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P.O. Box 1489, Port Moresby, National Capital District
Papua New Guinea
2013
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<tr>
<td>APEC</td>
<td>Asia Pacific Economic Cooperation</td>
</tr>
<tr>
<td>ATM</td>
<td>Air Traffic Management</td>
</tr>
<tr>
<td>ATR</td>
<td>Air Transport Regulation Division (of DOT)</td>
</tr>
<tr>
<td>BAMS</td>
<td>Bridge Asset Management System</td>
</tr>
<tr>
<td>CAA</td>
<td>Civil Aviation Authority (previous)</td>
</tr>
<tr>
<td>CASA</td>
<td>Civil Aviation Safety Authority</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CNS</td>
<td>Communication, Navigation and Surveillance (air)</td>
</tr>
<tr>
<td>CIMC</td>
<td>Consultative Implementation and Monitoring Council</td>
</tr>
<tr>
<td>CSO</td>
<td>Community Service Obligation</td>
</tr>
<tr>
<td>CWTP</td>
<td>Community Water Transport Project (within DOT)</td>
</tr>
<tr>
<td>DEC</td>
<td>Department of Environment and Conservation</td>
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<tr>
<td>DNPM</td>
<td>Department of National Planning and Monitoring</td>
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<tr>
<td>DOT</td>
<td>Department of Transport</td>
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<tr>
<td>DOW</td>
<td>Department of Works and Implementation</td>
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<tr>
<td>DPPLGA</td>
<td>Department of Provincial and Local Level Government Affairs</td>
</tr>
<tr>
<td>DRIP</td>
<td>District Road Improvement Programme</td>
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<tr>
<td>DSIP</td>
<td>District Services Improvement Programme</td>
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<tr>
<td>DSP</td>
<td>Development Strategic Plan</td>
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<tr>
<td>EIRR</td>
<td>Economic Internal Rate of Return</td>
</tr>
<tr>
<td>FIR</td>
<td>Flight Information Region</td>
</tr>
<tr>
<td>FRA</td>
<td>Forest Resources Authority</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>IALA</td>
<td>International Association of Marine Aids to Navigation and Lighthouse Authorities</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organisation</td>
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<tr>
<td>ICCC</td>
<td>Independent Consumer and Competition Commission</td>
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<td>IMO</td>
<td>International Maritime Organisation</td>
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<tr>
<td>ISO</td>
<td>International Standards Organisation</td>
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<tr>
<td>IPBC</td>
<td>Independent Public Business Corporation</td>
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<td>ISPS</td>
<td>International Shipping and Port Security</td>
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<tr>
<td>LTD</td>
<td>Land Transport Division (of DOT)</td>
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<td>LTB</td>
<td>Land Transport Board</td>
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<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>MSU</td>
<td>Maritime Security Unit (of DOT)</td>
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<td>MTD</td>
<td>Maritime Transport Division (of DOT)</td>
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<td>MTDP</td>
<td>Medium Term Development Plan</td>
</tr>
<tr>
<td>MTTP</td>
<td>Medium Term Transport Plan</td>
</tr>
<tr>
<td>MVIL</td>
<td>Motor Vehicle Insurance Ltd</td>
</tr>
<tr>
<td>Navails</td>
<td>Navigation Aids</td>
</tr>
<tr>
<td>NEC</td>
<td>National Executive Council</td>
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<tr>
<td>NEFC</td>
<td>National Economic and Fiscal Commission</td>
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<td>PNGLA</td>
<td>Papua New Guinea Logistics Association</td>
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<td>NMSA</td>
<td>National Maritime Safety Authority</td>
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<td>NRA</td>
<td>National Roads Authority</td>
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<td>NRSC</td>
<td>National Road Safety Council</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>NTDP</td>
<td>National Transport Development Plan</td>
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<tr>
<td>NTS</td>
<td>National Transport Strategy</td>
</tr>
<tr>
<td>NWS</td>
<td>National Weather Service</td>
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<tr>
<td>PCD</td>
<td>Planning and Coordination Division (of DOT)</td>
</tr>
<tr>
<td>PLLSMA</td>
<td>Provincial and Local Level Government Service Monitoring Authority</td>
</tr>
<tr>
<td>PNGASL</td>
<td>Papua New Guinea Air Services Ltd</td>
</tr>
<tr>
<td>PNGPCL</td>
<td>Papua New Guinea Ports Corporation Ltd</td>
</tr>
<tr>
<td>PPP</td>
<td>Public Private Partnership</td>
</tr>
<tr>
<td>PRD</td>
<td>Policy and Research Division (of DOT)</td>
</tr>
<tr>
<td>RAMS</td>
<td>Road Asset Management System (currently held in DOW)</td>
</tr>
<tr>
<td>TEU</td>
<td>Twenty Foot Equivalent Unit (shipping containers)</td>
</tr>
<tr>
<td>TIPS</td>
<td>Transport Infrastructure Priorities Study</td>
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Minister’s Statement

I am pleased to present the National Transport Strategy (NTS) and Medium Term Transport Plan (MTTP) prepared by the Department of Transport (DOT) with participation from the transport sector and other agencies of the National Government. The Strategy and Plan are in three volumes:

- Volume 1 – National Transport Strategy Summary
- Volume 2 – The Medium Term Transport Plan, 2014-2018
- Volume 3 – Detailed National Transport Strategy

The Department of Transport is the leading Government department with responsibility for policy and planning in the transport sector and for the compilation of the annual development budget from the submissions of the modal transport agencies.

The NTS has been developed as an entirely fresh review of the transport sector, its guiding principles, the structure and development of its institutions, transport policy in regards to economic and safety regulation, the role of Government, public funding and an investment strategy for maintaining and developing the transport network.

The NTS replaces the National Transport Development Plan 2006-2010 and is a more far reaching strategic view of the sector and its relationship to national level planning and policy as contained in Vision 2050, the Development Strategic Plan and the Medium Term Development Plan. It provides a chart for the future with a 20 to 30 year time horizon and a rolling five year investment plan for transport infrastructure and action plan for policy and institutional development and a legislative programme.

The successful implementation of the NTS depends on active participation and commitment from everyone including other state line agencies, the private sector, provincial governments and the wider members of our communities nation-wide. To ensure that it remains a living document, a process has been established for annual monitoring and periodic review of the NTS, at no more than five year intervals through the planning period, while the MTTP will be updated annually.

I commend the Strategy and Plan as a guide for the wise application of our limited resources in order to fully meet the national development goals and to provide an affordable and equitable balance between transport services that serve our main economic sectors and those that provide reliable access to our widely distributed rural population.

Finally, I wish to thank the present and former Secretary and all the staff of the DOT for their hard work in preparing the new National Transport Strategy.

Hon. Ano Paia MP

Minister for Transport
Introduction from the Secretary

Papua New Guinea faces many challenges in the development of its transport infrastructure to serve the needs of economic development, wealth creation and to provide equitable access to transport services for its widely distributed population. The period of the last 10 year National Transport Development Plan was marked by some successes in arresting the deterioration of transport infrastructure assets, with sections of the national highway network reconstructed, rehabilitation of selected provincial roads, further expansion of Port Moresby International Airport and the commencement of a water transport franchise scheme and jetty programme to deliver transport access to small coastal and river communities.

The anticipated increase in national income from the development of LNG and increased funding for the transport network, offer a renewed prospect of a cohesive national effort to fully rehabilitate the national road, port and airport network, to develop the provincial road networks to serve the rural population and agricultural production and to rehabilitate or construct rural airstrips and jetties to communities where road access is not feasible.

Over the past 10 years, a number of institutional, policy and legal reforms have been completed in the transport sector, which were necessary to create a more responsive framework for planning, regulating and delivering public services in the transport sector. Safety oversight and economic regulation have been strengthened and separated from service delivery which is increasingly through more self-reliant and commercially focused state owned enterprises (SOEs), through the creation of the National Maritime Safety Authority, the Civil Aviation Safety Authority, the National Airports Corporation, PNG Air Services Ltd and the PNG Ports Corporation.

However, further structural reform is still required, and development of capacity within the new agencies, particularly for roads and land transport. The creation of the National Roads Authority was an important development but must be followed up with a modern responsive system of road user charges to ensure sustainable maintenance funding for the core national road network. This National Transport Strategy also foreshadows the creation of new Road Traffic Authority, combining the regulatory functions of the Land Transport Division of the Department of Transport and the safety functions of the National Road Safety Council.

To provide for improved consultation among the transport agencies and alignment of forward plans, the Transport Sector Coordination and Monitoring Committee (TSCMIC) comprising the heads of the transport agencies was established in 2006 and will continue to be a key focal point for Government’s role in the transport sector, chaired by the Secretary of Transport.

The National Transport Strategy and Medium Term Transport Plan are living documents and the staff of the DOT make a commitment to annually monitor their progress and to undertake milestone reviews every five years in concert with Government’s five year plans and targets.

Roy Mumu

Secretary for Department of Transport
1 Introduction

1.1 The National Transport Strategy

The National Transport Strategy (NTS) is published as a Summary (Volume 1, this document), and a detailed strategy document (Volume 3), which includes background information profiling the sector and providing more detailed discussion of policy and institutional issues. There are also background working papers that have contributed to the development of the NTS.

Through this summary, key points have been numbered sequentially for reference purposes with bulleted explanatory paragraphs and refer back to boxed text in Volume 3, where the discussion is elaborated in more detail. It is stressed here that a full reading of the Volume 3 text is required to appreciate the full context and intent of the summarised points below.

1. Purpose of the NTS

- The purpose of the NTS is to set out Government's policies for development of the transport sector over the medium to long term, notionally the next 20 to 30 years corresponding to the period of Vision 2050 and the Development Strategic Plan.

2. Responsible Agency

- The Department of Transport (DOT) is the responsible agency for preparing the sector strategy for transport policy, institutional development and infrastructure investment.

3. Scope of the NTS

- The NTS includes transport policy, development of the transport institutions and the strategy for transport investment. The Medium Term Transport Plan.

The Medium Term Transport Plan (MTTP) constitutes Volume 2 of the NTS documentation.

4. Role and Purpose of the MTTP

- The MTTP provides a short to medium term action plan for transport policy, institutional development and legislative programme;
- It also provides a five year rolling programme for transport infrastructure spending to ensure that upcoming projects are consistent with the NTS investment strategy.

1.2 Vision and Goals for the Transport Sector

5. Sector Vision

- “A well-integrated, competitive, safe, affordable, financially and environmentally sustainable transport system that efficiently serves the economy and society of Papua New Guinea.”

6. Goals of the NTS

- Restore the national transport network;
- Fully fund maintenance as far as possible from user charges;
- Deliver a safe and secure transport system for users and the public;
- Mitigate or avoid adverse social, health and environmental effects of transport;
- Develop new infrastructure to serve national and provincial priorities where economically viable and within financial and capacity constraints;
• Provide better Government institutional structures to deliver transport infrastructure and services;
• Strengthen the human resource capacity of the Government transport agencies;
• Develop capacity and capability of PNG national enterprises in the transport sector;
• Bring 95% of the population within easy reach of all-weather transport access;
• Provide transport access to 95% or more of developable agricultural land;
• Provide well planned, regulated and operated traffic networks and urban public transport systems in the major cities.

1.3 Guiding National Vision and Plans

7. Guiding National Plans

• PNG Vision 2050;
• Development Strategic Plan (DSP), 2010-2030;
• Medium Term Development Plan, 2010-2030;
• Alotau Accord, 2012;
• Millennium Development Goals.

8. Economic Corridor Roads and Missing Links

• The NTS has considered all economic corridor roads described or mapped in the DSP and MTDP;
• They have been examined for order of cost, likely feasibility and a priority order established;
• While a few appear economically feasible, a number of the proposed links are likely to prove technically difficult, high cost and at the best, only very long term prospects.

9. The 16 NTDP Priority National Roads

• While these roads continue to be important road network links, the investment that has been made in them and the economic development and population growth that has taken place since they were first identified means that the merits of further improvement needs to be considered alongside that of other national and provincial roads;
• The TIPS 2010 modelling, the development of a functional classification and the subsequent prioritisation of national roads in this NTS goes some way to redefining future road investment priorities;
• Consequently, while the MTDP requires that the 16 priority roads be monitored in regard to their improvement and particular targets have been set, this NTS treats the 16 roads on an equal basis to all other roads.

10. Economic Sector Strategies and Plans

• Agriculture – of the main economic resource sectors of agriculture, minerals, petroleum and forestry, agriculture is the most affected by public sector investment in transport infrastructure. Further coordination and planning between DoT and DAL is required to fully incorporate agricultural demand into national and provincial transport infrastructure planning. The National Agricultural Development Plan (NADP) provides a basis;
• Mining, Petroleum and Forestry – are mainly builders of transport infrastructure for resource extraction rather than depending on public sector investment; roads, ports and airports built originally for resource extraction can become legacy infrastructure for the Government which can provide both benefit and an ongoing cost imposition; also some
public roads can be required to accommodate traffic generated by construction (such as oil and gas development) or extraction (such as logs) over limited periods of time; the NTS has located these developments but some further work will be required in quantifying impacts and long term incorporation of the infrastructure;

- Tourism – The Tourism Master Plan 2007-2017 identifies visitor handling at international gateways, internal transport safety, quality and cost and passenger facilities for cruise vessels as key constraints on development.

11. Social Sector Strategies and Plans

- The National Health Plan 2011-2020 and the National Education Plan 2005-2014 and Universal Basic Education Plan 2009-2019 have informed the NTS;

- Health and education at local rural level rely on the lower level transport infrastructure for building supplies, education and health materials, delivery of outreach programmes and to recruit and retain trained staff. Connection of health and education facilities has been included as a factor in determining the functional classification and desired standard of rural transport links.

12. Cross-Cutting Strategies and Plans

- The NTS includes provisions for cross-cutting issues including: good governance and corruption prevention; gender equity and women’s advancement; prevention of disease transmission such as HIV/AIDS; consideration of those with disabilities; environmental protection and climate change adaptation;

- Environmental protection - protocols and standards for mitigating environmental impact are required in larger donor funded projects and codes of environmental practice will be promoted for all transport projects;

- Climate change mitigation and adaptation – The NTS notes the climate compatible development targets for PNG established by OCCD and the sector will be encouraged to progress climate change adaptation and include the targets in monitoring the NTS;

- Gender Equity – the MTDP includes deliverables for development of entrepreneurial skills programmes for women and public sector workplace policies for gender equity;

- Good Governance - the MTDP has set out goals, strategies and deliverables for good governance and reduction in corruption through all Government agencies under the oversight of the DOF and DPM;

- HIV/AIDS - The National HIV and AIDS Strategy 2011-2015 guide the NTS, in particular in delivering prevention messages to construction workers and transport drivers/operators;

- Disabled and Disadvantaged - the NTS will advance the goals of the MTDP for improving infrastructure and utilities for disabled and disadvantaged travellers.

13. Provincial Transport Plans

- The detail and currency of provincial transport plans and the capacity of provincial administration to prepare and implement plans varies greatly;

- The DOT, through PCD and the new RIDD will assist provincial administrations in the preparation of their provincial transport plans with the aim of developing consistent approaches across provinces and good alignment between national and provincial level plans.
2 Review of the National Transport Development Plan (NTDP)

2.1 Review of the NTDP

As part of the NTS development, a review was made of the reviewed National Transport Development Plan 2006-2010 (NTDP), the original NTDP 2001-2010 and the earlier Transport Infrastructure Development Plan 1993-2002 (TIDP).

Although the NTDP was by no means fully implemented, it was an advance on its predecessors. It was the first comprehensive sector-wide plan incorporating policy principles, institutional development, a legislative programme and an investment plan. The NTDP had a number of strengths and weaknesses that are analysed and discussed further in Volume 3, Sections 1.5 and 1.6, and in a background working paper.

