FHWA Performance Network Geodatabase Data Files - User Guide

Provided to the Office of Highway Policy Information
FHWA, U.S. DOT
Washington, DC

By MacroSys LLC
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Please read through the entire material presented here before getting into any data files.

What Is the FHWA Performance Network?

FHWA's Performance Network (PN) is the enhanced Highway Performance Management System (HPMS) geospatial network data. The enhancement is the incorporation of the National Performance Management Research Datasets (NPMRDS) Traffic Message Channel (TMC) attributes.

Performance Network File

The naming convention for the Performance Network file is:

XX_HPMSPR2016_TMC2017

(e.g., FL_HPMSSPR2016_TMC2017)

where XX is the postal abbreviation of a state (e.g., FL).

_HPMSPR2016_TMC2017 means that the geospatial data is based on the 2016 HPMS data and the 2017 NPMRDS data.

Performance Network File Data Attributes

a) NPMRDS TMC Attributes

+

b) All HPMS Data Items

a) NPMRDS TMC Attributes

- ✓ TMC Code (TMC path identifier)
- ✓ Admin_Level_1 (Country)
- ✓ Admin_Level_2 (State)
- ✓ Admin_Level_3 (County)
- ✓ Distance (length of a TMC)
- ✓ Road_Number
- ✓ Road_Name
- ✓ Lattitude (latitude of start point of TMC)
- ✓ Longitude (longitude of start point of TMC)
- ✓ Road_Direction.

b) HPMS Data Attributes

- ✓ YEAR_RECORD_HPMS
- ✓ STATE_CODE
- ✓ ROUTE_ID
- ✓ ROUTE_NUMBER
- ✓ ROUTE_NAME
- ✓ ROUTE_QUALIFIER
- ✓ ROUTE_SIGNING
- ✓ F_SYSTEM
- ✓ FACILITY_TYPE
- ✓ URBAN_CODE
- ✓ NHS
- ✓ STRAHNET
- ✓ OWNERSHIP
- ✓ TRUCK
- ✓ THROUGH_LANES
- ✓ PEAK_LANES
- ✓ COUNTER_PEAK_LANES
- ✓ SHOULDER_TYPE
- ✓ PCT_PEAK_COMBINATION
- ✓ PCT_PEAK_SINGLE
- ✓ K_FACTOR
- ✓ DIR_FACTOR
- ✓ IRI
- ✓ PSR
- ✓ SURFACE_TYPE
- ✓ CRACKING_PERCENT
- ✓ FAULTING
- ✓ RUTTING
- ✓ STRUCTURE_TYPE
- ✓ YEAR_LAST_IMPROV_VD
- ✓ YEAR_LAST_CONSTRUCTION _VD
- ✓ IS_SAMPLE
- ✓ SAMPLE_ID
- ✓ EXPANSION_FACTOR
- ✓ National_Route_ID
- ✓ SHOULDER_WIDTH_L
- ✓ SHOULDER_WIDTH_R
- ✓ LANE_WIDTH
- ✓ MEDIAN_TYPE
- ✓ MEDIAN_WIDTH
- ✓ ACCESS_CONTROL
- ✓ WIDENING_OBSTACLE
- ✓ WIDENING_POTENTIAL
- ✓ HOV_LANES
- ✓ HOV_TYPE
- ✓ SPEED_LIMIT
- ✓ TOLL_CHARGED
- ✓ TOLL_ID
- ✓ TOLL_TYPE
- ✓ AADT
- ✓ AADT_COMBINATION
- ✓ AADT_SINGLE_UNIT

Enhanced NPMRDS TMC Dataset

The enhanced NPMRDS TMC Dataset is an HPMS LRS based TMC geospatial dataset where the location of a TMC is defined by its starting and ending mile post data in addition to its original NPMRDS TMC attribute information.

Enhanced NPMRDS TMC Dataset

The naming convention for the Enhanced NPMRDS TMC Dataset is

XX_HPMSPR2016_TMC2017_NHS_LRS

(e.g., FL_XX_HPMSPR2016_TMC2017_NHS_LRS)

where XX is the postal abbreviation of a state (e.g., FL).

