New South Wales
TREASURY

TOTAL ASSET MANAGEMENT

Asset Information Guideline

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ASSET INFORMATION GUIDELINES

1 Introduction

1.1 The new perspective

In the past agencies were able to manage their assets with modest levels of information that was centrally recorded and historic costs were recorded only for accounting purposes.

Local asset managers were familiar with each of their assets and less pressured to ensure their cost-effectiveness.

The environment in which public assets operate has changed and consequently the information necessary for agencies to manage their assets has also changed.

The increased demands for government services without a similar increase in government resources have led to a focus on service, and whole of life asset management approach.

Consequently, the need for asset information has increased significantly.

Total Asset Management (TAM) uses asset registers to provide an invaluable source of information of the agency's asset usage and on-going capacity as an efficient and effective service provider.

Asset registers also provide the information base for further management improvement techniques such as benchmarking.

The asset register should be seen as the core of an agency's information management system as shown in the figure below.

The potential to integrate all the different functional registers and plans to create more efficient information linkages is growing as technology advances.

Developing and improving asset registers is a key element of the Total Asset Management process.

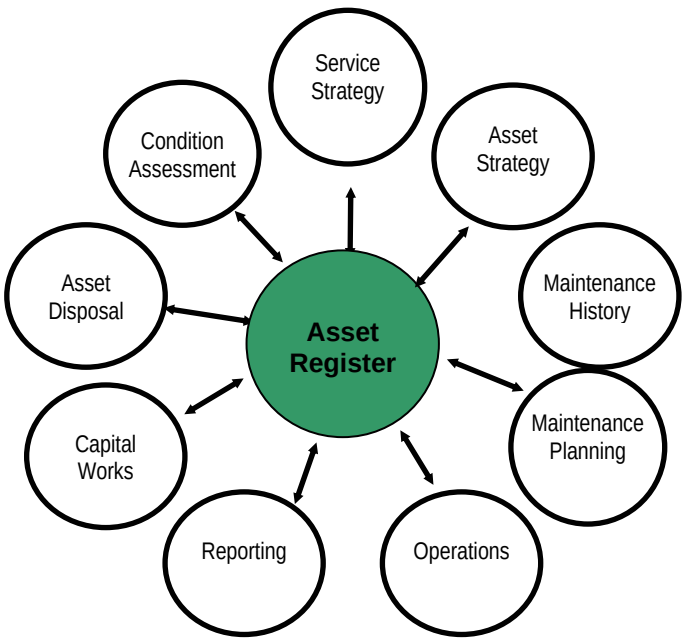


Figure 1 The asset register

1.2 What is an asset register

Asset registers are listings of information relating to various aspects of an asset portfolio, in a form that allows data to be cross-referenced and retrieved as required.

Assets should be recorded if they have a service potential and/or the capacity to provide economic benefits used in delivering agency services.

An asset register may be computer, card file or paper based and contain data relating to one or more asset categories including:

- service delivery functions
- physical properties
- technical data
- financial information
- property title details
- key operational data
- maintenance data
- performance records

In more sophisticated asset management systems, specific data sets may be kept in separate registers and not in the main asset register.

Collecting data is very costly and should focus on those aspects of assets that need to be known. Government statute requires the following assets are included in asset registers:

- all *State owned property and infrastructure* including assets regarded as inalienable, such as heritage buildings and parkland
- leased assets or property owned and/or operated by other bodies but in which the state has legal interests, such as:
    - water treatment plants which have been created under Build, Own, Operate (BOO) schemes
    - office accommodation
    - rolling stock
    - other assets where lease arrangements include responsibility for the State to meet ongoing costs for maintenance to pre-determined levels of service capacity
- buildings or work under construction needing a holding entry on an asset register.

Consider the following criteria when determining which assets to include in the asset register.

Cascading

Some asset systems are made up of major components that may be changed or replaced during the service life of the overall asset system.

A fire-fighting appliance may consist of a cab chassis vehicle onto which are mounted ladder units, water tanks, pumps, and communications equipment. Each component will have different service lives and may be replaced separately.

Changing needs may also lead to a change of components. Components must be registered and tracked separately as well as recorded as being part of a particular appliance.

Expected life

The expected life of an asset is a function of utility, life costs and technical or social obsolescence.

Materiality

Materiality is a lower limit on cost below which items should be expensed. The limit on individual items is usually set by each agency.

Economic Life

Economic life should exceed 12 months to warrant inclusion in the register and to attract depreciation.

Integration with other resource registers

Assets are one resource used to provide services and each of these resources relates one to another. Main categories of resources include assets, human resources, information and information technology.

While asset registers are separate to information systems relating to each of these resources, a common structure and information coding across each resource register will permit cross referencing for more effective planning and management. For example this will allow staff costs for particular medical units or information management needs in primary schools to be obtained.

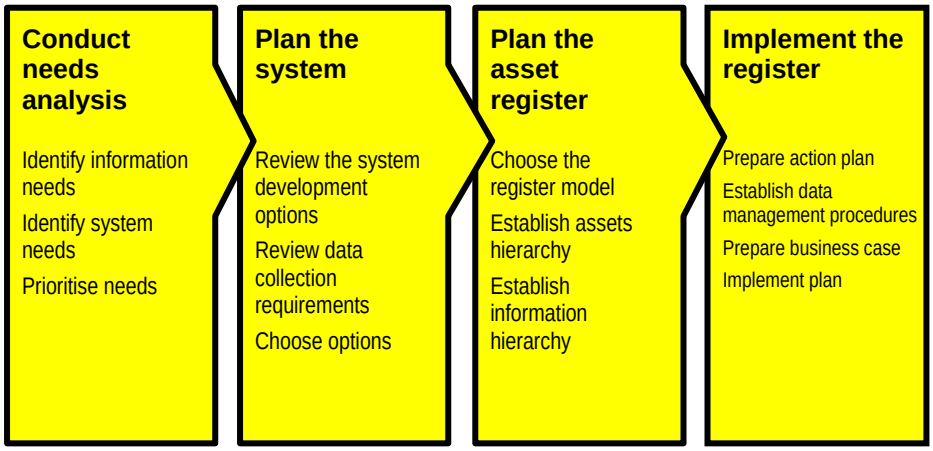
2 Agency roles and responsibilities

2.1 Service agencies

Agencies must maintain appropriate records of their non-current assets to ensure they are:

- efficiently and effectively used to support service delivery
- properly managed throughout their life cycle
- responsibly accounted for on their balance sheets and allowance made for their depreciation

3 Asset register development process



This guideline provides a systematic approach to the development of asset registers. The four stage process described can be used to initiate, operate and further develop the asset register.

