

OFFICE OF THE NEW YORK STATE COMPTROLLER



DIVISION OF LOCAL GOVERNMENT
& SCHOOL ACCOUNTABILITY

Towns' Road Management Plans

2014-MR-2



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State of New York Office of the State Comptroller

Division of Local Government and School Accountability

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Dear Town Officials:

A top priority of the Office of the State Comptroller is to help local government officials manage government resources efficiently and effectively and, by so doing, provide accountability for tax dollars spent to support government operations. The Comptroller oversees the fiscal affairs of local governments statewide, as well as compliance with relevant statutes and observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving operations and Town Board governance. Audits also can identify strategies to reduce costs and to strengthen controls intended to safeguard local government assets.

Following is a report of our audit, entitled Towns' Road Management Plans. This audit was conducted pursuant to Article V, Section 1 of the State Constitution and the State Comptroller's authority as set forth in Article 3 of the New York State General Municipal Law.

This audit's results and recommendations are resources for local government officials to use in effectively managing operations and in meeting the expectations of their constituents. If you have questions about this report, please feel free to contact the local regional office for your county, as listed at the end of this report.

Respectfully submitted,

*Office of the State Comptroller
Division of Local Government
and School Accountability*



State of New York Office of the State Comptroller

EXECUTIVE SUMMARY

Towns face significant challenges in properly maintaining the infrastructure of their roads and bridges to be safe and acceptable to the traveling public while allocating available funding for day-to-day road management operations. Accordingly, a long-term road maintenance plan (Plan) can help towns plan for needed funding and avoid deferring critical infrastructure needs in order to fund daily services.

According to research conducted by the Cornell Local Roads Program (CLRP), towns should focus on preventive maintenance to make roads last longer, saving money over the life of the road. Average road reconstruction costs four to five times as much as maintaining roads with routine surface treatment.

In their adopted budgets for the 2014 fiscal year, the nine towns included in this audit – Binghamton, Delhi, Dryden, Highland, Masonville, Newark Valley, Oneonta, Preston and Schoharie – had road management budgets ranging from \$155,000 to \$950,000 to manage 25 to 119 centerline miles¹ per town. The road management cost per mile varied from \$4,429 to \$10,440.

Scope and Objective

The objective of our audit was to determine if towns properly maintained their roads for the period January 1, 2013 through May 1, 2014. For some units, we extended our scope back as far as 2005 in order to determine if their road maintenance plans were implemented. Our audit addressed the following related question:

- Did each Town Board adopt a long-term road management Plan and monitor it periodically to ensure it is properly implemented?

Audit Results

We found that eight of the nine towns had informal plans in place, but none had developed a formal multiyear plan for road maintenance and repair. Binghamton and Schoharie properly implemented their informal plans and, as a result, were able to provide for sufficient funding for the work necessary in 2014. However, seven towns had either insufficient records or no records² for us to verify their reports of work performed, and six (Delhi, Dryden, Highland, Masonville, Newark Valley and Oneonta) did not have adequate funding in 2014 for keeping their roads free of observable defects.

¹ Centerline miles are calculated by measuring down the center of all lanes of traffic.

² Masonville, Newark Valley, Highland and Delhi had no records of road work, and the records for Dryden, Preston and Oneonta were insufficient.

Seven towns (Dryden, Masonville, Newark Valley, Highland, Preston, Schoharie and Binghamton) implemented preventive maintenance cycles that called for surface treatment applications every five to seven years for each road, and one (Oneonta) used a different cycle of maintenance and reconstruction. Implementing a maintenance and repair cycle is an important step in maintaining a useful road life and avoiding deterioration that could ultimately require much more costly repairs. Further, five of the eight towns had an annual plan of road work listed on their agreements between the town boards and the highway superintendents.

For the three towns with insufficient road maintenance records, we relied on unsubstantiated reports from highway superintendents. Our assessment of Preston's roads compared to budgeted appropriations found that officials were reportedly able to finance their road maintenance and reconstruction needs. Dryden reportedly adhered to its informal plan with minimal exceptions, but still had a funding shortfall of \$1.4 million for 2014. In addition, Oneonta reportedly did not fully implement its informal plan due to a lack of funding, completing 40 percent of the paving and 58 percent of the preventive maintenance required by the plan in 2013; our cost estimate for the necessary work was \$1.6 million more than budgeted for 2014.

