

Taupo District Council – Holistic Approach to Improving Data Quality

May 2020



INTRODUCTION

This case study is intended to provide a detailed look at how Taupo District Council (TDC) has approached the capture, recording and managing of quality asset data to support their decision-making and reporting needs.

Any relevant current industry guidance and case studies have been referenced, where they provide more detailed assistance.

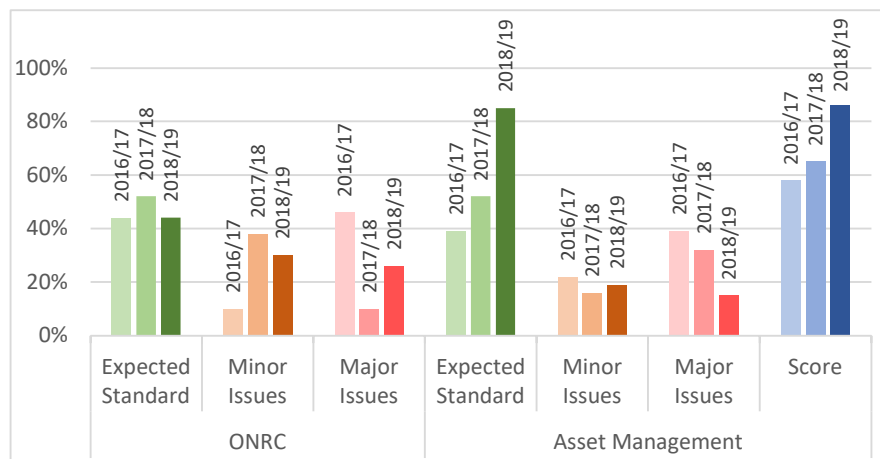
WHO IS TAUPO DC?

Taupo District Council is a territorial local authority located in the Central North Island. The district extends from Mangakino in the North to the Tongariro National Park in the South and has population of about 38,500. Taupo is the largest town in the district with Turangi and Mangakino being the main others.

The roading network is approximately 794km long, of which 92% is sealed and 8% unsealed, and 245km is urban.

WHAT IMPROVEMENT HAS BEEN ACHIEVED?

The below figure shows TDC's data quality for the 2016/17 to 2018/19 period based on the annual REG Data Quality Reports.



TDC's approach to data quality has resulted in an overall improving trend in their annual data quality results, particularly in the asset management metrics. The Asset Management Score has also increased from 35 in 2016/17 to 67 in 2017/18 and now 86 in 2019/20. However, TDC have viewed this more in terms of the trend and relativity than the actual number, i.e. does the result indicate the data is improving, and is of good, average, or poor quality.

The improvement in the Asset Management results demonstrates the change in approach has made a positive impact, even in the short period of time. The decrease in ONRC results at the expected standard in 2018/19 was due to staff vacancies.

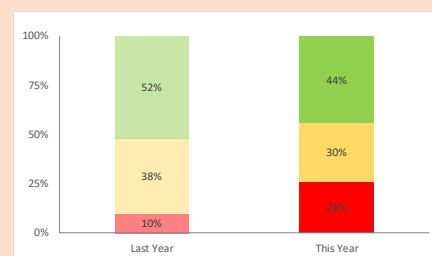
KEY POINTS

Taupo District Council:

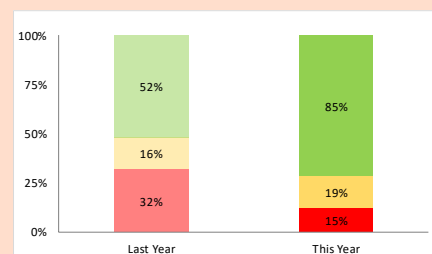
- ✓ A dedicated asset information team established with the focus on the asset data
- ✓ Get the base data right
- ✓ Do not waste your energy on nice to haves. Identify what is needed to manage the assets through their lifecycles, to cost and value the assets
- ✓ Build relationships between the teams through demonstrating the value of the data
- ✓ Recognised the value the data to attract and retain appropriate skilled staff in the management of asset data

● Major Issues ● Minor Issues ● Expected Standard

2018/19 ONRC



2018/19 Asset Management



RCA's need to value their asset data. Get the base data right and demonstrate its value. Focus the effort on what is needed and not the 'nice to haves'.

HOW HAVE TAUPO DC ACHIEVED THIS IMPROVEMENT?

