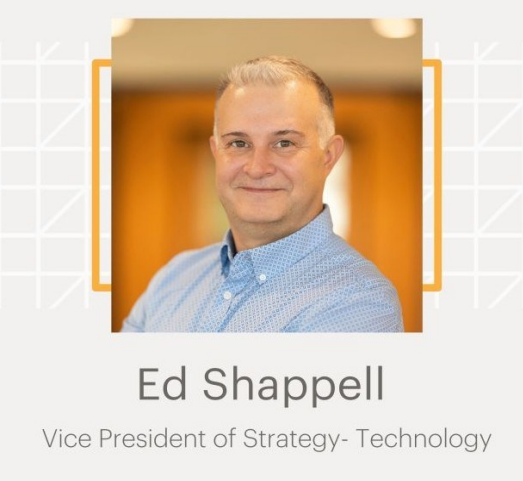
FHWA Innovation Exchange Webinar: Project Delivery Using AI

City of Greeley CO and WSB Engineering

Real World Experience with 4M Analytics AI Solution



Ed Shappell

VP Technology Strategy

WSB LLC

Ed Shappell has spent more than 20 years working with technologies in multiple industries, healthcare, transportation and energy.

Ed spent more than a decade at Trimble helping infrastructure owners, designers and contractors use the latest technologies to support digital delivery and asset management.

Today he focuses on helping his engineering firm, WSB, with both internal and external technology strategies to improve efficiencies in how we delivery and manage infrastructure data.

Steven Younkin

Chief Engineer

City of Greeley, Public Works and Transportation Department

Steven Younkin works to bring technology and data to the front lines of city governance across transportation, mobility, and public works.

Steven has spent most of the past decade infusing GIS, business intelligence, and process automation into traffic and transportation engineering in Greeley and the Midwest, helping the communities turn data into better execution and decisions..

He serves the department delivering Capital Programs using innovative engineering and technology integration to modernize how the city delivers and manages infrastructure, win competitive grants, and advance safety as policy for a fast-growing community.

Agenda

1 – Overview of 4M Analytics AI Platform, Deliverables, and Values

2 – City of Greeley Colorado Owner Views on the Solution and Value

3 – WSB Engineering Views on the Solution and Value

4 – City of Greeley Colorado Owner Use Cases and Projects

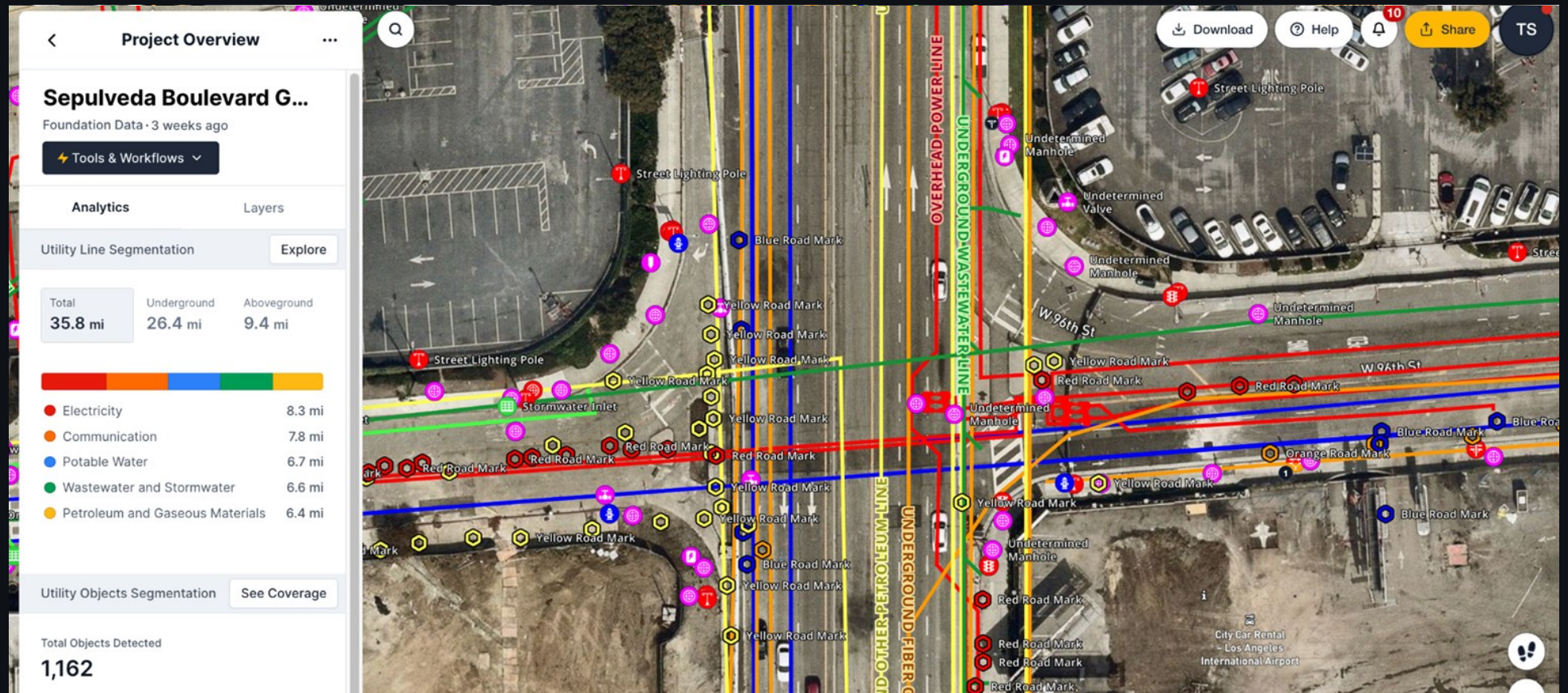
5 – WSB Engineering Use Cases and Projects

