Australian Transport Council

2006

National Guidelines for Transport System Management in Australia

1 Introduction to the Guidelines and Framework

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Contents

TABLES

FIGURES

BOXES

Foreword

This document presents an introduction to the National Guidelines for Transport System Management in Australia (2nd edition) endorsed by ATC in November 2006. It is part of a series of five documents that comprise the Guidelines. The other documents cover a detailed framework for undertaking strategic transport planning and development, detailed information on the appraisal of initiatives, analytical approach for urban transport proposals and background material.

I gratefully acknowledge the contributions made by committee members towards this very significant piece of work. All of the members have given generously of their time and competencies, over an extended period of time, to make the Guidelines a comprehensive and user friendly manual that will assist all jurisdictions in the complex business of transport system planning and management. In particular, I acknowledge the significant contribution of the Chair of the Committee, Dr Anthony Ockwell who directed and managed the project throughout its entire process. A list of members is presented elsewhere in this publication.

The Guidelines support transport decision-making and serve as a national standard for planning and developing transport systems. They are a key component of processes to develop and/or appraise transport proposals that are submitted for government funding. Potential users of the Guidelines include governments, private firms or individuals, industry bodies and consultants.

The Guidelines have been endorsed by all Australian jurisdictions. They were developed collaboratively over several years by representatives from all levels of government in Australia through the Standing Committee on Transport (SCOT), in consultation with SCOT modal groups (Austroads, Australian Passenger Transport Group, SCOT Rail Group). The Guidelines have been endorsed by the Australian Transport Council (ATC) and the Council of Australian Governments (COAG).

This is the second edition of the Guidelines. It is an expanded and revised edition that reflects directions from SCOT, ATC and COAG as well as feedback from users. The revision has focused on making the material more cohesive, accessible and user-friendly, while maintaining rigour. These improvements will help to facilitate the widespread adoption of the Guidelines that has been specified by COAG.

The terms evaluation, assessment and appraisal are often used interchangeably in practice to mean the determination of the overall merits and impacts of an initiative. In these Guidelines they are used as follows:

- *Assessment:* A generic term referring to quantitative and qualitative analysis of data to produce information to aid decision-making.
- *Appraisal:* The process of determining the impacts and overall merit of a proposed initiative, including the presentation of relevant information for consideration by the decision-maker.
- *Evaluation:* The specific process of reviewing the outcomes and performance of an initiative after it has been implemented.

The current focus of the Guidelines is land transport—road, rail and inter-modal. There is scope to further broaden the Guidelines to cover other modes and transport issues in the future.

It is envisaged that the experiences of users who apply the Guidelines will continue to provide useful insights into areas requiring further improvement. The Guidelines should therefore be seen as an evolving set of procedures and practices. The agencies involved in the development of the Guidelines welcome feedback that will contribute to the process of revision and improvement.

Michael J Taylor
Chair
Standing Committee on Transport
December 2006

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1 Introduction

This document is an overview of the *National Guidelines for Transport System Management in Australia* (2nd edition) endorsed by ATC in November 2006.

The Guidelines provide a consistent framework and processes, methods and tools to assist and guide transport planning and decision-making across Australia. A need for the Guidelines was identified by the Standing Committee on Transport (SCOT) in 2003.

The Guidelines focus on land transport. The first edition of the Guidelines detailed a generic framework focusing on non-urban land transport (road, rail, inter-modal). This second edition also includes urban transport, and includes updated and improved information based on learnings and feedback received from users.

The Guidelines are a living document. It is proposed that the current version be revised in three years.

Collaboration

The Guidelines were produced collaboratively by a SCOT Working Group comprised of representatives from all three levels of government. Working Group members are listed earlier in this volume.

Aims

The aims of the Guidelines are to:

- support transport sector decision-making
- provide an approach, and national standard, for all strategic planning and appraisal of transport initiatives[1]
- guide and complement existing practices
- promote consistency, objectivity and transparency in the assessment of initiatives within and across modes, undertaken by different jurisdictions and analysts
- move Australia towards a more holistic, multi-modal approach to transport policy, planning and assessment that compares all feasible solutions and takes full account of social, environmental and economic factors (a 'triple bottom line' perspective), and
- provide a basis for integrating with, and implementing, related initiatives such as the *National Charter of Integrated Land Use and Transport Planning*.

Role of the Guidelines

Traditional transport system management concentrated on individual transport modes and physical infrastructure. Most jurisdictions have detailed guidelines to appraise proposals for individual modes, mainly involving road projects. There are few comparable guidelines for multi-modal transport planning or for appraisal of non-road and non-infrastructure initiatives.

The Guidelines go some way towards providing a more comprehensive approach. They provide a Transport System Management Framework (the Framework) incorporating a multi-modal approach to land transport.

Scope

The Guidelines comprise five documents:

- **Volume 1: Introduction to the Guidelines and Framework**—a brief overview of the direction and content of the Guidelines and Framework.
- **Volume 2: Strategic Transport Planning and Development**—detailed description of the Framework.
- **Volume 3: Appraisal of Initiatives**—a comprehensive guide to appraisal of transport initiatives.
- **Volume 4: Urban Transport**—supplementary material on urban transport, covering urban transport modelling and appraisal of public transport initiatives.
- **Volume 5: Background Material**—detailed supporting material.

1 The term *initiative* is used throughout the Guidelines to mean any action to address a transport challenge. An initiative could consist of an infrastructure or non-infrastructure intervention. The term 'project' is often used for such actions, but it is limited by a perceived association with infrastructure. *Initiatives* can span various levels of scale. For example, an initiative could occur within a link (e.g. adding a road turning bay or rail crossing loop), across the whole link(s) (e.g. a road passing lane) or across an entire route (e.g. road duplication or rail signal upgrading between Melbourne and Sydney).

2 Principles

Box 1 details the principles that underlie both the Guidelines and the Framework.

