

AUS-SPEC BENCHMARK SURVEY 2009

Richard Choy, CEO, NATSPEC

Nandini Mehta, AUS-SPEC Manager, NATSPEC

Abstract

Many specifications issued by the local government and the public sector rely upon AUS-SPEC and NATSPEC. AUS-SPEC is the Local Government Specification for minor civil works and NATSPEC is the comprehensive national specification system for buildings, endorsed by government and professional bodies. Since 1997, approximately 274 Local Councils have used AUS-SPEC to provide quality and consistency for the asset management of their valuable properties. AUS-SPEC's main aim is to provide a national document that provides consistency, and a uniform approach to design decisions, construction and maintenance across Australia, as well as across each State. These specifications allow for local requirements to be implemented.

AUS-SPEC provides established, well proven, standardized and quality contract documentation which facilitates benchmarking between local governments. It provides uniformity of specifications with other local governments and also a great opportunity to learn from other Councils endeavours in achieving best practice. The commitment to quality management is the key element to effective risk control through the specifications. This paper will present the results of the 2009 AUS-SPEC benchmark survey on asset management.

Key Words: Asset Management, Benchmark, Best Practice, Construction, Design, Documentation, Local Government, Maintenance, Quality, Specification

Introduction

IPWEA partnered with NATSPEC in 2007 to develop, distribute and provide an update service for AUS-SPEC. NATSPEC has now been extended to include the planning, design, construction, maintenance and operations of minor civil works. The entire construction industry has benefited from this initiative. AUS-SPEC specification packages manage the life cycle of assets. AUS-SPEC's main aim is to provide a national document that enables consistency and a uniform approach to design decisions, construction and maintenance for buildings and minor civil works across Australia.

AUS-SPEC, through its standardized and quality documentation, can facilitate benchmarking between local governments. The AUS-SPEC Benchmark Survey will provide local Councils with information to review their asset management.

The theme of the conference *"Global Challenges, Local Solutions – Delivering for*

the Next Generation" is apt in the situation currently faced by local governments. Councils contribute to the lifestyle and health of the community through asset management. AUS-SPEC with its focus on asset management can help the Councils to not only improve their asset management strategies but help serve the community in a much more efficient way.

Federal Government's approach to asset management

At the inaugural meeting of the Australian Council of Local Government in November 2008 the Prime Minister stated:

"Local governments already play a significant role in planning the nation's infrastructure. They are responsible for 657,000 Km of roads across the nation. They have a total asset stock worth over \$214 billion.

We must improve asset management and financial management. Councils that plan and manage their assets effectively are Councils that can deliver value for money to their communities. Councils need to identify their asset needs for the coming years.”

Further, local government is being allocated unprecedented financial assistance by the Commonwealth government to deliver on the economic stimulus package. This is the largest federal investment in local infrastructure. A 2006 report by PricewaterhouseCoopers (PwC), estimated a \$1.1 billion annual shortfall in spending on the renewal of community infrastructure by local government.

Infrastructure assets

“The quality of Australia’s infrastructure is an indicator of the nation’s current and potential economic viability. It is vital that the infrastructure meets today’s needs and through careful planning, construction and maintenance tomorrow’s needs as well.”

- Peter Taylor, CEO
Engineer’s Australia, 2005.

Infrastructure is not only the glue that holds economic activity together, but it is an important economic activity in its own right.

Infrastructure assets are systems that serve defined communities where the whole system is intended to be maintained indefinitely to a specified level of service by the continuing replacement and refurbishment of its components. Infrastructure assets consist of:

- Transportation (roads)
- Parks and recreation facilities
- Water utilities (water supply, waste water and stormwater systems)
- Buildings.

AUS-SPEC further classifies each of the infrastructure assets according to the functional requirements.

Infrastructure asset management

The goal of infrastructure asset management is to meet a required level of services, in the

most cost effective manner, through the management of assets for present and future customers.

