Integrated Strategic Asset Management System

*Targeting Excellence in Service Delivery*

**Enabling Objective**

Delivery of the Council’s Plan and Strategic Objectives in a systematic, consistent, affordable and sustainable manner.
Infrastructure and Asset Management Conference – June 7 and 8 - 2018

AGENDA

- Acknowledgement
- Feedback from VAGO and MAV – Set Context
- Benefits of Integrated Asset Management System
- City Infrastructure Plan- Investment Optimisation - LTFP
- Capital Works, Renewal Programs and Maintenance Programs
- Data and Information Management
- Service Life Prediction and Life cycle costing
- Asset Performance and Reporting
- Questions
Acknowledgements

- State Government – Rewrite of the Local Government Act
- MAV – STEP Program
- Local Government Victoria
- Australian Centre for Excellence in Local Government (ACELG) - NAMAF
- Victorian Auditor General (VAGO)
- Institute of Public Works Engineering Australasia (IPWEA) – NAMS
- Individual Industry experts – Roger Burns, Dr Johann McDuling, Ashay Prabhu, Pragnesh Shah
- Maribyrnong City Council – EMT, CMT and Team Members
- Civica, Assetic, CT Management
- To all my colleagues and dedicated Asset Management practitioners here today.
VAGO’s MESSAGE TO GOVERNMENT

Victoria: The Staggering Statistics

Owns - Circa $95 billion of physical infrastructure assets.

Invests –Circa $2 billion annually to maintain, renew or replace them.

Rate: That’s a staggering rate of 2% circa per annum
VAGO’s Message- Renewal Gap

Poor asset management can lead to deteriorating or failing assets, reduced levels of service, higher council rates and an increased financial burden on future ratepayer generations.

The continuing growth in councils’ asset renewal gaps remains of considerable concern. $2B per annum risks becoming $5B per annum.
What is Infrastructure Gap

Source Assetic and Mckinsey – Global Infrastructure Initiative - Unlocking Hidden Capital
VAGO – Recommended Improvements

- **Practice** - Optimise the Expenditure for Renewal and Maintenance.

- **AM Plan** – Must Feed the Long Term Financial Plan.

- **Service Levels** – Must Drive the Required Spend.

- **Tools** - Technology Platforms that enable data analytics to determine better ways to spend monies

"This is the portion of the expenses we like to call ‘unknown.‘"

Public Accountability requires verification of best value.
MAV - Acknowledges

The NAMAF Results indicate that many Councils will struggle to meet the new requirements of the NEW LG Act.

- Leadership
- People skills and knowledge
- Standards for Compliance
- Long Term Financial Planning (LTFP)
- Resource Planning

"By implementing my plan, we can save 1¢ every ten years."
What is Asset Management

**Optimising the costs/benefits in service delivery over the life of any given Infrastructure.**

**Achieving Planned Service Outcomes** economically, socially responsible and sustainable manner.

**Authors View**
Benefits of IAMS

- Integrated Strategic Asset Planning (Full Picture);
- Integrated Service Planning (Consistent Approach);
- Centralised Data and Information System;
- Centralised Modelling – LTFP, Capital, Renewal, Maintenance (Risk Based Optimised);
- Integrated Governance and Management;
- Auditable processes including: Training, Review and Audit;
- Evidence Based Decision Making Processes;
- Improved interoperability.
Strategic Integrated Planning Process

Input:
- Strategic Plan
- Council Policies
- Service Plans
- Legal/Statutory Compliance
- Customer Input (Surveys, Requests, Feedback)
- Council Plan

Process:
- Capital Works Planning Process
- Renewal Planning Process
- Maintenance Planning Process
- Life Cycle Cost models and optimisation
- Service Delivery models

Output:
- Asset Management Plan
- Long Term Financial Plan
- Operational Plan
- City Infrastructure Plan
- 5, 10, 20, 40 Year Capital and Renewal Works Plan
- Budget
Partially Integrated Planning – For No. Of Services
INTEGRATED STRATEGIC ASSET PLANNING - Keep it simple in a complex Council

Requirements
What we need – 10 years and above

Control Loop
Decision Tree

LTFP

Services – Quality Functionality Compliance
CITY INFRASTRUCTURE PLAN
Capital Expenditure – 20 Years +
CIP Preparation Methodology

Phase 1 - Develop Project List to 2040
Phase 2 - Upload Project Information into CAPEX Tool
Phase 3 - Run CAPEX Model
Phase 4 - Prepare 10 Year Plan
Phase 5 - Prepare 2018/19 Plan
Phase 6 - Prepare/Confirm Scope & Cost Estimate of Projects
Phase 7 - Rerun CAPEX Model
Phase 8 - Prepare City Infrastructure Plan Master Document
## Asset Classes & Criteria