Finally, we found that, in general, the town boards appropriately relied on their highway superintendents to maintain the roads, but none took the necessary steps to ensure that their highway superintendents' maintenance and repair cycle was implemented. A more active role by the boards will not only help ensure that the work is done according to plan, but can also assist in obtaining more staff or funding.

Comments of Town Officials

The results of our audit and recommendations have been discussed with town officials and their comments, which appear in Appendix C, have been considered in preparing this report.

Introduction

Background

Towns must maintain critical public infrastructure such as roads and bridges. Competing needs for operations and infrastructure represent significant challenges to the State and the towns serving its citizens. During periods of fiscal stress, it can be increasingly difficult for town officials to fund both operations and needed infrastructure maintenance. As a result, towns often defer critical infrastructure needs in order to fund daily services.

A long-term road maintenance plan (Plan) can help towns plan for needed funding to maintain their infrastructure. Cornell Local Roads Program (CLRP) is the State’s Local Technical Assistance Program (LTAP) center, which prepares guidance to help towns manage their road maintenance. According to Cornell, towns should focus their efforts on preventive maintenance³ to make roads last longer and, as a result, save money.

We audited nine towns within the region⁴ to determine how well they managed the condition of their roads. Figure 1 provides relevant statistics for these towns.

Figure 1: Snapshot of Audited Towns

Town	Total Budget: Highway Department	Portion of Budget: Road Management	Total Centerline Miles	Road Management Budget Per Centerline Mile	Population
Binghamton	\$1,240,000	\$522,000	50	\$10,440	4,942
Delhi	\$828,600	\$762,000	78	\$9,769	5,117
Dryden	\$1,360,000	\$950,000	119	\$7,983	14,435
Highland	\$1,000,000	\$422,000	42	\$10,048	2,530
Masonville	\$564,000	\$284,500	48	\$5,927	1,320
Newark Valley	\$610,000	\$500,000	66	\$7,576	3,946
Oneonta	\$1,100,000	\$318,000	44	\$7,227	5,229
Preston	\$370,000	\$155,000	35	\$4,429	1,044
Schoharie	\$441,000	\$198,000	25	\$7,920	3,205
Total	\$7,513,600	\$4,111,500	507	\$8,109	41,768

³ Preventive maintenance involves filling cracks in the road, filling potholes or providing a thin layer over the road to protect it.

⁴ Comprising nine counties served by the Binghamton regional office of the State Comptroller’s Division of Local Government and School Accountability: Broome, Chenango, Cortland, Delaware, Otsego, Schoharie, Sullivan, Tioga and Tompkins

Objective

The objective of our audit was to determine if towns properly maintained their roads. Our audit addressed the following related question:

- Did each Town Board adopt a long-term road management Plan and monitor it periodically to ensure it is properly implemented?

Scope and Methodology

We examined the towns' road maintenance plans and road work performed for the period January 1, 2013 through May 1, 2014. For some units, we extended our scope back as far as 2005 in order to determine if their road maintenance plans were implemented.

We conducted our audit in accordance with generally accepted government auditing standards (GAGAS). More information on such standards and the methodology used in performing this audit is included in Appendix D of this report. We employed a criterion of "no observable defects" for road conditions during the visual inspections we conducted. This was necessary as anything less would be subjective and open to interpretation. Therefore, any defects we identified in current road conditions most likely represent the maximum required for repair. The actual degree of road work depends on the condition that the board and highway superintendent deem acceptable and the cost of the work necessary to maintain the roads in that condition.

Comments of Town Officials

The results of our audit and recommendations have been discussed with town officials and their comments, which appear in Appendix C, have been considered in preparing this report.

