Local Government Association of South Australia

Sustainable Asset Management in SA

GUIDELINES

For

Infrastructure and Asset Management Plan Template

DRAFT V6 FOR PILOT COUNCIL REVIEW

Prepared by

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INTRODUCTION

These guidelines are provided to assist council staff and others in developing infrastructure and asset management plans for asset categories.

The infrastructure and asset management plan template is developed from Appendix A: Asset Management Plan Structure from the International Infrastructure Management Manual.¹

The template is a ‘core’ infrastructure and asset management plan to primarily meet the needs of smaller councils but be a resource for larger and more advanced councils.

It follows the recommended structure of the IIMM and uses MS Word ‘macrobuttons’ to indicate where data is required.

‘Macrobuttons’ are tools that show where data is required and what is required. An example is shown below.

“[ Click here & type Council name ]” indicates that the user should click on the macrobutton and type the council name.

The template includes:

- An infrastructure and asset management plan template;
- A financial model producing the projected cashflow charts and programs;
- A template for a risk management plan for risks associated with providing services from infrastructure;
- A risk register MS Excel Workbook producing tables for the risk management plan for:
  - Risk Identification
  - Risk Analysis
  - Risk Evaluation
  - Risk Treatment; and
  - Treatment Plan.

The template and guidelines contain examples to guide councils in completing the plans. The sample text is an example only and should not be used in the final document without consideration and review by the team compiling the infrastructure and asset management and risk management plan to ensure that the text used in the plans are applicable to each individual council.

¹ IPWEA 2006, pp A1 - A5
1. EXECUTIVE SUMMARY

What Council Provides?

This is a summary of the services council provides with associated partners and the assets used to provide the services.

What does it Cost?

This details the life cycle cost (asset consumption plus maintenance expenditure), current life cycle expenditure (capital renewal plus maintenance expenditure, any gap in life cycle cost funding and the effects of any gap.

This data is from Section 6.1.1 of the infrastructure and asset management plan.

The gap may be:
- Shortfall in road resurfacing/resealing;
- Due to the timing of future road pavement renewals where the asset stock is relatively new and renewals are many years away;
- Shortfall in building maintenance and renewal expenditure.

The service effects may relate to:
- Some sealed roads may revert to unsealed surface;
- Use of some buildings may be restricted to uses that suit existing functionality for purpose.

Plans for the Future

This section details council’s plans to operate the assets to achieve its strategic service objectives. These may include:
- Ensure the road network is maintained at a safe and functional condition as set out in this infrastructure and asset management plan;
- Ensure the CWMS scheme is operated to meet licence conditions and treated effluent is returned to the environment with causing harm;
- Ensure buildings are fit for purpose and safe for community use within available resources.

Measuring our Performance

This section details the target service levels that are planned to be provided under this infrastructure and asset management plan. These are generally the community level of service documented in Section 2.4 of the plan grouped into three themes, Quality, Function and Safety.

Community Consultation

Community consultation is an essential part of asset management planning to ensure that the services required by the community are provided in an economical manner at a level that the community can afford.

This section details consultation proposed to inform the community of the issues covered by this infrastructure and asset management plan and to seek community consideration, comment and input to service delivery in the future and to improve the infrastructure and asset management plan.

2. INTRODUCTION

2.1 Background

Ref IIMM Sect 1.1.1 - 1.1.3, pp 1.2 1.3

This section record the strategic planning reports and other documents used in the preparation of this infrastructure and asset management plan, summarises the assets covered by the plan, the key stakeholders and their role in the plan.
Enter the summary asset (sub)categories, dimensions and replacement values in Table 2.1. Sum and enter the total replacement value.

2.2 Goals & Objectives of AM
Ref IIMM Sect 1.1.4, p 1.4

Sets out goals and objectives of asset management, council’s vision, mission, goals and objectives and how these are addressed on the infrastructure and asset management plan. See council’s Strategic Management Plan for these details.

2.3 Plan Framework
Ref IIMM Sect 2.5, p 2.39 – 2.49

Sets out the key elements of the plan. Reference IIMM, Fig 1.5.1. summarised below.

Road Map for preparing an Asset Management Plan

- CORPORATE PLANNING
  Confirm strategic objectives and establish AM policies, strategies & goals.
  Define responsibilities & ownership.
  Decide core or advanced AM Plan.
  Gain organisation commitment.

- REVIEW/COLLATE ASSET INFORMATION
  Existing information sources
  Identity & describe assets.
  Data collection
  Condition assessments
  Performance monitoring
  Valuation data

- DEFINE SCOPE & STRUCTURE OF PLAN

- ESTABLISH LEVELS OF SERVICE
  Establish strategic linkages
  Define & adopt statements
  Establish measures & targets
  Consultation

- LIFECYCLE MANAGEMENT STRATEGIES
  Develop lifecycle strategies
  Describe service delivery strategy
  Risk management strategies
  Demand forecasting and management
  Optimised decision making (renewals, new works, disposals)
  Optimise maintenance strategies

- FINANCIAL FORECASTS
  Lifecycle analysis
  Financial forecast summary
  Valuation Depreciation
  Funding

- IMPROVEMENT PLAN
  Assess current/desired practices
  Develop improvement plan

- ITERATION
  Reconsider service statements
  Options for funding
  Consult with Council
  Consult with Community

- ANNUAL PLAN / BUSINESS PLAN
2.4 Core and Advanced AM

Ref IIMM Sect 1.3, p 1.9

Defines ‘core’ and advanced’ asset management practises. The LGA aims to have all councils in SA at a ‘core’ level of AM capability and encourages progress towards ‘advanced’ capability for advanced councils as appropriate to their needs.

