

# REPORT ON A FIVE-YEAR-OLD REPORTING SYSTEM

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•THE TITLE of this presentation is somewhat misleading. There are elements of our reporting system that are at least 25 years old and other elements that have been operational for only 3 years. Actually the 5 years refers to our first pilot work on our system.

The maintenance reporting system in Virginia is an integral part of our fiscal accounting system. The same source documents provide the input for maintenance management reports, fiscal reports, and other special reports on equipment and materials. The four main source documents are: the individual time sheet, the convict report, the equipment rental report, and the stock issue and accomplishment report.

Figure 1 shows a time sheet that is prepared semimonthly for an individual's time. The hours worked each day are charged against the appropriate county, route and section on Interstate and primary systems (no section number is used on the secondary system), area or crew number, and activity. For purposes of illustration, I have shown an employee who worked 4 hours on skin patching and 4 hours on mowing on the 7th day of July. For the first activity, skin patching, we show the county designation and route (a section number is not shown since this is a secondary route), area number, and activity. For the second activity, mowing, we again show county, route, section (since this is a primary route), area, and activity. Entries would be made in a similar manner for the other days in the reporting period. Only regular time is reported on this particular report. Overtime is reported separately on a similar form with the same controls.

In Virginia, the department of highways is required by law to utilize prisoners on highway work. For each prisoner hour worked the department of highways pays the department of welfare and institutions at a mutually agreed hourly rate.

Figure 2 shows the form used in reporting the hours worked. The same controls, county, route, section, area number, and activity, are used in reporting the time. The time is reported in total hours worked. In this example I have shown a gang of 10 prisoners who worked 8 hours each cutting brush.

Figure 3 shows the input document for equipment rental. A rental is paid to the equipment division for actual hours worked by rental equipment. Only one piece of equipment is reported on a rental form. In the same manner as shown on the time sheet, equipment hours are charged against the appropriate county, route, section (Interstate and primary), area or crew number, and activity. To carry on our illustration, this truck was used for 4 hours on the patching activity shown on the employee time sheet.

All materials are in stock and as material is used it is charged out of stock on a stock materials issue and accomplishment report, shown in Figure 4. Also work accomplished that is not a material is reported on this form. In our patching illustration, stone and asphalt are charged from stock to the road. As shown in the previous reports, the same controls of county, route, section, area number, and activity are used. On the skin patching activity, the tonnage of stone is used to measure work as well as in fiscal accounting and in reconciling stock accounts. Mowing is measured in "acres mowed," and therefore it is reported with the same controls as was shown on the equipment report and time sheet for the mowing illustration. The reported acres mowed in this entry is only used in preparing the maintenance performance reports.

These four reports are the main input documents. There are other input documents such as invoice; however, these concern only money, not work performed.

As shown in Figure 5, reports are prepared in the field and then sent to automated data processing where the information is keypunched and processed. From these data, fiscal reports, equipment reports, stock reports, and maintenance performance reports are prepared. In addition to these routine reports, other special reports may be prepared as required. These reports are sent to the field and to certain central office managers, generally between the 15th and 20th of the following month.





STOCK MATERIALS ISSUE & ACCOMPLISHMENT REPORT

Nº 142750

DISTRICT: 67

RESIDENCY: 42

DATE: 7-7-70

STOCK LOCATION CODE	ITEM CODE	DESCRIPTION OF MATERIAL	QUANTITY	TENTS	UNIT OF MEASURE	COUNTY	ROUTE	CITY/ XX COUNTY #	SECTION	JOB NO.	LAND OWNER	ACTIVITY	UNIT COST	AMOUNT
4202	841	# 78 Stone	20		23	3.2	0.626	0.000	0.02			1.11	2.75	5.50
4202	051	RC-250 Asphalt	500		15	3.2	0.626	0.000	0.02			1.11	0.16	8.00
		Tractor Mowing	25		41	3.2	0.015	0.040	0.02			1.71	0.00	0.00

Approved:

Checked and Posted by:

Received by:

Resident Engineer

Supt., Foreman, Patrolman

Figure 4. Stock materials issued and accomplishment report.

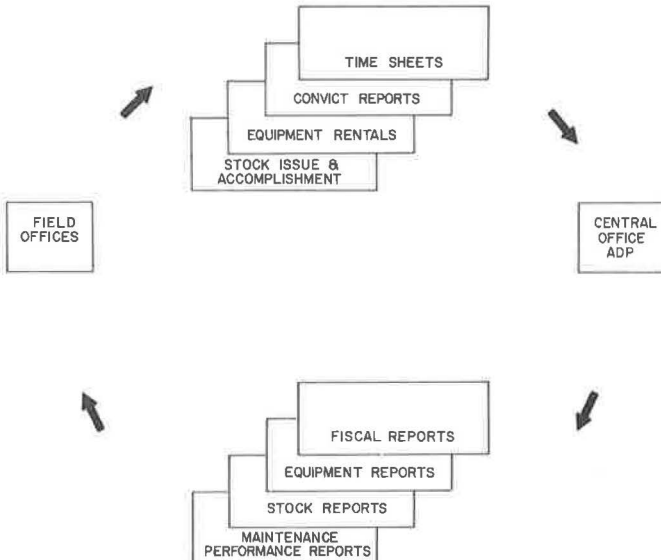


Figure 5. Document flow.

