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Strategic Asset Management

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Guest Issue: IPWEA

(Institute of Public Works Engineering, Australia)

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Special Guest Issue

This Issue of the Newsletter has been prepared by members of the National Asset Management Committee of the IPWEA

Chris Champion, the CEO of the IPWEA

John King, BSD, the Chairman of the NAM Ctee

And

Bruce Douglas, Mornington Peninsula Shire Council, Victoria

Ron Crawford Knox City Council, Victoria

For more information on the work of the National Asset Management Committee, see the back page.

Asset Managers or merely Asset Owners?

It is time to move beyond financial reporting obligations to true asset management, argues Chris Champion, the CEO of the IPWEA in this introduction.

There was an initial rush of energy spent on complying with the various Australian Accounting Standards to meet financial reporting requirements for assets. However have we moved far from being merely Asset Owners, to become true Asset Managers?

The consumption of assets reported as depreciation can be equivalent to 25% of an organisation's total operating budget. It is time to move beyond financial reporting requirements to using asset management as a business tool.

The costs of taking our assets for granted.

Our whole society is underpinned by essential infrastructure such as roads and other transport systems, water supply, waste disposal, energy, telecommunications and recreational networks. Good quality infrastructure is the cornerstone of public health and safety. Yet the condition of our infrastructure is taken for granted until something fails.

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It is also true that the costs of our infrastructure underpin the costs of our society. Strategies therefore need to be put in place to ensure infrastructure of appropriate quality at a reasonable cost.

International Infrastructure Management Manual

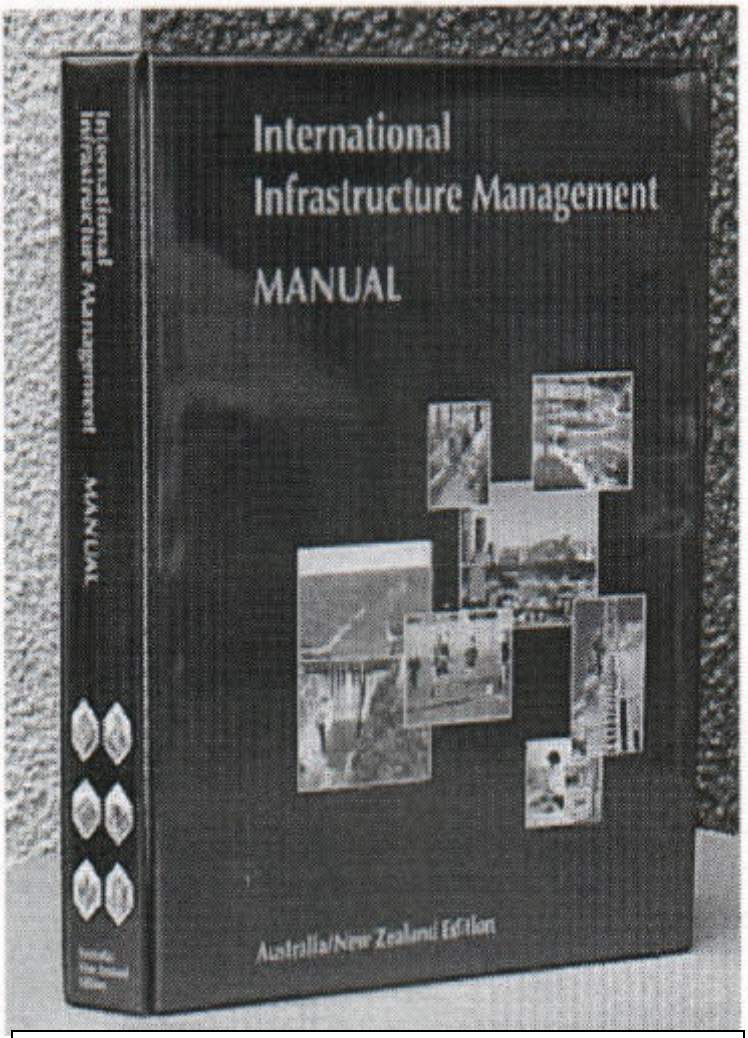
The Institute of Public Works Engineering Australia (IPWEA) has joined forces with the National Asset Management Steering Group of the Association of Local Government Engineers of New Zealand to produce a combined manual which upgrades both their individual national manuals. The new, recently released, manual is also attracting attention in the USA and Canada for its provision of all of the tools necessary to effectively manage a Nation's assets.

