TRANSPORT AND INFRASTRUCTURE COUNCIL

Australian Transport Assessment and Planning Guidelines

Overview

April 2022

This publication was prepared by the Australian Transport Assessment and Planning (ATAP) Guidelines Steering Committee and approved by the Transport and Infrastructure Senior Officials' Committee. The Committees cannot accept responsibility for any consequences arising from the use of this information. Readers should rely on their own skill and judgment when applying any information or analysis to particular issues or circumstances.

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1. Introduction

The Australian Transport Assessment and Planning (ATAP) Guidelines (Guidelines) are an infrastructure planning and decision-support framework applied to transport. They outline best practice for transport planning and assessment in Australia and are a web-based product available at http://atap.gov.au. They are endorsed by all Australian jurisdictions and are published by the Transport and Infrastructure Council.[1] They are closely aligned with the Infrastructure Australia Assessment Framework (Infrastructure Australia 2021).

There is wide support for rigorous planning and assessment processes occurring before committing to infrastructure expenditure. This view has been reinforced in recent years by the role of Infrastructure Australia and the Public Infrastructure Inquiry undertaken by the Productivity Commission (2014). Amongst other things, the Productivity Commission's inquiry recommended that all governments should commit to rigorous cost-benefit analysis and due diligence for public infrastructure investment proposals exceeding a threshold figure.

In this context, the Guidelines provide the tools and guidance for the planning and assessment of transport systems and initiatives, for the benefit of all jurisdictions. They allow planning and assessment to be undertaken in a nationally consistent, coherent manner and with due diligence and rigour. They play the important role of facilitating consistent best practice across the country. The Guidelines do this by providing guidance for common use across jurisdictions and by maintaining consistency and alignment with Infrastructure Australia's guidelines.

Where application recommendations are made throughout the Guidelines, they reflect the overall view of the ATAP Steering Committee. They provide a consistent national approach, however there is likely to be some variation of application across the country, as each jurisdiction interprets detailed use of the Guidelines for their unique circumstances.

The Guidelines provide a comprehensive framework for overall transport system management, focusing primarily on planning, assessing and developing transport systems and related initiatives. Good transport system management starts with good planning and decision-making, followed by good decisions about individual initiatives. The Guidelines are a key component of processes to:

- Ensure that proposals to improve transport systems in Australia (through policies, strategies, plans and specific initiatives) achieve jurisdictional[2] goals and objectives
- Provide maximum net benefit to the community and represent value for money.

Users of the Guidelines include government departments and agencies, private firms, individuals, industry bodies and consultants.

[1] The Council's membership consists of the transport ministers of the Commonwealth, states and territories and New Zealand, and the president of the Australian Local Government Association.

[2] The term 'jurisdictions' is used here to mean the collection of all governments in Australia: national, state, territory and local. Governments are the owners and primary users of the guidelines. The set of users is broader, and these are discussed in the User Guide.

This is the fifth edition of the Guidelines. Box 1 summarises the background of the Guidelines.

The ongoing maintenance of the Guidelines is overseen by the ATAP Steering Committee reporting to the Transport Infrastructure and Senior Officials Committee (TISOC). The ATAP Steering Committee ensures the Guidelines remain relevant and updated in future (see Chapter 6 below). The steering committee consists of representatives from Australasian transport bodies (members are listed in Box 2), namely the Australian, state and territory governments, Infrastructure Australia (the Australian Government's independent infrastructure advisory body), the New Zealand Government, Austroads (as a project management advisor) and additional members as the agreed by the committee.

The ATAP Steering Committee maintains ATAP web-based Guidelines that:

- Meet the needs of users, are easy to use and are rigorous and reliable
- Have a focus that is multi-modal, multi-sector and integrated (transport, land use, environment)
- Provide guidance on planning transport systems and assessing a range of initiative types (investment and non-investment) across transport modes
- Provide parameter values for use in appraisals across modes, and establish a framework for keeping parameter values updated
- Provide guidance on relevant emerging issues in the context of recent research
- Harmonise and align with other guidelines, especially those of Infrastructure Australia.

Public consultation occurs across all ATAP work to ensure relevant amendments made to the Guidelines and new guidance reflect the public feedback.

The Guidelines do not yet address all relevant strategic aspects of transport planning and assessment. One example is the evolution of a greater range of funding options for transport initiatives. This and other relevant topics may be introduced into the guidelines in future as the need and priority arise.

As the Guidelines focus on transport planning and assessment, they specifically do not attempt to provide guidance on the more operational areas of transport, such as traffic management or project delivery. However, they do provide appropriate cross references to operational areas and issues where required.

Box 1 Background of the ATAP Guidelines

A range of guidelines for assessing initiatives has existed in Australia for many years. At the broadest level, central agencies (usually Treasury and Finance) have produced guidelines that all sectors are required to use. For transport, the longest serving guidelines have been the Austroads series of guides (*Project Evaluation*; and *Road Transport Planning)*, with some jurisdictions developing their own transport-specific guidelines.

The impetus for developing 'national' transport guidelines came from the Australian Government's land transport funding program. In 2003, the Standing Committee on Transport endorsed an appraisal methodology for that program. It also established an expert working group to expand the methodology and develop guidelines relevant to all jurisdictions.

In 2004, the 1st edition of the Guidelines was published by the Australian Transport Council (ATC) — now called the Transport and Infrastructure Council. Titled the *National Guidelines for Transport System Management in Australia* (NGTSM), it provided a generic framework and focused on non-urban land transport (road, rail and inter-modal).

In 2005, work commenced to extend the Guidelines to urban transport. In February 2006, the Council of Australian Governments (COAG) also highlighted the need for transport planning and appraisal processes in Australia to be strengthened and coordinated. COAG recommended this be achieved by 'adopting ATC-endorsed national guidelines for evaluating new public road and rail infrastructure projects by December 2006'.

In December 2006, the 2nd edition of the Guidelines was published. It provided the 'national guidelines' sought by COAG, included new material on urban transport and reflected feedback on the 1st edition.

In 2008, Infrastructure Australia was established, and has subsequently published guidelines for assessing infrastructure initiatives of national significance and in excess of $100 million.

