

**Municipal Engineering Foundation, Victoria
New Zealand Study Tour 2003**

Asset Management in Local Government

**An Assessment of the
Level of Planning and Implementation**

June 2003

Karl Barker
Engineer, City Maintenance
Wyndham City Council

Acknowledgments

The study tour was undertaken with the assistance of ***the Municipal Engineering Foundation, Victoria***, plus assistance from ***Wyndham City Council***. Thanks go to Keith Wood of the Foundation and to Wyndham City Councillors and to Ian Robins, CEO.

The assistance and generous hospitality of INGENIUM and various Councils and individuals visited through the North Island of New Zealand are much appreciated.

Executive Summary

This report discusses a Study Tour of New Zealand Local Governments. The report's objective is to present comments from and observations of the New Zealand experience. It is hoped that Australia's engineers can learn from the New Zealand experience and thereby improve the management of Australia's assets.

The report is on

- the state of Asset Management in New Zealand Local Government,
- an assessment of Councils' planning and implementation levels and
- any correlations with Councils' different environments that may be used to indicate a best appropriate level of Asset Management.

Two studies were undertaken:

1. The Tour encompassed nine Councils and the 2003 National Conference of INGENIUM. Discussions and interviews were held with Council officers. Observations of assets and processes were made. Comments from the officers were collected.
2. The Survey collected quantified assessments of the states of Asset Management with associated asset information. Nine Councils took part in the Survey.

The Tour's comments and observations might be useful to practitioners and budding practitioners as learning experiences.

The Survey acknowledges the International Infrastructure Management Manual's⁽¹⁾ factors for selecting a best appropriate level of Asset Management. These factors are noted as difficult to measure and therefore transfer. The Survey attempts to find a measurable indicator that parallels the factors.

There is an observable difference between Councils in what level of Asset Management is selected. What causes that difference is not discovered as a tangible indicator, but the author concludes from the anecdotal evidence that more causal effect seems to lie in the drive of the associated officer than in the asset and its merits.

The recommendations discuss ways that Australian engineers, individually and collectively, can embrace the responsibility for improving the management of Australia's assets.

Table of Contents

TOUR OBJECTIVE	1
REPORT STRUCTURE & SUMMARY	1
BACKGROUND.....	1
NEW ZEALAND'S STATUS IN ASSET MANAGEMENT	2
DISCOVERING BEST APPROPRIATE PRACTICE	2
THE LOCATIONS OF THE STUDIES	3
COMMENTS ON THE NEW ZEALAND ENVIRONMENT	4
THE TOUR – COMMENTS AND OBSERVATIONS	5
COMMENTS ON SOME GENERAL CONDITIONS	5
Acceptance of the Need for Asset Management	5
Gaining the Stakeholders' Direction.....	5
A Tool to Cope With the Squeaky Wheel.....	6
Acceptance of the Cost of Funding Infrastructure	6
Systems to Prioritise Varied Options	6
Sharing the Load	7
Trusting the Computer's Program.....	7
Rate Differentials	7
COMMENTS ON SOME LOCAL CONDITIONS	7
“Guaranteed” Base Budgets	7
Accountability for Budgets and Associated Services.....	7
OBSERVATIONS	7
The Profession Driving the Uptake of Asset Management.....	7
The INGENIUM Conference	8
Still a Long Way to Go	8
THE SURVEY – A SEARCH FOR AN INDICATOR TO BEST APPROPRIATE PRACTICE.....	9
SURVEY PURPOSE.....	9
SURVEY STRUCTURE	9
Level of Asset Management	9
Asset Management Functions	9
Asset Types	10
SURVEY RESULTS.....	10
SURVEY INTERPRETATIONS.....	11
CONCLUSIONS	14
RECOMMENDATIONS.....	14
REFERENCES	16

APPENDICES..... 17

APPENDIX 1 TABLES OF LEVELS OF ASSET MANAGEMENT WITH MUNICIPAL CHARACTERISTICS..... 17

Buildings	17
Storm Water Drains.....	17
Roads (inc. Bridges)	18
Open Space	18
Sports Fields	19
Garden Beds.....	19
Trees.....	20
Library Resources.....	20
Vehicles, Plant & Equipment.....	21
Council Characteristics	21
Council Asset Quantities.....	21

APPENDIX 2 GRAPHS OF LEVELS OF ASSET MANAGEMENT 22

Figure A2.1 Levels of Asset Management of Asset Management Functions.....	22
Figure A2.2 Levels of Asset Management of Asset Types	22
Figure A2.3 Levels of Asset Management of Councils.....	22
Figure A2.4 Level of Asset Management for each Asset Type, averaged across Asset Management Functions and displayed in Councils	23
Figure A2.5 Level of Asset Management for each Asset Management Function, averaged across Asset Types and displayed in Councils.....	23
Figure A2.6 Level of Asset Management for each Asset Management Function, averaged across Councils and displayed in Asset Types.....	24
Figure A2.7 Councils' average Level of Asset Management with Council Characteristics	24
Figure A2.8 Floor Space Level of Asset Management with Inventory.....	25
Figure A2.9 Roads Level of Asset Management with Inventory.....	25
Figure A2.10 Drains Level of Asset Management with Inventory.....	25
Figure A2.11 Open Space Level of Asset Management with Inventory	26
Figure A2.12 Sports Fields Level of Asset Management with Inventory	26
Figure A2.13 Garden Beds Level of Asset Management with Inventory	26
Figure A2.14 Trees Level of Asset Management with Inventory	27
Figure A2.15 Library Resources Level of Asset Management with Inventory.....	27
Figure A2.16 Vehicles, Plant & Equipment Level of Asset Management with Inventory	27

APPENDIX 3 A NOTE ON THE NATIONAL ASSET MANAGEMENT STEERING GROUP'S ASSET MANAGEMENT PLAN CHECKLIST..... 28

List of Tables and Figures

Table 1 - Ratings for Sustainable Asset Management.....	2
Figure 1 – New Zealand North Island Councils in the Study Tour	3

Tour Objective

The objective of the Study Tour is to help Australian public works engineers formalise their asset management by providing learning opportunities from

- observations of Asset Management in New Zealand's Local Government Councils,
- an assessment of Councils' Asset Management planning and implementation levels and
- any correlations with their different environments that may be used to indicate a best appropriate level of Asset Management.

Report Structure & Summary

This report is partly based on information gathered in a Tour encompassing nine of New Zealand's North Island local governments and the 2003 National Conference of INGENIUM (Association of Local Government Engineering NZ Inc.). Discussions and interviews were held with Council officers. Observations of assets and processes were made and comments from the officers were collected.

The Tour information is supplemented by a Survey that collected and analysed quantified assessments of the states of Asset Management with associated asset information. Nine Councils took part in the survey.

The report

- presents a background discussion of Asset Management and why New Zealand was selected to study Asset Management
- provides some characteristics of the New Zealand environment
- discusses the Tour, providing comments and observations
- presents the Survey; its aim and results
- draws conclusions from the Tour and the Survey
- makes recommendations on what Australian engineers and IPWEA might do to improve Asset Management in Australia.

Background

This report is based on two premises.

The first is that New Zealand is a leader in Asset Management. This means that New Zealand is worth observing with a view to learning.

The second premise is that one of the difficulties in embarking on and progressing Asset Management is the difficulty of selecting Best Appropriate Practice. How is the Best Appropriate Practice selected? Can the decisions of others be used as learning experiences?