Due to the central functional role of the asset registers, their integration must be planned into the agency's management information system. All agencies are different and have different needs but a consistent approach is encouraged.

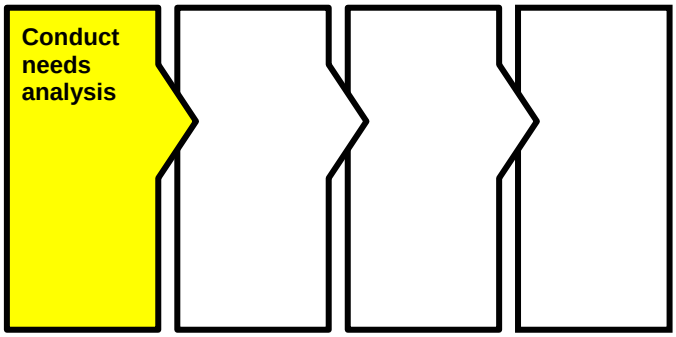
There are four stages in the process:

- conduct a needs analysis
- plan the system
- plan the asset register
- implement the register

The basis steps in establishing an asset register are:

- focus on the asset's ability to service delivery
- define information reporting requirements for relevant issues
- identify optimal system structure for facilitating efficient reporting
- design a register structure to suit both government needs and the agency's functional/management structure
- identify the optimal technology to achieve desired system development
- plan the implementation of improvements
- Justify the project through a cost benefit analysis and obtain funding approvals
- set up the new system and implement new data collection and reporting procedures
- run the system efficiently on a day to day basis

Stage 1 Needs analysis



Identifying information needs

The business goal of all agencies is to provide the best and most cost effective level of service possible to match client and community needs.

Irrespective of an agency's computer system or the level of sophistication, there are basic data sets needed for effective management of its service functions and for *financial and strategic planning*. There are also demands from State Government to facilitate state-wide financial and strategic planning.

Management should identify information needs by looking at the three main areas of demand for information and asking objectively if improvements can be made. Information is demanded for planning, management reporting and operations management.

Planning information

The Service Delivery Strategy will define service delivery responsibilities and set the scene for development of strategic business plan(s) for the individual services or activity centres that comprise the 'business'.

These needs give rise to specific reporting needs to justify both current and long term budget and revenue fixing. This in turn dictates the data and information to be collected.

Management reporting

All agencies must maximise the use and economic life of existing assets before creating new assets. Information is required to define the asset base and to assess its value, condition and level of utilisation.

Utilisation measures will require asset data to be able to be linked to information on other resources such as staff or finance, and to service output reports.

Summary information is also required on the operation and maintenance of the asset base. Management reporting summaries should be available to the planning level.

Operations management

Develop asset management initiatives at both operational and business management levels. Based on 'you cannot control what you cannot measure', data collection storage and management, are essential activities so asset registers assume a pivotal role in the asset management system.

Identifying reporting needs

To determine reporting needs, the Asset Manager should consult senior management. Reporting inputs and outputs at each management level should be identified and recorded for each section.

The information collected should include timing requirements. Information demands may be mainly cyclic for management reporting, and activity based for operations.

The data requirements to satisfy these needs can then be incorporated in the planned development of the asset register.

To promote a uniform approach and provide agencies with a manageable framework within which to develop their systems, the NSW Government has developed The Total Asset Management Systems (TAMS) and CAMSYS softwares are described in Appendix G.

Identifying system needs

Asset registers for different asset categories used to be kept separately by each business manager, along the operating records. Linkages were weak resulting in poor communications between business sections.

Once the desired reporting structure has been defined, information flows can be charted. These charts can identify the origins of both management and operational data needed for reporting and they will show linkages between registers and other management systems.

This will highlight opportunities for improved data communication and the potential for additional functionality including linkages to corporate business functions.

These functional linkages along with possible outputs are discussed in detail in Appendix B.

Prioritising data needs

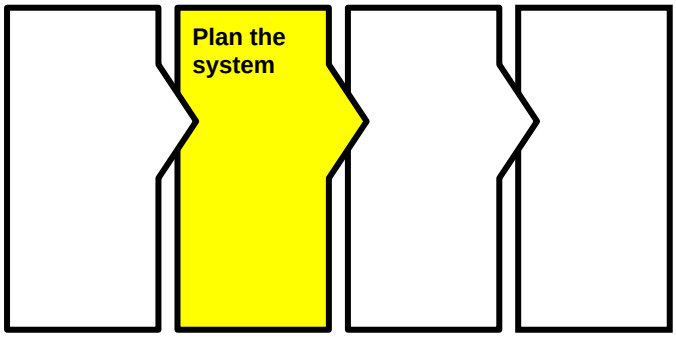
Priorities will be dictated by criteria generic to all functions broadly aligned to the planning, management, and operating functions:

- Planning
  - Accessibility of data
  - Flexibility to modify and extend the system
  - Ease of updating data
- Management
  - Ability to produce relevant, timely reports
  - Flexibility to develop customised reports
  - Relevance of the data and outputs to the “business”
- Operations
  - Cost effectiveness of the system
  - Security of the data and information
  - Connectivity to other systems and activity areas
  - Reliability of the system

When reviewing existing systems or planning justifying proposed improvements, managers should apply these criteria to identify tangible benefits.

The best practice approach might be to rank potential improvements by assessing them against these criteria on a scale of one to five.