Box 1: Principles underlying the Guidelines and Framework

- **Multi-modal.** Transport planning and investment decisions should be undertaken from a multi-modal perspective.
- **Holistic.** It is important to account for interactions within the transport system and with closely related systems (e.g. land use), bringing together economic, social and environmental considerations.
- **Integration.** Processes in the Framework, and actions flowing from it, should account for the need for integration within the transport system and with closely related systems.
- **Inter-jurisdictional.** A joint Australian Government, state, territory and local government approach should be adopted to provide advice on key transport challenges that require joint action.
- **Objectives-led and responsive.** Actions should be led by high-level jurisdictional objectives and be responsive to government priorities.
- **Stakeholder engagement.** Relevant stakeholder engagement and views must play an important role throughout the Framework.
- **Data and information.** Advice to decision-makers should be supported by the best available data and information, quantitative and qualitative, objective and subjective.
- **Strategic thinking.** Decision-making on individual initiatives benefits from strategic thinking and planning that reflects broader government and community objectives.
- **Multiple options.** Transport system challenges should be addressed by giving unbiased consideration to a wide range of potential alternative solutions (infrastructure and non-infrastructure) from the initial stages of planning.
- **Affordability.** The strategies and initiatives emanating from the Framework must recognise overall levels of affordability.
- **Efficient use of scarce appraisal resources.** Scarce appraisal resources should be used efficiently and effectively.
- **Strategic fit.** The initial basis for sorting initiatives should be based on 'strategic merit/fit'.
- **Private sector involvement.** Private sector involvement should be encouraged where beneficial.
- **Comprehensive yet easy to understand.** Information on the merit of strategies and initiatives should be presented to decision-makers in a way that recognises the full range of impacts, yet should be easily understood and address government objectives and priorities.
- **Feedback, learning and continuous improvement.** There must be feedback between phases of the Framework to ensure learning and continuous improvement throughout the process.

3 The Framework—key concepts

The Guidelines are based on the Transport System Management Framework (the Framework) shown in Figure 1. The Framework is a decision support system to achieve high-level transport system objectives. Decision-making in transport is complex. There are competing objectives, trade-offs, constraints, uncertainty, multiple options, and quantifiable and unquantifiable impacts.

Working through the Framework will result in a structured approach to decision-making. Without a structured approach, decision-making can lack consistency, resources can be misallocated and high-level objectives can be underachieved.

The aim of the Framework is to reduce complexity and increase consistency, rigour and transparency in the decision-making process. It does this by breaking the process into phases and making good use of data, information and analysis. The Framework has a whole-of-system focus with a multi-modal perspective that considers infrastructure and non-infrastructure initiatives. It can be applied to a range of jurisdictional and geographical settings.

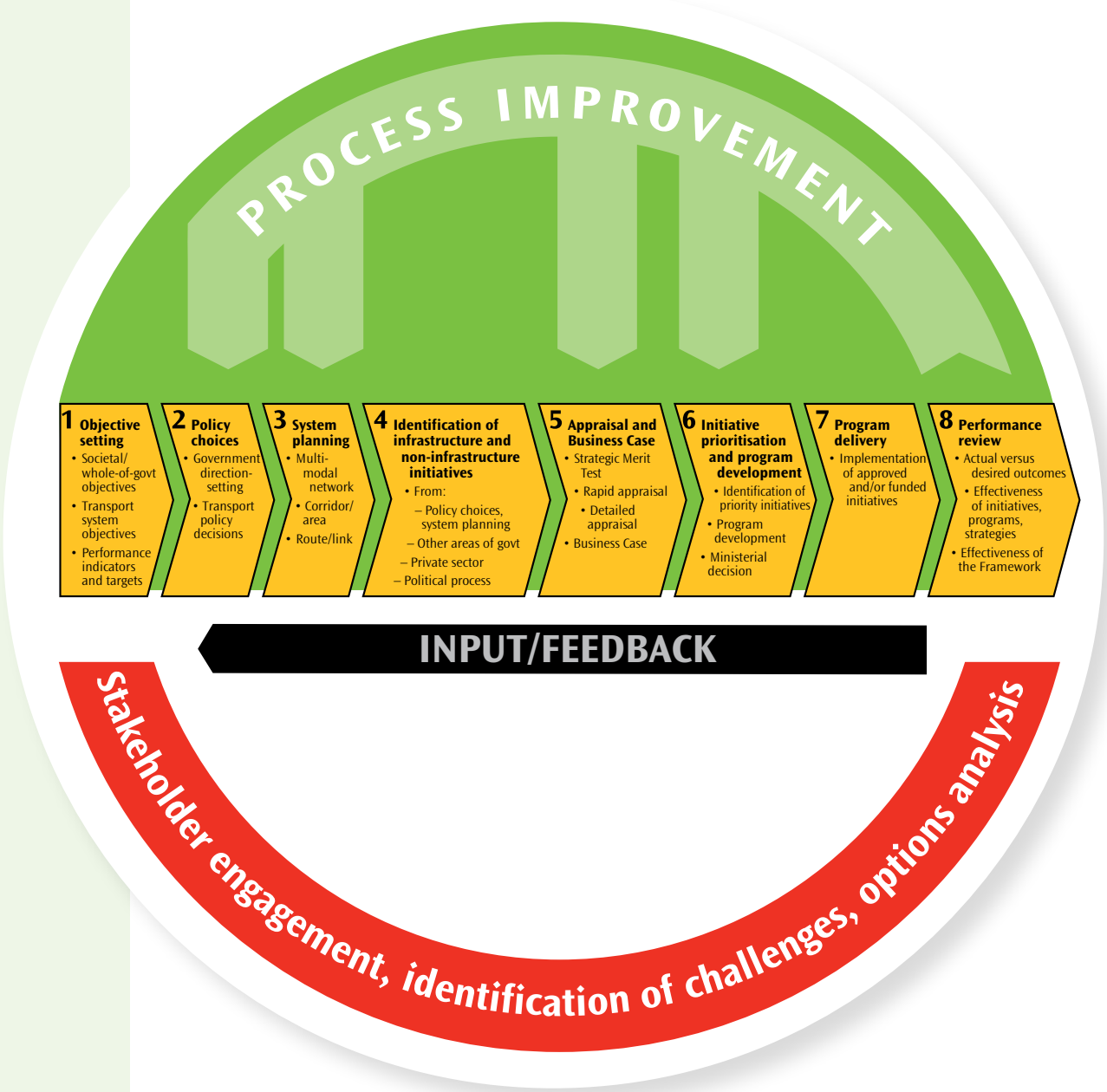
Importantly, the top-down[2] nature of the Framework facilitates the provision of strategically-based advice to decision-makers. The process also includes bottom-up feedback between phases, so that top-down and bottom-up[3] approaches are used in a complementary manner.

The Framework also recognises that strategic transport planning and development are not strictly sequential.

