December 2011 **FHWA-NJ-2011-008**

New Jersey Department of Transportation
Bureau of Research

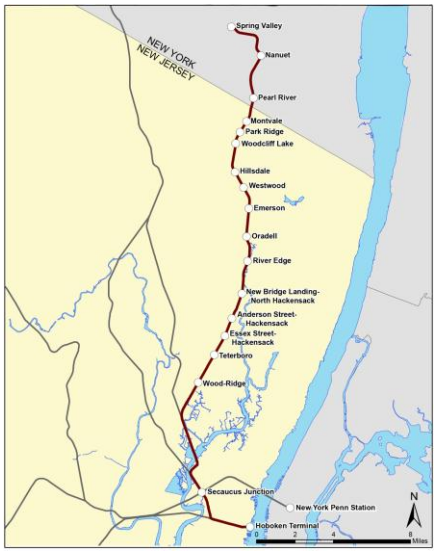
Technical Brief

Off peak Rail Transit Service Study – Importance for Auto Reduction and Peak Ridership Growth

NJ TRANSIT introduced or enhanced off peak commuter rail service on several lines over the past years. This study examines the effects of off peak service in terms of revenue generation, reduction in vehicle miles traveled (VMT), and reduction in greenhouse gas (GHG) and other emissions by focusing on the Pascack Valley line (PVL), where off peak service was added in October, 2007.

Background

Since the year 2000, NJ TRANSIT has added new off peak and weekend service to the PVL, added off peak service to its Montclair-Boonton line, and added more off peak trains to the Northeast Corridor line and the Main and Bergen lines. The increases in off peak service on these lines have been associated with increases in ridership, but no research efforts were undertaken until this study to comprehend how off peak services affected individuals' travel patterns, revenue growth for NJ TRANSIT, and reductions in VMT and GHG.



Research Objectives and Approach

This research addressed three primary questions:

- What effects do off peak rail service have on individuals' travel patterns, including mode choice and time of travel?
- What effects do off peak rail service have on passenger satisfaction, revenue generation, VMT reduction, and reduction in emissions?
- How do parking constraints at stations affect transit ridership?

In order to answer these questions, several tasks were undertaken, including a review of literature, analysis of past NJ TRANSIT survey data, two focus groups involving PVL passengers, an onboard survey of 1431 PVL passengers, and analysis of data from various sources to estimate revenue, VMT, GHG, and other emissions.

Findings

- Since off peak service was added to the PVL in 2007, there has been an increase in new riders every year, leading to an overall growth in ridership. Between FY-2006 and FY-2009, PVL ridership increased by 18%.

- A substantial amount of diversion took place from automobile trips to the PVL after off peak service was added. About a quarter of the peak and off peak passengers surveyed made the trips to their destinations by automobile before off peak service was added to the line.

- Because of the diversions from automobile and other modes to the PVL, VMT decreased in the range of 12.4-14.6 million annually after off peak service was added.

- Off peak transit generates $3.1 million of the total $8.0 million farebox revenue generated annually by the PVL, amounting to 28.2%.

- According to the most conservative estimate, after off peak service was added to the PVL, *net* GHG (CO_2E) decreased by 3,363 metric tons annually. Substantial reductions also occurred in the emissions of VOC, NOx, CO, PM2.5, and SO_2 because of diversions from other modes to the PVL.

- Station parking constraints, especially parking restrictions on non-residents, were found to be a serious issue for the PVL.

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A final report is available online at: http://www.state.nj.us/transportation/refdata/research/. If you would like a copy of the full report, send an e-mail to: Research.Bureau@dot.state.nj.us.

Off peak Rail Transit Service Study – Importance for Auto Reduction and Peak Ridership Growth, NJDOT Research Report No: FHWA-NJ-2011-008