

# *TMAS Traffic Data*

## *Issues Observed and Suggested Solutions*

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# Outline

- TMAS volume data and class data submitting status
- Top 10 errors for volume and class data, and solutions
- Technical Illustration – Bring HPMS Data to TMAS Data for Data Quality Control
- Future plans



# TMAS Data Status

- Most of you have submitted perfect volume data. The class data have fewer critical errors than before. **Thank You!**
- The majority of you are able to submit your data one month after the closing of previous month. **Thank You!**
- Critical errors are still in existence.



# My Focus

- To support you in any shape or format you desire
- To process your data in a timely manner and provide you quick feedback on issues encountered.
- To work with you to prevent critical errors to occur
- To utilize your data to the maximum possible



# My Observations on Rejected Data



# Example of rejected stations

U.S. Department of Transportation  
Federal Highway Administration

Travel Monitoring Analysis System - 2.8

Office of Highway Policy Information

HOME UPLOAD REPORT ADMINISTRATION TOOLS APPLICATION LOG EXIT

## Review Upload Status

Filter Selection Criteria

Year:  (yyyy) Month:  Type:  State:  Status:

User ID	State	Type	Organization	Year	Month	Loaded On	Approved	Ready to Submit	Others	Status	
MVINCI1	CT	Class	-	2018	Aug	9/12/2018 9:36:19 AM	1	0	0	Accepted	Progress
DMORGAN	ME	Volume	-	2018	Jul	9/12/2018 8:45:08 AM	104	0	2	Accepted	Progress
LLIVECCHI	CO	Weight	-	2018	Aug	9/11/2018 5:17:42 PM	6	0	1	Accepted	Progress
WDUNNAVANT	VA	Station	-	2018		9/11/2018 3:13:55 PM	1	0	0	Accepted	Progress
TROTET	PA	Volume	-	2018	Aug	9/11/2018 2:59:26 PM	19	0	0	Accepted	Progress
EBARNES	AR	Weight	-	2018	Aug	9/11/2018 2:52:02 PM	1	0	0	Accepted	Progress
EBARNES	AR	Class	-	2018	Aug	9/11/2018 2:51:20 PM	1	0	0	Accepted	Progress
EBARNES	AR	Weight	-	2018	Aug	9/11/2018 2:29:42 PM	36	0	0	Accepted	Progress
LLIVECCHI	CO	Class	-	2018	Aug	9/11/2018 1:38:17 PM	1	0	0	Accepted	Progress
LLIVECCHI	CO	Volume	-	2018	Aug	9/11/2018 1:37:38 PM	1	0	0	Accepted	Progress

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# Example of rejected lanes

U.S. Department of Transportation  
Federal Highway Administration

Travel Monitoring Analysis System - 2.8

Office of Highway Policy Information

HOME UPLOAD REPORT ADMINISTRATION TOOLS APPLICATION LOG EXIT

Class: Final Report

Batch is Accepted

Batch Details: User : Nreis State : ND - North Dakota Type : Class Year : 2018 Month : August

Critical Errors	Valid Records	Rejected Records	Total
0	99,576 (99.93%)	72 (0.07%)	99,648

Station ID	Dir	Status	Valid Records	Rejected Records	Caution Records	Warning Records	Total Records
000291	5	Station Parameter Accepted	744	0	744	744	744
000253	7	Station Parameter Accepted	1488	0	1488	1488	1488
000255	3	Station Parameter Accepted	744	0	744	744	744
000255	7	Station Parameter Accepted	744	0	744	744	744
000261	1	Station Parameter Accepted	744	0	744	744	744
000261	5	Station Parameter Accepted	744	0	744	744	744
000273	3	Station Parameter Accepted	648	24	528	672	672
000275	5	Station Parameter Accepted	744	0	744	744	744
000279	3	Station Parameter Accepted	1440	0	1440	1440	1440
000279	7	Station Parameter Accepted	1440	0	1440	1440	1440
000281	3	Station Parameter Accepted	744	0	744	744	744
000281	7	Station Parameter Accepted	744	0	744	744	744
000285	1	Station Parameter Accepted	1440	0	1440	1440	1440

Monthly Average Daily Traffic Report (MADT)

View MADT Report



# Top 10 TMAS Issues and Solutions





# #10

A: Data are uploaded, ready to be reviewed, but never got reviewed and submitted.


B: Data preparers may have encountered certain issue, made no progress to resolve it. Data are just “sitting” there.

## Solutions

- Finish the review and submit
- Contact me



Status :

 Refresh

Others	Status	
<u>1</u>	<u>Accepted</u>	<u>Progress</u>
0	<u>Ready to Submit</u>	<u>Progress</u>
0	<u>Ready to Submit</u>	<u>Progress</u>
<u>1</u>	<u>Aborted By User</u>	<u>Progress</u>
0	<u>Accepted</u>	<u>Progress</u>
0	<u>Accepted</u>	<u>Progress</u>
<u>1</u>	<u>Accepted</u>	<u>Progress</u>

# #9

Multiple Volume or Class data for the same lane

## Solutions

Check lane assignment to determine -

A: wrong lane assignment, or

B: Duplicate data, or

C: Others



## Batch is Accepted

Total

30,315

Valid Records	Rejected Records	Caution Records	Warning Records	Total Records
180	0	0	0	180
270	0	0	0	270
240	0	0	0	240
174	29	19	0	203
174	0	0	0	174
120	0	0	0	120
180	144	3	0	324
162	0	54	0	162
120	0	0	0	120
120	0	0	0	120
120	0	0	0	120
120	0	36	0	120
114	0	0	0	114

[Contact](#) | [Exit](#)



# #8

Lane and/or direction information in Station data do not match lane/direction information in Volume or Class data

## Solutions

- Lane & direction data are critical data items
- Lane & direction data are part of primary keys
- Check out your Station data. Most likely it is station data error
- FHWA: We may drop direction and lane from primary keys



n : 400010

### Summary Report for Station

Total Records	Valid Records	Fatal Records	Critical
240	0	0	

### Caution Flags

Error ID	Error Desc
V-200 : Critical Errors	
V-240	Station does not exists in NDB that match the same key fields ?

Close

# #7

Apparent power supply issue to monitoring equipment.  
Equipment collects data only during day light.