2 In Figure 1, top-down is represented by left–right.

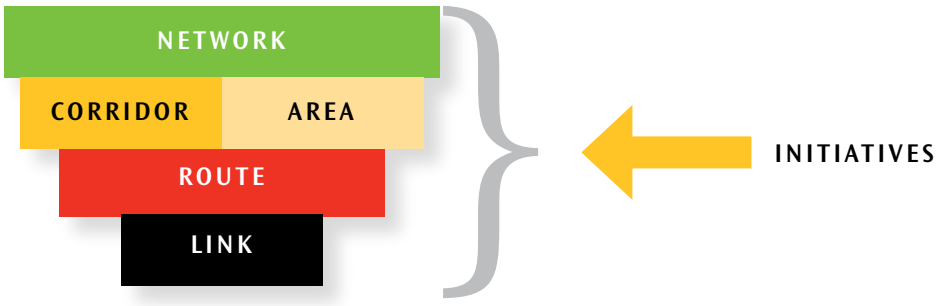
3 In Figure 1, bottom-up is represented by right–left.

Figure 1: Transport System Management Framework



The Framework identifies four levels of planning (see Figure 2), which are based on five transport system elements (see Box 2).

Figure 2: Transport system planning levels



Box 2: Transport system elements

The Framework incorporates the following definitions of the transport system and its elements (see Glossary for more detailed definitions).

1. A *link* is a homogeneous segment of a route. An inter-modal facility, where people or freight are transferred from one mode to another, is also categorised as a link.
2. A *route* is a physical pathway connecting two locations for a particular mode. Transport services are operated along these pathways. In land transport, the pathway consists of a continuous length of infrastructure. Shipping lanes and air routes are delineated by operating or regulatory or administrative practices rather than by infrastructure. The route concept is the basis for the definitions of the other elements.
3. A *corridor* comprises the parallel/competing modal routes between two locations (e.g. road and rail routes between two capital cities). A corridor is multi-modal where more than one mode operates, and is uni-modal where only a single mode operates (e.g. in many rural areas).
4. An *area* consists of a defined geographic space and all the transport routes within it. An area focus, rather than a corridor focus, is often required in urban planning to best account for the highly complex interactions (intersecting routes and dispersed population, activities, trip origins and trip destinations) in urban settings.
5. A *network* incorporates all of the routes that provide inter-connected pathways between multiple locations for similar traffics. Networks can be multi-modal or uni-modal. A multi-modal network typically comprises several uni-modal networks. Examples include:
   - The National Land Transport Network (AusLink, multi-modal). Comprises the national highway network and the interstate mainline rail network, and serves longer-distance traffic of national significance.
   - The Intrastate Transport Network (multi-modal). Comprises the rural arterial road network and rural intrastate rail network, and serves longer-distance non-urban traffic within a state/territory.
   - The Urban Transport Network (multi-modal). Includes, for example, the urban arterial road network, public transport network and cycling network. Serves traffic within a city.

Planning at each level considers demand (land use, population, economic and social activities) and supply (infrastructure) factors relevant to the level.

Initiatives can span various levels. For example, an initiative could occur within a link (e.g. adding a road turning bay or rail crossing loop), across the whole link(s) (e.g. a road passing lane) or across an entire route (e.g. road duplication or rail signal upgrading between Melbourne and Sydney).

A transport system for a jurisdiction (or a multi-jurisdictional setting) comprises the relevant transport networks, user sub-system, regulatory and management sub-system, transport operating environment, and physical and social environments.

Objectives, outcomes, challenges, options, solutions

The Framework directs all actions towards achieving transport system objectives—statements of desired outcomes not yet achieved. The gap between actual and desired outcomes creates the need for action.

Various terms are used, often interchangeably, when talking about 'reasons for action'. These terms include: problem, issue, deficiency, opportunity and need. The term *challenge* is used in the Guidelines to cover all of these situations.

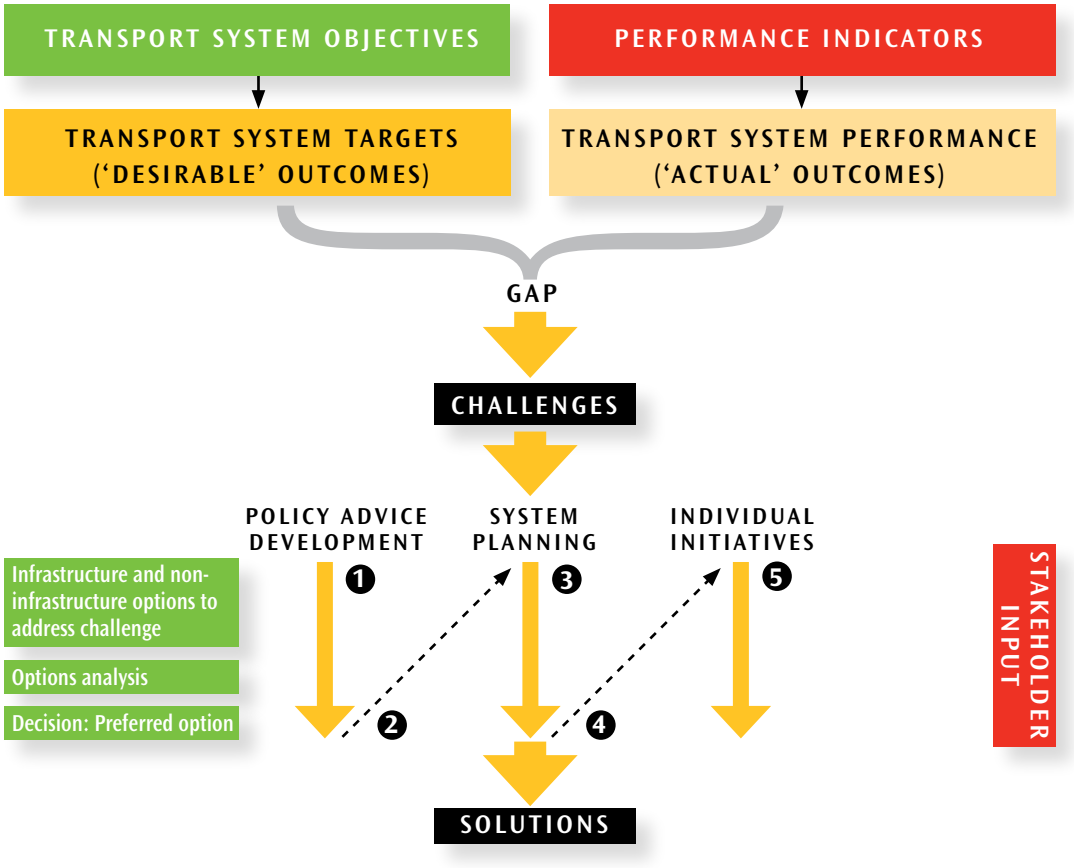
A key feature of the Framework is that it considers the full range of potential solutions or options, moving beyond the narrow focus on infrastructure and single-mode solutions.