3. LEVELS OF SERVICE

3.1 Customer Research & Expectations

Ref IIMM Sect 3.1 pp3.3 – 3.6

The template provides a commentary indicating that council has not undertaken research on customer expectations and this will be considered in updates of the IAMP and an alternate using the LGA Comparative Performance Measures in Local Government and other surveys.

Delete whichever is not applicable

Document council’s customer research including the LGA Comparative Performance Measures in Local Government surveys.

Show your council satisfaction level for Performance Measure 5.2.5 Community satisfaction with asset management in Table 2.1. This measures ‘satisfaction with the provision and management of community assets/infrastructure’. Highlight and move the √ in the table to the appropriate satisfaction level.

If you have additional information on customer research for service delivery, add it to IAMP template.

3.2 Legislative Requirement

Ref Australian and State legislation

This section is common across all council for each IAMP. Information sharing between councils of research into this area will maximise use of resources in identifying applicable legislation.

3.3 Current levels of Service

Ref IIMM Sect 3.1, PP 3.7 – 3.16

Levels of services are proposed under 3 themes
- Quality
- Function
- Safety

Examples of sample service level measures are shown in Table 3.3.1.

Develop appropriate service levels for your council taking into account the knowledge that you have and the resources available to collect and manage the data required to generate the service level performance measures using the example in Table 3.3.1 and replace the text in the example shown in Table 3.3 of the IAMP template.
### Table 3.3.1  Sample Service Levels for Transport Services

<table>
<thead>
<tr>
<th>Key Performance Measure</th>
<th>Level of Service</th>
<th>Performance Measure Process</th>
<th>Performance Target</th>
<th>Current Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMUNITY LEVELS OF SERVICE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>Provide a smooth ride</td>
<td>Customer service requests</td>
<td>Less than 10 per month</td>
<td>12 per month (2005 average)</td>
</tr>
<tr>
<td>Function</td>
<td>Ensure that the road meets user requirements for travel time and availability</td>
<td>Customer service requests relating to travel time and availability</td>
<td>Less than 2 per month</td>
<td>5 per month (2005 average)</td>
</tr>
<tr>
<td>Safety</td>
<td>Provide safe suitable roads, free from hazards</td>
<td>Number of injury accidents</td>
<td>Less than 20 per annum</td>
<td>25 (2005)</td>
</tr>
<tr>
<td><strong>TECHNICAL LEVELS OF SERVICE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>Carry out routine maintenance grading as per service level agreement</td>
<td>Grading frequency (times per year)</td>
<td>Trunk Roads 4/yr Collectors 2/yr Dwelling access 4/yr Property access 0.5/yr</td>
<td>3.6 – Trunk Roads 1.5 – Collectors 0.6 – dwelling access 0.7 – property access (2005 averages)</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Provide all weather access to trunk collector and dwelling access road</td>
<td>Duration and frequency of road being impassable</td>
<td>Less than 4 hours when road is impassable per year at no more that 2 locations</td>
<td>5 events of 3 hours with road impassable at one location (2005)</td>
</tr>
<tr>
<td>Cost effectiveness</td>
<td>Provide services in cost-effective manner</td>
<td>Maintenance cost /$km</td>
<td>Trunk roads $4,000/km Collectors $2,000/km Dwelling access $1,000/km Property access $500/km</td>
<td>Trunk roads $3,000/km Collectors $2,500/km Dwelling access $800/km Property access $800/km</td>
</tr>
<tr>
<td>Safety</td>
<td>Provide clear safety signage</td>
<td>Annual defect &amp; condition survey</td>
<td>Less than 5% of signs with defects</td>
<td>25% with defects (2005)</td>
</tr>
</tbody>
</table>

3.4 Desired Levels of Service
Ref IIMM Sect 3.1.4 – 3.1.5, pp 3.16 – 3.1.26
The ‘core’ infrastructure and asset management plan is based on maintaining existing levels of service.

It is proposed that future improvements to the IAMP will investigate and quantify desired levels of service. Many consultations on levels of service have returned the conclusion that the community is relatively satisfied with existing service levels.

4. FUTURE DEMAND
4.1 Demand Forecast
Ref IIMM Sect 3.2 pp 3.2.7 – 3.4
This section documents available information and research on demand factors such as population, demographics, agricultural practices, etc.

In Table 4.1, show the relevant demand factor, the present position, forecast projections and the impact on council’s services. Examples are:
### 4.2 Changes in Technology

Show any forecast changes in technology and its effect on service delivery in Table 4.2. These may include:

- unavailability of parts for specialist plan and equipment;
- loss of source of suitable bridge timber;
- loss of support for ageing computer process control equipment.

