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Quality Data Powers GIS

Leveraging Geospatial Accuracy for Operational Intelligence

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Southern Company

- 4,412,000 Electric Customers
- 120,000 Square Miles in 4 States
- 43,000+ MWs of Generation Capacity (58% Coal, 25% Oil/Gas, 15% Nuclear, 2% Hydro)
- 143,000 Miles Distribution
- 27,000 Miles Transmission
- 4 Operating Companies APC, GPC, GULF, & MPC



Alabama Power Company



- Serves 1,434,434 customers
- Vertically Integrated Utility
- Over 6,600 Employees
- 10,218 Miles Transmission
- 79,430 Miles Distribution
- 2200 Distribution Circuits
- 44,500 Sq. Mile Service Territory

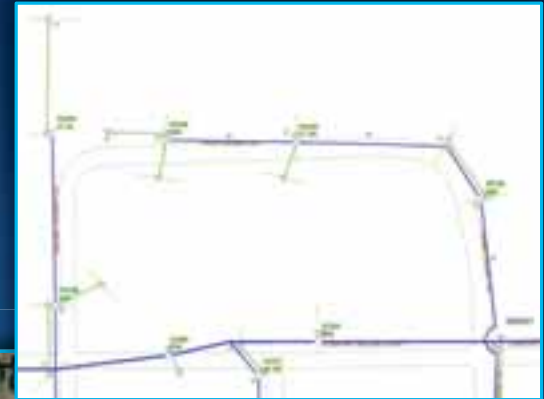


Smart Grid at APC

- 2,200 feeders automated at breaker
- Over 4,000 automated line devices
- AMI project completed in 2010
- Integrated Distribution Management System (IDMS) partially deployed in 2012
- New Outage Management System being tested
- Numerous Advanced Applications to be included in IDMS
- GIS serves as critical source data for IDMS and OMS

GIS Evolution at Alabama Power Company

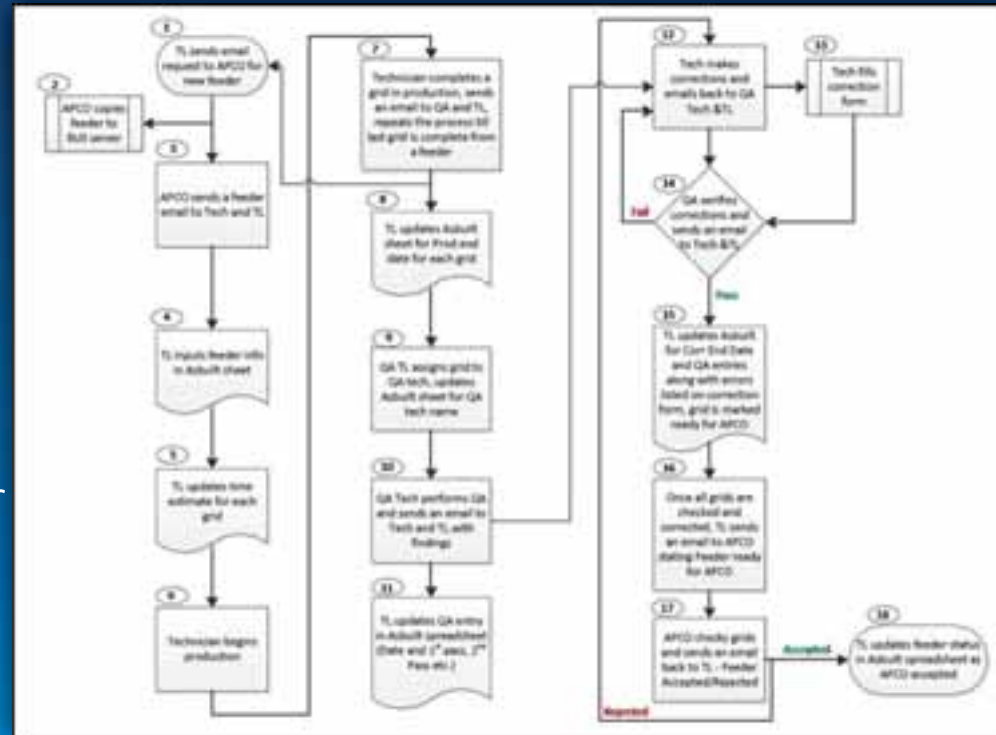
- In 2000 APC deployed an ESRI GIS Model
- Old inaccurate distribution data was imported to GIS
- Next decade was devoted to correcting the data
- SGIG Project
- Overhead/Underground Spatial Adjustments
- Customer Linking



