Arkansas DOT's Digital and Spatial Right of Way (ROW) Database

ARDOT
ARKANSAS DEPARTMENT OF TRANSPORTATION

Today's Presenters

Peter Lemack, PMP
Program Manager
plemack@sanborn.com

Eric Ingbar, GISP
Senior Consultant
eingbar@sanborn.com

Introducing the Sanborn Map Company

The Nation's Oldest Mapping Company Since 1866

REALITY CAPTURE

Sanborn captures high-precision 3D reality data using aerial imagery, airborne LiDAR, and mobile LiDAR to map the built and natural environment at scale.

Our multi-sensor approach delivers dense point clouds and photorealistic models for engineering, asset management, and geospatial analysis.

DATA PROCESSING

Sanborn processes LiDAR and imagery data to extract detailed transportation features like pavement edges, lane markings, signage, guardrails, and vertical clearances. We generate classified point clouds, vector assets, digital terrain models (DTMs), and GIS-ready datasets to support roadway design, safety analysis, asset inventory, and network-level planning.

DATA INTEGRATION

Sanborn integrates processed LiDAR and imagery data across transportation, asset management, and GIS business units to ensure consistency and maximize data value.

This cross-functional approach enables seamless delivery of spatially aligned datasets into enterprise systems for planning, maintenance, and operational decision-making.

DATA VISUALIZATION

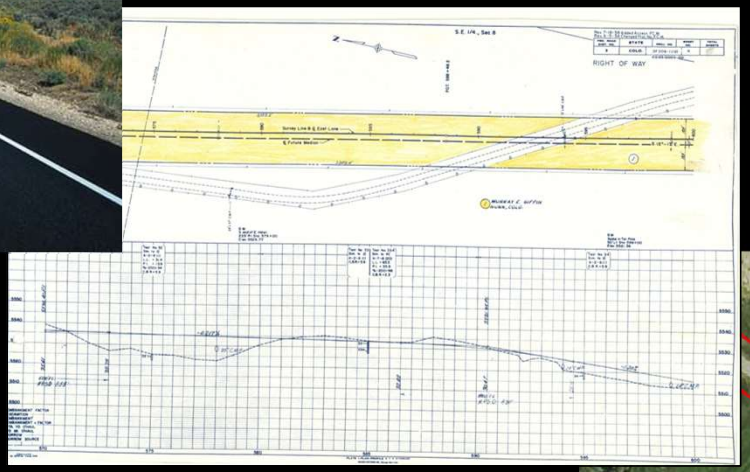
Sanborn publishes and visualizes data through interactive web applications, dashboards and APIs, enabling real-time access for analysis, collaboration, and reporting.

These tools support insights across transportation networks and power performance monitoring, capital planning, and compliance reporting with intuitive, map-based interfaces.

ROW and Real/Surplus Property is an Asset

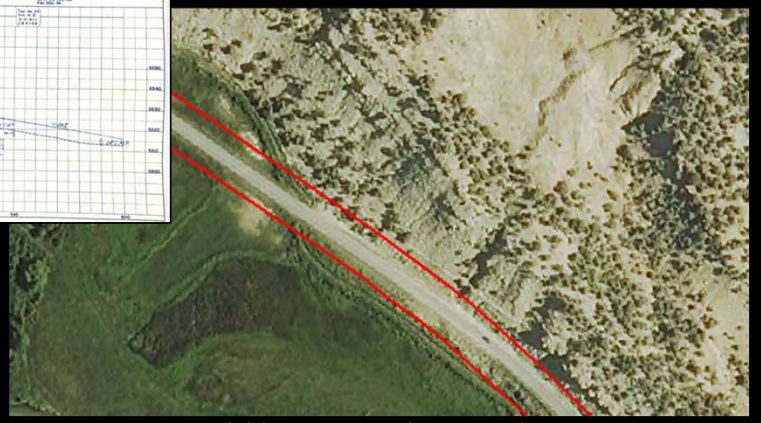
Physical assets and real property

So is the data that defines it.



Individualized digital and hardcopy source documents and plans

Their value increases over time*



Digitized geospatial statewide representations of ROW


1-VG-503
MASCHINENFABRIK
ducker

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However, obstacles exist…

Best practices, workflows, standards, data sharing, governance

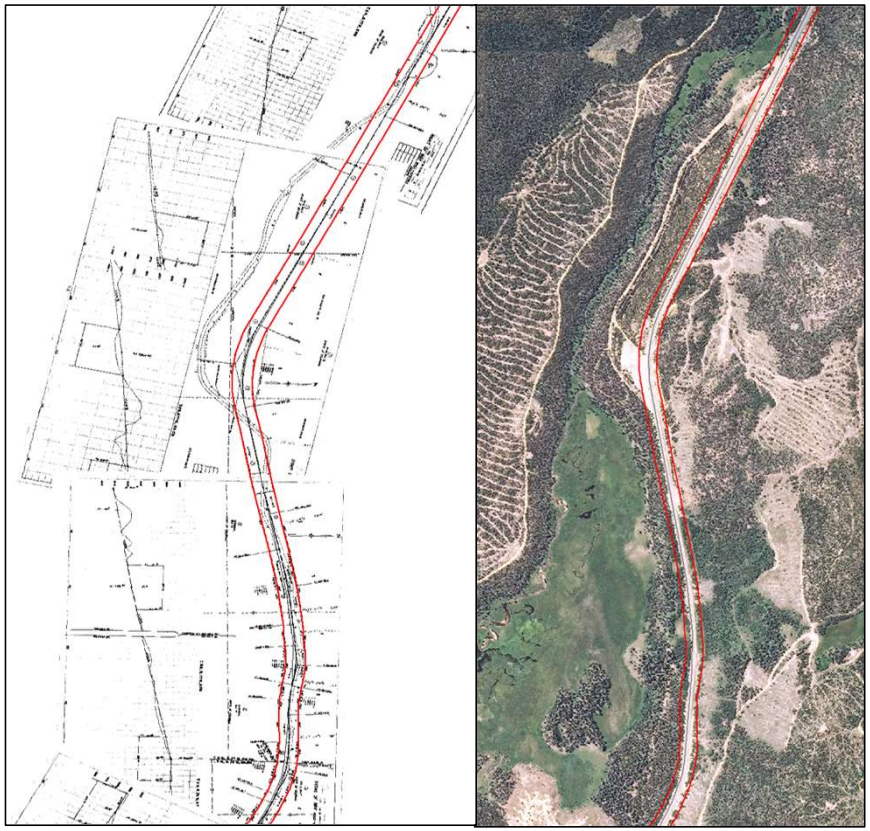
Authoritative source data is in non-digital formats or…