## Solution

Maintain the equipment, review the raw data, and review  
MADT report



	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
5	0	0	0	0	0	0	0	0	0	34	78	97	156	128	83	108	107	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	9	61	52	58	58	34	18	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	36	71	112	118	144	159	148	74	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	36	70	95	95	137	149	140	138	81	11	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	58	107	118	142	154	148	134	169	123	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	2	19	37	82	150	132	75	22	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	37	53	32	37	41	64	79	87	54	15	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	41	58	98	134	144	185	160	188	106	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	56	79	117	156	193	188	207	212	92	59	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	19	103	128	167	158	120	8	24	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	25	76	79	97	120	121	113	124	56	0	0	0	0	12	0
2	0	0	0	0	0	0	0	0	0	0	0	13	53	132	187	129	150	192	109	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	127	156	145	139	150	166	164	200	218	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	114	118	144	159	177	157	185	240	128	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	171	158	128	145	169	191	165	197	235	32	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	18	162	93	171	164	34	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	1	77	85	119	109	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	145	148	114	149	157	186	173	196	171	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	149	132	144	119	173	196	156	200	221	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	154	135	127	122	165	165	164	186	200	100	30	0	0	0	0
4	0	0	0	0	0	0	0	0	0	36	107	91	122	158	142	165	143	104	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	99	108	115	94	134	136	148	150	95	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	41	69	110	115	166	181	188	154	173	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	65	72	103	109	105	131	110	135	33	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	2	13	52	72	83	70	0	38	22	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	22	73	63	56	31	5	15	19	15	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	34	86	104	92	128	137	96	34	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	52	76	109	103	52	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	19	51	75	105	91	77	90	96	0	0	0	0	90	0
6	0	0	0	0	0	0	0	0	0	0	0	4	55	38	52	60	31	19	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	29	48	75	85	103	134	125	134	61	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	19	35	52	76	96	131	127	110	83	7	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	43	68	86	123	121	125	124	101	98	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	9	29	34	79	161	132	49	18	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	31	45	47	44	64	82	98	87	72	15	0	0	0	0	0



# #6

Monitoring devices are out of order generating “0” entry patterns.  
(0 is valid entry. But certain 0 pattern is not valid)

## Solutions

- Maintenance is needed and perform it in a timely manner
- Pay attention to “blank” entries – equipment is out of order



K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
3	2	1	0	4	11	5	12	10	37	40	49	58	46	55	39	21	19	17	27	13	7	3	2
1	1	1	3	2	5	12	20	27	30	31	59	47	60	62	104	93	66	29	18	11	8	5	3
1	3	2	2	7	7	22	35	43	56	89	83	82	113	239	368	395	239	78	15	12	6	4	35
24	35	22	9	15	11	0	39	70	98	136	188	183	170	164	206	167	201	120	85	71	49	50	36
44	19	12	13	12	41	41	80	117	161	134	150	125	129	100	127	91	58	31	13	7	4	5	7
0	3	0	0	2	4	20	21	27	40	40	49	52	56	76	94	91	52	26	16	12	8	4	5
2	0	2	2	5	7	11	17	31	35	45	76	73	54	99	74	63	48	26	8	13	8	4	2
2	1	3	0	7	8	5	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	38	49	53	49	66	83	94	46	7	2	5	2	5	0
0	0	0	0	0	0	0	0	0	13	0	0	0	19	51	94	100	68	35	14	4	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7
4	1	2	0	0	0	0	0	0	12	35	1	0	9	19	34	33	32	17	12	8	4	8	6
3	0	0	1	1	2	9	6	23	23	31	62	46	56	48	52	36	32	22	11	16	5	4	1
1	0	0	1	6	9	13	19	24	35	39	37	30	58	61	82	120	66	36	10	7	0	4	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	29	41	36	46	61	75	93	132	75	36	18	15	4	6	9
12	4	2	2	4	6	4	5	14	17	33	37	26	36	30	37	38	27	18	11	8	3	4	1
4	0	2	5	15	50	29	32	22	19	37	34	32	42	31	44	33	29	14	11	8	4	6	3
0	1	2	4	10	65	27	35	74	35	30	36	33	36	35	44	43	23	22	11	9	5	6	2
2	2	4	4	20	56	37	34	33	29	42	37	43	35	32	37	29	31	16	14	9	5	3	2
3	2	1	3	17	41	38	29	38	31	31	45	46	43	35	39	37	32	28	20	9	9	5	11
1	2	0	8	20	17	9	15	34	31	40	45	55	52	51	48	48	24	25	17	6	12	10	6
9	2	0	3	14	8	16	12	18	36	48	56	40	53	38	35	35	17	4	15	6	5	4	3
0	1	3	2	12	71	123	51	30	21	40	37	39	47	26	44	35	21	15	8	5	2	2	3
0	0	1	3	19	67	51	37	38	41	33	40	33	33	41	40	33	26	25	11	5	4	11	4
1	1	0	4	22	61	54	43	33	41	29	54	39	40	38	44	34	28	24	15	21	6	4	4
1	3	1	6	25	64	38	55	45	34	34	44	45	38	33	40	28	27	16	9	16	9	3	5
3	0	1	2	23	55	45	34	35	32	29	41	34	41	51	45	38	24	19	17	10	13	7	12
3	1	2	2	15	11	11	15	29	30	47	36	42	52	49	42	49	27	16	20	15	4	7	8
5	4	2	1	18	8	9	10	17	29	42	59	40	55	33	36	28	21	8	16	6	11	6	4



# #5

Station data are missing

## Solutions

- Develop appropriate station data according to the TMG format
- Remember – all TMAS data must have its corresponding station data
- When you have a new station, make sure you add it to the station file.
- Call for assistance as needed



on : 400010

### Summary Report for Station

Total Records	Valid Records	Fatal Records	Critical
240	0	0	

### Caution Flags

Error ID	Error Desc
▼ V-200 : Critical Errors	
V-240	Station does not exists in NDB that match the same key fields ?

Close



# #4

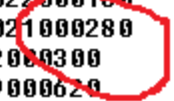
- Volume or class data have rigid column formats.
- If a variable is misaligned, all data are wrong.

## Solutions

- Identify which data items are misaligned, missed, or entered into the wrong column.
- You can use Excel to verify it through the delimited function.



