



# Department of Transportation

## Region 4 Management of Selected Transportation Maintenance Activities

Report 2008-S-172



Thomas P. DiNapoli

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# State of New York Office of the State Comptroller

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## Division of State Government Accountability

February 9, 2011

Ms. Joan McDonald  
Acting Commissioner  
Department of Transportation  
50 Wolf Road 6th Floor  
Albany, NY 12232

Dear Commissioner McDonald:

The Office of the State Comptroller is committed to helping State agencies, public authorities and local government agencies manage government resources efficiently and effectively and, by so doing, providing accountability for tax dollars spent to support government operations. The Comptroller oversees the fiscal affairs of State agencies, public authorities and local government agencies, as well as their compliance with relevant statutes and their observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving operations. Audits can also identify strategies for reducing costs and strengthening controls that are intended to safeguard assets.

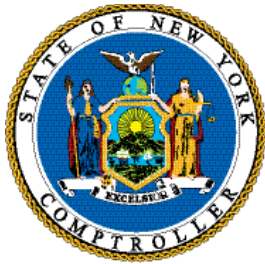
Following is a report of our audit of Region 4 Management of Selected Transportation Maintenance Activities. This audit was performed pursuant to the State Comptroller's authority under Article V, Section 1, of the State Constitution and Article II, Section 8, of the State Finance Law.

This audit's results and recommendations are resources for you to use in effectively managing your operations and in meeting the expectations of taxpayers. If you have any questions about this report, please feel free to contact us.

Respectfully submitted,

*Office of the State Comptroller  
Division of State Government Accountability*

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## State of New York Office of the State Comptroller

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### EXECUTIVE SUMMARY

#### Audit Objective

The objective of our audit was to determine whether Transportation Maintenance employees in the Department of Transportation's Region 4 are deployed and used efficiently.

#### Audit Results - Summary

The Department's Transportation Maintenance is responsible for maintaining the infrastructure of the State's highway system. This includes maintaining pavement, bridges, and signs; and implementing a winter snow and ice control program. These tasks are done by workers at residencies located throughout the State. The Department's Region 4 has seven residencies.

We found several ways that the Department can better utilize its employees to be more productive and provide better service. For example, Region 4 engineers are required to prepare a summer work plan at each residency. However, we found that residencies did not report on the accomplishments of their work plans and none of the residencies had a method of evaluating progress on the work plans. Similarly, the Department has an annual Maintenance and Operations Plan (Plan) which includes each asset type (e.g., bridges, pavement, drainage, signs, guide rails, etc.) and the planned activities to be performed during the year to preserve structures. However, the Department does not compare actual work accomplishments with the Plan to determine how much of the Plan has been completed.

In a prior audit, we identified that certain maintenance work hours and work rules were not structured to maximize the productivity of the workforce. In our current audit, we found that this is still the case in Region 4. For example, highway maintenance workers typically spend about 30 minutes at the residency before going out to their assigned work site and 30 minutes at the residency at the end of the day. We do not believe there is a need for all maintenance workers to spend an hour each day at the residency. We estimate that, based on base hiring salaries that were in effect in April 2009, the amount of lost direct time (e.g., repairing guide rails, cleaning culverts) for this practice during one summer maintenance season totaled about \$386,000 in Region 4. This is equivalent to hiring an additional 13 full-time maintenance workers for one year. If indirect time could be reduced by just 25 percent, Region 4 could save about \$96,000 each summer season.

Region 4 allocates its annual maintenance appropriations to each residency based primarily on lane miles, regardless of the highway and bridge conditions within each residency. We believe

that allocations by both the Department and Regions should be based more extensively on the highway and bridge conditions. This would ensure that the highways and bridges that are in the worst condition are attended to first, regardless of residency location.

Our report contains six recommendations for strengthening the Department's oversight of the efficiency of Transportation Maintenance employees' activities. Department officials generally agreed with our recommendations and have taken actions to implement them.

