

Tri-Rail Parking Management

STUDY



Prepared for

RTA | SOUTH FLORIDA
REGIONAL
TRANSPORTATION
AUTHORITY

Prepared by



Kimley-Horn
and Associates, Inc.



Preface

The South Florida Regional Transportation Authority (SFRTA) initiated the *Tri-Rail Parking Management Study* to determine how to best manage parking at its stations and to evaluate the feasibility of implementing a parking fee.

This document is segmented into chapters based on the technical memoranda produced throughout the course of the study. The report begins with a peer transit agency review component that identified general trends in parking management. The report summarizes the development and findings of a parking fee/ridership elasticity model developed to gauge the ridership effects from implementing a parking fee. Based upon the model outputs, the implementation of a parking fee would cause a substantial decrease in both Tri-Rail ridership and subsequently fare box revenue. Thus, the remainder of the report provides parking management strategies to maximize parking efficiency and set policies in place for when higher parking demand occurs in the future. The sections of the report are listed below:

- Executive Summary
- Technical Memorandum: Technical Research and Analysis
- Technical Memorandum: Parking Fee Structure and Policy Development
- Technical Memorandum: Market Research and Public Involvement
- Technical Memorandum: Elasticity Model Development and Sensitivity Testing
- Technical Memorandum: Parking Management Strategies



Tri-Rail Parking Management Study

Executive Summary

Prepared for

South Florida Regional Transportation Authority



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Cambridge Systematics





Introduction

System improvements and high gas prices in 2008 resulted in increased Tri-Rail ridership. This increased ridership resulted in greater demand for parking at stations, and the demand for parking exceeded the capacity at several Tri-Rail stations. The South Florida Regional Transportation Authority (SFRTA) initiated the *Tri-Rail Parking Management Study* to determine how to best manage parking at its stations and to evaluate the feasibility of implementing a parking fee.



Parking demand often exceeded supply in 2008

Through the development of a parking fee/ridership elasticity model, it was determined that implementation of a parking fee would cause a substantial decrease in Tri-Rail ridership. In addition, Tri-Rail ridership has already decreased over the past year due to multiple factors, including lower gas prices and higher unemployment, raising concern that implementation of new fees would further exacerbate the recent decline in ridership. Furthermore, Tri-Rail stations have experienced a corresponding decrease in parking demand thus alleviating some of the parking capacity deficiencies. Based on these current trends, interim parking management strategies were identified for Tri-Rail stations to maximize parking efficiency and set policies in place for when higher parking demand occurs in the future.

The primary findings and recommendations of this study are:

- Many transit agencies with newer passenger rail service do not charge for parking at stations, while many transit agencies with more established passenger rail service charge for parking at stations
- Most transit agencies that charge for parking at stations use automated fee collection methods
- Daily parking fees at transit stations vary greatly from \$1 to \$12
- Monthly parking fees at transit stations also vary greatly from \$10 to \$115
- Tri-Rail riders (via focus group sessions) are strongly opposed to a parking fee and many view a fare increase as more equitable



- Parking fee/ridership elasticity model estimates a 15.6 percent decrease in Tri-Rail riders who drive and park resulting from a \$2 daily parking fee
- Parking fee financial model projections demonstrate a negative net income resulting from implementation of a parking fee, even under peak ridership/parking demand conditions
- Interim parking management strategies should be implemented to maximize parking efficiency
- Unique parking management strategies are necessary for the parking garage under construction at the Fort Lauderdale Airport Station to eliminate parking by non-legitimate users

General Peer Review

Information was collected on eight transit agencies who charge for parking at their stations along fixed guideway systems including:

- Bay Area Rapid Transit (BART): San Francisco area
- Chicago Transit Authority (CTA): Chicago area
- Northeast Illinois Regional Commuter Railroad Corporation (Metra): Chicago area
- Metropolitan Transportation Authority Long Island Railroad (LIRR): New York City area
- Massachusetts Bay Transportation Authority (MBTA): Boston area
- Washington Metropolitan Area Transit Authority (Metro): Washington, DC area
- Peninsula Corridor Joint Powers Board (Caltrain): San Francisco/San Jose area
- Miami-Dade Transit (Metrorail): Miami area

This information is summarized in Table 1. The objective of this research was to evaluate the parking operations of peer transit agencies and to identify parking fee structures and pricing level options within the transit industry. This research also included identifying whether the transit agency utilizes in-house staff to operate its parking facilities or contracts out the management. Half of the peer transit agencies manage their parking operations with in-house staff while half are managed by local municipalities or private operators.



The following peer transit agencies which operate passenger rail systems were researched but do not charge for parking at their stations:

- Metropolitan Atlanta Rapid Transit Authority (MARTA) – a few stations charge for long-term parking
- Dallas Area Rapid Transit (DART)
- Metropolitan Transit Authority of Harris County, Houston, Texas (METRO)
- Denver Regional Transportation District (RTD)
- Phoenix Valley Metro
- Utah Transit Authority (UTA)
- San Diego Metropolitan Transit System (MTS)
- Santa Clara Valley Transportation Authority (VTA)
- Sacramento Regional Transit District (RT)

Parking Fee Collection Technology

Parking fee collection methods identified in the peer review were researched to assess the customer service benefits and operational efficiencies of various technologies. Both basic and advanced fee collection technologies were compared. Basic fee collection technologies include parking meters (both single space and multi-space stations). These technologies are relatively inexpensive to set up and maintain but are less accurate in collecting parking fees than more sophisticated technologies. The most sophisticated collection technology is the Parking Access and Revenue Control System (PARCS). The PARCS system consists of entry ticket dispensers, exit fee computers, access card readers (for monthly pass holders), and barrier gates. This technology is more expensive to construct but is extremely accurate for parking fee collection.



Table 1 – Peer Review Summary

Agency								
General Information	CTA	Metra	LIRR	MBTA	Metro	BART	Caltrain	Metrorail
City	Chicago	Chicago	New York	Boston	Washington D.C.	San Francisco	San Francisco	Miami
System	Heavy Rail	Commuter Rail	Commuter Rail	Commuter Rail	Heavy Rail	Heavy Rail	Commuter Rail	Heavy Rail
Park-n-Ride Lot Owners	CTA Villages Private	Metra Local Municipalities Private	LIRR Local Municipalities Private	MBTA Local Municipalities Private	Metro	BART	Caltrain	Miami-Dade Transit
Park-n-Ride Lot Management	Private Operators Villages	Private Operator Local Municipalities	Local Municipalities	Private Operators Local Municipalities	Metro	BART	Caltrain	Miami-Dade Transit
Enforcement	Tickets Towed at parker's expense	Tickets	Tickets	Tickets Towed at parker's expense	Pay on exit Towed at parker's expense	Tickets	Tickets Towed at parker's expense	Tickets Towed at parker's expense
Security	Private Operator	Metra Police Local Municipalities	MTA Police (LIRR owned lots) Local Municipalities Private Operator	MBTA Police Private Operator	Metro Transit Police	BART Police City Police	Caltrain Transit Police	Miami-Dade Transit
Daily Parking								
Days	7 days/week	7 days/week	7 days/week	7 days/week	Monday - Friday	Monday - Friday	7 days/week	7 days/week
Fee	\$4.00 - \$12.00 (varies by number of hours)	\$1.00 - \$3.00 (average of \$1.50)	Varies by station (average of \$5.00)	\$4.00	Varies by municipality (\$4.25 - \$4.75)	\$1.00 - \$5.00	\$3.00 (outer lots free)	\$4.00
Monthly Parking								
Fee	\$80.00	\$30/month to \$85/quarter (semi-annual and annual permits also available)	Varies for resident and non-residents (ie: \$50/year for resident to \$300/year for non-resident)	N/A	\$55.00	\$30.00-\$115.50 (varies by station)	\$30.00	\$10.00



Public Involvement

Focus groups were held to gauge tolerance levels and attitudes from existing riders regarding Tri-Rail service and their willingness to pay for parking at its stations. A focus group was facilitated in each of the three counties, Palm Beach County (West Palm Beach Station), Broward County (Pompano Beach Station), and Miami-Dade County (Miami Airport Station). Participants were solicited via flyers distributed at stations, a banner on the Tri-Rail website, and email invitations to members of the Employer Discount Program (EDP). Registrants were screened to verify that they: (1) ride Tri-Rail more than twice per week, (2) drive to and park at a station, and (3) have not previously participated in a SFRTA focus group. A total of 28 people participated in the three focus groups.

YOUR OPINION COUNTS

TRI-RAIL PARKING MANAGEMENT STUDY



Tri-Rail is considering a number of options to manage parking at its stations, and we'd like to know what you think. We invite you to participate in one of three focus group sessions:

- *Tuesday, October 13th from 6 p.m. to 7:30 p.m.
Miami-Dade Expressway Authority, 3790 NW 21st Street
Miami, Florida 33142
Immediately south of the Miami Airport Station*
- *Wednesday, October 14th from 6 p.m. to 7:30 p.m.
Tri-Rail, 800 NW 33rd Street, Pompano Beach, FL 33064
Immediately southeast of the Pompano Beach Station*
- *Thursday, October 15th from 6 p.m. to 7:30 p.m.
Palm Beach Public Library, 411 Clematis Street
West Palm Beach, FL 33401
One-half of a mile east of the West Palm Beach Station*

In return for your time, participants will receive two Tri-Rail Roundtrip tickets. Light refreshments will be served during each focus group.

If you're interested in participating, please visit www.tri-rail.com by Wednesday, October 7, 2009 to complete a brief questionnaire. Please note that participation/seating for the focus groups will be limited.

Thanks for helping to make Tri-Rail an even better ticket to a stress-free commute!



The main topics discussed in the focus group sessions were: Tri-Rail's overall value, the current parking situation at stations, feedback on three hypothetical pricing scenarios for parking at stations, a second discussion on Tri-Rail's value assuming a parking fee was implemented at its stations, and a general discussion about issues at Tri-Rail stations such as lighting and safety. Participants generally viewed Tri-Rail as an overall valuable service for the price. However, participants were opposed to the three hypothetical pricing scenarios for parking at stations, and many participants indicated that the implementation of a parking fee would force their reevaluation of Tri-Rail value. A number of participants indicated more tolerance for a fare increase than the implementation of a parking fee.

Table 2 presents the least expensive pricing scenario presented at the focus groups. The parking fee varies by length of stay at the station and was based in part on parking fees charged by peer transit agencies. This pricing scenario was utilized in all subsequent ridership elasticity and financial models and analyses.



Table 2 – Pricing Scenario (Presented at Focus Groups)

Length of Stay	Price
0-4 hours	\$1
4-12 hours	\$2
12-24 hours	\$7
Monthly	\$28

Parking Fee/Ridership Elasticity Model

A parking fee/ridership elasticity model was developed to estimate the impact the introduction of a parking fee at Tri-Rail stations would have on ridership. Several types of variables were evaluated as determinants of Tri-Rail monthly ridership.

The final set of explanatory variables tested in the models may be categorized into four groups:

1. Demographic Variables
 - South Florida Employment
 - South Florida Population
2. Tri-Rail-Related Variables
 - Tri-Rail Fare
 - Service Variables
 - Tri-Rail Revenue Hours
 - Tri-Rail Revenue Miles
3. Special Variables
 - Gas Prices
4. Seasonal and Monthly Variables
 - Seasonal
 - Monthly



Input variables from FY 2002 through FY 2009 (through October) were assembled and an input database was developed. The elasticity model ridership estimates were compared with actual Tri-Rail ridership from FY 2002 through FY 2009 to determine a best-fit model. Next, a daily parking fee of \$2 was introduced to the elasticity model to gauge the impact on ridership. Based on the model results, the introduction of a daily parking fee of \$2 would result in a 15.6 percent reduction in ridership. Since, approximately 50 percent of Tri-Rail passengers drive to and park at a station according to a 2008 on-board survey, this ridership reduction would be applicable to half the Tri-Rail passengers or a 7.8 percent system-wide ridership reduction.

Parking Fee Financial Model

A parking fee financial model was developed to estimate income and operating expenses associated with the implementation of a parking fee at Tri-Rail stations. The parking fee financial model accounts for the 15.6 percent Tri-Rail ridership decline of those riders that drive and park expected from the implementation of a \$2 daily parking fee at Tri-Rail stations. Parking fee financial models were developed for each Tri-Rail station. The parking fee financial models assumed that multi-space meter technology was employed at the stations.

Parking revenue would be derived from two user groups, monthly pass holders and daily users. The number of users at each station was calculated by adjusting the number of existing parking spaces by several factors including the parking occupancy factor for the station and the parking fee/ridership elasticity factor to account for the reduction in parking demand with the implementation of a parking fee. The parking fee revenue for the individual stations was summated to calculate the total system-wide revenue. The financial model analyzed two scenarios: 2008 peak parking demand conditions and 2009 existing conditions.

The expenses component of the parking fee financial model included costs of additional personnel, facility maintenance, and vehicle maintenance associated with operating a parking fee program. These expenses were allocated to stations based upon the number of parking spaces at each station. The expenses and revenue for each station were estimated to determine the station's net income from a parking fee program. The net income for each station was totaled to determine the system-wide net income associated with a parking fee program.



The system-wide net operating income was calculated for both the 2008 peak demand and 2009 existing conditions scenarios. As illustrated in Table 3, the net operating income in the 2008 peak demand scenario would be approximately \$175,592. However, the parking fee system would operate at a loss of \$112,569 in the 2009 existing conditions scenario. Note the system-wide net operating income presented in Table 3 does not include the revenue impact resulting from the ridership reduction associated with the implementation of a parking fee or the fact that most parking lots serving Tri-Rail stations are not owned by the SFRTA and that, per Federal regulations, any parking fee generated at FDOT-owned lots can only be used for operating and maintaining those particular lots.

Table 3 - Summary of Net Operating Income
Existing & Peak Conditions

Station	2008 (Peak Conditions)			2009 (Existing Conditions)		
	Parking Occupancy	Net Operating Income		Parking Occupancy	Net Operating Income	
		Total	Per Space		Total	Per Space
Mangonia Park	100%	\$31,110	\$117	71%	\$4,830	\$18
West Palm Beach	94%	\$3,186	\$28	59%	(\$24,374)	(\$413)
Lake Worth	92%	(\$27,898)	(\$429)	50%	(\$35,484)	(\$546)
Boynton Beach	89%	\$25,491	\$79	44%	(\$22,518)	(\$70)
Delray Beach	100%	\$12,831	\$104	59%	(\$4,016)	(\$33)
Boca Raton	93%	\$12,279	\$81	63%	(\$2,858)	(\$19)
Deerfield Beach	74%	\$9,450	\$38	63%	\$279	\$1
Pompano Beach	65%	\$5,029	\$19	26%	(\$12,560)	(\$48)
Cypress Creek	41%	(\$42,853)	(\$78)	23%	(\$75,917)	(\$138)
Fort Lauderdale	85%	\$22,735	\$70	57%	(\$7,955)	(\$24)
Fort Lauderdale Airport	93%	\$12,701	\$76	84%	\$24,424	\$146
Sheridan Street	88%	\$36,332	\$77	60%	(\$9,451)	(\$20)
Hollywood	100%	\$12,985	\$117	87%	\$8,477	\$76
Golden Glades	100%	\$23,860	\$115	95%	\$20,537	\$99
Opa-locka	100%	\$5,541	\$85	89%	\$3,306	\$51
MetroRail Transfer	100%	\$2,020	\$55	89%	\$1,656	\$45
Hialeah Market	100%	\$7,263	\$108	63%	(\$806)	(\$12)
Miami Airport	98%	\$23,530	\$142	91%	\$19,859	\$120
Total		\$175,592	\$52		(\$112,569)	(\$34)



Additional revenue impacts from the expected ridership reduction resulting from a parking fee were assessed, including Federal Transit Administration (FTA) Section 5307 formula funding and fare box revenue. For Section 5307 formula funding, the only parameter impacted by ridership is passenger miles traveled. The analysis concluded that the loss in FTA Section 5307 formula funding would be minimal; a 0.2 percent or \$22,900 annual reduction in Section 5307 formula funding is estimated.

Fare box revenue would also be negatively impacted by fewer Tri-Rail passengers using the system. Fare box revenue would decrease by approximately \$726,000 with the implementation of a parking fee. Thus, the total revenue impact resulting from the ridership reduction (both Section 5307 formula funding and fare box revenue) is a decrease of \$748,798. Table 4 summarizes the total net revenue impact resulting from the implementation of a parking fee at Tri-Rail stations. A parking fee program is expected to generate a negative financial impact. The net financial impact under the 2008 peak demand scenario would be approximately - (\$573,206) annually and the net financial impact under the 2009 existing conditions would be approximately - (\$861,367) annually.

Table 4 - Summary of Net Revenue Impact

Source	2008 Peak Conditions	2009 Existing Conditions
Net Operating Income from Parking Fee	\$175,592	(112,569)
Revenue Impact from Ridership Reduction	(\$748,798)	(\$748,798)
Net Impact	(573,206)	(861,367)

The parking fee/ridership elasticity model demonstrated that the implementation of a parking fee at Tri-Rail stations would result in a significant ridership loss. The parking fee financial model demonstrated that a parking fee would generate a negative net financial impact. Therefore, implementation of a parking fee program is not recommended.



Parking Management Strategies

Interim parking management strategies were identified for Tri-Rail stations to maximize parking efficiency. Tri-Rail's parking management approach was reviewed to determine how parking issues are currently addressed. Security personnel currently focus on parking enforcement at stations with frequent parking issues, such as capacity constraints or non-legitimate users. SFRTA has a towing policy but staff indicated that towing for enforcement is only utilized when parking facilities are operating near capacity. However, a no-overnight parking policy has been implemented at the Fort Lauderdale Airport Station and vehicles observed parking at the station for several days are being towed.

Ownership and lease agreements for each Tri-Rail station were reviewed, as the station's parking facilities have unique owners and lease/shared-use agreements that impact SFRTA's ability to implement parking management strategies. SFRTA owns all or at least a portion of parking facilities at only six stations.

Parking management strategies were developed and organized based upon the expected timeframe expected to be required for implementation. The following sections summarize the short-term, mid-term, and long-term parking management strategies.

Short-Term Management Strategies

Parking Enforcement Strategies

Short-term parking management strategies focus on parking enforcement. The objective of increased parking enforcement is controlling illegitimate users of Tri-Rail parking and ensuring the most efficient use of parking that maximizes its utility. Enforcement strategies would be most effective if citations could be issued for violations; however, SFRTA does not currently possess the legal statutory authority to enforce violations and fines. Thus, SFRTA should secure authority through Florida Statute to enforce fines as a mid-term strategy. In the interim, towing, booting, and enforcement by local law enforcement agencies should be utilized as enforcement for parking violations.





Parking violations include:

- Non-Tri-Rail users or non-Car/Vanpoolers parking at stations
- Parking for longer than 24 hours at the Dania Beach Station
- Parking outside of designated spaces
- Single vehicle occupying multiple spaces
- Illegal use of accessible space
- Head-in parking only
- Parking in spaces dedicated for special use

It is recommended that a vehicle registration program be established to differentiate between legitimate and non-legitimate users.

Parking Enforcement Strategy Challenges/Considerations

Challenges and considerations associated with parking enforcement strategies include:

- Authority to issue and enforce violations and fines
- Agreements and collaboration with property owners/lessors
- Authority to implement a parking fee
- Shared parking agreements
- Shared parking facilities
- Resources for increased enforcement

Mid-Term Management Strategies

Preferred Parking Strategies

A preferred parking program is a mid-term parking management strategy that would create designated parking areas providing additional convenience to regular and repeat Tri-Rail riders. A preferred parking program could offer closer-in and guaranteed parking to the following users:

- Tri-Rail user vanpools/carpools
- Low-emission vehicles
- Monthly users



Another preferred parking program approach could be encouraging non-Tri-Rail vanpools/carpools to use larger park-and-ride facilities and providing convenient spaces at these facilities for these users. However, FDOT has expressed concern over restricting vanpools/carpools from FDOT-owned parking facilities and suggested this approach only be implemented when a parking facility is nearing capacity.

Preferred Parking Strategy Challenges/Considerations

Challenges and considerations associated with preferred parking strategies include:

- Authority to issue citations and enforce violations
- Agreements and collaboration with property owners/leasers
- Resources for increased enforcement

Long-Term Management Strategies

Parking Fee Implementation

The implementation of a parking fee program is a long-term parking management strategy. Ridership has already decreased within the last year due to several factors and the implementation of additional fees could further negatively impact ridership. However, several legal and ownership issues require resolving in the short-term and mid-term, and resolving these issues would allow SFRTA to implement a parking fee when substantial parking demand arises in the future.



Fort Lauderdale Airport Station Garage Pilot Parking Management Program

A parking garage is under construction at the Fort Lauderdale Airport Station. This station has several existing parking issues including:

- Shared parking agreements
- Shared parking facilities



- Non-legitimate users
- Long-term parkers

The non-legitimate users and long-term parkers largely result from the station's proximity to the Fort Lauderdale/Hollywood International Airport. Airport employees and travelers frequently use the free parking at the station as a “park-and-fly” lot, relying on the free shuttle connections with the airport. These “park-and-fly” violators could increase when the parking garage opens, as covered parking is more attractive than surface parking.

Due to the likelihood of non-legitimate users parking in the garage and the increased and ongoing maintenance required for structured parking, SFRTA should protect its investment by employing effective parking management strategies. In the short-term, a parking policy limiting parking to no longer than 24 hours should be implemented. A vehicle registration program should be considered for monitoring and enforcement in the future. For a vehicle registration program to be effective, the SFRTA must seek the ability to issue citations and enforce violations.

For the long-term, implementation of a parking fee should be considered to absorb a portion of the increased maintenance costs for the parking garage. The strategies tested at the Fort Lauderdale Airport Station could serve as a pilot program to gauge their effectiveness for application to future parking garages constructed at Tri-Rail stations.





Technical Memorandum Technical Research and Analysis

Tri-Rail Parking Management Study

Prepared for

South Florida Regional Transportation Authority



Prepared by

Kimley-Horn and Associates, Inc.



Cambridge Systematics





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Appendix A: Peer Review Collection Method Detailed Summary



INTRODUCTION

System improvements and high gas prices in 2008 resulted in increased Tri-Rail ridership. This increased ridership resulted in increased demand for parking at stations. The South Florida Regional Transportation Authority (SFRTA) seeks to determine how best to manage their parking facilities. To do this, SFRTA initiated the Tri-Rail Parking Management Study, a study to determine how best to efficiently operate the current and planned parking facilities throughout the system. Kimley-Horn and Associates, Inc. (KHA) was tasked with providing SFRTA with information about various parking fee structures and policies.

KHA prepared this technical memorandum to summarize preliminary parking operations and fee research. The parking operations of peer transit agencies with rail systems were reviewed to determine prevalent trends in overall parking operations and fee collections. This review included identifying parking fee structures and collection methods employed by the transit agencies. This research also identified whether the transit agency utilizes in-house staff to operate the parking facilities or contracts out the management of these services.

Collection methods identified in the peer review were researched further and capital and maintenance costs associated with each collection method were then estimated. The enforcement and monitoring strategy for each respective method was then compared.

The parking operations of local municipalities and a local private operator were also researched to determine trends in local parking operations. The object of this effort was to evaluate the parking operations of local entities including identifying parking fee structures and collection methods employed locally.

Available federal subsidies and grants that can be utilized to subsidize parking costs for transit users were researched, including Job Access Reverse Commute (JARC) and New Freedom Funds. In addition, Congestion Mitigation and Air Quality (CMAQ) program guidelines were also reviewed to determine if parking costs can be subsidized through this federal program. Florida Department of Transportation's (FDOT) Park and Ride Lot Program was also reviewed to understand the funding and operations for park and ride facilities.



PEER SYSTEM REVIEW

General Peer System Review

Information was collected on eight transit agencies who engage in parking fee collections along fixed guideways including:

- Bay Area Rapid Transit (BART): San Francisco area
- Chicago Transit Authority (CTA): Chicago area
- Northeast Illinois Regional Commuter Railroad Corporation (Metra): Chicago area
- Metropolitan Transportation Authority Long Island Railroad (LIRR): New York City area
- Massachusetts Bay Transportation Authority (MBTA): Boston area
- Washington Metropolitan Area Transit Authority (Metro): Washington, DC area
- Peninsula Corridor Joint Powers Board (Caltrain): San Francisco/San Jose area
- Miami-Dade Transit (Metrorail): Miami area

The object of this effort was to evaluate the parking operations of peer transit agencies throughout the country. This included identifying parking fee structures and collection methods employed by the transit agencies. This also included identifying whether the transit agency utilizes in-house staff to operate the parking facilities or contracts out the management of these services. The findings are summarized in Table 1. As presented in Table 1, half of the studied transit agencies manage the operations of the parking facilities with in-house staff while the other half utilize local municipalities or private operators. All of the studied transit agencies use automated fee collection methods varying from cash payment boxes to payment by train ticket. A paid parking space in the payment machines or cash boxes is the proof of payment in a majority of the parking facilities. Attendants check the machine or cash box to determine if a parked vehicle has paid the fee and issue a parking citation if the fee has not been paid. Two of the agencies have implemented pay-by-phone programs using credit cards. At parking facilities along Metro stations (Washington Metropolitan Area Transit Authority), fares are collected upon exit of the facilities utilizing the train ticket (rechargeable card).



In addition, the following transit agencies which operate some type of rail system were researched and do not charge for parking at stations:

- Metropolitan Atlanta Rapid Transit Authority (MARTA) – charges only at select stations
- Dallas Area Rapid Transit (DART)
- Metropolitan Transit Authority of Harris County, Houston, Texas (METRO)
- Denver Regional Transportation District (RTD)
- Phoenix Valley Metro
- Utah Transit Authority (UTA)
- San Diego Metropolitan Transit System (MTS)
- Santa Clara Valley Transportation Authority (VTA)
- Sacramento Regional Transit District (RT)

Table 1 – Peer Review Summary

Agency	CTA	Metra	LIRR	MBTA	Metro	BART	Caltrain	Metrorail
General Information								
City	Chicago	Chicago	New York	Boston	Washington D.C.	San Francisco	San Francisco	Miami
System	Heavy Rail	Commuter Rail	Commuter Rail	Commuter Rail	Heavy Rail	Heavy Rail	Commuter Rail	Heavy Rail
Park-n-Ride Lot Owners	CTA Villages Private	Metra Local Municipalities Private	LIRR Local Municipalities Private	MBTA Local Municipalities Private	Metro	BART	Caltrain	Miami-Dade Transit
Park-n-Ride Lot Management	Private Operators Villages	Private Operator Local Municipalities	Local Municipalities	Private Operators Local Municipalities	Metro	BART	Caltrain	Miami-Dade Transit
Enforcement	Tickets Towed at parker's expense	Tickets	Tickets	Tickets Towed at parker's expense	Pay on exit Towed at parker's expense	Tickets	Tickets Towed at parker's expense	Tickets Towed at parker's expense
Security	Private Operator	Metra Police Local Municipalities	MTA Police (LIRR owned lots) Local Municipalities Private Operator	MBTA Police Private Operator	Metro Transit Police	BART Police City Police	Caltrain Transit Police	Miami-Dade Transit
Daily Parking Fee								
Days	7 days/week	7 days/week	7 days/week	7 days/week	Monday - Friday	Monday - Friday	7 days/week	7 days/week
Payment Collection	Cash Payment Box	Cash Payment Box, Pay-by-Phone (credit card), Stored-value debit cards	Parking Validation (including pay and display)	Honor Box, Pay-by-Phone (credit card)	SmarTrip rider card (smart card - autoreloaded with credit card or cash)	EZ rider card (smart card - autoreloaded with credit card), BART pre-paid ticket, Parking Validation (Cash)	Ticket Vending machines	Parking Vending Machine
Proof of Payment	Paid parking space	Paid parking space	Paid parking space Paid ticket displayed Daily Voucher/Permits	Paid parking space	Fares collected upon exit via card	Hang Tag (smart card) Paid parking space (BART ticket, cash)	Paid parking space	Paid parking space
Monthly Parking Fee								
Payment Collection	Varies by village	Varies by municipality	Varies by municipality	N/A	Mail registration and automatic payment by credit card	Online registration with payment by credit card	Ticket vending machines	Online registration with payment by credit card or in person
Proof of Payment	Permit (hang tag)	Permit (card on dashboard, decal on window or hang tag)	Mainly permit but varies by municipality	N/A	Permit (hang-tag)	Permit (lower left corner of front windshield)	Paid parking space	Permit (hang-tag)



Peer Review Parking Fee Collection Method Comparison

The parking fee collection methods identified in the peer review were researched further and capital and maintenance costs associated with each collection method were then estimated. The detailed summary of each reviewed peer transit agency and the associated costs are included in Appendix A.

Honor boxes and cash payment boxes utilized by three of the reviewed transit agencies are the cheapest collection method employed by the peer transit agencies. A typical 500 space parking lot would require two cash payment boxes at a cost of \$500 each for a total of \$1,000. Since the technology has very few moving parts, maintenance costs are minimal. However, the accuracy of revenues collected is lower than other collection methods. Experience indicates that up to 30% of revenues collected could be lost when comparing this revenue to technologies that electronically record and report transactions.

