DATA GOVERNANCE

Beyond the Buzzword

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Planning & Research
GIS and Mapping

ARDOT ARKANSAS DEPARTMENT OF TRANSPORTATION

The Office Fridge

The Office Fridge Data Governance

1. You should bring back a magnet if you travel anywhere for any reason to put on the fridge

2. Enter the Magnet/Who/When/Why/Lat/Long in the shared network database

Magnet	Who	When	Why	Latitude	Longitude
Arkansas	Sharon Hawkins	2014	State Capitol Visit	34.74714	-92.289017
Buffalo River 50th	Tim Mahan	2023	Float Trip	36.010306	-92.949781
Arizona - US 66	Amber Vinson	2024	Family Visit	35.68868	-113.452774
Buffalo River Photo	Tim Mahan	2023	Float Trip	36.010306	-92.949781
Crested Butte	Tim Mahan	2022	Ski Trip	38.870498	-106.981744
Crested Butte	Tim Mahan	2023	Ski Trip	38.870498	-106.981744
Crested Butte	Tim Mahan	2024	Ski Trip	38.870498	-106.981744
Steamboat	Tim Mahan	2024	Ski Trip	40.489254	-106.816341
The Pig Trail - Hwy 23	Tim Mahan	2017	Scenic Drive	35.692799	-93.812988
Purgatory	Tim Mahan	2021	Ski Trip	37.62896	-107.837903
D Day - Normandy	Sharon Hawkins	2019	Vacation	49.340242	-0.598602
Holland - Netherlands	Sharon Hawkins	2019	Vacation	51.932129	4.993364
Wright Brothers Natio...	Mark Jaeger	2022	Vacation	36.016986	-75.668163
Taos, NM	Tim Mahan	2021	Ski Trip	36.596235	-105.450788
Gilbert Store - Buffalo...	Tim Mahan	2023	Float Trip	35.988945	-92.715747
Williamsburg, Virginia	Mark Jaeger	2023	Vacation	37.271351	-76.695783
Las Vegas	Mark Jaeger	2023	Family Trip	36.178266	-115.135426
Hillbilly Slim's	Tim Mahan	2024	Dinner	35.674952	-92.950600
Lake Arrowhead, Rome...	Amber Vinson	2024	Family Trip	44.194111	-89.81702
Dallas, TX	Greg Cullum	2021	Family Trip	32.802667	-96.798853
Beaver Lake	Joseph Jordan	2023	Move to NWAR	36.400817	-94.072037
Wiederkehr Village	Tim Mahan	2023	Wine Tasting	35.509533	-93.759272
Wisconsin	Mark Jaeger	2024	Family Trip	44.503283	-89.691973
Turkiye	Ozlem Polat	2023	Family Trip	38.705885	35.320484
Paris	Sharon Hawkins	2019	Vacation	48.863591	2.337421
Germany	Sharon Hawkins	2019	Vacation	51.03055	10.31017
Seattle	Jessie Jones	2015	Family Trip	47.675074	-122.35113
Amsterdam	Sharon Hawkins	2019	Vacation	52.379374	4.884733
Destin, FL	Greg Cullum	2019	Vacation	30.389416	-86.444482
BUC-EE'S	Greg Cullum	2021	Family Trip	32.98542	-96.294199
Rabbit Ridge Farms	Tim Mahan	2021	Eat/Shop	35.395814	-92.456235
Mombasa, Kenya	Emily Timpattie	2017	Family Home	-4.059332	39.677935
French Quarter	Mark Jaeger	2021	Movie Filming Trip	29.958449	-90.06303
Washington DC	Sharon Hawkins	2019	Work Trip	38.896665	-77.003249
White Sands National...	Jake Mashburn	2023	Family Trip	32.793067	-106.325975
Disney World - Christm...	Mark Jaeger	2022	Family Trip	28.377384	-81.570804

WHERE WE'VE BEEN

The Office Fridge
Data Governance

1. You should bring back a magnet if you travel anywhere for any reason to put on the fridge

2. Enter the Magnet/Who/When/Why/Lat/Long in the shared network database

3. Check the map! Is your location correct?

4. If there's no room on the front for your magnet, put it on the side

The Office Fridge
Data Governance

1. You should bring back a magnet if you travel anywhere for any reason to put on the fridge

2. Enter the Magnet/Who/When/Why/Lat/Long in the shared network database

3. Check the map! Is your location correct?

4. If there's no room on the front for your magnet, put it on the side

5. Once a magnet is on the fridge – it can't be removed unless the office gets a new fridge – then it will be transferred

The Office Fridge Data Governance

- Following Policy/Procedure
- Accountability
- Accessibility
- Quality Control
- Data Ownership
- Repeatable
- Sustainable

Requires Oversight (Governance)

Creating Meaningful & Impactful Data

Beyond the Fridge

DATA GOVERNANCE

3 Things to Consider

WHERE
WHAT
WHY

WHERE

Do you know where your data is?

- Department Server/Network
- Managed Cloud Infrastructure
- Individual Machine (C: Drive) 🤔
- Machine Desktop 😵
- Hard Copy 🤔

Is it the sole/authoritative source?

- Do other copies exist that aren't maintained or maintained differently? 😵

Is it easily accessible to others that need the data?

