

RHUG

roads and highways user group



May Meeting
5/8/2024

Roads and Highways User Group

AGENDA

1. Announcements
2. Roads & Highways Updates
 - Nathan Easley
3. iHUB for LRS Methodology and Training
Communication within Agency
 - Peter Morey, Minnesota DOT Presentation
4. Open Discussion

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>
- We are always looking for presentation volunteers
 - We have some interest from the SIG last month but still need confirmations and more future planned presentations
- GIS-T 2024 is now wrapped up
 - Thank you to everyone involved who volunteered, gave presentations, submitted maps, and just attended.
 - It was a success and looking forward to next year's conference in Portland, OR

Roads & Highways Updates

Nathan Easley

iHUB for LRS Methodology and Training Communication within Agency

Minnesota DOT

Peter Morey



DEPARTMENT OF
TRANSPORTATION

Open Discussion

- GIS-T SIG Recap
 - Experience Builder Widgets
 - Once we get into using them (after May release) we will have more conversation
 - Community looking for Route Dominance support in new EE
 - How will AI be used in RnH?
 - Kansas using AI to interpret Aerial photos and also to populate surface types for MIRE
 - Nevada using AI to build common words library in docs to have better search results
 - Georgia is using AI pulling definitions out of CADD files and putting into GIS
 - Other topics that were discussed that anyone would like to bring up?

Upcoming Meetings / Contacts

Wednesday June 12th, 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 5/8/24

Nathan Easley

Capabilities currently under development

- **Point event support in Overlay Events GP/Query Attribute Set REST (dynamic segmentation)**
- **LRS Reporting**
 - Transform Reporting Data tool
 - Summarize by Polygon Boundaries
- **Pro ribbon tool to execute Apply Event Behaviors and other post route editing processes**
- **Experience Builder**
 - LRS Search: By Line and Measure
 - LRS Search: Output fields configurable
 - LRS Search: Open results in table

Support Incidents/Defects

- **BUG-000165026** – The Create Route, Realign Route, and Extend Route tools' centerlines table does not honor display field created from an Arcade expression (**fixed in Pro**)
- **BUG-000164928** – When using the Identify Routes tool on routes that have z-values populated, the measure value displayed in the tooltip is erroneous (**working with core team to fix**)
- **BUG-000162194** – Leaving Fields in a new related record blank that are esriFieldTypeSingle (ArcGIS Pro - Float) and esriFieldTypeDouble (ArcGIS Pro - Double) in Related Tables within ArcGIS Event Editor fail to save even with Allow Null values enabled (**fixed in Event Editor**)
- **BUG-000161769** – 'Select by Geometry' in Event Editor 10.9.1 returns an "Unable to query event locks" error, despite not needing an event lock to perform a select function (**currently investigating**)
- **BUG-000163003** – Using specific queryAttributeSet queries from REST on RouteIDs with multipart geometries causes the linear referencing service to crash or the returned events are incorrect based on the query (**fixed in Pro**)
- **BUG-000161089** – An extent cannot be changed after running the Delete Route tool (**transferred to geodatabase team for fix**)

Support Incidents/Defects

- **BUG-000166871** – ArcGIS Pro crashes when filling out parameters for the Create LRS Event From Existing Dataset and Create LRS Event geoprocessing tools (**data issue, adding better error message**)
- **BUG-000164869** – MeasureToGeometry doesn't respect transformation definition on the map when requesting Geometry in a different projection with Transformation (**fixed in Pro 3.4**)
- **BUG-000167177** – Misleading error message "The chosen centerlines have overlapping sections or slivers which will result in a loss of geometric length." is returned when choosing two centerlines when attempting to Extend Route (**adding better error message at Pro 3.4**)

Other Announcements

- Thanks to everyone who visited the learning lab at GIS-T
- ArcGIS Pro 3.3 released yesterday (ArcGIS Enterprise 11.3 coming later this month)
- We want to talk to your event editors that will be using Experience Builder moving forward, please reach out to Nathan (neasley@esri.com)



esri

THE
SCIENCE
OF
WHERE



MnDOT LRS Communications

Peter Morey | Roadway Data & Support Director
Office of Transportation System Management

5/8/2024



- Terms & Acronyms
- Roadway Data & Support (RDS)
 - Who we are
- Status
- Work Tracker
- RACER
- LRS Webpage
- 5/9/2024 Demo Video
- Route Location Converter/Enterprise Location Services 2
- LRS Reports
- EMMA/Georilla/RPMA – Mapping Apps
- MN GeoCommons
- Metadata mover

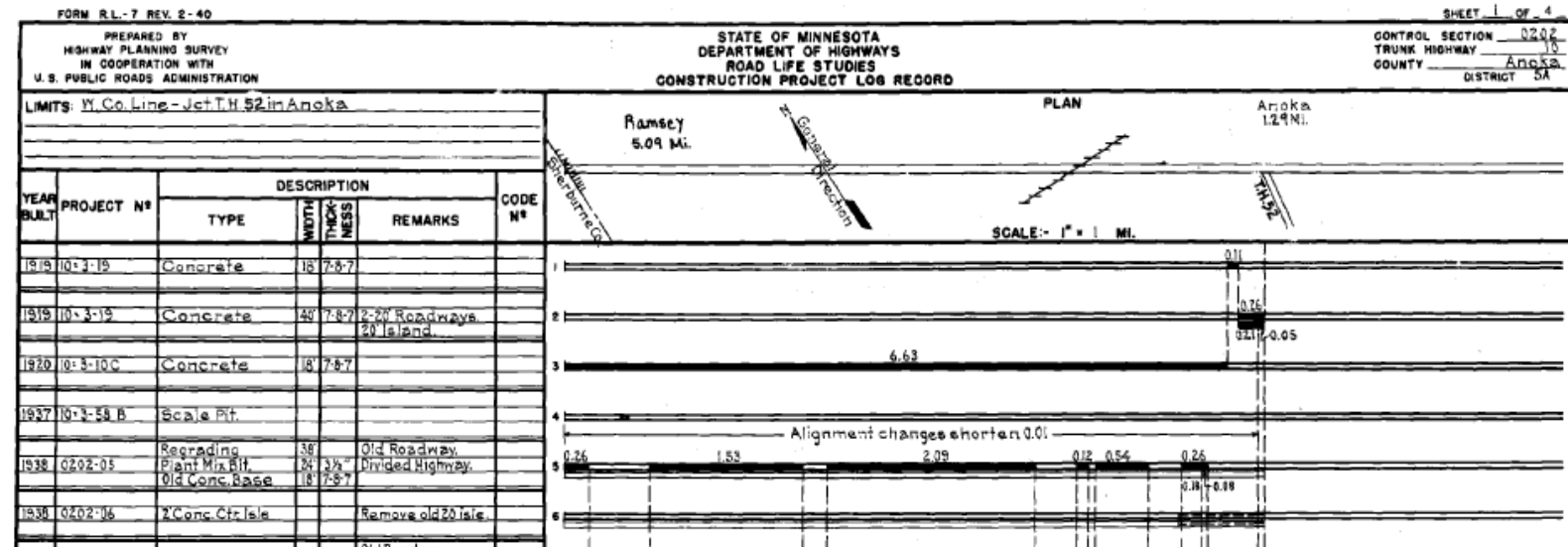
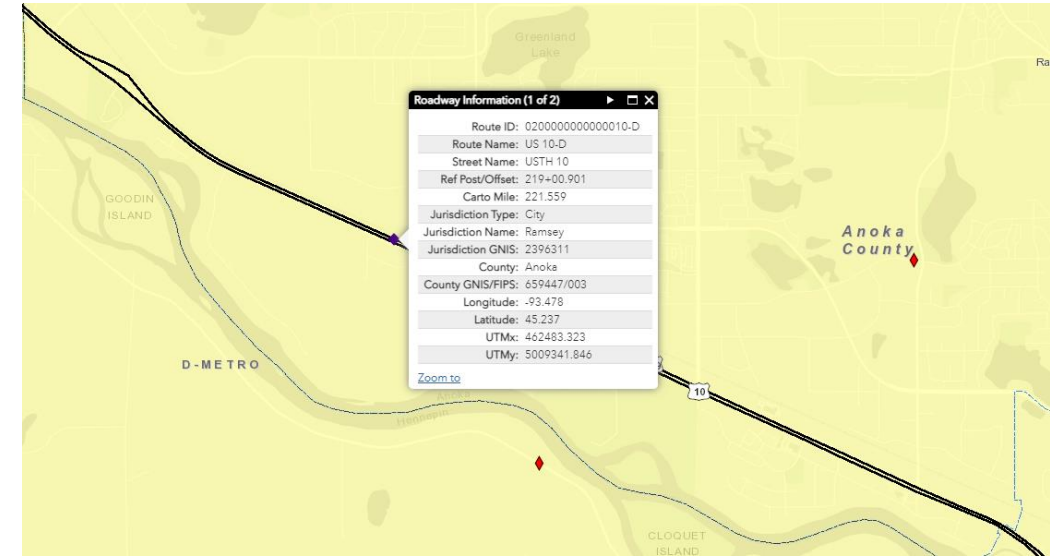
TERMS AND ACRYOS.

