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**New York State Office of the State Comptroller**  
Thomas P. DiNapoli

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Division of State Government Accountability

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# Inspecting Highway Bridges and Repairing Defects

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## Thruway Authority

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Report 2012-S-33

April 2013

# Executive Summary

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## Purpose

To determine if the New York State Thruway Authority (NYSTA) inspects its highway bridges and repairs defects. The audit covers the period January 1, 2008 to August 17, 2012.

## Background

NYSTA is responsible for inspecting its bridges and repairing any defects found during inspections. If a serious (“red flag”) structural defect is identified during an inspection, NYSTA must notify the New York State Department of Transportation (DOT) within one week. NYSTA has six weeks to take appropriate action (i.e., close the bridge, repair the defect, or take alternative action to ensure that the bridge is safe to use). In addition, NYSTA must provide DOT with the written determinations from bridge inspections within 60 days. Any repairs and alternative actions must be approved by a licensed professional engineer. As of July 2012, NYSTA records show it owns 792 bridges. Between January 2008 and July 2012, 610 flags were issued on NYSTA owned bridges including 22 red flags.

## Key Findings

- NYSTA repairs defects identified during inspections. However, highway bridges were not always inspected timely, including three with flagged conditions and DOT was not always notified of red flags within one week, as required.
- The initial evaluations and plans of action were not documented for red flagged bridges.

## Key Recommendations

- Inspect all highway bridges on time and report the red flags to DOT within one week, as required.
- Ensure the initial evaluation and plan of action is sufficiently documented for red flags bridges. Develop a tracking system to monitor compliance.

## Other Related Audits/Reports of Interest

[Department of Transportation: Management and Oversight of Structural Defects on Highway Bridges \(2012-F-18\)](#)

**State of New York**  
**Office of the State Comptroller**

**Division of State Government Accountability**

April 26, 2013

Mr. Howard P. Milstein  
Chairman  
New York State Thruway Authority  
200 Southern Boulevard  
Albany, NY 12201

Dear Mr. Milstein:

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 the Thruway Authority entitled *Inspecting Highway Bridges and Repairing Defects*. The audit was performed pursuant to the State Comptroller's authority under Article X, Section 5 of the State Constitution and Section 2803 of the Public Authority 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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This report is also available on our website at: [www.osc.state.ny.us](http://www.osc.state.ny.us)

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## Background

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According to Federal and State law, highway bridges generally have to be inspected at least once every 24 months. The New York State Thruway Authority (NYSTA) is responsible for inspecting Thruway bridges and repairing any defects found during inspections. If a “red flag” condition is identified during an inspection, NYSTA procedures require that a course of action must be decided within 24 hours to address the red flag defects. Red flag conditions either pose a clear and present danger or future danger if left unattended for an extended period. They represent the failure or potentially imminent failure (failure is likely before the next scheduled inspection) of critical primary structural components. For example, cracked or deteriorating steel girders caused by vehicle impacts, or soil erosion around the bridge supports. NYSTA has six weeks to take appropriate action (i.e., close the bridge, repair the defect, or take alternative action to ensure that the bridge is safe to use). NYSTA must notify the New York State Department of Transportation (DOT) within one week.

Less serious safety defects may also be identified during inspections, and are classified as either “yellow flag” or “safety flag” conditions. A yellow flag condition is defined as a potentially hazardous condition which, if left unattended beyond the next anticipated inspection, would likely become a clear and present danger. For example, a yellow flag condition exists when portions of the deck carrying traffic over creek are heavily cracked. A safety flag is defined as a condition presenting a clear and present danger to vehicle or pedestrian traffic, but there is no danger of structural failure or collapse. Interim inspection must be completed unless repairs are made and the flag has been removed or inactivated within one year. While “flags” pertain to specific safety characteristics of bridges, “condition ratings” reflect the overall extent of deterioration of bridges. The condition rating for highway bridges in the State is on a scale of 1 (totally deteriorated) to 7 (new condition).

The biennial inspection cycle should be met unless special circumstances exist. Such circumstances include: severe weather, concern for bridge inspector safety, concern for inspection quality or the need to optimize the scheduling of other bridge inspections. DOT allows for a 30-day extension under such circumstances. NYSTA must provide DOT the written determinations from bridge inspections within 60 days of inspection completion. Any repairs must be approved by a licensed professional engineer. As of July 2012, NYSTA records show it owns 792 bridges. Between January 2008 and July 2012, 610 flags were issued on NYSTA owned bridges, including 22 red flags.

# Audit Findings and Recommendations

## Inspection and Reports

We took a sample of 50 highway bridges and we determined that they were inspected as required and the necessary repairs were made. However, some of the inspections were not done timely. In addition, NYSTA did not report red flag conditions to DOT as required.

For example, 13 inspections were done from one day to 37 days late. One inspection that was 17 days past due and had a safety flag on its prior inspection. For two inspections completed one day late a red flag and two safety flags were identified. It should also be noted that NYSTA records show that the 821 biennial bridge inspections completed during calendar years 2010 and 2011 were usually done in a timely manner.