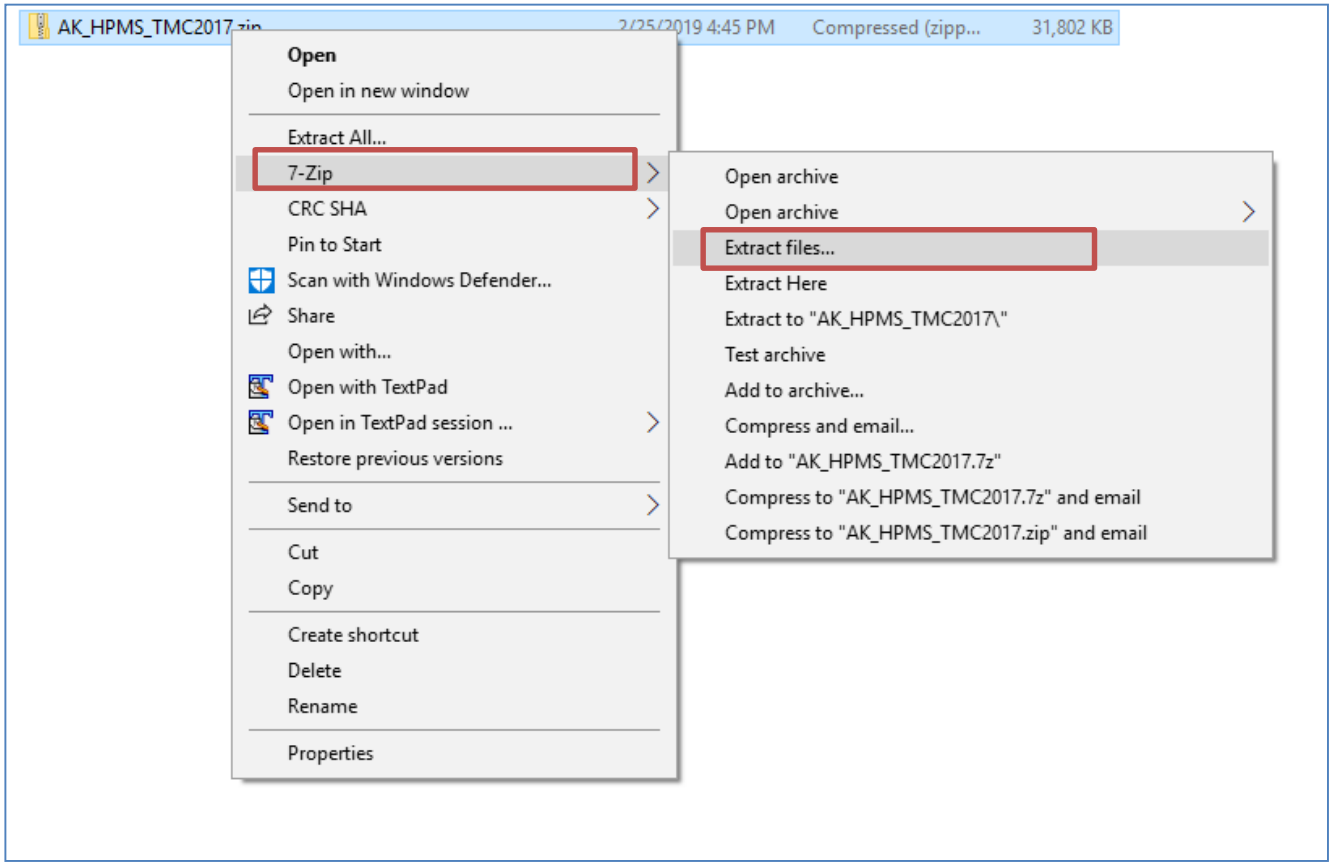
_HPMSPR2016_TMC2017 means that the geospatial data is based on the 2016 HPMS data and the 2017 NPMRDS data.

Enhanced TMC Data Attributes

Attributes ------	Description
year_record ------	Year of the NPMRDS data
state_code --------	State FIPS code
route_id ----------	TMC matched HPMS route
begin_point -------	Beginning milepost of a route section
end_point ----------	Ending milepost of a route section.
data_item ----------	TMC
section_length -----	The length of a route section
value_numeric -----	Ignore
value_text ----------	TMC
value_date ---------	Ignore
Comments ----------	Ignore
Shape_Length ------	(System generated; non-removable)

Open the Geospatial Datasets

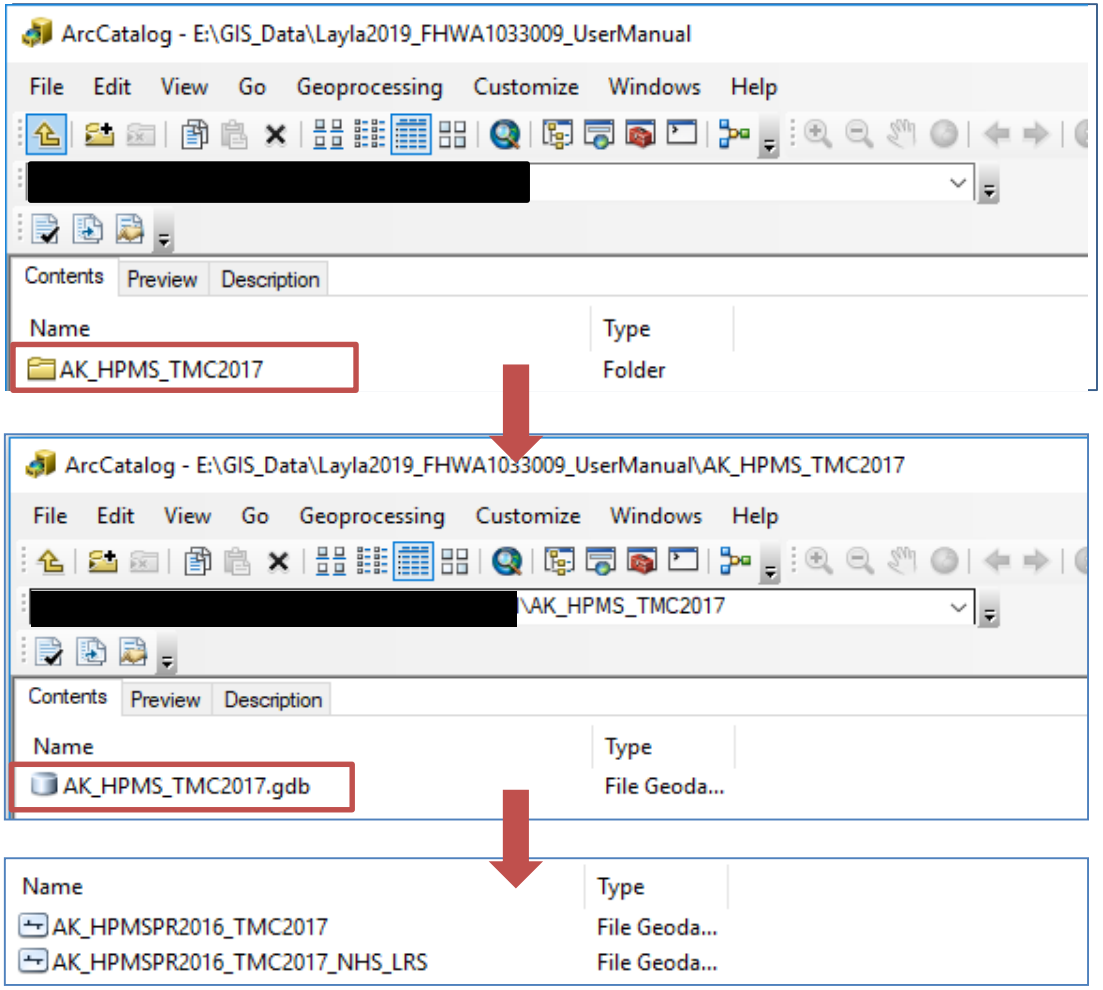
Step 1: Download the target GDB zipped file from FHWA website and unzip it into a folder using “Extract files…” method.