- ELS2 – Enterprise Location Services (API)
- LRS – Linear Referencing System
- R&H - Esri's Roads & Highways ArcGIS extension
- RACER – Roadway And Characteristic Editor Request
- RLC – Roadway Location Converter
- SDW – Spatial Data Warehouse
- EMMA – Enterprise MnDOT Mapping Application
- Status – Update process where we ask locals for input



Roadway Data & Support (RDS)

- Linear Referencing System & core roadway data
- Engineering Station/Ref Point/Carto Mile conversion
- Reference Post Placement
- Construction Project Log
- Metadata Support
- District Boundaries



Bikeway Data - Additionally, please send all your spatial bikeway data to bicyclemap.dot@state.mn.us. To provide the best data, visit <https://www.dot.state.mn.us/bike/state-bike-map.html> to review your jurisdiction's data on the [Minnesota Bikeways Web Map](#), and use the [MN Bikeways Data Standard](#) to organize and format your data. The [Standard and Definitions](#) document on the Data Standard webpage will help answer attribution and definition questions. Please contact bicyclemap.dot@state.mn.us with any questions and comments.

Public Roadway Miles - Please report all public roadway miles in the Annual Mapping Status Report. Federal funding is linked to the total public roadway miles in the state, so it is important to report all public roadway miles to ensure Minnesota receives its fair share of available federal funds.

To follow the progress of this year's status, please refer to the [Status Tracking application](#)

After status has been returned, if you find unresolved issues that need to be addressed concerning roads in LRS, please use [RACER](#)

To view the most recent linework available please refer to [Enterprise MnDOT Mapping Application \(EMMA\)](#)

Department of Transportation Annual Mapping Status

Maps are too large for email, a link to the GIM webpage indicate any changes or corrections. Please email the polbeck@state.mn.us. Maps should be returned even if 5" on the map) or simply reply to the initial request

existing, and platted road construction (including private and vacations, including street names and route system designated route systems will be entered into LRS as they are symbolized and include an approximate road opening dates needing correction such as bridges, one-way streets, etc. Attached is a checklist of information needed. For boundary change area. Municipal changes must be verified

spatial bikeway data to bicyclemap.dot@state.mn.us. To review your jurisdiction's data on the [Minnesota Bikeways Web Map](#), and use the [MN Bikeways Data Standard](#) to organize and format your data. The [Standard and Definitions](#) document on the Data Standard webpage will help answer attribution and definition questions. Please contact bicyclemap.dot@state.mn.us with any questions and comments.

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please use [RACER](#)

To view the most recent linework available please refer to [Enterprise MnDOT Mapping Application \(EMMA\)](#)

Please send any questions to Bob Wolbeck, MnDOT Geographic Information and Mapping Section, at Bob.Wolbeck@state.mn.us, or 651-366-3880. Thank you for your prompt attention to this request.

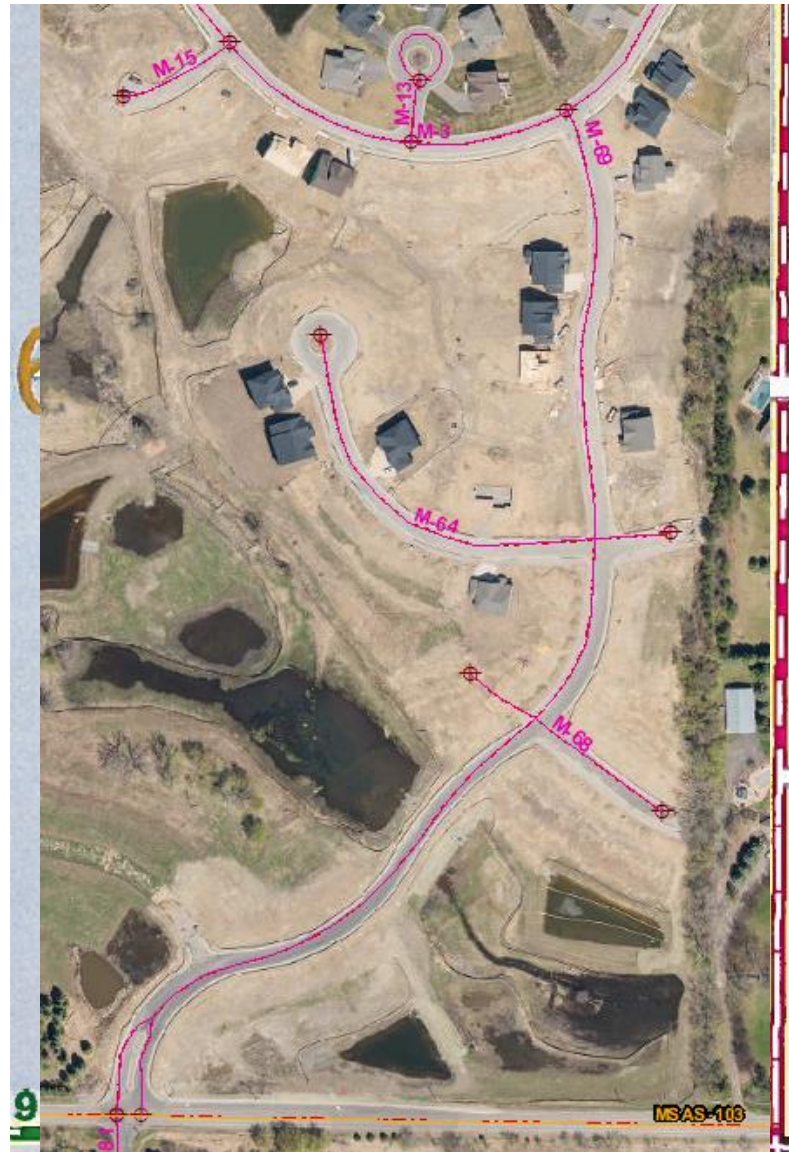
Sincerely,

Tim Sexton
Assistant Commissioner, Sustainability, Planning, and Program Management
Minnesota Department of Transportation

Cc: Bob Wolbeck, MnDOT Geographic Information and Mapping Section, MnDOT Transportation Data and Analysis



County Imagery



Construction Plans

MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR GRADING, BITUMINOUS SURFACING, ROUNDABOUT, ADA IMPROVEMENTS AND LIGHTING

LOCATED ON TH 71 FROM 785' SOUTH OF CSAH 53/15 TO 8TH ST EAST

STATE PROJ. NO. 2904-15 (TH71)
 GROSS LENGTH 3,502.44 FEET 0.663 MILES
 BRIDGES-LENGTH FEET MILES
 EXCEPTIONS-LENGTH FEET MILES
 NET LENGTH 3,502.44 FEET 0.663 MILES
 REF. POINT 258+00.721 TO REF. POINT 259+00.386
 LENGTH BASED ON NB ALIGNMENTS.

STATE AID PROJ. NO. 029-615-006
 GROSS LENGTH 448.05 FEET 0.085 MILES
 BRIDGES-LENGTH FEET MILES
 EXCEPTIONS-LENGTH FEET MILES
 NET LENGTH 448.05 FEET 0.085 MILES

STATE AID PROJ. NO. 029-653-002
 GROSS LENGTH 442.00 FEET 0.084 MILES
 BRIDGES-LENGTH FEET MILES
 EXCEPTIONS-LENGTH FEET MILES
 NET LENGTH 442.00 FEET 0.084 MILES

KEY FOR CITY OF PARK RAPIDS PROJECTS

- (A) CITY PROJECT: TH 71 WEST FRONTAGE RD
- (B) CITY PROJECT: TH 71 EAST FRONTAGE RD
- (C) CITY PROJECT: 11TH ST FROM - WEST FRONTAGE RD TO PLEASANT AVE

STATION EQUATION:

INPTH71 STA. 2080+00.00 BK =
 NBTH71 STA. 200+00.00 AH

SBTH71 STA. 214+43.42 BK =
 SBTH71 STA. 214+57.60 AH

NBTH71 STA. 236+13.04 BK =
 INPTH71 STA. 2115+89.35 AH

SBTH71 STA. 236+12.54 BK =
 INPTH71 STA. 2115+89.21 AH

END PROJECT
 S.P. 2904-15 (TH71)
 NBTH71 STA 236+13.04

BEGIN PROJECT
 S.A.P. 029-615-006
 EBSCSAH53_15 STA 104+42.00

END PROJECT
 S.A.P. 029-653-002
 EBSCSAH53_15 STA 104+42.00

BEGIN PROJECT
 S.A.P. 029-653-002
 EBSCSAH53_15 STA 100+00.00

BEGIN PROJECT
 S.P. 2904-15 (TH71)
 NBTH71 STA 201+10.60

END PROJECT
 S.A.P. 029-615-006
 EBSCSAH53_15 STA 108+90.05

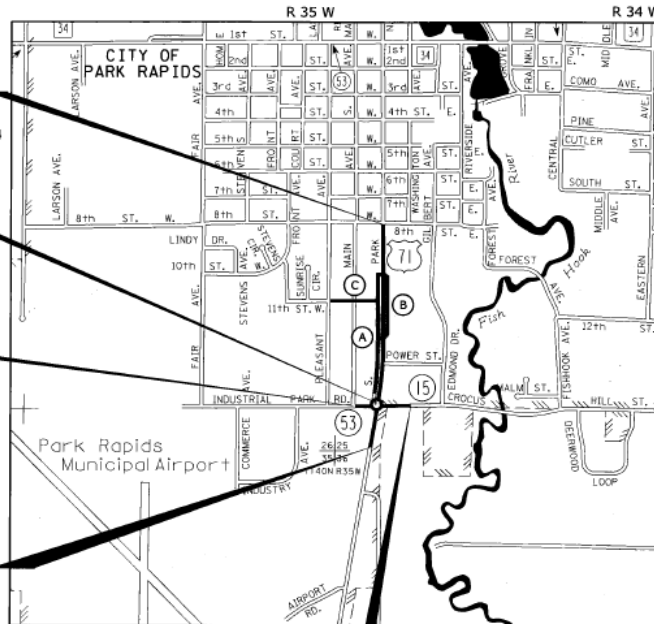
DESIGN DESIGNATION

| | |
|-------------------------------|------------------|
| Design ESALS (TH 71) | 2038 = 1,741,000 |
| Design ESALS (CSAH 53/15) | 2038 = 334,000 |
| ADT (TH 71 Current Year) | 2018 = 8,300 |
| ADT (TH 71 Future Year) | 2038 = 11,200 |
| ADT (CSAH 53/15 Current Year) | 2018 = 2,700 |
| ADT (CSAH 53/15 Future Year) | 2038 = 3,700 |
| D (Directional Distr.) | = 50/50 % |
| T (Heavy Commercial) | = 4.6 % |

Design Speed 45 MPH
 Based on Stopping Sight Distance
 Height of eye 3.5' Height of object 2.0'

Design Speed not achieved at: ROUNDABOUT APPROACH

STA. TO STA. MPH
 STA. TO STA. MPH



PROJECT LOCATION

COUNTY: HUBBARD
 DISTRICT: 2

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

STATE PROJ. NO. 2904-15
 CHARGE IDENTIFIER TRC/33

029-615-006
 029-653-002

FED. PROJ. NO. NHPP-HSIP 0071(325)

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
 ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MUTCD, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS"

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| 9 | STANDARD PLATES & TABULATION INDEX |
| 10 | SOILS & CONSTRUCTION NOTES |
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| 169-172 | LIGHTING PLAN |
| 173-192 | SIGNING PLAN |
| UJ-U5 | UTILITY PLAN & PROFILES |
| LJ-L9 | LANDSCAPING PLAN |
| X8-X93 | CROSS SECTION LAYOUT |
| X94-X944 | CROSS SECTIONS |

THIS PLAN CONTAINS 260 SHEETS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: TYLER W. NEWHALL LICENSE # 46783
 DATE: 10/5/18 SIGNATURE: Tyler W. Newhall
 DESIGN SQUAD M. WILLIAMS, A. MOIN, L. WILLIAMS, J. GRIFFIN,
 M. BRANDON, K. MIDTHUN

RECOMMENDED FOR APPROVAL: [Signature] 10-2-2018 DISTRICT TRANSPORTATION ENGINEER

RECOMMENDED FOR APPROVAL: [Signature] 10-2-2018 DISTRICT MATERIALS ENGINEER

RECOMMENDED FOR APPROVAL: [Signature] 10-2-2018 DISTRICT WATER RESOURCES/HYDRAULICS ENGINEER

RECOMMENDED FOR APPROVAL: [Signature] 10-2-2018 DISTRICT TRAFFIC ENGINEER

RECOMMENDED FOR APPROVAL: [Signature] 11/13/2018 STATE PRE-LICENSURE ENGINEER

OFFICE OF LAND MANAGEMENT APPROVAL: [Signature] 11/13/2018 DISTRICT LAND MANAGEMENT

APPROVED: 11/14/2018 STATE DESIGN ENGINEER

RECOMMENDED FOR APPROVAL: [Signature] 10-11-2018 HUBBARD COUNTY

RECOMMENDED FOR APPROVAL: [Signature] 10-2-2018 DISTRICT STATE AID ENGINEER, REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

MODEL: INDOT 04866

USER: amshuman

FILE: S:\PROJECTS\15\029-615-006\INDOT\15-029-615-006-001.dwg

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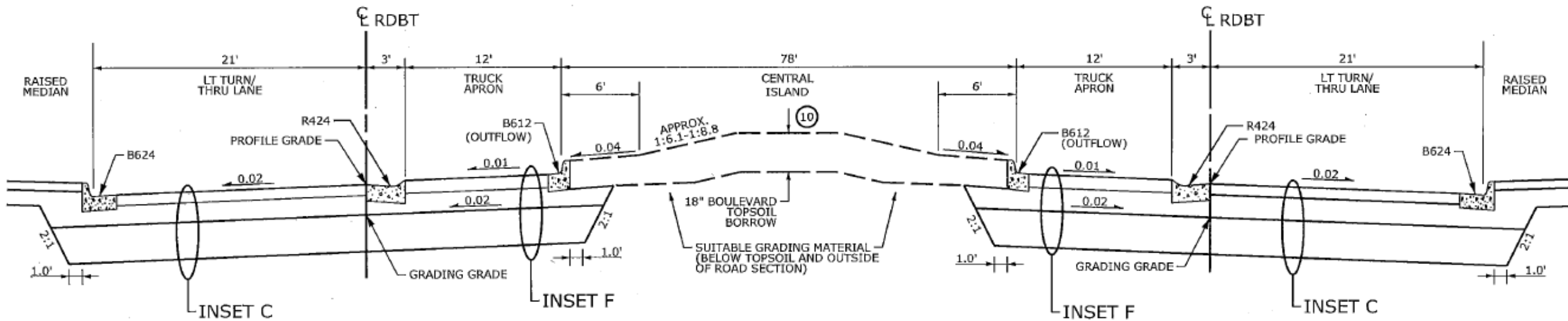
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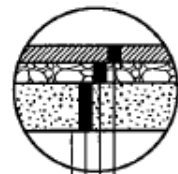
DATE: 11/14/2018