By statute, DOT is responsible for the oversight of the State's Highway Bridge Inspection Program. Therefore, NYSTA must provide DOT with its highway bridge inspection reports. DOT uses the reports to monitor the status of the highway bridges and as a basis for follow up to ensure that all necessary corrective actions have been taken. However, we found NYSTA did not report any of the 22 red flags issued on its bridges to DOT within one week, as required. (See Exhibit) This delayed DOT's ability to determine if NYSTA met its inspection and repair requirements. NYSTA officials stated DOT was notified of the flags in the final inspection reports they sent to DOT within 60 days of the completed inspections. Despite the fact that red flags are issued for conditions that present a clear and present danger, NYSTA officials stated the safety of the traveling public was never compromised. The officials explained that they did not believe they had to report red flags to DOT when the circumstances did not affect traffic on DOT highways. As a result of our findings, NYSTA and DOT officials met and agreed NYSTA must report its red flags to DOT timely.

## Recommendation

1. Inspect all highway bridges on time and report the red flags to DOT within one week, as required.

## Repairs

Whenever a bridge receives a red flag from an inspection, NYSTA's procedures require a responsible engineer (licensed PE- either employed by NYSTA or contracted by NYSTA) to decide within 24 hours whether to close, partially close, or restrict loads until repairs can be made. As part of this process, NYSTA must determine what temporary repairs, if any, are necessary to make the bridge safe for travel. Temporary repairs are often made to ensure the safety of the bridge and then permanent repairs are made later. For all 22 red flags, NYSTA could not document that it took interim steps within the required 24 hours to remove any immediate hazards before final repairs could be made. Further, two of the 22 red flags were categorized as requiring "Prompt Interim Action." This indicates that the condition is considered extremely serious and is in need of

immediate attention. Since this documentation was not maintained, NYSTA cannot demonstrate these bridges were safe for the traveling public before needed repairs were made. However, NYSTA did maintain evidence showing repairs were made to address the 22 red flags.

NYSTA's current procedures do not require that engineers document their decisions about initial safety steps or necessary remedial actions. NYSTA officials stated these decisions are usually communicated informally over the phone or through e-mail. In response to our audit, officials said all NYSTA Divisions have been instructed to fully document the red flag process, including the initial assessment of bridge conditions, remedial steps, temporary repairs, and planned future repairs.

NYSTA currently owns three bridges which DOT inspects and maintains on behalf of NYSTA; however, there is no formal agreement in place between DOT and NYSTA for this arrangement. Moreover, NYSTA neither obtains documentation from DOT to confirm whether these bridges are inspected timely by a licensed professional engineer nor obtains DOT notices of flags and final inspection results (including supporting documentation such as photographs). Rather, NYSTA relies on DOT to properly inspect these three bridges and address any defects found.

Based upon DOT records, two of the three bridges had red flags on their last inspections. However, NYSTA officials did not know whether these red flags were addressed or why one of the bridges was inspected 84 days late. NYSTA officials stated they will request full inspection reports, verify the credentials of the inspection staff, track the timeliness of the inspections and verify flagged defects are addressed.

## Recommendations

2. Ensure the initial evaluation and plan of action is sufficiently documented for red flags bridges. Develop a tracking system to monitor future compliance.
3. Develop a procedure for monitoring the inspection of the three bridges owned by NYSTA but inspected by DOT.

## Audit Scope and Methodology

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We audited NYSTA to determine if it inspects its highway bridges and repairs the defects identified. The audit period covered January 1, 2008 to August 17, 2012. To accomplish our objective, we interviewed NYSTA officials to confirm and enhance our understanding of its practices for inspecting and repairing highway bridges. We reviewed applicable laws, regulations, flagging and reporting procedures, bridge folders, inspection and flag reports, and records within NYSTA's inspection database.

To determine if highway bridge inspections were performed timely, defects were identified, and necessary repairs were made as required we selected a judgmental sample of 50 highway bridges. We selected our sample to include highway bridges in all four Divisions (Buffalo, Syracuse, Albany,

New York), in-house and consultant inspected bridges, specific types of bridges which included one bridge that required an underwater inspection per Division, and bridges that had at least one flag issued on it during our audit period. We also examined records to determine whether inspections were completed and submitted to DOT, where applicable. In addition, we reviewed all 22 red flag reports and the corresponding flag removal/inactivation reports, as well as documents related to the repairs made for the 22 red flags.

We conducted our performance 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 objectives. 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 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

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The audit was performed pursuant to the State Comptroller's authority as set forth in Article X, Section 5 of the State Constitution and Section 2803 of the Public Authorities Law.

## Reporting Requirements

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We provided a draft copy of this report to NYSTA officials for their review and comment. We considered their comments in preparing this final report and have included them in their entirety at the end of the report.

Within 90 days after final release of this report, as required by Section 170 of the Executive Law, the Chairman of the New York State Thruway Authority 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 This Report

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### Vision

A team of accountability experts respected for providing information that decision makers value.

### Mission

To improve government operations by conducting independent audits, reviews and evaluations of New York State and New York City taxpayer financed programs.