- Established rules for when/how data can be shared
- Documented information on how to see/connect

example

WHERE

Credit: Joseph Jordan (P&R GIS)

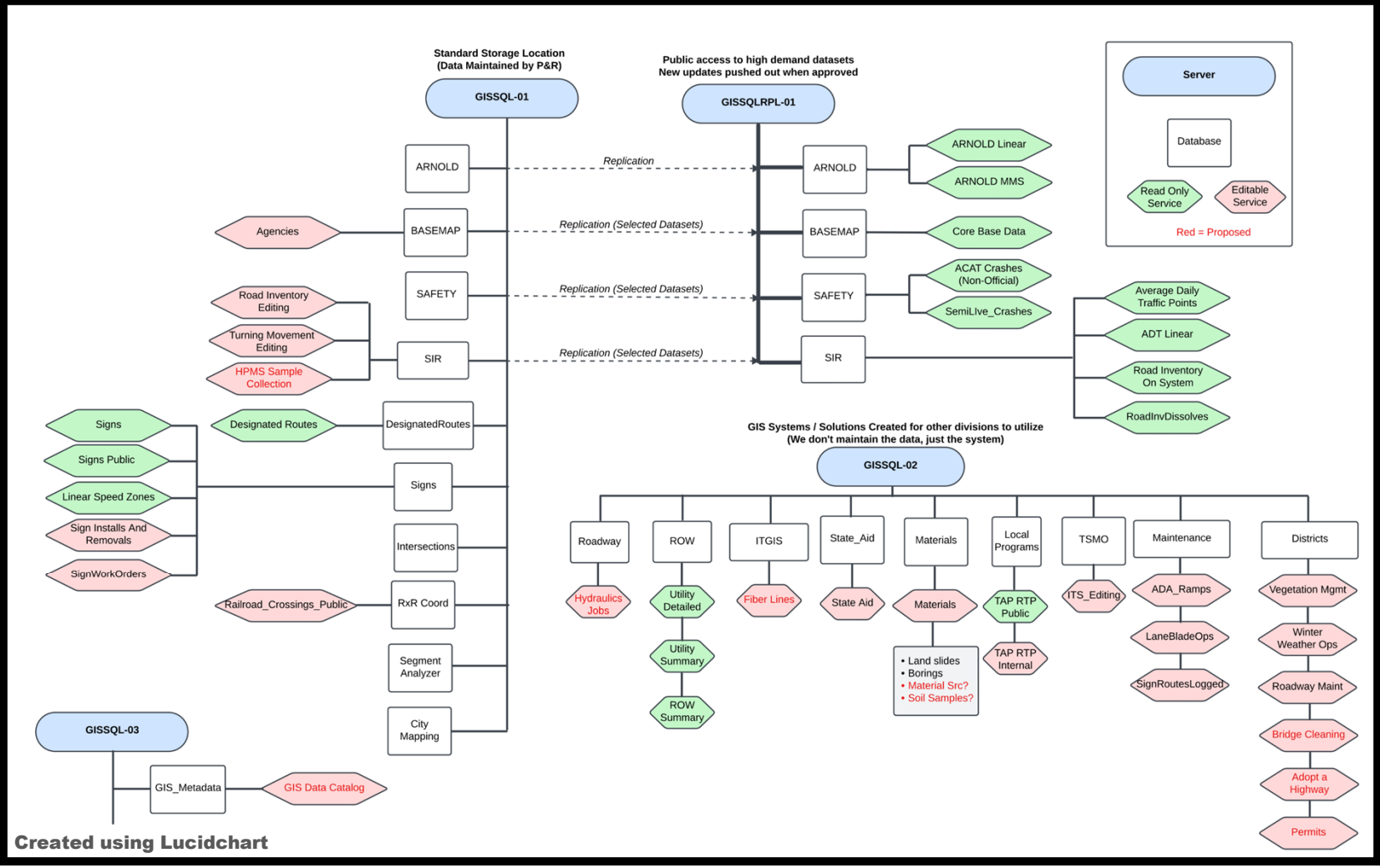
IT Division – Dedicated Server(s) & Database Creation

IT Division – Data Permissions - Migration Assistance

Database – Data Owner

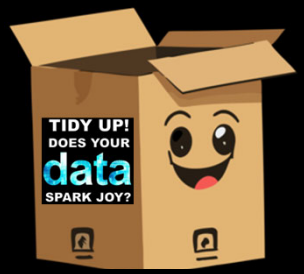
Connection Type

Vision – "Mapped" Data for quick reference to WHERE



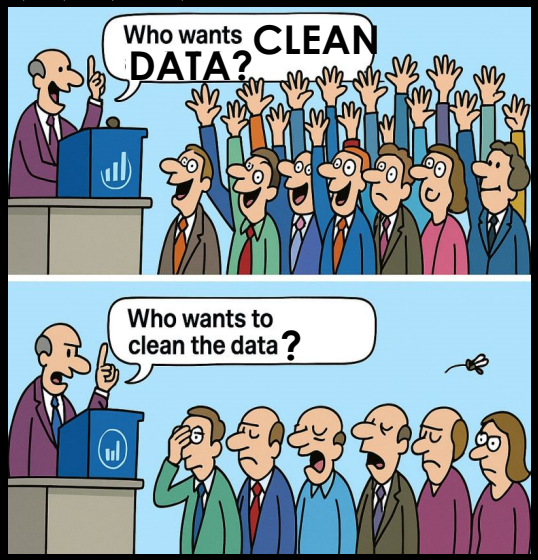
Created using Lucidchart

MOVING OR ORGANIZING DATA?



THE OPPURTUNITY TO TIDY UP IS NOW!

https://datapulseweekly.substack.com/p/10-funniest-data-memes-from-the-internet



WHERE

- Correct inaccurate data
- Remove duplicate data
- Delete irrelevant data
- Format and standardize data
- Discover missing data
- Re-Home Data

