



January Meeting

1/11/2023

AGENDA

1. Announcements
2. ESRI Updates
3. Roadway Datamart
 - Presentation by Kevin Hunt & Pat Kemble from New York DOT
1. Branch Versioning Continued From Last Month
2. Open Discussion
 - Work Groups updates, RHUG member roles

ANNOUNCEMENTS

- GeoNet - Become a part of the ESRI Community
 - <https://community.esri.com/t5/roads-and-highways-user-group-rhug/gh-p/roads-and-highways-user-group-rhug>
- Upcoming RHUG Presentations
 - Data Governance & LRS Enterprise Data Management
 - Ben Timerson & Team from Minnesota DOT
 - Looking for presentation volunteers
- GIS-T 2023 - April 11-14 - Oklahoma City, OK
 - Registration Now Open -
<https://web.cvent.com/event/b9be3aff-1d21-476d-8879-6fcaba0aa2ec/register>
 - Roads & Highways in Pro Lab
 - Submit your map for the map gallery contest
 - Bringing back State Map Exhibition

Esri Updates

Nathan Easley

Esri New Functionality In Pro Demo

Rahul Rakshit

Roadway Datamart

New York DOT

Kevin Hunt & Pat Kemble

Open Discussion

- AgileAssets Work Group
- FME Transportation Work Group
- ESRI Field Maps Work Group
- RHUG Member Roles

Open Discussion

Role of RHUG Member	Percentages
User - GIS analyst (Desktop)	40%
Event data Editor (RCE/Event Editor)	35%
Event editor (QA/QC)	33%
LRS geometry QA/QC	32%
LRS geometry editor	30%
User - GIS analyst (Portal, Browser, AGOL)	26%
Map and data requests (cartography, tabular)	23%
System Admin / Manager (IT)	15%
Supervisor of GIS personnel	15%
User - Web App Developer	12%
3rd party application support	11%
HPMS coordinator	10%
User - business unit (BI, Reporting)	8%
Event data Editor (field data collector)	5%

Upcoming Meetings / Contacts

Wednesday February 8th, 12:30-2pm

Contact Info:

Erin Lesh ealesh@ncdot.gov

Patrick Whiteford pwhiteford@azdot.gov

Ryan Koschatzky rjkoschatzky@ncdot.gov

Shaun Perfect sperfect@azdot.gov



Product Team Update RHUG meeting 1/11/23

Nathan Easley

Capabilities currently under development

- **Stabilization of Pro 3.1/Enterprise 11.1**

Support Incidents/Defects

- **BUG-000154465** – Unable to calibrate a loop route when calibration points are imported to LRS using Append (fixed in 3.1)

Other Announcements

- **10.7.1/10.8.1 patch**
- **Proposed new event behavior for cartographic realignment**
- **Looking for examples from Roads and Highways of pdfs and engineering drawings that are used for event edits (feel free to share links in the chat or email neasley@esri.com)**

Demos



esri

THE
SCIENCE
OF
WHERE

Geoprocessing Tools - Overlay Events

Inputs

Route



Speed Limit

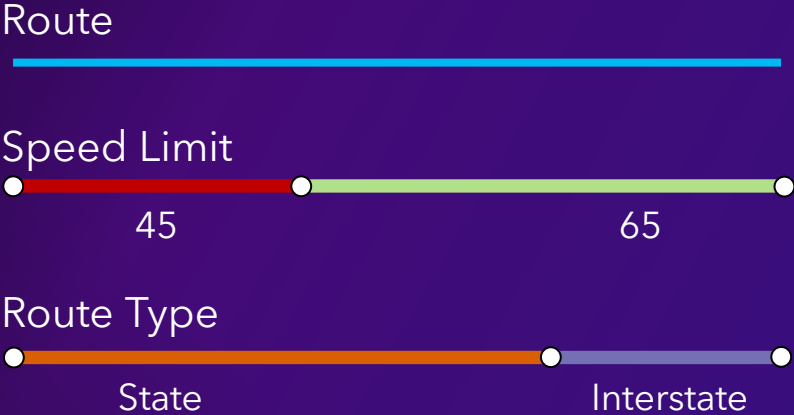


Route Type



Geoprocessing Tools - Overlay Events

Inputs

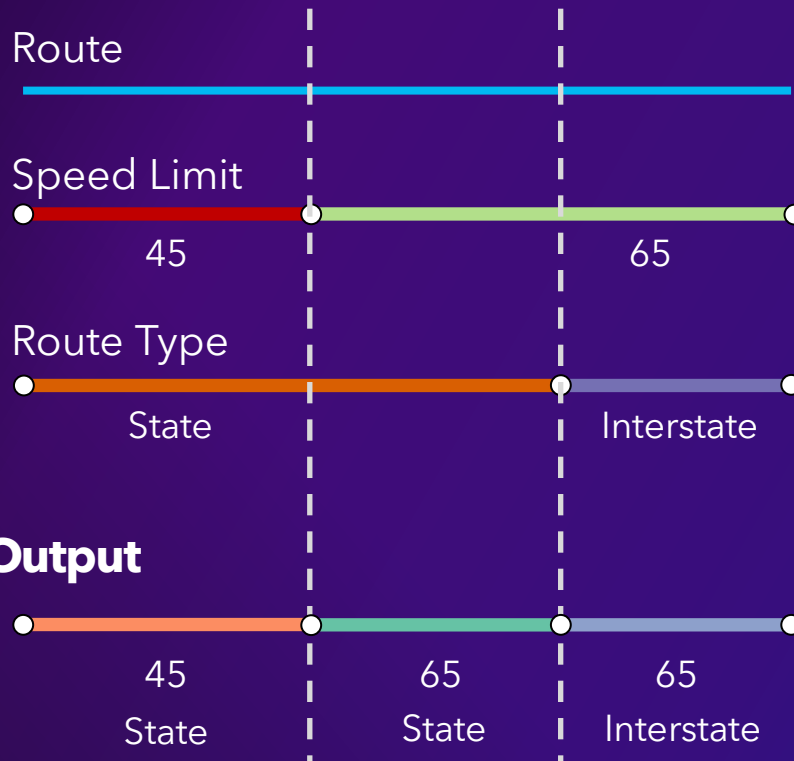


The screenshot shows the 'Geoprocessing' window with the 'Overlay Events' tool selected. The interface includes the following elements:

- Parameters:** A tabbed interface with 'Parameters' selected.
- Input Route Features:** A dropdown menu set to 'Milepoint'.
- Event Layers:** A list of layers with dropdown menus: 'Speed Limit', 'Route Type', and an empty dropdown.
- Output Dataset:** A text box containing 'SpeedLimitAndSurfaceType'.
- Include Geometry:** A checked checkbox.
- Network Fields:** A list of fields with checkboxes: 'OBJECTID', 'FromDate', 'ToDate', 'RouteId', 'RouteName', and 'GlobalID'. 'RouteId' and 'RouteName' are checked.
- Run:** A button with a play icon and the text 'Run'.

Geoprocessing Tools - Overlay Events

Inputs



Geoprocessing

Overlay Events

Parameters Environments

Input Route Features
ContinuousNetwork

Event Layers
RouteType
SpeedLimit

Output Dataset
SpeedLimitAndRouteType

Include Geometry

Network Fields Select All

OBJECTID
 FromDate
 ToDate
 RouteId
 RouteName
 GlobalID

Run

Event Editor- Return Attribute Set

The screenshot shows the Event Editor interface with a map of roads and a data table. The 'Return attribute set' button in the toolbar is highlighted with a green arrow. The data table below the map contains the following information:

Route ID	From Measure	To Measure	Median.Median_Type	Lane.Lane_Divided	Lane.Lane Width	Facility_Type.Facility Type	Functional_Class.Functional Class
14900000700000091	0	10.3813909	<null>	<null>	<null>	<null>	Interstate
14900000700000091	10.3813909	10.4303737	Positive Barrier – rigid	<null>	<null>	<null>	Interstate
14900000700000091	10.4303737	10.4790786	Positive Barrier – rigid	<null>	<null>	<null>	Interstate
14900000700000091	10.4790786	10.569031	Unprotected	<null>	<null>	<null>	Interstate
14900000700000091	10.569031	10.6191298	Positive Barrier – semi-rigid	<null>	<null>	<null>	Interstate
14900000700000091	10.6191298	11.302	Positive Barrier – rigid	<null>	<null>	<null>	Interstate
14900000700000091	11.302	11.6572129	None	Yes	12	One-Way Roadway	Interstate
14900000700000091	11.6572129	23.182	<null>	<null>	<null>	<null>	Interstate

The Attribute Sets dialog box shows the configuration for the 'RH_Demo' attribute set. It lists available event layers and their associated attributes. The 'Include all required fields for a layer' checkbox is checked. The 'Required Field' icon is also present.

Available Event Layers:

- Access_Control
- District
- Facility_Type
- Federal_Aid
- Functional_Class
- Lane
- line_cover
- line_move
- line_retire
- line_snap
- line_stayput
- Median

Attribute Set: RH_Demo

Attributes for T1:

- Median
 - Median_Type
- Lane
 - Lane_Divided
 - Lane Width
- Facility_Type
 - Facility Type
- Functional_Class
 - Functional Class

Buttons: Export, Import, Save, Close



**Office of Information
Technology Services**

The NYSDOT Roadway Data Mart

**Geospatial Publishing from the Enterprise LRS, Highway
Inventory and Pavement Management System**

January 11, 2023

January 12, 2023

Agenda

- Business Needs for the Roadway Data Mart
- Source Systems of Record
- Design and Implementation Process
- Roadway Data Mart Consumers
- Lessons Learned

Business Need

New and Expanding Geospatial Systems of Record at NYSDOT

- Enterprise Linear Referencing System – Roads and Highways
- Enterprise Asset Management System – Agile Assets
- Roadway Inventory System 2.0 – Inhouse roadway inventory moves into Roads and Hwys
- Crash Location, Engineering, Analysis, Reporting (CLEAR) – Esri GIS based

CLEAR Crash Data Viewer

New Query

Step 1 - Initialize | Step 2 - Location | Step 3 - Criteria

Please define a date range for your query (required):

From: 01/01/2019 To: 08/31/2019

*Complete crash data is available for the period 01/01/2005 to 08/31/2019

Please define the crash focus:

ALL | INTERSECTION | MAINLINE

Please select the query level:

CBASH | VEHICLE | PERSON

Please select the result fields to be displayed:

To customize the fields to be returned, click the button below.

CUSTOMIZE RESULT FIELDS

Result fields:

- Case Number
- Max Injury in Crash
- Crash Severity

RESET ALL | OPEN... | NEXT >

AgileAssets Smart Entry Engine (SE) Inventory Maintenance

Head search values, or use map selection tools to get roadway data.

Route ID	CRS ID	DOT ID	County	Order	Direction	County	Route Spine	Route Number	Route Suffix	Route Quarter	Roadway Type	Priority	Roadway Feature
1048501	10485	05	1	1-Primary Direct...	111 - ULSTER	1	87	Name	No qualifier	Route	No		
1048502	10485	05	2	2-Reverse Direct...	111 - ULSTER	1	87	Name	No qualifier	Route	No		
1048503	10485	06	1	1-Primary Direct...	38 - GREENE	1	87	Name	No qualifier	Route	No		
1048504	10485	06	2	2-Reverse Direct...	38 - GREENE	1	87	Name	No qualifier	Route	No		
1048505	10485	07	1	1-Primary Direct...	1 - ALBANY	1	87	Name	No qualifier	Route	No		
1048506	10485	07	2	2-Reverse Direct...	1 - ALBANY	1	87	Name	No qualifier	Route	No		
1048507	10485	08	1	1-Primary Direct...	91 - SARATOGA	1	87	Name	No qualifier	Route	No		
1048508	10485	08	2	2-Reverse Direct...	91 - SARATOGA	1	87	Name	No qualifier	Route	No		
1048509	10485	09	1	1-Primary Direct...	113 - WARREN	1	87	Name	No qualifier	Route	No		
1048510	10485	09	2	2-Reverse Direct...	113 - WARREN	1	87	Name	No qualifier	Route	No		
1048511	10485	10	1	1-Primary Direct...	31 - ESSEX	1	87	Name	No qualifier	Route	No		
1048512	10485	10	2	2-Reverse Direct...	31 - ESSEX	1	87	Name	No qualifier	Route	No		
1048511	10485	11	1	1-Primary Direct...	18 - CLINTON	1	87	Name	No qualifier	Route	No		
1048512	10485	11	2	2-Reverse Direct...	18 - CLINTON	1	87	Name	No qualifier	Route	No		

The Original Plan

Keep using the existing Roadway Inventory System (RIS) Oracle Data Warehouse.