0893016550289704328043560414704489046850479904898054720505205035049720404403339026540199501258007550  
0301004870106201861027040358804140046840468004691045630424904228040400346202889024670227501938013230  
3965050560590306287057040461204247045140438304758053440599706211049780300802105018340108300683004410  
0984015800242903644046310533605575054950563005605057200565005568050450385502941027370251501895011060  
1196025650469905646052870449904453046490488905124047890464905172054780463104045034220255301785009920  
1197026530440805506050540385904153041250457405011051190486905381053010447003625027620183601225010310  
1203028230529405619050110453904156043920476905229051770523305342051480458803590029930203901232006790  
0560007140108501860027840468405166053830522504961046230456804459042610423404187033670231601381006460  
1150028380508005479044400428903850041990454404882046500494905326047460411903395025810183301231006620  
0048000930013500254002990035000409004730049800506005080041000358002590018200172001460014300078000420  
0042000860015200209002860033600402004730052400528005600046800381002520018700206001590012800087000330  
0084001880033000339004100039700458005120062200731010650135001065005320034600277001910012800098000590  
0274006050116701129005070040900425003910038900455004670036100426002500017400126000820004900029000080  
0275006720120800900005150051400397003650041800419004790039900385002240015600092000830005200038000110  
0038000730014000193002960037300422004220045600485005340041800347002680022500150001740013400077000420  
0252006320107400870005530045600445003850037500429004110035000339002280015800109000950003900034000120  
0033000500005500063000800009500079000940009900106001010010400098001170008500073000440003500028000210  
0007000290005000580009100097001460014000134001480017800182001800149001530014200136000670004400022000180  
0018000390007500075000920007300076000980010800122001290013800149001530014200136000670004400022000180  
0024000520007800078000750008700088001040008300093001050009200102001170007900058000390002600022000180  
0016000170003400042000590005900106001060012100131001480011200118000970009900079000550004100021000280  
69001590025000499002870032600255002690035400338003040031200298002420016600108000980006300042000300  
23000360006500093000890012800164002110026800273002650026300230002430021600172001780010900079000620  
24000350010500099001660018400208002520025200234002510021200257002520023500169001480013300131001110  
56001480023200405002840029200287003070030100315003290028900323002900020900145001390006900041000330  
39000540018800351002940028200270002390025000253002970033200434004080023800163001270008100074000530  
16000230003200060000890014000191001920023000282002270027000263002820022200197001450011300079000490  
26000640012700260002760025800272002630024100296003330036600378004090030300252001970015600099000750  
24000810015000348002700027100265002300027800295003180037000393003700023100178001480012800087000620  
56001520025600383003250024900274002670030700308003190031500316002640017700115000750004900053000270  
52001500026100417003310025100283002650030600354003210033900264002800013100104000880005200041000220  
58001490024200441002800028200304002960034100276002980032600285002680015700117001040005400034000300  
21000470008400117001610020200283003060031300297002760020300222002060015500138000790006400032000220  
44001080016600307002560025300273002780031700283002480023500283001960015700118000930006500039000240  
35000570015003080024800286002850026600291003010032500330003700040500236001730011490011400104000560  
33000700013400301002970027700258003180027400280003090032400392003750023600178001620012400090000570  
1500027000540008000890008600098000980010200132001360015300166001650010100073000590005200039000220  
1700031000750010000091000860009400095001020010600120001260015700182001180007400054000400025000270  
08000290005000078000870009800114001130012200139001560018000190001560014300097000810006100046000330



# Data Issue #3

- # for vehicle classes in **Class** Data do not match class information in **Station** data
- Source of the “invalid total” error

## Solutions

- Make sure the # of class in **Class** data matches class in **Station** data
- FHWA – assessing new method to read all class data regardless Station vehicle class data



# Batch is Accepted

Total
285,695

Valid Records	Rejected Records	Caution Records
1454	34	1454
2901	75	2901
2946	30	2946
1487	1	1391
1470	18	1470
728	760	704
724	764	628



Total Records	Valid Records
1488	728

Direction	Error ID
▼ C-200 : Critical Errors	
3	C-230 Invalid Total ?
> C-300 : Quality Control Check	



# #2

Data elimination – overreaching in data quality control. Significant amount of volume and class data are removed for part of a month.

## Solutions

- Data quality control is good.
- However, be extremely cautious in deleting data
- TMAS has some good built in logic for data quality control
- Submit your data unless you know is truly wrong.



# #1

- Roadway function class data are wrong with both Station and Volume Data
- Station ID changes

## Solutions

- Make sure you assign FC correctly
- Try your best to maintain a stable Station naming convention
- Do not change your station ID, period!



