

WORLD ROAD ASSOCIATION

Excerpt from
**DRAFT STRATEGIC PLAN
2008 – 2011**

Terms of Reference for Technical Committee Nominations

The technical work of the World Road Association has been divided into four Strategic Themes. Under these Strategic Themes are 17 Technical Committees that work on various subjects in the road and road transport field, as shown in the table below.

In addition, the Committee on Terminology and Translation Assistance works directly under the General Secretariat.

Strategic Themes and Technical Committees for 2008-2011

Strategic Theme A: Sustainability of the Road Transport System

TC A.1	Preserving the Environment
TC A.2	Financing, Managing and Contracting of Road System Investment
TC A.3	Road System Economics and Social Development
TC A.4	Rural Road Systems and Accessibility to Rural Areas

Strategic Theme B: Improving Provision of Services

TC B.1	Good Governance of Road Administrations
TC B.2	Road Network Operations
TC B.3	Improved Mobility in Urban Areas
TC B.4	Freight Transport and Inter Modality
TC B.5	Winter Service

Strategic Theme C: Safety of the Road System

TC C.1	Safer Road Infrastructure
TC C.2	Safer Road Operation
TC C.3	Managing Operational Risk in National and International Road Operations
TC C.4	Road Tunnel Operations

Strategic Theme D: Quality of Road Infrastructure

TC D.1	Management of Road Infrastructure Assets
TC D.2	Road Pavements
	Sub-committees
	<i>D.2.a. Road surface characteristics</i>
	<i>D.2.b Flexible and semi-rigid pavements</i>
	<i>D.2.c Concrete pavements</i>
TC D.3	Road Bridges
TC D.4	Geotechnics and Unpaved Roads

Strategic Theme A: Sustainability of the Road Transport System

Goal

Encourage the development of road transport policies and programmes that result in beneficial community outcomes for sustainable and safe mobility in economic, environmental and social terms, with special attention paid to energy issues and the mitigation of the impacts on climate from the road transport system.

Overview

Strategic Theme A brings together the priority issues for road administrations on the economic, environmental and social dimensions of sustainability.

Climate change has become a major issue as the understanding of the effect and its impact has improved.

The contribution of road transport to global carbon emissions is significant and is a worldwide issue. It is important for road authorities to understand what it is possible for them to do, whether through the activities of construction and maintenance or influencing the use of the network. **Technical Committee A.1** will bring together member countries' strategies, plans and techniques for reducing their carbon footprint.

The increasing need for socio-economic development has continued the trend towards continually improving the provision of road infrastructure. This often leads to increasing pressure on budgets, in turn leading road authorities to look to more creative ways to finance and procure road improvements and maintenance. This also demands new skills from road authority clients in terms of managing and operating the contracts. These aspects are studied in **Technical Committee A.2**.

Road investment can generate substantial economic benefits and foster improved quality of life. Being able to document these benefits is important to assist national leaders in their allocation of limited resources.

Technical Committee A.3 will examine the strategy of road pricing and revisit how social impacts can be assessed.

Accessibility of road infrastructure for rural communities remains an important topic for poverty alleviation.

Technical Committee A.4 will focus on involvement of communities at all stages from planning to the provision of sustainable solutions to maintenance of roads.

Technical Committees:

- A.1 Preserving the Environment
- A.2 Financing, Managing and Contracting of Road System Investments
- A.3 Road System Economics and Social Development
- A.4 Rural Road Systems and Accessibility to Rural Areas