6 – Questions and Answers

Utility Intelligence

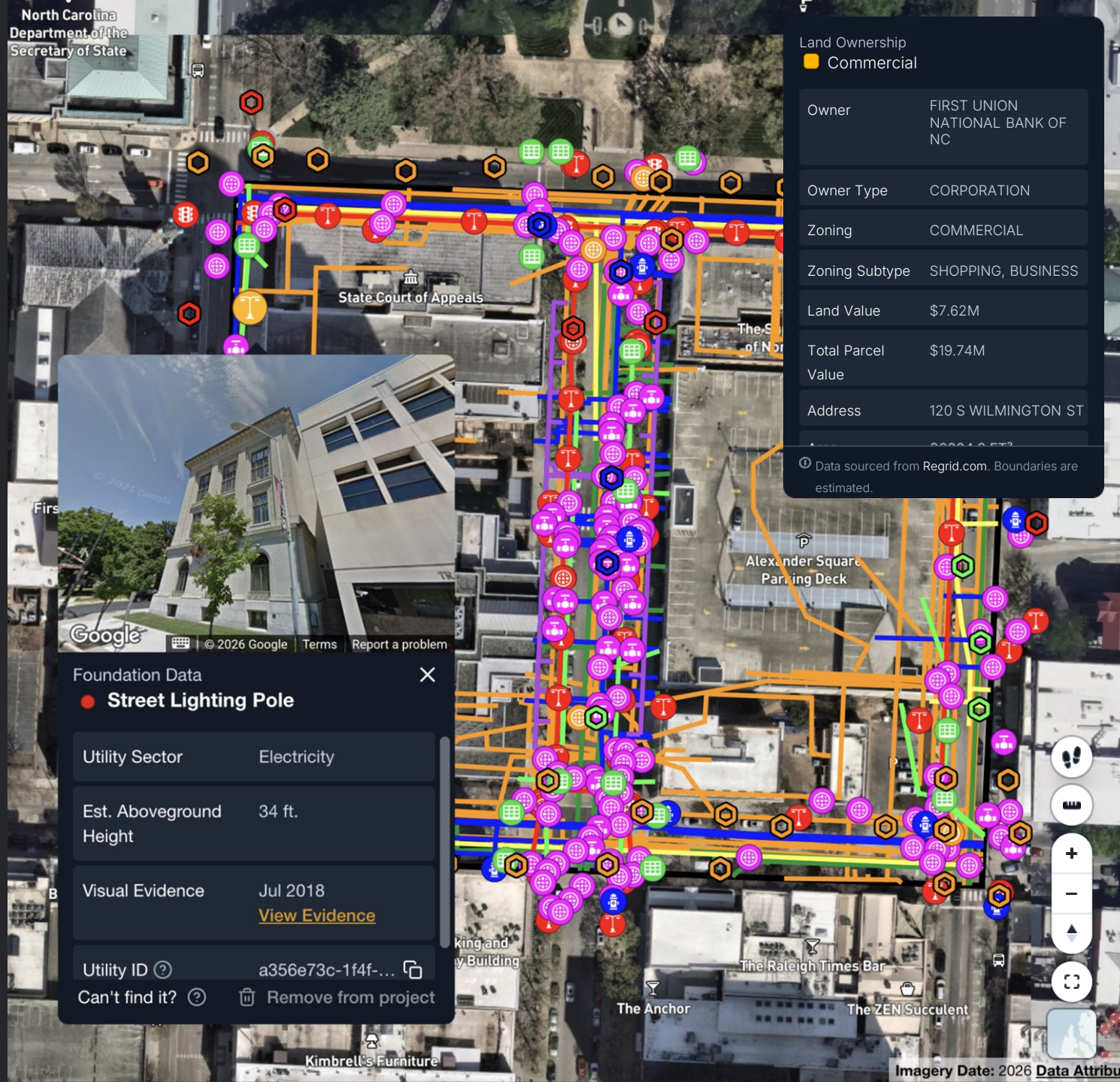
What 4M Provides

- Rapid utility intelligence
- Early conflict detection
- Reducing early risk for schedule, estimates
- Ease of integration across CAD & GIS Platforms
- Assist preparation of Subsurface Utility Engineering (SUE) Scope and plans.



What does 4M do?

- Public and Private Utility
  - Points (i.e. pedestals, valves)