In 2013, the need to update the Guidelines was recognised and a 'revision project' commenced. The scope of the 'NGTSM Revision Project' was established through a stakeholder consultation exercise (GHD, 2013). A related review of the Guidelines' framework (Peritum 2013) also identified that refinements were required for better alignment with Infrastructure Australia's Reform and Investment Framework (IA 2013a). The decision was also taken to incorporate into the Guidelines the Austroads *Guide to Project Evaluation* and *Guide to Road Transport Planning.*

In 2015, a 3rd edition of the Guidelines was published, consisting of stronger alignment with the approach of IA and new or updated material on: identification of transport problems and options to resolve them; road parameter values; wider economic benefits and productivity metrics; and travel demand modelling.

In 2016, a 4th edition of the Guidelines was published under the new ATAP name, with further outputs from the revision project. It consisted of new or updated guidance on: integrated transport and land use planning; passenger transport demand modelling; benefit management; post-completion evaluation; and active travel.

Table 1 Steering Committee for the Guidelines Revision Project

AUSTRALIAN GOVERNMENT		
Stephanie Werner (chair), Mark Harvey, Nick Maclachlan	Department of Infrastructure, Regional Development and Cities	
Anna Chau, Atiq Rahman, Paul Stanley	Infrastructure Australia	
STATE AND TERRITORY GOVERNMENTS		
Robert Munchenberg	Department of Planning, Transport and Infrastructure	South Australian Government
Robert Smith, Julieta Legaspi, Bryan Willey, Matthew Jones	Transport for NSW	New South Wales Government
Paul Salter, Ed McGeehan, Ignatius Forbes, Anya Richards	Department of Economic Development, Jobs, Transport and Resources	Victorian Government
Andrew Wilkinson, Des Lock	Department of Transport Western Australia & Main Roads	Western Australia Government
Rob Murray, Filip Milosavljevic	Department of Transport and Main Roads	Queensland Government
Justinieta Balberona	Transport Planning, Environment and Sustainable Development	Australian Capital Territory Government
Arun Kendall	Department of State Growth	Tasmanian Government
Brett Clifford	Department of Transport	Northern Territory Government
OTHER		
Glenn Bunting	New Zealand Transport Agency	New Zealand Government
Nick Koukoulas	Austroads	
SECRETARIAT		
Peter Stafford	Department of Infrastructure, Regional Development and Cities	Australian Government
WORK STREAM LEADERS		
Peter Tisato	Consultant	
Mark Harvey	Bureau of Infrastructure, Transport and Regional Economics	Australian Government
Ed McGeehan	VicRoads	Victorian Government
Wes Soet	Main Roads	Western Australia Government

The Guidelines Revision Project engaged consultants to undertake part of the work program. Consultants were selected and engaged through competitive tender processes governed by established Austroads procedures. Consultant engagement decisions were made by the Steering Committee.

2. Purpose of the ATAP Guidelines

The Guidelines provide a transport planning and decision-support framework. The Guidelines set out best practice for planning and assessing transport systems and initiatives in a consistent and harmonised way across jurisdictions. They support the development of effective, cost- efficient and robust transport decision-making by providing practical, sound guidance on:

- Developing goals, transport system objectives and targets
- Integrating the planning of transport systems, including integration with land use
- Identifying, assessing and prioritising transport problems
- Identifying suitable and various options (investment / infrastructure and reform / non-investment / non-infrastructure) for solving transport problems
- Rigorously assessing and appraising options
- Developing business cases for preferred solutions
- Prioritising proposed initiatives and program development
- Reviewing performance.

3. Principles

The Guidelines were developed with the following principles in mind.

- Goals- and objectives-led and responsive – All plans and actions in the transport sector should be led by high-level jurisdictional goals and supporting transport/land use system objectives, and should respond to government priorities.
- Problem-driven – A consideration of problems should always be the starting point in pursuit of goals and supporting objectives. The term 'problem' is used in the Guidelines to also include related terms such as issues, challenges, constraints and opportunities. Problems are considered the barrier preventing goals, objectives and targets from being achieved.
- Stakeholder engagement – Relevant stakeholder engagement and views should play an important role.
- Data and information – Advice to decision-makers should be supported by the best available data and information: quantitative and qualitative, objective and subjective.
- Multi-modal – Transport planning and assessment should be undertaken with a multi-modal perspective.
- Coordination – Coordinated actions and decision-making within and across levels of government are important requirements for achieving effective economic, social and environmental outcomes.
- Holistic – It is important to account for interactions within the transport system (e.g. between modes) as well as with closely related systems (e.g. land use, environment) and to consider all relevant economic, social and environmental issues (a triple bottom line focus).
- Integration – Processes in the Guidelines and actions flowing from their Framework should ensure integration within the transport system and with closely related systems (e.g. land use) and should also support and facilitate the achievement of goals and objectives (see the section below for information on the Framework).
- Strategic thinking and planning – Transport system decisions should be guided by comprehensive top-down strategic thinking and planning that reflects jurisdiction goals and objectives. Planning should also consider bottom-up experiences and opinions.
- Proposed initiatives – Proposed transport initiatives should derive from or align with strategic plans. They should reflect priorities and be aimed at solving well understood problems.
- Assessment of problems and options – The best way to identify the preferred solution to a priority transport problem is through a disciplined evidence-based process consisting of problem assessment (including extent, severity and causation) and the identification and rigorous, unbiased assessment of a wide range of options (investment / infrastructure and reform / non-infrastructure).
- Inter-jurisdictional – For key transport problems that affect more than one jurisdiction, preferred solutions should ideally be identified and developed on a joint inter-jurisdictional basis.

