

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

**NEW YORK STATE THRUWAY
AUTHORITY**

**TAPPAN ZEE CORRIDOR
CONGESTION RELIEF INITIATIVE**

REPORT 98-S-58



H. Carl McCall

Comptroller



State of New York Office of the State Comptroller

Division of Management Audit and State Financial Services

Report 98-S-58

Mr. Louis R. Tomson
Chairman
New York State Thruway Authority
200 Southern Boulevard
Albany, NY 12209

Dear Mr. Tomson:

The following is our audit report on the New York State Thruway Authority's Tappan Zee Corridor Congestion Relief Initiative.

This audit was performed pursuant to the State Comptroller's authority as set forth in Article X, Section 5 of the State Constitution, and at the request of the Legislature of Rockland County. Major contributors to this report are listed in Appendix A.

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

July 2, 1999

Executive Summary

New York State Thruway Authority Tappan Zee Corridor Congestion Relief Initiative

Scope of Audit

The 15-mile Tappan Zee Corridor (Corridor), the most heavily traveled section of the New York State Thruway, includes the Spring Valley Toll Barrier (Barrier) and the Tappan Zee Bridge (Bridge). The Thruway Authority (Authority) implemented the Tappan Zee Corridor Congestion Relief Initiative (Initiative) on July 15, 1997 to reduce overall congestion in the Corridor, and to discourage commercial traffic on the Bridge, especially during rush hours. The Initiative eliminated the southbound Barrier entirely to allow all traffic to continue to travel at highway speeds, and maintained the northbound Barrier for commercial vehicles only. The Initiative also raised Bridge and Barrier tolls for certain vehicles and for certain travel times (congestion pricing), and allows commercial customers to pay lower rates during non-rush hours if they use E-ZPass, which is an electronic toll collection system designed to reduce traffic congestion at toll collection stations.

A major portion of the Thruway capital funding is provided through the sale of revenue bonds. The Authority is required by the terms of these bonds to maintain its net revenue at a certain level. The Initiative was designed to achieve a regional revenue-neutral effect on the net revenue requirement so that, when fully implemented, it would have no adverse effect on the amount of Authority net revenue. In September 1997, the Legislature of Rockland County passed a Resolution requesting the State Comptroller “to determine whether the elimination of the Spring Valley toll for automobiles and the increase in the Bridge toll will result in a net financial gain [to the Authority].”

Our audit addressed the following questions about the Authority’s implementation of the Initiative for the period January 1, 1996 through December 31, 1998:

- Has the Authority maintained revenue neutrality in the Corridor with the implementation of the Initiative?
- Has the Initiative resulted in reduced traffic congestion in the Corridor?

Audit Observations and Conclusions

We found that the Initiative has achieved a revenue-neutral effect on the Authority’s net revenue requirement, and has virtually eliminated congestion at the Barrier. However, overall Bridge traffic has increased slightly and, although commercial Bridge traffic has decreased overall, it has increased slightly during rush hours.

With the implementation of the new Corridor toll structure, Corridor gross toll revenue in the Post-Initiative year (i.e., July 1, 1997 through June 30, 1998) was \$4.5 million higher (6.7 percent) than in the Pre-Initiative year (July 1, 1996 through June 30, 1997). However, gross toll revenue for the remainder of the Thruway also rose about 6 percent during this period. Corridor revenue represented 19.5 percent of total Thruway revenue of \$342 million in the Pre-Initiative year, and 19.6 percent of total revenue of \$363 million in the Post-Initiative year. We therefore conclude that the Initiative was revenue-neutral. (See pp. 6-8)

The Initiative reduced Corridor congestion during the first year of its implementation. Congestion has been almost eliminated at the Barrier, since only northbound commercial vehicles now stop to pay tolls. Congestion has also improved on the Bridge: in comparing the Post-Initiative year to the Pre-Initiative year, overall traffic increased by 1.1 percent, while commercial traffic decreased by 8.2 percent. By contrast, overall traffic on the rest of the Thruway increased by 6.3 percent, and commercial traffic increased by 8.3 percent during this period. (See p. 9)

Although commercial E-ZPass usage increased during the Post-Initiative year, it did not increase as much as expected because the conversion of commercial charge card users to E-ZPass was delayed for eight months, and because some commercial customers may not have known about the significance of E-ZPass savings during non-rush hours. We also found that, while Bridge commercial traffic has decreased overall, it has actually increased during rush hours. This may have occurred because commercial drivers cannot easily change their routes or travel schedules, and because some are unaware that the toll rates are lower during non-rush hour periods. (See pp. 9-12)

We recommend that the Authority expand its E-ZPass marketing efforts and inform commercial customers about congestion pricing to encourage them to avoid rush hours in the Corridor. We also recommend the Authority develop a system to measure and monitor Bridge congestion levels.

