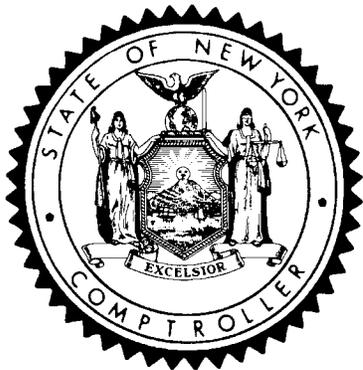


***State of New York
Office of the State Comptroller
Division of Management Audit
and State Financial Services***

**DEPARTMENT OF
TRANSPORTATION**

**OVERSIGHT OF EQUIPMENT REPAIR
AND MAINTENANCE ACTIVITIES**

REPORT 99-S-8



H. Carl McCall
Comptroller



State of New York Office of the State Comptroller

Division of Management Audit and State Financial Services

Report 99-S-8

Mr. Joseph H. Boardman
Commissioner
Department of Transportation
State Office Building Campus — Building #5
Albany, NY 12232

Dear Mr. Boardman:

The following is our report on the oversight of equipment repair and maintenance activities at the Department of Transportation.

This audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law. Major contributors to the report are listed in Appendix A.

*Office of the State Comptroller
Division of Management Audit
and State Financial Services*

April 25, 2000

Executive Summary

Department of Transportation Oversight of Equipment Repair and Maintenance Activities

Scope of Audit

The Equipment Management Division (Division) within the New York State (State) Department of Transportation (Department) is responsible for the procurement, maintenance, and disposal of all equipment used by the Department to maintain about 41,000 lane-miles of highway and 7,300 bridges. The Division's primary goals are to provide, manage, and maintain, at a reasonable cost, the mechanized equipment the Department needs to provide its services.

The Department has 11 Regions. Each Region, except the one that includes New York City, has a main repair shop. The Division is responsible for setting policy, establishing procedures, and monitoring performance at the 10 Regional repair shops and 70 local "residencies" that service the equipment fleet. It has about 460 employees and maintains about 14,000 units of equipment, of which approximately 4,900 units are considered major equipment such as dump trucks, pick-up trucks, backhoes, pavers, and other construction equipment. According to Division records, it performed nearly 89,000 repair and preventive maintenance (PM) services during the State's 1998-99 fiscal year. During the same year, the Division spent about \$46.2 million to repair and maintain the equipment fleet, and to purchase new equipment.

Our audit of the Division's equipment and repair maintenance activities for the period January 1, 1997 through September 30, 1999 addressed the following questions:

- ! Has the Division implemented a system to effectively monitor Regional equipment repairs and maintenance?
- ! Does the system allow management to determine whether work is completed in a timely manner, thus maximizing equipment availability?

Audit Observations and Conclusions

We found that the Division has implemented an effective system for monitoring equipment repair and PM activities. To monitor their operations, Division and Regional managers use the Equipment Management Information System (EMIS) to capture data from repair work orders and PM orders, and track 48 performance indicators by Region so that each Region's actual performance can be evaluated in terms of its planned performance. They also use the Division's Performance Index System, which scores the overall performance of each Region based on four indicators that are weighted as

follows: the percentage of fleet downtime (50 percent), the percentage of planned PM that is completed (30 percent), the percentage of purchased parts that are consumed (10 percent), and the number of repair hours as a percentage of total hours at work (10 percent). The Performance Index System scores we reviewed show that all of the Regions perform at an acceptable level. Division managers also hold quarterly meetings with Regional officials to share information, direct Regional activity, and discuss performance. The Regional officials with whom we spoke told us that the quarterly meetings are very useful and provide a good opportunity to obtain information. (See pp. 5-8)

If the EMIS data and the Performance Index System, which extracts data from the EMIS, are to be useful for monitoring equipment management performance, the data must be complete and accurate; and that is not always the case. On some occasions, the EMIS understates the number of days equipment is down for repairs and PM. (See pp. 9-12)

In addition, EMIS' calculations of "down days" are not always consistent with the data recorded on work orders and PM orders. We provided Division officials with a list of these discrepancies so they could determine what caused the differences and take corrective action. (See pp. 9-12)

We also found that the Regions' use of standard hours on repair and maintenance orders does not always comply with Division procedures. Such standards, which are benchmarks or norms used to measure efficiency, can help secure prompt and efficient repairs and PM, maximizing equipment availability. (See pp. 12-13)

The Division is considering the purchase of an online data entry system for work orders and PM orders called the Paperless Shop System, which would make it possible for Division staff to implement data edit checks to ensure that invalid and missing data is identified and corrected before they are processed. As a result, this could lead to more timely corrections and less duplicated effort. (See pp. 13-14)

Comments of Department Officials

Department officials agreed with our recommendations and are taking steps to implement them.