Options analysis should be undertaken during several phases of the Framework—developing policy advice, systems planning, and identifying and appraising individual initiatives. This is illustrated in Figure 3, which shows the relationships between objectives, desirable and actual outcomes, challenges and options analysis.

Options analysis can be undertaken with different levels of rigour and objectivity depending on the phase of the Framework. In early phases (policy choice, network and corridor or area planning), the analysis should be broad-brush, relying on readily available data and analysis with a high degree of professional judgement and subjectivity. In later phases (route and link planning, initiative identification, initiative appraisal, program development), options analysis should be more rigorous, relying on more detailed data and analysis, with less emphasis on professional judgement and subjectivity.

Options analysis ensures a wide range of potential solutions are considered early in the Framework. A useful and practical tool when undertaking options analysis is the illustrative Options List in Box 3. The Options List encourages consideration of a full range of policy instruments that may be used individually or in combination. Some options may be outside the direct responsibility of the government or its agencies.

Figure 3: Objectives, outcomes, challenges, options, solutions



Box 3: High-level transport options list

- Status quo: do nothing or no action required.
- Use existing transport system in a different way or more efficiently.
- Modify or add to existing transport system with new infrastructure, modified service or regulations.
- Alter proposed transport task in conjunction with another option.
- Technological solution.
- Organisational or process change.
- Education and information provision.

4 Phases of the Framework

Phase 1 Objective setting

Phase 1 involves setting high-level objectives for the transport system. Achieving agreed objectives for the transport system is the driving force of the Framework. These objectives provide a high-level statement of what the government is attempting to achieve through transport. The objectives should reflect and contribute to achieving broader societal and whole-of-government objectives.

Practical examples of transport system objectives include:

- safer transport to support safer communities
- efficient and effective transport to support industry competitiveness
- environmental management to support environmental conservation
- security of the transport system, including critical infrastructure, and
- accessibility to promote equity and social cohesion.

At a national level, the Australian Transport Council (ATC) has adopted a national vision and objective for the transport system listed in Box 4. High-level objectives are more likely to remain relevant and provide direction over time. Individual jurisdictions set their own specific, high-level objectives, consistent with the national ATC objectives.

Box 4: National transport system vision and objectives

VISION

- To maximise the contribution of effective transport to Australia's productivity, quality of life and equity.
- In pursuing this vision, ATC recognises that transport is 'seamless', both between modes and between domestic and international transport.

OBJECTIVES

- To make this vision a reality, ATC will be seeking to achieve a transport system that is efficient, safe, sustainable, accessible and competitive.

Linked objectives

Lower-level objectives are developed as the process moves down the Framework. The Framework creates a consistent focus by integrating and linking objectives, as shown in Table 1. Note the close connection with the Framework's four levels of planning shown in Figure 2. Planning practitioners should use direction, knowledge and priorities from other levels of planning to inform decision-making. Objectives at one level inform and guide the specification of objectives at the next level. High-level transport system objectives are therefore reflected in more detailed objectives at subsequent levels, right down to the 'link' level.

Initiatives can span various levels. An example of objectives for individual initiatives is shown separately in Table 1.

Table 1: Example of linked objectives

OBJECTIVE LEVEL	SAFETY EXAMPLES
Societal/whole-of-government	Public safety
Transport system	Safety in the transport system of State X
Network	Reduce fatalities on the transport network of City Y
Corridor or area	Reduce fatality rate in Corridor or Area Z
Route	Reduce fatality rate on Road A in Corridor or Area Z
Link	Reduce fatality rate on narrow 1.3 kilometre section of Road A immediately north of Tidy Town
Initiative	Introduce network-wide random drug testing Upgrade rest areas along Road A Improve intersection of Road A and Road B

Individual initiatives can contribute to multiple higher-level objectives and outcomes if the initiatives are complementary and mutually reinforcing.

Moving down the levels of planning, lower levels explain in progressively more detail and practicality 'how' the transport system objectives will be delivered. Moving up the levels, higher levels provide progressively broader reasons 'why' specific actions are being undertaken.

Linked objectives also provide an effective mechanism for reviewing the success of using the Framework and its components (see later discussion of Phase 8).

Phase 2 Policy choices

Transport policy choices are direction-setting decisions that provide guidance for decisions in subsequent phases of the Framework. Policy choices specify the general direction of transport system management to best achieve system objectives.

Examples of transport policy choices include:

- the relative importance of different objectives such as equity, economic efficiency, safety, regional development and environmental management
- specification of multi-modal networks and jurisdictional accountabilities
- system performance targets
- the relative roles of each transport mode
- relative emphasis on infrastructure versus non-infrastructure solutions

- total funding and allocation of funds (e.g. pools of funds by purpose/category/program, priority funding for particular locations or outcomes, minimum funding for specific issues or types of initiatives)
- the role of public and private sectors, and
- arrangements to handle equity issues.

High-level strategic policy choices are made at senior levels. They involve the minister or ministers with responsibility for transport, but typically include other ministers and cabinet.

Transport agencies often develop supporting, lower-level, operational policies. These supporting policies should be re-assessed frequently to ensure they are relevant and consistent with governments' high-level strategic transport policies and priorities.

Phase 3 System planning

System planning involves developing affordable network and corridor or area strategies, followed by route and link plans.

System planning builds on the policy choices developed in Phase 2 to provide a big-picture, top-down view for identifying initiatives and developing an integrated program. System planning also guides external proponents of initiatives for the type of initiatives required.

The Guidelines promote multi-modal network planning. Network planning involves developing a vision for how multi-modal transport networks should be performing in the future, up to 15–20 years ahead. The network strategy is shaped within the context of policy choices in Phase 2, budget constraints, feedback from corridor and area strategies, multi-modal options, and infrastructure and non-infrastructure options. Over time, it facilitates consistency of approach across corridors, areas and transport modes.

Corridor or area planning identifies options and priorities that reflect local conditions, while remaining consistent with the network strategy and policy choices.

