing more information on the need for change and opportunities for change. This outcome therefore addresses the importance of social development as a means to affecting choice and bringing about change.

There is a need to move towards continual education at all ages where selection of sustainable choice of transport is a clear outcome, to benefit all society; as well as to improve general awareness in relation to the sustainability agenda and instil in our culture the will to be more sustainable in our travel choices.

Responsible use of transport services including the road space will benefit all society, just as abuse of the same will be to the detriment of all.

3.5.3 REDUCING SEVERANCE AND ADVERSE IMPACT ON COMMUNITIES

The development of transportation infrastructure, if not designed holistically, can result in negative impacts on communities in the form of severance or lack of cohesion. Community severance is when people are separated from facilities, services or social networks they wish to use within their community. It could also refer to areas with lower levels of comfort or attractiveness. The development of transport infrastructure can contribute to such severance. Additionally, it might result in people having to change their travel patterns due to physical constraints, traffic flow, or psychological barriers created by transport infrastructure and its use. For example a physically dominant road that cuts across a town without creating connectivity, presents a barrier to surrounding areas and inhibits social interaction.

Transport infrastructure development can also impact on cohesion within a community. Cohesion reflects the unity, social engagement or participation which a community may share. The quality of the environment can hinder or support such cohesion and transport infrastructure can have an impact on this as it forms an integral part of the public realm. The NTS identifies the need to address these aspects and ensure that development of the transportation systems which do not increase severance or reduce cohesions within communities. The aim is therefore to: ensure a design approach for transport infrastructure development which considers the connectivity, accessibility and attractiveness of communities and urban areas as integrated objectives of projects; and reduce the impact of traffic in town centres with the aim of improving the quality of the public realm to support cohesion of communities.

3.5.4

INTEGRATION OF ISOLATED COMMUNITIES

When considering accessibility to the transportation system, we need to consider communities which tend to be geographically more isolated than others. Due to Malta's landmass area, isolation of, for example, rural communities is not as critical as it tends to be in larger countries. However, there is the risk that certain towns and villages which do not fall within Malta's main urban areas may suffer from lower levels of accessibility to the transportation system or lower quality of service. There is also the risk that they become more isolated if new schools, health clinics or other important facilities are not planned and designed to be accessible by public transport.

Another example could be local residents living in touristic areas. Such areas may be subject to reduced services during off-peak tourism seasons resulting in increased isolation. An aim of the NTS is therefore to ensure that the particularities of risk of isolation in the Maltese context are identified such that the transportation systems can address them and work towards better integration of these communities such that they have appropriate access to essential services.

3.5.5

ENSURE AFFORDABILITY FOR TARGETED SOCIAL GROUPS

Another side to inclusiveness is the need to ensure that the transportation system is affordable for all user groups. Individual and community factors influence affordability. As measures are introduced to move towards sustainable transportation modes, encouraging use of greener technologies, reducing congestion or reflecting the true cost of transport we need to keep in mind that transportation provides a basic social need to society. We need to ensure that access to facilities and personal mobility is not hindered for vulnerable social groups due to the increasing cost of transportation systems. This is important since it affects the cost burdens and opportunities available to disadvantaged people and communities.

The NTS therefore recognizes the need to ensure continuation of the service provision such that all disadvantaged social groups can afford to be mobile and can access facilities needed at a reasonable cost in proportion to income and cost of living. It also acknowledges the need to move towards a planning system which improves and facilitates affordable modes such as walking; cycling and public transit travel and ensures that affordable housing and facilities are available in accessible locations.

03.6 TRANSPORT TO PROVIDE ACCESSIBILITY AND MOBILITY

To provide accessibility and mobility could be seen as the primary goal of transportation policy. However, the terms “accessibility” and “mobility” are often used together in transportation but without clear distinction. Understanding the distinction between accessibility and mobility is a critical aspect in creating a sound and sustainable transportation policy. When considering traffic, movement and un-delayed journeys are beneficial; congestion and inadequate infrastructure are seen as a cost. On the other hand, to consider mobility, is to think about the efficient movement of people and goods.

This is much wiser than a traffic focus because it helps move attention to more efficient ways of moving people and goods such as placing a high priority on collective modes of transport, technology and logistics. Additionally, accessibility or an ‘access focus’ is when the ability to reach opportunities is the factor being considered as beneficial, and not movement itself.

In remote rural contexts gaining access to services, goods and contacts will often require a lot of mobility. However, in many urban contexts accessibility might involve very short trips. And in some cases to enhance accessibility might even require that traffic is reduced or even the need to travel (or mobility) is reduced.

Therefore with an accessibility perspective, both traffic and mobility are still important but they are seen as ‘means’ not ‘ends in themselves’. Other ways to enhance accessibility would include planning for proximity, improved communications systems, bringing services closer, etc.

This strategic goal sets the direction for moving towards this way of thinking, and has identified the following aspects to further explain this goal:

- Easy access to daily facilities
- Convenient and reliable journey times
- Ensuring an equitable and sustainable approach to all transport modes
- Managing freight and urban logistics

3.6.1 EASY ACCESS TO DAILY FACILITIES

Over the years land use development has taken place such that Malta's spatial composition is composed of a number of town centres, each providing a number of daily facilities. The frequency of these town centres means that most residences are within walking catchments, and if not walking, within cycling catchments of a town centre.

The transportation system should therefore be developed in such a way that walking to daily facilities such as supermarkets, post offices, primary and secondary education, outdoor spaces, sports facilities, day care, social services, and health centres etc. should be facilitated. In parallel spatial planning should ensure that daily facilities are provided in such town centres so that they are within walking or cycling distance.

The NTS identifies the need to: work in parallel with spatial planning strategies; make walking the obvious choice for short trips such as getting to daily facilities; and move towards an increase in cycling within urban areas for short trips.

3.6.2 CONVENIENT AND RELIABLE JOURNEY TIMES

When considering travel to locations which are generally not within walking distance such as access to work, hospitals, occasional leisure or culture activities, large parks, retail hubs, higher education etc. we need to ensure that the transportation system provides convenient journey times which are suitable to the trip being made and which are also reliable.

In the light of congestion caused by high car ownership and private car use for the majority of trips, this outcome seeks to address this. The NTS identifies the need: to reduce congestion through the increased use of other transportation modes; as well as, to explore whether new forms of transportation are required in order to achieve this outcome.