The most expensive fee collection method employed by reviewed transit agencies is pay-on-exit. Two of the transit agencies reviewed use this technology. A typical 500 space parking lot would require an exclusive entry lane and exit lane along with backoffice computer and operating software at a cost of \$25,000 each for a total of \$50,000. Maintenance costs would then average \$5,000 to \$6,000 per year. However, the accuracy of revenues collected using this technology is near 100%, as user must pay the appropriate fee to leave the facility.

The other three transit agencies utilize some form of the pay-and-display method to collect parking fees. A typical 500 space parking lot would require two pay-and-display units at a cost of \$12,000 each for a total of \$24,000. Maintenance costs average \$2,000 to 3,000 per year. The accuracy of revenues collected is dependent on electronic methods employed. Experience indicates that up to 10% of revenues could be lost when comparing this revenue method to technologies that electronically record and report transactions and do not allow exit without payment.

Parking Operation Method Comparison

Two parking operating methods are generally used by transit agencies. The owner or transit agency may provide the parking operations management in-house (using their own staff or creating a department) or contract with a third-party operator for providing parking operations and management. Third-party operators are professional companies that specialize in providing expert management and operations



services for parking facilities. Approximately half of the studied transit agencies manage the operations of the parking facilities with in-house staff while the other half utilize local municipalities or private operators. The associated pros and cons for each method is summarized below.

In-house

Pros

- Able to best control quality and expenses. Manage own destiny. The agency is not dependent on the performance of a separate management company.
- Security and maintenance are under same management and control as operations and can provide for synergies in manpower staffing.
- Customer service is provided by direct representative of transit agency.
- Communication to customers comes directly from agency and has direct connection to agency's public relations program.

Cons

- Requires significant investment in obtaining operating expertise and qualified personnel. Substantial management resources must be devoted to creating an entire department to provide parking operations services.
- Possible erosion of service without proper attention being paid to improvements. Agency needs to ensure that quality control and good operating procedures are developed and properly adhered to, which can be difficult without prior experience.
- Potential for higher operating costs without bulk purchase power that third party operators utilize.
- Inexperience with collection methods technologies.

Third Party Operator

Pros

- Consistent quality and customer service with parking operator's expertise. These are professional companies with systems and procedures for ensuring high standards of operating proficiency.
- Lower operating costs with benefit of bulk purchase power. Operators run many facilities and get discounts for volume purchases of supplies, insurance, etc.
- Extensive operating standards and operating procedures based on empirical history.
- Very familiar with technologies employed for collection methods.
- Flexible operating agreement with options for master lease, revenue sharing agreement or simple fixed fee arrangement.



Cons

- Potential higher costs with operator's management fee and necessary profit being part of the expenses.
- Not able to best control quality and expenses, and manage own destiny. Dependent on third party manager to be first and last experience for customers

An operating agreement for either alternative should include, but not be limited to, the following necessary components:

- Terms of operating agreement for the agency.
- Submittal of operating plan.
- Established minimum standards of operations.
- Outline of maintenance requirements and daily schedule of tasks to be performed.
- Insurance requirements.
- Staffing and employee benefits and wages.
- Customer service standards.
- Training.
- Outline of agency's right to audit either own staff or third party operator.



MUNICIPAL AND PRIVATE ENTITY REVIEW

Information was collected on the parking fee structure of several local municipalities and a local private operator. The parking operations of the following local municipalities were evaluated:

- City of Miami
- City of Miami Beach
- City of Fort Lauderdale
- City of West Palm Beach

The parking fee structure of the CityPlace mixed-use development in West Palm Beach was also evaluated. The CityPlace garages are operated by a private operator, One Parking.

The object of this effort was to evaluate the parking operations of local entities by identifying parking fee structures and collection methods employed at the local level. This effort also included identifying whether the entity utilizes in-house staff or private operators to manage the parking facilities. The findings are summarized in Table 2. All of the local municipalities reviewed manage the operations of their parking facilities with in-house staff. The owners of the CityPlace development utilize a third-party operator, One Parking, to manage the operations of their garages.

The payment collection method varies at the parking garage and lots in the municipalities reviewed. In general, at most garages payment is collected upon exit and an attendant is present to collect the fee. However, all of the municipalities reviewed with the exception of the City of Miami possess at least one fully automated garage where the customer pays on foot before returning to their vehicle. In general, at most municipal surface parking lots where parking spaces turn over frequently, the payment collection is fully automated with either a central automated payment center or several automated payment machines present. At municipal surface parking lots where customers mostly park their vehicle for the duration of the day, payment is collected by attendants. At the CityPlace garages, payment is collected by an attendant upon exit of the garages.

Table 2 – Municipal and Private Entity Review Summary

Entity	City of Miami	City of Miami Beach	City of Fort Lauderdale	City of West Palm Beach	CityPlace-WPB (One Parking)
System	Garages/Lots/Meters	Garages/Lots/Meters	Garages/Lots/Meters	Garages/Lots/Meters	Garages
Operations	In-House	In-House	In-House	In-House	Private Operator
Daily Parking					
Fee	Varies by garage/lot	Varies by garage/lot usually \$1 per hour	Varies by garage/lot	1st 2 Hours: \$1 After 2 hours: \$1 per hour Max \$6	1st Hour: Free 2nd Hour: \$2 Each addtl: \$1 \$6 Max
Enforcement Period	24 hrs	24 hrs	Varies by area	M-W: 6am-10pm Th-Sun: 24 hrs Sunday: free after 6 am	M-Thurs: 7am-2am Fri & Sat: 10am-4am Sun: 10am-2am
Payment Collection	Pay attendant on exit & Automated/attendants at lots	Pay attendant on exit Automated/attendants at lots Pay on foot	Pay attendant on exit & Automated/attendants at lots	Pay attendant on exit Pay on foot	Pay attendant on exit
Monthly Parking					
Fee	Varies by garage/lot	Varies by garage/lot	Varies by garage/lot	\$68.90 for restricted hours \$85 for 24 hours	Staff: \$40-\$50 General Public: \$85
Payment Collection	In person Online Direct withdrawal	Lots: In person Garages: In person or via phone	In person (3-month pass)	Pay by phone In person	Mail registration and automatic payment by credit card
Proof of Payment	Lots: Decal Garages: Keycard	Lots: Decal Garages: Keycard	Decal	Keycard	Keycard



FUNDING REVIEW

Available federal subsidies and grants used to subsidize parking costs for transit users were researched, including Job Access Reverse Commute (JARC) and New Freedom Funds. JARC program guidelines were reviewed to determine if this program can be utilized to subsidize parking costs for transit users. The JARC program does not subsidize parking costs for transit users directly. JARC funds could be used to promote, through marketing efforts, the use of transit voucher programs for welfare recipients and other low-income individuals. A transit voucher is a paper-based or electronic-based ticket, coupon, “check” or other media that eligible riders can give to participating transportation providers, including transit agencies, in exchange for rides. These transit vouchers are also known as commuter checks which can only be exchanged for transit rides (to/from work) and in some cases for parking costs (i.e. BART) depending on the agency or program.

The Federal Transit Administration’s New Freedom program guidelines were also reviewed. The New Freedom program is intended to encourage new services and facility improvements to address the transportation needs of persons with disabilities that go beyond those required by the Americans with Disabilities Act (ADA). The program aims to provide additional tools to overcome existing barriers facing Americans with disabilities seeking integration into workforce and full participation in society. The New Freedom program is not a likely source of funds for subsidizing parking costs for transit users.

Congestion Mitigation and Air Quality (CMAQ) program guidelines were also reviewed to determine if parking costs can be subsidized for transit users through this federal program. CMAQ funds may be used to support travel demand management (TDM) activities like employer-based commuter choice programs (including incentives), fringe parking facilities, and parking pricing (like employer-based parking cash out policies) if they are aimed at reducing single-occupancy vehicle (SOV) travel and associated emissions. Funds used for TDM activities are limited to a maximum of three years.

Federal law, Section 132(f) of the Internal Revenue Code, allows employers to subsidize employee parking costs as part of the commute tax benefit program. The program provides tax benefits to employers that subsidize transit, vanpooling or parking costs of employees up to \$230 per month. The program allows for these benefits to be combined up to the pre-tax \$230 threshold. The employer can



provide the parking subsidy if the employer pays for the parking at a location from which the employee commutes to work (including mass transit facilities or park-n-ride lots). Major transit agencies and commuter assistance programs work with employers to provide these programs to commuters (employees), which receive a subsidy to pay for parking costs at park-n-ride lots. BART, for example, partners with Commuter Check (a tax –free commuter benefit provider), where participants receive checks directly to subsidize BART parking costs.

Florida Department of Transportation’s (FDOT) Park and Ride Lot Program was also reviewed. The program’s main purpose is to support the planning, construction/implementation, promotion, maintenance and monitoring of park and ride facilities. This program does not provide subsidies for parking costs directly.



CONCLUSION

This technical memorandum summarized the preliminary parking operations and fee research. The parking operations of peer transit agencies with rail systems were reviewed to determine prevalent trends in overall parking operations and fee collections. All of the studied transit agencies which charge for parking at their stations use some form of automated fee collection. This review also identified whether the transit agency utilizes in-house staff to operate the parking facilities or contracts out the management of these services. Half of reviewed transit agencies utilize in-house staff to manage their parking operations while the other half contracts out the management of these services.

Collection methods identified in the peer review were researched further and capital and maintenance costs associated with each collection method were then estimated. The enforcement and monitoring strategy for each respective method was then compared. Capital costs ranged from \$1,000 to \$50,000 for different collection technologies. In general, the less expensive fee collection technologies produce less accuracy in revenue collections.

The parking operations of local municipalities and a local private operator were also researched to determine trends in local parking operations. The object of this effort was to evaluate the parking operations of local entities by identifying parking fee structures and collection methods employed locally. All local municipalities reviewed use in-house staff in their parking operations.

Available federal subsidies and grants that can be utilized to subsidize parking costs for transit users were researched. Job Access Reverse Commute (JARC) program guidelines were reviewed and this program does not subsidize parking costs for transit users directly. However, JARC funds can be used to promote, through marketing, the use of transit voucher programs for welfare recipients and other low-income individuals. Some transit agencies allow the use of these vouchers, also known as commuter checks, to pay the parking fees at system parking facilities. In addition Federal law, Section 123 (f) of the Internal Revenue Code was reviewed. This law allows employers to subsidize employee parking costs as part of the commute tax benefit program up to \$230 pre-tax per month.

APPENDIX A
Peer Review Collection Method Detailed
Summary

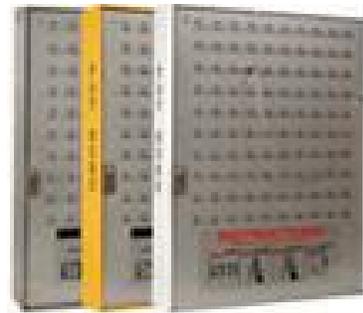
- Transit Agency: **CTA – Heavy Rail**
- Location: Chicago, Il
- Parking Facilities: Park-n-Ride
- Daily Parking
Collection Method: Cash Payment Box
- Monthly Parking
Collection Method: Permit
- Enforcement: Tickets and fines issued
- Operation: Third Party Operator and Villages of Skokie and Wilmette



- Overview of Collection Method

Use: Customers approach honor box and are instructed to insert proper amount of cash or coins (for the amount of expected length of stay). The monies are to be inserted in a slot that corresponds to the parking space they are in.

Enforcement: Officers or Lot checkers visit the honor boxes (at regularly scheduled intervals) and collect all monies deposited. In addition, the enforcement personnel verify if each user has paid the proper amount and issue tickets (with appropriate fines) for users not paying proper fee.



Effectiveness: Honor boxes are very low technology method of parking collection and have been used for parking applications for many decades. The application simply requires dollar bills to be inserted into slots with no electronic recording of funds being performed. The slots don't allow for the monies collected to be "fished out" for fraud.

The accuracy of revenues collected is dependent on manual methods of auditing and proper monies deposited. Experience indicates that up to 30% of revenues collected could be lost when comparing this revenue method to technologies that electronically record and report transactions.

Costs: A typical 500 space parking lot would require 2 (two) honor boxes at a cost of \$500 each for a total of \$1,000. Maintenance costs are minimal, as this technology has very few moving parts.



- Transit Agency: **Metra – Commuter Rail**
- Location: Chicago, IL
- Parking Facilities: Park-n-Ride
- Daily Parking
Collection Method: Cash Payment Box, Pay-by-Phone
- Monthly Parking
Collection Method: Permit
- Enforcement: Tickets and fines issued
- Operation: Third Party Operator and Local Municipalities



- Overview of Collection Method
Cash Payment Box

Use: Customers approach honor box and are instructed to insert proper amount of cash or coins (for the amount of expected length of stay). The monies are to be inserted in a slot that corresponds to the parking space they are in.



Enforcement: Officers or Lot checkers visit the honor boxes (at regularly scheduled intervals) and collect all monies deposited. In addition, the enforcement personnel verify if each user has paid the proper amount and issue tickets (with appropriate fines) for users not paying proper fee.

Effectiveness: Honor boxes are very low technology method of parking collection and have been used for parking applications for many decades. The application simply requires dollar bills to be inserted into slots with no electronic recording of funds being performed. The slots don't allow for the monies collected to be "fished out" for fraud.

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Costs: A typical 500 space parking lot would require 2 (two) honor boxes at a cost of \$500 each for a total of \$1,000. Maintenance costs are minimal as this technology has very few moving parts.

Pay-by-phone: Once signed up with a free pay by phone account, users simply call the toll-free number from the registered phone and key in the location number (posted on nearby signs) and the amount of parking time desired. The appropriate total, plus a nominal service charge (including the text message reminder cost); will be charged to the credit card. A transaction history is then viewable any time the user logs into his or her account at the website.



- Transit Agency: **LIRR – Commuter Rail**
- Location: Long Island, NY
- Parking Facilities: Park-n-Ride
- Daily Parking
Collection Method: Pay-and-display unit
- Monthly Parking
Collection Method: Permit
- Enforcement: Tickets and fines issued
- Operation: Local Municipalities



- Overview of Collection Method

Use: Customers approach pay-and-display unit and are instructed to insert proper amount of cash and coins or credit card (for the amount of expected length of stay). The monies or card are to be inserted in the machine acceptor slot and the patron is issued a receipt with all proper information displayed. They then have to return to their vehicle to display the receipt in the vehicle window.

Enforcement: Officers or Lot checkers visit the pay-and-display unit (at regularly scheduled intervals) and collect all monies deposited. In addition, the enforcement personnel verify if each user has paid the proper amount and issue tickets (with appropriate fines) for users not paying proper fee.

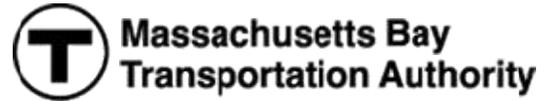
Effectiveness: Pay-and-display units are a medium technology method of parking collection and have been used for parking applications as an alternate for single space meters.

The accuracy of revenues collected is dependent on electronic methods of auditing and proper monies deposited. Experience indicates that up to 10% of revenues collected could be lost when comparing this revenue method to technologies that electronically record and report transactions and do not allow exit without payment.



Costs: A typical 500 space parking lot would require 2 (two) pay-and-display units at a cost of \$12,000 each for a total of \$24,000. Maintenance costs average \$2,000 to \$3,000 per year.

- Transit Agency: **MBTA – Heavy Rail**
- Location: Boston, MA
- Parking Facilities: Park-n-Ride
- Daily Parking
Collection Method: Honor Box, Pay-by-Phone
- Monthly Parking
Collection Method: None
- Enforcement: Tickets and fines issued
- Operation: Third Party Operator



- Overview of Collection Method
Honor Box

Use: Customers approach honor box and are instructed to insert proper amount of cash and coins (for the amount of expected length of stay). The monies are to be inserted in a slot that corresponds to the parking space they are in.

Enforcement: Officers or Lot checkers visit the honor boxes (at regularly scheduled intervals) and collect all monies deposited. In addition, the enforcement personnel verify if each user has paid the proper amount and issue tickets (with appropriate fines) for users not paying the proper fee.



Effectiveness: Honor boxes are very low technology method of parking collection and have been used for parking applications for many decades. The application simply requires dollar bills to be inserted into slots with no electronic recording of funds being performed. The slots don't allow for the monies collected to be "fished out" for fraud.

The accuracy of revenues collected is dependent on manual methods of auditing and proper monies deposited. Experience indicates that up to 30% of revenues collected could be lost when comparing this revenue method to technologies that electronically record and report transactions.

Costs: A typical 500 space parking lot would require 2 (two) honor boxes at a cost of \$500 each for a total of \$1,000. Maintenance costs are minimal as this technology has very few moving parts.

Pay-by-phone: Once signed up with a free pay by phone account, users simply call the toll-free number from the registered phone and key in the location number (posted on nearby signs) and the amount of parking time desired. The appropriate total, plus a nominal service charge (including the text message reminder cost); will be charged to the credit card. A transaction history is then viewable any time the user logs into his or her account at the website.



- Transit Agency: **METRO – Heavy Rail**
- Location: Washington DC
- Parking Facilities: Park-n-Ride
- Daily Parking
Collection Method: Pay-on-exit
- Monthly Parking
Collection Method: Permit
- Enforcement: Pay-on-exit
- Operation: METRO

- Overview of Collection Method



Use: Also referred to as “Traditional Exit Cashiering,” a pay-on-exit system is the one most familiar to parking users in the United States. The basic system consists of a ticket dispenser, gate, booth, fee computer, and cashier.

The sequence of events is simplistic in that a patron enters the garage, parks, and proceeds to the train station.

Upon returning from the train station, the patron proceeds to the exit where he/she swipes their “SmarTrip” rider card in a card reader at the exit gate. The coded smart ticket is read by the computer and it automatically deducts the daily parking rate and the gate opens for exiting.

The METRO “SmarTrip rider card” can only be used for payment in lieu of credit card or cash payment. Cards can be replenished at fare terminals.

Enforcement: Is not necessary for collection of parking payment as each user must pay proper fee to exit the facility. Tickets and fines could still be issued for users that violate other rules, e.g., not parking in parking space.

Effectiveness: Pay at exit systems are very common in parking facilities and have proved to be very effective in properly collecting revenues and are very reliable.

The accuracy of revenues collected is near 100% and spot audits can be done to ensure the integrity of the systems are maintained.

Costs: A typical 500 space parking lot would require: One (1) entry lane and One (1) exit lane (and backoffice computer and operating software) at a cost of \$25,000 each for a total of \$50,000. Maintenance costs would average \$5,000 to \$6,000 per year.



- Transit Agency: **BART – Heavy Rail**
- Location: San Francisco, CA
- Parking Facilities: Park-n-Ride
- Daily Parking
Collection Method: Payment-on-exit
- Monthly Parking
Collection Method: Permit
- Enforcement: Tickets and fines issued
- Operation: BART



- Overview of Collection Method:

Also referred to as “Traditional Exit Cashiering,” a pay-on-exit system is the one most familiar to parking users in the United States. The basic system consists of a ticket dispenser, gate, booth, fee computer and cashier.

The sequence of events is simplistic in that a patron enters the garage and takes a ticket from the ticket dispenser; the gate opens. On the ticket, there is a magnetic stripe that encodes the time and date of entry. The patron parks and proceeds to the train station.



Upon returning from the train station, the patron proceeds to the exit where he/she presents their ticket to the cashier. The magnetically coded ticket is read by the fee computer and it automatically calculates the time elapsed and the parking rate. This fee is displayed to the patron. The cashier processes the payment (by either cash or credit card) and the gate opens for exiting. A variation (for payroll savings) would be implementation of central cashiering with payment being made at train station and automation of exit process.

The BART “smart card” can also be used for payment in lieu of credit card or cash payment. Cards can be replenished at fare terminals.

Enforcement: Is not necessary for collection of parking payment as each user must pay proper fee to exit the facility. Tickets and fines could still be issued for users that violate other rules, e.g., not parking in parking space.

Effectiveness: Pay at exit systems are very common in parking facilities and have proved to be very effective in properly collecting revenues and are very reliable.



The accuracy of revenues collected is near 100% and spot audits can be done to ensure the integrity of the systems are maintained.

Costs: A typical 500 space parking lot would require One (1) entry lane and One (1) exit lane (and backoffice computer and operating software) at a cost of \$25,000 each for a total of \$50,000. Maintenance costs would average \$5,000 to \$6,000 per year.

- Transit Agency: **Caltrain – Commuter Rail**
- Location: San Francisco, CA
- Parking Facilities: Park-n-Ride
- Daily Parking
Collection Method: Ticket Machine
- Monthly Parking
Collection Method: Permit
- Enforcement: Tickets and fines issued
- Operation: Caltrain



- Overview of Collection Method

Use: Customers approach pay-and-display unit and are instructed to insert proper amount of cash and coins, credit card, or with pre-loaded train ticket (for the amount of expected length of stay). The monies or card are to be inserted in the machine acceptor slot and the patron is instructed to enter their space number for which they parked.

Enforcement: Officers or Lot checkers visit the pay-and-display unit (at regularly scheduled intervals) and collect all monies deposited. In addition, the enforcement personnel verify if each user has paid the proper amount and issue tickets (with appropriate fines) for users not paying proper fee by their space location.

Effectiveness: Pay-and-display unit are medium technology method of parking collection and have been used for parking applications as an alternate for single space meters.

The accuracy of revenues collected is dependent on electronic methods of auditing and proper monies deposited. Experience indicates that up to 10% of revenues collected could be lost when comparing this revenue method to technologies that electronically record and report transactions and do not allow exit without payment.

Costs: A typical 500 space parking lot would require 2 (two) pay-and-display unit at a cost of \$12,000 each for a total of \$24,000. Maintenance costs average \$2,000 to \$3,000 per year.



- Transit Agency: **Metro Rail – Heavy Rail**
- Location: Miami, FL
- Parking Facilities: Park-n-Ride
- Daily Parking
Collection Method: Parking Vending Machine
- Monthly Parking
Collection Method: Permit
- Enforcement: Tickets and fines issued
- Operation: Metro Rail



- Overview of Collection Method

Use: Customers approach pay-and-display unit and are instructed to insert proper amount of coins. The monies are inserted in the machine acceptor slot and the patron is instructed to enter their space number for which they parked. Their system accepts coins only.

Enforcement: Officers or Lot checkers visit the pay-and-display unit (at regularly scheduled intervals) and collect all monies deposited. In addition, the enforcement personnel verify if each user has paid the proper amount and issue tickets (with appropriate fines) for users not paying proper fee by their space location.

Effectiveness: Pay-and-display units are a medium technology method of parking collection and have been used for parking applications as an alternate for single space meters.

The accuracy of revenues collected is dependent on electronic methods of auditing and proper monies deposited. Experience indicates that up to 10% of revenues collected could be lost when comparing this revenue method to technologies that electronically record and report transactions and do not allow exit without payment.

Costs: A typical 500 space parking lot would require 2 (two) pay-and-display unit at a cost of \$12,000 each for a total of \$24,000. Maintenance costs average \$2,000 to \$3,000 per year.





Technical Memorandum Parking Fee Structure and Policy Development

Tri-Rail Parking Management Study

Prepared for

South Florida Regional Transportation Authority



Prepared by

Kimley-Horn and Associates, Inc.



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APPENDICES

Appendix A: SEPTA Rates, Rules, and Regulations Governing the Provision of Parking Facilities (2007)



INTRODUCTION

KHA prepared this technical memorandum to summarize the various parking fee structures and pricing level option trends within the transit industry. The peer transit agencies reviewed in the Technical Research and Analysis Support Technical Memorandum were further analyzed to identify the parking fee structures and pricing levels employed by these peer agencies. This research included the identification of parking fee structure and policy scenarios including daily user parking, monthly permit parking, and location pricing.

Parking fee policies from other regional transit operators were also researched to determine applicable policies needed with the implementation of a parking fee structure. To identify the policies currently governing parking at Tri-Rail stations, the “Parking” subsection of the SFRTA/Tri-Rail *Station Design Guidelines (2004)* were reviewed. The guidelines detail design criteria such as: aisle direction, angle of parking, stall dimensions, wheelstops, special needs parking, and landscaping.

The Southeastern Pennsylvania Transportation Authority’s (SEPTA) *Rates, Rules, and Regulations Governing the Provision of Parking Facilities, Approved 2007*, includes the most comprehensive set of policies governing parking fee structure and collections found in the peer review research. The regulations establish daily parking rates for different parking facilities and the hours of enforcement. The policies also explain regulations that govern parking at facilities, like overnight parking. Charges for violations are listed and the parking violation appeal process is explained. The document covers policies requiring consideration when implementing and managing a parking fee structure.

Parking fee collection methods were also reviewed in more detail to determine the opportunities and barriers for implementation of a parking fee structure. This research included the assessment of the customer service benefits and operational efficiencies of the available parking technologies. Both basic and advanced fee collection technologies were compared and analyzed. These technologies were compared among several parameters including: capital costs, maintenance costs, success of enforcement, and payment options.



PARKING FEE STRUCTURE DEVELOPMENT

General Peer System Review

Parking fee structure information was collected for the eight transit agencies reviewed in the Technical Research and Analysis Support Memorandum including:

- Bay Area Rapid Transit (BART): San Francisco area
- Chicago Transit Authority (CTA): Chicago area
- Northeast Illinois Regional Commuter Railroad Corporation (Metra): Chicago area
- Metropolitan Transportation Authority Long Island Railroad (LIRR): New York City area
- Massachusetts Bay Transportation Authority (MBTA): Boston area
- Washington Metropolitan Area Transit Authority (Metro): Washington, DC area
- Peninsula Corridor Joint Powers Board (Caltrain): San Francisco/San Jose area
- Miami-Dade Transit (Metrorail): Miami area

The object of this effort was to identify parking fee structures and pricing level options trends within the transit industry. This research included the identification of parking fee structure elements such as: daily user parking, monthly permit parking, and location pricing. The findings are summarized in Table 1.

As presented in Table 1, all of the studied transit agencies charge a daily fee for parking, ranging from \$1 to \$12. A few of the agencies have parking facilities or sections of parking facilities that charge by the hour. For example, the parking fee at some of CTA's parking facilities varies by the length of time the vehicle is parked from \$4 to \$12. It is important to note that in six of the eight agencies reviewed, the daily parking fee varies by station depending on station location, parking demand, or parking facility ownership. Caltrain, for example, charges a daily parking fee of \$3 at parking facilities at stations closer to Downtown San Francisco and does not charge for parking at facilities at outer stations.



Six of the eight studied transit agencies have implemented a monthly parking fee program, with the exception of Boston's MBTA and New York City's LIRR. However, LIRR offers a yearly parking permit that varies by residency, \$50 annually for residents and \$300 annually for nonresidents. Chicago's Metra also offers semi-annual and annual permits in addition to monthly permits. The monthly parking fees of the agencies vary drastically from \$10 to \$115.50. Monthly parking permit fees vary by station alone on San Francisco's BART system, from \$30 to \$115.50 per month.

Both BART and Chicago's CTA offer monthly parking permits with designated individual parking spaces while the majority of the reviewed agencies offer monthly parking permits that allow parking in designated reserved areas. CTA offers both types (designated individual parking spaces or designated reserved areas) of monthly permits. Both CTA and Washington DC's Metro charge the daily parking fee in addition to the monthly parking fee. Accordingly, the monthly parking fee provides access to the designated reserved parking area but a daily parking fee is still required for actual use of the space.

Table 1 – Peer Parking Fee Structure Summary

Information	CTA	Metra	LIRR	MBTA	Metro	BART	Caltrain	Metrorail
City	Chicago	Chicago	New York	Boston	Washington D.C.	San Francisco	San Francisco	Miami
System	Heavy Rail	Commuter Rail	Commuter Rail	Commuter Rail	Heavy Rail	Heavy Rail	Commuter Rail	Heavy Rail
Daily Parking								
Fee	\$4.00 - \$12.00	\$1.00 - \$3.00	Varies by station	\$4.00	Varies by municipality	\$1.00 - \$5.00	\$3.00	\$4.00
Days	7 days/week	7 days/week	7 days/week	7 days/week	Monday - Friday	Monday - Friday	7 days/week	7 days/week
Monthly Parking (not reserved)								
Fee	\$80.00	\$30/month to \$85/quarter	Varies for resident and non-residents	N/A	\$55.00 (in addition to daily parking fee) ⁽¹⁾	N/A	\$30.00	\$10.00
Monthly Reserved Parking								
Fee	\$40.00	N/A	N/A	N/A	N/A	\$30.00-\$115.50	N/A	N/A

Note:

⁽¹⁾ Customers pay monthly fee and must pay daily fee when parking.



PARKING FEE POLICY DEVELOPMENT

Parking fee policy trends of transit operators were reviewed to assist in the development of parking fee policies required to facilitate the implementation of parking fees. First, the existing parking guidelines for Tri-Rail were reviewed to determine if policies exist that can be expanded upon to govern parking fees. Parking fee policy trends of peer transit agencies were then reviewed to determine possible policy revisions and/or new parking fee policies that could support the implementation of parking fees.

