Establishing a Common Data Environment

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Purpose

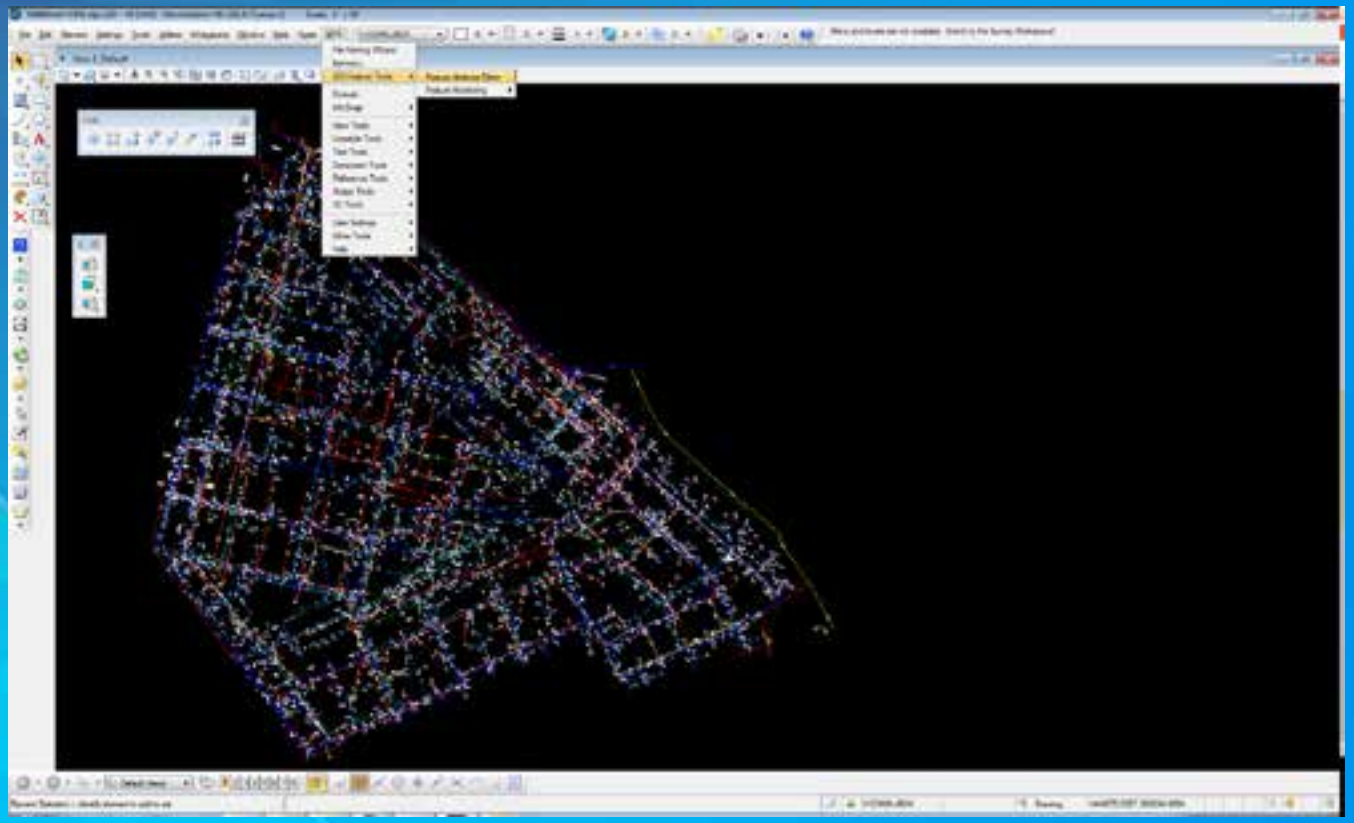
- The Maryland Port Administration developed a Common Data Environment where CAD and GIS data are interchangeable. MPA implemented a CDE through CAD standards, custom MicroStation tools, FME scripts, GIS Schema for translating between the formats.

CAD

- - The MPA developed a managed CAD workspace by implementing ProjectWise.
- - Files in the workspace are currently Read-Write to administrators, and engineers working on the specific projects and Read-Only to all other users.
- - The managed workspace is implemented at the Application level as well as the Folder level. The Application level assures that every DGN file in ProjectWise inherits the MPA CAD Standards. The Folder level delivers additional workspace customization according to the type of work being performed (Arch, Civil, or Survey).