Stage 2 Planning the system



Identifying the system development components

The latest computer technology, allows a flexible and modular approach for establishing asset management database systems and reporting for all levels of operations and management within the organisation.

This is made possible by the linking of the primary ‘asset register’ module with the other registers (modules), as discussed earlier.

The agency’s desired structuring will be achieved by applying appropriate, available, and affordable, technology. To make the asset data accessible and in a format that benefits the real time management of the agency’s business.

Data collection and storage methods must become more sophisticated to match the increasing handling capability and demands on the asset management system.

The many available data collection options basically fall into the following categories.

Geographical information systems can be used as a front-end function to aid in the spatial identification of assets or groups of assets in the registers. These are usually used in conjunction with CAD systems.

The benefits are:

- mapping representation of the assets
- rapid downloading of field data
- Quick identification of assets by area (polygon)
- plan generation for operation & maintenance
- identification of adjacent services
- incident analysis
- as a planning and design tool

Global positioning systems work in conjunction with Geographical Information System to provide instant location information.

The benefits are improved:

- management data for operation & maintenance operations
- monitoring of emergency response operations
- data for fleet management

Data loggers, including lap-top computers can be used to direct download into the asset registers. The benefits are:

- rapid collection of data
- predetermination of data to be collected
- automatic formatting
- direct download to system
- quality control

Compact disk technology can be used to provide linked images such as certificates and photographs which help in the administration and planning of the assets. The benefits are:

- paperless office
- direct reference to important documents and information
- visual records of asset characteristics and condition

Spreadsheets are basic tools for the storage and analysis of data. More sophisticated database software is increasingly being used because of the speed, retrieval abilities, and report generating features.

Identifying data collection requirements

The major cost in running a data management system is collecting and maintaining data. To obtain the greatest value from data systems the information must be complete and current.

Costs of maintaining the database are partly a function of reporting needs and frequency of update. Frequency depends on cyclic reporting patterns, as well as maintenance and inspection schedules. Maintenance schedules need to be planned to reflect the criticality of the assets to the system. In the past maintenance was carried out and data collected according to instruction manuals rather than a prioritised maintenance plan, resulting in redundant data being stored.

“Reliability Centred Maintenance” is the name given to an approach that recognises the performance capability, system criticality and minimum service requirements of each asset.

Information flow charts can assist in reviewing of existing data collection activities to identify the ‘who, what, when, and how’ for each operation. This will form a reference base for data collection and a guide to estimating the cost of the proposed improvements.

The main sources of asset data are:

- as constructed drawings
- work order / project costing
- operating reports
- maintenance reports
- condition audit reports
- call reports
- inventory stocktake

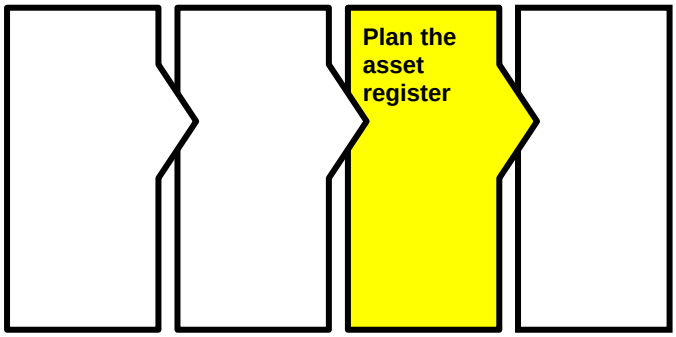
Choosing the best options

In choosing the most appropriate technologies, consider the benefits of both the system structure and the technology. The system design should take into account any existing systems and procedures but should not maintain them to the detriment of long-term goals and outcomes.
A simple but effective system is far better than a complicated system that is difficult to understand or use.

When desirable reporting and system improvements have been identified and before consideration of the costs, the Asset Manager, as facilitator for the information planning process, should circulate draft proposals to all the key managers.

Assess the benefits, capital costs and potential cost savings of each technology option. Readers should refer to the Value Management Guidelines in the TAM Manual.

Stage 3 Planning the asset register



Choosing the register model

Choose the model format to be adopted for the Asset Register to match the organisation and its management structure.

Registers can classify assets by service, functional area or both, depending on the size and complexity of the operation.

Generally, if a number of activities exist to support one service function then there is merit in keeping all the information together.

Where there is no integration between service areas they might be dealt with as autonomous units. The other option is where there is a matrix of activity with certain functions serving several other functions.

There are three basic types of models as illustrated in the following diagram (Figure 3). These are described in detail in Appendix C.

The Database may often serve several purposes, such as:

- establishing levels of use
- planning space allocation
- planning maintenance/cleaning
- calculating service capacity
- calculating insurance and other liabilities

It is likely to have a growing number of uses as it should be made as flexible and extendible as possible.

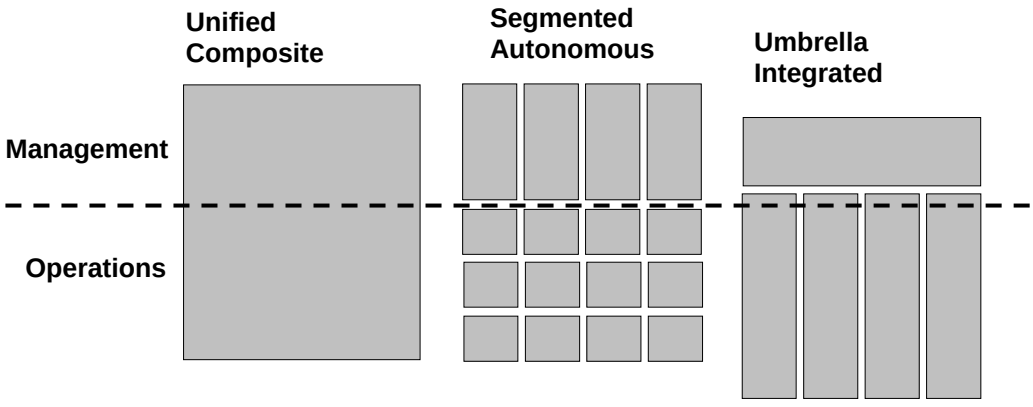


Figure 3 Asset register models

Establishing the asset hierarchy

The effectiveness of an asset management database system depends on its ability to allow operators to quickly and easily store, recall, sort, analyse and evaluate different types of information about assets.