These two premises are discussed below.

New Zealand's Status in Asset Management

Evidences that New Zealand is a world leader in Asset Management can be seen in:

- The New Zealand Infrastructure Management Manual was a significant independent achievement in comparison to many other countries.
- The Institute of Public Works Engineering, Australia partnered the New Zealand effort to adapt each country's manuals to produce the International Infrastructure Management Manual (IIMM).
- The IIMM is being considered and adapted and adopted by other nations.
- New Zealand legislation requires local governments to demonstrate responsible stewardship. To have audited verification of this, local governments must implement Asset Management principles.

Roger Byrne, a specialist in Asset Management with the consulting firm GHD Asset Management Group, presented at the New Zealand local government engineers' and the Australian public works engineers' conferences ⁽¹⁾ of 2003. Both presentations were on sustaining asset management principles. Byrne presented a summary of the adoption of best appropriate practice (BAP).

Table 1 shows GHD's quantitative comparison between jurisdictions. It is apparent that Byrne understands New Zealand to be a leader by a healthy margin.

Weighting BAP	New Zealand	Queensland	Victoria	Northern Territory	United Kingdom	Europe	South Australia	New South Wales	USA (California)	Western Australia	Tasmania	Scotland
100	68	41	40	35	34	32	26	12	12	10	10	10

Table 1 - Ratings for Sustainable Asset Management with Best Appropriate Practice (BAP) being ideally rated at 100⁽¹⁾

Selecting Best Appropriate Practice

The IIMM ⁽²⁾ Sections 1.3, 2.4 and 2.6 discuss "levels" of asset management from "basic" to "advanced". Best appropriate practice (BAP) can be described as the best "level" for the existing conditions. The IIMM ⁽²⁾ lists condition factors that should affect level selection. These factors are:

- *the costs and benefits to the organisation*
- *legislative requirements*
- *the size, condition and complexity of the assets*
- *the risk associated with failures*
- *the skills and resources available to the organisation*

- *customer expectations.*

In discussing the act of developing Asset Management Plans, the IIMM ⁽²⁾ describes how the factors might be taken into account to decide upon a *Level of Asset Management*. The Manual leaves the assessment of the local factors and level selection with the practitioner.

It would be at least interesting, if not enlightening, to see what different practitioners had decided and what characteristics, if any, correlate with the decisions. If such a correlation can be quantified, it could be used as an indicator for selecting a best appropriate *Level of Asset Management*.

If New Zealand is a place to find leaders in asset management, and if it is a place with varying demands on infrastructure, then it follows that it is also a place to observe decisions about *Level of Asset Management*. Hence the New Zealand studies.

The Locations of the Studies

Both the Tour and the Survey were undertaken in New Zealand's North Island. The Councils' physical locations are shown below in Figure 1. Nine Councils were in the Tour and nine were in the Survey. Six Councils appear in both studies.

This report does not associate particular results or comments with particular Councils. This is an acknowledgment that the results are officers' opinions and not necessarily accountable to the Councils.

Figure 1 shows the locations of the Councils in the study. This is followed by some comments on the New Zealand environment to give context to the Tour and Survey.



Figure 1 – New Zealand North Island Councils in the Tour & Survey

The New Zealand Environment

New Zealand has characteristics that need to be appreciated as part of the studies:

- The government is three tiered – National, Regional, and Local. Regional and Local are created by and responsible to National. Regional is responsible for services that serve more than one Local. (This can pertain to planning, social, or infrastructure services.) In some instances, a Local also serves as a Regional.
- The local government areas are small relative to Australian Councils.
- Relative to the Australian norm, the terrain is more rugged and difficult for installation and maintenance of ground based infrastructure.
- The populations are small relative to Victorian norms, and much of Australian conditions.
- Councils have out-sourced field services to virtually 100%. Design and planning services are out-sourced to a slightly lower degree. Contract supervision is also out-sourced. Making policy and budgeting are services still widely internally supplied.
- “Drains” can include sewers. Historically, sewerage and storm water were drained by the same systems. Often this is still the case. Some authorities have duplicated their systems and some are currently duplicating. This is a major infrastructure issue.

The Tour – Comments and Observations

The presentation sequence of the following comments from New Zealand officers and observations made during the Tour does not represent importance or any other priority.

Comments on some General Conditions

These comments were either made in addressing the general state of affairs or were repeated enough to be considered a common opinion.

Acceptance of the Need for Asset Management

It was commonly accepted that Asset Management should be formalised and treated as part of the responsibility of stewardship in implementing what the taxpayer desires.

The comments on this issue might be summarised with the following:

- the provision of services requires the provision of assets;
- level of service should be stipulated by the person paying for it while having knowledge of costs (As elsewhere, there were the common democratic and social security considerations blurring this issue between *user* and *payer*, but the general principle held.);
- assets should be managed such that they provide the required level of service, both now and in the future;
- such provision should form part of short and long-term plans;
- such plans should determine budgets.

There were questions about what degree is appropriate for what circumstance, but not about whether or not asset management should exist.

Gaining the Stakeholders' Direction

There were also questions about how to gain stakeholders' opinions and translate those into one generalised stakeholders'-opinion. Direction should not be set without guidance from the stakeholders, but:

- There are so many issues on which to gain the opinion. How is that done without inflicting the “shell-shock” of over-surveying?
- How are the many, varied and sometimes conflicting opinions translated into one direction?

Some Councils were still addressing these questions. Others had decided on different ways to treat opinions for different issues. These ranged from expertise taking a strong lead, to the politician making political decisions about priorities, to compromise accommodating different opinions.

A Tool to Cope With the Squeaky Wheel

There was recurring confirmation that sound management practices generate a stable environment that receives the confidence of the politician and the taxpayer. The logic of basing long term plans and budgets on sound knowledge and reliable practices allows the practitioner and the politician to argue against hastily tabled, ill-planned, questionably prioritised projects. The argument about priority is held at the planning stage with sound knowledge and all options considered, not at the front counter or on the telephone or on the street in emotional conditions with limited available data.

Acceptance of the Cost of Funding Infrastructure

There were recurring accounts of episodes where an asset had not been well managed; its future had not been funded; and its condition reached a stage where service was compromised.

Functions of Asset Management were formally implemented. These had to do with gaining inventory knowledge; condition assessment; service functionality assessment; service demand assessment and future service functionality predicted and costed.

The result was that a significant increase in tax was required to sustain the service. The management processes were thorough enough and transparent enough to convince the taxpayer that the increase was warranted. The tax increase was accepted by the politician and the taxpayer.

Systems to Prioritise Varied Options

A common issue was the need to have a system for assessing priority that allowed comparison of projects at the peak level (ie Council, or broader).

An asset manager may well have a “best available” system for her/his Asset Type. Such a system helps prioritise projects for that Asset Type and thus set a projected budget for that Asset Type and its associated service. But how are projects across Asset Types compared? What system is used to bridge disparate systems at the peak level?

The author was privileged to observe a meeting of the National Asset Management Steering (NAMS) Group when it considered this. (See Appendix 3 for a note on the NAMS Group.)

The Group grappled with the need for a system that recognised the need for industry consistency, but allowed flexibility. It was also aware of suppliers' vested interests; the need to avoid commercial favouritism; councils' investments in existing systems; individuals' conflicting confidences in different systems; and opinions that particular systems cater best to particular Asset Types.