2.2 NTDP superseded by the NTS and MTTP

Once approved and adopted by the higher authorities of the Ministerial Committee on Infrastructure, the State Planning Committee and the National Executive Council, the NTS and MTTP will completely supersede the NTDP.

2.3 NTDP - Plan versus Achievement

While most of the planned institutional reforms were completed, such as the creation of the NMSA and the reform of the civil aviation agencies, relatively few of the policy actions were implemented, even though many still remain relevant. The original time frames were met in only a very few cases. The required legislative changes have lagged significantly on those institutional and policy reforms that were completed. Actions taken from outside the sector, such as by ICCC and NEFC, also contributed to the progress that has been made.

In regard to the national road network, actual total expenditure by DOW on national roads maintenance and rehabilitation matched that planned. However the length of projects completed was less than programmed due to project implementation costs being greater than plan, attributable to an increase in PNG civil infrastructure costs above the general rate of inflation and the rehabilitation needs being greater than originally planned for. Provincial and local roads were not addressed in the NTDP and, although significant funding has been provided through Government grants to provinces and through programs such as the District Road Improvement program (DRIP) and, more recently the District Services Improvement Program (DSIP), there has been insufficient investment to arrest overall deterioration of the rural network and the effectiveness of the expenditure is poorly monitored.

In the port sector, expenditure on Lae and Port Moresby ports considerably exceeded the NTDP plan, primarily due to the much higher costs of Lae port development. Some elements, such as rehabilitation of Daru, expansion at Wewak, mobile cranes for Lae, Alotau wharf and the rural jetty programme had not progressed at all by the end of 2010. Some aspects of the port investment plan, such as the new wharf at Kupiano, were of questionable priority. For small jetties and marine navigation, the restoration of navigational aids and the instigation of the Community Water Transport Project were both notable initiatives under the NTDP, although the CWTP has been slow to establish.

The total investment in rehabilitating and upgrading the nationally important airports was about half of that planned. Many of the planned projects were not started by the end of 2010 and have since been taken up by the new Civil Aviation Development Investment Program (CADIP). The only provision in the NTDP for restoration of rural airstrips was through DRIP, and the actual investment has been minimal and these have continued to deteriorate. There is also a group of secondary
provincial airports, some originally a national responsibility, that now rely entirely on Provincial Government for which there is little funding or technical capacity.

While many of the projects in the NTDP were not progressed, there were several cases where quite significant projects were funded that were not contained in the NTDP. In part this can be attributed to the NTDP being so firmly centred on the 16 national priority roads, so that all other projects were non-compliant even if of good quality. However there were also some notable examples of projects that were of very questionable value for money, and transport infrastructure spending that did not proceed through any systematic evaluation and prioritisation process and appeared as late or supplementary additions to the Budget appropriation. The approval of substantial transport infrastructure investment through non-transport agency budgets with little technical scrutiny or evaluation contributed to this lack of accountability and good process.

2.4 Lesson for the National Transport Strategy

There were several lessons from the experience of the NTDP which have been incorporated in the design of the NTS and will need to be borne in mind during its implementation and in the formation and updating of the Medium Term Transport Plan. The following aims for the NTS stem from this previous experience:

- Engender ownership of the NTS by the transport agencies – the transport agencies have been involved in the development of the NTS through modal working groups that have identified issues and through which future policy has been discussed; the investment proposals draw on specific modal studies carried out within each sector;
- Demonstrating that the NTS is backed by serious technical and policy analysis – this summary is backed by a more detailed technical document (Volume 3) and by several working papers on particular topics. The objective analysis backing the NTS should give it credibility and weight with the central agencies and the donor community;
- The NTS endeavours to be less general than the NTDP, to define its terminology clearly and to discuss the issues surrounding the policy positions taken;
- Providing a framework for investment planning and sufficient flexibility to allow carefully considered changes to be made in the future years of the NTS, but at the same time to guard against arbitrary adoption of new projects or policy without proper analysis;
- Recognise that realisation of the NTS and MTTP is heavily dependent on financial resources, particularly the Government budget, and the capacity of the agencies involved. While there is an increased emphasis on cost-recovery within transport sector SOEs, there must be realism in how far they can be self-sufficient. Similarly, the Government budget allocation to transport as a percentage of the total will be limited and this in turn will be dependent on economic growth;
- The need for balanced development across the whole of the transport network from main arterial routes and gateway ports down to local access roads and minor jetties and airstrips; the transport system will not perform well if the primary network is funded at the expense of feeders, nor if feeders are developed while the main arterials are allowed to deteriorate. A whole-of-network view is required that overcomes the compartmentalisation between the responsibilities of the national transport agencies and the responsibilities of provinces and LLGs. The funding and technical capacity must be evenly distributed in proportion to need;
- If balanced development is to occur, there must be good coordination and cooperation between national and provincial agencies so that scarce capacity is applied where it is most useful;
- Overall, the total funding applied to the transport sector must achieve a minimum level if the network is not to deteriorate further and a higher level if the objectives of the MTDP are to be achieved. The estimate in the MTDP of K100 billion (real 2010 values) over 20
years invested in the transport sector, that is K5 billion per year on average is endorsed by this NTS as the order of funding required. This is a long way from the approximately K400 million annual expenditure over the period of NTDP 2006-2010. The present level of spending is insufficient to avoid overall deterioration of the transport network.

3 Profile of the Transport Sector

3.1 Transport Sector Institutions

Figure 1 illustrates the general structure of the institutions in the transport sector at national level. Further detail on the structure within each mode and other details of the institutional arrangements are in Volume 3. Moving from left to right in this diagram there is a progression from public to private sector and from a Government departmental structure, through statutory authorities to state owned transport enterprises and private companies. The functions of the agencies also progress from policy, planning and development of transport legislation under DOT through to the delivery of regulatory and infrastructure services and finally to private service providers including transport operators, construction firms and others.

Figure 1 – Institutional Structure of the Transport Sector

The Department of Transport has the primary policy and legislative responsibility for the transport sector, headed by the Secretary for Transport, who also has a number of other roles as a member of various statutory authorities, boards and committees. Within the Department of Transport there are divisions for policy development, planning and monitoring of sector expenditure, liaison with and assistance to the provinces, and modal divisions for land transport, maritime, air transport regulation and air services licensing, aviation security and maritime security. The National Weather Service also currently falls under the Department of Transport.

The Department of Works has responsibility within the Government for managing the national road assets, in particular contract management for road construction and maintenance. It also has responsibility for engineering standards, for some engineering technical services and maintains a capacity for direct engineering works for emergency reinstatements and in remote areas.
There are four statutory authorities in the transport sector, the National Roads Authority, which has management responsibility for some national roads, the National Road Safety Council responsible for road safety promotion, The National Maritime Safety Authority responsible for maritime safety and marine pollution control, and the Civil Aviation Safety Authority responsible for aviation safety. Whereas NMSA and CASA are regulatory agencies, the NRA is in fact closer to an SOE, being responsible for provision of road network services for which it will, in future, receive funding through a system of road user levies. CASA reports to the Minister for Civil Aviation, the NRSC and the NMSA to the Minister for Transport, and the NRA to the Minister for Works and in respect of certain financial matters, to the Minister for Treasury. The Accident Investigation Commission (AIC) is currently located within CASA.

Outside of the transport agencies, the Independent Consumer and Competition Commission (ICCC) has responsibility for ensuring that there is fair competition in the markets for goods and services, and does so through powers to declare price regulated industries and services, where there is evidence of monopolistic practice. At present, the government owned ports under PNG Ports Corporation are price controlled, and there is a degree of price control in coastal shipping as well as in PMV and taxi fares.

There are five SOEs in the transport sector, of which three (PNG Ports, Air Niugini and MVIL) fall under the Independent Public Business Corporation, Government's holding company for SOEs. IPBC reports through the Minister for State Owned Enterprises. NAC and PNG Air Services Ltd report through the Minister for Civil Aviation.

The SOEs are expected to operate on commercial lines, deriving their revenue from charges made for the services that they provide. In practice there is a degree of reliance on Government financial support for capital works and operations for most of the SOEs, as full cost recovery is not currently achieved. In part this is due to the expectation by Government that the SOEs responsible for port, airport and air services will support non-commercial parts of their operations by internal cross-subsidy, as an informal community services obligation.

The private sector is responsible for supplying almost all road transport (PMV, taxi, road freight), shipping and air services (apart from Air Niugini). Government has recently become involved in the purchase of workboats and landing craft under the Border Development Authority and for use by the PNG Defence Force. Depending on their size, private companies may be owner/operator enterprises, small to medium size enterprises (SMEs) with a single owner or closely held shareholding, up to larger private and public companies with a board and executive management (such as Steamships and Airlines PNG).

### 3.2 The Transport Network

The Papua New Guinea transport network comprises three main transport modes: the road system, ports and airports. The Government owns and operates the national network, comprising national roads, the 22 declared ports and 21 airports. It also owns and operates the air and marine navigation and communications infrastructure. Other non-national transport infrastructure is owned and operated by provincial and local level governments, communities, charitable institutions and private interests.

Figures 2 and 3 illustrate the existing transport network using the functional classification developed for the NTS (see 14.3).
Figure 2 – The Papua New Guinea Transport Network
Figure 3 – The Highlands Transport Network
3.3 The Road Network

The roads in Papua New Guinea have developed around the provincial centres of population, many of which are on the coast and linked nationally by coastal shipping. Local road networks have been developed from these coastal centres, along the coastal plains where these exist and along river valleys to penetrate inland. The Highlands Region is landlocked, with the main centres connected by air, and this spurred the development of the Highlands Highway, connecting the five inland provinces with the coast and PNG’s main port at Lae.

This pattern of development has resulted in twelve separated road networks plus roads on the smaller islands, linked together by sea and air. There has been a long held aspiration to link the networks on the main island of New Guinea together, although making these linkages often involves long lengths of high cost road through less populated parts of the country and over difficult mountainous or swampy terrain. The travel time and cost for some of these missing links, if constructed, will not always compare favourably with coastal shipping, and the economic rationale for making the connections needs to be weighed against other priorities, so only those links that can be shown to have good economic and social benefit in relation to cost are constructed.

The public road network in PNG comprises declared national roads, the responsibility of national government and other sub-national roads, the responsibility of provincial and local level government. National roads are currently classified into national routes (NR), the main inter-provincial connecting routes, national main roads (NM), national district roads (ND) and national institutional roads (NI - access roads serving state institutions).

3.4 Land Transport Services

All land transport services are owned and operated by the private sector without any public subsidy. Commercial passenger transport services are provided by urban and rural PMVs (public motor vehicles, typically 15 seat minibuses) and taxis, mainly by individual owner/operators and small transport companies under a system of transport service licensing. For PMVs the licensing includes the routes and service frequencies to be run. Public passenger transport services are also price controlled, administered by the ICCC.

The PMV services are recognised to be substandard, many vehicles being old and poorly maintained, and operators often fail to meet their timetables and to complete their routes.

This situation has come about through a combination of lack of enforcement capability and fare box revenues that do not provide sufficient profit to allow operators to invest in new vehicles.

Commercial goods transport services are provided by the private sector and are regulated by a system of permits administered by the National LTB for inter-provincial routes and by the Provincial LTBS for routes within provinces. The licences can specify the routes to be run and nature of the service, and the legislation provides for price control, although this is no longer actively administered.

3.5 Ports

PNG Ports Corporation is the agency delegated with the responsibility for maintenance and development of the government-owned port facilities and for the general management of activities within the defined port limits of the declared ports under the Harbours Act.

There are 22 declared ports, of which 16 are operated by PNG Ports Corporation, either directly or through agents (Aitape and Samarai). Lae is by far the most important due to its position at the end of the Highlands Highway, serving the five inland provinces, and handles almost half of all cargo across PNG wharves (about 3 million tonnes). Port Moresby serves the capital and Central province and handles half as much as Lae. Kimbe, which trades mainly palm oil, together with Lae and Port
Moresby make up the three fully commercial ports, in that they are self-sufficient from revenue earned.

The next tier of national declared ports, carrying between 0.4 and 0.2 million tonnes are Rabaul, Madang, Wewak, Oro Bay, and Aitape, followed by Kavieng, Buka, Vanimo, Kiea and Lorengau (70 to 40,000 tonnes). Daru and Aitape carry very small volumes and there are four ports that are not currently operational - Kerema, Kinim (Karkar Island, Madang Province), Siassi (Morobe Province) and Kupiano (Central province). The ports of Lihir (New Ireland) and Misima (Milne Bay) are also declared ports under the Harbours Act but are developed and operated by the mining industry.

There are also leased and privately owned port facilities within the declared ports, in particular Port Moresby which includes Motukea Wharf developed to carry LNG cargo and for ship servicing and Napa Napa oil terminal.

There are several ports that have been developed to serve the mineral and petroleum industry, including Kiunga which serves barge transport for Ok Tedi mine and the new Basamuk Bay port constructed to serve Ramu Nickel. In addition there are many coastal landings created for log exports, often of a temporary nature.

There are several hundred small jetties and landings for village access around the Papua New Guinea coast, islands and along the navigable river systems, in particular the Sepik, Fly and Ramu. Many of the jetty, ramp, wharf structures and reef channels, are in a poor or dilapidated condition. They are under a variety of provincial, local level government, village, mission and private ownership.

3.6 International Shipping Services

Papua New Guinea is comparatively well served by international shipping lines mainly in north-south services between Asia and Australasia. There are approximately 3,000 voyages per year and 300 voyage rotations between PNG, the Australian east coast ports and Asia which provide over 100,000 teu container capacity. The traffic is mainly general/container cargo vessels and bulk carriers for petroleum, mineral and log exports. The size of international container vessels is typically between 600 and 1700 teu capacity, 120 to 200 m length and 6 to 10m in draught. Many shipping lines use Brisbane as a hub port where they centralise containers for other Australian and NZ origin ports. Similarly the larger Asian ports such as Singapore are used as hubs for linkages with services to South Asia, Europe, the Middle East and North America. Alliances between international carriers are subject to constant adjustment to suit market conditions.

Up to 2010, none of the PNG ports operated quayside container cranes, and most of the container vessels serving PNG have been self-supporting (ship-mounted cranes). PNG Ports Corporation Ltd has recently acquired rubber tyred gantry cranes (RTGs) for port operations at Lae.

3.7 Coastal Shipping Services

Three companies, Consort Express Lines, Steamships Shipping/Laurabada Shipping and Bismark Maritime Ltd provide scheduled (liner) coastal shipping services on primary routes between main ports, carrying containers and break-bulk cargo. A further three operators, Hub Line PNG Ltd, Rabaul Shipping Limited and Lutheran Shipping provide scheduled and semi-scheduled services with some route flexibility to a mix of main and minor ports.

An emerging trend has been to grant permits to international shipping operators for coastal services between PNG ports of call on their regular international liner routes for carriage of both their own and third party cargo. Hub Line (PNG) Limited, MBf Carpenters Shipping, ANL Container line Limited, Swire Shipping and Sofrana Unilines Limited all operate these international/coastal “cross-over” services.
A number of mainly regionally-based companies provide shipping services either as part of their own business or to industry as specialised shipping operators on a regular or charter basis. They include petroleum distribution, logging, mining, construction, towage and salvage companies, agricultural product transport and storage, commercial and tourist passenger services. Some also carry third-party cargoes on a commercial basis where this fits with their core activity.

The rise of project-related coastal shipping has been the major contributor to a recent increase in applications for restricted and unrestricted coastal trade permits. Tugs and barges operating under permit shuttle between the anchored ocean carriage vessel(s) in Paia inlet (Gulf of Papua) to Kopi landing. The Government has granted special access to permits for such activity for foreign flag vessels engaged in the LNG project. There are similar examples of project activity that have been given special access to coastal permits in mining exploration and coastally located industrial projects.