After all, our immediate reporting needs were not changing significantly.

But the existing RIS data warehouse...

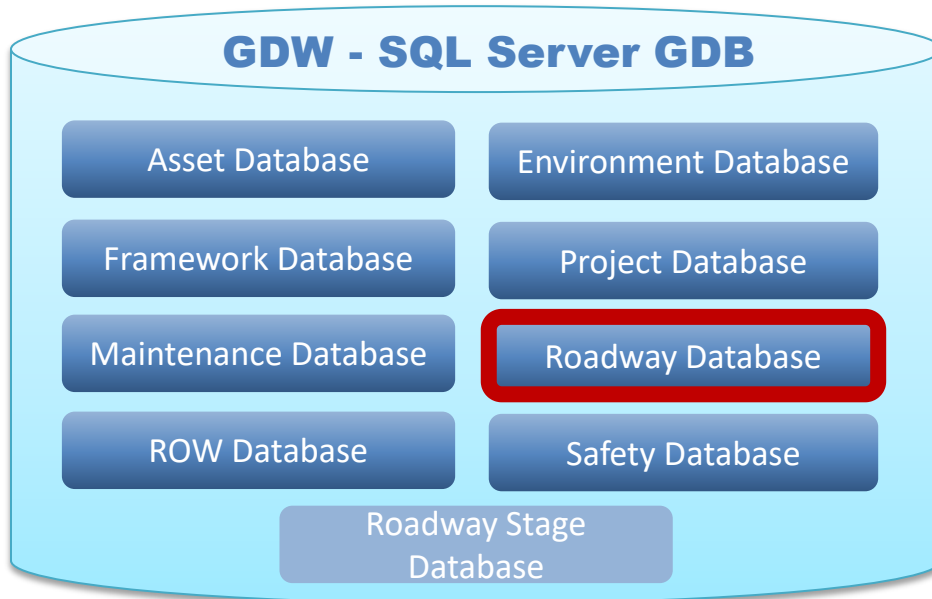
- uses old Oracle database and ETL technology
- did not have a clear workflow to consume geospatial transactional data directly
- was not capable of publishing geodatabase feature classes

It quickly became clear that the traditional Oracle data warehouse was not going to meet our publishing and reporting needs with out significant additional investment.

The Solution: The Roadway Data Mart (RDM)

A component of the NYSDOT Geospatial Data Warehouse (GDW)

A modern geospatial data mart that will simultaneously support...



- GIS services and applications
- Application interfaces
- Business reporting
- Ad hoc reporting

Source Systems

Roadway Inventory System 2.0 R&H Inventory Editing – Smart Entry Engine (SEE)

AgileAssets Smart Entry Engine (SEE) Inventory Maintenance

2/8/2021 Version: ELRS.Pat Reconcile and Post Patrick

Home / Inventory Maintenance

Input search values, or use map selection tools to get roadway data. [Show Segments](#)

DOT ID / Route ID (GIS ID)	Route ID (GIS ID)...	DOT ID	County Order	Direction	County	Route Signing	Route Number	Route Suffix	Route Qualifier	Roadway Type	Parkway	Roadway Feature
100495	100495051	100495	05	1 - Primary Direct...	111 - ULSTER	I	87	None	No qualifier	Route	No	
	100495052	100495	05	2 - Reverse Direct...	111 - ULSTER	I	87	None	No qualifier	Route	No	
	100495061	100495	06	1 - Primary Direct...	39 - GREENE	I	87	None	No qualifier	Route	No	
	100495062	100495	06	2 - Reverse Direct...	39 - GREENE	I	87	None	No qualifier	Route	No	
	100495071	100495	07	1 - Primary Direct...	1 - ALBANY	I	87	None	No qualifier	Route	No	
	100495072	100495	07	2 - Reverse Direct...	1 - ALBANY	I	87	None	No qualifier	Route	No	
	100495081	100495	08	1 - Primary Direct...	91 - SARATOGA	I	87	None	No qualifier	Route	No	
	100495082	100495	08	2 - Reverse Direct...	91 - SARATOGA	I	87	None	No qualifier	Route	No	
	100495091	100495	09	1 - Primary Direct...	113 - WARREN	I	87	None	No qualifier	Route	No	
	100495092	100495	09	2 - Reverse Direct...	113 - WARREN	I	87	None	No qualifier	Route	No	
	100495101	100495	10	1 - Primary Direct...	31 - ESSEX	I	87	None	No qualifier	Route	No	
	100495102	100495	10	2 - Reverse Direct...	31 - ESSEX	I	87	None	No qualifier	Route	No	
	100495111	100495	11	1 - Primary Direct...	19 - CLINTON	I	87	None	No qualifier	Route	No	
	100495112	100495	11	2 - Reverse Direct...	19 - CLINTON	I	87	None	No qualifier	Route	No	

Map showing the geographic location of the roadways in the Albany, NY area. A yellow line highlights a specific roadway segment on the map.

Region:

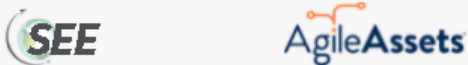
County:

Municipality:

Geo Code:

Road Name:

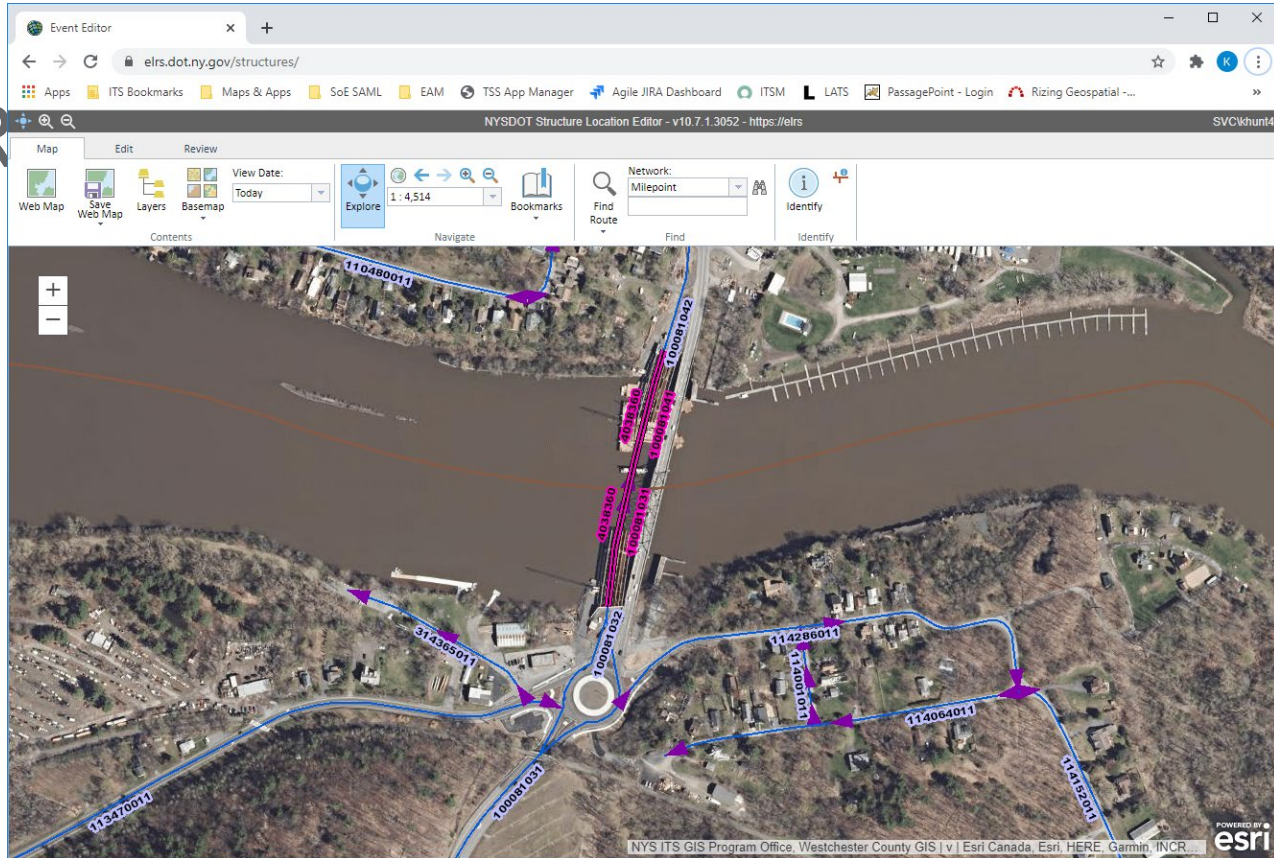
Start Mile Point: End Mile Point:



The Smart Entry Engine (SEE)™ provides an extensive and customized editing experience for editing a Roads & Highways based Linear Referencing System.

Road and Highways Event Editing – Structures

R



AgileAssets Pavement Management System (PMS)

Pavement Analyst - Asset Inventory - Asset Performance - Planning - GIS & Reports - Utilities - 30 FWANG

Pavement Analyst > Asset Performance > Surface Score and Dominant Distress > Surface Score and Dominant Distress Data