Comments of Authority Officials

Authority officials agree with our observations and conclusions and state that they are taking steps to implement our recommendations.

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Introduction

Background

The New York State Thruway Authority (Authority) was established in 1950 as an independent public corporation to build, operate, and maintain a superhighway across New York State. The 641-mile Thruway is the longest toll highway system in the United States, with 61 toll collection stations, including interchanges, bridges, and toll barriers. The Authority collected a total of \$363.1 million in toll revenue during the 12-month period ended June 30, 1998.

The toll rates paid by the vehicles using the Thruway vary according to vehicle classification. For the purpose of the toll rates, vehicles are classified as passenger vehicles, commercial vehicles and non-revenue vehicles such as Authority vehicles, which are not required to pay tolls. Commercial vehicles are further subdivided into seven different classes. The toll rates for passenger vehicles are lower than the toll rates for commercial vehicles. The toll rates may also vary with the method used to pay the toll, as tolls may be paid in cash, through an Authority-issued credit card (which was eliminated in October 1998), or through an electronic toll collection system known as E-ZPass. In the E-ZPass system, drivers can pay tolls without stopping their vehicles, because the tolls are charged to the drivers' accounts by a device that scans an electronic tag mounted on the vehicles. In addition, at some locations, lower toll rates may be available for passenger vehicles carrying at least three occupants (carpool rates) and passenger vehicles that use E-ZPass a certain number of times a month (commuter rates).

The Tappan Zee Corridor (Corridor) is the 15-mile section of the Thruway between Suffern in Rockland County and Elmsford in Westchester County which includes the Tappan Zee Bridge (Bridge). The Corridor is the most heavily traveled section on the Thruway, carrying as many as 125,000 vehicles per day. One-way peak traffic on the Bridge can be more than 7,000 vehicles per hour during workday morning commuting hours. The extension in 1993 of I-287, which serves as a beltway around New York City for East-coast travelers, has led to an increase in traffic - especially commercial traffic - and has contributed to the overall traffic congestion in the Corridor. Total commercial traffic at the Bridge Toll Plaza increased by 70 percent between 1993 and 1996. Total Bridge revenue in calendar year 1996 was \$52.9 million (\$41.6 million/passenger, \$11.3 million/commercial), or 16 percent of Authority revenue.

The Spring Valley Toll Barrier (Barrier) is located nine miles northwest of the Bridge. Rockland County residents had complained for years about

paying Barrier tolls; area residents use the Thruway as a local highway because there are few alternative routes that allow quick access across the county. Prior to July 15, 1997, Barrier tolls (collected from both northbound and southbound travelers) were 40 cents for passenger vehicles, and from 50 cents to \$1.50, depending on vehicle class, for commercial vehicles. Residents also complained about increased traffic, which affects quality of life, air pollution, noise, and safety issues in the Corridor. In calendar year 1996, 27 million vehicles, including 24 million passenger vehicles, paid a total of \$12.8 million (\$9.6 million/passenger and \$3.2 million/commercial) in Barrier tolls. To address the congestion and other traffic-related issues, the Authority's Board of Directors approved the Tappan Zee Corridor Congestion Relief Initiative (Initiative), which was implemented on July 15, 1997. The Initiative resulted in closing the Barrier as a toll station for all but northbound commercial traffic, and in raising Bridge and Barrier tolls for certain vehicles and for certain travel times. A major goal of the Initiative was to decrease Corridor congestion, particularly at the Barrier, and thus reduce noise, air pollution, and safety concerns. The Initiative was also intended to discourage commercial traffic on the Bridge, especially during peak periods.

A major portion of the Thruway capital funding is provided through the sale of revenue bonds. Since these bonds are supported principally by toll collections, the Authority must ensure that any toll changes, such as the elimination of passenger tolls at the Barrier, do not impair its ability to meet its obligations to bond holders. Therefore, to achieve a revenue-neutral result, the Initiative included various revisions to the Corridor's toll structure. These revisions are described below and shown in following table.