Road Management Plans

Town boards and highway superintendents should develop long-term comprehensive plans to maintain the condition of town roads to be safe and acceptable to the traveling public. While developing a plan alone does not necessarily result in satisfactory road conditions, the amount of time elapsed since the last work performed can be a primary factor in current road condition, as well as severity of weather, amount and type of traffic and the original construction design (including a road's base and drainage). Therefore, it is important for town officials to define the frequency (cycle) of preventive maintenance needed to keep roads in the desired condition and maintain a thorough, up-to-date inventory of road work.

A long-term plan also provides a basis for financing the projected work. Accordingly, as elected officials are replaced, a comprehensive plan can bridge past and future repair activities, provide a record for new administrations and, perhaps most importantly, provide the public a better understanding of how their tax dollars are being spent. Once a plan is implemented, town officials should monitor the condition of the roads, identify any patterns of variance from the plan and modify the plans to potentially avert significant deterioration of the roads.

Binghamton and Schoharie properly implemented their plans and, as a result, were able to provide for sufficient funding for the work necessary in 2014. However, seven towns had either insufficient records or no records⁵ for us to verify their reports of work performed, and six (Delhi, Dryden, Highland, Masonville, Newark Valley and Oneonta) did not have adequate funding in 2014 for keeping their roads free of observable defects.

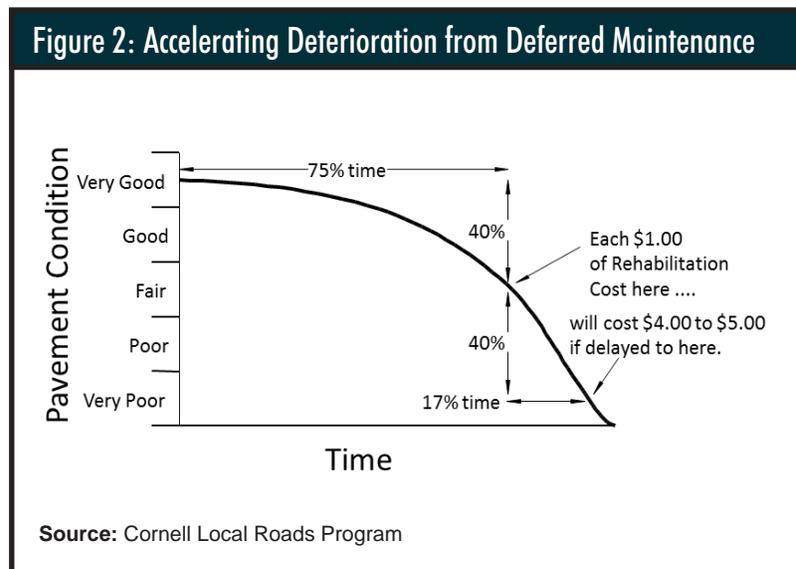
We found that eight of the nine towns had informal plans in place, but none had developed a formal multiyear plan for road maintenance and repair. These eight towns followed a preventive maintenance cycle of surface treatment applications every several years to promote an extended road life. One town cited inadequate funding as a reason for focusing on repairing the most severely damaged roads to the extent that money was available. Although none of the towns we audited had formal long-term plans, five had annual schedules that provided their boards with information on their planned road work while four towns had either insufficient annual schedules or no schedules.

⁵ Masonville, Newark Valley, Highland and Delhi had no records of road work, and the records for Dryden, Preston and Oneonta were insufficient.

Maintenance and Repair Cycles

A highway superintendent and town board should create a formal, long-term schedule based on an agreed-upon goal of acceptable road conditions and a methodology and inventory that identify when roads will be worked on, how much it will cost to fix them each year and how this work will be funded. The method that town officials use for keeping records of their road inventory does not have to be complicated – or even computerized – but should be commensurate with the mileage and type of roads that the town manages. For example, a town with mostly unpaved roads might be able to track their condition effectively by using an annotated map of town roads, while a town that maintains a more complex infrastructure could require more detail in its inventory. A thorough inventory can be progressively built and updated as each maintenance/repair activity is completed.

According to research conducted by the Cornell Local Roads Program (CLRP), towns should focus on preventive maintenance to make roads last longer, saving money over the life of the road. Average road reconstruction costs four to five times as much as maintaining roads with routine surface treatment. As illustrated in Figure 2, roads in good shape cost less to maintain than roads in bad shape.