SFRTA/Tri-Rail Station Design Guidelines

Parking guidance for Tri-Rail stations is articulated in the “Parking” subsection of SFRTA/Tri-Rail *Station Design Guidelines (2004)*. According to the guidelines, “Parking areas should be safe, attractive and convenient, taking full advantage of each site's potential. Parking layouts should maximize available parking capacity, while providing safe, efficient circulation, access and egress.” The guidelines detail design criteria such as aisle direction, angle of parking, stall dimensions, wheelstops, special needs parking, and landscaping. Thus, the implementation and management of a parking fee structure will require the adoption of new parking fee policies.

SEPTA Parking Regulations

The parking fee policies of peer transit agencies were reviewed to identify possible policy considerations when implementing a parking fee structure. The Southeastern Pennsylvania Transportation Authority’s (SEPTA) *Rates, Rules, and Regulations Governing the Provision of Parking Facilities, Approved 2007*, provides the most comprehensive set of policies governing parking fee structure and collections found in the peer review research. These policies are included in Appendix A. SEPTA is a regional public authority that operates various forms of public transit in and around Philadelphia including: heavy rail, commuter rail, and light rail.

The SEPTA policies are divided into eight sections. Section A defines a parking facility and establishes daily rates for the different facilities ranging from \$1 to \$3 depending on the type and location of the facility. Section A also establishes the monthly unlimited use fee, \$60 for suburban parking facilities and \$90 for parking facilities closer to downtown.



Section B explains the application of parking fees. Section B establishes that a “payment of a daily parking fee entitles patron to a single use of one parking space on the day for which paid and expires at 1:00 AM the following day.” Section B also defines the process for obtaining monthly parking permits with priority given to SEPTA patrons purchasing monthly rail passes.

Section C explains the rules and regulations that govern parking at SEPTA parking facilities. The parking facilities are intended for the exclusive use of SEPTA patrons. Use of the parking facilities by vanpools and carpools are prohibited, unless special arrangements are made through SEPTA’s Parking Department. Vehicles parked for non-SEPTA transportation services are subject to ticketing, towing, or immobilization at the owner's expense. Rules and regulations that govern overnight parking are also explained. Overnight parking at non-garage parking facilities is prohibited without approval from SEPTA. Overnight parking at garage parking facilities for up to three weekdays shall be charged at the daily rate in effect at the parking facility. The fee for overnight parking in excess of ten weekdays and up to twenty weekdays is equal to the monthly permit fee. Section C also defines illegally parked vehicles including vehicles where the fee is unpaid, vehicles that are abandoned, vehicles where operator is not a SEPTA patron, and vehicles parked in a permit lot without a valid monthly permit.

Section D identifies charges imposed for violation of the rules and regulations. Charges for each specific violation are included. For example, the charge for not paying the parking fee when parking is \$10. The charge for an abandoned vehicle is \$100. A vehicle parked in a permit lot without a valid permit is charged \$10. Illegally parked vehicles and vehicles accumulating three or more unpaid parking violations are subject to immobilization (including booting), or towing and impoundment at the owner's expense.

Section E explains the parking violation appeal process. Section F dictates that charges that SEPTA imposes for violation shall not be superseded by law enforcement officials. Section G governs the parking fees at new or rehabilitated parking facilities. Section H grants SEPTA management the right to establish a rate structure for SEPTA parking facilities that are benchmarked to parking facilities (municipal or commercial) close to SEPTA parking facilities.



PARKING FEE VENDING MACHINE/MANUAL FEE COLLECTION COORDINATION

Parking Fee Collection Overview

The following is an assessment of the customer service benefits and operational efficiencies of the available parking technologies which could be applied to the parking facilities of SFRTA. The objectives of this analysis are to inform and provide recommendations for a system to provide revenue and access control of the parking facilities. The system should enhance the level of customer service and provide operational efficiencies, while also being cost effective for the SFRTA.

This study assesses the technologies employed in the parking operations of peer transit systems. This study also addresses key operational and functional innovations in parking control products that could enable the parking facility to function more effectively, reduce operating costs, and provide enhanced customer service.

As detailed in this report, there are a variety of technologies available on the market today. Not all technologies are suitable for every type of parking operation. Transit parking operations form a specialized market that process thousands of transactions on a daily basis.

Several factors may dictate the level of technology best suited for a given operation. This study examines these user characteristics and applies the most suitable technology that provides high levels of customer service but is also cost effective and efficient in implementation.





This assessment is centrally focused on the functional and operational needs of the SFRTA parking facilities. The following are the primary features of fee collection that were analyzed as part of this study:

- Functionality
- Operational needs
- Management tools
- Efficiency and user friendliness
- VIP (Upfront Parking)
- Maintenance procedures & requirements
- Capital costs

The results of this technology assessment, trade studies, and market trend analysis will provide SFRTA with the knowledge necessary to select the most appropriate and cost-effective solution for a parking fee collection system.

The sections contained herein, provide technical and operational descriptions of products that provide advanced methods of access for the end user and are efficient to operate and control the facilities. Perhaps most importantly, these products should be cost effective in initial capital costs and on-going maintenance. The technologies will be applied considering the level of control and the volumes of users based upon the characteristics of each individual parking facility. The following is a detailed analysis of the technologies, including the level of basic or advanced controls offered:

Basic Technology

- Single Space Parking Meters
- Hanging Permits
- Multi-Space Meter

Advanced Technology

- Pay-On-Exit with Fee Computers and Gates
- Card Access System



Basic Technology

Meters

There are two options for parking meters that can be utilized to collect parking revenues for surface lot parking. The two options consist of single-space parking meters and multi-space parking stations. Each of these options also has multiple options for revenue collection including coin acceptance, pay-by-phone, debit/credit card payment, or smart card payment.

Meters offer a very low capital cost and infrastructure need to implement paid parking. Meters do, however, require enforcement for non-payment violators.

Table 2 is a comparison of single-space parking meters and multi-space parking stations.

Table 2 – Comparison of Meter Technology

Comparisons	Meter Type	
	Single-Space Parking Meters	Multi-space Parking Station
Customer Use	Customers approach single space parking meter and are instructed to insert proper amount of coins (for the expected length of stay) in the machine acceptor slot. The monies are inserted and the amount of time they have paid for is displayed digitally on the meter.	Customers approach pay-and-display unit and are instructed to insert the proper amount of cash and coins or credit card (for the amount of expected length of stay) in the machine acceptor slot. The monies or card are inserted and the patron is issued a receipt with all proper information displayed. Customers then have to return to their vehicle to display receipt in vehicle window. A variation is the pay-by-space wherein, the driver parks in a space, goes to the meter and enters their space number and payment.
Enforcement	Enforcement personnel visit the single-space parking meter or multi-space parking station and verify each user has paid the proper amount and issue a ticket when it is exhibited that time has expired.	
Effectiveness	Single-space parking meters are a medium technology method of parking collection and have been used for parking applications since the advent of paid parking in the 1930's.	Pay-and-display units are a medium technology method of parking collection and have been used for parking applications as an alternate for single-space meters. Multi-space meters incorporate more customer-friendly features, such as on-screen instructions and acceptance of credit cards for payment. Drivers do not need to carry pockets full of coins or risk a parking ticket.
Revenue Collection Accuracy	The accuracy of revenues collected is dependent upon electronic methods of auditing and proper monies deposited. Experience indicates that up to 10% of revenues collected can be lost when comparing this revenue collection method to technologies that electronically record and report transactions and do not allow exit without payment.	
Meter Costs	A typical single-space parking meter (installed) is approximately \$500 per space.	A typical multi-space parking meter is approximately \$12,000. Multi-space meters accommodate multiple spaces per facility (typically 100 spaces) with a single unit.
Maintenance per meter	Average \$50 to \$100 per year	Average \$2,000 to \$3,000 per year
Payment Options	<ul style="list-style-type: none"> • Coins • Smart card (parking card with money deposited at transit stations, by phone or on-line) • Pay-by-phone* <p>*Once signed up with a pay by phone account, users simply call the toll-free number from the registered phone and key in the location number (posted on nearby signs) and the amount of parking time desired. The appropriate total, plus a nominal service charge (including the text message reminder cost), will be charged to the credit card. A transaction history is then viewable any time the user logs into his or her account at a designated website.</p>	<ul style="list-style-type: none"> • Coins • Credit card/debit card • Smart card (parking card with money deposited at card stations, by phone or on-line) • Pay-by-phone* <p>*Once signed up with a free pay by phone account, users simply call the toll-free number from the registered phone and key in the location number (posted on nearby signs) and the amount of parking time desired. The appropriate total, plus a nominal service charge (including the text message reminder cost), will be charged to the credit card. A transaction history is then viewable any time the user logs into his or her account at a designated website.</p>



Hanging Permits

Hanging permits may be issued to those who elect to purchase monthly parking. The user simply pays their monthly fee and is issued a hanging tag. The tag is displayed from the rearview mirror. There are “off the shelf” software systems that will manage the account information, billing and printing of tags. Enforcement procedures are consistent with those agencies that use a meter system for “daily parking.”

Advanced Technology

PARCS

The most advanced fee collection system is referred to as a Parking Access and Revenue Control System (PARCS). The system consists of entry ticket dispensers, exit fee computers, access card readers (for monthlies), and barrier gates. Additional functionality can include pay-on-foot (POF) stations that operate very similarly to the current SFRTA payment station for transit fares. The POF stations can greatly reduce payroll by allowing for virtually un-manned operations.

The PARCS is the most commonly used system in parking practice today for high volumes of vehicles where the highest accuracy of revenue collections is desired with minimized effort for enforcement. These characteristics are achieved by requiring all users to pay before leaving the parking facility. This application is recommended for future SFRTA structured parking facilities and where high volumes warrant its use.



Table 3 – PARCS Technology Summary

Description	Summary
Customer Use	<p>The PARCS utilizes auto-read magnetic-stripe tickets that are issued upon entry to the facility and fees are paid at an exit plaza cashier booth. For parking users, magnetic stripe tickets are issued at entry lane ticket spitters and parking fees are collected at exit lane cashier booths. Parking fees are automatically calculated based on the entry time and date encoded on the magnetic stripe ticket and the exit time and date pulled from the cashier booth fee computer. Tickets that are damaged and/or unreadable at the fee computer are manually processed by a cashier by entering the entry time and date printed on the ticket and enabling the system to calculate the fee due. Vehicle counts are taken at both entry and exit lanes to provide facility counts. All equipment and systems are connected to a central server for on-line monitoring, control, and management of the system.</p>
Enforcement	<p>Enforcement is not necessary as users cannot exit the facility without payment for parking.</p>
Effectiveness	<p>The most advanced system which realizes collection success in 98% range.</p>
Revenue Collection Accuracy	<p>The most advanced system which realizes collection success in 98% range.</p>
Meter Costs	<p>A typical PARCS (for a 500 space facility) would cost approximately \$150,000</p>
Maintenance per facility	<p>Average \$3,000 to \$5,000 per year</p>
Payment Options	<ul style="list-style-type: none"> • Coins • Credit card/debit card • Smart card (parking card with money deposited at card stations, by phone or on-line) • Pay-by-phone* <p>*Once signed up with a pay by phone account, users simply call the toll-free number from the registered phone and key in the location number (posted on nearby signs) and the amount of parking time desired. The appropriate total, plus a nominal service charge (including the text message reminder cost), will be charged to the credit card. A transaction history is then viewable any time the user logs into his or her account at a designated website.</p>



Card Access System

Card access badges are issued to those who elect to purchase monthly parking. The user simply pays their monthly fee and is issued a card. The card is presented (in close proximity) to an access card reader. The reader uses Radio Frequency Identification (RFID) technology to receive the access cards credentials and raises the barrier gate with proper access granted. There are “off the shelf” software systems that will manage the account information, billing, and printing of cards. Enforcement procedures are not necessary, as users cannot enter without proper authorization being provided.

Enforcement

As determined in the peer review, both hours of enforcement and days of enforcement can vary. The purpose of the enforcement is to ensure that transit users pay the appropriate parking fee and do not abuse the system. Typically, a customer pays a daily fee and the space is reserved for 24 hours. At commuter rail stations, customers often park their vehicles early in the morning and use the train to travel to work or school. These customers then return to the station after their workday or schoolday. Thus, vehicles remain parked at the station most of the day. At many facilities, an officer or lot checker will begin verifying fee payments mid-morning, when most vehicles have arrived for the day. This method could be used for the typical Monday through Friday train schedule. Extended enforcement during night-time hours and weekend hours could be considered for implementation at stations where demand is high.

An example of a fine schedule where surface lot space users that have not properly paid is presented below. Please note that this fine schedule example is applicable for surface lot parking facilities. It is assumed that structured facilities would use the PARCS system and enforcement would not be necessary, as payment is required before exiting the facility.

Table 4 – Fine Schedule Example

Violations	Proposed Fine Schedule
1st Ticket	Warning
2nd Ticket	\$20
3rd Ticket	\$50
4th Ticket	Towing or Booting



In this scenario, tickets must be paid within 10 working days. An additional fine of \$10 is added for payment after 10 days, but within 30 days. Tickets not paid within 30 days will be fined an additional \$25.

To improve parking enforcement, municipalities often use administrative procedures for adjudicating disputed parking tickets. Experiences in municipalities have demonstrated that a comprehensive and well-managed parking program has many benefits. To ensure those benefits are achieved, the key components must be considered. Meter enforcement should be accomplished through a “state of the art” system. The system should utilize a software platform (run on a server) that communicates directly with an integrated, hand-held, computer ticket writer. The handheld computer should also communicate directly with parking meters to determine the status of every parking space as well as check on a vehicle’s history of tickets.

The meter enforcement system turns citation issuance into a quick, easy process that takes a fraction of the time that handwriting a ticket requires. This portable, one-piece, handheld computer features an integrated thermal printer. The hand-held devices are durable and stand up to the rigors of tough outdoor environment.

Electronic (software enabled) citation issue systems are common in parking management today where high volumes of vehicles require the highest levels of revenue collections and minimal efforts for enforcement, as all users are “notified” of violations. This application is recommended for future SFRTA parking facilities where volumes warrant its use.



CONCLUSION

This technical memorandum summarized the various parking fee structures and pricing level option trends within the transit industry. The parking fee structures and pricing levels employed by peer transit agencies were reviewed. This research included identifying components of the agencies' parking fee structure such as daily user parking, monthly permit parking, and location pricing. The transit agencies reviewed in this analysis charge a daily parking fee, ranging from \$1 to \$12. The daily parking fee for a majority of agencies varies depending on the station location, parking demand, or facility ownership. The majority of agencies have monthly parking fee programs, and the monthly prices vary from \$10 to \$115.50.

The guidelines for parking at Tri-Rail stations were reviewed. These guidelines detail design criteria such as aisle direction, angle of parking, stall dimensions, wheelstops, special needs parking, and landscaping. Parking fee policy guidelines from other transit agencies were researched to determine applicable policies required for the implementation of a parking fee. The most comprehensive set of policies governing parking fee structure and collections identified in the peer review research was the Southeastern Pennsylvania Transportation Authority's (SEPTA) parking guidelines. Their regulations establish daily parking rates for their different parking facilities and explain regulations that govern parking at the facilities, like overnight parking. Both the charges for violations and parking violation appeal process are detailed. Their policy includes specific guidelines that may assist in the implementation and management of a parking fee structure.

The parking fee collection methods identified in the peer review were further researched to assess the customer service benefits and operational efficiencies of various parking technologies. Both basic and advanced fee collection technologies were compared. Basic fee collection technologies include parking meters (both single space and multi-space stations). These technologies are relatively inexpensive to set up and maintain but are less accurate in collecting parking fees than more sophisticated technologies. The most sophisticated collection technology is the Parking Access and Revenue Control System (PARCS). The PARCS system consists of entry ticket dispensers, exit fee computers, access card readers (for monthlies), and barrier gates. The technology is more expensive to construct but is extremely accurate for parking fee collection.

APPENDIX A

*SEPTA Rates, Rules, and Regulations Governing
the Provision of Parking Facilities (2007)*

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY

ALL DIVISIONS

TARIFF NO. 168
SUPPLEMENT NO. 7

RATES, RULES AND REGULATIONS GOVERNING
THE PROVISION OF PARKING FACILITIES

ISSUED: March 12, 2007 APPROVED: June 28, 2007
AMENDED: EFFECTIVE: July 9, 2007

ISSUED BY:

Faye L. M. Moore
General Manager
10th Floor
1234 Market Street
Philadelphia, Pennsylvania 19107-3780

CHANGES MADE BY THIS TARIFF

- 1) The discretionary premium/discount rate for regulating individual parking facility utilization has been increased from FIFTY PERCENT (50%) to ONE HUNDRED (100%).

Section A, 6)

- 2) Application of daily fees at parking facilities with meters or slot box collection systems and electronic machine collection systems has been adjusted to reflect the elimination of Saturday and Sunday fee requirements in order to be consistent for both slot box collection systems and electronic machine collection systems.

Section B, 1, a)

- 3) Application of Parking Garage daily fees has been defined as being in effect at all times.

Section B, 1, b)

- 4) The acceptance of a valid Adult SEPTA token plus TWENTY-FIVE CENTS (\$.25) in lieu of stated fee at those parking facilities on the Market-Frankford or Broad Street Line has been eliminated. The discounted rate is made available through use of the Advance Purchase Multi-use Convenience Pass as already in effect in section A-5.

Section B, 1, c) has been eliminated

- 5) Overnight parking restrictions have been redefined to charge a premium parking in excess of three days and to limit overnight parking to ten weekdays, unless specific arrangements are made.

Section B, 2)

Section A

PARKING FEES

- 1) A parking facility is defined as any surface lot, structured parking garage or multi-level parking garage.
- 2) Daily Rate: This Tariff establishes a benchmark daily rate of ONE DOLLAR (\$1.00) for all Railroad Division and Suburban Transit Division surface lot parking facilities (Section A, Tables 1 and 2), a benchmark daily rate of TWO DOLLARS (\$2.00) for all City Transit Division surface lot parking facilities (Section A, Table 3), a benchmark daily rate of FOUR DOLLARS (\$4.00) for all Railroad Division garage parking facilities (Section A, Table 1) and a benchmark daily rate of THREE DOLLARS (\$3.00) for all City Transit Division garage parking facilities (Section A, Table 3), all subject to Section H of this tariff.
- 3) Monthly Unlimited Use Lease: The fee for Monthly Unlimited Use Leases is SIXTY DOLLARS (\$60.00) for Railroad and Suburban Transit Division parking facilities and NINETY DOLLARS (\$90.00) for City Transit Division parking facilities.
- 4) Monthly Parking Permit: The fee for a Monthly Parking Permit is set at a maximum of twenty (20) times the daily rate in effect at the particular parking facility. All monthly parking is by special arrangement. This privilege is granted at sole discretion of SEPTA. See Section B of this tariff.
- 5) Advance Purchase Multi-use Convenience Pass: An Advance Purchase Multi-use Convenience Pass may be offered at a price less than the benchmark daily rate.
- 6) At the discretion of the General Manager, in order to regulate parking facility utilization, a premium or discount of up to ONE HUNDRED PERCENT (100%) may be applied to the benchmark daily rate at individual parking facilities.

Section B
Application of Fees

- 1) Daily Rate: Payment of daily parking fee (as established in Section A) entitles patron to a single use of one (1) parking space on the day for which paid. Permit for use of space expires at 1:00 A.M. the following day. Daily fees are in effect as follows:
 - a) Daily fees at parking facilities with slot box collection systems electronic machine collection systems shall be in effect on all weekdays except between the hours of 1:00 A.M. and 5:00 A.M.
 - b) Parking Garage Daily fees shall be in effect at all times.
- 2) Monthly Unlimited Use Lease: Arrangements for monthly reserved or unreserved parking may be requested through SEPTA's Parking Department, and are made at the sole discretion of SEPTA. Fees for unlimited monthly use are found in Section A-3. As part of the agreement, the party contracting for space must agree to indemnify SEPTA for all losses or damages, which the party may incur while on SEPTA property.
- 3) Monthly Parking Permit: Monthly parking permits are valid for daily use of designated spaces at certain parking facilities. Monthly permits are sold on a priority basis to SEPTA patrons purchasing Monthly TransPass/TrailPass/Monthly CrossCounty/Monthly Intermediate Rail Passes. Permits are available for sale only at the station ticket office and must be purchased at the time of the Monthly Pass purchase. Monthly Parking Permits are subject to special conditions printed on the permit. Fees for monthly parking permits are found in Section A-4.
- 4) Daily and Monthly Parking Rates apply only to private automobiles, motorcycles, and non-commercial, two (2) axle vehicles less than three (3) tons.

Section C
Rules and Regulations

The following rules and regulations govern parking at all SEPTA parking facilities, whether or not a fee is applied. Parking facilities are intended for the exclusive use of SEPTA patrons.

- 1) Use By Other Than SEPTA Patrons: SEPTA parking facilities are reserved for use by patrons of SEPTA transportation services. Use of parking facilities by van pools and car pools is expressly prohibited except when delivering or receiving SEPTA passengers, or when special arrangements have been made through SEPTA's Parking Department.

The purpose of SEPTA parking facilities is to provide SEPTA patrons with a location to park their private vehicles when using SEPTA transportation services. Vehicles parked

for non-SEPTA transportation services are subject to ticketing and towing or immobilization at the owner's expense.

Persons using SEPTA passenger transportation vehicles for travel to and/or from the parking facility at any time during a given day are considered to be SEPTA patrons. Persons with agreements for lease of parking spaces are also considered SEPTA patrons.

- 2) Overnight parking at non-garage parking facilities is prohibited unless prior approval is obtained from SEPTA. Overnight parking for up to three weekdays (e.g. Monday through Wednesday) shall be charged at the daily rate in effect at the specific non-garage parking facility. Overnight parking at non-garage parking facilities in excess of three weekdays, but not greater than ten weekdays may be charged a premium. Overnight parking shall be limited to ten weekdays unless specific arrangements are made in advance through SEPTA Parking Operations. The fee for overnight parking in excess of ten weekdays and up to 20 weekdays shall be equal to the fee for Monthly Unlimited Use Leases, as defined in section A-3, for each 20 weekday period, or portion thereof. Arrangements are made at the sole discretion of SEPTA. All fees and restrictions are defined in the Overnight Parking Procedures.
- 3) Illegally Parked Vehicles: Vehicles will be considered to be parked illegally if:
 - a) Vehicle is blocking traffic lanes.
 - b) Fee for parking vehicle is unpaid.
 - c) Vehicle is abandoned (defined as non-payment of fee for more than 48 consecutive hours).
 - d) Operator of vehicle is not a SEPTA patron, and/or has not made proper arrangements and payment for use of the SEPTA parking facility.
 - e) Vehicle is parked in a permit lot without a valid monthly permit.
 - f) Vehicle is displaying a counterfeit parking permit.
 - g) Vehicle is displaying a permit from a different station parking lot.
 - h) Vehicle is parked within designated Disabled spaces without proper Disabled vehicle designation license or placard.
 - i) Vehicle is parked in a location that has not been designated as a parking space.
 - j) Vehicle is occupying more than one designated parking space.
 - k) Vehicle is in excess of 3 tons (6,000 lbs.).

- 4) Car/Van Pools: Vehicles being used to pick-up and/or drop-off of passengers other than SEPTA patrons are expressly prohibited from operating on SEPTA property.

- 5) Taxi Operations: Operation of taxi service from SEPTA facilities is limited to companies with current written agreements with SEPTA.

- 6) Dumping: Dumping of materials or liquids of any kind is prohibited on SEPTA property. Violators will be responsible for cost of removal of material, cleanup of site and all other costs, plus an initial charge of THREE HUNDRED DOLLARS (\$300.00).

Section D
Violations

- 1) Charges will be imposed for violation of the rules and regulations as follows:

Vehicle is blocking traffic lanes:	\$ 25.00*
Fee for parking is unpaid:	\$ 10.00
Vehicle is abandoned:	\$100.00
Operator of the vehicle is not a SEPTA patron:	\$ 10.00**
Vehicle is parked in a permit lot without a valid permit:	\$ 10.00
Vehicle is displaying a counterfeit permit:	\$100.00***
Vehicle is displaying a permit from a different station:	\$ 10.00
Vehicle is parked in a Disabled space without plate/placard:	\$ 50.00****
Vehicle is parked in a location not designated as a parking space:	\$ 10.00
Vehicle is occupying more than one designated parking space:	\$ 25.00
Vehicle is in excess of three tons (6,000 lbs.):	\$ 10.00

A FIVE DOLLAR (\$5.00) discount can be taken if the parking violation is paid within ten (10) calendar days from the date of issue. This discount does not apply to towed or immobilized vehicles.

- 2) Illegally parked vehicles and vehicles accumulating three (3) or more unpaid parking violations are subject to immobilization (including booting), or towing and impoundment at the owners expense

*Vehicles blocking traffic lanes, **Vehicles whose operator is not a SEPTA patron, *** Vehicles displaying a counterfeit parking permit and **** Vehicles parked in a designated Disabled space without a Disabled placard or license plate will be subject to immediate immobilization (including booting), or towing and impoundment at the owners expense.

Impounded or immobilized vehicles will not be released until all parking violations, SEPTA costs, expenses and charges (including towing and daily impoundment fees) are paid in full (cash only).

Section E
Violation Appeal Process

- 1) Parking violations can be appealed by contacting SEPTA as directed on the parking violation within the time limit specified on the parking violation. SEPTA will attempt to respond to all appeals in writing, or by email within fourteen (14) days of receipt of the appeal. All decisions are final.

Section F
Law Enforcement

- 1) Any charges that SEPTA may impose for violation of this tariff shall not be superceded by any actions of SEPTA Police and/or other law enforcement officials.

Section G
New or Rehabilitated Parking Facilities

- 1) A daily parking fee at newly built, newly acquired or re-activated parking facilities may be instituted at the benchmark daily rate (Section A-1).
- 2) A fee less than the benchmark rate may be applied to unpaved parking facilities or parking facilities awaiting improvements. When paving or improvements are completed, the benchmark daily rate applies (Section A-1)

Section H
Other Parking Facilities

- 1) In instances where other parking facilities (municipal, commercial) are close to a SEPTA parking facility, the General Manager may establish a rate structure for such SEPTA parking facility, benchmarked also, according to the rates of the nearby facilities.



Technical Memorandum Market Research and Public Involvement

Tri-Rail Parking Management Study

Prepared for

South Florida Regional Transportation Authority



Prepared by

Kimley-Horn and Associates, Inc.





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INTRODUCTION

This technical memorandum summarizes the results of the market research and public involvement component of the Tri-Rail Parking Management Study. Focus groups were held to gauge tolerance levels and attitudes from riders regarding Tri-Rail service and their willingness to pay a parking fee at its stations.

A focus group was facilitated in each of the three Southeast Florida counties, Palm Beach County (West Palm Beach Station), Broward County (Pompano Beach Station), and Miami-Dade County (Miami Airport Station). Participants were solicited via flyers distributed at select stations, a banner on the Tri-Rail website, and email invitations to members of the Employer Discount Program (EDP). Customers interested in participating in the focus groups were directed to register online via a direct link on the Tri-Rail website.

Registrants were screened to verify that they: (1) ride Tri-Rail more than twice per week, (2) drive to and park at a station, and (3) have not previously participated in a SFRTA focus group. A total of 28 people participated in the three focus groups. Each session lasted approximately 90 minutes, was led by the same moderator, and was audio recorded.

The main topics discussed in the focus group sessions were: Tri-Rail's overall value based on price, the current parking situation, feedback on three hypothetical pricing scenarios presented, a second discussion on Tri-Rail's value assuming a parking fee was implemented, and a general discussion about Tri-Rail usage and issues such as lighting and safety.

The results generally varied by location. However, some results were consistent in all three focus group sessions. Participants generally view Tri-Rail as an overall valuable service for the price. Participants were generally opposed to all three pricing scenarios presented and many participants indicated that a parking fee would force reevaluation of the value of Tri-Rail. A number of people indicated more tolerance for a fare increase than the implementation of a parking fee.



FOCUS GROUP MEETING METHODOLOGY

Participant Solicitation

The focus groups were held as follows:

- Tuesday, October 13, 2009, 6 p.m.-7:30 p.m.
 - Miami-Dade Expressway Authority Headquarters, 3790 NW 21st Street, Miami, Florida 33142
 - Immediately south of the Miami Airport Station
- Wednesday, October 14, 2009, 6 p.m.-7:30 p.m.
 - South Florida Regional Transportation Authority Headquarters, 800 NW 33rd Street, Pompano Beach, FL 33064
 - Immediately south of the Pompano Beach Station
- Thursday, October 15, 2009, 6 p.m.-7:30 p.m.
 - West Palm Beach Public Library, 411 Clematis Street, West Palm Beach, FL 33401
 - One-half mile east of the West Palm Beach Station

Participants were solicited via flyers distributed at several stations, a banner on the Tri-Rail website, and email invitations sent to members of the Employment Discount Program (EDP). The customers interested in participating in the focus groups were directed to register online at the Tri-Rail website. The flyer distributed is included in Appendix A.