Establishment of a Process Flow



- Initial Training
 - APC's DMC Team
 - Progression of Rolta staff
 - Distribution network policies and requirements
 - Crucial Power Delivery Concepts
- Team-Based Structure
 - Accountability
 - Friendly Competition
 - Attention-to-Detail
- Tech Responsibilities
 - Work grid-by-grid through feeder
 - Post 1 ArcFM session daily
 - Secure CITRIX environment
 - Execute Noted Changes, if any
 - Relocate Features leveraging Bing Maps, Google Maps

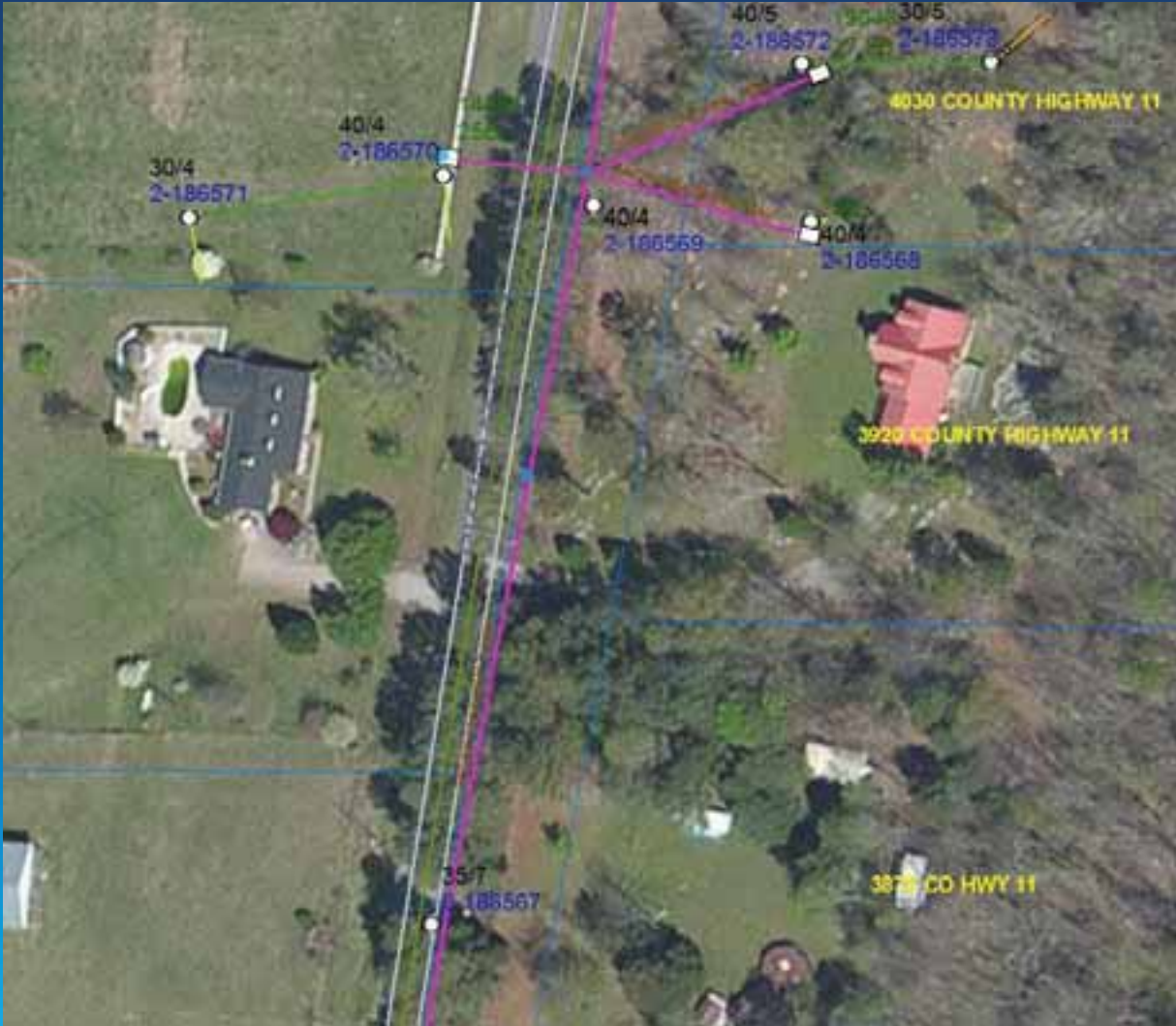


OH/UG SA GIS Project



- APC continued it's partnership with Rolta to spatially adjust ~300 Overhead feeders and ~2900 Underground Subdivisions against new Aerial Imagery
- Spatial Accuracy was achieved by repositioning assets to the real world location using Google and Bing Imagery