- **Removal of the Southbound Barrier** - All southbound traffic maintains travel at highway speed. Toll charges are eliminated for all passenger and commercial southbound traffic.
- **Conversion of the Northbound Barrier** - Only northbound commercial vehicles are required to stop and pay a toll at the Barrier. Since there is no longer a southbound toll, the northbound toll is doubled so that commercial vehicles pay the equivalent of a round trip toll. Thus, during off-peak hours, E-ZPass customers pay \$1.00 to \$3.00 (double the prior commercial rate); cash and charge-card customers pay double the E-ZPass rate (\$2.00 to \$6.00) at all times.
- **Increase of Bridge Tolls** - Tolls continue to be collected from southbound traffic only. As at the Barrier, the prior commercial

Bridge toll (\$3.75 to \$10.00) is now the E-ZPass commercial rate; cash and charge-card commercial customers pay double the E-ZPass rate (\$7.50 to \$20.00) at all times. The non-commuting passenger vehicle toll increased from \$2.50 to \$3.00 per trip. The E-ZPass carpool and commuter rates (50 cents and \$1.00, respectively) did not change.

- **Congestion/Incentive Pricing for Commercial Vehicles** - During the busiest peak times at the Bridge (between 7:00 a.m. and 9:00 a.m.) and the Barrier (between 4:00 p.m. and 6:00 p.m.), E-ZPass commercial customers pay double the standard E-ZPass rate. The higher rates decrease to standard E-ZPass rates during the hour before and the hour after the busiest peak times (see detail rate information in Exhibit A).

TOLL SCHEDULE SUMMARY

PRIOR TO JULY 15, 1997			EFFECTIVE JULY 15, 1997		
	CASH, CHARGE CARD, E-ZPASS	COMMUTER	CASH & CHARGE CARD (24 HR) E-ZPASS (PEAK)*	E-ZPASS (NON-PEAK)	COMMUTER
SPRING VALLEY			SPRING VALLEY		
(BOTH NORTH and SOUTHBOUND)			(NORTHBOUND ONLY)		
PASSENGER	\$.40	N/A	\$0.00	\$0.00	N/A
COMMERCIAL	\$.50 - \$1.50	N/A	\$2.00 - \$6.00	\$1.00 - \$3.00	N/A
TAPPAN ZEE			TAPPAN ZEE		
(SOUTHBOUND ONLY)			(SOUTHBOUND ONLY)		
PASSENGER	\$2.50	\$.50 - \$1.00	\$3.00	\$3.00	\$.50 - \$1.00
COMMERCIAL	\$3.75 - \$10.00	N/A	\$7.50 - \$20.00	\$3.75 - \$10.00	N/A

*Commercial E-ZPass customers pay a graduated toll during one hour “shoulders” on either side of the two-hour peak. See detail rate information in Exhibit A.

To summarize, commercial vehicles using cash or charge cards pay twice the E-ZPass rate 24-hours-a-day, while those using E-ZPass pay higher rates only during rush hours. Congestion/Incentive pricing is intended to encourage truckers to convert to E-ZPass (Authority traffic data shows that E-ZPass traffic lanes move faster), and to discourage them from traveling during peak hours. However, the Authority also believes higher pricing is necessary to help defray the income lost by eliminating the Barrier passenger toll.

In September 1997, the Legislature of Rockland County passed a Resolution requesting the State Comptroller “to determine whether the elimination of the Spring Valley toll for automobiles and the increase in the Bridge toll will result in a net financial gain [to the Authority].”

Audit Scope, Objectives and Methodology

We audited the Authority's implementation of the Initiative for the period January 1, 1996 through December 31, 1998. We focused on revenue and traffic statistics for the one-year periods just before (July 1, 1996 through June 30, 1997 - the Pre-Initiative year) and just after (July 1, 1997 through June 30, 1998 - the Post-Initiative year) the Initiative's implementation. The objectives of our financial-related audit were to determine whether the Authority maintained revenue neutrality in the Corridor with the implementation of the Initiative, and whether the Initiative has resulted in reduced traffic congestion in the Corridor. We did not examine the Initiative's impact on specific traffic congestion-related issues, such as air pollution, noise, and safety concerns.

To accomplish our objectives, we evaluated the Authority's internal control framework, interviewed Authority management, and reviewed records and reports to assess the Authority's efforts in overseeing the impacts of the Initiative. We also reviewed and analyzed the Authority's traffic data and financial reports to assess the results of the Initiative.