  - Lines (i.e. overhead and subsurface wet/dry utilities)
- On-Surface Object Detection
  - Google Streetview/Google Earth
- Route Assessment
- Utility Conflict Matrix



How Does it work for Owners?

Data Collection

Geo-locate, geo- reference, & digitize public utility records GIS servers, as-builts, permits, satellite imagery, and more.

Conflation

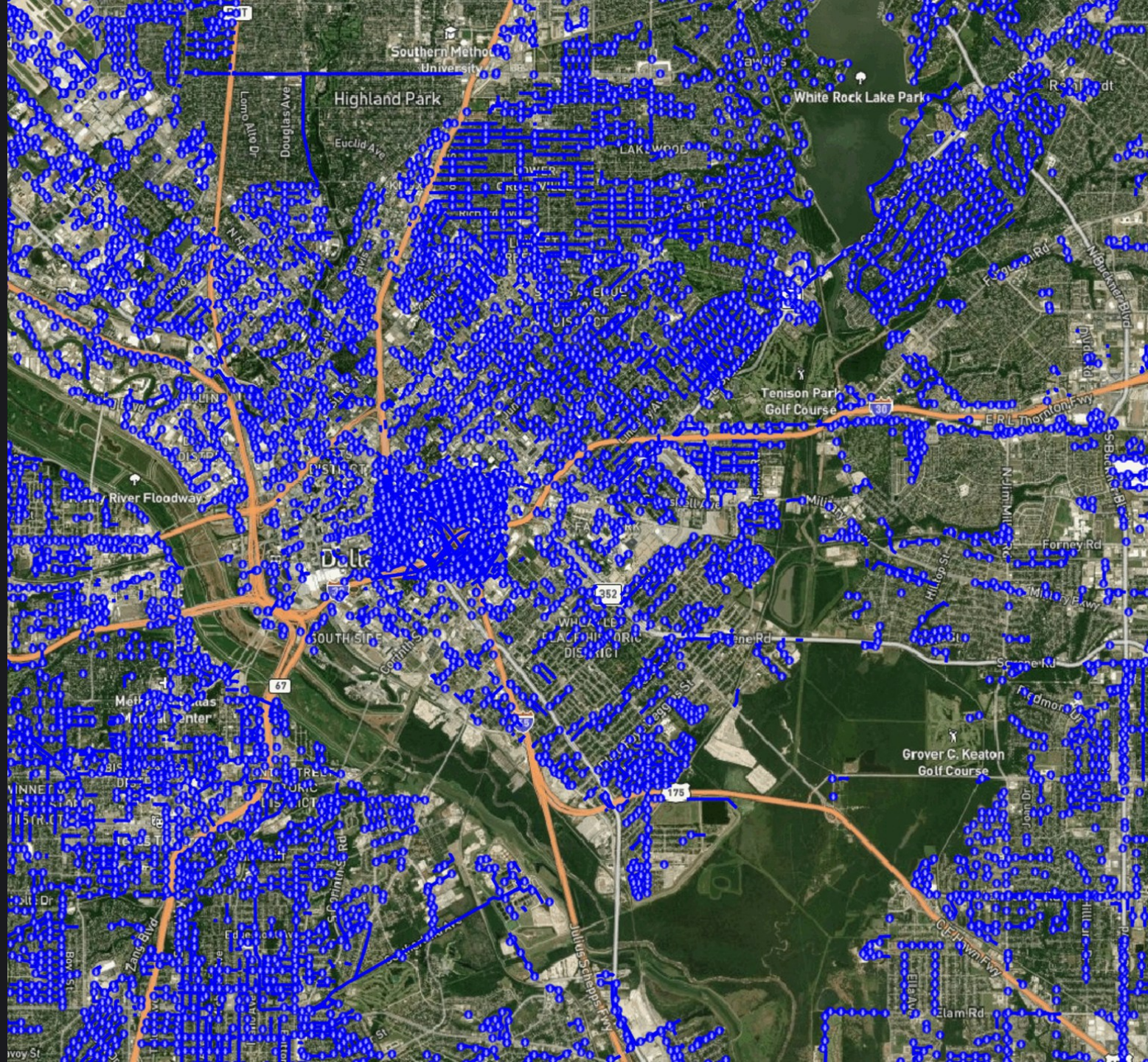
Merge & Conflate all sources into one unified, ready-to-use utility map