This report, dated February 9, 2011, is available on our website at: <http://www.osc.state.ny.us>.

Add or update your mailing list address by contacting us at: (518) 474-3271 or

Office of the State Comptroller

Division of State Government Accountability

110 State Street, 11th Floor

Albany, NY 12236



## Introduction

### Background

The mission of the Department of Transportation's (Department) Office of Transportation Maintenance (Transportation Maintenance) is to preserve, repair and safely operate the State's highway and bridge infrastructure. The Department's Transportation Maintenance is responsible for maintaining the State highway system infrastructure. This includes a summer program of maintaining pavement, bridges, signs, pavement markings, roadsides and rest areas. It also includes a winter snow and ice control program. The programs are carried out by residencies (i.e., maintenance work locations) located throughout the State. Work crews at each residency are responsible for the day-to-day maintenance and operation of the State roadways within their jurisdiction. The Department's Region 4 has seven residencies in seven counties: Monroe, Ontario, Livingston, Orleans, Genesee, Wyoming and Wayne.

There are approximately 44,285 lane miles of highways in New York State that need to be maintained throughout the year. This includes main lane miles, ramps, turn lanes, and flush medians. In the winter, about 80 percent of the snow and ice control is done by State employees while about 20 percent is done under contracts with municipalities. Region 4 is responsible for maintaining 4,766 highway lane miles and 733 bridges. The Department's maintenance staffing patterns are based on having a maintenance workforce sufficient to drive the equipment needed for the winter snow and ice control operations.

Region 4's Transportation Maintenance budget for the fiscal year ended March 31, 2009 was \$31.3 million; \$24.5 million for personal service costs and \$6.8 million for supplies, materials, and maintenance contracts. As of January 2009, Region 4 had 386 highway maintenance employees.

### Audit Scope and Methodology

We audited to determine whether Region 4 was deploying and using its maintenance employees efficiently for the period November 1, 2007 through May 31, 2009. To accomplish our objective, we interviewed Department officials and staff, and reviewed the Department's personnel and maintenance procedures, work planning documents, and the Department's Maintenance Asset Management Information System (MAMIS). We also visited six of the seven residencies in Region 4 to observe work practices at the various residencies.

We conducted our audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide

a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

In addition to being the State Auditor, the Comptroller performs certain other constitutionally and statutorily mandated duties as the chief fiscal officer of New York State. These include operating the State's accounting system; preparing the State's financial statements; and approving State contracts, refunds and other payments. In addition, the Comptroller appoints members to certain boards, commissions and public authorities, some of whom have minority voting rights. These duties may be considered management functions for the purposes of evaluating organizational independence under generally accepted government auditing standards. In our opinion, these functions do not affect our ability to conduct independent audits of program performance.

**Authority**

We performed this audit 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.

**Reporting  
Requirements**

A draft copy of this report was provided to Department officials for their review and comment. Their comments were considered in preparing this final report and are included at the end of the report.

Within 90 days after the 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 the 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 why.

**Contributors  
to the Report**

Major contributors to this report were Carmen Maldonado, Roger Mazula, Wayne Bolton, Bruce Brimmer, Raymond Barnes, Abe Fish, and Sue Gold.

## Audit Findings and Recommendations

### Work Plans

Regional engineers are required to prepare a summer maintenance work plan for each residency. Each work plan is then approved by the Regional Director of Operations. In March 2007, the Department issued Guidelines for engineers to use when preparing summer maintenance work plans. The Guidelines state that the engineers should use the Department's Maintenance Asset Management Information System (MAMIS) to create the work plans. However, the Department did not require engineers' to use MAMIS. MAMIS contains needs (work that should be performed), work orders (used to assign work crews), and projects (used to tie together multiple work orders) - data that is useful for designing an effective summer maintenance work plan.