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

We use a risk-based approach to select the activities for audit. This approach focuses our audit efforts on those operations that we identify as having the greatest probability for needing improvement. Consequently, by design, we use finite audit resources to identify where and how improvements can be made. Thus, we devote little audit effort to reviewing operations that may be relatively efficient or effective. As a result, we prepare our reports on an "exception basis." This report,

therefore, highlights those areas needing improvement and does not address activities that may be functioning properly.

Internal Control and Compliance Summary

Our evaluation of the Authority's internal control structure did not identify any significant weaknesses in internal controls over Corridor revenue reporting.

Response of Authority Officials

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

Within 90 days after final release of this audit 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 its fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons therefor.

Revenue Neutrality

The Authority is required by the terms of its revenue bonds to maintain its net revenue at a certain level. According to this requirement, the Authority's annual net revenue (the excess of revenues over operating expenses) cannot be less than the amounts that must be paid by the Authority to its Debt Service and Reserve Maintenance Funds during the year. In eliminating passenger tolls at the Barrier, the Authority would reduce its annual net revenue. Therefore, to ensure that the net revenue requirement was met, the toll changes at the Barrier and the Bridge were, in the words of the Initiative, "carefully designed to achieve a regional revenue-neutral effect on the Thruway's Net Revenue Requirement."

The toll changes at the Barrier and the Bridge were designed with the assistance of an independent consulting firm. In February 1997, the consultant estimated how toll revenues in the Corridor would be affected by the changes described in the Initiative. In developing the estimate, the consultant used 1996 toll data and projected the Corridor's future toll revenues on the basis of the following assumptions: (1) passenger cars would no longer pay tolls at the Barrier; (2) fewer passenger cars would pay cash at the Bridge; (3) commercial traffic in the Corridor would shift from peak to non-peak periods; (4) commercial traffic in the Corridor would shift from cash or charge card to E-ZPass; and (5) commercial traffic would avoid using the Bridge (the consultant did not indicate what alternatives commercial vehicles were expected to utilize). On the basis of this methodology, the consultant projected that gross revenue in the Corridor would remain within \$600,000, or 1 percent, of the gross revenue generated under the toll rate schedule in effect prior to the Initiative. Therefore, according to the consultant's estimate, the Initiative would be revenue-neutral in its effect on the Authority's net revenue requirement.

When we examined how toll revenues in the Corridor were affected by the Initiative, we found that gross revenue increased from \$66.7 million in the Pre-Initiative year to \$71.2 million in the Post-Initiative year, an increase of 6.7 percent. While this increase exceeded the consultant's estimate (of no more than 1 percent), it was consistent with the increase in toll revenue in the rest of the Thruway during the same period. Excluding the Corridor, gross toll revenue in the rest of the Thruway during the Post-Initiative year (\$291.9 million) exceeded the gross toll revenue during the Pre-Initiative year (\$275.3 million) by 6.0 percent. As a result, as is shown in the following table and detailed in Exhibit B, the Corridor accounted for about the same percentage of total Thruway toll revenue during the Pre-Initiative year (19.5 percent) as it did during the

Post-Initiative year (19.6 percent). We therefore conclude that the Initiative was revenue-neutral in its effect on the Authority's net revenue requirement.

Period	Total Thruway Toll Revenue (in Millions)	Tappan Zee Corridor Toll Revenue (in Millions)	Corridor Tolls as a Percentage of Total Tolls
Pre-Initiative Year	\$342.0	\$66.7	19.5%
Post-Initiative Year	\$363.1	\$71.2	19.6%

We note that, in implementing the Initiative, the Authority has realized annual operating cost savings as a result of lower staffing and maintenance costs. The original 16 toll lanes at the Barrier have been reduced to 3 lanes staffed by Thruway personnel and 2 dedicated E-ZPass lanes. The resulting 70 percent decrease in staff hours produced annual salary and fringe benefit savings of \$700,000. The absence of a southbound Barrier also resulted in annual maintenance and operating savings of approximately \$40,000. The consultant did not include these operating savings in its estimate of the Initiative's impact because the consultant believed such savings would be offset by capital modifications necessary to reconfigure the Barrier. The one-time capital cost required for the removal of the southbound Barrier was \$3.3 million.

Authority officials recognized that actual traffic behavior as a result of the Initiative was not what had been estimated by the consultant. The following are examples of traffic behavior which produced the Corridor's higher than expected toll revenue during the first year of the Initiative.