Alternate wording is provided for where technology changes are forecast to have some or little impact on service delivery. Complete the relevant section and delete whichever is not applicable.

### 4.3 Demand Management Plan

Ref IIMM Sect 3.2.4, pp 3.35 – 3.38

This section documents demand management practices. Opportunities identified in the IAMP are to be shown in Table 4.3. Examples of demand management plans are shown below.

<table>
<thead>
<tr>
<th>Service activity</th>
<th>Demand management plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage</td>
<td>New developments in drainage deficient areas to include on-site retention of storm flows to limit discharge to existing pre-development discharge flows.</td>
</tr>
<tr>
<td>Recreation</td>
<td>Encourage sharing of facilities to avoid duplication.</td>
</tr>
<tr>
<td>Transport - bridges</td>
<td>Load limits to be placed on bridges in poor condition, where reasonable alternate access is available.</td>
</tr>
<tr>
<td>CWMS</td>
<td>Development areas to be identified that will maximise use of existing CWMS assets without major upgrade.</td>
</tr>
</tbody>
</table>

Demand for new services is to be managed through a combination of managing existing assets, upgrading existing assets and providing new assets to meet demand and managing demand.
4.4 New Assets from Growth

Where new assets are required for growth, these will be constructed by developers and donated to council and constructed/acquired by council. The growth financial model forecasts asset values acquired from developers and constructed/acquired by council over the next 20 years.

A Growth Model is provided with this template.

Copy and paste the projected new assets to meet demand graph from the growth model into the IAMP template as Fig 2.

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed service levels (defined in Section 3) while optimising lifecycle costs.

5.1 Background Data
Ref IIMM Sect 1.4, p 1.10

5.4.1 Physical parameters

This section summarises the physical assets covered by the IAMP. Examples are:

Sealed roads
- Arterial roads: 28 km
- Collector roads: 76 km
- Local roads: 225 km
- Sub total: 327 km

Unsealed roads
- Rural arterial roads: 56 km
- Rural collector roads: 250 km
- Dwelling access roads: 550 km
- Property access roads: 446 km
- Sub total: 1,302 km

Total: 1,627 km

CWMS
- Treatment plants: 3
- Pump stations: 25
- 100 mm dia reticulation mains: 55 km
- 150 mm dia trunk mains: 10 km
- 225 mm dia trunk mains: 3 km
- 150 mm rising mains: 15 km

Buildings and community facilities
- Public halls: 7
- Public libraries: 3
- Sports/recreation buildings: 15
- Public toilets: 6
- Swimming Pools: 5
- Corporate buildings: 7
- Council houses: 2

Include a commentary of asset mix, location and issues such as:
• Three of the CWMS schemes are over 50 years in age. Little maintenance has been carried out on these schemes since initial construction.

• Council has 15 sports buildings located in five locations throughout the council area. A typical sports ground has three clubrooms, each used by a different sports group at different times and seasons. Little maintenance has been carried out on the buildings and many require extensive renewal and in many cases, replacement.

Include graph of size and/or age distribution where available as Fig 3.

Include (or reference to) overall plan of asset system or network if available.

5.1.2 Asset capacity & performance

This section details asset capacity & performance (service deficiency) details where available in Table 5.1.2. Show available data in summary form with reference to source. An example is shown below.

<table>
<thead>
<tr>
<th>Location</th>
<th>Service deficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road network</td>
<td>Two thirds of roads are located on reactive clay subgrades which result in service</td>
</tr>
<tr>
<td></td>
<td>lives one third of roads on good subgrades.</td>
</tr>
<tr>
<td>CWMS</td>
<td>Five pump stations are subject to regular breakdown.</td>
</tr>
<tr>
<td></td>
<td>Two treatment plans are hydraulically overloaded in wet weather and effluent spills</td>
</tr>
<tr>
<td></td>
<td>occur on average once per year.</td>
</tr>
<tr>
<td>Recreation</td>
<td>facilities</td>
</tr>
<tr>
<td></td>
<td>A typical sports ground has three clubrooms, each used by a different sports group</td>
</tr>
<tr>
<td></td>
<td>at different times and seasons. Little maintenance has been carried out on the</td>
</tr>
<tr>
<td></td>
<td>buildings and many require extensive renewal and in many cases, replacement.</td>
</tr>
</tbody>
</table>

Record the document source(s) for this information.

5.1.3 Asset Condition

Ref IIMM Sect 3.3, pp 3.39 - 3.48

This section summarises asset condition where known.

Insert graph of condition profile if available as Fig 4.

The guidelines propose a standard method of reporting condition using the 1 (very good) to 5 (very poor) condition method recommended in IIMM².

5.1.4 Asset Valuations

Ref IIMM Sect 3.7.3, pp 3.120 – 3.131

This section summaries asset values from council’s asset register and Annual Financial Reports. Record the financial reporting date (30 Jun 20XX), year of last revaluation and whether values are greenfield or brownfield.

Standard financial values are:

• Current replacement cost
• Carrying value (depreciated replacement cost or written done value = replacement value less accumulated depreciation)
• Annual depreciation expense.