Step 2: Quick preview of the files

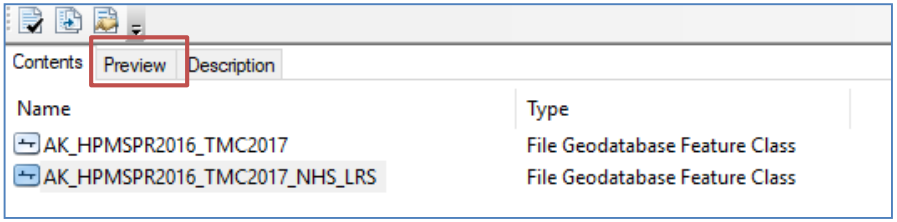
a. Open **ArcCatalog** and navigate to the folder's directory and double-click on the folder.

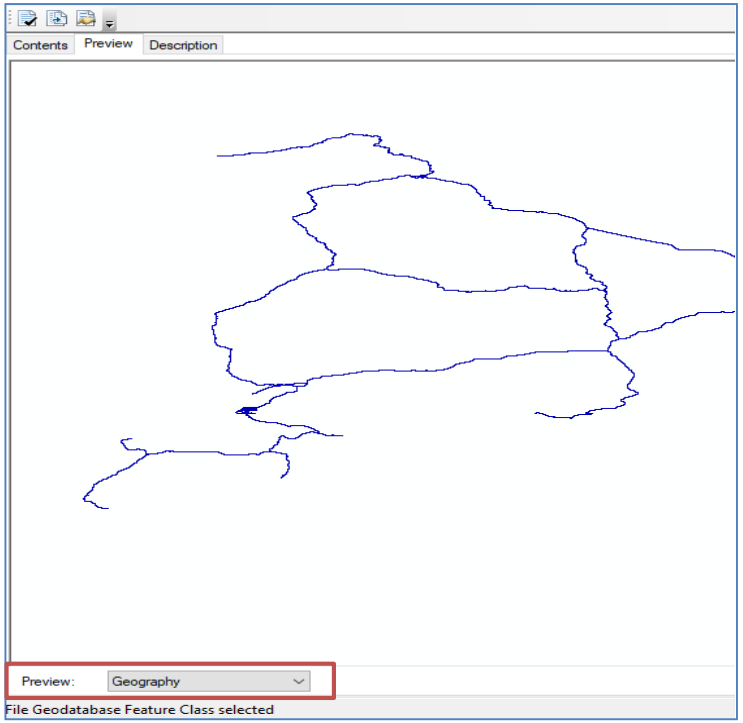
b. Double-click on "AK_HPMS_TMC2017.gdb." In the geodatabase - "AK_HPMS_TMC2017.gdb," there are two spatial files.

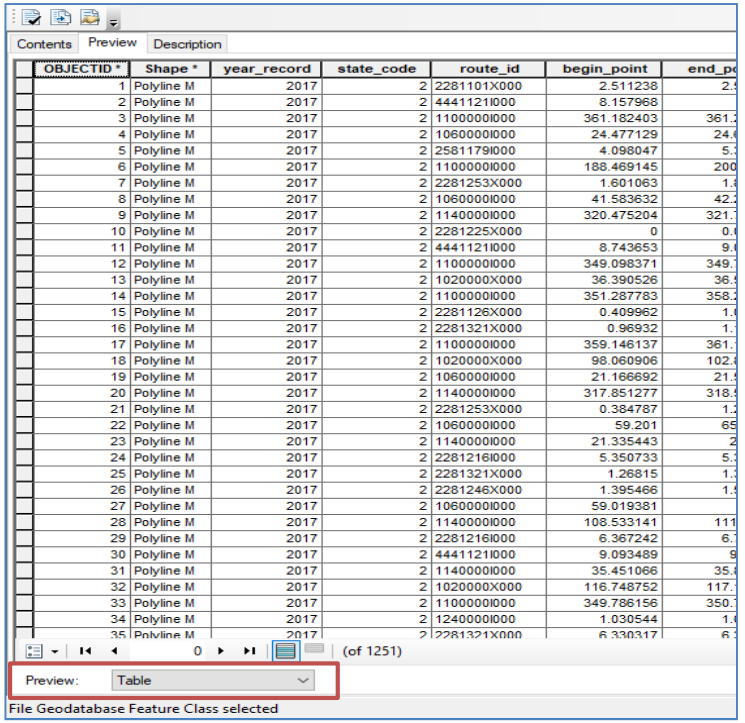


Step 2: Quick preview of the files (continued)

c. To have a quick overview of the spatial feature and the attribute table of a spatial file, left-click select a file and move to the "**Preview**" tab. There are two types of preview: **Geography** and **Table**.