Some Questions that Need an Answer

The basic approach to asset management in many cases only provides a snapshot of our assets. It meets the minimum legislative and organisational requirements for financial reporting.

You may now have an asset register and know the condition of your assets. You m ay have an idea of their replacement cost. But do you know when they need to be replaced, or have maintenance intervention? Have you projected the necessary cashflow required to achieve certain levels of service? Can you rate the risk associated with different treatment options? How will different levels of expenditure affect the level of service that you provide? Do you know the optimum maintenance level to minimise the life cycle costs for your community or organisation? And importantly, do the politicians, your Councillors or your Board understand the importance of good infrastructure asset management?

The degree of complexity of asset management will differ according to your organisation's needs and the benefits that it can derive. Setting the right level will take into account legal requirements, customer expectations, the nature of your assets, exposure to risk and the availability of resources.



See how the International Infrastructure Management Manual can meet your needs.

View extracts from the Manual on
www.ipwea.org.au

Copies of the manual cost $A300 plus postage and handling of $A10 (Australia only) plus 10% GST. To order y our copy **contact**

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A Pavement Management System is a Tool – Knowing how to use it is critical.

Experience from the Mornington Peninsula Shire Council
Bruce Douglas

Tools cannot replace Decision Making

It is widely known that a P.M.S. is not a computerised system that can entirely replace the final road maintenance decision making process. It can be used to assist existing road maintenance procedures, and supplement existing local knowledge and practical experience. This becomes an even more valuable aid in road maintenance planning, when you consider the magnitude of the task, with the Shires' local road network being currently in excess of 1,600km in length, and the total road infrastructure being valued at over $560million.

A Knowledge of the Assets is Essential to Understanding the Output of the PMS

While many Councils engage consultants to undertake their road condition surveys, by physically carrying out this aspect of data collection ourselves, we keep a realistic 'feel' of the overall network condition and knowledge of geographical areas of concern. This first hand knowledge of the asset conditions is an essential ingredient in being able to massage the output from the P.M.S. and refine the database to more accurately reflect observed field conditions and performance.

PMS Tools Need to Be Calibrated to Local Conditions

Significant value has been added to the system by the gaining of specific knowledge of 'deficiencies' in the P.M. S. default algorithm parameters by understanding the particular local qualities of the roads within the Mornington Peninsula, a process that was only made possible by having suitable resources and staff with extensive experience of these local conditions who are able to analyse and interpret report results. This comprehensive analysis and fine tuning would not have been possible using external contractors or consultants due to monetary constraints and lack of local knowledge.
Having a pavement asset coordinator, devoted to the practical aspects of road maintenance has also been invaluable. This person's knowledge and work in identifying the physical causes behind existing road distress, and highlighting associated drainage problems enables more practical solutions to be undertaken.

Keeping Abreast of New Techniques

Part of the role of that officer is to keep an awareness of new road maintenance techniques and treatments, to project manage road reseal and rehabilitation works and to monitor damage to Shire assets by other authorities. The combination of this practical approach along with the accurate data records held within the P.M.S., an objective process of identification of roads requiring treatment and realistic calculations of cost/benefit ratios for each treatment option is proving to be highly efficient in the management of the Shire's local road network.

After some time spent calibrating data to reflect local conditions and required outputs, the M.P.S. is now able to produce meaningful reports indicating the current road network condition levels and required funding levels for the future. Other reports can be extracted from the system in order to produce easily understood graphs for analysis.

An example is as shown on the next page.