This can best be achieved by following a hierarchical structure and designing a meaningful and recognisable asset numbering system.

Taking this approach, assets may be defined at a number of levels within a system; from the system level itself, to sub-systems, facilities or components of the system according to the information to be collected.

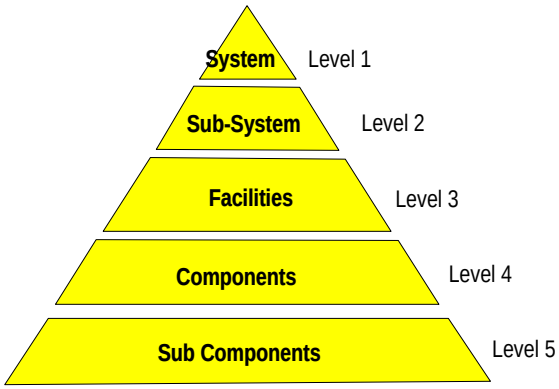


Figure 4 Asset hierarchy

The component is the lowest level of recording for non-current assets. Sub-components may be recorded for costing or maintenance purposes
The system approach has the following benefits:

- assets can be viewed in their logical hierarchy
- assets can be grouped the way they are managed
- the structure assists in ensuring that all assets are covered
- there is flexibility with level of detail
- data entry in minimised
- the system allows for reporting at different levels

In planning the asset hierarchy a consistent approach is recommended. For example, ‘buildings’ in water, sewerage, and property registers should all appear at facility level.

This allows ease of consolidation for reporting and the logical level to identify components and sub-components. As a guide, Appendix D shows typical asset register hierarchies for different types of agencies.

Use an asset identification system consistently throughout the organisation. The application should match the operational needs of the information asset system including movement of assets and information linkages with other functions: ie, a GIS, design models, on-site tagging etc.
The requirements for asset identification are:

- a unique number that stays with the asset for the whole of its life that enables searching for, and tracking of assets. Where there is a need to track sub-systems, or components separately the numbering system must enable unique numbering down to this level.
- a code that says what the asset does and can be used for operations and maintenance analysis

- a location indicator for finding the asset on site: eg coordinates in a GIS or linkage to the system/sub-system of which it forms part.
- a nodal number that identifies its position in the system for network analysis
- incorporation of existing numbering system (if applicable), to reduce the need to re-number assets or support different styles of information systems.

In practice, it is recommended to use the following three number identifiers:

1. Reference Code (System/Sub-system code, etc) that varies with function
2. Internal record Number (Unique identifier used by system) that is always the same
3. Asset ID (same as 2. or user defined or use existing asset number) that is always the same

Establishing the information hierarchy

With any record database system it is important to first identify ownership and category / groups of assets to be recorded.

The actual breakdown of categories by service, area etc. will be determined by the register model structure chosen for the agency.

In the information hierarchy the breakdown structure is as follows:

OWNER:	The agency
ASSET CATEGORY:	The service or asset group breakdown according to the asset model structure adopted
REGISTER:	A grouping of data sets by function eg. assets, operations etc.
DATA SET:	A collection of data concerning one asset characteristic or activity
DATA:	Recorded attributes about an asset or an asset related activity.

Data sets will record data in the database on how the asset hierarchy has been structured. For example, performance data could tell managers how the system has behaved on a system wide level or down at the level of individual components. Data sets provide slices of information about the assets.

The database structures should be systematically built up through focus group meetings of the various stakeholder groups. This will prepare managers for change, encourage ownership, and ensure approval of the final proposals.

There is no limit to how wide or narrow the definition of assets may be, or how much data is collected. The assets profile to be recorded will differ from agency to agency.

Figure 5 Information hierarchy

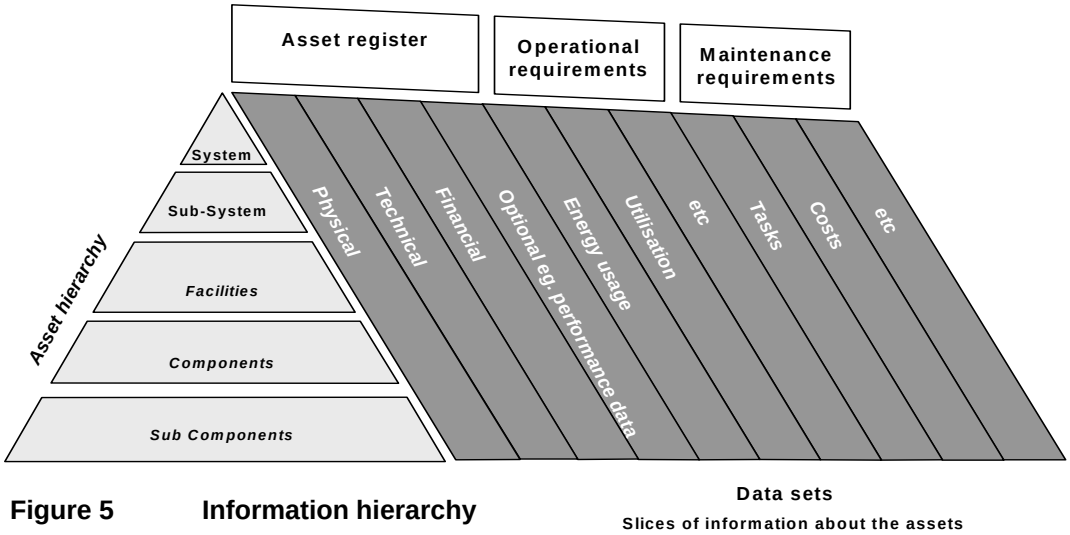


Figure 5 Information hierarchy

The content of the asset register will be determined by the usefulness of the data. For example, a vehicle can be broken down into small parts but the cost of maintaining information on them all, is not worthwhile, since the car “operates as a cohesive whole”.