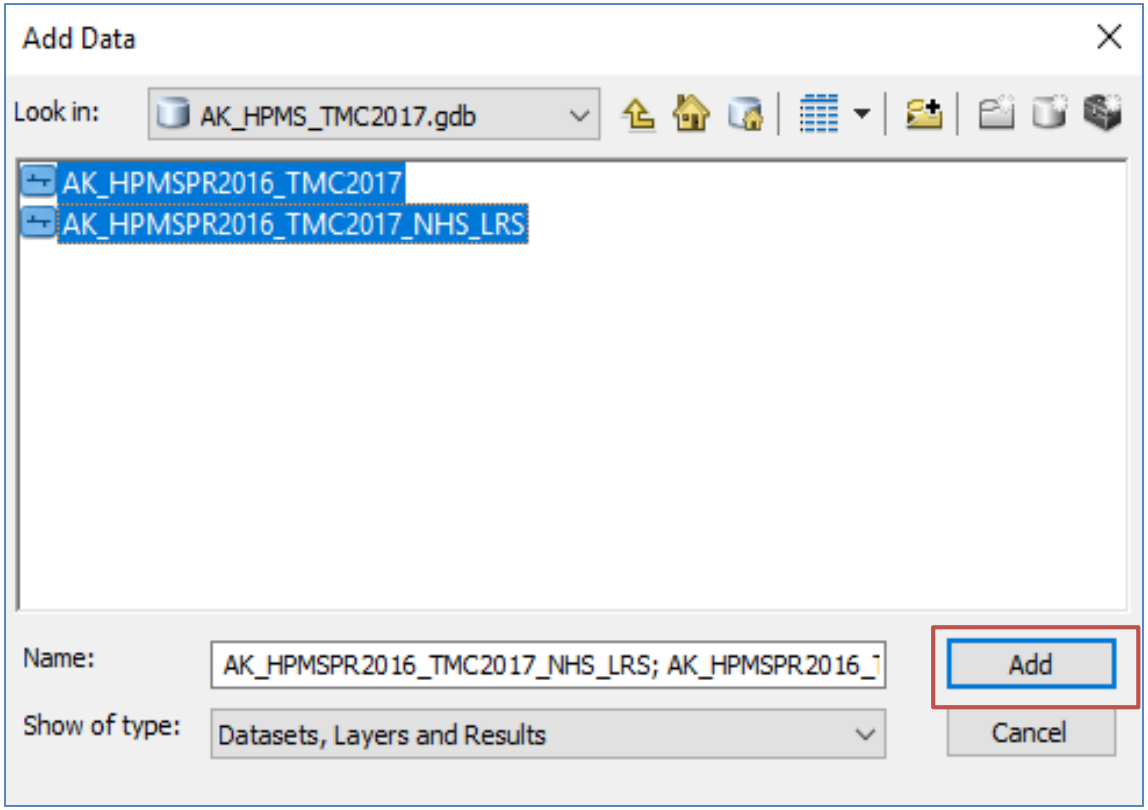






Step 3: Overlay two spatial files on a map

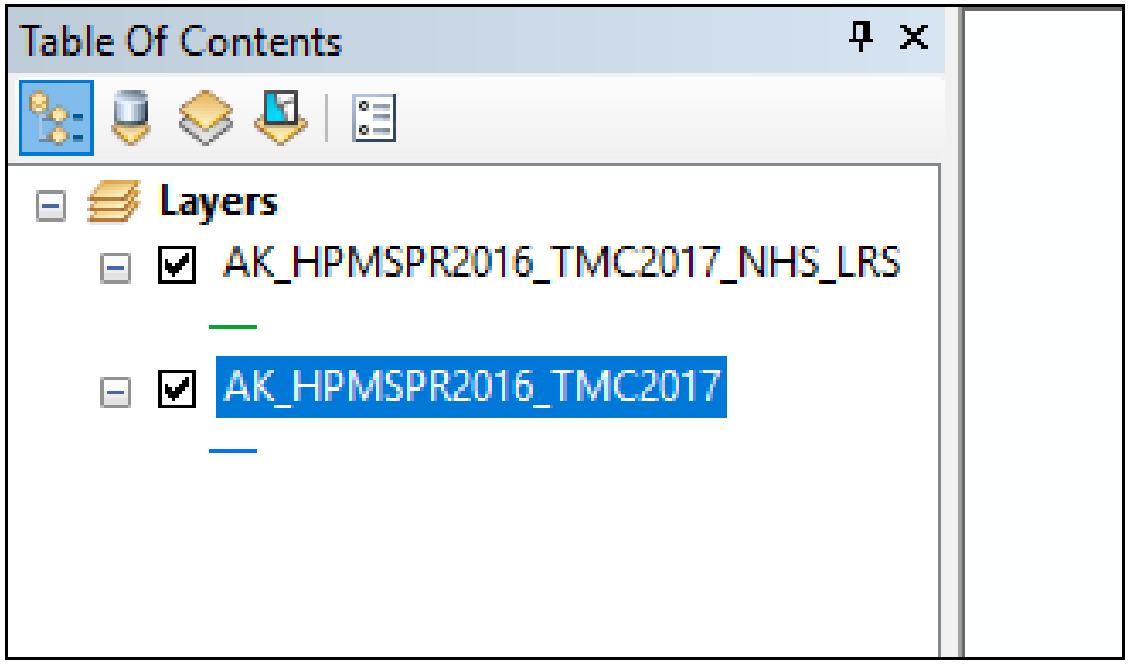
a. Open **ArcMap.**
b. Click **Add Data** button on the standard toolbar.
c. Navigate to "AK_HPMS_TMC2017.gdb."
d. Select the two files for state Alaska (AK) and click **Add**.



Step 3: Overlay two spatial files on a map (continued)

e. Click **Table of Content** button on the standard toolbar.

