PANIC STATIONS!

When State Government funding rules our asset condition assessment schedule.

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Abstract:
A collaborative paper by Shelley Burchett (Proterra Group) and Phil Herron (South Burnett Regional Council).

After completing a detailed review of their stormwater asset infrastructure, South Burnett Regional Council came to the realisation that the challenge facing them was no data, no comprehensive valuation and an audit breathing down their necks.

This lack of data caused a significant problem with pending valuations and was certainly a great impediment to Asset Management and Planning.

The 11th hour came for South Burnett Regional Council in April 2019. Discussions began between South Burnett Regional Council and Proterra Group; a project was formed, and the following goals set:

- Focus on asset data collection of stormwater assets;
- Five townships to be inspected;
- Provision of condition assessment data for immediate asset valuation;
- Provision of spatial data for future use; and
- Completion of the project by 30 June 2019.

This paper discusses this project in detail, our challenges and learnings, the project outcomes and South Burnett Regional Council’s asset management journey looking forward.

Keywords: asset management, data collection, condition assessment, financial evaluation, spatial
For those of you who are not from our local area, the South Burnett region is about two to three hours’ drive from Brisbane, Toowoomba, the Sunshine Coast, Hervey Bay and Fraser Island.

There are about 32,000 people living in the region with a total area of 8,397km², South Burnett Regional Council is kept very busy maintaining their assets.

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealed Roads</td>
<td>1413km</td>
</tr>
<tr>
<td>Unsealed Roads</td>
<td>1582km</td>
</tr>
<tr>
<td>Pathways</td>
<td>56km</td>
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<tr>
<td>Kerb</td>
<td>269km</td>
</tr>
<tr>
<td>Stormwater Drainage</td>
<td>58km</td>
</tr>
<tr>
<td>Bridges &amp; Major Culverts</td>
<td>54</td>
</tr>
</tbody>
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Figure 1: Summary of selected South Burnett Regional Council Infrastructure.

Due to new leaders at South Burnett Regional Council, they are currently on a self-proclaimed ‘asset management journey’. A large focus of this journey has previously been roads, with an entire new register recently being built. Then at the commencement of financial last year, priority became the transport class asset valuation.

The 11th hour came for South Burnett Regional Council in April 2019. Discussions began between South Burnett Regional Council and Proterra Group; a project was formed, and the following goals set:

- Focus on asset data collection of stormwater assets;
- Five townships to be inspected (Kingaroy, Murgon, Nanango, Wondai and Kumbia);
- Provision of condition assessment data for immediate asset valuation;
- Provision of spatial data for future use; and
- Completion of the project by 30 June 2019.

With our project goals set, we had a tight project timeline, with a start required in April 2019 and a non-negotiable project completion by 30 June 2019.

A little bit of background on Proterra Group. Their asset data collection department focus on location, inspection and condition assessment of urban stormwater assets, rural drainage assets (culverts) and sewer maintenance in regional areas.

In January 2019, they began visiting local Councils providing a free one-day demonstration of their inspection process. Recently there has been a real awareness growing around the importance of asset data collection and accurate asset valuation within Local Councils and these visits were used as educational tools for Council’s to understand how they could meet their targets.
This project was segmented into three phases.

The main aim of Phase 1 was to expedite the collection of data to provide South Burnett Regional Council with updated spatial data (to show the location of their stormwater network) and provision of an accurate estimate of assets.

This was achieved by utilising two by two-person crews undertaking street by street (driving and walking) surveys of the five townships identified for inspection.

When an asset was located a point was dropped for the pit, manhole or end structure and a line was drawn in to show the estimated pipe alignment.

During this phase, no photos were taken of the surface assets and inspections of the pipes was not undertaken.

So, what was the outcome of this phase? Over 4 days, Proterra Group was able to identify 2224 nodes and 1744 pipes throughout the five townships. With that positive outcome, we moved forward into Phase 2.

For Proterra Group, Phase 2 involved revisiting all the assets marked during Phase 1.

Due to the size of this phase, a township was inspected in its entirety before another was started.