System planning is informed by stakeholder engagement and data collection and analysis. Network, corridor and area studies consider land use and economic trends, demand trends and drivers, projections, current and future challenges, and strategic options for meeting the challenges.

System planning is an iterative process, with feedback required between network planning and corridor or area planning.

The AusLink National Land Transport Plan is the first example of applying a system planning process. Details can be found at: http://www.auslink.gov.au/

Route and link planning are not specifically addressed in the Guidelines. Organisations such as Austroads and rail bodies will address the more specialist, detailed types of planning. However, some guiding principles can be identified:

- route and link planning should be undertaken in the context of corridor and area strategies
- route planning should consider alignment options
- link plans should typically cover 15–20 years
- link plans should contain a statement of intent, broadly indicating expectations about the future function of the link and likely initiatives, and
- priority links should be nominated for initial attention due to funding limitations.

Phase 4 Identifying initiatives

Phase 4 of the Framework involves identifying initiatives. Proposals for transport initiatives, typically, come from four sources:

- objectives-led strategic planning (Phases 1 to 3)
- other areas of government agencies
- the private sector, and
- political processes.

Making transport system objectives, policies and strategies widely available maximises opportunities for bottom-up and private sector proposals to be consistent with government objectives.

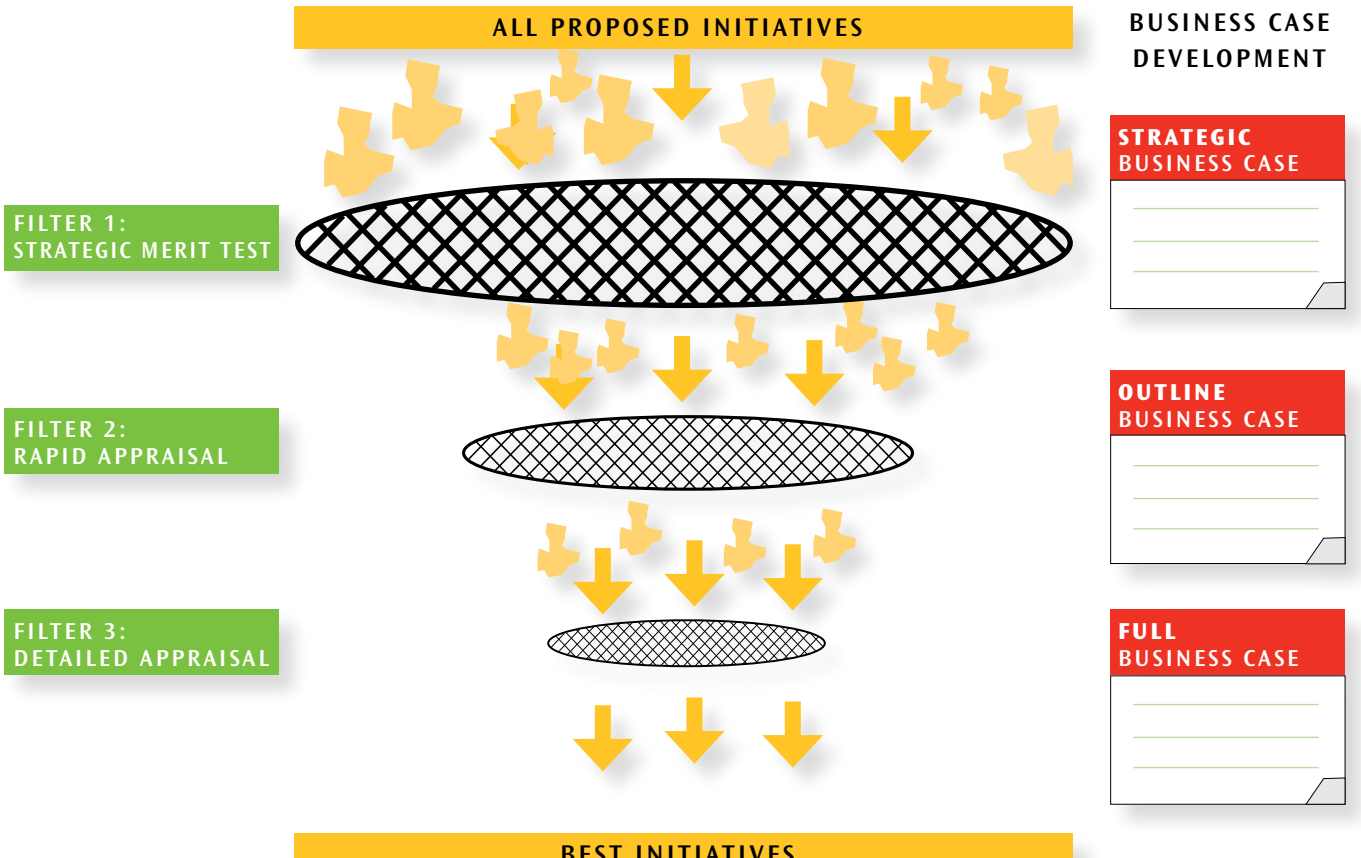
It is critical that initiatives are clearly specified and that key relationships between initiatives are identified. Initiatives can be independent, complementary or substitutable.

Phase 5 Appraisal and Business Case development

Phase 5 of the Framework involves appraising the potential initiatives and developing a Business Case.

The Framework uses a three-stage appraisal process, shown in Figure 4. It can be viewed as a series of filters. Initiatives are fed in at the top of the process. Each filter removes some initiatives. The initiatives that pass through all filters demonstrate strategic merit and fit, and perform well in detailed appraisal.

Figure 4: Three-stage appraisal process



- Filter 1—Strategic Merit Test (SMT): This is a largely qualitative assessment of the 'strategic fit' of each proposal. The SMT asks a series of questions to identify:
  - how well the initiative contributes to transport system objectives, policies and strategies
  - any barriers to the initiative (e.g. risk, dependence on other initiatives), and
  - whether other options have been assessed in the broader context of the initiative.