Government agency, provincial and NGO-sponsored non-commercial organisations are another emerging category of shipping and provide free or subsidised passenger and freight services. They include the vessels recently introduced by the Border Development Authority (BDA) and operated by their business entity PNG Maritime Transport Limited. In addition, there are several workboats of greater than 10 m length built and funded by Provincial governments under the direction and oversight of the Department of Provincial and Local Level Government Affairs.

The Community Water Transport Programme (CWTP) manages a subsidised franchise shipping scheme (FSS) designed to provide waterway transport to remote and disadvantaged communities, restore water transport infrastructure, improve small-craft safety, and induce the ability of the affected communities to maximize the benefits of the transport provided. Currently, there are two CWTP franchise routes in operation with plans to introduce further franchise routes in the near future. The CWTP is designed to induce services to small non-commercial ports of calls by offering a contestable top-up payment

At a local level, small work boats (banana boats) provide carriage of passengers, agricultural production to market and transportation of essential supplies to and between villages sustains the livelihood and social network of PNG’s coastal communities.

Coastal scheduled passenger services are provided by Rabaul Shipping (Starships PNG) and Lutheran Shipping (Luship). Some vessels have a restricted trading range, typically limited to sheltered waters but engage on longer port-to-port coastal routes when the weather conditions are suitable. The coastal passenger sector is an industry that delivers essential services to remote locations and communities sustaining social and economic activity.

3.8 Airports

The National Airports Corporation (NAC) is responsible for 21 of the 27 airports recognised by the International Civil Aviation Organisation (ICAO). Three of the other six airports have been divested to provincial governments from the national government and the remaining three are privately owned and associated with resource development.

Port Moresby International Airport (PMIA) is currently the only airport in Papua New Guinea supporting international regular scheduled passenger services, although both Daru and Wewak are denoted as international airports and, outside of PMIA, Mount Hagen receives the most international passengers associated with international direct charters for the mining ventures. PMIA currently accommodates aircraft up to B767-300 size, the second tier of airports F-100, although only designed to F-80, and the third tier supports Dash-8.

PMIA and a further 20 national airports are operated by the National Airports Corporation (NAC). A further six airports are certified in accordance with ICAO Annex 14 and PNG Civil Aviation Rules; these include three airports associated with mining (Ok Tedi – Tabubil and Lihir - Kunaye) and oil &
gas (Kutubu – Moro) and three ex-national airports now operated by provincial governments (Milne Bay PG - Kiriwina and Misima, and Gulf PG - Kikori).

Apart from the 27 ICAO certified and licensed airports, there are a large number of smaller airports, ranging from strip lengths as long as 1,700m down to small rural airstrips as short as 450m. Some 400 of the original more than 600 are still active, although many are in poor condition and used only at the operator’s risk. Over 90 airports are the responsibility of provincial governments including a number that support scheduled services by the second level operators.

3.9 Air Traffic Management, Communications and Navigation Services

PNG Air Services Ltd (PNGASL) provides air navigation services to international and domestic air transport operators within the PNG sovereign airspace utilising terrestrial and satellite infrastructure. These services include aeronautical communications, surveillance and navigation aids to facilitate smooth and safe air traffic management.

3.10 International Air Services

The main international carrier is the government-owned airline Air Niugini (ANG) which operates the bulk of international services and routes using PMIA as its hub. ANG currently operates B767-300AR, Fokker F100 and Bombardier Q400 aircraft on its international services. ANG codeshares with Qantas on some routes and Qantas also operates a link service between Cairns and Port Moresby. Pacific Blue (Virgin Australia) operates four times a week from Brisbane to Port Moresby and Airlines PNG operates four times a week to Cairns. In the past other airlines have flown into Port Moresby, including Cathay Pacific and Philippine Airlines.

3.11 Domestic Air Transport Operators and Services

Air Niugini and Airlines PNG operate domestic services primarily hubbed from Port Moresby.

ANG flies point-to-point services to 11 main domestic airports, two loop services to the Islands and Momase regions covering a further 9 airports and some interconnecting services from the region airports of Lae, Hoskins and Madang.

Airlines PNG operates both on first and second level services using mainly Dash-8, competing against ANG but also serving smaller airports from hubs at Daru and Port Moresby covering Western and Central Provinces using DHC-6 aircraft. Airlines PNG also flies on-demand and charter services to a number of smaller airports, about 50 destinations in all.

A new entrant, privately owned Travel Air, based in Madang, was certified to commence operations in November 2011 using up to seven Fokker F50 turboprop aircraft. Initially operating daily scheduled flights between Madang and Port Moresby, Hoskins, Rabaul it has signalled its intention to operate to a number of other main centres and secondary airports. The Government, through DNPM, provided startup financial assistance to Travel Air in the 2011 budget allocation described as an air freight subsidy. The Airline fills a gap left by the closure of Airlink in 2007, also Madang based.

The largest third level operator is Mission Aviation Fellowship (MAF), a church-sponsored airline, based in Mount Hagen, with a fleet of 16 mainly DHC-6, Cessna 206 and GA8 Airvans with which it serves remote rural airstrips throughout Papua New Guinea, but concentrated in the Highlands, for community support, mission, and emergency relief purposes, as well as commercial passengers and freight.

Other small fixed wing and helicopter charter operators include Central Aviation (Mt Hagen), Hevilift, Islands Nationair, Niugini Helicopters, North Coast Aviation (Lae) Pacific Helicopters and Tropicair
(Port Moresby). Much of their work is in support of the resource sector but also general charter, flying into small airfields and remote worksites.

4 Transport Demand and Outlook for Growth

4.1 Population and Economic Growth

The two most important underlying determinants of transport demand are population and economic growth. While there has been a trend towards increasing urbanisation, the majority of the population is still settled in rural areas. The urban population was just under 14% of the total in 2000 and, under the MTDP, is planned to be contained to 20% by 2030. About a quarter of the urban population is in NCD.

Future population projections are for an average annual growth of 2.2% to 2020 and falling below 2.0% by 2030. The population of the Highlands Region and Southern Highlands Province in particular, is growing faster than the average and will form 40% of the national total by 2030.

After population, income is the second most important determinant of transport demand. Increased cash income generates a demand for consumption of goods and services as well as travel for social purposes. In turn cash income depends upon the opportunities to grow cash crops or engage in other home-based income generating activity, and the availability of wage or salary employment outside of the home.

The projections of income and employment growth over the period of the NTS are therefore an important underpinning to the growth in personal travel demand.

Government's macro-economic projections in the MTDP are for an increase in real GDP of 52% from 2010 to 2015, involving a 42% rise in export volumes and 62% rise in import volumes. Over the longer term, the DSP anticipates a sustained annual increase in real GDP of 8.4% over the 20 year period, compared with a projection of historic performance of 2.6%.

The MTDP medium term forecast for growth in real GDP per capita, one broad measure of income growth, is for a rise from K3,430 in 2010 to K4,681 by 2015, or an annual rate of increase of 6.4%. Over the period of the DSP and NTS, real GDP per capita is anticipated to grow by a similar annual growth rate, compared with only 0.8% per annum if the historic trend were followed.

The Detailed Strategy Volume 3 discusses the factors underpinning economic growth and their influences on transport demand, including the historic growth and outlook for the main agricultural commodities, forestry and the influences of oil, gas and mineral resource development, including details of their location scale, transport links and development and operation time horizons.

4.2 Road Transport Demand Growth

The growth in road passenger transport demand can be expected to increase, all else being equal, with the growth in population. On the main road network, the provincial population growth rate should be a reasonable guide to the underlying growth in road traffic. Where a road connects provinces then the average of the growth rates of the two can be assumed. For roads with a feeder or access function, local influences on population growth and demand may need to be taken into account. The underlying road passenger traffic growth rates due to population increase over the next 10 years can be expected to vary between a low of 1.2% (Bougainville) and 3.4% (Southern Highlands).

Overlaying this basic rate of traffic growth are the effects of real income growth and, in particular, real income growth relative to the costs of road transport, which can be expected to lead to an increase in road traffic. In part this will be traffic generated by the economic activity supporting the
higher incomes but will also be due to effects such as increasing ownership of private vehicles, and increased traffic demand for social interaction, whether by PMV or private transport.

Statistical data on household incomes at a provincial or lower level as an indicator of geographic variation, together with the projected growth rate in GDP under the MTDP or alternative future growth profiles, can be used as a factor on traffic growth rate. In the absence of better information, a demand elasticity of 1.0 can be assumed, so that a 1% growth rate in real per capita income generates a 1% increase in traffic volume.

Combining a national population growth of 2.1% projected over the next 10 years, then falling to 1.9%, together with a continuation of the historic trend in GDP/capita of 0.8%, would give an average traffic growth rate of just under 3%, which is in reasonable agreement with observation and with growth assumptions in road feasibility studies and with expectations of the rate of increase in the vehicle fleet. The growth rate under the DSP projection of 6.9% annual increase in GDP/capita implies a 9% average traffic growth rate across the road network, which would be a radical departure from past trends.

Road freight transport demand is weighted towards imports of construction materials and consumer products. Apart from specific routes used by extraction activities such as forestry, freight transport volumes can be based upon the population served, GDP/capita and a suitable elasticity for freight demand, with a figure of 1.25 suggested for general planning purposes.

4.3 Overseas and Coastal Shipping Demand Growth

The increases in container trade through PNG ports as envisaged in the DSP, involving a fivefold increase by 2030 with a corresponding threefold increase in berthage and storage are well above recent demand modelling made by TIPS and would be a very large departure from historic growth rates, even allowing for more rapid GDP growth.

The TIPS projections are for a doubling of cargo throughput at Lae and Port Moresby between 2010 and 2030, an increase 70% for Madang, Wewak and Rabaul and 50% for most other smaller ports. The increase in vessel calls is projected to be lower, 30% over 20 years, with an increase in ship length and container capacity. So an increase in berth length of around 50% will be needed and cargo throughout and container handling of 100% for Lae and Port Moresby.

4.4 Air Transport Demand Growth

Air transport mid-range demand projections from the National Airports Strategic Master Plan envisage a growth in passenger movements through the national airports from a little over 2,000 in 2010 to 4,000 in 2030, compared with over 9,000 in the DSP. As for sea transport, the DSP demand projections rely on high rates of GDP growth but even with this are unlikely to be achieved.

5 Summary of Overall Sector Policy

This section summarises the common policy principles and approach that the Government will apply across the three transport modes of road, water and air, while recognising that there are special considerations that apply to each mode. A commentary on recent transport policy is given in Volume 3, Section 7 which is not summarised here, followed by more detailed discussion of each policy corresponding to this section in Volume 3, Section 8

5.1 Public and Private Sector Roles

The following policies will apply to the role of the Government in its relationship with the private sector regarding transport services and the provision and maintenance of transport infrastructure.
14. **Ownership of assets** - the Government will retain ownership of the national roads, ports and airports and the supporting air and maritime navigation infrastructure. Privately owned facilities may be established within the boundaries of the main ports and airports in accordance with their master plans and the prevailing regulatory framework.

15. **Public private partnerships** - private financing of infrastructure through public private partnerships (PPPs) will be considered for new transport infrastructure on a case-by-case basis. The long-term ownership of all transport assets will remain with or revert to the Government or its state owned enterprises as applicable. PPPs must demonstrate value for money and clear advantages to PNG over conventional funding mechanisms of direct Government appropriation or pay-as-you-go user charges.

16. **Outsourcing** - The Government transport agencies will competitively outsource services delivery to the private sector where this can be done effectively and is cost-efficient and does not compromise the core competencies of the sector agencies.

17. **Development of the private sector** - The Government will actively assist the development of PNG national firms and individuals to increase their participation in the transport sector.

18. **Government competition with the private sector** - The Government transport agencies will generally not directly participate, through use of their own resources, in transport infrastructure construction, maintenance or in the provision of transport services. Exceptions will be made in specific situations where private sector capacity does not exist and cannot reasonably be developed. Government and provincial agencies outside of the transport sector will similarly be discouraged from operating subsidised or free transport services that crowd out or undermine the private sector. Where there is a shortage of private sector supply of transport services, such as on thin routes and remote areas, the community services obligation (CSO) mechanisms will be used to fill gaps, where this can be done at acceptable cost.

5.2 **National, Provincial and Local Level Government Roles**

19. **Provisions of the Organic Law** - the National Transport Strategy supports the division of roles between national and provincial government as established by the Organic Law. Certain institutional, legislative and administrative changes are proposed to provide for the more efficient and effective discharge of responsibilities and administration of the transport sector between national, provincial and local levels. These include matters of sector funding, user charges and asset transfers described later in the NTS.

20. **Giving effect to Vision 2050 asset transfers** - Over the period of the NTS, the more important provincial roads, ports and airports will be declared as national assets and become the funding and maintenance responsibility of the Government transport agencies. Declaration of transport infrastructure as national assets will recognise the technical and financial capacity of each province to maintain and develop its transport network and will aim to better align technical capacity and funding availability between national and provincial level in each transport mode. This policy will also be contingent on the development of user charges funding at national level and the progressive transfer of the core national road network to the NRA.

21. **Management agreements for provincial transport assets** - It is recognised that many provinces have limited technical and management capacity for infrastructure planning, development and maintenance. The Government will encourage provinces in this situation to enter into management agreements with the transport sector agencies on a fee-for-service basis to act on behalf of the provinces as asset managers for provincial roads, ports and airports. An aim of this policy is to coordinate and concentrate technical
resources in the provinces to provincial or regionally based centres of expertise, to make best use of the combined provincial and national resources to better manage transport assets at sub-national level.

22. **Delegations of motor vehicle and driver licensing** - The existing delegations to the provinces of motor vehicle registration and licensing will be formalised through legislation with obligations and responsibilities on each side.

23. **Road user charges collection** - The provinces and Motor Vehicle Insurance Ltd (MVIL) will act as collection agents for vehicle-based annual charges under the road user charges provisions of the National Roads Authority Act.

### 5.3 Market Entry and Competition Regulation

The following policies will govern entry to the market for transport services and the regulation of competition:

24. **Market entry subject to safety, quality and fair pricing** - Government will continue with its existing policy of liberalisation in the domestic transport market to encourage competition, regulating primarily for safe operation, service quality and fair pricing.

25. **Protection from foreign competition** - selective protection of the coastal shipping and domestic aviation industries will remain, as discussed under the modal policies

### 5.4 Cost Recovery and User Charges

26. **Increased cost recovery from user charges** - the Government will, over time, reduce the proportion of transport infrastructure and services costs that it funds directly through Budget appropriation in favour of transport user charges.

27. **SOEs to operate commercially** - the transport SOEs and statutory authorities will be required, to the maximum extent possible, to operate on a fully commercial basis and with a minimum of price regulation provided that the CSO obligations of each SOE are explicitly recognised and are separately funded.

28. **International obligations** - certain international obligations limit cost recovery in international transport by the regulatory agencies in aviation and maritime and exceptions will be made in such cases.

### 5.5 Priorities for Call on Available Funds

29. **The order of funding priority** - will generally be:

- Emergency reinstatement
- Upgrading of essential infrastructure required to meet mandatory standards
- Maintenance of existing infrastructure assets
- Upgrading of existing infrastructure assets
- Construction of new infrastructure

30. **Maintenance** - should be fully funded across the network before considering any upgrading or new construction; funding of asset maintenance should be at a level that minimises total transport costs (maintenance + transport user costs) over the lifecycle of the asset; failing this, the aim should be to minimise asset maintenance costs over the lifecycle of the asset;

31. **New construction** - funding should prioritise provision of primary access to rural areas over the provision of secondary or cross linkages;
32. **CSO funding** - projects that serve basic access but which do not achieve a B/C ratio of 1.0 will be considered under CSO funding policy

### 5.6 Community Assistance, Subsidies and CSOs

A “community services obligation” (CSO), as defined for this NTS, is the Government’s willingness or commitment to fund a project that does not achieve the economic rate of return normally required, once all project costs and transport user and non-user benefits have been taken into account. It reflects Government’s value on providing basic transport access to smaller and more remote communities for equity reasons. The cost of the CSO is represented by the “funding gap”, the difference between the actual project cost and the cost that would just achieve an acceptable rate of return.

