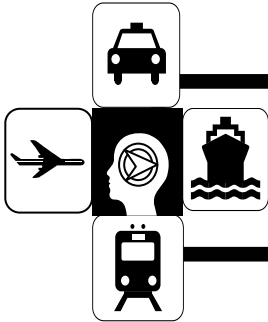


JERSEY DOT'S



Tech Brief

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EVALUATION STUDY OF PORT AUTHORITY OF NEW YORK AND NEW JERSEY'S TIME OF DAY PRICING INITIATIVE

FHWA/NJ- 2005-005

MARCH 2005

INTRODUCTION

On January 25, 2001, the PANYNJ approved a new pricing structure with tolls that varied according to time of day and payment technology. It went into effect on March 25, 2001. The PANYNJ saw the plan as a means for reducing congestion, increasing the use of transit and E-ZPass, and facilitating commercial traffic control management. Following the PANYNJ's time of day pricing initiative, the Federal Highway Administration's Value Pricing Program funded this project, which assessed the impacts produced by time of day pricing. The project was a collaborative effort of the Rensselaer Polytechnic Institute, Rutgers University and New York University.

RESEARCH APPROACH

The project had three main focus areas that could be broadly described as: *Disaggregate Behavioral Impacts*, *Aggregate Impacts on Traffic and Transit Use*, and *Public Reaction to the Time of Day Pricing Initiative*. The research on the subject of *Disaggregate Behavioral Impacts* was conducted in four distinct stages. The first stage consisted of conducting a set of focus groups with both passenger car users and truck dispatchers to gain insights on the impacts produced by the time of day pricing initiative. On the basis of the feedback received from the focus groups, major modifications were implemented in the survey instruments by the Rensselaer Polytechnic Institute. The surveys were then conducted by means of computer aided telephone interviews. After receiving the data, the project team analyzed behavioral impacts. A separate line of inquiry focused on behavioral modeling of trucking companies' decisions to use/not to use E-ZPass and to travel during peak hours/non-peak hours, taking advantage of a data set already collected for the PANYNJ as part of another project.

Rutgers University was in charge of *Aggregate Impacts on Traffic and Transit Use*. As part of this task, the project team obtained a comprehensive data set with traffic counts at the various PANYNJ toll facilities. The traffic data, classified by type of vehicle and hour of the day, were used to quantify the impact of the time of day pricing initiative on overall traffic patterns, E-ZPass usage and time of day traffic changes. The project team also obtained aggregate transit ridership data from New Jersey Transit, and PANYNJ.

The third line of inquiry, *Public Reaction to the Time of Day Pricing Initiative*, had two major components. The first one focused on the process followed, and reactions to, the implementation of the time of day pricing initiative. As part of these analyses, the project team documented the overall process followed by the PANYNJ to make the time of day pricing initiative a reality, as well as the reactions of key stakeholders before and after the implementation. The second component consisted on the statistical analyses of the public opinion questions included in the surveys that gathered the respondents' opinions about various policy questions related to the time of day pricing initiative.

FINDINGS

The key findings from the analyses of the three subjects are summarized below:

Disaggregate Behavioral Impacts

- Findings from focus groups indicate that most passenger car drivers had only a partial understanding of the time of day pricing initiative. In their opinions: (a) the time of day pricing initiative has not been very successful; and (b) E-ZPass users are more disconnected from their bills, especially if they pay by credit card. The truck dispatchers indicated that: (a) they were unaware, and still are unclear about, the time of day pricing program, and when it was initiated; (b) time of day pricing did not alter their travel behavior; (c) since toll increases are passed along to the clients they do not have any motivation to go after toll discounts and try going off peak; (d) E-ZPass was viewed as a really beneficial technology because it enables them to travel more quickly to and from deliveries.
- The analyses of the passenger survey indicate that 35 out of 505 individuals (7.4 percent of passenger trips) changed behavior after the time of day pricing initiative. The most frequently cited behavioral changes were: *shifting to public transportation, reducing the car trips frequency, shifting to or increasing the use of car-pooling, shifting to EZ-Pass and decreasing the number of stops per trip, rather than shifting to off-peak periods.*
- The analyses of the dispatcher survey indicate that 36 out of 200 carriers (20.2 percent of truck trips) changed behavior because of the time of day pricing initiative. The main strategies used by carriers in response to the time of day pricing initiative include *switching to or increasing use of E-ZPass, increasing shipment charges,*

reducing truck trips, and changing their routes to avoid toll facilities, rather than shifting to non-peak periods.