Flyers were distributed at the following six Tri-Rail stations:

- Miami Airport Station
- Tri-Rail Metrorail Transfer Station
- Pompano Beach Station
- Hollywood Station
- Fort Lauderdale/Hollywood International Airport Station
- West Palm Beach Station



A total of 123 people registered to participate in the focus groups. Prior to receiving a formal invitation to attend a focus group meeting, potential volunteers were screened. Eligibility to participate in the focus groups required that a participant ride Tri-Rail more than two times per week and drive to and park at a station. Further, participants were also screened to ensure that they had not participated in a previous SFRTA focus group.

After screening, invitations were issued to 41 Tri-Rail riders. Ultimately, 28 people participated in the three focus groups as follows:

- Miami-Dade County (Miami Airport Station): nine participants
- Broward County (Pompano Beach Station): eleven participants
- Palm Beach County (West Palm Beach Station): eight participants

Focus Group Meeting Methodology

A uniform procedure was followed during the focus group meetings. Each session was led by the same moderator and was audio recorded. Notes were taken by representatives from SFRTA, Holt Communications, Inc., and Kimley-Horn and Associates, Inc. These representatives did not participate in the discussion. Each participant was asked to sign in and received a name badge with first name only. Introductory welcoming remarks were made by the moderator covering logistics and typical group session etiquette. Individuals introduced themselves with only their first name, occupation, and Tri-Rail origin and destination stations. Questions detailed in the following pages were asked of each group, in order, and consisted of questions that required participants to rate certain variables on a scale indicating their score by raising their hands. Open discussion was encouraged on these questions. Other questions were entirely open ended and allowed for open discussion. The moderator script is included in Appendix B.



FOCUS GROUP MEETING RESULTS

Focus Group Meeting Summary by Question

Question 1: What is your opinion of Tri-Rail's total value for the money you pay? (Scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable.)

All of the participants in the three focus group meetings rated the value of Tri-Rail as a score of at least 3, with 25 participants rating the value as at least a 4. At all three focus group meetings, common reasons for not scoring the value at 5 were train delays, incorrect track change announcements, and maintenance of trains and shuttle buses.

Question 2: What is your opinion of the current option for parking at Tri-Rail stations? What changes would you suggest be considered? How would you suggest those changes be funded?

Many participants in three focus groups stated that parking at each station is different and that often the proximity of parking to train stations is more of an issue. Specific stations referenced were Cypress Creek Station and Golden Glades Station. Participants in both the Broward County (Pompano Beach Station) and Palm Beach County (West Palm Beach Station) focus group meetings felt that parking is currently adequate at the stations. Participants in the Miami-Dade County (Miami Airport Station) focus group meeting were concerned about the amount of parking that will be available after the Miami Intermodal Center (MIC) is completed. Participants in both the Broward County and Miami-Dade County focus groups agreed that parking by non Tri-Rail users is an issue. Participants in the Miami-Dade County focus group meeting explained that non Tri-Rail riders utilizing parking spaces at parking facilities is a significant issue, including airport workers that park at Tri-Rail facilities and then use shuttle buses to reach the airport.

Question 3: Tri-Rail is considering charging for parking at some or all of their stations; what are your thoughts about being charged for parking? What if anything, would you expect or want to see change at Tri-Rail stations? If by charging for parking, Tri-Rail was able to improve security, would that be of value to you?



Most participants were opposed to any parking fee at Tri-Rail Station parking facilities. Many participants believed that a charge would be a deterrent for riders and would force people to find alternate transportation or drive their vehicle. A few participants in the Miami-Dade County focus group meeting were willing to pay Metrorail (\$10 monthly) parking fees. Participants in the Miami-Dade County focus group meeting suggested that security, parking availability, and lighting should improve. Participants in the Broward County focus group meeting desired guaranteed parking or a parking area in front of the train station. Participants in the Palm Beach County focus group meeting expected increased frequency, new trains, new shuttle buses, and security in parking lots if a parking fee was instituted.

Question 4: How often are you unable to find a parking space? If, by charging for parking, Tri-Rail was able to guarantee you a parking spot every day, would that be of value to you?

One participant had problems finding parking at the Deerfield Beach Station while the other participants did not state that they had any issues finding a parking space. Participants questioned how the parking fee would be enforced and how a parking fee system would be operated. A few participants said the cost would determine if a charge for a guaranteed spot would be of value.

Question 5: How many of you have a Tri-Rail monthly pass?

In total, 17 of the 28 participants use a Tri-Rail monthly pass:

- Miami-Dade County – 4 participants
- Broward County – 9 participants
- Palm Beach County – 4 participants

Question 6: If parking was included in the monthly pass at no extra cost, would this encourage those of you who don't have a monthly pass to get one?



Seven participants in the focus group meetings felt that if parking was included in the monthly pass fee that this would encourage them to use a monthly pass:

- Miami-Dade County– 3 participants
- Broward County – 2 participants
- Palm Beach County – 2 participants

Question 7: What method(s) would you expect to use to pay for parking?

All participants in the three focus group meetings felt that customers should be able to use both cash and credit cards to pay for parking. Some participants keep one vehicle at both stations that they use in their commute and voiced concern over the fairness of a parking fee. Other participants suggested including the fee in the ticket or monthly pass fee while others suggested a reloadable card that is prevalent in other commuter rail systems.

Question 8: If “paid parking” spaces were reserved for Tri-Rail customers only, would that change the way you feel?

The majority of participants did not feel that the reservation of paid parking spaces for Tri-Rail customers was worth a parking fee. One participant pointed out that reserved parking spaces would alleviate problems with non Tri-Rail customers utilizing Tri-Rail parking facilities, specifically at the Golden Glades Station.

At the Broward County focus group meeting, this question led to a discussion of alternatives to parking fees. Participants suggested a parking lot on the west side of Andrews Avenue at the Cypress Creek Station. Participants also recommended increasing the number of spaces at the Hollywood Station and more coordination with Broward County Transit (BCT) bus routes.

Question 9: How do you feel about parking fees being higher at stations where parking is limited and there is a higher demand?



None of the participants of the focus group meetings viewed higher parking fees at stations with limited parking and higher demand as equitable. A few participants pointed out that a unique pricing fee at certain stations would confuse patrons. Others felt that customers would modify the stations they use to park for free.

Question 10: Is there a benefit to parking in a sheltered structure?

The majority of the participants at the focus group meetings did not view sheltered structure parking as a valuable option. Two participants in the Broward County focus group meeting stated they would pay to park in a garage. A few participants in the Palm Beach County focus group meeting explained that covered parking would be beneficial in the summer but the participants preferred improved train and shuttle bus maintenance to covered parking.

Three hypothetical pricing scenarios were exhibited on a presentation poster and respondents were asked the following three questions for each scenario:

Question 11: How would this impact your usage knowing increased funds (for this scenario) would be used for additional amenities? Would you be willing to pay a higher charge for VIP services to include, upfront guaranteed parking and covered/structured parking? What, if anything, would you expect to (or want to see) change at Tri-Rail stations?

Table 1 – Pricing Scenario A

SCENARIO A	
Length of Stay	Price
0-4 hours	\$3
4-12 hours	\$5
12-24 hours	\$10
Daily VIP (12 hours)	\$7
Monthly	\$70
Monthly VIP	\$88

VIP rates include guaranteed up-front covered parking.



Table 1 shows the first scenario presented to the participants. The participants overwhelmingly agreed that this parking fee structure would have a significant impact on ridership and would force the participants to reevaluate the value of Tri-Rail service compared with driving. Participants at each focus group meeting pointed out that the monthly prices are similar to the monthly ridership fare and is cost prohibitive. Participants in the Broward County focus group meeting preferred a flat rate system and questioned how parking fees will be enforced when trains are delayed. Several participants in the Miami-Dade County focus group indicated a preference for a fare increase over a parking fee. All participants in the Palm Beach County focus group meeting stated they would stop riding Tri-Rail if this scenario were implemented.

Table 2 – Pricing Scenario B

SCENARIO B	
Length of Stay	Price
0-4 hours	\$2
4-12 hours	\$3
12-24 hours	\$8
Daily VIP (12 hours)	\$5
Monthly	\$42
Monthly VIP	\$53

VIP rates include guaranteed up-front covered parking.

Table 2 shows the second scenario presented to the participants at the three focus group meetings. The participants agreed that this parking fee structure would have a significant impact on ridership even with the lower price. Participants again pointed out that the monthly prices are similar to the monthly ridership fare and are cost prohibitive. Participants in both the Miami-Dade County and Broward County focus group meetings questioned why the Tri-Rail parking fee should be more expensive than the parking fee at Metrorail facilities.



Table 3 – Pricing Scenario C

SCENARIO C	
Length of Stay	Price
0-4 hours	\$1
4-12 hours	\$2
12-24 hours	\$7
Daily VIP (12 hours)	\$4
Monthly	\$28
Monthly VIP	\$35

VIP rates include guaranteed up-front covered parking.

Table 3 shows the third and last scenario presented to the focus group meeting participants. The participants agreed that this parking fee structure would still have a significant impact on ridership even with the lower price. Participants questioned the logistics of a parking fee including protocol if a train delays your trip. Participants in the Miami-Dade County and Palm Beach County focus group meetings believe that EDP, senior, and student discounts should also apply to parking fees. Participants in the Palm Beach County focus group meeting suggested a fee or \$1-\$2 per day and a \$0.50 per day fee for monthly pass holders.

Question 12: If pricing scenario C is implemented, does it change your opinion of the total value of Tri-Rail?

(Scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable.)

The majority of participants in all three focus groups scored the value of Tri-Rail significantly lower than when presented with the same question without the parking fee at the beginning of the meeting. In fact, 26 of the 28 participants scored the total value at a score of 3 or less. Participants expressed skepticism that improvements would occur after implementation of the parking fee. Participants also viewed the monthly prices as cost prohibitive.



Question 13: When did you begin using Tri-Rail and why?

The participants' answers varied greatly. Some participants began using Tri-Rail a few months ago while some participants began using Tri-Rail approximately several years or more ago.

Participants listed several different reasons for switching to Tri-Rail. The majority of participants cited convenience and cost savings as the main reason for switching to Tri-Rail. A fear of and an aversion to driving was also listed by several participants as a primary reason for switching.

Question 14: What specifically do you like or dislike about Tri-Rail service?

Poor communication was the most common problem discussed about Tri-Rail service. Participants stated that often delays are not announced and track change announcements are often incorrect or not announced at all. Participants cited convenience and cost savings as the greatest benefit in Tri-Rail service.

Question 15: How would you rate the overall cleanliness of Tri-Rail stations?

(Scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable.)

All but three of the participants scored the cleanliness of Tri-Rail stations as at least a 3. In fact, 16 of the 28 participants scored the cleanliness at a score of 4.

Question 16: How would you rate the overall safety of Tri-Rail stations?

(Scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable.)

All of the participants scored the safety at Tri-Rail stations as at least a 3, with 18 of the 28 participants scoring the safety at stations as a 4 or 5. Several participants reported their vehicles were broken into at stations including the: Miami Airport, Hialeah Marketplace, Opa-Locka, Sheridan Street, and Fort Lauderdale Airport Stations. Participants suggested security guards be present more often at stations. Another popular suggestion was to install security cameras at stations, on trains, and in the station parking lots.



Question 17: How would you rate the overall lighting at Tri-Rail stations?

(Scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable.)

The responses of the participants were dispersed on this question. Twelve of the participants rated the lighting as a 4 and nine of the participants rated the lighting as a 3. However, four of the participants rated the lighting as a 2 and four of the participants rated the lighting as a 5.

Question 18: Does anyone have any final remarks they'd like to share?

Closing remarks varied greatly. Several participants desired more security at stations. Several participants wanted new trains. Others suggested electrical outlets in trains and improved air conditioning in the trains. Participants desired improved headway frequencies, especially during rush hour and weekends. Participants suggested better communication about delays and track changes, including a 24-hour customer service information line and a system that notifies passengers of delays via text messages.



ONLINE SURVEY RESULTS

The focus group survey was also made available to those Tri-Rail commuters unable to be present at the focus group meetings via Tri-Rail’s website. The survey was presented in both Spanish and English. All participant responses for the on-line survey were reviewed. The on-line survey did not require that a participant ride Tri-Rail more than two times per week and drive to and park at a station. Approximately 475 respondents participated in the survey, including 25 translated surveys.

The online survey results were similar to the focus group meeting results. Participants were overwhelmingly opposed to the implementation of a parking fee and to all three pricing scenarios presented. Additionally, many participants indicated that a parking fee would force reevaluation of the value of Tri-Rail. Improved station security and lighting was the most prevalent improvement expected if a parking fee was implemented.



CONCLUSION

This technical memorandum summarized the results of the market research and public involvement component of the Tri-Rail Parking Management Study. Focus groups were held to gauge tolerance levels and attitudes from riders regarding Tri-Rail service and their willingness to pay a parking fee.

The results generally varied by location. Satisfaction with the amount of available parking provided at stations varied by focus group location. Participants in the Miami-Dade County (Miami Airport Station) focus group meeting noticed non Tri-Rail users frequently parking in Tri-Rail facilities. Participants in the Broward County (Pompano Beach Station) focus group meeting agreed that the proximity of parking to stations is a more significant issue than the amount of parking provided at stations. Participants in the Palm Beach County (West Palm Beach Station) focus group meeting did not perceive a problem with the amount of available parking now that the new parking lot at the West Palm Beach Station is available for Tri-Rail riders. In addition, the participants' views on the parking fee amounts varied by location. Participants in the Miami-Dade County focus group meeting were generally more open to parking fees, but they based their parking fee expectations on Metrorail's parking fees.

Some results were consistent in all three focus group session. Participants generally view Tri-Rail as an overall valuable service for the price. Participants were overwhelmingly opposed to all three pricing scenarios presented and many participants indicated that a parking fee would force reevaluation of the value of Tri-Rail. This reevaluation was reflected when participants reduced their previously high ratings of Tri-Rail's value of service when parking fees were factored in their decision. Participants questioned Tri-Rail's ability to adequately monitor issues such as system delays and train malfunctions for recourse of resulting additional fees. Several participants keep a vehicle at both their origin and destination station and felt they would be burdened unfairly by a parking fee. A number of people indicated more tolerance for a fare increase than the implementation of a parking fee.

APPENDIX A

Focus Group Flyer Invitation

YOUR OPINION COUNTS

TRI-RAIL PARKING MANAGEMENT STUDY



Tri-Rail is considering a number of options to manage parking at its stations, and we'd like to know what you think. We invite you to participate in one of three focus group sessions:

- *Tuesday, October 13th from 6 p.m. to 7:30 p.m.
Miami-Dade Expressway Authority, 3790 NW 21st Street
Miami, Florida 33142
Immediately south of the Miami Airport Station*
- *Wednesday, October 14th from 6 p.m. to 7:30 p.m.
Tri-Rail, 800 NW 33rd Street, Pompano Beach, FL 33064
Immediately southeast of the Pompano Beach Station*
- *Thursday, October 15th from 6 p.m. to 7:30 p.m.
Palm Beach Public Library, 411 Clematis Street
West Palm Beach, FL 33401
One-half of a mile east of the West Palm Beach Station*

In return for your time, participants will receive two Tri-Rail Roundtrip tickets. Light refreshments will be served during each focus group.

If you're interested in participating, please visit www.tri-rail.com by Wednesday, October 7, 2009 to complete a brief questionnaire. Please note that participation/seating for the focus groups will be limited.

*Thanks for helping to make
Tri-Rail an even better ticket
to a stress-free commute!*



APPENDIX B

Focus Group Moderator Script

SFRTA Parking Management Study Focus Group Research

Moderator's Guide

I. Background and Introductions

– Moderator self-introduction

- *Good evening and thank you for coming. My name is Elise and I will be moderating our discussion tonight. I am an independent consultant and have no personal stake in the outcome, so your opinions about our topic won't hurt my feelings.*
- *We're here tonight to talk about Tri-Rail and have asked you to join us because we're interested in what you have to say, so please feel free to speak your mind.*

– Guidelines

- *How many of you have participated in a focus group before?*
- *Let me briefly explain how we'll work:*
 - *We will be here for about an hour, covering a variety of topics. Everyone will get a chance to provide input. We ask that you please speak one at a time.*
 - *We will be taping this discussion because we don't want to miss any comments and it will make it easier for me to write the final report. But we won't be attaching any names to the comments, so feel free to say what you think. Remember, we invited you here because we want to know your thoughts, and your feedback will help Tri-Rail as they move forward.*

- Participant self-introductions
 - *With that said, let's go around the table and have everyone introduce themselves.*
 - *Please tell us:*
 - *Your name (first names are fine)*
 - *Your occupation*
 - *How often you use Tri-Rail*
 - *Whether or not you park at the Tri-Rail station*

On a scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable, what is your opinion of Tri-Rail's total value for the money you pay? (Ask for a show of hands for each number.)

- Why did you give it that rating?

II. Purpose of Effort

I'd like to give you some background as to why we're here tonight. As you probably know from experience, Tri-Rail ridership has increased over the past few years and that has resulted in an increased demand for parking at the stations. The South Florida Regional Transportation Authority (SFRTA) wants to determine how to optimize its limited parking facilities and see what potential impact that might have on passengers and ridership. This focus group is part of the Tri-Rail Parking Management Study. It's designed to better understand how passengers feel about different parking management techniques – including potential parking fees.

III. Discussion

- What is your opinion of the current options for parking at Tri-Rail stations?
 - What changes would you suggest be considered for parking?
 - How would you suggest those changes be funded?

- Tri-Rail is considering charging for parking at some or all of its stations;
 - What are your thoughts about being charged for parking?
 - What would you expect Tri-Rail to change to make it worthwhile for you?
 - If, by charging for parking, Tri-Rail was able to improve security, would that be of value to you?
- How often are you unable to find a parking space?
 - If, by charging for parking, Tri-Rail was able to guarantee a parking spot, would that be of value to you?
- How does parking affect your choice of station?
- How many of you have a monthly pass? (Show of hands.)
- If parking was included in the monthly pass at no extra cost, would this change your opinion?
 - Would this encourage those of you who don't have one to get a monthly pass?
- How would you expect to be able to pay for parking?
- If there was technology that required no additional time or effort to pay for parking, would that change the way you feel?
- If "paid parking" meant that these spaces were reserved only for Tri-Rail customers, would that change the way you feel?
- How do you feel about parking fees being higher at stations where parking is limited and there is high demand? For example: A downtown area
- Do you feel that there is a benefit to parking in a sheltered structure?
 - Are you willing to pay extra for this amenity?
- Pricing options (each one to be discussed separately)
 - Present Scenario A & discuss

- How would this impact your usage knowing increased funds (for this scenario) would be used for additional amenities?
- Would you be willing to pay higher charge for VIP services to include, upfront guaranteed parking and covered/structured parking?
- What, if anything, would you expect to change at Tri-Rail stations?
- Present Scenario B & discuss
 - How would this impact your usage knowing increased funds (for this scenario) would be used for additional amenities?
 - Would you be willing to pay higher charge for VIP services to include, upfront guaranteed parking and covered/structured parking?
 - What, if anything, would you expect to change at Tri-Rail stations?
- Present Scenario C & discuss
 - How would this impact your usage knowing increased funds (for this scenario) would be used for additional amenities?
 - Would you be willing to pay higher charge for VIP services to include, upfront guaranteed parking and covered/structured parking?
 - What, if anything, would you expect to change at Tri-Rail stations?

Let's talk about value again. On a scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable, if one of these options were adopted what would be your opinion of Tri-Rail's total value for the money you pay? (Ask for a show of hands for each number.)

- For those of you who changed your rating, tell us why you changed.

IV. Additional Questions (time permitting)

- When did you begin using Tri-Rail and why?
- How often do you use it?
 - How does that compare with 6 months/1 year ago?
 - Does anyone else in your household use Tri-Rail?
- How long is your ride each way?
- What might make you switch to driving or carpooling?
- On a scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable, how would you rate the current level of Tri-Rail service? (*Ask for a show of hands for each number.*)
 - Why?
 - Has your opinion changed over the past 6 months?
- What specifically do you like and dislike about Tri-Rail service?
- Again, using the scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable, how would you rate the overall cleanliness of the Tri-Rail stations? (*Ask for a show of hands for each number.*)
 - What specific issues do you have?
- Again, using the scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable, how would you rate the overall safety of the Tri-Rail stations? (*Ask for a show of hands for each number.*)
 - What improvements do you think are needed?
 - Is there a particular area in which you feel more unsafe?
- Again, using the scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable, how would you rate the overall lighting at the Tri-Rail stations? (*Ask for a show of hands for each number.*)
 - What improvements do you think are needed?
 - Is there a particular area you feel most needs improvement?

- Again, using the scale of 1 to 5, with 1 being the least favorable and 5 being the most favorable, what is your opinion of Tri-Rail's total value for the money you pay? (*Ask for a show of hands for each number.*)
 - Why did you give that rating?
- What other improvements would you suggest to improve the Tri-Rail system?
- Does anyone have any final remarks they'd like to share?

V. Close

- *We appreciate your time and input. Please make sure to pick your "thank you" gift on the way out and have a good evening.*



Technical Memorandum Elasticity Model Development & Sensitivity Testing

Tri-Rail Parking Management Study

Prepared for

South Florida Regional Transportation Authority



Prepared by

Kimley-Horn and Associates, Inc.





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- Appendix B: Net Operating Income Calculations by Station
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INTRODUCTION

This technical memorandum summarizes the results of the ridership elasticity model development and sensitivity testing component of the Tri-Rail Parking Management Study. A parking fee/ridership elasticity model was developed to estimate the impact that the introduction of a parking fee at Tri-Rail stations would have on ridership. Several types of variables were evaluated as determinants of Tri-Rail monthly ridership.

The final set of explanatory variables tested in the models may be categorized into four groups:

1. Demographic Variables
2. Tri-Rail-Related Variables
3. Special Variables
4. Seasonal and Monthly Variables

Input variables from FY 2002 through FY 2009 were assembled and an input database was developed. The elasticity model ridership estimates were compared with actual Tri-Rail ridership from FY 2002 through FY 2009 to determine a best-fit model. Next, a \$2 fare increase (proxy for daily parking fee) was introduced to the elasticity model to gauge the impact on ridership.

A parking fee financial model was developed to estimate income and operating expenses associated with the operation and management of a parking fee at Tri-Rail stations. Parking fee financial models were developed for each Tri-Rail station.

Parking revenue would be derived from two user groups, monthly pass holders and daily users. The number of users at each station was calculated by adjusting the number of existing parking spaces by several factors including the parking occupancy factor for the station and the parking fee/ridership elasticity factor to account for the reduction in parking demand after the implementation of a parking fee (based upon the parking fee/ridership elasticity model results). The parking fee revenue for the individual stations was added to calculate the total system-wide revenue. The financial model analyzed two scenarios: 2008 peak parking demand conditions and 2009 existing conditions.



The expenses component of the parking fee financial model included costs of additional personnel, facility maintenance, and vehicle maintenance associated with operating a parking fee program. These expenses were allocated to stations based upon the number of parking spaces at each station. The expenses and revenue for each station were estimated to determine the station's net income from a parking fee program. The net income for each station was totaled to determine the system-wide net income associated with a parking fee program.

The system-wide net operating income was calculated for both the 2008 peak demand and 2009 existing conditions scenarios. Additional revenue impacts from the expected ridership reduction resulting from a parking fee were assessed, including Federal Transit Administration (FTA) Section 5307 formula funding and fare box revenue. For Section 5307 formula funding, the only parameter impacted by ridership is passenger miles traveled. Fare box revenue would also decrease because of fewer Tri-Rail passengers using the system.



PARKING FEE ELASTICITY MODEL

A parking fee/ridership elasticity model was developed to estimate the impact that the introduction of a parking fee at Tri-Rail stations would have on ridership. As part of the model development, model input data was assembled for FY 2002 through FY 2009 and econometric models were developed to forecast Tri-Rail ridership. These model forecasts were then compared to actual Tri-Rail ridership. The development and results of the parking fee/ridership elasticity model are summarized in the following section and are described in more detail in Appendix A. Several types of variables were evaluated as determinants of Tri-Rail monthly ridership.

Explanatory Variables

The final set of explanatory variables tested in the models may be categorized into four groups:

1. Demographic Variables
 - South Florida Employment – South Florida monthly employment estimates
 - South Florida Population – South Florida yearly population estimates
2. Tri-Rail-Related Variables
 - Tri-Rail Fare – Average Tri-Rail fare per passenger (passenger revenue divided by passenger trips)
 - Service Variables
 - Tri-Rail Revenue Hours – Total number of hours vehicles traveled while in revenue service during a month on the Tri-Rail System
 - Tri-Rail Revenue Miles – Total number of miles that vehicles traveled while in revenue service during a month on the Tri-Rail System
3. Special Variables
 - Gas Prices – Average per gallon gas price for unleaded self-serve in South Florida
4. Seasonal and Monthly Variables
 - Seasonal – Variable created to account for ridership trends that vary seasonally
 - Monthly – Variable to account for differences in ridership by month of the year



“Backcasts”

Input variables from FY 2002 through FY 2009 (through October) were assembled and an input database was developed. The outputs from the model (referred to as “backcasts”) reflect the ridership estimates for FY 2002 through FY 2009, rather than future ridership based on the model inputs. Thus, the effectiveness of the model inputs for forecasting ridership can be tested. The elasticity model ridership estimates were compared with actual Tri-Rail ridership from FY 2002 through FY 2009 to determine a best-fit model.

Fare as Proxy for Parking Fee

The model estimation was calculated using data from 2002 to 2009 when parking was free at Tri-Rail stations. Therefore, a fare increase was used in the model as a proxy for a parking fee.

Parking Fee Elasticity Model Results

Based on the model calculations, the introduction of a daily parking fee (or an increase in fare as proxy for parking fee) of \$2 would result in a 15.6 percent reduction in ridership. Since approximately 50 percent of Tri-Rail passengers drive to and park at a station, based on a 2008 on-board survey, this ridership reduction would be applicable to approximately half the Tri-Rail passengers or a 7.8 percent system-wide ridership reduction. This parking fee elasticity factor (15.6 percent) was incorporated into the individual station and total system financial projections to determine the financial implications of the forecast ridership reduction.



PARKING FEE FINANCIAL MODEL REVENUE FACTORS

A parking fee financial model was developed to estimate income and operating expenses associated with the implementation of a parking fee at Tri-Rail stations. Parking fee financial models were developed for each Tri-Rail station. The parking fee financial models assumed that multi-space meter technology was employed at the stations.

Revenue

Revenue for the financial model is derived from two user groups: monthly users (monthly pass) and daily users (daily fee). Revenue is calculated for each station based upon the number of users and the parking fees. See Appendix B for the calculations/factors used in calculating revenue associated with the implementation of a parking fee.

Number of Users

The percentage of monthly tickets purchased at each station is summarized in Table 1 and was applied to determine the expected proportion of monthly pass users.

The available spaces (after deductions for monthly users) at each station were then adjusted by three factors (occupancy factor, parking fee elasticity factor, and parking space turnover factor) to calculate the number of users/vehicles parking at a facility per day. The factors applied to each station are summarized in Table 1.

Occupancy Factor

A parking occupancy factor was calculated for each station based upon actual parking counts. Occupancy factors calculated from parking counts completed in 2008 were used to estimate a peak revenue scenario, as Tri-Rail ridership and subsequent parking demand reached record levels in 2008. Occupancy factors calculated from parking counts completed in 2009 were used to approximate revenue under existing conditions.



Table 1 – Revenue Factor Summary by Station

Station	Space Capacity	2008 Count***	2008 Occup Factor	2009 Count	2009 Occup Factor	Elasticity Factor	Monthly Ticket %
Mangonia Park	272	272	100%	192	71%	84.4%	15%
West Palm Beach**	177	166	94%	105	59%	84.4%	20%
Lake Worth	225	206	92%	112	50%	84.4%	14%
Boynton Beach	324	288	89%	143	44%	84.4%	13%
Delray Beach	129	129	100%	76	59%	84.4%	8%
Boca Raton	159	148	93%	100	63%	84.4%	10%
Deerfield Beach	236	174	74%	148	63%	84.4%	11%
Pompano Beach	298	193	65%	77	26%	84.4%	53%
Cypress Creek	560	232	41%	131	23%	84.4%	15%
Fort Lauderdale**	325	277	85%	185	57%	84.4%	14%
Fort Lauderdale Airport	183	171	93%	154	84%	84.4%	15%
Sheridan Street	470	412	88%	281	60%	84.4%	11%
Hollywood**	110	110	100%	96	87%	84.4%	11%
Golden Glades (Tri-Rail Only Lot)*	208	208	100%	198	95%	84.4%	11%
Opa-locka	72	72	100%	64	89%	84.4%	6%
MetroRail Transfer	44	44	100%	39	89%	84.4%	51%
Hialeah Market	67	67	100%	42	63%	84.4%	4%
Miami Airport	138	135	98%	125	91%	84.4%	17%

Notes:

Lot capacities shown represent spaces for which SFRTA could potentially charge a fee.