It has been the practice for Government to require the transport SOEs to deliver CSO benefits by internal cross-subsidy, such as the profits from the main commercial ports cross-subsidising the non-commercial ports. While convenient for Government, this leads to distortions and limits the ability of the SOEs to operate competitively. In future the strategy will be to explicitly quantify the CSO component of providing and maintaining transport infrastructure and transport services, and to fund this on an equitable basis with some inbuilt incentives for efficiency and local community contribution.

A detailed CSO policy will need to be tailored to institutional arrangements and characteristics of each transport mode, with a separate arrangement at national and provincial/local level. A comprehensive CSO transport fund administered centrally would in theory be better able to achieve consistency across modes and levels of government, but in practice would probably be too cumbersome. However, it should be a role of the DOT to provide an overview policy development and monitoring role and advise Government.

The proposed process for establishing CSO funding levels and apportionment to projects is:

- **a)** Determine the total quantum of CSO funding to be made available each year – this should be decided broadly by Government, but as a starting point, an estimate of the percentage of transport funding that can be classified as CSO support in recent years will provide a benchmark.
- **b)** Broadly apportion the funds by transport mode and by funding pool, but taking account of the desirability of equal treatment across modes.
- **c)** For existing transport infrastructure and for Government supported transport services, estimate the cost of the CSO component – that is the excess funding provision or “top up” that cannot be justified through economic benefits – as a percentage of the total cost.
- **d)** For potential upgrading, new construction and new transport service projects, similarly estimate the excess funding provision as a percentage of total cost.
- **e)** Priority rank the CSO projects by increasing percentage “top up” requirement – this will result in those projects that are closest to achieving the minimum BCR for project acceptance (which will be at least 1.0) having first call on funds. However, maintenance of existing infrastructure should still have priority over upgrading and then new construction.
- **f)** Allow the beneficiaries of the spending to supply part of the funding either in kind (sweat equity) or in cash, to raise the project’s ranking to give it more likelihood of funding under the CSO policy. This is called the beneficiary contribution.
- **g)** Combine CSO projects with other projects ranked by BCR for decision-making purposes (the method is described in Volume 3)

A summary of the policies relating to CSOs is:
33. Adopt a common approach across transport modes and level of government based upon an agreed total of Government CSO funding for the sector and a method for apportioning to modes, agencies and projects;

34. Each agency to provide a prioritised list of projects seeking CSO top-up funding from Government using TIPS methodology;

35. Allocate a portion of Government CSO funding on a provincial basis using the TIMG and DSIP or similar mechanisms, but to an agreed list of projects and with reporting on acquittal of the funds;

36. Allocate a portion of CSO funding to low volume national roads under DOW responsibility;

37. Provide external funding to compensate SOEs for delivering an agreed level of CSO funding to sub-commercial national ports and airports; this external funding to be either direct Government allocation or raised through a wider industry levy, to be determined;

38. The CWTP franchise shipping and jetty scheme will form part of the overall CSO funding envelope;

39. Government will develop a similar scheme for remote rural airstrips and services;

40. PNGPCSL and NAC will be considered for managing the construction and asset management of rural jetties and airstrips respectively under a fee-for-service arrangement;

41. The establishment of a Community Infrastructure and Transport Services Fund (CITSF) will be considered to hold the CSO funds with allocations approved through DOT.

5.7 Transport Corridor Protection and Land Acquisition

42. Develop implementation mechanisms and protocols for the Protection of Transport Infrastructure Act including:
   - Carrying out an audit of land compensation procure;
   - Developing a Community Economic Involvement and Education Programme;
   - Developing a policing and enforcement strategy.

5.8 Service Quality Standards and Monitoring

43. Freight and passenger services will include service standards in licencing conditions

44. ICCC will retain a monitoring role for service standards in hire-or-reward freight and passenger transport services

45. The Government infrastructure agencies (DOW, NRA, PNGPCL, NMSA and NAC) will formalise and maintain guidelines of good practice over their area of operations based on international best practice as applicable to PNG local conditions.

46. An oversight working party will be formed from the public and private sector under CIMC and IPEPNG auspices to review and endorse proposed industry standards and guidelines.

47. All transport agencies will be required to develop measure and report on key performance indicators (KPIs) for their activities and the performance of transport assets under their control, and will be encouraged to carry out customer satisfaction surveys.
5.9 Transport Safety

Transport safety continues to be a concern across all three modes will be an area of high priority in the NTS. Safety policies will include:

48. Development, maintenance and continuous improvement of Safety Management Systems (SMS), including safety standards where these do not already exist and more effective enforcement;

49. Development of safety action plans in each transport mode backed by improved databases of accidents and incidents with monitorable targets and reporting of achievement;

50. Some reorganisation of safety functions among agencies and improved coordination;

51. An improved level of enforcement of existing transport legislation, updated legislation and penalties regime;

52. Improved financial resourcing for safety;

53. Government, industry and driver/operator training programmes; and

54. Improved first response, SAR and disaster management services

5.10 Transport Security

55. The Government is committed to ensuring that PNG complies with international codes for aviation and maritime security so that it maintains and enhances its international reputation and ensures that its international transport connections to key markets are not jeopardised. These will be given investment priority.

56. Transport security at the land borders is similarly important and the transport agencies will work in concert with the Border Development Authority to facilitate legal cross-border trade and guard against illegal movement of people and goods.

57. Within PNG's air and water space, the Government will enhance the security of domestic and transit traffic, through improvements to air and marine navigation infrastructure and services and response systems for incidents and emergencies.

58. An increased level of security surveillance and response by the new RTA and the Police.

59. Personal and goods security as well as accident and injury reduction to be incorporated into safety action plans

5.11 Transport Integration

60. Improve road approaches, new and upgraded links and local traffic management at the main ports and airports

61. Consider relocation of port facilities and inland freight terminals in selected cases

62. Coordinated provision of basic access to remote communities by either road, water or air

63. Provide appropriate standard road links to ports and airports

64. Construct missing links between provinces for overall network integration where economically attractive and technically feasible subject to funding availability

65. Provide consistency of design treatment along transport routes, with heavy traffic provisions suited to road function and nature of traffic
66. Balanced investment between roads, ports and airports in relation to benefit-cost performance

6 Policy Summary for Cross-Cutting Issues

This section summarises the policies for cross-cutting issues that will apply across all transport modes. Details are in Volume 3, Section 10, with further mode specific policies in Sections 11.9, 12.10 and 13.10 for road, maritime and air respectively.

6.1 Good Governance and Policies against Corruption

6.1.1 Composition of the Boards of SOEs and Statutory Authorities

67. Transport SOEs and SAs are not to operate without appointed or elected board members as required in their legal establishment

68. Governance boards should include an appropriate mix of technical, administrative and legal expertise rather than political or departmental representation

69. Oversight of governance of SOEs to be through IPBC and Auditor General

70. Competition and market entry regulation through ICCC rather than through SOEs or Statutory Authorities

71. Maintain appropriate separation between ministries, their departmental heads and the boards of SOEs/SAs

72. Governance boards responsible for regulation not to include members with commercial interests in the regulatory decisions

73. CEOs not to be voting or ex-officio board members

74. The terms of board members to be limited to a maximum of four years with a minimum of four years separation before eligibility for a further term

75. The composition and appointments to all SOE and Authority boards to be reviewed with legislative changes if needed to give effect to these policies

6.1.2 Collection of Fares, Fees and Fines

76. DOT and when formed, the RTA, will work with Police and Department of Justice to eliminate corrupt and illegal practice in the handling of public transport fares, transport licence service fees and transport fines

77. Fine and penalty regime to be reviewed and updated with inflation-linked provisions

78. Monies from fines to accrue to the Government through the Department of Justice and not as operating revenue for use by the administering agencies

6.1.3 Anti-Corrupt Practice in Construction Work

79. Transport infrastructure agencies to introduce anti-corruption checking and public reporting procedures

80. Transport agencies to inculcate a culture of honesty, integrity, recognition of staff effort and fair reward, leading by example from the top
81. Improved tracking and cost-effectiveness monitoring of national works undertaken under contract, by own forces and under inter-governmental funding to provinces to improve value-for-money and to reduce corruption

82. As part of this, introduction of exception reporting, diagnosis and corrective action

83. Provincial governments to introduce anti-corruption checking and public reporting procedures for inter-governmental funding intended for transport infrastructure

84. Oversight agencies for national and provincial transport infrastructure expenditure to monitor transport agency integrity performance

6.2 Environmental Protection and Enhancement

85. Practice guidelines and procedures will be tailored to each transport mode to safeguard the natural and built environment and to minimise social and environmental impacts to people and communities

86. Environmental impact assessments will include direct and indirect environmental effects of transport, including the incremental effects of multiple projects over time

87. Each transport agency will be required to prepare, maintain and adhere to a Code of Environmental Practice written for the context of its operations, with the aims of best practice and continuous improvement

88. Transport agencies will comply with the requirements of the Department of Environment and Conservation, and the governing environmental legislation

89. Transport agencies comply with the environmental and social safeguard practices and procedures of the international and bilateral donor agencies for donor-funded projects

6.3 Climate Change

6.3.1 CO₂ Emissions Reduction

90. Progress the transport objectives of the PNG Climate Compatible Development Plan

91. Encourage the introduction of fuel-efficient transport equipment

92. Encourage sustainable substitution of fossil fuels with biofuels

93. Monitor vehicle fleet-weighted fuel and CO₂ efficiency.

6.3.2 Climate Change Adaptation

94. Transport infrastructure agencies will review and adjust design code provisions for climate change adaptation including sea level rise and increased rainfall intensity and duration

95. National Weather Service (NWS) will develop a network of land and sea-based automatic weather stations to advise the transport infrastructure agencies on rainfall intensity/duration monitoring and projections

96. NWS will also develop a network of LIDAR stations for monitoring carbon dioxide (CO₂) and other atmospheric pollutants, including volcanic ash clouds

97. DOT will work with DEC Hydrology Section to reinstate a network of river gauging stations, tide gauges and wave rider buoys for provision of hydrological design data for the transport infrastructure agencies
6.4 Poverty Alleviation

98. Through the Provincial Development Planning process and ISDM, DOT and DOW will work with Provincial Governments to appropriately prioritise and implement basic transport access within available funding.

99. The overall funding directed to improving access for remote poor communities will be determined through the CSO funding policy.

6.5 Gender Equality and Women’s Development

100. The NTS will actively encourage women’s participation throughout the transport sector through skills development programmes, targets and monitoring.

6.6 Communicable Disease Control, HIV/AIDS

101. The transport agencies will be expected to disseminate HIV/AIDS and other communicable disease prevention messages to, in particular, the construction workforce and transport drivers.

102. These will include standard inclusions within contracts and transport licencing conditions.

7 Policy Summary on Institutional Reform

7.1 The Need for Reform

103. There is a need for comprehensive reform of the agencies responsible for road traffic and transport.

104. The respective roles of DOW and NRA will be more clearly defined and developed, together with their funding arrangements.

105. Further reforms will be made in maritime transport to clearly separate commercial and regulatory roles.

106. No further structural reform is proposed for the air transport agencies.

7.2 Principles for Institutional Reform

The principles for institutional reform will be:

107. separate regulation from service delivery in Government agencies;

108. clear accountability and auditing of Government provided funds and self-generated revenues;

109. agencies that are best technically equipped to provide services do so;

110. Government agencies not to crowd out the private sector; and

111. Government agencies may deliver services where there is no private sector interest either on a fully commercial basis, or to fulfil a community services obligation under a transparent and contestable CSO funding policy.
7.3 Delegation and Outsourcing of Functions

7.3.1 Delegation

112. All delegated functions to have accompanying legal instruments

113. Legal instruments will identify: functions delegated; period covered; asset transfers and ownership; arrangements for internally generated revenues; reporting requirements; and procedures for reversing the delegation

114. The delegating agency retains overall responsibility for the functions delegated

115. Irregular and illegal delegations will be withdrawn or regularised

7.3.2 Outsourcing

116. Transport agencies will competitively outsource service delivery where cost-efficient and without risk to performance

117. Outcome (performance)-specified contracts and PPP arrangements as well as conventional output specified contracts will be considered

118. Outsourcing should aim to build the capacity of the domestic private sector

7.4 Roles and Functions of the Government Transport Agencies

The roles and functions of the Government transport agencies, and an outline of the institutional reforms envisaged in the NTS are summarised below:

119. Department of Transport:

Cross-Modal responsibilities:

- The lead Government department in the transport sector;
- Development of national transport policy and infrastructure planning;
- Review monitoring and updating of the NTS and MTTP;
- Coordinate with and assist provincial administrations, LLGs and communities to prepare and implement provincial transport plans and integrate with national level planning;
- Establish a Rural Infrastructure Development Division (RIDD) to support the above;
- Define and lead implementation of CSO policies and forms of assistance in the transport sector;
- Chair the TSCMIC and manage inter-agency coordination;
- Monitor the activities and performance of transport sector agencies;
- Coordinate national budget submissions;
- Review and prepare transport legislation;
- Collect, analyse and publish transport statistical data;
- Provide ministerial advice and support, including reporting to parliament;
- Monitor and advise on expenditure priorities across the transport sector, across regions and provinces, between national and provincial level and for all Government agencies involved in transport infrastructure or transport services provision.
Road transport responsibilities:

- Currently responsible, through the Secretary of Transport (as Superintendent of Road Traffic), and supported by Land Transport Division, for vehicle, driver and transport licencing, vehicle construction and roadworthiness standards, motor vehicle testing station and motor vehicle dealer licensing; also responsible for servicing the National Land Transport Board;
- These functions are currently delegated in part to provincial administrations and to Motor Vehicle Insurance Ltd (MVIL), with these agencies retaining the revenue collected; in future the proposed Road Traffic Authority will assume all of these functions at both national and provincial level, but will outsource service delivery at provincial and NCD level employing the resources of provincial administrations, MVIL and other agents to do so;
- LTD will be subsumed into the new RTA on its establishment and the NLTB and provincial LTBs will be disestablished.

Maritime transport responsibilities:

- Administer the Shipping Franchise Scheme on completion of the CWTP and prior to handing this function on to the proposed National Maritime Authority in the medium term;
- Regulate coastal shipping until handing this function over to the proposed National Maritime Authority in the medium term;
- In regulating coastal shipping, accept advice from the Coasting Trade Committee (CTC) until its disestablishment and replacement with the proposed Maritime Industry Advisory Group (MIAG);
- Be responsible for administering maritime security policy and legislation, including International Ship and Port Security (ISPS) code compliance, until handing over this function to the proposed National Maritime Authority in the medium term.

Air transport responsibilities:

- Continue to be responsible for international and domestic air transport services regulation and international air service agreements;
- Continue to be responsible for aviation security policy and administration through the Transport Security Unit (TSU).

