



Cape Fear Public Transportation Authority

Route Restructuring & Fare Increase Analysis

Introduction

In February 2013, the Authority restructured Wave Transit routes based on recommendations from the *Wave Short Range Transit Plan*, prepared by Nelson Nygaard and adopted by the Authority on June 28, 2012. The route restructuring was implemented in conjunction with a thirty-three percent fare increase which was necessary to prevent the elimination of Sunday service and increase the amount of revenue derived from end users of the system. The following is an analysis of the route restructuring and fare increase examining ten months of data and comparing ridership and revenue to route restructuring and fare increases in 2008.

Although the comparison of data from 2008 to 2013 is applicable, many factors including economic data, employment, vehicle ownership costs and other key indicators were not taken into consideration for this analysis. The goal of the restructuring and fare increase was not necessarily to increase overall ridership but to increase economic and passenger efficiency by maintaining a fare structure that limited subsidies, lowered operating costs, reduced transfers, improved schedule adherence and expanded the service area. An adopted goal of the Authority is to provide service that is as efficient as practical while reducing the subsidies necessary from government as much as possible. Following a period of adjustment, overall passenger increases were derived from the 2008 changes and a similar trend is expected from the 2013 modifications.

Route Restructuring Analysis

Regular route restructuring is critical to the efficiency, economy and effectiveness of any transit system. It allows systems to evaluate the effectiveness of their routes based on changes in demographics, travel patterns,

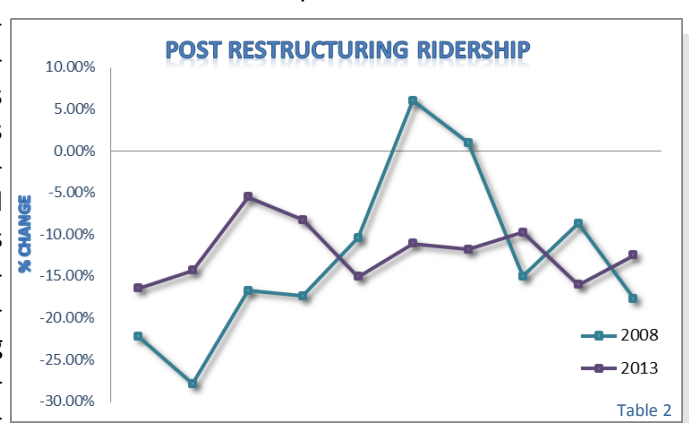


employment, education and medical centers and traffic congestion. Restructuring has become increasingly important over the past few years due to operating cost escalation and rapidly decreasing taxpayer subsidies.

Route restructuring can have a dramatic impact on ridership depending on the extent of the restructuring. The 2008 restructuring undertaken by Wave Transit changed a basic route structure that had been only moderately changed since 1974. The 2013 restructuring was much less dramatic and resulted in less anxiety and confusion by Wave Transit passengers,

resulting in a what is believed to be a smaller reduction of passengers. The fare increase that was implemented in conjunction with the 2013 restructuring makes accurate comparison of passenger decreases from the restructuring in 2008 and 2013 very challenging and relies on difficult assumptions.

In April 2008, the Authority implemented restructured routes for the first time since 1974. The resulting routes implemented multiple transfer locations as opposed to a single downtown transfer point. This change shortened trips for passengers and dramatically increased efficiency. After an adjustment period which allowed passengers to familiarize themselves with the new route structure, ridership increased significantly, although it took several months. As depicted in Table 1, 2008 ridership reached pre-restructuring ridership (six months positive growth) after twenty-one months. Since that time increases have been dramatic with many of the months posting double digit percentage increases over the same month of the previous year.



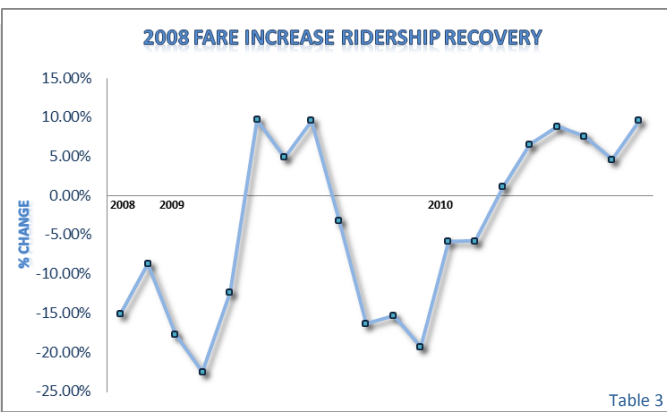
Another method for evaluating the impact of route restructuring is by comparing post-restructuring pas-



senger data. Data for the ten months following restructuring in 2008 and 2013 are depicted in Table 2. Although ten months of data is a relatively small sample size, the trendline for 2013 is much tighter than 2008. This is most likely attributable to the enormity of the changes in 2008. The fare increase in 2013 may have also impacted the data. It is believed that the tighter trendline for 2013 will result in a quicker and less volatile recovery.