CAD

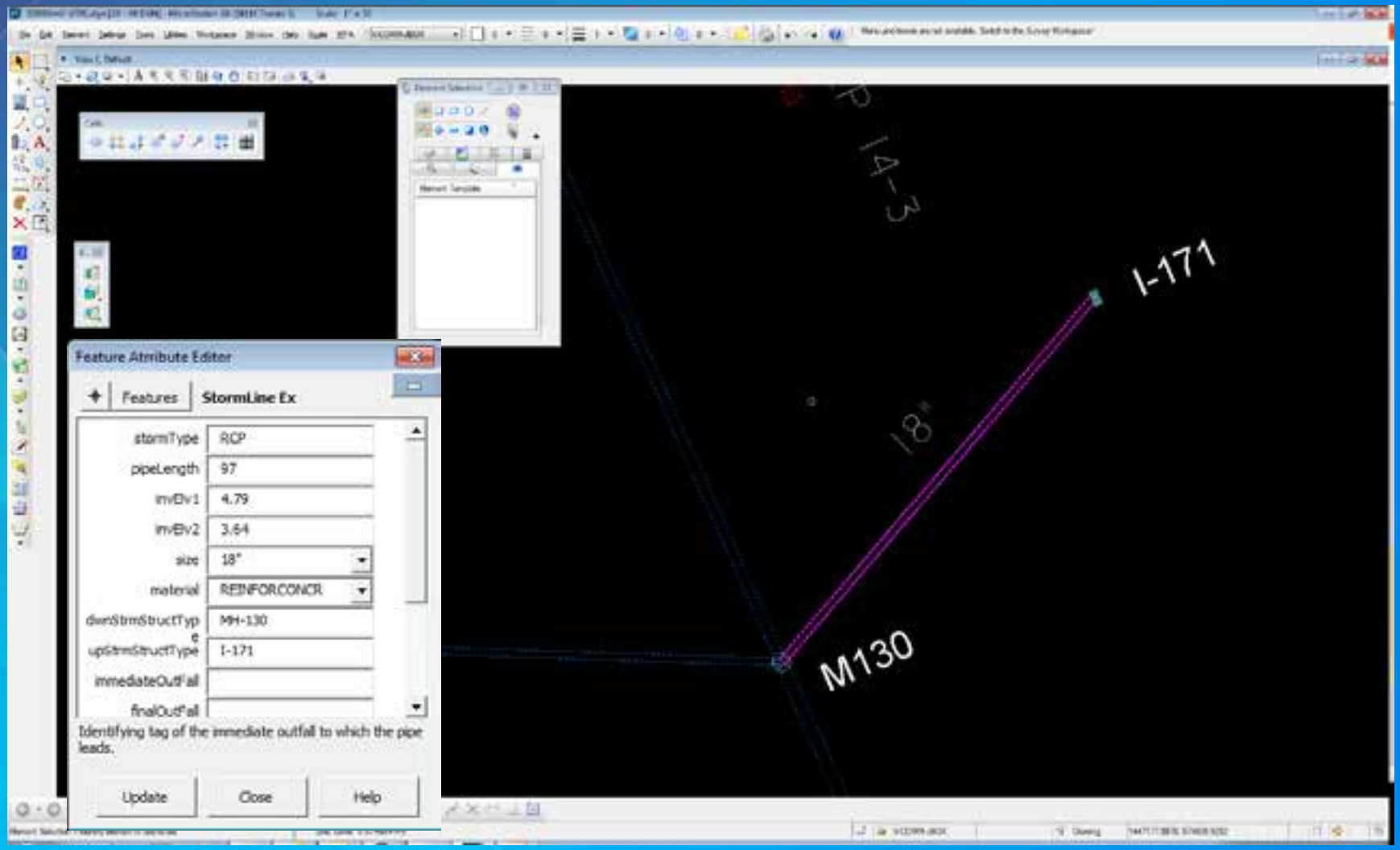
- - As part of the CAD standards the MPA developed a Feature Attribute Editor Tool



- - The tool selects attributes two different ways: Geographical or Scan.