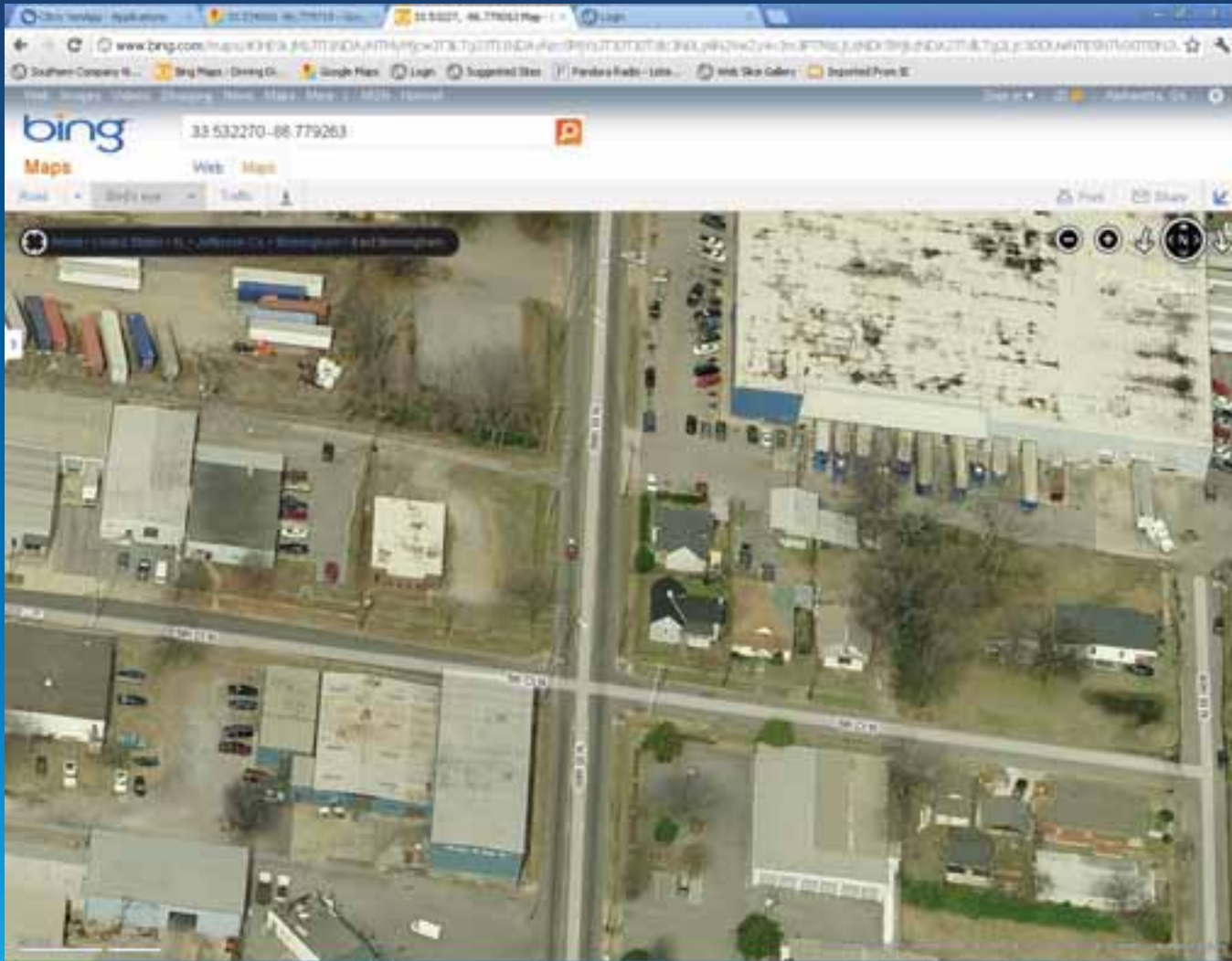
APC Source



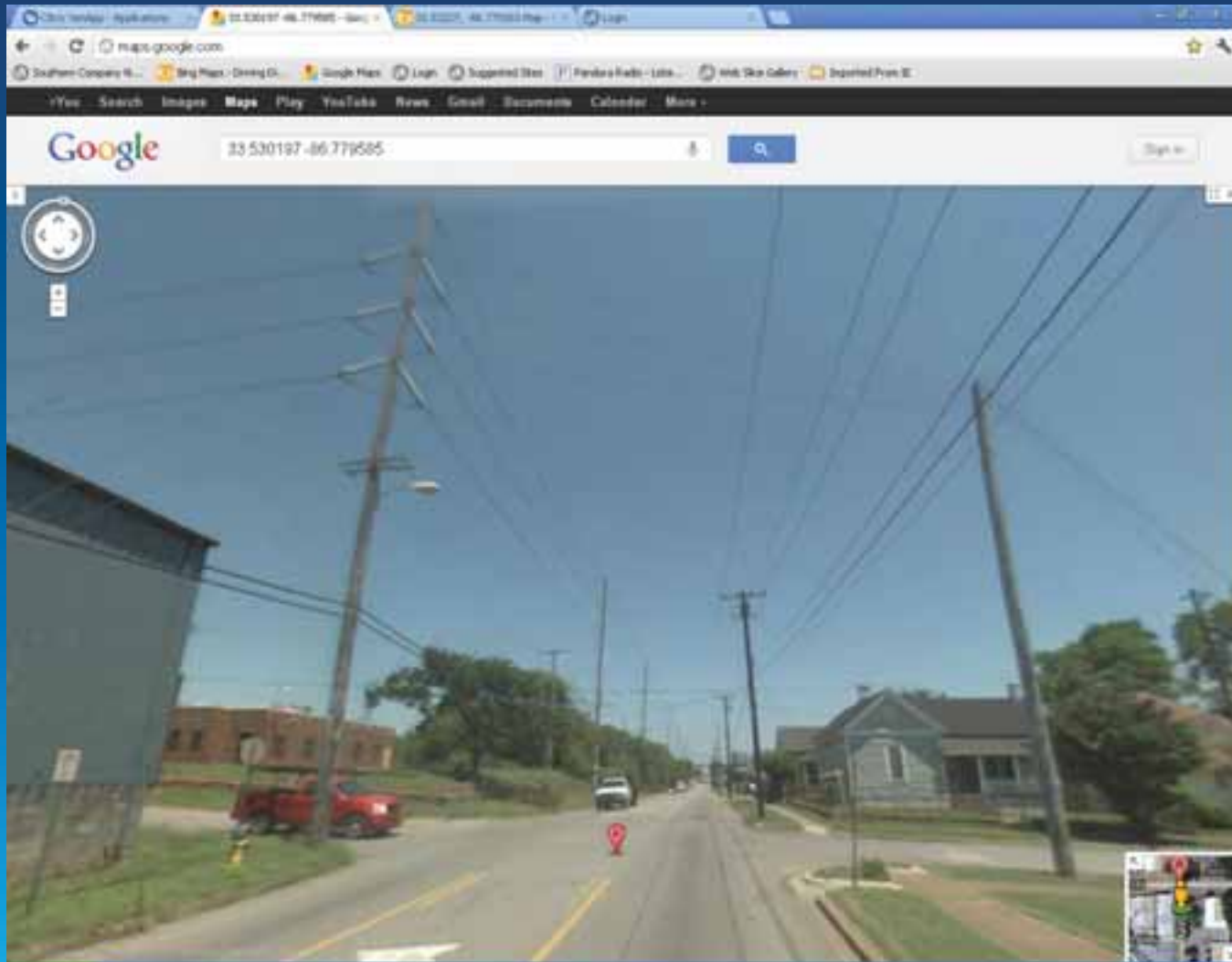
APC OHSA output



Bing Imagery - Bird's Eye View



Google Imagery – Street View



Customer Linking

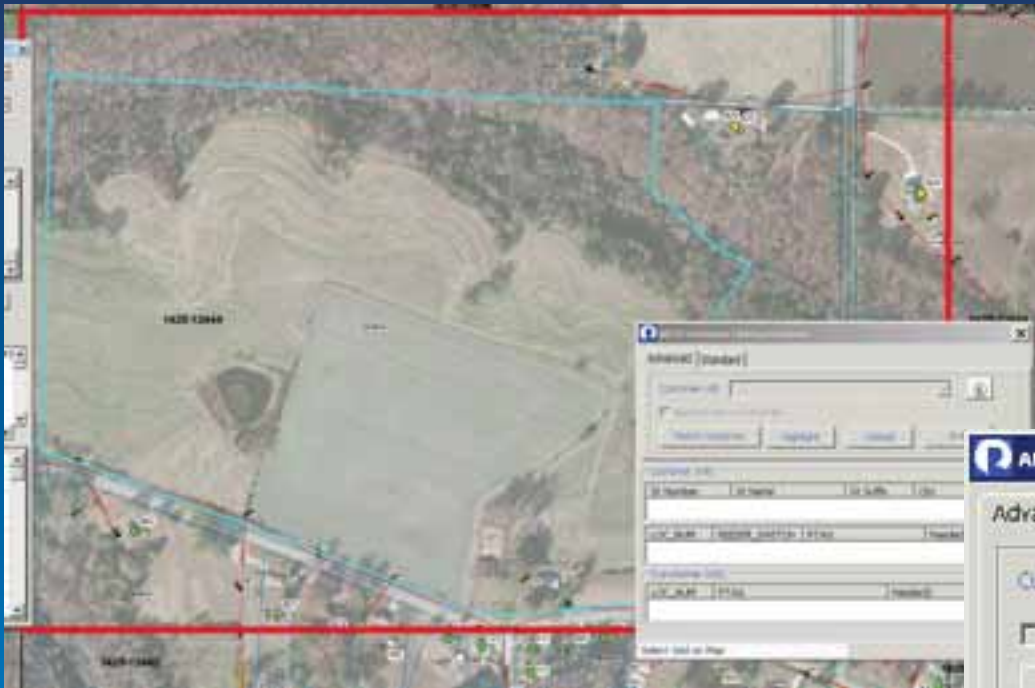


- The objective was to generate and accurately place a customer point and link it to feeding transformer.
- Using CSS database, Rolta created, researched and linked ~1.4M customers to serving transformer.
- GIS Accuracy was obtained thru Geocoding, Reverse Geocoding and extensive research for each customer.

Customer Linking Business Case

- Existing OMS at APC was DOES - Distribution Outage Evaluation System
 - Homegrown DB2 database interfaces with CSS, SCADA, TFCC (automated callbacks)
- Issues with incorporating Smart Grid data with an advanced OMS application:
 - Data quality – incorrect data would prevent OMS from functioning properly
 - New OMS required customers be located spatially and be linked to their serving transformer or service point which is a greater level of detail than previous OMS.
- GIS Accuracy and Data supplied by smart meters, sensors, line devices, etc. provides:
 - More accurate outage location identification, better outage response time
 - Increased efficiency in outage restoration, increased real time knowledge of system condition, gain in information gathered to assist in preventing outages