Figure 1
P.M.S. Analysis of Road Surface Ages

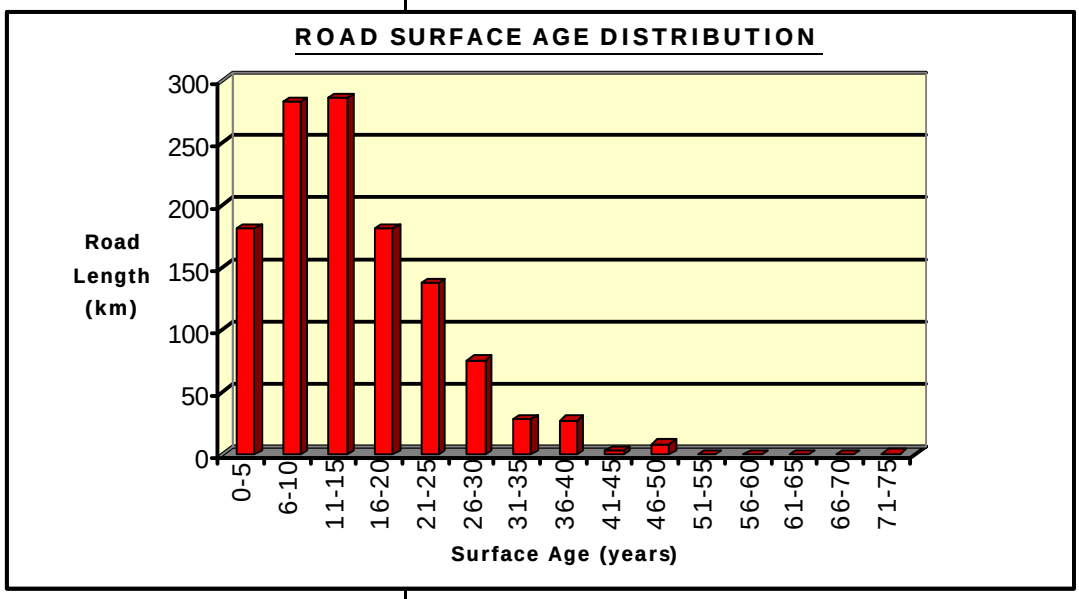
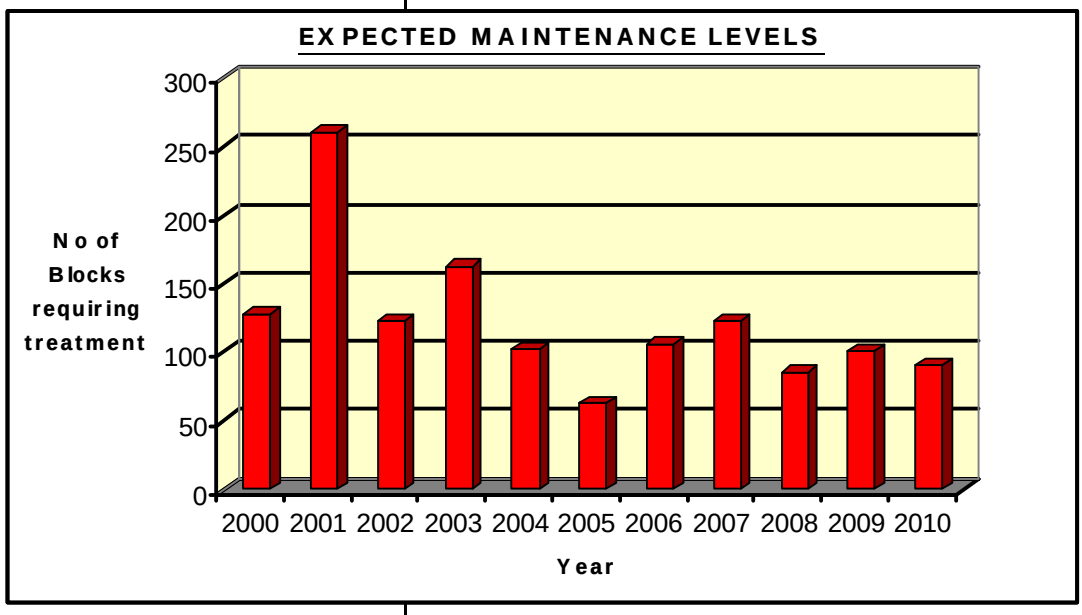


Figure 2
Indication of Expected Annual Maintenance Levels



Calibration has Increased Accuracy

Calibration refinement and further insights into PMS processes have increased the accuracy of works program reporting to around 85% when compared to the expected program outcomes based on experienced officer personal observations. Just as important as identifying the extent of funding shortfalls, is the fact that PMS can indicate limiting budget levels whereby further increased spending would deliver no discernable benefits. This prevents the unlikely event of inefficient "over funding" in any area.