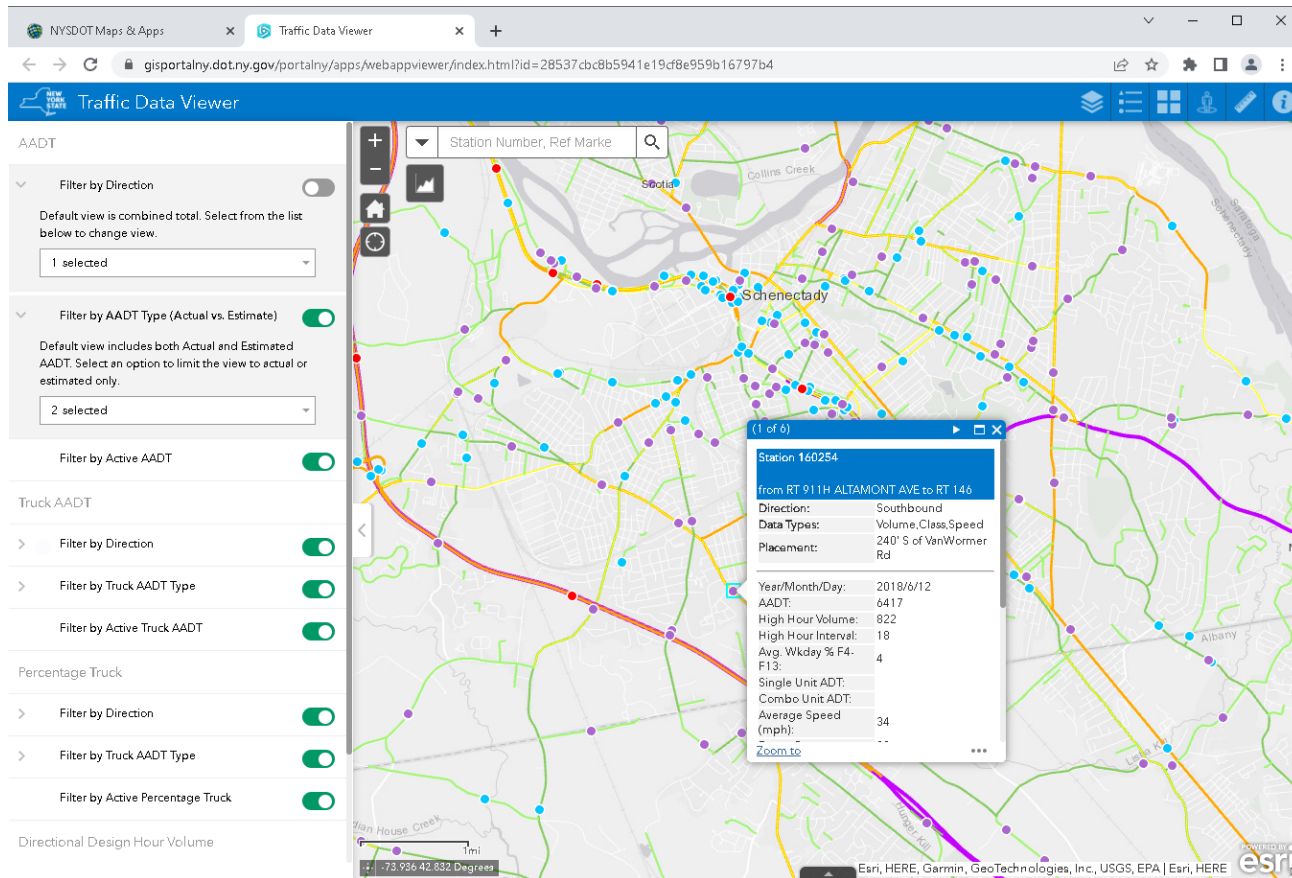
Save Reload

Filter applied

Year	Route (GIS_ID)	Travel Direction	Begin MP	End MP	NYS Route	County Order	Region	County	Residency	Collection Date	Dominant Distress	DDCAL	HMZ	HS	Surface Score	Surface Score Edit Status	Comment	Attachments	User Update	Date Update
2020	100014011	All	0	0.1	NY100A	1	08	WESTCHEST	894 - WESTCHESTER SOUTH F		AI - Isolated Alligatoring				7				IMPORT-100615	2/26/21
2020	100023011	All	0	0.09	NY104	1	05	NIAGARA	554 - NIAGARA RESIDENCY		AI - Isolated Alligatoring				6				IMPORT-100615	2/26/21
2020	100023021	All	0	3.74	NY104	2	04	ORLEANS	414 - GENESEE-ORLEANS RES		AI - Isolated Alligatoring				7				IMPORT-100615	2/26/21
2020	100017011	All	0	0.43	NY100	1	08	WESTCHEST	894 - WESTCHESTER SOUTH F		Ag - General Alligatoring				5				IMPORT-100615	2/26/21
2020	100020011	All	0	0.25	NY103	1	01	SCHENECTA	164 - SCHENECTADY RESIDEN		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100015011	All	0	0.7	NY100B	1	08	WESTCHEST	894 - WESTCHESTER SOUTH F		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100016011	All	0	0.18	NY100C	1	08	WESTCHEST	894 - WESTCHESTER SOUTH F		Ag - General Alligatoring				5				IMPORT-100615	2/26/21
2020	100021011	All	0	0.67	NY104A	1	04	WAYNE	484 - WAYNE-ONTARIO RESIDE		Ag - General Alligatoring				5				IMPORT-100615	2/26/21
2020	100021021	All	0	0.43	NY104A	2	03	CAYUGA	314 - CAYUGA-SENECA RESIDE		Ag - General Alligatoring				7				IMPORT-100615	2/26/21
2020	100021031	All	0	2.17	NY104A	3	03	OSWEGO	354 - OSWEGO RESIDENCY		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100022011	All	0	0.41	NY104B	1	03	OSWEGO	354 - OSWEGO RESIDENCY		AI - Isolated Alligatoring				7				IMPORT-100615	2/26/21
2020	100031011	All	0	0.16	NY11C	1	07	ST LAWRENC	754 - SAINT LAWRENCE RESID		AI - Isolated Alligatoring				7				IMPORT-100615	2/26/21
2020	100032011	All	0	1.14	US11	1	09	BROOME	914 - BROOME RESIDENCY		Ag - General Alligatoring				5				IMPORT-100615	2/26/21
2020	100032021	All	0	1.87	US11	2	03	CORTLAND	324 - CORTLAND-TOMPKINS RI		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100023051	All	0	1.07	NY104	5	03	CAYUGA	314 - CAYUGA-SENECA RESIDE		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100032031	All	0	0.9	US11	3	03	ONONDAGA	334 - ONONDAGA EAST RESID		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100032041	All	0	0.14	US11	4	03	OSWEGO	354 - OSWEGO RESIDENCY		AI - Isolated Alligatoring				7				IMPORT-100615	2/26/21
2020	100025011	All	0	0.19	NY106	1	10	NASSAU	024 - NASSAU CENTRAL RESID		Ag - General Alligatoring				5				IMPORT-100615	2/26/21
2020	100026011	All	0	0.65	NY107	1	10	NASSAU	024 - NASSAU CENTRAL RESID		Ag - General Alligatoring				5				IMPORT-100615	2/26/21
2020	100028011	All	0	0.7	NY109	1	10	NASSAU	024 - NASSAU CENTRAL RESID		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100028021	All	0	0.48	NY109	2	10	SUFFOLK	054 - SUFFOLK WEST RESIDE		AI - Isolated Alligatoring				6				IMPORT-100615	2/26/21
2020	100030011	All	0	0.02	NY11B	1	07	ST LAWRENC	754 - SAINT LAWRENCE RESID		AI - Isolated Alligatoring				7				IMPORT-100615	2/26/21
2020	100032051	All	0	0.33	US11	5	07	JEFFERSON	734 - JEFFERSON RESIDENCY		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100023061	All	0	0.58	NY104	6	03	OSWEGO	354 - OSWEGO RESIDENCY		Ag - General Alligatoring				6				IMPORT-100615	2/26/21
2020	100030021	All	0	0.12	NY11B	2	07	FRANKLIN	724 - FRANKLIN RESIDENCY		AI - Isolated Alligatoring				7				IMPORT-100615	2/26/21
2020	100032061	All	0	1.49	US11	6	07	ST LAWRENC	754 - SAINT LAWRENCE RESID		Ag - General Alligatoring				6				IMPORT-100615	2/26/21

Current and Historic Profiler, Surface Score, Construction History ...

NYSDOT Traffic Monitoring Data



A new traffic data system will be in place at NYSDOT in 2023

For now, using an in-house modification/evolution of a past vendor supplied database

Design and Implementation Process

Design Process worked back from NYSDOT Geospatial, Data and Report Requirements

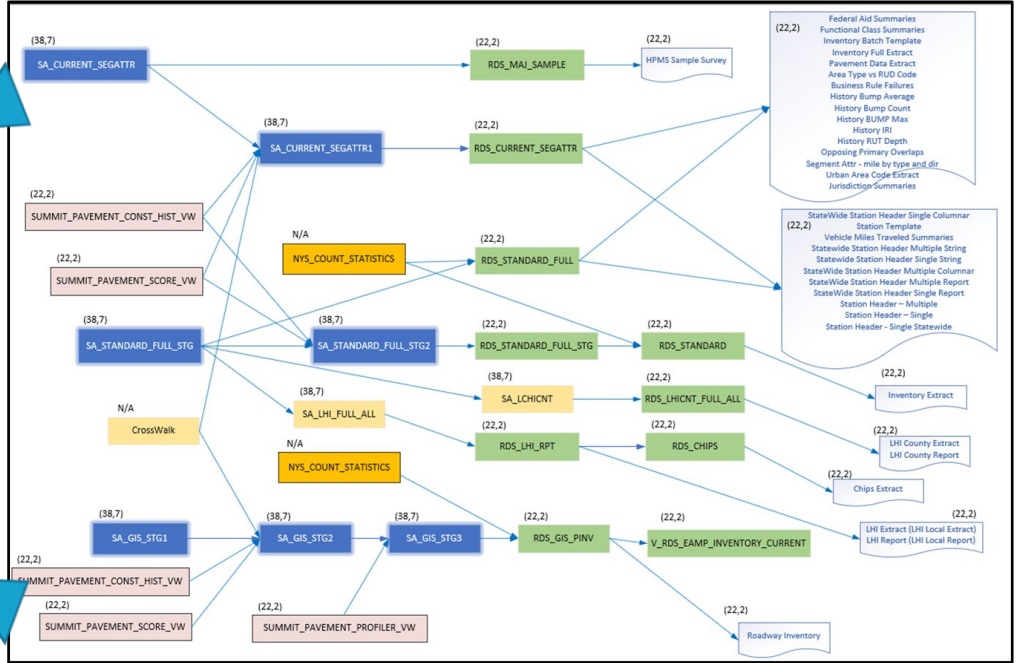
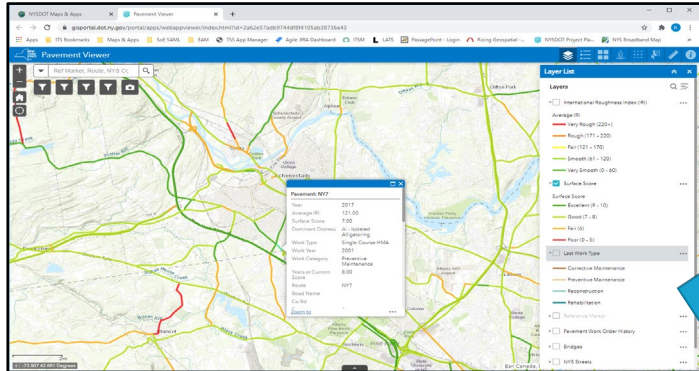
13-LH Report_2018-12-01-06:17-43.pdf - Adobe Acrobat Reader DC

Home Tools 13-LH Report_201... Page 1 of 6190 12/1/18

New York State Department of Transportation
Local Roads Listing

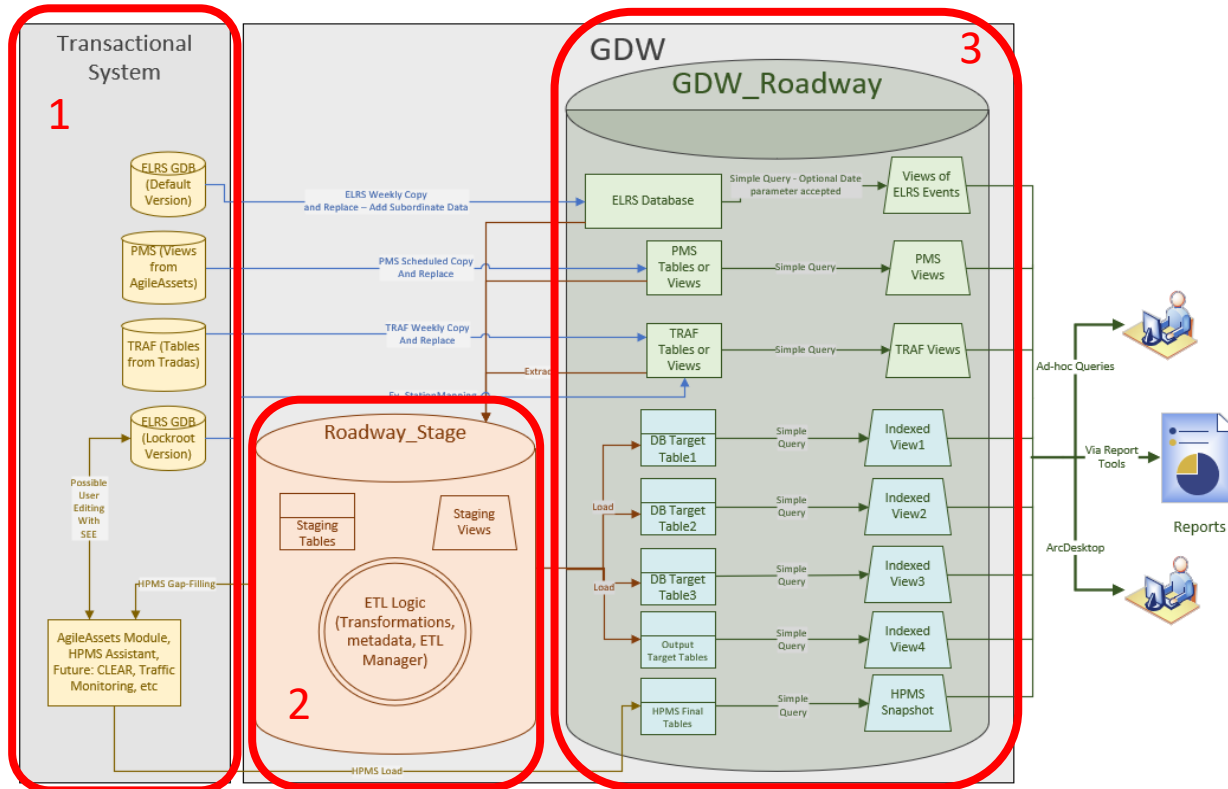
Municipality: Town of Berne Albany County
Geocode: 0088
NYSDOT Region: 1