# MADT Report

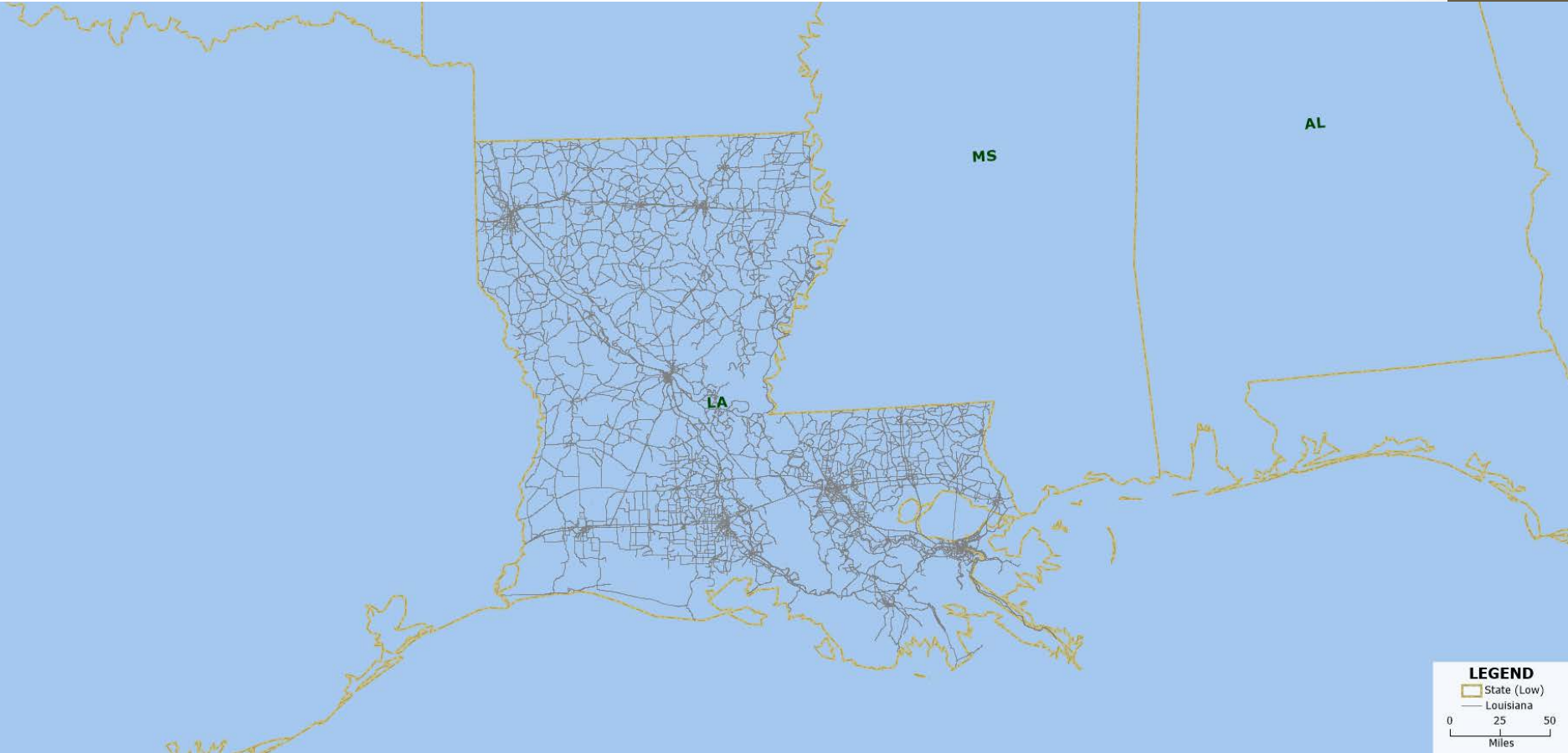
Jul	3U	000048	3	5349	8311	8449	7477	8576	8502	6076	7518	8263	5713	-
Jul	3U	000048	7	5160	8083	8267	7422	8211	8423	6122	7367	8087	5641	-
Jul	4R	000057	1	2226	2824	2812	2790	0	0	2557	2596	2809	2392	-
Jul	4R	000057	5	1599	2045	1982	1888	0	0	1718	1840	1972	1659	-
Jul	5R	000061	1	539	692	700	656	721	742	596	668	702	568	-
Jul	5R	000061	5	531	705	692	661	702	723	558	658	697	545	-
Jul	6R	000063	3	28579	33117	33448	30591	35406	39207	31526	32847	34354	30053	-
Jul	6R	000063	7	31887	33723	32176	29435	34090	36674	30355	32547	33220	31121	-
Jul	6R	000065	3	19328	23440	23109	21724	24452	27572	22678	22960	24059	21003	-
Jul	6R	000065	7	21759	24249	24530	22103	25035	27015	23925	23974	24596	22842	-
Jul	6R	000079	3	40005	52005	51139	47179	52258	52781	43082	48290	51074	41544	-
Jul	6R	000079	7	37383	50605	52058	48233	54422	55558	44411	48733	52175	40897	-
Jul	6R	000084	3	33065	33726	32900	32053	34058	35792	34500	33679	33708	33783	-
Jul	6R	000084	7	39330	35648	33880	32800	36232	39176	37268	36351	35547	38299	-



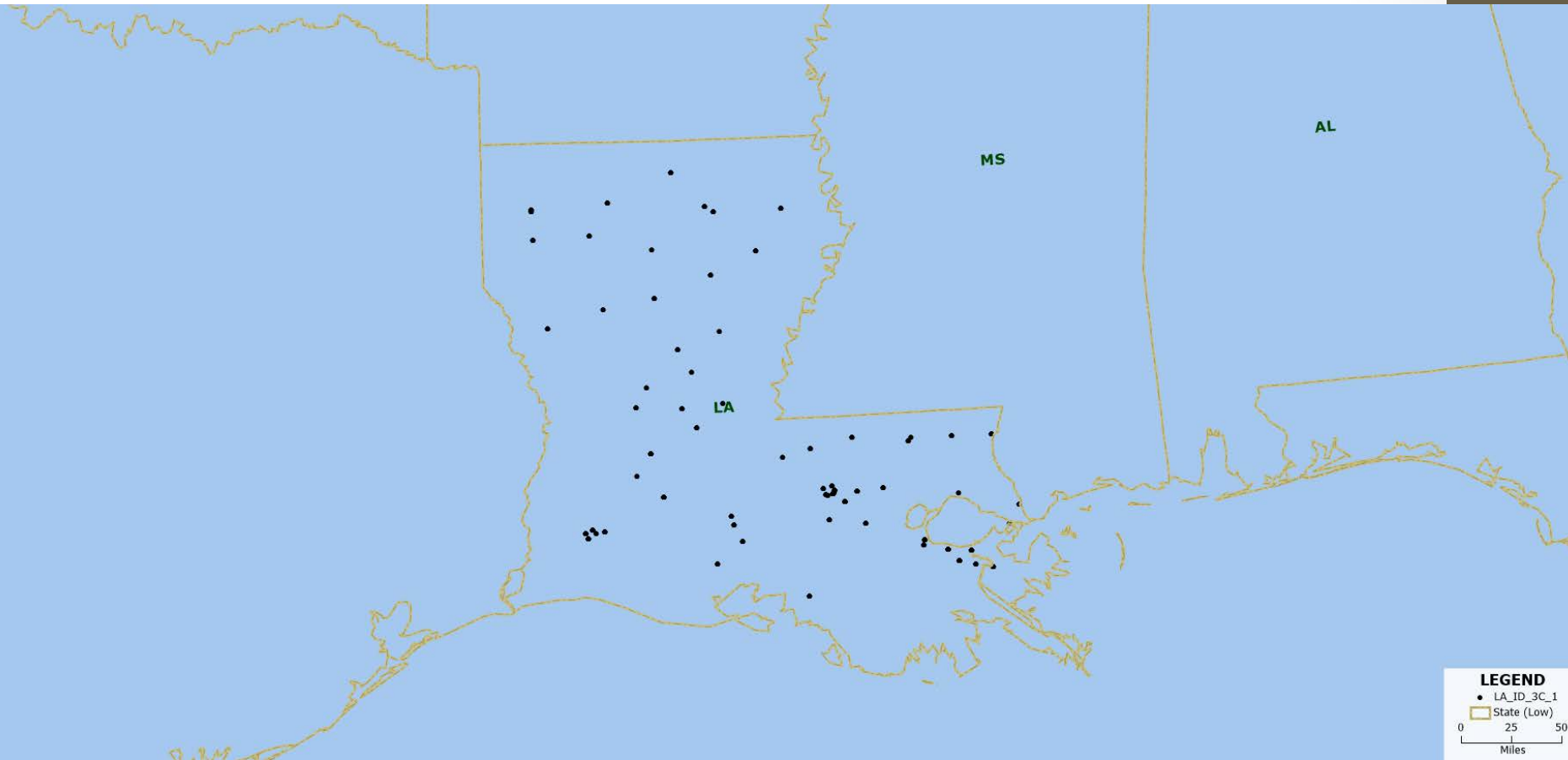
# A Technical Illustration on How to Bring HPMS Data to TMAS Data for Data Quality Review and Control