Capacities for FDOT Park-and-Ride lots served by Express Bus were reduced to reflect designated Tri-Rail spaces (2007 Inventory)

* Parking Capacity based on designated Tri-Rail spaces with occupancy factor based on entire facility

** Amtrak Station – Counts may include Amtrak passenger vehicles

*** From Tri-Rail 2008 Parking and Circulation Study

Parking Fee Elasticity Factor

A parking fee elasticity factor was applied to the parking demand at each station. This factor was calculated as part of the parking fee ridership elasticity model, which was developed to estimate the impact a parking fee would have on Tri-Rail ridership. The parking fee elasticity factor is 15.6 percent, meaning that 15.6 percent of Tri-Rail riders that drive to and park at stations would switch to an alternative mode of transportation if a parking fee was implemented. Thus, an elasticity factor of 84.4 percent was applied to gauge the impact of implementing a parking fee at the stations.



Parking Space Turnover Factor

A parking space turnover factor was applied to measure the number of vehicles that utilize a parking space in a day. As Tri-Rail functions largely as a commuter service, users typically park their vehicle in the A.M. peak period and commute to work via Tri-Rail. Users leave their vehicle at their origin station's parking facilities in the morning and return to the station on their commute home in the P.M. peak hour. Thus, minimal parking space turnover occurs at Tri-Rail stations; therefore, it was conservatively assumed for revenue projections that no turnover occurs and a turnover factor of 1.0 was applied.

Number of Users

The parking demand for each station is determined by multiplying the three factors (occupancy factor, parking fee elasticity factor, and parking space turnover factor) by the station's parking capacity. The number of daily users was multiplied by five to calculate the number of users that park at a station each week. It was assumed in the financial model that parking would be free on weekends. The weekly number of users was multiplied by 52 to estimate the number of users that park at a station each year. The financial model also accounts for revenue from special events. The model assumes that three special events (sporting event, political event, etc.) occur each year.

Parking Fees

The hours of enforcement were assumed to be Monday through Friday 6 A.M.-6 P.M. for purposes of the financial model. Based upon peer transit agencies and focus group meeting input, a parking fee rate schedule was developed for the financial model. The parking fee rate schedule assumed in the financial model is presented in Table 1.



Table 2 – Pricing Schedule

Length of Stay	Price
<i>0-4 hours</i>	\$1
<i>4-12 hours</i>	\$2
<i>12-24 hours</i>	\$4
<i>Monthly Non-Reserved</i>	\$32
<i>Monthly Reserved</i>	\$40
<i>Special Event Daily</i>	\$5

These parking fees include the appropriate county sales tax depending on the station’s location. The sales tax revenue was subtracted from the parking fee to determine the actual net revenue for each parking fee price rate.

Tri-Rail functions primarily as a commuter service, as Tri-Rail users typically park their vehicles at stations for a normal workday (9-10 hours). The percentage of users that park their vehicle for each parking rate price range was estimated as follows:

- 0-4 hours: 10% of users
- 4-12 hours: 88% of users
- 12-24 hours: 2% of users

The estimated percentage of users for each parking rate price range was applied to the estimated parking capacity to determine the expected revenue per parking space for each station.

Annual Revenue

The revenue per parking space was then summed to calculate the annual revenue generated from a parking fee for each station. The revenue includes revenue generated from the monthly and daily users. The revenue for each station is compared with the expenses to determine the station's net income from a parking fee program in the Net Operating Income section.



PARKING FEE FINANCIAL MODEL EXPENSE FACTORS

The expense component of the parking fee financial model encompasses several variables, including costs of additional personnel, facility maintenance, and vehicle maintenance, associated with operating a parking fee program. See Appendix B for the calculations/factors used in calculating expenses associated with the implementation of a parking fee.

Personnel Expenses

It was assumed that three additional staff would be required to operate a parking fee program (manager, auditor, and bookkeeper). The three additional employees would be salaried employees and salaries for each position were developed based upon local pay scales and SFRTA input. Payroll taxes along with employment benefit costs were also calculated for the additional staff.

It was also assumed that 12 additional enforcement/security officers would be required to operate the program for enhanced security and enforcement, and for new tasks such as collecting money at the stations. The 12 additional personnel would be hourly employees. The hourly wage (\$26) for the additional security personnel was developed with SFRTA input, and a total annual cost for the twelve additional employees was calculated based upon the hourly wages and their annual number of hours.

Facility Maintenance Expenses

According to SFRTA, the annual maintenance expense for an average parking facility is \$15,100. It was assumed that maintenance expenses would increase by 25 percent with a parking fee program. The average annual maintenance expense (\$15,100) was adjusted proportionally to reflect the number of parking spaces at each station.

Vehicle Maintenance Expenses

It was assumed that two additional vehicles would be required for the operation of a parking fee program. It was assumed that the maintenance costs for each vehicle would be \$0.60 per mile and that each vehicle would travel 20,000 miles per year.



Expense Allocation

Expenses were allocated proportionately based upon the number of parking spaces at each station. Thus, the total expense allocated to each station in the financial analysis is based upon the size of the station’s parking facility. The expense allocation percentage utilized for each station’s financial analysis is listed in Table 3.

Table 3 – Expense Allocation by Station

Station	Parking Space Capacity	Allocation %
Mangonia Park	272	7%
West Palm Beach	177	4%
Lake Worth	225	6%
Boynton Beach	324	8%
Delray Beach	129	3%
Boca Raton	159	4%
Deerfield Beach	236	6%
Pompano Beach	298	7%
Cypress Creek	560	14%
Fort Lauderdale	325	8%
Fort Lauderdale Airport	183	5%
Sheridan Street	470	12%
Hollywood	110	3%
Golden Glades	208	5%
Opa-locka	72	2%
Metrorail Transfer	44	1%
Hialeah Market	67	2%
Miami Airport	138	3%
Total	3,997	



NET OPERATING INCOME

The expenses and revenue for each station were estimated to determine the station's net income from a parking fee program. The net income for each station was added to determine the system-wide net income associated with a parking fee program. See Appendix B for detailed net operating income calculations associated with the implementation of a parking fee at each station.

The system-wide net operating income was calculated for both the 2008 peak demand and 2009 existing conditions scenarios. As illustrated in Table 4, the net operating income for the 2008 peak demand scenario is approximately \$175,592. However, the parking fee system would operate at a loss for the 2009 existing conditions scenario. Note the system-wide net operating income presented in Table 4 does not include the revenue impact resulting from the ridership reduction associated with the implementation of a parking fee.

Table 4 – Summary of Net Operating Income

Station	2008 (Peak Conditions)			2009 (Existing Conditions)		
	Parking Occupancy	Net Operating Income		Parking Occupancy	Net Operating Income	
		Total	Per Space		Total	Per Space
Mangonia Park	100%	\$31,110	\$117	71%	\$4,830	\$18
West Palm Beach	94%	\$3,186	\$28	59%	(\$24,374)	(\$413)
Lake Worth	92%	(\$27,898)	(\$429)	50%	(\$35,484)	(\$546)
Boynton Beach	89%	\$25,491	\$79	44%	(\$22,518)	(\$70)
Delray Beach	100%	\$12,831	\$104	59%	(\$4,016)	(\$33)
Boca Raton	93%	\$12,279	\$81	63%	(\$2,858)	(\$19)
Deerfield Beach	74%	\$9,450	\$38	63%	\$279	\$1
Pompano Beach	65%	\$5,029	\$19	26%	(\$12,560)	(\$48)
Cypress Creek	41%	(\$42,853)	(\$78)	23%	(\$75,917)	(\$138)
Fort Lauderdale	85%	\$22,735	\$70	57%	(\$7,955)	(\$24)
Fort Lauderdale Airport	93%	\$12,701	\$76	84%	\$24,424	\$146
Sheridan Street	88%	\$36,332	\$77	60%	(\$9,451)	(\$20)
Hollywood	100%	\$12,985	\$117	87%	\$8,477	\$76
Golden Glades	100%	\$23,860	\$115	95%	\$20,537	\$99
Opa-locka	100%	\$5,541	\$85	89%	\$3,306	\$51
MetroRail Transfer	100%	\$2,020	\$55	89%	\$1,656	\$45
Hialeah Market	100%	\$7,263	\$108	63%	(\$806)	(\$12)
Miami Airport	98%	\$23,530	\$142	91%	\$19,859	\$120
Total		\$175,592	\$52		(\$112,569)	(\$34)



RIDERSHIP REVENUE IMPACTS

Additional revenue impacts from the expected ridership reduction resulting from a parking fee were assessed, including Federal Transit Administration (FTA) Section 5307 formula funding and fare box revenue. See Appendix C for the analysis of the revenue reduction associated with the decline in ridership resulting from a parking fee. For Section 5307 formula funding, the only parameter impacted by ridership is passenger miles traveled. The analysis concluded that the loss in FTA Section 5307 formula funding would be minimal; a 0.2 percent or \$22,900 annual reduction in Section 5307 formula funding is estimated.

Fare box revenue would also be negatively impacted by fewer Tri-Rail passengers using the system. Fare box revenue would decrease by approximately \$726,000 with the implementation of a parking fee. Thus, the total revenue impact resulting from the ridership reduction (both Section 5307 formula funding and fare box revenue) is a decrease of \$748,798.

Table 5 summarizes the total net revenue impact resulting from the implementation of a parking fee at Tri-Rail stations. A parking fee program is expected to generate a negative financial impact. The net financial impact under the 2008 peak demand scenario would be a loss of approximately \$573,206 annually and the net financial impact under the 2009 existing conditions would be a loss of approximately \$861,367 annually.

Table 5 - Summary of Net Revenue Impact

Source	2008 Peak Conditions	2009 Existing Conditions
Net Operating Income from Parking Fee	\$175,592	(112,569)
Revenue Impact from Ridership Reduction	(\$748,798)	(\$748,798)
Net Impact	(573,206)	(861,367)



CONCLUSION

A parking fee/ridership elasticity model was developed to estimate the impact that the introduction of a parking fee at Tri-Rail stations would have on ridership. Several types of variables were evaluated to determine which factors influence Tri-Rail ridership.

A best fit model was developed by comparing the elasticity model ridership estimates with actual Tri-Rail ridership over the past seven years. A \$2 fare increase (proxy for daily parking fee) was introduced to the elasticity model to gauge the impact on ridership. Based on the model results, the introduction of a daily parking fee of \$2 would result in a 15.6 percent reduction in ridership. Since approximately 50 percent of Tri-Rail passengers drive to and park at a station based on a 2008 on-board survey, this ridership reduction would be applicable to approximately half the Tri-Rail passengers or a 7.8 percent system-wide ridership reduction.

A parking fee financial model was developed to estimate income and operating expenses associated with the implementation of a parking fee at Tri-Rail stations. The parking fee financial model accounts for the 7.8 percent Tri-Rail ridership decline expected from the implementation of a \$2 daily parking fee. Parking revenue would be derived from two user groups: monthly pass holders and daily users. The financial model analyzed two scenarios: 2008 peak parking demand conditions and 2009 existing conditions.

The expenses component of the parking fee financial model included costs of additional personnel, facility maintenance, and vehicle maintenance associated with operating a parking fee program. The expenses and revenue for each station were estimated to determine the station's net income from a parking fee program. The net income for each station was totaled to determine the system-wide net income associated with a parking fee program.

Additional revenue impacts from the expected ridership reduction resulting from a parking fee were assessed, including Federal Transit Administration (FTA) Section 5307 formula funding and fare box revenue. The total revenue impact resulting from the ridership reduction (both Section 5307 formula funding and fare box revenue) is a decrease of \$748,798.



Therefore, a parking fee program is expected to generate a negative financial impact for both scenarios:

- 2008 Peak Demand: **(\$573,206)** annually
- 2009 Existing Conditions: **(\$861,367)** annually

The parking fee/ridership elasticity model demonstrated that the implementation of a parking fee at Tri-Rail stations would result in a significant ridership loss. The parking fee financial model demonstrated that a parking fee would generate a negative net financial impact. Therefore, implementation of a parking fee program is not recommended at this time.

APPENDIX A

Parking Fee Elasticity Model Development Information

Memorandum

TO: Greg Kyle, KHA and Mark Ledford, KHA
FROM: Krishnan Viswanathan, Jessica Vargas, CS
DATE: April 20, 2010
RE: Elasticity Model Development – Final Estimation -

This memo describes work performed by Cambridge Systematics (CS) to develop a parking elasticity model for the South Florida Regional Transportation Authority (SFRTA). The elasticity findings are then to be used in a separate modeling tool that will estimate the impact on ridership of introducing a parking fee at Tri-Rail stations.

Elasticity is a convenient, quantitative measure of travel demand response to price and service changes that influence demand. When considering demand for transportation, there are a number of elasticities of interest, including elasticities describing traveler response to changes in the overall amount of transit service, transit frequencies, transit fares, vehicular tolls, parking charges, and gasoline costs.

As part of the elasticity model development, CS developed a series of models to estimate the determinants of Tri-Rail ridership. The first set of models looked at the variables that determine transit ridership. Once variables that determine transit ridership were determined, fare increases as a proxy for parking price, can determine rider sensitivity to parking price.

Background Literature

In order to determine the viability of elasticity estimates developed in this study, a background literature search was done to ensure that any elasticity factors developed as part of this study are consistent with what is in the literature.

Kain and Liu¹ conducted econometric analyses of factors influencing transit ridership for 184 systems over a 30-year period between 1960 and 1990. Their findings indicate that the mean fare elasticities for ridership changes during the 1970 to 1980 and 1980 to 1990 periods, and the 1980 and 1990 cross-section models range from -0.34 to -0.44. In addition, Kain and Liu found the fare elasticity to be -0.23 and -0.48 for Houston and San Diego respectively when they estimated ridership using FY 1992 data.

¹ Kain, J.F., Liu, Z. An econometric analysis of the determinants of transit ridership, 1960 to 1990. Report prepared for the US Department of Transportation, Transport System Center, Cambridge, Massachusetts, 1998.

For the Massachusetts Bay Transportation Authority (MBTA), a fare increase of 19.5 percent results in a decrease in ridership of 4.6 percent². For the Washington D.C. transit system (WMATA), Cambridge Systematics found the fare elasticity to be between -0.12 and -0.18³. In addition, David Gillen found that overall transit fare elasticity to be between -0.33 and -0.22⁴.

These studies provide the CS team with a context when developing the parking price elasticity model and allows to determine the performance of our model.

Model Development

As part of the model development CS assembled the model input data for the FY2002 through FY2009 (through October) period and developed econometric models to forecast rail ridership. These model forecasts were then compared to actual Tri-Rail ridership.

Several types of variables were considered as determinants of Tri-Rail monthly ridership. Also, different variable specifications and functional forms were tested to identify the model specifications that provided the most intuitively appealing interpretation and statistical indications. Some variables such as downtown parking costs were explored, but didn't make the final set of variables because of limited data availability. Special events that do not occur on a regular basis, such as very large rallies/parades or unusual Tri-Rail service disruptions due to weather, were also examined. However, due to the limited ability to predict the month and year these events occur, it was decided not to include these types of special events in the final variables. The final set of explanatory variables tested in the models may be categorized into four groups.

1. Demographic Variables

- **South Florida Employment** - South Florida (Miami-Dade, Broward, and Palm Beach Counties) monthly employment estimates. Source: Moody's Economy.com.
- **South Florida Population** - South Florida (Miami-Dade, Broward, and Palm Beach Counties) yearly population estimates. Source: Florida Legislature Office of Economic and Demographic Research and U.S. Census Bureau.

2. Tri-Rail-Related Variables

- **Tri-Rail Fare** - Average Tri-Rail fare per passenger (passenger revenue divided by passenger trips). Source: SFRTA.
- Service variables attempting to capture level-of-service characteristics that may impact ridership, including:

² Central Transportation Planning Staff, Impact Analysis of a Potential MBTA Fare Increase in 2009, July 2009.

³ Cambridge Systematics, WMATA Ridership and Revenue Budget Econometric Model, August 2009.

⁴ David Gillen. "Peak Pricing Strategies in Transportation, Utilities, and Telecommunications: Lessons for Road Pricing," *Curbing Gridlock*, TRB (www.trb.org), pp. 115-151, 1994.

- **Tri-Rail Hours** – This variable represents the total number of hours that vehicles travel while in revenue service during a month on the Tri-Rail system. Source: SFRTA and National Transit Database, <http://www.ntdprogram.gov/ntdprogram/>.
- **Tri-Rail Miles** – This variable represents the total number of miles that vehicles travel while in revenue service during a month on the Tri-Rail system. Source: SFRTA and National Transit Database, <http://www.ntdprogram.gov/ntdprogram/>.

3. *Special Variables*

- **Gas Prices** – Average per gallon gas price for unleaded self-serve in South Florida. Source: U.S. Department of Energy, Energy Information Administration.

4. *Seasonal and Monthly Variables*

- **Seasonal** – This variable was created to account for ridership trends that vary by season. The season of the year variables are winter season (December through March), summer (June and July) and rest of year. Summer was defined as June and July based on ridership data.
- **Monthly** – This variable captures differences in ridership by month of the year. The month of the year variable may capture events or seasonal attributes specific to that month. For example, the holiday season in December may contribute to days off of work or increased shopping trips, which would be captured in the December variable.

CS assembled these input variables for the FY2002 through FY2009 (through October) period, and developed an input database. SFRTA provided CS with monthly estimates of actual ridership and revenue for the Tri-Rail system.

Because the outputs from the model (sometimes referred to as “backcasts”) reflect the actual estimates of the inputs for prior years, rather than future forecasts of these inputs (as one would have to use if it were at the beginning of the forecast period), inaccuracies and difficulties in forecasting the inputs are controlled. One would never be able to forecast under these circumstances, but by looking at the backcasting results, we are able to measure the model’s validity without the inaccuracies in input forecasts.

Weekday Ridership Models

In an iterative process to develop a best-fit model, three monthly ridership time-series regression models were developed for weekday Tri-Rail service. Models were developed by testing many of the variables in a variety of functional forms. Both monthly non-lagged and lagged (i.e., including the previous month values) versions of the fare and gas variables were tested (to account for rider behavior changes following a change in the input variable like gas price). For certain variables it was found that the lagged variables were better predictors of ridership, specifically the gas price and Tri-Rail fare; therefore, in the final specifications, these variables are lagged by one month as noted in the following specification tables. In addition, the presence of auto-correlation was tested for each model to determine if monthly ridership

was correlated with the ridership of previous months. For all of the models, checks were made for auto-correlation (i.e. the variables were not linked and auto-correlating).

The monthly weekday Tri-Rail ridership time-series regression models were developed using Tri-Rail ridership data from FY 2002 to FY 2009. Natural logarithms were used to transform the dependent (ridership) and independent (sociodemographic characteristics, Tri-Rail characteristics, gas price) variables to account for the skewness in the distribution of the variables. The skewness is a measure of lack of symmetry or how different the dataset looks to the right and left of the center point. Overall, there are a number of variables that were consistently found to be insignificant within the model (i.e., population and seasonable variables; therefore, these variables are not effective for forecasting the total monthly weekday Tri-Rail ridership). All of the service variables were tested in the model separately. Vehicle revenue miles were demonstrated to have a relationship to ridership; on the other hand vehicle revenue hours were not included in the final specification due to concerns regarding data validity and timeliness.

The three Tri-Rail ridership regression models are presented in Table 1, with all lagged variables noted. The variables, for the most part, were shown to be logically related to transit ridership, with the exception of the employment relationship in Model 3 (addressed below).

The first model was developed with only gas prices as the variable - which showed a positive correlation - but regression results were not favorable (adjusted R Square value of 0.4).

Hence, a second model is developed which included vehicle revenue miles and SFRTA fare and gas prices (which were lagged by one month). Results showed a strong positive correlation (shown by t-stat above 1.95) between vehicle revenue miles and ridership; a less robust negative correlation for fare (an increase in the Tri-Rail fare in the previous month is correlated with decreased ridership); and a still less robust but positive correlation between gas price and ridership.

A third model was developed which included the variables from Model 2, with the addition of South Florida employment numbers. For this model, results showed stronger correlations for revenue miles, fares and gas prices, but a reduction in ridership with an increase in employment - which appears counter-intuitive.

Table 1. Total Monthly Weekday Ridership

Variable	Model 1		Model 2		Model 3	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Constant	9.773	25.38	4.573	6.95	29.046	3.02
Natural log of vehicle revenue miles			0.7	8.59	0.708	9.04
Natural log of SFRTA fares (lagged one month)			-0.245	-	-0.433	-2.83
Natural log of Gas prices (lagged one month)	0.476	6.81	0.039	0.56	0.188	2.11
Natural log of Employment					-1.721	-2.55
Number of Observations	70		70		70	
Adjusted R Square	0.4		0.71		0.73	

Table 2 shows the average yearly ratio of actual Tri-Rail to estimated ridership results from the three models.

Table 2. Ratio of Estimated Values to Actual Values

Year	Average Weekday Ridership		
	Model 1	Model 2	Model 3
2003	1.03	1.02	1.05
2004	1.02	0.97	0.99
2005	1.17	1.03	1.01
2006	1.08	1.03	1.01
2007	1.02	1.08	1.04
2008	0.91	0.92	0.95
2009	0.85	1.01	1.01

Figures 1 to 3 show the ratios of modeled to observed ridership between 2003 and 2009 for the three models. Figures 4 to 6 show the ridership numbers for modeled versus observed (estimated) weekday ridership for the three models.

Fare as Proxy for Parking

The focus groups conducted during the fall of 2009 found great reluctance on the part of respondents to pay for parking. Of the various parking fare structures proposed, the \$2 for four to 12 hours of parking was found to most tolerable to respondents. However, because the model estimation is done using data from FY 2002 to FY 2009 and parking was free at Tri-Rail stations during this period, introducing a parking fee of \$2.00 would have led to erroneous results and inability to interpret the results in a statistically coherent manner. Further, using a single value of \$2.00 causes lack of variability problems, which also leads to statistically spurious results. In addition, revenue per passenger is based on real data and is therefore more policy responsive in the absence of a well-designed stated-preference survey which would allow for isolation of parking price impacts. For all these reasons, increases in fare were assumed as a proxy for a parking fee.

The average revenue per passenger is \$2.13 so a fare increase of 100 percent approximates the proposed \$2.00 daily parking fare. The model was applied in increments of 10 percent up to 100 percent and the change in ridership was estimated. Table 3 shows the change in ridership as fare increases from 10 to 100 percent and shows a parking fare of \$2.00 results in a reduction of ridership of 15.6 percent, which is consistent with what was found in the literature.

Table 3. Elasticity Model Sensitivity Results

Percent Increase in Fare from base to	Percent Change in Ridership
10 percent	-2.3%
20 percent	-4.4%
30 percent	-6.2%
40 percent	-7.9%
50 percent	-9.5%
60 percent	-10.9%
70 percent	-12.2%
80 percent	-13.4%
90 percent	-14.6%
100 percent	-15.6%

It should be noted here that for elasticity measures to be applicable, the transportation system change or built environment difference must be a relative one (as opposed to an absolute one). In other words, it must involve a quantifiable percentage increase, decrease, or difference in the system parameter of interest. For example, while elasticity measures can be used to describe the response to a change in the overall amount of transit service (like more frequent service

between existing stations), they cannot be used to describe the response to introducing a new dimension of service like serving a new end station.

In such a case where one of the variable values is zero – such as where parking is being charged for after previously being free – arc elasticity formulation must be employed. Arc elasticity is based on both the original and final values of demand and price or service. An arc elasticity function was used because of the introduction of parking price as a new variable.

Transportation elasticities are informally adopted from the economist’s measure “price elasticity.” The price elasticity of demand is loosely defined as the percentage change in quantity of commodity or service demand in response to a 1 percent change in price. For instance, a price elasticity of -0.3 indicates that for a 1 percent increase (decrease) in the price of a good or service, there is a 0.3 percent decrease (increase) in the demand for that good or service.

It would be more precise to say, however, that a price elasticity of -0.3 indicates an 0.3 percent reduction (or increase) in demand in response to each one percent price increase (or decrease), calculated in infinitesimally small increments. The negative sign signifies an inverse relationship between price and demand. In other words, it indicates that the effect operates in the opposite direction from the cause. For example, an increase in price results in a decrease in demand, and the corresponding elasticity is negative. An increase in service promotes an increase in demand, and the elasticity is positive.

The elasticity of the model is -0.25 which is again consistent with the findings in the literature and it ranges from -0.11 to -0.25 .

Summary

In summary, introducing a parking price of \$2.00 results in a reduction in ridership of 15.6 percent. This reduction is applicable only to the 49.7 percent⁵ of Tri-Rail passengers who drive to and park at a station.

⁵ Gannett Fleming, 2008 Tri-Rail Transit On-board Survey, 2009.