- The estimated income was based on a static flow of traffic with no adjustment for normal growth. Thruway traffic increased due to factors such as a good economy, a mild winter, and people taking longer trips.
- Commercial vehicle owners were not at first aware of the increased rates and congestion pricing.
- Commercial travelers did not change traffic behavior, as expected, as a result of peak-hour travel pricing.

-
- Because of a delay in converting from commercial charge cards to the E-ZPass charge program, more commercial vehicles than anticipated paid the double-toll rates in the Corridor, 24-hours-a-day.

Our analysis showed that Corridor toll revenue was higher in the first three months of the Initiative's implementation than in subsequent months. Since that first three-month period, vehicle trips have been decreasing and revenue appears to be stabilizing. Most commercial customers who previously used charge cards have converted to the E-ZPass program. Further, the Authority believes that commercial drivers are becoming more aware of the congestion/incentive pricing program. We agree that increased use of the commercial E-ZPass charge will reduce toll revenues, and that diversion of traffic to non-peak hours will help to relieve congestion.

Travel Patterns

The basic goals of the Initiative were to reduce Corridor congestion, especially at Spring Valley, and to discourage commercial traffic on the Bridge, especially during peak periods. We compared traffic statistics for the Pre-Initiative year to those of the Post-Initiative year to determine whether the Initiative had accomplished these goals.

We found that the number of vehicle trips recorded at the Barrier dropped from 27.2 million in the Pre-Initiative year to 2.4 million in the Post-Initiative year. The reduction was so significant because passenger cars are no longer required to stop at the Barrier, and only northbound commercial vehicles are required to stop at the Barrier and pay tolls. Therefore, as a result of the Initiative, congestion at the Barrier has been almost eliminated. As discussed later in this report, the congestion in the rest of the Corridor may not have been reduced as much as was intended, because E-ZPass was not used by commercial vehicles to the extent that was expected.

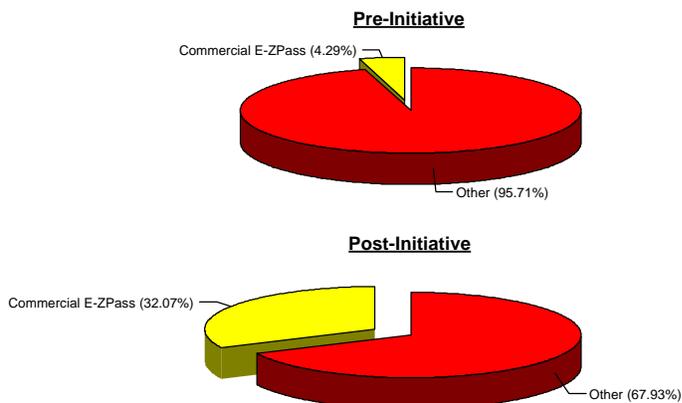
At the Bridge, the total number of recorded vehicle trips increased slightly from 22.7 million in the Pre-Initiative year to 22.9 million in the Post-Initiative year, an increase of 1.1 percent. However, commercial traffic on the Bridge during this period decreased by 8.2 percent, dropping from 1.47 million recorded trips in the Pre-Initiative year to 1.35 million recorded trips in the Post-Initiative year. In comparison, the commercial traffic in the rest of the Thruway (excluding the Corridor) increased by 8.3 percent during this period. (See Exhibit C for detailed Pre- and Post-Initiative comparisons.) We therefore conclude that the Initiative has been effective to some extent in reducing commercial traffic on the Bridge. (As discussed later in this report, the number of commercial vehicles using the Bridge during peak hours increased slightly during the Post-Initiative year.)

E-ZPass

According to Authority traffic statistics, E-ZPass lanes can move traffic three times faster than lanes staffed with toll collectors. Therefore, the Authority's plans for the Initiative included widespread use of its E-ZPass program to help reduce congestion. Since it became available in the Corridor in February 1997, the use of commercial E-ZPass has grown from 180,000 vehicles (4 percent of commercial traffic) to 820,000 vehicles (32 percent of commercial traffic) in the Post-Initiative year. Commercial E-ZPass usage increased to 44 percent of commercial vehicles in the third quarter of 1998. E-ZPass usage in the Corridor has also increased among passenger vehicles, from 33 percent of passenger cars in the Pre-Initiative

year to 50 percent in the Post-Initiative year. In peak hours (Post-Initiative), 48 percent of commercial vehicles and 75 percent of passenger vehicles use E-ZPass.