120. Department of Works:

- Programming and contract management for national road and bridge construction and maintenance except where such responsibilities have been transferred to the NRA;
- Implement construction and maintenance works through private sector contracts;
- Engage private sector consultants for road and bridges design and works supervision contracts;
- Maintain provincial works units (PWUs) for emergency reinstatement and work in areas where no competitive private contracting capacity;
- PWUS to be self-accounting and commercially oriented;
- Coordinate with provinces’ works agencies to make best use of scarce technical skills and engineering equipment;
- Maintain HQ and regional technical services and plant and transport capability;
- Establish protocols and safeguards, in consultation with DOT and others for the operation of PWUs and their engagement with provinces;
• Engage private sector consultants for road and bridges design and works supervision contracts;
• Maintain the RAMs and BAMs system and make annual constrained and unconstrained forward maintenance plans;
• Lead role in developing technical standards for road and bridge engineering and engineering training;
• Maintain safety management systems, safety audits of projects and environmental codes of practice;
• Engineering technical and cost advice on project proposals and commissioning feasibility studies;
• Provide advice on engineering costs and technical design and construction matters and participate with DOT in commissioning road and bridge feasibility studies.

121. National Roads Authority:
• Undertake roles and responsibilities as set out in the NRA Act 2003 and as gazetted;
• Establish and operate a Road Fund for the upkeep of roads under NRA control;
• Maintain RAMS and BAMs data for NRA roads with shared access and support in conjunction with DOW;
• Formulate and deliver annual road maintenance programmes by private contract;
• Implement safety and environmental practices consistent with DOW;
• Ensure consistent technical standards with DOW;
• Maintain records and report on operations and the source and use of funds;
• Provide for continuing professional development.

122. National Road Safety Council:
• Coordinate and promote all aspects of road safety;
• Prepare the national road safety programme;
• Storage and analysis of road crash data collected by the Police;
• NRSC to be become part of the future Road Traffic Authority.

123. National Land Transport Board:
• Supervise transport services licensing for NCD urban PMVs, inter-urban PMVs and inter-provincial goods vehicles;
• to be disestablished once RTA is formed and all supervisory functions to become part of RTA responsibility.

124. Motor Vehicle Insurance Ltd:
• Administer 3rd party vehicle insurance;
• Act as an agent of Government and provinces for issue of vehicle and driver licences on a fee-for-service basis under supervision of the RTA.

125. PNG Ports Corporation Ltd
• Develop and maintain publicly provided port infrastructure within the declared ports;
• Operate main commercial ports on a fully commercial basis and non-commercial ports with Government funding support to a defined CSO policy;
• Pilotage authority within declared ports;
• Extent to which PNGCPL owns and operates cargo handling plant versus contracting to the private sector to be determined;
• National standard setting for port operations and engineering practice;
• Assistance to provinces on a fee-for-service basis as requested for marine engineering and asset management;
• Port master planning studies in coordination with DOT and consistent with NTS and MTTP.

126. **National Maritime Safety Authority**

- Regulation of all aspects of maritime safety, including ship safety, ship surveys, ship inspections (flag and port state), and crew certification;
- Marine pollution control;
- Provide and maintain navigation aids outside of declared port boundaries;
- Coordination of SAR;
- The pilotage authority outside declared ports;
- NMSA will develop into a National Maritime Authority (NMA) in the medium term including responsibilities for International Shipping and Port Security (ISPS), shipping market regulation and port regulatory functions.

127. **National Airports Corporation**

- Commercially own, manage, maintain and operate declared national airports using own revenues and provided CSO funding for non-commercial airports;
- Undertake airport development studies and implementation consistent with NTS and MTTP;
- Assistance to provinces on a fee-for-service basis as requested for airport engineering and asset management.

128. **PNG Air Services Ltd**

- Commercially own, operate and maintain air navigation services, including communications and surveillance to safely manage PNG airspace.

129. **Civil Aviation Safety Authority**

- Establish, promulgate and monitor adherence to safety and security standards relating to the civil aviation system;
- Primary responsibility for prosecution of safety breaches;
- Review air accidents and incidents and report these to the AIC;
- Maintain aviation documentation including the register of aircraft.

130. **Accident Investigation Commission**

- Responsible for “No blame” investigation of air accident causation.

131. **National Weather Service**

- Collection analysis and reporting of meteorological data, current weather reports and forecasts;
- Advice on medium term climatic variation and long term climate change;
- Establish as self-funding independent SOE.
132. **National Rescue Coordination Centre**
   - Combine maritime and air SAR into a NRCC;
   - Establish local inshore SAR services.

### 7.5 Role of Oversight and Regulatory Institutions

133. **Independent Consumer and Competition Commission**
   - Exercise an oversight and monitoring role for competition and fair pricing in the maritime and aviation sectors;
   - Control passenger transport (PMVs, taxis) pricing in consultation with the RTA, NCDC and Provincial Governments.

134. **Independent Public Business Corporation**
   - Oversee the transport SOEs under its ownership in particular for finance raising and financial advice;
   - Infrastructure planning and management will remain with the SOEs themselves within the framework of the NTS.

135. **Auditor General**
   - Annually audit the transport sector agencies and carry out in-depth audits every 5 years.

### 7.6 Role of Special Purpose Infrastructure Development Agencies

136. **General Provisions for All Special Purpose Authorities**
   - These include Infrastructure Development Authority, Border Development Authority and Economic Corridor Implementation Authorities, if and when formed;
   - Projects implemented are to be drawn from, or tested for consistency with and priority under, the MTTP and NTS;
   - Projects will be included in the DoT Transport Development Budget coordination and review process and will be ratified by TSCMIC;
   - Special purpose authorities will use existing Government implementation agencies and established processes for project procurement;
   - Fast track procedures may be developed for large projects with good technical and financial management backing.

### 7.7 Public-Private Sector Coordination

137. **CIMC and Other Consultative Bodies**
   - Existing public-private sector consultative bodies such as the CIMC play an important role and will continue to be supported by Government.

138. **PNG Logistics Association**
   - A PNG Logistics Association will be established, facilitated by DOT, with aims to improve the efficiency, security and reliability of freight transport infrastructure and operations.
7.8 The National Budget Process

The Budget Process has an important influence on how well any National Transport Strategy and investment plan will work in practice. At present there are several features of the process that work against good transport planning, rational selection and approval of projects and oversight of implementation.

139. Changes to the Transport Budget Process:

- All national budget transport expenditure to be channelled through the budgets of the agencies owning and managing the assets;
- Other than inter-governmental funding grants, all Government expenditure for provincial transport infrastructure to be channelled through the national transport agencies rather than other departmental budgets;
- All transport infrastructure expenditure to be reviewed by TSCMIC before inclusion in the Budget;
- Budget program names and make up should be rationalised;
- Distinction between national priority roads and non-priority roads will be superseded by NTS;
- No lump sum provisions unrelated to works quantities and rates estimates to be included in budget estimates.

8 Policy Summary for Land Transport

8.1 Land Transport Institutions

140. Road Traffic Authority

- A Road Traffic Authority (RTA) will be created from the NRSC and DOT Land Transport Division; the National Land Transport Board (NLTB) provincial LTBs will be abolished and their function rolled into the new RTA;
- The RTA will be funded through administration fees charged for its services;
- RTA will also act as a collection agent for traffic/transport fines;
- The RTA will outsource service delivery activities to MVIL, Provinces and the private sector as proves most cost-effective consistent with maintaining quality control;
- RTA will arrange for the collection of statistical data on motor vehicle, driver and transport services licensing at national provincial level, and pass this data to the DOT to support its sector policy, planning and monitoring role.

141. MVIL and Provincial Governments

- MVIL will continues to provide vehicle, driver and transport license issues and related services under contract to RTA or to Provincial Governments;
- MVIL will be compensated on a fee-for-service basis and passes through the monies collected to the contracting authority;
- Provincial Governments will retain motor vehicle licensing revenues as at present.

142. NRSC and Road Safety Functions

- The Council of the NRSC will be reconstituted in the interim, prior to amalgamation into the RTA;
• All road safety functions of DOT and NRSC will be consolidated into the new RTA;
• NRSC Council continues with revised membership as an inter-agency advisory body to the Board of the RTA;
• RTA to actively monitor road safety and develop and implement action plans for safety improvement within an overall National Road Safety Plan (NRSP);
• Road controlling authorities will advise on road design and condition factors affecting road safety and will contribute to the action plans and NRSP and will include road safety in agency budgets.

8.2 Market Entry and Competition Regulation

143. Road Transport Licensing
• Commercial goods transport will be subject only to quality licensing; quantity licensing (that is by routes run, commodities carried and service performed) for goods vehicles will be abolished;
• PMVs and taxis will continue to be quantity licensed under control of RTA once established;
• Quality licensing will be by criteria of industry knowledge, financial capacity and good character;
• All licenses will be issued by RTA in consultation with the relevant urban council or provincial administration.

8.3 Road Network Development, Ownership and Management

144. Road Network Development
• New links and other selected public roads will become declared roads as they are constructed, upgraded or rehabilitated under control of DOW;
• The length of the national network will increase to 25,000 kms and the provincial network will decrease (approx. 20,000 to approx. 12,000 kms) in pursuit of MTDP targets;
• NRA will progressively assume ownership of approximately 9,000 kms of core roads, as they are improved to maintainable standard by DOW;
• Transfers of private roads or non-transport Government agency roads to public roads will require prior agreement and arrangements for ongoing maintenance funding;
• DOT to lead development of procedures for identifying, agreeing, surveying and legally transferring roads between provincial and national responsibility, between DOW and NRA and between private and public responsibility.

145. DOW-Provincial Cooperation
• Provinces will enter into management arrangements with DOW for road asset management according to capacity and capability;
• Joint provincial_district works units will be established combining DOW and Provincial resources;
• The works units will provide for emergency reinstatements, plant hire and for works on competitive tender basis where there is insufficient or uncompetitive private sector capacity and bidding interest.
8.4 Public Private Partnerships

146. PPPs
- There is envisaged to be very limited opportunity for true PPP road concessions in Papua New Guinea;
- Performance-based term contracts are preferred as offering opportunities for leveraging private finance and developing national construction capacity;
- Finance-and-build arrangements involving private sector loans are likely to be more costly than sovereign loans from multinational donors and also create conflicts in combining borrowing obligation with contract delivery.

8.5 Cost Recovery, Road Fund and CSOs

147. Cost Recovery, Funding and CSOs
- NRA will assume responsibility for the more heavily used and functionally important rural roads, with progressive transfer of roads being subject to assurance of long term financial sustainability from the Road Fund;
- Other economically viable roads will be funded through the DOW and Provincial budgets subject to funding availability;
- Non-economic roads providing basic access to small remote communities will be funded according to the CSO policy from an agreed portion of the road budget.

148. Operation of the NRA Road Fund
- The Road Fund will be the source of funding for all works requirements on roads taken over by the NRA under its Act;
- Road user charges will be extended to include a charge on both petrol and diesel, an annual charge on registered vehicles and a charge for heavy vehicle axle loads;
- NRA will develop its financial and technical management of the Road Fund and application to the network;
- NRA will publicly report on its affairs and annually prepare statements of intent and service performance;
- Oversight will be from the Auditor General and monitoring by DOT.

149. Funding of NCD Roads
- NCDC will manage all works on roads within the NCD boundary from its own forces or by contract;
- NCDC will receive road user-based funding to supplement its financing of road works;
- An investigation will be made of alternative funding sources including a proportion of RUC, vehicle registration and licensing fees and participation in inter-governmental funding.

8.6 Regulation of Service Standards in Land Transport

150. Service Standards
- The RTA will regulate service standards for commercial passenger and goods transport services;
- The RTA will consider the introduction of a system of Land Transport Rules;
- DOW will be the lead agency for setting standards for road engineering works in conjunction with industry stakeholders.
8.7 Road Safety

151. Road Safety Initiatives

- The NRSC/RTA will prepare a 20 year National Road Safety Strategy and 5 year Action Plan;
- The number of vehicle testing stations will be reduced, their operating criteria and enforcement tightened; and an external auditing agency will be engaged to check their quality control and performance;
- The period between roadworthiness testing for younger vehicles will be reviewed, with the possibility of extension;
- The issue of number plates and vehicle registration will be centralised to the RTA; and the delegation of functions to Provincial Governments and MVIL will be reviewed;
- Driver tuition and testing requirements will be raised;
- LTD/RTA will increase enforcement effort to counter unroadworthy vehicles;
- Safety management systems will be introduced for identifying and mitigating safety risks from road layout and use; new road projects will be safety audited;
- Road safety funding will be increased and self-funded from RTA revenues and existing mechanisms such as 3rd Party Insurance Levy.

8.8 Environmental and Social Safeguards for Road Transport

152. Environmental Safeguards in Road Transport

- There will be a review of import controls to eliminate high emission vehicles, instigated by RTA in conjunction with the DEC;
- LTD/RTA will increase on-road enforcement of smoky vehicles regulations;
- DOW will maintain and develop environmental codes of practice for road and bridge infrastructure construction and maintenance including practice guidelines for climate change adaptation;
- DOT will develop proposals for limiting the carbon emissions from the vehicle fleet and introduction of biofuels in conjunction with the OCCD.

153. Social Safeguards in Road Transport

- Construction contracts will include provisions for protecting local communities from HIV/AIDS infection (DOW,NRA);
- Transport operator targeted education in HIV/AIDS prevention (RTA,DOT);
- Legitimate resettlement impacts will be avoided and/or compensated in road development (DOW, NRA);
- Roads into inaccessible areas will take account of cultural and ecological impact risks (DOW/DOT).

9 Policy Summary on Maritime Transport

This section of the Strategy sets out the policy direction for maritime transport, comprising ports and port operations, river transport and river ports and landings, coastal maritime activities, marine navigation infrastructure and operations, international and coastal shipping. This summary is elaborated in Section 13 of Volume 3, Detailed Strategy Document.
9.1 Development of Maritime Transport Institutions

154. Department of Transport

- In the short term, the administration of the Shipping Franchise Scheme and the planning and implementation of minor wharves and jetties, currently undertaken by the donor-assisted Community Water Transport Project (CWTP) will be transferred to the Rural Infrastructure Development Division (RIDD) of the DOT;
- In the medium term transfer the Shipping Franchise Scheme to the broadened National Maritime Administration;
- DOT PCD and RIDD to coordinate the planning of minor wharves, jetties and landings in conjunction with provinces and DPLLGA.

155. NMSA/NMA

- NMSA to broaden to a National Maritime Administration (NMA) in the medium term to include the administration of maritime regulatory policy performed by DOT Marine Transport Division, the Maritime Security Unit, the Shipping Franchise Scheme of the CWTP and port regulatory functions presently delegated to PNGPCL from the Secretary of Transport.

156. PNG Ports Corporation Ltd

- PNGPCL to remain as an SOE;
- Main port assets to remain in majority public ownership;
- PNGPCL to operate the three main commercial ports on a fully commercial basis, as separable business enterprises with price monitoring but not price control;
- PNGPCL to operate commercial and non-commercial portfolios, the non-commercial portfolio to receive supplementary funding from Government or an industry levy, to be determined;
- Further consideration be given to development of PNGPCL as a landlord or tool port operator;
- A review will be undertaken of which ports should be declared ports and their ownership and management arrangements;
- PNGPCL to provide an asset management service for other undeclared ports on a fee-for-service basis on behalf of provincial or local government.

157. Coasting Trade Committee

- The CTC will be reformed or replaced by a more widely representative Marine Industry Advisory Group (MIAG);

158. PNG Shippers Council

- Government will support the reactivation of a PNG Shippers Council.

159. Independent Consumer and Competition Commission Role

- The ICCC will monitor the state of competition and service quality in the port and coastal shipping sector, once direct price control is removed.
9.2 Market Entry and Competition Regulation

160. Coasting Trade Protection (Cabotage)
- There will be stricter conditions and limits on permits for international shipping to carry coastal cargo (cabotage) to avoid damage to the PNG flagged coasting trade and its associated onshore industries;
- A fee-based system will be introduced for cabotage privileges to be applied to developing the PNG domestic shipping industry and potentially to CSO services to small ports.