Jurisdiction	Town	State	Route	Route Name	Start of Section	End of Section	Dist	No of	Ch	W	P	W	Med	Parc	Class	HS
State	County	Dist	State	Route	Start of Section	End of Section	Dist	No of	Ch	W	P	W	Med	Parc	Class	HS
100071	BEAVER RD	BRADY HOLLOW RD	CR13		0.00	1.96	1.96	1	U	10	3					
100072	BETTS LA	SR 157	END		0.00	0.06	0.06	2	A	20	2					
100073	BELLE FARMER LA	SR443	END		0.00	0.13	0.13	1	U	12	3					
100074	BOERCHER LA	SR443	END		0.00	0.34	0.34	2	U	14	2					
100075	BOLSTER LA	CR4	END		0.00	0.00	0.00	1	U	13	3					
100076	BRADY HOLLOW RD	PEABLY RD	SR443		0.00	5.80	5.80	2	U	16	5					
100077	BRIDGE RD	ALB CL	BRADY HOLLOW RD		0.00	0.93	0.93	2	A	18	4					
100078	BROOKHAVEN DR	CR14	SR443		0.00	1.26	1.26	2	A	18	4					
290058	BROOKHAVEN EXT	SR443		0.00	0.15	0.15	2	A	14	2						
100079	BULDER DR	CR 303	END		0.00	0.75	0.75	2	A	18	5					
100081	CAMP LA	DEAD END	CR14		0.00	0.34	0.34	2	U	14	3					
100080	CANADAY RD	SCHWABENHUB C	CR14 BRADY HOLLOW RD		0.00	0.41	0.41	2	U	16	4					
100082	CASS HILL RD	CR142	BEIRNE TL		0.00	1.15	1.15	2	A	18	4					
100083	CHASIE RD	CHASIE RD	FRASER RD		0.00	2.14	2.14	1	U	16	3					
100084	CHRYSLER RD	END	KAEHLER		0.00	0.10	0.10	1	O	10	3					
100085	CHARNOY RD	CR 1	END		0.00	0.07	0.07	2	A	20	4					
100086	CIRCLE DR	CR203	END		0.00	0.14	0.14	2	A	15	3					
100087	COOGAN RD	CR1	END		0.00	0.30	0.30	1	U	10	2					
100088	COON HILL RD	CR10	BRADY HOLLOW RD		0.00	1.96	1.96	1	U	12	3					
100089	CRAKA LA	SR157A	END		0.00	0.51	0.51	1	A	12	2					
100090	CRICK HILL RD	GLETT HILL RD	BEIRNE TL		0.00	0.23	0.23	1	U	12	3					
100091	DUTCH SETTLEMENT PT 1	KNOX TNLN	KNOX TNLN		0.00	0.10	0.10	2	A	14	3					
202159	DUTCH SETTLEMENT PT 2	ROSE TNLN	CR19		0.00	0.05	0.05	2	A	14	3					
100092	DYER RD	SR 463	END		0.00	3.72	3.72	2	U	18	3					



Roadway Data Mart Design

NYS DOT RDM Dataflow and Processes

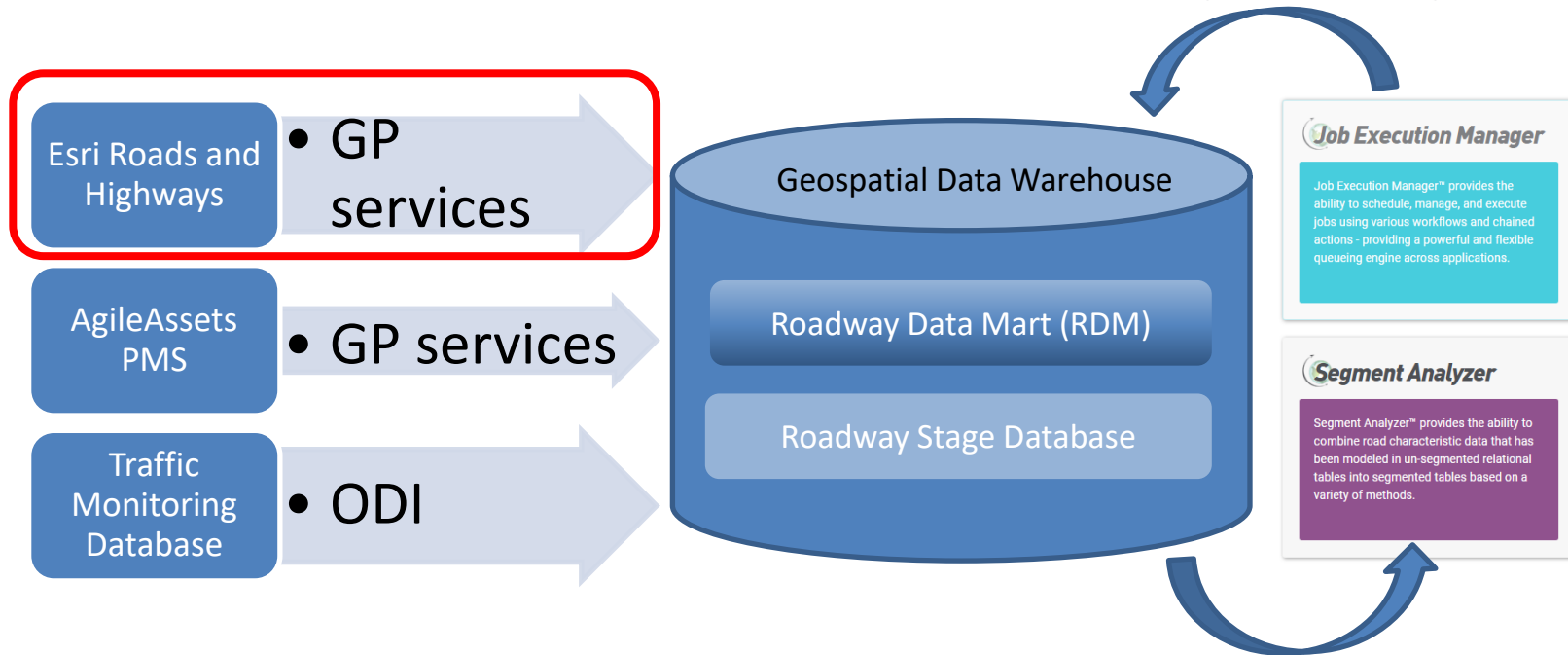


1. Data load process to support new source systems.

2. RDM metadata tracks the status of the weekly RDM update

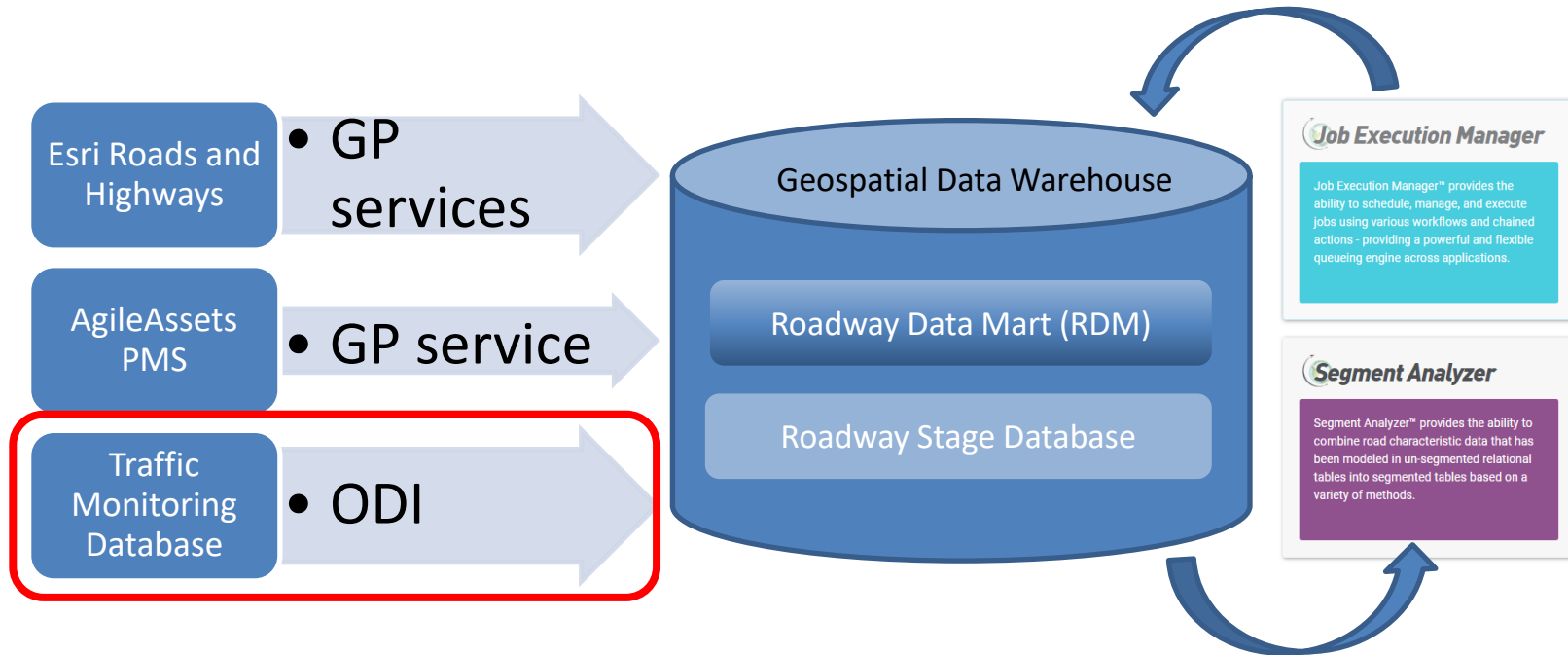
3. Dynamic segmentation and ETL refresh tables and GIS layers