- Multi-stage assessment – The need for, and nature of, transport initiatives should be developed through a progressive filtering process to encourage efficient use of planning and assessment resources:
    1. Rigorous assessment of the problem
    2. Broad assessment of strategic merit / fit / alignment
    3. Establishment of economic, social and environmental justification (through rapid and detailed assessment of options)
    4. Development of an implementation plan.
- Fit-for-purpose level of detail – In applying the planning and assessment components of the Framework, the level of detail used in application needs to match the scale and complexity of the problem and proposed initiative. The larger and more complex the problem and initiative, the greater the level of detail and rigour required. For smaller and less complex problems and initiatives, simpler and streamlined versions of the processes and tools outlined in the Guidelines may be all that is required, provided the principles of good practice are still maintained.
- Prioritisation – Wherever possible, problems should be addressed in prioritised order reflecting their relative severity and importance. Proposed initiatives should also be prioritised in terms of their strategic merit/alignment and their triple bottom line justification in delivering net benefits (i.e. value for money). Some governments may also choose to prioritise between transport system objectives.
- Funding – Strategies and initiatives developed using the Guidelines and their Framework should be sensitive to the jurisdiction's overall likely levels of funding through working closely with its Department of Treasury. Alternative funding options should also be explored.
- Private sector involvement – Appropriate private sector involvement should be encouraged where beneficial.
- Easy to use – The Guidelines should meet the needs of users, be easy to use and be rigorous and reliable.
- Comprehensive, yet easy to understand – Information on the merit of strategies and proposed initiatives should be presented to decision-makers in a way that communicates the full range of impacts. Information should be easily understood and address government objectives and priorities.
- Feedback, learning and continuous improvement – Feedback should be sought on all aspects f the Guidelines to encourage learning and continuous improvement.

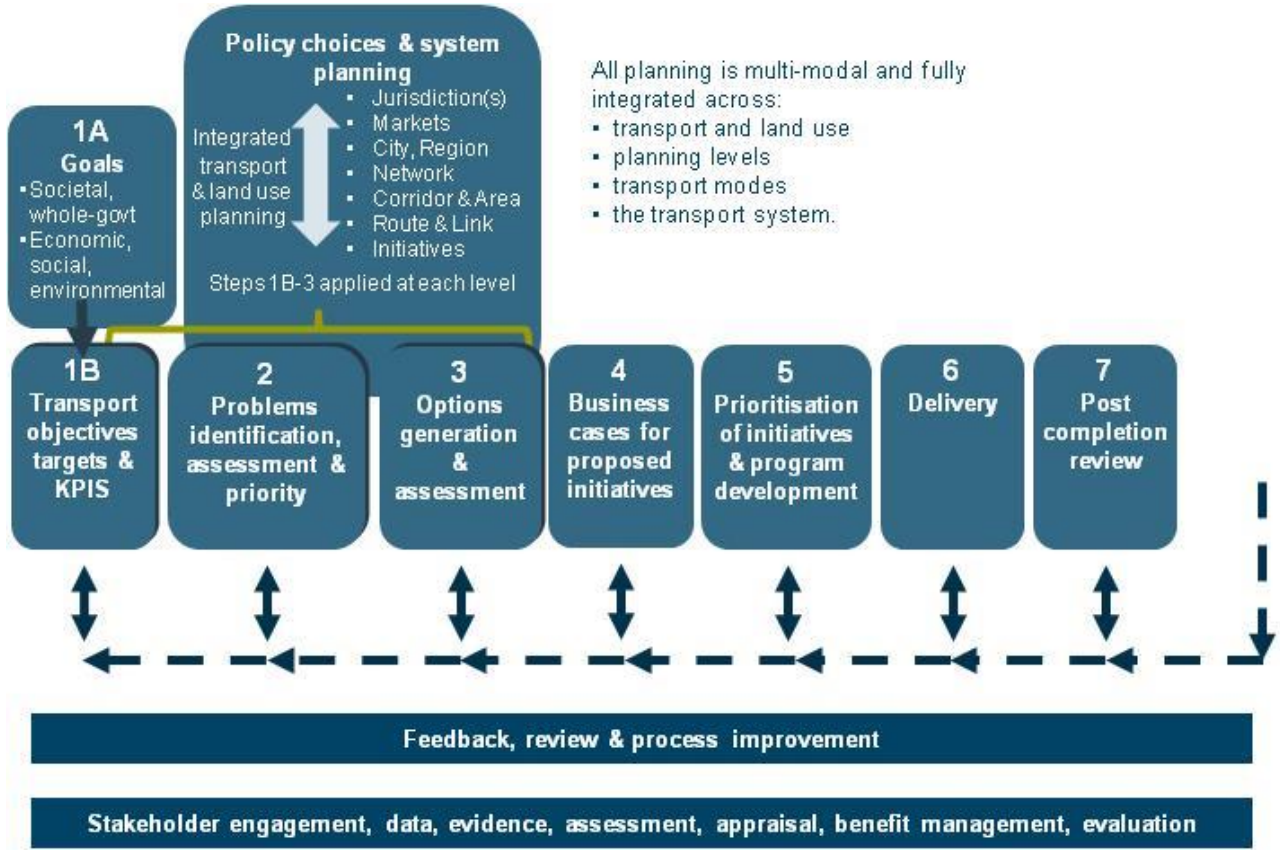
4. Framework Overview

4.1 The Framework

The Guidelines are structured around a Transport System Management Framework (the ATAP Framework or the Framework) shown in Figure 1. The Framework is an activity and decision-support system, with a logical, multi-step approach aimed at achieving the high-level goals and transport system objectives[3] of a jurisdiction, or across jurisdictions.

The Framework aligns with the principles listed above. It was developed by revising the 2006 NGTSM Framework to align more closely with Infrastructure Australia's *Reform and Investment Framework* (IA RIF). The revised Framework is essentially a combination of those two frameworks.

Figure 1 Transport System Management Framework



[3] As noted in F1, land use objectives are as important as transport system objectives. For convenience, the Guidelines refer mainly to transport system objectives; however, in each case the importance of both land use and transport objectives (and that they be integrated) is implicitly inferred at the same time.

The Framework shown in Figure 1 provides a systematic process for contributing to the achievements of a jurisdiction's high-level goals.

- Step 1 involves the identification of high-level jurisdiction goals (1A), and supporting transport objectives, targets and KPIs (1B).
- The policy choices and system planning phase involves repeated application of an 'objective-problem-option' focus (Steps 1B to 3) to the various levels of planning. It provides direction-setting guidance for all major transport system decisions.
- A core element of system planning is integrated transport and land use planning occurring across all planning levels.
- Step 4 is the culmination of the planning process, resulting in a Business Case for each proposed initiative that demonstrates the proposal has merit, is sensible and is justified.
- In Steps 5 and 6, the range of justified initiatives are prioritised, compiled into an overall program of highest priority initiatives, and delivered.
- Step 7 involves review of proposals after they have been delivered, plus reviews of all aspects of the Framework.
- These steps and phases are complemented throughout by key supporting processes: stakeholder engagement, use of quantitative and qualitative data and evidence in planning, assessments, appraisals, benefit management and evaluations.
- Finally, there is a theme of feedback, reviews and continuous improvement throughout to ensure the learnings from practice can further improve the Framework and its use on an ongoing basis.