The key elements of infrastructure asset management are:

- Taking a life cycle approach
- Developing cost-effective management strategies for the long term
- Providing a defined level of service and monitoring performance
- Understanding and meeting the impact of growth through demand management and infrastructure investment.
- Managing risks associated with asset failures
- Sustainable use of physical resources
- Continuous improvement in asset management practices.

Asset management practices undertaken at a core level might include:

- Risk - identification of critical assets
- Asset registers - less detailed level of component breakdown
- Asset condition and performance – collection of data for critical assets
- Optimised decision making
- Level of service based on historical performance.

Function of asset management systems

Asset management systems have the following functions:

- Asset register
- Financial accounting
- Maintenance management
- Contract management
- Condition monitoring
- Predictive modelling
- Risk assessment
- Performance monitoring
- Life-cycle costing.

AUS-SPEC with its systematic approach to asset management assists the Councils in applying these functions to maintain their assets.

Need for Asset management

"Asset management may be defined as a comprehensive and structured approach to the long term management of assets as tools for the efficient and effective delivery of community benefits. The emphasis is on the assets being a means to an end, not an end in themselves." (Austroads 1997 Strategy for Improving asset management practice).

Asset management is the combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost-effective manner. It is a key element of the Council's integrated planning.

The first rule of asset management is maintenance. *Assets not maintained are assets lost.* Assets that are not maintained will decline in quality, eventually becoming so degraded that they become an aesthetic, social or environmental hazard.

Asset Management is a key function that must be performed by the Local Government entities. Councils look after a broad range of infrastructure assets to deliver services to the community. Four asset groups that dominate the annual cost of sustaining assets are:

- Parks and recreational facilities
- Roads (sealed and unsealed)
- Footpaths
- Stormwater drainage and
- Buildings

Average annual asset consumption (AAAC) is an indication of what the annual reinvestment in assets is needed in the longer term. Failure to meet AAAC will result in asset and service failure.

Councils need to ensure that these assets can deliver the services that the community requires now and into the future. Councils are responsible for providing 'sustainable' services and maintaining a lifestyle for their communities.

This will only be achieved by considering the 'whole of council' approach and improved financial and engineering management of the assets. Getting Asset Management 'right' is

one of the most important challenges Councils (and Councillors) face in the medium to longer term.

AUS-SPEC provides a structured approach for the construction and maintenance of assets. Benchmarking condition and performance requirements of assets within similar organisation promotes innovation and efficiencies.

Life cycle of asset management

'Life cycle of an asset' is the time interval that commences with the identification of the need for an asset and terminates with the decommissioning of the asset or any liabilities thereafter.

Life cycle management considers all management options from planning to disposal. It includes:

- Asset planning
- Asset creation/acquisition
- Financial management
- Asset operations and maintenance
- Asset condition/ performance
- Asset rehabilitation/replacement
- Asset disposal
- Asset management review.

A "Life Cycle Management Plan" should contain the following:

- Routine Maintenance Plan
- Renewal/Maintenance Plan
- Creation/Acquisition/Augmentation Plan
- Disposal Plan
- Physical Parameters
- Asset Capacity Performance
- Asset Condition
- Asset Valuations
- Historical Data.

Level of service

'Level of service' can be defined as the service quality for a given activity. Levels of service are often documented as a commitment to carry out a given action or actions within a specified time frame in response to an event or asset condition data. It is also the standard that is to be achieved

and the benchmark against which performance can be measured. It can be of two types:

Customer level of service includes:

- Quality
- Function
- Safety
- Amenity

Technical level of service includes:

- Condition
- Cost effectiveness
- Statutory compliance
- Security

The clear documentation of levels of service is essential for the preparation of structural plans, asset management plans and business cases. It also represents a balance between the needs and the funding and affordability over time. After establishing the level of service, the risk management principles are applied to identify the critical assets.

Risk management

According to AS/NZS 4360, risk management involves establishing an appropriate infrastructure and applying a logical and systematic method of establishing the context, identifying, analysing, evaluating, treating, monitoring and communicating risks associated with any activity, function or process in such a way that it enables an organisation to minimise losses and maximise gains.