TC A.1 –Preserving the Environment

Issue A.1.1 National policies and strategies for reducing the impacts of the road transport system on climate change	
<i>Strategies</i>	<i>Outputs</i>
<p>Examine different countries' plans, policies and initiatives for mitigating against the impact of roads and road transport on the climate</p> <p>Consider national policies for reduction in energy consumption by construction, maintenance and operation of the road transport system</p>	<p>Reporting on policies and initiatives</p> <p>Review case studies</p>
Issue A.1.2 Monitoring of environmental impacts	
<i>Strategies</i>	<i>Outputs</i>
<p>Review how the environmental impact of the road transport system is measured, what indicators are currently used in relation to the mitigation actions</p> <p>Assess how the environmental impacts of road construction projects are measured, before, during and after completion. Assess how useful the results of these measurements are and what if anything, is done as a consequence.</p>	<p>Identify best practice</p> <p>Report new developments with information in case studies</p>
Issue A.1.3 Monitoring alternative solutions for fossil fuels for the road system	
<i>Strategies</i>	<i>Outputs</i>
<p>Consider the impacts of new approaches, technologies and initiatives on energy consumption and gas emission in relation to the powering of the road transport system</p>	<p>Conduct a review of trials and research</p>

TC A.2 – Financing, Managing and Contracting of Road System Investment

Issue A.2.1 Review of partnership solutions for road system management and financing	
<i>Strategies</i>	<i>Outputs</i>
<p>Review different approaches taken by road administrations to the involvement of the private sector in helping to deliver road system management, in terms of :</p> <ul style="list-style-type: none"> (i) roles and management (ii) financial systems 	<p>For each aspect, identification of the benefits and dis-benefits of different approaches</p>
Issue A.2.2 Exploration of financial strategies for countries at different stages of development	
<i>Strategies</i>	<i>Outputs</i>
<p>Analyse the different strategic financial approaches for funding roads</p>	<p>Report on the most successful approaches, taking into account their appropriateness to different stages of development of the road system.</p>
Issue A.2.3 Investigation of new forms of contracting	
<i>Strategies</i>	<i>Outputs</i>
<p>Consider different approaches to procurement of design, construction, maintenance and operation. The work should also consider the difference between service (maintenance) and project (construction) contracts</p>	<p>Case studies illustrating and comparing the benefits and dis-benefits of new forms of contracting vs traditional methods</p>
Issue A.2.4 New approaches of financing and managing maintenance of the road system in developing countries	
<i>Strategies</i>	<i>Outputs</i>
<p>Review the different approaches taken in view of sustainable maintenance of road infrastructures in developing countries</p>	<p>Report presenting case studies illustrating the successes and failures and drawing recommendations for road administrations</p>

TC A.3 – Road System Economics and Social Development

Issue A.3.1 Economic aspects of mobility pricing	
<i>Strategies</i>	<i>Outputs</i>
<p>Investigate approaches to the economic evaluation of mobility pricings effects including managing demand, internalisation of external costs, modal shift and social acceptance.</p>	<p>A comparison of approaches and assessment of the maturity of knowledge of road pricing</p>
Issue A.3.2 New approaches to appraisal of social impacts	
<i>Strategies</i>	<i>Outputs</i>
<p>Study the changes in approaches to methods of appraisal of social impacts resulting from road development and usage</p>	<p>Study of new developments, identifying added benefits and/or wider scope</p> <p>Evaluation of implemented approaches</p>

Another issue may be considered later in this area.

TC A.4 – Rural Road Systems and Accessibility to Rural Areas

Issue A.4.1 Accessibility and planning of the development of the rural roads system	
<i>Strategies</i>	<i>Outputs</i>
Investigate how the needs for accessibility and mobility in rural areas are being assessed and taken into consideration in planning the development of the rural roads system at national and /or regional levels	Case studies, leading to a best practice guide.
Issue A.4.2 Sustainability of maintenance	
<i>Strategies</i>	<i>Outputs</i>
Review of planning, financing and management of sustainable maintenance methods and approaches	Best practice for sustainable maintenance of rural roads
Issue A.4.3 Involvement of local communities	
<i>Strategies</i>	<i>Outputs</i>
Consider how local communities should be involved in education, planning, financing, managing and implementation of development and maintenance schemes	Case studies, leading to best practice guides

Strategic Theme B: Improving Provision of Services

Goal

Encourage the improvement of services provided to the community by improved operation of the road transport system, integration with other transport modes, good governance and a customer-oriented approach.

Overview

Strategic Theme B recognises the shift in attitude of road authorities towards becoming a service provider and considering the community as customers of the road transport network.