WHERE

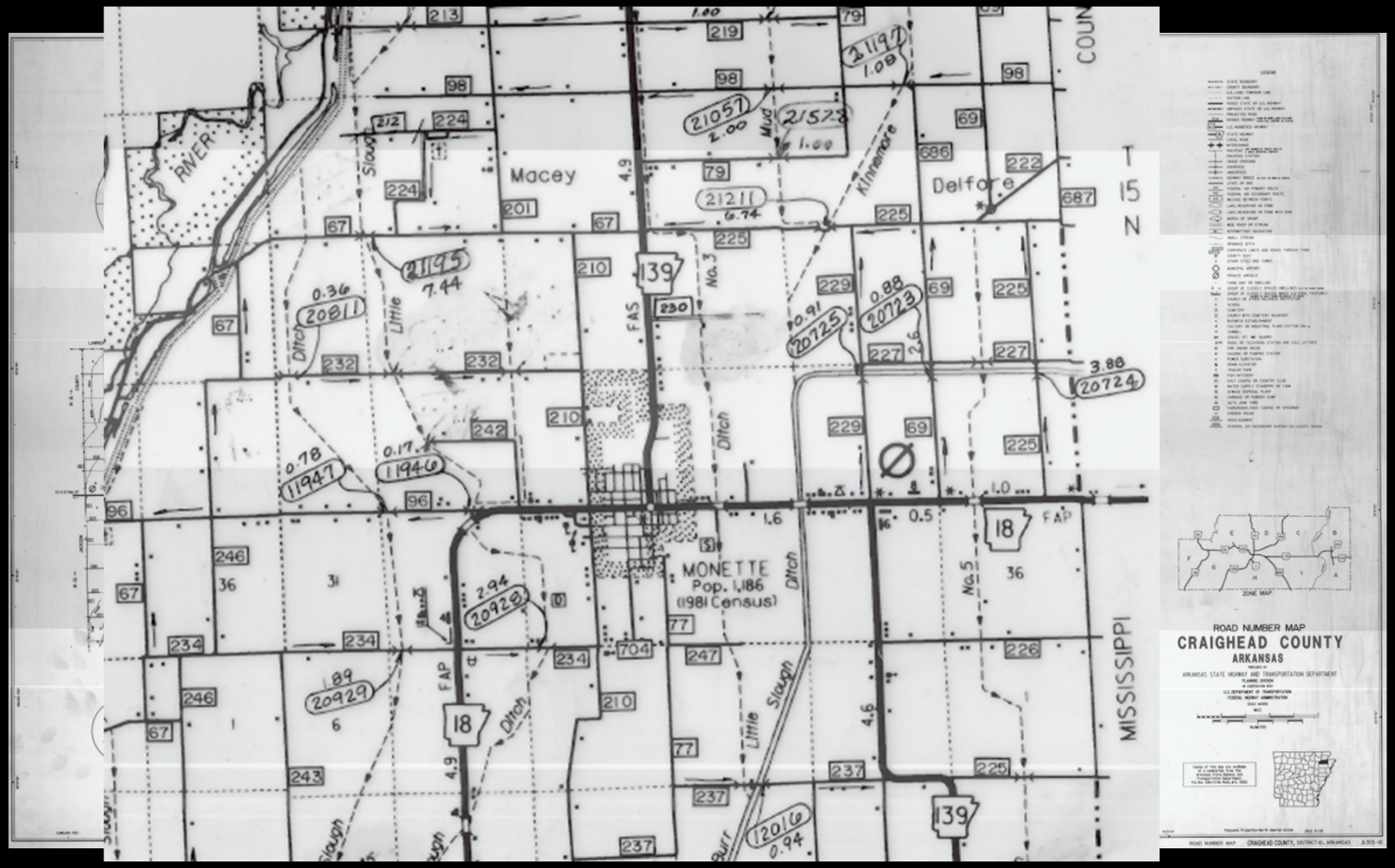
Example
Re-Home Data

Bridge Division – 1980s Edition County Road Number Maps with Bridge #s – original hard copies

Bridge Division - e-mailed HR (Records), P&R and Environmental Divisions to start the process of getting maps scanned and archived

Records scanned the maps - P&R and Environmental working together to preserve the originals and scanned copies

AND...
Check this out



WHERE

Example

Re-Home Data

AND…

ASK ARDOT

September 17th, 2025

The map is listed as:
Bridge and County Road Number Map
Carroll County Arkansas
Prepared by ARDOT Planning Division
Road Numbers Map-Carroll County
A 313-8
Issued date 9-20-1980

If you have this map, I would like to buy a copy.

WHAT

The “Nitty-Gritty”

Movie Credits

Congresswoman Niki Tsongas Gary Marcuse Professor Aronson Kimberly Latnem

Professor Jay Aronson Heather Martin Mayor Bloomberg Denise and Jack Hignell
Mayor Mike Bloomberg Michelle Mason Senator Chris Dodd Sandi Higgins
Senator Chris Dodd Medrie McPhee Senator Hillary Clinton Judy Jackson
Senator Hillamry Clinton Dan Merkle Clysdale Cases Angela Jean-Louis
Christopher Gora Walter Miale Betsy Carson Rebecca Jenkins
Caterina Shakova Abbey Neidik Michel Desormeaux Alexia Karayanis
Vitaliy Potanov Erik Nordby Tony DiVengi Judy Klassen
Nicole Audy Karen Lam

Edited by
JENNIFER ABBOTT

Narration written by
JOEL BAKAN • MARK ACHBAR

Sound Designer & Music Supervisor
VELCROW RIPPER

Commissioning Editor, TVO
RUDY BUTTIGNOL

Co-Producers
NATHAN NEUMER • TOM SHANDEL

Original Music
LEONARD J. PAUL

Narrator
MIKELA J. MIKAEL

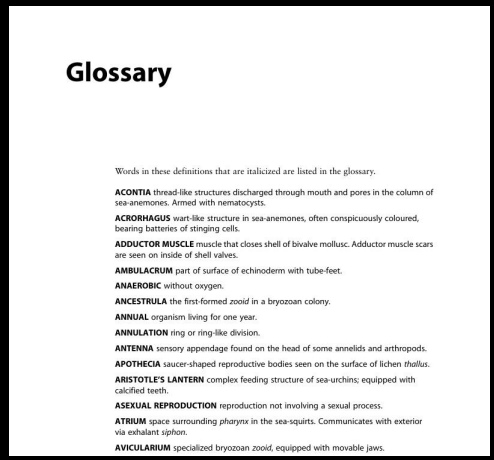
Associate Producers
JOEL BAKAN • DAWN BRETT

