

Traffic operations manages over 2,500 traffic signals, over 250 dynamic message signs, over 600 traffic cameras and traffic management centers in Kansas City, Springfield and St. Louis. Over 70,000 miles of striping is performed annually. All of the signs on MoDOT's transportation system are inventoried and inspected biennially. Sign maintenance and replacement costs over \$10 million per year. In addition, signals regularly undergo preventive maintenance checks and over \$10 million in maintenance efforts are performed annually on signals.

Maintenance Outcomes

Many of the results from Maintenance efforts can be found in MoDOT's performance measures known as TRACKER. Winter operations try to minimize the time it takes from the completion of precipitation from a winter event to meeting the operational goals of clearing the roads. Pavement maintenance is measured by the percent of good pavements on the minor route system. The goal is to maintain the percent good and it is pursued with mostly preventive maintenance treatments and occasionally heavy maintenance efforts. Similarly, bridge maintenance is also measured by the percent of good bridges. Keeping this percent of good bridges is pursued mostly with preventive maintenance treatments with some heavy maintenance efforts. Emergency and Traffic operations have several measures driving their outcomes such as clearance for incidents, freeway travel times and costs due to congestion. Roadside maintenance has Maintenance Division measures determining their efficiency and effectiveness. Unit prices of mowing and vegetation control are measured and compared to previous years as are overall roadside costs. The proper use of herbicides to reduce mowing and brush cutting costs are constantly reviewed and measured to ensure the most cost effective total vegetation management practices are implemented at MoDOT.

Maintenance Plans

Some maintenance activities are reactive and unpredictable such as pot-hole patching and winter operations, but the majority of maintenance work is planned, executed and tracked. The planned activities include chip seals, crack seals, asphalt pavement repairs, bridge deck seals, bridge flushing, striping, pipe culvert repairs and full-depth concrete pavement replacements. Of the \$443 million in operations expenditures in 2017, \$275 million was spent centrally and the rest was spent by the districts. Maps depicting several of these planned activities for the calendar year 2018 and 2019 seasons for each district are on the following pages. Several of the expenditure categories from state fiscal year 2017 are shown on the maps as well. Due to the high availability of contract resources in the urban areas of Kansas City and St. Louis, and the high traffic volumes, the work plans vary greatly from the rural districts. More maintenance and system operations activities in the urban areas are focused on emergency response, traffic signal operations, sweeping, mowing and incident management rather than the typical roadway work in the rural districts. Traffic management centers are staffed 24 hours a day, seven days a week, to meet the vast system operation needs. A great deal of the urban operations is focused on emergency response compared to roadway work. The urban operations in Kansas City and St. Louis respond to over 50,000 incidents annually. Some urban roadway work is handled with contracted projects.