Object & Road Marking Detection

On-surface object and roadmark detection, with time stamped satellite & aerial imagery

AI-Generated Utility Network

When records are missing or incomplete, 4M uses AI to infer utility paths and generate lines for more complete coverage.



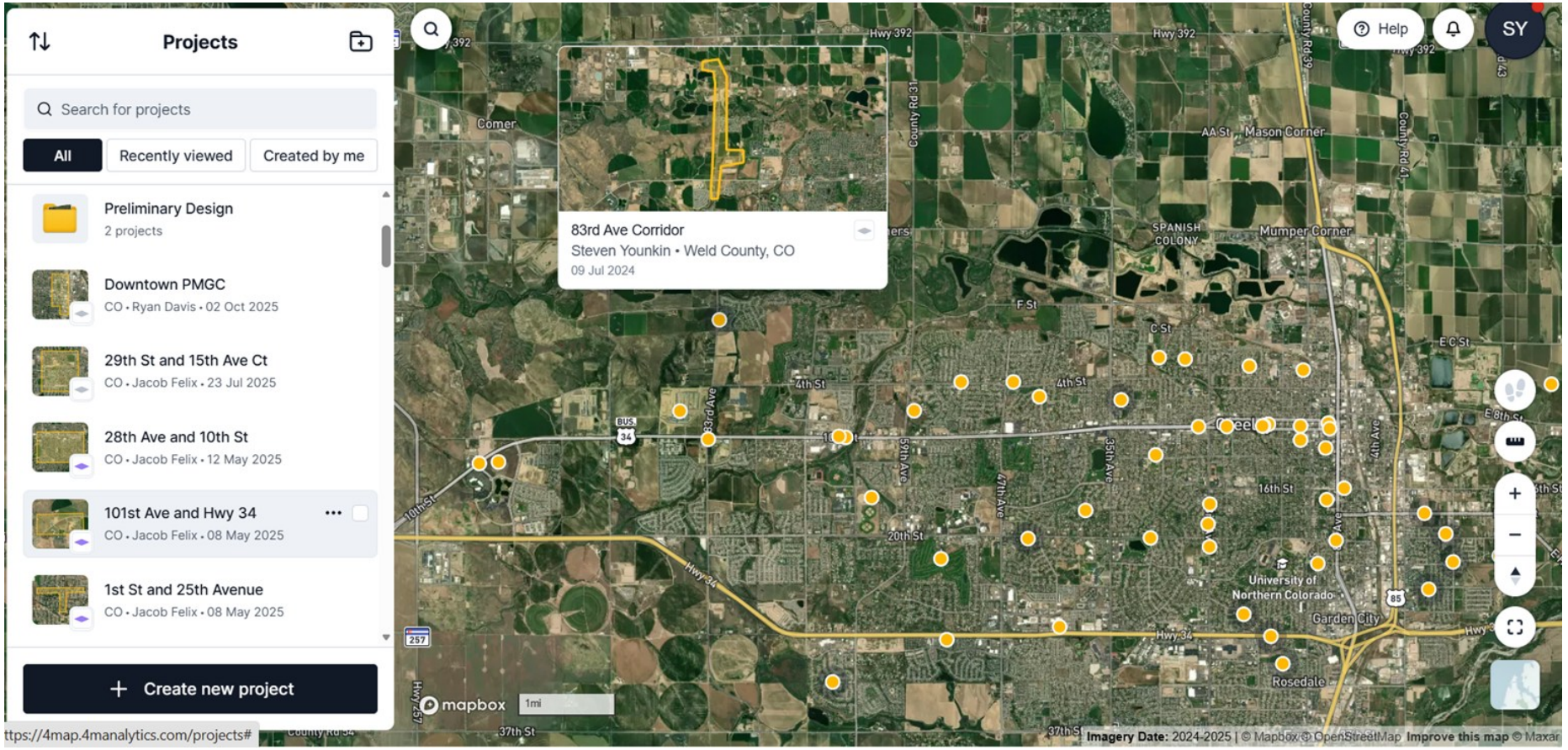
WSB Engineering
Engineer Views on Solution & Value