3.6.3 ENSURE EQUITABLE AND SUSTAINABLE APPROACH TO ALL TRANSPORT MODES

So as to ensure the accessibility and mobility is maintained and improved, we need to address congestion. Making urban centres as accessible as possible requires making choices about the use of urban space. The NTS identifies the importance of looking towards providing an equitable and sustainable approach to all transportation modes. Besides the physical aspect, there is the need to consider whether regulations or market conditions allow such an equitable approach to all transportation modes. We need to constantly explore possible ways which allow for a more level playing field to be established among transportation modes. The strategy recognises that this is essential so as to ensure sustainable mobility.

The transportation system has to manage competing demands. The aim is therefore to ensure that these demands are prioritized in such a way that the necessary balance between different transport modes is achieved which encourages modal shift and inter-modal travel. In practical terms: walking and cycling need to form an integral part of urban mobility and infrastructure design; public transport needs to be prioritised such that it is not subject to general levels of congestion; and we need to move towards facilitating inter-modal travel.

3.6.4 MANAGEMENT OF FREIGHT AND URBAN LOGISTICS

Efficient freight movement and urban logistics are essential for cities to function successfully. This makes up a significant share of urban traffic as part of supply chains. Unfortunately, the planning and management of logistic needs are often neglected. There is significant potential to improve urban logistics operations and services. Additionally, some freight vehicles, such as delivery vehicles for example, could be well suited for new type of vehicles and alternative fuels with reduced emissions.

The NTS recognizes the need to: explore the potential for co-operation between actors, increase the acquisition of data regarding freight movements, build the necessary capacity at local level, stimulate the take up of good practice and better manage the interoperability of local logistics based on Intelligent Transport Systems. The aim is to review the accessibility and use of heavy vehicles in urban cores so as to move towards improving the management of urban logistics to better service urban cores.

03.7 TRANSPORT TO BE SAFE AND SECURE

Safety and security are of primary concern for any transport system. Travellers expect transport systems, services and networks to be safe to use. The importance of road safety has already been illustrated through the development of a National Road Safety Strategy. Road safety needs to consider policies, which address all categories of road users including children, pedestrians, two-wheelers, drivers, etc. as well as supporting the development of innovative solutions.

Additionally, transport security is a sensitive issue that affects all transport users and transport providers. It is a basic right to be able to travel without fear of being a victim of some form of attack. Yet, it is also important that security is not so intrusive as to make travel an unpleasant experience. Transport security can cover everything from terrorist attacks to prevention of vandalism and graffiti.

The following aspects have been defined to further explain the direction of this Strategy:

- Resilient critical infrastructure
- Extending the lifetime of high quality infrastructure
- Reduction in injuries and loss of life relating to transport accidents
- Rapid response to emergencies and accidents
- Crime and Terrorism

3.7.1 RESILIENT CRITICAL INFRASTRUCTURES

The risks to critical infrastructure are increasingly complex. They include natural, intentional and accidental hazards. Critical infrastructure therefore needs to be protected from all types of hazards. Enhancing the resilience of critical infrastructure can be achieved through the appropriate combination of a number of measures if planned in advance. Security measures can be taken to address intentional and accidental incidents. Measures can be established to deal with disruptions and ensure the continuity of essential services if critical infrastructure is affected. In order to enhance the resilience of critical infrastructure we need to establish actions and programs which first of all identify the risks and the interdependencies, assess and prioritize them and take mitigation or protective measures to reduce the risks. In addition, exercises can be conducted to assess measures and identify areas for improvement.

Given the interdependencies and connectedness of the transportation system, a disruption of any one service could have a cascading effect across essential services or systems. A “risk management” approach refers to the continuous, proactive and systematic process to understand, manage and communicate risks, threats, vulnerabilities and interdependencies across the transportation system, including those who manage the infrastructure but also the operators of the various transportation systems. Having a strong situational awareness of the risks and interdependencies that confront the transportation systems is essential and this would allow for a more swift and efficient response efforts when disruptions occur. Emergency management planning needs to be in place so as to ensure adequate response procedures are in place to deal with unforeseen disruptions and natural disasters.

3.7.2 EXTEND LIFETIME OF HIGH QUALITY INFRASTRUCTURE

As we continue to invest in new infrastructure we need to ensure that the maximum lifetime is achieved at which infrastructure continues to perform at the quality required. Infrastructure needs to be designed and implemented according to the required standards and specifications and therefore such standards need to be constantly reviewed and developed in the light of dynamic developments in technology, engineering and research.

Additionally, as research advances, technologies develop and our environment changes, we need to constantly keep up to date to ensure that new infrastructure is designed according to necessary requirements and to the highest standards. Besides this, maintenance plays an extremely important role in maximizing and extending the lifetime of infrastructure. The Strategy identifies the importance of exploring whether construction and maintenance standards are cost-effective.

3.7.3 REDUCTION IN INJURIES AND LOSS OF LIFE RELATING TO TRANSPORT ACCIDENTS

The NTS is committed to reducing casualties associated with all forms of transport. This outcome specifically aims to reduce accidents and loss of life in all areas of transportation. With regard to land transport a National Road Safety Strategy has already been developed, published in 2014, making the first step to set the foundations for a long term plan with the aim of improving road safety. Through the strategy, which sets out a 10 year direction for a safer land transport system, targets have been established whereby ultimately through long-term improvement the aim is to achieve a 50% reduction in fatalities, 30% reduction in grievous injuries and 20% reduction in slight injuries by the year 2024.

In brief, the action plan within the National Road Safety Strategy will holistically address road safety from the point of view of Enforcement, Engineering, Education and Safer Vehicles. (Road Safety Strategy, 2014) Initiatives in the areas of technology, enforcement, education and attention to vulnerable users (road), as well as operators and users in the maritime and aviation transport sectors will be key to reducing casualties.

Walking and cycling are also key components of inter-modal travel. The use of public transport (buses or ferries) is dependent on these modes for the beginning or end of the trip. Therefore the aim is also to create safer conditions for walking and cycling so as to encourage greater use of sustainable transport modes. In addition, creating safer conditions would encourage the use of active mobility at an early age, thus creating travel habits that may continue into adulthood.