The entire process of:

- :**identifying** future network **budget requirements**;
- objective **justification of** funding **expenditure**; **analysis of** suitable road **treatment options**;
- **formulation of** reseal/rehabilitation **programs**;
- **tailoring programs** around new development activities:
- **identification** and **rectification of** related **infrastructure deficiencies**;
- **co-ordination** and **quality control** of works; and **update of database records** reflecting works undertaken to assess improvements to the network,

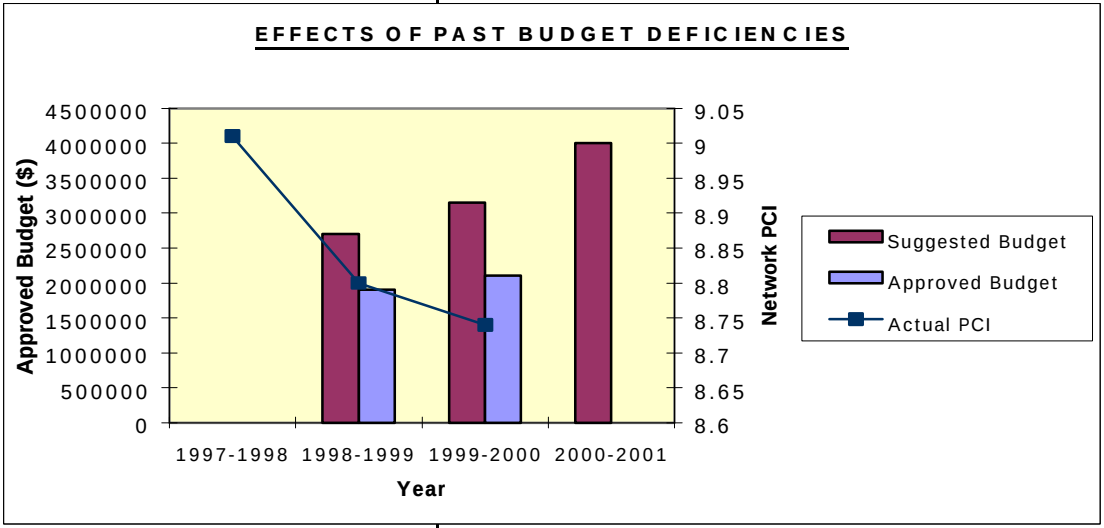
are all able to be performed by staff members who are readily accessible with local knowledge and experience. Increasingly detailed requirements of reconciliation of capital expenditure and infrastructure assets database value movements to the satisfaction of external auditors are also being achieved utilising the P.M.S.

Support for Additional Funding

The M.P.S. situation of having to accommodate continued cost cutting in the areas of periodic road maintenance over past years would be typical of many councils. The predicted ramifications of continued lack of funding along with proof of existing maintenance deficiencies may now be used in support of applications for increased funding both at Local Government and State Government levels.

The effects of funding deficiencies and consequent trends can now be identified through the records held within the P.M.S. and shown in graphical form and presented to council if necessary. Whereas the extent of funding deficiencies has always been assumed in past years, the P.M.S. can now prove this in a factual format, and can accurately indicate the negative effects this management approach has had on road conditions.