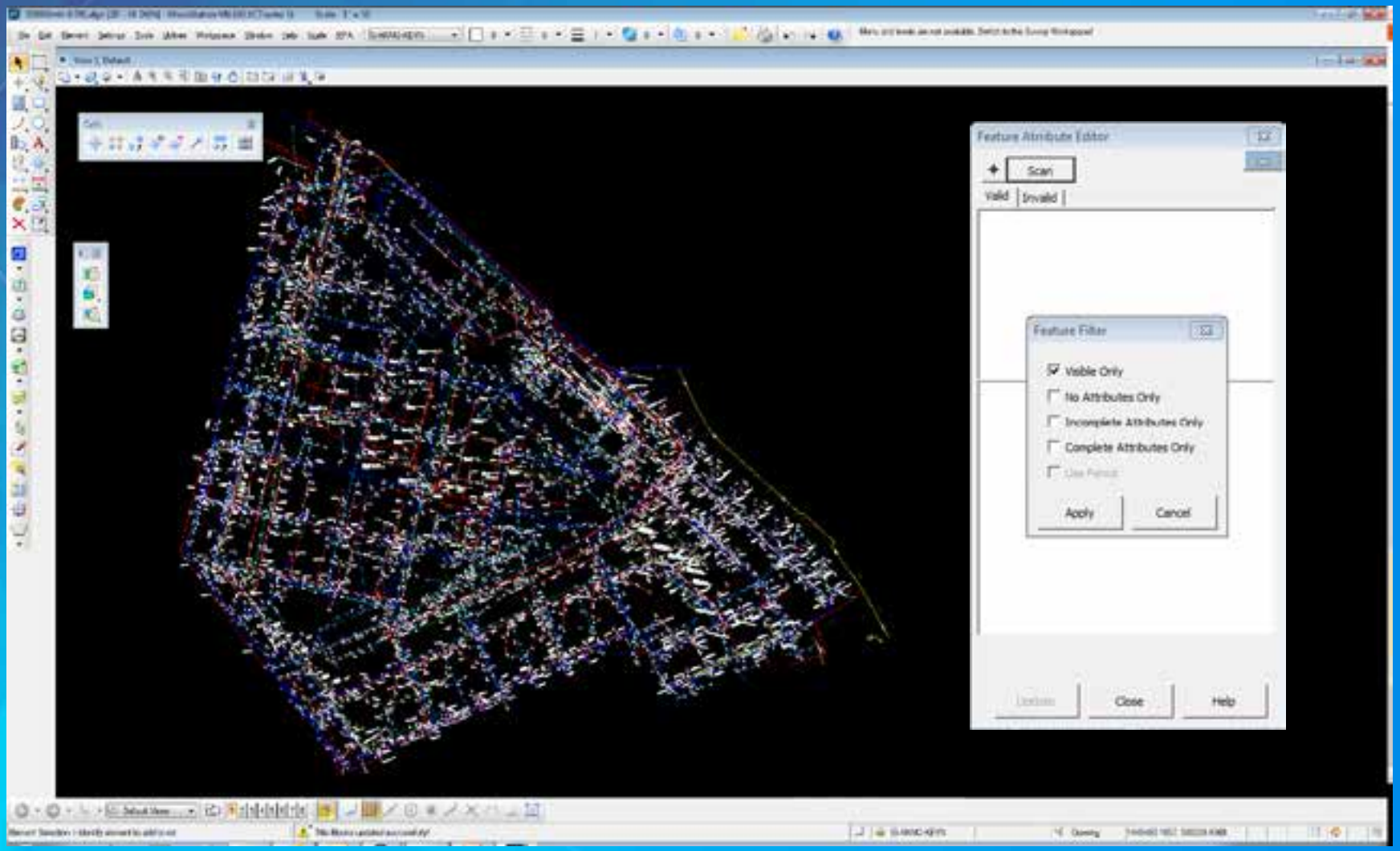
CAD

- - Feature Attribute Editor – Graphical Selector



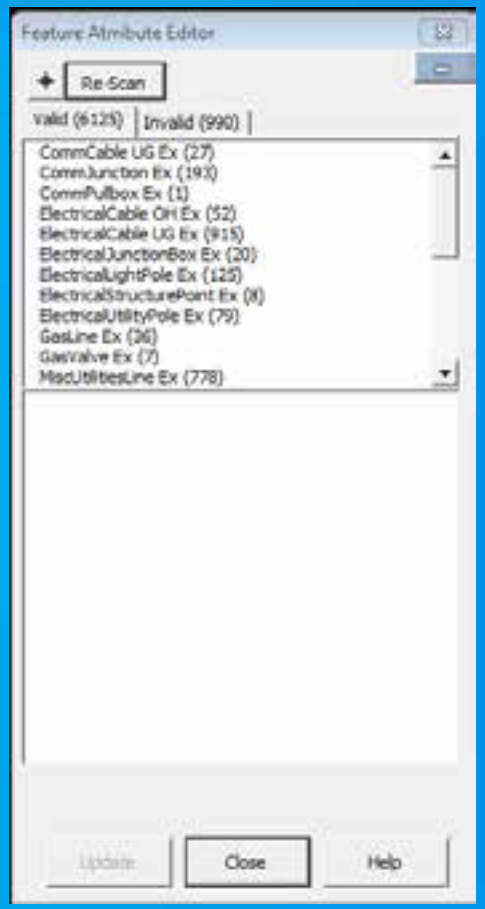
CAD

- **Feature Attribute Editor - Scan**



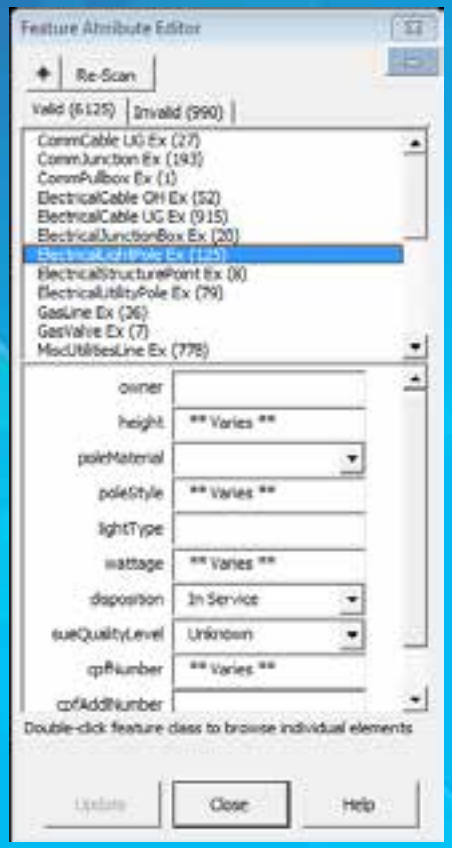
CAD

- **- Once you scan for features or select them geographically, the available features are returned**



CAD

- **- Select the different types of features that you want to edit and populate the fields**

