Realignment of Network Assets to New Land Base –

Potential Business Benefits

The following business benefits can be realised by adopting new, more accurate land base information and shifting the facility network to align to the new land base.

The information has been compiled based on we-do-IT's previous experience with clients in USA, Canada, Australia and New Zealand.

Items highlighted in yellow are areas where information on your particular business context is required.

This document is intended to be used as a starting point for identifying where and how your business would benefit from adopting new land base.

Reduce cost and effort to update the GIS

The location of facilities in the GIS is not accurate. Facility location information in the GIS has been inserted relative to the existing, often inaccurate land base information. When compared with GPS-validated land base information, the difference in facility location can be up to 100's of feet. To accept updated, GPS-validated land base information, the network must be realigned with the new land base data.

Without network realignment capability, it is not possible to accept the new land base information in its correct location. As a result, new subdivision information is made to fit the old land base. This further exacerbates the problem by increasing the backlog of network assets that need to be realigned with the more accurate land base.

By adopting a new, accurate Land base, the effort to input new assets and update existing assets will be reduced. The effort will be reduced at the approval phase, where you then evaluate the impacts of the subdivision as well as the design and build phases.

Design and Build Phase

When land is subdivided, you receive a plan of subdivision. This is a survey plan of high accuracy. If loaded directly into the GIS, it will not line up with the existing Land base. To address this issue, the operator transforms and distorts the plan to fit the existing Land base.

The network assets are then plotted at offsets to the existing Land base (e.g. 10 feet from the parcel boundary). This location can be 40 – 100's feet away from the location as measured with a GPS.

The result is the new, more accurate survey information is downgraded and new assets are input in the wrong location.

By adopting a new Land base, the effort would be reduced in the following areas:

- The subdivision would not be made to fit the old Land base. This operation occurs x times per year and takes on average x minutes to complete. This would save x hours per year.
- New network assets would be placed in the correct spatial location. To shift a subdivision to the correct location would take approximately xx hours for a xxx parcel subdivision.

Exit the Land Base Management Business

By acquiring land base data from external sources, you can focus on the core business of managing the network. Instead of managing the entire land base dataset, you will only need to focus on changes to the land base that are not yet available from the original provider. These changes can be managed as a separate layer in the GIS and later removed when for example the new subdivision is finalized and incorporated in the published land base.

Place Leak Information based on GPS rather than Geocoding

The leak survey process currently collects a GPS location for the distribution mains that have been tested and a GPS location where a leak is detected. The leaks are imported into the GIS and geocoded to the nearest main. Due to the spatial inaccuracy of the asset information in the GIS it is not possible to use the GPS location recorded during the field survey. The conflation process will improve spatial accuracy of the distribution network. This in turn will improve the placement and association of leaks to mains in the GIS.

Reduce Cost of Responding to "811 Call Before your Dig Requests"

Annual Cost Reduction: Fewer truck rolls to perform cable locates.

You participate in the Call Before You Dig initiative whereby people who are planning underground works can call you for electrical line location services.

On receipt of a call, check the GIS for underground assets in the location specified. The location is specified as a street address and approximate distance from the boundary line.

A map is produced and sent to the requester showing the services in the area. If required, your team visits the site and marks the cable locations on the ground.

Because the GIS land base accuracy is poor, it is not possible to use the GPS coordinates of the requester's dig location to generate the map. The process relies on a description of the location by street address. Improving GIS land base accuracy will facilitate automating this process and reduce the risk of providing inaccurate maps.

The cost of responding to Call Before You Dig Requests can be reduced by:

- Automating the response when GPS coordinates are supplied for the dig site. With accurate network and land information, a pdf can be automatically generated and sent to the requester.
- Reducing the need for on site visit if the location of the dig is explicitly specified in the request.

Reduce Probability of Cable or Pipe Cut

Currently, network assets can be up to xxx feet away from their true location as measured by a GPS. The inaccuracy of the information held in the GIS increases the likelihood that electricity cables will be cut when digging.

A line cut has several potential impacts and costs:

- Injury to workers
- Outage for customers
- Cost of repair
- Legal

Reduce Cost of Field Data Capture

If GIS information was accurate, then information captured in the field using GPS could be loaded directly into the GIS without manipulation.

- How are field audits / data capture projects handled currently?
- How is spatial information that is spatially accurate integrated with the GIS?
- [Do you have a field capability – can GIS information be used in the field

Manual Labor Savings

In the absence of automated processes, the land base data rectification process can be very costly, requiring a significant amount of manual effort by subject matter experts whose time could be better spent on other activities. Depending on the frequency of land base updates, a manual rectification process can become cost prohibitive.

Accurate Spatial Data to Support Business Processes

- Reduce frequency of site visits required for underground locates.
- Provide accurate location information for routing or other applications.

Ability to Use Aerial Imagery

High accuracy aerial imagery is becoming much more cost effective and widely available, and is widely becoming an expected part of geospatial applications. It can provide much richer information about an area in many cases than a traditional vector land base.

Unless the vector data is accurate, it is not possible to use aerial imagery effectively.