Construction Plans – Typical Section

TH 71/CSAH 15/CSAH 53 ROUNDABOUT
RDBT STA 300+00 TO RDBT STA 303+39

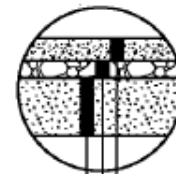


INSET C



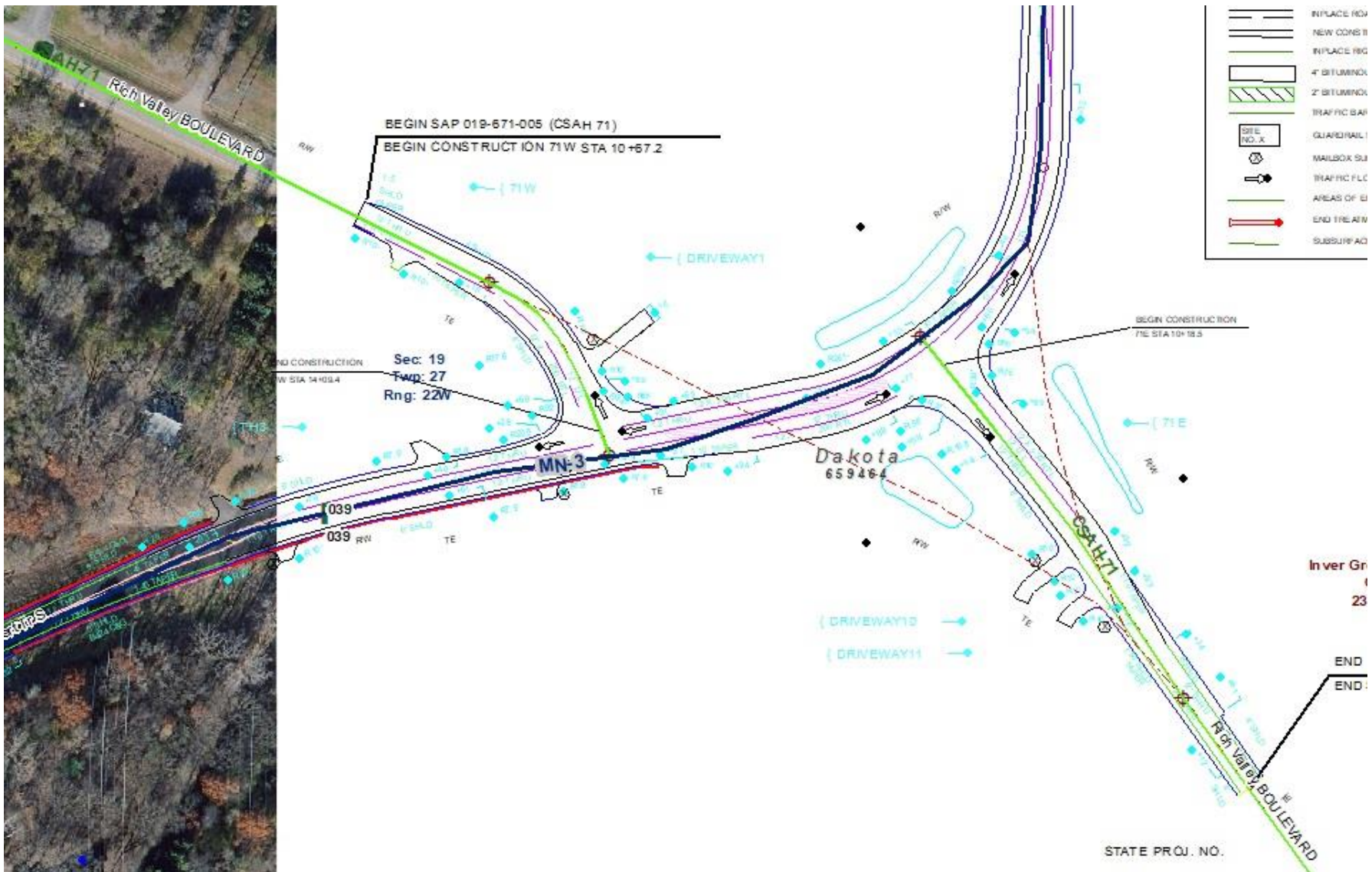
- 5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA440F) (3 LIFTS)
- 8" AGGREGATE BASE CLASS 6
- 17" SELECT GRANULAR EMBANKMENT
- SUBGRADE PREPARATION

INSET F



- 6" CONCRETE PAVEMENT (SPEC 2301)
- VAR AGGREGATE BASE CLASS 6 (7"-9")
- 17" SELECT GRANULAR EMBANKMENT

CADD File



Commissioner's Order

- Official documentation that transfers a road from one jurisdiction to another
- We mostly use two types:
 - County
 - Cities over 5,000

ORDER NO. 97884

COMMISSIONER'S ORDER

Pursuant to Minnesota Statute, Section 162.02 (2009), the revocation of the following County State Aid Highway, or portions thereof, entirely within the county, as requested by resolution of the RICE County Board, dated December 11, 2018, is hereby approved:

REVOCATION OF COUNTY STATE AID HIGHWAY NO. 53

Beginning at the intersection of County State Aid Highway No. 45 (Albers Avenue) and County State Aid Highway No. 53 (265th Street) near the southwest corner of the southeast quarter of the northwest quarter of Section 32, Township 109 N, Range 20 W, thence easterly along the centerline of the roadway to the intersection of County State Aid Highway No. 21 (Cabot Avenue) on or near eastern section line of said Section, and there terminating.

Pursuant to Minnesota Statute, Section 162.02 (2009), the establishment, location, designation, and numbering of the following County State Aid Highway, or portions thereof, entirely within the county, as requested by a resolution adopted, November 13, 2018, by the RICE County Board, is hereby approved:

DESIGNATION OF COUNTY STATE AID HIGHWAY NO. 60

Beginning at the intersection of County State Aid Highway No. 46 (Bagley Avenue) and County State Aid Highway No. 8 (130th Street) near the northeast corner of Section 26, Township 111 N, Range 21 W, thence west along the centerline of the roadway to the northwest corner of said section, thence northerly along east section lines of Sections 22 and 15, Township 111 N, Range 21 W, to the intersection of County State Aid Highway No. 1 (Millersburg Avenue) near the northwest corner of Section 14, 111 N, Range 21 W, and there terminating.

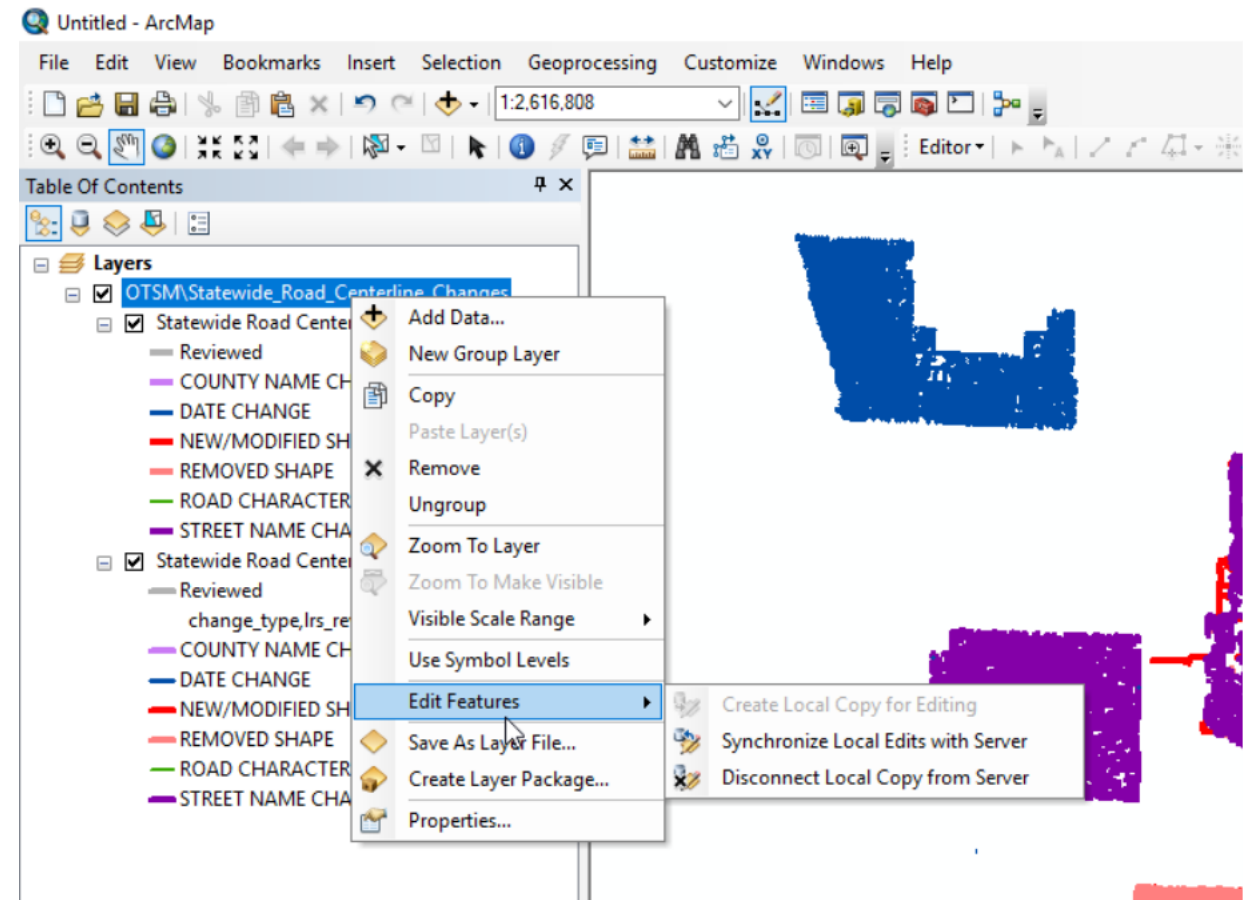
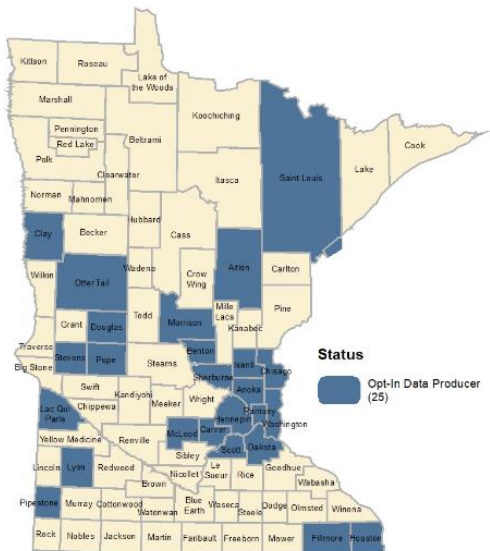
Change Detection Service

