

Sandy Muir



Qualifications Bachelor of Engineering (Civil)
Chartered Professional Engineer

Sandy has 32 years' experience covering a diverse range of infrastructure assets. Sandy was instrumental in the development of asset management processes and methodology now incorporated in the International Infrastructure Management Manual and other leading asset management documents. He has worked in many industries including Utilities, Rail, Health, Ports and Local Government providing asset management support including training, audits, strategy development, business process reviews, due diligence, system evaluation and implementation, risk management and plan development.

Sandy was a member of the AWA Asset Management Specialist Network Committee from 2010 to 2014 and has been involved in the review of ISO 55000 as part of the committee.

Sample Project Related Experience – Criticality

Coliban Water, Development of Asset Criticality/ Risk Framework, 2014

This is a current project designed to establish the framework for identifying asset criticality and risk which will be used in next year's capital framework development. The work involved the identification of the criteria to be used for each of the major asset classes and the processes involved to assign a criticality score. The criticality score is then used to develop a risk score using performance ratings and likelihood of failure.

Coliban Water, Development of Asset Criticality / Risk tool for use across the asset classes, 2014

In addition to the work identified above, a tool is being developed in Excel that will be used as a prototype for the assignment of criticality and risk against the assets. The tool is in production and currently being adopted for sewer pump stations with the intention of being rolled out for other asset classes once the client is happy with the current prototype.

Goulburn Valley Water, Update of the Asset Performance Manual 2014

This year the internal Asset Performance Guidelines were updated to

Areas of Experience

- **Asset Criticality**
- **Risk management**
- **Business case development**
- **Asset management audits**
- **Benchmarking & performance reporting**
- **Asset management improvement planning**
- **Asset management strategy and plan development**
- **Asset management system specification development**
- **Asset management system evaluation and implementation**
- **Due diligence**
- **Business process reviews**

reflect the previous criticality and condition work undertaken. This project also updated the decision matrices to reflect the use of criticality and condition.

Goulburn Valley Water, Criticality Assessment of Earthen Embankments, 2013

This project was an extension of previous work that identified the critical earthen embankments surrounding the wastewater lagoons. In addition based on the results of condition and further examination of the embankments resulted in the development of works programs. This project also included training of GVW personnel in the assessment process.

Goulburn Valley Water, Completion of Criticality for Above Ground Assets, 2011

This project involved the completion of criticality framework and assessment for above ground assets including water and sewer. The project involved the development of the criticality criteria as well as undertaking the assessment with the Goulburn Valley Water Operations team to identify the most critical assets within their region. A criticality manual was produced as part of this work which included all the criteria and results of the assessment.

MidCoast Water Criticality of Sewer and Water Linear Assets, 2013

This project involved the production of the criticality framework for sewer and water linear assets. The criteria considered social, environmental and economic factors and the items for assessment under each category. The project went as far as identifying the sources of data considering the GIS as a very useful tool for much of the inputs required.

MidCoast Water Criticality of SPS's and Reservoirs, 2012

This project involved the the production of a criticality framework for MidCoast Water. It included the development of the criteria, weighting factors and calculation of the overall consequence of failure. A pilot project was run initially to test the criteria with the view to extending it if deemed plausible. Sewer pump stations and water reservoirs were assessed as part of the pilot and all assessments were undertaken in conjunction with the MidCoast operators to maximise coverage and collect data for input.

Westernport Water, Completion of Criticality for Sewer Linear Assets, 2009

This project involved the development of the criticality criteria for sewer below ground assets. It was a large project which analysed the criticality of sewer mains at a segment level. The criteria considered environmental, social and economic factors and were agreed in accordance with the Westernport team. GIS and other tools were used to gather data for the assessment.

Westernport Water, Completion of Criticality for Above Ground Assets, 2008

This project involved the completion of criticality assessment for above ground assets including water and sewer. The project involved the development of the criticality criteria as well as undertaking the assessment with the Westernport Water Operations team to identify the most critical assets within their region. A criticality manual was produced as part of this work which included all the criteria and results of the assessment. The SV-RAG methodology was used as the basis for the criticality methodology.

Sample Project Related Experience – Capital Evaluation Framework and Business Cases

Wannon Water, Development of the business case for Water Plan 3, 2012

We produced the renewal business case for Wannon Water for Water plan 3 across all asset classes. This involved the analysis of the data for each asset class, identification of expenditure required and establishing the business case for future expenditure.

