Using NAMAF as a driver for Parks and Open Space Asset Management

T Hor[1], S Joyce[2], D Watts[2]
[1]City of Stonnington, Melbourne, VIC
[2]Morphum Environmental, Melbourne VIC

Abstract:

As development across our major cities continues to grow, our Councils will face added pressure from population growth, urbanisation and climate change to maintain their parks and open spaces. The health, social and environmental benefits that parks and open space provide, will increase the importance and value placed on them within our communities.

To ensure these on-going benefits for the long-term, a holistic understanding of the existing condition and requirements of our open spaces is required. This can be achieved through sustainable asset management.

The National Asset Management Assessment Framework (NAMAF) provides a methodology for Council's to assess and report on the maturity of their Asset Management practices and processes. The NAMAF scores can be a valuable internal driver for funding and resourcing for the development of a sustainable asset management system.

This paper provides an overview of the processes that can be implemented to improve NAMAF scores for parks and open spaces and drive the development of a sustainable asset management system. This includes asset assessments, optimised maintenance and operational scheduling as well as asset valuation.

Asset assessments provide Council with key asset data that can be incorporated into Geographic Information Systems (GIS) and asset management systems. This includes asset type, location, condition, maintenance requirements and photos. Ensuring a well-planned and managed data collection process will have considerable benefits to the accuracy and integrity of the overall asset management system.

Maintenance and operational requirements will be developed based on the asset conditions collected during asset assessments. Innovative GIS processes can be utilised to develop and prioritise maintenance requirements. Optimising maintenance schedules can have significant cost-saving benefits, including prolonging asset life.

Valuation of parks assets is a key element of financial performance reporting as well as on-going asset management decision making. Maintenance requirements, capital works budgets, long-term forecasting are all influenced by the valuations.

Keywords:

Asset Management, NAMAF, GIS, Parks and Open Space, Council.

Using NAMAF as a driver for Parks and Open Space Asset Management
Presented at IPWEA Sustainability in Public Works Conference, 24-26 August, 2016
Authors: T Hor, S Joyce, D Watts

1.   Introduction

This paper has been developed based on a project completed by Morphum Environmental Ltd (Morphum) for the City of Stonnington which involved undertaking an audit of over 4,000 assets and several kilometres of paths, fences and retaining walls across the City of Stonnington's 113 parks and open spaces.

The initial driver for the project for the City of Stonnington was to meet the requirements of the Parks Asset Management Plan objectives including summarising Council's proactive intervention program; determining future maintenance works requirements and budgets; determining strategies to improve Council's sustainability; meeting the expected service levels of the community, and; documenting the long term and short term open space renewal programs.

1.1. Council Background

The City of Stonnington had previously undertaken a range of smaller assessments of their parks and open space assets including surveys of parks furniture, playgrounds and valuation audits. However, no comprehensive audits of all their parks and open space assets had been completed.

1.2. NAMAF

The National Asset Management Assessment Framework (NAMAF) provides a methodology for Council's to assess and report on the maturity of their Asset Management practices and processes

The NAMAF scores provide Councils with the ability to benchmark their current processes against best management practice and to identify areas and processes within their asset management system requiring additional resourcing and funding.

Some Councils also look to publish their scores within their annual reports or as part of their asset management plans. As such, improvements to scores will be reported positively by Council and can be utilised as a driver towards improved asset management processes.

2.   Project Details

Morphum was initially engaged by the City of Stonnington to develop a project methodology, prepare the data structure and undertake a pilot study involving the assessment of all assets within two parks.

The outputs of this initial engagement allowed the City of Stonnington to have a much clearer understanding of the level of work required to assess all 113 parks and open spaces within their local government area (LGA), confirm the structure and content of data to be collected and to identify and remedy any potential issues prior to the full assessment being undertaken.

In addition to the confirmation of the structure of the project outputs, a methodology document was prepared to outline the recommended processes to be included in the full assessment. By documenting the steps and processes involved, future assessments can be undertaken based on the same criteria and the results compared.

2.1. Desktop Processing

One of the key findings from the pilot study related to the method for representing assets drawn as polygons such as garden beds, footpaths and playgrounds in GIS. It was found to be more efficient to undertake a desktop assessment to identify as many of these assets through aerial photography and draw them as polygons into GIS rather than drawing them while on site on a tablet.

These assets were validated on site, and their condition recorded, but drawing on site was only required for editing the existing shapes or capturing assets not picked up in the desktop assessment.