  The SMT identifies proposals that should proceed to the next stage of appraisal, proposals that require further scoping, and proposals that should be abandoned. Proposals arising from strategic planning (Phases 1 to 3) will reflect jurisdictional objectives, policies and strategies. They should therefore readily pass the SMT. The SMT is particularly valuable when it is applied to proposals that originate from outside the strategic planning process.
- Filter 2—Rapid appraisal: Rapid appraisal (e.g. rapid benefit–cost analysis, BCA) screens initiatives that pass the SMT, but may not pass more detailed appraisal. It incorporates an indicative assessment of the main benefits and costs, without a high level of accuracy. Rapid appraisal complements, and can occur in parallel with the SMT, helping to identify information required for detailed appraisal.
- Filter 3—Detailed appraisal: Detailed appraisal is a comprehensive analysis of the impacts and merit of an initiative. A detailed appraisal usually involves detailed BCA, a financial or budget assessment, and specific impact analyses and impact statements (e.g. environmental, social, regional, employment, equity). All relevant monetised and non-monetised impacts need to be assessed. Perceived limitations of BCA have led to the development of other complementary approaches. Of these, the Guidelines focus on the Appraisal Summary Table, and introduce a new optional approach, referred to as adjusted BCA.

This 'filtering' approach is an efficient use of scarce appraisal resources. The level of resources applied to appraisal, and the expected merit of an initiative, increase as an initiative progresses through the process. Initiatives should generally be subjected to the same appraisal process. The detail varies according to the size and complexity of the initiative.

The Business Case presents information about an initiative to the decision-maker. The aim is to present all of the information required for a fully-informed decision. The Business Case should:

- include all information needed to support the decision-maker and secure necessary approvals from the relevant government agency
- be a stand-alone document, with each initiative requiring a Business Case
- be supported by detailed documents that address specific issues (e.g. environmental impact assessment, detailed BCA)
- contain information that reflects the full range of impacts, address government objectives and priorities, and be appropriately rigorous, and
- be well-presented and easily understood.

As Figure 5 shows, the Business Case for a proposed initiative builds and grows in detail as the appraisal process proceeds.

Phase 6 Prioritisation and program development

Phase 6 of the Framework involves prioritising appraised proposals to develop a forward program of preferred initiatives. Given budget constraints, not all worthwhile initiatives can be funded.

Both monetised and non-monetised information plays a key role in prioritisation. This means that, inevitably, there will be an element of subjectivity in prioritising initiatives. In these circumstances, an initial broad prioritisation of proposed initiatives is recommended to assist the decision-maker.

This process is likely to involve several categories of priorities (e.g. priorities A, B and C) with prioritisation based on:

- an initiative's potential contribution to transport system objectives and policies
- outputs of monetised analysis
- outputs of non-monetised assessments
- government policy choices on funding, and
- government statements on priorities.

Prioritisation of small initiatives is likely to involve only the SMT.

Where required, more detailed prioritisation should be guided by decision-makers' interpretation of appraisal information and political considerations.

Following prioritisation, a program is developed from the list of prioritised initiatives. A program is a suite of initiatives to be delivered within a specified time frame and sequence, although in practice, many initiatives will proceed in parallel. The initiatives in the first years of the program are firm, with indicative initiatives for later years of the program. Scheduling depends on urgency, options for staging initiatives, private sector contributions and interactions between initiatives. Ministers have the final say over the initiatives to be included in the program.

Program development is a complex process that links initiatives and the budget. It must be transparent—founded on sound economic and business investment principles.

Program development should be guided by policy choices on funding. Timing and bundling are also important considerations. Development of the forward program is usually an iterative process.

Phase 7 Program delivery

Phase 7 of the Framework involves delivery of the program. Phase 7 incorporates processes delivering individual initiatives and managing the overall program.

The delivery of individual initiatives includes detailed planning for initiatives, design of initiatives, and delivery on time, within budget, and to quality specifications.

This must occur in the context of overall program delivery. Overall funding and financial arrangements must be properly managed for the whole program. The Guidelines do not provide any specific guidance on this phase.

Phase 8 Performance review

Phase 8 assesses the ex-post efficiency and effectiveness of decisions, planning and implementation processes, and transport system performance.

Performance review can be carried out with varying degrees of intensity and can focus on different aspects of the decision-making and implementation processes. Examples of key considerations include whether:

- policies, strategies, programs and initiatives delivered their objectives
- desired transport system objectives and performance targets were met and to what degree
- forecasts of BCAs were realised (construction costs, operating costs, demand levels, accident rates, other benefits)
- the whole Framework proved effective
- each phase of the Framework delivered its objectives, and
- there are lessons to be learnt and areas for improvement.

It could extend to full ex-post BCA including assessments of environmental, social and regional impacts.

Inputs, processes, analysis and outputs

Table 2 provides a useful summary of the Framework, illustrating the inputs, processes, analyses and outputs for each phase.

Table 2: Transport System Management Framework

	PHASE	INPUTS	PROCESS/ANALYSIS	OUTPUTS
COMMUNITY ENGAGEMENT	1. Objective setting	Societal and whole-of-govt objectives. Whole-of-govt strategic plans. Feedback from other phases.	Govt decision-making processes.	Transport system objectives.
	2. Policy choices	Phase 1 outputs. Feedback from other phases.	Options analysis. Policy studies. Demand analysis. Infrastructure studies. Integrated land use/transport planning.	High-level transport policy decisions. Transport system performance indicators and targets.
	3. System planning	Phase 2 outputs. Feedback from other phases.	Options analysis. Network assessments (e.g. deficiency analyses, economic assessments). Literature reviews. Multi-modal corridor/area studies. Demand analysis. Scenario analysis.	Defined multi-modal network. Multi-modal network objectives, performance indicator(s) and target(s). Multi-modal network strategies. Definition of corridors/ areas. Objectives, performance indicator(s) and target(s) for each corridor/area. Multi-modal corridor/area strategies. Definition of routes/links. Route/link objectives, performance indicator(s) and target(s). Route/link plans.
	4. Identification of initiatives	Phase 3 outputs. Feedback from other phases.	Initiatives from top-down strategic planning. Other sources (other agencies, private sector, political direction).	List of identified initiatives.
	5. Appraisal and Business Case	Phase 4 outputs. Feedback from other phases.	Options analysis. Initiative appraisal (Strategic Merit Test, rapid appraisal, detailed appraisal).	Initiative appraisal reports. Business Case for each initiative.
	6. Prioritisation and program development	Phase 5 outputs. Feedback from other phases.	Determination of short-run investment priorities. Prioritisation of initiatives. Approval of program.	Published forward program (3–5 yrs). Firm initiatives (1–2 yrs). Indicative initiatives (3–5 yrs).
	7. Program delivery	Phase 6 outputs. Feedback from other phases.	Detailed initiative planning/design. Budget management. Initiative management. Selection of delivery mechanism.	Delivered initiatives. Actual system performance.
	8. Performance review	Phase 7 outputs.	Post-completion initiative evaluation. Program audit. Outcome performance review (actual performance vs targets). Framework review.	Feedback to improve transport system performance (go back to start of process). Proposed changes to Transport System Management Framework. Lessons for the future.

