WESTERN DOWNS REGIONAL COUNCIL INTEGRATION OF DRIVE BY AUTOMATED METERS - ONE YEAR LATER - ACTUAL VS ANTICIPATED RESULTS

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ABSTRACT

In 2010, Western Downs Regional Council submitted a paper to the WIOA Workshop outlining the Drive By Automated Meters project and the anticipated results. Unfortunately, illness prevented the presentation being undertaken in Rockhampton. The 2010 paper has been posted to the WIOA website - www.wioa.org.au/conference_papers/10_Qld/AWrigley.htm
and further information is available there for anyone interested.

One year into the integration of Drive By Automated Meters in the Western Downs region, this paper will present the results so far of the implementation and meter reading process and compare the outcomes with the anticipated benefits as initially considered when the decision to implement Drive By Automated Meters was made.

When this paper was first offered in 2010, data was limited to anticipated results. Although extensive research was undertaken at the conceptual stage to establish projected benefits, actual results such as implementation timeframes and labour costing were limited. With further installations of Drive By Automated Meters throughout the region a more precise illustration can now be presented in relation to the cost effectiveness of Drive By Automated Meters.

Western Downs Regional Council has accomplished a billing cycle since initiating the integration of the meter reading system. Actual data on the number of false reads as well as labour costs concerning reading time can now be offered and evaluate against initial estimates.

This paper will examine the integration process of Drive By Automated Meters by Western Downs Regional Council to establish if our primary objectives of an automated system that would reduce meter reading times and our secondary objective for a product that would be easily integrated into our billing system are being met through comparison of actual verses anticipated results over the year.

1.0 INTRODUCTION

When Western Downs Regional Council (WDRC) initiated the implementation of drive by AMR (automatic meter reading) technology it was with the expectation of reducing meter reading time and costs in outlying areas and improving meter reading accuracy over the region. Although extensive investigation was undertaken, there was a desire to quantify real benefit, even at this early stage. The fiscal outlay for AMR technology is greater than standard meters, so in order to justify the increased expense it was essential to realize the reduced labour costs and improvements in accuracy and to affirm our objectives of an automated system that would reduce meter reading time and would straightforwardly integrate into our billing system.

The question was then asked as to how to prove the WDRC meter replacement program for 22 water supplies consisting of a total of 10 000 plus water connections which now incorporated the installation AMR technology was on track and securing the anticipated benefits of AMR technology.

It was decided to return to the start, look at the reasons why AMR technology was chosen by WDRC, compare actual results of meter installation times, meter reading times, the integration process and demonstrate the decision to incorporate AMR technology was right for WDRC.

2.0 DEFINING OBJECTIVES

As discussed in the 2010 paper, WDRC faced the challenge of inheriting unmetered supplies and towns where the meter replacement programs are nonexistent; it was essential to reevaluate the objectives and ensure the objectives still supported WDRC in meeting these challenges.

Labour constraints are still one of the foremost issues faced in the outer regions. The physical distance between supplies and the time is takes for field officers just to travel to such supplies meant that any reduction in time would obviously be beneficial in easing labour constraints; for this alone the objectives of an automated system that would reduce meter reading time was still primary.

The secondary objective of straightforward integration into our Civica billing system was imperative. If the system could not integrate efficiently or did so problematically, the benefits seen in reduced labour costs would be shadowed by the increase in time required for integration.

It must be mentioned that although we have not set demand management as our primary or secondary objective, it is a benefit of AMR technology and one we hope will transcend through an increase in the time available for the leak detection program. As well as having the ability to increase the frequency of reads which will allow greater management of high end water consumers.

2.1 Installation of AMR meters; how does it compare?

To date, over 2000 AMR meters have been installed throughout the region with plans to install 1000 each year.

Housing of the meters is still an issue; but must be noted was the only issue voiced by WDRC field staff in regard to installation. The black boxes are too narrow and required modification to fit over the AMR meters. This however does not occur with meters housed in green meter boxes.

As previously mentioned, the AMR meters are of the same length as a standard meter and can be read above and below the ground, subsequently there are no adjustments required to pipe work.

Although the housing of the meters and the subsequent adjustments were problematic within some WDRC towns, AMR meter installation compared to standard meter installation has been relatively comparative. The housing of the meters may have been more of a concern had we had to retrofit more of the black box type, but fortunately we have not and we can say for our installation program the variance in labour costs associated with AMR meters to standard meters is negligible.

