Highway Traffic Signal Inventory

Regional Transportation Operations Coalition | 3/22/2018

History

- RTOC suggested an update of the CMAP signal inventory in 2013.
- The HTSI was initiated in 2015; the bulk of the development work occurred in 2016-2017.
- RTOC was updated and provided feedback in March, 2015; July, 2015; November, 2016; and September, 2017.
- V1 of the HTSI was released publicly in February, 2018.
- Regular updates are expected biennially.

What is the Highway Traffic Signal Inventory?

- The Highway Traffic Signal Inventory (HTSI) is an inventory of signals at intersections on public roads in 7-county northeastern Illinois region.
- The HTSI is based on partner agencies' inventories.
- The HTSI is in ArcGIS file geodatabase format.
- Signal locations are tied to IDOT's roadway inventory. The signals are located on centerlines, rather than the locations of controller boxes.

Who Participates in the Inventory?

- Eventually, all signal owners will be inventoried.
- For Version 1, CMAP solicited data from large transportation agencies: IDOT, CDOT, and the counties.
- CMAP is soliciting information from municipalities for Version 2 of the database. Municipal responses are due April 20.

What Is in the Signal Inventory?

- The HTSI includes the location, ownership/maintenance assignments, and operational features of inventoried signals.
- Operational features include such features as controller information, railroad preemption, interconnect systems, red-light camera enforcement, and pedestrian signals, among many others.
- However, the inventoried features depend on agencies maintaining this information. This is now the exception, but the expectation is that this will change over time.