Digital data is siloed across the enterprise

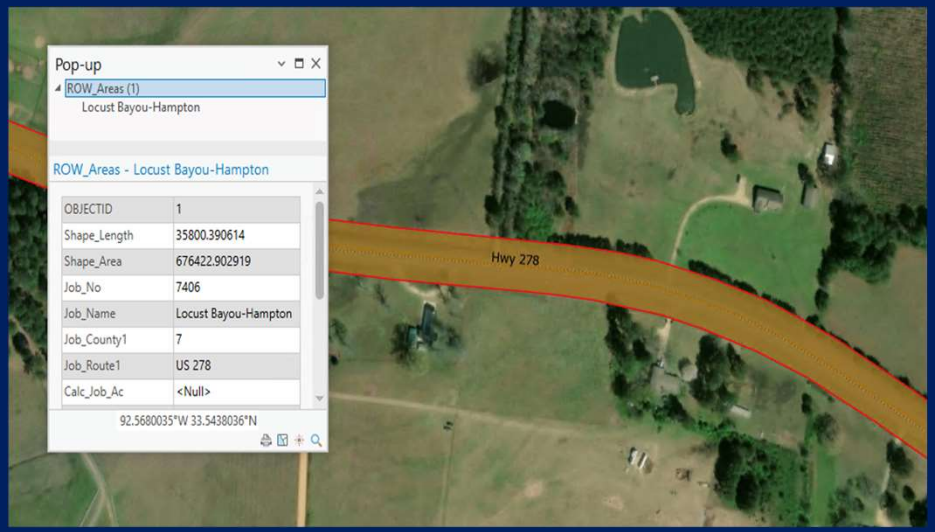
An Enterprise Geospatial ROW Representation

A statewide collection of **planning grade** ROW and real property data with **linked source documents** in GIS database that:

- **Makes** ROW information available to the entire organization for research and planning purposes
- **Provides** business units and departments access to previously siloed data and source documents
- **Allows** for ROW information to be viewed and analyzed spatially alongside other spatial information
- **Enables** integration with ARDOT databases, applications, and services.

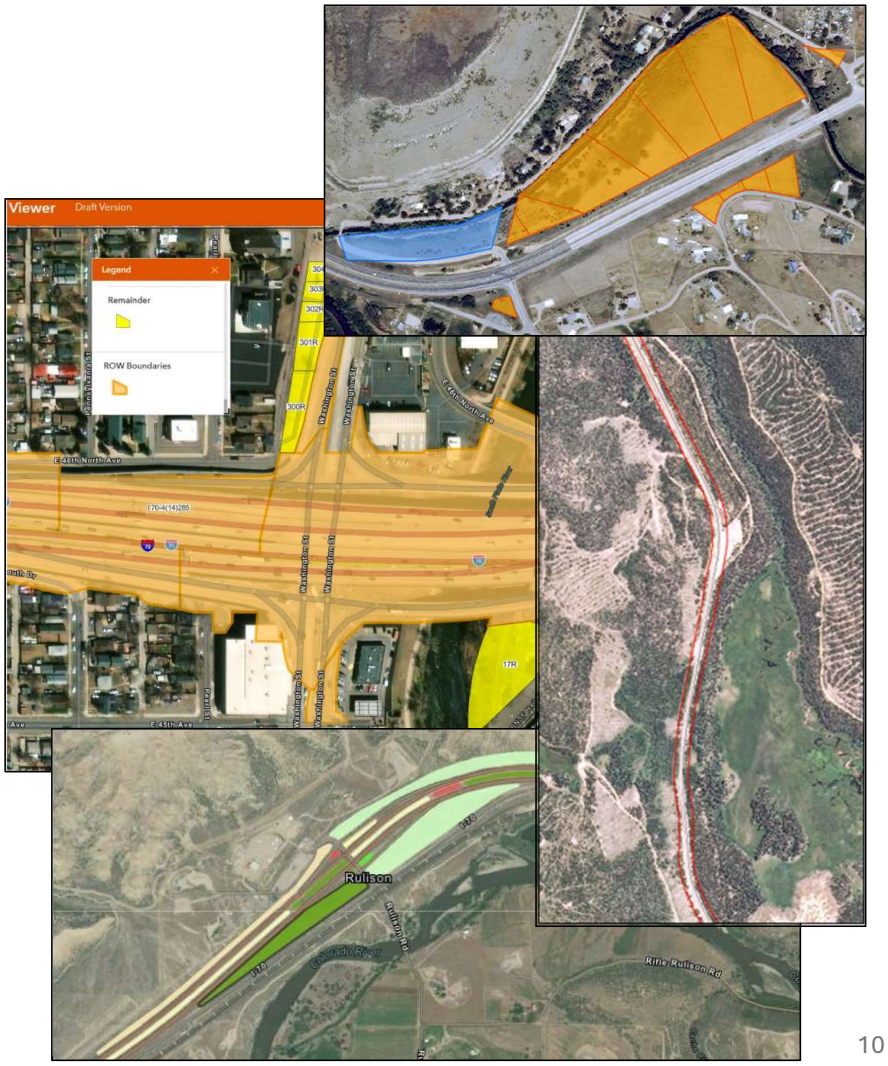


Four Levels of Enterprise ROW



ARDOT's Digital and Spatial ROW: Project Objectives

- Create a digital and geospatial inventory of Arkansas DOT's ROW and surplus property land holdings on all state-owned roadways **(~16,000 miles)**
- Create a spatial inventory of all authoritative ROW and surplus property source documents (plans, deeds, etc.) to support research and reference.
- Convert existing ROW and surplus property locations shown in MicroStation files into to GIS format. Georeference and digitize ROW data from scanned copies of ROW plans.
- Establish the collaborative data maintenance and ROW data lifecycle workflows required for long term maintenance of the ROW GIS data.
- Make ROW and parcel data easily accessible across the agency through GIS to support public requests, and planning, design, construction, maintenance, budgeting, compliance workflows.