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Introduction

Background

The Equipment Management Division (Division) within the New York State (State) Department of Transportation (Department) is responsible for the procurement, maintenance, and disposal of all equipment used in the construction and maintenance of the State's highways and bridges. The Division's primary goals are to provide, manage, and maintain, at a reasonable cost, the mechanized equipment the Department needs to provide its services. The Division's largest customer is the Department's Highway Maintenance Division, which is responsible for the maintenance of about 41,000 lane-miles of highways and 7,300 bridges.

The Department's administration is broken down into 11 Regions across the State. Each Region, except for the one that includes New York City, has a main repair shop where major repairs are performed. In addition, it operates 70 highway maintenance "residencies" located throughout the State that perform minor repairs and preventive maintenance. The Division is responsible for setting policy, establishing procedures, and monitoring performance at these 10 Regional repair shops and 70 local residencies that service the equipment fleet. The Division has about 460 employees and maintains about 14,000 units of equipment, of which approximately 4,900 units are considered major equipment, such as dump trucks, pick-up trucks, backhoes, pavers, and other construction equipment. According to the Division's information systems, it performed 68,147 repairs and 20,775 preventive maintenance services on the major and non-major (such as chain saws and lawn mowers) equipment items during the State's 1998-99 fiscal year. According to Division records, these major equipment items were out of service for 79,198 days (or 6.71 percent of the days the fleet was available). During the State's 1998-99 fiscal year, the Division spent about \$46.2 million to repair and maintain the equipment fleet, including \$15.5 million on personal services, \$17.2 million on other-than-personal services, and \$13.5 million on the purchase of new equipment.

Audit Scope, Objectives and Methodology

We audited the Department's equipment maintenance program for the period of January 1, 1997 through September 30, 1999. The objectives of our performance audit were to assess the effectiveness of the Division's system for monitoring Regional equipment repairs and maintenance and to determine whether the system reported whether they are completed in a timely manner to maximize the availability of the equipment. We focused our audit on major equipment items. To accomplish these objectives, we interviewed Division and Regional officials to identify the procedures and systems they have in place for monitoring equipment maintenance performance. We obtained operational data from the Division's Equipment Management Information System (EMIS). We also analyzed a download of work orders

and preventive maintenance (PM) orders that were prepared at the Regions, as well as data entered into the EMIS between January 1, 1999 and April 30, 1999. We visited four Regions to identify the procedures they use for completing work orders and PM orders, to test the EMIS data, and to identify practices that may result in better performance in some Regions. We selected two of these Regions because they had a relatively-high overall performance score — based on the Division’s monitoring systems — and two others because they had a relatively-low overall performance score. We also reviewed selected samples of work orders and PM orders at all four Regions to verify the completeness and accuracy of the data entries and to identify Regional practices that might render the data unreliable.

We conducted our audit in accordance with generally accepted government auditing standards. Such standards require that we plan and perform our audit to adequately assess those Division operations that are within our scope. Further, these standards require that we understand the Division’s internal control structure and compliance with those laws, rules and regulations that are relevant to our audit scope. An audit includes examining on a test basis evidence supporting transactions in the accounting and operating records and applying such other procedures we consider necessary in the circumstances. An audit also includes assessing the estimates, decisions and judgments made by management. We believe our audit provides a reasonable basis for our findings, conclusions and recommendations.

We use a risk-based approach to select activities for audit. We therefore focus our efforts on those activities we have identified as having the greatest potential for needing improvement. Consequently, by design, we use finite audit resources to identify where and how improvements can be made. We devote little audit effort to reviewing operations that may be relatively efficient and effective. As a result, we prepare our audit reports on "an exception basis." This report, therefore, highlights those areas needing improvement and does not address activities that may be functioning properly.

Comments of Department Officials to Audit

A draft copy of this report was provided to Department officials for their review and comment. Their comments have been considered in preparing this final report and are included as Appendix B.