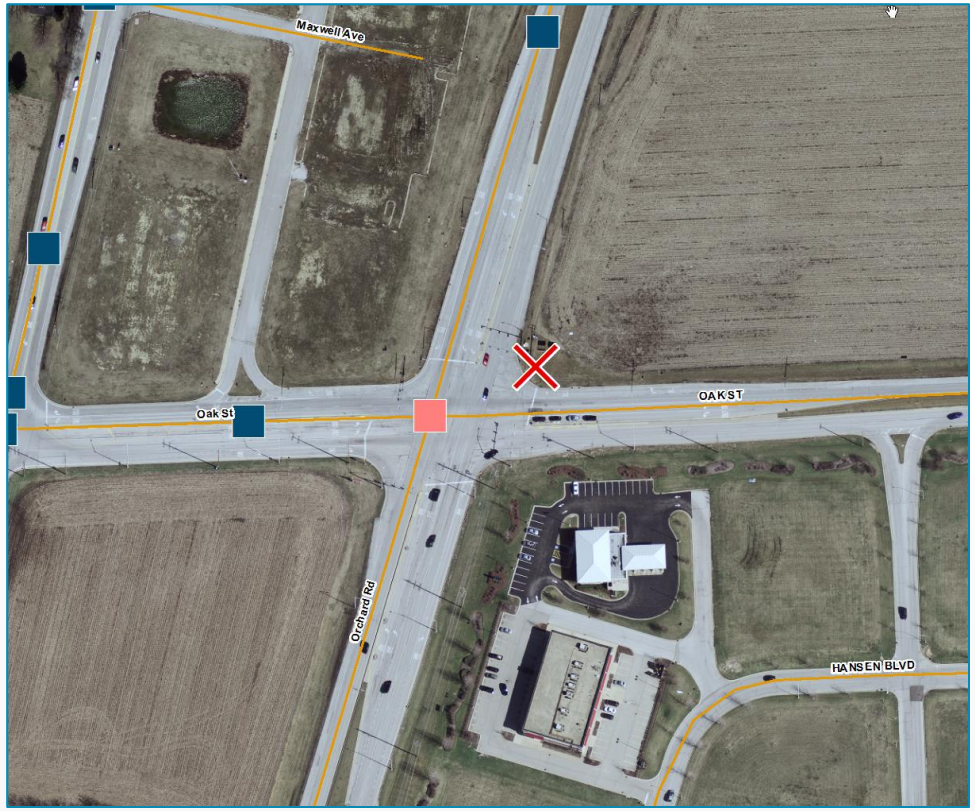
Data Processing

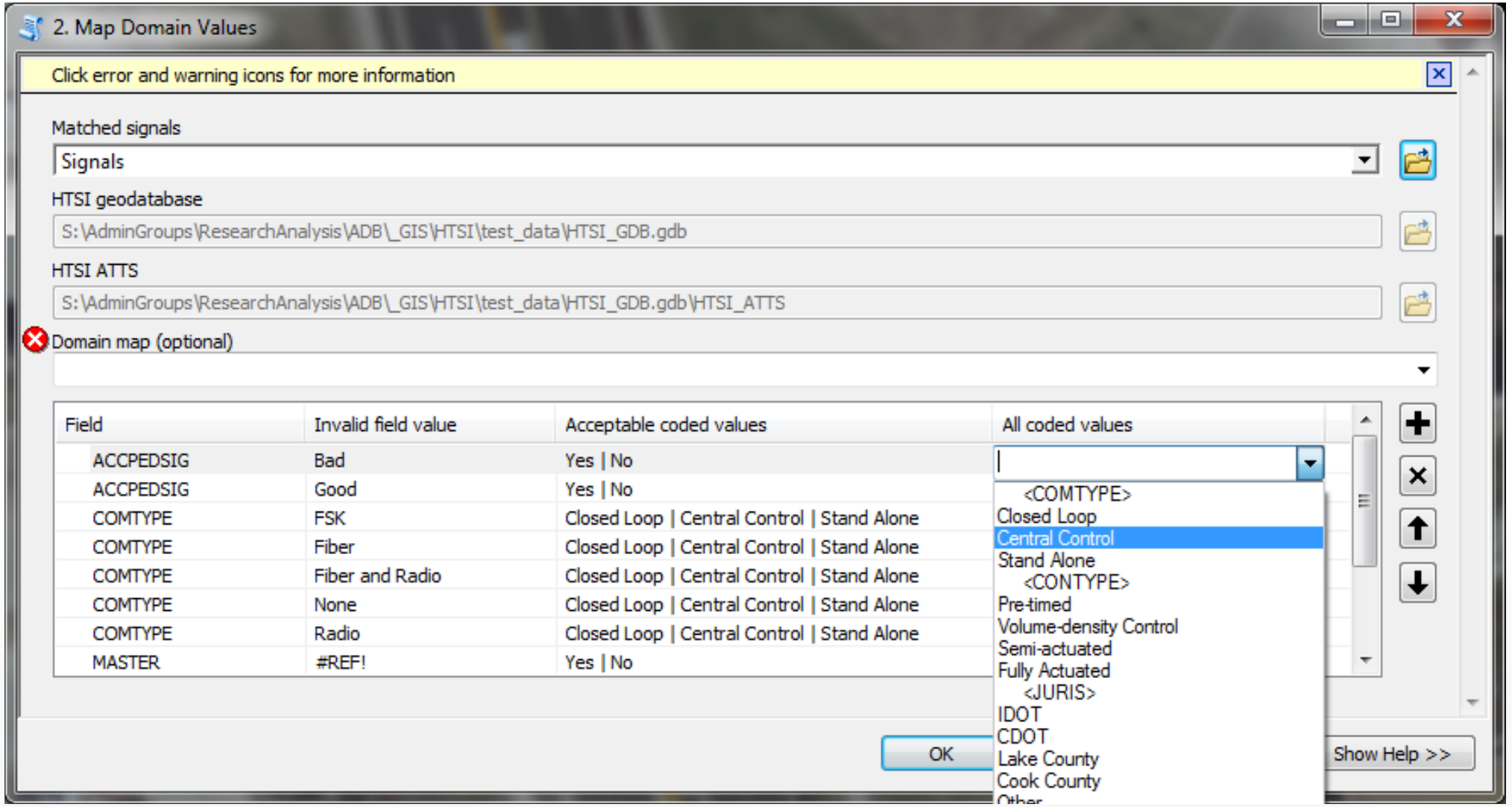
- Preprocessing

	A	B	C	D	E	F
1	Field Description	X-Coordinate (Longitude)	Y-Coordinate (Latitude)	County	Municipality	Major Street
2	Domain (Please Limit Response to Those in the "Domains" Tab)					
3	CMAP Field Name	XCOORD	YCOORD	COUNTY	MUNICIPALITY	MAJOR
4						
5						
6						
7						
8						
9						
10						
11						

Data Processing

- Preprocessing
- Loading signal data
  1. Locate signals (multiple)
  2. Locate signals (single)
  3. Add new intersection
  4. Map domain values
  5. Load to HTSI