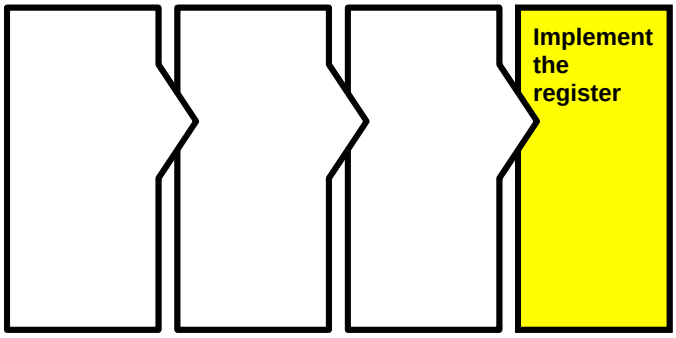
Another example is where a hospital ward or a group of wards could be considered to be the operational “unit” for assets accounting rather than the individual beds. *It is critical not to break up assets smaller than needed for operational needs.*

Access control is very important and the system must prioritise usage and prevent accidental or unauthorised editing of the data. A system must include a full user/action audit trail and employ regular backup procedures. Availability of only the relevant reports appropriate to the function of the user will save time and maintain a focus on designated activities.

Primary asset data should be accurately updated when new capital investment projects are handed over, and/or when enhancements and replacements alter the material nature of individual assets and so the value of the asset base.

The tables in Appendix E may serve as a guide to the data required to populate the various data sets.

Stage 4 Implementing the asset register



Preparing an action plan

Prepare a development schedule as part of a business case submission for the system improvements.

While the overall strategic vision should be supported and maintained in the development process, the action plan should adopt a measured, step by step approach, with data having the greatest payback being collected first.

For assets already held in the portfolio, the incorporation of additional data should be prioritised according to the Government's requirements and urgency of need to improve the agency's service capabilities.

Identify appropriate milestones throughout the implementation process up to the handover stage (completion of project). Updates should be made to the project management schedule to suit the project. Document the final proposal including cost schedules for each activity and milestone. The following milestones may be appropriate:

- planning and feasibility studies
- broad user requirements
- detailed functional procedures
- technical design
- system development
- training and implementation guides
- ongoing operations and maintenance
- system review procedures

Establishing data management procedures

Prepare operating schedules as a part of a business case submission for the system improvements. These schedules will take into account the data collection schedules previously identified and activities and resources applied to the upkeep and operation of the asset registers. Derive an annual cost estimate should be derived from these schedules.

Base resource scheduling on the application of several best practice principles for efficient data collection and management. Consider implementing these as standard procedures for the agency:

- assign responsibility for the collection and input of data to the person(s) who benefits most from its accuracy, relevance and timeliness
- ensure data collection is a by-product of operations as it is more likely to be carried out cheaply and efficiently

- nominate an Asset Manager to be responsible for ensuring the relevance and accuracy of data supplied and recorded where there are multiple users and people supplying and/or inputting data
- train key personnel in operating the asset management database system and define and allocate responsibility for its general upkeep
- establish procedures to ensure any updates or changes are authorised and correctly recorded
- ensure data entries and changes are done by the person responsible for generating the information, except when updating certain primary information about assets (eg. creating or deleting an asset), should only be performed by a designated person (eg. the Asset Manager), operating in accordance with defined procedures
- assemble site plans and service information when commissioning the asset or at the time of acquisition
- identify the usage of the data at operational level as well as for management reporting

Preparing a business case

The Systems Manager should prepare an Asset Register Business Case incorporating all the data, information, and planning recommendation that have been identified throughout the development process. A business case format is included for reference in Appendix F.

A key part of the business case is the cost benefit analysis. This enables comparison of alternative solutions and requires the quantification of all the financial and economic benefits of the proposal to be compared with the costs.

Prepare inputs during the development process for the costs of reporting, data collection, and technology. This will be offset against the cost savings and benefits from improved communication, planning, and asset structures.

Where it is not possible to quantify the costs, then recommendations for a valued judgement have to be made. Otherwise an acceptable return on investment should be demonstrated. Also consider any redundancy of existing systems.

Implementing the plan and reviewing the register

The preparedness of key managers is important. Throughout the development process they should have been regularly involved and be fully aware of the improvements and upgrades proposed. The managers should make special arrangements during the transition period to the new system, including if necessary for the parallel running of both existing and new systems.

Once budgets are approved, the equipment should be purchased, space allocated, staff trained, and software installed.

The Asset Manager should take charge of the initialisation of the asset register model and the establishment of the information and asset hierarchies. The registers will then be ready for populating with data.

Some data may be transferred from existing spreadsheets or databases, other will have to be entered manually from drawings, card systems, record files etc. New data will accumulate as operations and maintenance crews begin to use the new reporting procedures.

There are several other data collection preparation exercises to be carried out depending on the technical options chosen. These include digitising of the GIS cadastral base, programming of data loggers, and training of operatives.

If the agency is undergoing a complete change from historical costing and reactive maintenance practises to current cost accounting and condition based maintenance systems, then it is recommended that a program of condition audits should be undertaken progressively starting with the most critical assets. This will provide a base case for future activity planning.