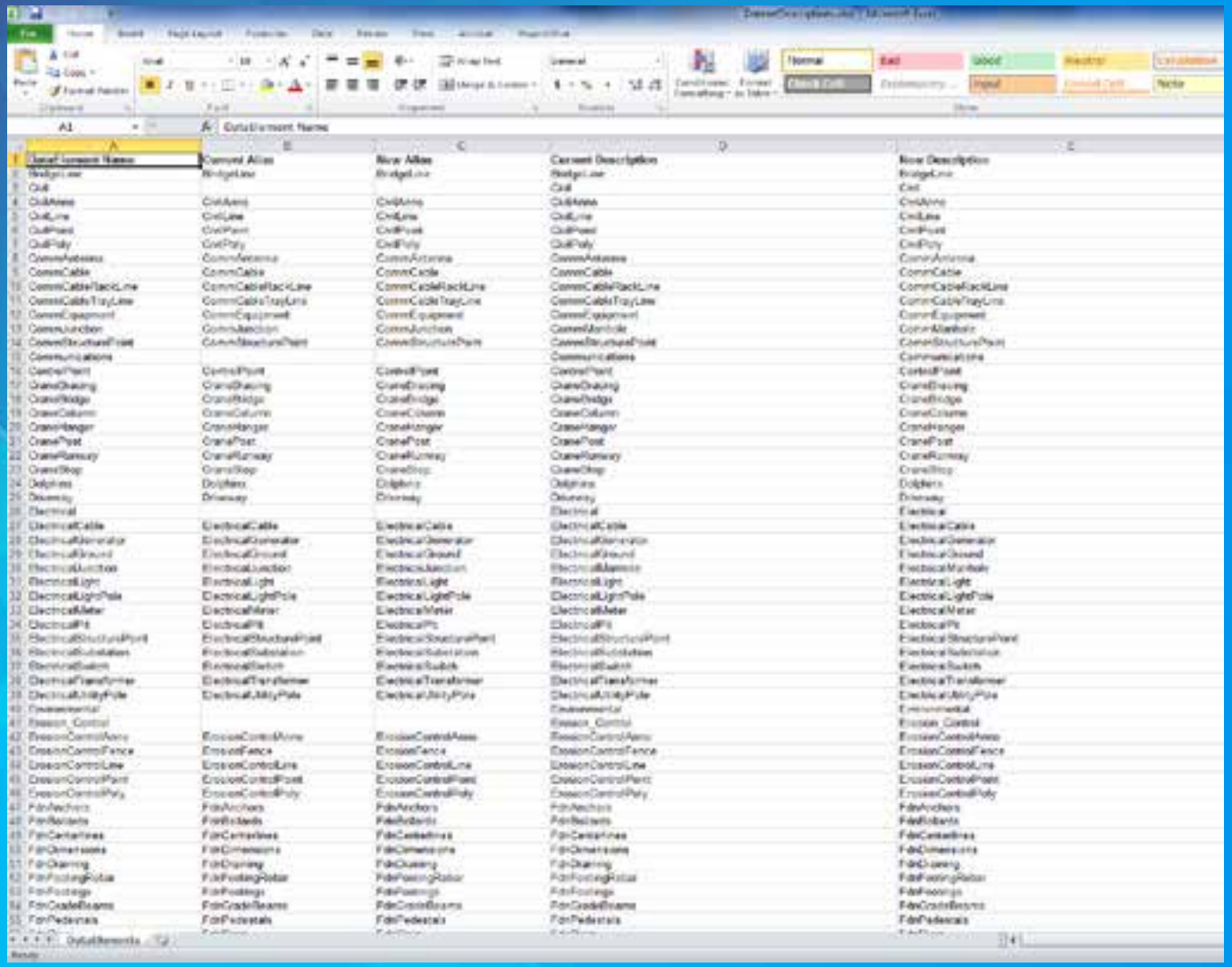


GIS

- **- The MPA developed a GIS Schema for the CAD data to be translated into. Within the schema we created Descriptions, Datasets, Domains, and a MPA CAD to MPA GIS Crosswalk.**

