2011 OPERATIONS MANAGEMENT SYSTEM REPORT

INTRODUCTION

This report is intended to aid district maintenance and traffic engineers by providing an overview of state force maintenance activities and assessing the current efficiency of OMS usage. The report contains statewide summaries for higher level analysis and individual district data to be used on a local level for management decisions. If you have any comments or suggestions for additional information that should be included in future reports please contact the Operations and Pavement Management Branch at 502-564-4556.

BACKGROUND

The Kentucky Transportation Cabinet (KYTC) implemented the Operations Management System (OMS) on July 1, 2002. OMS is a software package that maintains a computer database of the KYTC maintenance operations. The purpose for creating OMS was to provide users and management with a tool to track, report, and document daily tasks in one central location. OMS has several capabilities: the ability to create work orders that assign personnel, materials, and equipment while tracking location and cost; provide asset management by recording data about equipment including inventory, servicing, and fueling; aid inventory control through management of parts and materials, recording where materials are stored, and tracking inventory. This information is intended to help maintenance workers do their jobs more effectively and to help management make informed decisions.

GOALS AND REQUIREMENTS

Assess the maintenance activities of the Kentucky Transportation Cabinet

OMS allows the cabinet to track labor, equipment, and materials associated with maintenance activities. Accountability is a top priority. OMS provides support for addressing the public, KYTC, and the General Assembly.

Make informed policy and management decisions

Systematic tracking of maintenance activities and costs provides more efficient and accountable delivery of services by maintenance personnel. OMS is a strong resource management tool that allows labor, equipment, and materials to be used as productively as possible. Coordination between administrative units creates optimal use of labor and resources. Data from OMS can be used to predict the cost, time, and other resources required to complete scheduled work. Additionally, OMS data can be used to analyze spending and create budgets by district, highway system, work function, funding source, and month.

Promote alignment with the Transportation Cabinet's Strategic Plan

The goal of the cabinet is "to provide a safe, efficient, environmentally sound and fiscally responsible transportation system which promotes economic growth and enhances the quality of life in Kentucky." The Operations Management System provides a centralized database of maintenance activities that interacts with management systems to ensure that common data is shared. The systematic data tracking provided by OMS helps the cabinet meet its goal of preserving the transportation infrastructure and using technology to *"Continually Improve Organizational Performance"* (Transportation Cabinet Strategic Goal Number 3).

Provide data for GASB-34

OMS data can be used to satisfy the first requirement of the Governmental Accounting Standards Board Statement 34 (GASB-34) condition of highway assets requirement. This requirement obligates state governments to report all capital assets, including infrastructure, in a *statement of net assets* and to report depreciated expense associated with these assets. Infrastructure assets are not required to be depreciated if (1) the government manages the assets using an asset management system that has certain defined characteristics and (2) the government can document that the assets are being preserved approximately at (or above) a condition level established and disclosed by the government.

DATA ANALYSIS

All data used in this report was retrieved from the Operations Management System, unless noted. Costs and resources are for state force activities only and do not include contract work unless such work was documented in OMS by district personnel. Tables and graphs were created using Microsoft Excel.

QUALITY ASSURANCE

In addition to district level OMS coordinators, members of the Pavement and Operations Branch are available to provide training and support to OMS users. OMS was upgraded to a web based system in 2009. All districts were provided with training as part of Web OMS implementation. Additionally, all training manuals were revised in 2009 to reflect the changes in the system. The OMS help desk can be reached at 502-564-3550.

APPENDIX I

SNOW AND ICE

Appendix I tables and graphs are a summary of snow and ice activities and material usage. Snow and ice activities are noted as K series activities. K series activities are described in the KYTC Field Operations Guide as follows:

K010 Plowing Snow – Plowing of snow and ice from roadway and shoulders including ramps and interchanges.

K020 Spreading Salts and Abrasives – Spreading of salt, chemicals, sand, cinders, or other abrasives for control of ice or snow.

K030 Plowing and Spreading – The combination of plowing snow and spreading salt and abrasives.

K040 Anti-Icing – Application of salt brine to roadway pavements prior to storm events.

K120 Snow and Ice Initial Preparedness – All activities for snow and ice initial preparedness including the following: snow and ice meetings, training, equipment, initial preparedness by maintenance personnel, calibrations, and practice runs.

K150 Miscellaneous Expenses for Snow and Ice by Outside Vendors – Work done totally by outside vendors. This activity should be rarely used.