Statewide layer of NextGen911 addressable routes

For Emergency Response and Crash coding

Detect changes monthly

Create LRS Redline layer



Work Tracker

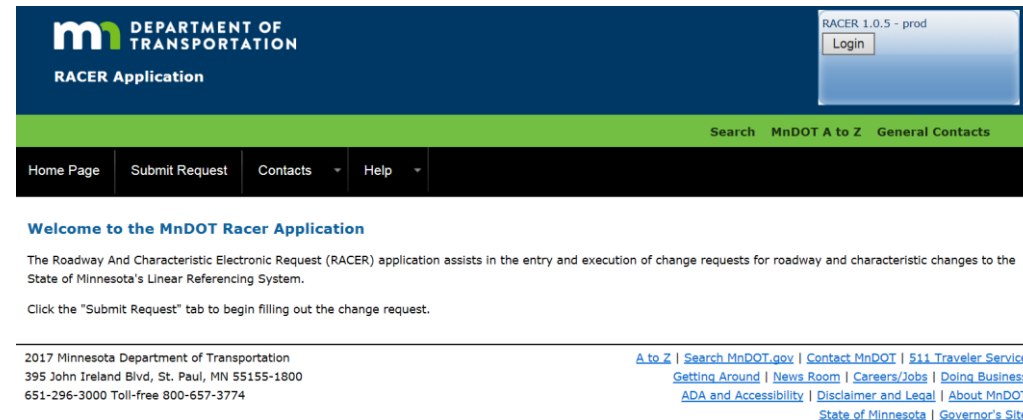
- Queries AASHTOWare Construction DB
- Users note when they complete work
- Queries Permits DB

The screenshot shows an Excel spreadsheet titled 'WorkTracker.xlsx' with the following data:

| | A | B | C | D | E | F | G | H | I | J | K | L |
|-----|-----------------------|---------------------|-------------|-----------------|------------------------|-----------------|--------------|--------------|------------|------------|---------------|--|
| 1 | STATE_PROJECT_NBR | CONTROL_SECTION_NBR | WORK_BEGINS | OPEN_TO_TRAFFIC | COUNTY_LIST | ENGINEER | OPEN_ALTERED | WORK_ALTERED | CPL_STATUS | LRS_STATUS | NOTES | WORK_DESC |
| 144 | 2101-57 & 021-030-002 | 2101 | 05/15/2023 | | DOUGLAS; | Russell Floberg | No | No | Ongoing | JGW | | ADA IMPROVEMENTS, ROUNDABOUT AND LIGHTING. |
| 145 | 2180-118 | 2180 | 07/11/2023 | | DOUGLAS; | Russell Floberg | No | No | Ongoing | NEW | 2180 is split | DOUGLAS COUNTY CONTRACT #2023-4 2180-118 (TH 94=392)NHPP I940 (048)In Douglas County on TH 94 WB from 1.1 Mi W of TH 114 to 2.3 Mi E of TH 114Grading, Bituminous & Concrete Surfacing, Unbonded Concrete Overlay, High Tension Cable Guardrail3.343 Miles |
| 146 | 2205-13 | 2205 | 03/15/2023 | | BLUE EARTH, FARIBAULT; | Adrian Anderson | No | No | Ongoing | NEW | | 2205-13 (TH 22=039), 0703-115 (TH 22=039)STBG 2223(056)In Blue Earth and Faribault Counties on T.H. 22 from C.S.A.H 29 to 1400' S of Borchert StBituminous Mill & Overlay, Cold-in-Place Recycling, ADA Improvements, Lighting, and Extending Br 07X0415.851 Miles |
| 147 | 2207-118 | 2207 | 04/25/2022 | 06/10/2023 | FARIBAULT; | Adrian Anderson | No | No | Ongoing | MISSING | | 2207-118 (T.H. 169=5)NHPP 0169(352)In Faribault County on T.H. 169 from E Polton St to C.S.A.H. 52Bituminous Mill & Surfacing and Lighting8.324 Miles DESIGN BUILD: UNBONDED CONCRETE OVERLAY; RAMPS; LIGHTING; ADA AT REST AREAS; REHAB BRIDGES:22803, 22804, 22815, 22816, 22825, AND 22826; AND |

RACER:

- A web application
- Allows users of LRS data to initiate a data update/correction request
- Automatically notifies users of the status of their request
- Assists LRS management to track and record data requests



LRS Webpage

- Internal webpage

- News

- FAQs

- Terms

- Reports/Data

- Interactive Maps

- Tools

- Contacts

5/9/2024

Jump To Main Content | Contact Web Team

iHUB MnDOT GIS

Search

iHUB External MnDOT

Search iHUB

MnDOT A to Z

- Home ▾
- GIS Users Workshop ▾
- GIS Newsletter ▾
- Data ▾
- Standards ▾
- Software & Applications ▾
- Training ▾
- Help ▾

Payroll ▶

Benefits ▶

Workplace Environment ▶

Your Career ▶

Find People ▶

Find Help ▶

Documents ▶

About MnDOT ▶

MnDOT's Public Website

511

m
DEPARTMENT OF
TRANSPORTATION

Linear Referencing System (LRS)

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What is the LRS?

The Linear Referencing System (LRS) is an ESRI suite of tools. The first tool is an ArcGIS Extension called Roads & Highways (R&H) which enables us to manage the route network with multiple Linear Referencing Methods in a single application. The second is the Event Editor (EE), a web-based tool for editing of route-related characteristics. Third is Data Reviewer (DR), a QA/QC tool to verify that edits are good. Finally, the Workflow Manager (WMX) is similar to Model Builder in that the user creates flowcharts defining the workflow that all editors follow, which ensures standard workflows, consistent data entry and timely notifications. In addition, we also use Feature Manipulation Engine (FME) - a non-Esri software from Safe Technologies, to perform some QA/QC checks and to publish LRS data to the Spatial Data Warehouse (SDW).

The suite is comprised of COTS products, mostly built on standard ESRI technology. The LRS allows the ability to "overlay" non-spatial data for analysis, providing a foundation for data sharing with MnDOT's public and private sector partners. The LRS has temporal capabilities allowing the display, analysis, creation, and management of location data in the past, present, and future. It is also a precursor to functionality, allowing locals to edit their own data as well as providing rule-based methods to automatically update registered data with changes to location information.

Watch this video to see how we edit the LRS: [Walkthrough Demo Video](#)

News:

Demo Video



Search



GIS WEBINAR SERIES

LRS Using Esri Roads and Highways & Roadway Characteristics Editor

2/14/2018

Malcolm Wade – Research Analyst Intermediate

Office of Transportation System Management | Transportation Data Analysis
Department of Transportation

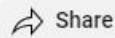
If Skype audio is unavailable | Dial In Number: 888-742-5095 & Participant Code: 9538108030#

MNDOT GIS Webinar Series LRS Roads Highways RCE



Minnesota Department of Transportation
5.35K subscribers

Subscribe



Save



54 views 3 weeks ago
...more

[MNDOT GIS Webinar Series LRS Roads Highways RCE \(youtube.com\)](#)

Intro to Linear referencing

Demo of how we edit in R&H

Demo of Event Editing

LRS Users Group



55 Members

52 Attended first meeting on 1/31/24

Meet Quarterly

Hour meeting

- Announcements
- Updates
- LRS Team
- IT Support
- Customer Presentation/Feedback



Linear Referencing System
Explained



LRS Users Group Survey

First Meetings of the LRS Users Group

Agenda LRS Users Group 1/31/24:

- Welcome/Introduction
- Q&A on the LRS document (see attached)
- LRS Webpage
- Logistics
 - Meeting frequency
 - Length
- Project Updates
- Customer Feedback time
 - How do you use the data
 - What doesn't work/What does
 - Accuracy needs (more data or more accuracy)
 - Others...?
- Suggestions for inputs to improve existing data



Agenda LRS Users Group 4/30/24:

- Welcome/Announcements
 - Domain Updates
 - Control Section Update
- Project updates
 - 3.3 / 11.3
 - New events
- LRS team subjects
 - HPMS events/timeline
 - I/I
- IT subjects
 - LRS in ArcPro downstream impacts
 - SDW Timeline
- Customer Feedback time

Route Location Converter/Enterprise Location Services 2

RLC:

- [Carto Measure/ Reference Point](#)
- [LatLong/UTM](#)
- [Control Section/Ref Posts](#)
- [Stationing Conversion](#)

ELS2:

- Rest Services
- Current/HPMS
- Spreadsheet

 RLC-LRS Route Location Converter for LRS - Production [More Resources](#)

Version 3.10.0 October 25th 2022

Welcome to (RLC) Route Location Converter LRS Calculator and Query Tool.

