# THE IMQS MAINTENANCE MANAGEMENT MODULE

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# INFRASTRUCTURE MANAGEMENT SOLUTIONS.

IMQS is a specialised software solutions company. We have provided proven Infrastructure Asset Management (IAM)  Solutions & Services to over 100 government and private organisations in South Africa and Internationally for more than a decade.

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# THE NEED FOR MAINTENANCE MANAGEMENT SOLUTIONS

Municipal engineers are responsible for the periodic implementation of normal, generally minor, actions that ensure longevity of infrastructure assets in line with their design and operational requirements –i.e. maintenance. The efficient management of this maintenance is a crucial component of successful infrastructure asset lifecycle management. Well-maintained infrastructure serves consumer needs and underpins economic production, employment, taxes and rates.

Rapid urbanisation and population growth is placing ever-greater pressures on city infrastructure and the engineers tasked with managing these assets in cash-strapped contexts. The need for systematic maintenance, based on accurate and informed decision-making has never before been this imperative. Without effective and informed decision-making:

- Assets are allowed to run to failure

- Important capital is wasted on continuously providing new assets

- Faults are precipitated and breakdowns hastened

- Service delivery is undermined and backlogs increase

In this complex environment, how do you make the right decisions about corrective and preventative interventions, manage stocks and work force, or more effectively schedule maintenance according to need?

# IMQS MAINTENANCE MANAGEMENT MODULE

IMQS Software helps overcome key Maintenance Management challenges with a geospatial, GRAP-17 compliant Maintenance Management software package.

The infrastructure-management-specific software has been developed to make the every-day tasks of municipal engineers easier. From incident logging and maintenance scheduling to managing resources, time and cost, IMQS has packaged Maintenance Management into one system that links directly to a municipality's Asset Register.

IMQS integrates, automates and unifies all maintenance-related data sources, processes, and reporting, presenting information in different views on an intuitive GIS Web-interface.
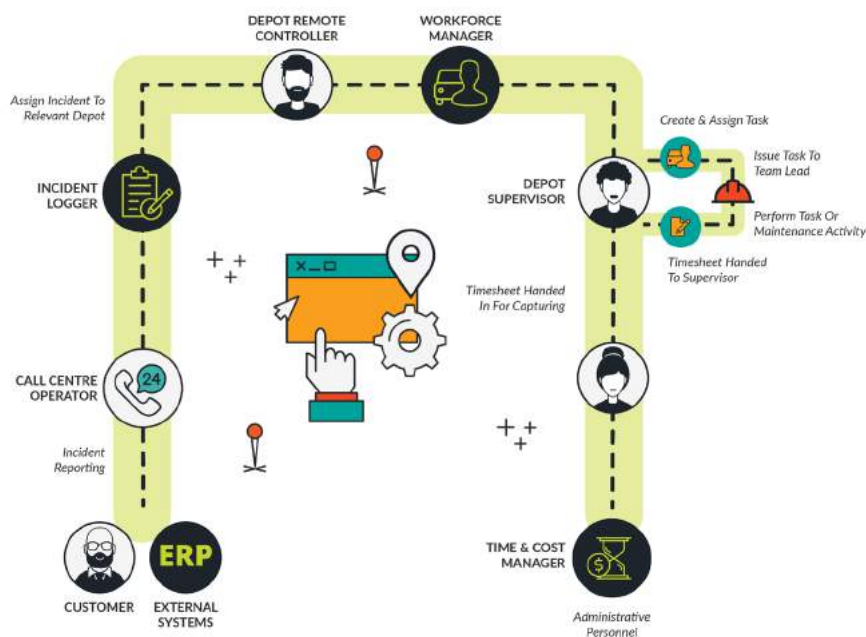


Figure 1: Integrated Maintenance Management process diagram

# SOLUTION SUB-MODULES

IMQS Maintenance Management Module consists of sub-modules that enable municipalities to overcome key maintenance lifecycle management challenges.