At the most fundamental level, institutional integrity is at the heart of serving the community. Continuation of work in this area shows the Association's lasting commitment to upholding and supporting the core value of integrity.

In addition to technical governance, another aspect of responsible governance is to ensure strategies are in place to develop and sustain the right skills and competencies in the workforce. These different issues are reflected in the terms of reference of **Technical Committee B.1**.

Technology is increasingly being relied upon to deliver efficient, targeted services to road users in terms of delivering information and operating the network to make best use of the available road space. These subjects are studied by **Technical Committee B.2**.

The increasing spread and density of urban areas mean that transport planners must improve their understanding of mobility choices. Integration of the different modes of transport, including non-motorized mobility and road transport in relation to land-use planning will be considered by **Technical Committee B.3**.

Efficient, safe transport of freight is a further vital service provided to the economy and community. **Technical Committee B.4** will study issues of freight road corridors and those associated with the interfaces of the road freight transport with other modes.

The community requires constant access to the road transport network at all times of year. The Winter Service **Technical Committee B.5**, will investigate how to improve the delivery of winter maintenance and communication with road users to promote safe use of the network in adverse weather conditions.

Technical Committees:

- B.1 Good Governance of Road Administrations
- B.2 Road Network Operations
- B.3 Improved Mobility in Urban Areas
- B.4 Freight Transport and Inter-Modality
- B.5 Winter Service

TC B.1 – Good Governance of Road Administrations

Issue B.1.1 Best practices for good governance	
<i>Strategies</i>	<i>Outputs</i>
<p>Review recent changes in successful governance structures, practices and auditing such as the introduction of performance measurement</p> <p>Examine different plans, policies and initiatives for successfully mitigating corruption in the road sector</p>	<p>Report identifying the key aspects and success factors that contribute to good governance</p> <p>Best practice advisory guide for the road sector</p>
Issue B.1.2 Improved services to customers	
<i>Strategies</i>	<i>Outputs</i>
<p>Undertake a comparison of services targeted at customers and how customers feedback is collected</p> <p>Evaluate how a customer-oriented approach has improved services</p>	<p>Benchmarking exercise comparing case studies and identifying common success factors</p>
Issue B.1.3 Human resources for the future	
<i>Strategies</i>	<i>Outputs</i>
<p>Review countries plans, policies and strategies regarding skill shortages and human resource challenges for the future.</p> <p>Review what is being done within the road sector to make the sector appealing and what skills would be beneficial to bring into this sector.</p> <p>Consider solutions to needs expressed by developing countries relating to deficiencies in training and education systems which are resulting in a lack of appropriately qualified road industry professionals.</p>	<p>Report on the skills gap within the road sector now and those that will be required in ten years' time.</p> <p>Identification of best approaches to improve the supply of skills.</p> <p>Training for those in the sector and those entering the sector.</p>

TC B.2 – Road Network Operations

Issue B.2.1 Management of congested areas	
<i>Strategies</i>	<i>Outputs</i>
<p>Examine the understanding of and successful approaches to managing traffic flow on major urban and interurban roads in congested areas.</p>	<p>A study of the factors affecting the efficient use of road space on major urban and interurban roads, with proposals for how network operators can successfully manage congested areas.</p>
Issue B.2.2 Appropriate use of ITS for an integrated transport system	
<i>Strategies</i>	<i>Outputs</i>
<p>Investigate how ITS investments for road network operations are evaluated and identify policy related performance indicators in order to evaluate the success of ITS strategies of different countries.</p>	<p>Identification of success factors for ITS strategies and precautions to take against failure.</p> <p>Recommendations on how road authorities should assess and evaluate ITS schemes.</p> <p>Revision of the World Road Association ITS handbook to strengthen coverage of ITS in developing countries, ITS for road safety and the evaluation of ITS schemes.</p>
Issue B.2.3 Management of road corridors	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify the factors affecting corridor usage, and how to influence users</p> <p>[Cross-border issues : integration of services across country borders]</p>	<p>A study of the most important issues for operators of road corridors and advice for influencing users to make optimum travel choices</p> <p>[Identification of issues, examples of best practice]</p>