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<th>Category</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Financial</td>
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<tr>
<td>Council plan objectives</td>
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<tr>
<td>Risk and criticality</td>
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<tr>
<td>Community benefit</td>
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<table>
<thead>
<tr>
<th>Category</th>
<th>Maintenance ratio</th>
<th>Operating ratio</th>
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<tr>
<td>Land improvements</td>
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<tr>
<td>Buildings</td>
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<td>Computers and telecommunications</td>
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<td>Roads</td>
<td>0.76%</td>
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<tr>
<td>Bridges</td>
<td>0.76%</td>
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<tr>
<td>Other infrastructure</td>
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CAPITAL EXPENDITURE BY ASSET CLASS
Recommended 20 Years- Linked to LoS

- Roads: 24%
- Buildings: 20%
- Computers and telecommunications: 8%
- Drainage: 7%
- Land: 8%
- Land improvements: 15%
- Other infrastructure: 1%
- Rec, leisure and community facilities: 5%
- Parks, open spaces and streetscape: 11%
- Bridges: 1%
Prediction Modeling - Optimise Renewal and Maintenance – Assetic Predictor

Based on VAGO Direction:

1. **Service Level** Focus – We can trade off.

2. **Analytics**: Each Asset Class has Asset Life Profiles.

3. **Financial Sustainability**: We can Optimise expenditure for Renewals and Maintenance
Assetic Decision Making Platform

Enhances Pattern Generation

In Field Validation

Asset Genetic Data

Decision Making Platform

Seeded Algorithms

Analytic Platform
MCC Decision Platform - Assetic
All Asset Classes

Service Level Planning
Assetic at MCC
15 Degradation Patterns
Asset Renewal - Intervention

Renewing too early wastes asset life
## Degradation Pattern & Curves

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<tr>
<th>Condition</th>
<th>Short life</th>
<th>Medium Life 1</th>
<th>Medium Life 2</th>
<th>Straight Line</th>
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### Degradation Curves

![Degradation Curves](image-url)
De Sitter’s “Law of Fives”
Current Road Surface Condition

- **54% Condition 1**
- **21% Condition 2**
- **11% Condition 3**
- **8% Condition 5**
- **6% Condition 4**
Funding Options-50 year Renewal Program

% Backlog at 10 year Intervals - Infrastructure Assets - No Growth

- $16 million pa Nominal
- $20 million pa Nominal
- $24 million pa Nominal
- Unlimited Funding

Maribyrnong CITY COUNCIL
50 Year Renewal Funding Strategy – Staged Approach

50 year Renewal Funding Strategy - Staged Funding Approach

- Years 1-10: $24,000,000
- Years 11-20: $27,000,000
- Years 21-30: $31,000,000
- Years 31-40: $34,000,000
- Years 41-50: $38,000,000
- Average: $31,000,000

Maribyrnong City Council
Scenario Modelling - Roads

Year 20 - $31 Million Using Optimisation

Year 20 - $24 Million Using Optimisation

Year 20 - $20 Million Using Optimisation

Year 20 - $16 Million Using Optimisation
LTFP Projections

Renewal Backlog for 10 years

- Depreciation & Amortisation - SRP
- Renewal Expenditure - SRP
- Backlog
Asset Management System

Framework – ASSURING COMPLIANCE

ORGANISATION

SYSTEMS  PEOPLE  PROCESSES  DATA

POLICY
The Success Pillars
Our Platform Answers Hard Questions

The six "What’s" of asset management:

1. What do you own?
2. What is it worth?
3. What is its condition?
4. What is the backlog maintenance?
5. What is the remaining service life?
6. What do you fix first? – Optimised Decision Making
7. Functional Suitability?
8. Compliance status?
9. What is it’s criticality?
10. What is the level of service to meet? - Specification
Fully Integrated Data and Information Management

Data Mining

Condition

Functionality

Performance

Capital

Renewal

Maintenance
Asset Performance and Evaluation

Asset

Integrated Performance Report

Physical Condition
Functionality
Utilisation
Financial Performance
Summary

Through a systematic and coordinated practice we can enhance customer satisfaction, improve reputation, optimise return on investment and minimise risk by integrating:

• **Service Planning** – We can link future plans to future service levels – not last year plus or minus 5%.

• **Options Costs**: The ability of Councils to demonstrate multiple future options is the only real platform for community consultation.

• **Demonstrate commitment** – LTFP linked to the service level that have been measured for affordability and demonstrate best value.

• **Needs vs Wants**: Enable selection of projects based on community current needs and future demand.

• **Platform of Decision Making**: With good data, robust platforms and skilled resources, we can progressively make this a way of life.
Questions ?
Thank You for Your Attention!
Service Level Example

BF - ASSESSED CONDITION

5. Excellent
4. Good
3. Fair
2. Poor
1. Very Poor

Building Fabric  Sub Structure (Foundations)  Roof  External Walls & Windows  External Doors  Internal
High Priority Programs

• Modelling Renewal Program (3 – 50 Years)
• Finalising Level Of Services
• Finalising Optimisation Program for Asset Life Cycle
• Identifying the FY 18/19 Renewal Program
• Supporting Service Managers
Information processing in humans resembles that in computers, and is based on transforming information, storing information and retrieving information from memory.

Over the past 16 Years have we evolved or copied what was provided?
Hard Questions

Asset Register?

IA or Condition Assessments?

Prioritisation & Scheduling?