M&E Strategy, Yarra Valley Water

This project involved the development of a renewal and maintenance model to assist YVW to respond to the regulator regarding future mechanical and electrical infrastructure expenditure and completion of the Water Plan. The work included the collection and assembly of the raw data, development of the criticality framework, running the model and identifying the expenditure options and report production.

West Derwent Pipeline, ODM analysis and AM strategy, Hobart Water, 2005

Sandy was part of a team involved with the analysis of the main supply line into the City of Hobart. This work involved pipeline inspections, corrosion testing, condition assessment, risk analysis, ODM analysis of the treatment options and the development of an asset management plan for the pipeline. Sandy's role was to undertake the ODM analysis and produce a 20 year strategy for the maintenance and renewal of the pipeline.

Capital Evaluation Business Case and Project Justification, City of Casey

Development of a business case for the justification and prioritisation of capital projects within Council. This considered the social, economic and environmental factors impacting the projects. Projects were also prioritised by using the consequence of not undertaking the project and the effect this would have on the future and ongoing operations of Council. Our role was to lead the development of the business case, to test it with various pilot projects, to update given feedback, to

regularly report to the project manager and to produce an outcome that best suited all departments and types of projects within Council.

Capital Evaluation Framework Development, Warringah Council, 2006

Warringah City Council requested that a capital evaluation framework be developed that met their internal requirements and also satisfied Council's future direction. The work involved the development and testing of the framework. Sandy's role was to develop the framework.

Capital Evaluation Framework Development, City of Adelaide

We assisted the City of Adelaide to develop the capital evaluation framework which incorporated lifecycle planning, project justification scoring, consequences of not doing the work using social and environmental factors. The framework resulted in a risk and priority score.

Other Experience

- Principal Author of the WSAA Asset Data Guidelines
- Principal Author of the International Infrastructure Management Manual
- Principal Author of the Optimised Decision Making Manual
- Currently drafting the Data Guidelines for Water Services Association of Australia (WSAA)
- Presenter of national asset management training workshops for the Institute of Public Works Engineering in Australia (IPWEA)
- Facilitator for Municipal Association Victoria asset management improvement program
- Principal developer of the MAV STEP Program and asset management frameworks
- Developer of IPWEA training tools e.g. presentations and plan templates
- Project Manager for the Asset Management Benchmarking Programme, (WSAA)

Alexander (Sandy) Muir - CV

- Developer and facilitator of asset management plan training modules for Local Government
- Assisted in the development of the Victorian government Impacts of Climate Change on Infrastructure, Department of Sustainability and Environment
- Due diligence on the NSW toll roads procurement by Transurban (M1 to M5 toll roads)
- International Infrastructure Management Manual Update, National Asset Management Steering Group
- Maynilad Water, Philippines, preparation of asset management improvement plan and asset condition report
- Asset management effectiveness review 2009, 2012, Water Corporation Western Australia
- Asset management strategy development, Port of Melbourne Corporation
- Asset management strategy development, RailCorp, NSW
- Asset management strategy development, Healthcare Hawkes Bay, NZ
- Asset management strategy development for many agencies across industries
- Asset management plan preparation, SBS Corporation, NSW
- Asset management plan facilitation – Grampians Wimmera Mallee Water
- Asset management plan preparation, Westernport Water and many other agencies across Australia and New Zealand
- Mechanical and electrical renewal models and strategy for Yarra Valley Water
- Risk management review, Melbourne Water
- Development of condition and criticality framework for many agencies
- Asset management system specification, evaluation and implementation for many agencies including City of Stonnington, Barwon Water, Allconnex Water, Westernport Water, Citylink, Wellington City Council (NZ)
- West Derwent pipeline, Optimised Decision Making modelling and strategy development, Hobart Water
- Preparation of a strategy for facility provision for the Victorian Department of Education
- Business case development for asset management system procurement, Onstream Tasmania
- Asset management implementation support across industries

Affiliations

- Member of the Institute of Asset Management
- Member, Institute of Engineers Australia
- Member, Australian Water Association
- Member, Institute Public Works Engineering Australia
- Member, Association of Professional Engineers, Scientists and Managers Australia (APESMA)