Figure 3.
Effects of Past Expenditure vs Resultant Condition Levels (PCI)

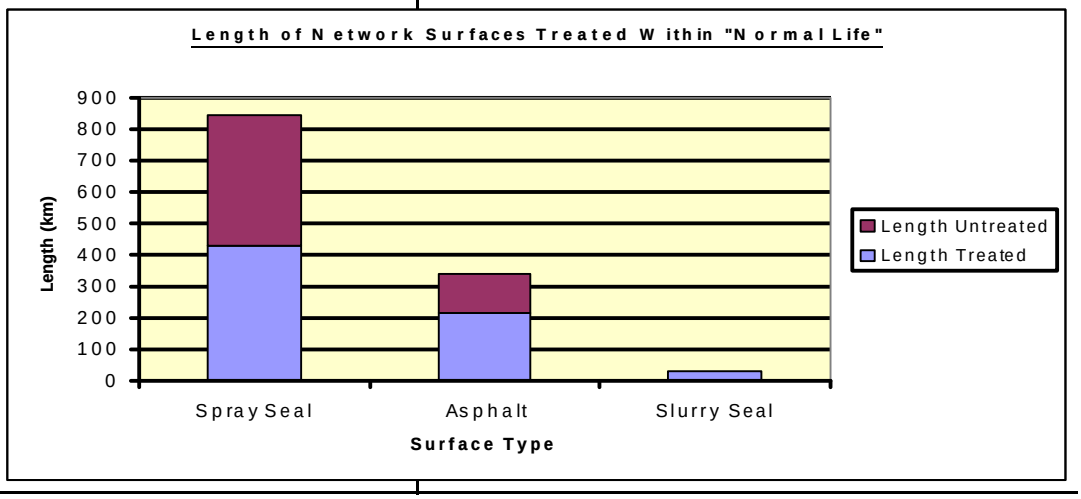


Illustrating the Effects of Past Neglect

The effects of the past economic rationalist approach of short term financial gains at the expense of long term sustainability of assets is now able to be seen in an objective and easily understood format. The graph below is a clear indication of the impact of this financial constraint on past annual reseal programs, and clearly shows the extent to which road surfaces are being expected to perform well beyond their expected 'normal life' due to funding shortfalls.

Council now has accurate data and no longer treats requests for adequate funding levels for road maintenance with scepticism, due to availability of objective P.M.S. road deterioration modelling and decision making tools.

Figure 4.
Assessment of Early Intervention Practice



Lessons from the Mornington Peninsula Shire Experience

With the production of an annual report detailing the effects of continued future deterioration of road infrastructure assets under current funding levels, the M.P.S. was able to justify and gain a significant funding increase for the 2000-2001 financial year capital works program. This was achieved at a time when the initial overall aim was to reduce last year's road maintenance capital expenditure spending even further due to other priority works and legal obligations. With the expectation of continued annual funding increases up to the optimum levels calculated by the P.M.S., investments made in systems and staff resources will surely be returned many times over in terms of improved cost efficiency and asset sustainability.

The Mornington Peninsula Shire now has a greater understanding of required future road asset condition levels, and the expenditure required to achieve and sustain those levels. The shire now also has a full range of consistent, constantly updated data necessary to more strongly support requests for these increased funding requirements. This, along with the staff available "at call" to efficiently monitor the execution of these works, the use of this tool presents a far greater opportunity to provide the Peninsula's ratepayers with more cost-effective, informed and sustainable road asset maintenance function.

If there is any lesson to be learned from our experience it is simply that you cannot implement a P.M.S. system and then seek to rely solely on it alone, a system administrator and some occasional contract resources to update condition parameters periodically. There is no substitute for an integrated approach combining field knowledge and hands on experience with the technology and administrative resources, both are critical to the success of the system.

Further information available from Bruce Douglas – Director Infrastructure and Physical Services or Peter Clewer -PMS Coordinator on 59860200

Data Warehousing: More Value from Existing Data

Ron Crawford, Asset Co-Ordinator, Knox City Council

We started by reviewing the information we already had

In developing its asset management strategy, Knox City Council initially undertook a detailed review of its databases, software packages and operating platforms.

This review demonstrated that there was a large amount of accurate data relating to most of Council's assets in a variety of databases, spreadsheets and in hard copy and that most software packages were either performing to the standard required by the staff and/or were in the process of being upgraded.