The necessary frequency (cycle) of reconstruction and routine maintenance is driven by the weight and volume of traffic as well as road design and weather conditions. For some very low-volume roads, it may be more cost-effective to use a “reconstruction only” approach. In a town with mostly low-volume roads,⁶ the amount

⁶ Defined by the New York State Department of Transportation as less than 400 cars a day

of truck traffic is a better indication of necessary road maintenance than overall average daily traffic. A long-term reconstruction plan can be used as a basis for a highway department's annual work plan that is included in the annual agreement between the highway superintendent and the board.⁷

While most of the towns had informal plans, none of them had multiyear projections of anticipated future maintenance and repair needs and financing. Five towns (Dryden, Newark Valley, Oneonta, Schoharie and Preston) had an annual plan of road work listed on the annual agreement that was approved by the board; the other four towns (Binghamton, Delhi, Masonville and Highland) did not have either sufficient or any schedules that listed all the roads to be worked on that year. The highway superintendents believed the benefit of having a formal long-term Plan was not worth the effort to maintain and update it. However, given the significant cost benefit of maintaining roads before the sudden drop in condition, as shown in Figure 2, a plan for road maintenance is an important cost savings approach.

Seven towns (Dryden, Masonville, Newark Valley, Highland, Preston, Schoharie and Binghamton) implemented preventive maintenance cycles that called for surface treatment applications every five to seven years for each road. The collective belief was that this frequency would ensure a useful road life of at least 20 years before reconstruction. The Town of Oneonta's plan used a different cycle of maintenance and reconstruction to surface-treat roads within three years after paving and to pave them every 10 years.

The Town of Delhi did not emphasize preventive maintenance but instead sought to fix the worst roads first, to the extent that State aid would provide funding. The Highway Superintendent told us that a formal methodology would require more consistent funding than the Town has historically been able to afford or provide. While we understand that the worst roads need to be addressed, by deferring work on roads until they are in such poor condition, these eventual repairs can cost four times what it would cost to make more timely repairs as shown in Figure 2.

Beginning an effective maintenance cycle will take time for towns with roads in poor condition. However, once they get their roads closer to the preferred level of condition, the cost to maintain them, as well as their average condition, will improve as a preventive maintenance cycle is implemented. To be successful, such efforts

⁷ New York State Highway Law requires an annual agreement for the expenditure of highway funds.

should be supported by a long-term Plan that is adopted by the board and continuously monitored against annual agreements between the boards and the highway superintendents.

Not only will keeping roads in better condition with more timely maintenance save money on repair costs, it will provide better conditions for residents using the roads and thereby reduce wear and tear on vehicles saving taxpayers vehicle repair costs.

Plan Implementation and Funding

Each board is responsible for the oversight and funding of a formally established Plan and for ensuring that the highway superintendent monitors the actual conditions of the town's road inventory against it. This includes comparing the Plan with the annual agreement the board establishes with the highway superintendent for road repair and maintenance. Any variances or discrepancies should be investigated and resolved, or the Plan amended.

We reviewed available records to determine if the towns implemented their informal plans. In addition, we surveyed roads and determined if the towns' current estimated costs,⁸ as of April and May 2014, for making the roads free of observable defects were funded by their 2014 adopted budgets. Appendix A shows the estimated costs and levels of financing for the towns' road maintenance in 2014.

Properly Implemented Plans – The Towns of Binghamton and Schoharie managed their roads properly because they established an informal plan and implemented it. These two towns were able to finance their road maintenance and reconstruction needs, based on our assessment of their roads compared to appropriations in their 2014 adopted budgets.

Insufficient Records – The road maintenance records of Dryden, Preston and Oneonta lacked sufficient detail to discern the number of miles of any given road section that was worked on. As a result, we were unable to substantiate the findings that follow, which are based on the highway superintendents' reports.