TC B.3 – Improved Mobility in Urban Areas

Issue B.3.1 Integration of the different modes of transport	
<i>Strategies</i>	<i>Outputs</i>
Study strategies for balancing the share of urban transport modes to reduce congestion	Case studies leading to guidance for road administrations
Issue B.3.2 Land use planning and road transport	
<i>Strategies</i>	<i>Outputs</i>
Investigation of transport requirements and policies associated with planning of new developments in large cities	Case studies, leading to guidance for road administrations, for countries in a range of stages of development
Issue B.3.3 Non-motorized mobility	
<i>Strategies</i>	<i>Outputs</i>
Investigate how non-motorized mobility is being assessed and encouraged in planning transport schemes in urban areas	Sample survey to arrive at realistic data for future transport planning

TC B.4-Freight Transport and Inter-Modality

Issue B.4.1 Management of strategic freight corridors	
<i>Strategies</i>	<i>Outputs</i>
<p>On the basis of case studies (including cross-border issues) selected in both developed and developing countries, analyze the favourable or non-favourable conditions required for the seamless transit of freight. Identify the possible remedial measures</p>	<p>Produce a report presenting an analysis of these case studies, including recommendations for improving the management and operation of freight corridors</p>
Issue B.4.2 Interfaces of freight transport on roads with other modes	
<i>Strategies</i>	<i>Outputs</i>
<p>From case studies involving different kinds of transport modes, review the aspects in the design and operation of interfaces which assist or are detrimental to the efficient intermodal transport of freight</p>	<p>Provide an analysis of the case studies and recommendations for improving the efficiency of intermodal interfaces of freight transport</p>

Another issue may be later considered in this area.

TC B.5 – Winter Service

Issue B.5.1 Improve winter maintenance and operation information systems	
<i>Strategies</i>	<i>Outputs</i>
<p>Investigate information systems, including two-way communications with road users</p> <p>Study of Winter Service Management Systems (WSMS)</p>	<p>Case studies of best practice in design and implementation of information/management systems</p>
Issue B.5.2 Provide sustainable winter maintenance	
<i>Strategies</i>	<i>Outputs</i>
<p>Study of the full slate of social (safety), environmental and economic (cost-benefit) aspects required to achieve 'sustainability' in winter maintenance</p> <p>Identify impacts of climate change (changes in winter severity) on winter services and on road infrastructure</p>	<p>Identification of what optimum sustainability means in terms of winter maintenance and strategies to achieve it</p> <p>Report on the impact of climate change on winter service and propose actions as preventative measures</p>
Issue B.5.3 Share knowledge via the Winter Road Congress	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify which priority issues and knowledge World Road Association members would find it useful to share, and in what format they would like to receive it</p>	<p>Definition of the technical programme of the 2010 World Road Association International Winter Road Congress and production of the proceedings</p>
Issue B.5.4 Communication with road users	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify innovative approaches to inform and influence road users about winter operations and safe winter driving</p>	<p>Case studies illustrating best communication practice</p>

Strategic Theme C: Safety of the Road System

Goal

Improve the safety and efficiency of the road system, including the movement of people and goods on the network, while effectively managing the risks associated with road transport operations and the natural environment.

Overview

Providing roads that are safe to use, and promoting their safe use, are priorities for all road administrations. Strategic Theme C will consider four aspects of road safety that support these aims.

Safe road design is the most traditional aspect of road safety, and one over which road administrations have most direct control. **Technical Committee C.1** will consider design improvements for urban roads and vulnerable road users, and incorporation of human factors into design standards for roads. The Committee will also consider approaches for improving safety for those working on roads.

As the engineering and design aspects of making roads safer to use has become better understood, the problem of further reducing death and injury needs to be addressed by considering how road users can be influenced to behave more safely. This is particularly relevant as traffic levels worldwide, are increasing. **Technical Committee C.2** will consider how road authorities develop and implement their plans and priorities in this area, including the way different countries allocate cost to safety schemes and the different methods for institutional regulation of safety.

