

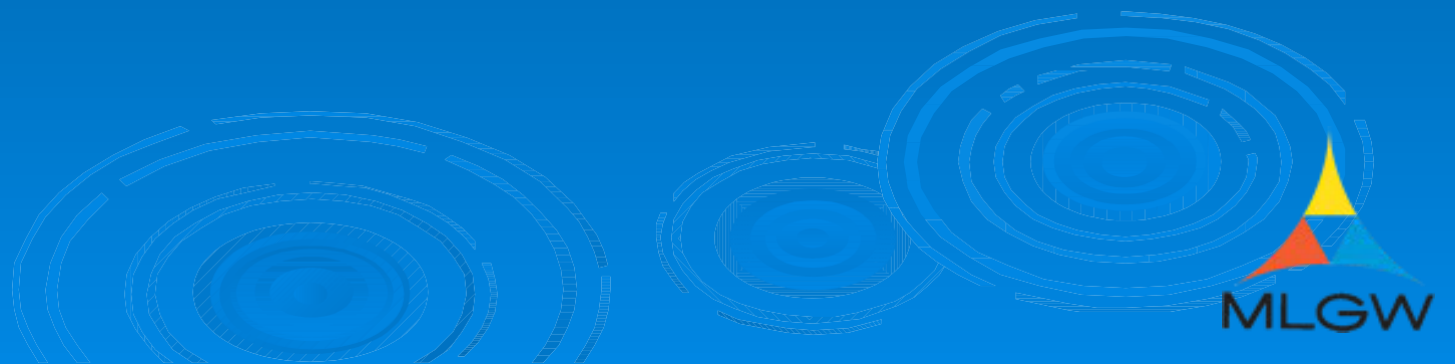
# Using a Stick Model to Convert Downtown Electric Data at MLGW

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# Overview

- Traditional conversion
- Evaluating current process
- Keeping the end result in mind
- Pilot testing
- Is there another way?



# Traditional vs Another Way

## ➤ Traditional process

- Read multiple paper docs, add features
- Generate Geometric Network
- QC by reading map data, multiple paper docs

## ➤ Another Way

- T2000 network model has established relationships
- Eval method to use this data to good effect

# Engineering Model to GIS

- T2000 Engineering model relates nodes/lines
- T2000 has no GIS attributes loaded (no geometry)
- Engineers use same source docs to keep up to date
- Blessed with a good CAD cablepath overview (thank you Ernest and company!)
- Good naming conventions in model (From MH to MH and CktNbr)

# Non-graphic Model to GIS

- Verify existence of manhole and vault locations for every referenced name
- Establish centroid point with standardized name for each manhole and vault (Bus nodes)
- Parse line data to establish from/to associations
- Generate exploded clockface unique bus point locations
- Render lines from/to unique bus points (Sticks)

