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THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY ROAD PRICING INITIATIVE: USER IMPACTS

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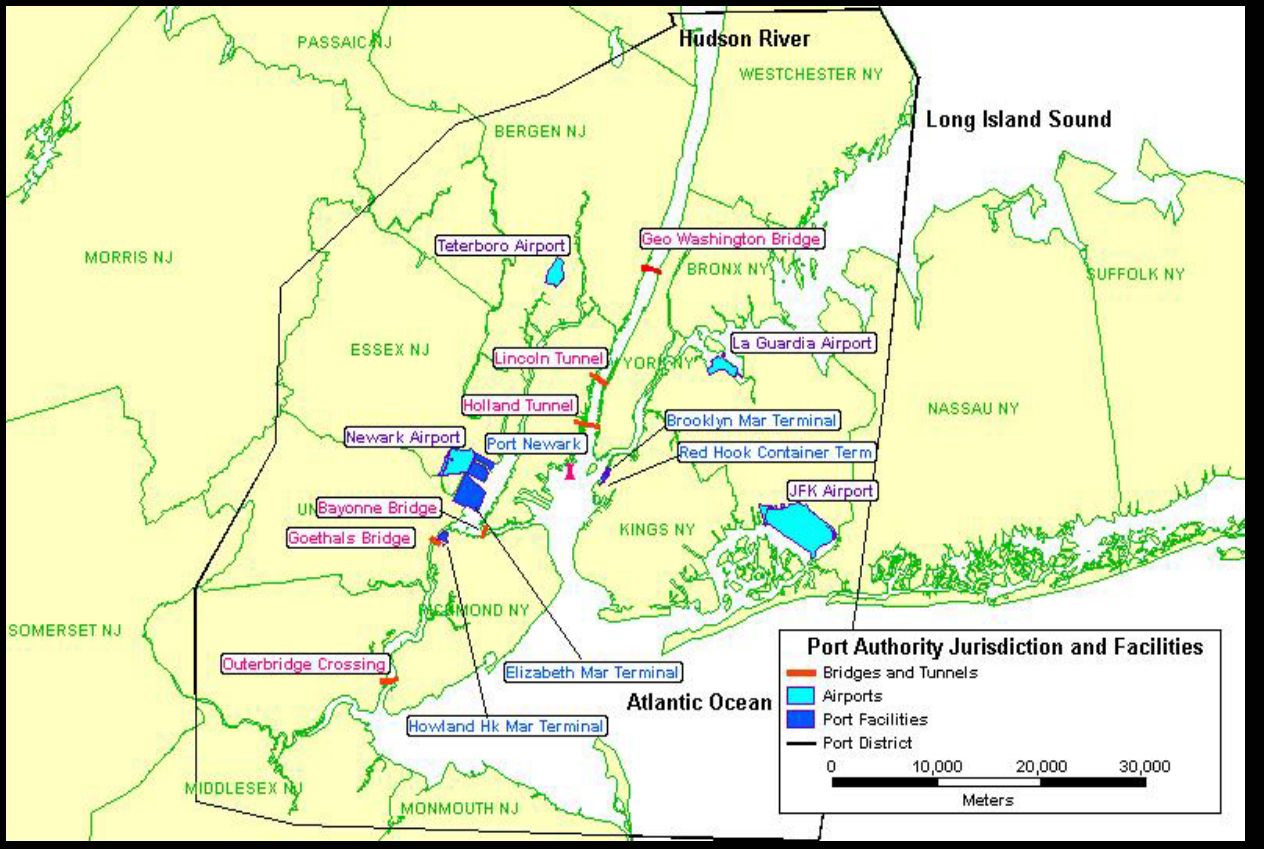
PANYNJ Toll Facilities



Time of Day Pricing Initiative

- Implemented in March 2001
  - Before: flat toll rates
  - After:

Type of vehicle	Passenger cars	Trucks
Cash peak hours	$6.00 / car	$6.00 / axle
Cash off-peak hours	$6.00 / car	$6.00 / axle
E-ZPass peak hours	$5.00 / car	$6.00 / axle
E-ZPass off-peak hours	$4.00 / car	$5.00 / axle
E-ZPass overnight hours		$3.50 / axle

Objective

- To assess behavioural impacts of two major user groups: **passengers** and **carriers**

Methodology

- Sampling Procedures and Data Collection
  - Passenger survey (Jun-Jul, 2004)
    - Single stage random sample using random digit telephone calls (New Jersey and Staten Island)
  - Carrier survey (Nov-Dec, 2004)
    - Sampling frame: Dun and Bradstreet (DNB) database
    - Letters sent for participation
    - Telephone interview
    - Carriers in New Jersey and New York

Methodology (cont.)

- Sample Expansion
  - Purpose: to represent the collective behavior of the universe of users
  - Expansion factor: the reported trip frequency
  - Unit: car trips/month for passenger cars and truck trips/day for carriers

I. Impacts on Passengers

Summary of Passenger Survey

- Target population
  - All individuals who have used any of the PANYNJ toll facilities on a regular basis (at least once per week) since March 2001 (current regular users); and
  - Individuals that regularly used toll facilities before March 2001 and stopped doing so about that time (former regular users).
  - Focused on residents of New Jersey and Staten Island.