The possibility of more extreme weather events and increasing concerns over security are raising the profile of risk management practices for all transport operators. This work is reflected in the programme of **Technical Committee C.3**, which includes a study of social perception to risk – an aspect that is important in considering risk mitigation measures.

Technical Committee C.4 will build on the successful past work of the Association in the area of road tunnel operations to study how management and operation procedures can improve road tunnel safety and fire mitigation.

Technical Committees

- C.1 Safer Road Infrastructure
- C.2 Safer Road Operation
- C.3 Managing Operational Risk in National and International Road Operations
- C.4 Road Tunnel Operations

TC C.1 – Safer Road Infrastructure

Issue C.1.1 Incorporating human factors in road design for safety improvement	
<i>Strategies</i>	<i>Outputs</i>
<p>Examine how key human factors that affect road user behaviour can be translated into engineering characteristics and road safety design policies</p> <p>Undertake review of other guidance on human factors in road design standards</p>	<p>Upgrade on this issue the World Road Association Catalogue of Design Safety Problems and Countermeasures</p>
Issue C.1.2 Safe design for roads in urban areas	
<i>Strategies</i>	<i>Outputs</i>
<p>Consider recent changes to design guides for urban roads that promote improved road safety</p> <p>Review safe road design in urban areas using segregated road space</p>	<p>Upgrade on this issue the World Road Association Catalogue of Design Safety Problems and Countermeasures</p>
Issue C.1.3 Design improvements for vulnerable road users	
<i>Strategies</i>	<i>Outputs</i>
<p>Assess design guidance on safe design for vulnerable users</p> <p>Compare and evaluate design provision for low speed roads in residential roads</p>	<p>Upgrade this issue the World Road Association Catalogue of Design Safety Problems and Countermeasures</p> <p>Report on case studies</p>
Issue C.1.4 Improvements in safe working on roads	
<i>Strategies</i>	<i>Outputs</i>
<p>Assess approaches aimed at improving the safety of road workers</p>	<p>Report on the studies and recommend best practice approaches</p> <p>Up-grade on this issue the World Road Association Road Safety Manual</p>

TC C.2 – Safer Road Operations

Issue C.2.1 Comparison of national road safety policies and plans	
<i>Strategies</i>	<i>Outputs</i>
Review national road safety policies and plans across a range of countries	Report on key aspects of road safety policies and plans, identifying case studies. Upgrade the World Road Association Road Safety Manual.
Issue C.2.2 Best practices in safety campaigns by road administrations	
<i>Strategies</i>	<i>Outputs</i>
Identify different approaches to road safety campaigns undertaken by road administrations	Report on the different types of campaigns and the target audiences
Review the different media that are used for promoting road safety	Produce case studies of the different media for campaigns Upgrade the World Road Association Road Safety Manual
Issue C.2.3 Cost effectiveness of safety measures and allocation of resources	
<i>Strategies</i>	<i>Outputs</i>
Study and compare the cost benefit analysis used by different road authorities for investment in safety schemes	A report on the comparison of methods and case studies to illustrate choice of safety options
Issue C.2.4 Institutional regulation aspects	
<i>Strategies</i>	<i>Outputs</i>
Consider the different approaches taken by road administrations based upon legislation and regulations in relation to the safe operation of roads	Report on legislative and regulatory approaches aimed at achieving safer operation and preventing road side disturbances (control of access and of activities on road side, etc)