K160 Contract Snow and Ice Truck Fees – This activity is for payment of invoices for contract snow and ice truck retro-fit and dedicated service fees. This activity should not have usage charges.

K170 Contract Snow and Ice Truck Usage – This activity is for payment of invoices for contract snow and ice truck retro-fit and dedicated service fees. Salt used by contractor will be charged to this activity. This activity includes usage and stand by charges.

K880 Stockpile and Load Snow Removal Materials – The loading and stockpiling of salt and abrasive materials to be used for snow and ice control.

K990 Miscellaneous Snow and Ice – Standby time related to snow and ice control activities is to be included in this activity.

STATEWIDE SNOW AND ICE TOTALS FOR WINTER '10-'11

INFRASTRUCTURE	LANE MILES	62,000 miles approx.
	SALT CAPACITY	320,000 tons
MATERIAL USAGE	CALCIUM CHLORIDE (LIQUID)	1,538,741 gallons
	SALT BRINE	2,161,735 gallons
	SALT	457,228 tons
	AVERAGE SALT COST	$63.52 per ton
ACTIVITY COSTS	K010 PLOWING SNOW	$233,548
	K020 SPREAD SALT	$7,782,220
	K030 PLOW SPREADNG	$28,989,742
	K040 ANTI-ICING	$647,264
	K120 SNOW INITIAL PREP	$2,036,857
	K150 VENDER ICE/SNOW	$90,846
	K160 SNOW TRUCK FEES	$5,988,676
	K170 SNOW TRUCK USE	$9,168,187
	K500 SALT BUILDING MNT	$0
	K880 STOCK SNOW MATERIALS	$2,847,950
	K990 MISC SNOW/ICE	$8,330,502
TOTAL ACTIVITY COST		**$66,115,792**

*From Roadside Environment Branch

APPENDIX II

GUARDRAIL

Appendix II tables and graphs are a summary of guardrail spending by district. Guardrail activities are noted in the C series activities. Guardrail activities are described in the KYTC Field Operations Guide as follows:

C300 Repair or Install Steel Beam Guardrail – The repair, alignment, replacement and minor additions of steel beam guardrail.

C330 Repair or Install Guardrail End Treatment – The repair, realignment, replacement and minor additions of guardrail end treatments.

C390 Contract Guardrail Maintenance – Guardrail maintenance including end treatment, energy absorption devices repair done by a contractor. This activity covers cost of inspector or other state employee when FE01 MP account maintenance money is being used.

APPENDIX III

TREE AND BRUSH REMOVAL

Appendix III tables and graphs are a summary of tree and brush removal spending by district. Tree and brush removal activities are noted in the E series activities. Tree and brush removal activities are described in the KYTC Field Operations Guide as follows:

E010 Tree and Brush Removal – This activity is for the cutting of brush, trees, and tree limbs and their disposal, including herbicide stump treatments.

E030 Contract Tree and Brush Removal – This activity is for the cutting and removal of brush, trees and tree limbs and their disposal by contract. Include inspection and all other relating costs.

APPENDIX IV

ACTIVITY SPENDING BY CATEGORY

Appendix IV tables and graphs are a summary of activity spending by district. All activities are state force only with the exception of mowing which can include contract mowing and trimming. Efficiency rates are calculated as the percentage of overhead spending (including leave and N series activities) to total spending. Activity series are denoted in the Operations Management System as follows:

A – Surface
B – Shoulder
C – Roadside General
E – Roadside Agronomy
F – Mowing
H – Bridge
J – Roadway Drainage
K – Snow and Ice
M – Emergency
N – Service and Overhead
P – Inspection
T – Traffic

APPENDIX V

ROADWAY FUNCTION CLASS SPENDING

Appendix V graphs are a summary of statewide and district spending by roadway functional class. Graphs broken down by county represent activity spending in that county**.** All spending figures are state force only with the exception of contract mowing which may be included if the district enters contract costs into the Operations Management System. Roadways are divided into the following functional classifications:

Interstates - Those routes designated as part of the Eisenhower National System of Interstate and Defense Highways. These include three north-south interstates (I-65, I-71, I-75); two east-west interstates (I-24 and I-64); and smaller loop routes in Louisville Metro and Northern Kentucky.

Other NHS - Non-interstate routes that are part of the National Highway System. This category includes most of the state's parkways and major US routes. Some state routes (roads designated with a "KY" prefix) are also components of this system.