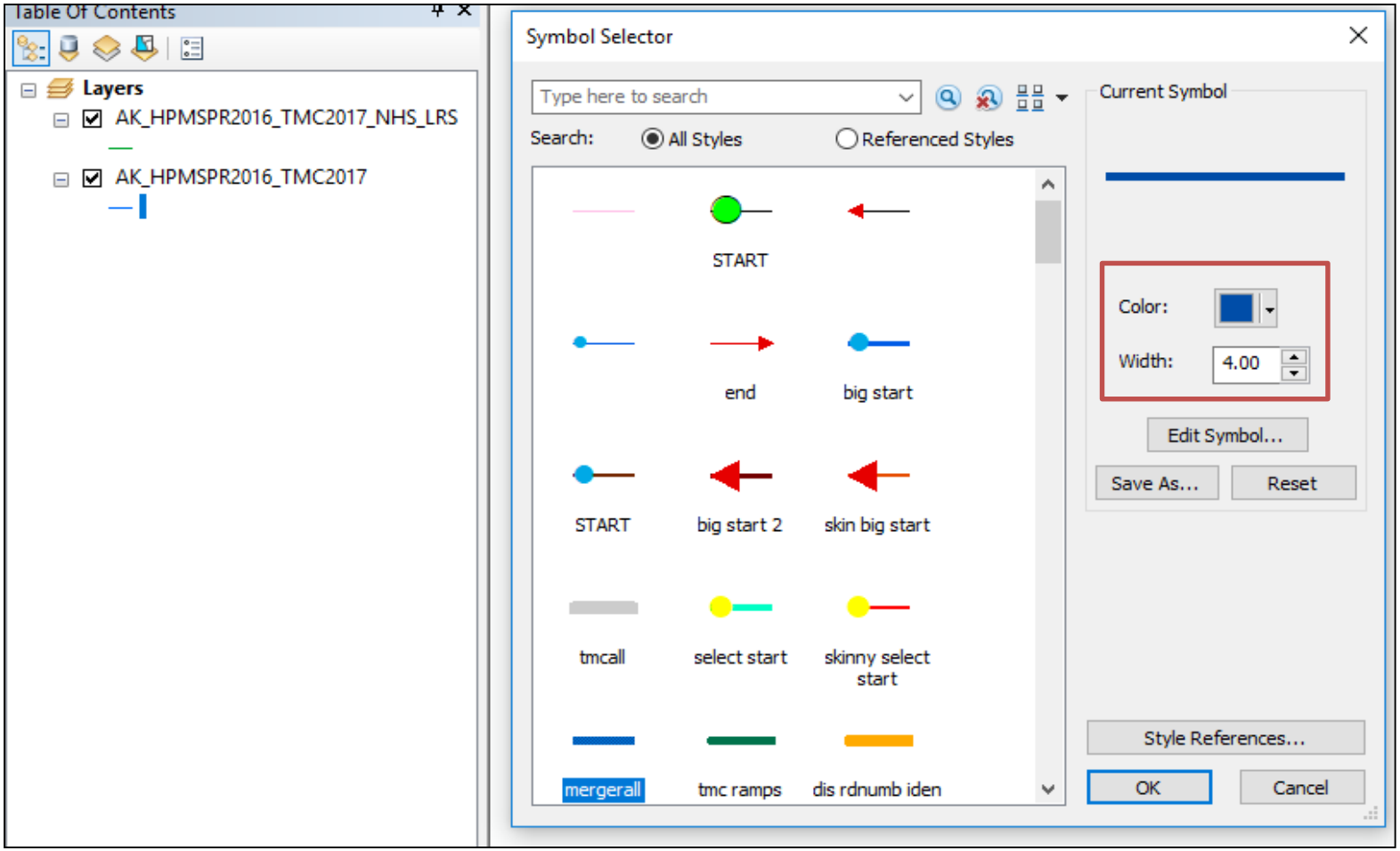
f. Rearrange the order the two layers: left-click and drag "AK_HPMSPR2016_TMC2017" beneath "AK_HPMSPR2016_TMC2017_NHS_LRS."



Step 3: Overlay two spatial files on a map (continued)

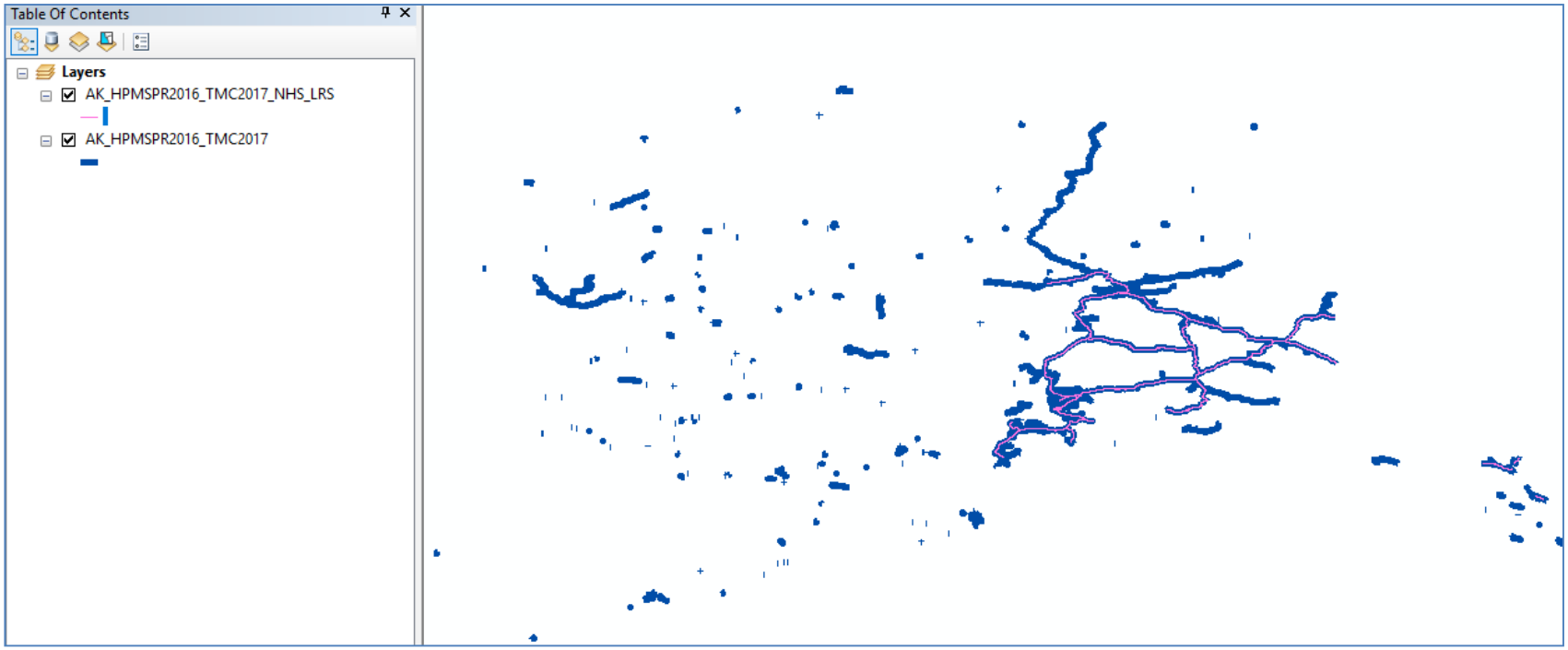
g. Open **Symbol Selector** of "AK_HPMSPR2016_TMC2017" by single left-clicking on the small symbol (horizontal bar) under the layer's name.