This new October release is the last of 4 RLC releases accomplished in 2022. There is now a total of 40 handy LRS, HPMS, Bridge, Stationing, and conversion tools in RLC built at request of MnDOT business units and a conversion Excel spread-sheet for small batches. New tooling since the summer release include: Return a list of Construction District Names and IDs, A listing of Route information for all or a selected District with FROM and TO measures and matching X,Y Coordinates. Also added are: forms to Convert Routeld to a list of Control Sections, Convert Routeld to a list of Control Sections Detail including X,Y coordinates, and Convert from Routeld and Cartographic Measure or Reference Post Offset and your choice of either UTM/LL projections to X,Y coordinates. Note that HPMS data 'title' now reflects the new 2021 HPMS data the tool draws from, the year is updated when the data is refreshed each Fall. Powering all is a growing API (ELS2) and ArcGIS services and LRS/SDW datasets. Please see 'More Resources' menu area for links to related resources.

| Get LRS Data | Get 2022 HPMS Data | More Tools |
|---|--|--|
| Retrieve LRS Route Info in different ways. | Retrieve HPMS Route Info in different ways. This HPMS data is the data currently used in the RPMA mapping application. | Coordinate Convert (LL and UTM) |
| Route Detail from RoutelD & CM | HPMS Route Info from CM | XY Coordinate Conversions |
| Route Detail from RoutelD & RP | HPMS Route Info from RP | LL XY Point to Point Distance |
| CM from Route(Name/ID) & LL XY | HPMS CM from HPMS LL XY | UTM XY Point to Point Distance |
| CM from Route(Name/ID) & UTM XY | | Engineering Stations Tools |

(ELS2) Enterprise Location Services Catalog [Production]

v1.76.01 September 27th 2022 2019 - 2022 OAS3

Catalog of RESTful (LRS) Roads and Highways and HPMS API Services. The vast majority of the data is from LRS data in SDW_ schemas generally updated weekly, and other source data for HPMS and ENGSTATIONS. Query and Geometry services are supplied via ArcGIS Server REST API services based on these common datasets, so you are always dealing with quality data. Try live data services here in your browser: calculate measures, query SDW data, obtain URL examples use in your own python, JavaScript, Excel, and other products.

[Terms of service](#)
[GIS Support - Website](#)
[Send email to GIS Support](#)

Servers

| EMMADialog | |
|--|---|
| GET /trans/lrs/api/EMMADialog/v1/About | EMMA basemap application JSON data points returned for use in map popup display. |
| GET /trans/lrs/api/EMMADialog/v2/About | EMMA basemap application JSON data points returned for use in map popup display version 2 |
| GET /trans/lrs/api/EMMADialog/v3/About | EMMA basemap application JSON data points returned for use in map popup display version 3 Added two new fields Route_Status and Pavement_Type for Peter Morey Summer 2022 |

LRS Reports

Static official Reports







- Based off HPMS
- External

Ad-Hoc Current



- Based off HPMS
- Plans for 'current'
- Internal Only

Click on a folder to display the corresponding report

| | |
|--|---|
|   LRS <ul style="list-style-type: none"> HPMS Annual Reports Reference | There are no Reports under this folder. |
|--|---|

Vehicle Miles Traveled (VMT) - multiple of centerline mileage and number of motorized vehicles that travel past a certain location during a specific period of time

[Data](#) | [Methods](#)

(Centerline) Miles and Lane Mileage - Centerline Miles is a term for one mile of a single roadway, regardless of the number of lanes. (If a road is divided, mileage is not doubled.) Lane Mileage refers to a multiple of continual driving lanes and centerline mileage. Both types of figures can be organized by city, county, route system, surface type, and functional class.

[Data](#) | [Methods](#)

Construction Project Log - index of all past and present trunk highway construction projects, organized by county and control section

[Data](#) | [Methods](#)

Roadway Project Mapping Application (RPMA) - used to determine the begin and end points and Carto measures (used to be referred to as "True Miles") of projects going into CHIMES using the static HPMS subset of LRS data

[RPMA page](#)

Trunk Highway Keypoint Report and Keypoint by County reports - sequential listing of landmarks one crosses when driving along a trunk highway or local road in the increasing (reference posts) and decreasing (against reference posts) directions

[Data](#) | [Methods](#)

National Highway System (NHS) - roadways important to the nation's economy, defense, and mobility

[Data](#) | [MnDOT NHS page](#)

Functional Classification - the process by which all roads are grouped into classes or systems according to the character of service they are intended to provide

[Functional Classification page](#)

Control Sections and Statutory Routes - divided and designated segments of the state highway road system

[Data](#) | [Methods](#)

General Reference - lists of cities/counties/townships by county

[Data](#)

Mapping Tools

Enterprise MnDOT Mapping Application (EMMA)

- 'Current' LRS
- Crash Coders/State Aid

5/9/2024

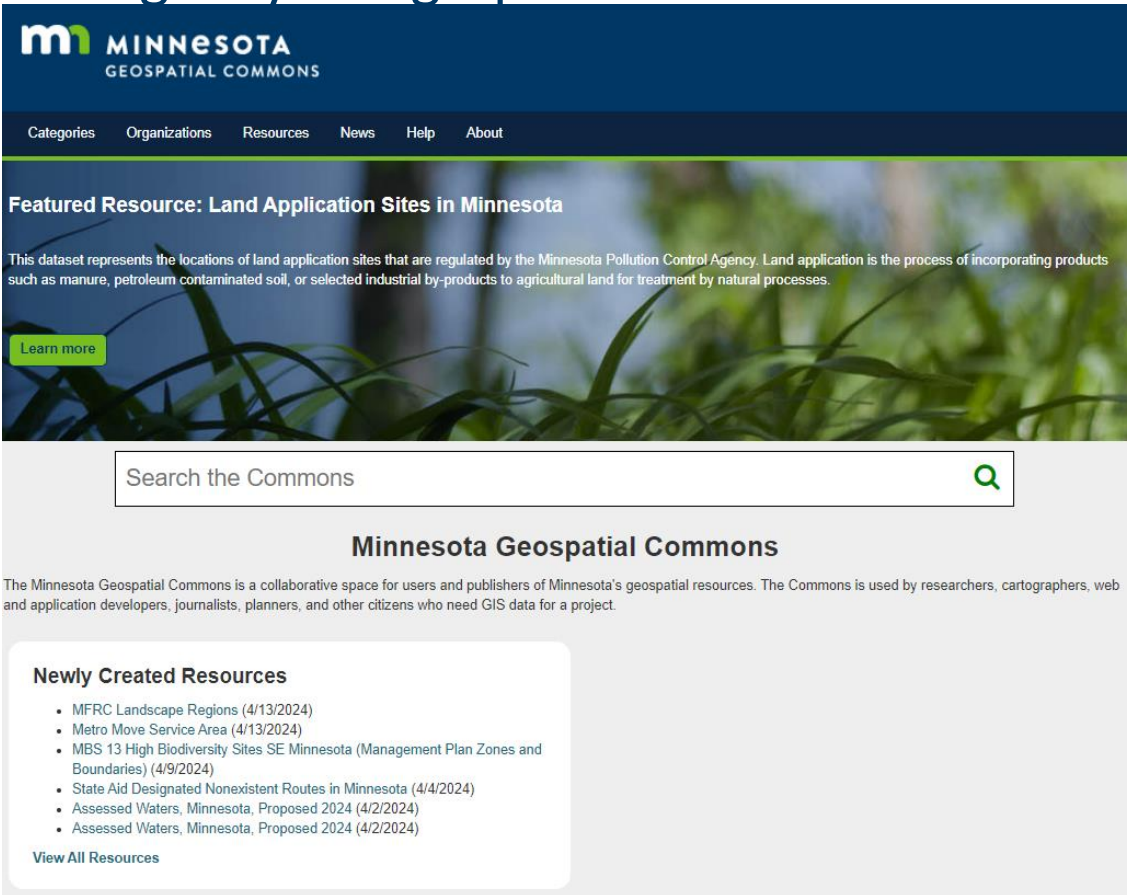
Roadway Project Mapping Application (RPMA)

- HPMS Freeze
- FMIS projects

20

<https://gisdata.mn.gov/>

All Agency Geographic data



The screenshot shows the homepage of the Minnesota Geospatial Commons. At the top is the logo for Minnesota Geospatial Commons. Below the logo is a navigation menu with links for Categories, Organizations, Resources, News, Help, and About. The main content area features a "Featured Resource: Land Application Sites in Minnesota" with a description and a "Learn more" button. Below this is a search bar labeled "Search the Commons". Further down is the heading "Minnesota Geospatial Commons" followed by a paragraph describing the Commons as a collaborative space. At the bottom, there is a section for "Newly Created Resources" with a list of recent uploads and a "View All Resources" link.