Customer Linking Interface



APCD Customer Linking Interface

Advanced | Standard

Customer UID: ⓘ

Manually My

Fetch Custo

Customer Info

St Number	St Name	St Suffix	City

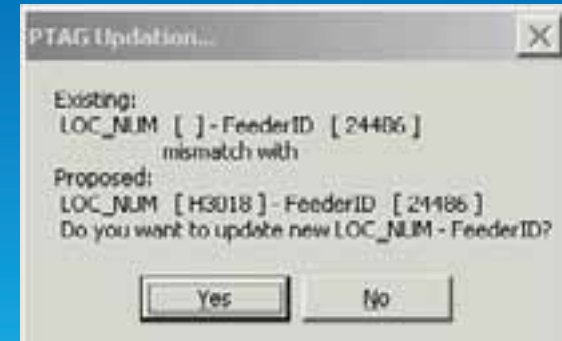
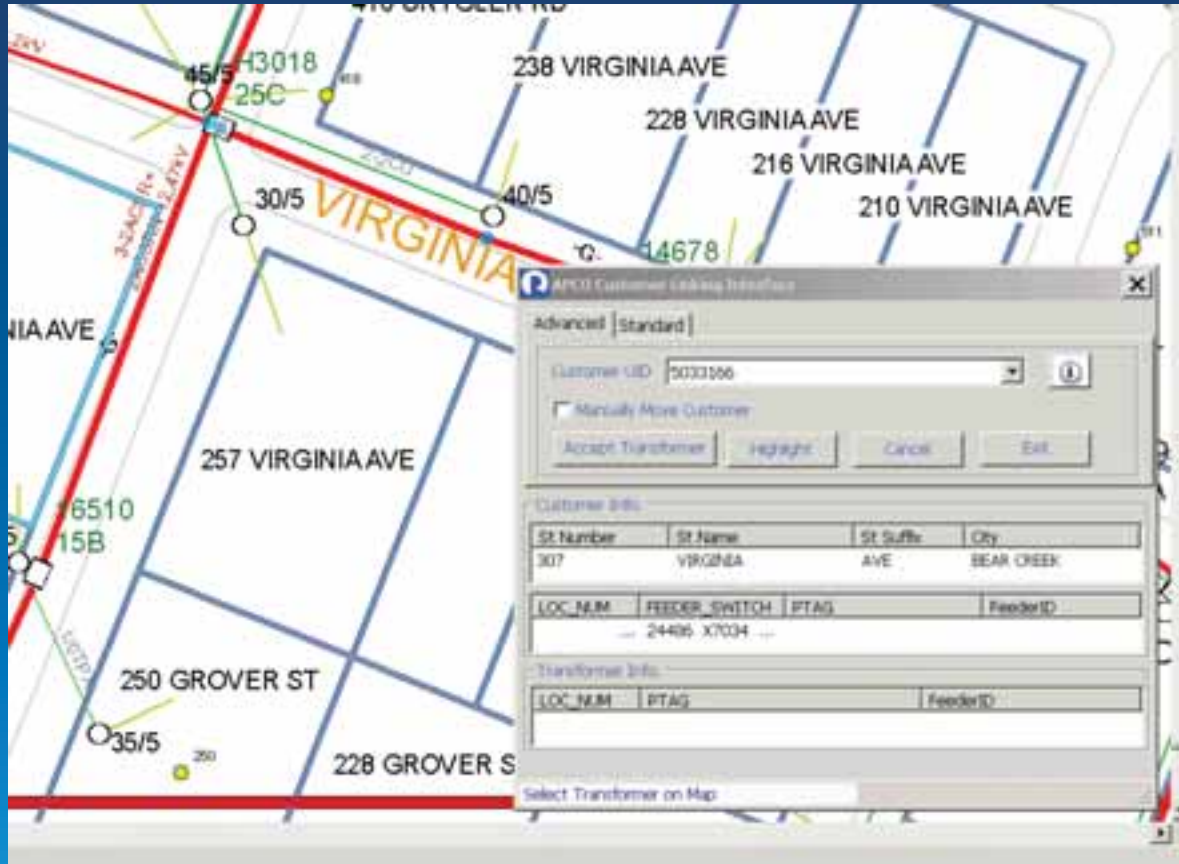
LOC_NUM | FEEDER_SWITCH | PTAG | FeederID

Transformer Info.

LOC_NUM	PTAG	FeederID

Select Customer UID:

Customer Linking Interface



Conclusion

- Rolta was able to efficiently complete the Overhead/Underground Spatial Adjustment projects as well as the Customer Linking Project and minimize new technology implementation and training cost
- Leveraging online imagery enabled Rolta to place facilities at their real world location, and in turn helped APC's field crew to rely on GIS data for spatial and network accuracy
- Accurate GIS and Customer data enabled APC to implement new Outage Management System (OMS)

Q & A

- For additional information, please contact Shri/Wayne at Rolta booth at 2311