Figure 1. Average Weekday Tri-Rail Ridership Comparison - Model 1

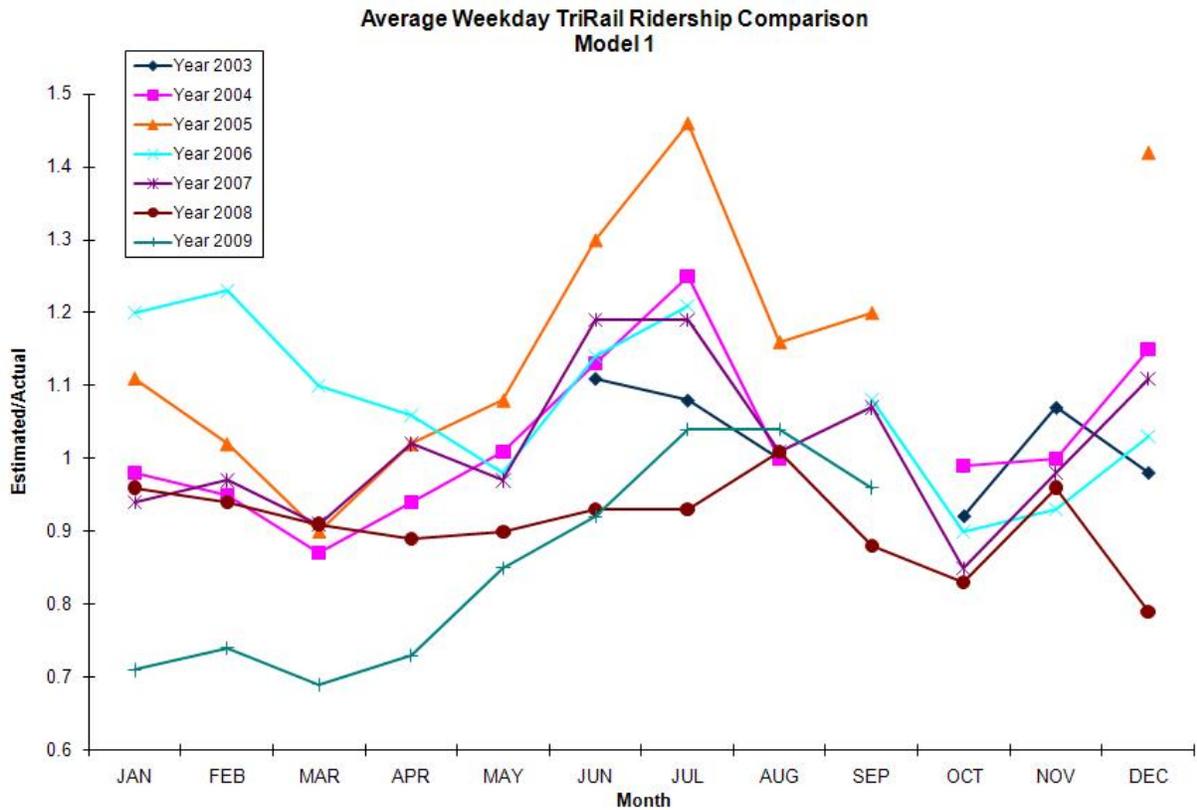


Figure 2. Average Weekday Tri-Rail Ridership Comparison - Model 2

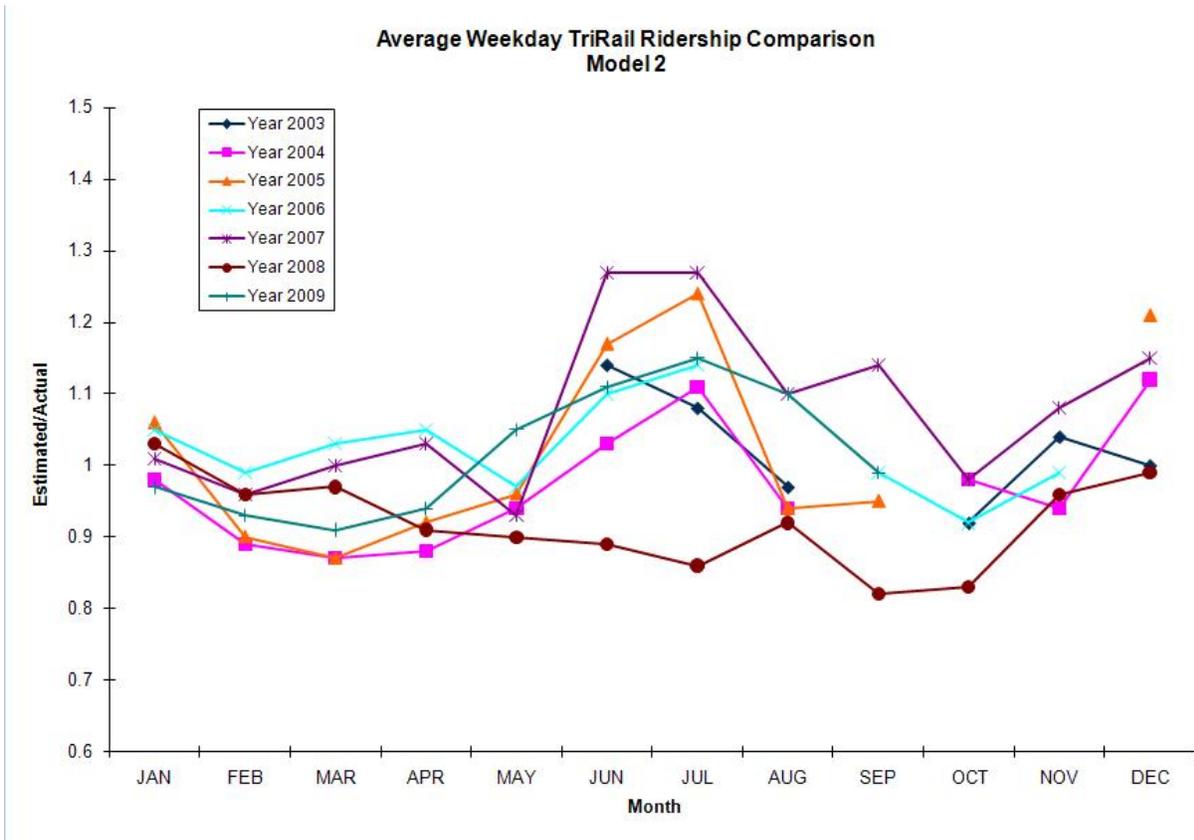


Figure 3. Average Weekday Tri-Rail Ridership Comparison - Model 3

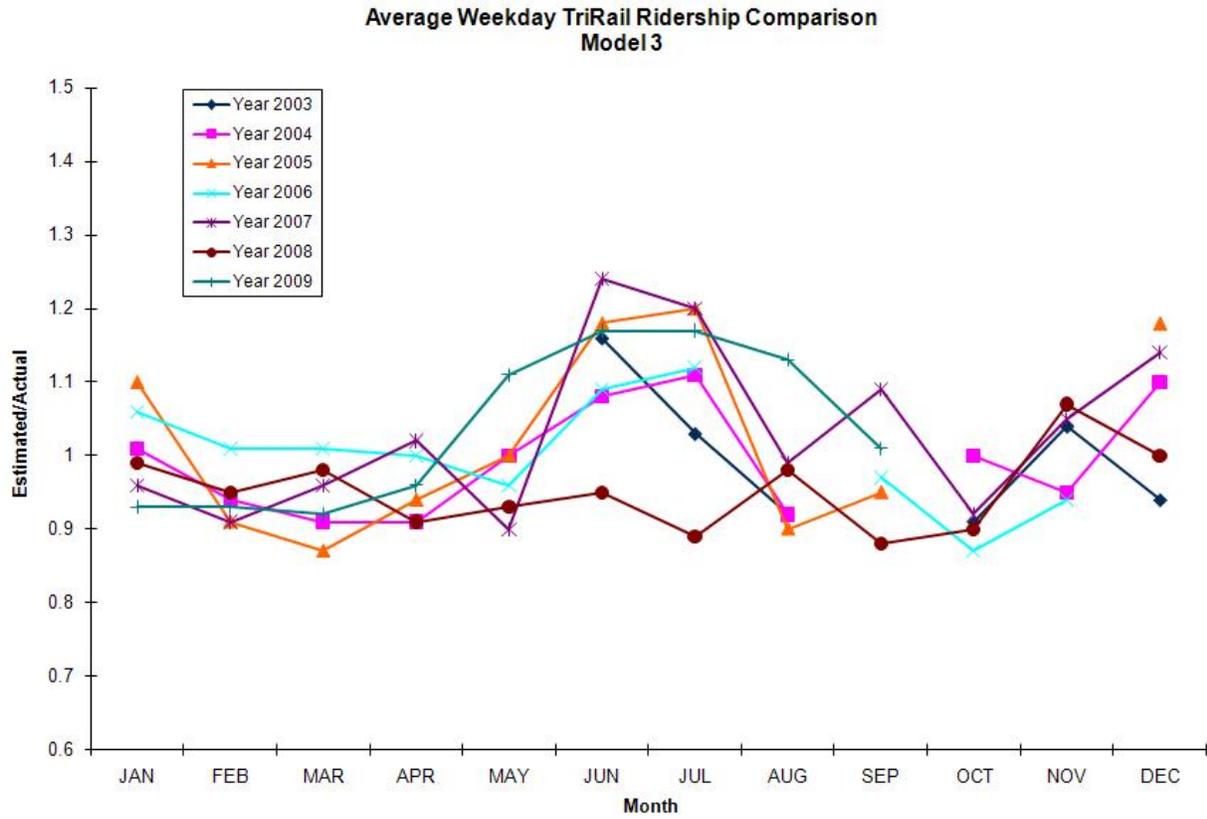


Figure 4. Weekday Tri-Rail Ridership: Estimated versus Observed – Model 1

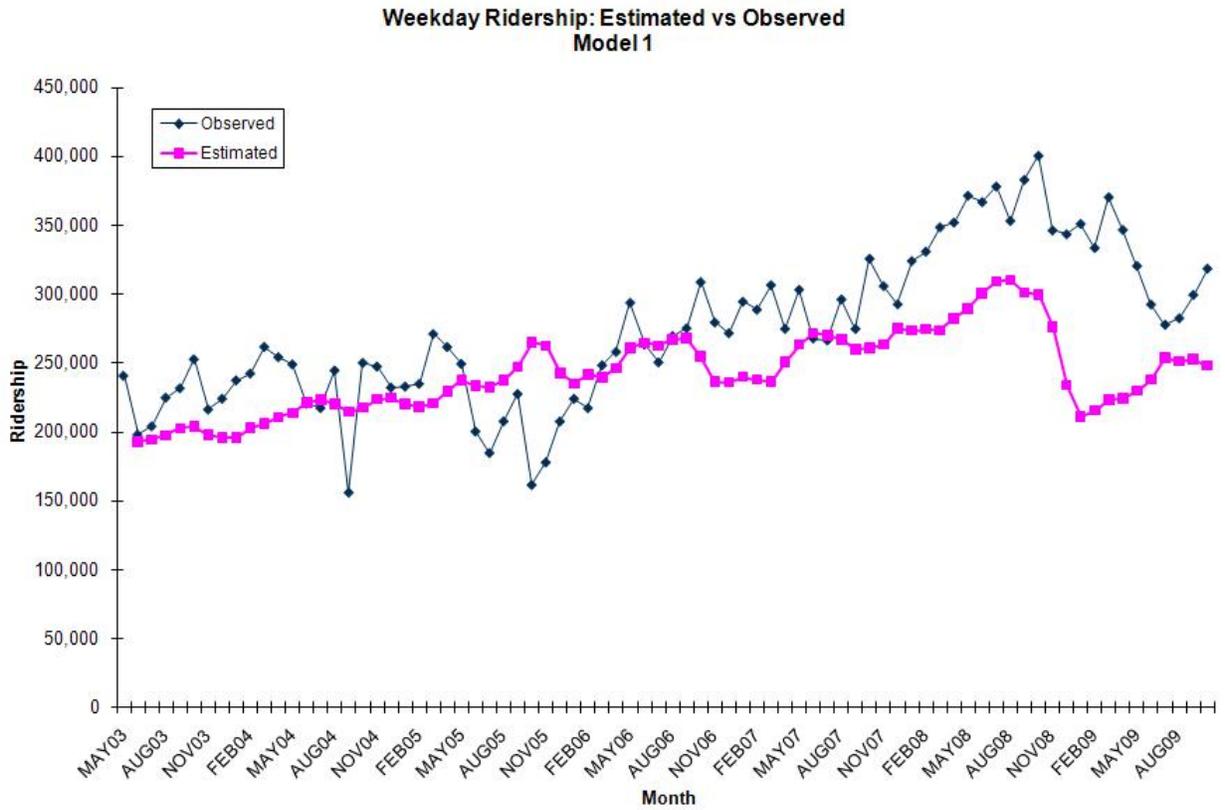


Figure 5. Weekday Tri-Rail Ridership: Estimated versus Observed – Model 2

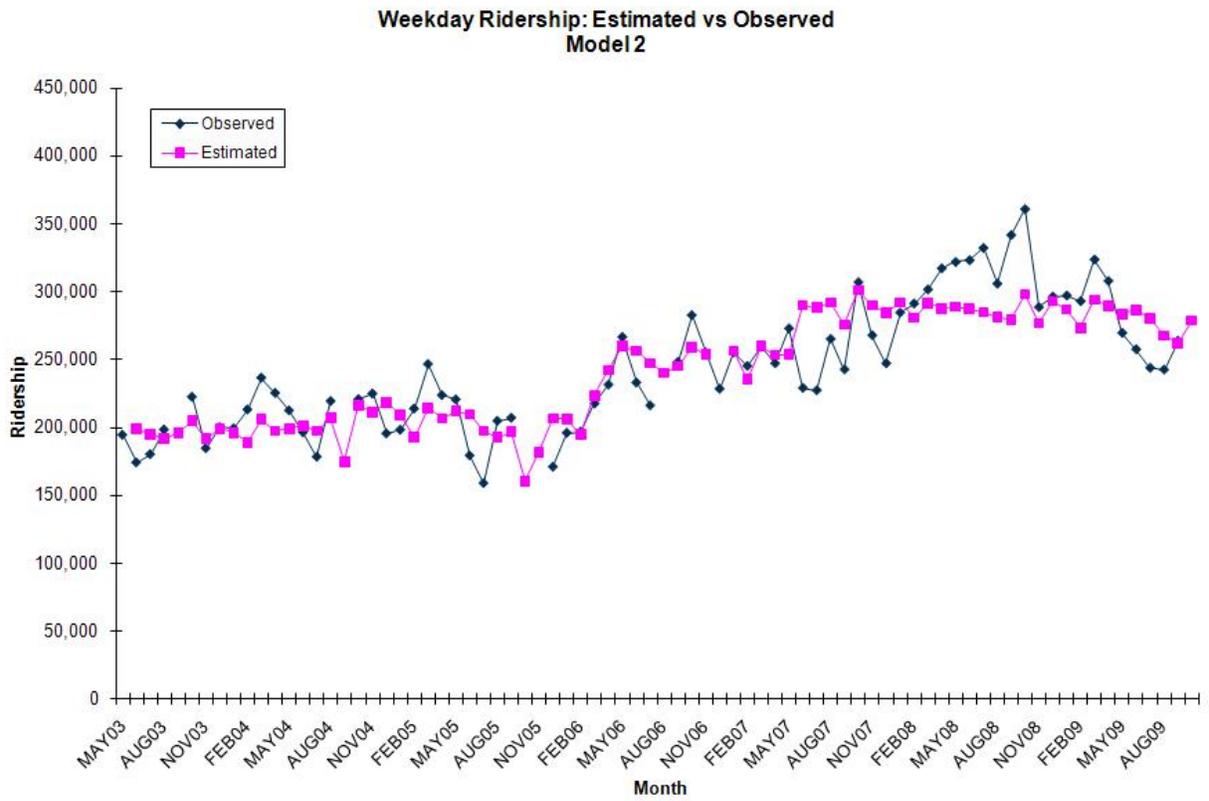
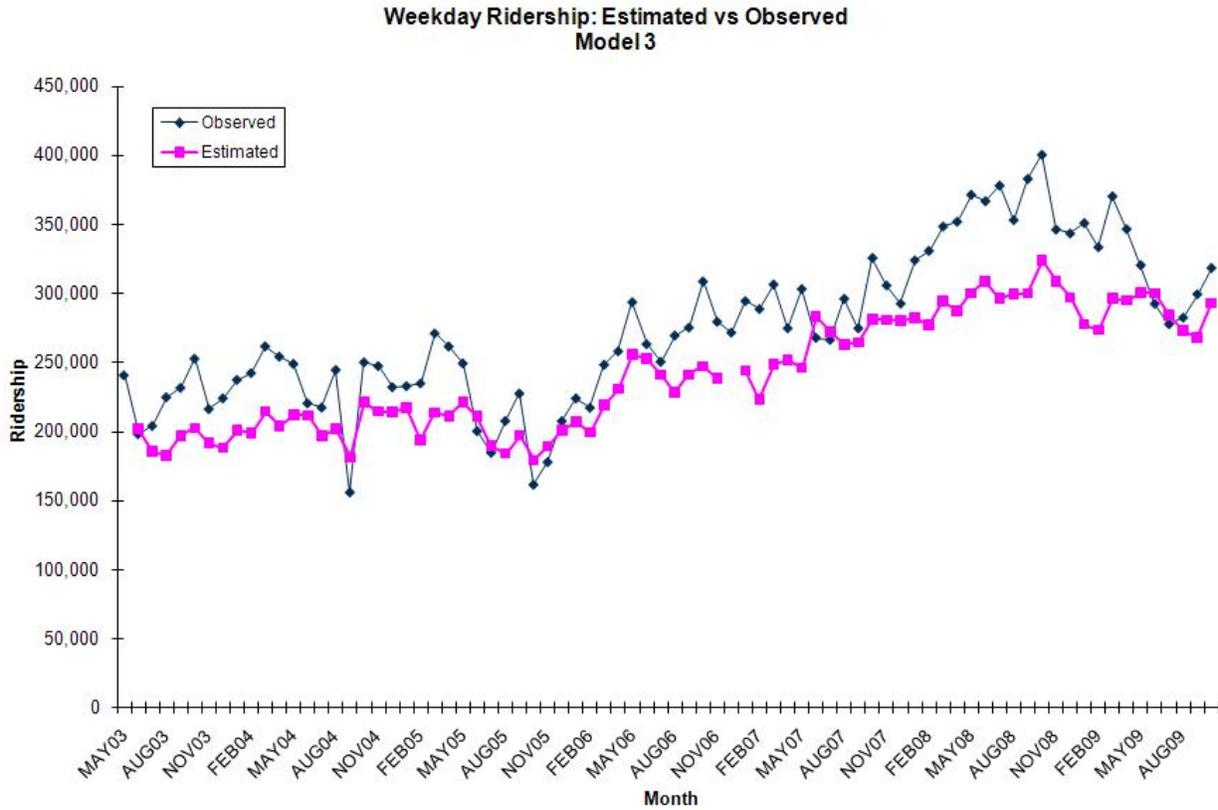


Figure 6. Weekday Tri-Rail Ridership: Estimated versus Observed – Model 3



APPENDIX B

Net Operating Income Calculations by Station

2008 Peak Demand Scenario

Mangonia Park Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$92,478	\$423
Monthly	<u>\$20,550</u>	

TOTAL REVENUE	\$113,028	
----------------------	------------------	--

OPERATING EXPENSES		
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Salaries & Wages	\$54,370	
Payroll Taxes	\$2,083	
Repairs & Maintenance	\$24,826	
Vehicle Maintenace	\$639	

TOTAL OPERATING EXPENSES	\$81,918	306.81
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NET OPERATING INCOME	\$31,110	\$117
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West Palm Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$32,896	\$408
Monthly	\$13,606	

TOTAL REVENUE	\$46,502	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$35,381	
Payroll Taxes	\$1,810	
Repairs & Maintenance	\$5,486	
Vehicle Maintenance	\$639	

TOTAL OPERATING EXPENSES	\$43,316	379.97
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$3,186	\$28
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Lake Worth Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$18,017	\$406
Monthly	<u>\$8,403</u>	

TOTAL REVENUE	\$26,420	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$44,975	
Payroll Taxes	\$1,948	
Repairs & Maintenance	\$6,044	
Vehicle Maintenance	\$1,351	

TOTAL OPERATING EXPENSES	\$54,318	835.66
---------------------------------	-----------------	--------

NET OPERATING INCOME	(\$27,898)	(\$429)
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Boynton Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$103,255	\$386
Monthly	\$21,118	

TOTAL REVENUE	\$124,373	
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OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$64,764	
Payroll Taxes	\$2,232	
Repairs & Maintenance	\$29,940	
Vehicle Maintenance	\$1,945	

TOTAL OPERATING EXPENSES	\$98,882	307.09
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NET OPERATING INCOME	\$25,491	\$79
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Delray Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$43,865	\$427
Monthly	\$8,634	

TOTAL REVENUE	\$52,500	
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OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$25,786	
Payroll Taxes	\$1,672	
Repairs & Maintenance	\$11,436	
Vehicle Maintenance	\$775	

TOTAL OPERATING EXPENSES	\$39,669	322.51
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$12,831	\$104
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Boca Raton Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$50,240	\$403
Monthly	\$10,574	

TOTAL REVENUE	\$60,814	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$31,782	
Payroll Taxes	\$1,758	
Repairs & Maintenance	\$14,040	
Vehicle Maintenance	\$955	

TOTAL OPERATING EXPENSES	\$48,536	321.43
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$12,279	\$81
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Deerfield Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$67,350	\$337
Monthly	\$15,544	

TOTAL REVENUE	\$82,894	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$47,174	
Payroll Taxes	\$1,980	
Repairs & Maintenance	\$22,874	
Vehicle Maintenance	\$1,417	

TOTAL OPERATING EXPENSES	\$73,444	298.55
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$9,450	\$38
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Pompano Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	-----------------

Transient	\$35,569	\$358
Monthly	\$57,057	

TOTAL REVENUE	\$92,626	
----------------------	-----------------	--

OPERATING EXPENSES

Salaries & Wages	\$59,567	
Payroll Taxes	\$2,158	
Repairs & Maintenance	\$24,083	
Vehicle Maintenance	\$1,789	

TOTAL OPERATING EXPENSES	\$87,597	338.21
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NET OPERATING INCOME	\$5,029	\$19
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Cypress Creek Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$89,673	\$229
Monthly	\$37,010	

TOTAL REVENUE	\$126,683	
----------------------	------------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$111,938	
Payroll Taxes	\$2,910	
Repairs & Maintenance	\$51,325	
Vehicle Maintenance	\$3,363	

TOTAL OPERATING EXPENSES	\$169,536	307.13
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NET OPERATING INCOME	(\$42,853)	(\$78)
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Fort Lauderdale Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$100,381	\$376
Monthly	\$21,724	

TOTAL REVENUE	\$122,105	
----------------------	------------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$64,964	
Payroll Taxes	\$2,235	
Repairs & Maintenance	\$30,219	
Vehicle Maintenance	\$1,951	

TOTAL OPERATING EXPENSES	\$99,369	305.75
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NET OPERATING INCOME	\$22,735	\$70
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Fort Lauderdale Airport Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$53,297	\$406
Monthly	\$14,438	

TOTAL REVENUE	\$67,735	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$36,580	
Payroll Taxes	\$1,827	
Repairs & Maintenance	\$15,528	
Vehicle Maintenance	\$1,099	

TOTAL OPERATING EXPENSES	\$55,034	329.54
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NET OPERATING INCOME	\$12,701	\$76
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Sheridan Street Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	-----------------

Transient	\$155,635	\$382
Monthly	<u>\$23,819</u>	

TOTAL REVENUE	\$179,455	
----------------------	------------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$93,948	
Payroll Taxes	\$2,651	
Repairs & Maintenance	\$43,701	
Vehicle Maintenance	\$2,822	

TOTAL OPERATING EXPENSES	\$143,123	304.52
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NET OPERATING INCOME	\$36,332	\$77
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Hollywood Boulevard Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$37,977	\$429
Monthly	<u>\$9,596</u>	

TOTAL REVENUE	\$47,573	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$21,988	
Payroll Taxes	\$1,618	
Repairs & Maintenance	\$10,321	
Vehicle Maintenance	\$660	

TOTAL OPERATING EXPENSES	\$34,587	311.60
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NET OPERATING INCOME	\$12,985	\$117
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Golden Glades Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$74,139	\$423
Monthly	\$13,786	

TOTAL REVENUE	\$87,925	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$41,577	
Payroll Taxes	\$1,899	
Repairs & Maintenance	\$19,340	
Vehicle Maintenance	\$1,249	

TOTAL OPERATING EXPENSES	\$64,065	308.01
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$23,860	\$115
-----------------------------	-----------------	-------

Opa-Locka Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$21,506	\$430
Monthly	<u>\$6,412</u>	

TOTAL REVENUE	\$27,918	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$14,392	
Payroll Taxes	\$1,509	
Repairs & Maintenance	\$6,044	
Vehicle Maintenance	\$432	

TOTAL OPERATING EXPENSES	\$22,377	344.26
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$5,541	\$85
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Metrorail Transfer Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$3,887	\$431
Monthly	\$12,061	

TOTAL REVENUE	\$15,948	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$8,795	
Payroll Taxes	\$1,428	
Repairs & Maintenance	\$3,440	
Vehicle Maintenace	\$264	

TOTAL OPERATING EXPENSES	\$13,928	376.42
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NET OPERATING INCOME	\$2,020	\$55
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Hialeah Market Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$23,067	\$430
Monthly	<u>\$5,715</u>	

TOTAL REVENUE	\$28,782	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$13,393	
Payroll Taxes	\$1,494	
Repairs & Maintenance	\$6,230	
Vehicle Maintenance	\$402	

TOTAL OPERATING EXPENSES	\$21,519	321.18
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$7,263	\$108
-----------------------------	----------------	-------

Miami Airport Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	-----------------

Transient	\$53,513	\$416
Monthly	\$15,564	

TOTAL REVENUE	\$69,077	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$27,585	
Payroll Taxes	\$1,698	
Repairs & Maintenance	\$15,435	
Vehicle Maintenance	\$829	

TOTAL OPERATING EXPENSES	\$45,547	274.38
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NET OPERATING INCOME	\$23,530	\$142
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2009 Existing Demand Scenario

Mangonia Park Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$67,193	\$329
Monthly	\$20,550	

TOTAL REVENUE	\$87,743	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$54,370	
Payroll Taxes	\$2,083	
Repairs & Maintenance	\$24,826	
Vehicle Maintenance	\$1,633	

TOTAL OPERATING EXPENSES	\$82,912	310.53
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$4,830	\$18
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West Palm Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$10,008	\$328
Monthly	\$9,358	

TOTAL REVENUE	\$19,366	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$35,381	
Payroll Taxes	\$1,810	
Repairs & Maintenance	\$5,486	
Vehicle Maintenance	\$1,063	

TOTAL OPERATING EXPENSES	\$43,740	741.35
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NET OPERATING INCOME	(\$24,374)	(\$413)
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Lake Worth Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$10,431	\$290
Monthly	<u>\$8,403</u>	

TOTAL REVENUE	\$18,834	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$44,975	
Payroll Taxes	\$1,948	
Repairs & Maintenance	\$6,044	
Vehicle Maintenance	\$1,351	

TOTAL OPERATING EXPENSES	\$54,318	835.66
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NET OPERATING INCOME	(\$35,484)	(\$546)
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Boynton Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$55,246	\$237
Monthly	\$21,118	

TOTAL REVENUE	\$76,364	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$64,764	
Payroll Taxes	\$2,232	
Repairs & Maintenance	\$29,940	
Vehicle Maintenance	\$1,945	

TOTAL OPERATING EXPENSES	\$98,882	307.09
---------------------------------	-----------------	--------

NET OPERATING INCOME	(\$22,518)	(\$70)
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Delray Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$27,019	\$290
Monthly	\$8,634	

TOTAL REVENUE	\$35,653	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$25,786	
Payroll Taxes	\$1,672	
Repairs & Maintenance	\$11,436	
Vehicle Maintenance	\$775	

TOTAL OPERATING EXPENSES	\$39,669	322.51
---------------------------------	-----------------	--------

NET OPERATING INCOME	(\$4,016)	(\$33)
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Boca Raton Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$35,104	\$303
Monthly	\$10,574	

TOTAL REVENUE	\$45,678	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$31,782	
Payroll Taxes	\$1,758	
Repairs & Maintenance	\$14,040	
Vehicle Maintenance	\$955	

TOTAL OPERATING EXPENSES	\$48,536	321.43
---------------------------------	-----------------	--------

NET OPERATING INCOME	(\$2,858)	(\$19)
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Deerfield Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$58,179	\$300
Monthly	\$15,544	

TOTAL REVENUE	\$73,723	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$47,174	
Payroll Taxes	\$1,980	
Repairs & Maintenance	\$22,874	
Vehicle Maintenance	\$1,417	

TOTAL OPERATING EXPENSES	\$73,444	298.55
---------------------------------	-----------------	--------

NET OPERATING INCOME	\$279	\$1
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Pompano Beach Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax) \$/Space

Transient	\$17,980	\$290
Monthly	\$57,057	

TOTAL REVENUE	\$75,037	
----------------------	-----------------	--

OPERATING EXPENSES

Salaries & Wages	\$59,567
Payroll Taxes	\$2,158
Repairs & Maintenance	\$24,083
Vehicle Maintenance	\$1,789

TOTAL OPERATING EXPENSES	\$87,597	338.21
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NET OPERATING INCOME	(\$12,560)	(\$48)
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Cypress Creek Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$56,609	\$170
Monthly	\$37,010	

TOTAL REVENUE	\$93,618	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$111,938	
Payroll Taxes	\$2,910	
Repairs & Maintenance	\$51,325	
Vehicle Maintenance	\$3,363	

TOTAL OPERATING EXPENSES	\$169,536	307.13
---------------------------------	------------------	--------

NET OPERATING INCOME	(\$75,917)	(\$138)
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Fort Lauderdale Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$69,690	\$281
Monthly	\$21,724	

TOTAL REVENUE	\$91,414	
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OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$64,964	
Payroll Taxes	\$2,235	
Repairs & Maintenance	\$30,219	
Vehicle Maintenance	\$1,951	

TOTAL OPERATING EXPENSES	\$99,369	305.75
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NET OPERATING INCOME	(\$7,955)	(\$24)
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Ft Lauderdale Airport Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$48,394	\$376
Monthly	\$14,438	

TOTAL REVENUE	\$62,832	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$36,580	
Payroll Taxes	\$1,827	
Repairs & Maintenance	\$0	
Vehicle Maintenance	\$0	

TOTAL OPERATING EXPENSES	\$38,407	229.98
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NET OPERATING INCOME	\$24,424	\$146
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Sheridan Street Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$109,853	\$284
Monthly	<u>\$23,819</u>	

TOTAL REVENUE	\$133,672	
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OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$93,948	
Payroll Taxes	\$2,651	
Repairs & Maintenance	\$43,701	
Vehicle Maintenance	\$2,822	

TOTAL OPERATING EXPENSES	\$143,123	304.52
---------------------------------	------------------	--------

NET OPERATING INCOME	(\$9,451)	(\$20)
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Hollywood Boulevard Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$33,469	\$388
Monthly	<u>\$9,596</u>	

TOTAL REVENUE	\$43,065	
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OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$21,988	
Payroll Taxes	\$1,618	
Repairs & Maintenance	\$10,321	
Vehicle Maintenance	\$660	

TOTAL OPERATING EXPENSES	\$34,587	311.60
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NET OPERATING INCOME	\$8,477	\$76
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Golden Glades Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$70,816	\$407
Monthly	\$13,786	

TOTAL REVENUE	\$84,602	
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OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$41,577	
Payroll Taxes	\$1,899	
Repairs & Maintenance	\$19,340	
Vehicle Maintenance	\$1,249	

TOTAL OPERATING EXPENSES	\$64,065	308.01
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NET OPERATING INCOME	\$20,537	\$99
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Opa-Locka Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$19,271	\$395
Monthly	<u>\$6,412</u>	

TOTAL REVENUE	\$25,683	
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OPERATING EXPENSES		
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Salaries & Wages	\$14,392	
Payroll Taxes	\$1,509	
Repairs & Maintenance	\$6,044	
Vehicle Maintenance	\$432	

TOTAL OPERATING EXPENSES	\$22,377	344.26
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NET OPERATING INCOME	\$3,306	\$51
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Metrorail Transfer Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax) \$/Space

Transient	\$3,523	\$421
Monthly	<u>\$12,061</u>	

TOTAL REVENUE	\$15,584	
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OPERATING EXPENSES

Salaries & Wages	\$8,795
Payroll Taxes	\$1,428
Repairs & Maintenance	\$3,440
Vehicle Maintenance	\$264

TOTAL OPERATING EXPENSES	\$13,928	376.42
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NET OPERATING INCOME	\$1,656	\$45
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Hialeah Market Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	----------

Transient	\$14,998	\$309
Monthly	<u>\$5,715</u>	

TOTAL REVENUE	\$20,713	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$13,393	
Payroll Taxes	\$1,494	
Repairs & Maintenance	\$6,230	
Vehicle Maintenance	\$402	

TOTAL OPERATING EXPENSES	\$21,519	321.18
---------------------------------	-----------------	--------

NET OPERATING INCOME	(\$806)	(\$12)
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Miami Airport Tri-Rail Station

Preliminary STABILIZED PRO FORMA

Year One

REVENUES (Net of Tax)		\$/Space
------------------------------	--	-----------------

Transient	\$49,842	\$394
Monthly	\$15,564	

TOTAL REVENUE	\$65,406	
----------------------	-----------------	--

OPERATING EXPENSES		
---------------------------	--	--

Salaries & Wages	\$27,585	
Payroll Taxes	\$1,698	
Repairs & Maintenance	\$15,435	
Vehicle Maintenance	\$829	

TOTAL OPERATING EXPENSES	\$45,547	274.38
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NET OPERATING INCOME	\$19,859	\$120
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APPENDIX C

Analysis of Revenue Impact from Ridership Decline

Memorandum

TO: Greg Kyle and Mark Ledford, KHA
FROM: Peter Haliburton and Jessica Vargas, CS
DATE: April 21, 2010
RE: SFRTA Parking Revenue Feasibility Study – Revenue Impact Analysis

Introduction

Cambridge Systematics, Inc. (CS), in support of the South Florida Regional Transportation Authority (SFRTA) Parking Revenue Feasibility Study, analyzed the anticipated impact on SFRTA's revenues of introducing a parking fee at Tri-Rail stations. This memo summarizes CS' assessment of the revenue SFRTA could lose when ridership decreases as a result of the implementation of a parking fee.