2.2 AMR Meter Reading

As already discussed the obvious benefit of collecting data from AMR technology is faster, safer and more efficient meter reading practices. The meter reader drives the normal route in a vehicle installed with the vehicle receiver and antenna. All AMR enabled meters when driven past will automatically transfer their readings.
The system advises missed reads so blind data is reduced. The hand held device can be removed from the vehicle receiver and the data entered manually should the need arise.

The outcomes from meter reading so far have been positive; meter reading times have been dramatically reduced, with an average of 10 meters being read every two minutes with AMR technology.
In one incident in the region an entire town of 360 meters was read in less than 40 minutes; averaging at 10 meters a minute. It should be noted that all meters within this town were above ground. There is an increase in the time to read underground meters as there is a reduction in signal range but when compared to the time to read standard meters, our primary objective for a system that would reduce reading times and thus reduce labour costs are being met pleasingly.

An unexpected event with obvious concern was the flooding events of December and January which inundated several Western Downs Regional Council townships and saw the meters also being inundated. So far we have not seen any issues arise, the meters were read, some of the meters were even under water at the time of the reading and still a positive reading was captured. The meters have not appeared to have been effected by the inundation; we were not expecting any issue as we knew the meters to be robust but the length of time of the flood events and the volume of water did raise our concern.

One aspect that still requires quantifying is the failure rates of the meter reads - unfortunately the data was not available at the time this paper was due. Although we have proven the time to read the meters is greatly reduced, high failure rates will undoubtedly increase labour as the meters will be required to be reread or manually read. In the previously mentioned town of Wandoan, the failure rate was 1 in 360; obviously if this rate was mirrored in the population of AMR meters in the region, the results would be very pleasing, but it would be erroneous to make such assumptions at this early stage. It is anticipated that even with a high failure rate, the meter reading time is still significantly reduced and still meets our primary objective.

2.3 Integration

Integration proved the area of most concern for the project; the cause being unexpected but in reflection one which ought to have been anticipated.

One of the principles for the successful implementation of the AMR system was the assured integration into our existing meter reading systems – as already defined, this was our secondary objective. The process was relatively simple; the rating department uploads the reads from the hand held device through a simple plug in receiver and then downloads the required data to integrate to our billing system, Civica however did not ensure one basic principle, if the meter numbers were not entered accurately on installation of the meter, the data could not transpond. For an example, if the Meter Number is 10W005, the Transponder Number is 100005, which is obviously the meter number minus the W.
If care is not taken when the meter number is initially entered, the transponder cannot

match to the meter and the read is classified as an orphan read. If we had only replaced a few meters the error would have been captured without issue, but when the replacement program consisted of new meters for an entire town, a great number of orphan reads were being captured, and the error became wide scale.

Thankfully, once the error was recognized, correction was relatively straightforward; correcting the error consisted of capturing the precise meter number and rereading. Once accuracy of the data input was ensured, the integration process became straightforward, the reads are as described, uploaded and the data integrated with the Civica Billing system.

Finance have only recently completed a billing cycle, which did not allow, at this time for quantification of the labour time of integration; it is expected that initially we will see increased labour associated with integrating the data but overall for the number of read cycles in a 10 year replacement program this will ease out and optimistically also be reduced.

It must be noted the issue concerning data input accuracy was no fault of the AMR system.

3.0 CONCLUSION

One year into the replacement program can WDRC stand by their decision to implement AMR technology into the meter replacement program? On reevaluating the primary and secondary objective, the objectives still support WDRC in meeting these challenges of meter reading through the region.

The life cycle for a meter is an expected 10 years. For functionality the meter replacement program for WDRC coincides. As said previously it is expected to take one full meter life cycle of 10 years to completely quantify actual verses anticipated results however at this stage confidence is felt in the decision to implement AMR technology into our meter replacement program.

Meter reading time as compared to the meter reading time of standard meters has been reduced considerably and we expect this reduction in time to be maintained throughout the life cycle. The issues concerning integration of data were unfortunate but now rectified and not expected to surface again. Installation time is negligible compared to standard meters.

At this stage we cannot accurately provide relevant findings in regard to meter faults with an AMR system, but as previously mentioned a high failure rate will still prove more beneficial in reducing meter reading time. Therefore the perspective one year into the program is a positive one.