As a first step it is essential to identify the critical assets and identify the risks associated to outline the risk management strategies. Different types of surveys including benchmark surveys, condition assessment, quality performance and specialist surveys for each component of the asset are undertaken.

For managing the risks, AUS-SPEC specifications help in the decision making process and thereby help in analysing, treating, monitoring and reviewing the risks associated with critical assets.

In order to minimise risk, achieve quality and value for money, it is essential to ensure that the specification in the contract documentation is the right specification. A specification should clearly state the service required and a level of service that is neither understated nor over specified.

Further regular inspections, conditions assessment and quality performance surveys of assets assist in managing and minimising risk.

Condition assessment

Condition assessment is a tool to assist asset managers in managing their assets. It reflects the physical state of the asset which may or may not affect its performance. It is also used to determine the useful life and the remaining life of an asset. It is critical that the Councils should have a clear knowledge of the condition of their assets and how they are performing. The core approach focuses on the data collection on managing risks associated with critical assets and monitoring key performance measures.

National Asset management Strategy Group of IPWEA (NAMS.AU) has recognised the need for industry Guidelines for Condition Assessment and Asset Performance. A series of Practice Notes are being researched and published to assist asset management practitioners in the important task of how best to carry out condition assessments for various classes of assets.

Condition assessment in AUS-SPEC

AUS-SPEC TECHguides provide guidelines for condition assessment of different assets as follows:

Condition assessments will result from either the cleaning and maintenance teams noting the defects during routine operations or from planned condition inspections. Defects or actions from the former will be corrected as they are found except when a Work Order from the Superintendent is required. Regardless of which method initiates the work, the reporting units will be recorded and summarised at the end of the month.

Formal inspections will identify and record the location in the building/facility or a particular asset and the distress types where the Recording Level (RL) for distress or activity has been reached. Such activity shall be entered in the Maintenance Defect Register (MDR).

Maintenance defects register is the engine of the whole road maintenance system. This has helped the Councils to move away from the reactive complaints driven system to programmed maintenance.

Proactive approach

A paper by Tom Yelland, Bankstown City Council, 2003, *From reactive to proactive road maintenance* received the E.J. (Ted) Hooper Medal for best paper in 2003 at the IPWEA's International Public Works Engineering Conference in Hobart. This paper outlines the experiences of Civic Roads in changing from reactive complaints driven system of road maintenance, to one involving inspection of assets, recording of defects and programming maintenance works provided by AUS-SPEC.

An asset centric approach to road maintenance by Hans Meijer Penrith City Council, Andrew Ling from Parramatta City Council and Bill Woodcock from Complete Urban was presented at the IPWEA NSW State Conference 2009. This paper highlights that by providing a proactive road reserve maintenance using the AUS-SPEC maintenance systems we can ensure our community can look forward to a safe future.

Good Asset Management Practice ('GAMP') dictates that a proactive approach to asset management is required and this will entail a planned approach to condition monitoring. Many Councils do not have a proactive approach to condition assessment (they usually 'run to failure' and allow the customer to detect problems and report them (through an Action Request System). GAMP dictates a proactive approach where Reactive maintenance is reduced and planned maintenance plays an integral part in ensuring the best results for maintenance. However, as indicated GAMP is not just about maintenance (nor is condition

monitoring) as the long term financial planning and ensuring 'critical' assets receive appropriate longer term capital funding is also a key to GAMP. On going condition monitoring (assessment) could also be a key to calculating fair value and ascertaining the risk level associated with assets (in poor condition). Hence GAMP dictates that a proactive approach to condition assessment is an essential ingredient and the Councils should be allocating resources to continuous condition monitoring and control.

Benchmarking – A tool for asset management

Benchmarking is a business excellence tool for finding, adapting and implementing outstanding practices in order to improve performance. Benchmarking comprises:

- Prioritisation of strategic improvement needs
- Measurement of key performance indicators
- Practices
- Re-measurement to track performance improvement.