h. With **Symbol Selector** open, adjust the color and width to differentiate the two layers.



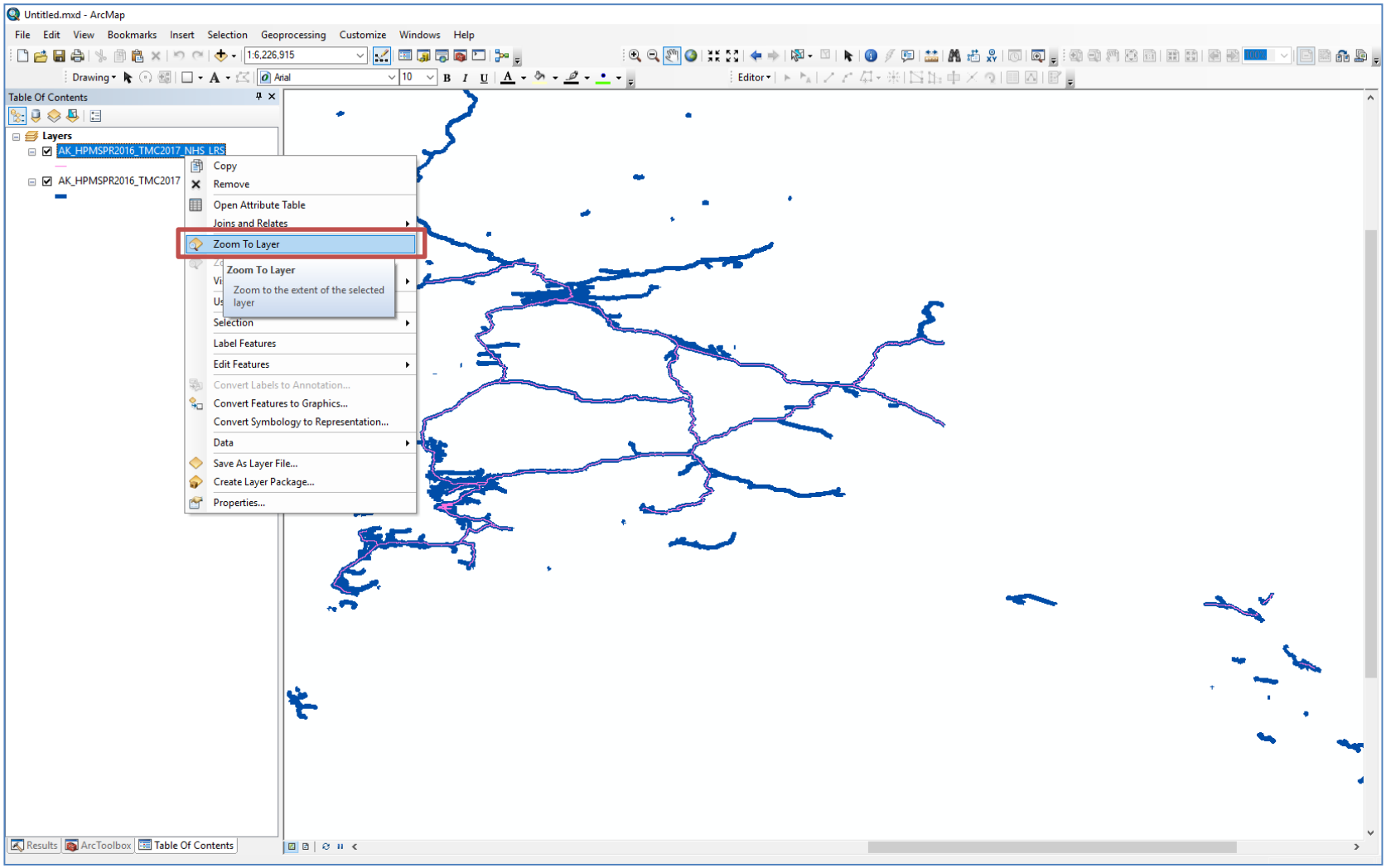
Step 3: Overlay two spatial files on a map (continued)

i. Adjust color and width (if needed) for "AK_HPMSPR2016_TMC2017_NHS_LRS." In the example, "AK_HPMSPR2016_TMC2017_NHS_LRS" is highlighted with bright pink thin lines while "AK_HPMSPR2016_TMC2017" is changed to thick dark blue lines.