We found that the residencies in Region 4 did not prepare their summer maintenance work plans in a standard manner. Four of the residencies prepared their work plans with a detailed list of each project to be completed and two other residencies primarily developed their plans to address general maintenance work to be performed by asset category with limited identification of specific projects. Only three of the residencies prepared work plans showing estimated crew size and time requirements for specific projects. (One residency worked solely on bridge projects and we did not review the work plans of this residency.)

Since the work plans are not prepared in a standard manner, it is difficult to assess the overall adequacy of planning for maintenance for Region 4. Because only a few of the plans identified time and resource requirements, it is not possible to uniformly measure the effectiveness of Region 4 maintenance work in terms of what has been accomplished and whether accomplishments were on time and within budgets. We noted that residencies do submit monthly reports of work accomplished to the Region 4 Director of Operations and Region 4 officials told us that biweekly meetings are held to discuss the work progress. We question the adequacy of this reporting and review given the weaknesses in work plan preparation and the lack of time and resource metrics.

Engineers at the residencies commented that work plans are prepared based on a variety of information including complaints received, capital project plans, identified highway problems, and routine maintenance needs. They added that the plans are modified as needed due to emergencies and dangerous conditions that arise, service requests, equipment availability and management priorities. Regarding measurement of the effectiveness of performance, Department officials

stated that several years ago the Guidelines included standards for crew sizes and estimated hours of completion for each task. However, Department officials further commented that wide variations in work environments, equipment availability and road types made the standards impractical for measuring productivity.

Given the State's current fiscal challenges and need to increase accountability over and the effectiveness of government operations, we believe that the Department should require residencies to prepare maintenance work plans in a standard and comparable manner. Moreover, since MAMIS contains data including labor hours spent on activities, units of accomplishment and equipment and material used for projects, the Department should use this data to establish resource requirements and completion time targets that are useful in monitoring the effectiveness of work plan performance.

In response to our preliminary findings, Department officials indicated that they will ask their Information Technology Division to assist in developing MAMIS reports showing the average productivity (total labor-hours per unit of accomplishment) by task for different organizational units so managers can compare productivity at residencies, rather than statewide standards. For the 2009 summer, all of the residencies were required to create work plans for two project work categories. Department officials said they are monitoring the quality and completeness of these work plans to determine if staff needs further instructions or training in how to prepare work plans in MAMIS. In addition, they will revise the Guidelines to include more specific instructions on what to include in work plans.

- Recommendations**
1. Monitor residencies to ensure MAMIS is used to develop work plans. On a regular basis, review the work plans created in MAMIS for quality and completeness.
  2. Monitor accomplishments of work plans, noting whether work was completed and comparing actual labor hours with estimates. If there are any variances from the budgets, determine the reasons and compare similar projects to monitor employee productivity.
  3. Develop standard crew size and estimated hour requirements for each typical work type or develop other methods to measure maintenance employee efficiency.

(Department officials replied to our draft report that "standard" crew sizes are of limited usefulness to planners due to the tremendous variability of resources needed and available for a specific task. However, to improve employee efficiency, NYSDOT's Office

of Transportation Maintenance has established a Maintenance Communities of Practice (COP) program. This program establishes cross section of stakeholders who perform or oversee performance of selected functions (e.g. bridge maintenance, snow and ice control, drainage.) The COP group periodically discuss how to perform work assignments with the ultimate intent of adopting best practices as they relate to the means in which assignments are carried out as well as the accuracy of planning estimates.)

## **Work Practices**

In our prior audit of the Department's Highway Maintenance Program (Report 87-S-8, issued September 23, 1987), we identified that certain maintenance work hours and work rules were not structured to maximize the productivity of the workforce. In our current audit, we found that this is still the case in Region 4.