Figure 2: IMQS Maintenance Management sub-modules

## 1. INCIDENT LOGGER

An incident logger allows citizens to easily alert the municipal call centre to an incident such as a burst water pipe on a stand or street in the municipal bounds. The sub-module is an intricate component in the municipal system that empowers citizens to play an active role in their communities and ensure that transparent and good governance practices are met. Incident reporting is made efficient and transparent by automating broader processes and displaying centralised information geographically.

- A report is generated

- The incident is logged via the call centre and linked to an existing asset component in the GIS-referenced IMQS system

- The appropriate municipal authorities can view the status and authorisation history of outgoing work-orders, see what resource has been assigned to the job, and effortlessly print job cards

Figure 3: Geographically enabled incident logger

## 2. RESOURCE MANAGER

The Maintenance Management Modules fulfils the need for financial transparency and accountability on the Local Government level by seamlessly integrating with a municipality's preferred Financial ERP system.

The Resource Manager sub-module allows the municipality to account for all resources utilized within the Maintenance Management system to maintain:

○ Employee, fleet, material and equipment lists

○ Tariffs and standard-time programmes for their employees



| Fleet number | Date of first registr... | Engine kilowatt | Region | Replacement amou... | Last User | Tare Mass | Last modified date | Budget | Description | Last kr |
|---|---|---|---|---|---|---|---|---|---|---|
| 69/845 | 2/01/2003 | 0 | 51 | 0 | 1002067 | 0 | 10/02/2009 | 0 | NISSAN CABSTAR 4... | 1654 |
| 69/846 | 2/01/2003 | 0 | 58 | 0 | 1000284 | 0 | 19/01/2015 | 0 | NISSAN CABSTAR 4... | 1327 |
| 69/124GP | | 0 | 51 | 0 | | 0 | 25/10/2012 | 0 | NISSAN NP 300 | 6314 |
| 69/62SP | | 0 | 52 | 0 | 1000296 | 0 | 20/03/2013 | 0 | TOYOTA DOUBLEC... | 5876 |
| 69/98ZW | | 0 | 52 | 0 | 1002052 | 0 | 17/04/2013 | 0 | TOYOTA HILUX DO... | 7368 |
| 69/218M | | 0 | 51 | 0 | 1002106 | 0 | 16/05/2013 | 0 | TOYOTA D4O | 8654 |
| 69/21ZR | | 0 | 51 | 0 | 1001915 | 0 | 17/05/2013 | 0 | TOYOTA D4O | 5956 |
| 69/41PF | | 0 | 51 | 0 | 1001860 | 0 | 28/05/2013 | 0 | TOYOTA D4O | 5374 |
| 69/138L | | 0 | 51 | 0 | 1001604 | 0 | 24/05/2013 | 0 | TOYOTA D4O | 6467 |
| 69/526GP | | 0 | 51 | 0 | 1000583 | 0 | 4/07/2014 | 0 | TOYOTA HILUX SIN... | 8018 |
| 69/898GP | | 0 | 51 | 0 | 1001626 | 0 | 4/07/2014 | 0 | NISSAN NP 300 | 8136 |
| 7ef0d9d7-fca5-9c9... | | 0 | 0 | 0 | | 0 | 25/11/2013 | | | 0 |
| 11441728 | | 0 | 57 | 0 | 1002025 | 0 | 25/11/2014 | 0 | FORD RANGER DO... | 7216 |
| 11441726 | | 0 | 57 | 0 | 1001937 | 0 | 8/08/2014 | 0 | FORD RANGER DO... | 5067 |
| 11441723 | | 0 | 57 | 0 | 1001933 | 0 | 8/08/2014 | 0 | FORD RANGER DO... | 8986 |
| 11441724 | | 0 | 57 | 0 | 1001937 | 0 | 8/08/2014 | 0 | FORD RANGER DO... | 6176 |
| 11441725 | | 0 | 57 | 0 | | 0 | 8/08/2014 | 0 | FORD RANGER DO... | 0 |

Figure 4: Resource Manager sub-module

## 3. TIME & COST

The Time and Cost sub-module provides municipal managers the ability to automate time sheets as well as calculate overtime and cost for all skilled and unskilled labourers. Overtime and short-time reports can be exported to the municipality's preferred Financial ERP to ensure payroll is updated accordingly.