At the time, the Group did not have a solution, but was keenly aware of its standing in the industry and that the industry looked to it for leadership in continuous improvement. The Group was therefore aware that it needed to bring about a solution and it was working towards one.

Sharing the Load

One of the characteristics of New Zealand mentioned earlier is that the Councils' populations are relatively small. This translates to lower tax bases and tighter expenditures. The trigger for sharing projects across governments comes into play earlier than would otherwise be. Examples of shared projects are in research and software purchase and contracted services.

Trusting the Computer's Program

There were recurrent warnings that the computer's ability to store and consider immense quantities of data should not be blindly trusted to provide an issue's best treatment. The software's proposals should be treated as only iterative recommendations. These should be verified with the practitioner's site assessments.

Rate Differentials

National legislation allows a Council to differentiate in its tax rates if there is a differentiation in the use of its services. Different Councils used this ability in different ways. This affects Asset Management in that the asset user can be targeted to fund budgets required of Asset Management plans.

Comments on some Local Conditions

These comments were made in addressing local conditions.

"Guaranteed" Base Budgets

There were instances where base budgets are "guaranteed" into the future as Council policy. Budgets for projects on top of the base are subject to competition between services. The base budgets are determined by policy-required long term service plans, which require long term asset management plans, which require long term budgets. The budgets are rationalised and justified to parallel the public's service desires.

Accountability for Budgets and Associated Services

In at least one Council, where Asset Management practice was mature, managers signed off on budgets and the accompanying service promises. The managers were held accountable for the promises resulting from their Asset Management practices.

Observations

These observations were made by the author.

The Profession Driving the Uptake of Asset Management

There is strong drive towards the uptake of *Asset Management* from the national government via its Local Government legislation and via its road work subsidisation. Also, there is strong drive and leadership towards the uptake of

Asset Management from Local Government's leading professionals. Engineering appears to be the profession to have transferred these drives to the field.

This predominance of engineering now seems to be waning at the local level as asset management graduates to assets other than roads and drains and water and sewers and buildings. At these levels other players such as parks managers and social planners and cultural managers are coming into the fray. But the industry level drive seems to be still through engineers.

It seems conspicuous that accountants are not driving the issue. Financial planning and management are tools of the practitioner, not just edicts from the auditor.

The INGENIUM Conference

Most of the Conference's subjects were about some aspect of *Asset Management*. Notable exceptions to this theme were reminders to the staid engineer that her/his life's work is about improving the lot of human beings. She/he should not let that get lost in the day-to-day grind. There were also discussions on INGENIUM itself and how it needs to improve its marketability to the young engineer and assure its worthiness to a future. From similar discussion at the IPWEA Hobart conference, it would seem both associations are conscious of this imperative.

Australia was well represented by an address from Bob Fredman. Bob, from Cooloola Queensland, argued that engineers must include aesthetics in the infrastructure they bring to the public. Infrastructure should not only serve a practical purpose, but also cultural and artistic purposes. Bob spoke with authority, example and a wit as arid as the Queensland outback.

The Conference's most telling effect was the aura of fraternity; the engineers' common sense of responsibility for New Zealand's infrastructure and the service that brings to New Zealand's public.

Still a Long Way to Go

There were some instances where the practitioners acknowledged that practices and knowledge were below the desirable level. These situations were apparent where a service group was newly adopting or formalising *Asset Management*. The situation was also apparent where a whole Council was at a similar stage of development. Some smaller rural Councils had management plans based on the Council's opinion of what should be. Council now has the job of maturing these plans to account for what the public thinks should be.

New appreciation of asset management concepts brought about appreciation of the gap between existing practice and best appropriate practice.

There was an appreciation that continuous improvement is a journey. Sometimes progress is urgent, and sometimes it needs to be ground out.

The Survey – a Search for an Indicator to Best Appropriate Practice

The Survey's purpose, structure and results are discussed below. The interpretation of the results follows. In that section, permutations of the results are investigated for patterns and exploitable associations.

Survey Purpose

As noted earlier, the IIMM⁽²⁾ discusses factors that should be used to select the best appropriate *Level of Asset Management*. But these factors are esoteric, and their quantification is not easily repeatable and transferable. A parallelling measurable indicator would be useful to serve this purpose.

The Survey's purpose is to find a correlation between *Level of Asset Management* and a quantifiable Council characteristic. That characteristic can then be used to suggest an appropriate best practice for that circumstance.

Survey Structure

The Survey asked Council officers to assign a quantitative evaluation of the

- *Level of Asset Management* for each
- *Asset Management Function* as applied to each
- *Asset Type* of each
- *Council*

An explanation of the first three items is given below.

Level of Asset Management

The assessments of the *Level of Asset Management* are quantitative valuations:

- 0 Not Applicable; the asset is not relevant OR
- 1 The *Level of Asset Management* is basic THROUGH TO
- 5 The *Level of Asset Management* is advanced, meaning the *Asset Management Function* would pass the requirements as detailed in NAMS Group checklist⁽³⁾ for asset management assessment. (Refer Appendix 3)

Asset Management Functions

The IIMM⁽²⁾ Section 1.4 discusses a lifecycle of asset management, in which steps are described. These steps are *Asset Management Functions* that occur throughout the life of an asset. They are:

- *planning strategies*
- *creation/acquisition*

- *financial planning*
- *operations & maintenance*
- *condition/performance monitoring*
- *rehabilitation, renewal & replacement*
- *disposal/rationalisation*
- *audit (the processes) & review (the processes)*

Each *Asset Management Function* was assessed twice; one assessing how Council planned and one assessing how Council actually put those plans into actions (ie implemented its plans). This means there are sixteen *Asset Management Functions*.

Asset Types

The *Asset Management Functions* were assessed for eight different *Asset Types*:

- *buildings*
- *roads (inc. bridges)*
- *drains*
- *open space*
- *sports fields*
- *garden beds*
- *trees*
- *library resources*

Survey Results

The raw results of the Survey are the evaluations of the *Levels of Asset Management*.

These evaluations are officers' opinions and their consistency affects the Survey's dependability. This is discussed below.

The results are presented in Appendix 1 in the form of tables. Each table is for an *Asset Type* and shows the evaluations of *Asset Management Functions* for each Council.

The results are then graphed in a search for an indication that Councils select their own preferred *Level of Asset Management*. Further graphing and interpretation aids in the search for a Council characteristic that parallels the Council *Level of Asset Management*. These interpretations are discussed in the section "Survey Interpretations" below.

Assessment Consistency

The Survey depends on opinions. Without tools that assure consistency across *Asset Types* and Councils, the study cannot claim that one person's assessment is the same as another's.

Such tools would need to be strict enough to assure compliance and detailed enough to assure applicability across *Asset Types* and Councils. Such tools were not used in the Survey.

Some degree of consistency is inherent in that the assessments are from individuals within an industry that:

- is relatively small leading to good inter-council awareness,
- has a strong professional association which achieves at least a base level of consistent influence,
- has a consistency forced upon it (as far as roads are concerned) by the national road authority, and
- has been operating formally for enough years to claim deep penetration within the industry.

These are commonalities to each assessor and establish a datum from which each assessment begins.

However, if there is a consistency within New Zealand, it should not be assumed to overlap into the Australian environment. In a journey, those who have journeyed further, have a different view of how far there is still to go.

These assessments by New Zealand of New Zealand, should not be compared to similar assessments by Australia of Australia.

Survey Interpretations

To interpret the Survey's results, graphs were used to try to discover an exploitable pattern.