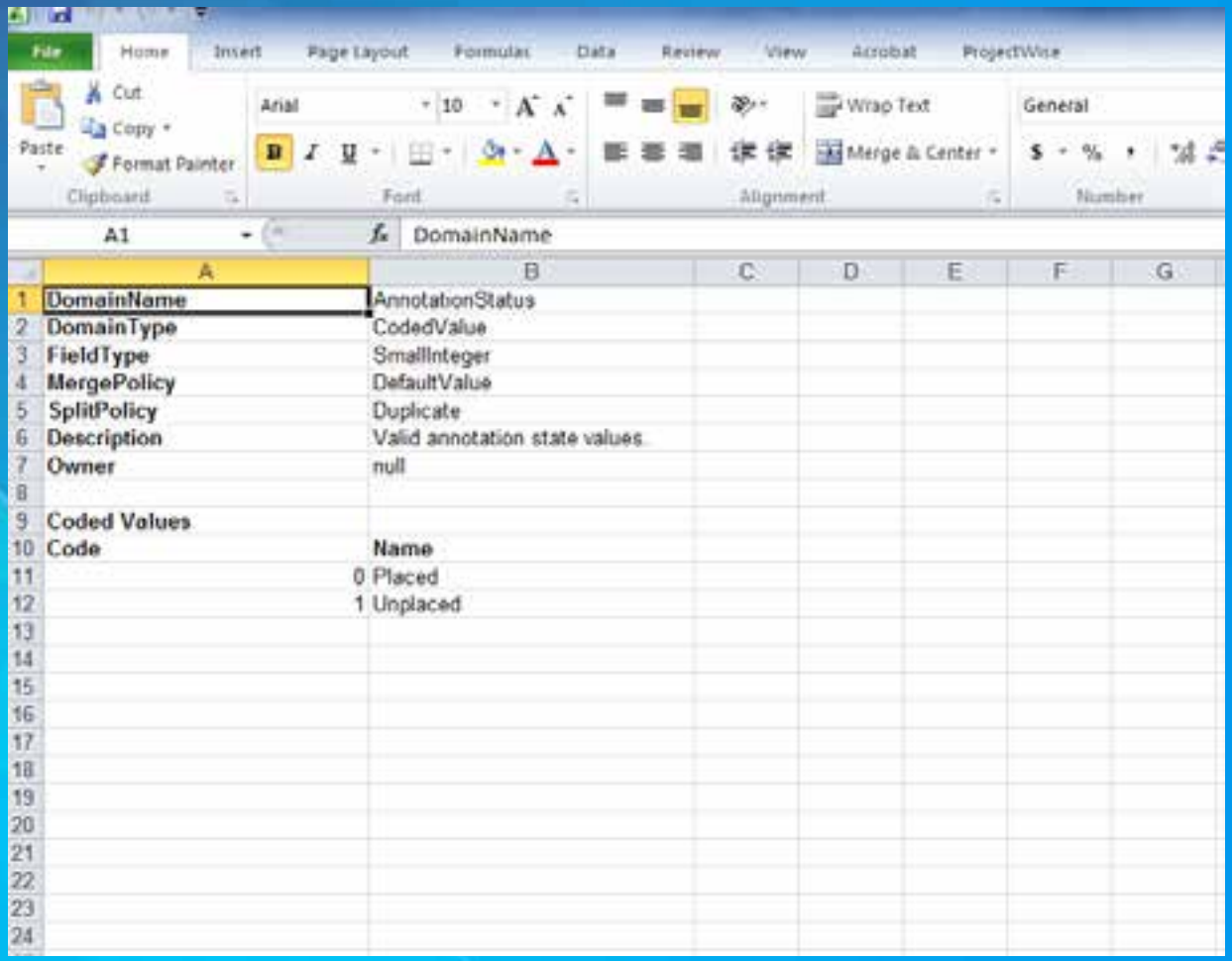
GIS

- **Descriptions**



GIS

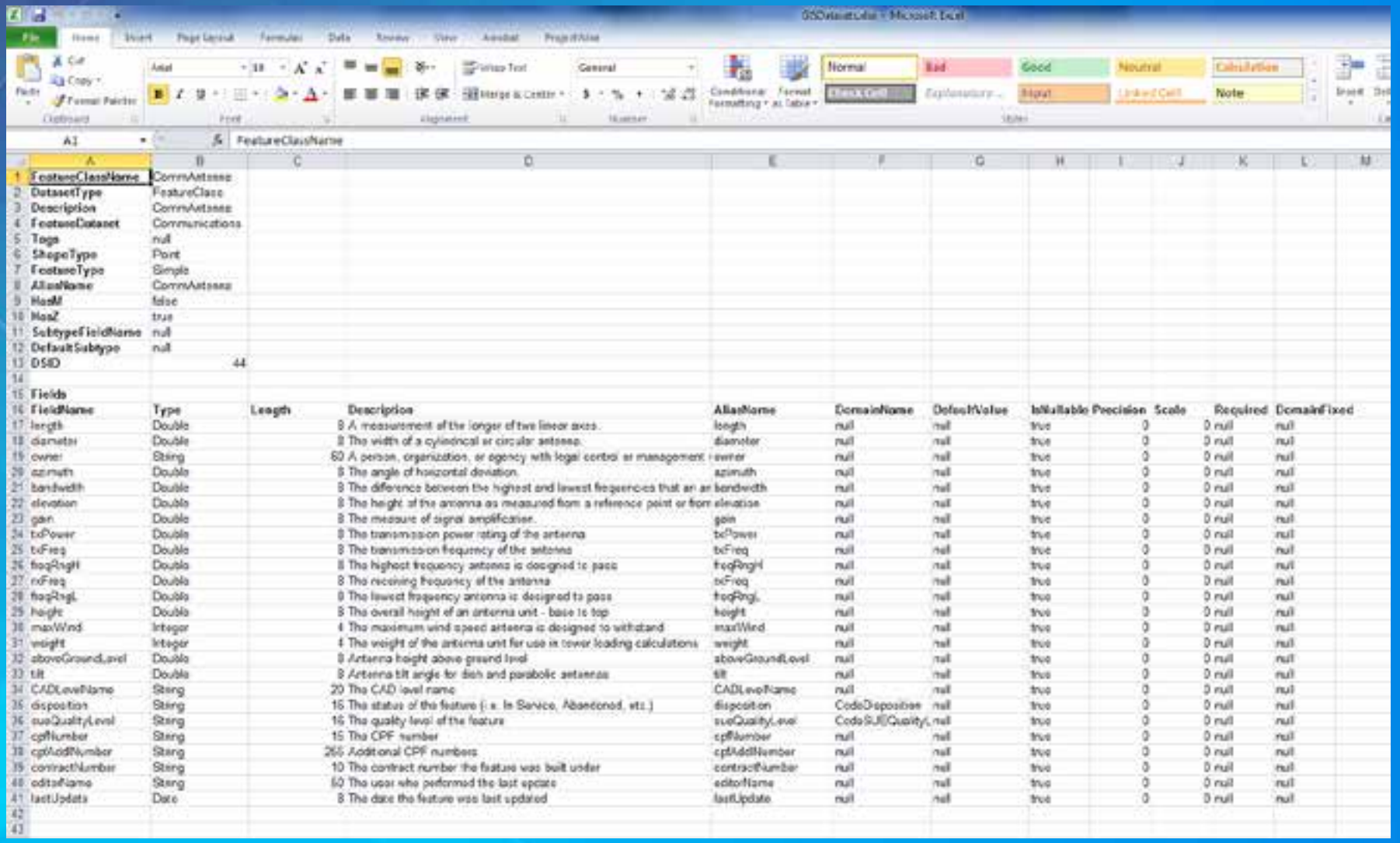
- **Domains**



	A	B
1	**DomainName**	AnnotationStatus
2	**DomainType**	CodedValue
3	**FieldType**	SmallInteger
4	**MergePolicy**	DefaultValue
5	**SplitPolicy**	Duplicate
6	**Description**	Valid annotation state values
7	**Owner**	null
8		
9	**Coded Values**	
10	**Code**	**Name**
11	0	Placed
12	1	Unplaced