The sub-module therefore bolsters good governance, efficiency and transparency, while preventing unnecessary expenditure.



Figure 5: Time & Cost Sub-module

# FUNCTIONALITIES

## 1. PREVENTATIVE MAINTENANCE

The IMQS Maintenance Management Module supports Preventative Maintenance by enabling a user to:

○ Query an asset, or asset-component's status

○ Identify and maintain critical functions before asset failure

○ Identify asset faults that could lead to the loss of critical functions

○ Sweat test prevention

Municipal engineers are therefore able to proactively schedule and specify maintenance at repeat intervals, according to asset components, and in relation to procedures and tasks that need to be performed.

In the case of water demand management, for example, Maintenance Management and the IMQS Water Module integrate in order for the municipality to extract comprehensive and complex reports that will inform managers about problem areas, and thus further feed the preventative maintenance system.

## 2. METER MAINTENANCE

The Maintenance Management Module provides managers with an up-to-date, spatial view of all water-connection and meter-maintenance-activity history in the municipality's boundaries. By querying meter-related information, leveraged from the IMQS Water Demand Management Module, engineers can schedule maintenance according to accurate information. The module, moreover, enables a municipal manager to generate detailed reports that offer insight into completed or on-going work.

## 3. REPORTING

Reporting is integrated directly into the Maintenance Management system. Users can generate a wide range of reports – e.g. Trend Analysis, Full Detail,
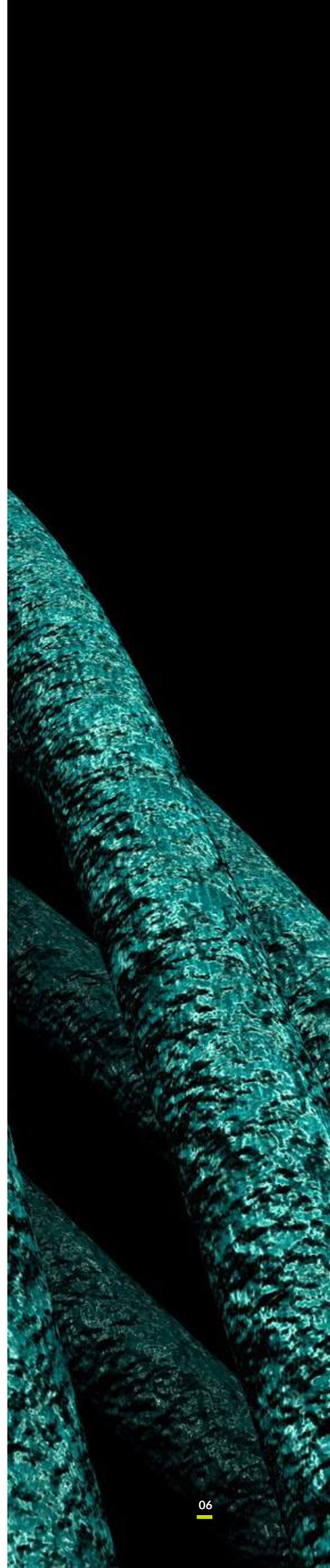
Performance and Executive Summary reports - relating to all maintenance activities and costs. Payment Certificates for all Contract work undertaken can effortlessly be generated and printed on demand. As an integrated and spatially enabled solution for Incident Reporting, the **IMQS Maintenance Management Module** helps municipalities overcome challenges and extract the most value they can from each asset they maintain.

# BENEFITS

- Consolidate all engineering and financial asset information on one GIS-centric web platform

- Users gain an informed and interactive view of their maintenance environment

- All relevant data, from early warning signs to material shortages, is made easily available to inform rapid proactive and responsive decision-making

- Stakeholders can communicate information across engineering and financial departments

- Facilitates both scheduled or unscheduled maintenance

- Enables the notification of responsible teams with correct incident information

- Helps reduce the risk of making decisions based on dissimilar data sets

- Supports informed decision-making

- Enables coordinated workforce execution

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