Within 90 days after final release of this report, as required by Section 170 of the Executive Law, the Commissioner of the Department of Transportation shall report to the Governor, the State Comptroller and leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons therefor.

Equipment Repair and Maintenance

Division management is responsible for monitoring Regional equipment repair and maintenance operations to ensure that they are efficient and to identify areas that need improvement. The Division's oversight of Regional operations is based on various monitoring tools. In addition to using the EMIS for tracking equipment repair and maintenance activities, the Division employs the Performance Index System to monitor overall Regional equipment maintenance performance. It also uses quarterly meetings with Regional officials to monitor Regional and Statewide performance. Overall, we found that these tools enable the Division to effectively monitor regional equipment repair and preventive maintenance activities. However, we have identified areas that should be improved. The Division needs to take steps to ensure that the Regions accurately report the amount of time equipment is out of service for repairs and maintenance, and that they use labor hour standards to monitor the efficiency of repairs and PM. The data entry system could also be improved if edits are added to the process that will ensure the completeness and validity of the data taken from work orders and PM orders.

Oversight Activities

The EMIS is the primary source of information that Division and Regional managers use to monitor their operations. It tracks 48 indicators of Regional equipment repair and maintenance operations, such as the number of PMs and repairs, and the number of days down for major units of equipment, so that actual performance can be evaluated in terms of planned performance. Each Region establishes its own plan levels, and the actual performance for each Region is captured from the work orders and PM orders it submits, as well as inventory records, payroll data, and other fiscal reports. The performance for each Region is a combination of the performance for its main repair shop and each of its residencies. The EMIS generates about 19 reports that show repair and PM activities, specifying performance indicators such as the proportion of time the major equipment items were not operational (fleet downtime percentage), and the proportion of time mechanics were actually doing repairs. Division managers also use EMIS data to identify vehicles that should be replaced.

EMIS provides a great deal of historical performance information, however, it does not provide an overall assessment of each Region's performance. In April 1997, Division officials implemented the Performance Index System, which uses EMIS data, to obtain a quick overall assessment of each Region's performance based on four key measures the Division considers most important. The Division also established minimum (baseline) and maximum levels of performance and assigned a weighted value to each of the four key measures as illustrated in the following table:

Key Measure	Baseline	Maximum	Weighted Value
Fleet Downtime Percentage	9	4	50
Percentage of Planned PMs Completed	50	100	30
Percentage of Purchased Parts That Are Consumed	80	100	10
Repair Hours as Percentage of Total Hours at Work	86	96	10

The Regions receive an unweighted score for each key measure, ranging from 0 for performance at or below the baseline, up to 10 for performance at or above the maximum. The scores for each key measure are then weighted and combined into an overall score for each four-week period. The overall score can range from 0, for performance at or below the baseline on all four indicators, up to 1,000 for performance at or above the maximum for all four indicators. The following hypothetical example illustrates how scores are calculated by the Performance Index System:

Example of Regional Performance Index Score Calculation				
Key Measure	Actual Results	Score	Weighted Value	Weighted Score (Score x Weighted Value)
Fleet Downtime Percentage	6%	6	50%	300
Percentage of Planned PMs Completed	65%	3	30%	90
Percentage of Purchased Parts That Are Consumed	94%	7	10%	70
Repair Hours as Percentage of Total Hours at Work	91%	5	10%	50
Overall Score				510

The Performance Index System data shows that the Regions' performance is acceptable overall because they almost always exceed the baseline levels of each key measure. During the State's 1998-99 fiscal year, the Regions surpassed the baseline levels 96 percent of the time and met or surpassed the maximum levels 26 percent of the time. As the Regions' performance levels have improved over time, the expectations of Division managers have also increased. In April 1998, the Division increased the baseline for the "repair

hours as a percent of total hours at work” indicator from 82 percent to 86 percent, and increased the maximum from 92 percent to 96 percent. In April 1999, the Division changed the calculation of the “percent PMs done” measure for two regions that were consistently surpassing the maximum level; they are now expected to perform additional PM on all equipment units, not just those required for the major equipment units. Division officials are also in the process of adding a fifth key measure they can use to track the performance of regional training efforts.