3.7.4 RAPID RESPONSE TO EMERGENCIES AND ACCIDENTS

Mobility relating to the need to respond to emergencies and accidents is a basic function which the transportation system must provide. Every part of Malta needs to have good access to emergency services such as those at hospitals, but also there need to be standard operating procedures in the use of the transportation system to respond the emergencies and accidents. This also relates to the management of operations and co-ordination of different entities which may be involved in ensuring that emergency responses are carried out swiftly using the transportation system in the most efficient manner. For example, emergency routing might vary depending on the time of day, week or weekday depending on actual traffic situations. The NTS identifies the importance of having an in-depth understanding of this aspect.

3.7.5 CRIME AND TERRORISM

Safety and security in transport includes protection against societal influences such as crime and terror. The transport system needs to provide an environment which is not only safe but also perceived as being safe. Safety for all large numbers of users on collective transport, aeroplanes and ferries is paramount.

The public environment which supports the transportation system needs to be designed so as to minimise crime. Infrastructures such as pedestrian subways or public transport interchanges need to be considered in this context. The NTS therefore identifies the importance of moving forward with the development of the transportation system in relation to this aspect.

03.8 TRANSPORT TO WORK TOWARDS PUBLIC HEALTH

Transportation systems, if planned and designed appropriately, can provide large but often overlooked health benefits through for example improved public transport and more transit-oriented development. People who live or work in communities with high quality public transport tend to drive significantly less and rely more on alternative modes (walking, cycling and public transit) than they would in more automobile-oriented areas.

This is important as it reduces traffic accidents and pollution emissions, increases physical fitness and mental health, and provides access to medical care and healthy food. These impacts are significant in magnitude compared with other planning objectives, but are often overlooked or undervalued in conventional transport planning. Improvement in sustainable transportation systems can be one of the most cost effective ways to achieve public health objectives, and public health improvements. This Strategy recognises the importance of this and has developed the following aspects which set the strategic direction for this goal:

- A clean and pleasant public realm
- Active lifestyles
- Reduced pollution (air, noise and light)

3.8.1 A CLEAN AND PLEASANT PUBLIC REALM

Whichever mode of transport, whether we are walking, cycling or simply walking from our cars to our final destination, all take place within the public realm. Our experience of the transportation system is therefore very much affected by the quality of the public realm around us. Cleanliness and orderliness in this sense are extremely important. A cleaner public realm provides for a more pleasant environment which in turn encourages more use of the public environment for more active transportation modes such as walking. This aspect identifies the need to: work towards a cleaner public realm in order to support improved public health; clean transport infrastructures; high levels of maintenance and upkeep and educational awareness.

3.8.2 ACTIVE LIFESTYLES

As the strategy for 'A Healthy Weight for Life'" states global incidence and prevalence of overweight and obesity in both children and adults are showing steep upward trends and Malta is no different. With 40-48% of children and 58% of adults being overweight and obese, excess weight in both children and adults in Malta has become a major concern.

There is therefore the need to constantly create opportunities to lead more active lifestyles and the transportation system can play an important role in facilitating this. The planning and design of the transportation system needs to move towards facilitating more active mobility modes such as walking and cycling. In addition, we need to ensure that the transportation system does not negatively impact opportunities for informal recreation within easy access in urban areas. Traffic noise and pollution can for example deter people from walking and cycling even if the physical infrastructure allows for it. The quality of the environment we live in plays an important role in creating opportunities for informal physical activity as part of our daily lives. The NTS therefore recognizes the need to: ensure that transport infrastructure or traffic impact does not adversely affect informal recreational opportunities; improve opportunities for walking and cycling; and work towards transformation of suitable residential streets from traffic routes to public places so as to maximize informal recreation space in urban cores.

3.8.3 REDUCED POLLUTION (AIR QUALITY, NOISE AND LIGHT LEVELS)

Emissions from transport-related activities create a range of pollutants resulting in poor air quality which is harmful to human health. Air pollution has serious health impacts, particularly in urban areas. We need to ensure that the transport system keeps up with technological advances (in relation to private vehicles as well as public transport) so as to reduce harmful emissions. The harmful impacts of carcinogenic VOCs, PM10s and ozone would be greatly reduced by meeting WHO Air Quality guidelines for human health and ecosystem protection. Damage from SO_x, NO_x and ozone levels also needs to be addressed.

Noise from transport may result in outdoor noise levels that present a health concern or serious nuisance. Noise and vibration made by vehicles, vessels and airplanes disrupts our quality of life and can have negative impacts on health if excessive. Mitigating this may entail a reduction in noise levels to no more than 55 dB(A) during the day and 45dB(A) at night. Additionally poorly designed, excessive or badly positioned lighting can have an adverse effect on localities, health and ecosystems. This NTS recognizes the need to consider these different types of pollution in the planning, design, regulation and operation of transportation.



04

STRATEGIC DIRECTION: EIGHT GUIDING PRINCIPLES



The previous chapter outlined the six strategic goals. At a strategic level the National Transport Strategy, also identifies eight key guiding principles, based on European and National Policy reviewed in Chapter 1 as well as trends identified in Chapters 2. These guiding principles set out the strategic direction for Transport Policy in Malta. Following this, the Transport Master Plan will identify a number of transport operational objectives at a more detailed level, in response to the issues and problem identification documented in the 'National Transport Strategy - Existing Conditions and Data Diagnostic Report, 2014' so as to work towards the six strategic goals.

The following sections provide a brief overview of the strategic direction envisaged for each principle as well as how each relates to the Strategic Goals. The Master Plan will then present the measures and actions which will be implemented in relation to these guiding principles to achieve the transport objectives and in turn the Strategic Goals.

GUIDING PRINCIPLES								
	1. Efficient utilisation of the Existing Transport System: Traffic Management, Enforcement & Asset Management	2. Creating Modal Shift	3. Integrated Approach to Planning & Design	4. Encouraging Use of Greener Vehicles & Fuel	5. Developing & Improving the Effectiveness & Quality of the Strategic Transport Network	6. Education, Information & Human Resources	7. Room for Research & Innovation	8. Financing & Generating Revenue
STRATEGIC GOALS								
Supports Economic Development	✓	✓	✓	✓	✓		✓	✓
Provides Accessibility & Mobility	✓	✓	✓		✓	✓	✓	✓
Promotes Environmental & Urban Sustainability		✓	✓	✓			✓	✓
Supports Social Development & Inclusion	✓	✓	✓			✓	✓	✓
Works towards Improved Public Health		✓	✓	✓		✓	✓	✓
Is Safe & Secure	✓		✓	✓	✓	✓	✓	✓

Table 3.
Cross relation between Guiding Principles and Strategic Goals

As indicated in the table above, the **8 guiding principles** are therefore:

1. Efficient utilisation of the existing transport system: Traffic Management, Logistics Planning and Enforcement
2. Creating modal shift
3. Integrated approach to planning and design
4. Encouraging use of greener vehicles and fuel
5. Developing and improving the effectiveness and quality of the strategic transport network
6. Education, information and human resources
7. Room for research and innovation
8. Financing and generating revenue

These guiding principles will be further elaborated upon in the following sections.