# 2017 LA HPMS Data



# 2017 LA TMAS Station



# Add HPSM shape files into ArcMap

The screenshot displays the ArcMap application window titled "Untitled - ArcMap". The menu bar includes "File", "Edit", "View", "Bookmarks", "Insert", "Selection", "Geoprocessing", "Customize", "Windows", and "Help". The toolbar contains various navigation and editing tools, with a scale of 1:3,379,018. The Table of Contents on the left shows a "Layers" list with "LA\_HPMS" selected. The main map area displays a dense network of red lines representing the road network. The status bar at the bottom right shows the coordinates "-90.053 30.562 Decimal Degrees". The Windows taskbar at the bottom includes icons for the Start menu, File Explorer, Edge, Outlook, Word, Excel, PowerPoint, and ArcMap, along with system tray icons for volume, network, and time (12:29 PM, 10/2/2018).

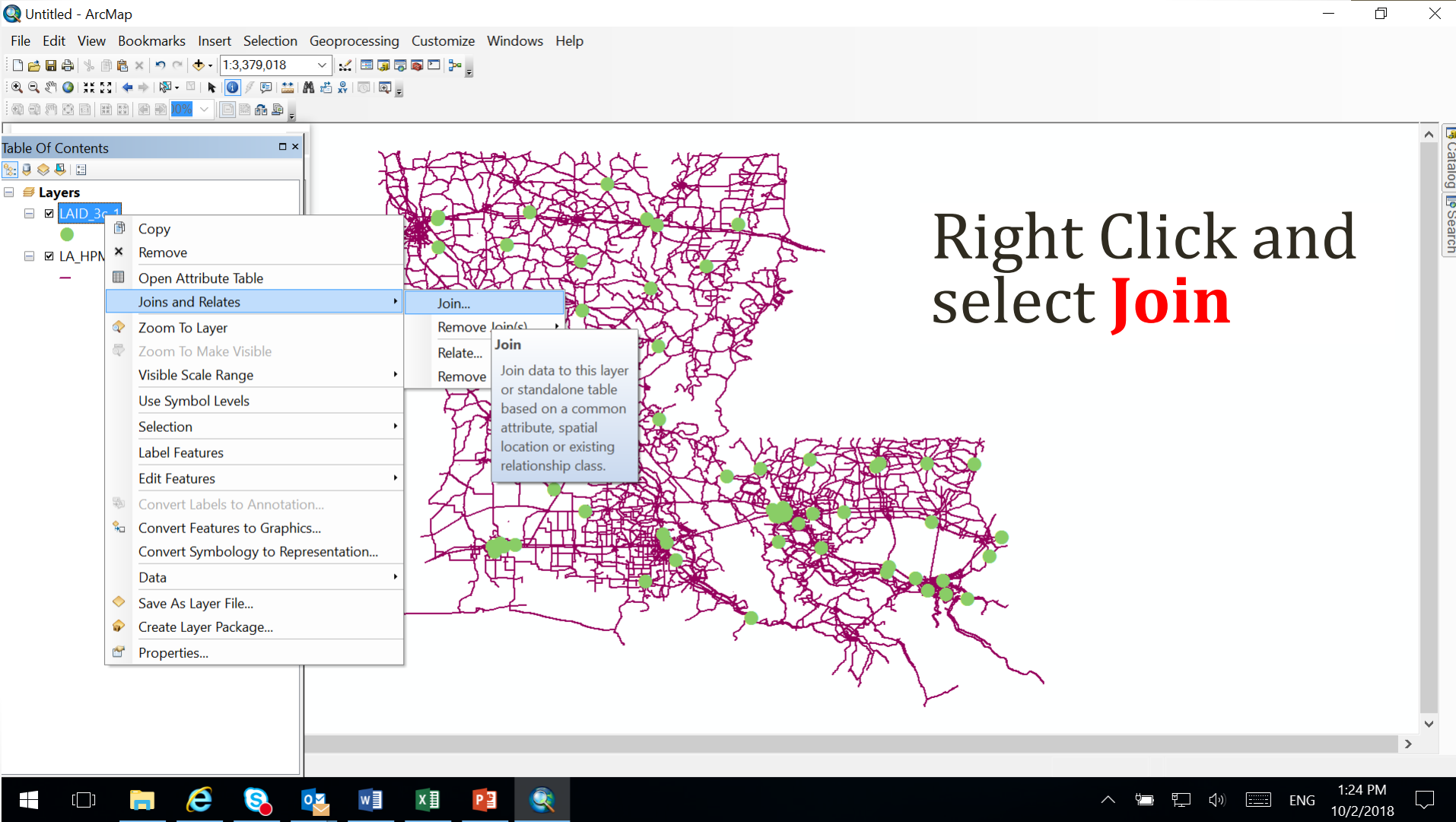


# Add TMAS station file into ArcMap

The screenshot displays the ArcMap interface. The main map area shows a collection of green point markers scattered across a white background. On the left side, the 'Table Of Contents' panel is open, showing a 'Layers' list with two items: 'LAID\_3c\_1' (checked) and 'LA\_HPMS' (unchecked). The top menu bar includes 'File', 'Edit', 'View', 'Bookmarks', 'Insert', 'Selection', 'Geoprocessing', 'Customize', 'Windows', and 'Help'. Below the menu is a toolbar with various icons for map navigation and editing. The status bar at the bottom right of the map area displays the coordinates '-93.113 32.197 Decimal Degrees'. The Windows taskbar is visible at the very bottom, showing icons for File Explorer, Edge, Outlook, Word, Excel, PowerPoint, and ArcMap, along with the system clock showing 12:30 PM on 10/2/2018.



# JOIN both data sets



The screenshot shows the ArcMap interface with a map of a road network. A context menu is open over a layer named 'LA\_HP...'. The 'Joins and Relates' option is selected, and a sub-menu is displayed with 'Join...' highlighted. A tooltip for 'Join' explains that it joins data to a layer or standalone table based on a common attribute, spatial location, or existing relationship class. The background map shows a dense network of purple lines representing roads and several green circular markers.

Right Click and select **Join**



# Select join data based on spatial layer

Join Data

Join lets you append additional data to this layer's attribute table so you can, for example, symbolize the layer's features using this data.

What do you want to join to this layer?