Project Overview: Phases, Timelines, and Outcomes

Phase 1: Pilot Process (2025)

- Project Kickoff
- Requirements Gathering
- Data Model Creation
- Pilot Processing
- Processing Methods

Phase 2: Year 1 Processing (2026)

- Job Inventory
- Statewide Processing
  - 8000 miles

Phase 3: Year 2 Processing (2027)

- Job Inventory
- Statewide Processing
  - 8000 miles

Phase 4: Implementation (2028)

- Statewide Data Delivery
- Implementation of Web Maps
- Training of ARDOT staff

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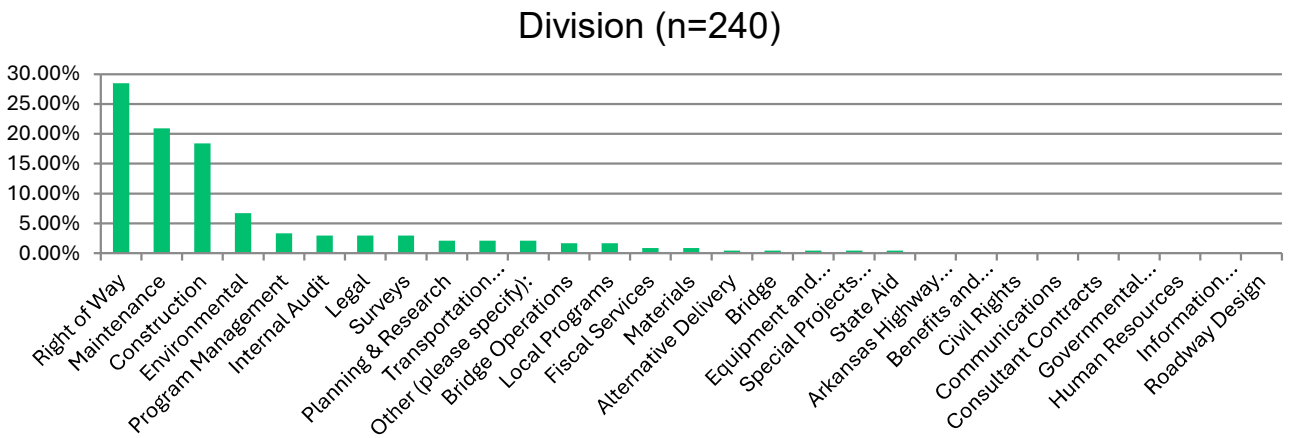
We started by documenting your needs!

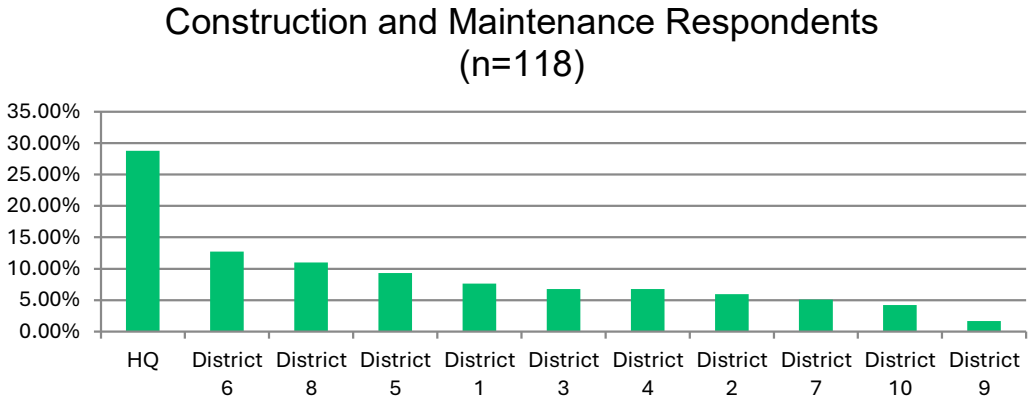
Survey Respondents

240 Respondents



Right of Way	28.45%	68
Maintenance	20.92%	50
Construction	18.41%	44
Environmental	6.69%	16
Program Management	3.35%	8
Internal Audit	2.93%	7
Legal	2.93%	7
Surveys	2.93%	7
Planning & Research	2.09%	5
Transportation Systems Management & Operations (TSMO)	2.09%	5

Top 10 Divisions Responding



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How do/would you use ROW and Surplus Property information?

- **Preliminary Reviews:** Enables early-stage project assessments, reducing reliance on Right-of-Way Division staff.
- **ROW Verification:** Critical for staking, encroachment resolution, and determining reimbursable utilities.
- **Construction and Maintenance:** Property acquisition needed to build and maintain ARDOT facilities.
- **Permit Processing:** Used daily to verify encroachments and ensure compliance with ROW limits.
- **Impact Calculations:** Used to calculate environmental impact areas, ROW acreage differences, and clearance documentation.
- **Responding to Inquiries:** Provides accurate ROW limits for public questions (e.g., fence placement).
- **Surplus Property Utilization:** Identifies surplus land for ARDOT use or disposal.

What kinds of ROW and Surplus Property Information do you currently use?

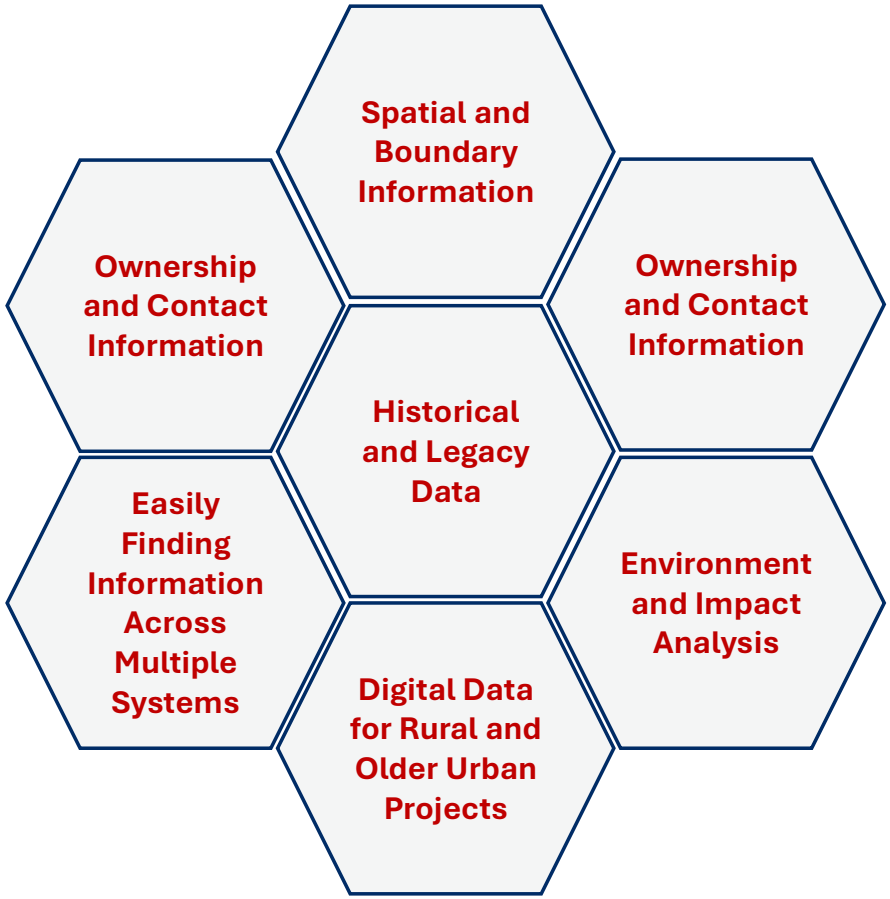
Ownership and Legal	Survey and Measurement	Easements	Plans and Records
Ownership details (current and historical)	Survey measurements	Easement details (type, location, rights)	ROW plans (existing and proposed)
Deeds, court orders, minute orders	ROW boundaries and limits	Utility easements	Construction plans (including ARDOT plans)
Lease agreements (residential, commercial, agricultural)	Acreages		Archived project plans
Legal descriptions	Coordinates, point locations, STA/OS references		Record documents for legal basis (ROW plans, court orders, deeds)
Right of Entry documents	Parcel boundaries and histories		
Negotiation notes			