Job 1 and 2 – Refresh the LRS and Roadway Inventory in RDM



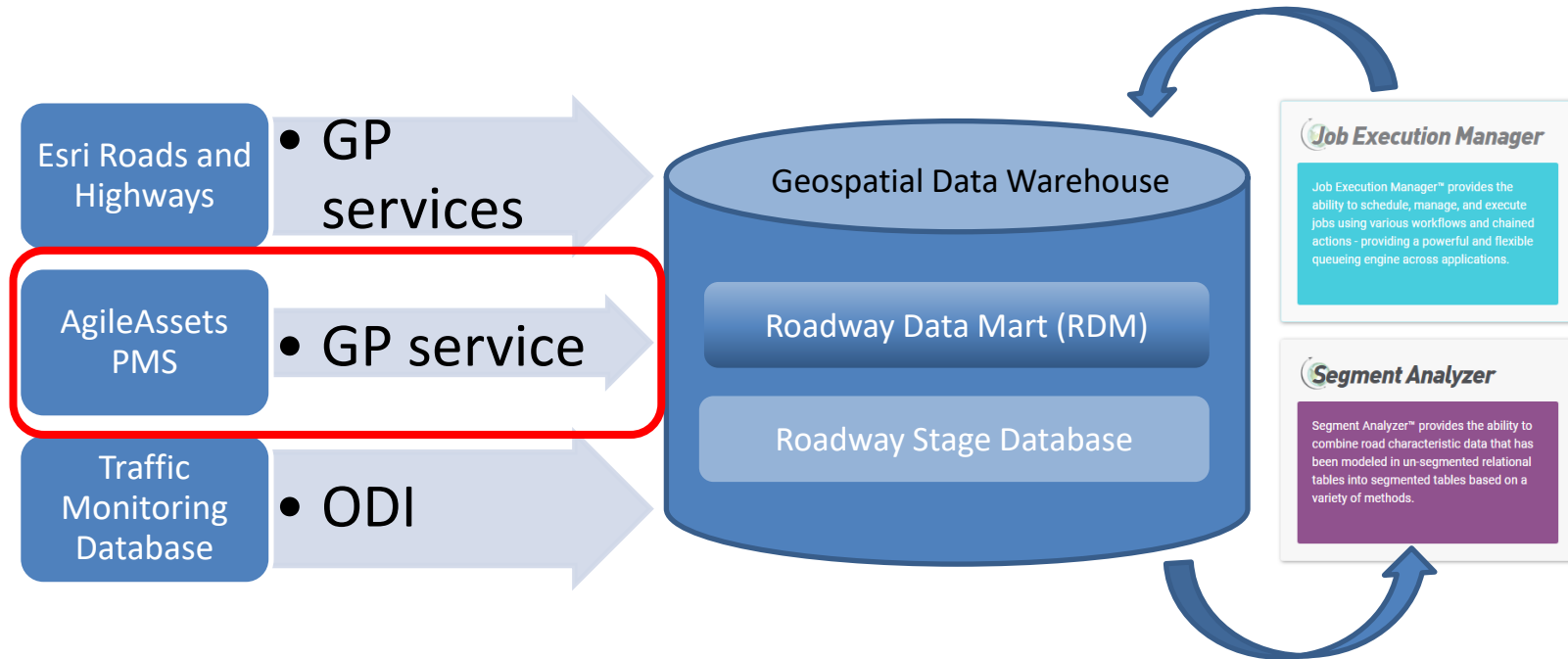
1. Esri GP service calculates Roadway Concurrency (current and history)
2. Esri GP service updates all ALRS feature classes, tables and domains in the RDM.
3. Calculate the State Milepoint measures to the RDM_County_LRM_To_State_LRM table

Job 3 – Refresh and Gap Fill the Traffic Station Data in RDM



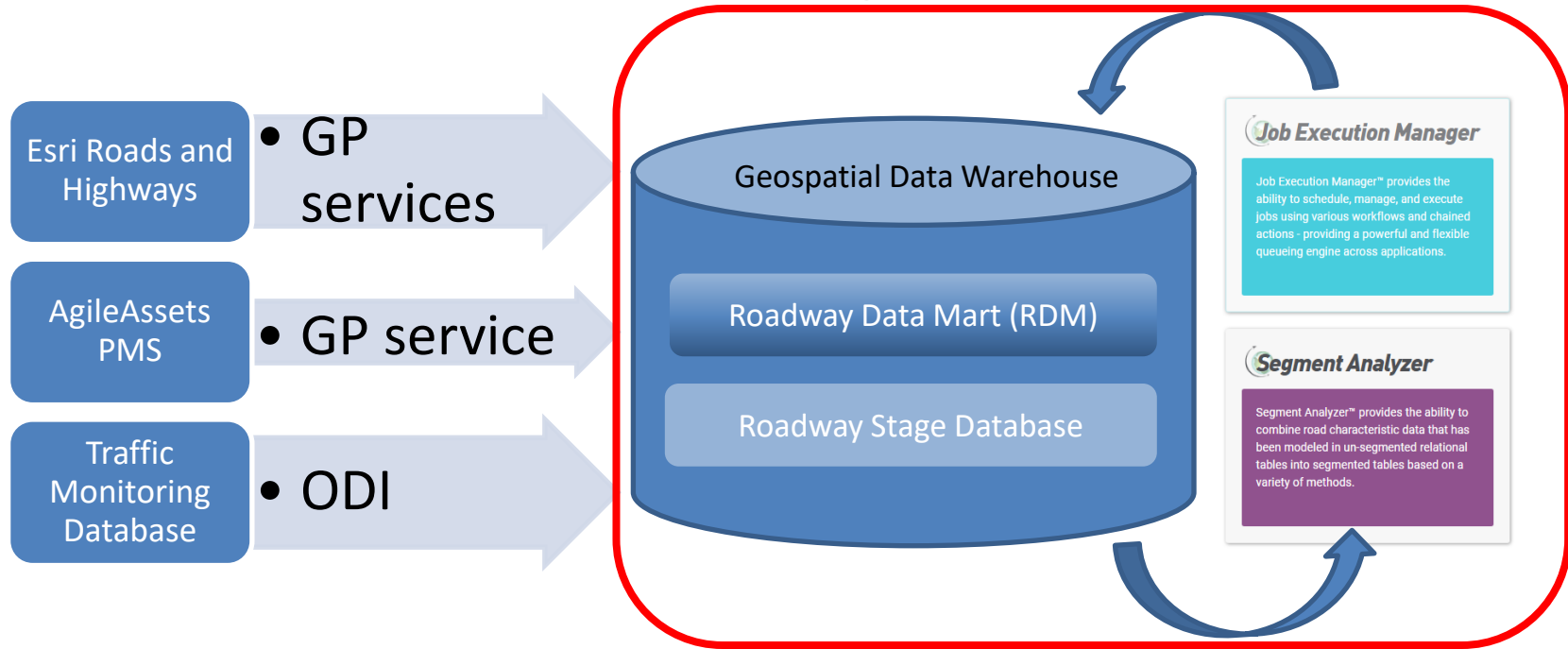
1. Oracle Data Integrator (ODI) job refreshes key traffic data tables in the RDM
2. A Segment Analyzer process followed by a stored procedure completes a gap filling process for traffic station data.

Job 4 – Refresh Pavement Data



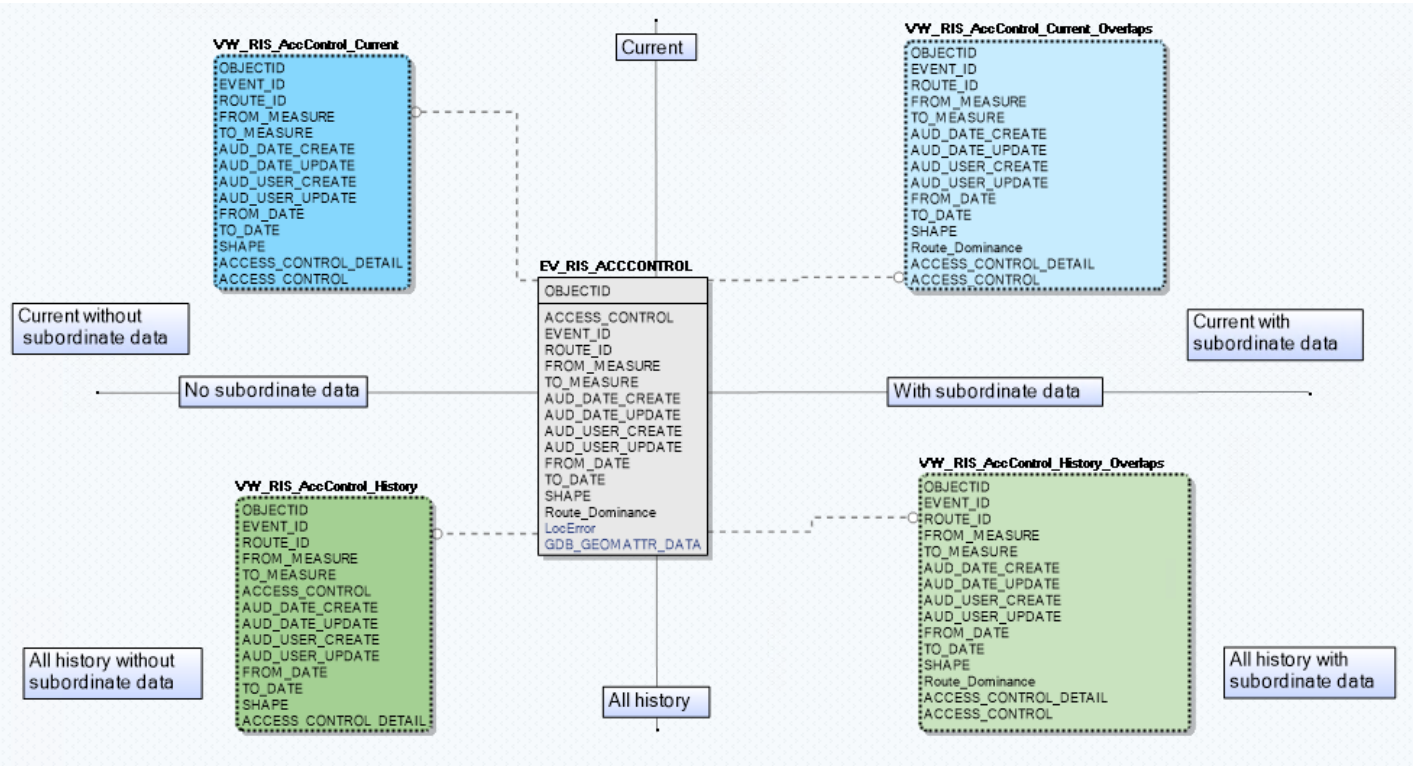
- This job is run following the LRS Gateway Sync.
- Runs the AddPavementOnSubordinate GP service which updates pavement data from three Agile PMS views and adds pavement data to subordinate routes using the Roadway Concurrency table.

Job 5,7-22 – Refresh RDM Target Tables and Feature Classes



An orchestrated series of jobs that sequentially update RDM target tables using Segment Analyzer templates and a series of post processing procedures.

Four views of every Roadway Inventory Event



Every event feature class in RDM includes history and all data on subordinate routes.

Four views for each event provide convenient access to any combination of

- Current Only or History
- With or without Subordinate Roadway Data

RDM ETL Status Metadata – Job 1 and 2 example

JobId	TaskId	TaskDescription	WaitInd	ProcessId
1	1	Generate concurrency tables	0	33
1	2	Exec AddOverlapId	0	35
1	3	Exec SetOverlapId	0	34
1	4	Exec SetOverlapId_History	0	91

JobId	TaskId	TaskDescription	WaitInd	ProcessId
2	1	Exec SetOverlapId_History	1	91
2	2	Exec RDMDrop_Domain	0	30
2	3	Execute ELRS Warehousing GP Service	0	1
2	4	Exec RDMset_Domain	0	31
2	5	Exec PopStateOnCounty	0	37
2	6	PopLRSNMILEPOINTPavement	0	97

Technology Used:

- Python Scripts published as Geoprocessing Service
- JEM for scheduling and error reporting
- SQL Server Stored Procedures

A series of RDM metadata tables in the “Roadway_Stage” database track the status of every task within the Job as well as dependencies between tasks (using WaitInd)

Segment Analyzer

The screenshot displays the Segment Analyzer web application interface. The browser address bar shows the URL: `risdev.dot.ny.gov/tds/apps/sa/#/rdm?step=layers`. The application header includes the logo, navigation menus (Results, Templates, More, Help), and a user greeting: "Welcome Kevin! ACCOUNT".