04.1

GUIDING PRINCIPLE 1: EFFICIENT UTILISATION OF THE EXISTING TRANSPORT SYSTEM - TRAFFIC MANAGEMENT, LOGISTICS PLANNING AND ENFORCEMENT

Traffic management helps reduce congestion by improving traffic flows on existing infrastructures, particularly if applied as part of a co-ordinated, network-wide plan. Shifting the emphasis towards ITS solutions and electronic documentation in multi-modal freight operations and urban logistics can improve the efficiency of supply chains through traffic management of this sector.

Enforcement and regulation are important mechanisms to improve the efficiency and safety of the existing transport infrastructures and services and whilst safeguarding the rights of users and passengers.

This principle is particularly important in relation to the strategic goals of accessibility and mobility, social development and inclusion, as well as, safety and security of the transportation system. Developing new infrastructure is expensive and disruptive. The sustainable approach to improving the transportation system would be to apply the most cost-effective measures which ensure that the maximum efficiency is achieved from the existing network.

Traffic management and enforcement are two aspects which this strategy has outlined as playing an extremely important role in achieving efficiency of the existing network in the short and long term

04.2

GUIDING PRINCIPLE 2: CREATING MODAL SHIFT

The trends of increasing car ownership and the inability for supply to continue meeting travel demands by private transport at its growing rate, is resulting in ever increasing levels of congestion. Experience has shown that such trends only contribute to a transportation system whose future growth is unsustainable. As has been the approach over the past 5-10 years one of the strategies in achieving the objectives for the Transportation System is to continue developing and implementing measures to increase the shift towards sustainable transportation modes such as public transport, walking, cycling and other shared and active modes. Additionally, if more transport choices are available the system is more flexible which increases its resilience.

Achieving a more balanced modal split is key to a number of the strategic goals in particular: supporting economic development; providing accessibility & mobility; promoting environmental and urban sustainability; social development and inclusion; and working towards public health. Working towards a more balanced split between private car use and sustainable modes will require more than just investment in services and infrastructure as, in the medium to long term, spatial planning information, education and social marketing are equally important aim to pull rather than push this shift as a first attempt. Separate guiding principles (3 and 6) have therefore been developed to address these challenges in their own right.

04.3

GUIDING PRINCIPLE 3: INTEGRATED APPROACH TO PLANNING AND DESIGN

Adopting an integrated approach to planning and design of the transportation system is seen as essential in ensuring a sustainable transportation system. Sustainability is about achieving economic, environmental and social objectives and thus it is inherent that these aspects are considered in an integrated way. Additionally, in providing accessibility and mobility through a transportation system which is reliable, efficient, safe and inclusive implies a wide range of goals and objectives which requires the need to think about transportation in a more holistic way.

One of the most important long-term influences on transport demand is land-use patterns. The processes for planning land use and transportation need to go hand in hand and this strategy will aim to introduce measures which will work towards this. Ensuring that the availability of facilities, the places where people work, recreate etc. are developed in a manner which reduces inefficient and unsustainable travel demand is crucial. This strategy recognizes the need for all government agencies to work together when making decisions about whether and how to locate facilities within communities in relation to their accessibility.

04.4

GUIDING PRINCIPLE 4: ENCOURAGING USE OF GREENER FUELS AND VEHICLES

This particular strategic theme does not necessarily address the strategic goal relating to accessibility and mobility and meeting travel demands however it is a critical principle in achieving the strategic goals of 'Sustainable Urban and Rural Environments' and 'Working towards Public Health'. Having said that, some goals such as encouraging the use of smaller and not just cleaner vehicles will play a role in reducing congestion and improving accessibility and mobility. This principle recognizes the importance of the commitment to supporting the use of greener technologies, fuels and energy from alternative and renewable sources for the transport system to reduce energy demand - particularly through the dependence on hydrocarbons. Apart from improving the efficiency and cost of the transportation system in the long term, this will also reduce green-house gas emissions and harmful pollution relating to air quality and noise impact. An EU commitment has been made to achieve a target of 10% of energy consumed in all forms of transport from renewable resources by 2020. (National Reform Programme April 2013).

04.5

GUIDING PRINCIPLE 5: MODERNISATION, DEVELOPMENT AND REVITALISATION OF THE STRATEGIC TRANSPORT NETWORK TO IMPROVE TERRITORIAL COHESION

This principle addresses the strategic development of transport infrastructure – road, maritime and air by reducing bottlenecks, improving connectivity to the European transport network and ensuring capacity of the transportation system in as far as the provision of such capacity is sustainable. Specifically this theme will address the Strategic Goals of ‘Providing Accessibility and Mobility’ and ensuring that the transportation system ‘Is Safe and Secure’. In turn this will also support Strategic Goals such as ‘Supporting Economic Development’ and ‘Social Development and Inclusion’.

Strategic links could include major routes for moving freight, tourism movement or commuting corridors externally and internally.

04.6

GUIDING PRINCIPLE 6: INVESTMENT IN EDUCATION, INFORMATION AND HUMAN RESOURCES

This guiding principle will address the importance of ensuring that the necessary information is easily available to improve education as a tool for behaviour change and to improve public and media awareness of the issues and challenges to support the goals of this strategy. In particular this principle will address the aspects relating to ‘Providing Accessibility & Mobility’, ‘Social Development and Inclusion’ as well as ‘Safety and Security’.

Additionally having the necessary human resources in place and professional skills which can support the planning, design, provision and operation of the transportation system is essential.