Respondents also identified the need for other supplementary information: *maps and cadastral data, market and economic data, and permitting and compliance information.*

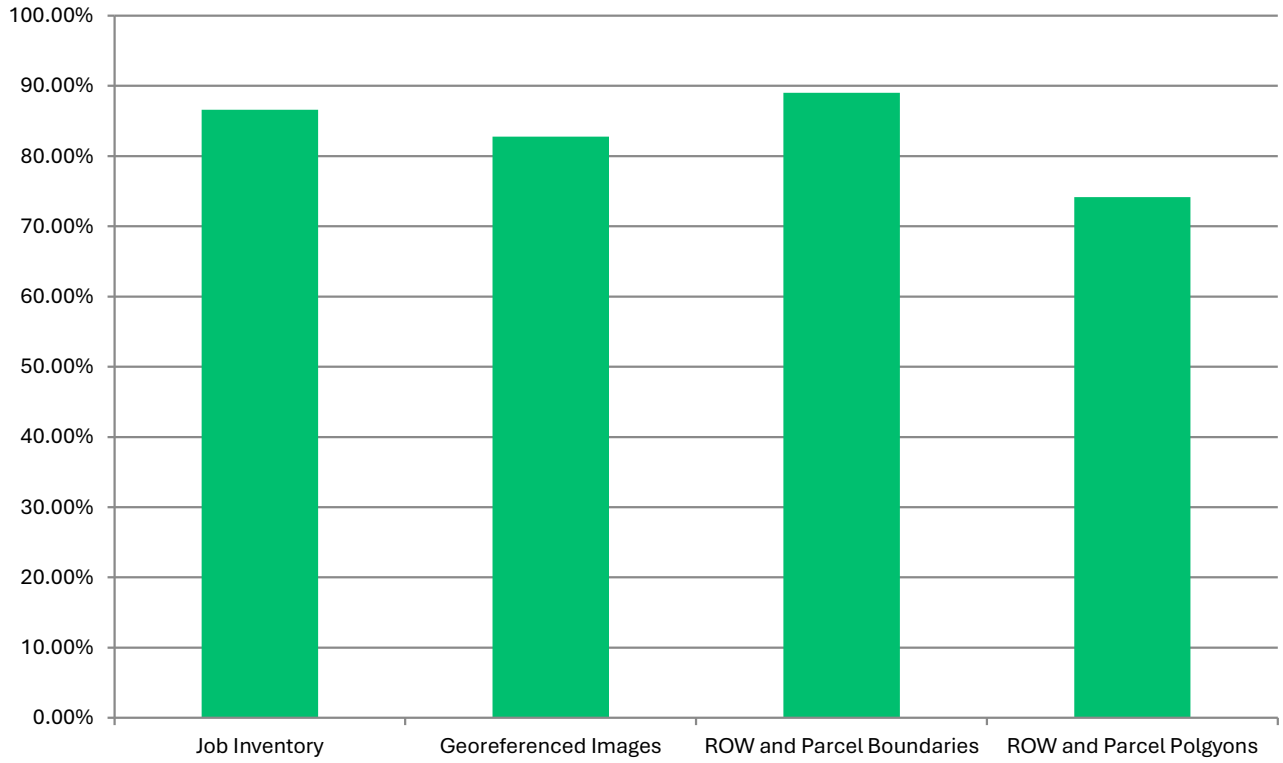
What kinds of ROW/Surplus Property information do you need but struggle to find?