The three variables associated with *Level of Asset Management* are:

- *Asset Management Function*
- *Asset Type*
- *Council*

The difficulty in constructing a four-axis graph precluded a one-off comparison of all the variables, so *Level of Asset Management* was graphed with the three variables separately.

Level of Asset Management and the Three Variables

Graphs were constructed to compare:

- *All Levels of Asset Management with Asset Management Functions*
- *All Levels of Asset Management with Asset Types*
- *All Levels of Asset Management with Councils*

See Figures A2.1, A2.2 and A2.3 in Appendix 2 for the three graphs. There was no pattern apparent. The *Levels of Asset Management* were spread across most possible values. The interpretation apparent here was that the *Levels of Asset Management* have no relationship with the three variables when all valuations are considered equally.

Another approach was required to discover a pattern and causal effect.

Level of Asset Management and Councils

Given that no relationship was apparent when all *Levels of Asset Management* were considered equally, summaries of the evaluations across each of the three variables in turn produced graphs of simplified data. This treatment tested if a relationship was apparent when one of the three variables was eliminated.

See Appendix 2 for:

- Figure A2.4 *Asset Types*, averaged across *Asset Management Functions* and displayed in Councils
- Figure A2.5 *Asset Management Functions*, averaged across *Asset Types* and displayed in Councils
- Figure A2.6 *Asset Management Functions*, average the Councils and displayed in *Asset Types*

Figure A2.4 showed scattered results and no pattern. This indicated there was no discernible relationship linking Council and *Asset Type*.

Figure A2.5 showed tight groupings of *Asset Management Functions* for each Council. This indicated that each Council displayed its own preferred *Level of Asset Management* when averaged across *Asset Types*.

Figure A2.6 showed tight groupings of *Asset Management Functions* for each *Asset Type*. This indicated that across the group of Councils, each *Asset Management Function* was treated similarly within each *Asset Type*.

It was apparent from the two Figures A2.5 and A2.6 that there was a relationship between Council and *Level of Asset Management*.

Level of Asset Management and Council Characteristics

Having discovered an apparent relationship between Council and *Level of Asset Management*, the next step in the Survey's search was to explore for a relationship between *Level of Asset Management* and another Council characteristic.

See Appendix 2 Figure A2.7 for each Council's average *Level of Asset Management* graphed with their other characteristics. The Councils are arranged in order of *Level of Asset Management*.

There was no obvious similarity in the shapes of the loci. None of these Council characteristics correlates with Councils' *Levels of Asset Management*.

Level of Asset Management and Inventory

Having discovered an apparent relationship between Council and *Level of Asset Management*, but failed to discover a relationship between *Level of Asset Management* and another Council characteristic, the next step in the Survey's search was to explore for a relationship between *Level of Asset Management* and inventory. Such a relationship might serve as the indicator for selecting a best appropriate *Level of Asset Management*.

See Appendix 2 for:

- Figure A2.8 Floor Space - Level of Asset Management & Inventory Indicator
- Figure A2.9 Roads - Level of Asset Management & Inventory Indicator
- Figure A2.10 Drains - Level of Asset Management & Inventory Indicator
- Figure A2.11 Open Space - Level of Asset Management & Inventory Indicator
- Figure A2.12 Sports Fields - Level of Asset Management & Inventory Indicator
- Figure A2.13 Garden Beds - Level of Asset Management & Inventory Indicator
- Figure A2.14 Trees - Level of Asset Management & Inventory Indicator
- Figure A2.15 Library Resources - Level of Asset Management & Inventory Indicator
- Figure A2.16 Vehicles, Plant and Equipment - Level of Asset Management & Inventory Indicator

The Councils are arranged in order of *Level of Asset Management*.

Figure A2.13 was the only chart that displayed anything like correlation and that appeared tenuous. A relationship could not be claimed.

Conclusions

It was apparent from the Survey's tests that Councils had a preferred *Level of Asset Management*. But there appeared to be no relationship between that Level and any Council characteristic collected in the Survey data. Nor was there a relationship between *Level of Asset Management* and Inventory.

Neither the Tour nor the Survey revealed an easily obtainable indicator of best appropriate *Level of Asset Management*.

The process for selecting a best appropriate *Level of Asset Management* remains a complicated assessment of the more esoteric factors suggested by the IIMM⁽²⁾.

It was apparent that each Council did select its *Levels of Asset Management*. Whether or not the selection processes were designed or were merely spontaneous was not tested. Whether or not the IIMM's ⁽²⁾ factors were consciously used to affect the selections was not tested. Whether or not the selections were appropriate was not tested.

To discover the answers to these questions, and develop an associated aid for Australian engineers, further investigation of the New Zealand experience would be required.

Recommendations

Although the Tour and the Survey did not discover and therefore cannot recommend a tangible indicator for selecting best appropriate *Level of Asset Management*, several comments and observations lead to positive recommendations that can help Australia's future in *Asset Management*.

1. The outcomes of *Asset Management* are worth the effort that the implementation demands.

To optimise service provision, the assets on which that service depends must be well managed. The way to do this is to implement asset management as described in IIMM.

All stages of *Asset Management* from demand analysis, through prioritising supply, demand management, maintenance, monitoring performance, renewal, and review will help form plans, budgets, and expectations of all stakeholders. All this will improve the service.

2. Engineers should take a lead role in Australia's uptake of *Asset Management*. Engineers should not be driven by accountants, auditors or politicians, but play a lead role in the team of expertise required.

Given the lack of a tangible indicator of differences between New Zealand Councils, observation has brought the author to believe that the differences lie largely in the differences of the individuals involved. More causal effect seems to lie in the drive of the associated officer than in the asset and its warrants.

As individuals, engineers should lead the professional management of Australia's asset.

3. Following from Recommendation 2, the IPWEA might extend its role as an agent for research and coordination and facilitation and advocacy.

For instance, is there more that can be learned from New Zealand or another jurisdiction? Is research required to give Australia's engineers tools either new or already invented? Can the NAMS Group offer guidance? Are there similar bodies elsewhere? Are partnerships worth developing? Is there a need for the industry to re-evaluate its appreciation of under-graduate and post-graduate education in *Asset Management*?

At its 2003 Annual Conference, the Institute's discussion of *Asset Management* raised a question about funding the Institute's involvement in leadership. Perhaps "no obligation" commercial sponsorship can be arranged. Support from commercial interests does not have to constitute violation of probity.

4. There are two conditions existing in New Zealand that are widespread and were commended, although not universally. The two are unpalatable to Australian taste buds, but they should not be spurned without due consideration. They are:

- Outsourcing service provision (and why restrict it to or even start with the services provided by the men and women with the shovels?)
- National legislation requiring or inducing the formalisation of asset management for public assets.

Out-sourcing is controversial. What is its cost-benefit? The question needs to be asked in the industry-wide context as well as the local.

Do engineers need legislation to force them to do the right thing? Do engineers need legislation to coerce others to do the right thing?

The author's recommendation on these issues is for the industry to consider them and have a body such as IPWEA take a lead in that consideration.