Dryden officials reportedly adhered to their informal plan with minimal exceptions. However, the funding provided in their adopted budget for the 2014 construction season was significantly insufficient, by \$1.4 million. This shortfall is likely caused by deficiencies in the informal plan or a failure to respond to changing environmental conditions. The Town's roads are deteriorating at a pace that is faster

⁸ Our estimates of road work are based on statewide averages from CLRP and are a starting point for the towns to use. Accordingly, towns should create their own cost estimates. Our average cost range was +/- 20 percent.

than their informal plan seems to consider. Town officials told us this was caused by factors including high-volume traffic of large vehicles (e.g., tractor trailers) above the capacity for which the roads were designed, changes in drainage patterns from recent flooding and a particularly harsh winter. A more formal plan may have helped Town officials to properly monitor the condition of the roads and more readily identify trends that deviated from their plan.

The Town of Preston also had an informal plan that Town officials reportedly adhered to with minimal exceptions. Our comparison of the Highway Superintendent's monthly reports⁹ to his stated approach found that all but three of the 19 unpaved roads and all the paved roads were apparently maintained in the past two years. As a result, officials were able to finance the maintenance and reconstruction needs, based on our assessment of the Town's roads compared to appropriations in the 2014 adopted budget.

The Oneonta Highway Superintendent reported¹⁰ the Town did not fully implement its informal plan and told us it was because of a lack of funding. For example, in 2011 and 2012 the Highway Superintendent reported completing the preventive maintenance portion of the plan but not the paving portion. In 2013, he did not meet either goal, completing only 40 percent of the paving and 58 percent of the preventive maintenance required by the Town's informal plan. Our cost estimate for the necessary work was \$1.6 million more than provided for in the Town's 2014 budget.

No Records – We were not able to determine if the towns of Masonville, Newark Valley, Delhi and Highland properly implemented their informal plans as we could not verify the actual work performed, due to insufficient records. Therefore, we question how well the boards could have monitored implementation of the plans. Our assessment of the roads' condition showed these towns to be short on funding by an average of \$1.3 million in their 2014 adopted budgets, if the roads were to be free of observable defects.

While developing a long-term plan and keeping adequate records are critical, these efforts alone cannot ensure satisfactory road conditions unless the necessary resources are available. However, with an adequately supported, board-adopted Plan based on current and complete records, town officials are better equipped to justify the manpower and funding needed to achieve their preferred level of road conditions and to monitor those conditions over time.

⁹ We were not able to corroborate that the road maintenance performed per the monthly reports actually took place (i.e., by tracing to invoices or other corroborating evidence).

¹⁰ Ibid.

Board Monitoring

Once developed, a formal plan requires continual monitoring and adjusting for the effective management of a town's road inventory. Identifying and addressing unexpected change patterns in road conditions gives town officials a better understanding of ongoing conditions and the financial requirements of maintaining the road inventory at acceptable levels.

In general, boards appropriately relied on their highway superintendents to maintain the roads. However, none of the boards took the necessary steps to ensure that its highway superintendent's maintenance and repair cycle was implemented. A more active role by the boards will help ensure that the work is getting done according to the plans and arrange for more staff or funding if needed. Being able to implement preferred repair and maintenance cycles will help the towns to keep up with maintaining their roads in a cost-effective manner and avoid relying on crisis management, which costs more money in the long run.

Difficult economic times and various financial considerations can compel a board to defer road maintenance plans as a means to reduce expenditures. While such deferrals may reduce cash outlays in the short run, they will ultimately dramatically increase the costs of maintaining a road over its life cycle. If towns choose to defer the necessary road maintenance, the cost for deferred maintenance will continue to grow. Therefore, a town's overall financial condition may be worse than what is presented on its financial statements. As a matter of natural course, roads will deteriorate and negatively impact the vehicles driven on them, in turn potentially causing the maintenance costs for those vehicles to increase. Establishing clear goals and expectations, supported by multiyear projections of maintenance and repair needs, can better assist highway superintendents and boards in spending available funding in the most cost-effective and efficient way possible.

Appendix B contains a list of informational resources and websites available to town officials.