04.7

GUIDING PRINCIPLE 7: MAKING ROOM FOR INNOVATION AND RESEARCH

This principle identifies the need to encourage further the role of research and innovation as part of the development of the transportation system. Malta's small size practically precludes the development of specialised research capabilities in all transport areas. However, the creation of synergies with research establishments in other countries through joint initiatives, knowledge transfers and exchange of best practices can help overcome many of the limitations to research and deployment. Creating the right environment to deploy state-of-the-art technologies will play an important role in addressing key challenges specific to the Maltese context. This principle will be cross-cutting in working towards all six strategic goals. This will also set the framework for synergy between work being carried out by academics and the industry with the aim of maximizing the resources, skills and expertise available.

04.8

GUIDING PRINCIPLE 8: SUSTAINABLE FINANCING AND FAIR COMPETITION

Implementing the measures which will be identified in the Transport Master Plan requires adequate and sustainable financial resourcing. Funding should be soundly justified to ensure effective use on limited resources to bring about modernisation and harmonisation in the transport market whilst minimising transport externalities. Proper asset management ensures that finances will be utilised effectively throughout the lifetime of infrastructure and services.

Allocation of costs to the users of infrastructure and services should be fair and equitable whilst operators in the transport sector should be able to generate sufficient revenue to allow them to sustainably maintain safe and efficient services and infrastructures. Financing of transport infrastructure and measures can come from various traditional sources e.g. national budgets, various EU funding programmes and other finance providers. Alternative forms of finance involving the private sector could be explored.

Government revenue raised through transport taxes and fees are not earmarked for transport use, but fund other parts of the government system. A higher proportion of transport taxes need to be channelled back into transport to ensure its longer term sustainability and fair allocation of user fees.



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05

TARGETS AND MONITORING



Malta is bound by a number of national, EU and international targets that have either been officially committed to, or tacitly agreed to. These may be short term (e.g. Road Safety targets set for 2020), mid-term (e.g. TEN-T Core network completion by 2030) or even long term (e.g. climate change targets 2050 and 2080).

The purpose of this chapter is to set out appropriate national targets that will help monitor the progress towards achieving the Strategic Goals and international commitments. The Strategic Targets (and related indicators) also guide the Transport Master Planning process by facilitating the establishment of short and midterm benchmarks that act as checkpoints toward the long term goals.

A related target setting process will therefore also be established for the Transport Master Plan 2025 and any subsequent similar plans.

05.1 STRATEGIC GOALS AND TARGETS

The targets that Malta has committed to and that have a transport dimension have been tabulated below, cross-referencing them to the Strategic Goals that guide this strategy.

Blanks in the tables below indicate that the targets have not yet been established for the said date. The state of play as of 2015 (or last recorded where indicated).

Strategic Goal	Indicators	TARGETS		
		2015	2030	2050
Economic Development	TEN-T Core Network (20.8km) - length completed	14.4km	20.8km	20.8km
	TEN-T Comprehensive Network (92.4km) - length completed	29.8km	60.9km	92.4km
	Bus Average Speed at AM Peak	14.8km/h	20km/h	

Strategic Goal	Indicators	TARGETS		
		2015	2030	2050
Environmental & Urban Sustainability	Conventionally fuelled cars	99.9%	50%	0%
	Zero emission urban logistics	<1%	95%	
	Average Age of Passenger Cars (to 2014 EU Average)	13.6 yr	8.5 yr	
	Non-ETS Greenhouse House Gas emissions from Transport	532 ktCO ₂ equiv	525 ktCO ₂ equiv ⁴⁸	

⁴⁸ As non-ETS Targets for Transport, following the recent Paris Accord, are still under discussion at National level, these figures are subject to change based on Malta's Low Carbon Development Strategy, currently being formulated by Government

Strategic Goal	Indicators	TARGETS		
		2015	2030	2050
Accessibility and Mobility	Modal Share (car drivers) (back to 1990 level)	57%	41%	10%
	Public Transport Boardings	43.7 m	50.2m	

Strategic Goal	Indicators	TARGETS		
		2015	2030	2050
Social Development and Inclusion	Percentage of population that are >15min on foot from nearest bus stop	4%	3%	

Strategic Goal	Indicators	TARGETS		
		2015	2030	2050
Safe and Secure	Road Accident Grievous Injuries	292 (2014)	204	150
	Road Accident Fatalities	17	8	none

Strategic Goal	Indicators	TARGETS		
		2015	2030	2050
Improved Public Health	Modal Share of non-motorised trips (journeys more than 5 min at AM peak)	8%	15%	20%

05.2 MONITORING OF PROGRESS

Naturally targets and indicators do not stand alone. Regular review of progress in relation to the trends towards the targets must take place. This state of play, in combination with the review undertaken as part of the Strategic Environmental Assessment (SEA), should be recorded and published routinely and regularly to ensure that all stakeholders are informed of the progress towards the targets committed to by Malta, as set out above.



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LIST
OF
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ANNEX 1 PREVIOUS TRANSPORT MASTER PLANS

PAST STUDIES AND PLANS

In Malta, detailed statistical socio-economic data – for informing travel demand – are collected by Malta National Statistics Office. Additionally, a recent national household travel survey was undertaken in 2010 by Transport Malta and provides sampled data related to travel patterns in Malta. Other datasets include census data, traffic count and travel survey data collected by Transport Malta.

In order to inform the transport supply side, existing infrastructure plans have been taken into consideration. There have been a number of transport studies covering Malta in recent years. These have varied in scope and level of detail. Those at the national level include:

- GTZ (1998) Master Plan for Roads of Malta & Gozo
- TINA-Vienna (2002) Transport Infrastructure Needs Assessment – Identification of network components for a future trans-European transport network – Malta
- BCEOM (2004) Feasibility and Environmental Impact Studies for Transport Infrastructure in Malta
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MASTER PLAN FOR ROADS (1998)

The Master Plan for the road network of Malta and Gozo aimed to improve the quality of the arterial and distributor networks; increase the capacity of the system; and introduce a viable rehabilitation and maintenance programme ensuring the proper performance of the road system. It presented an ambitious investment plan in order to increase the efficiency and safety of road transport activities and was based on detailed technical assessment of the 370 km of arterial and distributor roads in Malta and Gozo.

In the preparation of the plan, Gesellschaft fur Technische Zusammenarbeit (GTZ), examined traffic volumes, road and footpath widths and road conditions. The strategic roads were classified according to the severity of road conditions and traffic volumes in order to facilitate short, medium and long term planning of maintenance and new road works and their budgets focusing on balanced development between modes, the removal of bottlenecks and the improvement of safety and quality of road transport.