GIS

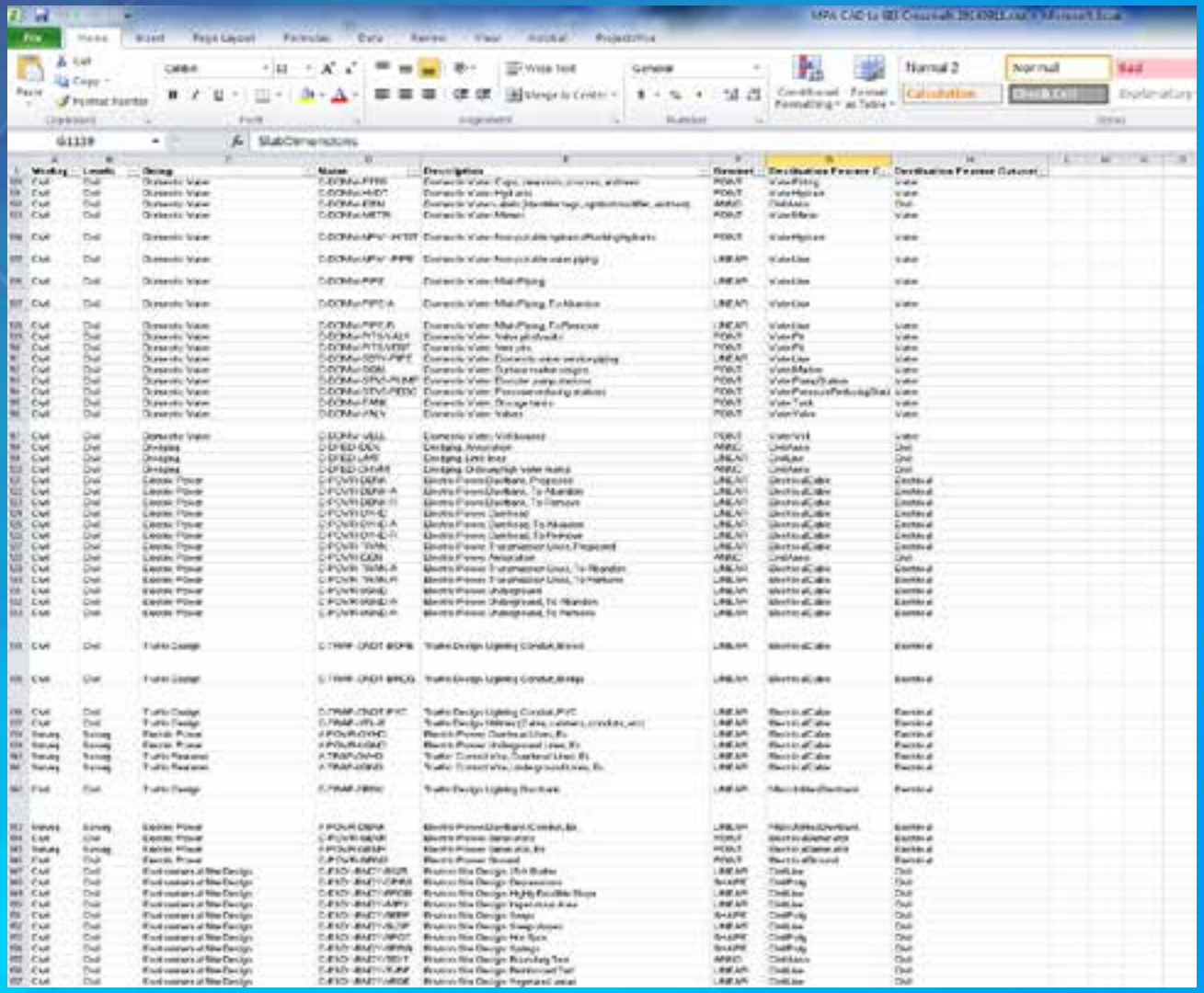
- **Datasets**

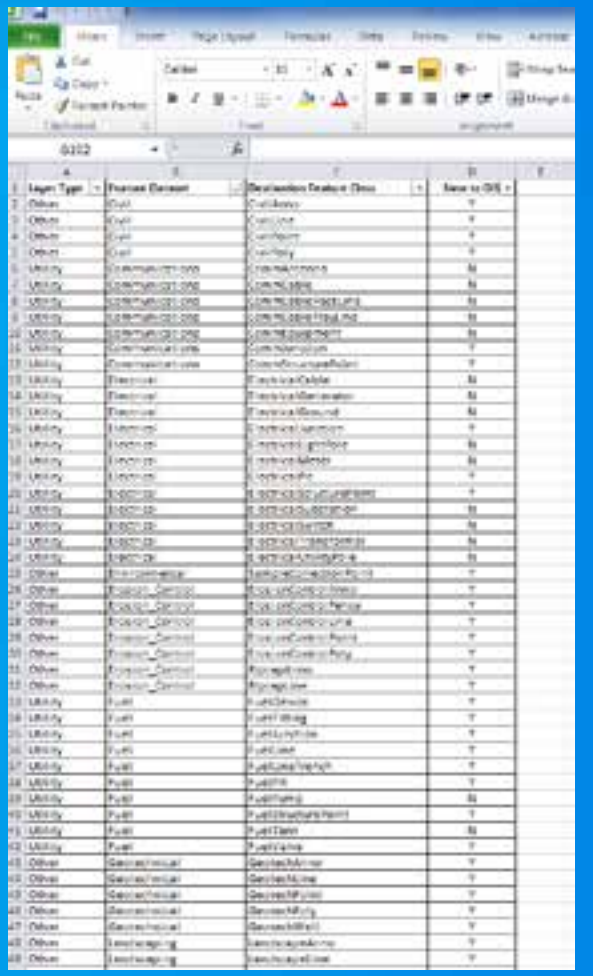


	A	B	C	D	E	F	G	H	I	J	K	L	M
1	FeatureClassName	CommAntenna											
2	DatasetType	FeatureClass											
3	Description	CommAntenna											
4	FeatureDataset	Communications											
5	Tags	null											
6	ShapeType	Point											
7	FeatureType	Simple											
8	AliasName	CommAntenna											
9	HasM	false											
10	HasZ	true											
11	SubtypeFieldName	null											
12	DefaultSubtype	null											
13	DSID	44											
14													
15	Fields												
16	FieldName	Type	Length	Description	AliasName	DomainName	DefaultValue	IsNullable	Precision	Scale	Required	DomainFixed	
17	length	Double		8 A measurement of the longer of two linear axes.	length	null	null	true	0	0	null	null	
18	diameter	Double		8 The width of a cylindrical or circular antenna.	diameter	null	null	true	0	0	null	null	
19	owner	String		60 A person, organization, or agency with legal control or management	owner	null	null	true	0	0	null	null	
20	azimuth	Double		8 The angle of horizontal deviation.	azimuth	null	null	true	0	0	null	null	
21	bandwidth	Double		8 The difference between the highest and lowest frequencies that an an	bandwidth	null	null	true	0	0	null	null	
22	elevation	Double		8 The height of the antenna as measured from a reference point or from	elevation	null	null	true	0	0	null	null	
23	gain	Double		8 The measure of signal amplification.	gain	null	null	true	0	0	null	null	
24	txPower	Double		8 The transmission power rating of the antenna	txPower	null	null	true	0	0	null	null	
25	txFreq	Double		8 The transmission frequency of the antenna	txFreq	null	null	true	0	0	null	null	