Common Ideas for Reducing The Struggle

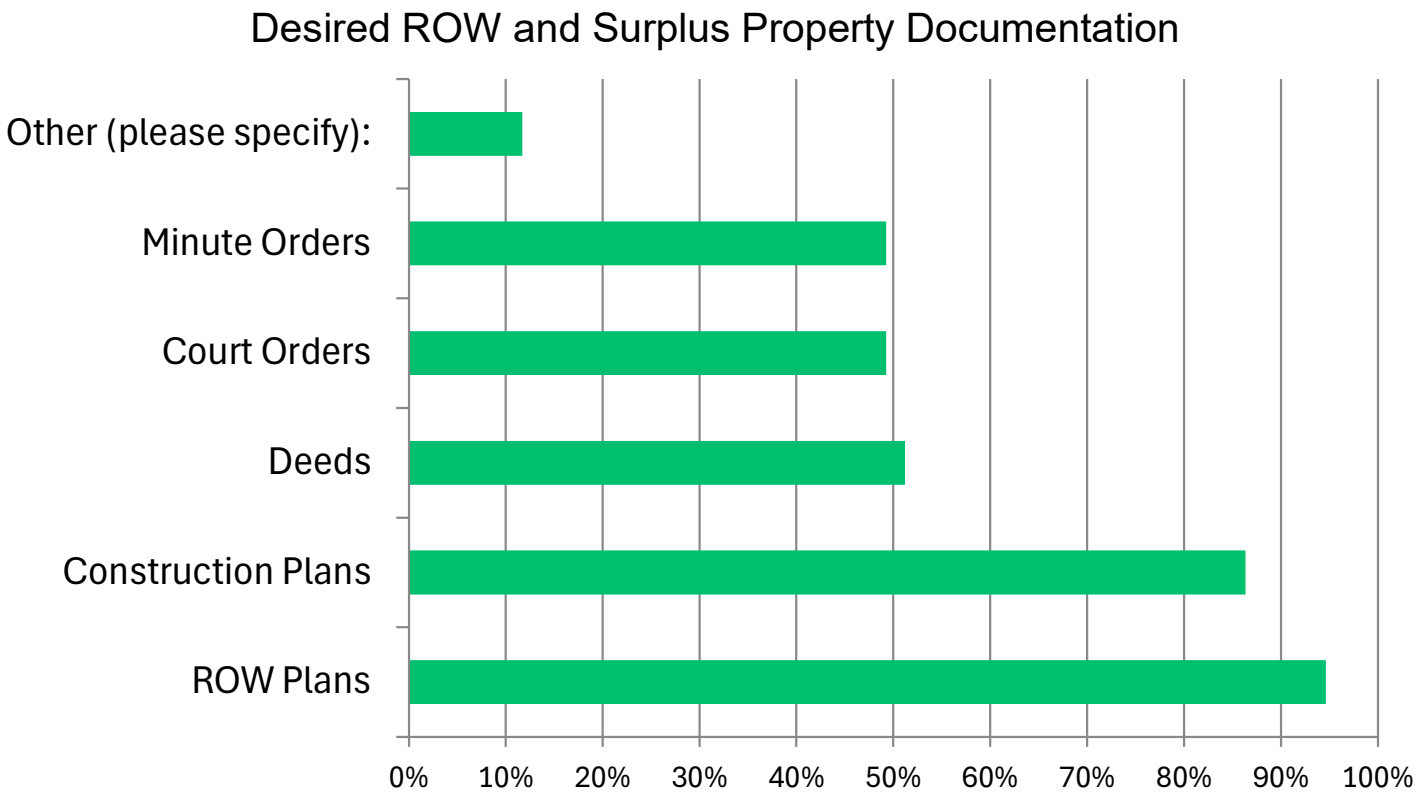
- **A Centralized GIS-Based System**
  - Searchable interface to multiple current systems
  - Spatially referenced ROW / Property data
  - Clear delineation of current and historical boundaries
  - Sufficient spatial accuracy for common measurements
- **Ready Access to Historical Data**
  - Original maps, plats, plan sets available
  - Court orders, minute orders, original documents
- **Regular Updates**
  - Certainty that information is current to a known date



Of the four ways the digital and spatial ROW information, which of the four would provide value to you or your department?



What ROW associated documents would you like to see with ROW and Surplus Property information?



**Other (24 answers): mostly easements, agreements, and "having everything in one place"*

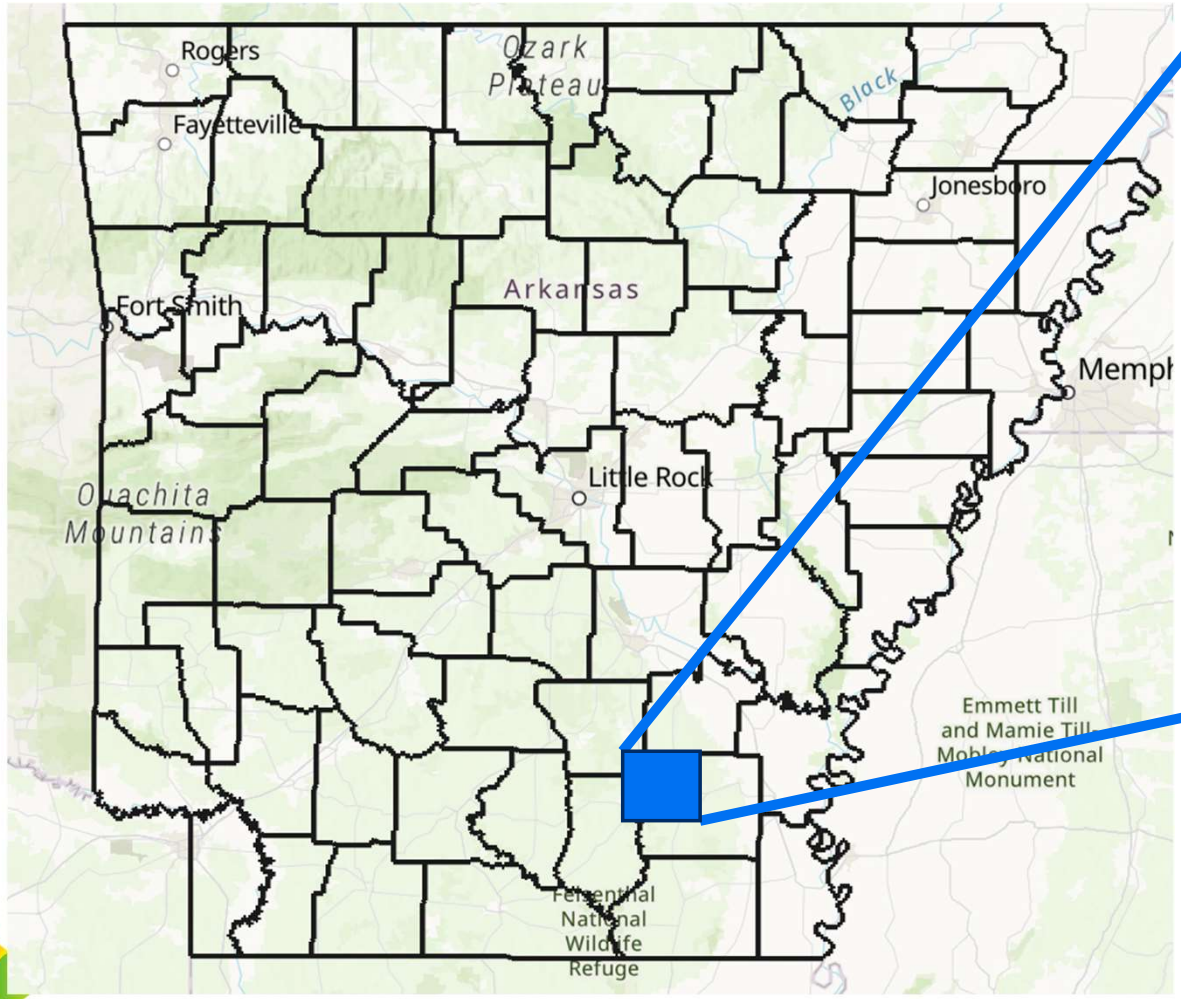
Do you have any ROW/Surplus Property information in your office that you think we are unaware of that should be included?