Integration with New Generation Web Mapping Systems

New generation web mapping systems from mainstream IT providers like Google and Microsoft can dramatically reduce the cost of distributing geospatial / mapping data throughout an enterprise (used in conjunction with a traditional GIS like Smallworld for more complex applications).

This can enable cost reductions through reduced software maintenance, ongoing system maintenance and hardware costs relative to traditional systems. It can also provide additional benefits through enabling additional applications to be implemented in other parts of the business (e.g. marketing) at a substantially lower cost than using traditional approaches.

Integration with Real Time Traffic Information

Another capability that is becoming much more widespread is access to real time traffic information for routing purposes. This can lead to significant savings by reducing travel time. It is hard to integrate this type of information unless an accurate land base is being used.

Improve Accuracy of Franchise Taxes and Ad Valorem (or Tax Rate Area) Taxes

Calculation of tax obligations for Franchise Tax and Tax Rate Area are usually based on the corridor occupied by the assets and the value of the assets in a region. The accuracy of the calculation is related to the accuracy of the spatial location of the assets. Improving the spatial accuracy of the network information allows your organization to:

- Utilize the most current tax district boundaries that are published by Counties
- Calculate the tax obligations more accurately
- Reduce occurrence of tax calculation audits conducted by the state through increasing confidence and transparency of tax calculation methodology and quality of data used to support the calculation.
- Reduce likelihood of compliance penalties where tax calculations are incorrect

Revenue Assurance Through Spatial Analysis

Annual Revenue Increase:

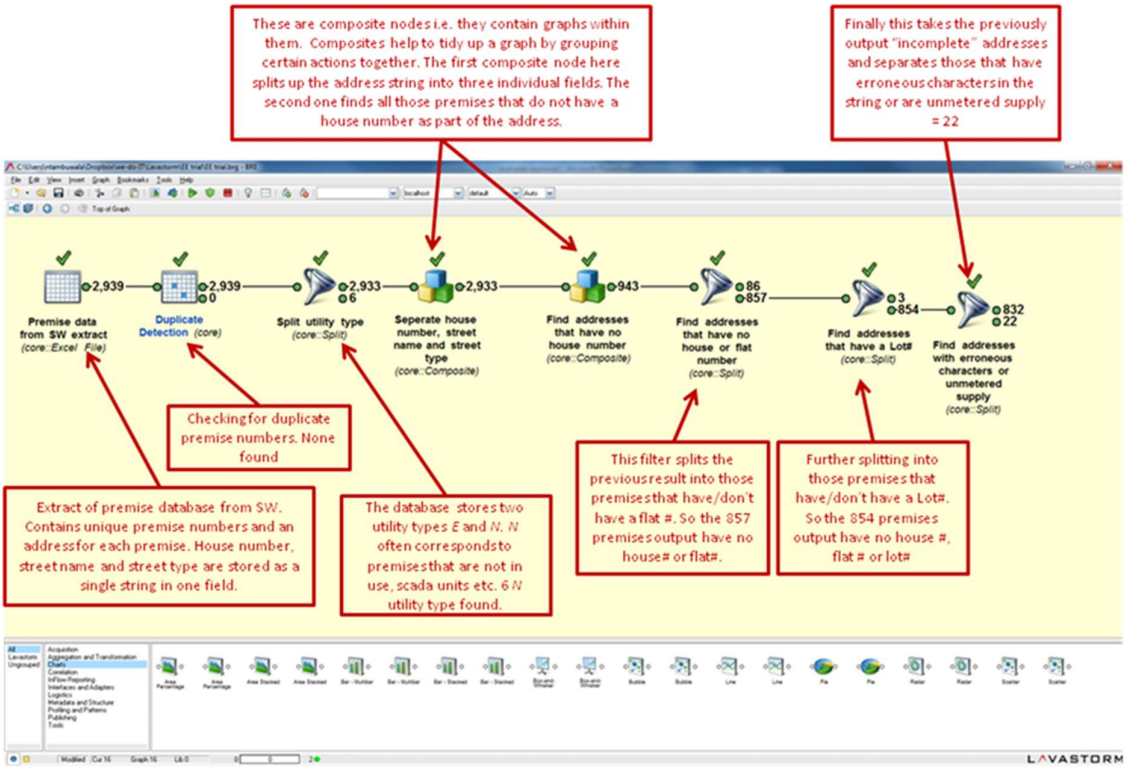
- Correct customer classification as resident or commercial results in applying the correct tariff.
- Identify incorrectly billed customers.
- Identify and market to network proximity eligible customers.

Currently network information cannot be combined with other information sources if the accuracy of location is poor – assets cannot be overlaid as they do not line up.

Accurate location information of assets allows this information to be combined with other datasets such as land base. For example – find all customer service points that are located in land zoned for industrial or commercial use. This information could be used in validation of tariffs for residential, commercial and industrial customers.

Accurate spatial information in the GIS can also be used to identify where billing errors are occurring. This revenue loss can be hidden by what is assumed to be normal technical loss. This is achieved by

- Reconciling substation transformer loads with customer meter data
- Identifying customers that are incorrectly addressed or billed
- Mapping this spatially on the network to identify trends and patterns



Example of analysis of billing data to identify customer address errors. Accurate land base and network data can be utilized to avoid incorrect customer billing.