- The analyses of a data set collected for the PANYNJ for another project indicate that 6.1 percent of the carriers shifted to off peak hours as a response to the combined effect of time savings using E-ZPass, and off-peak discounts. The analyses suggest that, in order to move truck traffic to the off-peak hours in significant numbers, comprehensive policies targeting receivers and carriers must be implemented.

Aggregate Impacts on Traffic and Transit Use

- The analyses of traffic impacts indicate that:
 1. The findings obtained from the before and after statistical tests for the time of day pricing initiative of the PANYNJ crossings indicate that the time of day pricing resulted in an increase on the percent share of peak shoulder traffic for both trucks and cars during weekdays.
 2. The analysis results for peak period truck traffic show that, unlike car traffic, the truck traffic decreased for all peak time periods at all crossings after the time of day pricing initiative. In addition, the decrease in weekend peak traffic is found to be statistically insignificant.
 3. The analyses concluded that time of the day pricing did not have an effect on transit ridership.
- Analyses of traffic elasticity indicate that:
 1. On weekdays for almost all of crossings short term pre-peak elasticities are higher than post-peak elasticities during both AM and PM periods.
 2. Commercial vehicles have lower short term elasticity values compared to passenger cars for both weekdays and weekends, which indicates that demand of commercial trucks is more inelastic to tolls than passenger cars during AM pre-peak periods and on weekends.

Public Reaction to the Time of Day Pricing Initiative

- The initial assessment reveals that those who were supportive of the time of day pricing initiative have remained so and those who opposed value pricing in this region have not changed their stance.
- The perspective of the PANYNJ is that they truly listened at the public hearings and smaller meetings that were held with the various stakeholders and that they changed the proposal based on what they heard. On the other hand, some stakeholders expressed feeling frustrated for not being heard.

- In terms of the implementation process, several conclusions are highlighted: (1) Obtaining the political support of key leaders within the PANYNJ and at the State level was critical; (2) Education of the media and the public was important; (3) Integration of stakeholders at the beginning and during the process is key; (4) Consistency in language and goals is important; (5) Ongoing discussion and follow up is important; and (6) Finding value for users may still be important for future changes to the time of day pricing initiative.

The analyses of public opinions from both the passenger and dispatcher surveys indicate that:

- The majority of passenger car users strongly or somewhat agreed that:
 1. *It is fair to give discounts to E-ZPass users* (84.6 percent).
 2. *It is fair to provide discounts to frequent users traveling during the peak hours* (82.4 percent).
 3. *Toll revenues should be used to support public transit* (64.7 percent).
 4. *It is a good idea to vary toll rates during different time of day to help improve traffic congestion* (58.7 percent), though when asked *is it fair to charge higher tolls during peak travel periods*, the approval drops to 26.4 percent.
- The majority of carriers agree that:
 1. *It is fair to give discounts to E-ZPass users* (91.6 percent).
 2. *It is fair to charge lower tolls for trucks with fewer axles* (84.9 percent).
 3. *It is fair to use toll revenues to support public transit* (58.4 percent).

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A final report is available online at: <http://www.rpi.edu/~holguj2/>

If you would like a copy of the full report, please FAX the NJDOT, Bureau of Research, Technology Transfer Group at (609) 530-5972 or send an e-mail to NVitillo@cpm.dot.state.nj.us, and ask for:

Evaluation Study of Port Authority of New York and New Jersey's Time of Day Pricing Initiative. NJDOT Research Report No: FHWA/NJ- **2005-005**