References

- (1) Byrne, Roger (2003), Institute of Public Works Engineering National Conference 2003 Papers, *Achieving Sustainable Infrastructure Management*, Australia
- (2) Association of Local Government Engineering NZ Inc (INGENIUM), National Asset Management Steering Group (2002), *International Infrastructure Management Manual*, Australian/New Zealand Edition – Version 2.0
- (3) National Asset Management Steering Group (2001), *Checklist for Self Review of Asset Management Plans*, New Zealand

Appendices

Appendix 1 Tables of Levels of Asset Management with Municipal Characteristics

Levels range through 0 (NA) to 5 (excellent)

Buildings

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	3	2	1	1	2	2	4	4	4
Plan – Asset Creation / Acquisition	3	1	1	1	2	4	5	4	4
Plan – Financial Planning	3	1	1	1	2	4	4	4	4
Plan – Asset Operations & Maintenance	3	1	1	1	2	3	5	4	4
Plan – Asset Condition / Performance	3	1	1	1	2	4	4	4	3
Plan – Asset Rehabilitation / Replacement	4	1	1	1	2	4	4	4	3
Plan – Asset Disposal / Rationalisation	4	1	2	1	2	3	4	4	4
Plan – Asset Management Audit / review	3	1	1	1	2	4	4	4	4
Actual - Asset Planning	2	1	1	1	2	2	5	4	4
Actual - Asset Creation / Acquisition	3	1	1	1	2	3	5	4	4
Actual - Financial Planning	4	1	1	1	2	3	5	4	4
Actual - Asset Operations & Maintenance	3	1	1	1	2	3	5	4	4
Actual - Asset Condition / Performance	3	1	1	1	2	4	5	3	3
Actual - Asset Rehabilitation / Replacement	3	1	1	1	2	3	5	3	3
Actual - Asset Disposal / Rationalisation	4	1	1	1	2	3	5	3	4
Actual - Asset Management Audit / review	3	1	1	1	2	4	5	4	4

Storm Water Drains

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	5	3	3	2	4	4	4	4	5
Plan – Asset Creation / Acquisition	5	3	3	2	3	4	5	4	5
Plan – Financial Planning	4	2	3	2	4	4	4	4	5
Plan – Asset Operations & Maintenance	4	4	3	2	4	4	5	4	5
Plan – Asset Condition / Performance	5	3	3	3	4	4	3	4	4
Plan – Asset Rehabilitation / Replacement	5	3	3	2	4	4	3	4	5
Plan – Asset Disposal / Rationalisation	4	2	3	2	4	3	4	4	5
Plan – Asset Management Audit / review	4	2	3	2	5	5	4	4	5
Actual - Asset Planning	5	4	2	3	4	4	4	4	5
Actual - Asset Creation / Acquisition	4	3	2	3	4	4	4	4	5
Actual - Financial Planning	4	3	2	3	4	4	4	4	5
Actual - Asset Operations & Maintenance	4	4	2	3	4	4	4	3	5
Actual - Asset Condition / Performance	4	3	2	3	4	4	3	3	4
Actual - Asset Rehabilitation / Replacement	4	3	2	3	4	3	3	3	5
Actual - Asset Disposal / Rationalisation	4	2	2	3	4	3	4	3	5
Actual - Asset Management Audit / review	4	3	2	3	4	4	4	3	5

Appendices

Appendix 1 Tables of Levels of Asset Management with Municipal Characteristics (Cont.)

Roads (inc. Bridges)

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	4	4	3	2	4	4	4	5	5
Plan – Asset Creation / Acquisition	4	4	4	2	3	4	5	4	5
Plan – Financial Planning	4	3	3	2	4	4	4	4	5
Plan – Asset Operations & Maintenance	4	4	3	2	4	4	5	4	5
Plan – Asset Condition / Performance	4	3	4	3	4	5	4	5	5
Plan – Asset Rehabilitation / Replacement	4	3	4	2	4	4	4	4	5
Plan – Asset Disposal / Rationalisation	3	2	3	2	3	4	4	4	5
Plan – Asset Management Audit / review	4	3	3	2	5	4	4	4	5
Actual - Asset Planning	4	4	3	3	3	3	5	5	5
Actual - Asset Creation / Acquisition	4	4	3	3	3	3	5	4	5
Actual - Financial Planning	4	4	3	3	3	4	5	4	5
Actual - Asset Operations & Maintenance	4	4	3	3	3	4	5	4	5
Actual - Asset Condition / Performance	4	3	3	3	3	4	4	4	5
Actual - Asset Rehabilitation / Replacement	4	3	3	3	3	4	4	5	5
Actual - Asset Disposal / Rationalisation	4	2	3	3	3	4	4	5	5
Actual - Asset Management Audit / review	4	3	3	3	3	4	4	4	5

Open Space

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	3	1	1	1	1	2	5	4	4
Plan – Asset Creation / Acquisition	2	1	1	1	1	3	5	4	4
Plan – Financial Planning	3	1	1	1	1	3	5	4	4
Plan – Asset Operations & Maintenance	4	1	1	1	2	3	5	4	4
Plan – Asset Condition / Performance	3	1	1	1	1	2	5	4	3
Plan – Asset Rehabilitation / Replacement	3	1	1	1	1	3	5	4	4
Plan – Asset Disposal / Rationalisation	4	1	1	1	1	2	5	4	4
Plan – Asset Management Audit / review	3	1	1	1	1	3	4	3	4
Actual - Asset Planning	3	1	1	3	1	2	5	4	4
Actual - Asset Creation / Acquisition	1	1	1	3	1	2	5	4	4
Actual - Financial Planning	3	1	1	3	1	2	5	4	4
Actual - Asset Operations & Maintenance	4	1	1	3	2	3	5	3	4
Actual - Asset Condition / Performance	3	1	1	3	1	2	5	4	3
Actual - Asset Rehabilitation / Replacement	3	1	1	3	1	2	5	4	4
Actual - Asset Disposal / Rationalisation	4	1	1	3	1	2	5	1	4
Actual - Asset Management Audit / review	3	1	1	3	1	3	4	3	4

Appendices

Appendix 1 Tables of Levels of Asset Management with Municipal Characteristics (Cont.)

Sports Fields

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	3	1	1	1	1	3	5	3	4
Plan – Asset Creation / Acquisition	2	1	1	1	1	3	5	4	4
Plan – Financial Planning	3	1	1	1	1	4	5	4	4
Plan – Asset Operations & Maintenance	4	1	1	1	2	4	5	4	4
Plan – Asset Condition / Performance	3	1	1	1	1	3	5	4	3
Plan – Asset Rehabilitation / Replacement	3	1	1	1	1	3	5	4	4
Plan – Asset Disposal / Rationalisation	4	1	1	1	1	3	5	4	4
Plan – Asset Management Audit / review	3	1	1	1	1	3	4	2	4
Actual - Asset Planning	3	1	1	3	1	3	5	3	4
Actual - Asset Creation / Acquisition	1	1	1	3	1	3	5	3	4
Actual - Financial Planning	3	1	1	3	1	4	5	3	4
Actual - Asset Operations & Maintenance	3	1	1	3	2	3	5	3	4
Actual - Asset Condition / Performance	3	1	1	3	1	3	5	4	3
Actual - Asset Rehabilitation / Replacement	3	1	1	3	1	2	5	4	4
Actual - Asset Disposal / Rationalisation	3	1	1	3	1	3	5	1	4
Actual - Asset Management Audit / review	3	1	1	3	1	3	4	3	4

Garden Beds

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	2	1	1	0	1	2	5	1	4
Plan – Asset Creation / Acquisition	1	1	1	0	1	3	5	3	4
Plan – Financial Planning	1	1	1	0	1	2	5	3	4
Plan – Asset Operations & Maintenance	3	1	1	0	2	3	5	4	4
Plan – Asset Condition / Performance	2	1	1	0	1	3	5	2	3
Plan – Asset Rehabilitation / Replacement	2	1	1	0	1	3	5	3	3
Plan – Asset Disposal / Rationalisation	1	1	1	0	1	2	5	3	3
Plan – Asset Management Audit / review	1	1	1	0	1	2	4	2	4
Actual - Asset Planning	2	1	1	0	1	2	5	1	4
Actual - Asset Creation / Acquisition	1	1	1	0	1	2	5	3	4
Actual - Financial Planning	2	1	1	0	1	1	5	3	4
Actual - Asset Operations & Maintenance	3	1	1	0	2	2	5	3	4
Actual - Asset Condition / Performance	3	1	1	0	1	2	5	1	3
Actual - Asset Rehabilitation / Replacement	3	1	1	0	1	2	5	1	3
Actual - Asset Disposal / Rationalisation	3	1	1	0	1	2	5	3	3
Actual - Asset Management Audit / review	3	1	1	0	1	1	4	2	4

Appendices

Appendix 1 Tables of Levels of Asset Management with Municipal Characteristics (Cont.)