Archival Researcher
TINA REILHAN

Ingredients

INGREDIENTS: ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMIN MONONITRATE [VITAMIN B_1], RIBOFLAVIN [VITAMIN B_2], FOLIC ACID), CORN SYRUP, SUGAR, SOYBEAN AND PALM OIL (WITH TBHQ FOR FRESHNESS), CORN SYRUP SOLIDS, DEXTROSE, HIGH FRUCTOSE CORN SYRUP, FRUCTOSE, GLYCERIN, CONTAINS 2% OR LESS OF COCOA (PROCESSED WITH ALKALI), POLYDEXTROSE, MODIFIED CORN STARCH, SALT, DRIED CREAM, CALCIUM CARBONATE, CORNSTARCH, LEAVENING (BAKING SODA, SODIUM ACID PYROPHOSPHATE, MONOCALCIUM PHOSPHATE, CALCIUM SULFATE), DISTILLED MONOGLYCERIDES, HYDROGENATED PALM KERNEL OIL, SODIUM STEAROYL LACTYLATE, GELATIN, COLOR ADDED, SOY LECITHIN, DATEM, NATURAL AND ARTIFICIAL FLAVOR, VANILLA EXTRACT, CARNAUBA WAX, XANTHAN GUM, VITAMIN A PALMITATE, YELLOW #5 LAKE, RED #40 LAKE, CARAMEL COLOR, NIACINAMIDE, BLUE #2 LAKE, REDUCED IRON, YELLOW #6 LAKE, PYRIDOXINE HYDROCHLORIDE (VITAMIN B_6), RIBOFLAVIN (VITAMIN B_2), THIAMIN HYDROCHLORIDE (VITAMIN B_1), CITRIC ACID, FOLIC ACID, RED #40, YELLOW #5, YELLOW #6, BLUE #2, BLUE #1.

Glossary



Glossary

Words in these definitions that are italicized are listed in the glossary.

ACONTIA thread-like structures discharged through mouth and pores in the column of sea-anemones. Armed with nematocysts.

ACRORHAGUS wart-like structure in sea-anemones, often conspicuously coloured, bearing batteries of stinging cells.

ADDUCTOR MUSCLE muscle that closes shell of bivalve mollusc. Adductor muscle scars are seen on inside of shell valves.

AMBULACRUM part of surface of echinoderm with tube-feet.

ANAEROBIC without oxygen.

ANCESTRULA the first-formed *zooid* in a bryozoan colony.

ANNUAL organism living for one year.

ANNULATION ring or ring-like division.

ANTENNA sensory appendage found on the head of some annelids and arthropods.

APOTHECIA saucer-shaped reproductive bodies seen on the surface of lichen *thallus*.

ARISTOTLE'S LANTERN complex feeding structure of sea-urchins; equipped with calcified teeth.

ASEXUAL REPRODUCTION reproduction not involving a sexual process.

ATRIUM space surrounding *pharynx* in the sea-squirts. Communicates with exterior via exhalant *siphon*.

AVICULARIUM specialized bryozoan *zooid*, equipped with movable jaws.

DATA DICTIONARY

Example

ARNOLD

WHAT DATA DICTIONARY

FIELDNAME	LENGTH	TYPE	DESCRIPTION	DOMAIN
RD_CLASS	25	text	The entity by or through which a road is maintained	FE = federal[1] ST = state[2] CO = county MU = municipal PR = private LR = levee road
RD_DESIGN[3]	25	text	Design characteristic of the road	DC = dual carriageway SC = single carriageway TC = traffic circle CS = connector segment RA = grade-separated ramp RG = at-grade ramp FR = frontage road HF = highway facility MC = median crossover
RD_SURFTYP	25	text	Road surface type	P = paved[4] U = unpaved[4]
LOG_DIRECT	2	text	Indication of whether travel on a dual carriageway road is in the log or antilog direction	A = Log Direction B = Antilog Direction

[1] "FE" in the RD_CLASS field includes roads maintained by specific federal agencies, e.g. U.S. Forest Service, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, National Park Service, etc.

[2] "ST" in the RD_CLASS field includes interstate highways, US highways, state highways, and any other road maintained by a state government entity. Particularly, anything currently in the Department's LRS classified as a state maintained route should be included in this class.

[3] In some counties, roadway design elements such as dual carriageways, connector segments, traffic circles, and access ramps may not have been digitized or maintained spatially to the specification required. In these cases, AGIO will work with the county personnel to add or modify these features in the countywide ACF dataset according to all public roads LRS requirements. If necessary, AGIO will create these features for the county. Creation and attribution of these features will be based upon available evidence including, but not limited to, existing Department data, aerial photography, situs address points, and local knowledge. Additionally, AGIO will ensure the left/right address range values are adjusted to account for geometry changes described above.

[4] A county may choose to maintain surface type attributes that are more detailed than "paved" or "unpaved". However, the RD_SURFTYP field will only carry the "paved" or "unpaved" attribute to meet the all public roads LRS requirement.

FIELDNAME	LENGTH	TYPE	DESCRIPTION	DOMAIN
AH_District	2	text	The number of the Department District in which the road is contained.	1 through 10
AH_County	25	text	The Department assigned number of the county in which the road is contained.	1 through 75
AH_Route	100	text	The assigned official route number or name based on Department Road Inventory and official local road names.	Official highway number or local road name
AH_Section	3	text	Department assigned section number of each highway and local road.	Official highway and local road section number
AH_BLM	6	number	Department calculated begin log mile of each highway and local road segment.	Calculated begin log mile
AH_ELM	6	number	Department calculated end log mile of each highway and local road segment.	Calculated end log mile
AH_Length	6	number	Department calculated length of each highway and local road segment.	Calculated length
AH_Seg_Num	5	number	Calculated segment number based on road direction.	Calculated segment number
AH_Rev_ACF	Yes/No	text	States if the road direction in the delivered file from AGIO was reversed to match the Department log direction.	Yes = The geometry was reversed No = The geometry was not reversed
AH_ID	150	text	Concatenated county x route x section x log_direct x segment number	Unique ID required by FHWA
AH_RoadID	150	text	Concatenated county x route x section x log_direct for Dynamic Segmentation	Dynamic Segmentation field
AH_Signed	10	text	How each road is signed for quick retrieval.	Interstate = Interstate Highways US = U.S. Highways State = State Highways Local = All other Local Roadways