Recommendations

1. Each highway superintendent should develop, and each board adopt, a long-term Plan, based on the maintenance and repair cycle that shows when each road will be worked on and how this work will be funded.
2. Each highway superintendent and board should monitor their plan by ensuring that their annual agreement is in compliance with the long-range schedule. Any deviations from the Plan should be explained or the Plan amended accordingly.

APPENDIX A

ESTIMATED COSTS AND ASSOCIATED FINANCING

Figure 3: Estimated Costs and Associated Financing for Fiscal Year 2014

Town	Estimated Cost	Estimated Preventive Maintenance Portion	Estimated Paving Portion	Budgeted Funding for 2014	Unfunded Cost	Centerline Miles	Estimated Cost per Centerline Mile
Binghamton	\$340,000	\$189,000	\$151,000	\$522,000	\$0	50	\$6,800
Delhi	\$2,370,000	\$370,000	\$2,000,000	\$762,000	\$1,608,000	78	\$30,385
Dryden	\$2,300,000	\$1,000,000	\$1,300,000	\$950,000	\$1,350,000	119	\$19,328
Highland	\$2,224,000	\$224,000	\$2,000,000	\$422,000	\$1,802,000	42	\$52,952
Masonville	\$591,200	\$374,400	\$216,800	\$284,500	\$306,700	48	\$12,317
Newark Valley	\$1,950,000	\$200,000	\$1,750,000	\$500,000	\$1,450,000	66	\$29,545
Oneonta	\$1,876,000	\$176,000	\$1,700,000	\$318,000	\$1,558,000	44	\$42,636
Preston	\$175,000	\$175,000	\$0	\$175,000 ^a	\$0	35	\$5,000
Schoharie	\$51,000	\$48,000	\$3,000	\$198,000	\$0	25	\$2,040
Total	\$11,877,200	\$2,756,400	\$9,120,800	\$4,131,500	\$8,074,700^b	507	\$23,426

^a Includes \$20,000 in fund balance

^b The total Unfunded Cost does not equal the total Estimated Cost less total Budgeted Funding, because Binghamton's and Schoharie's budgeted funding exceeded their estimated costs (by \$182,000 and \$147,000, respectively). Since these two towns have no unfunded cost, it is shown as \$0.

APPENDIX B

ADDITIONAL RESOURCES

Cornell Local Roads Program (www.clrp.cornell.edu)

The Program offers a variety of training and research sources as well as technical assistance via phone, email or in person. See also:

- Internship program: <http://www.clrp.cornell.edu/trainingevents/interns.html>

The Pavement Management Summer Intern Project provides municipalities with a way to overcome some of the time constraints that limit the implementation of a pavement management system. Since most pavement management systems are implemented using computer software, the project also helps municipalities overcome the difficulties associated with learning to use the computer by providing a computer-literate college intern to help get the software up and running.

- Cornell Asset Management Program software: <http://www.clrp.cornell.edu/library/software.html>

The Cornell Asset Management Program - Roads and Streets (CAMP-RS) is a pavement management software program developed to provide an affordable tool that can serve as a good basis for maintaining a roadway network.

Web Resources:

- NYS Department of Transportation (NYSDOT) – <https://www.dot.ny.gov/index>
- NYSDOT Regional Offices – <https://www.dot.ny.gov/regional-offices>
- NYSDOT Transportation Maintenance Training Information (PDF) – http://www.clrp.cornell.edu/assistance/pdf/NYSDOT_training.pdf
- NYSDOT Transportation Research and Development Bureau – <https://www.dot.ny.gov/divisions/engineering/technical-services/transportation-research-development>
- NYS Governor’s Traffic Safety Committee – <http://www.safeny.ny.gov/>
- American Public Works Association - New York Chapter – <http://www.nyapwa.com/>
- Association for Bridge Construction and Design - Western New York Chapter – <http://www.abcdwny.org/>
- Liquid Asphalt Distributors Association of New York – <http://www.ladany.org/>
- New York Construction Materials Association – <http://www.nymaterials.com/>
- NYS Association of Professional Land Surveyors – <http://www.nysapls.org/>
- Precast Concrete Association of New York – <http://www.pcanyc.org/>
- Federal Highway Administration (FHWA) – <http://www.fhwa.dot.gov/>
- U.S. Department of Labor (USDOL) – <http://www.dol.gov/>
- USDOL Occupational Safety and Health Administration (OSHA) – <http://www.osha.gov/>
- National Highway Traffic Safety Administration – <http://www.nhtsa.gov/>
- U.S. Department of Transportation – <http://www.dot.gov/>