Commercial E-ZPass Usage in Corridor Pre- and Post-Initiative Comparison



However, even though E-ZPass usage has increased significantly in the Corridor, it has not reached the level estimated by the independent consultant. The original congestion pricing assumption was that 100 percent of commercial charge customers and 45 percent of commercial cash customers would convert to E-ZPass by January 1, 1998. If this had occurred, 64 percent of all commercial vehicles in the Corridor would be using E-ZPass.

One reason that fewer than expected commercial vehicles used the E-ZPass charge program was that the Authority delayed modifying its commercial charge-card program. Prior to October 1, 1998, the Authority offered commercial customers a charge program using a credit card. As originally planned, all such commercial customers would be required to convert to E-ZPass tags by January 1, 1998 to continue their charge privileges. However, trucking companies requested extensions for the conversion to E-ZPass and the Authority delayed its implementation several times. The charge-card program was finally modified to E-ZPass on October 1, 1998.

It also appears that Authority promotional efforts may not have been adequate in informing commercial users about the financial benefits of E-ZPass in the Corridor. E-ZPass flyers describe its general advantages, but do not clearly explain that E-ZPass will enable commercial drivers to avoid congestion pricing (the high toll rate imposed 24-hours-a-day on

non-E-ZPass commercial vehicles) at the Bridge and Barrier during non-peak hours (see rate details in Exhibit A). According to Authority surveys, many commercial drivers are still unaware of the congestion pricing program in the Corridor.

Commercial Traffic During Peak Hours

One of the main goals of the Initiative was to discourage commercial traffic in the Corridor, especially during peak travel periods. Using data maintained by the Authority district office responsible for the Corridor, we compared commercial traffic volume for the six-month period prior to the Initiative (January 1, 1997 through June 30, 1997) to that of a similar period subsequent to the implementation of the Initiative (January 1, 1998 through June 30, 1998) to determine whether commercial traffic had decreased during peak hours. We limited our analysis to Bridge traffic, since the elimination of the southbound toll at the Barrier made such a comparison difficult. We found that, while overall commercial traffic did decrease, the percentage of commercial vehicles that cross the Bridge during peak hours actually increased slightly. In the period before the Initiative, 18 percent of the 773,000 commercial vehicles that crossed the Bridge did so during the four-hour peak period (6:00 a.m. to 10:00 a.m.); in the period after, 20 percent of 712,000 commercial vehicles crossed the Bridge during the peak hours.

To determine whether this pattern is continuing at the Bridge, we also compared peak-hour commercial traffic volume during the first three months of the Initiative (July 1, 1997 through September 30, 1997) to the same three-month period in 1998. We found that commercial traffic had increased by 1 percent (3,000 trips) overall, but by 8 percent (5,000 vehicles) during the four-hour peak period. These statistics indicate that commercial peak hour volume is not decreasing.

Among the reasons commercial traffic on the Bridge has not declined as expected are that commercial truckers may not have enough incentive, or enough schedule flexibility, to change their travel times to avoid peak hours, or to change their travel patterns to use other routes. In addition, truckers who continue to pay by cash, or who cross the Bridge during peak hours, may not know about congestion pricing. As previously noted, an Authority survey conducted in November 1997 and another survey done in the Summer of 1998 show that many commercial truckers are still unaware of the congestion pricing policy. Additional promotion may be necessary to change drivers' travel patterns to off-peak hours.

The Authority was not aware that peak-hour traffic had not decreased. Authority officials have noted that traffic waiting times at the Bridge are shorter, but they have no measurement system in place to identify and

track traffic congestion. According to the Authority, congestion is usually measured in an open highway situation and not in an interchange or barrier system such as the Thruway. However, the Authority should be able to gauge the extent to which the Initiative is effective in reducing the traffic congestion this effort was designed to alleviate. Authority officials indicated that they have begun to develop a system to monitor the congestion levels at the Bridge.

Recommendations

1. Expand commercial E-ZPass marketing efforts in the Corridor. Inform commercial drivers about congestion/incentive pricing at the Barrier and the Bridge, and encourage them to travel during non-peak hours.

(Authority officials state they currently have a consultant doing a detailed study of incentive pricing on the Tappan Zee Bridge. In the interim, they are expanding their marketing efforts.)

2. Develop a system to measure and monitor congestion, such as traffic delays at toll booths. Analyze the available traffic data to maintain awareness of peak hour travel trends.

(Authority officials state they are using detailed toll plaza traffic statistics, visual observations, and feedback from toll staff to analyze traffic trends at the toll plazas.)