Box 2 Changes from 2006 NGTSM

The key changes to the ATAP Framework from 2006 are:

- The term 'goals' (from the IA *Reform and Investment Framework* (RIF)) has been added to support 'objectives' (from the Guidelines).
- The role of integrated multi-modal planning has been strengthened, including clearer recognition of the importance of integration between transport and land use at all levels of planning.
- Policy choices have been grouped with system planning (without diluting the role of the former).
- The Guidelines term 'challenge' has been replaced with the term 'problem' (from the IA RIF).
- The role of problems and options has been strengthened in line with the IA RIF.
- There is a clearer recognition that ideas for potential initiatives should flow from strategic system planning through the resulting suite of strategies, policies and plans based on good evidence-based thinking. These ideas then need further investigation before they can become sound proposed initiatives.

4.2 A top-down strategic focus – with bottom-up information

The Framework has a whole-of-system focus, takes a multi-modal perspective, uses integrated planning and considers both investment/infrastructure and reform/non-infrastructure options.

Each step integrates with and facilitates implementation of the previous steps.

The Framework takes a primary top-down approach (in Figure 1, top-down is represented by left-right.) This facilitates strategic advice to decision makers and enables individual proposed initiatives arising in the Framework to be designed so they contribute to achieving an overall strategic direction.

The top-down approach is complemented by application of bottom-up information (in Figure 1, bottom-up is represented by right-left) and feedback and two-way interaction between steps. This means the top-down and bottom-up approaches are used in a complementary manner to ensure a productive balance.

4.3 Applications

The Framework can be applied to a range of transport settings:

- Jurisdictional - federal, state and territory, local government and joint
- Geographical - urban, non-urban, interstate, intrastate, regional and remote.

It is acknowledged that applying the Framework may not be as simple as the linear structure represented in Figure 1. The Framework must be applied in the complex environment of government decision-making, which involves competing objectives, trade-offs, constraints, uncertainty, multiple options and quantifiable as well as unquantifiable impacts.

This means the process may not be strictly sequential as illustrated in Figure 1. Steps overlap, activities in some steps occur more than once following feedback from other steps, there are direct links between non-sequential steps (e.g. safety objectives and safety programs) and there is no single start or end point.

The Framework recognises these complicating factors. It seeks to assist decision-making by reducing complexity and adding objectivity, consistency, rigour and transparency. It does this by breaking the decision-making process into inter-related steps and making good use of data, information and analysis. In addition, the Framework operates with feedback and two-way iterations between steps. It also has a review and improvement focus so lessons can be learned to help improve the Framework and its future application.

The Framework aims to be as objective as possible, while recognising that like many decision-making processes, some degree of subjectivity and judgment is involved.

However, these complications do not detract from the usefulness of the Framework. It identifies the key steps for good decision-making and demonstrates key relationships between the steps necessary to deliver integrated and consistent transport systems. In the absence of a structured approach, government decision-making can lack consistency, and risk misallocating resources and limiting the achievement of high-level goals and objectives.

4.4 Transport system elements

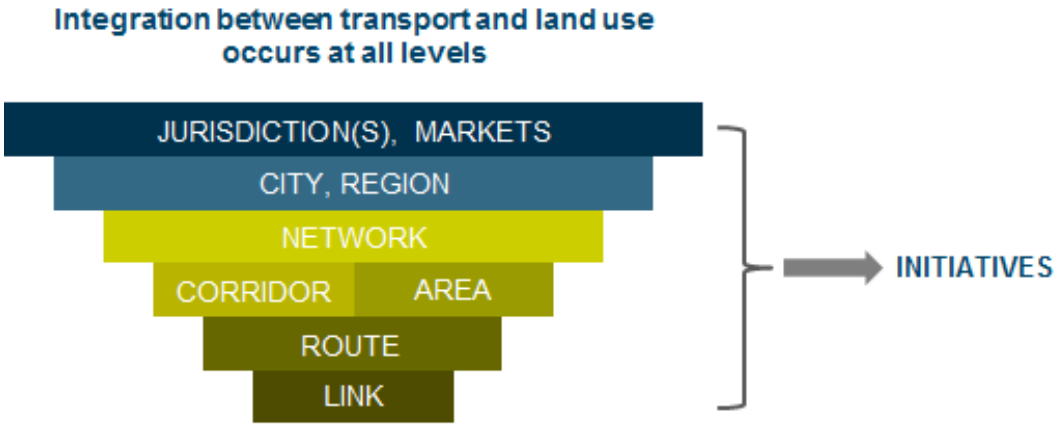
The Framework describes the transport system as consisting of five elements – link, route, corridor, area and network (see Box 4). The ATAP Guidelines Glossary provides a detailed interpretation of the transport system elements in various settings (e.g. interstate, intrastate, urban).

4.5 Integrated planning levels

The Framework features:

- A hierarchy of integrated planning levels (see Figure 2). The hierarchy concept was introduced in the 2006 Guidelines. Two additional top levels have been added: planning at the jurisdiction(s) or markets level (e.g. urban transport) and city-wide or region-wide planning
- Integration between transport and land use occurs at *all* levels of planning – guidance on integrated transport and land use planning can be found in F0.2.

Figure 2 Hierarchy of integrated system planning levels



The early levels of planning focus on the whole jurisdiction, markets or an entire city or region. At these levels, planning occurs across all aspects of development (land use, infrastructure, services). The outputs are strategies at the jurisdiction, market, metropolitan or regional level. The outputs may include ‘planning strategies’ and complementary ‘transport strategies’ or similarly named high-level outputs.

Planning also occurs at the transport network level. Traditionally, network planning focused on planning for individual modes. The Guidelines have a multi-modal focus based on a philosophy that modal planning should be replaced, or preceded, by multi-modal planning. Multi-modal planning focuses on serving people and freight rather than individual modes. The National Land Transport Network is an example of a multi-modal network, consisting of road and rail routes and links.

More detailed planning then occurs at corridor, area, route and link levels.