Appendix A Informational needs

		Output Demands	Information Needs
PLANNING INFORMATION	CORPORATE	Corporate Plan	Service standards
		Approval of annual program and budgets	Budget schedules
		Submission to Treasury	Resource data
		Approve asset policies and standards	Accounting data
			Technical data
	STRATEGIC PLANNING	Annual accounts and report	Asset valuation data
		Management plan	System data
		Resourcing plans	Cost and utilisation data
		System design	Physical data
		Business plans	Service/demographic data
		System condition analysis	Condition data
		Environmental impact review	Incident data
	CAPITAL WORKS PLANNING	Capital works program	Financial data
		Detailed design	Technical data
		Business cases	Design data
		Cost estimates	Unit cost data
		Ranking project options	Ranking scores
MANAGEMENT INFORMATION	PROJECT DEVELOPMENT	System condition analysis	Condition codes
		Economic analysis	Benefits
		Financial analysis	Cashflow data
		Review of asset standards and renewals criteria	Parameters and criteria
		Specifications	Technical data
			Criteria
	PROJECT IMPLEMENTATION	Project progress reports	Performance data
		QA procedures	Insurance data
		Implementation plans	Priorities
		Work planning and scheduling	Cost estimates
			Time constraints
		Contract documents	Contract data
		Project monitoring and control	Completion progress
			Valuations and earned value
OPERATIONS INFORMATION	ASSET DISPOSAL	Analysis of lifecycle costs	Cost data
		Utilisation reports	Survey data
		Failure/incident analysis	Asset age profiles
	ASSET OPERATIONS	Rolling programs for operation & management renewals	Technical data
			Physical data
		Outage data reports	Breakdown data
		Collect inspection data	Inspection data
		Carry out work schedules	Cost data
		Asset criticality analysis	Risk data
	MAJOR PERIODIC MAINTENANCE	Maintenance history reports	Historical data
		Asset condition data reports	Condition data
		Carry out work schedules	Work schedule data
		Spares inventory reports	Spares data
		Audit reviews	Inspection data
	ASSET REHABILITATION	Priorities for rolling program	Renewal criteria
			Risk assessment
		Carry out work schedules	Costs and budgets
			Work schedule data

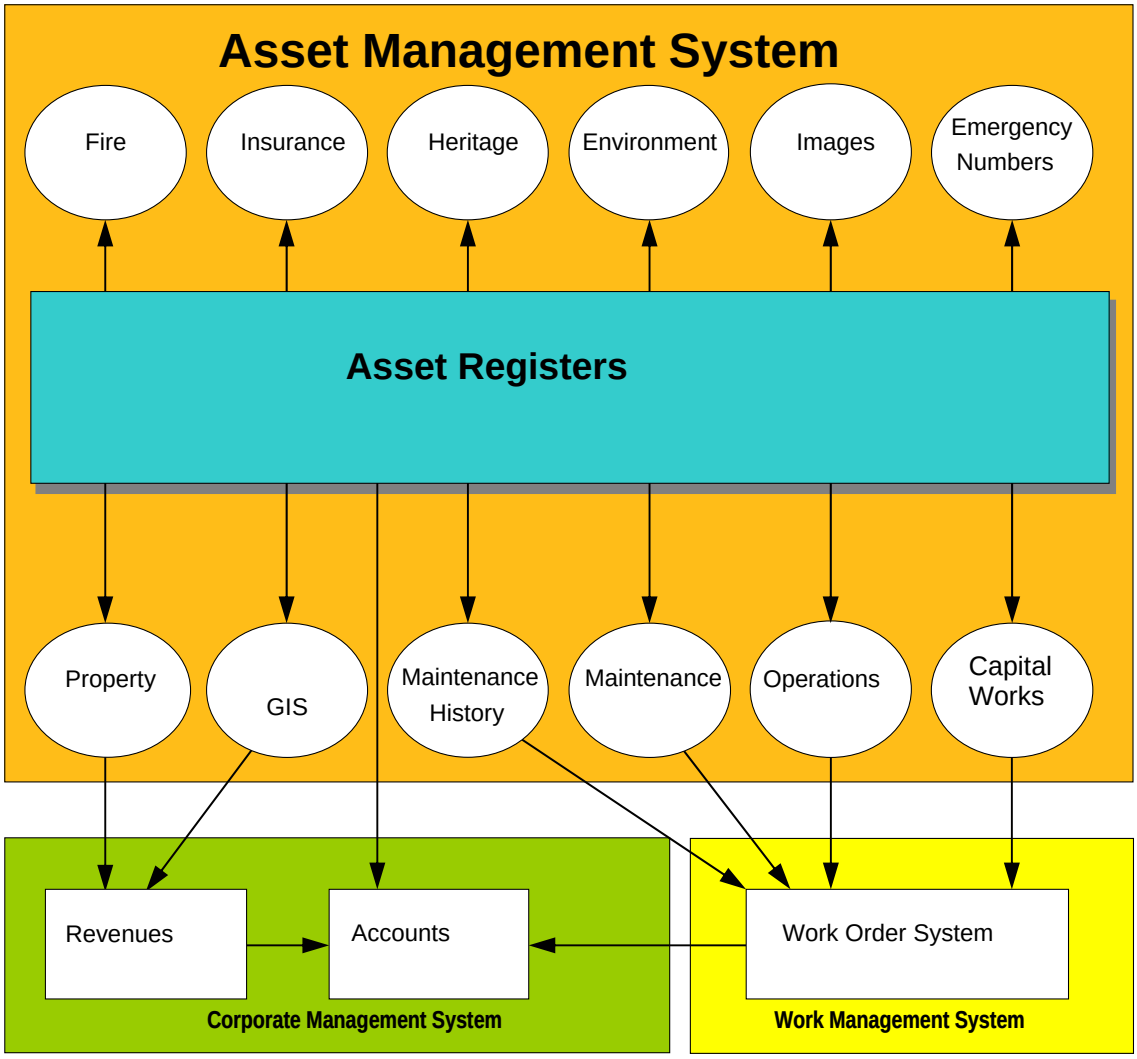
Appendix B Identifying system needs - functional linkages

In the past asset registers for different asset categories were kept separately as were all the operating records. Linkages were weak resulting in poor communications between business sections.

Once the desired reporting structure has been defined, information flows can be mapped. These charts can identify the origins of both management and operational data needed for reporting purposes and the linkages between registers and management systems.

Opportunities should be highlighted for improved data communication and the potential for additional functionality including linkages to corporate business functions.

An example of these functional linkages along with possible planning outcomes is given in the diagram below.