All highway maintenance workers typically report to the residency at the beginning of each workday, where they spend about 30 minutes each to receive their assignment, gather equipment and materials needed for the day, and perform the required inspection on the equipment they will be using for the day. Similarly, these workers report to the residency for the last 30 minutes of their workday to clean equipment and tools and to report accomplishment of daily work. We estimate the cost of this time for the approximately 222 highway maintenance workers in Region 4 to be about \$386,000 (assuming hiring salaries in effect at April 2009) for one summer maintenance season (April through September assuming 20 workdays per month). This cost is the equivalent of hiring 13 full-time maintenance workers for the year. By modifying these practices and adjusting workers' schedules accordingly, we believe considerable savings could result.

For example, rather than having all staff report to the residency for 30 minutes to prepare for the workday, the Region may be able to have a limited number of staff report to the residency for 30 minutes to prepare for the workday of all the maintenance workers. Then, the remaining workers could arrive at the residency for a brief period before moving to the assigned work location or they could be advised in advance to report directly to the work location to avoid any loss of direct maintenance time. Similar flexible scheduling of a designated number of staff to report to the residency for 30 minutes at the end of the day may also increase direct time on maintenance projects. If indirect time spent at the residencies at the beginning and the end of the day could be reduced by 25 percent in Region 4 alone, the Department could save about \$96,000 each summer maintenance season.

Department officials state that indirect time is unavoidable and not excessive. Nonetheless, they agree to pursue increasing productivity. For example, Department officials have started a pilot program to use wireless technology so that foremen will be able to access MAMIS from the work site, which will eliminate the need to return to the residency before the end of the workday. Department officials also stated that they are working with their Fleet Management Division to have it deliver the equipment to the worksites. In addition, they are working with the Fleet Management Division on changing work schedules to include weekend hours. Region 4 officials stated that the flexing of work schedules may reduce the indirect time at the beginning of the workday but they need to do further analysis of the work time and tasks that are done in the morning.

- Recommendation** 4. Analyze the scheduling of residency maintenance workers at the start and end of the workday to identify methods to reduce indirect time.

(Department officials replied to our draft report they intend to reduce time spent on indirect activities at the start and end of the workday. Region 4 managers have emphasized to Resident Engineers over the past year the goal of getting Residency forces working on direct production work sooner in the morning and longer at the end of the workday. The Region has made some progress over the past year since the first audit findings were conveyed to the Department. In addition, during times when some but not all staff are involved with indirect activities, other tasks that need to be done at the Residency facility are being assigned so all staff are performing meaningful, necessary work. They added that where possible they may modify schedules and stagger shifts so that fewer employees are involved with indirect activities. In addition, there are some instances where productivity could be increased by having some employees report directly to a job site. Regional managers have been encouraged to make this decision where appropriate.)

**Infrastructure  
Preservation**

The Department has an annual Maintenance and Operations Plan (Plan) that includes each asset type (e.g., bridges, pavement, drainage, signs, guide rails) and identifies the planned activities to be performed during the year to preserve structures. The Plan also shows the cycle for various preventative maintenance activities (e.g., each bridge should be cleaned every year and painted every 12 years). However, similar to work plans, the Department does not compare actual work accomplishments with the Plan to determine how much of the Plan has been completed. Department officials state that they are working to develop ways to make such a comparison possible.



Further, we found that the activities scheduled to be performed did not meet the requirements of the Plan. For example, the Plan states that each bridge should be cleaned annually, but Region 4 is scheduled to clean only about one-third of its bridges during the 2009-2010 State fiscal year. As a result, the risk is increased that many bridges and roads will degrade and possibly become dangerous earlier than expected because of wind, weather, age, etc.

In addition to the lack of effective record keeping for the accomplishment of scheduled maintenance, we noted that Region 4 officials do not maintain records on the amount of demand maintenance that is performed. However, Region 4 officials estimate that about 25 percent of all maintenance work is for demand maintenance. Further, Department officials told us that the challenge of completing scheduled and demand maintenance is increasing due to reduced funds and maintenance staff at the same time that many highway structures and bridges have exceeded their useful life. As a result, many critical highway elements are failing and Department officials stated that their focus is first on corrective repair and then on preventative maintenance, as staff and resources are available.