Trees

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	3	0	1	0	1	1	5	1	5
Plan – Asset Creation / Acquisition	3	0	1	0	1	2	5	3	4
Plan – Financial Planning	2	0	1	0	1	1	5	4	4
Plan – Asset Operations & Maintenance	3	0	1	0	2	1	5	4	4
Plan – Asset Condition / Performance	3	0	1	0	1	2	5	2	4
Plan – Asset Rehabilitation / Replacement	2	0	1	0	1	1	5	3	4
Plan – Asset Disposal / Rationalisation	4	0	1	0	1	1	5	3	4
Plan – Asset Management Audit / review	3	0	1	0	1	2	4	2	4
Actual - Asset Planning	4	0	1	0	1	1	5	1	5
Actual - Asset Creation / Acquisition	3	0	1	0	1	2	5	3	4
Actual - Financial Planning	3	0	1	0	1	1	5	3	4
Actual - Asset Operations & Maintenance	3	0	1	0	2	1	5	3	4
Actual - Asset Condition / Performance	3	0	1	0	1	2	5	3	4
Actual - Asset Rehabilitation / Replacement	3	0	1	0	1	1	5	2	4
Actual - Asset Disposal / Rationalisation	3	0	1	0	1	1	5	3	4
Actual - Asset Management Audit / review	4	0	1	0	1	2	4	2	4

Library Resources

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	0	2	1	0	0	3	5	0	3
Plan – Asset Creation / Acquisition	0	1	2	0	0	3	5	0	3
Plan – Financial Planning	0	1	1	0	0	2	5	0	3
Plan – Asset Operations & Maintenance	0	1	1	0	0	4	5	0	3
Plan – Asset Condition / Performance	0	1	1	0	0	3	5	0	3
Plan – Asset Rehabilitation / Replacement	0	1	1	0	0	3	3	0	3
Plan – Asset Disposal / Rationalisation	0	1	1	0	0	2	3	0	3
Plan – Asset Management Audit / review	0	1	1	0	0	2	4	0	3
Actual - Asset Planning	0	1	1	0	0	3	5	0	3
Actual - Asset Creation / Acquisition	0	1	1	0	0	3	5	0	3
Actual - Financial Planning	0	1	1	0	0	2	5	0	3
Actual - Asset Operations & Maintenance	0	1	1	0	0	3	5	0	3
Actual - Asset Condition / Performance	0	1	1	0	0	3	5	0	3
Actual - Asset Rehabilitation / Replacement	0	1	1	0	0	2	5	0	3
Actual - Asset Disposal / Rationalisation	0	1	1	0	0	2	4	0	3
Actual - Asset Management Audit / review	0	1	1	0	0	2	4	0	3

Appendices

Appendix 1 Tables of Levels of Asset Management with Municipal Characteristics (Cont.)

Vehicles, Plant & Equipment

	Council 1	2	3	4	5	6	7	8	9
Plan – Asset Planning	3	2	0	0	1	2	5	4	3
Plan – Asset Creation / Acquisition	3	3	0	0	1	4	5	4	3
Plan – Financial Planning	3	3	0	0	1	4	5	4	3
Plan – Asset Operations & Maintenance	3	3	0	0	1	3	5	3	3
Plan – Asset Condition / Performance	3	2	0	0	1	2	5	3	3
Plan – Asset Rehabilitation / Replacement	3	2	0	0	1	2	5	3	3
Plan – Asset Disposal / Rationalisation	3	1	0	0	1	3	5	3	3
Plan – Asset Management Audit / review	3	2	0	0	1	2	5	4	3
Actual - Asset Planning	4	3	0	0	1	2	5	4	3
Actual - Asset Creation / Acquisition	4	3	0	0	1	4	5	4	3
Actual - Financial Planning	3	2	0	0	1	3	5	4	3
Actual - Asset Operations & Maintenance	3	3	0	0	1	3	5	4	3
Actual - Asset Condition / Performance	3	3	0	0	1	2	5	3	3
Actual - Asset Rehabilitation / Replacement	3	3	0	0	1	2	5	3	3
Actual - Asset Disposal / Rationalisation	4	2	0	0	1	3	5	3	3
Actual - Asset Management Audit / review	3	2	0	0	1	2	5	4	3

Council Characteristics

Council	1	2	3	4	5	6	7	8	9
Population 2001	43,974	16,764	27,510	53,658	66,600	184,82	64,473	43,266	38,232
Population % change per year	-0.79%	-0.64%	-0.40%	0.07%	-2.31%	1.47%	-0.01%	-0.79%	1.87%
Municipal Area (km ²)	8,355	1,188	2,624	106	2,209	130	2,615	2,373	2,121

Council Asset Quantities

Council	1	2	3	4	5	6	7	8	9
Floor Space – m ² floor space	20,000	6,000	6,000	15,000			10,000	*749,000	10,900
Roads – sealed lane km	1,410	900	2,040	700		1,363	866	533	723
Storm Water Drain – drain km	252	130	110	500		3,472	2,260	393	84
Open Space – ha	375	310	70	150		1,936	316	1,600	*5,360
Sports Fields – ha	140	37	35	12		80	59	113	192
Garden Beds – m ²	8,194	3,000	3,000			1,500	67,188	4,500	20,910
Trees – tree	5,5000			7,000		14,000	18,400	150,000	225
Library Resources - \$M	**3.00	0.35				17.35	5.50		9.00
Vehicles, Plant & Equipment - \$M	2.40	2.00				14.18	6.40		

- The Council's data was omitted from the graph as the inventory was outside the group's reasonable range.
- The Council's data was omitted from the graph as the Council's assessment was 0 (In this case, meaning "unknown".)