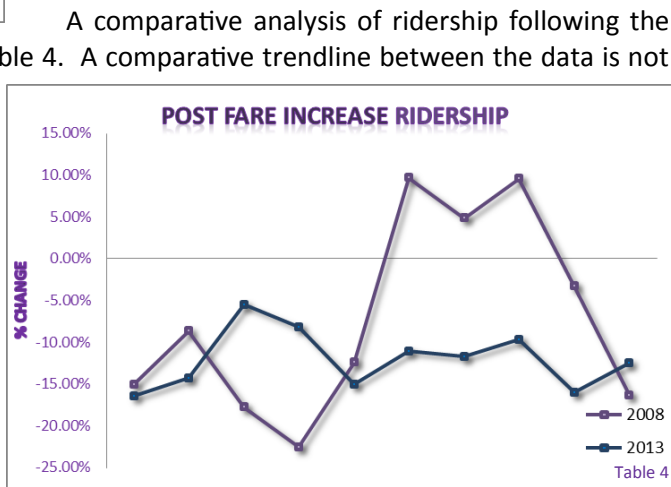
Fare Increase Analysis

Rising slightly faster than the recovery following the 2008 route restructuring, post fare increase ridership recovery took fourteen months to show sustained growth (Table 3). It should be noted that a fare increase



also occurred in the sixth month of the 2008 route restructuring. The trendline was less dramatic than the restructuring recovery and once growth was sustained, significant ridership increases were realized. The 2008 fare increase was 20% compared to the 2013 increase from which was 33%. The 2008 fare increase occurred during the beginning of the 2008 recession. A fourteen month rebound to pre-fare increase ridership levels is relatively short in light of the economic uncertainty and high unemployment. A similar rebound from the 2013 fare increase is anticipated.

A comparative analysis of ridership following the fare increases of 2008 and 2013 is demonstrated in Table 4. A comparative trendline between the data is not seen. The data set is believed to be too small to make a reasonable evaluation. The 2013 trendline shows much less volatility than the 2008 trendline. Although passenger decreases following the fare increase average double digit percentage losses, dramatic variations in the data are not evident. Additionally, the post fare increase ridership decreases are coupled with the post restructuring ridership increases. Since a fare increase was implemented in the sixth month of the 2008 restructuring, only four months of evaluative data is available. The small data set offers far too little information to have value. Further evaluation is warranted before making any conclusions regarding the overall effects of the fare increase of 2013.



Analysis of the 2013 Modifications

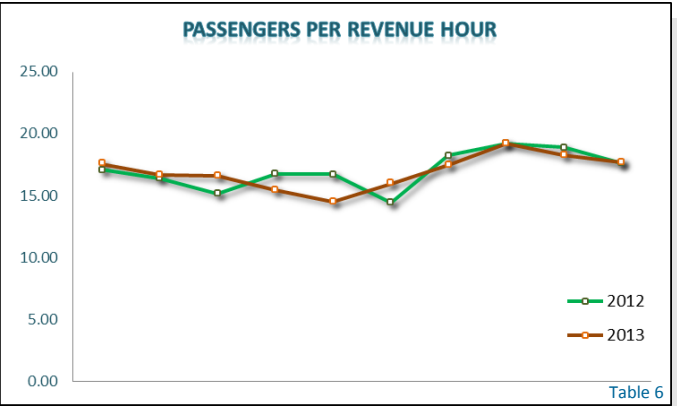
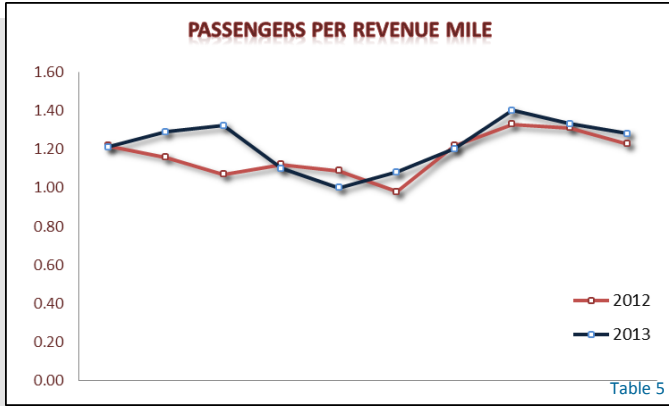
The scope of the *Wave Short Range Transit Plan* was: to evaluate the market for transit services; collect feedback from stakeholders and the public; evaluate existing services; and propose service change options. Analysis of passenger fares was not part of the study. The goals of the Authority based on the final plan and the fare increase were:

- Increase fare revenue and reduce subsidy per passenger (economic efficiency)
- Reduce operating costs (economic efficiency)
- Reduce or minimize duplicative routes (economic efficiency)
- Ensure that service levels meet the needs of the community (economic and passenger efficiency)
- Address routes that were not compliant with published schedule adherence (passenger efficiency)
- Minimize transfer passengers (passenger efficiency)
- Expand service area (passenger amenity)

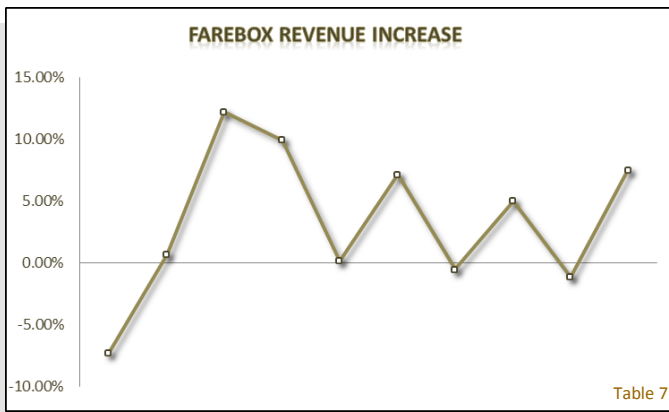
The fare increase implemented with the restructuring was a result of declining subsidies and increased expenses as part of the annual budget process. The implementation of the fare increase and restructuring were simultaneous to capture economies of scale from the public hearing process, map printing and other ancillary expenses associated with a route restructuring and fare increase.

That being said, evaluation of post fare increase and restructuring ridership as a single evaluative measure

is a somewhat inaccurate metric used to evaluate the success of the changes. A more accurate measure for success of the changes is to compare data relative to the goals of the changes.

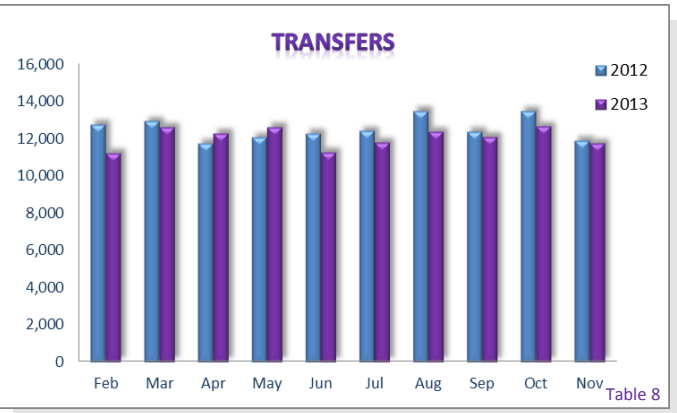


Following the recommendations of the consultant, and an evaluative analysis of projected revenues and expenses for FY 2014, the Authority's goals focused on methods to increase economic efficiency (budget driven) and increase passenger efficiency (customer service driven). Tables 5, 6 and 7 highlight economic efficiencies realized from the 2013 changes. Table 5 highlights passengers per revenue mile before and after the changes in February 2013. The data set is too small to evaluate long term success or failure of the changes but early indications are that economic efficiency has increased slightly. Passengers per revenue hour are depicted in Table 6. Results for the first ten months are neutral but the absence of a decrease in passengers per revenue hour indicates that the changes have not negatively impacted efficiency.



One of the goals of the fare increase was to increase overall farebox revenue. Table 7 demonstrates that farebox revenue rose 3.34% over the ten months since the restructuring and fare increase. This represented \$19,098 in increased farebox revenue. The inconsistency in the trendline indicates that additional data is required before making any broad assumptions, but early indications are that the goal is being met.

Strong ridership on Route 301 Pleasure Island demonstrate that the route has value and was thoroughly vetted. Additionally, schedule adherence has increased dramatically, especially on Routes 104 and 202 which consistently ran behind prior to the restructuring. Table 8 shows that overall transfers have decreased 3.63% since the February modifications. Since the average is not weighted, this change means that either passengers are making more efficient trips, reducing the number of transfers needed for a single trip, or that the decrease in transfer passengers is proportionate to the overall decrease in passengers which averaged 7.19% per month since restructuring and fare increase. Likely, a combination of both has led to the decrease in transfer passengers.



Summary

Data from the restructuring and fare increase in February 2013 indicate no negative impacts. Economic efficiency has remained relatively stable and the goal of increasing revenue and reducing expenses has been successful. Schedule adherence has improved dramatically. Additional data is required before the reaction to the changes can be accurately determined and recommendations for improvement can be offered, and evaluation of the data after ten months is neutral.