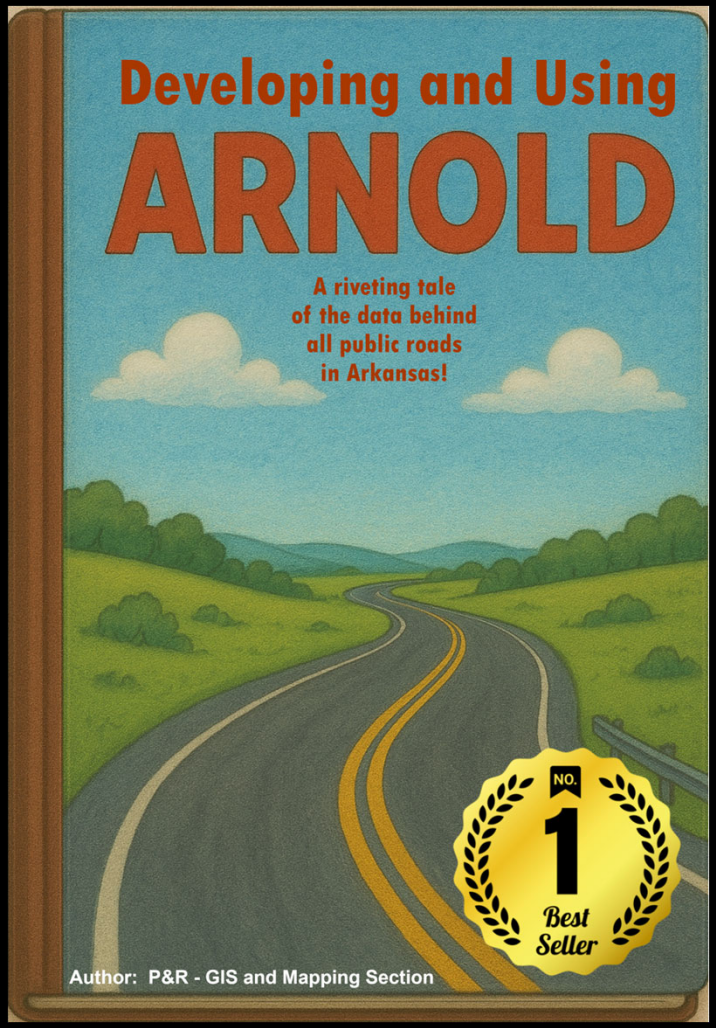
Credit: Greg Cullum (P&R GIS)

FIELDNAME	LENGTH	TYPE	DESCRIPTION	DOMAIN
created_user	255	text	The name of the user who created the feature.	Active Directory User Names
created_date		date	The date on which the feature was created.	01/01/1753 00:00:00 AM – 12/31/9999 23:59:59 PM
last_edited_user	255	text	The name of the user who last edited the feature.	Active Directory User Names
last_edited_date		date	The date on which the feature was last edited.	01/01/1753 00:00:00 AM – 12/31/9999 23:59:59 PM
GlobalID		UUID	Auto-generated unique identifier.	
Shape		geometry	The spatial geometry of the feature.	
Log_Check	254	text	Used for detecting errors in log mile values.	0 – General Processing Error 1 – No Error 2 – Error with From Measure 3 – Error with To Measure 4 – Error with From/To Measures

- **Database Schema**
- **Field Descriptions**
- **Domains**

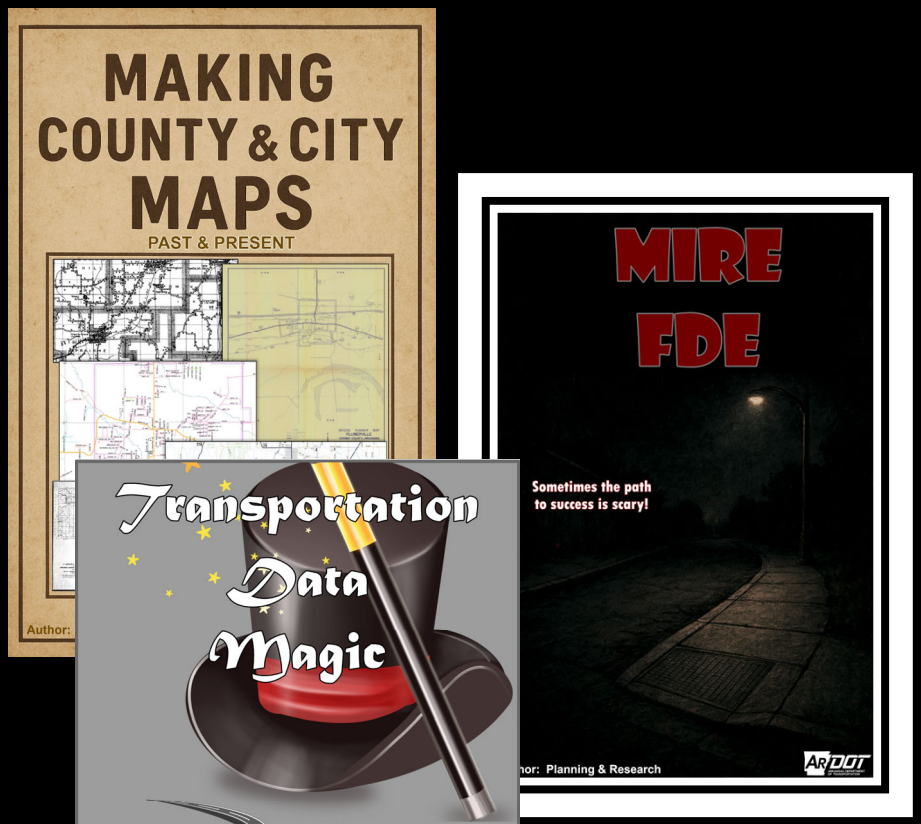
WHAT
DATA DICTIONARY

- Allows others to follow your data maze
- Encourages Consistent Usage of the Data
- A must have if the expectation is for others to use your data without you involved



WHY
Your Data has a Story

- **Existing/New employees have a reliable data origin story**
- **Original intent of data is documented**
- **Confidence in improving data is greater with the recorded history available**
- **Keep adding MORE to make sure that the story continues!**



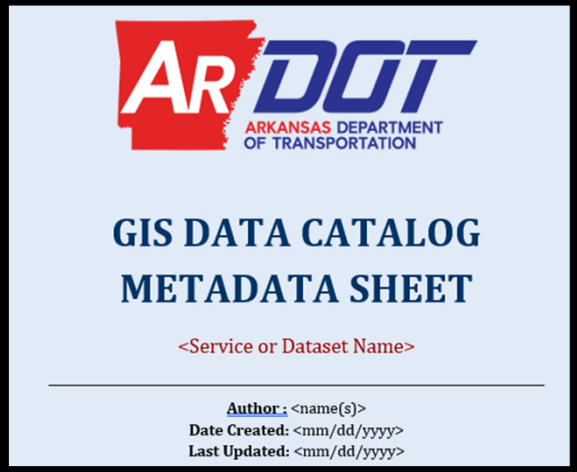
WHY

Consider the WHY as a love note to the future

METADATA

Example

Keep it SIMPLE



Keep it UPDATED

WHY

1. Data History

Why was this data created/developed?