MINNESOTA GEOSPATIAL COMMONS

Categories Organizations Resources News Help About

Featured Resource: Land Application Sites in Minnesota

This dataset represents the locations of land application sites that are regulated by the Minnesota Pollution Control Agency. Land application is the process of incorporating products such as manure, petroleum contaminated soil, or selected industrial by-products to agricultural land for treatment by natural processes.

[Learn more](#)

Search the Commons

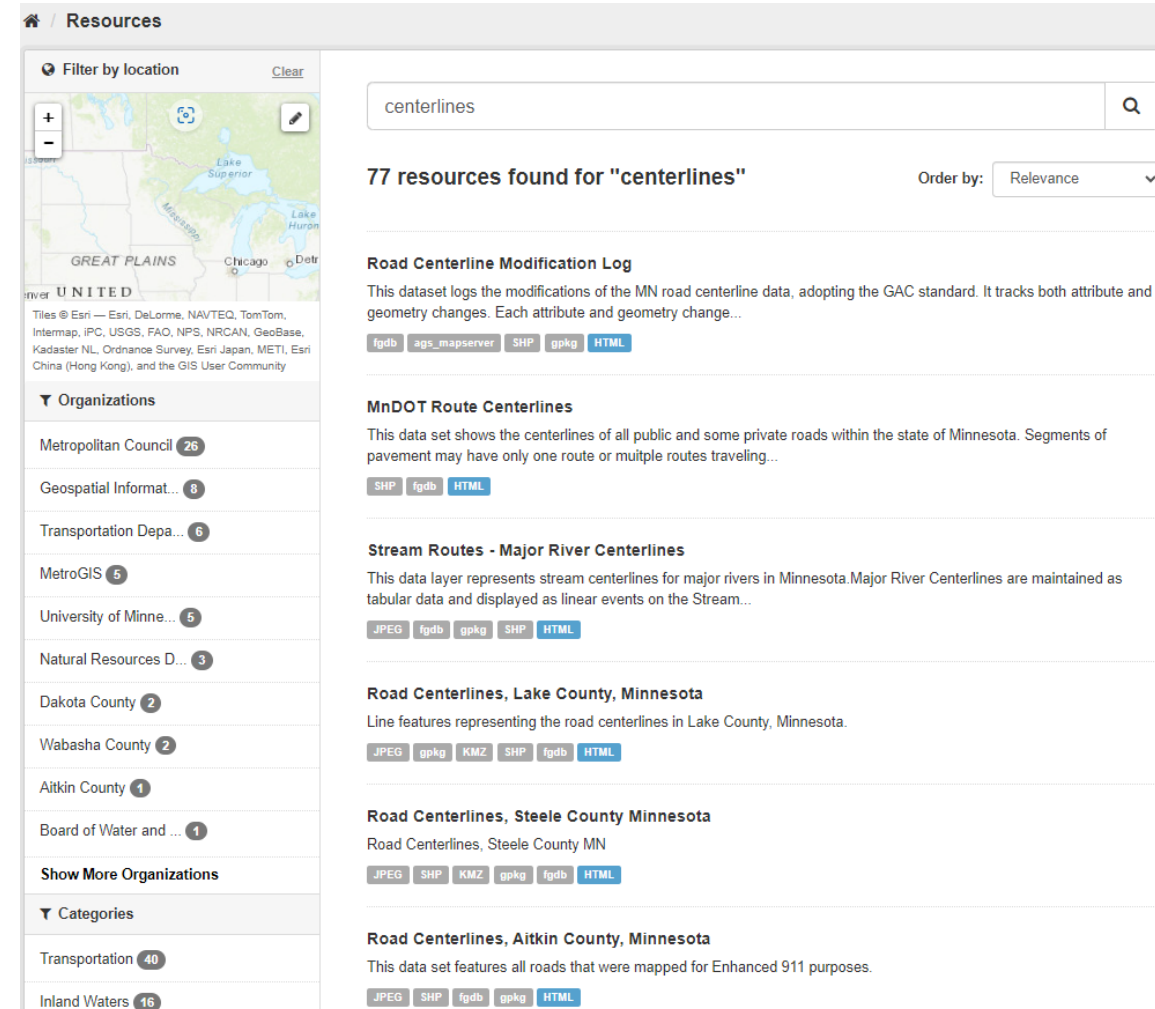
Minnesota Geospatial Commons

The Minnesota Geospatial Commons is a collaborative space for users and publishers of Minnesota's geospatial resources. The Commons is used by researchers, cartographers, web and application developers, journalists, planners, and other citizens who need GIS data for a project.

Newly Created Resources

- MFRC Landscape Regions (4/13/2024)
- Metro Move Service Area (4/13/2024)
- MBS 13 High Biodiversity Sites SE Minnesota (Management Plan Zones and Boundaries) (4/9/2024)
- State Aid Designated Nonexistent Routes in Minnesota (4/4/2024)
- Assessed Waters, Minnesota, Proposed 2024 (4/2/2024)
- Assessed Waters, Minnesota, Proposed 2024 (4/2/2024)

[View All Resources](#)



The screenshot shows the search results page for "centerlines" on the Minnesota GeoCommons website. The page has a search bar at the top with the query "centerlines" and a search icon. Below the search bar, it displays "77 resources found for 'centerlines'" and an "Order by: Relevance" dropdown menu. The main content area lists several resources, each with a title, a brief description, and a list of available file formats. On the left side, there is a sidebar with a map and a list of organizations and categories.

Resources

Filter by location Clear

centerlines

77 resources found for "centerlines" Order by: Relevance

Road Centerline Modification Log

This dataset logs the modifications of the MN road centerline data, adopting the GAC standard. It tracks both attribute and geometry changes. Each attribute and geometry change...

fgdb ags_mapserver SHP gpkg HTML

MnDOT Route Centerlines

This data set shows the centerlines of all public and some private roads within the state of Minnesota. Segments of pavement may have only one route or multiple routes traveling...

SHP fgdb HTML

Stream Routes - Major River Centerlines

This data layer represents stream centerlines for major rivers in Minnesota. Major River Centerlines are maintained as tabular data and displayed as linear events on the Stream...

JPEG fgdb gpkg SHP HTML

Road Centerlines, Lake County, Minnesota

Line features representing the road centerlines in Lake County, Minnesota.

JPEG gpkg KMZ SHP fgdb HTML

Road Centerlines, Steele County Minnesota

Road Centerlines, Steele County MN

JPEG SHP KMZ gpkg fgdb HTML

Road Centerlines, Aitkin County, Minnesota

This data set features all roads that were mapped for Enhanced 911 purposes.