Yes! 9%

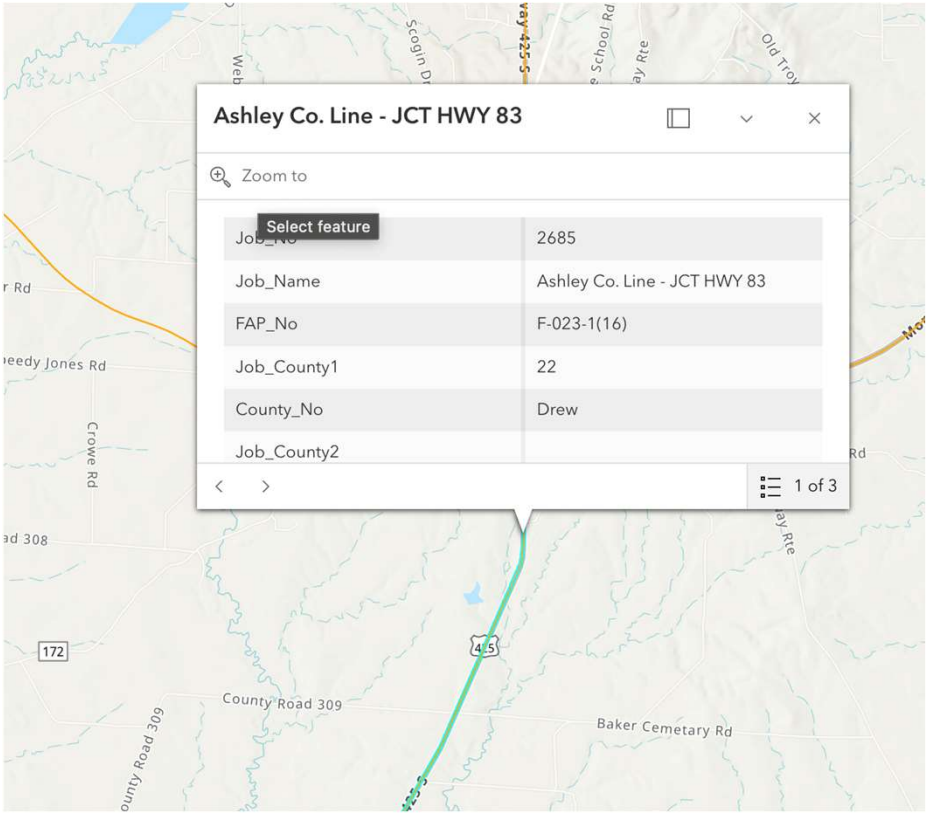
Summary of the 15 narrative responses:

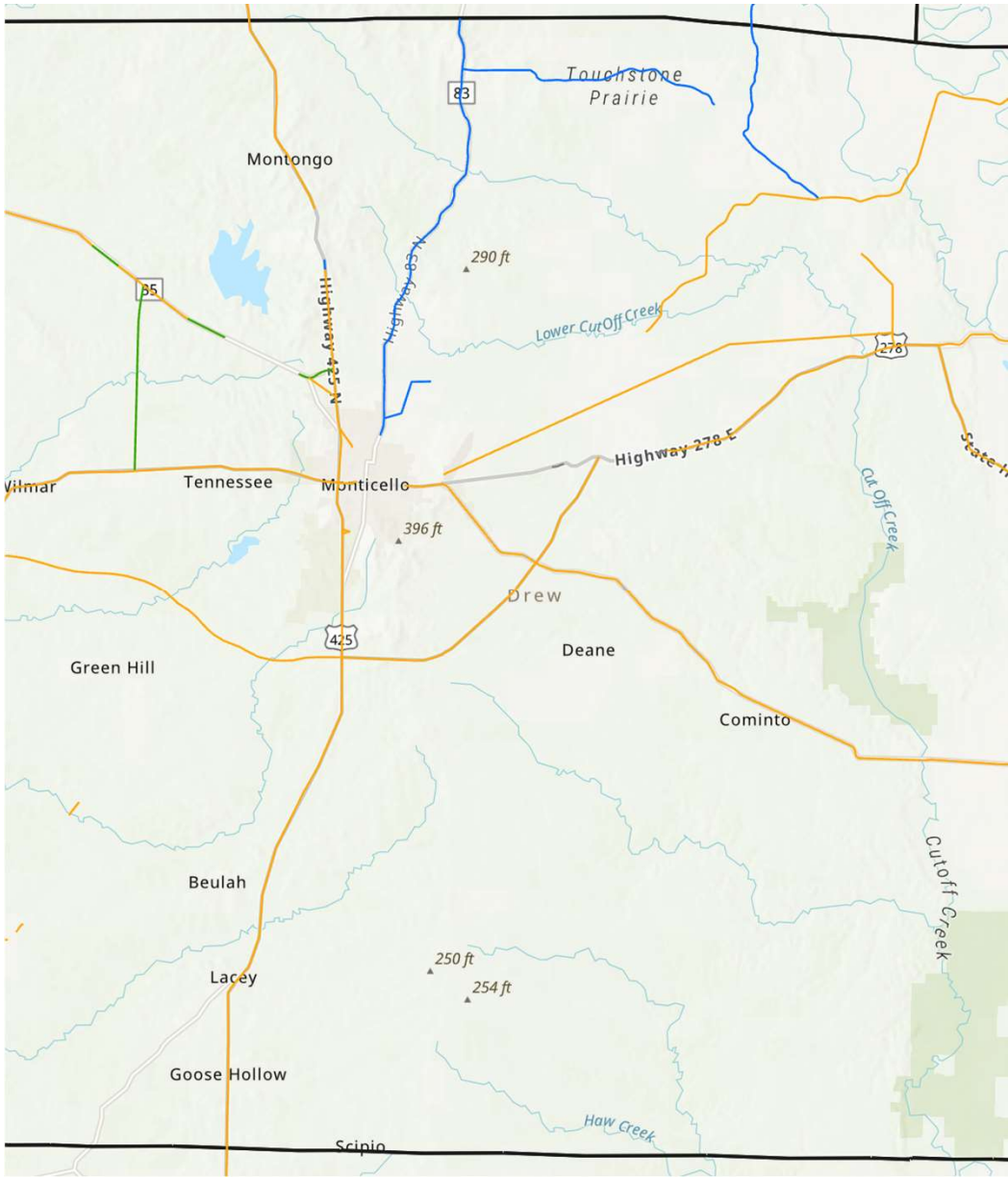
- Old paper plans with annotations
- Old construction plans “that aren’t easily locatable in our reproduction archives”
- Microfilm / microfiche
- Radio towers, also have a GIS database of radio towers

A Long Way to Go!