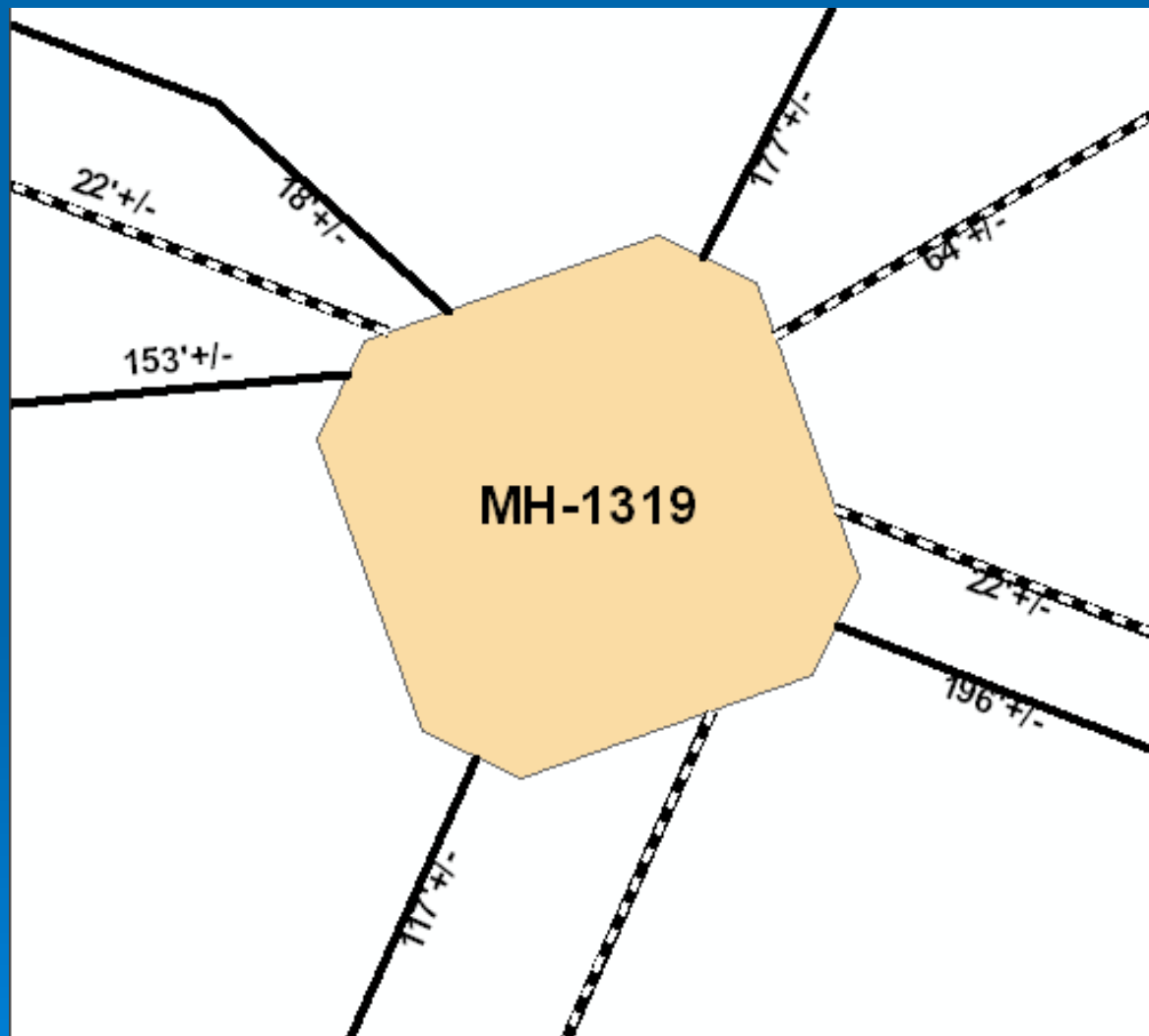
# Collaborated Requirements

Here are a few requirements that I have regarding the lines and nodes that you send:

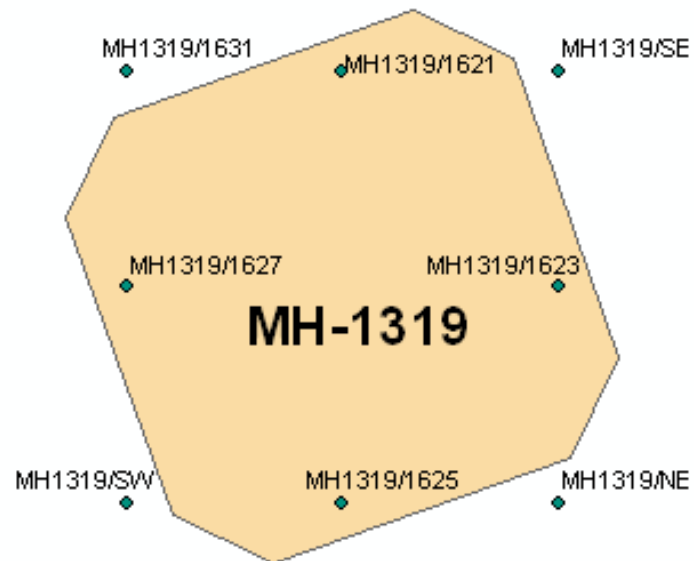
1. I need the span lengths that Doug is working on to be attributes of the lines you send.
2. I need the LineID values from the load-flow model to be attributes of the lines you send.
3. I need the FromNodeID and ToNodeID values from the load-flow data to be attributes of the lines you send.
4. I need the NodeID values from the load-flow data to be attributes of the points (nodes) you send.
5. I need the points you send to be offset from the MH and TV polygon centroids, in unique locations, and non-coincident, as we discussed in our meetings last month.
6. I need the ends of all lines to be at the same locations as the node points that you generate for the beginning and ending of the lines.
7. I need there to be a 1:1 relationship between load-flow line records and spatial lines you send.
8. I need there to be a 1:1 relationship between load-flow node records and spatial points you send.
9. Since I am going to have to break the lines and points that you send out into the different FCs of the output data model, I need an attribute in both the lines and the points that you send that indicates what type of line (i.e. eiPrimaryUG, eiService, etc.), or point (i.e. eiTransformerStation, eiSecIsolationSwitch, eiCableSplice, etc.) it is. I am happy to help with this and of course, I will provide documentation of how I break the lines and points into different FCs.
10. Any other load-flow fields that you guys want to be carried as attributes should be included as attributes of the points or lines. If you have additional load-flow attributes that need to be carried, but you don't have data worked out for them yet, I will accept additional tables that have line or point records with a 1:1 relationship and reference the LineID or NodeID values that are in the points and lines you send. I can then add the attribute fields and query in the attributes. At some point during production, I am going to have to quit accepting late changes though.



# Converted Manhole and Duct



# Bus Node Expansion





# Bus Node – Cable Splice

**Identify** [?] [X]

Identify from: <Top-most layer>

eiBusNodes  
    MH1319/1623

Location: 761,513.822 319,025.709 Feet

Field	Value
LOC_NAME	MH1319
CONN_INFO	1623
BUS_TYPE	PRI_12
TNAME	SUB21_W_BUS
OLD_I	90760
NAME	MH1319/1623
BASKV	12.47
STATUS	1
AREA	1
ZONE_	13
VS	1
VM	1.05921
VA	-16.637
VMA	1.5
VMI	0.51
BASE83X	761508.873136
BASE83Y	319021.679017
XCOORD	761514.873136
YCOORD	319021.679017
Enabled	True
DESTINATION	eiCableSplice