<Response>

2. Usage

Who are the primary users of the dataset and what kind of demand is on it?

<Response>

3. Retention

Is there a historical archiving method set? Are old records purged periodically?

<Response>

4. Relationships/Dependencies

Is this data derived partly from another dataset? Do other datasets rely on this one?

<Response>

5. Legal/Compliance

Are there any special terms of use associated with the data?

<Response>

6. Validation & Update Methods/Procedures

How is accuracy, completion, up to date-ness and overall quality ensured?

<Response>

Credit: Joseph Jordan (P&R GIS)

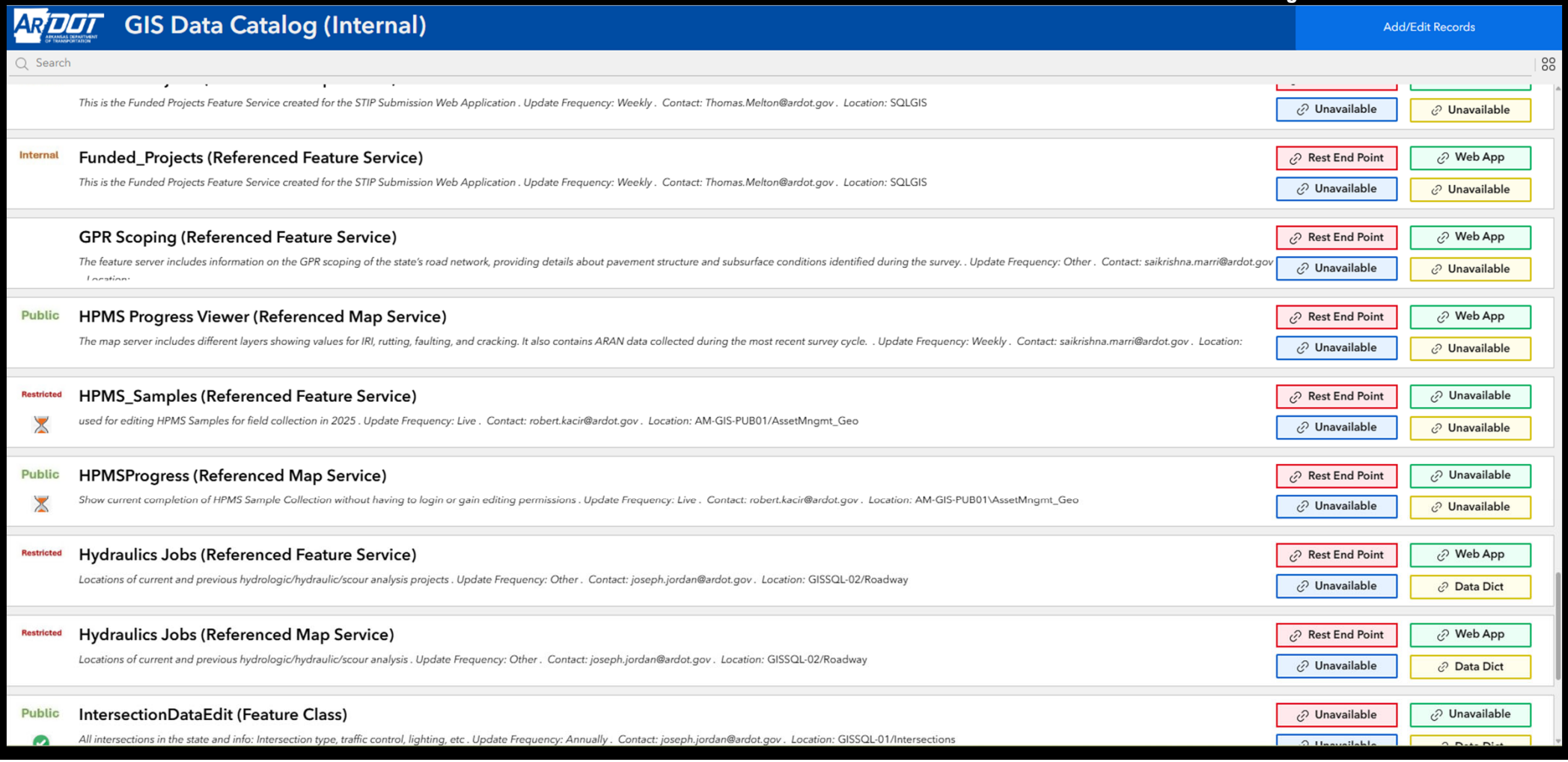
WHERE/WHAT/WHY
COMBINED

DATA CATALOG

example

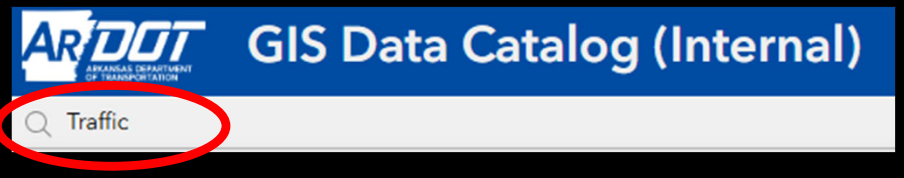
WHERE/WHAT/WHY