TRANSPORT INFRASTRUCTURE NEEDS ASSESSMENT (2002)

The Transport Infrastructure Needs Assessment (TINA) was carried out under European Commission contract MLT-01-002.00. The extension of the TINA process to Malta was seen as a first step to assessing the transport infrastructure of the Maltese Islands in relation to the provisions of the TINA network in other acceding countries and the TEN guidelines (European Parliament and Council's Decisions 1692/96 and 1346/2001). The TINA in Malta identified the transport network that could be considered as the basis for the future extension of the Trans European Transport Network (TEN-T) on the islands. The identification of this multimodal network (consisting of roads, ports and one airport) took into consideration the needs of the country, its specific characteristics and its economic capacity to realise the proposed investment.

The TINA project was based on two main phases, firstly concerning the definition of the TINA multimodal network; the second identifying the high level prioritisation of new infrastructure or the upgrade of existing infrastructure up to the end of 2014. The study also evaluated the administrative capacity for Malta to implement projected transport infrastructure investments up to 2015 and recommended improvements to organisational structures in line with current best practice.

FEASIBILITY AND ENVIRONMENTAL IMPACT STUDIES FOR ROAD TRANSPORT INFRASTRUCTURE IN MALTA (2004) AND GOZO (2005)

Following the amendment to Decision 1692/96 and the incorporation of the extension of the TEN-T network to include Malta, consultants BCEOM were engaged under contract EUROPAID/114473/D/SV/MT to carry out detailed feasibility and environmental impact studies of the proposed road transport infrastructure network for Malta.

The studies had technical assessed the TEN-T road network in Malta and Gozo section by section. A detailed analysis of existing traffic conditions was carried out at the time in addition to rudimentary forecasting of future growth demand on each section. Different road upgrade options were developed and tested and environmentally assessed and preferred options for each section were identified.

ECORYS FEASIBILITY AND ENVIRONMENTAL IMPACT STUDIES FOR MARITIME TRANSPORT INFRASTRUCTURAL PROJECTS - MALTA (2006)

This report provided planning for strategic development of maritime infrastructure and a more detailed Grand Harbour zoning plan. Similar to the BCEOM study, the projects identified in the TINA study were further explored from a feasibility and environmental point of view. The studies also explored concepts for better freight linkages between Valletta, Marsaxlokk and Luqa sea and ports; however this concept was restricted by each port specialising in distinct type of maritime activity.

STUDY ON STRATEGIC EVALUATION ON TRANSPORT INVESTMENT PRIORITIES UNDER STRUCTURAL AND COHESION FUNDS FOR THE PROGRAMMING PERIOD 2007-2013 (2006)

This DG-REGIO study on the 2002 TINA recommendations as prioritised by the BCEOM 2004 study (and the ECORYS 2006 Maritime study) looked at the proposed priorities in line with the Community cohesion policy strategic guidelines, the appropriateness in terms of national transport policy and the administrative capacity of the country to implement the prioritised plan.

The study concluded that the strategic road network would benefit from further expansion with connections and links to ports and airports, prioritising the missing

links. The study also concluded that the development of Valletta and Marsaxlokk ports into safe and efficient places for transporting goods and passengers would also better link Malta to the other parts of the EU TEN-T network.

ANNEX II ANALYSIS OF THE SPED OBJECTIVES

SPATIAL PLAN FOR ENVIRONMENT AND DEVELOPMENT AND NATIONAL TRANSPORT STRATEGY

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
To manage the available potential space and environmental resources on land and sea sustainably to ensure that socio-economic development needs are met whilst protecting the environment and limiting land take up within the Rural Area	Socio-Economic Development	<ul style="list-style-type: none"> Reducing congestion, reducing traffic impact, ensuring accessibility and supporting the creation of quality environments within the urban area and prime tourism sites so as to retain and ensure attractiveness of these areas such that development of new jobs, homes etc will be concentrated in existing urban areas. Explore the potential for transport infrastructure to increase the availability of green open space or vegetation in our urban environments Support the integrated regeneration of degraded areas through infrastructural improvements
To ensure that provision is made for new social and community facilities and to cater for extensions to such existing facilities for education, child care, family care, health, the elderly, the disabled, rehabilitation, places of worship and animal welfare which are accessible for all whilst minimising environmental impacts	Socio-Economic Development	<ul style="list-style-type: none"> Ensuring easy accessibility to facilities by walking when daily facilities are within walking distance and ensure access by other sustainable modes of transport when walking is not possible

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
To support the lifting of persons out of risk of poverty and social exclusion	Socio-Economic Development	<ul style="list-style-type: none"> Ensuring accessibility and affordability of public transport to ensure access to jobs, shopping, leisure and other activities with particular emphasis on the Principal Urban Area and coastal resorts
To seek to ensure that existing strategic infrastructure is safeguarded and that provision is made for infrastructure (water, electricity, sewers, fuel storage, telecommunications) to sustain socio-economic development needs whilst encouraging the Best Available Technology and protecting the environment	Socio-Economic Development	<ul style="list-style-type: none"> Ensuring that transportation infrastructure projects support objectives relating to the provision of services infrastructure such as utilities, telecommunication, water resource management etc.
To ensure that existing recreational resources are protected, enhanced and accessible, and to facilitate the provision of new recreational facilities to improve social cohesion, human health, air quality and biodiversity	Socio-Economic Development	<ul style="list-style-type: none"> Ensuring easy accessibility to recreational facilities by walking when such facilities are within walking distance and ensure access by other sustainable modes of transport when walking is not possible Ensuring that development of transport infrastructure does not have adverse impacts on National Recreational areas as identified in the SPED
To safeguard environmental health from air and noise pollution and risks associated with use and management of chemicals	Environment	<ul style="list-style-type: none"> Promoting alternative modes of travel such as walking, cycling and waterborne travel Exploring potential ways to minimise transport related pollution in identified hot spots or vulnerable areas