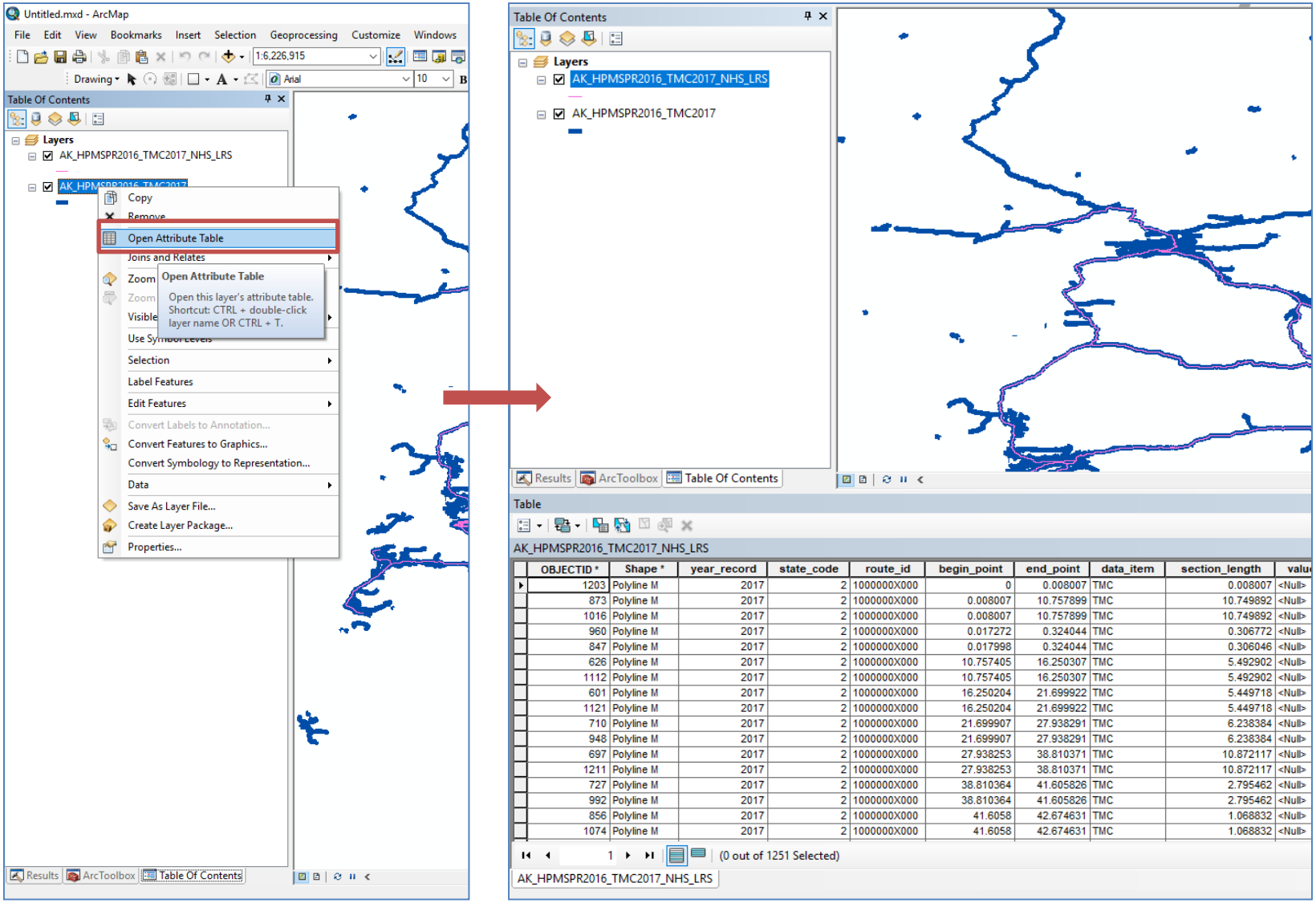
Step 3: Overlay two spatial files on a map (continued)

j. To take a closer overall look at "AK_HPMSPR2016_TMC2017_NHS_LRS" on the map, right-click on the desired layer and select **Zoom To Layer**.



Step 3: Overlay two spatial files on a map (continued)

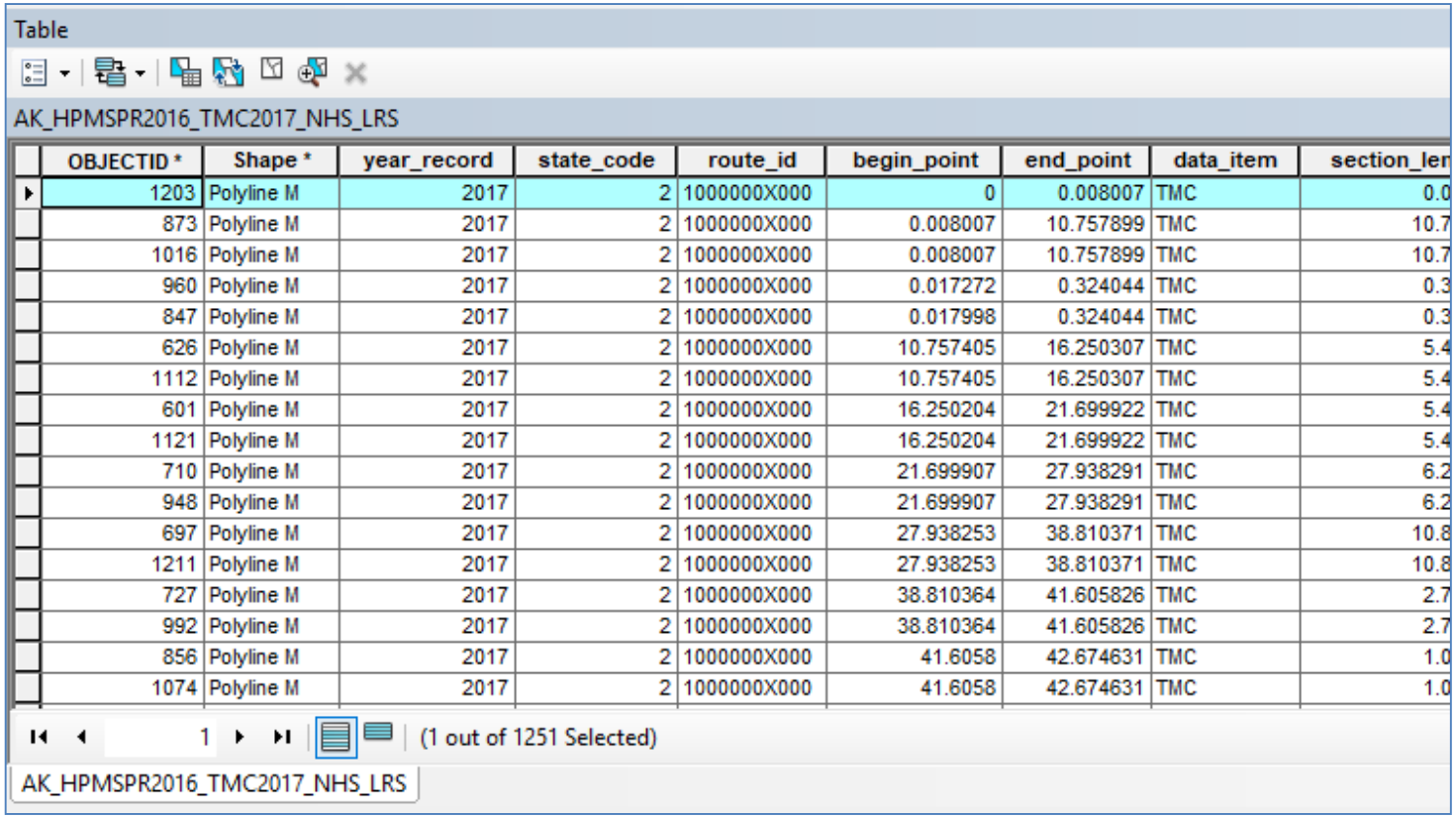
k. Furthermore, right-click a layer and select **Open Attribute Table** to access the table.