Summary of Passenger Survey (cont.)

- Sample size: 505 individuals
  - User status: 467 current regular users (92.5%) and 38 former regular users (7.5%);
  - Geographical distribution: 392 respondents (77.6%) from New Jersey and 113 respondents from Staten Island (22.4%).

Characteristics of Interviewed Passengers

- **Individual characteristics:** middle-aged white man with above average level of education
- **Household characteristics:** typically car-oriented with above average household income
- **Indication:** inelastic towards small changes in tolls or other travel cost

Characteristics of Car Trips

- Work related trips dominated: 61.5% of trips
- Peak-hour trips dominated: 54.1% of trips
- Small flexibility of time of travel
  - Within 20 minutes on average
- Indication
  - Current regular users have constraints that make it difficult to shift their current time of travel

E-ZPass Awareness and Usage

- High E-ZPass usage (78.3%)
- Low awareness of time of day pricing (17%)
- Extremely low awareness of the amount of tolls paid among E-ZPass users
  - 17.4% of E-ZPass users correctly reported the actual tolls they paid while 60.5% of cash users did so.
- Indication
  - Low awareness time of day pricing may constrain the E-ZPass penetration level and the effectiveness of the time of day pricing program.

Impacts of Time of Day Pricing on Passengers

- Impacts
  - 35 out of 505 respondents (7.4% of car trips) changed behavior because of time of day pricing
- Passengers who changed behavior are more likely to:
  - be younger;
  - have relatively lower education level;
  - have relatively lower household income;
  - be female;
  - have smaller families.

Behavioral Changes Reported by Passengers

- Multiple changes reported
- Key dimensions of changes:
  - a shift to public transportation
  - a reduction in the frequency of car trips
  - a shift to carpooling
  - a shift to the E-ZPass system

- Key reasons for not changing behavior
  - have no choice, no flexibility to change
  - travel whenever they want to

II. Impacts on Carriers

Summary of Carrier Survey

- Target population
  - Same criteria as passengers
  - Focused on carriers in New Jersey and New York.
- Sample size: 200 carriers
  - By user status: 182 current regular users (91%) and 18 former regular users (9%);
  - By carrier type: 103 for-hire carriers (51.5%) and 97 private carriers (48.5%);
  - By geographical distribution: 165 carriers (82.5%) from New Jersey and 35 carriers from New York (17.5%).

Characteristics of Interviewed Carriers

- Company characteristics of the average carrier:
  - Provide LTL or FTL service;
  - Operate medium to large fleets: 53.9 trucks on average;
  - Venture in New Jersey and New York, not far from the Mid-Atlantic region;
  - Patterns vary by carrier types.
- Commodities delivered
  - Household goods/various (25%), textiles/clothing (22.4%), food (20%), machinery (14.6%) and others

Operational Attributes of Interviewed Carriers

- Peak-hour trips dominated
  - 68.4% of trips -- peak,
  - 19.6% -- day time off-peak, and
  - 10.2% -- overnight
- Majority did not have flexibility of time of travel
  - 74.4% did not have any flexibility;
  - For those who have flexibility, they could arrive about 49 minutes later and 37 minutes earlier on average;
  - **Indication:** Majority of carriers have difficulty to shift their current time of travel.

E-ZPass Awareness and Usage

- High E-ZPass usage
  - 85.5% of current regular users use E-ZPass
- Low E-ZPass awareness
  - 25.4% knew about off-peak hour use discounts, and only 2% knew about overnight use discounts.
- Indication
  - Low awareness may constrain the E-ZPass penetration level and the effectiveness of the time of day pricing program.

Impacts of Time of Day Pricing on Carriers

- Impacts
  - 36 out of 200 carriers (20.2% of truck trips) changed their behavior because of time of day pricing.
- Carriers that changed behavior are more likely to:
  - Focus on full truckload (FTL) services;
  - Own smaller fleets;
  - Venture in the areas out of New Jersey and New York.

Behavioral Changes Reported by Carriers

- Multiple operational adjustments reported
- Key dimensions of changes:

Significant

- Switching to or increasing use of E-ZPass;
- Increasing shipment charges to their customers (15.5% increase in shipment charges on average);
- Decreasing frequency of using the toll facilities;
- Changing delivery routes.

Less Significant

Reasons for not changing behavior

- No flexibility (75.3%)
- Cost paid by others (19.8%)
  - Customers absorb travel cost (18.2%), or the cost is paid by shippers (0.1%) or receivers (1.5%)
- Toll difference is not that much/can afford it (2%)
- There is no change in the cost for off-peak travel (0.4%)

Conclusions

- 7.4% of passenger car trips changed behavior because of time of day pricing
  - The main behavioral changes were: shifting to public transportation, reducing the car trips frequency, shifting to or increasing the use of car-pooling, rather than shifting to off-peak periods.
- 20.2% of truck trips changed behavior because of time of day pricing
  - The main strategies 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.

Conclusions (cont.)

- The relatively small time of travel flexibility indicates difficulties to shift their current time of travel.
- Low awareness of the toll discounts
  - constrains the ability of time of day pricing in balancing traffic throughout the day
  - need for expanded and perhaps improved outreach to disseminate public information.

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Questions?

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E-ZPass System