Measures of asset consumption, renewal and upgrade are:

² IPWEA, 2006, Appendix B, p B1
- Asset consumption (depreciable amount* / annual depreciation expense) expressed as a percentage of depreciable amount (generally 1 - 2%)
- Asset renewal (depreciable amount* / annual capital renewal expenditure) expressed as a percentage of depreciable amount.
- Asset upgrade (depreciable amount* / annual capital upgrade and expansion expenditure) expressed as a percentage of depreciable amount.

Note * Depreciable amount (DA) is current replacement cost (CRC) less residual value (RV). Residual value includes the value of earthworks/formation (EF) where not depreciated plus residual value recognised where assets are renewed at a cost less that replacement value.

\[ DA = CRC - RV \]
\[ RV = EF + [CRC - Renewal Cost (where renewal cost is less that CRC)] \]

Comparison of asset consumption and asset renewal measures will give an indication of whether physical operating capability is being maintained (ie assets are being renewed as they are being consumed on average).

Comparison of asset renewal and asset upgrade measures will give an indication of the relative priorities for maintaining the council’s physical operating capability and providing new assets and services.

5.2 Risk Management Plan
Ref IIMM Sect 3.4, pp 3.53 – 3.76
This section summarises the recommendations of the Infrastructure Risk Management Plan prepared in conjunction with the IAMP for risks assessed as ‘Very High’ – requiring immediate corrective action and ‘High’ – requiring prioritised action. Copy the risks, source of risks, risk rating and summary of risk treatment plans for these risks from Table 7.4 of the Infrastructure Risk Management Plan into Table 5.2. Add reference to the council’s infrastructure risk management plan in footnote #3 in Section 5.2.

The infrastructure risk management plan template is based on AS/NZS:2004 Risk Management and HB:2004, Risk Management Guidelines. It is a simplified approach to managing risks associated with assets. Councils wanting a more detailed and/or risk cost/benefit approach are referred to Sect 3.4 of IIMM.

5.3 Routine Maintenance Plan
5.3.1 Maintenance plan
Ref IIMM Sect 3.6, pp 3.99 – 3.112
Maintenance includes reactive, planned and cyclic activities

**Reactive maintenance** is unplanned repair work carried out in response to service requests and management/supervisory directions.

**Planned maintenance** is repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

**Cyclic maintenance** is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including
repainting, building roof replacement, etc. This work generally falls below the capital/maintenance threshold and needs to be identified in a specific maintenance budget allocation. Note: Road resurfacing/resealing is classified as capital renewal expenditure and is included within Section 5.4.

Past 3 year maintenance trends are identified in Table 5.3.1. Where these are not recorded into the three categories above, modify the table to suit.

Calculate and record the percentage of total maintenance expenditure represented by planned plus cyclic maintenance.

The template contains a commentary on adequacy of maintenance funding. Amend the template wording to suit local conditions and service performance.

The template contains two alternatives for assessment and prioritisation of reactive maintenance being either the experience/judgement of council operational staff or in accordance with maintenance response levels of service which are to be documented in Appendix A.

Appendix A contains an example of a council operating a roads maintenance management system under the Victoria Road Management Act. It is an example only and should be used as a guide to determine your council’s maintenance assessment and prioritisation criteria. Do not blindly adopt this example as appropriate for your council without consideration of all issues and your available resources.

5.3.2 Standards & specifications

This section documents the standards’ and specifications that are used in maintenance work activities.

These may include AusSpec, TSA or council specification documents.

5.3.3 Summary of future maintenance cashflows

This section summarises projected future maintenance cashflow requirements over the next 20 years.

Insert graph of projected 20 year maintenance cashflow from the financial model.

Identify any deferred maintenance works and consider these in the risk identification section of the infrastructure risk management plan.

5.4 Renewal/Replacement Plan

Renewal expenditure is major work which does not increase the asset’s design capacity but restores, rehabilitates, replaces or renewes an existing asset to its original capacity. Work over and above restoring an asset to original capacity is upgrade/expansion or new works expenditure.

5.4.1 Renewal plan

Ref IIMM Sect 3.5.7, pp 3.92 – 3.98

This section details the renewal plan including how renewal/replacements are identified, planned, prioritised and scheduled in capital works programs over the next 20 years.

The template details a basic process of identifying candidate renewals from remaining life estimates in the asset register (remaining life = useful life – age), field inspection to verify accuracy of remaining life estimates and develop a preliminary renewal estimate. Advanced processes are referenced in IIMM.
Renewal priority criteria are documented in Table 5.4.1. Renewal criteria should be developed with councillors to recognise council’s strategic objectives and adopted by the Council.

Renewal priority criteria can include

**Roads**
- Quality – Service request history, customer satisfaction surveys.
- Function – hierarchy, usage (traffic volumes), availability (closures), risk of failure, minimise lifecycle cost.
- Safety – accident history.

**Buildings**
- Quality – Service request history, customer satisfaction surveys.
- Function – usage, availability, backlog maintenance.
- Safety – reported accidents/incidents.