ORGAN.	ACT. UNT MEAS	QUANTITY		LABOR HOURS		TOTAL PLAN	4TH QTR COST ACTUAL	68-69 RATE PLAN	REPORT BY ACTUAL	RESIDENCY UNIT PLAN	COST ACTUAL
		PLAN	ACTUAL	PLAN	ACTUAL						
855	100		20732.0		20732.0	64,860.00		1.00		3.12	
85500	101				72.0		745.75				10.35
85500	103				346.5		5,166.15				14.90
85500	104						3,665.75				
85500	105				546.0		1,341.77				3.55
85500	109				424.0		2,914.66				6.87
85500 SKIN PATCHING	111 23	2255.0	2352.4	6320.0	5180.5	31,057.00	29,378.93	2.80	2.20	13.75	12.48
85500 PREMIX PATCHING	112 23	332.0	256.9	1617.0	1425.0	7,805.00	6,436.09	4.87	5.54	23.50	25.05
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ORGAN.	ACT. UNT MEAS	QUANTITY		LABOR HOURS		TOTAL PLAN	4TH QTR COST ACTUAL	68-69 RATE PLAN	REPORT BY ACTUAL	RESIDENCY UNIT PLAN	COST ACTUAL
		PLAN	ACTUAL	PLAN	ACTUAL						
85500	164				24.0		380.38				15.84
85500	165				393.0		1,346.12				3.43
85500	167				8.0		38.90				4.86
85500 TRACTOR MOWING	171 41	4683.0	4275.5	7259.0	5123.0	31,955.00	24,641.20	1.55	1.19	6.42	5.76
85500	172				2059.0		4,551.49				22.21
85500	173				2300.5		4,697.10				20.74
85500 SPRAY BRUSH	174 15		453.5		1372.5		5,672.64		2.87		12.50
85500	175				1054.0		2,573.84				2.44
85500	181				878.0		3,914.97				4.45
85500	183						2.19				
85500	184				4.0		1,541.16				385.24
85500 REPAIR OR RESET GUARD RAIL	191 31		549.0		141.0		495.87		.25		.70
85500 CLEAN AND/OR PAINT GUARD RAIL	192 31		5005.0		104.0		261.99		.02		.05
85500	195						468.95				
85500 ERECT AND REMOVE SNOW FENCE	213 31		167772.0		2296.0		5,578.80		.01		.3
85500	214				1196.5		3,943.13				32.7
85500	215	3314.0		4972.0	12.0	31,834.00	16,464.90	1.50		9.60	372.67
85500	219				40.0		122.90				30.7
85500	221				144.0		382.66				1.65
85500	222				256.0		1,006.27				4.16
85500	241				72.0		764.22				10.66
85500	242				4520.0		14,414.20				16.14
85500	299				1,556.5		2,947.89				18.88
85500	411 23		7877.2		734.0		6,704.94		.25		26.33
85500	500										
TOTAL ORDINARY MAINTENANCE CHARGES					59358.0	51779.5	2,726.00	244,244.50			
400 ACTIVITIES TOTAL						7674.0		13,180.34			
500 ACTIVITIES TOTAL						16408.0		92,723.18			
TOTAL MAINT. CHARGES BY RESIDENCY					50358.0	75912.5	207,206.00	356,761.02			
TOTAL OTHER CHARGES BY RESIDENCY						720.5		3,293.89			

Figure 6. Maintenance performance report.

is in terms of acres, the productivity rate in man-hours per acre, and the unit cost in dollars per acre.

All other activities that are specifically planned and that have a unit of measure are similarly reported, and the grand totals of man-hours and cost are shown at the bottom of the report. I am not going to discuss the uses that management makes of these reports or the benefits that may accrue as a result of the total system, because these points will also be covered in other parts of the program.

Any reporting system has its strengths and weaknesses. Virginia's reporting system is no exception, and I would like to discuss a few of both its good and bad points. As I pointed out in the beginning, the performance reporting and fiscal reporting are integrated. We consider this to be good for the following reasons. First, the number of reports prepared in the field has not been increased. The only additional work required is the reporting of work units that are not materials. An example of this is the

acres reported in the example shown in Figure 4. As a result, very little additional time or manpower is required in preparing the input documents.

Second, because the maintenance performance reports are computer processed along with the fiscal reports, no additional clerical help is needed at any level to process the information. Also, because the data are computer processed, various analyses can be obtained through computer programs.

Third, we feel that the integrated system promotes accuracy of reporting. There seems to be more emphasis on accurate reporting when the information is to be used for fiscal purposes.

Last, with the integrated system it is easier to reconcile fiscal data with performance data. The fact that performance data and fiscal data can be reconciled makes it easier to cost items for budget development.

While we think our overall system is good, there are a few undesirable aspects. In combining performance reporting with fiscal reporting, we made some compromises. Because the fiscal accounting procedure was operational at the time we started performance reporting, the compromises were generally in favor of fiscal desires. For instance, the time sheets for hourly employees are the pay documents for these employees, and processing these time sheets has first priority in order that these employees may be paid. For this reason and others the processing of performance data has a lower priority than most fiscal reports. This lower priority results in a time lag of two to three weeks in receiving feedback reports. More prompt reports would of course be desirable. Also, certain desired coding procedures for maintenance performance data could not be implemented because it would have caused too much change in fiscal programs.

We also recognize the need for other improvements not related to the integrated system. The feedback report should be simplified. Too much information is reported at some management levels. We are currently working on this problem and hope to have a revised format next year.

Considering the strengths and weaknesses of our reporting system, we are pleased with the overall operation to date. The system was installed and is now operated with very little disruption of existing fiscal procedures; however, the most important aspect of the system is that managers at all levels are being furnished necessary feedback for adequate control of maintenance operations.