The Performance Index System scores also show a wide variation in the performance of the various regions, with several performing at relatively-high levels and others performing at relatively-low levels. The average scores for each region for the past two years are as shown in the following table:

Performance Index Scores By Region		
Region	1997-98	1998-99
Syracuse	363	473
Watertown	405	410
Buffalo	435	533
Poughkeepsie	469	581
Long Island	551	584
Albany	601	557
Utica	618	583
Rochester	710	731
Hornell	737	682
Binghamton	758	786
STATEWIDE	570	635

Division officials told us that they use the Performance Index System results when they allocate funds among the Regions and when they make decisions related to the staffing of mechanics. During the State’s 1998-99 fiscal year, the Division added staff to Regions that had relatively-low performance scores in the prior year. For example, an additional mechanic was allotted to the Syracuse, Buffalo, and Poughkeepsie Regions, and two additional mechanics were added to the Watertown and Long Island Regions. Although each of these Regions’ performance scores increased between 1997-98 and 1998-99, Division officials told us they believe it is too early to measure the effect of the staff changes.

Quarterly meetings held with Regional officials to share information, direct region activity, and discuss performance are another important aspect of the Division's monitoring efforts. Division managers inform Regional officials about Division policies and standards, and report on progress being made on certain Statewide issues. We reviewed minutes taken at six of the eight quarterly meetings held during the State's 1997-98 and 1998-99 fiscal years. Use of the Performance Index System was on the agendas and was discussed at all six of the meetings. The minutes included discussions of the Division's evaluation of Regional performance related to key indicators, and show that the Division had asked for improvement in completing work orders from the Regions. Officials at all four of the Regions we visited told us that the quarterly meetings were very useful and provided a good opportunity to obtain information.

The Division has also developed Internal Control Assessment Team (ICAT) reviews for monitoring Regional performance. During ICAT reviews, Central Office staff use data from the EMIS and internal control checklists to review Regional operations. These reviews include steps related to Regional performance, such as verifying that supervisors reviewed EMIS reports with the Regional Director, Regional staff investigated causes of deviations between planned and actual results and developed corrective action plans, and work orders and PM orders were filled out properly. However, Division officials told us that they have not performed any ICAT reviews for about two years because of personnel shortages. Instead, they said, they are directing their resources toward upgrading the EMIS; monitoring the four key indicators used in the Performance Index System; and using Statewide committees to improve processes such as the development of uniform standards for repairs and PM. The Division has encouraged the Regions to perform ICAT reviews on each other, but has not formalized this process. We believe the ICAT reviews are a valuable monitoring tool that, if utilized, could help to decrease the inaccuracies of the EMIS data that we describe in the next report section.

Data Completeness and Accuracy

Although the Division has tools that enable it to monitor regional equipment maintenance operations effectively, we found that it should take steps toward improving the completeness and accuracy of the EMIS data used as the basis of its monitoring systems. If the EMIS data and the Performance Index System, which extracts data from the EMIS, are to be useful for monitoring equipment management performance, the data must be complete and accurate. We found that data in the work orders and PM orders generally agreed with the information entered into the EMIS, and that the EMIS data included all of the work orders and PM orders submitted by the Regions. However, the Regions are not in compliance with Division procedures, either for using standard hours on work orders and PM orders, or for noting the times that equipment is reported as down. As a result, it is not useful to monitor the efficiency of many repairs and PM services by comparing the number of actual labor hours with the number of standard hours. In addition, there is an increased risk that the EMIS understates the number of days that equipment is down for repairs and PM. We were not able to measure the number of additional days the equipment may have been out of service before it was noted on the work orders and PM orders we reviewed. Moreover, EMIS' calculation of the number of down days is not always consistent with the data recorded on work orders and PM orders. Department officials told us that they are taking steps to address these weaknesses.

Data Completeness

We obtained and analyzed a download of 16,770 work orders and 5,696 PM orders that were prepared at the 10 Regions for work done between January 1, 1999 and April 30, 1999. Our download included the 22,466 available orders that had been retained by the Department. Because the Department keeps a rolling inventory of 20 batches of data, our download did not include all work and PM orders performed during the four month period tested. For each of the four Regions visited, we selected a random sample of 35 work orders for major equipment items and 15 PM orders that were related to the sampled equipment items referred to in the work orders (a total sample of 140 work orders and 60 PM orders). During our site visits, we traced the EMIS data to the original work orders and PM orders, and found that the EMIS data included all the orders. At two regions, we also examined the history files for 11 pieces of equipment and found that the 87 work orders and PM orders in the files had been entered properly into EMIS.