**CWMS**
- Quality – Service request history, customer satisfaction surveys.
- Function – licence non-compliance events, risk of failure.
- Safety – discharges to the environment, accidents/incidents.

The template asks for details of any low cost renewal methods used or planned to highlight the importance of low cost renewal and as strategy for the future.

Low cost renewal is when the service potential of the asset is restored using a method that cost less than the cost of replacement. Low cost renewal methods include:

**Roads Low Cost Renewal Methods**
- Recycling (in-situ stabilisation with cement/lime bitumen additive) of pavement material;
- Rip seal, add rubble layer and seal rural sealed roads.

**Drainage Low Cost Renewal Methods**
- Structural relining of poor condition pipelines.

5.4.2 Renewal Standards

This section lists the various standards and specifications that are used to control the quality of renewal works. These are generally those used for new construction although renewal standards and specifications may be required for special and low cost renewal methods.

5.4.3 Summary of future cashflows

The renewal plan developed in Section 5.4.1 will generate a 20 year capital renewal works program. The program is detailed in Appendix B. Future cashflows are summarised in Fig 6.

Insert graph of projected 20 year renewal cashflow from the financial model.

Identify any deferred renewal works and consider these in the risk identification section of the risk management plan.

5.5 Creation/Acquisition/Upgrade Plan

New works are those works that create a new asset that did not previously exist, or works which upgrade or improve an existing asset beyond its existing capacity. They may result from social or environmental needs. Assets acquired for growth are discussed in Section 4.4.
5.5.1 Selection criteria

This section details how new assets are identified, planned, prioritised and scheduled in capital works programs over the next 20 years.

Renewal priority criteria are documented in Table 5.5.1. New asset criteria should be developed with councillors to recognise council’s strategic objectives and adopted by the Council.

Creation/acquisition/upgrade priority criteria can include the same factors used for renewal in Section 5.4.1.

5.5.2 Standards & specifications

Standards and specifications used in creation/construction of new assets are detailed in this section.

The template contains documentation referring to the same standards and specifications used for renewal in Section 5.4.2.

If this is not so, list applicable documents in this section.

5.5.3 Summary of future costs

The upgrade/new assets plan developed in Section 5.5.1 will generate a 20 year capital upgrade/new works program. The program is detailed in Appendix C. Future cashflows are summarised in Fig 7.

Insert graph of projected 20 year New/Upgrade cashflow from the financial model.

5.6 Disposal Plan

Disposal is any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6. These assets are to be further reinvestigated to determine the required levels of service and see what options are available for alternate service delivery, if any.

Insert in Table 5.6, assets identified for possible disposal, the reason for disposal, possible timing of disposal and estimated cashflow from the disposal.

6. FINANCIAL SUMMARY

This section contains the financial requirements resulting from all the information presented in the previous sections of this infrastructure and asset management plan.

The projections are based on the best available information. There may be concerns about the reliability and accuracy of data used to prepare the financial projections, however it is important that the projections be based on best available information and improved over time as improved information becomes available on desired levels of service and current and projected future asset performance.

Improving the quality of information and the planning process is the prime objective of the Improvement Plan discussed in Section 8.2.

6.1 Financial Statements and Projections

This section contains financial projections over the 20 year planning period for
• Operating
  o Operations,
  o Maintenance,
• Capital
  o Capital renewal,
  o Capital upgrade/new assets.

All cashflows are to be shown in current values for ease in estimating future costs and consistency in annual revisions.

Insert graph of projected 20 year cashflow from the financial model as Fig 8.

6.1.1 Life Cycle Costs

Life cycle costs (or whole of life costs) are the average annual costs that are required to sustain the service levels. Life cycle costs include maintenance and asset consumption (depreciation) expense.

This can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes maintenance plus capital renewal expenditure. Life cycle expenditures will vary depending on the timing of asset renewals.

A gap between life cycle costs and life cycle expenditure gives an indication as to whether present consumers are paying their share of assets they consume. The purpose of this infrastructure and asset management plan is to identify levels of service that the community needs and can afford and develop the necessary funding plans to provide the services.

Calculate and enter the life cycle cost, expenditure and gap into the table. An example is shown below

<table>
<thead>
<tr>
<th>Year</th>
<th>Life cycle cost</th>
<th>Life cycle expenditure</th>
<th>Life cycle ‘Gap’</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006/07</td>
<td>$5,500,000</td>
<td>$3,200,000</td>
<td>$2,300,000</td>
</tr>
</tbody>
</table>

This indicates that a gap of $2,300,000 per annum needs to be managed. This can be achieved through the process of developing an infrastructure and asset management plan by:

• Reviewing services and service levels;
• Consultation to determine service needs;
• Developing a hierarchy of services and service levels;
• Identifying future renewal cashflow profiles;
• Developing a funding strategy in a long term financial plan;
• Increasing funding, where available.

Insert comment on the implications to the community of a gap such as:

• The development of an unsealed local road hierarchy and service levels to ensure available resources are applied to maximise community benefits.
• Review of council’s policy to seal all unsealed road.
• Review of building assets and usage and development of strategy for providing public buildings.

This section is summarised in the Executive Summary.
6.2 Funding Strategy

The funding strategy is developed from council’s 10 year financial plan.