Identified 1 feature

# Bus Node – Mole (Secondary)

**Identify** [?] [X]

Identify from: <Top-most layer>

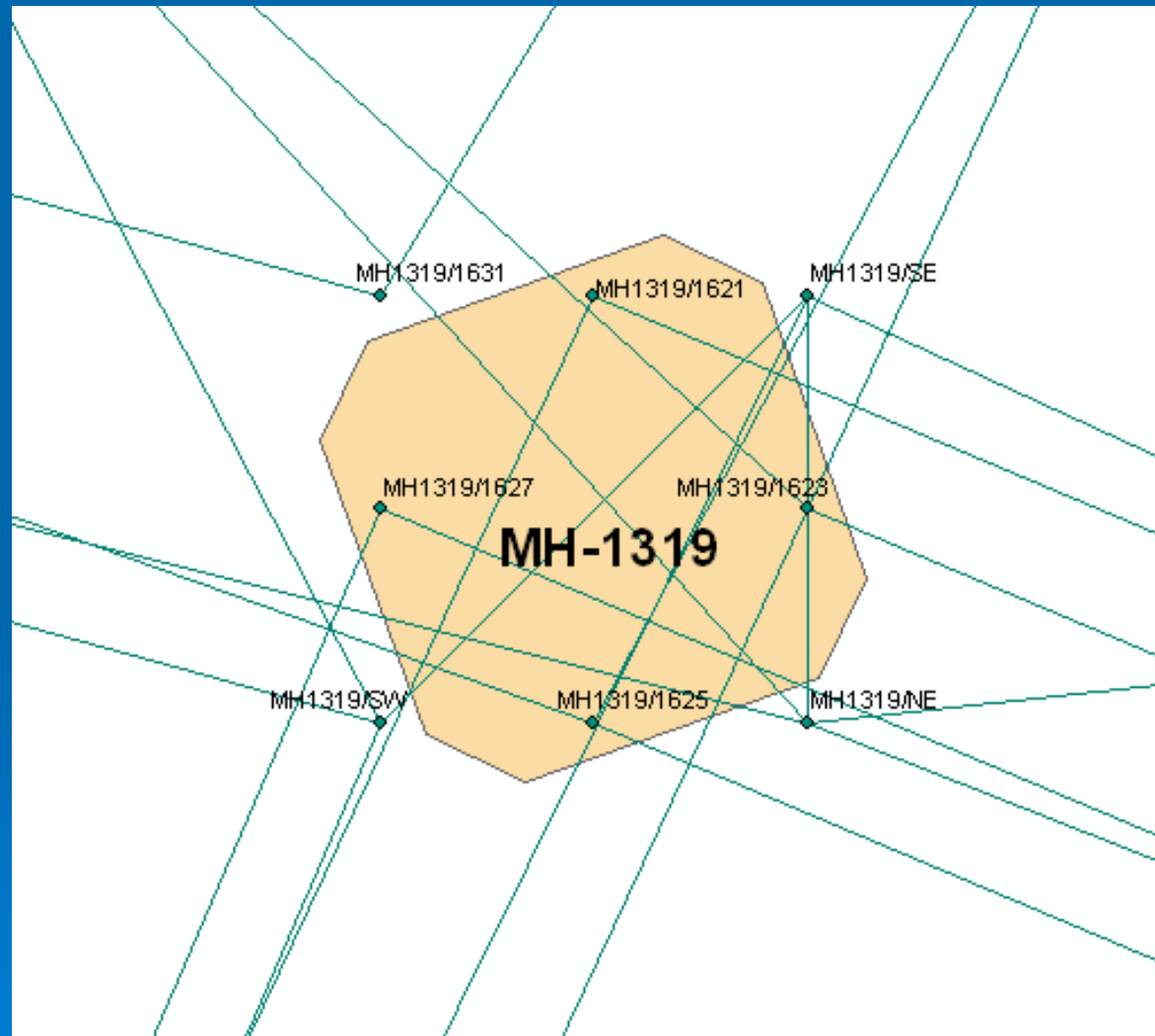
eiBusNodes  
    MH1319/SW

Location: 761,503.892 319,017.944 Feet

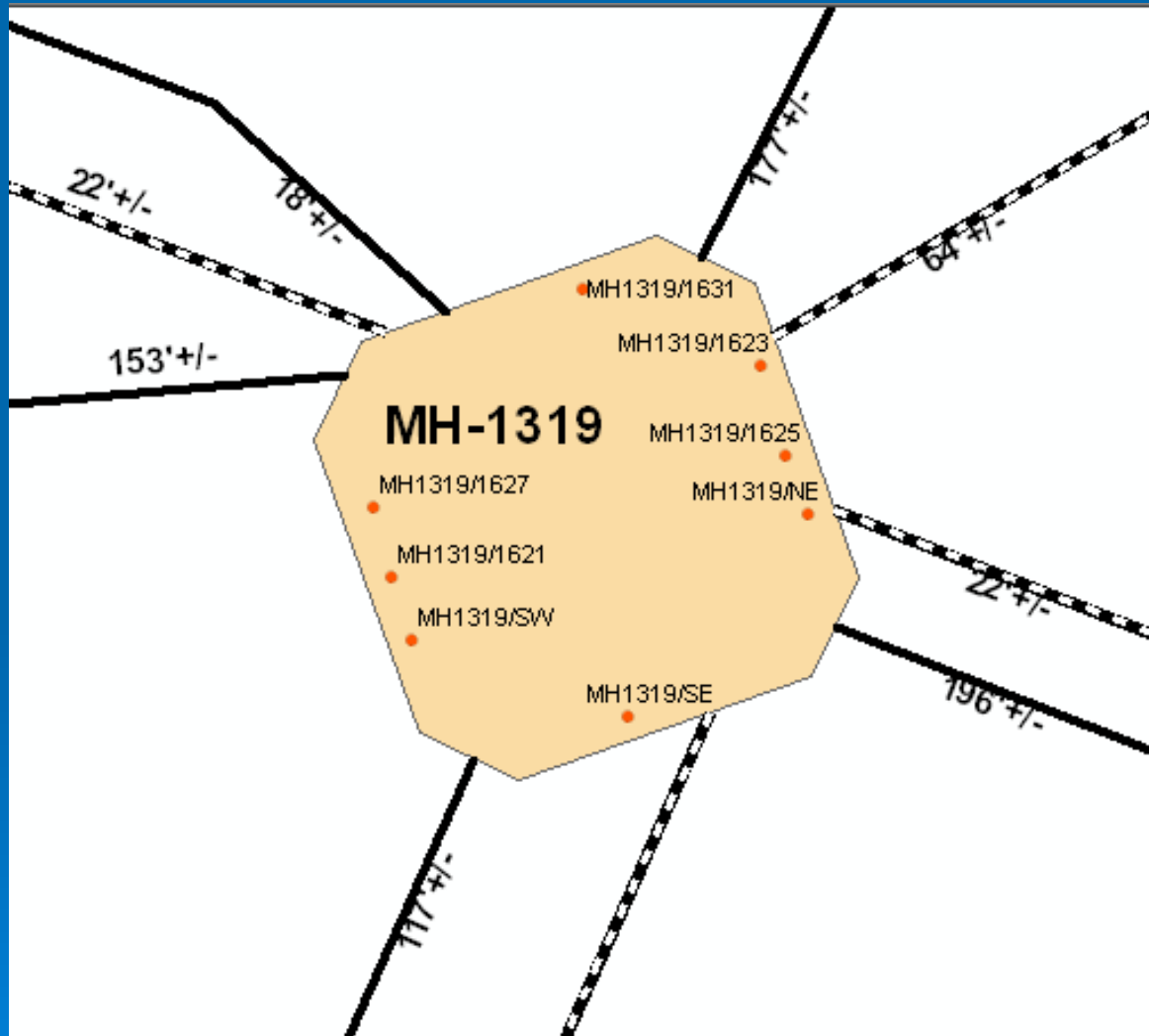
Field	Value
LOC_NAME	MH1319
CONN_INFO	SW
BUS_TYPE	MESH
TNAME	SUB21_W_BUS
OLD_I	93109
NAME	MH1319/SW
BASKV	0.21
STATUS	1
AREA	1
ZONE_	85
VS	1
VM	1.03821
VA	-18.208
VMA	1.5
VMI	0.51
BASE83X	761508.873136
BASE83Y	319021.679017
XCOORD	761502.873136
YCOORD	319015.679017
Enabled	True
DESTINATION	eiMole