161. Coastal Freight Rate Price Control
- Price control on coastal shipping freight rates will be removed but operators will be required to structure their charges to transparently reflect actual costs;
- ICC will periodically monitor freight rates through case studies.

162. CSO Delivery
- The CWTP Shipping Franchise Scheme will be the preferred method of delivering services on thin routes that cannot bear a commercial service as part of the Government’s CSO policy.

163. Coastal Shipping Licensing
- The new MIAG will advise minister on coasting trade licence and permit applications;
- Applications will be decided primarily on quality criteria but some consideration of the effects of new entrants on the structure of the coastal shipping market will remain;
- Use of PNG nationals for crewing and commitment to industry training will be included as criteria in deciding applications;
- PNG owned, flagged, operated and crewed vessels will be preferred; requests for waiver will need to prove unavailability;
- Bareboat and demise charters will be considered but will require NMSA/NMA safety approval of vessels either before importation to PNG or before going into service;
- The Merchant Shipping Act will be revised to incorporate these changes.

164. Maritime Transport Information
- DOT will resume collection of data on coastal freight and passenger movements and tariffs charged, on a targeted sampling basis for policy development, sector planning and competition monitoring.

9.3 Maritime Infrastructure Ownership, Management and Regulation

165. Port Ownership, Management and Regulation
- DOT legal team will prepare and submit proposed legislation for the management and operation of declared and undeclared ports;
- PNG Ports Corporation will be the port authority for all declared ports;
- Port master plans will be required for all declared ports;
- Where provinces or LLGs do not have the management capacity or technical capability, PNGPCL will manage undeclared port assets on a fee-for-service basis;
• DOT will lead an assessment of minor port development needs and funding methods involving DPLLGA and Provinces, with inputs from the CWTP jetty programme and PNGPCL following the NTS planning framework;
• The same group will consider additions to and removals from the list of declared ports;
• Procedures will be put in place for transfer of private ports to public ownership;
• PPPs for development within the main commercial ports will be encouraged under the prevailing PPP framework and considering the overall impact on the port network.

9.4 Maritime Infrastructure Protection

166. Maritime Infrastructure Protection

• The provisions of the Protection of Transport Infrastructure Act will be applied to public port infrastructure, including that developed under PPPs.

9.5 Pricing, Cost Recovery and CSOs

167. Pricing, Cost Recovery and CSOs

• The main commercial ports will form a commercial portfolio, be priced to individually recover costs, and be subject to tariff monitoring rather than control;
• PNGPCL will competitively outsource services where cost-efficient and while maintaining quality standards;
• PNGPCL will maintain the remaining declared ports under management contracts with Government which recognise and compensate PNGPCL for the CSO component of cost;
• The term management contracts will be contestable by the private sector and by Provincial Governments;
• SAR, security and environmental control activities of the NMSA/NMA will be funded through a transparent system of levies on shipping and port operators;
• Where maritime navaids cannot be fully supported through user charges, NMSA/NMA will receive CSO funding.

9.6 Regulation of Service Standards

168. Service Standards

• Service standards for domestic shipping will be regulated through coastal licence and permit conditions, and through the CWTP shipping franchise contracts;
• Standards for port infrastructure will be established and monitored by PNGPCL and by NMSA/NMA for maritime navaids.

9.7 Maritime Safety

169. Adherence to International Conventions

• Through NMSA/NMA, PNG will endeavour to come into full compliance with the IMO conventions to which it is signatory and will accede to future conventions as appropriate;
• NMSA/NMA will work to ensure full compliance with ship registration and survey requirements, and extend coverage to include fishing vessels.
170. **Ship Registration, Marine Survey and Crewing**

- NMSA/NMA will ensure that safety requirements are met by resource exploration and support vessels and offshore platforms within PNG waters;
- Any public agency intending to acquire, lease or charter a vessel will inform NMSA and obtain prior approval of the fitness of the vessel for the intended purpose before importation or entry into service;
- NMSA/NMA will maintain a secure data system for true and accurate competency certification for ships’ crew;
- Coasting trade vessels will be required to reserve up to two berths for apprentice PNG national crew.

171. **Port State Control**

- NMSA/NMA in conjunction with port owners/operators will increase inspection of foreign flagged vessels to improve compliance with Tokyo MOU Port State Control provisions and will apply legislation to bring PNG flagged vessels up to white list status.

172. **Small Craft Safety**

- NMSA/NMA will promote small craft safety by support to Provincial Government and the production of safety guidelines, education and through the provisions of the Small Craft Bill which will be passed through parliament;
- Provincial registers of small craft will be established, together with an inspectorate with reserve powers lying with the NMSA/NMA.

173. **Navaids, Coastguard and SAR**

- NMSA/NMA will continue to restore and maintain navigational aids, provide hydrographic services, coastguard and marine surveillance systems to IALA, IHO and IMO standards;
- The proposed NRCC will be available on a 24h basis and maintain continuous communication with the NDMC and other first responders in PNG and the local region.

9.8 **Maritime Security**

174. **Maritime Security**

- The Maritime Security Unit, currently within DOT, will coordinate maritime security;
- Resources will be made available to achieve full compliance with the ISPS Code;
- Security standards will be set for each port consistent with its international gateway function, volume of trade and security risks.

9.9 **Environmental and Social Safeguards**

175. **Marine Pollution**

- NMSA/NMA will counter marine pollution threats through national and international training exercises, establishment of an Environmental Protection Unit, regular review and updating of legislation, establishing protocols for engaging international assistance.

176. **Climate Change Adaptation**

- PNGPCL will coordinate standards for environmental assessment and control of coastal engineering works, including climate change adaptation.
9.10 Regional Relationships in the Maritime Sector

177. Regional Relationships

- PNGPCL and the NMSA/NMA will actively engage with neighbouring countries and regional maritime organisations to promote consistent and compatible standards and practices across the region.

10 Policy Summary on Air Transport

10.1 Introduction

This section of the Summary Strategy sets out the updated policy for air transport, comprising airports and airport operations, rural airstrips, airways and air navigation. This summary is elaborated in Section 14 of Volume 3, Detailed Strategy Document.

10.2 Development of the Air Transport Institutions

178. Air Transport Institutions

- No further structural change is anticipated for the institutions in the air transport subsector;
- CASA will be the safety and security regulator for civil aviation;
- NAC and PNGASL are SOEs responsible respectively for the provision of airports and air navigation and communication services;
- The AIC will provide no-fault investigation of air accidents and incidents;
- The ATR Division of DOT will advise on aviation policy, administer international air service agreements and market entry;
- DOT will retain an overall cross-modal policy and planning role that includes aviation irrespective if a Ministry of Civil Aviation were to be formed in future;
- ICCC will maintain a monitoring role over competition in civil aviation.

10.3 Market Entry and Competition Regulation

179. International Air Transport

- There will be gradual and selective deregulation of scheduled international air transport placing limitations in air service agreements including specifying routes, capacity allocation limits and exchange of traffic rights limited to 3rd, 4th and 5th freedoms;
- PNG will continue to support APEC and Forum policies of regional liberalisation of air services;
- Non-scheduled international air services will be considered on a case-by-case basis with approval safeguards for the PNG aviation industry and airport.

180. Domestic Air Transport

- Open competition will be permitted on domestic scheduled services subject to majority PNG ownership, aircraft suitability and safety compliance;
- Charter operations, such as by business and industrial companies will be allowed only in joint venture with a PNG air operator;
- Temporary importation of aircraft for use in PNG limited to two three month periods in total and subject to prior aircraft suitability approval by NAC and PNGASL.
10.4 Government Ownership of Airports, Air Operators and Aircraft

181. **Airports and Air Navigation Infrastructure**

- All scheduled national airports and underlying land will remain in public ownership;
- NAC may lease land and licence private facilities on airport land where not to the detriment of the air transport purpose;
- PNGASL will own and operate all air navigation and aeronautical communications infrastructure;
- NAC will freely accommodate PNGASL air navigation and communications infrastructure on airport land;
- Provision will be made to add or remove airports from the schedule of national airports under NAC;
- The *Protection of Transport Infrastructure Act* shall apply to all publicly owned airports and navigation infrastructure.

182. **Government Ownership of Air Operators**

- Air Niugini will remain in majority PNG national ownership with no foreign shareholding to exceed 25% of the company;
- The Government will not have a shareholding in any other airline offering either scheduled or charter services;
- The Air Niugini Board and Executive will be responsible for decisions in regard to the company’s purchase and lease of aircraft.

10.5 Cost Recovery and CSOs

183. **NAC**

- To the maximum extent possible, NAC will improve its efficiency and increase its revenue sources to full cost recovery of maintenance and operating costs over the 21 airports currently under its ownership in the short term (2015) and inclusive of capital replacement and upgrading costs by 2030;
- If studies and experience show this to be impractical the less profitable airports will be transferred to a CSO portfolio;
- NAC will enter into management contracts with Provincial and LLGs for the operation and maintenance of minor airports on a fee for service basis.

184. **PNGASL**

- PNGASL will aim to increase its recovery of operating costs through user revenues and internal efficiencies, recognising limitations for cross-subsidising between upper and lower airspace and the affordability of charges on low traffic routes and to rural airstrips;
- Government will cover PNGASL’s operating cost shortfall from through the annual Budget appropriation;
- CSO funding arrangements will be put in place for air navigation and communications services to rural airstrips;
- Capital development of air navigation and communications will be met through the Development Budget utilising donor funding.

185. **Civil Aviation Safety Authority**

- CASA will aim to achieve 50% cost recovery by 2015.
186. **CSOs for Minor Airports and Air Navigation Services**

- A CSO funding procedure will be developed and implemented for NAC’s less profitable airports, any additional airports transferred to NAC and airports remaining in provincial, LLG and local community ownership.

10.6 **Private Sector Role in Air Infrastructure Services**

187. **Private Sector Role**

- Private airports for resource development purposes will be facilitated, subject to approval of location, design, navigation and other compliance requirements;
- PPPs will be encouraged for major new airport facilities where in the overall economic interest and subject to the Government’s PPP framework;
- NAC and PNGASL will competitively outsource parts of their operations where more cost-efficient to do so, subject to service, safety and security standards being maintained.

10.7 **Service Standards in Air Transport**

188. **Airport Service Standards**

- NAC will be responsible for developing and administering standards for airports infrastructure, and PNGASL for aviation navaid and communications infrastructure;
- NAC will develop technical and economic feasibility and business cases for airport upgrading taking account of air transport demand forecasts;
- NAC will discuss any conclusions on upgrading standards and timing and differences between these and those in the DSP/MTDP and will report its resolution through TSCMIC and if necessary refer to the NEC for a decision;
- CSO management contracts will specify the standards to be met.

189. **Aircraft Service Standards**

- Aircraft used at PNG airports to be compliant with design limits of the infrastructure and aviation safety standards;
- Where air operators wish to introduce aircraft that require upgrading at one of more airports, NAC will conduct feasibility studies that include costs and benefits to air transport to enable informed decision-making.

190. **Role of ICCC**

- ICCC will oversee compliance with service standards through periodic sector reviews.

10.8 **Aviation Safety**

191. **Aviation Safety**

- Safety will be the first and highest priority in civil aviation;
- CASA will complete the implementation of compliance actions required by ICAO safety audits;
- PNG will harmonize civil aviation laws, rules, standards and practices with international best practice and with other regional countries with which it shares air traffic routes;
- NAC airports will be brought up to safety certification standard by 2015;
• Other publicly owned airports will be brought up to a certifiable safe standard by 2020;
• Air operators will set up and maintain Safety Management Systems to ensure compliance with civil aviation rules, overseen by CASA;
• The Director of Civil Aviation and CASA will rigorously implement and monitor legal safety requirements.

10.9 Aviation Security

192. Aviation Security

• The National Airport Security Plan will guide improvements in aviation security, including airport and air operator security;
• The Government will agree a security compliance action plan with ICAO;
• CASA will be the coordinating agency for aviation security, liaising with other authorities;
• Government will harmonize its aviation security practices with neighbouring states.

10.10 Environmental Safeguards

193. Environmental Safeguards

• NAC will include airport noise control in airport master plans and will liaise with urban planning agencies to mutually ensure that airport expansion is not limited by urban development;
• DOT will monitor air traffic and estimate changes in carbon emissions and intensity from aviation;
• NAC will coordinate with other agencies to ensure climate change adaptation is included in airport upgrading.

11 Policy Summary on Modal Integration

This section of the Summary Strategy sets out the policy for integration of transport modes, both for modal transfers and for complementary planning and provision of transport infrastructure. This summary is elaborated in Section 15 of Volume 3, Detailed Strategy Document.

194. Modal Integration Principles

• Efficient modal transition on journeys requiring more than one mode and/or cross-border travel;
• Planning to ensure basic access to transport by at least one most cost-effective mode;
• Balanced investment across modes to achieve similar economic return and compliance with other policy priorities;
• Multi-modal transport studies to form basis for decisions on missing link construction;
• Provide direct links between main provincial centres, main tourism destinations, areas of economic production and international port and airport gateways consistent with economic feasibility and international transport connections.

195. Modal Transitions for Passenger Traffic

• NAC to work with airlines and border control agencies to smooth modal transfers for air passengers;
- PNGPCL, the domestic passenger ferry operators and the tourism industry will work together to improve passenger reception facilities at domestic ports for local travel and cruise tourists.

196. **Modal Transitions for Freight Traffic**
- Port master planning to include provisions for improving efficiency of use of port land and rate of processing of cargo through the water/land interface;
- Inland terminals, port relocations and improved road links will be considered for the major ports as part of master planning to reduce urban congestion;
- Use of logistics companies who can integrate sea, port and land transport operations to manage the main port terminals will be considered.

197. **Basic Access Provision to Rural Areas**
- Priorities for providing basic access to remote rural communities will take account of modal availability as well as population and economic development potential;
- DOT, DPLLGA/PLSSMA will coordinate with provinces to prioritise basic rural access to integrate with the national network;
- Functional classification recognises modal availability.

198. **Other Transport Modes**
- Pipelines, conveyors and aerial ropeways have application to bulk materials handling in minerals, oil and gas and only impact on the publicly owned transport infrastructure where these materials transfer to roads waterways or seaports;
- Rail, either for long distance freight or passenger or as urban light passenger rail is very unlikely to be economically feasible, would present technical challenges in construction, be less resilient than road and would be difficult to sustain over the long term.

199. **Balance of Investment between Modes**
- Using the TIPS methodology together with other policy criteria, the NTS aims to arrive at a better allocation of investment between the three modes of transport, recognising that ports and airports have been relatively underfunded in the past.

200. **Economic Corridors**
- DOT will liaise with DNPM to undertake feasibility studies of missing link and corridor roads taking account of the benefits of associated development in other sectors.

12 **Policy Summary on Sector Capacity Building**

This section of the Summary Strategy sets out the policy for building sector capacity through education and training. A commentary on the existing state of human resource capacity within the public and private sectors and more detail on policies for improvement is elaborated in Section 16 of Volume 3, Detailed Strategy Document.

201. **Sector-Wide Education and Training Strategy**
- Establish a “Capacity Building Taskforce” under TSCMIC auspices to build capacity focussing on human resource development;
- Carry out a status review of technical education, training and professional qualifications and supply/demand outlook;
• Coordinate with wider Government development initiatives for the education and training sector;
• Develop an education and training strategy and plan focused on the skills, qualifications and experience required by the sector;
• Propose interim ways of filling gaps in the staff establishment of the Government transport agencies to cover shortages of qualified PNG nationals;
• Propose changes and development of secondary education and tertiary institutions to support the sector.