TDC manage their asset data internally with inputs from contractors for maintenance and improvement works and developers for vested assets.

Understanding the Root Cause

In 2013 TDC started their journey to improve the quality of asset data held by the Council. They were facing several challenges and barriers. The main ones being:

- Challenges associated with managing the RAMM databases in house, including staff turnover
- A bespoke three waters system that only one person knew how to use
- Responsibility of the collection and management of asset data not necessarily sitting with those with the appropriate skills and training to undertake this
- Collection and management of asset data not the primary part of existing roles and often given least priority

A Dedicated Asset Information Team

The first step was to create a team with a sole focus on asset data covering both transport infrastructure and three waters assets.

The Asset Information Team was initially created through the reshaping of existing roles. Part-time asset information officers and part-time RAMM database manager/administrator duties were pulled together to create permanent full-time positions. At the time, this meant that no additional staff were needed removing any barriers associated with the costs associated with other resources.

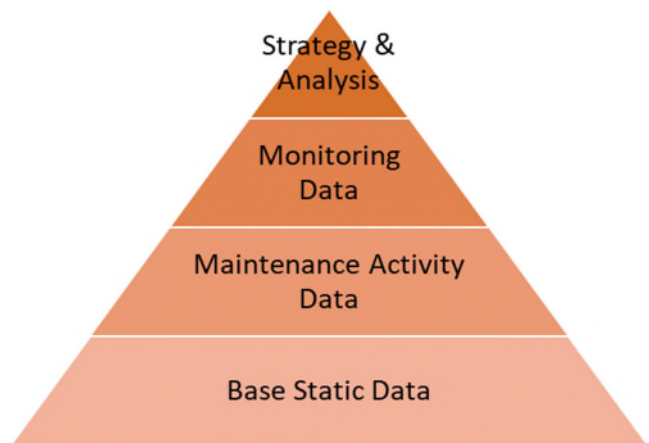
Since then, the data team has grown to 3.5 full-time equivalent full-time roles. The increase reflects the increasing quantity of accurate data to record in the systems on time. Asset maintenance and monitoring activities required a large amount of data to be captured. The understanding is that available quality data benefits everyone (TDC, contractors, developers, etc.). With an increased focus on capturing the details of maintenance and monitoring activity, there is a notable increase in the amount of data to be recorded. These are time-bound and occur regularly. The Asset Information Team are also responsible for the capitalisation of assets resulting from renewals, capital projects and via the vesting of assets from development activities.

Recruitment has been a challenge, particularly articulating the requirements of the roles. However, the focus has been on recruiting people with the appropriate skills. Skills and experience in how to

handle, manage and structure data was sought, rather than roading engineers or technicians. The skills and competencies of the current Asset Information Team include information management, database design, the management of data, data algorithms, Geographical Information Systems (GIS) plus others.

HOW TAUPO DC HAVE IDENTIFIED AREAS FOR IMPROVING DATA QUALITY?

The initial focus of the Asset Information Team was in the three waters space around the implementation of a new asset management information system to replace the bespoke system. This focus subsequently broadened out to include the roading data.



TDC's approach to its data hierarchy is shown in the above figure. This has formed the basis of any improvement programme activities. The initial focus is on the base or static data. Once this is accurate, the next focus is the recording of maintenance activity data and subsequently monitoring data. Knowing an assets physical attributes along with how it is performing, will enable renewal decision-making to move beyond "birthday renewals".

The principal objective of the Asset Information Team is the gathering and recording of accurate data with the focus on the capture of the data. This is to have the correct skills and competencies in the staff in the process. This team works with the Asset Managers for data analysis activity to support planning and decision-making. What information is needed out of the systems is discussed to confirm it is either available or can be captured.

Use Available Information to Help Develop Your Data Improvement Programmes

TDC have used the data quality reports issued annually by REG to support their data quality improvement initiatives. TDC have used these reports as an internal looking document to drive data improvements. Do the results reflect where TDC feel their data quality to be? If not, what needs to be done to correct it?

These reports have also been of value in raising the profile of data quality to senior leaders and managers.

Following the release of the data quality report in 2017/18, TDC reviewed their results for the asset management metrics. This included interrogating the data using Structured Query Language (SQL) to understand RAMM and report the records with potential data quality problems. This was done before the "Record by Record" RAMM SQLs being published by REG and which are now available on the [REG website](#).