- Environmental Protection Agency – <http://www.epa.gov/>
- U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) – <http://www.crrel.usace.army.mil/>
- National Traffic and Road Closure Information – <http://www.fhwa.dot.gov/trafficinfo/index.htm>
- Turner-Fairbank Highway Research Center – <http://www.fhwa.dot.gov/research/tfhrc/>
- National Transportation Library – <http://ntl.bts.gov/>
- Transportation Research Board (TRB) – <http://www.trb.org/>
- American Association of State Highway and Transportation Officials (AASHTO) – <http://www.transportation.org/>
- American Public Works Association – <http://apwa.net/>
- American Society of Civil Engineers (ASCE) – <http://www.asce.org/>
- American Traffic Safety Services Association (ATSSA) – <http://www.atssa.com/>
- National Association of County Engineers (NACE) – <http://www.countyengineers.org/Pages/default.aspx>
- Salt Institute – <http://www.saltinstitute.org/>

New York State Government Associations:

- NYS Association of Town Superintendents of Highways – <https://www.nystownhwys.org/>
- NYS County Highway Superintendents Association – <http://www.countyhwys.org/>
- NYCOM - New York State Conference of Mayors and Municipal Officials – <http://www.nycom.org/>
- Association of Towns of the State of New York – <http://www.nytowns.org/>
- NYSAC - New York State Association of Counties – <http://nysac.org/>

Cornell Workshop Manuals:

- A Highway Department's Legal Liabilities (pdf) – http://www.clrp.cornell.edu/workshops/manuals/hwy_depts_legal_liability.pdf
- Asphalt Paving Principles (pdf) – http://www.clrp.cornell.edu/workshops/manuals/asphalt_paving_principles.pdf
- Basics of a Good Road (pdf) – http://www.clrp.cornell.edu/workshops/manuals/basics_of_a_good_road.pdf
- CAMP-RS manual (pdf) – http://www.clrp.cornell.edu/library/publications/camp-rs_manual.pdf
- Complete Streets: Planning Safer Communities for Bicyclists and Pedestrians (pdf) – http://www.clrp.cornell.edu/workshops/manuals/complete_streets_manual.pdf
- Effective Communication Skills (pdf) – http://www.clrp.cornell.edu/workshops/manuals/communication_skills.pdf
- Managing People (pdf) – http://www.clrp.cornell.edu/workshops/manuals/managing_people.pdf
- Pavement Maintenance (pdf) – http://www.clrp.cornell.edu/workshops/manuals/pavement_maintenance.pdf
- Powers and Duties of Local Highway Officials (pdf) – http://www.clrp.cornell.edu/workshops/manuals/powers_and_duties.pdf

- Road Safety Fundamentals (pdf) – http://www.clrp.cornell.edu/workshops/manuals/road_safety_fundamentals.pdf
- Roadway and Roadside Drainage (pdf) – <http://www.clrp.cornell.edu/workshops/manuals/drainage.pdf>
- Small Highway Department Management (pdf) – http://www.clrp.cornell.edu/workshops/manuals/small_hwy_dept_mgmt.pdf
- Snow and Ice Control 2014 (pdf) – http://www.clrp.cornell.edu/workshops/manuals/snow_and_ice_control.pdf
- Snow and Ice Control Training Outline & Checklists (pdf) – http://www.clrp.cornell.edu/workshops/manuals/snow_and_ice_control_checklists.pdf
- Stormwater Management (pdf) – http://www.clrp.cornell.edu/workshops/manuals/stormwater_management.pdf
- Surveying-Tapes, Tripods and Transits (pdf) – http://www.clrp.cornell.edu/workshops/manuals/surveying_tapes_transits_tripods.pdf
- Traffic Signs and Pavement Markings (pdf) – http://www.clrp.cornell.edu/workshops/manuals/signs_and_markings.pdf
- Work Zone Traffic Control for Local Roads (pdf) – http://www.clrp.cornell.edu/workshops/manuals/work_zone_traffic_control.pdf

