KEITH NEVILS

ADVANCED DATA COLLECTION

Aegion set out to improve its asset integrity management (AIM) process in 2016 for the benefit of our customers and to improve internal quality and efficiency. Customers require complete, traceable and verifiable data to meet government regulations. This data also helps them make the best use of their maintenance and repair budgets. The Aegion AIM framework consists of a central geospatial repository and client data delivery tools.

Applications since then for information storage, recall and decision-making have been released on the Aegion Asset Integrity Portal. In 2018, a strong focus was placed on improving our data collection tools, resulting in the creation of our new advanced data collection system. Although some off-the-shelf data collection systems are available, only Aegion's has all the features and flexibility needed to meet customer demand.

NEW AND IMPROVED DATA COLLECTION SYSTEM

Data was previously collected in the field and imported to the AIM data repository in a variety of formats. With our new state-of-the-art data collection system, Aegion now has a consolidated platform for engineering surveys and will tackle pipeline surveys over the next several months.

The platform consists of the following:

- Integrated survey manager application to configure jobs and intake existing survey data
- Instrumentation consisting of a tablet device, sub-meter GPS and Bluetooth voltmeter
- Mobile software to collect field measurements, locations and asset attributes

The mobile data collection application is tightly integrated with existing AIM architecture and utilizes existing security modules in AIM to authenticate users and define roles for pre-survey and field work. The program also enables immediate data transfer from the field, so project managers can keep up to date with field progress.

CATHODIC PROTECTION SURVEY METHOD

There are three phases of data collection for the cathodic protection survey process:

- Pre-survey set-up: The intake of client data and survey points in preparation to perform the survey. While the most common form of intake document is a spreadsheet or CSV file of survey locations with or without GPS coordinates, many other data file types can be imported.

- Field data collection: Collecting a GPS point location, recording asset information and taking readings at the asset location.

- Post processing and display: Transferring the data from the field to the office for engineering staff to analyze and prepare the final work product for the client.

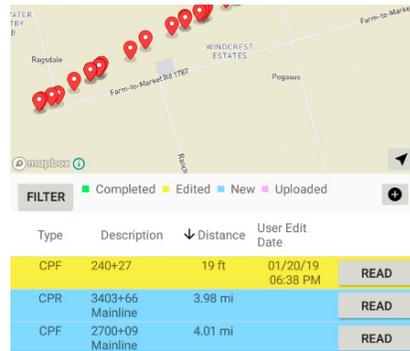The figure to the right shows the 2016 objectives of the AIM framework
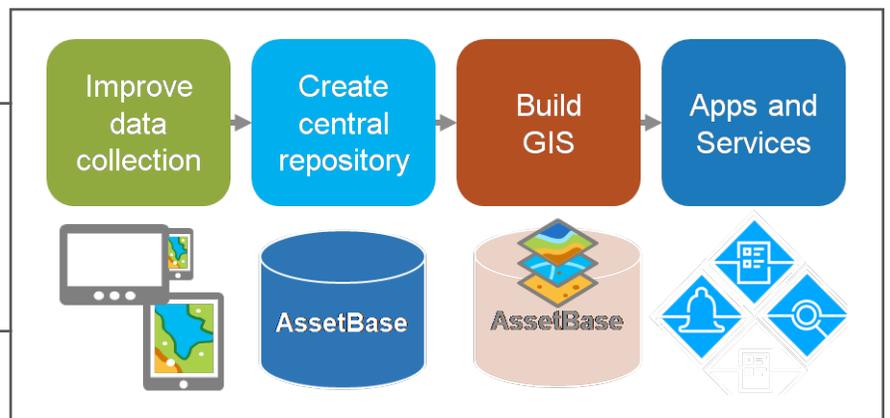
Figure 1. Survey setup

Figure 2. Tablet view

Figure 3. Hardware

Figure 4. AssetView™ display

PRE-SURVEY SET-UP

The pre-survey step is the area of focus that provides the greatest productivity gains. Survey preparations are completed with a user-friendly setup tool. Project managers simply choose the options they want from a menu of selectable items (see Figure 1).

FIELD DATA COLLECTION

After items are saved into the job-specific survey, it is downloaded to the tablet with just one click. If changes are requested later, they can be made and quickly updated to the tablet. If GPS locations are available, they are imported along with other information to save time in the field. Technicians can see a display on the tablet with color-coded test points and a map with their location. Technicians can also sort by distance to take the most efficient route to the test point (Figure 2).

HARDWARE

The hardware for field data collection consists of a tablet, multimeter and sub-meter accuracy GPS (Figure 3).

POST PROCESSING/DISPLAY

Project managers can pull up the data in a viewer once surveys are in progress to track progress and verify the required information has been collected. After verification, all information is passed to the AssetView™ application for structured viewing and/or report completion as shown in Figure 4.

BE BETTER.

Aegion continues to deliver improvements in the way we deliver information to our customers, and these recent enhancements to our advanced data collection system are successfully improving data quality while simplifying the process.