**NEW YORK STATE THRUWAY AUTHORITY
VEHICLE CLASSIFICATION AND TOLL SCHEDULES**

**Incentive Pricing - Spring Valley Toll Barrier (Northbound only)
For E-ZPass Customers Only with toll class 2-8 vehicles
Effective July 15, 1997**

The toll rates below are effective weekdays, Monday - Friday. On weekends E-ZPass customers are charged the Midnight - 3:14 PM rate. Customers who do not use E-ZPass tags, including those that continue to use a bar-coded charge cards with their commercial charge account with the Thruway Authority, pay the 4 PM - 5:59 PM rate at all times. No tolls are collected from class 1 vehicles at the Spring Valley Toll Barrier.

Toll Class/ Time	2	3	4	5	6	7	8
12:00 midnight - 3:14 PM	\$1.00	\$2.00	\$1.50	\$3.00	\$2.50	\$2.50	\$2.00
3:15 PM - 3:29 PM	1.25	2.50	1.75	3.75	3.00	3.00	2.50
3:30 PM - 3:44 PM	1.50	3.00	2.00	4.50	3.75	3.75	3.00
3:45 PM - 3:59 PM	1.75	3.50	2.50	5.25	4.25	4.25	3.50
4:00 PM - 5:59 PM	2.00	4.00	3.00	6.00	5.00	5.00	4.00
6:00 PM - 6:14 PM	1.75	3.50	2.50	5.25	4.25	4.25	3.50
6:15 PM - 6:29 PM	1.50	3.00	2.00	4.50	3.75	3.75	3.00
6:30 PM - 6:44 PM	1.25	2.50	1.75	3.75	3.00	3.00	2.50
6:45 PM - 11:59 PM	1.00	2.00	1.50	3.00	2.50	2.50	2.00

**Incentive Pricing - Tappan Zee Bridge (Southbound only)
For E-ZPass Customers Only with toll class 2-8 vehicles
Effective July 15, 1997**

The toll rates below are effective weekdays, Monday - Friday. On weekends E-ZPass customers with toll class 2-8 vehicles are charged the Midnight - 6:14 AM rate. Such customers who do not use E-ZPass tags, including those that continue to use a bar-coded charge cards with their commercial charge account with the Thruway Authority, pay the 7 AM - 8:59 AM rate at all times. The toll for class 1 vehicles at the Tappan Zee Bridge is \$3.00 at all times, except for those customers that have an individual E-ZPass account with a bridge commuter plan.

Toll Class/ Time	2	3	4	5	6	7	8
12:00 midnight - 6:14 AM	\$3.75	\$ 5.00	\$4.50	\$10.00	\$ 6.25	\$ 7.50	\$ 5.50
6:15 AM - 6:29 AM	4.50	6.25	5.25	12.50	7.75	9.25	6.75
6:30 AM - 6:44 AM	5.50	7.50	6.50	15.00	9.25	11.00	8.00
6:45 AM - 6:59 AM	6.50	8.75	7.75	17.50	10.75	12.75	9.25
7:00 AM - 8:59 AM	7.50	10.00	9.00	20.00	12.50	15.00	11.00
9:00 AM - 9:14 AM	6.50	8.75	7.75	17.50	10.75	12.75	9.25
9:15 AM - 9:29 AM	5.50	7.50	6.50	15.00	9.25	11.00	8.00
9:30 AM - 9:44 AM	4.50	6.25	5.25	12.50	7.75	9.25	6.75
9:45 AM - 11:59 PM	3.75	5.00	4.50	10.00	6.25	7.50	5.50

**NEW YORK STATE THRUWAY AUTHORITY
TOLL REVENUE
PRE- AND POST-INITIATIVE COMPARISONS**

	PRE-INITIATIVE 7/1/96 - 6/30/97	POST-INITIATIVE 7/1/97 - 6/30/98	CHANGE	PERCENT CHANGE
TAPPAN ZEE CORRIDOR				
PASSENGER	\$52,100,000	\$50,000,000	(\$2,100,000)*	(4.0)%
COMMERCIAL	\$14,600,000	\$21,200,000	\$6,600,000	45.2%
TOTAL	\$66,700,000	\$71,200,000	\$4,500,000	6.7%
ADJUSTED TOTAL THRUWAY (without CORRIDOR)				
PASSENGER	\$156,500,000	\$165,400,000	\$8,900,000	5.7%
COMMERCIAL	\$118,800,000	\$126,500,000	\$7,700,000	6.5%
TOTAL	\$275,300,000	\$291,900,000	\$16,600,000	6.0%
TOTAL THRUWAY				
PASSENGER	\$208,600,000	\$215,400,000	\$6,800,000	3.3%
COMMERCIAL	\$133,400,000	\$147,700,000	\$14,300,000	10.7%
TOTAL	\$342,000,000	\$363,100,000	\$21,100,000	6.2%
CORRIDOR TOLLS AS PERCENTAGE OF TOTAL TOLL REVENUE	19.5%	19.6%		