Other SP/Supp - State Primary and Supplemental roads include all "KY" routes which do not carry an NHS or Rural Secondary designation.

Rural Secondary – The system of roads in Kentucky that are usually considered “farm to market” roads. Under KRS 177.320 and 177.360, the cabinet is required to spend a designated amount on RS roads within each county. The Operations Management System is the primary source of documentation of compliance with these statutes.

APPENDIX VI

WORK ORDERS

The graphs in Appendix VI are a summary of work order components related to OMS efficiency. Work orders assign personnel, materials, and equipment to maintenance activities. The costs associated with a work order are not reflected in OMS and are not processed in eMARS until the work order is approved and completed. **Work orders that are left uncompleted for extended periods of time will cause inaccurate reporting of budget expenditures and balances.**

Work orders should always be assigned to a roadway section with a few exceptions. Work orders missing roadway sections cause inaccurate roadway functional classification reporting and make it difficult to track where work was performed. The “Percent No Section Work Orders” graph was created with these rules:

1) All "N" series activities were excluded. These activities should generally not be assigned a road section.

2) Work orders that were assigned to multiple sections are counted among those that DO have a section assigned.

3) There are activities outside the "N" series that don't need a section (K990, M990, A990, etc.). These weren't excluded from this list, so a small percentage in each county is understandable.

APPENDIX VII

MATERIAL INVENTORY ADJUSTMENTS

Appendix VII graphs are related to materials inventory issues. Beginning in January of 2007 the Commissioner's office implemented monthly inventories for all OMS administrative units in Maintenance and Traffic. Errors in inventory are to be resolved through work orders, purchases, or transfers. Only when these remedies have been exhausted shall an inventory adjustment be performed.

Branch Managers are reminded that they must approve all inventory adjustments in writing. This approval can be in the form of an email and must be kept on file for auditing purposes.

The inventory adjustment graphs compare the number of inventory adjustments and dollar value of all adjustments each month for each district. **End of fiscal year inventory reconciliations are also included in these graphs.**

The error rate graphs included in this report represent the average error rate, highest error rate, percentage of crews with an acceptable error rate of less than 5%, and number of crews not reporting inventories by district for the final quarter of the fiscal year. Error rates are determined by dividing the number of line items that are in error by the number of line items that are included in the inventory, with the exclusion of items that have a current amount of zero. Items are in error if they exceed the allowable thresholds.

FY '11		
DISTRICT	**TOTAL NUMBER OF ADJUSTMENTS**	**TOTAL VALUE OF ADJUSTMENTS**
01	142	$51,408
02	881	$755,263
03	243	$166,722
04	256	$250,370
05	691	$530,576
06	447	$373,308
07	397	$257,514
08	114	$51,484
09	212	$263,125
10	311	$134,584
11	125	$147,427
12	72	$407,017
TOTAL	3891	$3,388,800

APPENDIX VIII

CONTRACT COSTS

Appendix VIII graphs are related to maintenance contract spending. All contract spending is to be entered into OMS on work orders as a direct cost for the associated activity performed. While direct cost transactions for contracts on work orders in OMS do not have an impact financially in EMARS, it is important for management to be able to capture and report on the work performed through contracts. Therefore it is beneficial to enter contract spending into OMS as a direct cost both as thoroughly and accurately as possible, in order for management to make decisions based on precise data.

OMS reports were filtered for major contract spending activities. These activities include:

A140 – Pavement Contract Patching Inspection
C390 – Contract Guardrail Maintenance
E030 – Brush and Tree Removal by Contract
F320 – Contract Mowing
K160 – Contract Truck Fees
K170 – Contract Truck Usage
T010 – Painting Centerlines

The contract costs were pulled from eMARS (InfoAdvantage). This report includes costs related to the Road Fund/Division of Maintenance for the budget fiscal year reflecting costs for all twelve districts sorted by county, activity, object and department object codes. PRC documents were isolated to capture only payments that we make to vendors and can be associated with a contract/encumbrance. State costs such as labor (CA documents) and equipment usage (IET documents) were excluded as well as GAX, MD, AD, EFT, TP, ITA, JV2E documents. The documents with a document ID prefix of "XCONST" are construction costs that are contracted out. A backward reference was included to show contracts for services. These can be identified by the following document codes:

DO..... Deliver Order
CT2..... Contract for Services
CTT2.... Contract for Services
PO2..... Highway Construction and Maintenance contracts
PO..... Purchase Order Award