The critical factors for successful benchmarking are:

- The right things to benchmark
- The right people to involve
- A common understanding of what is involved
- A thorough understanding of your own situation
- Choosing suitable partners
- Turn ideas/information into practical improvement projects
- Manage the improvements
- Benchmarking is a continuous process.

International Infrastructure Management Manual (2006) states that benchmarking is useful for:

- Assessing performance and practices in asset construction and acquisition
- Assessing cost and quality in maintenance operations.

- Assessing best practice in utilising assets in revenue producing situations.
- Assessing performance in meeting service standards.

Benchmarking in AUS-SPEC

AUS-SPEC TECHguides state that benchmarking is possible with other organisations using the AUS-SPEC specification, as the work process and the outcome are effectively the same.

The implementation of AUS-SPEC, facilitates improvement of the system progressively, and provides the asset owner with the control and historical data that allows the organisation to competently improve the management of the assets. AUS-SPEC systems minimise risk and provide a sound asset management approach that has major benefits for Councils Australia wide.

AUS-SPEC is an aid to benchmarking between local governments.

Steps in benchmarking

Benchmarking process involves the following few stages:

- Develop critical Key Performance Indicators (KPIs)
- Understand what KPIs others use for the same processes/functions
- Compare (Benchmark) your KPI performance results with other organisations
- Accelerate your Improvement by learning best practices implemented by others (Benchmarking).

Key Performance Indicators

A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or a target.

For benchmarking there is a need to analyse the existing processes and develop key performance indicators for each asset group.

AUS-SPEC benchmark survey

“Striving for best practice is like running in a race without a finish line.”

David Kearns, Chairman of the Xerox Corporation (1992).

Best practice constantly changes, and continuous benchmarking can help an organisation identify what it needs to do in order to remain in the race. The main aim of the benchmarking is to discover what the, best practices are that lead to superior performance in identified areas for critical need.

The main purpose of the AUS-SPEC benchmark survey is to provide indicators for different Councils to assess priority actions for their asset management.

The AUS-SPEC Benchmark Survey in Appendix A includes questions on the general corporate overview, asset management plans, asset condition analysis, asset information, performance measurement for each of the following asset groups:

- Contracts
- Park
- Buildings
- Roads
- Bridges
- Water supply and Sewerage systems
- Stormwater drainage.

Best practice

Best practices can be defined as:

“... processes, practices and systems identified in public and private organisations ... performed exceptionally well and ... widely recognized as improving an organisation’s performance and efficiency in specific areas.”

- US General Accounting Office (1995).

The key elements of best practice are:

- A systematic analysis of service delivery
- Improving the understanding of performance measurement processes

- Determining the concept of 'effective service'
- Improving communication between organisations who deliver like services or who have like processes
- Linking with, and improving the understanding of, other management tools.

Conclusion

The advantages of national consistency are well established. Regulations, standards, products and construction techniques are essentially national in nature. NATSPEC and AUS-SPEC specifications have been developed to establish common language amongst professionals, reflect current industry practice and provide up-to-date references to regulations and standards. The objective is to achieve a consistent, efficient, effective and a uniform approach to quality and documentation.

A well maintained purpose-built technical specification system is a key component in producing quality documentation. The benefits of quality documentation include reduced project ambiguities, variations and re-work and a reduced likelihood of legal action due to contractual disputes. It is only through quality documentation that clients can be assured of a quality result.

National specification templates provided by AUS-SPEC help to maintain and improve the quality of documentation.

Benchmarking is an ongoing process for finding improved ways of doing things. It is the process that starts from identifying an area for improvement and ends in enhancing the quality of its services. This survey provides an opportunity to learn from other Councils' endeavours in achieving best practice.

Each local Council can use the survey to determine the priorities of their asset management plans. AUS-SPEC encourages the Councils to communicate through groups such as IPWEA, NAMS.AU and the Local Government associations to learn from each others experiences.