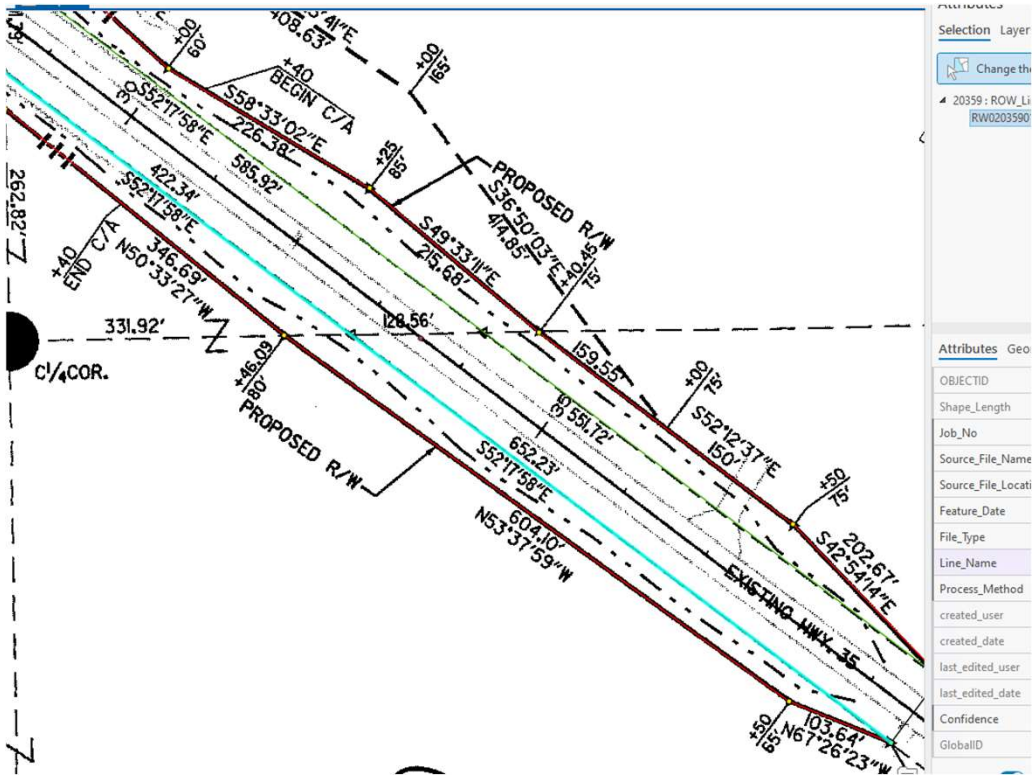


ROW Job Inventory





What are we collecting?



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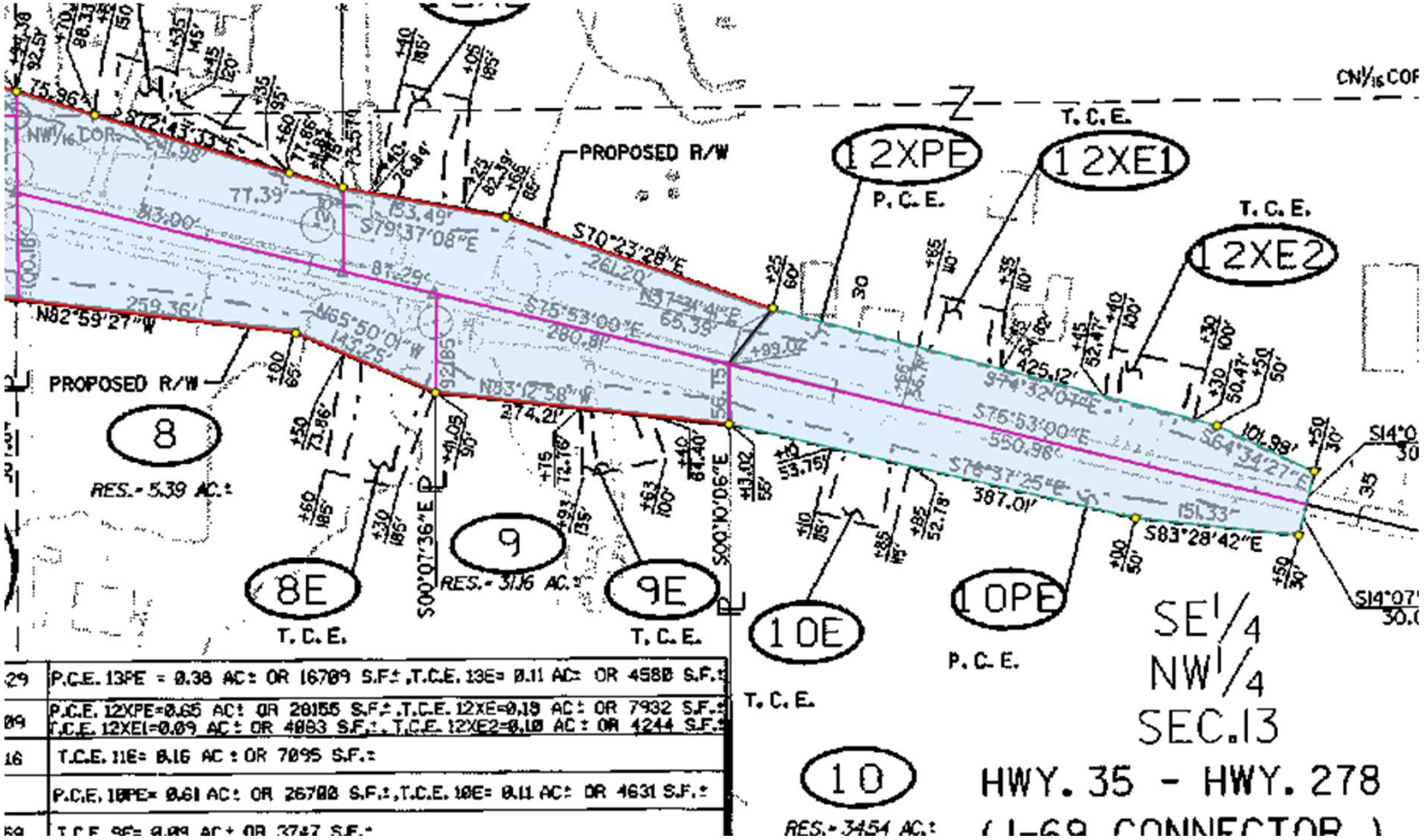

