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Governing
in the Time of Covid-19

Do You Really Know Your Assets?

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The northeastern U.S. has some of the oldest subsurface utility networks in the nation. Materials used 50 to 100 years ago are not the same as we use today when constructing utilities such as water, sewer and stormwater systems, and many of these materials may be approaching the end of their lifecycles. Older utility networks such as these can be somewhat of an unknown when owners are evaluating the location, condition and risk of failure of their assets.

Knowing Your Assets is a Must in 2020

Utility owners must comply with certain regulations that protect our communities from pollution and toxic environments. The Clean Water Act of 1972 is one of many regulations put forth by our government to protect the environments in which we live. The need for knowing your asset's functionality and life expectancy is essential and can be done through the implementation of Enterprise Geographic Information System (eGIS) applications.

Asset Life Expectancy

Since certain environmental conditions can shorten the life expectancy of your assets, state, county, and local governments provide publicly consumed eGIS data. These data are typically state- and county-level data that are environmentally constrained datasets. For instance, data related to acidic soils and flood prone areas are examples of datasets that can assist utility owners in evaluating environmental conditions surrounding their aging infrastructure. By using eGIS applications, assets in such locations can be assigned high-risk values of pass or fail, or numeric scoring of 1 to 100. As data is compiled within the eGIS program, analysis is performed to provide the utility owners a thematic map and report of assets deemed high probability of failure.

Assessment and Assistance

During the assessment process of known environmental risk areas, eGIS mobile applications can be deployed to take a deeper dive into the actual assets' current state by performing high-level inspections. Building

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your eGIS program on Environmental System Research Institute (Esri) software and web applications make field data collection tasks easy. For example, rolling out Esri's Survey123 and Collector for ArcGIS app for data collection and inspection of stormwater outfalls can satisfy the mapping and outfall inspection requirements of the NYSDEC SPDES for MS4 WQIP program (http://www.dec.ny.gov/). There are also grant opportunities available to help get your stormwater responsibilities in compliance (http://www.dec.ny.gov/docs/water_pdf/wqipoverviewr16.pdf).

Esri Form-based Condition Assessment

Using Esri form-based apps for inspections is a quick and easy way to have field staff work from a mobile device to capture condition information of assets. This form-based data collection populates your eGIS asset information as your staff move about the field.

Efforts of condition assessment involve a variety of new and historic data. Third-party data such as CCTV of utility lines, CAD-based engineering as-builts, and historic operation and maintenance database can be integrated into your eGIS program. At the completion of your field assessment and the tie-in of historic asset data, office staff will reap the benefits of the eGIS program, enabling them to make system-wide decisions on areas in need of rehabilitation.

Made of varying materials and configurations, each type of asset has a unique threshold as to its maximum rate of failure probability. For example, a water hydrant has different inspection criteria then a stormwater outfall. Where a stormwater outfall could have a visible failure of a crushed pipe, a water hydrant may be rusting and unable to be manually opened. These attributes are what is populated during your field assessment on the Esri Survey123 forms. Form data entries are read into both the condition and risk components of your eGIS

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program.

These in-depth assessment programs lay on top of your Esri eGIS environment. VUEWorks® Asset Management Software is a feature-rich program that we use for managing such data assessment information with our utility clients. It allows the utility owners to build criteria for each asset type. The program will look at field observations and condition assessment forms, and it will also look at scheduled and non-scheduled work requests cut against the assets within the eGIS program.

In this example, work orders related to water main breaks are a failure mode that the program will take into consideration when applying consequence of failure for that pipe.

In 2020, we are now seeing the benefits from these eGIS programs as many of our clients have now been using them for multiple years. The historic data gathered over the years continues to make asset management projections easier. Good data put into these programs, over a longer period of time, provides accurate results in identifying capital project improvement plans and immediate risks of failure repair response.

Web-based GIS

Today's eGIS programs give users the capability to store a large amount of data within a secure web server (the cloud). This means that asset data can be accessed and updated in the field through hand-held devices with platforms such as Windows, iOS and Android. As the data is collected or edited, it is sent to a secure web server in real-time for simultaneous use in the office. Having an accurate snapshot of asset location stored on the cloud before a disaster occurs, such as a hurricane or severe flooding, can help expedite post-storm repairs because you have an exact record of what previously existed. Even if fire or flooding were to destroy original documents and computer files, having them stored in the web-based eGIS server cloud would keep them safely intact. eGIS programs are also a valuable tool because

Benefits of Using eGIS Asset Management

- **Collect highly-detailed asset information**
- **Streamlined communications**
- **Real-time field-to-office data transfer**
- **Maintain data integrity**
- **Monitor asset lifecycle**
- **Manage asset data from common dashboard**
- **Cloud-based data storage secures data from natural disasters**
- **Creates and executes work orders in real-time**

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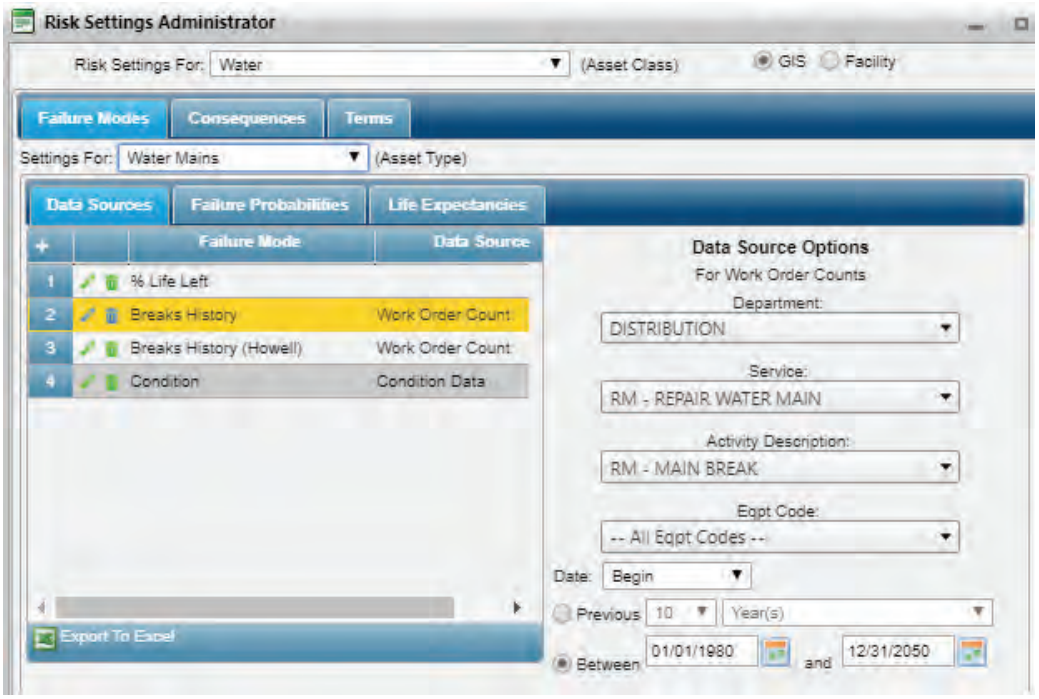
they offer design tools for creation of construction documents and as-built plans. They also can be configured to enable staff to launch live service requests, manage and report on the status of those work assignments directly from the field.



Conclusion

Using eGIS asset management solutions provides one access point for viewing, maintaining and managing all your assets. While the initial implementation of an eGIS application takes a little leg work to set up, once it is up and running, it is well worth the investment to have the depth of detail regarding assets and an improvement in the ability to manage them. ❒