Miscellaneous:

- Manual - Guidelines for Rural Town and County Roads (pdf) – http://www.clrp.cornell.edu/library/publications/guidelines_rural_town-county_roads.pdf
- Highway Standards for Low-Volume Roads in New York State (pdf) – http://www.clrp.cornell.edu/library/publications/hwy_standards_low_volume_roads.pdf

APPENDIX C

RESPONSES FROM TOWN OFFICIALS

We provided a draft copy of this global report to all nine of the towns audited and requested responses. Three towns provided responses. This report includes corrections in terminology that were brought to our attention.

We also provided a draft version of the respective individual letter reports to each of the nine towns and received responses from all of them. While some towns generally agreed with our findings and recommendations, others raised concerns about the availability of resources with which to develop, implement and fund long-term road maintenance plans. We have addressed these officials' comments within their individual letter reports.

The Towns of Preston, Masonville and Dryden responded to the draft global report. The following are excerpted from those responses:

Recordkeeping

Town of Preston officials said: "The Preston Town Board is in general agreement that there has been no formal road maintenance plan in place and have agreed to put in writing the informal maintenance plan which we have followed for the last twenty years... It appears that criticisms of the Town of Preston's approach are primarily focused on record keeping rather than actual condition of the roads or insufficient funding for maintenance. The Town will attempt to improve the quality of our records to correlate with the highway work performed annually to provide transparency to citizens and outside agencies."

Funding

Town of Masonville officials said: "We hoped that this audit was going to be a positive tool for the Highway Department to update standards and show documentation from the State for future grants to prove our Town is in need of funds... I do agree with the need to document projects and account for all necessary costs of the road projects. I disagree on using outdated or nonlocal cost estimates to do our report. I disagree on adding office workload. I disagree on going over two years to guess future road projects and project costs."

OSC Response

The final report of the Town of Masonville audit includes our comments addressing issues raised in their response letter, which is the same letter that we received in response to the draft of this report.

Road Condition

Town of Dryden officials said: "Logic dictates that better planning, record-keeping and funding may lead to better roads. The report discusses these three factors extensively but neglects to quantify road

conditions. The only indication of road condition is in the cost estimates for preventive maintenance and paving. Presumably if the estimated paving cost is proportionally higher than the estimated preventive maintenance cost, the roads have a substantial number of observed defects. In the absence of information about the road condition, it is not clear that planning, record-keeping or funding are helping.”

APPENDIX D

AUDIT METHODOLOGY AND STANDARDS

Our overall goal was to evaluate whether the towns properly managed their roads. To accomplish our audit objective and obtain valid audit evidence, our procedures included the following:

- We selected the nine towns based on various criteria such as:
 - o At least one town in each of the counties in our region,
 - o A mix of small, medium and large towns and
 - o Towns that, based on our road survey results, might have good approaches and those that seemed to not have plans.
- We interviewed town officials to gain an understanding of their goals and methodologies for maintaining town roads.
- We obtained the documents on file, such as annual agreements, road inventories, job cost sheets or work logs, that town officials used to maintain their roads and analyzed them for adequacy and accuracy.
- If adequate documentation was maintained, we analyzed work done to the roads over the past two to five years to determine if towns properly complied with their plans to maintain roads.
- We surveyed the roads¹¹ of all nine towns in April and May 2014 using information provided by the CLRP. This information included techniques that could be used to bring the roads to a condition with no observable defects. We chose the technique (i.e., rehabilitation, overlays and surface treatment) that would fix all the noted defects. We then calculated an estimated cost by applying the average cost of all methodologies within each technique (i.e., cold mix asphalt and chip seal) that our towns used to the number of miles that we deemed needed work.

We conducted this performance audit in accordance with GAGAS. 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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

¹¹ In eight towns we surveyed all the roads. In the Town of Dryden we surveyed a sample of 74 miles.

APPENDIX E

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