4M Analytics AI Solution has become an important data layer that when **combined with other data layers** such as locates, SUE, design, scheduling/phasing **improves how project teams can plan and execute** projects that involve utilities.

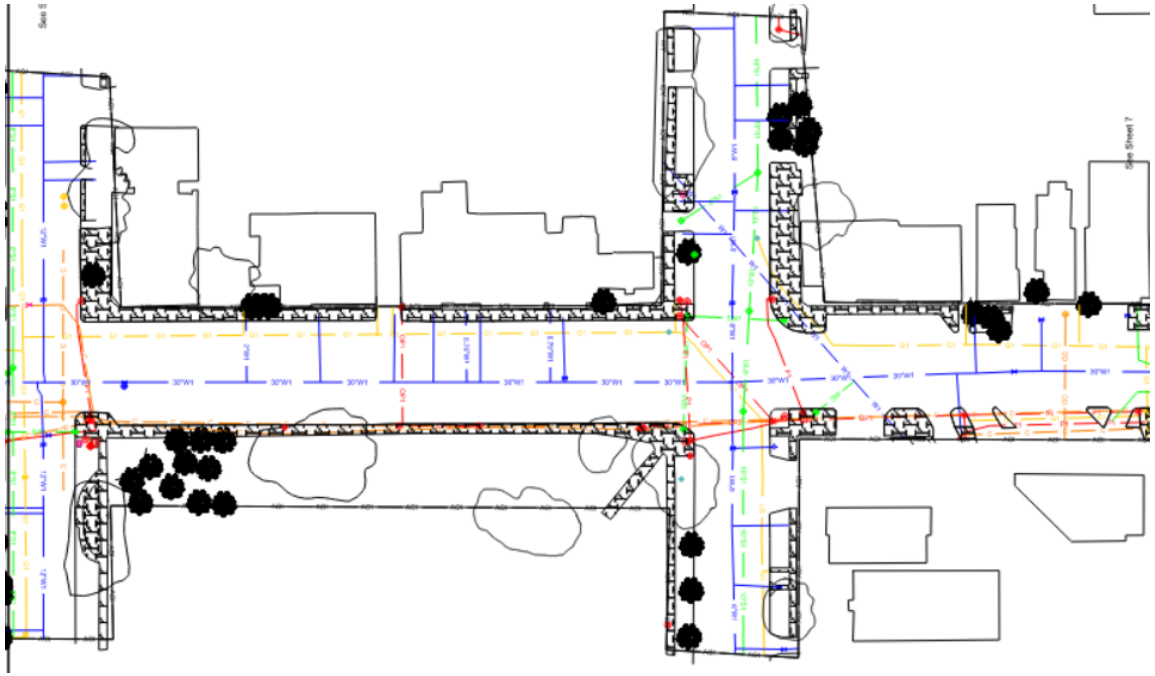
4M Analytics AI Solution provides a **quality control and quality assurance** layer that helps project teams analyze different data sources, GIS, design, field investigations, etc helping to **identify gaps and unknowns**.

