

**USING CLOUD
SOFTWARE
TO MANAGE
ASSET INVENTORY**

INTRODUCTION

Government transportation agencies have thousands of materials and resources to keep track of; in many cases this is done through various incompatible inventory systems or spreadsheets. This process has resulted in numerous and disparate data silos that are incompatible, difficult to share between divisions and agencies, and limit the use of more advanced features such as analysis tools. Data silos combined with a lack of accountability and unreliable data end in poorly managed inventories.

With cloud-based asset management software, agencies can build reliable inventories and take advantage of its key features such as the ability to more easily communicate with other systems, share data and quickly develop new features. Information is importable, recordable, and accessible from single data locations that are accessible and modifiable by multiple users at once. Data acquisition can be done in the field and immediately go into an application in real-time. Automated instructions can be set to trigger work tasks, supply orders, and confirmations of assessments. Photos can also be added to confirm quality, labeling, and other requests. Another key advantage of cloud-based systems is the ability to easily interface with other systems using Application Program Interfaces (APIs). All of this information is kept within one system.

Navjoy, Inc. has developed AssetGOV as a part of the larger NueGOV platform for government and private transportation Agencies to collect and manage their inventories. Three different projects, CDOT's Nighttime Inspection, Denver Sign Replacement, and CDOT's sign assessment used this solution to build an inventory of data on unique sign features, asset conditions, accurate GPS coordinates, photographs, and other features.

SOLUTIONS



AssetGOV utilizes cloud storage to make asset inventories of any type secure and readily available. Seamless data management allows users to access real-time updates on key data points of any asset. Individuals can update information from anywhere, create task orders and perform audits on the data collected. Additionally, APIs are used to bring in other existing data sources and are available using an interactive map and customizable dashboards. Solutions to existing problems:

- Data accessed from single location
- Improves communication
- Removes data silos
- Removes need for spreadsheets
- Interactive map for easy location records
- Easy to learn and update by internal staff
- Navjoy can provide training or updates
- Multiple systems consolidated into single platform

Implementing our software platform can be conducted by a small team of NAVigators or from trained employees within your organization. In the following examples, we will outline how the solution was used to improve agency operations.

CDOT NIGHTTIME INSPECTION

PROJECT SETUP

CDOT Region 4 needed a system capable of collecting asset information on light poles. For nighttime inspection, maintenance crews performed routine work reports by traversing Colorado highways and then recording problematic locations. When a crewmember drove past a light pole in need of attention the site was recorded by clicking on a standalone app. This records GPS coordinates for additional crews, but driving speeds made GPS data inaccurate.

Another issue of nonexistent inventories meant multiple staff were using inconclusive data to find each light pole. The challenges were presented to Navjoy and possible solutions were requested. Navjoy addressed concerns using the following process:

1. Understand CDOT needs and challenges
2. Review requirements
3. Develop data models based on CDOT's selected solution from platform
4. Configured system according to data models
5. Convert existing nighttime inspection data into AssetGOV
6. Present deliverables using selected solution

RESULTS

With AssetGOV, Navjoy's solution was used to collect a full record of over 1,500 light poles. This inventory made it easier to find defective light poles and was more easily accessible on a map. Not only was Navjoy able to deliver specified requirements, collaboration amongst the maintenance staff improved. Region 4 is currently using AssetGOV to continue management of their assets.

DENVER SIGN REPLACEMENT

PROJECT SETUP

The City and County of Denver has a sign replacement program that covers 80 neighborhoods in a 10-year cycle. The signs are replaced by a City maintenance staff or City's contractor. Due to increased workloads and commitments of City staff in other areas, an improved system for data collection and task order execution was requested.

RESULTS

Over 6 years Navjoy collected data on 70,000 different signs across 34 neighborhoods. Using our solution over 25,000 signs and 11,000 posts were replaced. Not only did Navjoy collect all data required, field workers can now conduct inspections for the City after contractors are completed with work orders. Field inspections record corrections needed for any given asset. Once corrections are completed staff can coordinate with the City project manager for final acceptance. This allows for a level of quality control not offered before. With full time staff, Navjoy has significantly improved the reporting process and overall inventory on the sign replacement program. Features offered to the City through AssetGOV included:

- Sign and post specs
- Sign and post condition
- Pictures of each sign
- Ensuring city blocks meet criteria
- Recommendations for new signs
- Generate master reports and work orders for each neighborhood

We continue to work closely with the City of Denver on expanding their inventory. At the end of the project our efforts demonstrated familiarity with the City's requirements and processes.



CDOT SIGN ASSESSMENT

PROJECT SETUP

CDOT's Traffic and Safety branch needed field data collection and data analysis services on over 200,000 Statewide traffic sign assets across 5 regions. Navjoy was tasked with performing quality assurance checks that would ensure attributes such as sign size and sign facing direction were correct. Navjoy used AssetGOV to QA/QC the existing data and add additional fields that were not collected using LiDAR imaging such as CDOT region, CDOT maintenance patrol, installation date, post type and base type.

RESULTS

Through both review of sign replacement plans and field data collection, all attributes were added and a full comprehensive inventory of each CDOT Region's traffic signs was created. The process also allowed for the addition of signs that the LiDAR process could not capture for various reasons. Images taken in the field clearly showed:

- Sign condition
- Sign installation date
- Sign hardware (Z-brackets, etc.)
- Details of post/base connection

Using AssetGOV one technician was able to complete a process that typically requires two technicians in just 2 minutes per location. As a result, the cost per sign decreased from \$8 to \$3.30 per sign. Additional features added as a result included map-based asset identification with correct GPS coordinates, no post-processing, and automated version control were added. The reliability of the newly digitized inventories also expedites preparation plans for sign replacement and routine maintenance operations.



CONCLUSION

The way in which agencies collect, store, and analyze asset data continues to evolve. Devices operating on cloud-based software, accessibility of devices, and new forms of data gathering improve the quality of data acquired. advanced detection sensors, distributed databases, and spatial technologies improve the quality of data acquired. With cloud-based software you are able to save 70% of time spent on spreadsheets. In turn, agencies and local departments are able to make better decisions, execute decisions faster, record results easier, and improve asset management overall.

Interested to see more of our data collection and validation services?

[Click here](#)