References

Andrew Ling, Bill Woodcock, Hans Meijer (2009), *An asset centric approach to road maintenance*.

AS/NZS 4360:2004, *Risk management*.

AUS-SPEC Maintenance *TECHguides*.

Australian Council of Local Government
<http://www.aclg.gov.au/>

Austrroads AP-R204/02, (2002), *Road Network Asset Management: International Benchmarking Study*.

Benchmarking for local government – A practical guide for local government Minister's conference benchmarking project 2001.

Darron Passlow, Wingecarribe Shire Council, (2009), *Good asset management practices*.

Engineer's Australia, (2005), *Australian infrastructure report card*.

Institute of Public Works Engineering Australia (2006), *International Infrastructure Management Manual*, Sydney.

IPWEA Practice Note 3, (2009), *Building condition and performance assessment guidelines*.

PriceWaterhouseCoopers (2006), *National Financial Sustainability of Local Government*, for Australian Local Government Association of Australia, Canberra.

South Australia Local Government, (2001), *A Wealth of Opportunities: A Study into Infrastructure Asset Conditions in South Australia*.

Tom Yelland and Joseph Reginold, (Oct/Nov 2003), *From reactive to proactive road maintenance*, Public Works Engineering Journal.

US General Accounting office (1995), *Best practices methodology: A new approach for improving government operations*. Washington D.C.

Biography (100 words):

Author Biography



Richard Choy is the Chief Executive Officer of NATSPEC, publisher of the National building specification of Australia. An engineer by profession, he has been involved in the design and construction industry for over 30 years. Richard has been involved with most building types and building materials from both a design and construction supervision perspective. He was the inaugural Executive Director of the Steel Reinforcement Institute of Australia, Federal President of the Concrete Institute of Australia and Vice-President of the Building Science Forum of Australia. He has participated on MBA and Standards Australia Committees and has presented on a wide range of subjects both domestically and internationally.

Postal Address: Richard Choy, Level 4, 217 Clarence Street, Sydney, NSW 2000

E-mail: rchoy@natspec.com.au

Website: www.natspec.com.au



Nandini Mehta is the AUS-SPEC Manager at NATSPEC, publisher of the National building specification of Australia. She has been responsible for the integration of AUS-SPEC specifications into the National Classification Structure. A civil/structural engineer by profession, she has been involved in the design and construction industry for over 15 years. Nandini joined NATSPEC as a Senior Engineer 4 years ago and has worked on various NATSPEC publications including TECHguides, TECHnotes, TECHreports and has developed a number of new specification worksections. Prior to joining NATSPEC she was a Design Engineer working in the Middle East on several prestigious projects in the UAE with many international organizations including Multiplex, Murray & Roberts, WS Atkins etc. She has a wide range of expertise in the construction of high rise buildings and civil works.

Postal Address: Nandini Mehta, Level 4, 217 Clarence Street, Sydney, NSW 2000

E-mail: nmehta@natspec.com.au

Website: www.natspec.com.au

Council Details

Contact Details

Council Name:

Contact Name:

Title:

State:

Email Address:

Phone Number:

Australian Classification for Local Government (ACLG). [Click here](#) for structure of the classification system.

	Urban	Rural
Category	<input type="text"/>	<input type="text"/>

Do you use AUS-SPEC for:

	Yes	No
Bridges	<input type="text"/>	<input type="text"/>
Building	<input type="text"/>	<input type="text"/>
Contracts	<input type="text"/>	<input type="text"/>
Parks	<input type="text"/>	<input type="text"/>
Roads	<input type="text"/>	<input type="text"/>
Sewerage	<input type="text"/>	<input type="text"/>
Stormwater Drainage	<input type="text"/>	<input type="text"/>
Water Supply	<input type="text"/>	<input type="text"/>