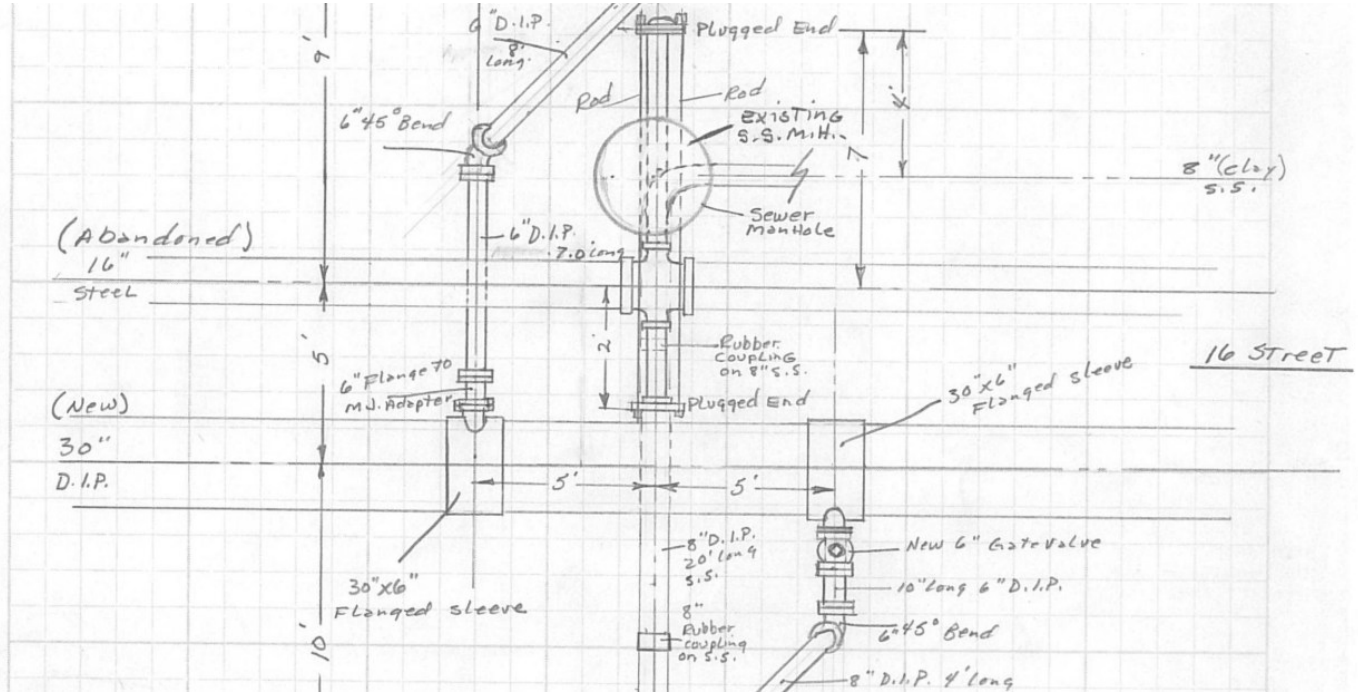
4M Analytics AI Solution value is both in **project delivery and in operations**. By pre-planning how you use and update 4M data through planning, design, construction and operations you can create a **continuous improvement workflow** that **enhances the data** as it flows through projects into operations.