Appendices

Appendix 2 Graphs of Levels of Asset Management

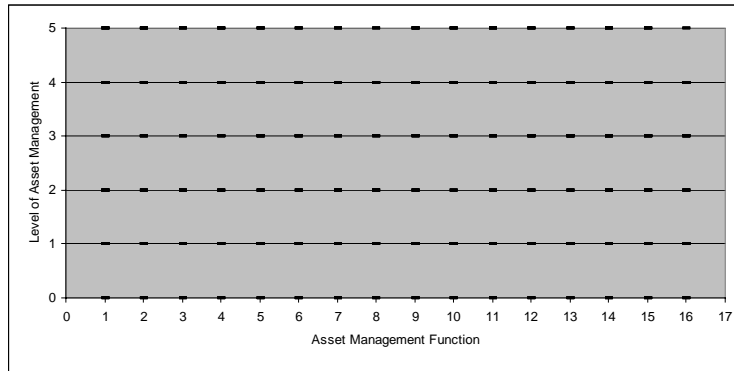


Figure A2.1 Levels of Asset Management of Asset Management Functions

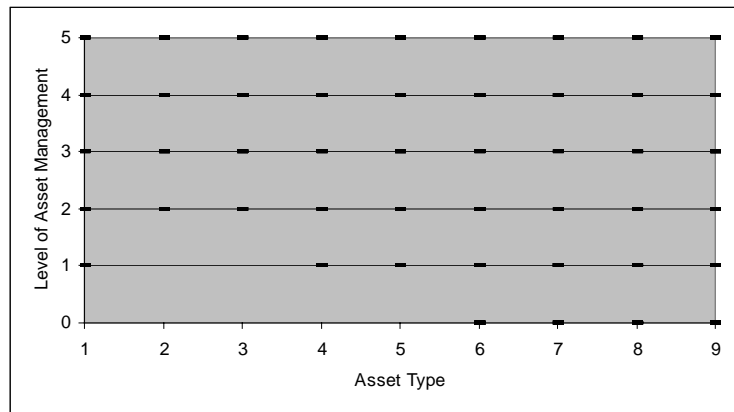


Figure A2.2 Levels of Asset Management of Asset Types

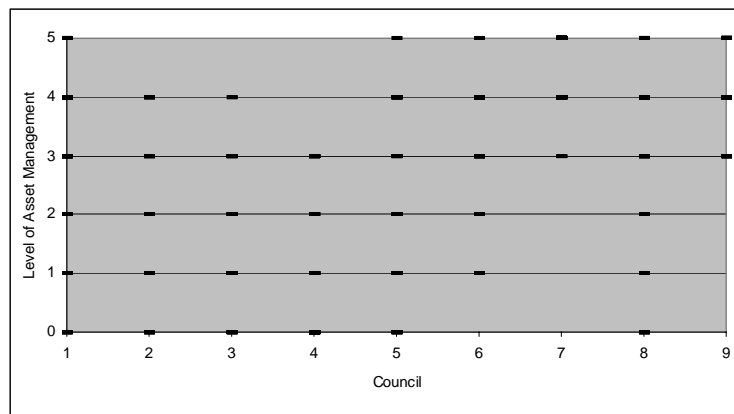


Figure A2.3 Levels of Asset Management of Councils

Appendices

Appendix 2 Graphs of Levels of Asset Management (Cont.)

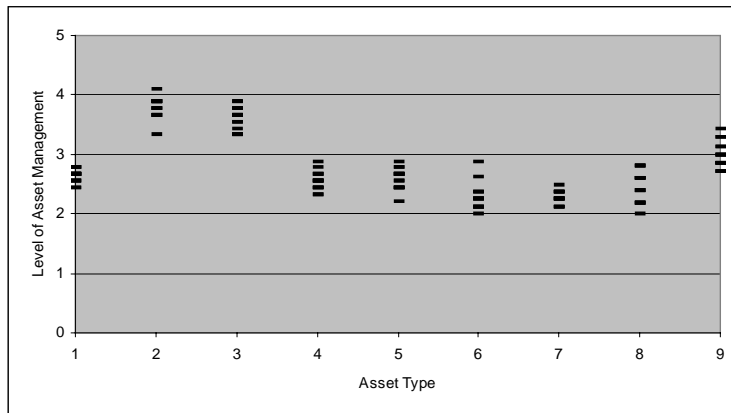


Figure A2.6 Level of Asset Management for each Asset Management Function, averaged across Councils and displayed in Asset Types

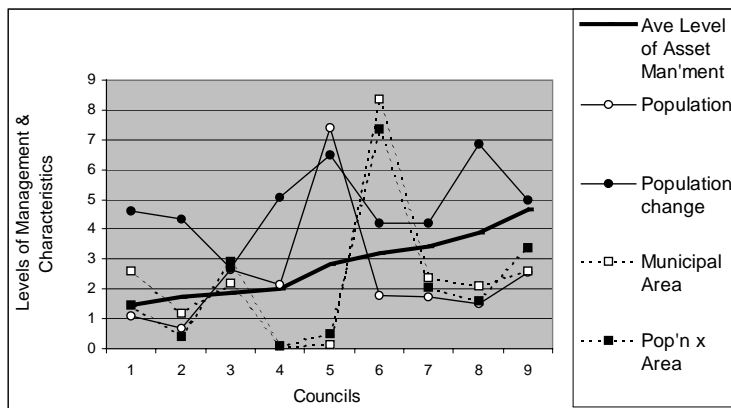


Figure A2.7 Councils' average Level of Asset Management with Council Characteristics

The characteristics are factored to bring them into the 0 to 10 range.

Appendices

Appendix 2 Graphs of Levels of Asset Management (Cont.)

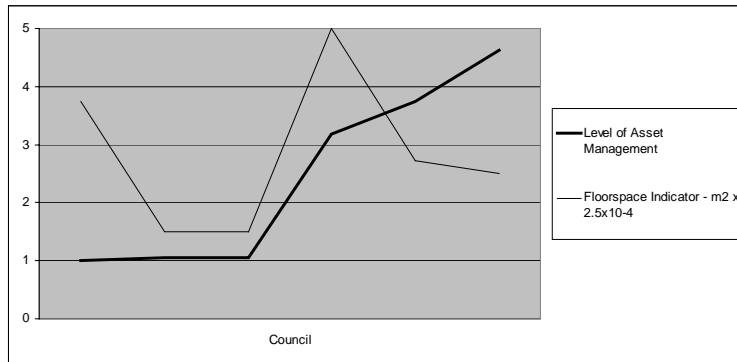


Figure A2.8 Floor Space Level of Asset Management with Inventory

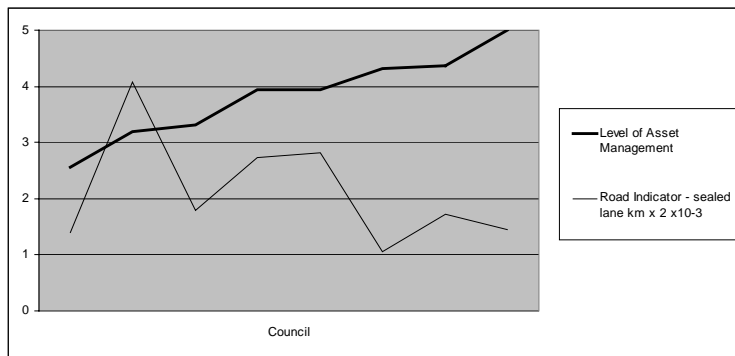


Figure A2.9 Roads Level of Asset Management with Inventory

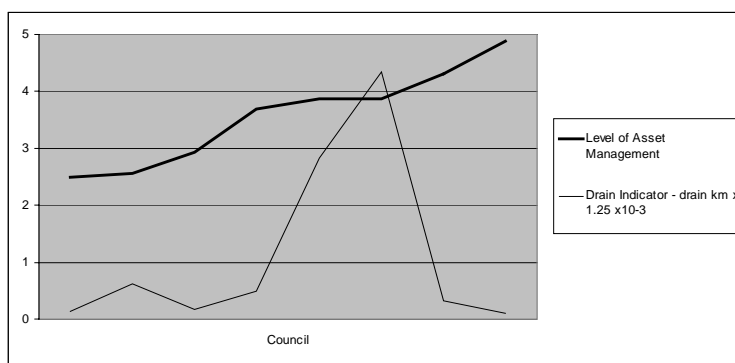


Figure A2.10 Drains Level of Asset Management with Inventory

Appendices

Appendix 2 Graphs of Levels of Asset Management (Cont.)