TDC spent the time to thoroughly review their REG data quality report results and put into them into "plain English". The review identified a programme of data quality improvement actions and items to address. This will result in an increase in the quality of the data TDC uses for their decision-making and reporting purposes. This activity took some time complete to an appropriate level to understand TDC's data quality, including determining the size of the problem in implementing an improvement programme.

STRATEGIES IMPLEMENTED TO MAKE IT A LASTING CHANGE

Several strategies have been identified by TDC to make the data improvement change a lasting one. Some of these have been implemented at the time of preparing this case study, and others are in the pipeline. Examples include:

- Getting the base data right
- Ongoing monitoring of data quality
- Improving the process associated with as-built data of vested assets

Getting the Base Data Right

The focus is on getting the base data right. This is the collection of accurate asset data to the appropriate level of detail for where it is used.

Keeping the focus on recording the relevant asset information eliminates time wasted on asset attribute information which is not adding value to making and executing good decisions. Do not waste your energy on nice to haves. Identify what is needed to manage the assets through their lifecycles, to cost and value the assets. What they are, where they are, what condition they are in, and what level of maintenance activity has occurred.

The Asset Managers and Engineers now have more confidence in the data. The Asset Information Team has worked closely with them to build this trust.

Currently, internal capital projects can be challenging in terms of timeliness of the as-built data received. Sometimes this can be months after completion. The Asset Information Team are looking to build trust, mainly by demonstrating how value is being added.

Ongoing Monitoring

TDC initially used the exception reporting to identify data gaps and quality issues through reversing the SQL to report the list of exceptions for each metric. These were subsequently discussed with the relevant team to address through data cleansing exercises.

TDC's maintenance contractor is responsible for the input of data associated with their works and activity. Ongoing data quality monitoring has been implemented through rerunning the RAMM scripts. This monitoring is to avoid the potential of data quality reducing, resulting in a loss of the effort invested in the improvement programme.

The Infrastructure team has always been willing to support the Asset Information Team with improving Council's data. This has been a critical factor to success.

Vested Assets

A change was identified and implemented to the processes associated with as-built asset inventory data associated with vested assets.

Vested asset data is now received and reviewed by the Asset Information Team prior being accepted and the Resource Management Act Section 224(c) certificate signed off by Council. The Asset Information Team now deals directly with the developers to resolve any discrepancies. Those involved in reviewing this data need to understand how to read it, including as-built drawings to know nothing has been missed and it "makes sense".

This has been achieved through working closely with the development team. Time has been invested in building relationships with contractors and consultants to get this base data complete and accurate. This process is now working well.

TDC is currently working to bring in similar processes for internally managed projects.

BENEFITS

The primary benefits realised through TDC's approach to improving data quality are:

- Increased data quality to support planning and decision-making processes (as reported in the REG Data Quality Reports)
- Increased resilience and futureproofing with knowledge held as data in the asset information system and not in people's heads
- Having a standard way of requesting the information/data. Routine becomes the new normal.
- Increased confidence in the data with those using it (Asset Managers and engineers) for decision-making and reporting purposes

WHAT WAS NEEDED TO MAKE THIS A SUCCESS?

TDC identified the need to value data to support their processes. This valuing of data led to the creation of the Asset Information Team who's focus is on the collection, managing and maintaining of accurate asset data to the appropriate level of detail.

A strong ethic of valuing data within the Infrastructure Team has been established. Building relationships within the teams through demonstrating the value-added has been vital in achieving this.

RCAs need to value their data to attract and retain staff appropriately skilled in asset data management.

In summary, you need to get serious about data or do not bother.

CONCLUSION

Taupo DC started their data quality improvement journey back in 2013. The Asset Information Team was established with the responsibility of recording accurate data in a timely manner.

A culture of valuing data is being developed through demonstrating the benefits good quality data brings. The initial focus has been on getting accurate base data. A data improvement programme was developed through analysing the REG data quality report results. The focus will then move to capturing quality data related to maintenance activity and monitoring of asset performance.

The Asset Information Team have developed relationships with the Infrastructure Team and with developers to improve the quality of data received and entered into the systems. There is an increasing confidence in the data.

REFERENCES

[REG Data Quality Project website](#)

[REG Practice overview – Data quality framework](#)

[REG Practice overview – Data quality dimensions](#)

[Practice overview – Understanding the data quality results](#)

REG is a collaborative project between Local Government and the Waka Kotahi, the New Zealand Transport Agency.

For more information, please contact:

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