- Join data from another layer based on spatial location
- Join attributes from a table
- Join data from another layer based on spatial location

LA\_HPMS

2. You are joining: Lines to Points

Select a join feature class above. You will be given different options based on geometry types of the source feature class and the join feature class.

Each point will be given a summary of the numeric attributes of the lines that intersect it, and a count field showing how many lines intersect it.

How do you want the attributes to be summarized?

Average  Minimum  Standard Deviation  
 Sum  Maximum  Variance

Each point will be given all the attributes of the line that is closest to it, and a distance field showing how close that line is (in the units of the target layer).

3. The result of the join will be saved into a new layer.

Specify output shapefile or feature class for this new layer:

D:\GIS\_tag\_exercise\arc\Join\_Output\_2.shp

[About joining data](#) OK Cancel

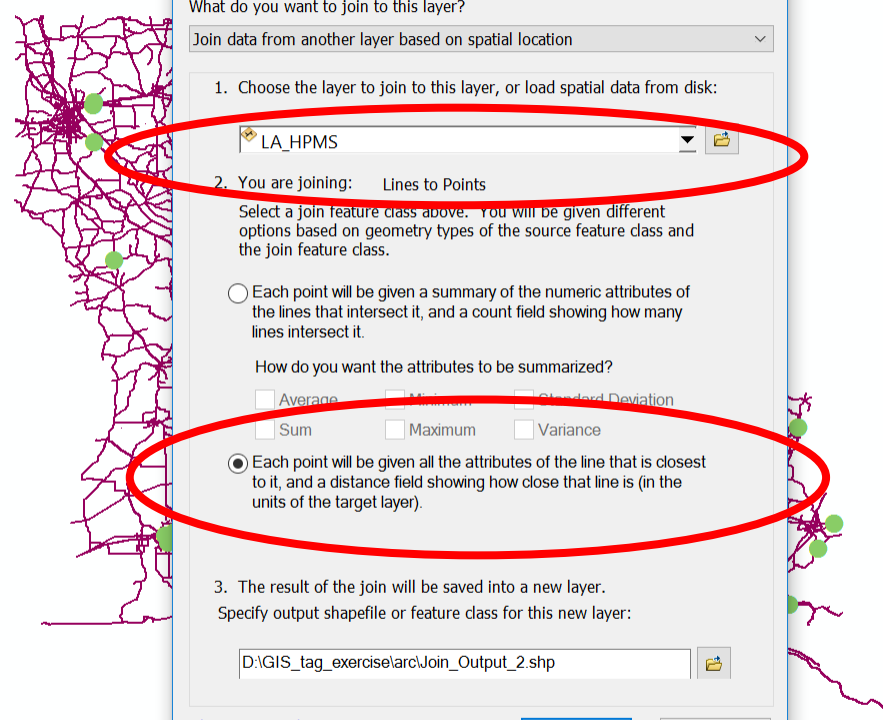
**Select join data based on spatial layer**



1:3,379,018

Table Of Contents

- Layers
  - LAID\_3c\_1
  - LA\_HPMS



### Join Data

Join lets you append additional data to this layer's attribute table so you can, for example, symbolize the layer's features using this data.

What do you want to join to this layer?

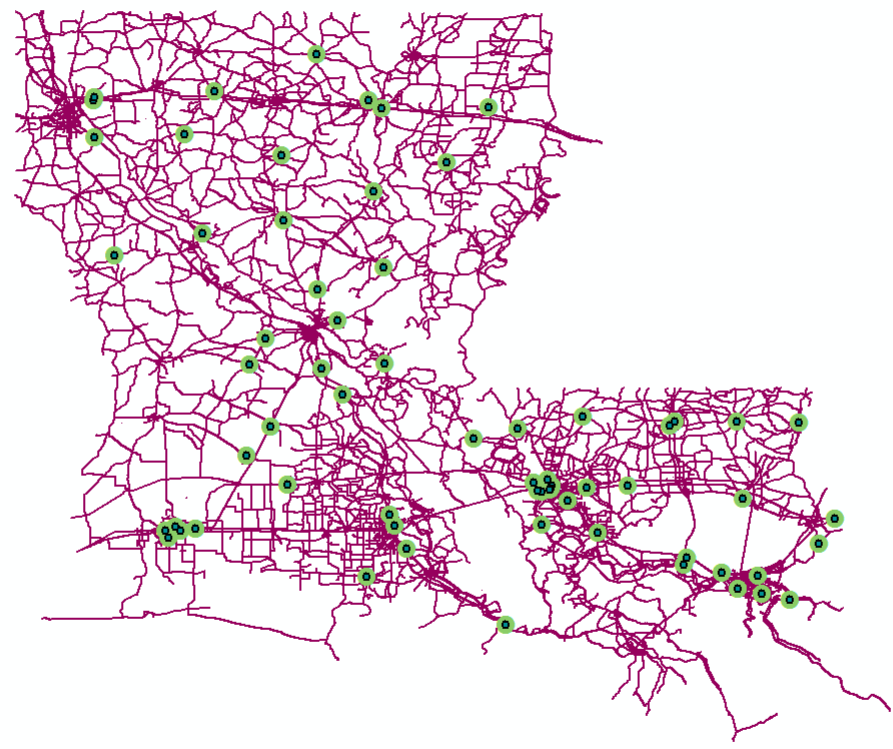
Join data from another layer based on spatial location

- Choose the layer to join to this layer, or load spatial data from disk:  
LA\_HPMS
- You are joining: Lines to Points  
Select a join feature class above. You will be given different options based on geometry types of the source feature class and the join feature class.
  - Each point will be given a summary of the numeric attributes of the lines that intersect it, and a count field showing how many lines intersect it.  
How do you want the attributes to be summarized?  
 Average  Minimum  Standard Deviation  
 Sum  Maximum  Variance
  - Each point will be given all the attributes of the line that is closest to it, and a distance field showing how close that line is (in the units of the target layer).
- The result of the join will be saved into a new layer.  
Specify output shapefile or feature class for this new layer:  
D:\GIS\_tag\_exercise\arc\Join\_Output\_2.shp

[About joining data](#)