City of Greeley Colorado
Owner Use Cases and Projects

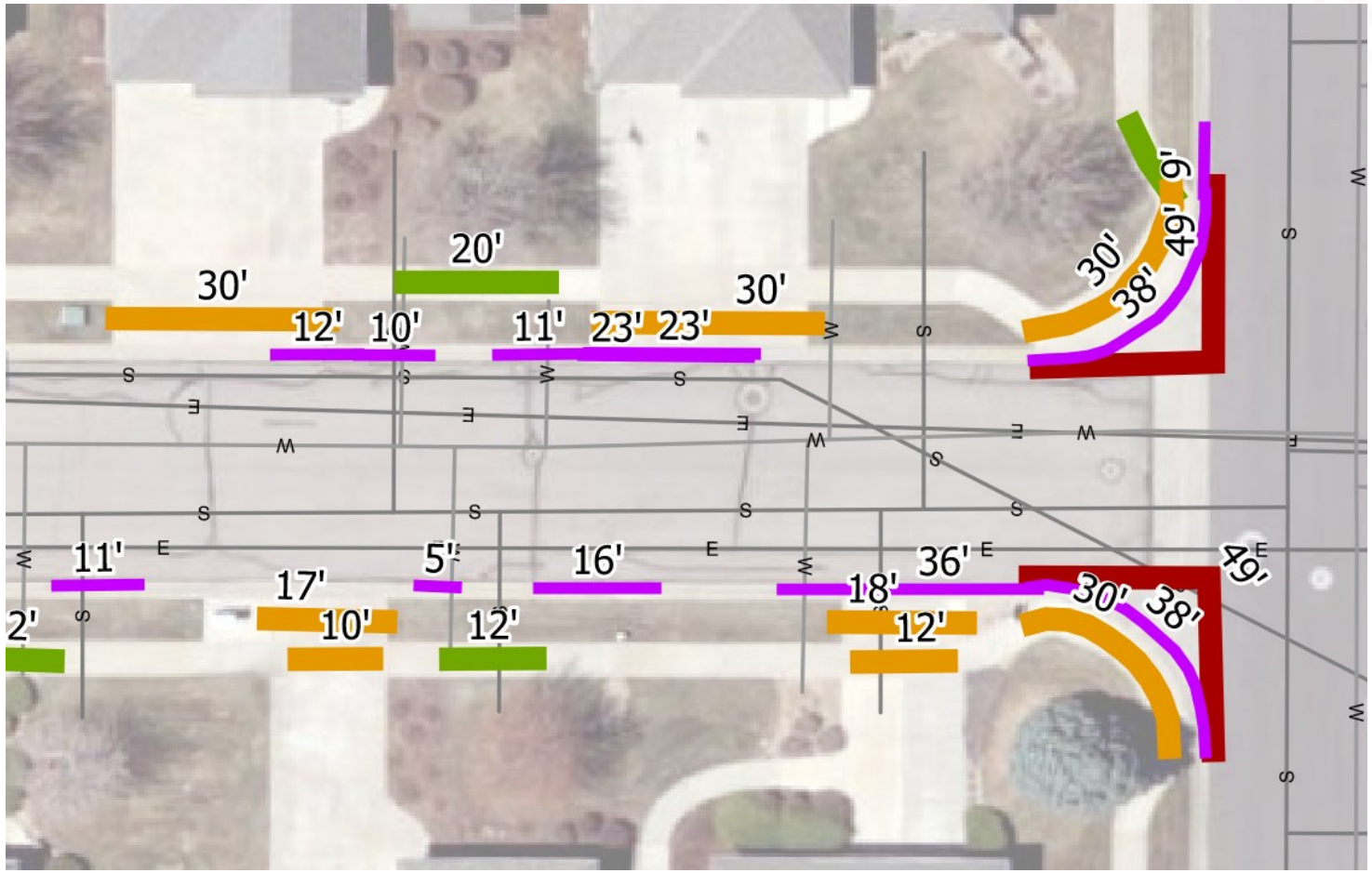


City of Greeley Colorado
Owner Use Cases and Projects - CIP

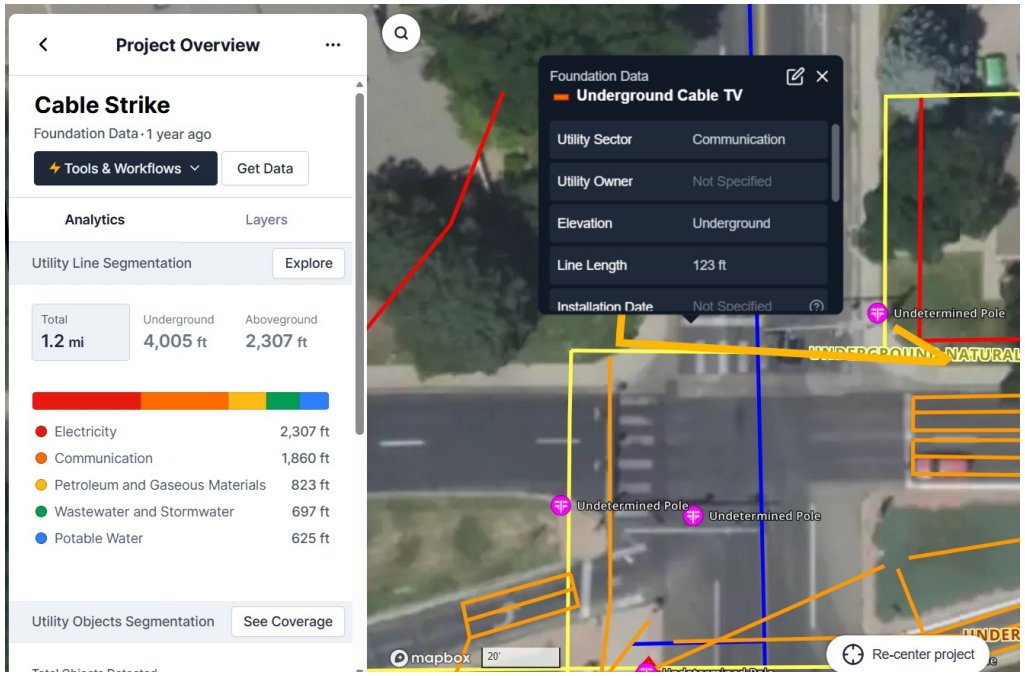




City of Greeley Colorado
Owner Use Cases and Projects - Rehab



City of Greeley Colorado
Owner Use Cases and Projects - Examples



WSB Engineering
Engineer Use Cases and Projects

- Permitting workflows to support contractors, utilities and infrastructure owners
- Planning projects that include utility assets
- Preliminary design
- Alternative design, progressive design, CMGC and other collaborative project contract types
- Congested utility project sites with high risk of conflicts
- Transportation and Utility Design
- Damage Prevention for Utilities
- Maintenance and Asset Management with Underground Utilities