Identified 1 feature

# Sticks and Stones

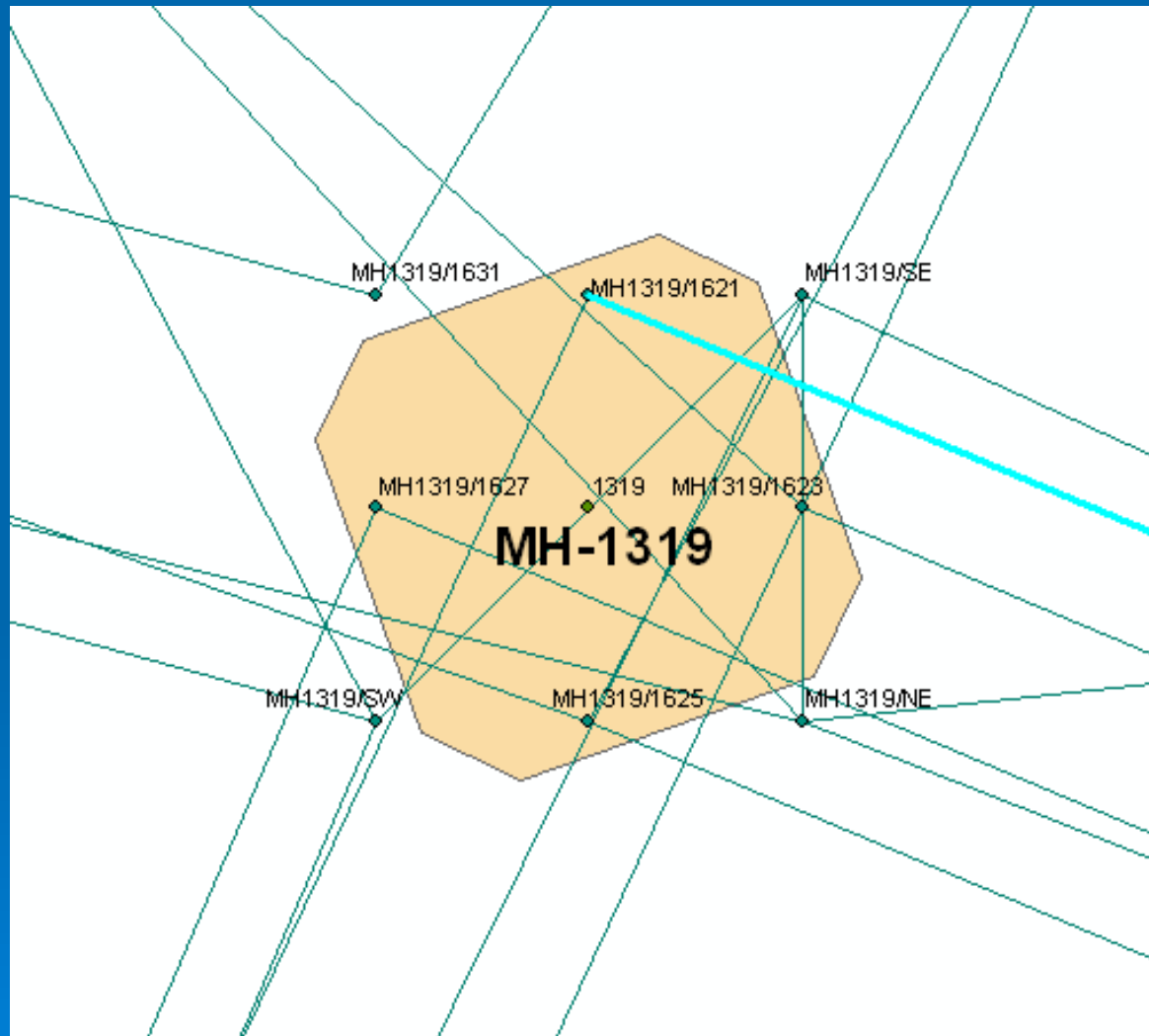


# Repositioned Nodes



[illegible]