The main interface is divided into several sections:

- Available Data Sources:** Shows "GDW_Roadway" and "No Version (Base Tables)".
- Layers and Tables:** Lists various data sources like "Milepoint", "sysdiagrams", and "ADK_COLDSPOTS" with a total of 778 Objects.
- Layer Analysis (28 layers):** A central configuration area for a "RDM" template named "SA_Roadway_Inventory_1". It shows a list of layers being analyzed, including:
 - `stage_SA_Roadway_Inventory_0` (Base Table) with fields: DOT_ID, COUNTY_ORDER, DIRECTION, CONC_HIERARCHY, COUNTY, SIGNING, ROUTE_NUMBER, ROUTE_SUFFIX, ROUTE_QUA, ROADWAY_TYPE, PARKWAY_FLAG, DominantFlag, DominantError, Overlapid, ROAD_NUMBER, NAME, BEG_DESC, END_DESC, FUNCTION, MUNI_COUNTY_LOCATED.
 - `roadway.VW_RIS_AccControl_Current_Overlaps` (Base Table) with field: ACCESS_CONTROL.
 - `roadway.VW_RIS_BikeLnWidP_Current_Overlaps` (Base Table) with field: BIKE_LN_WIDTH_PRIM.
 - `roadway.VW_RIS_BikeLnWidR_Current_Overlaps` (Base Table) with field: BIKE_LN_WIDTH_REV.
 - `roadway.VW_RIS_BusLnWidP_Current_Overlaps` (Base Table) with field: BUS_LN_WIDTH_PRIM.
 - `roadway.VW_RIS_BusLnWidR_Current_Overlaps` (Base Table) with field: BUS_LN_WIDTH_REV.
- Navigation and Actions:** Includes buttons for "VALIDATE" and "SUBMIT", and a sidebar with "Analysis", "Routes", and "Options" tabs.

Segment Analyzer™ provides the ability to combine road characteristic data that has been modeled in un-segmented relational tables into segmented tables based on a variety of methods.

Complete dynamic segmentation for RDM staging tables.

Job Scheduling and Orchestration in 'JEM'

Job Execution Manager

Job Execution Manager™ provides the ability to schedule, manage, and execute jobs using various workflows and chained actions - providing a powerful and flexible queueing engine across applications.

The screenshot displays the Job Execution Manager web application interface. The browser address bar shows the URL: `risdev.dot.ny.gov/tds/apps/jem/#/rdm/jobs`. The application header includes the logo, navigation tabs (Schedule, History, More, Help), and a user greeting: "Welcome Kevin!". Below the header, the page title is "Job Schedule RDM" and the subtitle is "Manage Scheduled Jobs". The main content area features a table of scheduled jobs with columns for Status, Name, Actions, Triggers, Next Run Time, Last Run Time, Author, and Actions. The table lists 15 jobs, all with a status of "Success" (indicated by a green checkmark). The jobs include various tasks such as "Concurrency and Overlap", "Load ELRS into RDM", "Traffic Load", "Pavement Load", "Roadway Inventory Stage 1", "Roadway Inventory Stage 2", "Traffic Station Header", "CHIPS Inventory", "HPMS Municipality", "Highway Mileage", "HPMS Sample Panel", "HPMS Full Extent", "Inventory Current C", "BDIS", "Inventory Current A", and "Inventory Current B". The interface also includes a "Filter" button, "Refresh" and "Import Jobs" options, and a "View Style: Grid View" selector. At the bottom, there is a pagination control showing "1" of "70" items per page.

Status	Name	Actions	Triggers	Next Run Time	Last Run Time	Author	Actions
Success	Job 01 - Concurrency and Overlap	2			03/12/22 10:28 AM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 02 - Load ELRS into RDM	2			03/12/22 07:38 PM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 03 - Traffic Load	2			02/25/22 10:38 AM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 04 - Pavement Load	2			02/27/22 01:52 PM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 05A - Roadway Inventory Stage 1	2			02/26/22 09:31 AM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 05B - Roadway Inventory Stage 2	2			02/26/22 10:27 AM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 06 - Traffic Station Header	2			02/25/22 11:50 PM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 07 - CHIPS Inventory	2			02/27/22 11:39 PM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 08 - HPMS Municipality	2			02/27/22 09:42 PM	SVC\arockwo...	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 09 - Highway Mileage	2			02/27/22 11:08 PM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 10 - HPMS Sample Panel	2			02/27/22 10:27 PM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 11 - HPMS Full Extent	2			02/28/22 09:28 AM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 12 - Inventory Current C	2			02/28/22 01:28 PM	SVC\khunt4	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 13 - BDIS	2			02/28/22 01:54 PM	SVC\SMadired...	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 14 - Inventory Current A	2			02/28/22 05:54 PM	SVC\SMadired...	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]
Success	Job 15 - Inventory Current B	2			02/28/22 12:58 AM	SVC\SMadired...	[Refresh] [Refresh] [Refresh] [Refresh] [Refresh] [Refresh]

Transcend Spatial Solutions 2022

Job Scheduling and Orchestration in 'JEM'

Job Name:
Job 02 - Load ELRS into RDM

Execute SQL

Conditional workflow
Actions to execute if previous action completed successfully.

Execute ArcGIS Server Geoprocessing service (Service Name: ELRS Load)

Conditional workflow
Actions to execute if previous action completed successfully.

Execute SQL

Conditional workflow
Actions to execute if previous action completed successfully.

Send email (to: ts.us@itdm.support@ts.ny.gov with subject: RDM Job 2 - Success)

Actions to execute if previous action failed.

Send email (to: ts.us@itdm.support@ts.ny.gov with subject: RDM Job 2 - Error)

Actions to execute if previous action failed.

Execute SQL

Send email (to: ts.us@itdm.support@ts.ny.gov with subject: RDM Job 2 - Error)

Actions to execute if previous action failed.

Send email (to: ts.us@itdm.support@ts.ny.gov with subject: RDM Job 2 - GP Process Error)

Job Controller
Start

- Check Prerequisites
- Update RDM Metadata

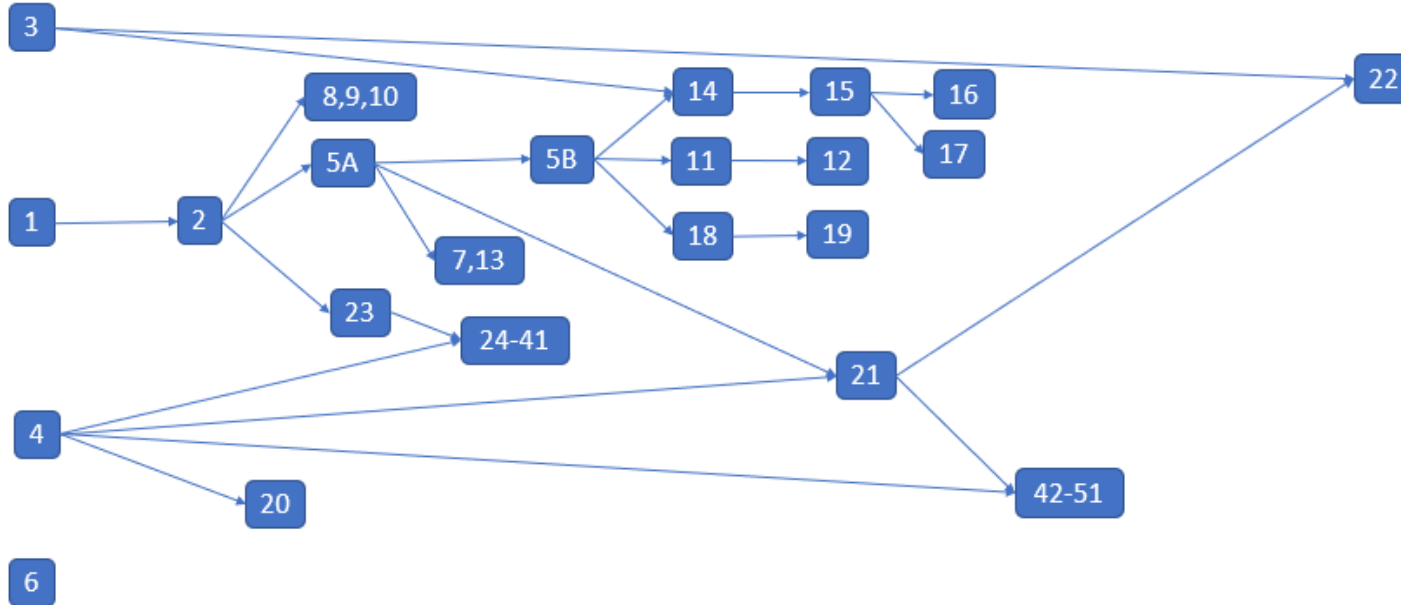
Run Process

- Run REST GP Service
- Run Segment Analyzer template

Job Controller
End

- Update RDM Metadata
- Send Success or Fail email to RDM support group

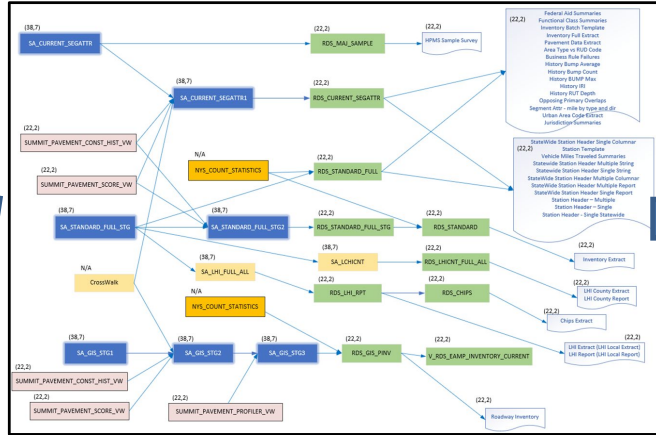
Job Dependencies



JEM Job Schedule includes dependencies.
This map shows all dependencies in a refresh process.