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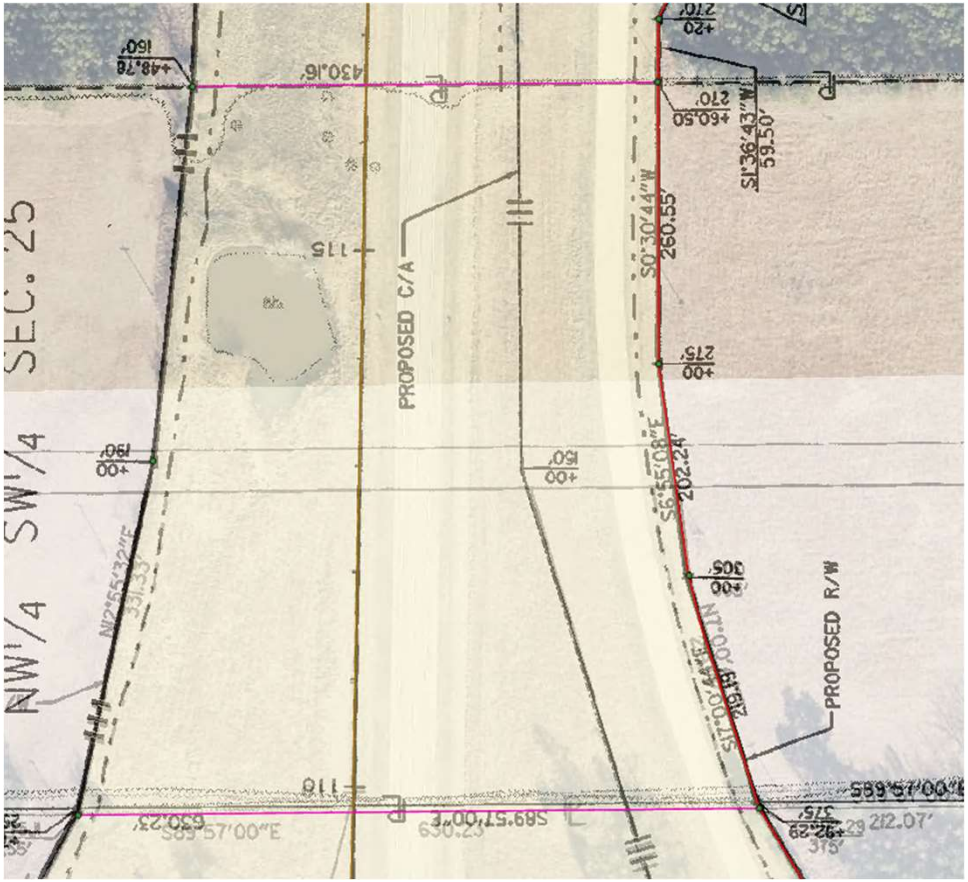

Thank You! Questions

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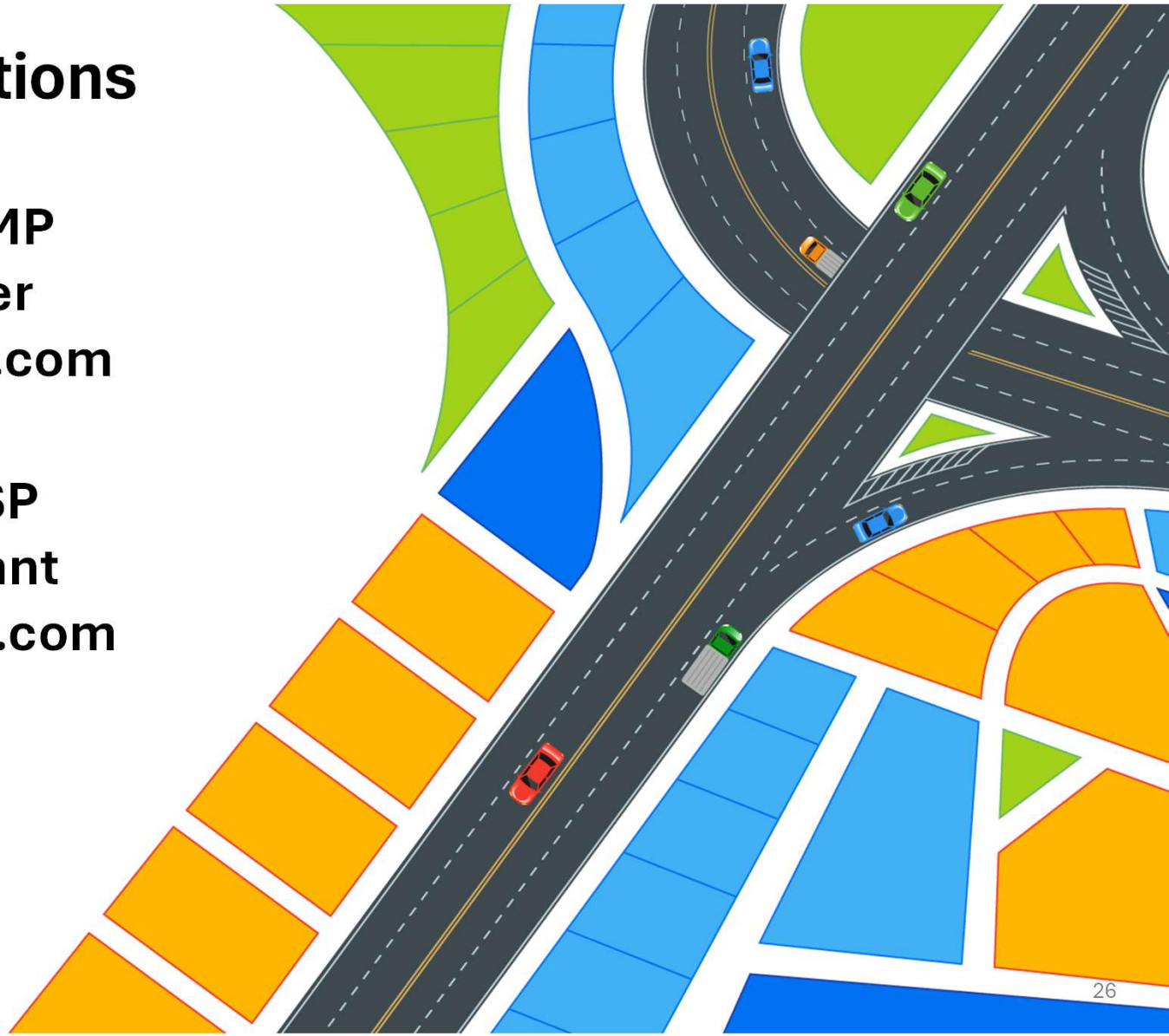

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