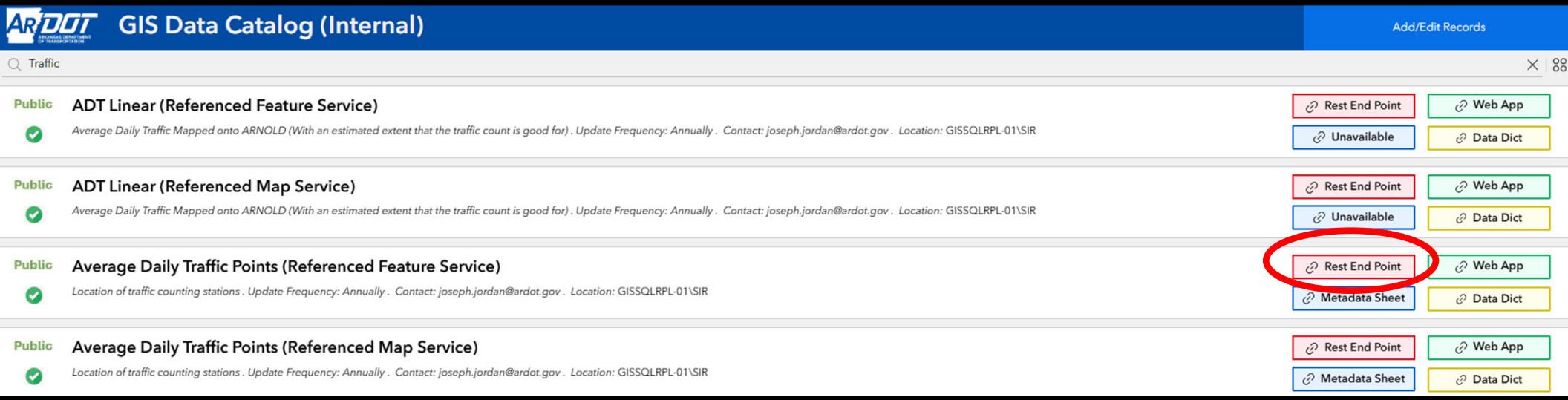
Credit: ARDOT GIS Change Management Team – 122 Datasets



example

WHERE/WHAT/WHY

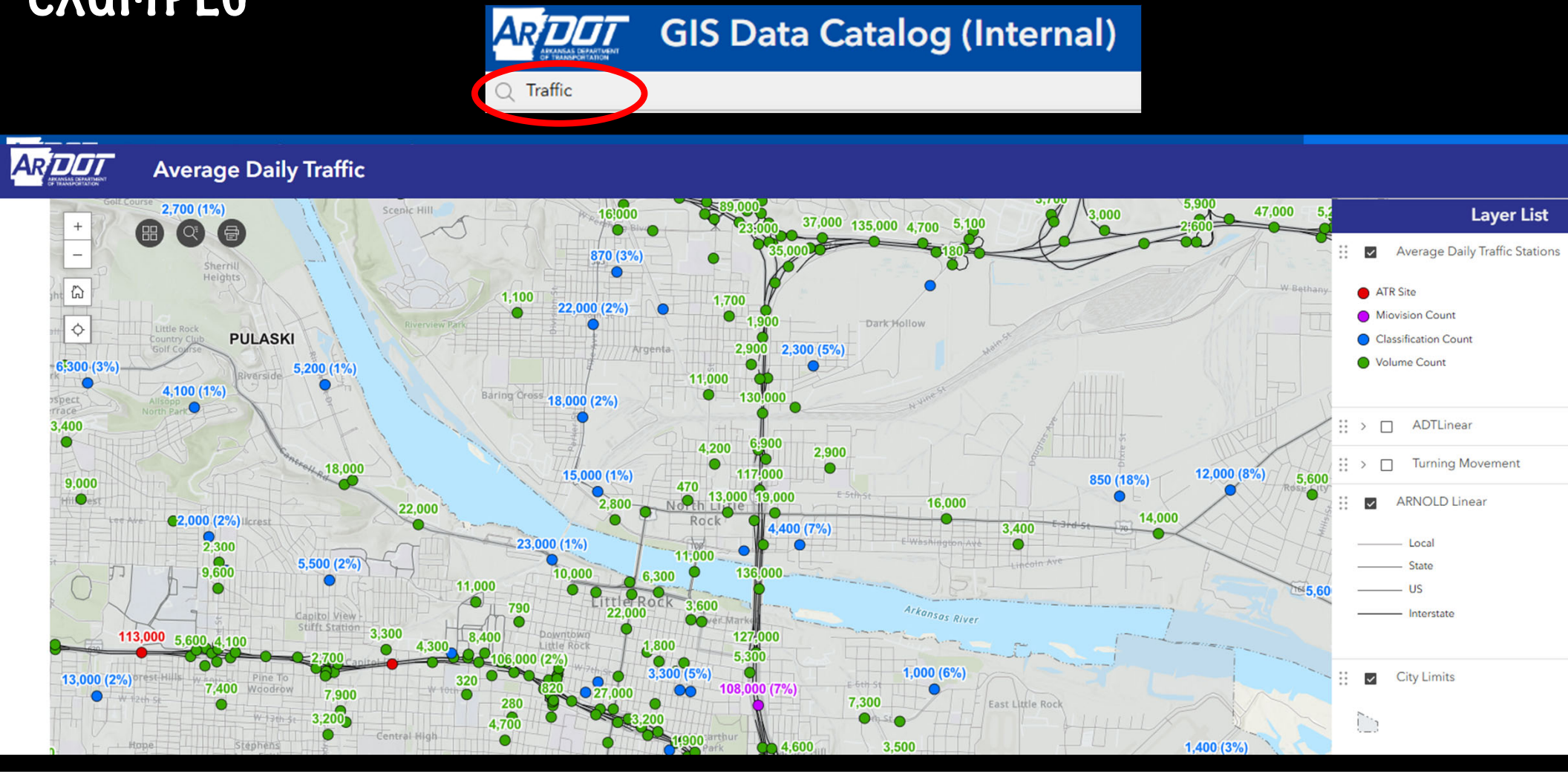




gis.ardot.gov/referenced/rest/services/SIR_TIS/Average_Daily_Traffic_Points/FeatureServer/0

example

WHERE/WHAT/WHY



Example

Service or Dataset name: ADT_Stations

*This metadata refers to the spatial dataset that is developed from the Traffic Data Management System (TDMS) utilized in the Traffic Systems Management and Operations (TSMO) Division. It is not meant to document how traffic counts are collected, estimated, or finalized. Rather, it documents the usage and process on how the data is prepared to offer a visual dataset through maps and applications available through ARDOT.