5 Framework features

Stakeholder views complemented with analysis

The Framework recognises that transport system decisions are made within a complex political environment where the views of stakeholders need to be understood. Stakeholder engagement processes are a key component of all phases of the Framework.

Stakeholder engagement usually includes organisations that represent individuals, businesses and groups affected by a strategy or individual initiatives. It can take many forms—formal or informal, reactive or proactive, top-down or bottom-up. There should also be engagement between the levels of government involved in the decision-making process.

The views of stakeholders are often based on anecdotal evidence and may be highly subjective. Accordingly, the Framework emphasises the critical role of structured thinking and analysis, which can help test conclusions reached by intuition and subjectivity alone, improving the quality of advice to decision-makers.

Performance indicators and targets

The Framework incorporates a series of transport system performance indicators and targets to assess progress and identify aspects requiring improvement.

Performance measures and targets should:

- preferably be expressed in quantitative terms
- cover attributes that are important to transport users (e.g. travel time, safety) and reflect a broader stakeholder perspective (e.g. noise, pollution)
- not be biased towards a particular transport mode or solution, and
- preferably be based on analysis to ensure the targets are realistic.

Each objective should have a specified performance indicator and target. For example, the issue of safety during corridor planning might include:

- Objective: improve transport safety in the corridor.
- Performance measure: number of fatalities in the corridor.
- Performance target: 10 per cent fall in fatalities in the corridor by 2010.

The role of analysis, data and tools

Quantitative and qualitative data and assessment: Both quantitative and qualitative data and assessment play an important role in the Framework. Where quantitative data is available, it can greatly assist decision-making. On the other hand, important considerations that can only be described in qualitative terms should not be eliminated from the decision-making process.

In the Framework, the role of analysis, data and tools becomes progressively more detailed as decisions move from strategic planning to specific initiatives. Strategic planning requires only broad-brush indicative assessment, which is mainly qualitative, whereas final decisions about the exact nature and timing of initiatives require detailed assessment and information.

The National Transport Data Framework: A major issue is the lack of coherent transport data required to most effectively implement the Framework. In November 2004, ATC separately endorsed the National Transport Data Framework as the approach to address this deficiency.

Tools: Analytical and decision-support tools play a key role in the Framework. The following is a (non-exhaustive) list of commonly used tools:

- transport system performance indicators
- economic analysis—market failure analysis, economic analysis, BCA, adjusted BCA, cost-effectiveness analysis
- multi-objective analysis, multi-criteria analysis, planning balance sheet, goal achievement matrix
- demand analysis, scenario analysis
- financial and budget analysis
- environmental and social impact assessment (monetised and non-monetised)
- equity and distributional impact assessment, and
- regional and employment impact assessment.

Different jurisdictions use, and will continue to use, different combinations of these tools. The Framework provides a way the various elements of assessment can be brought together into a single framework.

Time frames

The Framework incorporates both short-term and long-term perspectives. The time frame shortens as the process moves from Phase 1 to Phase 8. For example, network, corridor, area, route and link strategies are generally cast in 15–20 year time frames. In contrast, decisions about initiatives and program development and delivery involve a three to five year time frame.

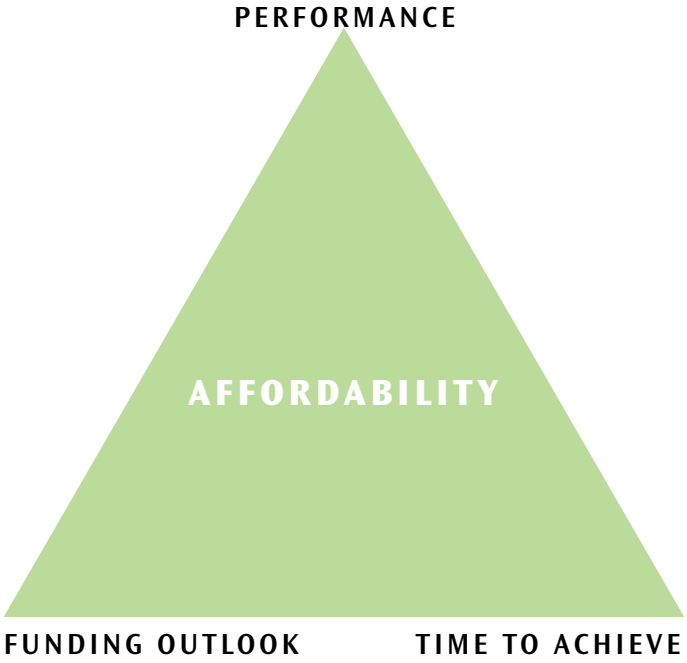
For maximum effectiveness, short-term considerations should be set in a strategic context. This context consists of both:

- longer-term considerations such as demographic trends, transport demand, long-term environmental considerations and reservation of land for infrastructure expansion, and
- shorter-term considerations such as government priority issues (e.g. safety), usually specified in policy choices.

Affordability

To be realistic and achievable, the Framework has as a starting point that transport proposals must compete for funding with other sectors. The level of funds for *desired* transport initiatives usually exceeds the funding capacity of government. This introduces a trade-off between funding, achieving performance targets and time, illustrated by the 'trade-off triangle' in Figure 5.

Figure 5: Affordability trade-off triangle



Affordability can be incorporated in the strategic planning process by considering expected future funding when setting long-term performance targets. It is reasonable for long-term targets to be moderately aspirational and to contain an element of 'stretch'. However, expectations must be manageable, with targets grounded in reality, to permit affordable incremental achievement through short-term investment cycles.

During program development and delivery, several options may be considered if available funds fall short of the original expectations. The long-term target may be changed, the time frame for achieving the target may be extended, or the target may be achieved for only a part of the network through prioritisation.

Where targets have been determined from information about stakeholder needs, it may be preferable not to amend the targets in the short-term and to adjust the other parameters during program development.

Learning, feedback and continuous improvement

The Framework incorporates a philosophy of learning from practical application, so feedback loops play a key role in the Framework.