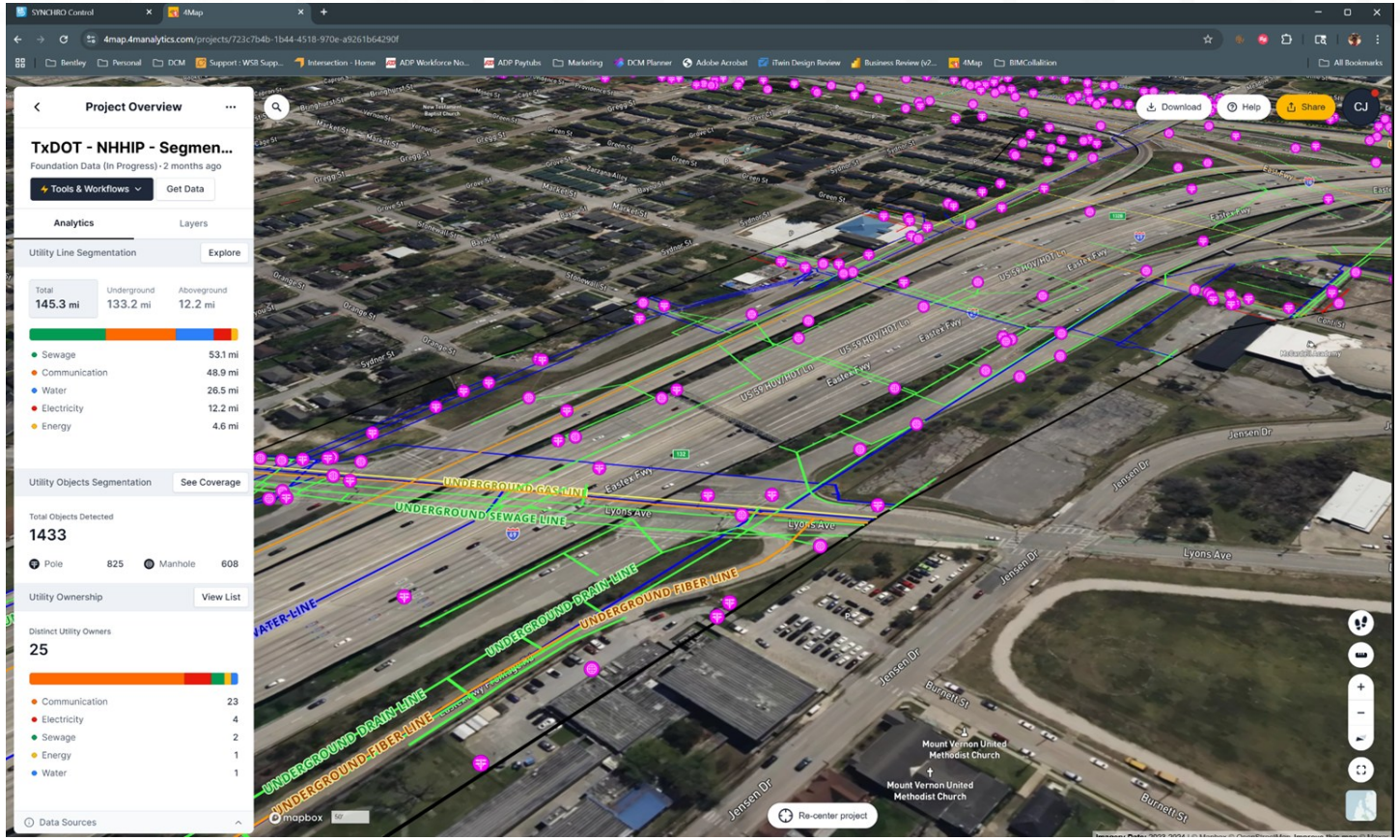
WSB Engineering
Engineer Use Cases and Projects

WSB Project Example NHHIP

North Houston Highway Improvement Project (NHHIP) - City of Houston and TxDOT

130+ miles of underground utilities (WSB modeled them in 3D using the 4M API and automation tools)

4M helped find risks sooner in the design process, gave designers and contractors more time to plan for construction phase



4M ANALYTICS AI SOLUTION - QUESTIONS AND ANSWERS

CITY OF GREELEY COLORADO AND WSB ENGINEERING