Accuracy of Fleet Downtime

To accomplish its mission, the Division must make the equipment fleet available when the Highway Division needs it. The Division tracks the amount of time major equipment units are out of service (fleet downtime). The calculation of the number of days a piece of equipment is down for repair begins on the date the unit is reported down and ends on the date the repair or PM is completed. Fleet downtime is an important indicator of performance, it accounts for 50 percent of each Region's performance score. In our prior audit, *Equipment Management Program Fleet Readiness and Shop Performance* (Report 85-S-76, issued April 7, 1986), we reported that the fleet downtime percentage appearing in EMIS was not always accurate. For example, some work orders showed that the equipment unit was not reported down until after the repair work was started, and the date a unit became inoperable was not always reported accurately.

We found that inaccuracies in reporting fleet downtime still exist. In 1971, the Division issued a manual entitled *Equipment Management Subdivision Production Scheduling and Control System* (Equipment Manual) to the Regions. The Equipment Manual describes the procedures for proper completion of work orders and PM orders. It stated that, even if equipment is operable when it is brought to a shop or residency for PM or repair, it should be recorded as "down" at the time of delivery. But at the four Regions we visited, we were told that operable equipment is not recorded as down until it is tested or repairs actually begin; only inoperable vehicles are considered down. Officials at two of the Regions told us that they do not record the equipment as down before they begin to test or make repairs because the equipment is still available for use if it is needed. Our analysis of the EMIS download of work orders and PM orders showed that 13,202 (79 percent) of the 16,770 work orders indicate equipment units being reported down on the same day repairs were started. This suggests that actual practice at the four Regions we visited may also be followed at the other Regions. Although this percentage appears high, we were not able to determine the number of instances in which the equipment would have been reported down on an earlier date if Division procedures had been followed.

To check the accuracy of the dates that equipment items were reported down, we sampled a total of 180 work orders at the four Regions visited: the 35 from the EMIS download, as well as a judgmental sample of an additional 10 from an EMIS report entitled *Major Equipment Repairs With Indirect Downtime 0 % or Greater*. This report shows both the number of hours of labor spent on repairs and PM and the down days that EMIS calculated for each order. When we selected our judgmental sample of 10 work orders, we focused on those that showed a number of down days that appeared to be either too high or too low in comparison with the total number of labor hours on the order. For the 180 work orders, we looked for Vehicle Trouble Reports (VTRs) that equipment operators can prepare for the mechanic, describing the problems encountered with the equipment and when they

occurred. Of the 89 VTRs prepared for the 180 work orders, we reviewed 52 that were both dated and on file at the Regional shops. We found that the dates on 50 of the 52 agreed with the down dates shown on EMIS. In one case, a VTR dated March 26, 1999, indicated that the equipment would not start. The work order reported the same odometer reading as the VTR, suggesting that the vehicle had not been used after the VTR was prepared. However, the work order reported that the equipment was down on April 16, 1999. Based on the work order, EMIS calculated that the equipment had been out of service for .7 days; but the VTR suggests that the equipment was out of service for an additional 15 days. In another case, a VTR dated March 4, 1999, reported that the equipment had no brake pressure, but the work order showed the equipment down at 9:30 a.m. on March 5, 1999. In this case, the equipment may have actually been out of service for at least two more hours than was reported.

For our sample of 240 orders (the 180 work orders and 60 PM orders), the length of time equipment was down was compared with the amount of downtime cited in the EMIS report. Of the 240 work and PM orders sampled, 20 showed 10.6 more down days than EMIS had calculated; and 10 showed 21 fewer down days than EMIS had calculated. The following table lists some of the differences we identified:

Work Order Number	Work Order Dates		Down Days		
	Equipment Down	Repair Completed	Per the Work Order	Per EMIS	Difference
508617	2/12/99	2/16/99	1.8	0	1.8
440901	3/19/99	3/19/99	1.0	0	1.0
458129	3/15/99	3/15/99	0.1	0.2	0.1

We provided information on these 30 cases to Division officials so they could attempt to identify the possible causes of the differences.

