

## Mowing Changes Pay Big Returns for Southwest District

### Business Issue

Faced with a large gap between the available budget for fleet replacement and the needs of an aging fleet, reductions and efficiencies must be recognized in order to effectively manage the available resources.

### Approach

Southwest District representatives worked to balance the available funding and the true needs of the district by rightsizing its fleet.

Consolidation and reduction began in order to reach a specific goal – only owning fleet items necessary for operations.

Building consolidation brought about some immediate reductions. Loaders, with an estimated replacement cost of \$95,000, were reduced from a fleet of 35 down to 28. Additionally, the fleet of motorgraders, with an estimated replacement cost of \$155,000, was reduced from 19 to 14. These steps alone reduced fleet replacement cost by approximately \$2.7 million from previous levels. However, further efficiencies were found in how the tractor and mower fleet was being used.

Between 2003 and 2006, District 7 averaged roughly 24,000 tractor hours per year to complete sight distance and final mowing. In 2006, with a tractor fleet of 104, annual tractor usage ranged from 22 to 560 hours. This simple analysis of data created a foundation for fleet reduction and mowing procedure improvement that proved to be effective and efficient.

Simple math dictates that using the tractor fleet an average of 500 hours per year, the 24,000 tractor hours of annual use could be accomplished with only 48 tractors – a potential tractor fleet reduction of over 54 percent. If this reduction were to be accomplished, fleet replacement costs would decline by another \$2,970,000. Over the course of discussions, many questions were identified to help answer not only if such a reduction was possible, but also determine if it was practical.

Questions used prior to making a decision on future fleet and procedures included:

1. What is the best make up of our tractor fleet? How many batwing mowers versus bar mowers?
2. Is scheduled mowing with hard start and completion dates the best technique? Will this technique create consistency between our neighboring districts?



### Approach (cont'd)

3. How much should we expect an operator to get done in a day? An hour? Acres per hour? Lane miles per hour?
4. How many hours should we be putting on a tractor in a single year? 500 hours? 600 hours?
5. What work schedule is most efficient?
6. How much more could we get done with more batwing mowers?
7. How much do plant growth regulators (PGR) affect tractor usage?

Initially, several buildings began by testing various work schedules to determine the best approach to achieve more efficient mowing. Tested work schedules included ten- and twelve-hour work days as well as the typical five day, eight-hour workday with the goal to find a method that allowed for the best value for the tractor investment with no incurred overtime. Additionally, maintenance supervisors and building supervisors in the district were asked to recommend the type and style of tractors that they would like to retain. Building supervisors were also asked to submit a detailed plan of how they would most efficiently complete mowing on the roads for which they are responsible.

Armed with this data, District 7 began the new process of mowing using a fleet of 54 tractors – a reduction in fleet of 50 mowers – in May 2008, with all surplus units moved into General Services to be sold. Work schedules were set at most buildings with a rotating crew working ten-hour days. Hard dates and deadlines were established. Sight distance mowing on all major routes would be completed in three days, and all sight distance mowing on minor routes would be completed in nine days. Mowing cycles would be completed in advance of the three major summer holidays – Memorial Day, Independence Day, and Labor Day – as outlined in the Roadside Vegetation Manual.

These new procedures were discussed with all District 7 maintenance staff, as well as presented at the Spring Statewide Maintenance Meeting and the Statewide Roadsides Meeting. Generally, comments were skeptical and met with reservations

### Southwest District Findings

District 7 crews began mowing using the new guidelines on May 9, 2008. All mowing on minor roads in the district, 5,729 lane miles, was complete 4.6 workdays later on May 15, 2008. Mowing on the district's 1,211 lane miles of major roads began on May 19, 2008. All sight distance plus median mowing was completed on May 20, 2008, just two workdays later.

In the past, the pre-Memorial Day mowing would take the entire month of May, utilized over 100 tractors, and often was not complete by the holiday weekend. District 7 crews displayed a positive attitude and worked diligently to make the process work. Completing all district mowing in nine days with no overtime exceeded their goal by two full days.

To date, the positive trend continues. For the entire mowing season of 2008, sight distance mowing on major roads in District 7 averaged a completion time of 2.0 days, eclipsing their lofty goal by an entire day. Sight distance mowing on minor roads in District 7 averaged a completion time of 5.8 days, besting their target by well over three days.

### Conclusions

The Southwest District created fundamental changes in how mowing operations are perceived. For years, it had been viewed as a secondary task that was the first thing suspended when other jobs ran short of labor. The district had a large tractor fleet and could place staff and tractors in problem areas to catch up. Now, mowing has been made a priority, with skilled operators and clear, concise timelines that ensure completeness, quality, and responsibility to those

involved. Further, benefits of the new procedures can now be directly tied to MoDOT's Tangible Results.

**Attractive Roadsides:**

- All mowing looks consistent throughout the district.
- All mowing completed before the three summer holidays, and all major mowing was less than one week old for holiday traffic.

**Best Value for Every Dollar Spent:**

- Reduction in tractor fleet by 49 percent when compared to 2006.
- Mowing is completed in a short window, allowing for better management of labor resources and continued focus on roadway work.
- No overtime was incurred.

**Safe Transportation System:**

- Reduction in sight distance complaints due to mowing in a shorter time window. Before, some routes needed to be re-mowed prior to other routes being mowed the first time.

The complete revision of the mowing practices and fleet management in District 7 validates that analysis, planning, determination, commitment and focus can produce efficiencies that stand up to skepticism and doubt. For its efforts, District 7 has seen a dramatic reduction in labor and fleet expenditures, increased customer satisfaction, and improved employee morale.

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