The advantages of Data Warehousing

The Council decided to develop a system which could access these established local systems and allow the appropriate capture and reporting on all of Council's assets with minimum disruption to other users. This meant that departments would continue to operate those systems which best catered for their specific requirements, (that is, each department would continue to be responsible for having the 'best of breed' system for their purposes) but they would be set up in a manner allowing central interrogation, information selection and review and management reporting.

How we did it

In conjunction with consultants Jeff Roorda and Associates, an asset data system was developed which included all of Council's assets. The asset management system includes a data warehouse and has facilities for modelling and reporting.

The system has been developed on an Access 97 database with the possibility of transposing to an Oracle database, as user demands and functionality requirements increase, but maintains an Access front end, thus avoiding the need for highly trained system users to be engaged.

The rationale behind developing the system along these lines is that there is sufficient expertise within Council staff to maintain/manipulate the software as specific requirements change. There is no reliance on external software developers to change the system as needs change.

Asset numbering

One of the keys to the success of this, or indeed any system, is the development of a unique asset identification numbering system. Many councils face the dilemma of having unrelated systems each with their own numbering structure.

At Knox, a unique asset number identifies all of Council's assets and this number is consistent throughout council and is incorporated into each of the databases being used.

The linked databases include the Financial Reporting System, Customer Response System, Building Maintenance Register, Insurance Register and Plant Management System. Where possible there are dynamic links between the asset management system and the other data bases being used. Where this is not possible, standard reports are being developed for extraction from the source databases and uploading to the reporting warehouse.

GIS Linkage

Most of Council's assets are identified on its Geographic Information System (Latitude) (GIS) and information related to the assets can by readily found by the end users via the GIS enquiry tools. The GIS is also used in asset management to plot works programmes by year, fund source etc., to identify problem areas, plot ages of assets and their remaining lives.

Capital Works Program

From these various data sources Council develops an interim five-year capital works programme. Each referred project has a business case and is ranked by an in-house team for review and adoption by council. All proposed infrastructure projects are developed in the asset management system. Once the one-year and five-year works programmes have been approved , the first year's projects are downloaded directly to Council's Palproject software.

The Palproject software is a visual basic application linking MS Project, MS Excel, MS Access and MS Word 97 with links to the Council's Financial Management system and handles the project management functions of actually constructing the works is used to develop the initial estimates for each project, generate all necessary tender and contract correspondence for works on the works programme, and to monitor and generate reports on the progress of works – both in terms of timeliness and financially.

Operating Cost Tracking

Further development of the asset management system currently in hand will refine the capture of work done in the field, enhance the links between the financial reporting system and improve understanding of the true life of categories of assets as more data is captured in an accurate, appropriate and simple way.

Further information available from Ron Crawford - Asset Coordinator Knox City Council 039298 8168

NEXT ISSUE: SPECIAL GUEST ISSUE - STRATEGIC FACILITY SERVICES PTY LTD

- How national shifts in policy are affecting the role of asset managers
- Practical Asset Management—Preparing for your maintenance contract
- And more

HELP WANTED

Condition Monitoring Methodology for Sewerage Pressure Mains

Vivek Kangesu, Townsville City Council would be most appreciative if you could contact him at <kv1@townsville.qld.gov.au>

THE NATIONAL ASSET MANAGEMENT COMMITTEE
is a committee of the Institute of Public Works Engineering Australia.

The role of the committee is to:

- Initiate and encourage research and development of asset management
- techniques related to the needs of the public works industry
- Promote best practice asset management in the public works industry
- Develop links with allied organisations in asset management
- Be a reference point for various organisations on asset management
- Promote and encourage technology transfer on asset management issues, and
- Advise the IPWEA National Executive on asset management issues.

The Committee's most recent initiative is the joint publication with its New Zealand counterpart ALGENZ, of the International Infrastructure Management Manual. It is also exploring options for a national series of training workshops in asset management. Further information on the Committee and its work can be obtained by contacting Chris Champion, CEO of IPWEA at cchampion@ipwea.org.au."