Developing appropriate functional linkages allows a wide range of useful outputs from the asset database, including:

- the potential for linking computer mapping and images to the physical register. This provides the benefits of identification of assets and the spatial information analysis.
- system data can be down loaded to design programs.
- a capital works creation and disposal facility could be linked to the asset register to facilitate future planning and budgeting.
- a maintenance management function provides maintenance budgets and facilitates resource planning. The maintenance register should include an asset condition audit feature, which, in conjunction with an assessment of priorities and asset criticality, can produce future work and resource schedules.
- a maintenance history function would further assist the planning process by providing information on how much had been spent, how many breakdowns occurred, and how many complaints had been received.
- action requests (reactive maintenance) can be logged from the “calls” desk and provide a record of past problems and generate schedules of urgent and non-urgent reactive maintenance work to be carried out.
- log environmental issues related to an asset in the “incident” register or recorded as a note against the asset.
- materials, spares and tools inventories are needed as a support to operations and maintenance functions. This register could be supported by a stocktake function.
- link other databases to the asset register to enhance existing functions: eg. heritage listing, land register, energy usage, etc.
- link operations routines and emergency functions to the asset base with a register or resources and costs that will facilitate future resource scheduling.

The greatest problem of management is insufficient data for decision making. Asset Management provides this data in a format appropriate to the management level reading it.
Links with corporate management and work management functions can potentially greatly enhance an agency’s efficiency as follows:

- A work management system can run and monitor work orders. Links with the accounting system record expenditure, and with asset registers record the new works completed. The system must integrate work schedules to prioritise programming for:

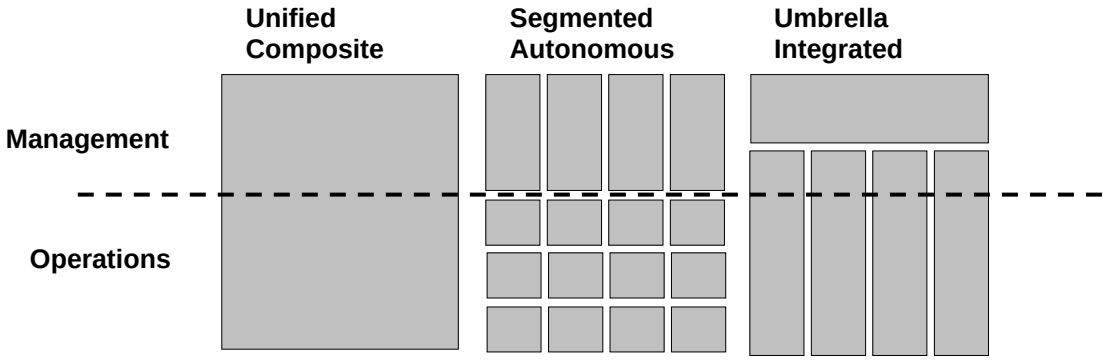
    - new works
    - renewals
    - routine and reliability centred maintenance
    - reactive maintenance (action requests)

- The accounting system links to the asset register to update:

    - valuation summaries
    - current written down value, and
    - depreciation schedules in the general ledger.

- The revenue model could also link with the asset registers and accounting system. In the case of local authorities, active links with the property and water meter registers could allow for generating rates notices.
- There are a number of statutory and administrative information databases that can effectively be linked to the main asset register system: eg, insurance schedules, fire safety records, etc

Appendix C Asset register models



Unified composite model

This model may be appropriate for small or very focused organisations such as libraries, hospitals etc. It may also be appropriate for an organisation where there are geographical divisions with identical structure in each area but a centralised management structure: eg. small local authority, Education, Police, etc.

The benefits of this style of model are:

- all the information is held in one database
- reporting can be diverse and flexible depending on what the operators and managers wish to know
- there is more overall control by the users

Caveats are:

- managers must be very clear as to what they are trying to achieve
- the system may become difficult to manage as it grows in size
- switching costs to an alternative system are high
- the reason for collecting data may not be appreciated by the data collectors

Segmented autonomous model

A segmented model might be employed by large organisations with separate business centre operating diverse assets: eg the ferries and buses of the State Transit authority or the rolling stock and track of State Rail.

Alternatively, organisations might be segmented on a geographical basis such as the Housing Department or by service location such as four regional water and sewerage business of Sydney Water.

The main benefit of this type of structure is that it focuses efforts on the management of individual products or asset groups.

Caveats are:

- culture and communication problems
- common corporate functions cannot be easily managed across all the asset groups
- the structure and treatment of the different asset groups may evolve along different lines

Umbrella integrated model

Frequently, asset information spans more than one register and will need to be selectively accessed by different users.

This structure is appropriate where there is a multi-disciplinary organisation with consolidated reporting responsibilities and common funding sources such as local government agencies.
In local government various services are operated separately but there are common assets, such as property, and plant and equipment. There are also common management functions: eg. accounting.
The advantages of an integrated system are:

- the model can closely and sensitively reflect the workings of an organisation
- all relevant tables can be updated automatically
- synergies of time and effort produce cost savings
- reduced risk of errors and omissions
- allows staff to focus on core activities
- common definitions and standard operating rules
- encourages standardised behaviour across different disciplines: eg. accounting, administration, engineering
- more effective management control
- allows for summary information and reporting
- facilitates linkages with GIS

This model must be carefully planned and the data reviewed periodically to determine its integrity and continuing usefulness.

Key managers should be consulted regarding any long term corporate planning that may influence the model structure. Opportunities for change should be reviewed, as it may be possible to refocus activities in more productive ways.

If the structure suits the needs of the agency's corporate strategic direction then the model pitfalls should be avoided and the benefits maximised.

