# Planning Technical Advisory Committee (PTAC) Meeting

REGULAR MEETING AGENDA

Wednesday, September 18, 2013
**10:30 a.m.**

South Florida Regional Transportation Authority
Human Resources Training Room
800 NW 33rd Street
Pompano Beach, Florida 33064
*www.sfrta.fl.gov*

FOR FURTHER INFORMATION CALL JOSEPH QUINTY AT (954) 788-7928

**Members**

Michael Busha, Treasure Coast Regional Planning Council
Monica Cejas, Miami-Dade Transit
William Cross, South Florida Regional Transportation Authority
James Murley, South Florida Regional Planning Council
Irma San Roman, Miami-Dade Metropolitan Planning Organization
Barney McCoy, Broward County Transit
Gustavo Schmidt, Florida Department of Transportation, District IV
Phil Steinmiller, Florida Department of Transportation, District VI
Greg Stuart, Broward Metropolitan Planning Organization
Fred Stubbs, Palm Tran
Nick Uhren, Palm Beach Metropolitan Planning Organization
Jeff Weidner, FDOT, District IV

**Directions to SFRTA: I-95 to Copans Road. Go west on Copans to North Andrews Avenue Ext. and turn right. Go straight to Center Port Circle, which is NW 33rd Street, and turn right. SFRTA's offices are in the building to the right. The SFRTA offices are also accessible by taking the train to the Pompano Beach Station. The SFRTA building is southeast of the station. Parking is available across the street from SFRTA's offices, at the Pompano Beach Station**.

**PLANNING TECHNICAL ADVISORY COMMITTEE (PTAC)**
**MEETING OF SEPTEMBER 18, 2013**

The meeting will convene at 10:30 a.m., and will be held in the Human Resources Training Room of the South Florida Regional Transportation Authority, Administrative Offices, 800 NW 33rd Street, Pompano Beach, FL 33064.

**CALL TO ORDER**

**PLEDGE OF ALLEGIANCE**

**AGENDA APPROVAL** – Additions, Deletions, Revisions

**DISCUSSION ITEMS –**

**MATTERS BY THE PUBLIC** – Persons wishing to address the Committee are requested to complete an "Appearance Card" and will be limited to three (3) minutes. Please see the Minutes Clerk prior to the meeting.

| CONSENT AGENDA |
|---|
| Those matters included under the Consent Agenda are self-explanatory and are not expected to require review or discussion. Items will be enacted by one motion in the form listed below. If discussion is desired by any PTAC Member, however, that item may be removed from the Consent Agenda and considered separately. |

C1 – MOTION TO APPROVE: Minutes of PTAC Meeting of July 22, 2013

| REGULAR AGENDA |
|---|
| Those matters included under the Regular Agenda differ from the Consent Agenda in that items will be voted on individually. In addition, presentations will be made on each motion, if so desired. |

No items

| INFORMATION / PRESENTATION ITEMS |
|---|
| Action not required, provided for information purposes only. |

I1 – INFORMATION: Miami River-Miami Intermodal Center Capacity Improvement (MR-MICCI)

I2 – INFORMATION: SFRTA Shuttle Bus System Update

I3 – INFORMATION: BCT Connected – The Broward County Transit FY 2014-2023 Transit Development Plan (TDP) Major Update

I4 – INFORMATION: Railroad Crossing Delay and Truck Volume Monitoring

(Continued next page)

OTHER BUSINESS: OB1- PTAC/RTTAC Meeting Locations
OB2- Upcoming Transportation Related Events

PTAC MEMBER COMMENTS

MEETING ATTENDANCE SUMMARY – Enclosed

NEXT MEETING DATE – October 16, 2013

ADJOURNMENT

In accordance with the Americans with Disabilities Act and Section 286.26, Florida Statutes, persons with disabilities needing special accommodation to participate in this proceeding, must at least 48 hours prior to the meeting, provide a written request directed to the Executive Office at 800 NW 33rd Street, Pompano Beach, Florida, or telephone (954) 942-RAIL (7245) for assistance; if hearing impaired, telephone (800) 273-7545 (TTY) for assistance.

Any person who decides to appeal any decision made by the Governing Board of the South Florida Regional Transportation with respect to any matter considered at this meeting or hearing, will need a record of the proceedings, and that, for such purpose, he/she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

Persons wishing to address the Board are requested to complete an "Appearance Card" and will be limited to three (3) minutes. Please see the Minutes Clerk prior to the meeting.

# MINUTES
## SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY
## PLANNING TECHNICAL ADVISORY COMMITTEE (PTAC) MEETING
## JULY 22, 2013

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The Planning Technical Advisory Committee (PTAC) meeting was held at 10:30 a.m. on Wednesday, July 22, 2013 in the SFRTA Human Resources Training Room, 800 NW 33rd Street, Pompano Beach, FL 33064.

