Wisconsin Department of Transportation

Delivery Route Optimization Lean Summary Report

Project Summary

The Division of Business Management's (DBM) Distribution Unit provides centralized bulk material management and statewide distribution services for the Wisconsin Department of Transportation (WisDOT). In 2014, Distribution Unit vehicles logged 53,294 miles providing statewide delivery and pick-up service to customers on scheduled routes. The delivery routes and schedules were established many years ago and have not been updated or validated since, despite many program and operational changes.

The goal of this project was to identify opportunities to reduce delivery route miles driven, reduce the time needed to complete the routes and reduce operating costs.

This project was completed January 2015.

Improvements

- Adjusted route schedules based on customer feedback to reduce DBM mileage costs and driver travel time while continuing to meet customer needs.
- Adjusted annual scheduling template to standardize the timing of delivery service and customer ordering cycles.
- Added monthly delivery service to Shawano and Black River Falls Division of Motor Vehicles (DMV) service centers to reduce travel costs and staff time devoted to logistical operations.

MAPSS Core Goal Areas

- Service
- Accountability

Statewide Goal Areas

- Customer satisfaction
- Cost of government

Issue

Delivery routes and schedules were established many years ago to meet WisDOT program obligations in effect at the time. Since then, there have been several significant changes to WisDOT business operations without corresponding changes to or validation of the distribution services provided.

The team's purpose was to ensure routes and schedules are justified by current business needs and identify opportunities to reduce costs.

Lean Six Sigma Process

Using Lean Six Sigma methods, the team collected time and mileage data on current routes and calculated baseline averages for each route. Interviews were conducted with managers from four WisDOT divisions and a questionnaire was sent to two different customer constituencies. This Voice of the Customer feedback was analyzed to identify customer priorities and expectations, gauge their receptiveness to potential changes in scheduled delivery services, and identify customer priorities for service expansions or realignments.

Through root cause analysis, the team identified an apparent correlation between business needs, frequency of service, and miles driven that suggested current customer service levels could be maintained through selectively modifying current practices. Three potential improvements were identified:

- Reduce frequency of service to selected locations that represent a disproportionate share of miles driven to customer service required.
- Standardize delivery service to 12, 24 or 48 times per year for all locations, depending on their demand, to eliminate unintended trips.
- Redirect a small portion of mileage and time savings to add service to two DMV locations, enabling better customer service and reductions in DMV staff time and supply delivery costs.

Results

The improvements are estimated to reduce annual miles driven by 6,372 and annual driver hours by 171, saving approximately $8,300 in vehicle expenses and reallocating driver hours for other assignments. In turn, the Distribution Unit can reestablish delivery service to two DMV locations identified through customer input, enabling DMV to achieve annual savings of approximately $1,000 and 60 staff hours.

Next Steps

Revise route itineraries and notify customers so they can adjust their business practices. Distribution Unit staff will monitor route performance data to ensure savings are realized and customer business needs are met. The Distribution Unit will monitor future service request and ordering trends to better understand customer business operations and identify additional improvement opportunities in delivery service.