Table F.1 Structure of the classification system

Step 1	Step 2	Step 3	Identifiers	Category
URBAN (U)	Capital City (CC)			UCC
Population more than 20 000	Metropolitan Developed (D) Part of an urban centre of more than 1 000 000 or population density more than 600/sq km	Small (S) Medium (M) Large (L) Very Large (V)	up to 30 000 30 001-70 000 70 001-120 000 more than 120 000	UDS UDM UDL UDV
OR				
Population density more than 30 persons per sq km	Regional Towns/City (R) Part of an urban centre with population less than 1 000 000 and predominantly urban in nature	Small (S) Medium (M) Large (L) Very Large (V)	up to 30 000 30 001-70 000 70 001-120 000 more than 120 000	URS URM URL URV
OR				
90 per cent or more of LGA population is urban	Fringe (F) A developing LGA on the margin of a developed or regional urban centre	Small (S) Medium (M) Large (L) Very Large (V)	up to 30 000 30 001-70 000 70 001-120 000 more than 120 000	UFS UFM UFL UFV
RURAL (R)				
An LGA with population less than 20 000	Significant Growth (SG) Average annual population growth more than 3 per cent, population more than 5 000 and not remote	Not applicable		RSG
AND				
Population density less than 30 persons per sq km	Agricultural (A)	Small (S) Medium (M) Large (L) Very Large (V)	up to 2 000 2 001-5 000 5 001-10 000 10 001-20 000	RAS RAM RAL RAV
AND				
Less than 90 per cent of LGA population is urban	Remote (T)	Extra Small (X) Small (S) Medium (M) Large (L)	up to 400 401-1 000 1 001-3 000 3 001-20 000	RTX RTS RTM RTL

(Department of Housing and Regional Development, 1994)

General

What is the percentage of staff engaged in Asset Management?

%

Do you undertake a survey to identify the progress of your Asset Management Plans?

Greater than 24 months

Every 24 months

Every 18 months

Every 12 months

Every 6 months

Every 3 months

What General Conditions of Contract are used for compilation of contracts?

AS 2124

AS 4000

NPWC3

GC21

Other (please specify)

Parks

For parks, what is the progress with the drafting of Asset Management Plans in your Council?

25%

50%

75%

100%

What is the capital expenditure per capita for parks?

Expenditure (\$/capita)

What is the maintenance expenditure per capita for parks?

Expenditure (\$/capita)

What is the cost/sqm to maintain the area of open space?

Cost/sqm

What is the frequency of mowing - playing fields and passive areas?

Frequency (weeks)

What number of ovals/playing fields are equipped with irrigation systems?

Number

What percentage of recycled water is used for irrigation?

%

AUS-SPEC Asset Management Benchmark Survey 2009

Buildings

For buildings, what is the progress with the drafting of Asset Management Plans in your Council?

25%

50%

75%

100%

What is the percentage of accuracy of the available conditions data?

	10-20%	20-40%	40-60%	60-80%	80-100%
Percentage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What is the total number of building assets?

Number

What is the annual maintenance cost/sqm?

\$/m²/per annum

What is the replacement capital value per capita?

Replacement value (\$/capita)

What is the percentage of assets under the current condition assessment category?

%

What is the overall condition rating of building assets? [Click here](#) for Alternative Building Condition Rating Model.

	10 (Failed)	9	8	7	6	5	4	3	2	1	0 (New)	N/A
Building assets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What is the energy consumption/sqm of your building assets?

Mega Joules/m²

Appendix 4 Continued

Alternative Building Condition Rating Model using 1-10 Scale

The following Table on building asset condition rating is as used by the Moloney Modelling process in Victoria and Tasmania as part of their respective Municipal/Local Government Association Asset Improvement Programs.

The perceived advantage of the 0-10 scale is that a misjudgement in rating scale of 1 increment means a 10% error whereas with 1-5 rated model it is 20%. Also it is easier to transpose a 0-10 scale to 1-5 than the other way round. The moral being that if in doubt use a 1-10 scale which can be readily changed to 1-5 at a later stage if necessary.