OBJECTID *	Shape *	year_record	state_code	route_id	begin_point	end_point	data_item	section_length	valu
1203	Polyline M	2017	2	1000000X000	0	0.008007	TMC	0.008007	<Null>
873	Polyline M	2017	2	1000000X000	0.008007	10.757899	TMC	10.749892	<Null>
1016	Polyline M	2017	2	1000000X000	0.008007	10.757899	TMC	10.749892	<Null>
960	Polyline M	2017	2	1000000X000	0.017272	0.324044	TMC	0.306772	<Null>
847	Polyline M	2017	2	1000000X000	0.017998	0.324044	TMC	0.306046	<Null>
626	Polyline M	2017	2	1000000X000	10.757405	16.250307	TMC	5.492902	<Null>
1112	Polyline M	2017	2	1000000X000	10.757405	16.250307	TMC	5.492902	<Null>
601	Polyline M	2017	2	1000000X000	16.250204	21.699922	TMC	5.449718	<Null>
1121	Polyline M	2017	2	1000000X000	16.250204	21.699922	TMC	5.449718	<Null>
710	Polyline M	2017	2	1000000X000	21.699907	27.938291	TMC	6.238384	<Null>
948	Polyline M	2017	2	1000000X000	21.699907	27.938291	TMC	6.238384	<Null>
697	Polyline M	2017	2	1000000X000	27.938253	38.810371	TMC	10.872117	<Null>
1211	Polyline M	2017	2	1000000X000	27.938253	38.810371	TMC	10.872117	<Null>
727	Polyline M	2017	2	1000000X000	38.810364	41.605826	TMC	2.795462	<Null>
992	Polyline M	2017	2	1000000X000	38.810364	41.605826	TMC	2.795462	<Null>
856	Polyline M	2017	2	1000000X000	41.6058	42.674631	TMC	1.068832	<Null>
1074	Polyline M	2017	2	1000000X000	41.6058	42.674631	TMC	1.068832	<Null>

Step 3: Overlay two spatial files on a map (continued)

l. With the attribute table open, all kinds of selections and analysis can be performed.



Table

AK_HPMSPR2016_TMC2017_NHS_LRS

OBJECTID *	Shape *	year_record	state_code	route_id	begin_point	end_point	data_item	section_len
1203	Polyline M	2017	2	1000000X000	0	0.008007	TMC	0.0
873	Polyline M	2017	2	1000000X000	0.008007	10.757899	TMC	10.7
1016	Polyline M	2017	2	1000000X000	0.008007	10.757899	TMC	10.7
960	Polyline M	2017	2	1000000X000	0.017272	0.324044	TMC	0.3
847	Polyline M	2017	2	1000000X000	0.017998	0.324044	TMC	0.3
626	Polyline M	2017	2	1000000X000	10.757405	16.250307	TMC	5.4
1112	Polyline M	2017	2	1000000X000	10.757405	16.250307	TMC	5.4
601	Polyline M	2017	2	1000000X000	16.250204	21.699922	TMC	5.4
1121	Polyline M	2017	2	1000000X000	16.250204	21.699922	TMC	5.4
710	Polyline M	2017	2	1000000X000	21.699907	27.938291	TMC	6.2
948	Polyline M	2017	2	1000000X000	21.699907	27.938291	TMC	6.2
697	Polyline M	2017	2	1000000X000	27.938253	38.810371	TMC	10.8
1211	Polyline M	2017	2	1000000X000	27.938253	38.810371	TMC	10.8
727	Polyline M	2017	2	1000000X000	38.810364	41.605826	TMC	2.7
992	Polyline M	2017	2	1000000X000	38.810364	41.605826	TMC	2.7
856	Polyline M	2017	2	1000000X000	41.6058	42.674631	TMC	1.0
1074	Polyline M	2017	2	1000000X000	41.6058	42.674631	TMC	1.0

1 (1 out of 1251 Selected)

AK_HPMSPR2016_TMC2017_NHS_LRS

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