RDM – One authoritative source for reporting and geospatial

Reporting and BI

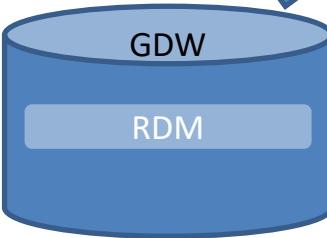


New York State Department of Transportation
Local Roads Listing

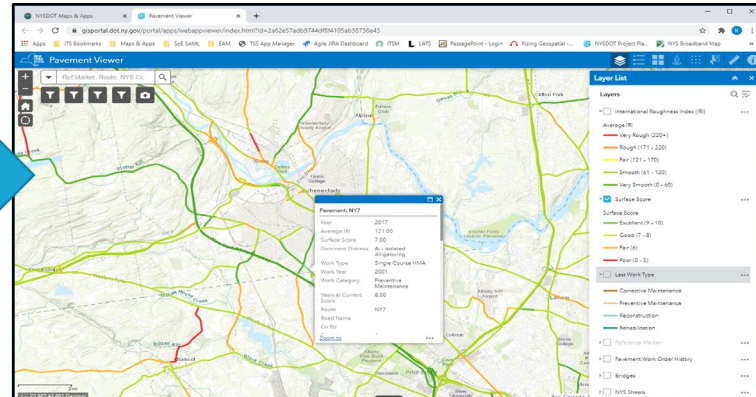
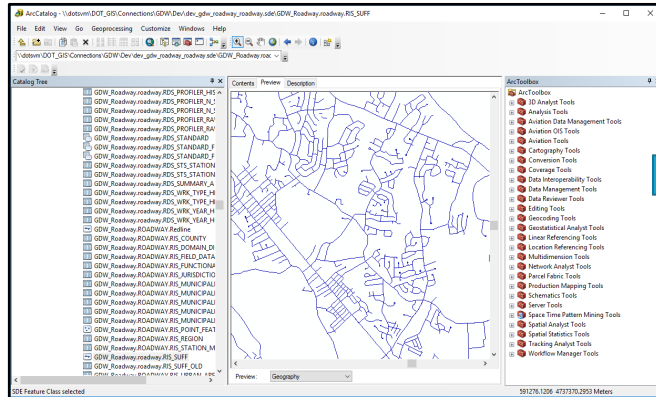
Municipality: Town of Berne
Albany County

Jurisdiction: Town

DIST	ROUTE	ROAD/STNAME	Start of Section	End of Section	Dist	Surf	End	Width	DW	No of	Pvt	SPD	Med	Med	Func
					MI					Labels	Way	Limit	Class	Class	Class
100971	BEAVER RD	BRADT HOLLOW RD	CR13	CR13	0.00	1.86	1.86	1	U	10	3	None	9		
100972	BELLE LA	SR 157	END	END	0.00	0.05	0.05	2	A	20	2	None	9		
100973	BLUE FARMER LA	SR43	END	END	0.00	0.13	0.13	1	U	12	3	None	9		
100974	BOERCHER LA	SR43	END	END	0.00	0.34	0.34	2	A	14	2	None	9		
100975	BELTER LA	CR1	END	END	0.00	0.60	0.60	1	U	15	3	None	9		
100976	BRADT HOLLOW RD	PEASELY RD	SR43	SR43	0.00	0.60	0.60	2	A	16	5	None	9		
100977	BRIDGE RD	ALB CL	BRADT HOLLOW DR	BRADT HOLLOW DR	0.00	0.93	0.93	2	A	18	4	None	9		
100978	BROOKHAVEN DR	CR14	SR43	SR43	0.00	1.25	1.25	2	A	15	5	None	9		
250658	BROOKHAVEN EXT	BROOKHAVEN DR	SR43	SR43	0.00	0.15	0.15	2	A	14	2	None	9		
100979	BUSH DR	CR 303	CR 303	CR 303	0.00	0.75	0.75	2	A	18	5	None	9		
100981	CAMP LA	DEAD END	CR14	CR14	0.00	0.34	0.34	2	A	14	3	None	9		
100980	CANNADY DR	SCHORHAEDEL C	CR3 BRADT HOLLOW	CR3 BRADT HOLLOW	0.00	0.41	0.41	2	U	18	4	None	9		
100982	CASS HILL RD	CR41	BERNE TL	BERNE TL	0.00	1.15	1.15	2	A	18	4	None	9		
100983	CHASE RD	SR15A	SR15A	SR15A	0.00	0.14	0.14	1	U	16	3	None	9		
100984	CHRYSLER RD	END	KAEHLER	KAEHLER	0.00	0.10	0.10	1	O	30	3	None	9		
100985	CHURCH DR	CR 1	CR 1	CR 1	0.00	0.97	0.97	2	A	20	4	None	9		
100986	CIRCLE DR	CR303	END	CR303	0.00	0.14	0.14	2	A	15	3	None	9		
100987	COODAN DR	CR1	END	CR1	0.00	0.30	0.30	1	U	10	2	None	9		
100988	COOK HILL RD	CR10	BRADT HOLLOW DR	BRADT HOLLOW DR	0.00	1.96	1.96	1	U	12	3	None	9		
100989	COBARI LA	SR15A	END	SR15A	0.00	0.51	0.51	1	A	12	2	None	9		
100990	DUCK HILL RD	END	QUAK HILL RD	QUAK HILL RD	0.00	0.23	0.23	1	U	12	3	None	9		
100991	DUTCH SETTLEMENT PT 1	KNOX TNLN	KNOX TNLN	KNOX TNLN	0.00	0.10	0.10	2	A	14	3	None	9		
262758	DUTCH SETTLEMENT PT 2	BERNE TNLN	CR 2	BERNE TNLN	0.00	0.05	0.05	2	A	14	3	None	9		
100992	HYER RD	SR 441	END	SR 441	0.00	0.92	0.92	1	U	16	1	None	9		

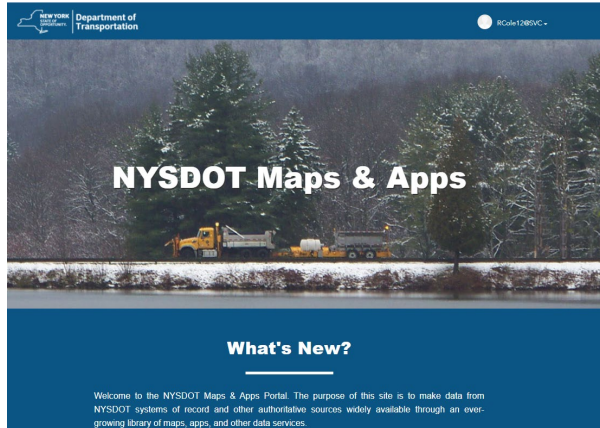


Desktop and Web GIS



Roadway Data Mart Consumers

NYSDOT System of Engagement





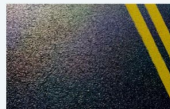














New York State Department of Transportation
RCole1286VC

NYSDOT Maps & Apps

What's New?

Welcome to the NYSDOT Maps & Apps Portal. The purpose of this site is to make data from NYSDOT systems of record and other authoritative sources widely available through an ever-growing library of maps, apps, and other data services.

 <p>Flood Watch Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Maintenance Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Material Suppliers Viewer</p> <p>OPEN APP ↗</p>
 <p>NYS Bike Route Viewer</p> <p>OPEN APP ↗</p>	 <p>Pavement Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Permits Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>
 <p>ADK Travel Corridor Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Aviation Facilities Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Bridge Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>
 <p>Certified Business Enterprise Viewer</p> <p>OPEN APP ↗</p>	 <p>Environmental Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Facility Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>
 <p>Situational Assets Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Surface Waters Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Traffic Data Viewer</p> <p>OPEN APP ↗</p>
 <p>Traffic Signal Viewer</p> <p>SEE INFO ↗ OPEN APP ↗</p>	 <p>Winter Ops</p> <p>NOTE: Winter Ops will return in the early fall for the 2021 Winter season.</p> <p>SEE INFO ↗</p>	

NYSDOT Maps and Apps is a combination of agency and public facing applications that provide easily consumed authoritative information.

Reusable authoritative data services

NVSDOT Ma x Folder: / x + - □ x

gisportal.dot.ny.gov/hosting/res... ☆ ⚙ K

Apps ITS Bookmarks Maps & Apps SoE SAML

ArcGIS REST Services Directory

[Home](#) > [services](#)

[JSON](#) | [SOAP](#)







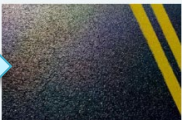


Folder: /

Current Version: 10.71

View Footprints In: [ArcGIS Online Map Viewer](#)

Folders:

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- [CulturalResources](#)
- [Environmental](#)
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- [Roadways](#)
- [Safety](#)
- [Structures](#)
- [System](#)
- [Utilities](#)

 Aviation Facilities Viewer SEE INFO OPEN APP	 Bridge Viewer SEE INFO OPEN APP	 Flood Watch Viewer SEE INFO OPEN APP
 Maintenance Viewer SEE INFO OPEN APP	 Material Suppliers Viewer OPEN APP	 NYS Bike Route Viewer OPEN APP
 Pavement Viewer SEE INFO OPEN APP	 Permits Viewer COMING SOON	 Surface Waters Viewer SEE INFO OPEN APP

Published from the
GDW

...and reused for

- Esri web applications
- DOT Desktop GIS Workflows
- NYS Open Data

Ongoing Reporting Needs - Highway Data Services

- Local Highway Inventory Reports
- CHIPS and Inventory Reports
- Traffic Extracts and Reports

- HPMS - run from RDM or transactional systems?
- Working to establish the process with Rizing's HPMS Assistant.
- Future reporting needs

Structure and Pavement Asset Management and Reporting

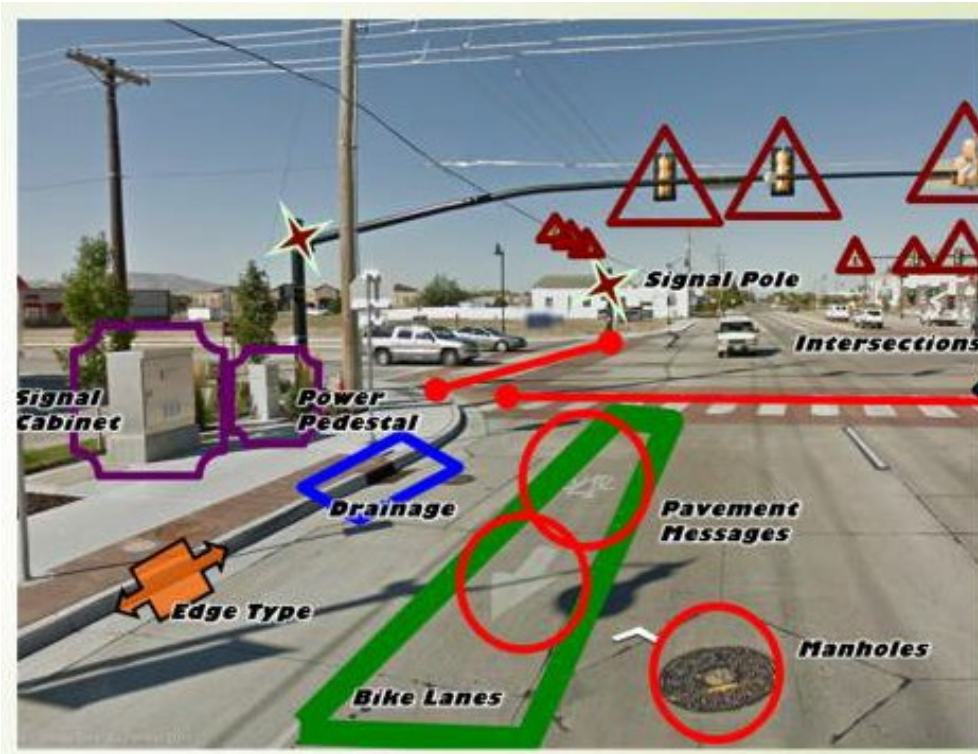


- Bridges
- Large Culverts
- Overhead Sign Structures
- Retaining and Noise Walls
- Pavement



- Provides Roadway Inventory and Traffic Count Data to the Structure and Pavement Management Systems in AgileAssets for asset management and federal reporting.

Maintenance Management – Secondary Asset Inventory and Management



- Drainage Systems (linear)
- Drainage Systems (point)
- Facilities
- Guiderails
- Sidewalks / Ramps
- Sign Supports and Panels
- Signals
- Small Culverts
- Audible Roadway Delineators

Crash Location, Engineering, Analysis, Reporting (CLEAR)

The screenshot displays the CLEAR Crash Data Viewer interface. At the top, the New York State Department of Transportation logo is on the left, and the title "CLEAR Crash Data Viewer" is centered. Navigation links for "About", "Help", "FAQ", and a user profile "rzitowsky1" are on the right. A sidebar on the left contains menu items: "Dashboards", "Query", "Basic", "Advanced" (highlighted), "Manage", and "Reports".

The main content area is titled "New Query" and is divided into three steps: "Step 1 - Initialize", "Step 2 - Location", and "Step 3 - Criteria".