13 Supporting Legislative Programme

This section of the Summary Strategy sets out the supporting legislative programme for the institutional and policy changes outlined in the foregoing strategy. More detail is given in Section 17 of Volume 3, Detailed Strategy Document.

202. Responsibility for Transport Legislation Development

• The DOT Legal Section will be responsible for drafting new and amended transport legislation, taking specialist external advice where needed.

203. Land Transport Legislation

• A Road Traffic Act will replace the existing Motor Traffic Act and related legislation to establish a Road Traffic Authority, combining the NRSC and LTD of DOT and introducing quality-based transport licensing;
• The need for the Motor Vehicle Dealers Act will be reviewed with a view to repeal.

204. Maritime Transport Legislation

• The Merchant Shipping Act will be amended to remove price control on shipping freight rates and to reform the coastal shipping licensing and permitting regime;
• The NMSA Act will be reviewed to remove ambiguity and transfer regulatory powers currently exercised by the Secretary for Transport;
• Legislation will be introduced in the medium term to widen the remit of the NMSA to a National Maritime Authority;
• A new Ports Bill will be drafted by DOT in conjunction with PNGPCL to more clearly delineate the powers, functions and responsibilities of PNGPCL;
• The Small Craft Bill will be referred to NEC once provincial concerns have been resolved.

205. Air Transport Legislation

• The following air transport legislation will be enacted once outstanding matters of governance responsibility and function are agreed:
  o Civil Aviation Act, Rules and Regulation;
  o Air Services Act and Regulation;
  o Airports Act, Regulation and Bylaws;
  o Accident Investigation Commission Act.
14 Transport Infrastructure Investment

14.1 Transport Infrastructure Investment Policy

206. Strategic Planning

- The NTS recognises the MTDP and DSP five year targets for transport system growth and development to 2030;
- Provincial transport plans will be integrated with national level transport infrastructure planning;
- DOT will assist provinces and work within the ISDM and framework of DPLGA, PLSSMA and PCMC;
- Longer term strategic planning, where proven economically feasible, socially desirable and financially affordable, will set the framework within which shorter range tactical planning and incremental development takes place.

207. Transport Planning and Investment Cycle

The planning and programming of transport infrastructure investment will follow the cycle of development and review shown in Figure 4.

![Figure 4 – The Investment Planning Cycle](image)

The annual budget and programming cycle is annual and in-depth reviews of the transport strategy and long range investment planning are at longer intervals, typically 5 years. The process commences with a review of transport demand including forecasts, an evaluation of the capacity of the transport system to meet this demand and where pressure points exist or are emerging (deficiency analysis).

Projects to meet the deficiencies are proposed, evaluated using social cost benefit analysis (aided by TIPS and other evaluation tools), and projects are ranked by their economic efficiency, weighted to incorporate aspects such as social benefits and filtered to remove or mitigate those with unacceptable side effects (such as breaching environmental standards).
Other Government policy considerations and directives are added, such as NEC decisions. Funding and capacity constraints are then applied and the ranked projects developed into a programme of work, observing the “maintenance first” order of project acceptance.


SCBA is used to compare independent projects and to select between mutually exclusive project options. Projects can be any investment in the transport system and include different levels of maintenance, upgrading to a higher standard, new construction and transport vehicles and operations. The methodology used in determining priorities under the NTS and MTTP is summarised below and detailed in Volume 3, Section 19.4.

- Uses resource costs, net of transfer payments, at constant base year values;
- “Costs” are conventionally the investment costs to the public agency and nation of the project, that is the alternative economic value of land used by the transport infrastructure, capital works and maintenance costs;
- “Benefits” accrue to existing transport system users, new users and those producers of goods that are transported who benefit indirectly from reduced transport costs;
- Externality effects on non-users, such as safety, and on the natural and built environment can be incorporated into the SCBA through mitigation costs and minimum standard setting in selecting project options;
- A time horizon is chosen to suit the project lifetime and an appropriate rate of discount selected for future benefits and costs, typically 20-25 years and 12% to conform with international donor agency requirements;
- Selection criteria for ranking projects – benefit/Cost Ratio (BCR) is preferred where there are funding constraints, but other indicators can also be reported such as net present value (NPV) and economic internal rate of return (EIRR);
- The available funding sets the level of B/C ratio required for a project to be accepted (the acceptance B/C ratio); this will be 1.0 if there is unconstrained funding, but otherwise will be higher;
- Incremental B/C ratios are used to distinguish between mutually exclusive investments, which are usually the design options for a particular project, the option with the highest investment cost but with an incremental B/C ratio that exceeds the acceptance B/C ratio;
- For new or greatly improved links into inaccessible areas, benefits in stimulated production through reduced input and marketing costs should be included (producer surplus benefits);
- Some less easily assessed benefits, such as education and health access to remote or poor communities can be incorporated by benefit weightings, as is provided for in TIPS.

209. **Priority order for expenditure**

After evaluating and ranking projects by B/C ratio, the general order in which funding should be prioritised is:

- urgent and emergency maintenance to reinstate infrastructure that has been closed or seriously degraded, usually by weather events;
- investment required to meet legal operating requirements to avoid facilities being closed for safety reasons (such as for airports);
- routine and periodic maintenance applied to standards and frequencies that minimise road maintenance plus road user costs;
- rehabilitation or reconstruction of degraded infrastructure to its original standard;
• upgrading of existing infrastructure to a higher standard by expanding capacity or improving the user performance of the facilities;
• new infrastructure – new road links, new ports, airports.

14.2 Present Structure of Transport Infrastructure Funding

Volume 3, Section 20 details the present structure, sources and levels of funding for transport infrastructure over the last five years. While past trends are not necessarily an indicator of future funding availability, they provide a background for assessing what future funding levels may be, and how funds are distributed among government agencies, SOEs and provincial government.

210. Existing Level of Funding

Roads:
• Total expenditure on roads rose from K200 M to K700 M pa over the 2006 to 2010 period, averaging K500 M from all source in real 2010 values; on average 60% was applied to national roads and 40% to provincial roads;
• Funding has mainly come through from Development Budget, which includes loans and grants from development partners which contribute about 30% of spending;
• the NRA Road Fund which receives monies from diesel excise will start to become significant as a funding source from 2012;
• Most provincial funding is through the District Services Improvement Programme (DSIP) and the Transport Infrastructure Maintenance Grants (TIMG), but there is no central reporting on which roads and other transport infrastructure this funding has been applied or the results achieved;
• A substantial proportion of capital funding for new infrastructure was channelled through DNPM up to 2011, but has subsequently been reallocated to the transport line agencies;
• Recent experience is that actual expenditure has only reached 70% of Budget appropriation for various reasons, such as project readiness, processing delays and unavailability of funds.

Maritime:
• Expenditure on the declared main Ports has averaged K45 M pa on average over the last five years, of which 85% was development and 15% maintenance work;
• The development expenditure was sourced mainly through the Development Budget to PNGPCL, or IPBC in the case of Lae Port; there has been relatively little funding of port development from PNGPCL revenue;
• Maritime navaids restoration work has averaged K16 M pa, channelled through the NMSA;
• The small jetties programme was programmed but had not been started up to 2011 due to delays in project preparation and procurement; there is no information on spending by provinces on minor wharves and jetties but this is thought to be negligible.

Air:
• Capital spending on the main airports has averaged only K10 M pa in the last five years, channelled through CAA from the Development Budget; facilities maintenance has been funded from airport revenue, although not to a level to preserve the assets in good condition;
• The loan-supported CADIP programme will very substantially boost expenditure on national airports and air navigation in the future;
• There is no centrally reported expenditure on provincial airports and rural airstrips and it is thought that this has been negligible in recent years, apart from privately owned and operated facilities.
14.3 Functional Hierarchy and Standards of Provision

211. Functional Hierarchy

The NTS has developed a functional hierarchy for the transport network, summarised in Table 1 below, which classes each link (road, air route, sea route) and terminal (towns, airports, ports) according to its importance as a connecting link in the national network. Details of the rationale for the hierarchy are given in Volume 3 Section 21.

<table>
<thead>
<tr>
<th>Level in Hierarchy</th>
<th>Ports and Airports</th>
<th>Roads</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Main international gateway and PNG regional ports and the main international gateway and hub airports</td>
<td>Primary connections from Level I ports and airports to national and provincial centres and to major areas of economic production</td>
</tr>
</tbody>
</table>

II

- Other ports handling significant volumes of overseas cargo, serving other provincial centres and/or other significant areas of economic production
- Other airports handling significant volumes of overseas traffic, serving other provincial centres and/or other significant areas of economic production
- Primary connections from Level II ports and airports to their provincial capitals
- Primary connections from provincial centres to district centres and to other significant areas of economic production
- Secondary connections between provinces
- Connections to international land border crossings

III

- Other ports and airports generally serving district centres or catchments of over 10,000 population, or over 5,000 population without a road or (for airports) a water connection to the provincial capital
- These ports and airports generally support, or could potentially support, regular services on a scheduled or inducement basis
- Primary connections from Level III ports and airports to the district centre or other areas generally of over 10,000 population in the hinterland served
- Primary connections from provincial centres to other areas generally of over 10,000 population
- Primary connections to high schools, hospitals and health centres
- Secondary connections between district centres

IV

- River and coastal landings and rural airstrips serving other areas
- Occasional charter, private and local use
- Subsidised services via CWTP
- Road connections from Level IV ports and airports
- Road connections to other areas

V

- Coastal and river landings suitable only for small craft
- Minor landing areas suitable only for rotary wing operations
- Minor roads and tracks providing only dry weather access for four wheel drive vehicles

Some of the main points are:

- A five level classification has been developed;
- Each link is rated according to its function in connecting provinces, districts, other concentrations of population, ports, airports and social infrastructure (schools and health facilities);
This classification is independent of the ownership or administrative responsibility (DOW, NRA, PNGPCL, NAC, Province etc.) and funding arrangements; Standards of provision for each link and terminal are related to volume of traffic carried and the functional classification; Routes that are critical lifelines and have no alternatives should be constructed and maintained to a standard that gives them added security against unplanned closure; The Highlands Highway retains its importance as “backbone infrastructure” connecting the inland highland provinces with the main coastal ports, in particular Lae.

212. Standards of Provision

The following general considerations will influence the design and operability standards for transport infrastructure:

- position in hierarchy – generally the higher the level the higher the design standard;
- level of use – volume and type of traffic carried; affects the design vehicle/aircraft/vessel and the volume capacity and strength characteristics of the design;
- economics of provision – which will be partly determined by the amount of traffic but also recognises that construction can be more or less costly depending on severity of terrain, soils conditions and remoteness;
- harmonization with recognised international and national codes and practice – standards are becoming more harmonized internationally and there are advantages in alignment with standards prevailing in neighbouring countries with like conditions.

The types of parameter specified in standards and guidelines include:

- availability – limits on the frequency of outages and the maximum time to return the facility to operation;
- user performance – technical criteria for leading dimensions and strengths, related to the traffic carried;
- safe design and operation – safety management standards;
- security – for border control;
- environmental compliance – minimum standards, mitigation and procedures to be followed;
- responsibility for preparation and oversight of standards – under the responsibility of the appropriate technical agency (DOW, PNGPCL, NAC, NMSA, PNGASL, NRSC/RTA, CASA) working with a reference committee including DOT, external cross-cutting agencies and industry bodies such as IPEPNG, Contractors’ association.

The Detailed NTS Volume 3, Section 21.7 provides proposed standards for rural roads, ports and airports, which will be reviewed and amended in consultation with the above agencies.

14.4 Gaps between Transport Demand and Infrastructure Provision

213. Road Deficiencies

- National routes (NR) – 33% that should be sealed to serve their present function remained unsealed at 2010 and this rises to 44% when the future function of these routes is considered;
- 50% of the national routes were below a good surface condition;
- Notable deficiencies were:
  - Wabag-Mendi Road;
o Bundi Highway;
o Sepik Highway;
o Lae-Wau Road.

214. **Maritime Deficiencies**

- Lae – the main Highlands gateway for freight; repairs and expansion needed to increase capacity and efficiency;
- Port Moresby – existing port expansion and master planning to determine role in relation to privately owned Motukea and need or otherwise for port relocation;
- Madang – rehabilitation needs and longer term decision on possible relocation;
- Rabaul – frequent dredging requirement due to volcanic ash and future development planning required;
- Kieta/Buka – reopening of Kieta wharf and development with respect to Buka as administration shifts back to Arawa/Kieta;
- Extensive rehabilitation/ replacement needs at several hundred minor ports, jetties, river landings;
- Some outstanding restoration of small navigation aids along the coast and main river systems (Fly, Sepik, Ramu etc.).

215. **Air Infrastructure Deficiencies**

- Port Moresby International (Jacksons) Airport – experiencing apron and terminal congestion; increased runway length, expanded/ renewed terminal facilities and larger apron as set out in recently completed master plan;
- Lae (Nadzab) – development as alternate international airport to PMIA;
- Other NAC airports – upgrading to comply with ICAO certification standards for security and runway length and strength for F100 operation;
- Provincial airports – ongoing recurrent and remedial maintenance needs to avoid closure;
- Rural airstrips – heavy maintenance and rehabilitation of approximately 400 remote airstrips to maintain operability.

216. **Modal Integration and Overall Coverage**

- Development of the main highway network, main ports and airports has proceeded independently and with little coordination;
- Insufficient attention has been paid to land/sea and land/air interfaces;
- There has been an imbalance of investment concentrating on roads with relatively less investment in main ports and airports;
- There has been insufficient coordinated planning of land, air and water transport connections to remote communities with provincial disparities.

14.5 **Infrastructure Development Cost of the MTDP**

The cost of developing transport infrastructure to the targets specified in the MTDP by 2030 and for each 5 year point has been estimated in Volume 3, Detailed Strategy Document, Section 23 which provides a number of descriptive tables and graphs. Key points are listed below:
217. **New National Road Links**

- The total cost of constructing the missing links and economic corridor roads in the MTDP is estimated at K27 billion;
- New links with an indicative B/C ratio greater than 1.0 (that is economically feasible) are:
  - New Britain Highway (Bialla-Kerevat);
  - Gulf to S Highlands (Sambergi – Erave);
  - Bundi Highway restoration;
  - Lae-Wau road extension to Popondetta via Garaina;
  - Southern Corridor, New Britain;
  - Trans-Fly (Morehead-Oriomo).

218. **Upgrading of National Roads**

- Targets have been established at 5 year intervals for sealing all national roads by 2020, with 1,800kms of the 16 Priority Roads at K 2.1 billion having precedence, followed by 4,800 kms of other national roads;
- There is no need for multi-lane roads outside of the main urban centres; however passing and climbing lanes may be considered on some higher traffic sections of rural highway;
- National roads need to be assessed for reliability against closure, a monitoring system for closures established, and road drainage upgraded to cope with increasing rainfall intensities and duration in the future;
- The total cost of new road links, upgrading to seal and rehabilitation of national and provincial roads to satisfy the MTDP is estimated at K46 billion, of which K11 billion is for provincial roads and K35 billion for national roads.

219. **Rehabilitation of National Roads**

- Targets are set at 5 year intervals for rehabilitating sealed national roads to good condition by 2020 at a cost of K 1.2 billion. At present 42% are in fair or poor condition.

220. **Bridge Upgrading or Replacement**

- Bridges on national road sections that are upgraded or rehabilitated should also be repaired, upgraded or replaced as necessary to T44 or higher standard;
- Upgrading or replacement of over 50 bridges on national road sections at a cost of K63 million have been identified as being economically feasible in their own right;
- 534 bridges require upgrading or replacement on the 16 Priority Roads at a cost of K735 million although few of these are economically justifiable.