# Exhibit

Division	Bridge Location	Flag Number
<b><u>Albany</u></b>		
1	84.14	12-027
2	112.57	11-088
3	178.38	11-075
4	800.19	10-059
5	84.14	10-038
6	84.14	10-035
7	84.14	10-036
8	84.14	08-049
<b><u>Buffalo</u></b>		
1	454.47	11-068
2	454.47	11-067
3	430.05	10-143
<b><u>NYC</u></b>		
1	38.61	09-050
2	23.09	09-008
<b><u>Syracuse</u></b>		
1	328.68	12-042
2	340.15	11-086
3	337.47	11-072
4	278.93	11-045
5	283.79	09-002
6	265.99	08-120
7	285.67	08-077
8	210.63	08-038
9	210.62	08-035

# Agency Comments



Howard P. Milstein  
Chairman

## **New York State Thruway Authority New York State Canal Corporation**

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Thomas J. Madison, Jr.  
Executive Director

February 8, 2013

Ms. Carmen Maldonado, Audit Director  
Office of the State Comptroller  
Division of State Accountability  
123 Williams Street, 21<sup>st</sup> floor  
New York, New York 10038

Dear Ms. Maldonado,

On behalf of Chairman Milstein, I am submitting the following response to the Office of State Comptroller's draft audit report 2012-S-33, *Inspecting Highway Bridges and Repairing Defects*.

**Recommendation 1: Inspect all highway bridges on time and report the red flags to DOT within one week, as required.**

To ensure the safety of the travelling public, the Authority inspects over 400 highway bridges every year. These bridges are inspected by licensed professional engineers in accordance with both federal and State law. From January 2008 to August 2012, which represents the audit period, 1,695 bridge inspection reports were submitted to the Department of Transportation (DOT). Of these inspection reports, 24 reports or 1.4% were delayed in being submitted by the Authority to DOT. Of these 24 delayed submissions, 20 reports were identified as being late by one calendar day attributable to a simple difference in the counting method being used (i.e. if inspection date is 6/03/11, then the submission date is 8/03/11 versus if the inspection date is 6/03/11, then the submission date is 8/02/11). The Authority has adjusted its counting method and submission practices to comply with the 24 month plus 60-day requirement for submissions to DOT.

Also, during that same audit period, the Authority experienced delays in inspecting 13 of 821 (1.6 %) bridges for which it is responsible beyond the 24 month plus 30-day grace period. Of the 13 bridges, 8 bridges were identified as having delayed inspections attributable again to the counting method used as described above. The Authority has again adjusted its counting method to eliminate any resulting one day time delays being identified. Of the remaining 5 bridges extreme weather conditions, break-downs with inspection equipment, and/or scheduling constraints with various railroad companies

where special access must be granted resulted in inspection delays between two and five weeks. Despite the issues outlined above, it is clear that all Authority bridges were thoroughly inspected in accordance with prescribed technical standards, and that at no time was the safety of the travelling public at risk.

Prior to the issuance of the draft audit report, it had been the Authority's practice to provide early notification to DOT only for those red flags that affect bridges owned by DOT and/or affect traffic on State owned highways. Given that all 22 red flags issued over the past five years were on Thruway mainline bridges, early notifications to DOT were not provided, although DOT was notified of all of the red flag conditions upon its receipt of the bridges' final inspection reports. However, based on the draft audit findings Authority staff met with DOT officials and have implemented the practice to notify DOT of all red flags within 7 days, which is detailed in DOT's Engineering Instruction 10-016.

**Recommendation 2: Ensure the initial evaluation and plan of action is sufficiently documented for red flag bridges. Develop a tracking system to monitor future compliance.**

In an effort to formalize their decision making processes, all Division Bridge Engineers have been instructed to document the initial evaluation and plan of action for all red flags. This documentation will be provided to the Division Director and the Director of Bridge Management. The Authority is in the process of developing an electronic tracking system within its automated Infrastructure Inventory and Inspection System (IIIS) for documentation and compliance monitoring. While the Authority has always been and will continue to be proactive with repairs of structural defects (flags) identified during inspections, this system enhancement will allow for more complete documentation of those efforts.

**Recommendation 3: Develop a procedure for monitoring the inspection of the three bridges owned by NYSTA but inspected by DOT.**

The Authority currently has ownership of three bridges for which DOT retains sole inspection responsibility. The maintenance jurisdiction for two of these bridges rests with DOT with the Authority and DOT splitting maintenance responsibilities for the remaining bridge. Since the Authority has no inspection responsibility for these bridges, the Authority's past practice prior to the release of the draft audit was to not only receive an abbreviated version of the inspection reports but also rely on DOT for oversight of the inspections as well as verification of inspection staff credentials. Given the merits of the audit recommendation, the Authority's current procedure moving forward is to request in writing all final, complete inspection reports; and, along with DOT, will verify the credentials of inspection staff.

I would like to express our appreciation for the professional manner and conduct of your audit staff throughout this engagement. Please know that the Authority is steadfast in its commitment to the safety of the public travelling on the Thruway system.

Thank you for the opportunity to comment on this report.

Sincerely yours:

A handwritten signature in black ink, appearing to read 'TJM', with a stylized flourish at the end.

Thomas J. Madison, Jr.  
Executive Director