

Using AI and data workflows for Roadway Inventory Evaluation

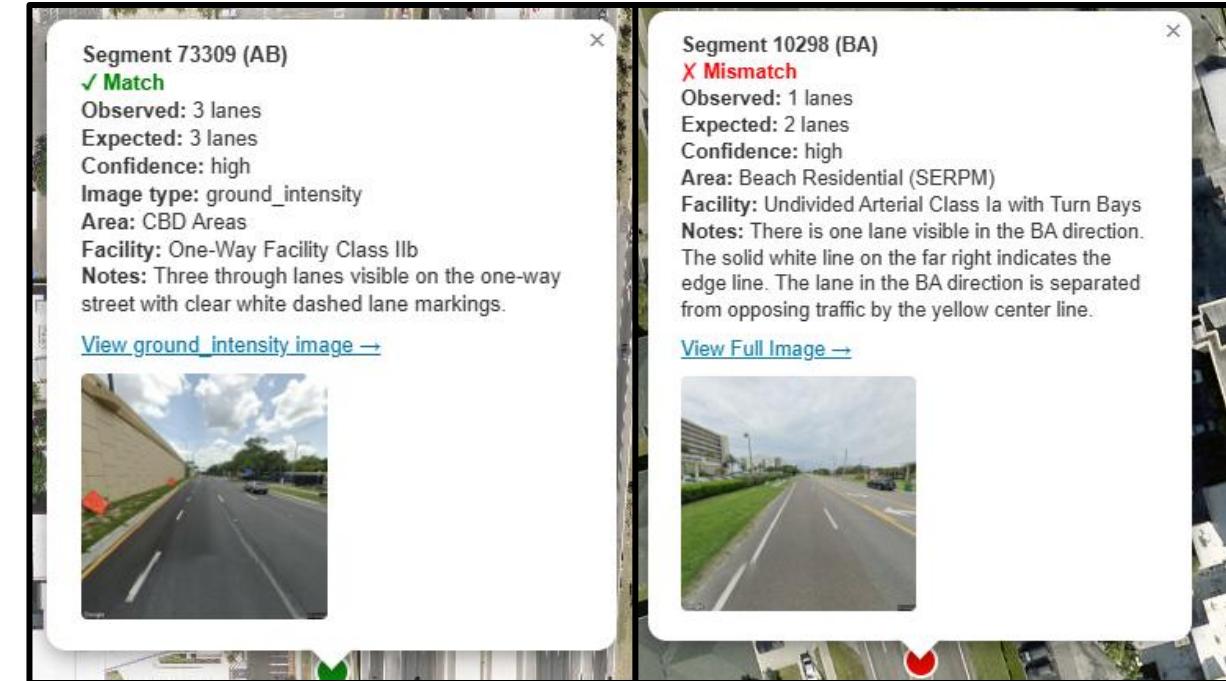
- **Problem:** Evaluate roadway lanes and geometry for 8K Miles of network in Orlando, FL

- Current Practices:

- Physically drive out network
- Virtually drive out Network (overlay network to recent aerial imagery)
- Use state roadway inventory

- Data group solution:

- Use Application Program Interfaces (API) to download imagery from opensource (Aerials, LiDAR, Tiles) and Google StreetView
- Imagery is retrieved based on lat/lon midpoints from GIS network
- Imagery is automatically stored on azure cloud
- AI is used to develop Python coded workflow
- AI APIs via Azure Foundry are used to prompt for the evaluation of each image