Assumption

After reviewing SFRTA FY 09-10 Budget and its revenue sources, it was found that FTA Section 5307 funds and the train service revenue (i.e. farebox revenue) will be the two funding sources impacted by any loss in Tri-Rail ridership as a result of an increase in Tri-Rail passenger costs – through the introduction of a parking fee.

The parking elasticity model developed by CS earlier estimated the percent change in ridership after introducing a parking fee at Tri-Rail stations.¹ Model results indicated that introducing a daily parking fee of \$2.00 (i.e. increasing average fare of \$2.13 by just under 100 percent) results in a reduction in ridership of 15.6 percent. This reduction is applicable only to the 49.7 percent of Tri-Rail riders who drove and parked (including those who drove alone or shared a ride) at a station before getting on the train.² As a result, it was assumed that half of the percent change in ridership estimated by the model represents the percent change in total system ridership (including park-n-riders and non-park-n-riders) – or a reduction of 7.8 percent in ridership. Table 1 shows the parking elasticity model's estimates of percent change in system ridership as fare, as a proxy for a parking fee, increases from 50 percent to 200 percent.

¹ In the development of the elasticity model an increase in average fare was used as a proxy for a parking fee assuming that an increase in fare is an increase in the cost of riding Tri-Rail including paying for parking.

² Gannett Fleming, 2008 Tri-Rail Transit On-board Survey, 2009.

Table 1 - Parking Elasticity Model Sensitivity Results

Percent Increase in Fare from Base to	Percent Change in Park-n-Ride Ridership	Percent Change in System Ridership
50%	-9.5%	-4.8%
100%	-15.6%	-7.8%
200%	-23.6%	-11.8%

Note: 100% increase in fare mimics the proposed \$2.00 daily parking fare.

FTA Formula Funds

Federal Transit Administration (FTA) Section 5307 Urbanized Area Formula Funds for the Miami Florida Urbanized Area (UZA) are allocated based on an apportionment formula.³ These funds are then sub-allocated to the four transit agencies in the Miami UZA (Miami-Dade Transit (MDT), Broward County Transit (BCT), PalmTran and SFRTA) using an agreed sub-allocation formula based on FTA Section 5307 apportionment formula and data unit values established by FTA.⁴ According to the *FTA Fund Distribution Evaluation* report prepared for MDT, BCT, PalmTran and SFRTA by KHA and CS in August 2006, transit agencies that receive Section 5307 funds are required to report data to the FTA’s National Transit Database (NTD) in order to nationally distribute these funds to urbanized areas.

SFRTA’s Finance Department shared with CS the FY 2010 Section 5307 Allocation spreadsheet that automatically calculates the sub-allocation for each transit agency once the data unit values established by FTA for urbanized areas over 1,000,000 are entered. Population, population density, vehicle revenue miles, fixed guideway directional route miles, passenger miles traveled, and operating expenses are the parameters used in calculating Section 5307 funds for the region and each transit agency. These parameters are reported by each transit agency every year and FTA uses this data two years prior to the current year to establish the apportionment for each urbanized area (i.e. FY 2010 distribution is based upon data reported in FY 2008 or NTD Report Year 2008).

Passenger miles traveled is the only parameter that is impacted by ridership levels. As the number of passengers decreases, so does the passenger miles traveled.⁵ To estimate the impact on SFRTA revenues when ridership is negatively affected by a parking fee, all other parameters were held constant in the sub-allocation spreadsheet provided by SFRTA and the passenger miles traveled for Tri-Rail (fixed-guideway) were decreased in five percent increments to test the sensitivity of system ridership changes in the total amount of SFRTA formula funds. Table

³ http://www.fta.dot.gov/documents/Table_4_-_2010_CR_Sec_5307__Apportionment_Formula.xls

⁴ http://www.fta.dot.gov/documents/Table_5_-_2010_CR_Formula_Grant_Program_Apportionment_Data_Unit_Values_revised.xls

⁵ Passenger miles traveled is defined in the National Transit Database as the cumulative sum of the distances ridden by each passenger.

2 summarizes the change in formula funds for SFRTA as the percent change in system ridership decreases from five to 50 percent.

Table 2 - Change in SFRTA Formula Funds Results

Percent Decrease in System Ridership	Percent Change in SFRTA Formula Funds
5%	-0.1%
10%	-0.3%
15%	-0.4%
20%	-0.5%
25%	-0.6%
30%	-0.7%
35%	-0.8%
40%	-0.9%
45%	-1.1%
50%	-1.2%

As Table 2 shows, a five percent system ridership loss will result in a decrease of 0.1 percent in SFRTA Section 5307 formula funds. FY 2010 Section 5307 sub-allocation for SFRTA was \$5,009,267 out of the \$42,606,993 total funds allocated to the Miami UZA in February 16, 2010 as reported in the Federal Register.⁶ This total allocation for the Miami UZA represents 43 percent of the total FY 2010 formula funds for the urban area.⁷ The remaining 57 percent of the formula funds are allocated later in the year to the Miami UZA. Assuming the current sub-allocation of SFRTA formula funds also represents 43 percent of the complete sub-allocation expected later in the year, the anticipated FY 2010 formula funds for SFRTA would add up to \$11,649,459.

Table 3 summarizes how the introduction of a parking fee (using an increase in fare as a proxy for a parking fee) will affect SFRTA formula funds. A \$2.00 daily parking fee (or 100% increase in fare/user costs) will result in a 0.2 percent reduction in Section 5307 formula funds or \$22,900 revenue lost.

Table 3 - Parking Elasticity Model and Percent Change in SFRTA Formula Funds Results

Percent Increase in Fare from Base	Percent Change in Park-n-Ride Ridership	Percent Change in System Ridership	Total FY 2010 FTA Formula Funds Expected²	FTA Formula Program Revenue Loss	Percent Change in Formula Funds
0%	-	-	\$11,649,459	-	-
50%	-9.5%	-4.8%	\$11,635,287	\$14,172	-0.1%
100% ¹	-15.6%	-7.8%	\$11,626,559	\$22,900	-0.2%

⁶ http://www.fta.dot.gov/documents/Table_3_-_2010_CR_Sec_5307_UAF_and_5340_Appportionments.xls

⁷ Telephone Interview with Elizabeth Walters-Ebersole, SFRTA Budget & Grants Manager, April 14, 2010.

200%	-23.6%	-11.8%	\$11,615,071	\$34,388	-0.3%
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¹Note: 100% increase in fare mimics the proposed \$2.00 daily parking fare.

² Assumes a 100% allocation of FY 2010 FTA Section 5307 Formula Funds based on the current 43% funds allocated in February 16, 2010.

Train Service Revenue

In addition to formula funds that could be lost if ridership levels decrease, the amount of train service revenue or fare revenue will also be negatively impacted by fewer Tri-Rail passengers riding the system. Train service revenue is defined in SFRTA's 2009 Comprehensive Annual Financial Report (CAFR) as the revenue collected from tickets sold at the train stations (at ticket vending machines or kiosks) or from SFRTA administrative office by means of direct billing or through a specially designed ticket discount program.⁸ Train service revenue data (or tickets sold per month by dollar amount) from January 2002 to November 2009 was provided by SFRTA for this analysis. The most recent available data for the months of December 2008 to November 2009, summarized in Table 4, were used to obtain a year worth of train service revenue.

Table 4 - Summary of SFRTA Tickets Sales (Dec 2008 to Nov 2009)

Ticket Type	Train Revenue/ Tickets Sold	%
One Way	\$3,039,014	32.5%
One Way Disc.	\$682,134	7.3%
Round Trip	\$1,749,575	18.7%
Round Trip Disc.	\$480,525	5.1%
12 Trip	\$362,195	3.9%
12 Trip EDP	\$354,935	3.8%
Monthly	\$592,160	6.3%
Monthly EDP	\$1,624,275	17.3%
Monthly Disc.	\$477,750	5.1%
Total	\$9,362,563	100%

As mentioned earlier in the memo, 49.7 percent of Tri-Rail riders drive and park (including those who drive alone or share a ride) at a station before getting on a train according to the most recent on-board survey conducted in 2008.⁹ These riders and ticket holders are the ones that will be affected by the introduction of a parking fee. Therefore, for the purposes of this analysis, it was assumed that 49.7 percent (or \$4.65 million) of the total train service revenue indicated in Table 4 (\$9.4 million) represents the train revenue generated by park-n-riders. Revenue generated by non park-n-riders it is assumed will not be affected by the introduction of a parking fee. The parking elasticity model estimated that a \$2.00 daily parking fee will result in

⁸ SFRTA 2009 Comprehensive Annual Financial Report for FY ended June 30, 2009, November 2009.

⁹ Gannett Fleming, 2008 Tri-Rail Transit On-board Survey, 2009.

a decrease of 15.6 percent in park-n-ride ridership. As a result, train service revenue generated by park-n-riders will decrease by \$0.725 million and the reduced total system train service revenue will be \$8.64 million or eight percent less. Table 5 summarizes how the introduction of a parking fee impacts train service revenue.

Table 5 – Percent Change in Total System Train Service Revenue Results

Percent Increase in Fare from Base	Percent Change in <u>Park-n-Ride</u> Ridership	Park-n-Ride Train Service Revenue	Train Service Revenue Loss	Total System Train Service Revenue	Percent Change in Total System Train Service Revenue
0%	-	\$4,653,194	-	\$9,362,562	-
50%	-9.5%	\$4,211,140	\$442,054	\$8,920,509	-5.0%
100%	-15.6%	\$3,927,295	\$725,898	\$8,636,664	-8.4%
200%	-23.6%	\$3,555,040	\$1,098,054	\$8,264,409	-13.3%

Note: 100% increase in fare mimics the proposed \$2.00 daily parking fare.

Findings Summary

CS assessment of SFRTA revenues and how they will be impacted by a decrease in ridership shows that the effect in FTA Section 5307 formula funding is minimal. Less than one-fourth of a percent (0.2 percent) reduction in formula funds or \$22,900 is estimated when a daily parking fee of \$2.00 is introduced. On the other hand, the effect of fewer passengers riding Tri-Rail as a consequence of a \$2.00 daily parking fee will be greater in train service revenue or fare revenue. CS conservative estimates indicate that total system train service revenue will be reduced eight percent or over \$0.725 million will be lost. Therefore, the total loss of formula funds and train service revenue SFRTA could expect is about \$0.748 million if a daily parking fee of \$2.00 is implemented.

Table 6 – Percent Change in Total System Train Service Revenue Results

Percent Increase in Fare from Base	Percent Change in <u>Park-n-Ride</u> Ridership	Percent Change in <u>System</u> Ridership	FTA Formula Program Revenue Loss	Train Service Revenue Loss	Total SFRTA Revenue Loss due to Parking Fee
50%	-9.5%	-4.8%	\$14,172	\$442,054	\$456,226
100%	-15.6%	-7.8%	\$22,900	\$725,898	\$748,798
200%	-23.6%	-11.8%	\$34,388	\$1,098,054	\$1,132,442



Technical Memorandum Parking Management Strategies

Tri-Rail Parking Management Study

Prepared for

South Florida Regional Transportation Authority



Prepared by

Kimley-Horn and Associates, Inc.



Cambridge Systematics





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INTRODUCTION

Tri-Rail system improvements and volatility in gas prices in 2008 resulted in increased ridership. This increased ridership resulted in increased demand for parking at stations, and the demand for parking exceeded the capacity at several stations. The South Florida Regional Transportation Authority (SFRTA) initiated the *Tri-Rail Parking Management Study* to determine how best to manage their parking facilities and evaluate the feasibility of and methodology for implementing a parking fee. Through the development of a parking fee elasticity model as part of this study, it was determined that the implementation of a parking fee could result in a significant decrease in ridership. In addition, ridership has already decreased within the past year due to multiple factors, including increased local unemployment, raising concern that the implementation of any new fees would further exacerbate the decline in ridership.

KHA prepared this technical memorandum to explain possible interim parking management strategies that could be implemented at station parking facilities to maximize parking efficiency, including making the most of available space while improving user convenience.

An existing parking management overview is presented to understand how parking issues are currently addressed.

The ownership and lease agreements for each station were reviewed, as the parking facilities have unique owners and lease/shared-use agreements that govern SFRTA's ability to charge for parking as well as implement parking management strategies.

Parking management strategies that could be pursued in the short-term were developed. The most feasible parking management strategies that can be implemented in the short-term are parking enforcement strategies. The objective of enforcement would be controlling illegitimate users of parking, and ensuring the most efficient and proper use of parking to maximize the utility of the existing Tri-Rail spaces.



A preferred parking program could be a mid-term type of parking management strategy. A preferred parking program could offer more convenient and guaranteed parking to special users, like frequent riders.

The implementation of a parking fee is a long-term parking management strategy. However, this strategy should not be considered until ridership levels increase along with parking demand.

Specific parking management strategies were developed for the parking garage under construction at the Fort Lauderdale Airport Station. The garage will be SFRTA's first structured parking facility. Parking structures require more extensive and ongoing maintenance; as such, maintenance costs for parking garages are significantly higher than for surface parking lots. Managing parking will be a challenge at this facility due to its proximity to the airport, which fosters the potential for abuse as a "park-and-fly" facility for airport travelers.



PARKING FACILITY OWNERSHIP

The parking facilities of the eighteen Tri-Rail stations have unique ownership and lease agreements governing SFRTA’s ability to charge for parking and implement parking management strategies. Table 1 summarizes the ownership of each station’s parking facilities.

Table 1: Station Parking Facility Ownership Summary Table

SFRTA	FDOT	Other Government Entity	Private Owner
Boynton Beach	Lake Worth	West Palm Beach	Mangonia Park
Boca Raton	Deerfield Beach (East Lot)	Delray Beach	
Deerfield Beach (West Lot)	Cypress Creek (East Lot)	Ft. Lauderdale Airport (West Lot)	
Pompano Beach	Ft. Lauderdale		
Cypress Creek (West Lot)	Sheridan Street		
Ft. Lauderdale Airport (East Lot)	Hollywood		
Metrorail Transfer	Golden Glades		
	Opa-Locka		
	Hialeah Market		
	Miami Airport		



Ability to Implement Parking Fee

The ability to charge for parking at stations differs due to ownership and lease agreements. Parking fees can be charged at SFRTA parking facilities. FDOT has indicated that parking fees can be implemented at FDOT-owned facilities. These facilities are park-and-ride lots that were constructed with both Federal Highway Administration (FHWA) funds and State funds. Based upon communication with FDOT, federal regulation governs these facilities. Title 23 of the US Code of Federal Regulations (CFR), states that parking fees may be charged to cover costs of maintaining and operating the specific lot(s) for which fees are charged along with the cost of providing shuttle service to and from the facility. Imposing parking fees as a means of generating profit or supplemental income is not permissible at park-and-ride lots funded by Federal or State funds. Relevant regulations included in Title 23 of the CFR are included in Appendix A.

SFRTA has the ability to charge for parking at the Fort Lauderdale Airport (West Lot), according to its lease with the City of Dania Beach. However, the lease allows patrons of the adjacent Tigertail Lake Center facilities to use the West Lot for overflow parking. The lease also includes a sublease to the Humane Society of Broward County that requires a maximum of 35 parking spaces be designated for patrons on weekends.

A joint-parking agreement with Broward County governing the West Lot at the Deerfield Beach Station precludes the ability of SFRTA to charge parking fees. SFRTA is also not able to implement a parking fee at the East Lot of the West Palm Beach Station. According to the lease with the City of West Palm Beach, SFRTA has a non-exclusive right to use this parking facility. The ability to charge for parking at the Delray Beach Station, West Palm Beach Station (West Lot), and Mangonia Park Station is not addressed explicitly in their respective leases with SFRTA.

In summary, the owners and lease agreements vary for the parking facilities at the Tri-Rail stations. Several stations have multiple lots owned by different entities, resulting in lots at the same station being governed by different regulations. Thus, implementing a system-wide parking fee may not be feasible and would require new agreements and coordination with multiple entities. Further, ridership has decreased within the last year due to multiple factors and the implementation of any new fees could negatively impact ridership. Due to these factors, the implementation of parking fees is viewed as a long-term solution that should only be considered once ridership and subsequently parking demand increases.



EXISTING PARKING MANAGEMENT

General Parking Management Overview

Wackenhut Corporation is currently responsible for security, revenue collection, and fare inspection services at Tri-Rail facilities. Security personnel monitor the stations and other critical infrastructure such as: yards, facilities, and railroad right-of-way. Wackenhut’s responsibility also encompasses parking enforcement issues at Tri-Rail station parking facilities.

Security personnel are stationed at nine stations for two fixed nine-hour shifts, one shift each in the AM and PM. The remaining nine stations are divided into zones with three stations in each zone, and security personnel are responsible for patrolling the three stations in their respective zone. The level of security at stations is largely based on the frequency of security issues.

Security personnel also conduct vehicle license plate inventories at stations with parking issues, such as non-Tri-Rail users frequently parking at the stations. Although vehicle inventories are conducted, a database has not been established to monitor vehicles. Personnel also mark tires with chalk at locations, like the Fort Lauderdale Airport Station, where non-legitimate users often park vehicles for long time periods. Personnel notify the appropriate law enforcement agency when vehicles are parked illegally in an accessible space or within a fire lane.

Security personnel also initiate the towing process for problematic vehicles, including vehicles parked for an extended time period. Orange warning stickers are placed on vehicles providing drivers a grace period (usually 12-24 hours) before their vehicle is towed. The towing process for enforcement is only heavily utilized when parking facilities are operating near capacity, and currently the majority of parking facilities are not operating near capacity. It is important to note that a no overnight parking policy has been implemented at the Fort Lauderdale Airport Station during the construction of the parking garage. A parking policy prohibiting parking for longer than 24 hours will be implemented after the completion of the garage in an attempt to ensure that airport travelers and employees do not use the garage as a “park-and-fly” facility.



PARKING MANAGEMENT STRATEGIES

SFRTA desires to maximize parking efficiency and user convenience by implementing parking management strategies. The strategies will likely differ by station due to ownership and lease agreements. In addition, parking facilities vary by number of parking spaces, parking demand, and shared parking arrangements. The following sections describe parking management strategies and their applicability to Tri-Rail stations.

Short-Term Management Strategies

Parking Enforcement Strategies

The objective of increased parking enforcement is controlling illegitimate users of parking and ensuring the most efficient use of parking to maximize the utility of the existing Tri-Rail spaces. Violations could include:

- Non-Tri-Rail users parking in facilities
- Parking for more than 24 hours
- Parking outside of designated spaces
- Single vehicle occupying multiple spaces
- Illegal use of accessible space
- Head-in parking only
- Parking in spaces dedicated for special use

Parking enforcement offers a means of recourse for serious violators while maintaining safe and efficient access to parking by keeping vehicles out of pedestrian and vehicle aisles. The existing methods for enforcement are warnings, towing, and booting. Parking violations at some station facilities, including Golden Glades Station, are enforced by local law enforcement agencies (Miami-Dade Police).



Parking Enforcement Challenges

Parking policy could be more effectively enforced by issuing citations systemwide to violators. A progressive fine scale could be implemented with towing and revocation of parking privileges as a final recourse for repeat offenders. However, based upon Florida Statute 316.640 (see Appendix B), SFRTA does not possess the legal authority to enforce violations by issuing citations. Parking violations are presently enforced by towing and local law enforcement agencies and this may be the most feasible systemwide approach for the short-term. SFRTA could work with the appropriate local law enforcement agency at each facility to enforce violations.

The most effective approach for enforcement is to secure enforcement authority by seeking to add “Regional Transportation Authorities” as a separate explicit classification referenced in the State statute. This authority should be obtained for SFRTA to effectively manage their parking facilities. As part of this approach, SFRTA would also need to determine if Wackenhut would be the most effective entity to issue citations. This approach would likely require a supplemental contract and additional personnel and resources. Owners of the parking facilities that SFRTA leases may also seek to collect a percentage of the citation revenue, including FDOT. Government entities that own the facilities may opt to enforce parking themselves and collect all citation revenue. Thus, specific agreements with parking facility owners would be required after securing the authority to issue citations.

Three of the enforcement policies listed previously will be the most difficult to enforce and will likely require the restructuring of SFRTA’s enforcement methods beyond towing and/or issuing citations:

- Non-Tri-Rail users parking in facilities
- Parking for more than 24 hours
- Parking in spaces dedicated for special use

These three enforcement policies are analyzed in further detail below.



Non-Tri-Rail Users Parking In Facilities

Several stations have shared parking agreements or share parking facilities with other users, making enforcing Tri-Rail parking facilities a complex process. Further, FDOT-owned lots were established as park-and-ride facilities, meaning commuters may meet and park their vehicles even if not using Tri-Rail. Only the following four stations are completely owned by SFRTA and do not have shared parking agreements or share parking facilities with other legitimate users:

- Boynton Beach Station
- Boca Raton Station
- Pompano Beach Station
- Metrorail Transfer Station

Currently, security personnel conduct vehicle inventories at problem locations. One of these problem locations include the Hollywood Station due to parking capacity issues. Currently, no database exists to monitor the information collected. The first step in monitoring the types of users at parking facilities is establishing a vehicle license plate database. Handheld third-party technology along with integrated software could be employed to understand who is parking at various lots and the associated length of time vehicles are using the facilities.

The most effective way to monitor the types of users at parking facilities is a vehicle registration program. This program could be utilized for the non-Tri-Rail users and/or for the Tri-Rail users. Tri-Rail customers could register their vehicle's license plate and security personnel could monitor parked vehicles. Decals or other display methods could also be used to signify that a vehicle belongs to a Tri-Rail or other approved user. This program would require resources for both establishing and operating the program. This approach could include a web-based program on the Tri-Rail website for users to enter their information and receive a vehicle sticker or tag.

A registration program would require collaboration with all facility owners and shared users. FDOT indicated that coordination with South Florida Commuter Services could assist in effectively developing and monitoring a database for van/carpoolers and Tri-Rail users. A lenient warning system is recommended if citations or towing is recommended to enforce the vehicle registration program, as single day Tri-Rail users or park-and-ride commuters could not understand the program's rules.



Parking for More Than 24 Hours

A vehicle registration program could also assist with the enforcement of vehicles parked for more than 24 hours. Security personnel currently mark tires with chalk at problem locations to monitor how long potential illegitimate vehicles are parked at facilities. Both the Fort Lauderdale Airport Station and Miami Airport Station are examples of stations with illegitimate users parking at their facilities, as airport employees and travelers often park at the stations and commute to the airports via shuttles. A vehicle registration program would allow security personnel to monitor not only the type of users at facilities but also their length of stay.

A vehicle registration program could still allow legitimate users to park their vehicles for long periods of time. Many Tri-Rail customers park a vehicle at both their origin station and destination station. These customers could register their vehicle and continue to utilize both facilities. In addition, many Tri-Rail users may work non-traditional work schedules and leave their vehicles at facilities through the night; these people could be recognized as legitimate users in the vehicle registration program.

Another approach to reducing the number of long-term parkers at various stations could be to designate one large and under capacity facility as a long-term parking facility, such as the Pompano Beach Station. Tri-Rail customers and all other commuters (including airport employees/travelers and long-term park-and-riders) could park at this station. In the short-term, parking could be free. However, in the future a parking fee for long-term users could be implemented in order to support the presence of security personnel on site at all times (24 hours per day). It is important to note that parking fees likely would not fully subsidize costs associated with the increased security. However, designating this type of long-term facility may alleviate parking issues at other facilities.

Parking Spaces Dedicated for Special Use

A vehicle registration program would also be necessary if a dedicated parking space program was implemented. This program would dedicate spaces at facilities for certain users. The dedication of parking spaces for special uses is another general parking management strategy discussed in more detail in the following section.



Mid-Term Management Strategies

Preferred Parking Strategies

A preferred parking program could offer more convenient and guaranteed parking to the following users:

- Tri-Rail user van/carpools
- Low-emission vehicles
- Monthly users

A preferred parking program is a mid-term parking management strategy because the strategy would require the creation of designated parking areas and the program extends beyond simply enforcing basic parking rules. This type of program would provide additional convenience to regular and repeat customers and provide an incentive for occasional users to become more frequent users. This type of program would encourage the use of ride-sharing to reduce overall parking demand if the program provided dedicated spaces up front for Tri-Rail customers that meet at remote locations and van/carpool to stations. Lastly, low-emission vehicle dedicated spaces would reward environmentally conscientious commuters.

Preferred Parking Challenges

The legal authority for SFRTA to issue and enforce violations and fines would be required to enforce proper use of dedicated spaces. Thus, explicitly securing this authority in Florida Statute 316.40 should be a priority for SFRTA to facilitate initiating a dedicated or preferred parking program in the future. This type of program would require resources for both operating and enforcing the program.

The greatest challenge toward implementing preferred parking strategies may be obtaining approval from facility owners and the necessary coordination/collaboration with shared users. Dedicating spaces for Tri-Rail users would reduce the number of available spaces for other users; this issue could be challenging at FDOT's park-and-ride facilities. FDOT expressed concern over restricting access to FDOT's park-and-ride facilities. However, it is important to note that even at the large FDOT park-and-ride facilities (such as the Golden Glades Station), SFRTA has "Tri-Rail Parking" signage essentially reserving spaces for Tri-Rail users.



Another possible preferred parking management approach could be encouraging general van/carpoolers to use larger park-and-ride facilities with greater capacities, such as the Fort Lauderdale Station or Sheridan Street Station. General van/carpoolers could be discouraged from parking in parking facilities with limited parking capacity for Tri-Rail riders, like the Hollywood Station. The Sheridan Street Station's parking facility is a large park-and-ride facility and is close to the Hollywood Station. General van/carpoolers could be encouraged to utilize the Sheridan Street Station park-and-ride facility. Spaces for these users could be reserved near the access to the facilities, which could be more convenient and allow them to quickly enter and exit the facilities. Signage could direct van/carpoolers where to park in the larger park-and-ride facilities.

Designating parking facilities for general van/carpoolers could force some commuters to drive further, reducing convenience and increasing costs for these commuters. Additionally, all FDOT-owned parking facilities were constructed as park-and-ride facilities. As such, FDOT expressed concern over restricting access to FDOT's park-and-ride facilities for van/carpoolers. FDOT suggested that this approach only be implemented when demand at a FDOT parking facility is nearing capacity, like Hollywood Station.

Long-Term Management Strategies

Parking Fee Implementation

The implementation of a parking fee could be a long-term parking management strategy. The ability to charge for parking at stations differs due to ownership and lease agreements. At several stations with multiple lots, different lots are owned by different entities, meaning different lots at the same station may be governed by different regulations. FDOT owns many of the parking facilities utilized by Tri-Rail users, and FDOT indicated that parking fees can be implemented at FDOT-owned facilities. However, parking fees (based upon the US CFR Title 23) may be charged only to cover costs of maintaining and operating the specific lot(s) for which fees are charged, along with the cost of providing shuttle service to and from the facility.

Ridership has decreased within the last year due to multiple factors and the implementation of any additional fees could further negatively impact ridership. Based upon a parking fee elasticity model developed as part of this study, a \$2 daily parking fee would result in an approximately 8 percent decrease in overall ridership. Due to these factors, the implementation of parking fees is seen as a long-term solution which should only be considered once ridership and subsequently parking demand increases.



FORT LAUDERDALE AIRPORT STATION GARAGE PARKING MANAGEMENT

A parking garage is currently under construction at the Fort Lauderdale Airport Station's West Lot and is scheduled to open this summer. The garage will be SFRTA's first structured parking facility, but additional parking garages are likely at other stations in the future. Parking garages require ongoing maintenance to sustain the life of the structures. These structures are a unique building type. In South Florida, parking garages are constantly exposed to changing environmental conditions, vehicular loading, salt-laden air, and harsh chemicals. As such, annual maintenance costs for parking garages are significantly higher than for surface parking lots (as much as ten times higher). These higher maintenance costs may necessitate the implementation of a parking fee in the long-term to absorb a portion of these costs.