Table Of Contents

- Layers
  - Join\_Output\_2
  - LAID\_3c\_1
  - LA\_HPMS

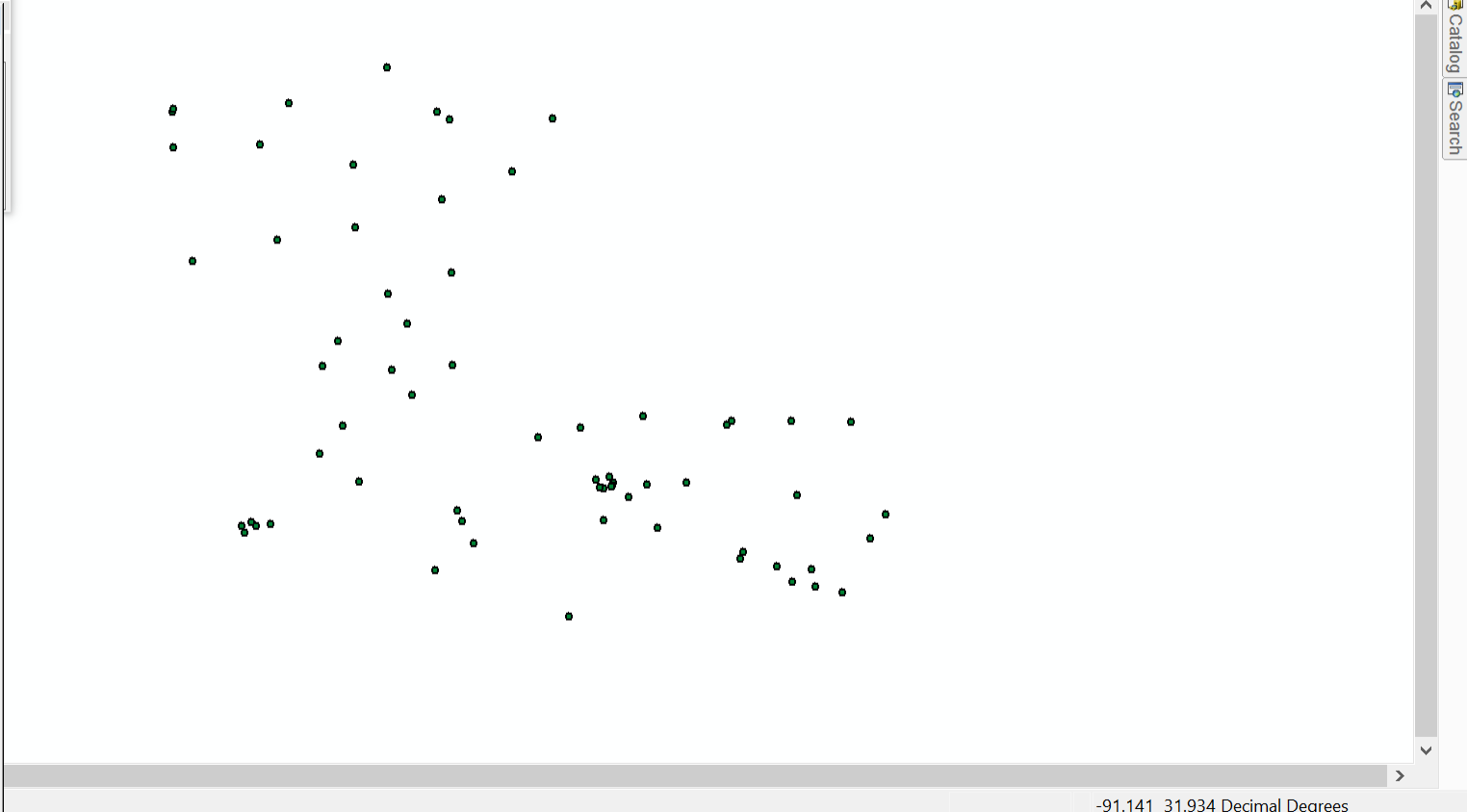


-89.243 28.921 Decimal Degrees

Table Of Contents

Layers

- Join\_Output\_3



-91.141 31.934 Decimal Degrees

# All HPMS data from the closest segments are transferred

Table

Join\_Output\_2

FID	Shape	LA_HPMS_FID	ID	NEW_FUNCAT	FID_2	LA_HPMS_ID	MEASURE	YEAR_RECOR	STATE_CODE	ROUTE_ID	BEGIN_POIN	END_POINT	ROUTE_NUMB	ROUTE_NAME	ROUTE_QUAL	ROUTE_SIGN	F_SYSTEM
0	Point	242	139	3	1167	1189	7.9	2016	22	022-05-1-010	7.9	8	84 84		1	3	3
1	Point	243	140	3	1167	1189	7.9	2016	22	022-05-1-010	7.9	8	84 84		1	3	3
2	Point	162	127	3	2839	2896	1.2	2016	22	007-04-1-010	1.2	1.3	61 61		1	3	3
3	Point	163	128	3	2839	2896	1.2	2016	22	007-04-1-010	1.2	1.3	61 61		1	3	3
4	Point	164	129	3	2839	2896	1.2	2016	22	007-04-1-010	1.2	1.3	61 61		1	3	3
5	Point	165	130	3	2839	2896	1.2	2016	22	007-04-1-010	1.2	1.3	61 61		1	3	3
6	Point	42	229	3	3054	3119	12.5	2016	22	014-04-1-010	12.5	12.6	165 165		1	3	3
7	Point	43	230	3	3054	3119	12.5	2016	22	014-04-1-010	12.5	12.6	165 165		1	3	3
8	Point	44	231	3	3054	3119	12.5	2016	22	014-04-1-010	12.5	12.6	165 165		1	3	3
9	Point	45	232	3	3054	3119	12.5	2016	22	014-04-1-010	12.5	12.6	165 165		1	3	3
10	Point															3	3
11	Point															3	3
12	Point															3	3
13	Point															3	3
14	Point		1													4	4
15	Point		1													4	4
16	Point															0	5
17	Point															0	5
18	Point	84	77	6	10472	10874	8.7	2016	22	090-04-1-010	8.7	11.615	0		0	0	6
19	Point	85	78	6	10472	10874	8.7	2016	22	090-04-1-010	8.7	11.615	0		0	0	6
20	Point	86	79	6	10472	10874	8.7	2016	22	090-04-1-010	8.7	11.615	0		0	0	6
21	Point	87	80	6	10472	10874	8.7	2016	22	090-04-1-010	8.7	11.615	0		0	0	6
22	Point	174	115	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
23	Point	175	116	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
24	Point	176	117	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
25	Point	177	118	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
26	Point	178	119	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
27	Point	179	120	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
28	Point	180	121	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
29	Point	181	122	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
30	Point	182	123	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
31	Point	183	124	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
32	Point	184	125	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
33	Point	185	126	1	12755	13284	1.2	2016	22	450-15-1-010	1.2	1.3	10 10		1	2	1
34	Point	166	213	1	13132	13682	12.5	2016	22	450-13-1-010	12.504	12.6	10 10		1	2	1
35	Point	167	214	1	13132	13682	12.5	2016	22	450-13-1-010	12.504	12.6	10 10		1	2	1
36	Point	168	215	1	13132	13682	12.5	2016	22	450-13-1-010	12.504	12.6	10 10		1	2	1
37	Point	169	216	1	13132	13682	12.5	2016	22	450-13-1-010	12.504	12.6	10 10		1	2	1
38	Point	170	217	1	13132	13682	12.5	2016	22	450-13-1-010	12.504	12.6	10 10		1	2	1
39	Point	171	218	1	13132	13682	12.5	2016	22	450-13-1-010	12.504	12.6	10 10		1	2	1