Insert a summary of the funding strategy to provide the services documented in the IAMP.

This may include

- Use of loans to fund renewal ‘spikes’,
- Cost reductions from review of service levels,
- Increasing revenue from rates and user charges.

6.3 Valuation Forecasts

Asset values will increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council.

Insert the graph of projected future asset values from the financial model as Fig 9.

As asset values increase, asset consumption, reported as depreciation expense will increase. Depreciation expense can range for 25% - 35% of a council’s operating expense. It is critical that projected future depreciation expense is recognised and incorporated into long term financial plans.

Insert the graph of projected future depreciation expense from the financial model as Fig 10.

Carrying amount is the accounting term to describe the current value of assets. For infrastructure assets, carrying value is fair value, depreciated replacement cost or written down value. The carrying amount of the asset stock will vary depending on additions, disposals and the value of assets consumed and renewed in each year.

Insert the graph of forecast carrying amount from the financial model as Fig 11.

6.4 Key Assumptions made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this infrastructure and asset management plan and in preparing forecasts of projected operating and capital expenditure and asset values and depreciation expense estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

The assumptions may include

- Index rates used to revalue assets from last revaluation to current values;
- Assumptions on the relationships between growth and increases in the asset stock;
- Assumptions on changes to useful life estimated to reflect improved maintenance and renewal practices,
- Present service levels will remain constant for the life of the IAMP.

The template provides for identification of tasks to improve data quality for consideration in developing the Improvement Plan in Section 8.2.

7. ASSET MANAGEMENT PRACTICES

This section outlines the information available on assets, the information systems used (ie software, files) and the processes used to make decisions on
how the assets will be managed. This section should demonstrate a logical and through decision-making process and convince the reader that the management strategy and financial estimates are soundly based.

7.1 Accounting/Financial Systems

This section describes the accounting and financial systems and any change required as a result of this IAMP.

Changes may include amending the chart of accounts to identify operation costs and split maintenance costs into reactive, planned and cyclic where appropriate.

Accountabilities and responsibilities for the accounting/financial system should be documented.

Accounting standards/regulations/guidelines that must be complied with should be documented.

Capital/maintenance thresholds should be documented and how works are allocated to capital or maintenance expenses.

7.2 Asset Management Systems

This section describes the asset management system(s) and any change required as a result of this IAMP.

Changes may include modification of asset categories or sub-categories to assist in maintenance management systems, changing to a work order system for job planning and control, improving the quality of specific data, improving software systems and links to other systems (eg GIS), adopting a more frequent reconciliation cycle between the financial and technical asset registers, etc.

Accountabilities and responsibilities for the asset management system should be documented.

7.3 Information Flow Requirements and Processes

This system documents the key information flows to and from the IAMP and processes for:
- Making decisions on asset management;
- Asset renewals and acquisitions;
- Recording new assets in the asset register;
- Recognising new assets in the financial system
- Recording planned maintenance work activities;
- Recording reactive maintenance work activity;
- Transferring information from the technical asset register(s) to the financial asset register, where relevant.

The template provided for basic information flow details. More can be added if required.

Asset management information flows could be shown as flow charts.

7.4 Standards and Guidelines

The template provides for a summary of asset management policies, procedures and references used by council.
8. PLAN IMPROVEMENT AND MONITORING

This section should provide details on planning for monitoring the performance of the IAMP and any improvements to AM systems that will improve the level of confidence in the IAMP. A three year program should be included for implementing the improvements documented in Section 8.2.

8.1 Performance Measures

This section documents the performance measures for the asset management system and describes how the effectiveness of the IAMP will be measured.

Performance measures usually relate to achieving the target levels of service delivery and actions within the improvement program within the resources provided.

Insert performance measures for the IAMP. Examples are shown in the template being:

The effectiveness of the infrastructure and asset management plan can be measured in the following ways:
- The degree to which the required cashflows identified in this infrastructure and asset management plan are incorporated into council’s long term financial plan and Strategic Management Plan;
- The degree to which 1-5 year detailed works programs, budgets, business plans and organisational structures take into account the ‘global’ works program trends provided by the Infrastructure and asset management plan;

The team should review the sample text and modify as appropriate.

8.2 Improvement Plan

As the IAMP is developed, the team members will identify areas where the data is not to the required quality, where processes are not delivering the required outputs and other areas for improvement.

Some of these are documented in Section 6.4

This information is used to develop actions/tasks in an improvement program which details the task, responsibilities, resources required and timeline.

Complete the sample Improvement Plan for this IAMP shown in Table 8.2.