**COMMITTEE MEMBERS/ALTERNATES PRESENT**:

Ms. Lois Bush, Florida Department of Transportation (FDOT) District 4
Ms. Nilia Cartaya, Miami-Dade Transit (MDT)
Ms. Kim Delaney, Committee Chair, Treasure Coast Regional Planning Council (RPC)
Mr. James Murley, South Florida RPC
Mr. Joseph Quinty, SFRTA
Mr. Jonathan Roberson, Broward County Transit (BCT)
Mr. Fred Stubbs, Palm Tran
Mr. Nick Uhren, Palm Beach MPO
Mr. Jeff Weidner, FDOT District 4

**ALSO PRESENT:**

Mr. Steve Anderson, SFRTA
Mr. Bill Ball, Tindale Oliver
Ms. Sharon Cino, Renaissance Planning Group
Ms. Michele Collie, Branches
Mr. Nathan Hicks, MDT
Mr. Juan Higuera, Tindale Oliver & Associates
Mr. Larry Hymowitz, FDOT District 4
Mr. Mason Jackson, Broward Development Board, Work Force One
Mr. Chari Kavehersi, South Florida Workforce
Ms. Elaine Magnum, SFRTA
Ms. Lynda Mifsud, Jacobs
Mr. Mark Okeefe, HNTB
Mr. Myung Sung, Gannett Fleming
Ms. Jessica Vargas, Tindale-Oliver & Associates
Ms. Elizabeth Walter, SFRTA
Ms. Lynda Westin, SFRTA
Ms. Natalie Yesbeck, SFRTA

DRAFT

**CALL TO ORDER**

The Chair called the meeting to order at 10:40 a.m.

**ROLL CALL**

The Chair requested the roll call.

**PLEDGE OF ALLEGIANCE**

**AGENDA APPROVAL** – Additions, Deletions, Revisions

Mr. Jeff Weidner made a motion to approve the agenda. The motion was seconded by Mr. Fred Stubbs. The motion was called to a vote and carried unanimously.

**DISCUSSION ITEMS:**

**MATTERS BY THE PUBLIC** – None

| **CONSENT AGENDA** |
|---|
| Those matters included under the Consent Agenda are self-explanatory and are not expected to require review or discussion. Items will be enacted by one motion in the form listed below. If discussion is desired by any Committee Member, however, that item may be removed from the Consent Agenda and considered separately. |

**C1 – MOTION TO APPROVE**: Minutes of Planning Technical Advisory Committee Meeting of June 12, 2013

Mr. Jim Murley made a motion to approve the meeting minutes. The motion was seconded by Mr. Jonathan Roberson. The motion was called to a vote and carried unanimously.

| **REGULAR AGENDA** |
|---|
| Those matters included under the Regular Agenda differ from the Consent Agenda in that items will be voted on individually. In addition, presentations will be made on each motion, if so desired. |

**R1 –MOTION TO ELECT:** PTAC Chair and Vice-Chair for FY 2013-2014

Mr. James Murley made a motion to elect Kim Delaney as Chair. The motion was seconded by Mr. Nick Uhren. The motion was called to a vote and carried unanimously.

Mr. James Murley made a motion to elect Joseph Quinty as Vice-Chair. The motion was seconded by Mr. Jonathan Roberson The motion was called to a vote and carried unanimously.

**R2 – MOTION TO ENDORSE**: - SFRTA Fiscal Year 2014-2023 Transit Development Plan (TDP) Major Update

Ms. Natalie Yesbeck Pustizzi of SFRTA thanked everyone on the PTAC for being a part of the review committee for past six to eight months. She said that the plan is to bring the TDP to the SFRTA Governing Board in August for final approval and submit it to FDOT by September 1, 2013. She then introduced Mr. Bill Ball of Tindale Oliver, who gave an overview presentation of the TDP Major Update.

Mr. Ball discussed the market assessment tools that were used as part of the TDP analysis, which he noted was more of a guide for the evaluation of shuttle bus services than the commuter rail line. He spoke about the investigation of discretionary transit markets, looking at thresholds for population and employment density that show opportunities for expanding shuttle bus services. He also noted investigation of the more traditional transit market, looking at demographics that are traditionally linked to transit use, such as the elderly population and the youth population, lower income households, as well as household with no vehicle. Mr. Ball pointed out that expansion of the Tri-Rail system onto the FEC Railway corridor is the key element of this TDP major update, and is shown in the overall needs plan as well as the financial plan. Mr. Ball explained the diagram of the Tri-Rail system of how we know it today and how plans will integrate it with new service on the FEC. He provided an overview of commuter rail ridership projections, with a methodology that relied largely upon work that has been done recently by SFRTA and FDOT. The projections were both for the existing Tri-Rail system and expansion onto the FEC corridor.