Part F0.1 Policy Choices and System Planning provides a more detailed discussion of planning at each level. This Part also includes discussion of the role played by policy choices as both inputs and outputs of planning processes.

Box 3 Transport system elements

The Framework incorporates the following basic definitions of the transport system and its elements. The Glossary provides 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 – and is sometimes referred to as a ***node*** in the network.
2. A ***route*** is a physical pathway connecting two locations for a particular mode. Transport services operate 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 higher elements in the hierarchy.
3. A ***corridor*** comprises the parallel/competing modal routes between two locations, such as road and rail routes between two capital cities. A corridor is multi-modal where two or more modes operate and is uni-modal where just a single mode operates (mainly in rural areas). It also includes the adjoining land uses.
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 (transport and land use) planning to best account for the highly complex interactions in urban settings (such as intersecting routes and dispersed population, activities, trip origins and trip destinations).
5. A ***network*** incorporates all 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* (multi-modal) – which 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) – which comprises the rural arterial road network and rural intrastate rail network and serves longer-distance non-urban traffic within a state or territory
   - The *Urban Transport Network* (multi-modal) – which includes the urban arterial road network, public transport network and cycling network and services traffic within a city.

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

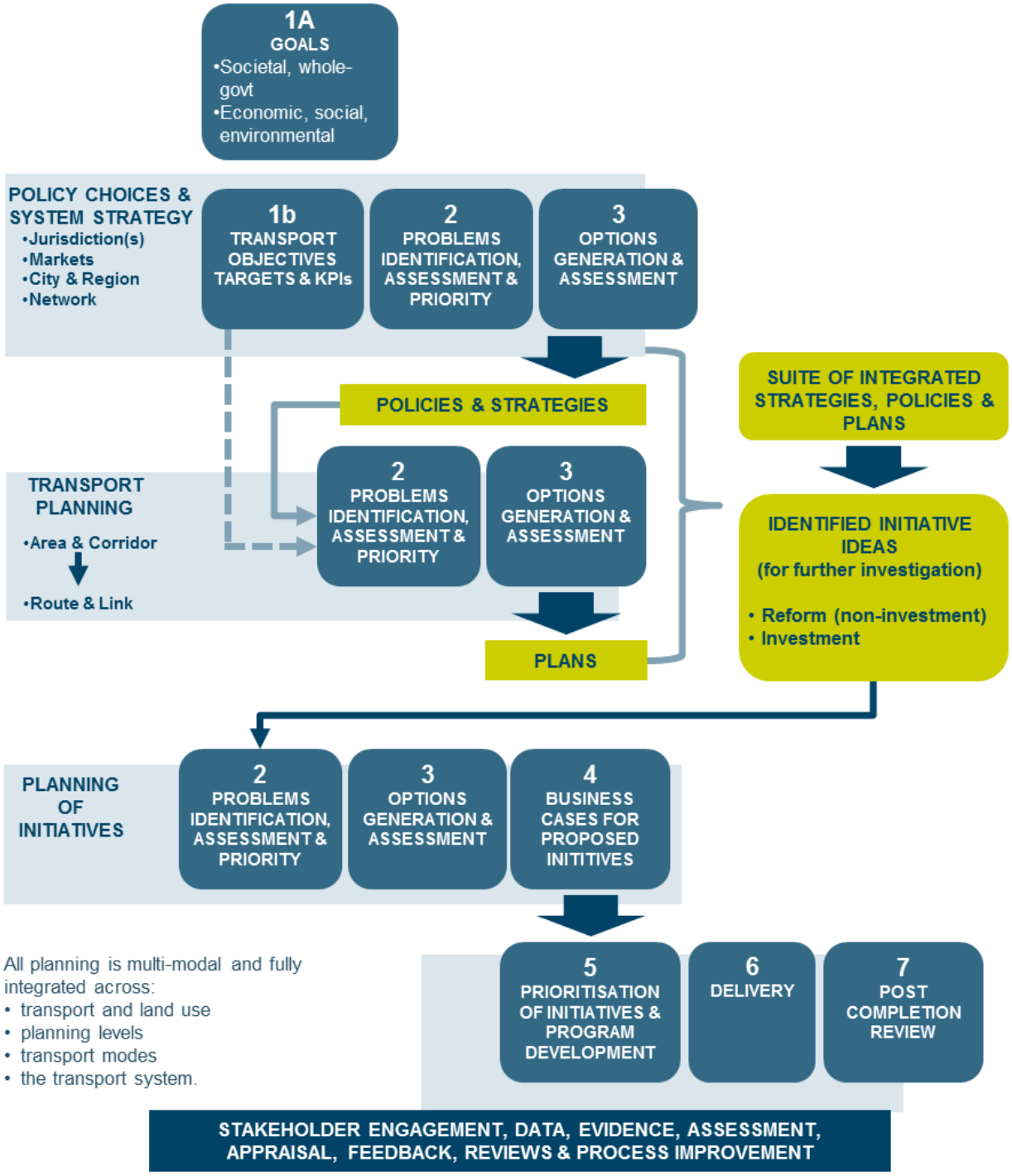
Initiatives can span various planning levels. For example, an initiative could occur within a link (e.g. adding a road turning bay or rail crossing loop), across the whole link or multiple links (e.g. a road duplication) or across an entire route (e.g. rail signal upgrading between Melbourne and Sydney, or over-dimensional vehicle routes through or around urban areas).

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

4.6 Planning processes and planning outputs in the Framework

Figure 3 is an expanded version of Figure 1. It shows in more detail how the Framework is expected to operate across the integrated planning levels, and the key outputs.

Figure 3 The Framework showing planning levels and outputs



An important feature to note in Figure 3 is the way the ‘problems and options’ principle is applied across the ‘hierarchy of planning levels’. Steps 1B to 3 are replicated across each level of the planning hierarchy. This is because the principles outlined in the IA RIF—of planning being driven by a ‘problems and options’ focus—should apply at all levels of system planning.

This ‘problems and options’ principle essentially says that:

- A consideration of problems—through their identification, rigorous assessment and prioritisation—should always be the starting point in pursuit of jurisdictional and national goals and supporting transport system objectives
- Consideration and rigorous assessment of a range of options for addressing those problems should follow to enable sound decisions.