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
<p>To promote the efficient use of resources including local stone, water and soil, and manage waste in a manner that safeguards natural process, and minimises impacts on cultural heritage, landscape and human health</p>	<p>Environment</p>	<ul style="list-style-type: none"> • Explore the potential for using transport infrastructure for improved water management and contribution to sustainable urban drainage systems • Promote the efficient use of resources in the construction of infrastructure projects
<p>To safeguard and enhance biodiversity, cultural heritage, geology and geomorphology</p>	<p>Environment</p>	<ul style="list-style-type: none"> • Ensure that infrastructure development does not have adverse impacts on biodiversity, ecological networks, protected areas etc. • Explore potential for transportation system to contribute to the character, amenity and distinctiveness of designated areas and sites for their built heritage • Explore potential for transportation infrastructure to enhance biodiversity in urban areas
<p>To control greenhouse gas emissions and enhance Malta's capacity to adapt to Climate Change</p>	<p>Climate Change</p>	<ul style="list-style-type: none"> • Promoting renewable energy sources and zero carbon modes for transport • Explore the use of permeable surfaces in road design so as to reduce water run-off and risk of flooding • Improving public / collective transport as a high priority adaptation measure for Climate Change

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
<p>To facilitate the modal shift through the provision of an integrated transport network and a parking framework whilst minimising their adverse environmental impacts particularly on protected areas and species</p>	<p>Travel Patterns</p>	<ul style="list-style-type: none"> • Shifting the emphasis from new road construction to better integration of public transport priority measures on better managed roads • Implementation of the TEN-T core and comprehensive networks • Revising the categorisation of the road network • Using advanced technologies to improve traffic management and road safety • Integration of rainwater management infrastructure in road networks • Revising the current standards of the provision of and management of off-street and on-street parking
<p>To facilitate the provision of an efficient public transport service and other green modes</p>	<p>Travel Patterns</p>	<ul style="list-style-type: none"> • Constantly improving the public transportation system • Work with MEPA to review transport assessments for a wider range of travel generating schemes • Improving public transport, walking and cycling prioritisation measures as part of road improvement and traffic management schemes and improving water-based transport services • Identifying stretches of the road network where bus priority routes can be introduced to facilitate the diversion of trips onto public transport

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
<p>To ensure the continuing efficient operation of the Harbours and Airport whilst minimising the adverse environmental impacts</p>	<p>Travel Patterns</p>	<ul style="list-style-type: none"> • Promoting integrated Harbour Management • Facilitating the implementation of the policy on regeneration of ports • Prioritising the efficient use of the port area on land and sea of the grand Harbour and Freeport • Ensure accessibility to port areas, industry related areas, the airport and aviation related activities by planning for the transport network to accommodate their anticipated growth • Explore the potential for management of freight logistics and distribution • Future expansion of the comprehensive ports / harbours to ensure their continued effective functioning
<p>To accommodate socio-economic development in those parts of the Urban Area well served by public transport and existing infrastructure, to contain urban sprawl and minimise the need to travel</p>	<p>Urban Area</p>	<ul style="list-style-type: none"> • Liaise with MEPA to ensure that areas defined for higher capacity development are well served by public transport and that land use development and transport planning take place in an integrated manner • Ensure that future improvement in public transport provides a quality and reliable service to the PUA and support SPED regeneration initiatives such as the Grand Harbour Area regeneration • Ensure that Business Hubs and Enterprise hubs are well served by public transport

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
To improve the townscape and environment in historic cores and their setting with a presumption against demolition of property worthy of conservation	Urban Area	<ul style="list-style-type: none"> Explore opportunities to reduce the impact of traffic in historic cores so as to support townscape and environment improvement
To identify, protect and enhance the character and amenity of distinct urban areas	Urban Area	<ul style="list-style-type: none"> Explore opportunities to reduce traffic impact in urban areas and contribute towards the greening of the public realm Reducing traffic in traffic sensitive urban areas by promoting pedestrianisation, shared space streets, traffic calming and green modes of travel
To ensure that all new developments are energy and water efficient and provide a sense of place, respond to the local character, improve amenity and the pleasantness of place and ensure safety	Urban Area	<ul style="list-style-type: none"> Ensure that the design of transport infrastructure supports creation of sense of place, responds to local character and supports amenity creation and safety of places Ensure that development of transport infrastructure supports the concepts of sustainable urban drainage systems and supports reduction of rain water runoff in urban areas
To facilitate sustainable rural development and the diversification of activities within the Rural Area to sustain agriculture and safeguard its distinctiveness	Rural Area	<ul style="list-style-type: none"> Ensure that development of transportation systems support this objective and provide accessibility to activities in rural areas

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
<p>To ensure that existing rural recreational resources are protected, enhanced and accessible and to facilitate the provision of new recreational facilities which enhance the public's rural experience in a manner which does not have an unacceptable adverse impact on protected area, species and areas of high landscape sensitivity</p>	<p>Rural Area</p>	<ul style="list-style-type: none"> • Ensure accessibility to rural areas whilst minimizing the negative impacts, particularly from vehicular access on protected areas and areas of high landscape value and sensitivity
<p>To guide development which is either justified to be located in the Rural Area in approved Government policies, plans or programmes, or is incompatible with urban uses and where alternatives are not possible, to the Rural Area away from protected areas and areas of high landscape sensitivity, preferable on areas of containment, previously developed land or existing buildings while ensuring the improvement of the quality of the rural environment</p> <p>Rural Area</p>	<p>Rural Area</p>	<ul style="list-style-type: none"> • Ensure that any transport related developments which may fall under this description seek to support this objective
<p>To protect and enhance the positive qualities of the landscape and the traditional components of the rural landscape</p>	<p>Rural Area</p>	

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
To rehabilitate, upgrade and regenerate deteriorating natural environments on the basis of their type and location	Rural Area	
To prioritise uses that necessitate a location on the coastal zone and marine area in a manner which minimises user conflicts, does not accelerate coastal erosion, protects biodiversity, cultural heritage, landscapes and visual access to them, public access and use and increases resilience to climate change impacts	Coastal Zone and Marine Area	<ul style="list-style-type: none"> • Explore the potential to develop an access hierarchy to the different types of coastal areas defined which ensures accessibility while at the same time supporting the objectives and proposed characteristics of the various coastal areas
To facilitate the sustainable development and diversification of the fishing and aquaculture industries	Coastal Zone and Marine Area	
To ensure that existing coastal recreational resources are protected, enhanced and accessible and to facilitate the provision of new recreational facilities which do not restrict or interfere with physical and visual public access of the coast and in a manner which does not have an unacceptable adverse impact on protected areas, species and areas of high landscape sensitivity	Coastal Zone and Marine Area	<ul style="list-style-type: none"> • Ensuring development of the transport system to provide accessibility to the areas outlined in the objective while retaining the principles defined in the objective