2. Map Domain Values
Click error and warning icons for more information
Matched signals
Signals
HTSI geodatabase
S:\AdminGroups\ResearchAnalysis\ADB_GIS\HTSI\test_data\HTSI_GDB.gdb
HTSI ATTS
S:\AdminGroups\ResearchAnalysis\ADB_GIS\HTSI\test_data\HTSI_GDB.gdb\HTSI_ATTS
Domain map (optional)
Field
Invalid field value
Acceptable coded values
All coded values
ACCPEDSIG Bad Yes | No
ACCPEDSIG Good Yes | No
COMTYPE FSK Closed Loop | Central Control | Stand Alone
COMTYPE Fiber Closed Loop | Central Control | Stand Alone
COMTYPE Fiber and Radio Closed Loop | Central Control | Stand Alone
COMTYPE None Closed Loop | Central Control | Stand Alone
COMTYPE Radio Closed Loop | Central Control | Stand Alone
MASTER #REF! Yes | No
<COMTYPE>
Closed Loop
Central Control
Stand Alone
<CONTYPE>
Pre-timed
Volume-density Control
Semi-actuated
Fully Actuated
<JURIS>
IDOT
CDOT
Lake County
Cook County
OK
Show Help >>

Data Processing

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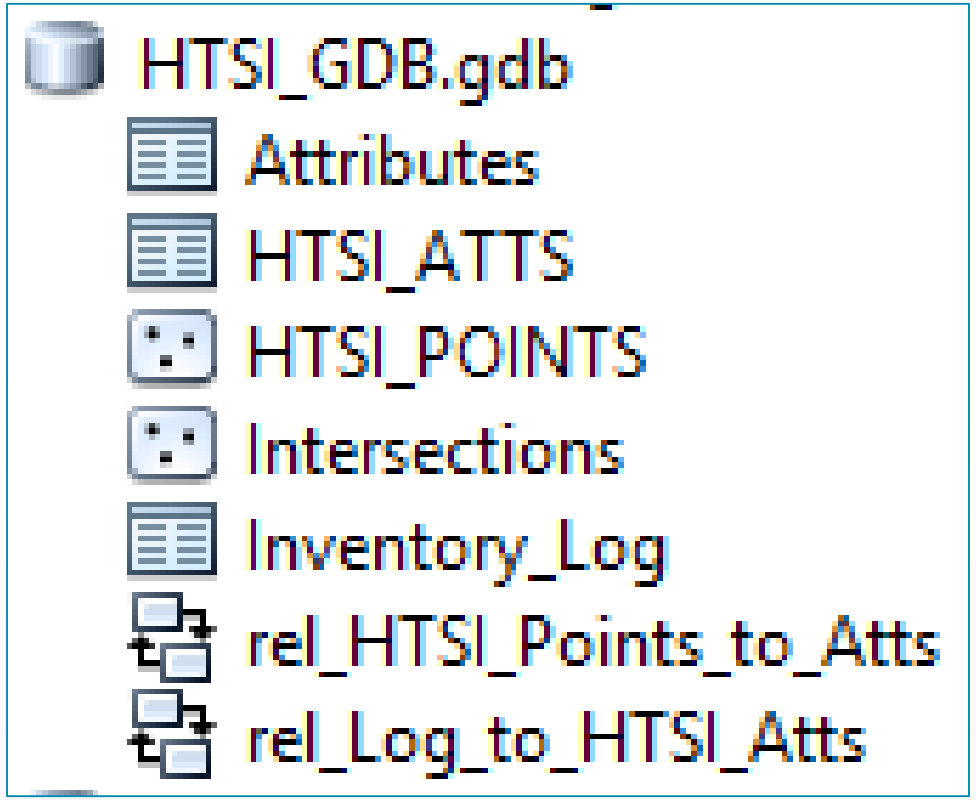
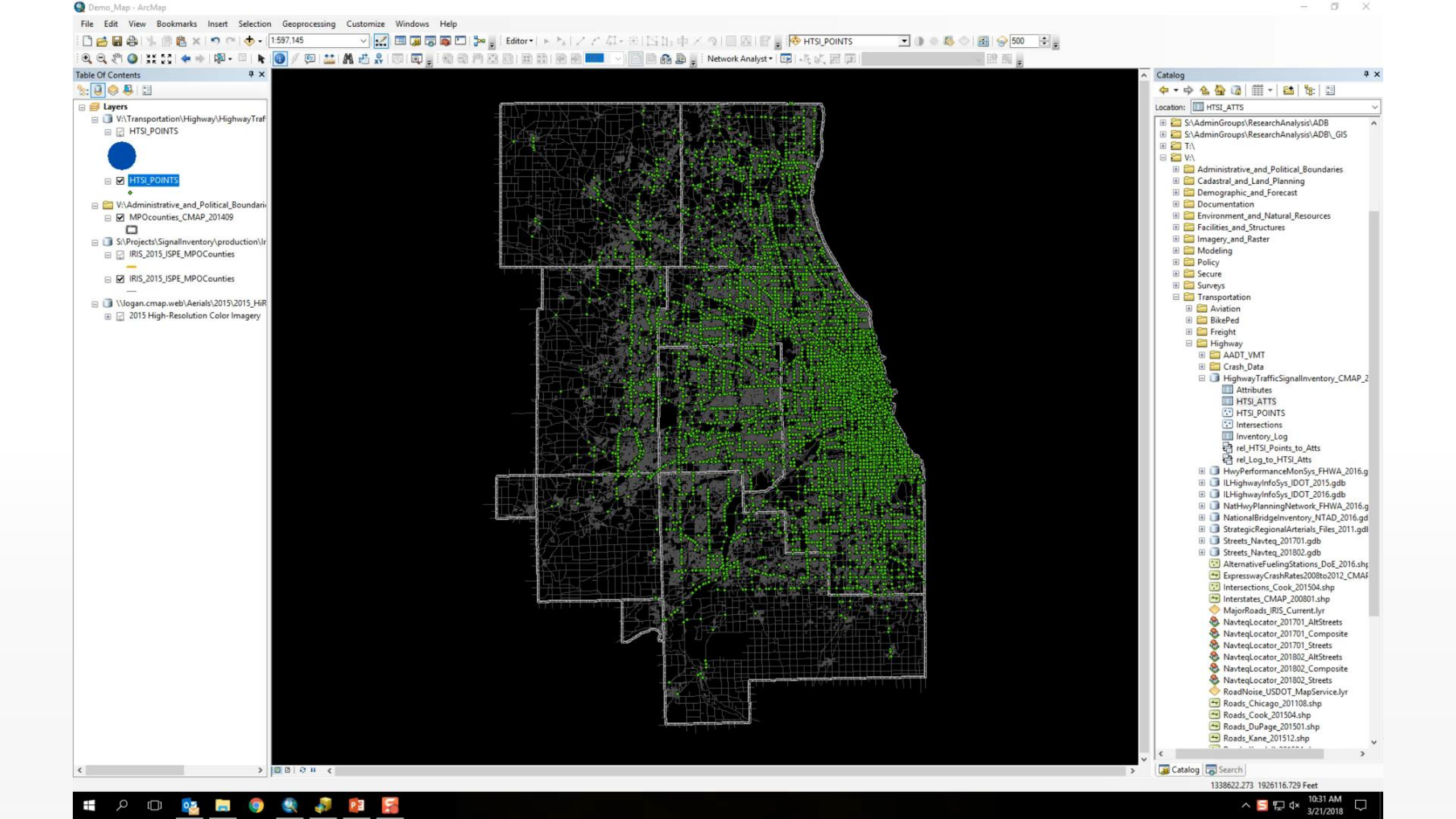
Database Structure