2.2. Field sheets

Field sheets were developed prior to the field work commencing, which listed and showed (through photos) all the asset types required to be assessed, and the relevant information to be collected for each type. This ensured consistency

Using NAMAF as a driver for Parks and Open Space Asset Management
Presented at IPWEA Sustainability in Public Works Conference, 24-26 August, 2016
Authors: T Hor, S Joyce, D Watts

across all the assessors as there was no doubt as to how each asset type was to be recorded.

For example, four types of bins were prevalent in the City of Stonnington, 120 Litre enclosure, Steel-Pedestal, Timber- Metal Insert and Pedestal. A photo of each bin type was included in the field sheet so that field assessors could be confident of the type.

Further details were provided on assessment criteria used across all of the assets including asset condition (scored 1-5 with descriptions of each), maintenance required (Capital works, repair, regular maintenance etc) and the detail required within photos.

2.3. Field work

Morphum's field teams used mobile field survey equipment including iPads and iPhones to collect the asset data. The data collection forms were accessed through ArcGIS Collector, and made available to City of Stonnington through ArcGIS Online (AGOL).

Field teams worked systematically through each park to ensure all assets were recorded. Assessors would identify each asset (using field sheet where required), confirm its location in ArcGIS collector, record key attributes using drop down menu's and take a photo.

The asset would then be populated into the AGOL workspace, where it could be reviewed in real-time by the Quality Assurance team or by the City of Stonnington.

2.4. Quality Assurance

A quality assurance checklist was developed which enabled senior engineers to review the data that had been collected on a daily and weekly basis.

Daily checks were completed on a minimum 10% selection of data from each assessor for that day to confirm the accuracy and consistency of the data against what was required in the field sheets.

Where disparities were found, the senior engineer and field assessor would undertake a more detailed check of the park together to discuss any issues and identify learnings.

Weekly checks involved a more systematic review of the data tables, checking that all attributes had been populated and that data entered made sense. For example, where it was identified that maintenance was required, the type of maintenance had also been included. Other high level checks included ensuring no spelling mistakes in comments and confirming individual asset IDs for every asset.

Final reviews of each park were also undertaken to ensure that all assets had been correctly located spatially based on reviews of aerial photography.

2.5. Outputs from the project

There were three key outputs for this project; the asset register, photo database and asset valuation spreadsheet.

Multiple asset registers were required as each asset type had slightly different data structure requirements. For example, fences required the length of the asset to be recorded and were represented as a line in GIS. Whereas seats were recorded as single points and no dimensions were required.

The structure of the asset registers was aligned with the City of Stonnington corporate GIS system so that the information could be integrated easily.

Every asset in the asset registers contained a hyperlink to its' relevant photo within the photo database. Each photo was named by the asset ID of its corresponding asset to ensure hyperlinking between the asset registers and photo database could be automated.

The final key output for the project was the asset valuation spreadsheet. The City of Stonnington undertakes its valuations in accordance with AASB13. The revaluations are required to be compared with previous years' valuations, therefore the valuation spreadsheet was formatted to allow continuity with previous parks and open space valuation formats. This is a key output for the City of Stonnington as it allows

Using NAMAF as a driver for Parks and Open Space Asset Management
Presented at IPWEA Sustainability in Public Works Conference, 24-26 August, 2016
Authors: T Hor, S Joyce, D Watts

them to run annual revaluations with up to date data and to have the valuations verified and compared with the previous years. This method will now allow the City of Stonnington to easily run revaluations annually and be able to verify the results based on the actual numbers and condition of assets.

2.6. NAMAF framework

While the City of Stonnington's NAMAF scores are confidential, the Parks and Open Space Assessment project addressed a number of the requirements with the NAMAF framework. The development of condition rating methodologies, updating of the asset register and improvements to the asset financial reporting are all included within the Data and Systems section of the NAMAF framework and were addressed within the project.

The project also addressed other sections within the NAMAF framework, including Asset Management Plan, skills and processes, and the Annual Report.

3. Future Projects

The following projects are currently being considered in terms of meeting the City of Stonnington's Parks Asset Management Plan objectives and improving the City of Stonnington's NAMAF scores with the longer term objective of developing an advanced asset management system.

3.1. Maintenance Schedules

The NAMAF process includes establishment of budget estimates, recording of expenditure and through benefit/cost assessment identifies maintenance and renewal programs. The data collected within the Parks and Open Space Assessment was structured to ensure that maintenance requirements for all asset types could be identified both through spreadsheets and spatially in GIS.