TC C.3 – Managing Operational Risk in National and International Road Operations

Issue C.3.1 Introduce risk management techniques in the road sector	
<i>Strategies</i>	<i>Outputs</i>
<p>Analyse the use of risk management techniques by road authorities and identify best practice</p> <p>Identify case studies that exemplify the benefits of using risk management in different aspects of the road sector</p>	<p>Produce a guide to assist road authorities in the use of risk management</p> <p>Generate case studies that demonstrate the value of using risk management</p>
Issue C.3.2 Risks Associated with Natural Disasters, Climate Change and Security Threats	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify approaches being used to assess the risks associated with natural disasters, climate changes and security threats</p> <p>Identify strategies that are being applied to reduce or mitigate the risks associated with these circumstances</p>	<p>Share methodologies that have been used to evaluate the risks associated with natural disasters, climate changes and security threats</p> <p>Case studies documenting strategies that have been effective in avoiding or mitigating these risks</p>
Issue C.3.3 Social acceptance of risks and their perception	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify and evaluate studies of the public's perception to risks in the road system and the factors that effect those social reactions</p> <p>Study methods that are used to measure people's acceptance of risks</p>	<p>Report on factors affecting social reaction to risks in road related activities</p> <p>Produce guidelines that road authorities can use to measure the public's perception of risks</p>

TC C.4 – Road Tunnel Operations

Issue C.4.1 Manage and improve tunnel safety	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify priorities and methods for improving safety in existing tunnels, including infrastructure, prevention and operation.</p> <p>Finalize the study of responsibilities in tunnel safety management, including organisation of tasks and necessary skills.</p> <p>Develop recommendations for risk analysis and investigate strategies for risk evaluation.</p> <p>Investigate harmonised means to influence users' behaviour in tunnels.</p>	<p>Report summarising the priority areas on the basis of cost-effectiveness and describing the practicalities of delivering improvements.</p> <p>Recommendations on organisation and procedures for tunnel safety management, including role and skills of players.</p> <p>Guidelines for risk analysis and state-of-the-art risk acceptability.</p> <p>Guidelines on drivers' education and real-time communication with tunnel users.</p>
Issue C.4.2 Improve tunnel operation and maintenance	
<i>Strategies</i>	<i>Outputs</i>
<p>Develop procedures to improve tunnel operation based on training, exercises and analysis of incidents, traffic and maintenance.</p> <p>Benchmark experience on tunnel inspection and maintenance organisation.</p>	<p>Guidelines on tunnel staff and emergency teams training, exercises and feedback from operation and incidents.</p> <p>Recommendations on management of maintenance and inspections.</p>
Issue C.4.3 Optimise tunnel ventilation and mitigate fires	
<i>Strategies</i>	<i>Outputs</i>
<p>Update the demands for ventilation in response to new reductions of pollutant emissions and consideration of new pollutants.</p> <p>Investigate fire test data and new regulations in order to finalise the update of design fires.</p> <p>Follow up new developments of fixed fire fighting systems and their application.</p>	<p>New data on vehicle pollutant emissions, including new pollutants and recommendations on ventilation systems.</p> <p>Updated recommendations on design fires for road tunnel ventilation.</p> <p>Guidelines on applicability, cost effectiveness and operation of fixed fire fighting systems.</p>

Issue C.4.4
Evaluate, organise and communicate knowledge on tunnel operation and safety

<i>Strategies</i>	<i>Outputs</i>
<p>Identify needed information and scrutinize contents of existing World Road Association reports and other reports</p> <p>Organise the document(s) produced by the Committee (e.g. tunnel manual for practitioners or guide for non-specialists)</p>	<p>Produce a general table of contents, links to relevant documents, and needs for future work</p> <p>Develop a document presenting in a systematic way e.g. available knowledge for specialists or practical information for non-specialists</p>

Strategic Theme D: Quality of Road Infrastructure

Goal

Improve the quality of road infrastructure through the effective management of assets in accordance with user expectations and managers' requests.

Overview

While new technologies, social and environmental developments are expanding the sphere of interest for road authorities, infrastructure and management of assets remains their core business. The need for more efficient use of funds requires constant improvement in techniques in terms of the design, management and maintenance of assets.

A better understanding of asset infrastructure and its condition is essential in order to plan maintenance and allocate limited resources across asset types, and this is reflected in the terms of reference of **Technical Committee D.1**. Cost effective data collection can be a challenge in itself, and choosing how to invest in data management is an important decision for road authorities.