- Recommendation** 5. Develop reporting mechanisms to compare planned infrastructure preservation activities to actual results. If certain preventative maintenance tasks cannot be performed (e.g., demand maintenance takes priority), review the Plan and re-prioritize tasks as necessary so the most critical projects are done.

(Department officials replied to our draft report that their Web application known as the Maintenance and Operations Plan (MOP) does not currently have functionality to compare planned and actual accomplishments. However, they have asked their Information Technology Division to develop an IT project to add this functionality to the MOP.)

**Maintenance  
Funding**

The Department allocates its annual maintenance appropriation for non-personal service costs to regions based on various formulas, some of which consider factors such as the number of lane miles or an analysis of operating expenses from prior years. For bridge maintenance, the allocation is based heavily on a region's bridge inventory and bridge maintenance staffing and, to a lesser extent, on the condition of bridges.

Region 4 allocates its annual maintenance appropriations to each residency based primarily on lane miles, regardless of the highway and bridge conditions within each residency. We believe that allocations by both the Department and Regions should be made based on the highway and bridge conditions. The Department has annual reports on both

pavement and bridge conditions in the State that can be used as a basis to allocate funds. This would ensure that the highways and bridges that are in the worst condition are attended to first, regardless of residency location.

The Department's annual evaluation of State highway pavement surfaces uses a rating scale from 1 to 10 based on the severity of the problem (e.g., cracking), as follows:

- a rating of 9 or 10 is considered "excellent" and no treatment is needed;
- a rating of 7 or 8 is considered "good" and crack seal and preventative maintenance overlay are the recommended treatments;
- a rating of 6 is considered "fair" and rehabilitation is the recommended treatment; and
- a rating of 5 and below is considered "poor" and major repair or replacement is needed.

The Department's 2007 Pavement Condition Report shows that the average rating for pavement surfaces dropped from 6.9 in 2006 to 6.86 in 2007. The number of pavements rated excellent and good both decreased, while surfaces rated fair increased from 32.6 percent to 33.2 percent. The surfaces rated as "good" declined for the fourth year in a row to 42.4 percent. This, coupled with the increase in the surfaces rated as "fair", indicates preventive maintenance is not being done on time and the pavement is deteriorating to levels that will require more expensive capital repairs in the future.

In Region 4, the average surface rating declined slightly from 6.99 in 2006 to 6.68 in 2007. However, Region 4's average surface rating was the third lowest in the State. The percent of surfaces rated "poor" increased from 9.5 percent to 10.7 percent, which represents the highest percentage of pavement rated as "poor" in the State.

The Department uses a similar rating scale for evaluating and reporting on the structural condition of bridges, with a rating of 7 for bridges in new condition to 1 for bridges that are totally deteriorated or in failed condition. The Department defines a deficient bridge as one that has a rating of less than 5 and has sufficient deterioration and/or loss of original function and requires corrective maintenance or rehabilitation.



The Department's 2007 Bridge Condition Report shows that 196 (26 percent) of Region 4's State-owned bridges were deficient. This number increased in 2009 to 206 bridges (26.75 percent). Region 4 ranks in the middle of the other Regions in the State with the number of highway bridges rated deficient.

We believe maintenance appropriations should be based on maintenance needs and condition ratings should be relied on more extensively to allocate maintenance funding to each region and within each region to the residencies. This would provide additional funding to those areas with the lowest condition ratings.

Department and Regional officials generally agreed with our finding that maintenance funding should be allocated based on conditions rather than lane miles. Department officials told us that they will develop more comprehensive inventory and condition assessment systems for their high-priority assets. They said they will assess condition ratings in the future when making decisions about funding.

- Recommendation** 6. Rely more extensively on condition ratings as a basis to allocate non-personal services funds to highway and bridge maintenance.

(Department officials agree that infrastructure condition should be a consideration in determining funding allocations. However, officials also point out that funding on a "worst first" approach can be an ineffective way of managing infrastructure.)