JPEG SHP fgdb gpkg HTML

Organizations

- Metropolitan Council 26
- Geospatial Informat... 8
- Transportation Depa... 6
- MetroGIS 5
- University of Minne... 5
- Natural Resources D... 3
- Dakota County 2
- Wabasha County 2
- Aitkin County 1
- Board of Water and ... 1

Show More Organizations

Categories

- Transportation 40
- Inland Waters 16

Metadata Mover

Table Properties

| Field Name | Data Type |
|--------------------|--------------|
| OBJECTID | Object ID |
| COPY_METADATA | Long Integer |
| COPY_FC | Long Integer |
| FEATURE_CLASS_NAME | Text |
| FROM_META_PATH | Text |
| TO_META_PATH | Text |
| FROM_FC_PATH | Text |
| TO_FC_PATH | Text |
| PRIM_CONTACT | Long Integer |
| DIST_CONTACT | Long Integer |
| META_CONTACT | Long Integer |
| SCHM | Text |
| GDRS_ALIAS | Text |

- Developed in house
- Updates & Publishes data & Metadata
- Variables managed in 2 tables

```

</keywords>
<ptcontac>
  <cntinfo>
    <cntperp>
      <cntorg>Minnesota Department of Transportation</cntorg>
      <cntper>primNAME</cntper>
    </cntperp>
    <cntpos>primTITLE</cntpos>
    <cntaddr>
      <address>primADDRESS</address>
      <city>primCITY</city>
      <state>primSTATE</state>
      <postal>primZIPCODE</postal>
    </cntaddr>
    <cntvoice>primPHONE</cntvoice>
    <cntfax>primFAX</cntfax>
    <cntemail>primEMAIL</cntemail>
  </cntinfo>
</ptcontac>
</idinfo>

```

| OBJECTID * | NAME | TITLE | ADDRESS | CITY | STATE | ZIPCODE | PHONE | FAX | EMAIL |
|------------|--------------------|--|------------------------|------------|-------|---------|--------------|--------------|---|
| 1 | Blaine Hackett | LRS Unit Supervisor | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3852 | 651-366-3886 | blaine.hackett@state.mn.us |
| 2 | Kyle House | Research Analyst Intermediate | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3873 | 651-366-3886 | linearreferencingsystem.admin.dot@state.mn.us |
| 3 | Peter Morey | Data Systems and Coordination Section Director | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3872 | 651-366-3886 | linearreferencingsystem.admin.dot@state.mn.us |
| 4 | Mike Eull | Research Analysis Specialist | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3859 | 651-366-3886 | michael.eull@state.mn.us |
| 5 | Scott Patnode | HPMS Program Coordinator | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3870 | 651-366-3886 | scott.patnode@state.mn.us |
| 6 | Artulo Botello | Research Analysis Specialist | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3860 | 651-366-3886 | art.botello@state.mn.us |
| 7 | Pat Phenow | state Program Administrator Principal | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3672 | 651-366-3720 | patrick.phenow@state.mn.us |
| 8 | Ryan Gaug | Planning Director Transportation | 222 East Plato Blvd. | Saint Paul | MN | 55107 | 651-234-7236 | 651-296-9089 | ryan.gaug@state.mn.us |
| 9 | Chris Morgan | Planner | 222 East Plato Blvd. | Saint Paul | MN | 55107 | 651-234-7263 | 651-296-9089 | christopher.morgan@state.mn.us |
| 10 | Michael Ligday | state Program Administrator Principal | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3587 | 651-282-9904 | michael.ligday@state.mn.us |
| 11 | Robert H. Williams | Landscape Architect Senior | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-4702 | 651-366-4699 | robert.williams@state.mn.us |
| 12 | Jesse Pearson | State Program Administrator Coordinator | 395 John Ireland Blvd. | Saint Paul | MN | 55155 | 651-366-3881 | 651-366-4111 | linearreferencingsystem.admin.dot@state.mn.us |

Thank you again!

Peter Morey

Peter.Morey@state.mn.us

651-366-3872

from Patrick Kemble - NYSDOT - HDSB to Everyone

12:30

Look at all those fancy RHUG folks!

from Koschatzky, Ryan J to Everyone

12:33

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

from Koschatzky, Ryan J to Everyone

12:36

The ted talks were great and the team should present some of those talks here.

from peter morey MnDOT to Everyone

12:37

Could also do an informal discussion of people writing Attribute Rules, what worked or what challenges are they having

from Clive Reece to Everyone

12:39

FYI to all, ArcGIS 3.3 is released and available. See these blogs: What's New in Pro 3.3 (<https://www.esri.com/arcgis-blog/products/arcgis-pro/announcements/whats-new-in-arcgis-pro-3-3/>) and ArcGIS Pro moves to .NET8 (<https://www.esri.com/arcgis-blog/products/arcgis-pro/announcements/arcgis-pro-3-3-moves-to-net-8/>)

from Ethan ODOT to Everyone

12:39

In ArcPro does anyone else have the bug (?) / issue where you can't transfer a version or delete it after changing to another version. We have to close Pro and reopen it inorder to do it

from Jared Mitchell - RIDOT to Everyone

12:41

Will the widgets for Experience Builder require licensing to use?

from Lesh, Erin A to Everyone

12:42

@Ethan - NC is not at Pro yet or we could have tested that

from Nicole Hanson to Everyone

12:43

ITD probably has some folks to try Experience Builder Nathan.

from Alex Carter to Everyone

12:43

Ethan, I believe i have had the same issues with trying to delete child versions.

from Ethan ODOT to Everyone

12:44

No, I'm asking if anyone has this issue

from Kevin Hunt to Everyone

12:45

@Ethan - Starting to work with Pro but not that far along yet. Thanks for the heads up.

from Jared Mitchell - RIDOT to Everyone

12:45

OK, thanks!

from Alex Carter to Everyone

12:45

Is there a best option when choosing the options for a support ticket, seems like this piece of software is missing on the drop downs?

from Ethan ODOT to Everyone

12:45

ok thanks

from Kevin Hunt to Everyone

12:46

Why isn't R & H in the pull down list though?

from Lesh, Erin A to Everyone

12:47

@Alex - I haven't submitted a ticket lately but I think it was listed under industry solutions

from Kevin Hunt to Everyone

12:47

...on support.esri.com. Seems like every other product is there. Strange.

from Alex Carter to Everyone

12:47

I don't think it is, but maybe it's been added lately.

from Alex Carter to Everyone

12:47

Thanks

from Kevin Hunt to Everyone

12:47

Thanks Nathan.

from Ethan ODOT to Everyone

12:55

@Nathan - Looks like this bug has already been reported: <https://support.esri.com/en-us/bug/the-error-message-the-version-is-currently-in-use-is-re-bug-000152519>

from Lesh, Erin A to Everyone

13:00

I can unmute folks - let me know if you would like to be unmuted

from INDOT - Kevin Munro to Everyone

13:01

Peter - what were some of the permitting events that were being missed and were important to you?

from Nathan Easley to Everyone

13:01

@Ethan, looks like this was fixed in Pro 3.1 and 3.0.6. Are you on an earlier version?

from Ethan ODOT to Everyone

13:04

3.2.1

from Nathan Easley to Everyone

13:06

I'd definitely open the support case. It's either a slightly different issue or the fix has regressed or appeared a different way from the previous version.

from Ethan ODOT to Everyone

13:12

ok thanks for the help Nathan

from Shaun Perfect to Everyone

13:19

sorry, 1pm CST

from Alex Carter to Everyone

13:32

@Ethan is your email Ethan.Pointer@dot.ohio.gov? Going to send you an email regarding the versioning issue.

from Kevin Hunt to Everyone

13:36

@Peter – you mentioned the benefit of giving the agency executives a better appreciation of the level of effort involved in maintaining the LRS. What are a couple of the other biggest benefits or return on investment you have observed from publishing so much information about the LRS and how it is and may be used?

from Kevin Hunt to Everyone

13:39

A good answer. An impressive effort to share information on your business processes. Thank you for sharing with us.

from Erin Westfall to Everyone

13:40

Is there a financial or non-financial incentive for municipalities to send you their roadway changes?

from Dorothy - ITD to Everyone

13:40

What kind of response do you get from users reporting changes?

from INDOT - Kevin Munro to Everyone

13:41

You talked about improving communication with your permits department. What permit data were you interested in using that affected what events in your LRS?

from INDOT - Kevin Munro to Everyone

13:42

Thanks!

from Jennifer Campbell to Everyone

13:45

How do you identify if it's a public road?

from Ethan ODOT to Everyone

13:45

@Alex yes

from Mohla, Kathleen@DOT to Everyone

13:48

Excellent presentation...Thank you Peter!

from Peter Morey MnDOT to Everyone

13:48

Peter.Morey@state.mn.us

from Alex Carter to Everyone

13:49

Very good, thanks!

from Nicole Hanson to Everyone

13:54

Why did you chuckle Shaun?! LOL

from Nicole Hanson to Everyone

13:54

Was it remembering I said ArcMap was dead?

from Nicole Hanson to Everyone

13:55

If anyone wants a copy of the picture we took at the SIG, it's been shared on the GIS-T Social media sites!

from Lesh, Erin A to Everyone

13:56

made me laugh @Nicole :)

from Tyler Hislop to Everyone

13:56

which social media site?

from Nicole Hanson to Everyone

13:56

LOL FB, Twitter, Linked In, IG

from Tyler Hislop to Everyone

13:56

or, all of them?

from Chervunkong, Chingsou K@DOT to Everyone

13:56

Thanks, ever

from Glendora to Everyone

13:56

thanks

from Cameron Cole to Everyone

13:56

thanks all

from peter morey MnDOT to Everyone

13:56

Thanks all

from Nicole Hanson to Everyone

13:56

wasn't laughing at you Tyler - that LOL was for Erin

from Hong Liang - GDOT to Everyone

13:56

thanks!