Pavements, bridges and geotechnics are studied in terms of innovative approaches to durability of maintenance, use of innovative materials, assessment and maintenance methods that can reduce costs and minimise impact on the environment.

Technical Committee D.2 encompasses the breadth of pavement-related work, organized in three sub-committees: flexible and semi-rigid pavements, concrete pavements, and road surface characteristics. It focuses on innovative approaches to reduce construction time and cost, increase durability and promote recycling and reuse.

Technical Committee D3 deals with assessment of bridge condition, innovative maintenance and rehabilitation techniques.

In the area of geotechnics and unpaved roads, **Technical Committee D.4** is placing emphasis on promoting the use of local materials, and innovations in construction and maintenance of unpaved roads for developing countries.

The impacts on design and management on these different asset classes due to anticipated changes to the world climate –such as increased rainfall and more prevalent extreme weather –are also reflected in the terms of reference of these Technical Committees.

D.1 Management of Road Infrastructure Assets

D.2 Road Pavements

Sub-committees

D.2.a. Road surface characteristics

D.2.b Flexible and semi-rigid pavements

D.2.c Concrete pavements

D.3 Road Bridges

D.4 Geotechnics and Unpaved Roads

TC D.1 – Management of Road Infrastructure Assets

Issue D.1.1 Benchmarking of asset management methods	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify best practice in asset management systems with key aspects for road authorities at different stages of development to consider when choosing a system.</p> <p>Review costs associated with asset systems and recommend where costs are best focused.</p>	<p>Illustrate through case studies the best practice for road authorities to adopt.</p> <p>Produce benchmark of costs for typical systems, relative to investment in assets.</p>
Issue D.1.2 Data collection for road infrastructure management	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify the options for cost effective data collection of the different elements of the road infrastructure</p> <p>Identify the best practice approach for use of data in supporting a strategy for better road infrastructure management</p>	<p>Report on the findings of the study for each major element of the road infrastructure</p> <p>Using the experience of different countries produce a summary of how data is best used to develop an infrastructure management strategy</p>
Issue D.1.3 Allocation of resources across asset classes	
<i>Strategies</i>	<i>Outputs</i>
<p>Review the different approaches taken by countries in allocating resources based upon asset management</p> <p>Consider the prioritisation process used in a range of countries for investing in maintaining the different assets (pavements, bridges, geotechnical structures, etc)</p>	<p>Produce evidence based upon the case studies to illustrate the different approaches and report on the key conclusions of the studies</p> <p>Identify the benefits and dis-benefits of the prioritisation processes used to allocate resources, noting the differences across asset classes</p>

TC D.2 – Road Pavements –

TC D.2 is organising three sub-committees

D.2.a Sub-committee on Road Surface characteristics

D.2.b Sub-committee on Flexible and Semi-Rigid Pavements

D.2.c Sub-committee on Concrete Pavements

These committees will all address the following issues:

Issue D.2.1 Reducing construction time and cost	
<i>Strategies</i>	<i>Outputs</i>
Identify the methods for reducing the time and costs of construction for different types of road pavements	Produce case studies to illustrate the methods of construction and the cost/ benefit analysis of the different cases
Issue D.2.2 Improved maintenance methods	
<i>Strategies</i>	<i>Outputs</i>
Undertake an analysis of improved maintenance methods for different types of road pavements	Report on the characteristics of the improvements and their benefits
Consider the changes to maintenance strategies that have been adopted by road administrations and how these will change future maintenance of road pavements	Produce a report outlining the changes and likely impacts
Issue D.2.3 Road noise mitigation	
<i>Strategies</i>	<i>Outputs</i>
Identify the different legal requirements for reducing the impacts of road noise	Report on the variety of legal requirements and the technical basis for the legislation
Identify new techniques for reducing road noise	Provide a review of the new techniques and how these have helped reduce the impact of road noise

