IMPLEMENTATION

HIGHLIGHTER

IMPROVING THE EFFICIENCY AND ACCURACY OF ODOT TEMPORARY TRAFFIC MONITORING SYSTEM

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For several years, the Oklahoma Department of Transportation (ODOT) Data Collection Division has been using the Diamond Traffic Products Traffic Tally 4 system for counting vehicles and calculating vehicle volume on many state roadways and highways. ODOT provides this data to the business community for developing neighborhoods. Moreover, ODOT uses vehicle volume to improve road designs.

However, the accuracy of data collected by the Diamond Traffic Products Traffic Tally 4 system is impacted by entry errors. This implementation project is designed to improve the Oklahoma Traffic Count Information System (OTCIS) through two new methods of data collection technology.

- Road Runner 3 (RR3)
- Temporary Count Management System (TCMS)

Diamond Traffic Inc. has developed the RR3. This proposed technology expedites data collection/ processing for site deployments and eliminates potential data errors due to multi-stage data handling.

For each vehicle record, the RR3 vehicle classifier collects:

- Time-stamped vehicle count
- Classification
- Speed
- Axle spacing

Figure 1. Road Runner 3 used for collecting data

Innovative Traffic Systems & Solutions (ITSS), LLC has developed the TCMS for providing web services. The TCMS is composed of Android applications running on tablets and web services provided by the TCMS server.

The TCMS applications communicate with the RR3 to configure, start/stop data collection, and to fetch and upload data binary files.
TCMS web services:

- authenticate data uploads
- manage and monitor site deployments and data collection
- process binary data to obtain vehicle count, classification, speed, and axle spacing

Optimizing the interface of the TCMS database within the OTCIS would better meet ODOT needs and requirements. This implementation project proposes to:

- integrate RR3 vehicle classifier within the TCMS framework
- validate its accuracy
- develop validation algorithm based on historical count data
- confirm its suitability for ODOT use

This project includes training for ODOT data collectors.

- Site state visualization per county.
- Site state transitions from Raw, to Assigned, to Active, to Collected, ending at Validated.
- Schedule (data collection) trips per collector.
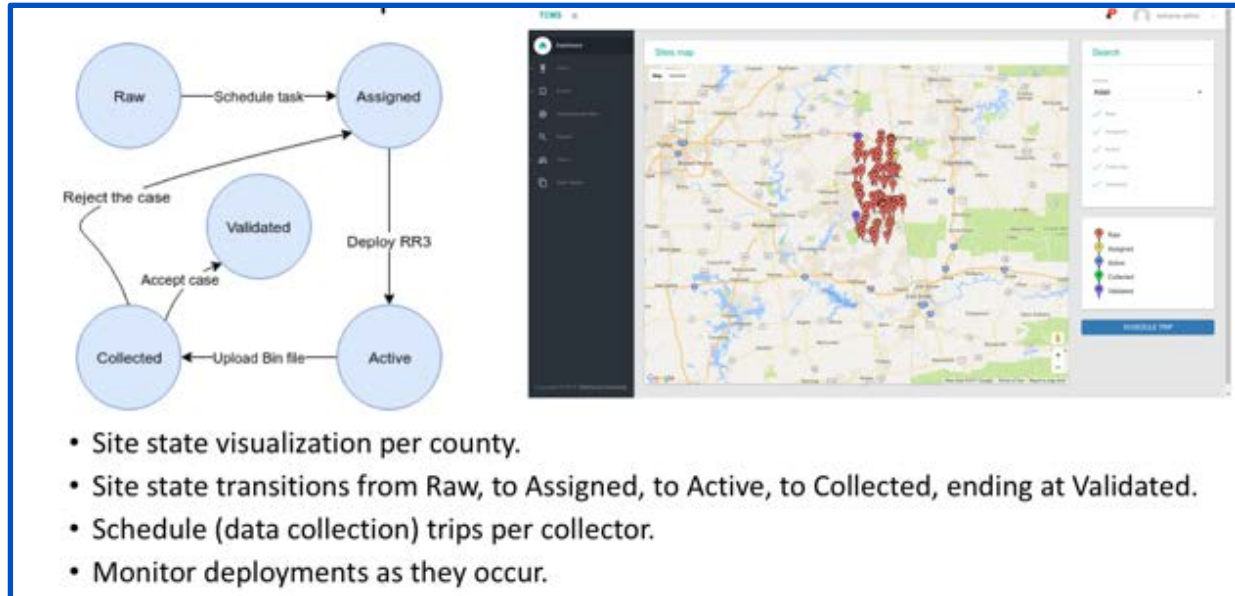- Monitor deployments as they occur.

Figure 2. Method used by TCMS to process data

Recent progress includes tracking these improvements:

- Ease of data handling
- Speed of deployment
- Projected number of daily deployments
- Speed of data transmissions and availability
- Average data processing time
- Speed of traffic information availability
- Network availability

The final goal of this implementation project is to integrate TCMS and OTCIS into a single database.

Implementation Engineer Gary Hook points out that the new technology improves accuracy of the data and reduces time required for collecting data.

ODOT Sponsor Aaron Fridrich states: "We have been working on this project for some time now and as with all projects, there have been unseen obstacles and problems. We are working to get all of these issues resolved and are looking forward to full implementation in 2018."
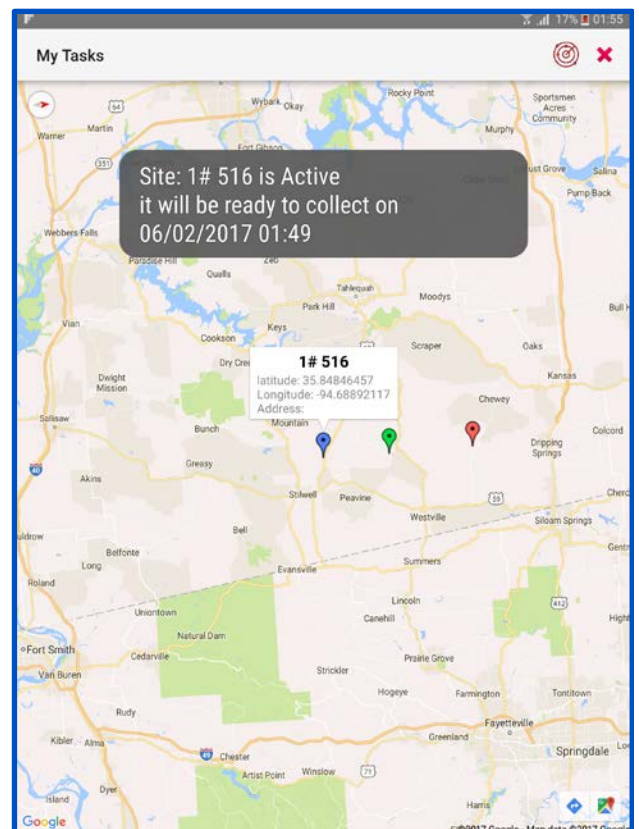

Figure 3. Screen displaying status of Site