As mentioned in section 4.3, there is no unique sequence of activities for applying the activities shown in Figure 3 in all circumstances or settings. The activities must be applied in the complex environment of government decision-making. This means the process may not be strictly sequential as shown. The primary examples of this that have arisen in development of the Guidelines are:[4]

- Whether policy choices are inputs to, or outputs from, planning
- The exact sequence of network, area, corridor, route and link planning.

The approach outlined in Figure 3 can be applied in a range of ways that best suit the needs and institutional arrangements in each jurisdiction. In doing so, jurisdictions should ensure that their processes display the central features of the framework: planning driven by high-level jurisdiction goals and transport system objectives determined by governments; integrated planning; initiative ideas arising from the suite of strategies and policies; a strong focus on the ‘problem-options’ logic; all planning and assessment based on good evidence-based thinking; and making the case for an initiative through the use of a sound Business Case.

4.7 Framework inputs and outputs

A final tool for providing an overview of the Framework is provided in Table 1. This table illustrates the inputs and outputs for individual steps of the Framework.

[4] See discussion in F0.1 Policy Choices and System Planning.

Table 2 Framework inputs and outputs

Step	Inputs	Outputs	Outputs by planning levels
1. Goals, Objectives, Targets and KPIs	• Societal and whole-of-govt goals • Whole-of-government strategic plans • Feedback from other steps	• Transport system objectives • Transport system targets • Transport system objectives, targets and KPIs translated to the other lower planning levels	**Integrated objectives** • Integrated transport objectives across hierarchy of planning levels **System** • Policy choices (which can also be inputs to planning) • Defined multi-modal networks • System strategies, policies & plans for: jurisdiction(s), markets, cities, regions, networks, system outcomes (safety, environment, social) • Integrated and multi-modal • Integration between transport and land use at all planning levels **Area and corridor planning** • Area and corridor strategies and plans • Integrated and multi-modal **Route and link plans** • Route and link plans • Integrated and multi-modal (where relevant) **Initiative ideas** • Identified initiative ideas for further investigations
2. Problems Identification, Assessment and Priority	• Step 1 outputs • Feedback from other steps • Transport system performance indicators • Data, information, models, tools	• Problem statements • Problem assessments with documented evidence of problem severity and causes • Problem priorities	
3. Options Generation and Assessment	• Step 2 outputs • Feedback from other steps • Data, information, models, tools	• List of reform / non-investment and investment options • Documented rigorous option assessments • Preferred option/solution	
4. Business Cases for Proposed Initiatives	• Step 3 outputs • Feedback from other steps • Data, information	• For each assessed initiative, business case justifying preferred solution • Supporting technical assessment reports and implementation plans • Refer to as “justified initiative”	
5. Prioritisation of Initiatives and Program Development	• All justified initiatives from Step 4 • Feedback from other steps • Data and information	• Priority list of justified initiatives by time frames • Initiatives funded through annual budgets • Overall program of funded initiatives • Funds allocated	
6. Delivery	• Step 5 outputs • Feedback from other steps	• Detailed design of initiatives • Budget management • Project management • Selection of delivery mechanisms • Initiative delivered on time, on budget and to specification	
7. Post-Completion Review	• Step 6 outputs • Data, information	• Post-completion evaluations • Output and outcome reviews (expected vs actual) • Lessons for the future • Framework review and proposed improvements	

5. Framework Features

5.1 Objectives, outcomes, problems, options, solutions

Objectives, outcomes, problems, options and solutions are central concepts in the Framework. Figure 4 illustrates the relationships between them.

Figure 4 Objectives, outcomes, problems, options, solutions

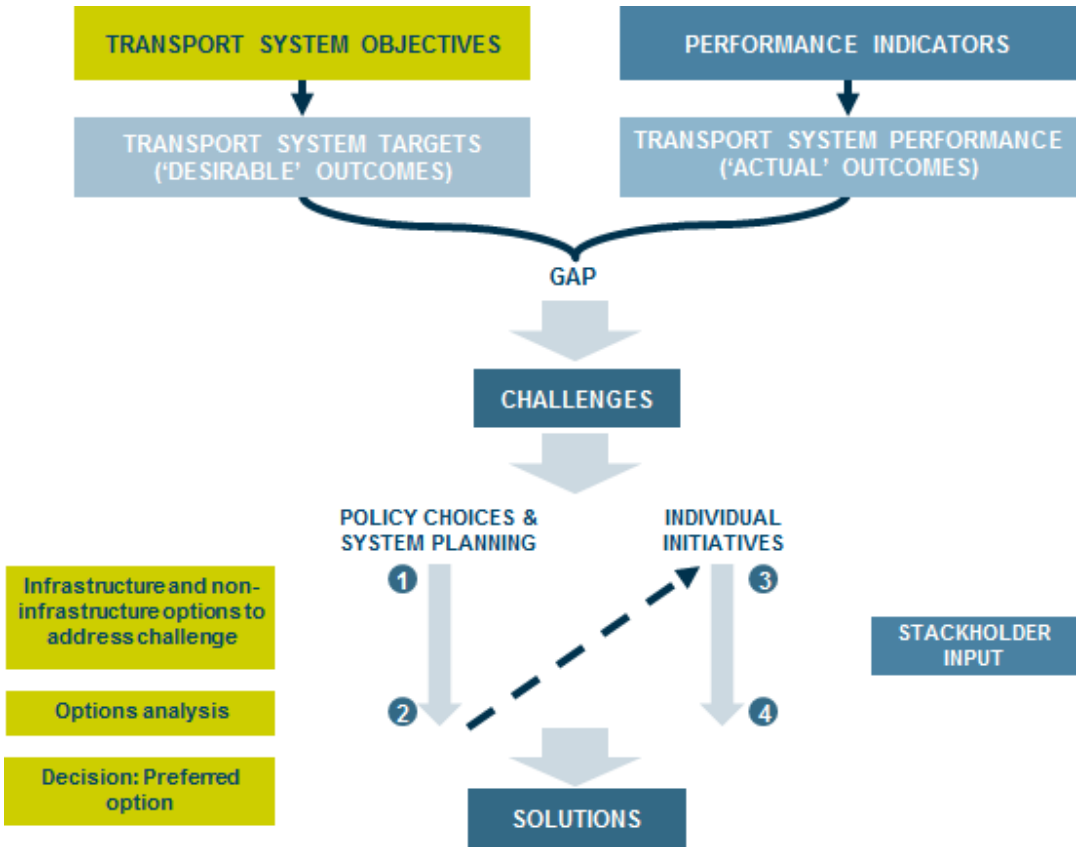


Figure 4 shows that the aim of the Framework is to achieve the desired outcomes expressed in the transport system objectives[5] and targets (which are statements of desired outcomes not yet achieved). A gap between an actual and desired outcome creates a 'problem', and a case for potential action. The term 'problem' is specifically used in the Guidelines to represent all other similar terms - issue, challenge, deficiency, opportunity and need.[6]

[5] Which in turn support higher level economic, social and environmental goals of a jurisdiction.