Step 1 - Initialize:

- Please define a date range for your query (required):** From: 01/01/2019, To: 08/31/2019. A note states: "Complete crash data is available for the period 01/01/2005 to 08/31/2019".
- Please define the crash focus:** Buttons for ALL, INTERSECTION (selected), and MAINLINE.
- Please select the query level:** Buttons for CRASH, VEHICLE, and PERSON (selected).
- Please select the result fields to be displayed:** A "CUSTOMIZE RESULT FIELDS..." button and a list of fields: Case Number, Max Injury in Crash, and Crash Severity.
- Buttons for "RESET ALL", "OPEN...", and "NEXT >" are at the bottom.

On the right, a map shows the Albany-Colonie area with various roadways and crash locations marked with black dots. Labels on the map include "Albany Pine Bush Preserve", "Colonie", "The Crossings of Colonie", "University at Albany, The State University of New York", "W. A. Harriman State Office Campus", "Town of Colonie", "NY 155 CR 151", "CR 152", "CR 154", "CR 155", "CR 156", "CR 204", "US-20", and "US-9".

CLEAR collects a range of roadway inventory and traffic data to associate with crashes to support a range of safety screening.

What can you learn from our RDM
experience?

Be prepared!

- Building a Data Mart is not a simple 'add-on' to your system of record.
- Make sure the appropriate resources are available to design, develop and maintain the system.
- If you are using a consultant - design, development, implementation, testing and remediation work all need to be very collaborative with in-house subject matter experts and IT resources.
- There should be a database architect on the team, even if you are working with a consultant.

Use an iterative development and implementation approach

- The onsite deployments of the RDM were too close to the end of the project and overwhelming for the New York ITS/DOT project team.
- If we had started implementing the system one part at a time in our development environment, NYS would have developed a better understanding of the tools and processes.
- The project team and consultant would have had less rework if we had put more time into implementing components of the RDM in the NYS environment earlier.

Consider Processing Time

How much time will it take to refresh the Roadway Data Mart?

Pavement Data

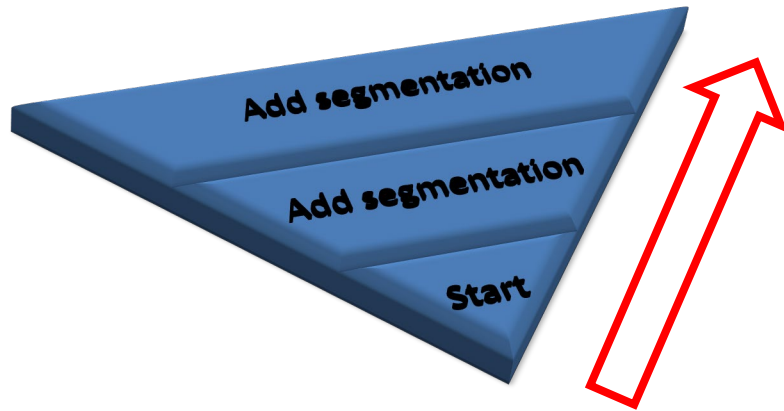
40 years of history – we are starting without all years of history.

Profiler Data uses 1/100th mile segmentation – dissolve source data to “finest partition”

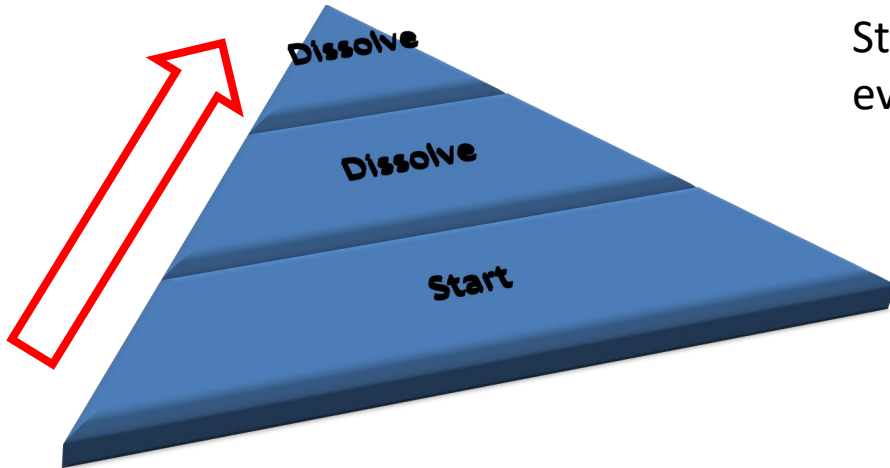
Pavement data pulled into following an LRS Gateway Sync between Esri Roads and Highways

When we started, all processes run end to end would take over two weeks

Shortening the RDM refresh time is still a work in progress in New York.



Original Approach:
Increased Segmentation as the RDM is populated



Alternative Approach:
Start with complete segmentation and dissolve events to achieve required segmentation.

Initial testing has shown this method to be significantly faster.

Tools and Processes

Use existing enterprise technology where possible

...but there will be new tools and processes to learn.

- NYS ITS incorporated our existing Oracle Data Integrator, Esri, SQL Server environments to satisfy RDM requirements
- Began working with new tools for scheduling and geospatial LRS and ETL:
 - Rizing Tools – Job Execution Manager and Segment Analyzer
 - Custom Esri geoprocessing services
 - Reporting tools - Oracle Business Intelligence

Ensure there is enough GIS and IT expertise...and bandwidth...in place across these areas to properly support and sustain the environment.

Now investigating possible benefits from FME Server workflows...

Questions?

Kevin Hunt – Transportation GIS, NYS ITS

Kevin.Hunt@its.ny.gov

Patrick Kemble – Highway Inventory Unit, NYSDOT

Patrick.Kemble@dot.ny.gov

from Ryan Koschatzky to everyone: 12:33 PM

<https://community.esri.com/t5/roads-and-highways-user-group-rhug/gh-p/roads-and-highways-user-group-rhug>

from Ryan Koschatzky to everyone: 12:34 PM

<https://web.cvent.com/event/b9be3aff-1d21-476d-8879-6fcaba0aa2ec/register>

from Nicole Hanson to everyone: 12:34 PM

Save \$100 with registering by March 10

from Nicole Hanson to everyone: 12:35 PM

Hoping to get all 50 state maps!!!

from Nicole Hanson to everyone: 12:36 PM

Follow GIS-T on many social media outlets - FB, Twitter, LinkedIn and Instagram

from Alex Carter to everyone: 12:40 PM

What would that event behavior be?

from Shaun Perfect to everyone: 12:40 PM

Sounds good! Carto-realign is a very important process that would definitely deserve time in RHUG

from Yelena Kalashnikova to everyone: 12:48 PM

yes

from Yelena Kalashnikova to everyone: 12:53 PM

will the result of dynamic segmentation show where there is an overshoots? And the data had to be truncated.

from Miles Ng to everyone: 12:53 PM

Do we need special licenses to access this tool?

from Ethan Pointer (ODOT) to everyone: 12:53 PM

Will it automatically merge like records?

from John Beall to everyone: 12:54 PM

will this merge the records where they overlap?

from BJ Covington to everyone: 12:54 PM

Does the relationship exist between the dynamically segmented data and the event layers post-edit session?

from Daniel Wakefield to everyone: 12:55 PM

If you set multiple records to the same values, will it combine the records or would you need to re-run the tool?

from Shirin Marvastian to everyone: 12:55 PM

Is this tool similar to "Overlay Route Events" ?

from Jeromy Barnes to everyone: 12:57 PM

Curious on if this tool will merge the records wit the same attribution as well..

from Marisa Mailand to everyone: 12:57 PM

How would it handle if there were overlapping records in the event data? (overlap within a single event)

from Kevin Munro to everyone: 1:02 PM

Event editor on AGS had zero license cost. Event editor on Portal requires named user account license, It seems like Dyneseg and Pro event editing requires a Pro R&H extension license. Is that true?

from Kevin Munro to everyone: 1:03 PM

zero aside from server license cost...

from Kevin Munro to everyone: 1:05 PM

Thanks

from Ethan Pointer (ODOT) to everyone: 1:05 PM

You said you want a use case for merging like events, what's your email?

from Ethan Pointer (ODOT) to everyone: 1:05 PM

Thank you

from Rahul Rakshit to everyone: 1:05 PM

rrakshit@esri.com

from Ethan Pointer (ODOT) to everyone: 1:05 PM

I'll send some examples, thank you

from Rahul Rakshit to everyone: 1:05 PM

Thanks. looking forward.

from Yelena Kalashnikova to everyone: 1:06 PM

i would also like to see if the even is fully mapped or had to be truncated.

from Yelena Kalashnikova to everyone: 1:07 PM

what about point data - will this work?

from Yelena Kalashnikova to everyone: 1:07 PM

why?

from BJ Covington to everyone: 1:07 PM

Could be used to introduce outside data on to a single event layer or does the data have to be in our database?

from Yelena Kalashnikova to everyone: 1:08 PM

in our current software we do this all the time

from Amit Hazra to everyone: 1:08 PM

A point segment would have a zero length geometry

from Yelena Kalashnikova to everyone: 1:08 PM

but it can be mapped as a point

from Yelena Kalashnikova to everyone: 1:08 PM

ok

from Yelena Kalashnikova to everyone: 1:09 PM

bridge point and pavement data

from Yelena Kalashnikova to everyone: 1:09 PM

okay - thank you.

from Tom Acree to everyone: 1:09 PM

This tool is a nice feature! For the data merge, what I think people may be suggesting, is as you write the data back to the underlying events table, that you provide an option to optimize(merge) the individual event records segmentation.

from Alison Mynsberge to everyone: 1:09 PM

I agree with Yelena, sometimes we want a table of all the measures at which something happens or occurs on a route. Not for editing, but as an output to share with engineers.

from Kevin Hunt to everyone: 1:10 PM

Sounds like a straight line diagramming application.

from BJ Covington to everyone: 1:12 PM

Gotcha – thanks

from Yelena Kalashnikova to everyone: 1:34 PM

Do you use geometry measures or recorded measures. Do you use the same LRS in R&H, Agile Asset Management, and Pavement Management?

from Elsit Mandal to everyone: 1:41 PM

are there user connections to RDM that need to be disconnected while the data in RDM are being updated/refreshed?

from Elsit Mandal to everyone: 1:42 PM

if so, how is that managed?

from Miles Ng to everyone: 1:44 PM

you recommend the HPMS Assistant? My team is a little skeptical of it

from Mike Clement to everyone: 1:45 PM

Iowa recommends HPMS Assistant

from John Beall to everyone: 1:48 PM

MD uses as well. We recommend as well. Segment analyzer and JEM are great.

from Alison Mynsberge to everyone: 1:49 PM

For Open Data, do you have any user complaints about download times for large datasets (since the cache is only generated when it's requested)?

from Shaun Perfect to everyone: 1:51 PM

We have a similar case going with more standard naming conventions that everyone would recognize or relate to - especially when sharing data with the public.

from Yelena Kalashnikova to everyone: 1:55 PM

You mentioned that the events are edited outside R&H application - is it a different office? or R&H is manages in the same office and RI?

from Yelena Kalashnikova to everyone: 2:00 PM

Kevin - are you going to be at GIS-T in OK this year?

from Kristine Barry to everyone: 2:00 PM

Well done Kevin. All of your points are spot on!

from Jim Mitchell to everyone: 2:01 PM

GREAT talk, Kevin!

from Jeromy Barnes to everyone: 2:01 PM

Great presentation! Appreciate it!

from Kathleen Mohla to everyone: 2:01 PM

Excellent presentation! Thank you, Kevin.

from Yelena Kalashnikova to everyone: 2:03 PM

Thank you so very much! Great presentation.

from Nicole Hanson to everyone: 2:03 PM

Thanks Kevin :)

from Miles Ng to everyone: 2:04 PM

Thank you, Kevin

from Samuel Coldiron to everyone: 2:04 PM

Thank you!