- ArcGIS file geodatabase
  - HTSI_POINTS (feature class)
  - HTSI_ATTS (table)
  - Inventory log
  - Relationship classes




Demo_Map - ArcMap
File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help
1:597,145
HTSI_POINTS
Network Analyst
Table Of Contents
Layers
V:\Transportation\Highway\HighwayTraf
HTSI_POINTS
HTSI_POINTS
V:\Administrative_and_Political_Boundari
MPOcounties_CMAP_201409
S:\Projects\SignalInventory\production\Ir
IRIS_2015_ISPE_MPOCounties
IRIS_2015_ISPE_MPOCounties
\\logan.cmap.web\Aerials\2015\2015_HiR
2015 High-Resolution Color Imagery
Catalog
Location: HTSI_ATTS
S:\AdminGroups\ResearchAnalysis\ADB
S:\AdminGroups\ResearchAnalysis\ADB_GIS
T:\
V:\
Administrative_and_Political_Boundaries
Cadastral_and_Land_Planning
Demographic_and_Forecast
Documentation
Environment_and_Natural_Resources
Facilities_and_Structures
Imagery_and_Raster
Modeling
Policy
Secure
Surveys
Transportation
Aviation
BikePed
Freight
Highway
AADT_VMT
Crash_Data
HighwayTrafficSignalInventory_CMAP_2
Attributes
HTSI_ATTS
HTSI_POINTS
Intersections
Inventory_Log
rel_HTSI_Points_to_Atts
rel_Log_to_HTSI_Atts
HwyPerformanceMonSys_FHWA_2016.g
ILHighwayInfoSys_IDOT_2015.gdb
ILHighwayInfoSys_IDOT_2016.gdb
NatHwyPlanningNetwork_FHWA_2016.g
NationalBridgeInventory_NTAD_2016.gd
StrategicRegionalArterials_Files_2011.gdb
Streets_Navteq_201701.gdb
Streets_Navteq_201802.gdb
AlternativeFuelingStations_DoE_2016.shp
ExpresswayCrashRates2008to2012_CMAP
Intersections_Cook_201504.shp
Interstates_CMAP_200801.shp
MajorRoads_IRIS_Current.lyr
NavteqLocator_201701_AltStreets
NavteqLocator_201701_Composite
NavteqLocator_201701_Streets
NavteqLocator_201802_AltStreets
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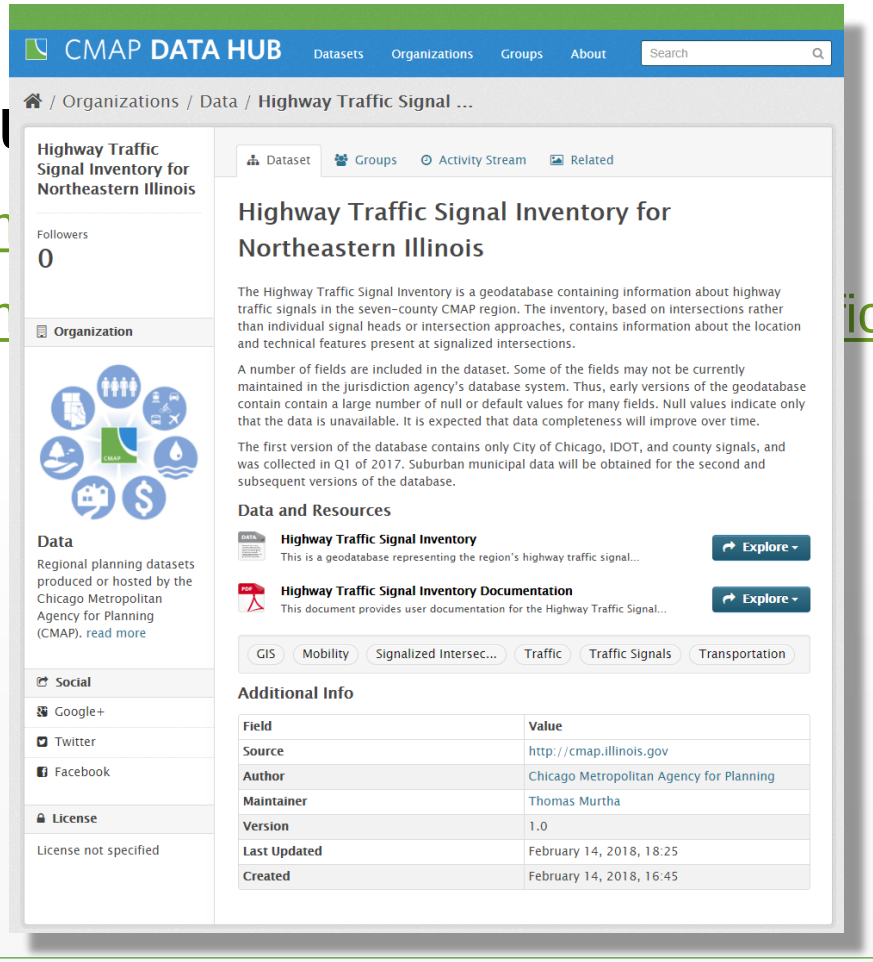
RoadNoise_USDOT_MapService.lyr
Roads_Chicago_201108.shp
Roads_Cook_201504.shp
Roads_DuPage_201501.shp
Roads_Kane_201512.shp
Catalog
Search
1338622.273 1926116.729 Feet
10:31 AM
3/21/2018

Where can I get the data?

- CMAP Data Hu
  - https://datahub.cm
  - https://datahub.cm ic-signal-inventory



Next Steps

- Complete solicitation of municipal data. To date, CMAP has requested signal information from approximately 75 municipalities.
- Process municipal data to provide HTSI V2 by the end of 2018.
- Introduce users to the new database.
- Encourage more complete inventory data.
- Technical data processing improvements