However what is important is that a consistent scale is used so that condition trends can be detected.

An advantage of having the high rating number representing the worst condition is that it is easier to build into risk assessment models as the higher the number the greater the risk. The reverse arrangement is not so easy to use whereby the lowest number represent the highest risk.

Table: Condition Rating Scale

Rating	Condition Rating Description
0	A new asset or an asset recently rehabilitated back to new condition.
1	A near new asset with no visible signs of deterioration often moved to condition 1 based upon the time since construction rather than observed condition decline.
2	An asset in excellent overall condition. There would be only very slight condition decline but it would be obvious that the asset was no longer in new condition.
3	An asset in very good overall condition but with some early stages of deterioration evident, but the deterioration still minor in nature and causing no serviceability problems.
4	An asset in good overall condition but with some obvious deterioration evident, serviceability would be impaired very slightly.
5	An asset in fair overall condition deterioration in condition would be obvious and there would be some serviceability loss.
6	An asset in Fair to poor overall condition. The condition deterioration would be quite obvious. Asset serviceability would now be affected and maintenance cost would be rising.
7	An asset in poor overall condition deterioration would be quite severe and would be starting to limit the serviceability of the asset. Maintenance cost would be high
8	An asset in very poor overall condition with serviceability now being heavily impacted upon by the poor condition. Maintenance cost would be very high and the asset would at a point where it needed to be rehabilitated.
9	An asset in extremely poor condition with severe serviceability problems and needing rehabilitation immediately. Could also be a risk to remain in service
10	An asset that has failed is no longer serviceable and should not remain in service. There would be an extreme risk in leaving the asset in service.

Roads

For roads, what is the progress with the drafting of Asset Management Plans in your Council?

25%

50%

75%

100%

What is the percentage network of concrete roads?

%

What is the percentage network of sealed roads?

%

What is the percentage network of unsealed roads?

%

What is the maintenance cost/km per annum of sealed roads?

\$/km/annum

What is the maintenance cost/km per annum of unsealed road?

\$/km/annum

What is the percentage of road network resurfaced each year?

%

What is the cost/km on the routine road maintenance?

\$/km

What is the km of footpath per incident per annum?

km/incident/annum

What is the km per defects request of roads per annum?

km/defect/annum

What is the annual footpath replacement cost per km/annum?

\$/km/annum

Bridges

For bridges, what is the progress with drafting Asset Management Plans in your Council?

25%

50%

75%

100%

What is the percentage of the different types of bridges in your Council area?

Timber bridges (%)

Steel bridges (%)

Concrete bridges (%)

What is the average maintenance cost per annum for:

Timber (\$/per annum/bridge)

Steel (\$/per annum/bridge)

Concrete (\$/per annum/bridge)

What is the percentage of bridges renewed in the past 5 years

%

Do you outsource the bridge inspection?

Yes

No

What is the frequency of bridge Structural certification in years?

Frequency (in years)

Water Supply

Is the local Council responsible for water supply systems?

Yes

No

Has your Council adopted WSUD (Water Sensitive Urban Design) as a standard?

Yes

No

What is the maintenance cost per km for water supply systems?

\$/km

Sewerage Systems

Is the local Council responsible for sewerage systems?

Yes

No

What is the Environmental index (Pollutant discharge per capita) of the sewerage system?

Environmental index

What is the effluent water for reuse index (i.e. Volume of effluent captured/potable water supplied)?

Reuse index

What is the maintenance cost per km for sewerage systems?

\$/km

Stormwater Drainage

For stormwater drainage, what is the progress with the drafting of Asset Management Plans in your Council?

25%

50%

75%

100%

What percentage of your network has CCTV info?

%

What is the percentage of stormwater assets requiring renewal?

%

What is the percentage of assets with SQID (Stormwater Quality Improvement Device):

%

What is the stormwater capture for reuse index (i.e. Volume of stormwater captured/potable water supplied)?

Reuse index