Appendix D Asset register hierarchy

SERVICE	LEVEL 1 (System)	LEVEL 2 (Sub-System)	LEVEL 3 (Facility)	LEVEL 4 (Component)	Level 5 (Sub-Component)
Parks	Property	Playground	Play Equipment		
		Recreation Area	Swimming Pool	Pump	
		gardens	Flower Beds		
Buildings	Property	Admin Area	Building 1	Waiting Room	Windows
		Wards	Building 2	Ward	Carpet
		Recreation Area	Landscaping	Wall	Bricks
NB All sites will have service facilities to			Water		
			Drainage		
			Sewerage		
NB All buildings will have service components				Power	
				Air conditioning	
				Heating	
Water Supply	Water System	Distribution	Pipeline	Pipe	
			Pumping Station	Pump	
			Reservoir	level Sensor	
			Telemetry	Autodial System	
			Tunnel	Portal	
		Headworks	Borefield	Instrument House	
			Dam/Weir	Bridge	
			Pipeline	Valve	
			Pumping Station	Access Road	
			Reservoir	Structure	
			River Intake	Weir	
			Telemetry	Repeater	
			Treatment Works	Transmitter	
			Tunnel	Alum Doser	
				Lining	
Sewerage	Sewerage System	Collection	Pipeline	Pipe	
			Pumping Station	Pump	
			Telemetry	Modem	
			Tunnel	Manhole/Shaft	
		Treatment / Residual	Biosolids	Building	
		Management	Management	Channel	
			Effluent	Fittings	
			Management	Flowmeter	
			Pipeline	Lagoon	
			Pumping Station	Pager	
			Storage	Chlorination	
			Telemetry	Equipment	
			Treatment Works		
Urban Drainage	Catchment	Sub-Catchment	Conduits	Pipes	
			Storage Structures	Channels	
			Gross Polln Traps	Screen	
Road System	Road	Segment	Pavement		
			Culverts		
			Drains	Traffic Lights	
			Signal System		
			Kerbs & Gutters		
Gas Supply	System	Sub-System	Gas Main	Pipe	
			Meters	Meter	
Plant & Equipment	Property	Site	Mobile Plant	Tractor	
			Vehicles		
			Boats	Computer	
			Office Equipment		
Flood Mitigation	River	Region	Flood Gate		
			Flood Gauge		

Appendix E Asset information structure

OWNER	Agency
CATEGORY	Module: eg, Property
REGISTERS	Datasets

	CLASSICAL DATA				
	Physical Data	Financial	Construction	Technical	Reporting
Data	Name	Est. replacement cost	Manufacturer	Description	Audit trails
Data	Address	Est. residual life	Constructed by	Capacity	Valuation
Data	Description	Est. residual value	Construction/ Acquisition date	Dimensions	Age profiles
Data	ID	Economic life	Enhancement Date	Design Data	
Data	Asset Number	Land value	Cost	Designer	
Data	Reference Number	Valuation date	Warranty		
Data	File Numbers	Depreciation method	Drawing Numbers		
Data	Co-ordinates				

	OPTIONAL DATA - Can be incorporated in functional registers				
	Service Data	Classifications	Functionality	Performance	Unit Costs
Data	LGA	Functional class	Function	Main type	Material
Data	Community	Activity class	Suitability	Criticality	Quantity
Data	Population	Land classification	Disposal potential	Failure rate max	Unit rate
Data	Zoning	Custodianship	Lease potential	Out time max	Cost factors
Data		Percentage use	Development potential	Responsibility	Service life
Data				Condition	Age
Data					Overheads

Functional Registers

OPERATIONS	Insurance	Leases	Risks	Contractors
MANAGEMENT	Procedures	Heritage	Functionality	Performance
OPERATIONS	Costs	Budget	Liability claims	Asset utilisation
MONITORING	Customer surveys	Action requests	Energy usage	Security
MAINTENANCE	Work required	Task details	Cost estimates	Trades
PLANNING	Budgets	Procedures	Tools	Materials
MAINTENANCE HISTORY	Work done	Failures	Job costing	Performance
CAPITAL WORKS PLANNING	Improvements	Capital works	Budgets	Disposals

Appendix F Business case format

Introduction

- Definition of need and evidence of supporting data indicative of current shortcoming or need.
- Event history
- Decision criterion

Submission detail

- Scope of proposed work
- Associated and on-going work obligations
- Options and benefits
- Technical justification for proposed option
- Long term planning perspective

Proposed work

- Details of the work program
- Resources to be employed
- Proposed monitoring of outcomes
- Performance indicators

Funding requirements

- Schedule of payments
- Schedule of overheads and recurrent expenditure
- Expected financial benefits ie. schedule of revenues
- Summary of funding requirements
- Assumptions

Financial (& economic) evaluation

- Net present value analysis
- Sensitivity analysis
- Compliance with statutory regulations
- Critically and downsize risks
- Asset management life cycle costs
- Value management study outcomes (if applicable)
- Environmental investigation study (if applicable)

Appendix G The Total Asset Management system

The pressures and demands on Government authorities are greater than ever before. There are more stringent performance and accounting criteria, and their planning, budgeting and fiscal responsibilities are under constant scrutiny.

NSW Department of Public Works and Services, the Department of Lands and Water Conservation and the Roads and Traffic Authority, have a role to support and assist Government agencies.
Two computer based asset management systems TAMS and CAMSYS have been developed for the purpose of achieving their asset management goals. The DLWC has also developed a financial model for water supply and sewerage business planning.

TAMS and CAMSYS allow agencies to:

- plan and budget for assets
- manage and optimise asset maintenance
- measure performance against established targets
- satisfy the requirements of AAS27
- develop performance predictions for assets

The core of the system is an asset register, which records all financial, location, construction and performance requirement information for each asset.

An easy and flexible range of functions provides a “whole of life” management system, including:

- condition rating
- maintenance planning
- maintenance history
- operations management
- operations monitoring
- capital works management
- asset disposals

Within the same system are six modules for the different asset categories. These all operate in a similar way but are specifically tailored to the assets concerned. The modules are:

- property and buildings (including parks)
- water supply and sewerage systems
- stormwater drainage
- flood mitigation
- plant and equipment
- roads and bridges

TAMS and CAMSYS can be customised to suit individual requirements including extension to interface with geographical information systems and interface with additional modules such as:

- defect maintenance system
- works management system
- the RTA asset maintenance management system.