The City of Stonnington have already begun a number of proactive maintenance and renewal programs to repair assets that are reaching their end of useful life based on this data. The Signage

Maintenance Program was a simple program that was implemented straight away and included replacing all damaged signs.

Further assessments have been discussed to utilise the spatial features of the data. This includes analysing and prioritising each of the parks based on the condition of all the assets within each park. This analysis will provide a useful snapshot of the overall condition of the park and will help to identify where additional maintenance may be required.

The condition assessment will assist with the development of maintenance budgeting requirements and will feed into the overall maintenance budget for Council. This will also enable Council to justify and determine which parks should be prioritised and funded for renewal.

3.2. Parks Asset Management Specification

NAMAF encourages documenting repeatable methodologies to carry out consistent asset condition surveys, as well as documenting processes for updating the overall asset management system.

Within the overall project, there have been a range of processes and methods utilised to create the final outputs. To ensure that this project can be repeated and the outputs are consistent, the methodology documents and data structures can be collated into a single Parks Asset Management specification document. This document is considered to be "live" and would be regularly updated as new projects relating to Parks and Open Space assets are identified and completed.

The specification document would typically be made up of two sections. The first section includes a high level overview of the data relating to Parks and Open Spaces, including file naming conventions, file types, data accuracy, data confidence etc. It sets Council's expectations for data received from internal and external sources and ensures the on-going quality of the system.

The second section includes all the methodologies, data collection models, and

Using NAMAF as a driver for Parks and Open Space Asset Management
Presented at IPWEA Sustainability in Public Works Conference, 24-26 August, 2016
Authors: T Hor, S Joyce, D Watts

glossaries that make up the "living" component of the specification. As new Parks and Open Space projects are completed, the documentation is included within this second section.

The Parks Asset Management Specification will assist Stonnington in maintaining a consistent asset register and ensure that all projects are consistent and repeatable.

3.3.   Integration into GIS

By integrating the data collected, into the corporate GIS system, the City of Stonnington can achieve objectives that were set out in the Asset Management Strategy and the Open Space Asset Management Plan.

This includes being able to model the expected required renewal expenditure based on the condition of the assets. A better understanding of the Open Space assets also allows Council to improve the Strategic Resource Plan and help determine the Long Term Financial Plan. These are important elements of the core requirements of the NAMAF score.

3.4.   Utilising data for improved community engagement

Stonnington would like to use the asset condition data to increase interest in spaces that have sustainable and environmental benefits. Capturing data for the historical sites in Parks and Reserves and providing up to date information could create more interest in local projects and objectives.

There is the potential to utilise the data captured in this survey to improve community involvement and engagement. An example is through the use of augmented reality, the technology behind the current Pokemon Go application. The Application augments the virtual Pokemon into real-world environment through live video. It promotes exercise and engagement with key locations by getting users to visit particular sites to receive bonuses and rewards. This had led to discussion about creating a community focused application that further promotes users to visit and engage with key Parks and Open Space assets.

While unlikely to have much of an impact on the NAMAF scores, the improved engagement with the community is beneficial to the City of Stonnington, as it is constantly looking for new ways to engage with its community. The potential to engage with the community with up to date data in interesting and new methods is a very exciting prospect that Council's Community Engagement Unit are looking into.

4.   Conclusions and Recommendations

The City of Stonnington has been able to achieve a number of the objectives of its Open Space Asset Management Plans through this project. The creation of processes and data in the project will allow Council to produce repeatable and verifiable results for revaluations will make Council's processes more efficient and sustainable as well as compliant with the audit standards set out in AASB13.

The outputs and processes developed during this project are transferable to the other major asset classes, such as Building and Drainage. They will be adopted when updating and implementing the processes to achieve similar objectives in its other Asset Management Plans.

These processes will drive improved NAMAF scores, providing the City of Stonnington with tangible evidence of the improvements of the overall asset management system, as well as identifying areas within the system still to be addressed. This evidence will provide a driver for Council to continue to work towards an advanced asset management system.

Future projects including the development of maintenance schedules, asset management specifications, and the integration of the data into GIS will further improve NAMAF scores and drive the on-going development of the overall asset management systems.

There is potential to utilise this information to engage with the community using recently developed and evolving technologies in many new and exciting ways.