Division officials stated that when operable equipment is brought to the shop before its scheduled appointment, it is not appropriate to count as down the amount of time the equipment is delivered early. We believe that by refining the way the Division calculates the number of days the equipment was not used could be reported more accurately, and the factors contributing to that number identified. These factors could include an earlier-than-scheduled turnover by a customer, the lack of need for the equipment, the amount of time it took to transport the equipment for repair, or the lack of mechanics or parts for making the necessary repairs.

Use of Standard Hours

It is important for equipment repairs and PM services to be completed as efficiently as possible to minimize equipment downtime. One way to monitor the efficiency of mechanics as they perform PM and repairs is to use standard hours that have been designated as benchmarks or norms for the measurement of efficiency. The actual amount of time used to complete a particular task would be compared to the standard number of hours to determine whether the task was completed within pre-set limits. When the actual labor time exceeds the standard, managers could direct their attention to the differences in an effort to identify areas that may need improvement. The Equipment Manual requires Regional staff to enter the standard number of hours each repair and PM is expected to take. For repairs or PM performed at the residencies, the number of standard hours is to be completed by the Regional shop supervisor. Division officials have also developed standards for tasks and times that Regions are to follow when they perform PM on certain types of equipment.

During our visits to the Regions, we found that standard hours are generally recorded on work orders and PM orders prepared at the Regional shops. However, the Regional shop supervisors are not recording standard hours on the work orders and PM orders prepared at the residencies. As a result, a significant portion of the work performed is not controlled through the use of standards. Our analysis of the EMIS download shows that standard hours were not recorded on 8,883 (53 percent) of 16,770 work orders and 1,542 (27 percent) of 5,696 PM orders.

To determine how effectively standards were being used, we also selected a judgmental sample of 34 PM (Type B) orders completed on large dump trucks at the Regions we visited. The Division's standards allow mechanics two hours to perform this type of task on large dump trucks. We found that the standard hours entered for nine (26 percent) of the PM orders selected were more than the Division's two-hour standard, and that one had a standard that was less. In these ten instances, the standard number of hours recorded were the same as the total number of hours actually taken to perform the PM.

At one of the Regions we visited, officials told us that if the actual number of hours spent doing a repair or PM exceeds the established standard, they record that actual number as the standard. Officials at another Region told us they start with a standard number of hours that has been established for the work they expect to do. However, if the task requires more time than originally planned, the standard number is increased to equal the total time spent on the repair. Therefore, in such situations, standard hours are not being used as intended.

Because standard hours are not recorded on all work orders and PM orders, and because they are not always used correctly or consistently, the ability of Division and Regional managers to evaluate the efficiency of repair and maintenance activities is limited. Division officials told us that, because they know that the standard hours on work orders and PM orders are not always accurate, they do not rely on them. They also told us that they do not have sufficient supervisory and support staff to look up all the standards and they do not want the mechanics to divert time away from repairs and PM to look them up. They said the Division is researching an online data entry system for work orders and PM orders called the Paperless Shop System, which they believe would automatically include standard hours on all work orders and PM orders and provide a more detailed description of the work done. They expect that the use of such a system would enable more in-depth analyses of work efficiency.

EMIS Edits

Edit checks are an important tool for ensuring that all data entered into the EMIS are complete and valid. According to Division officials, the data entry system allows work orders and PM orders to be entered when critical data is either missing or invalid. However, EMIS will eventually reject work orders and PM orders that are missing or contain invalid data in certain fields such as dates for the equipment downtime, or task completion. EMIS will not reject work orders or PM orders where standard hours are missing or incorrect. When EMIS rejects work orders or PM orders, staff must contact Regional officials to gather the missing or correct data; then re-enter the entire work order or PM order so that it can be reprocessed.

Although this effort resolves the problem, it also results in duplication of effort and delays in the availability of the EMIS data. According to Division officials, Regions might not receive feedback on their performance during a four-week period until three months after that period is closed. They told us they believe adoption of the Paperless Shop System might help prevent such delays because terminals at each residency and Regional repair shop could be used for entering completed work orders and PM orders. The Regional shops would have an online connection with EMIS, which is on a mainframe computer at the Department's central office. Division officials said they are also considering two other options: making changes to EMIS, or even developing an entirely-new EMIS.

We believe the Paperless Shop System could provide the Division with an opportunity to identify and correct invalid and missing input data before the information is processed. That capability could lead to more timely corrections and less duplicated effort.