Key Element/ Objective	Strategic Spatial Objective	How Can The National Transport Strategy Support this?
<p>To ensure that the social and employment needs of Gozo are met and to protect distinctiveness of Gozo’s settlements, cultural and natural environment to support the implementation of Eco-Gozo’s initiative</p>	<p>Gozo</p>	<ul style="list-style-type: none"> • Development of the TEN-T network which seeks to address accessibility in Gozo • Encouraging better links between Malta and Gozo • Ensuring the development and improvement of sustainable transportation modes in Gozo

ANNEX III SUMMARY OF FOCUS GROUP INPUT

TRANSPORT FOCUS GROUP DISCUSSIONS

The group consisted of about 30 people and was subdivided for discussion purposes and discussions were held with regard to six different themes these being: Inclusiveness, Safety, Sustainability, Reliability, Efficiency and Integrated Transport. Notes of the discussions were taken and the key ideas are summarised below.

INCLUSIVENESS

- Public transport is not regarded as an alternative to private vehicles. This change would require push and pull measures. However, the introduction of charges for using private vehicles might result in only those of higher income being able to afford the use of a car.
- There is the need to find a balance between efficient transport and affordable transport for water transport, taxis and parking.
- Public transport must be an attractive option. It must be accessible to the disabled; the information should get to everybody, also visual and hearing impaired. The bus timetables could be at a lower level, etc.
- There is the need to improve the public transport connections both within towns and between towns.
- The change to public transport and the compliance with traffic rules should be promoted at school.
- Bus drivers should care about their image and be kind to bus users.
- There is the need to create a pleasant environment to promote soft modes, which would mean limiting car use. Public transport could allow users to carry their bicycles.
- Taxi service is not affordable.

SAFETY

- Attitude to accidents tend to be reactive rather than proactive. Solving the lack of information on accidents (place, time of day, weather conditions, surface conditions, etc.) is the first step to be able to design a policy.
- Lack of road maintenance (bad surface conditions cause accidents for motorcycles, water is not properly drained, etc.).
- Children and old people are especially sensitive. Education campaigns should target different groups.
- It is necessary to differentiate between local and arterial roads. Local roads should be designed to promote the use of soft modes (provision of adequate facilities for pedestrians and cyclists, control of the speed of the vehicles, etc.).
- The design of facilities for cyclists should consider the potential users (leisure vs commuting) and routes, whether or not cyclists will share space with other users,

the safety requirements, speed limit, the continuity of the cycling lanes, etc. It is very important to develop regulations on cycling facilities design and driving rules prior to the implementation and use of such facilities.

- Bad visibility at some points due to the inappropriate location of trees and signs.

SUSTAINABILITY

- Reaching a sustainable transport system in Malta would require improving the public transport service, restricting the use of private vehicles, promoting mixed use developments, designing a transport plan based on a sound analysis of the mobility patterns and promoting the need to change bad habits.
- An analysis of the current mobility, supported by surveys of bus users, should be carried out before considering additional modes of public transport (LRT, underground, monorail, etc.).
- Widening roads and car parks increase car dependence.

RELIABILITY

- Public transport is integrated in the general flow of vehicles, so citizens do not find benefits in travelling by public transport, which is unreliable.
- The inadequate management of incidents, events and road works also prevents car users from knowing their journey time.

- Lack of surveys does not allow adequate knowledge regarding what travellers and bus drivers think of the current public transport.
- Lack of political will to move people from cars to public transport as it would mean limiting the use of private cars.
- Change in people habits requires both push and pull measures. Promoting public transport is not enough to get people out of their cars.
- It is also very important to tell citizens the reasons behind the changes by focusing on the benefits for the community (less emissions, more liveable cities, etc.).
- Need to study further the use and connections of current interchanges to make it easier the change from the private vehicle to public transport. New hubs were also suggested (eg. Ta Qali, Airport). The priority for the public transport could be achieved through express lanes connecting each hub with the main points of interest.
- There is room for improving the taxi service (seen as expensive and unreliable; unregistered taxis still exist).
- More sea connections within the main metropolitan area would be beneficial.
- Other modes of public transport would be possible (light rail, tram, BRT, etc.).
- Taking advantage of technology to provide real-time information, especially to public transport users.

EFFICIENCY

- Overall efficiency is not equal to pleasing everybody.
- Decentralised development makes it difficult in the provision of services. Transport infrastructure must happen before development of urban spaces.
- Promote the change to sustainable modes of transport through education and other possible measures (plan, carrot and stick). Inertia is not equal to change.
- Analyse possible ways to increase the efficiency of public transport (smaller buses, advice from other professionals, alternative means, etc.).
- Make people aware of the alternative options to travel.
- Lack of enforcement results in inefficiency.

INTEGRATED TRANSPORT

- Several alternatives to improve the service provided by public transport are proposed: extension of the monorail to other areas, combination of buses with a rail system, transportation hub at Floriana with underground car park linked to Ferry Tunnel between harbours, nodes identification and fast transport system between them, etc.
- Need to assess how to integrate private and public modes in terms of infrastructure, type of traveller (local versus tourist), funding, etc.
- Need to study further the use and connections of current interchanges to make it easier to change from the private vehicle to public transport.

- Promote walking by making alleys attractive, providing shade, etc.

SYNTHESIS AND PATTERNS IDENTIFIED

Analysis of the discussions for patterns and repeating themes was carried out so as to identify the more crucial aspects. The following is a summary of the main themes emerging:

- It is necessary to stimulate the change to more sustainable modes. Political will and education are essential to this change.
- Both pull and push measures are necessary to get people out of their cars (public transport improvements together with car restriction measures such as parking charges or congestion charge).
- Adequate interchange facilities are also vital to encourage people to change to public transport.
- There is a lack of data and information regarding accidents, bus user's opinions, etc.
- Land use development and transport development should go hand in hand. Urban developments should allow their citizens to access all the basic facilities by public transport or soft modes.
- Timing and scheduling of trips are seen as a tool to spread peak hour traffic.
- There are no adequate facilities for pedestrians and cyclists.
- There is scope for improving internal maritime transport and taxi service.
- Lack of enforcement.



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