Figure 1 broadly indicates the direction of progress through the Framework and provides a driving mechanism to ensure that decision-makers are provided with strategic advice. Feedback between phases ensures that the top-down approach is informed by good bottom-up information. The learnings from one phase are used to review and improve earlier phases, and to facilitate continuous improvement of outcomes and the Framework.

Bottom-up information can include analysis of data and views of stakeholders.

Further development

The second edition of the Guidelines represents the state of play at September 2006. The Guidelines are a living document. They will continue to be updated. However, it is proposed that this second edition be revised in three years.

6 Using the Guidelines

6.1 Audiences

To assist users of the Guidelines the following table suggests the volumes that are likely to be of most interest to various user groups.

Table 3: Directions for various audiences

AUDIENCE	RELEVANT PARTS OF THE GUIDELINES				
	VOLUME 1	VOLUME 2	VOLUME 3	VOLUME 4	VOLUME 5
Ministers Chief Executives	●				
Executives Senior Managers	●	●	●		
Strategic Planners	●	●			
Project Planners	●	●			
Appraisers of Initiatives			●	●	●
Business Case Developers			●		
Non-government Proposers of Initiatives	●	●	●	●	
Consultants	●	●	●	●	●
Non-transport Agencies	●				
The Community	●				

6.2 Guide to other volumes

Traditional transport system management has concentrated on individual transport modes and physical infrastructure. Most jurisdictions have detailed guidelines to appraise proposals for individual modes, mainly involving road projects. The National Guidelines for Transport System Management in Australia provides a Transport System Management Framework (the Framework) to assist agencies with multi-modal transport planning and the appraisal of transport initiatives, including road and rail infrastructure, as well as non-infrastructure solutions.

The Guidelines comprise five documents:

Volume 1

Volume 1 provides a brief overview of the Guidelines, and presents an introduction to the Transport System Planning Framework. The Framework comprises:

- a set of underlying principles
- a structured approach built on a series of key elements, and
- eight phases from Objective Setting through to Performance Review.

Volume 2

Volume 2 provides a detailed discussion of the Framework in which strategic planning guides decisions about individual initiatives and programs. The eight phases are:

1. setting transport system objectives based on government's high-level objectives
2. consideration of high-level policy choices
3. system planning (network, corridor, area, route and link planning)
4. identification of possible transport initiatives
5. appraisal and preparation of a Business Case for each initiative
6. prioritisation of initiatives and incorporation into a program
7. delivery of initiatives and programs, and
8. performance review, including continuous improvement of the Guidelines.

The Framework incorporates a 'top-down', multi-phase, strategic approach to transport system management to achieve desired transport system objectives. This approach is complemented by 'bottom-up' information and feedback, to ensure that strategic thinking is informed by practical, lower-level information.

The intended users of the Guidelines are governments at all levels and any individuals or organisations with proposals requiring government funding. The Guidelines are intended to guide the practices of individual jurisdictions.

Volume 3

Volume 3 of the Guidelines sets out a methodology for appraising the extent to which proposed transport initiatives contribute to multiple government objectives.

The methodology features a:

- Strategic Merit Test (SMT)
- rapid appraisal (centred around benefit–cost analysis (BCA))
- detailed appraisal (centred around BCA)
- adjusted BCA (optional)
- Appraisal Summary Table (AST), and
- Business Case.

Part 1 of Volume 3 describes the appraisal methodology, addressing each of these features.

The principal role of the SMT is to assess how well an initiative fits with the government's objectives derived in earlier phases of the Framework. The SMT template includes an Objective Impact Table that formalises thinking about the strategic fit of an initiative.

Appraisals can be undertaken at rapid and detailed levels. The methodologies for the two levels are identical except that rapid appraisal has lower expectations about comprehensiveness and accuracy. Rapid appraisal is intended to be a cost-effective way for decision-makers to gauge whether an initiative is likely to pass scrutiny at the detailed appraisal stage. For small-scale initiatives, the detailed appraisal step can be omitted.

BCA is the central technique used in rapid and detailed appraisals. Part 2 of Volume 3 provides a step-by-step guide to undertaking BCAs of transport initiatives. The adjusted BCA and AST methods can accompany BCA in the rapid and detailed appraisal stages along with other types of analysis such as financial, environmental and social assessments.

The adjusted BCA technique is a formal and transparent way to compare initiatives using a set of weightings of objectives that are different from the implicit weightings in standard BCA. It is an optional extra.

Non-monetised benefits and costs can be presented to decision-makers for consideration alongside monetised (BCA) results using the AST.

At the final stage, the Business Case brings together, in a single document, the results of the SMT, BCA, AST and other analyses (financial, environmental and social).

Volume 4

Volume 4 addresses:

- the structure of an economic appraisal and key issues specific to the appraisal of public transport initiatives
- assessing the economic value of changes in travel behaviour that result from initiatives
- assessing changes in the cost of providing public transport services i.e. operating and maintenance costs
- taking account of investment costs, covering both fixed infrastructure and rolling stock, and
- presenting default values for parameters related to public transport that are needed to complete an economic appraisal.

Part 1 of Volume 4 presents the methodology for undertaking an economic appraisal of a public transport initiative. It references concepts and data in other volumes of the Guidelines to avoid duplication and, therefore, focuses on issues specific to public transport initiatives.

Part 2 of Volume 4 provides guidance on the development and application of highway and public transport models in the appraisal of major transport initiatives. It covers aspects of model structure, model form, model calibration and validation and forecasts. The development and application of transport models is fundamental to the appraisal of many transport initiatives, as these models:

- provide an analytical framework to assess existing demands on the transport system and to project demands into the future to systematically test the impact of transport and land use options, and
- enable quantitative measures to be generated to act as key indicators in the appraisal process.

Volume 5

Volume 5 provides a comprehensive collection of material used to develop the Guidelines. It is a useful reference source for those who may wish to gain a detailed understanding of particular components of the Framework.

Volume 5 is divided into four parts:

- Part 1 discusses strategic planning for transport, and analysis at the network, corridor and area levels.
- Part 2 contains detailed material on BCA of transport initiatives and companions Part 2 of Volume 3.
- Parts 3 and 4 cover rail demand forecasting and cost modelling respectively. They have been included to help address the imbalance in material available on BCA of rail initiatives compared with road initiatives.

APPENDIX

A Abbreviations

ATC	Australian Transport Council
BCA	Benefit–cost analysis
COAG	Council of Australian Governments
SCOT	Standing Committee on Transport
SMT	Strategic Merit Test

Australian Transport Council