1. **Usage: Who are the primary users of this data and what kind of demand is on it?**
   Average Daily Traffic (ADT) is a heavily used, critical dataset used all over the department as well as by the public. Examples include Highway Performance Monitoring System (HPMS), transportation planning, and even real estate agents outside the department.

   There are various ways that internal and external customers can access the final spatial results for the ADT.

   County Route & Section (Highway) Map pdfs: shows the most current year available traffic counts on the State Highway System by county with some insets for urban areas. Link: https://ardot.gov/divisions/tsmo/traffic-information-systems/maps/

   ADT Web Application: shows the location of the recorded or estimated traffic count, the count type based on color and text, the current year ADT available count as well as historic traffic counts in the same locations that can go as far back as 1986 in some cases. The application also shows the current year truck percentage (current and historic) where that information is available.

   ADT Stations in the application are displayed using the following colors to distinguish between the different count types:

   - ATR Site
   - Miovision Count
   - Classification Count
   - Volume Count

ARDOT GIS Data Catalog (Interna

Add/Edit Records

Traffic

Public ADT Linear (Referenced Feature Service)
Average Daily Traffic Mapped onto ARNOLD (With an estimated exte
Rest End Point | Web App | Unavailable | Data Dict

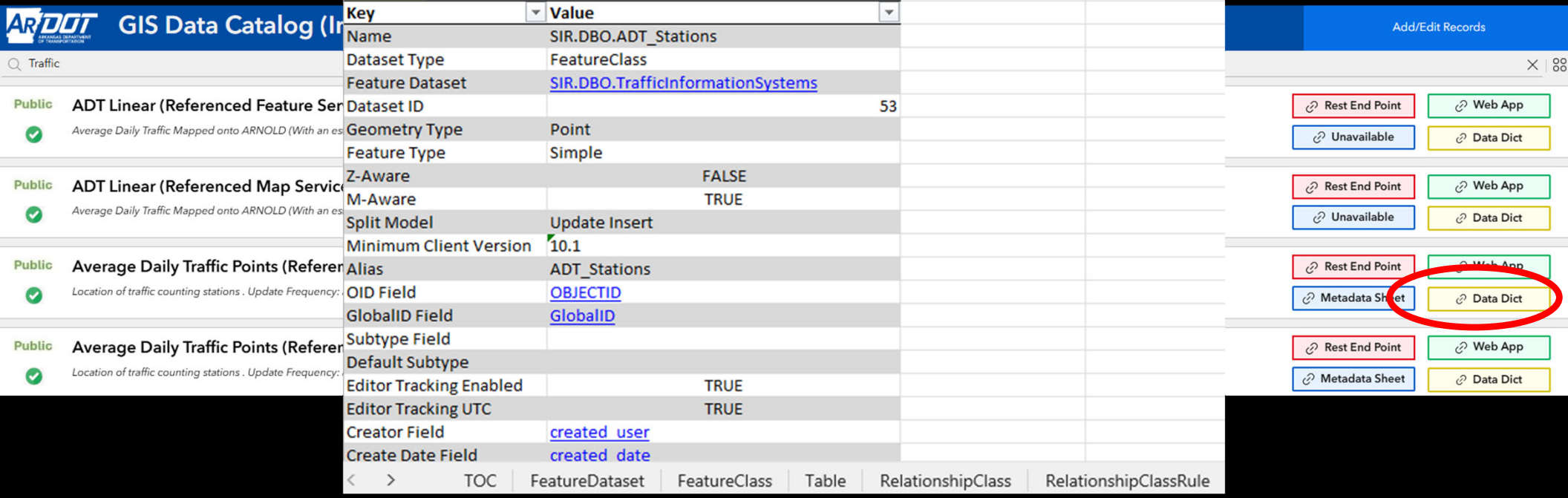
Public ADT Linear (Referenced Map Service)
Average Daily Traffic Mapped onto ARNOLD (With an estimated exte
Rest End Point | Web App | Unavailable | Data Dict

Public Average Daily Traffic Points (Referenced Fe
Location of traffic counting stations . Update Frequency: Annually .
Web App | Metadata Sheet | Data Dict

Public Average Daily Traffic Points (Referenced Ma
Location of traffic counting stations . Update Frequency: Annually .
Rest End Point | Web App | Metadata Sheet | Data Dict

example

WHERE/WHAT/WHY



SubtypeFieldInfo	0
AttributeRule	0
Properties	
Key	Value
Name	SIR.DBO.ADT_Stations
Dataset Type	FeatureClass
Feature Dataset	SIR.DBO.TrafficInformationSystems
Dataset ID	53
Geometry Type	Point
Feature Type	Simple
Z-Aware	FALSE
M-Aware	TRUE
Split Model	Update Insert
Minimum Client Version	10.1
Alias	ADT_Stations
OID Field	OBJECTID
GlobalID Field	GlobalID
Subtype Field	
Default Subtype	
Editor Tracking Enabled	TRUE
Editor Tracking UTC	TRUE
Creator Field	created_user
Create Date Field	created_date

TOC | FeatureDataset | FeatureClass | Table | RelationshipClass | RelationshipClassRule

Data Utopia

To really get us under the palm trees and drinking from some coconuts, we need dedicated time and attention to give to this. Which means:

- **Goal Setting**
- **Small BUT Frequent Steps to accomplish those goals**
- **Support – from our immediate supervisors, from administration**
- **Leadership – within ourselves**

NCHRP Project 23-23

"While there are many useful tools and technologies supporting data management, the fundamental solution to data quality, consistency, interoperability and protection challenges is organizational rather than technological."

- Leadership/Oversight/Established Roles
- Staff Education/Re-Prioritization of staff time allocations
- Coordination and collaboration across business units

FOR THE NEXT GENERATION OF MAGNET COLLECTORS

THANK YOU