Recommendations

1. Take steps to ensure that the Regions follow procedures for both reporting when equipment goes out of service and recording standard hours. Consider achieving this by conducting the ICAT reviews on a sample basis, or using a streamlined version of the ICAT.
2. Reassess how the number of days that equipment is out of service is calculated, and clarify how unique situations should be handled. Communicate any changes resulting from this reassessment to the Regions and verify that they are following both new and established procedures.
3. Continue to pursue implementation of a Paperless Shop System that records standard hours for all repairs and PM and contains system edits that will prevent the entry of PM or work orders that are incomplete or contain invalid data.
4. Determine the reasons for the discrepancies we identified between EMIS and the work orders, PM orders and Vehicle Trouble Reports, and take steps to prevent them from recurring.

Major Contributors to This Report

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JOSEPH H. BOARDMAN
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GOVERNOR

April 4, 2000

Ms. Carmen Maldonado, Audit Director
Office of the State Comptroller
Division of Management Audit and State Financial Services
270 Broadway, 19th floor
New York, NY 10007

Re: Draft Audit Report 99-S-8: *Oversight of
Equipment Repair and Maintenance
Activities*

Dear Ms. Maldonado:

Attached is the Department of Transportation's response to the Office of the State Comptroller's Draft Report 99-S-8, "Oversight of Equipment Repair and Maintenance Activities".

Sincerely,

A handwritten signature in black ink, appearing to read "Clifford A. Thomas".

CLIFFORD A. THOMAS
Assistant Commissioner
Office of Operations

Attachment

cc: J. Cantwell
L. Knapek
M. Fleischer
J. Darling

NYS Department of Transportation
Response to OSC Draft Audit Report # 99-S-8
Oversight of Equipment Repair & Maintenance Activities

The Department of Transportation is responding to the OSC Draft Audit Report 99-S-8, "Oversight of Equipment Repair and Maintenance Activities". It should be noted that the Equipment Management Division fully recognized system deficiencies and have been on course to implement corrective action based on priority within available resources.

The OSC recommendation is noted in bold type followed by the DOT response.

- 1. Take steps to ensure that the Regions follow procedures for both reporting when equipment goes out of service and recording standard hours. Consider achieving this by conducting the ICAT reviews on a sample basis, or using a streamlined version of the ICAT.**

DOT Response

These issues were discussed at a recent meeting with regional managers and were reinforced in a memorandum dated February 2, 2000. The full ICAT reviews were postponed in order to devote resources to pursuit of the paperless shop and performance of the physical inventories in our 10 regional parts warehouses. The paperless shop project is nearing contract award and the implementation of this project is expected to correct many of the existing deficiencies. The completion of the regional parts warehouse inventories is scheduled by March 31, 2000 which will allow resumption of the full ICAT review process.

- 2. Reassess the manner in which the number of days that equipment is out of service should be calculated, and clarify how unique situations should be handled. Communicate any changes resulting from this reassessment to the Regions and verify that they are following both new and established procedures.**

DOT Response

We have taken preliminary steps to clarify recording procedures for equipment downtime within the current system with regards to those issues identified during the audit. We will address system changes with implementation of the paperless shop and monitor policies and procedures through ICAT reviews. A memorandum dated February 2, 2000 was sent to the Regions in the interim to address immediate concerns.

- 3. Continue to pursue the implementation of a Paperless Shop System that records standard hours for all repairs and PM and contains system edits that will prevent the entry of PM or work orders that are incomplete or contain invalid data.**

DOT Response

As stated in response to recommendation #1, the implementation of the paperless shop remains the highest priority of the Equipment Management Division to further improve data content, reliability and timeliness. Additionally, we can continue to stress the importance of credibility of our existing data with regional management during quarterly meetings. This item will also be addressed during ICAT reviews.

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NYS Department of Transportation
Response to OSC Draft Audit Report # 99-S-8
Oversight of Equipment Repair & Maintenance Activities

4. **Determine the reasons for the discrepancies we identified between EMIS and the work orders, PM orders and Vehicle Trouble Reports, and take steps to prevent them from recurring.**

DOT Response

We have discussed with regional management the specific discrepancies noted in the draft audit report and will formally request an investigation and response for those few repair orders involving potentially significant data errors. While we feel we already understand the reasons for the discrepancies this process will validate or correct our assumptions, so that corrective action can be taken as necessary.