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## Agency Comments



STATE OF NEW YORK  
DEPARTMENT OF TRANSPORTATION  
ALBANY, N.Y. 12232  
WWW.NYSBOT.GOV

STANLEY GEE  
ACTING COMMISSIONER

DAVID A. PATERSON  
GOVERNOR

November 29, 2010

Ms. Carmen Maldonado  
Office of the State Comptroller  
Division of State Government Accountability  
123 William Street - 21st Floor  
New York, NY 10038

Re: Draft Report 2008-S-172  
*Region 4 Transportation Maintenance Activities*

Dear Ms. Maldonado:

Thank you for the opportunity to respond to the subject report. Below is the New York State Department of Transportation's (NYSDOT) response.

This audit was performed at a time when NYSDOT had already recognized some of the needs identified in the audit and was beginning to implement solutions. Maintenance officials are implementing operational and system improvements that will address the recommendations. Since the Maintenance Asset Management Information System (MAMIS) is a relatively new system, NYSDOT recognizes there is still work to be done in these areas. The following responses illustrate the steps NYSDOT has taken to date and outline expectations for continued improvement.

### Responses to Recommendations

**Recommendation 1:** Monitor residencies to ensure MAMIS is used to develop work plans. On a regular basis, review the work plans created in MAMIS for quality and completeness.

**Response:** NYSDOT acknowledges that at the time audit work was being completed in June 2009; use of MAMIS for planning purposes was still developing. As mentioned in the audit report, NYSDOT required use of MAMIS for two work categories: drainage work and vendor-placed paving (VPP), but not for other work categories. The requirement to use MAMIS for these two items served as an initial step toward

implementing a comprehensive planning process using MAMIS. As stated in NYSDOT's July 2009 response to your preliminary findings report, NYSDOT would monitor the quality and completeness of the required drainage and VPP work plans and continue to improve the reach and detail of the guidelines to include more work types and be more specific regarding what was expected to be included in the plan. Toward that end, NYSDOT issued, in December 2009, instructions requiring all residencies to prepare comprehensive summer work plans using MAMIS. A copy of this instructional memo was sent separately to Office of State Comptroller (OSC) audit staff.

Regional Transportation Maintenance staff have developed and recorded their 2010 work plans in MAMIS. Main Office Transportation Maintenance officials are evaluating the 2010 work plans for adherence to the instructional guidance and determining what improvements may be warranted for the 2011 work plans. This evaluation will be done annually to continually improve work planning.

**Recommendation 2:** Monitor accomplishments of work plans, noting whether work was completed and comparing actual labor hours with estimates. If there are any variances from the budgets, determine the reasons and compare similar projects to monitor employee productivity.

**Response:** Baseline work plans were created in April 2010 so that work performed during the summer work season could be compared to original plans. NYSDOT is developing analysis procedures and intends to develop standard reports, which depict planned and actual data for task hours and units of accomplishment. These reports will be available for Resident Engineers to use for evaluating performance as well as for use in developing the following year's work plan. Fiscal year 2010-11 will be the first year in which this process will be used.

**Recommendation 3:** Develop standard crew size and estimated hour requirements for each typical work type or develop other methods to measure maintenance employee efficiency.

**Response:** As mentioned in NYSDOT's response to the preliminary report, "standard" crew sizes are of limited usefulness to planners due to the tremendous variability of resources needed and available for a specific task. However, to help improve employee efficiency, NYSDOT's Office of Transportation Maintenance has established a Maintenance Communities of Practice (COP) program. This program establishes a cross section of stakeholders who perform or oversee performance of selected functions (e.g. bridge maintenance, snow and ice control, drainage). The COP groups periodically discuss how various Regions perform work assignments with the ultimate intent of adopting best practices as they relate to the means in which assignments are carried out as well as the accuracy of planning estimates.