[6] Note, in NGTSM06 the term challenge was used as the lead representative term. The term 'problem' plays that role in this revised version of the Guidelines for consistency with the terminology used by Infrastructure Australia's Reform and Investment Framework.

A strengthened focus on problems and options makes the revised Guidelines much more aligned with the IA RIF. Focusing initially on problems, their scale and priority, means that the planning process can proceed by focusing on the most critical issues.

A fundamental aspect of the Framework is that it considers a wide range of options (both investment/infrastructure and reform/non-infrastructure) as alternative possible solutions to a problem. It is a pre-requisite for effective decision-making. It is fully consistent with the 'problem-option' focus of the IA RIF. This approach provides the best opportunity to move beyond the narrow focus on infrastructure and single-mode solutions that has prevailed in the past.

Options assessment is required in several parts of the Framework: the various levels of systems planning and identifying, assessing and appraising individual initiatives.

Options assessment of a wide range of potential solutions should start early in the Framework. If options are identified only in later steps, there is a risk of focusing on a small range of options that may have limited effectiveness and a risk of having to more frequently go back and repeat earlier steps of the Framework.

Options assessment is undertaken with different levels of rigour depending on which step of the Framework is applicable. For the higher planning levels (city, region, network, corridor, area), the assessment is generally broad-brush, relying on readily available data and analysis complemented by professional judgment. At the lower planning levels (route and link planning), options assessment should be more rigorous, relying on more detailed data and analysis. In the assessment of initiatives, options assessment moves through several stages: strategic merit test, rapid appraisal and detailed appraisal.

5.2 Role of strategic system planning

Objectives-led strategic system planning plays a key role at the start of the Framework (see F0.1), setting the desired broad direction of the transport system.

Strategic planning can be complex and challenging. It balances many competing factors including value judgments, subjective assessments and political considerations that cannot easily be reduced to quantitative measures. Nevertheless, the process should be designed to be well-informed, with feasible outputs based on realistic forecasts. It should incorporate enough in-built flexibility to be responsive to changing futures.

Information for strategic planning comes from a range of sources, including data analysis (context scans, literature reviews, demand studies and forecasting, and scenario planning) and stakeholder engagement. Key considerations in strategic planning include:

- Relationships between land use and transport, and between transport and other systems (e.g. the environment)
- Transport infrastructure configuration and condition
- Government and stakeholder expectations
- Existing government policy settings and legislation
- Options available to government

- Technological change
- Demand drivers
- Realistic funding futures.

Consultation with other levels of government is important where responsibilities intersect.

Gaining a good understanding of demand drivers, both positive and negative, is particularly important. The uncertainties associated with the future need to be understood, with agility required in decision-making to be able to respond most effectively.

5.3 Information support for decision-making

Throughout the Framework, there is a focus on providing all of the necessary information to support informed decision-making at various levels. Information on the merit of strategies and initiatives should be presented to decision-makers in a way that recognises the full range of impacts. Information should also be easily understood and address government goals, objectives, targets and priorities.

Summary information that identifies the key impacts and trade-offs involved in a decision should be foremost in those presentations. However, this does not mean that rigour should be sacrificed: summary information should always be supported by more detailed assessments and documentation. In the Guidelines, there are references to various formats (e.g. the Appraisal Summary Table, see F3; Business Cases, see F4) to help guide how to present good summary information to decision-makers.

The Framework incorporates key roles for both quantitative and qualitative information.[7] Where quantitative information 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 omitted from the decision-making process. For example, the Strategic Merit Test (see F3) is likely to consist of qualitative information that may be important in assessing whether proposed initiatives align with transport system objectives, targets and strategies.

5.4 Stakeholder engagement

The Framework recognises that transport system decisions are made within a complex political environment in which the views of a range of stakeholders need to be understood. Stakeholder engagement is therefore a key component across the whole Framework.

[7] A further distinction is between monetised and non-monetised information. Some benefits and costs can feasibly and reliably be expressed in monetised terms. Other benefits and costs that can only be expressed in non-monetised terms are equally important in transport planning and development. Monetised and non-monetised information should therefore be presented side-by-side in an unbiased manner. See further discussion in Step 3 (see F3).

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

Engagement processes, including their timing, should be carefully planned if successful results are to be achieved. Various engagement approaches are available. The nature and details of the approach in a particular situation will depend on the issue under consideration and the stakeholders.

The views of stakeholders can sometimes be based on anecdotal evidence and be subjective. Accordingly, the Framework also emphasises the critical role of structured thinking and analysis, which can help to test conclusions reached by intuition and subjective views. Structured thinking and analysis can draw out conclusions from available data, provide projections about the future, provide evidence of problems, test the viability of options and compare alternative options. Such a process, which combines the views of stakeholders with data/evidence-based assessment can only improve the quality of advice to decision-makers.

A useful reference on stakeholder engagement is the International Association for Public Participation (IAP2) Public Participation Spectrum (http://www.iap2.org.au/documents/item/84).

5.5 Role of analysis, data and tools

In the Framework, the level of assessment becomes progressively more detailed as decisions move from strategic planning to specific initiatives. Strategic planning often uses broad-brush indicative assessment, whereas final decisions about the exact nature and timing of initiatives require detailed assessment and information.

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 (of networks, maintenance and proposed initiatives), cost-benefit analysis (CBA), cost-effectiveness analysis
- Multi-objective analysis (e.g. 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
- Regional and employment impact assessment.