26	freqRngH	Double		8 The highest frequency antenna is designed to pass	freqRngH	null	null	true	0	0	null	null	
27	rxFreq	Double		8 The receiving frequency of the antenna	txFreq	null	null	true	0	0	null	null	
28	freqRngL	Double		8 The lowest frequency antenna is designed to pass	freqRngL	null	null	true	0	0	null	null	
29	height	Double		8 The overall height of an antenna unit - base to top	height	null	null	true	0	0	null	null	
30	maxWind	Integer		4 The maximum wind speed antenna is designed to withstand	maxWind	null	null	true	0	0	null	null	
31	weight	Integer		4 The weight of the antenna unit for use in tower loading calculations	weight	null	null	true	0	0	null	null	
32	aboveGroundLevel	Double		8 Antenna height above ground level	aboveGroundLevel	null	null	true	0	0	null	null	
33	tilt	Double		8 Antenna tilt angle for dish and parabolic antennas	tilt	null	null	true	0	0	null	null	
34	CADLevelName	String		20 The CAD level name	CADLevelName	null	null	true	0	0	null	null	
35	disposition	String		16 The status of the feature (i. e. In Service, Abandoned, etc.)	disposition	CodeDisposition	null	true	0	0	null	null	
36	sueQualityLevel	String		16 The quality level of the feature	sueQualityLevel	CodeSUEQualityL	null	true	0	0	null	null	
37	cpfNumber	String		15 The CPF number	cpfNumber	null	null	true	0	0	null	null	
38	cpfAddNumber	String		255 Additional CPF numbers	cpfAddNumber	null	null	true	0	0	null	null	
39	contractNumber	String		10 The contract number the feature was built under	contractNumber	null	null	true	0	0	null	null	
40	editorName	String		50 The user who performed the last update	editorName	null	null	true	0	0	null	null	
41	lastUpdate	Date		8 The date the feature was last updated	lastUpdate	null	null	true	0	0	null	null	
42													
43													