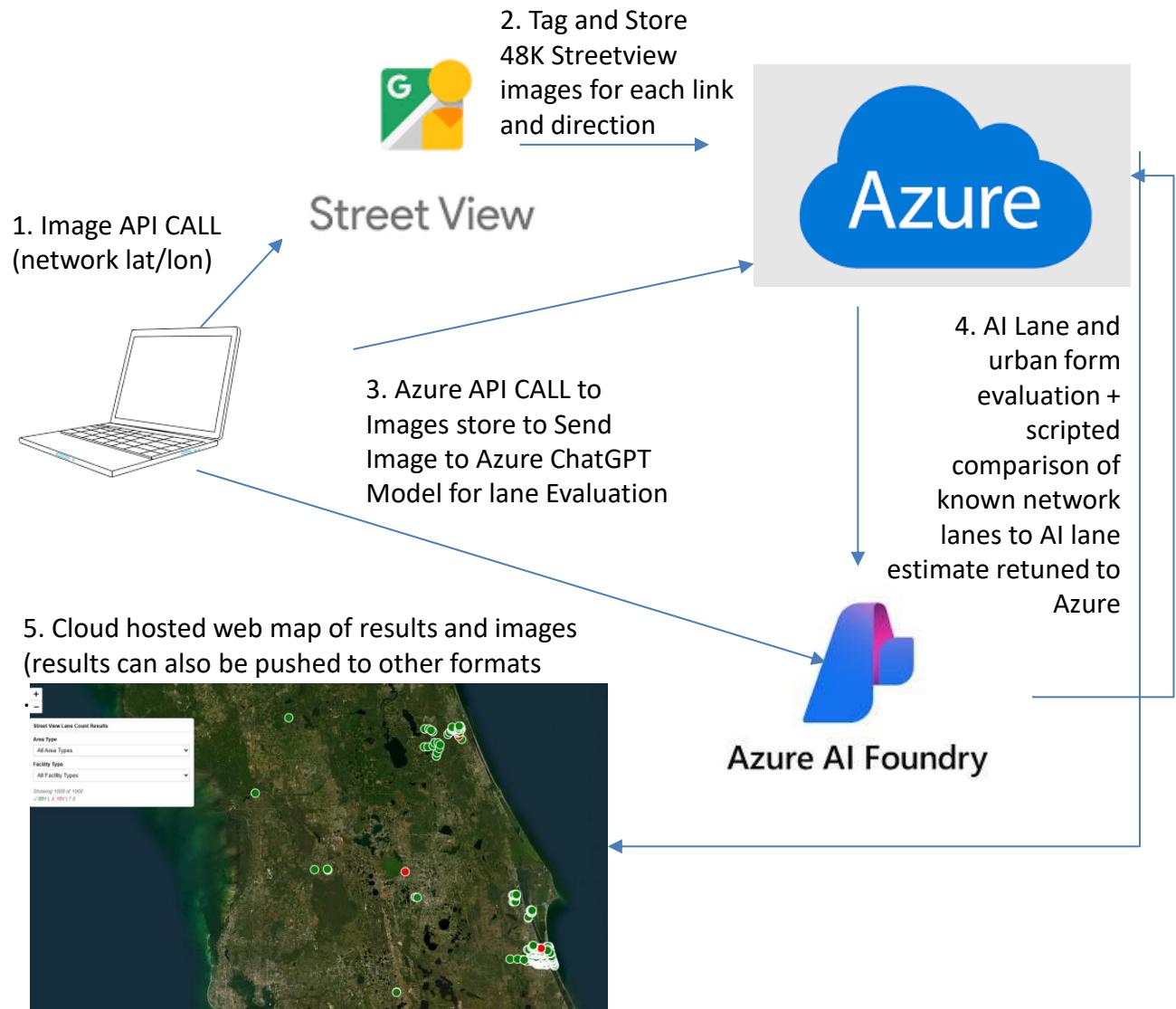
In these images AI generated:

- Observed Lanes
- Notes

All other values were from model network or results conflation



Data and AI Workflow



Results: An **untuned** AI ChatGPT 5.1 Model matches the GIS file observed lanes at about 85%.

Refinements that could improve include Prompt Tuning and AI Model Tuning.

Key Unresolved Problems include:

- Network Topology
- Location of link mid-point (can pick up turn bays)
- Location of points in Urban Areas (might pick up parking lanes)
- StreetView obscured by traffic (thus unable to see lanes)
- How other images (LiDAR, Aerials) compare to StreetView
- How other AI models (Claude, Gemini) would perform
- API Rate limiting, Google only allows 25K images per day

Costs:

48K StreetView images cost \$330

Azure AI = \$200

Azure Storage costs \$5 per month

Lesson Learned:

Provide AI with little to no contextual or known information. If you tell it that there are 10 observed lanes (and there are only 3) it will say there are 10. This is called **Anchoring bias**, where AI anchors to numbers/values in the prompt and confirms them