* Barrier vehicle revenue (and consequently revenue in the Corridor) dropped significantly due to the Initiative's elimination of all southbound toll barriers and northbound passenger barriers on July 15, 1997.

**NEW YORK STATE THRUWAY AUTHORITY
VEHICLE TRIPS
PRE- AND POST-INITIATIVE COMPARISONS**

	PRE-INITIATIVE 7/1/96 - 6/30/97	POST-INITIATIVE ² 7/1/97 - 6/30/98	CHANGE	PERCENT CHANGE
SPRING VALLEY BARRIER¹				
PASSENGER	24,340,000	1,190,000	(23,150,000)	(95.1)%
COMMERCIAL	2,740,000	1,200,000	(1,540,000)	(56.2)%
NON-REVENUE	80,000	10,000	(70,000)	(87.5)%
TOTAL	27,160,000	2,400,000	(24,760,000)	(91.2)%
TAPPAN ZEE BRIDGE				
PASSENGER	21,140,000	21,510,000	370,000	1.8%
COMMERCIAL	1,470,000	1,350,000	(120,000)	(8.2)%
NON-REVENUE	80,000	84,000	4,000	5.0%
TOTAL	22,690,000	22,944,000	254,000	1.1%
TAPPAN ZEE CORRIDOR¹				
PASSENGER	45,480,000	22,700,000	(22,780,000)	(50.1)%
COMMERCIAL	4,210,000	2,540,000	(1,670,000)	(39.7)%
NON-REVENUE	160,000	100,000	(60,000)	(37.5)%
TOTAL	49,850,000	25,340,000	(24,510,000)	(49.2)%
ADJUSTED TOTAL THRUWAY (without CORRIDOR)				
PASSENGER	169,620,000	179,660,000	10,040,000	5.9%
COMMERCIAL	26,020,000	28,180,000	2,160,000	8.3%
NON-REVENUE	1,350,000	1,540,000	190,000	14.1%
TOTAL	196,990,000	209,380,000	12,390,000	6.3%

¹ Barrier vehicle revenue (and consequently revenue in the Corridor) dropped significantly due to the Initiative's elimination of all southbound toll barriers and northbound passenger barriers on July 15, 1997.

² The Post-Initiative year includes the two-week period (July 1, 1997 through July 14, 1997) prior to the July 15, 1997 Initiative implementation date. This accounts for the recorded passenger and southbound commercial vehicle trips.

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May 18, 1999

Mr. Frank J. Houston
Audit Director
Office of the State Comptroller
270 Broadway, 19th Floor
New York, NY 10007

Dear Mr. Houston:

We have reviewed your draft report #98-S-58 on the Thruway Authority's Tappan Zee Corridor Congestion Relief Initiative.

We thank you for the opportunity to comment on the report and appreciate your affirmation of the fact that the overall goals of the initiative have been achieved.

In regard to your recommendation #1, we currently have a consultant doing a detailed study of incentive pricing on the Tappan Zee Bridge. Following completion of the report, we will develop an action plan addressing the findings of the study. In the interim, we are expanding our marketing efforts to heighten awareness of commercial E-ZPass off-peak discounts at the Tappan Zee Bridge and Spring Valley Barrier. In addition, it should be noted that commercial E-ZPass trips for the first three months of 1999 have increased 36% at the Tappan Zee Bridge and 46% at the Spring Valley Barrier compared to the similar period in 1998.

For recommendation #2, our Toll management is using detailed toll plaza traffic statistics, visual observations and feedback from toll staff to analyze traffic trends at the Toll Plazas. In addition, Plaza Managers continually review and adjust staffing patterns and lane configurations to address a shifting mix of traffic and payment methods throughout a typical day.



New York State Canal Corporation

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The Thruway System is a vital component of the State's transportation network and we are dedicated to providing high levels of safety and service. We appreciate your positive input on this very important service related initiative.

Sincerely,



John Platt
Executive Director