Do You Know Where Your Assets Are?

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Basic Principle of LiDAR Scanning

Light Detection and Ranging

- Position of LiDAR provided by GPS
- Position and orientation of the LiDAR provided by Inertial Measurement Unit (IMU)
Basic Principle of LiDAR Scanning

Multiple Returns

- Laser pulse finite diameter >10 cm
- One light pulse can have many returns
- Provides better feature analysis
- Returns with corresponding x, y, z coordinates create the ‘point cloud’ dataset
Components of LiDAR Scanning

- Mobile platform
- Positioning hardware
- 3D laser scanner(s)
- Photographic/video recording
- Computer and data storage
Mobile LiDAR Benefits - Accuracy

- **GIS Grade**
  - Sub meter

- **Mapping Grade**
  - Sub foot

- **Survey Grade**
  - Sub 0.10’
Mobile LiDAR Benefits - Efficiency

- Additional data mining
- Digital Terrain Models
- RGB components

Flattened 360° geo-referenced time-stamped image
Mobile LiDAR Benefits - Safety

- Non intrusive data collection
- Data collected at traffic speed
- No traffic control or lane closures
- Day or night operations
- Safer for the traveling public and crews
- Out of the RED ZONE
Mobile LiDAR Point Cloud Data
Sign Inventory Experience

COUNTY OF MARIN

163 miles
2,000 signs

KANSAS DEPARTMENT OF TRANSPORTATION

95 miles
5,589 signs
Sign Inventory Experience
Sign Inventory Experience
Sign Inventory Experience

- Height above travelway to bottom of sign
- Distance from travelway to nearest side of post
Sign Inventory Experience
Sign Inventory Experience
Sign Inventory Experience

Additional Data Fields

- **Cross Section View**
  - 5° from Vertical

- **Plan View**
  - 35° from Perpendicular
  - Perpendicular
Sign Inventory Experience

MUTCD Classification
Sign Inventory Experience

- 360° georeferenced image
- Reference point
- Date
- MUTCD sign designation/sign type
- Sign description/current sign size
- Condition of sign
- Post type
- Post spacing
- Sign height above travel way
- Sign distance from travel way
- Sign modifications
- Shoulder width
Other Assets – ADA Compliance
Other Assets – Building Footprints and Streetscapes
Other Assets – Overhead Utilities
Other Assets – Bridge Clearances
Other Assets – Manholes, Inlets and Drainage
Other Assets – Airports
Potential Types of Assets

- Signs
- Light and power poles
- Bridges/clearances
- Inlets/curb/shoulder
- Fire hydrants
- Cross section
- Cross slope/pavement drainage
- Rail
- Pavement marking
- Utility locates
- Guardrail
- Median
- ADA facilities
Do You Want Your Problems to be Extinct?

- Identify Problems
- Collect Data
- Organize/Analyze Data
- Understand Your Assets
- Design Your Solutions