# Selected Line



# Selected Line Attribs

**Identify** [?] [X]

Identify from: <Top-most layer>

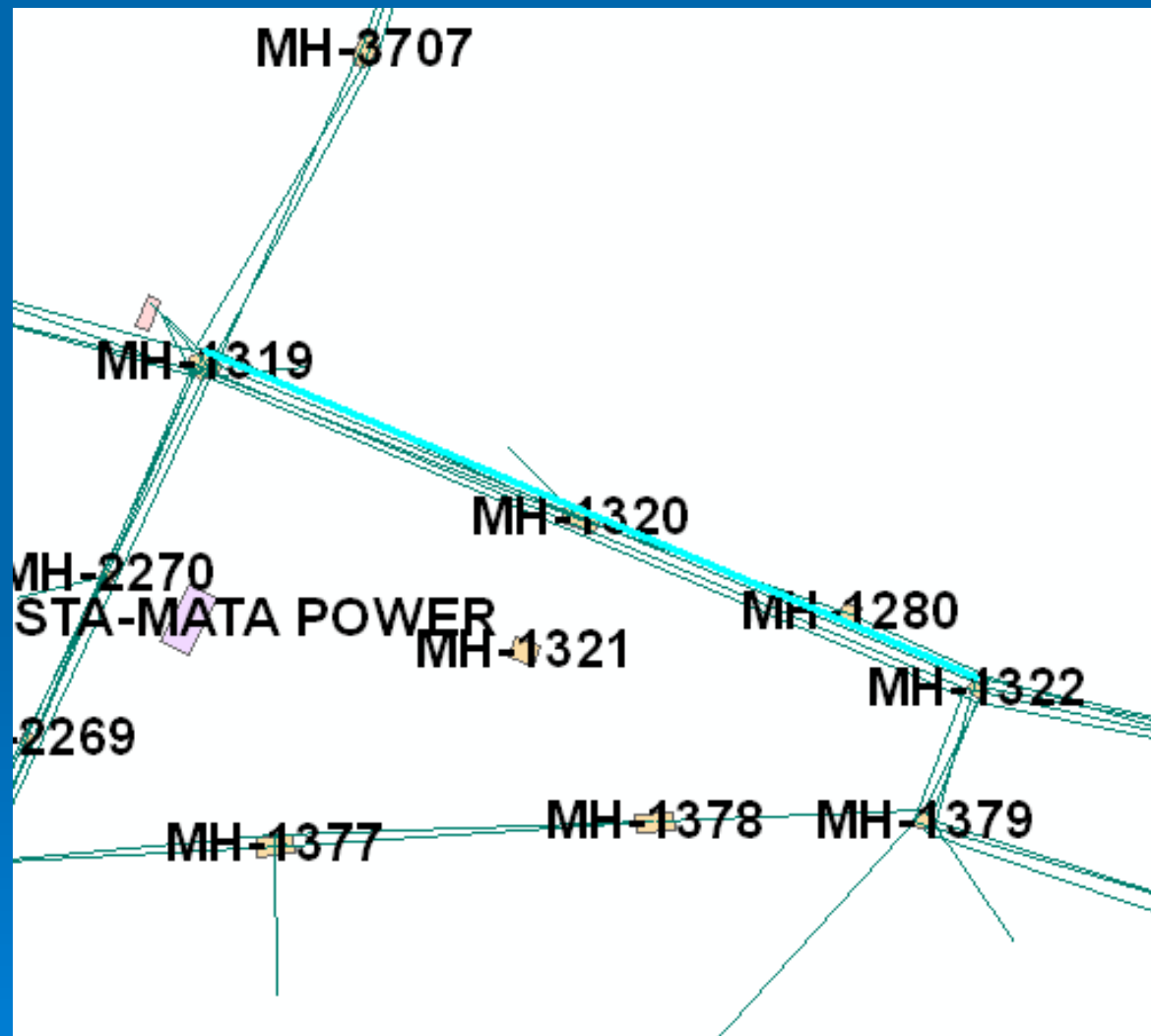
ntw\_dmd\_lines2  
    SUB21\_W\_LINE

Location: 761,511.085 319,026.728 Feet

Field	Value
FID	786
Shape	Polyline
MWShapeID	786
LINE_ID	10787
TNAME	SUB21_W_LINE
LINE_NAME	MH1322/1621   MH1319/1621 11
CABLE_TYPE	3C-500
KV_RATE	15
KV_USE	12.47
RATEA	394
RATEB	433
NODE1	94005
NODE1_LOC	MH1322
NODE1_KV	12.47
NODE2	94006
NODE2_LOC	MH1319
NODE2_KV	12.47
LENGTH	411.18
R_LEN	411.18
J_LEN	412.22
RJ_DIFF	1.04
T0000_CKT	11

Identified 1 feature

# Selected Line Run





# Evaluate Data Usability

- Validate existence of all referenced lines/bus points
- Verify no duplicates
- Establish Geometric Network and test overall connectivity
- Add needed attributes to GIS model for data loading and comparison
- Deliver data to vendor for use in conversion

# Results

- Vendor was able to utilize 100% of the data
- Allowed vendor to focus on map standards
- Quickly evaluate source documents for verification
- Maintained geometric network relationships
- Automated QC to validate model delivered
- Vendor was able to produce a better product in the time allotted