<table>
<thead>
<tr>
<th>Task No</th>
<th>Task</th>
<th>Responsibility</th>
<th>Resources Required</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Introduce planned maintenance system for playgrounds</td>
<td>Mgr Recreation</td>
<td>$1,000</td>
<td>Dec 06</td>
</tr>
<tr>
<td>2.</td>
<td>Report on condition of recreation facility buildings, identify defects and prepare maintenance/renewal programme.</td>
<td>Mgr Recreation</td>
<td>$20,000</td>
<td>Jun 07</td>
</tr>
<tr>
<td>3.</td>
<td>Review maintenance response levels of service with regard to existing service levels and available resources.</td>
<td>Mgr Recreation</td>
<td>Staff time</td>
<td>Dec 06</td>
</tr>
<tr>
<td>4.</td>
<td>Review low cost renewal methods for sealed rural collector and dwelling access roads</td>
<td>Mgr Roads</td>
<td>Staff time</td>
<td>Mar 07</td>
</tr>
<tr>
<td>4.</td>
<td>Review urban and rural roads hierarchy and develop options for levels of service appropriate to the community needs and required resources.</td>
<td>Mgr Roads</td>
<td>Staff time</td>
<td>Dec 06</td>
</tr>
<tr>
<td>5.</td>
<td>Consult with community on road hierarchy, service levels and resources required options</td>
<td>Mgr Roads</td>
<td>Staff time</td>
<td>Mar 07</td>
</tr>
<tr>
<td>6.</td>
<td>Identify unused road reserves that may be suitable for disposal and options for disposal</td>
<td>Mgr Roads</td>
<td>Staff time</td>
<td>Jun 07</td>
</tr>
<tr>
<td>7.</td>
<td>Develop planned maintenance systems for timber bridges</td>
<td>Mgr Roads</td>
<td>Staff time</td>
<td>Jun 07</td>
</tr>
</tbody>
</table>
8. Develop planned maintenance systems for CWMS pump stations and treatment plants

   Mgr CWMS  | Staff time  | Dec 06

9. Review financial chart of accounts to identify operations, routine, planned and cyclic maintenance, expenditure.

   Mgr Finance  | Staff time  | Dec 06

10. Investigate options for Works Costing system

    Mgr Roads  | $2,000  | Dec 06

11. Commission report on condition and defects in council’s buildings

    Mgr Facilities  | $30,000  | Mar 07

8.3 Monitoring and Review Procedures

This section details the processes and timetable for monitoring the performance of the IAMP and timetable for review of the IAMP and external audit and review of asset management processes, data integrity and level of service where necessary.

The template suggests a monitoring and review process comprising:

- Annual review of service levels and resource level during annual budget processes;
- Amendment of the IAMP to accommodate changes in service levels and resource allocation determined in the budget process;
- Revision of the IAMP after 3 years

This may be varied to suit each council’s needs.

REFERENCES

Include any reference documents used in preparation of the IAMP including

- Council Strategic Management Plan
- Council Annual Business Plan
- Council Annual Budget
- Strategic Planning Reports
- Population Projection Reports
- State Government Policy Statements
APPENDIX A  Maintenance Response Levels of Service

This section documents the intervention level used to determine whether repair work is required to restore service levels. An example from the Moyne Shire Council (Victoria), Road Management Plan is shown below.

Councils must select the response times and defect intervention levels to suit their individual circumstances and resources. Do not blindly adopt the sample response times and intervention levels given as samples in these guidelines.

A1. Roads Asset Inspections

<table>
<thead>
<tr>
<th>Inspection type</th>
<th>Description</th>
<th>Road Hierarchy Classification</th>
<th>Frequency</th>
<th>Manager</th>
<th>Resources</th>
</tr>
</thead>
</table>
| Safety & Defect | Sealed road day time maintenance inspection | - Rural Link  
- Rural Collector  
- Rural Access – sealed  
- Urban CBD  
- Urban Access - sealed | 2 months  
2 months  
3 months  
1 month  
2 months | Manager  
Construction/ Maintenance | Road patrol gang/ Maintenance Supervisor |
| Safety & Defect | Sealed Road – Night inspections | - All sealed roads | 12 months | Manager  
Construction/ Maintenance | Delegated Officer |
| Safety & Defect | Ancillary areas inspection | - Ancillary Areas Rural | 12 months | Manager  
Construction/ Maintenance | Maintenance Supervisor |
| Safety & Defect | - Ancillary Areas Urban | 6 months | Manager  
Construction/ Maintenance | Maintenance Supervisor |
| Safety & Defect | Gravel road maintenance inspections | - Rural and Urban – all categories | 12 months | Manager  
Construction/ Maintenance | Grader operators/ Maintenance Supervisor |
| Safety & Defect | Bridges – minor (Level 1) | - All road categories | 12 months | Manager  
Construction/ Maintenance | Allocated field staff |
| Safety & Defect | Bus shelters | - All road categories | 3 years | Manager Assets | Delegated officer |
| Safety & Defect | Guard Rail - maintenance inspections | - All road categories | 3 months | Manager  
Construction/ Maintenance | Road Patrol gangs |
| Safety & Defect | Footpath/Bicycle Paths | - All road categories | 12 months | Manager  
Construction/ Maintenance | Delegated officer |

Source: Road Management Plan, Moyne Shire Council p 25
### A2. Sample Defect Response Codes