GIS

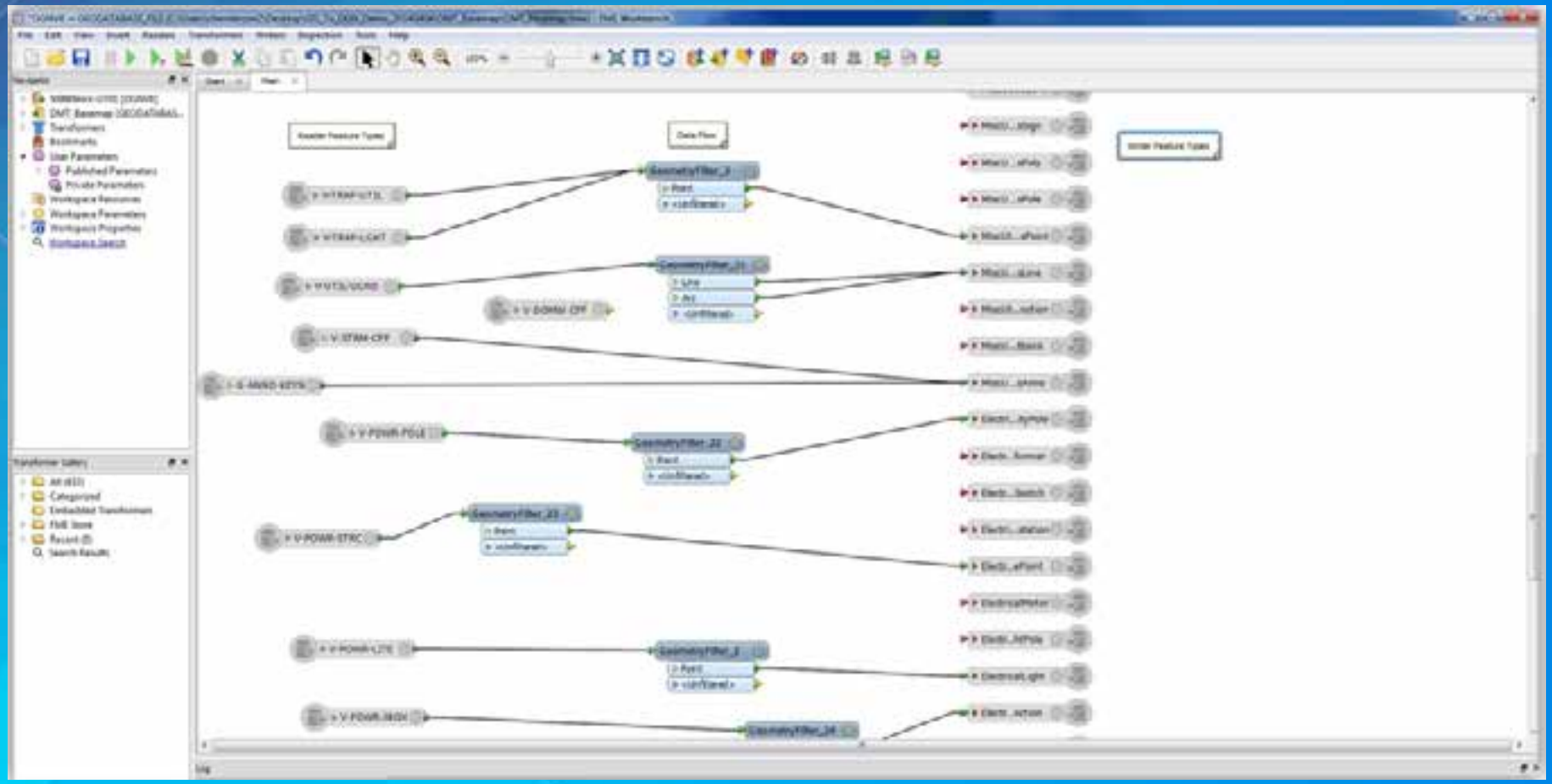
- **MPA CAD to GIS Crosswalk**





FME

- **- Once a project is designed, built, and accepted for maintenance, we run the DGN file through FME and translate it into GIS.**



Output after FME

- - Finished output after being translated from CAD to GIS

Questions

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