The Drainage COP is a good example. This COP has taken a two-pronged approach. Maintenance guidance documents, which are organized by task code, have been updated to reflect current practices. Additionally, a Drainage Decision Support Web application has been developed that uses a multi-media approach to help users plan a repair based on the issue to be addressed rather than the specific task code that will eventually be

charged. Both of these tools help the planning engineer estimate required resources which can then be documented in a MAMIS work order.

**Recommendation 4:** Analyze the scheduling of residency maintenance workers at the start and end of the workday to identify methods to reduce indirect time.

**Response:** NYSDOT's Residency operations, as with any industry, require that various indirect activities, (such as: loading of materials, equipment, training and safety meetings) be performed to prepare for and to support direct production work. Nevertheless, NYSDOT intends to reduce time spent on indirect activities at the start and end of the workday. Although some work requires more indirect activities and some less, Region 4 managers have emphasized to Resident Engineers over the past year the goal of getting Residency forces working on direct production work sooner in the morning and longer at the end of the work day. The Region has made progress over the past year since the first audit findings were conveyed to NYSDOT. In addition, during times when some but not all staff are involved with indirect activities, other tasks that need to be done at the Residency facility are being assigned so all staff are performing meaningful, necessary work.

With respect to modifying schedules and staggering shifts, so that a fewer number of staff are involved with indirect activities, the Region will work to identify operations where this would be possible. Some tasks or operations lend themselves to this concept more than others. However, due to frequent changes in work operations and staff assignments, coupled with union requirements to provide timely notice to switch staff schedules, this may be somewhat difficult to implement routinely.

There are some instances for which productivity could be increased by having some employees report directly to a job site. Regional managers have been encouraged to make this decision when appropriate.

**Recommendation 5:** Develop reporting mechanisms to compare planned infrastructure preservation activities to actual results. If certain preventative maintenance tasks cannot be performed (e.g., demand maintenance takes priority), review the Plan and re-prioritize tasks as necessary so the most critical projects are done.

**Response:** To fully address all maintenance programming including maintenance by contract, NYSDOT uses a Web application known as the Maintenance and Operations Plan (MOP). The MOP does not currently have functionality to compare planned and actual accomplishments; however, the Office of Transportation Maintenance has asked NYSDOT's Information Technology Division to develop an IT project to add this functionality to the MOP.

**Recommendation 6:** Rely more extensively on condition ratings as a basis to allocate non-personal services funds to highway and bridge maintenance.

**Response:** NYSDOT agrees that infrastructure condition should be a consideration in determining funding allocations and recognizes the need to consider infrastructure

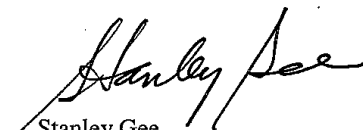
management practices that optimize the use of available funds. Allocating a higher amount of funds to areas with poorer conditions could amount to a “worst-first” approach. Various studies have concluded that such an approach is an ineffective way of managing infrastructure. For example, a study of the Michigan Department of Transportation, co-authored by Mr. Larry Galehouse, President of the National Center for Pavement Preservation, showed that the cost to maintain an infrastructure asset is about six times lower when using a “best-first” strategy where assets in good condition are maintained using low-cost maintenance treatments contrasted with the high costs of essentially rebuilding assets that have fallen into poor condition.

It is prudent for a maintenance program to have a focus on preventive maintenance and infrastructure preservation because it enables the program to extend the service life of many times the numbers of bridge and lane-miles of pavements and than a “worst-first” strategy would allow. “Worst-first” strategies typically are not sustainable.

Additionally, NYSDOT recognizes the importance of maintaining a safe riding surface, so funding allocations should include allowances for areas with particularly rough pavements or a proliferation of potholes.

Should you need additional information, please contact Mr. Roderic Sechrist, Acting Director of the Office of Transportation Maintenance, at 518-457-6435.

Sincerely,

A handwritten signature in black ink, appearing to read "Stanley Gee", written over a horizontal line.

Stanley Gee  
Acting Commissioner