**Issue D.2.4
Monitoring of innovations**

<i>Strategies</i>	<i>Outputs</i>
<p>Review the recent changes in construction and maintenance of road pavements, identifying where innovations have been introduced towards improving durability, recycling and re-use</p> <p>Undertake an assessment of the developments taking place in key road administrations for future innovations on road pavements</p>	<p>Report on the key innovations that have been introduced in the construction and maintenance of road pavements and the success of the measures</p> <p>Hold a seminar to report on and share the knowledge about the future innovations that are being studied</p>

**Issue D.2.5
Adaptation to climate change**

<i>Strategies</i>	<i>Outputs</i>
<p>Identify aspects of road pavements subject to the impacts of climate change</p> <p>Study evolving adaptation strategies</p>	

TC D.3 – Road Bridges

Issue D.3.1 Inspections and non-destructive condition surveys	
<i>Strategies</i>	<i>Outputs</i>
<p>Review the current information available on inspection regimes for assessing the conditions of structures</p> <p>Analyse the latest techniques for non destructive testing for surveying the condition of structures</p>	<p>Produce an assessment of the most effective regimes for structural inspections, identifying the key elements of the inspection process</p> <p>Report on the most effective techniques for non destructive testing of different structural elements, taking account of costs and complexity</p>
Issue D.3.2 Assessment of the condition of road bridges	
<i>Strategies</i>	<i>Outputs</i>
<p>Consider the different approaches to assessing the conditions of structures taking into account safety, environmental restraints and accessibility</p> <p>Review methodologies for assessing large scale structures including cable stayed and suspension bridges</p>	<p>Report on the key aspects that influence the assessment of structures and how these have been handled by road authorities</p> <p>Produce an analysis of the assessment techniques for these structures with a review of the key problems</p>
Issue D.3.3 Innovative maintenance techniques	
<i>Strategies</i>	<i>Outputs</i>
<p>Undertake a review of new maintenance and rehabilitation techniques that have been used recently including costs and complexity</p>	<p>Illustrate innovations by case studies with a summary of the benefits of the innovative approaches</p>
Issue D.3.4 Management of the bridge stock	
<i>Strategies</i>	<i>Outputs</i>
<p>Assess the different approaches used to prioritise management action of bridges for a range of road administrations</p>	<p>Report on the management of bridges put in place by road authorities, including small and large scale structures, with comments on costs and skills required for management</p>

**Issue D.3.5
Adaptation to climate change**

<i>Strategies</i>	<i>Outputs</i>
Identify aspects of road bridges subject to the impacts of climate change Study evolving adaptation strategies	

TC D.4 – Geotechnics and Unpaved Roads

Issue D.4.1 Innovations in the improvement and use of local materials	
<i>Strategies</i>	<i>Outputs</i>
<p>Assess the application of End-Use Performance Specifications to optimise opportunities for innovative techniques, optimised use of local materials and a unified approach amongst members</p> <p>Review the type and reliability of performance targets that can be applied to the assessment of earthwork performance</p>	<p>Advise on the methods which can be employed to manage the optimal use of local materials in earthworks and on unpaved roads</p> <p>Report on examples of good practice</p>
Issue D.4.2 Innovations in construction and maintenance of unpaved roads for developing countries	
<i>Strategies</i>	<i>Outputs</i>
<p>Review the innovation in construction of unpaved roads</p> <p>Review the type and reliability of the monitoring and assessment approaches for unpaved roads e.g. in earthwork control and in the prioritisation of maintenance activities</p>	<p>Report on the methods and assessment approaches available, illustrate by the use of examples</p>
Issue D.4.3 Adaptation to climate change	
<i>Strategies</i>	<i>Outputs</i>
<p>Identify aspects of geotechnics and unpaved roads subject to the impacts of climate change</p> <p>Study evolving adaptation strategies</p>	

Committee on Terminology and Translation Assistance

Issue Updating the World Road Association Dictionaries	
<i>Strategies</i>	<i>Outputs</i>
<p>Update the existing version of the dictionary in each of the current languages, including ongoing upgrading of the French and English dictionaries</p> <p>Increase the number of languages of translation of the dictionary in liaison with World Road Association member countries</p>	<p>Upgrade the terminology section of the World Road Association website</p>