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

5.6 Time frames

The Framework incorporates both short-term and long-term perspectives. Moving through the Framework, the time frame shortens. For example, land use, transport system, network, corridor, area, route and link strategies are generally cast between 15 and 50 year time frames. In contrast, decisions about initiatives and program development and delivery involve a three- to five-year time frame, within which the most practical considerations (one to three years) play a key role.

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

- Longer term considerations such as future demographic trends, transport demand, long-term environmental considerations and the reservation of land for future infrastructure expansion
- Shorter term considerations such as government priorities.

5.7 Funding

To be realistic and achievable, the Framework acknowledges that transport proposals compete for funding with other sectors. The level of funds sought for transport initiatives usually exceeds the funding capacity of government. This introduces a trade-off between:

- Funding
- Achieving performance targets
- Time

although the trade-off can be moderated through the generation of new sources of funds and making better use of existing infrastructure.

The way this trade-off is typically managed is:

- Strategic transport planning and ex-ante appraisals create a feedstock of initiatives that are economically justified and consistent with the jurisdiction's goals and objectives
- The sum of the estimated costs across all justified transport initiatives indicates the justified level of transport spending across the 'portfolio' of transport initiatives
- Discussions and negotiations with Treasury Department officials then place the justified level of transport spending into a broader context – of available funding sources and jurisdiction-wide funding constraints and quantums over the forward funding period (typically 3 or 4 years)
- Once the overall funding quantum has been set by the jurisdiction, it becomes a key constraint for Government decisions over the forward funding period on: the quantum available for transport funding; and the best set of transport initiatives to fund
- Greater clarity then exists for firming up shorter-term transport system objectives and targets – and sometimes also medium and longer terms objectives and targets. It is reasonable for those objectives and targets to be moderately aspirational and to contain an element of 'stretch'. However, expectations must be kept manageable, with objectives and targets grounded in reality

- During program development and delivery (See Parts F6 and F7), several responses are available if funds fall short of the original expectations:
  - The target may be moderated
  - The time frame for achieving the target may be extended or
  - The target may be achieved for only a part of the transport system 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.

There are two ways of moderating the above trade-offs:

- New funding sources can be generated. For example, IA (2013b, 2016) has highlighted likely future funding shortfalls and raised options for dealing with any shortfalls
- Low cost non-infrastructure solutions have the potential to improve the efficiency with which existing infrastructure is used (such as cooperative ITS, and pricing options such as time-of-day pricing). This results in better use of existing infrastructure, delaying the need for high cost infrastructure expansion. What is required is:
  - The options identification and assessment stage (see Part F3) giving genuine considering to non-infrastructure options
  - Non-infrastructure options playing a more genuine role in the development of transport strategies and plans (see Parts F0.1 and F0.2).

Funding shortfalls also create trade-offs between the list of justified initiatives, since they can't all be funded. All the appraisal information about the justified initiatives—strategic alignment, and both monetised and non-monetised net benefits—is relevant to deciding which set of initiatives to fund. Importantly, use of just monetised results from the CBA (e.g. the BCR, may overlook important factors that are captured in the SMT and AST).

5.8 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 primary top-down direction of progress through the Framework, providing a driving mechanism to ensure that decision-makers are provided with strategic advice. Feedback between steps ensures that the top-down approach is informed by good bottom-up information. Bottom-up information can include analysis of data and the views of stakeholders. The learnings from one step are used to review and improve earlier steps, and to facilitate continuous improvement of outcomes and the Framework.

6. Maintaining and updating the ATAP Guidelines

The Guidelines incorporate a philosophy of learning from practical application. This philosophy recognises that the Guidelines need to be reviewed regularly to maintain best practice, remain relevant to contemporary government and community objectives, and continue to be of practical value to users.

It also means that the Guidelines should be seen as a document that is subject to a regular review, testing and updating cycle. It is expected that the Guidelines will continue be reviewed and updated in future on an ongoing basis. This is expected to continue to occur under the auspices of the Transport and Infrastructure Council in partnership with stakeholders. An ATAP Working Group has been established to facilitate this process.

7. Key terms

The Guidelines contain a Glossary of terms used. The following box identifies some important terminology from the outset.

- **Outcome:** The state or condition of a system or sub-system (e.g. level of economic activity; the level of climate change; average travel speed across a network or corridor; number of fatalities from road crashes; the level of noise alongside a particular road).
- **Goal:** Goals are statements that describe the fundamental economic, social and environmental outcomes that a jurisdiction is aiming to achieve through its activities across all sectors (not just transport). Goals sit above objectives, and above transport.
- **Objective:** Objectives are specific statements of outcomes that a jurisdiction is aiming to achieve through its transport system. Achieving transport system objectives should be the primary aim of transport strategies, policies, plans and initiatives. Objectives should be set across the various levels of planning (city, region, network, corridor, area, route, link). They should be consistent and integrated with each other, and with the transport system objectives.
- **Problem:** A problem is any aspect of transport system performance where the actual economic, social or environmental outcome falls short of the desired outcome. Problems prevent the achievement of goals and objectives. Priority problems should be identified, described and thoroughly assessed. A good understanding of a problem is necessary before the best solution to the problem can be identified.
- **Option:** An option is one of a range of ways that a problem can be addressed. Options can involve both land use and transport. They can include reform/non-investment options and investment/infrastructure options. The process of identifying a preferred solution to a problem should commence with the identification of a wide range of options, which are then subjected to rigorous assessment.
- **Solution:** A solution is an option that solves an identified problem. The preferred solution is the option considered best overall.
- **Initiative:** An initiative consists of the preferred option/solution to an identified problem. It should be the result of a structured process of identifying and assessing a problem, confirming that addressing the problem is a priority, and a rigorous assessment of a wide range of options.
- **System planning:** System planning is the strategic planning process for the entire transport system and its components. It must feature integration between transport and land use, and consistency and integration across planning levels (jurisdiction(s), markets, city and region, network, corridor and area, route and link).

Assessment, appraisal, evaluation

- These terms are often used interchangeably to mean the determination of the overall merits and impacts of an initiative. In these Guidelines, these terms are used as follows:
- **Assessment:** a generic term referring to quantitative and qualitative analysis of data to produce information to aid decision-making. The term analysis is taken to have the same meaning.
- **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 results and performance of an initiative after it has been delivered.

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