The deliverables of this phase was the provision to Council of updated spatial data, identification of additional assets, photos of surface assets, videos of pipes, collection of agreed data attributes and condition rating.

To achieve this, we again used hand held GPS, we revisited all assets previously marked, marked any new assets, opened grates and lids, took photos and took video records of the pipes.

Shown below are example pictures taken of surface assets during Proterra Group’s inspections.

These include a front view, upstream and downstream view, a photo of the opened pit, a chamber photo and an additional photo showing any defects identified.
During pipe inspections, Proterra Group used QuickView AirHD cameras. It is a stationary camera that uses high powered zoom and lights to illuminate the pipe, allowing condition assessment and defect recording. Below is a still shot from one of the pipe videos recorded by Proterra Group:
This type of camera easily allows Councils to undertake a cost effective, rapid inspection of their stormwater network then allowing for a more targeted CCTV inspection and/or rehabilitation program to be developed.

Assets were condition rated using IPWEA Practice Note 5: Stormwater Drainage (Condition Assessment and Asset Performance Guidelines).

Due to the immense amount of data being collected in the field, it was validated daily by Proterra Group and submitted to South Burnett Regional at the completion of a township.

This allowed Council to continue their asset valuations whilst Proterra Group continued the in-field inspections.

So, after Phase 2, how did the numbers stack up?

Over forty-eight days, utilising two x two-person crews, Proterra Group revisited all assets identified in Phase 1 and identified a further 298 nodes and 478 pipes (demonstrated in the below figure).

The below figures show the condition ratings for nodes and pipes (with all townships combined).

As you can see most of the infrastructure is in either ‘good’ or ‘very good’ condition with approximately 2% of the nodes and pipes rated ‘poor’ or ‘very poor’.

This info should now allow South Burnett Regional Council to prioritise their assets requiring action soon (if not immediately) and focus time and budget on them.
Phase 3 was designed to allow Proterra Group to continue inspections by recorded surface levels, invert levels and calculating grades for South Burnett Regional Council to use for future hydraulic modelling.

But alas, with tight timeframes and budget, this was not to be.

So, without this third phase, did we achieve the goals we set out to? Short answer, yes!

With a focus on stormwater assets, Proterra Group was able to inspect five townships (2522 nodes and 2255 pipes – approximately 58.5km), providing condition assessment and spatial data to Council by the 26 June 2019.

I’ve talked about our success, but every project comes with a unique set of challenges and this one was no different.

Firstly, inaccessible assets.

As the project commenced it was clear there would be a range of inaccessibility issues arising. Some of these included:

- Garden beds and fences build over pits;
- Cracked lids;
- Rusted in grates;
- Lids / grates that had been tarred over;
- Buried pits;
- Locked gates and ‘keep out’ signage;
- Aggressive property owners and their pets.

Unfortunately, it is very rare to gain access to 100% of your assets during inspections.

Proterra Group worked with South Burnett Regional Council by notifying them of any safety issues, providing a list of inaccessible pits (including the reasoning) and revisiting where available. This ensured that we collected as much data as possible on as many assets as possible to provide a clear picture of network connectivity.

An overview of accessibility to South Burnett Regional Council assets can be seen below:
Some of the other project challenges included:

- A limited timeframe and budget: managed with weekly cost and productivity spreadsheets provided by Proterra Group and additional resources deployed to ensure any deadlines were met.
- The original data provided by Council was in poor condition: this was identified by both South Burnett Regional Council and Proterra Group, phase 1 was developed around this with the data confidence moving into phase 2 at an all time high.
- The accuracy of the hand-held GPS was poor in some areas: this was a mixture of connectivity and equipment issue, equipment was upgraded by Proterra Group and data was reviewed by South Burnett Regional Council upon submission.

So, what’s next?
South Burnett Regional Council have a mammoth task ahead of them. They have a huge data set that they are reviewing and formatting for use by their departments, they are working through how best to display the data in their GIS system, updating their asset registers and are working on developing a forward works program.

Future works may include more data pick up focussing on surface levels, invert levels and calculation of grades for hydraulic flow modelling and possible CCTV works to further identify areas of worsening condition and to prioritise rehabilitation works.

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References
Nil.