The Fort Lauderdale Airport Station parking garage will have unique parking issues in the interim before parking fees are implemented. Parking management strategies explained in previous sections offer methods to manage parking at the garage. Relevant strategies can be implemented at the garage as a pilot program, and these strategies could be implemented at future garages as well as surface lots based on their effectiveness.

The parking facilities at the Fort Lauderdale Airport Station are shared with other allowed users. The West Lot at the Fort Lauderdale Airport Station is leased from the City of Dania Beach. The lease with the City includes a sublease with the Humane Society of Broward County (HSBC) that requires a maximum of 35 parking spaces be designated for HSBC patrons on weekends. In addition, patrons of the adjacent Tigertail Lake Center possess the right to use the lot for overflow parking. Both users will retain the right to park in the garage.

Parking management strategies implemented for the garage must take all of these issues into consideration. Non-legitimate users parking at the facility is a particularly important issue. Covered parking is more attractive than surface parking, as it protects users and vehicles from the elements. Thus, the garage may attract more non-legitimate users than the existing surface lot.



Non-legitimate users utilize this parking facility, especially Fort Lauderdale Airport employees and travelers who use the facility as a free “park-and-fly” lot. The parking lot offers free parking and a free shuttle bus travels from the station to the airport. A Tri-Rail ticket is required to use the shuttle bus and must be presented to the bus driver. However, a Tri-Rail pass is significantly cheaper than parking fees at the airport parking garages. While traveling, these illegitimate users often leave their vehicles parked at the lot for long periods of time. During the closing of the West Lot due to construction of the garage, security personnel discovered that residents of an adjacent community also utilize the parking facility for overnight parking due to limited available parking within their community. A no overnight parking policy has been implemented at the Fort Lauderdale Airport Station during the construction of the parking garage. A “no parking for longer than 24 hours” policy will be implemented after the completion of the garage in an attempt to ensure that airport travelers and employees do not use the garage as a “park-and-fly” facility. Vehicles currently left overnight receive warning stickers but are provided a grace period (usually a second night) before being towed.

The most effective strategy for monitoring and enforcing the parking at the garage is a vehicle registration program. This type of program may be necessary at this facility because certain non-Tri-Rail users (HSBC and Tigertail Lake Center patrons) are allowed to park at the facility, per the lease with the City of Dania Beach. A vehicle registration program could allow the legitimate non-Tri-Rail users to park in the garage. Tri-Rail users could register their vehicles and obtain decals/stickers or simply be entered into a registered license plate database. Patrons of the HSBC or Tigertail Lake facilities could obtain a pass when parking in the garage validating that they are legitimate users.



CONCLUSION

The South Florida Regional Transportation Authority (SFRTA) initiated the *Tri-Rail Parking Management Study* to determine how best to manage their parking facilities and evaluate the feasibility for implementing a parking fee. During the course of the study, it was determined that the implementation of a parking fee could result in a significant decrease in ridership, which would further exacerbate the current decline in ridership due to external factors, including the challenging economic environment. KHA prepared this technical memorandum to explain possible interim parking management strategies that could be implemented at station parking facilities to maximize parking efficiency while improving user convenience.

Security personnel currently focus on parking enforcement at locations with frequent parking issues, like capacity constraints or non-legitimate user issues. SFRTA has a towing policy but indicated that towing for enforcement issues is typically utilized when parking facilities are operating near capacity. However, a no overnight parking policy has been implemented at the Fort Lauderdale Airport Station and vehicles are being towed accordingly.

Parking management strategies were developed and organized based upon a recommended implementation timeframe as follows.

Short-Term Management Strategies

Parking Enforcement Strategies

Violations could include:

- Non-Tri-Rail users parking in facilities
- Parking for more than 24 hours
- Parking outside of designated spaces
- Single vehicle occupying multiple spaces
- Illegal use of accessible space
- Head-in parking only
- Parking in spaces dedicated for special use



Parking Enforcement Strategy Challenges/Considerations

Challenges and considerations associated with parking enforcement strategies are numerous and include:

- Authority to issue and enforce violations and fines
- Agreements and collaboration with property owners/leasers
- Authority to implement a parking fee
- Shared parking agreements
- Shared parking facilities
- Resources for increased enforcement

Mid-Term Management Strategies

Preferred Parking Strategies

A preferred parking program is a mid-term parking management strategy that would create designated parking areas providing additional convenience to regular and repeat Tri-Rail customers. A preferred parking program could offer closer-in and guaranteed available parking to the following users:

- Tri-Rail user van/carpools (Pilot: Hollywood)
- Low-emission vehicles
- Monthly users

Preferred Parking Strategy Challenges/Considerations

Challenges and considerations associated with preferred parking strategies are numerous and include:

- Authority to issue and enforce violations and by issuing citations
- Agreements and collaboration with property owners/leasers
- Resources for increased enforcement

Long-Term Management Strategies

Parking Fee Implementation

The implementation of a parking fee is a long-term parking management strategy. Ridership has decreased within the last year due to multiple external factors and the implementation of any additional



fees could further negatively impact ridership. However, legal and ownership issues require resolving in the short-term and mid-term, and resolving these issues would allow SFRTA to implement a parking fee when substantial parking demands arises in the future.

Fort Lauderdale Airport Station Garage Pilot Parking Management Program

A parking garage is under construction at the Fort Lauderdale Airport Station. This station has several existing parking issues including:

- Shared parking agreements
- Shared parking facilities
- Non-legitimate users
- Long-term parkers

The non-legitimate users and long-term parkers are largely due to the station's proximity to the Fort Lauderdale Airport. Airport employees and travelers often use the free parking spaces at the station as a “park-and-fly” lot, with a free shuttle connection with the airport. These violators could increase as covered parking is more attractive than surface parking.

In the short-term, a “no parking for longer than 24 hours” policy should be effective in eliminating non-legitimate users. A vehicle registration program may be the most effective strategy for monitoring and enforcement in the future. The implementation of a parking fee should be considered for this facility to absorb a portion of the increased maintenance costs.

APPENDIX A

Code of Federal Regulations Title 23

(5) Metropolitan Planning Organization—that organization designated as being responsible, together with the State, for carrying out the provisions of 23 U.S.C. 134, as required by 23 U.S.C. 104(f)(3), and capable of meeting the requirements of sections 3(e)(1), 5(1), 8 (a) and (c) and 9(e)(3)(G) of the Urban Mass Transportation Act of 1964, as amended, 49 U.S.C. 1602(e)(1), 1604(1), 1607 (a) and (c) and 1607a(e)(3)(G). This organization shall be the forum for cooperative transportation decisionmaking.

(6) Nonhighway public mass transit project—a project to develop or improve public mass transit facilities or equipment. A project need not be physically located or operated on a route designated as part of the Federal-aid urban system, but must be included in and related to a program for the development or improvement of an urban public mass transit system which includes the purchase and rehabilitation of passenger buses and rolling stock for fixed rail facilities, and the purchase, construction, reconstruction or improvement of fixed rail passenger operating facilities. Such projects may also include the construction, reconstruction or rehabilitation of passenger loading and unloading facilities for either bus or rail passengers.

(7) Passenger loading areas and facilities (including shelters)—areas and facilities located at or near passenger loading points for safety, protection, comfort, or convenience of high occupancy vehicle passengers. The term *areas and facilities* includes but is not limited to access roads, buildings, structures, equipment, improvements, and interest in land.

(8) Responsible local officials—(i) In areas under 50,000 population, the principal elected officials of general purpose local governments; or (ii) In urbanized areas, the principal elected officials of general purpose local governments acting through the Metropolitan Planning Organization.

[50 FR 33917, Aug. 22, 1985, as amended at 51 FR 16834, May 7, 1986]

§ 810.6 Prerequisites for projects authorized by 23 U.S.C. 137, 142, or 149.

(a) Projects in an urbanized area must be based on a continuing com-

prehensive transportation planning process, carried on in accordance with 23 U.S.C. 134 as prescribed in 23 CFR part 450, subpart A and included in the transportation improvement program required by 23 CFR part 450, subpart B.

(b) Except as otherwise provided by 23 CFR 450.202, projects under this subpart located outside the urbanized area boundaries should be coordinated with the appropriate local officials of the urbanized area as necessary to insure compatibility with the area's urban transportation plan.

(c) All proposed projects must be included in a program of projects approved pursuant to 23 CFR part 630, subpart A (Federal-Aid Program Approval and Authorization).

§ 810.8 Coordination.

The Federal Highway Administrator and the Urban Mass Transportation Administrator shall coordinate with each other on any projects involving public mass transit to facilitate project selection, approval and completion.

Subpart B—Highway Public Transportation Projects and Special Use Highway Facilities

§ 810.100 Purpose.

The purpose of the regulations in this subpart is to implement 23 U.S.C. 137, 142(a)(1), 142(b), and 149, which authorize various highway public mass transportation improvements and special use highway facilities as Federal-aid highway projects.

§ 810.102 Eligible projects.

Under this subpart the Federal Highway Administrator may approve on any Federal-aid system projects which facilitate the use of high occupancy vehicles and public mass transportation systems so as to increase the traffic capacity of the Federal-aid system for the movement of persons. Eligible projects include:

(a) Construction of exclusive or preferential high occupancy vehicle, truck, or emergency vehicle lanes, except the

§810.104

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construction of exclusive or preferential lanes limited to use by emergency vehicles can be approved only on the Federal-aid Interstate System;

(b) Highway traffic control devices;

(c) Passenger loading areas and facilities (including shelters) that are on or serve a Federal-aid system; and

(d) Construction or designation of fringe and transportation corridor parking facilities. For parking facilities located in the central business district the Federal-aid project must be limited to space reserved exclusively for the parking of high occupancy vehicles used for carpools or vanpools.

§810.104 Applicability of other provisions.

(a) Projects authorized under §810.102 shall be deemed to be highway projects for all purposes of title 23 U.S.C., and shall be subject to all regulations of title 23 CFR.

(b) Projects approved under this subpart on the Federal-aid Interstate System for exclusive or preferential high occupancy vehicle, truck, and emergency vehicle lanes are excepted from the minimum four-lane requirement of 23 U.S.C. 109(b).

(c) Exclusive or preferential lanes on the Interstate System, including approaches and directly related facilities, can be constructed with Interstate construction funds only if they were approved in the 1981 Interstate Cost Estimate.

(d) The Federal proportional share of a project approved under this subpart shall be as provided in 23 U.S.C. 120 for the class of funds involved. The Federal share for Interstate substitution projects is 85 percent except for signalization projects which may be 100 percent as provided by 23 U.S.C. 120(d). The provisions of section 120(d) title 23 U.S.C. may also be applied to regularly funded projects under §810.102 of this subpart as follows:

(1) Signalization projects.

(2) Passenger loading area and facilities which principally serve carpools and vanpools.

(3) Fringe and transportation corridor parking facilities or portions thereof which are reserved exclusively for use by carpool and vanpool passengers and vehicles.

(e) As required by section 163 of the Surface Transportation Assistance Act of 1982, approval of Federal-aid highway funding for a physical construction or resurfacing project having a carpool lane(s) within the project limits may not be granted unless the project allows the use of the carpool lane(s) by motorcycles or it is certified by the State that such use will create a safety hazard. This requirement does not apply to high occupancy vehicle lanes which exclude carpools or to carpool lanes constructed by the State without the use of Federal-aid Highway funds. The issue of the extent of utilization of these facilities including those constructed prior to January 6, 1982 with Federal-aid Highway funds is a matter for individual determination by the State Highway Agency.

§810.106 Approval of fringe and transportation corridor parking facilities.

(a) In approving fringe and transportation corridor parking facilities, the Federal Highway Administrator:

(1) Shall make a determination that the proposed parking facility will benefit the Federal-aid systems by improving its traffic capacity for the movement of persons;

(2) May approve acquisition of land proximate to the right-of-way of a Federal-aid highway;

(3) May approve construction of publicly-owned parking facilities on land within the right-of-way of any Federal-aid highway, including the use of the airspace above and below the established gradeline of the highway pavement, and on land, acquired with or without Federal-aid funds which is not within the right-of-way of any Federal-aid highway but which was acquired in accordance with the Uniform Relocation Assistance and Land Acquisition Policies Act of 1970 (84 Stat. 1894, 42 U.S.C. 4601 *et seq.*);

(4) May permit the charging of fees for the use of the facility, except that the rate of the fee shall not be in excess of that required for maintenance and operation and the cost of providing shuttle service to and from the facility (including compensation to any person for operating such facility and for providing such shuttle service);

(5) Shall determine that the State, or the political subdivision thereof, where the project is to be located, or any agency or instrumentality of such State or political subdivision, has the authority and capability of constructing, maintaining, and operating the facility.

(6) Shall receive assurance from the State that the facility will remain in public ownership as long as the facility is needed and that any change in ownership shall have prior FHWA approval;

(7) Shall enter into an agreement with the State, political subdivision, agency, or instrumentality governing the financing, maintenance, and operation of the parking facility; and

(8) Shall approve design standards for constructing the facility as developed in cooperation with the State highway agency.

(b) A State political subdivision, agency, or instrumentality thereof may contract with any person to operate any parking facility constructed under this section.

(c) In authorizing projects involving fringe and transportation corridor parking facilities, the class of Federal-aid funds (primary, secondary, or urban system) used for projects under this subpart may be either funds designated for the Federal-aid system on which the facility is located or the Federal-aid system substantially benefited. For Interstate funds to be used for such eligible projects the Federal-aid Interstate system must be the system which substantially benefits. The benefiting system is that system which would have otherwise carried the high occupancy vehicle or rail passengers to their destination. Interstate construction funds may be used only where the parking facility was approved in the 1981 Interstate Cost Estimate and is constructed in conjunction with a high occupancy vehicle lane approved in the 1981 Interstate Cost Estimate.

§ 810.108 Designation of existing facilities.

(a) In accordance with the provisions of 23 CFR 810.102, the Federal Highway Administrator may approve on any Federal-aid system the work necessary to designate existing parking facilities (such as at shopping centers or other

public or private locations) for fringe and transportation corridor parking.

(1) Eligible activities include the acquisition of or the initial and renewal costs for leasing existing parking space, signing of and modifications to existing facilities, trail blazer signs, and passenger loading areas and facilities.

(2) The approval criteria in 23 CFR 810.106 (a)(1), (4), (5), (7) and (8) apply to these parking facilities.

(b) In accordance with the provisions of 23 CFR 810.102, the Federal Highway Administrator may approve on any Federal-aid system the work necessary to designate existing highway lanes as high occupancy vehicle lanes.

(1) Eligible activities include preliminary engineering, signing, pavement marking, traffic control devices, minor physical modifications and initial inspection or monitoring of use.

(2) Such improvements may be approved on any public road if they facilitate more efficient use of any Federal-aid highway.

(c) Interstate construction funds may be used only where the proposed projects were approved in the 1981 Interstate Cost Estimate.

Subpart C—Making Highway Rights-of-Way Available for Mass Transit Projects

§ 810.200 Purpose.

The purpose of this subpart is to implement 23 U.S.C. 142(g), which permits the Federal Highway Administrator to authorize a State to make available to a publicly-owned mass transit authority existing highway rights-of-way for rail or other non-highway public mass transit facilities.

§ 810.202 Applicability.

(a) The provisions of this subpart are applicable to the rights-of-way of all Federal-aid highways in which Federal-aid highway funds have participated or will participate in any part of the cost of the highway.

(b) The provisions of this subpart do not preclude acquisition of rights-of-way for use involving mass transit facilities under the provisions of subparts B and D of this part. Rights-of-way made available under this subpart

APPENDIX B

Florida Statute 316.640 *Enforcement of Traffic Law*

Select Year:

The 2009 Florida Statutes

[Title XXIII](#)
MOTOR VEHICLES

[Chapter 316](#)
STATE UNIFORM TRAFFIC CONTROL

[View Entire Chapter](#)

316.640 Enforcement.--The enforcement of the traffic laws of this state is vested as follows:

(1) STATE.--

(a)1.a. The Division of Florida Highway Patrol of the Department of Highway Safety and Motor Vehicles; the Division of Law Enforcement of the Fish and Wildlife Conservation Commission; the Division of Law Enforcement of the Department of Environmental Protection; law enforcement officers of the Department of Transportation; and the agents, inspectors, and officers of the Department of Law Enforcement each have authority to enforce all of the traffic laws of this state on all the streets and highways thereof and elsewhere throughout the state wherever the public has a right to travel by motor vehicle.

b. University police officers shall have authority to enforce all of the traffic laws of this state when violations occur on or within 1,000 feet of any property or facilities that are under the guidance, supervision, regulation, or control of a state university, a direct-support organization of such state university, or any other organization controlled by the state university or a direct-support organization of the state university, or when such violations occur within a specified jurisdictional area as agreed upon in a mutual aid agreement entered into with a law enforcement agency pursuant to s. [23.1225\(1\)](#). Traffic laws may also be enforced off-campus when hot pursuit originates on or within 1,000 feet of any such property or facilities, or as agreed upon in accordance with the mutual aid agreement.

c. Community college police officers shall have the authority to enforce all the traffic laws of this state only when such violations occur on any property or facilities that are under the guidance, supervision, regulation, or control of the community college system.

d. Police officers employed by an airport authority shall have the authority to enforce all of the traffic laws of this state only when such violations occur on any property or facilities that are owned or operated by an airport authority.

(l) An airport authority may employ as a parking enforcement specialist any individual who successfully completes a training program established and approved by the Criminal Justice Standards and Training Commission for parking enforcement specialists but who does not otherwise meet the uniform minimum standards established by the commission for law enforcement officers or auxiliary or part-time officers under s. [943.12](#). Nothing in this sub-sub-paragraph shall be construed to permit the carrying of firearms or other weapons, nor shall such parking enforcement specialist have arrest authority.

(II) A parking enforcement specialist employed by an airport authority is authorized to enforce all state, county, and municipal laws and ordinances governing parking only when such violations are on property or facilities owned or operated by the airport authority employing the specialist, by appropriate state, county, or municipal traffic citation.

e. The Office of Agricultural Law Enforcement of the Department of Agriculture and Consumer Services shall have the authority to enforce traffic laws of this state.

f. School safety officers shall have the authority to enforce all of the traffic laws of this state when such violations occur on or about any property or facilities which are under the guidance, supervision, regulation, or control of the district school board.

2. An agency of the state as described in subparagraph 1. is prohibited from establishing a traffic citation quota. A violation of this subparagraph is not subject to the penalties provided in chapter 318.

3. Any disciplinary action taken or performance evaluation conducted by an agency of the state as described in subparagraph 1. of a law enforcement officer's traffic enforcement activity must be in accordance with written work-performance standards. Such standards must be approved by the agency and any collective bargaining unit representing such law enforcement officer. A violation of this subparagraph is not subject to the penalties provided in chapter 318.

4. The Division of the Florida Highway Patrol may employ as a traffic accident investigation officer any individual who successfully completes instruction in traffic accident investigation and court presentation through the Selective Traffic Enforcement Program as approved by the Criminal Justice Standards and Training Commission and funded through the National Highway Traffic Safety Administration or a similar program approved by the commission, but who does not necessarily meet the uniform minimum standards established by the commission for law enforcement officers or auxiliary law enforcement officers under chapter 943. Any such traffic accident investigation officer who makes an investigation at the scene of a traffic accident may issue traffic citations, based upon personal investigation, when he or she has reasonable and probable grounds to believe that a person who was involved in the accident committed an offense under this chapter, chapter 319, chapter 320, or chapter 322 in connection with the accident. This subparagraph does not permit the officer to carry firearms or other weapons, and such an officer does not have authority to make arrests.

(b)1. The Department of Transportation has authority to enforce on all the streets and highways of this state all laws applicable within its authority.

2.a. The Department of Transportation shall develop training and qualifications standards for toll enforcement officers whose sole authority is to enforce the payment of tolls pursuant to s. 316.1001. Nothing in this subparagraph shall be construed to permit the carrying of firearms or other weapons, nor shall a toll enforcement officer have arrest authority.

b. For the purpose of enforcing s. 316.1001, governmental entities, as defined in s. 334.03, which own or operate a toll facility may employ independent contractors or designate employees as toll

enforcement officers; however, any such toll enforcement officer must successfully meet the training and qualifications standards for toll enforcement officers established by the Department of Transportation.

(2) COUNTIES.--

(a) The sheriff's office of each of the several counties of this state shall enforce all of the traffic laws of this state on all the streets and highways thereof and elsewhere throughout the county wherever the public has the right to travel by motor vehicle. In addition, the sheriff's office may be required by the county to enforce the traffic laws of this state on any private or limited access road or roads over which the county has jurisdiction pursuant to a written agreement entered into under s. [316.006\(3\)\(b\)](#).

(b) The sheriff's office of each county may employ as a traffic crash investigation officer any individual who successfully completes instruction in traffic crash investigation and court presentation through the Selective Traffic Enforcement Program (STEP) as approved by the Criminal Justice Standards and Training Commission and funded through the National Highway Traffic Safety Administration (NHTSA) or a similar program approved by the commission, but who does not necessarily otherwise meet the uniform minimum standards established by the commission for law enforcement officers or auxiliary law enforcement officers under chapter 943. Any such traffic crash investigation officer who makes an investigation at the scene of a traffic crash may issue traffic citations when, based upon personal investigation, he or she has reasonable and probable grounds to believe that a person who was involved in the crash has committed an offense under this chapter, chapter 319, chapter 320, or chapter 322 in connection with the crash. This paragraph does not permit the carrying of firearms or other weapons, nor do such officers have arrest authority.

(c) The sheriff's office of each of the several counties of this state may employ as a parking enforcement specialist any individual who successfully completes a training program established and approved by the Criminal Justice Standards and Training Commission for parking enforcement specialists, but who does not necessarily otherwise meet the uniform minimum standards established by the commission for law enforcement officers or auxiliary or part-time officers under s. [943.12](#).

1. A parking enforcement specialist employed by the sheriff's office of each of the several counties of this state is authorized to enforce all state and county laws, ordinances, regulations, and official signs governing parking within the unincorporated areas of the county by appropriate state or county citation and may issue such citations for parking in violation of signs erected pursuant to s. [316.006\(3\)](#) at parking areas located on property owned or leased by a county, whether or not such areas are within the boundaries of a chartered municipality.

2. A parking enforcement specialist employed pursuant to this subsection shall not carry firearms or other weapons or have arrest authority.

(3) MUNICIPALITIES.--

(a) The police department of each chartered municipality shall enforce the traffic laws of this state on

all the streets and highways thereof and elsewhere throughout the municipality wherever the public has the right to travel by motor vehicle. In addition, the police department may be required by a municipality to enforce the traffic laws of this state on any private or limited access road or roads over which the municipality has jurisdiction pursuant to a written agreement entered into under s. [316.006](#) (2)(b). However, nothing in this chapter shall affect any law, general, special, or otherwise, in effect on January 1, 1972, relating to "hot pursuit" without the boundaries of the municipality.

(b) The police department of a chartered municipality may employ as a traffic crash investigation officer any individual who successfully completes instruction in traffic crash investigation and court presentation through the Selective Traffic Enforcement Program (STEP) as approved by the Criminal Justice Standards and Training Commission and funded through the National Highway Traffic Safety Administration (NHTSA) or a similar program approved by the commission, but who does not otherwise meet the uniform minimum standards established by the commission for law enforcement officers or auxiliary law enforcement officers under chapter 943. Any such traffic crash investigation officer who makes an investigation at the scene of a traffic crash is authorized to issue traffic citations when, based upon personal investigation, he or she has reasonable and probable grounds to believe that a person involved in the crash has committed an offense under the provisions of this chapter, chapter 319, chapter 320, or chapter 322 in connection with the crash. This paragraph does not permit the carrying of firearms or other weapons, nor do such officers have arrest authority.

(c)1. A chartered municipality or its authorized agency or instrumentality may employ as a parking enforcement specialist any individual who successfully completes a training program established and approved by the Criminal Justice Standards and Training Commission for parking enforcement specialists, but who does not otherwise meet the uniform minimum standards established by the commission for law enforcement officers or auxiliary or part-time officers under s. [943.12](#).

2. A parking enforcement specialist employed by a chartered municipality or its authorized agency or instrumentality is authorized to enforce all state, county, and municipal laws and ordinances governing parking within the boundaries of the municipality employing the specialist, by appropriate state, county, or municipal traffic citation.

3. A parking enforcement specialist employed pursuant to this subsection may not carry firearms or other weapons or have arrest authority.

(4)(a) Any sheriff's department, or any police department of a municipality, may employ as a traffic control officer any individual who successfully completes at least 8 hours of instruction in traffic control procedures through a program approved by the Division of Criminal Justice Standards and Training of the Department of Law Enforcement, or through a similar program offered by the local sheriff's department or police department, but who does not necessarily otherwise meet the uniform minimum standards established by the Criminal Justice Standards and Training Commission for law enforcement officers or auxiliary law enforcement officers under s. [943.13](#). A traffic control officer employed pursuant to this subsection may direct traffic or operate a traffic control device only at a fixed location and only upon the direction of a fully qualified law enforcement officer; however, it is not necessary that the traffic control officer's duties be performed under the immediate supervision of a fully qualified law

enforcement officer.

(b) In the case of a special event or activity in relation to which a nongovernmental entity is paying for traffic control on public streets, highways, or roads, traffic control officers may be employed to perform such traffic control responsibilities only when off-duty, full-time law enforcement officers, as defined in s. [943.10\(1\)](#), are unavailable to perform those responsibilities. However, this paragraph may not be construed to limit the use of traffic infraction enforcement officers for traffic enforcement purposes.

(c) This subsection does not permit the carrying of firearms or other weapons, nor do traffic control officers have arrest authority.

(5)(a) Any sheriff's department or police department of a municipality may employ, as a traffic infraction enforcement officer, any individual who successfully completes instruction in traffic enforcement procedures and court presentation through the Selective Traffic Enforcement Program as approved by the Division of Criminal Justice Standards and Training of the Department of Law Enforcement, or through a similar program, but who does not necessarily otherwise meet the uniform minimum standards established by the Criminal Justice Standards and Training Commission for law enforcement officers or auxiliary law enforcement officers under s. [943.13](#). Any such traffic infraction enforcement officer who observes the commission of a traffic infraction or, in the case of a parking infraction, who observes an illegally parked vehicle may issue a traffic citation for the infraction when, based upon personal investigation, he or she has reasonable and probable grounds to believe that an offense has been committed which constitutes a noncriminal traffic infraction as defined in s. [318.14](#).

(b) The traffic enforcement officer shall be employed in relationship to a selective traffic enforcement program at a fixed location or as part of a crash investigation team at the scene of a vehicle crash or in other types of traffic infraction enforcement under the direction of a fully qualified law enforcement officer; however, it is not necessary that the traffic infraction enforcement officer's duties be performed under the immediate supervision of a fully qualified law enforcement officer.

(c) This subsection does not permit the carrying of firearms or other weapons, nor do traffic infraction enforcement officers have arrest authority other than the authority to issue a traffic citation as provided in this subsection.

(6) MOBILE HOME PARK RECREATION DISTRICTS.--Notwithstanding subsection (2) or subsection (3), the sheriff's office of each of the several counties of this state and the police department of each chartered municipality have authority, but are not required, to enforce the traffic laws of this state on any way or place used for vehicular traffic on a controlled access basis within a mobile home park recreation district which has been created under s. [418.30](#) and the recreational facilities of which district are open to the general public.

(7) CONSTRUCTION OF CHAPTER 87-88, LAWS OF FLORIDA.--For purposes of traffic control and enforcement, nothing in chapter 87-88, Laws of Florida, shall be construed to classify any road which has been dedicated or impliedly dedicated for public use, and which has been constructed and is open to the use of the public for vehicular traffic, as a private road or driveway.

(8) TRAFFIC ENFORCEMENT AGENCY.--Any agency or governmental entity designated in subsection (1), subsection (2), or subsection (3), including a university, a community college, a school board, or an airport authority, is a traffic enforcement agency for purposes of s. [316.650](#).

History.--s. 1, ch. 71-135; ss. 1, 2, ch. 73-24; s. 1, ch. 76-31; s. 1, ch. 76-270; s. 3, ch. 79-246; s. 11, ch. 83-167; ss. 4, 5, ch. 87-88; s. 2, ch. 87-178; s. 7, ch. 87-270; s. 1, ch. 90-177; s. 1, ch. 92-18; s. 17, ch. 93-164; s. 4, ch. 93-404; s. 30, ch. 94-306; s. 1, ch. 94-334; s. 138, ch. 94-356; s. 1, ch. 95-141; s. 904, ch. 95-148; s. 3, ch. 96-276; s. 37, ch. 96-350; s. 87, ch. 99-245; ss. 6, 244, ch. 99-248; s. 109, ch. 2002-20; s. 11, ch. 2002-205; s. 46, ch. 2002-295; s. 26, ch. 2003-1; s. 18, ch. 2003-286; s. 6, ch. 2005-120; s. 2, ch. 2009-216.

Note.--Former s. 316.016.