221. **Development Cost of Ports and Maritime Navaids to MTDP Targets**

- The total cost of development projects for the national ports in the short to medium term is estimated at K2.5 billion, of which K1.5 billion is for economically justifiable projects;
- This does not include longer term development at Port Moresby, Lae, Madang, and Rabaul for which master plans must first be prepared;
- A further K0.5 billion is required for the 200 minor jetties and landings envisaged under the CWTP and small jetties projects;
- Relatively small additional capital investment is required in small maritime navaids.
222. Development Cost of Airports and Air Navigation to MTDP Targets

- The CADIP project covers the development costs of the national airports (apart from PMIA) and air navigation system to bring them up to certification standard for F100 operations and for security, at a total investment cost of K1.4 billion;
- Development of PMIA to the master plan is estimated at K1.0 billion;
- Further development of the national airports to complete the national airport development as envisaged in the MTDP is estimated at K300 million;
- While security and certification upgrading are economically feasible, further upgrading of airports to B737-800 standard should be subject to further studies of demand and economic and financial feasibility;
- A further K100 million is required for rehabilitation of provincial airports and rural airstrips;
- An estimated K76 million is required for upgrading CNS/ATM systems.

223. Summary of Total Development Cost of the MTDP

Table 2 summarises the estimated cost of delivering the transport infrastructure envisaged in the MTDP, a total of K52 billion over 20 years in 2010 kina values.

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<tbody>
<tr>
<td>Roads sub-sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New road links</td>
<td>31,850</td>
<td>3,000</td>
<td>7,900</td>
<td>7,950</td>
<td>13,000</td>
</tr>
<tr>
<td>16 Priority roads - upgrade to seal</td>
<td>2,000</td>
<td>400</td>
<td>700</td>
<td>650</td>
<td>250</td>
</tr>
<tr>
<td>Other national roads - upgrade to seal</td>
<td>5,150</td>
<td>600</td>
<td>1,250</td>
<td>1,450</td>
<td>1,850</td>
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<tr>
<td>Sealed national road rehabilitation</td>
<td>1,150</td>
<td>250</td>
<td>300</td>
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<tr>
<td>Provincial and other roads</td>
<td>5,500</td>
<td>750</td>
<td>2,000</td>
<td>1,375</td>
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</tr>
<tr>
<td>Roads sub-total</td>
<td>45,650</td>
<td>5,000</td>
<td>12,150</td>
<td>11,725</td>
<td>16,775</td>
</tr>
<tr>
<td>Ports and maritime navigation sub-sector</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Main ports - PNGPCL, commercial</td>
<td>1,508</td>
<td>842</td>
<td>666</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Main ports - PNGPCL, CSO</td>
<td>1,022</td>
<td>170</td>
<td>284</td>
<td>284</td>
<td>284</td>
</tr>
<tr>
<td>Secondary and minor ports</td>
<td>500</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>Maritime sub-total</td>
<td>3,030</td>
<td>1,137</td>
<td>1075</td>
<td>409</td>
<td>409</td>
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<tr>
<td>Airports and air navigation sub-sector</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>National airports (NAC)</td>
<td>2,714</td>
<td>682</td>
<td>1,563</td>
<td>453</td>
<td>16</td>
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<tr>
<td>Provincial airports</td>
<td>90</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>23</td>
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<tr>
<td>Rural airstrips</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Air navigation (PNGASL)</td>
<td>72</td>
<td>49</td>
<td>12</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Air sub-total</td>
<td>2,886</td>
<td>756</td>
<td>1,600</td>
<td>488</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>51,566</td>
<td>6,893</td>
<td>14,825</td>
<td>12,622</td>
<td>17,225</td>
</tr>
<tr>
<td>Road %</td>
<td>89%</td>
<td>73%</td>
<td>83%</td>
<td>92%</td>
<td>97%</td>
</tr>
<tr>
<td>Maritime %</td>
<td>6%</td>
<td>16%</td>
<td>6%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Air %</td>
<td>6%</td>
<td>11%</td>
<td>11%</td>
<td>4%</td>
<td>0%</td>
</tr>
</tbody>
</table>

14.6 Infrastructure Maintenance Cost of the MTDP

The cost of maintain transport infrastructure to the targets specified in the MTDP by 2030 and for each 5 year point has been estimated in Volume 3, Detailed Strategy Document, Section 24 which provides a number of descriptive tables and graphs. Key points are listed below:
224. **Maintenance Cost of the Road Infrastructure to meet MTDP Targets**

- The ongoing maintenance costs of roads in their present state and after development expenditure to restore roads to good condition to meet the targets of the MTDP are:
  - K390 M rising to K860 M p.a. by 2020 for national roads as roads are upgraded and transferred into national ownership;
  - K230 M reducing to K70 M p.a. by 2020 for provincial and local roads;
  - The NRA share of costs as it takes over responsibility for the core national network rises from K30 M to K 280 M p.a.
- A further K25 M rising to K 40 M annually should be set aside in a sinking fund for urgent and emergency maintenance needs.

225. **Maintenance Cost of the Maritime Infrastructure to meet MTDP Targets**

- The annual maintenance requirement, excluding major rehabilitation and replacement for main ports managed by PNGPCL is estimated at K37 M p.a. rising to K60 M p.a. by 2020;
- Of this, about 60% is attributable to the commercially profitable ports and 40% to the remainder;
- A further K1.2 M p.a. rising to K 10.8 M p.a. is required to maintain minor wharves and jetties as these are rehabilitated, replaced and new facilities opened under the small jetties programme;
- Maritime navaids require an annual maintenance expenditure of about K13 M p.a.

226. **Maintenance Costs of the Air Transport Infrastructure to meet MTDP Targets**

- Annual maintenance expenditure needs for the national airports operated by NAC is estimated at K15 M p.a.;
- A further K10 M p.a. is required to maintain provincial secondary and other airports in good operable condition once rehabilitated; there is minimal maintenance at present;
- A further K8 M p.a. is required to maintain rural airstrips in good operable condition once rehabilitated; there is minimal maintenance at present;
- K10 M p.a. is required to maintain the air communications and navigation infrastructure.

14.7 **Funding Projections and the Funding Gap**

Details of the funding projection for transport infrastructure given the MTDP economic growth forecast and a lower projection based on continuation of economic growth trend are given in Volume 3, Detailed Strategy Document, Section 25. Comparing the funding projections with the costs of developing and maintaining the infrastructure shows a substantial shortfall, called the “funding gap”.

227. **MTDP Total Infrastructure Funding Requirement**

The total estimated transport infrastructure investment requirement to implement the Medium Term Development Plan, including new infrastructure, reconstruction and rehabilitation, upgrading and maintenance of assets, is summarised in Table 3.

An estimated K70 billion (2010 values) is required to bring the transport network up to a generally good state of condition, construct the missing links and economic corridor roads and some supporting lower level transport infrastructure, and provide better transport access to rural communities.
Table 3 – Summary of Transport Infrastructure Investment to Support the MTDP

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Capital investment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roads</td>
<td>45,650</td>
<td>5,000</td>
<td>12,150</td>
<td>11,725</td>
<td>16,775</td>
</tr>
<tr>
<td>Ports and Maritime</td>
<td>2,579</td>
<td>1,013</td>
<td>757</td>
<td>405</td>
<td>405</td>
</tr>
<tr>
<td>Airports and Air Navigation</td>
<td>2,885</td>
<td>756</td>
<td>1,600</td>
<td>488</td>
<td>41</td>
</tr>
<tr>
<td>Sub-total - capital investment</td>
<td>51,114</td>
<td>6,769</td>
<td>14,507</td>
<td>12,617</td>
<td>17,221</td>
</tr>
<tr>
<td>Maintenance - routine annual, periodic, urgent and emergency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roads</td>
<td>16,300</td>
<td>3,392</td>
<td>3,557</td>
<td>4,232</td>
<td>5,119</td>
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<tr>
<td>Ports and Maritime</td>
<td>1,360</td>
<td>253</td>
<td>319</td>
<td>371</td>
<td>417</td>
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<tr>
<td>Airports and Air Navigation</td>
<td>903</td>
<td>215</td>
<td>229</td>
<td>231</td>
<td>228</td>
</tr>
<tr>
<td>Sub-total - maintenance</td>
<td>18,562</td>
<td>3,859</td>
<td>4,105</td>
<td>4,835</td>
<td>5,764</td>
</tr>
<tr>
<td>Total - Capital and Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roads</td>
<td>61,950</td>
<td>8,392</td>
<td>15,707</td>
<td>15,957</td>
<td>21,894</td>
</tr>
<tr>
<td>Ports and Maritime</td>
<td>3,939</td>
<td>1,266</td>
<td>1,076</td>
<td>775</td>
<td>822</td>
</tr>
<tr>
<td>Airports and Air Navigation</td>
<td>3,788</td>
<td>971</td>
<td>1,829</td>
<td>719</td>
<td>269</td>
</tr>
<tr>
<td>Total</td>
<td>69,676</td>
<td>10,629</td>
<td>18,612</td>
<td>17,452</td>
<td>22,984</td>
</tr>
</tbody>
</table>

228. **Projected Funding Envelope and the Funding Gap - Roads**

- Annual funding for national roads and bridges has averaged K400M in recent years, and K180M for provincial and local roads;
- This expenditure has not always been well targeted, particularly at provincial level where there is doubt concerning the correct application and effectiveness of the expenditure.
The rate of increase in expenditure required will also be constrained by construction capacity.

229. **Projected Funding Envelope and the Funding Gap - Maritime**

- Government capital expenditure on the declared ports has averaged K6.5 M or 0.1% of the Development budget;
- Maintenance expenditure has averaged K5 M p.a. only 15% to 20% of what is required to maintain the assets in good condition;
- PNGPCL should have the capacity to fund capital costs of construction and maintenance of Lae, Port Moresby and Kimbe from revenue and development loans, but will require CSO funding support for all other ports;
- Maritime navaids are expected to be fully funded from NMSA revenue in future, once all are restored to good operable condition.

230. **Projected Funding Envelope and the Funding Gap - Air**

- Capital funding of the national airports with the exception of PMIA is met through CADIP Projects 1-4 development loan to approximately 2017;
- PMIA capital funding to carry out the Master Plan is expected to be through a PPP arrangement financed from the ongoing revenue stream; failing this Government Development Budget funding would be required, probably with donor lending support;
- Beyond 2017, capital development envisaged under the MTDP will rely on a further development loan of similar size to CADIP;
- Provincial airports and rural airstrips are largely unfunded and require a CSO arrangement;
- CNS/ATM upgrading is funded from CADIP but ongoing maintenance is unlikely to be supportable from PNGASL.

![Figure 6 – Projected Revenue, Costs and Funding Gap for the MTDP Airports Development](image)

**Figure 6 – Projected Revenue, Costs and Funding Gap for the MTDP Airports Development**

### 14.8 Ongoing and Committed Projects

Projects already underway (ongoing) and those that have forward budgets in the PIP or from donor loans and grants (committed) are detailed in Volume 3, Section 26. An outline is given below:
231. **Ongoing and Committed Projects - Road**

- Approximately K1,100 M annually is expected to be available for roads and bridges expenditure over the next five years;
- This assumes funding at near 2012 level and is a significant increase on the average for the last 5 years;
- On this basis, ongoing and programmed projects will utilise all available funding through 2013 and 2014;
- There will be limited opportunity for expenditure on new projects from 2015.

232. **Ongoing and Committed Projects - Maritime**

- The largest committed project is Lae port at a projected cost of K770 M between 2010 and 2014 or later;
- Alotau Wharf rehabilitation has been funded to K15 M although not identified as a priority project by TIPS;
- The Community Water Transport Project Stages 1 and 2 will construct up to 250 small jetties;
- NMSA will complete its restoration of small navaids.

233. **Ongoing and Committed Projects - Air**

- The CADIP program provides committed funding through to 2017 for security works, upgrading of airport runways to F100 standard, and other priority works at the national airports;
- CADIP also provides committed funding for air communications, navigation and air traffic management systems grading;
- There is limited and uncoordinated support for provincial airports and rural airstrips that needs to be brought into a well-planned prioritised multi-year programme led by DOT with implementation carried out by agencies with an airports engineering capability.

14.9 **Priorities for Selecting Projects for the MTTP**

Section 27 of the NTS Volume 3, Detailed Strategy Document, lists the costs and indicative ranking priority of transport infrastructure projects at national level divided into ongoing maintenance, restoration/rehabilitation, upgrading and new infrastructure for the three transport modes. The priorities have been developed using the TIPS 2010 model, as amended by the DOT, so are based on a cost benefit analysis. These priority lists have been used, together with other policy decision factors and incorporating the funding constraints and the ongoing and committed projects to develop the MTTP for 2013 to 2017, presented in Volume 2.

14.10 **Resourcing the NTS and MTTP**

234. **Responsibility for Monitoring Progress**

- The DOT Planning and Coordination Division (PCD) will provide the resources for monitoring the progress the policy, institutional and legislative reforms and the infrastructure development and maintenance strategy and programme contained in the NTS and the MTTP;
- PCD will monitor the progress of the MTTP against input, output and outcome indicators for policy, institutional and legislative actions and for infrastructure development;
- DOT Policy and Research Division will annually report on the extent and condition of the transport infrastructure, on traffic and licensed transport users.
235. **Re-establishing a Transport Information Database**

- DOT will establish a project to rebuild its database of the transport system at national and provincial level, using a GIS mapping platform, so as to better equip itself to carry out its transport planning and policy analysis responsibilities;
- DOT will request, collect and analyse data from the transport agencies to further the re-establishment of its transport data system, where necessary making use of its powers under the *Transport (Collection of Information) Act*.

### 14.11 Periodic Review and Updating

236. **Review Periods and Process**

- The NTS will be subject to a main review in 2015 and at five year intervals thereafter;
- At each five yearly review, DOT will consult with the transport and central agencies on changes to the policy, institutional and legislative content and direction of the NTS and next MTTP. Any major change will be referred to the TSCMIC before incorporation;
- The annual review will report on maintenance expenditure, works and resulting changes in network condition, initially at national level but extending down to provincial level over the first three year period to 2015;
- Transport investment projects will be developed progressively from planning through to implementation and post-evaluation, with particular effort being applied to the larger more capital intensive projects.

237. **Project Development Cycle**

The development and processing of projects will follow stages of:

- Initial identification and listing for consideration;
- Profiling, stakeholder consultation and determining the consistency of each project with the NTS, MTTP and MTDP;
- Preparation of an initial short project feasibility report (PFR) from desktop analysis; as a result of the initial PFR, projects will be given an initial ranking in the list of potential projects;
- Rapid field inspection, development of preliminary cost estimates and pre-feasibility evaluation of B/C ratio and project priority; initial identification of funding sources;
- Detailed site investigation, economic, environmental and social analysis; initial programming into the forward budget (PIP) or investment plan (for SOEs);
- Detailed design and engineering cost estimates; review of economic and financial analysis; review position in the PIP or investment plan;
- Programming into the forward budget process (or investment plan for SOEs); tendering and contract award;
- Implementation;
- Completion review of project outputs versus design and estimate;
- Post-implementation review of selected key or representative projects for impact and achievement of project outcomes;
- A framework and process that formally incorporates these stages and includes external audit will be developed, it is suggested by an appropriate subcommittee of TSCMIC.
238. **Enhancement of the TIPS Model and other Tools**

- The TIPS model will be further developed and improved for ongoing use by the DOT, and other more detailed methods (such as HDM-4 for roads) will be used for detailed project evaluation and prioritisation.

239. **Agency plans and programmes to be consistent with NTS and MTTP**

- The transport agency SOEs and statutory authorities (PNGPCL, NMSA, NAC, PNGASL, NRA, NRSC/RTA), will ensure that their forward development and expenditure plans are consistent with the NTS and MTTP.