<table>
<thead>
<tr>
<th>Response Code</th>
<th>Target Response Time</th>
<th>Defect Control Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warn</td>
<td>Respond within two working days of routine inspection or notification</td>
<td>Inspect, rectify if practicable, or provide appropriate warning. #</td>
</tr>
<tr>
<td>1D</td>
<td>Within one working day of routine inspection or notification</td>
<td>Inspect and rectify defect within target response time</td>
</tr>
<tr>
<td>1W</td>
<td>Within one week of routine inspection or notification</td>
<td>Inspect and rectify defect within target response time</td>
</tr>
<tr>
<td>2W</td>
<td>Within two weeks of routine inspection or notification</td>
<td>Inspect and rectify defect within target response time</td>
</tr>
<tr>
<td>1M</td>
<td>Within one month of routine inspection or notification</td>
<td>Inspect and rectify defect within target response time</td>
</tr>
<tr>
<td>3M</td>
<td>Within three months of routine inspection or notification</td>
<td>Inspect and rectify defect within target response time</td>
</tr>
<tr>
<td>6M</td>
<td>Within six months of routine inspection or notification</td>
<td>Inspect and rectify defect within target response time</td>
</tr>
<tr>
<td>1Y</td>
<td>Within one year of routine inspection or notification</td>
<td>Inspect and rectify defect within target response time</td>
</tr>
<tr>
<td>P</td>
<td>Rectifying works to be programmed having regard to competing priorities and funding resources</td>
<td>Inspect and rectify defect within target response time</td>
</tr>
<tr>
<td>N/A</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

# Where, because of the nature of the repair required, level of resources required or workload, it is not possible to rectify within the time shown in the above table, appropriate warning of the hazard is to provided until the repair can be carried out.

"Appropriate warnings" could include, for example:
- Provision of warning signs,
- Traffic control action,
- Diverting traffic around the site,
- Installation of a temporary speed limit,
- Lane closures
- Closure of the road to certain vehicle types
- Road closure

Source: Road Management Plan, Moyne Shire Council Table 1, p 34

### A3. Defect Type and Response

<table>
<thead>
<tr>
<th>Description of Defect (Intervention Level)</th>
<th>Season *</th>
<th>Season</th>
<th>Response Code by Road Hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstruction &amp; Substance in Traffic Lanes</td>
<td></td>
<td></td>
<td>Rural</td>
</tr>
<tr>
<td>Materials fallen from vehicles, dead animals, wet clay &amp; other slippery substances, hazardous materials on the traffic lane of sealed and unsealed roads.</td>
<td>All</td>
<td>Warn, 1D</td>
<td>Warn, 1D</td>
</tr>
<tr>
<td>Accumulation of dirt or granular materials in the traffic lane of sealed roads</td>
<td>All</td>
<td>3M</td>
<td>3M</td>
</tr>
<tr>
<td>Ponding of water &gt; 300mm deep, fallen trees, oil spills, stray livestock</td>
<td>All</td>
<td>Warn, 1D</td>
<td>Warn, 1D</td>
</tr>
<tr>
<td>Pavement or Surface Defects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potholes in traffic lane of sealed road &gt; 300 mm in diameter &amp; &gt; 100 mm deep</td>
<td>Normal</td>
<td>Warn, 2W</td>
<td>Warn, 2W</td>
</tr>
<tr>
<td>Potholes in traffic lane of sealed road &gt; 300 mm in diameter &amp; &gt; 100 mm deep</td>
<td>Wet</td>
<td>Warn, 2W</td>
<td>Warn, 1M</td>
</tr>
<tr>
<td>Multiple potholes in a 10m length of sealed traffic lane &gt; 250 mm in diameter and &gt; 100 mm deep</td>
<td>Normal</td>
<td>Warn, 2W</td>
<td>Warn, 2W</td>
</tr>
<tr>
<td>Multiple potholes in a 10m length of sealed traffic lane &gt; 250 mm in diameter and &gt; 100 mm deep</td>
<td>Wet</td>
<td>Warn, 2W</td>
<td>Warn, 1M</td>
</tr>
<tr>
<td>Potholes on traffic lane of unsealed road &gt; 500 mm diameter &gt; 150 mm deep</td>
<td>Normal</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Potholes on traffic lane of unsealed road &gt; 500 mm diameter &gt; 150 mm deep</td>
<td>Wet</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Slippy or “sticky” surface on a sealed road</td>
<td>All</td>
<td>Warn, 1W</td>
<td>Warn, 1W</td>
</tr>
<tr>
<td>Slippy or “sticky” surface on a unsealed road</td>
<td>All</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Deformations &gt; 100 mm under a 3 metre long straight edge on a sealed road and deformations &gt; 150 mm under a 3 meter straight edge on a gravel road</td>
<td>All</td>
<td>Warn, 1M</td>
<td>Warn, 3M</td>
</tr>
</tbody>
</table>

Source: Extract from Road Management Plan, Moyne Shire Council Table 2, p 35
APPENDIX B  Projected 20 year Capital Renewal Program

This section is generated from the financial model from data provided by council. The data is in a tabular format and may be copied and pasted into the IAMP document.

APPENDIX C  Projected 20 year Capital New/Upgrade/Expansion Program

This section is to be prepared from council’s forward plans and is used as an input into the financial model. The data should be in a tabular format and is to be inserted as Appendix C of the IAMP template.

REFERENCES