**All HPMS data items (segment closest to a station) are transferred to the TMAS station data file.**

(0 out of 314 Selected)

Join\_Output\_2



# Data review focus for the upcoming year

- GIS - Site location review & mapping
- Comprehensive - Function classes review comparing to HPMS
- Historical trends of MADT and AADT for the last 5 years
- Comprehensive site down time analysis
- Detect new issues





# Software Improvements

U.S. Department of Transportation  
Federal Highway Administration

HOME UPLOAD REPORT ADMINISTRATION TOOLS APPLICATION LOG

## Upload Volume

\* State :

\* Month :

\* TMG Format :  2001 or  2013

**CSV Format :  2001 or  2013**

E-mail me the status of validation



# Additional Improvements

- Simplify primary keys
- Defer # of vehicle class information to **Class** data
- Add email links to User ID on review page
- Retrieve a copy of data set with critical error for 6 months



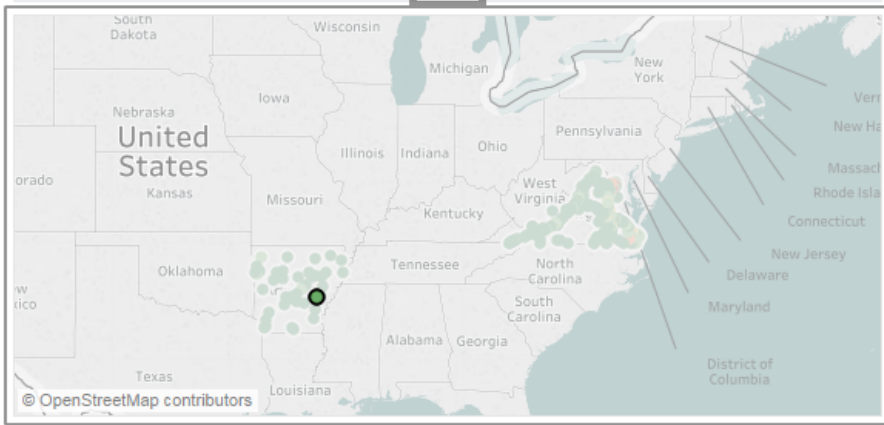
# Volume data dashboard



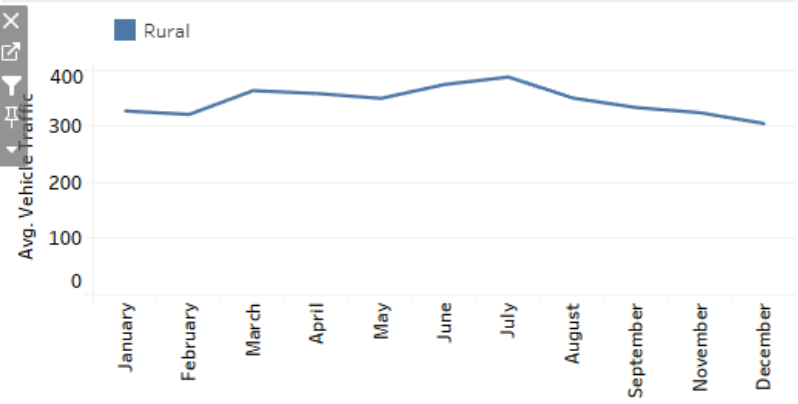
## Traffic Volume Data - FHWA's TMAS Data Program

(Based on Unweighted Raw Continuous Traffic Count Information Collected by State Highway Agencies)

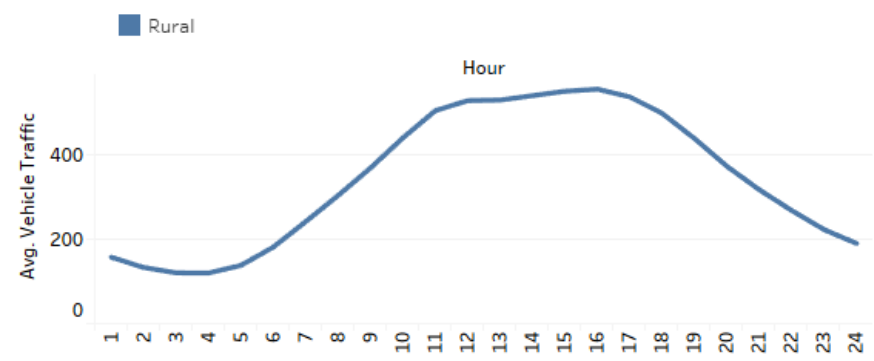
### Location of Traffic Monitoring Stations [\(Click on the station for more details\)](#)



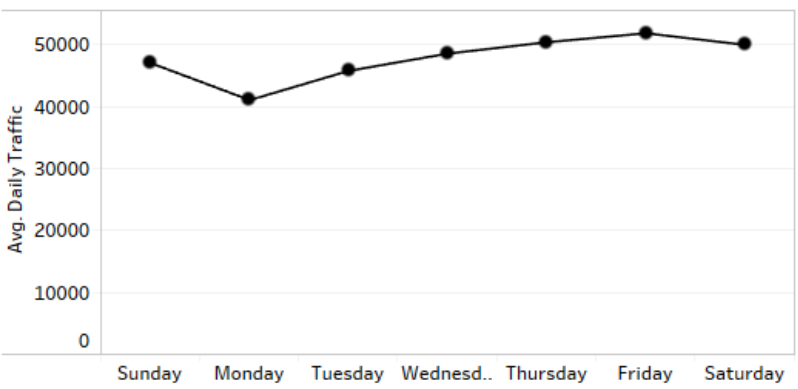
### Month of Year Traffic Pattern



### Hour of Day Traffic Pattern



### Day of Week Traffic Pattern



# QUESTIONS?

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202-366-1941  
patrick.zhang@dot.gov