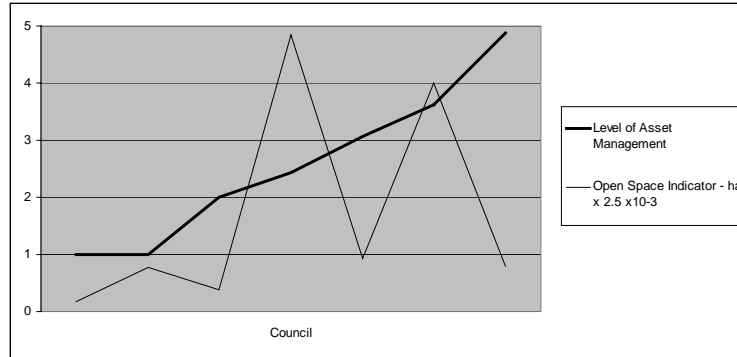


Figure A2.11 Open Space Level of Asset Management with Inventory

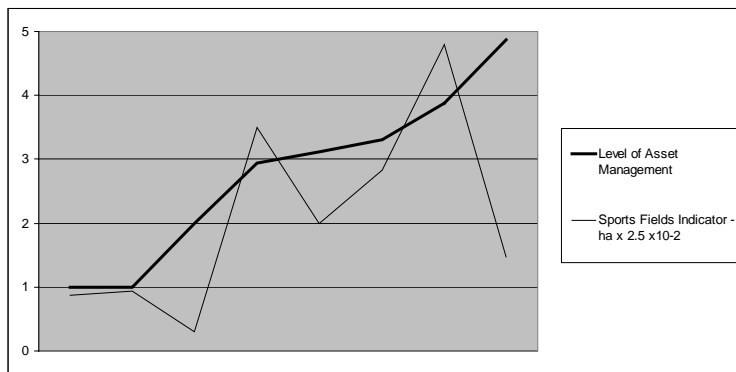


Figure A2.12 Sports Fields Level of Asset Management with Inventory

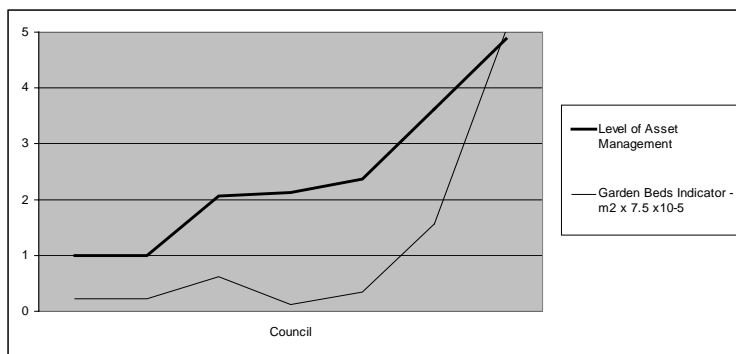


Figure A2.13 Garden Beds Level of Asset Management with Inventory

Appendices

Appendix 2 **Graphs of Levels of Asset Management (Cont.)**

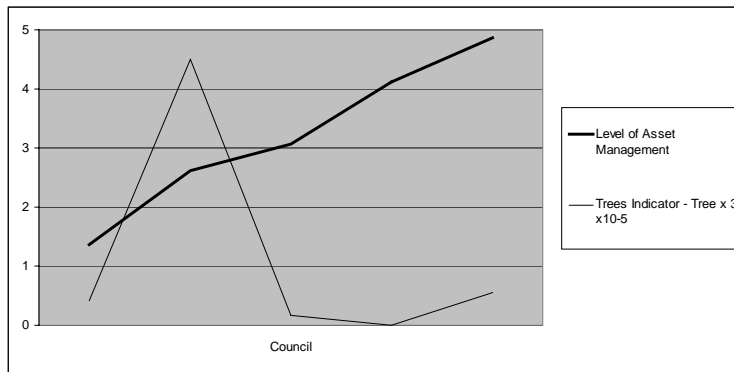


Figure A2.14 Trees Level of Asset Management with Inventory

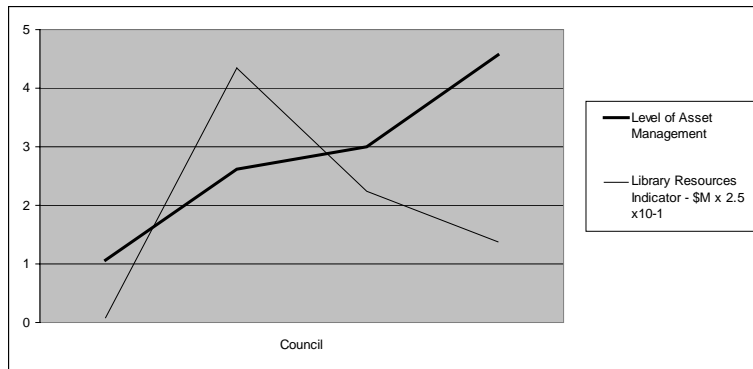


Figure A2.15 Library Resources Level of Asset Management with Inventory

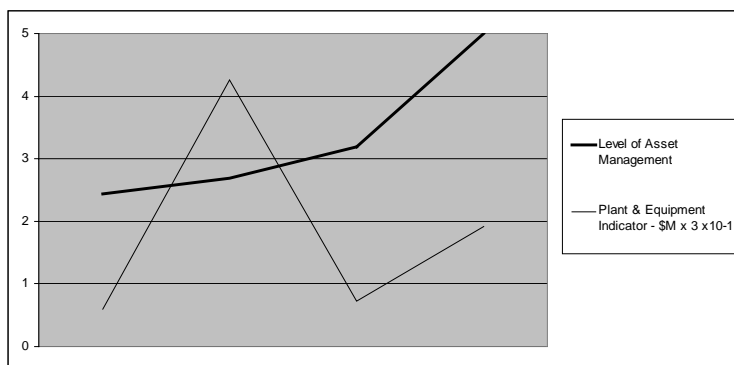


Figure A2.16 Vehicles, Plant & Equipment Level of Asset Management with Inventory

Appendices

Appendix 3 A Note on the National Asset Management Steering Group's Asset Management Plan Checklist

Observations of the National Asset Management Steering (NAMS) Group are discussed in this report's sections on the Tour and the Survey.

The Group has representation from INGENIUM and other asset management practitioners; national and local.

This is the body the industry relies on for research and support and leadership. The Group helped lead New Zealand's push to asset management and publishes the IIMM⁽²⁾ and associated aids such as "Asset Management Plan Checklist⁽³⁾", "Customer Agreement Guidelines", "Contract Management", "Infrastructure Valuation and Depreciation Guidelines", "Creating Customer Value".

The Group's "Asset Management Plan Checklist⁽³⁾" was produced in September 2001 and covers 67 checks about asset management (eg linkage to strategies, service standards, asset inventories, asset valuation, management processes, linkage to other policies & practices (eg financial), operational programs, asset improvement, and review & revision of management).