Mr. Ball stated that a lot of time was spent on the SFRTA Shuttle Bus Program, working with Stephen Anderson of SFRTA and others on staff to fully document the Five Year Shuttle Bus Financial Plan and build upon it with additional routes and concepts for the second five years. He noted that committed and funded improvements in the TDP are enhancements to the Downtown Fort Lauderdale, Fort Lauderdale Airport, and Delray Beach shuttles, as well as a new Boynton Beach shuttle route. Numerous future shuttle bus concepts are identified in the TDP, but these are unfunded and not included the TDP's costs and revenues nor ridership projections. These new concepts will be evaluated more closely as SFRTA updates their five year shuttle bus plan on an annual basis. Shuttle bus ridership projections were also done for the existing plus committed system. Mr. Ball noted that the SFRTA shuttle system is reaching 1.1M in annual ridership as of today. Although SFRTA shuttle ridership has grown at a very strong rate in recent years, a more conservative growth rate of about 2% per year was utilized for future years. Several discussions took place on the financial side. Mr. Ball also shared information on other proposed improvements such as station upgrades, additional rolling stock, rail capacity improvements, streetcar systems, and premium transit expansion to adjacent counties. Committee members asked questions about some of the individual projects. Mr. Larry Hymowitz asked about projected O&M costs of the Tri-Rail Coastal Link expansion, while Chairwoman Delaney asked about consistency of ridership projections with the Tri-Rail Coastal Link Study. Mr. Murley asked about the status of Tri-Rail's return to the Miami Airport and the MR-MICCI project. Other inquiries included details about the TOD Station listing in the first five years, the Pompano Beach Station Green Demonstration project, and provision of real-time information.

Mr. Ball's overview of the TDP financial plan generated the most questions and discussion. He noted that the 10 year needs plan was aggressive and forward looking, containing substantial capital and operating costs. The committee requested improved graphics and clearer explanation of the future funding needs of the existing Tri-Rail system and additional needs associated with Coastal Link expansion onto the FEC corridor. Some suggested that the reference of a replacement dedicated funding source for current state operating contributions was too vague. Committee members also noted that the draft TDP materials gave the appearance of a funding gap in the first five years of the plan. SFRTA staff

stated that no such shortfall is anticipated in the first five years, and promised that the charts indicating this would be refined and clarified.

Mr. Jim Murley made a motion to endorse the TDP with edits made to reflect the committee's suggestions. The motion was seconded by Mr. Fred Stubbs. The motion was called to a vote and carried unanimously.

| **INFORMATION / PRESENTATION ITEMS** |
| --- |
| Action not required, provided for information purposes only. |

**I1. - <u>INFORMATION</u>**: 2013 Tri-Rail Onboard Survey Results (Part 2)

Mr. Joseph Quinty of SFRTA presented this item, which provided additional findings from the Tri-Rail Onboard Survey that was conducted on February 13, 2013. Mr. Quinty noted that ridership on the day of the survey was 15,655, which is almost identical to the high ridership levels during the last major onboard survey that was conducted in the fall of 2008. He stated that a major trend is a shift in Tri-Rail ridership towards the northern half of the Tri-Rail corridor and that A.M. northbound trips looks to be a lot stronger than it used to be. He noted that some of these general trends were discussed at the June PTAC meeting, but today's presentation will go into deeper detail on changes in ridership patterns.

Mr. Quinty reviewed the numerous transportation changes that have occurred since 2008, including the temporary closing of the Miami Airport Station, addition of park & ride capacity, a fare increase, connecting transit route modifications, new transfer fees between Tri-Rail and county transit services, and new managed lanes and express bus services on Interstate 95. He pointed out that station-to-station origin-destination (O-D) is one of the most important findings from the surveys and is common information from the past years' surveys. Mr. Quinty then shared information showing the contrasts in top station O-D pairs from the 2004, 2007, 2008 & 2013 surveys. He noted that most of the top O-D pairs were in the southern portion of the system in 2004, but they became more balanced in 2008, and now are more tilted toward the northern half of the system.

Mr. Quinty also provided a station-by-station all day boardings comparison for the 2008 and 2013 surveys. He pointed out that ridership growth has occurred at most stations in Palm Beach County, while significant ridership declines have taken place at the Sheridan Street, Metrorail Transfer, and Miami Airport/Hialeah Market stations. He also showed related findings that far less Tri-Rail passengers are reporting Metrorail as their mode of egress from the station. Mr. Quinty also shared a correlation between overall ridership decline on the southern half of the Tri-Rail system and the introduction of managed lanes and express buses on I-95. He also noted that a recent Miami-Dade MPO onboard survey of express buses indicated only 1-2% of express bus riders transfer to/from Tri-Rail.

Mr. Jeff Weidner asked if these findings will be presented to the SFRTA Governing Board. Mr. Weidner also pointed out the overall growth in premium transit ridership and faster travel times of the new express bus services. Mr. Quinty stated that he was not sure if this information would be presented to the SFRTA Governing Board in the coming months. He concluded the presentation by showing some of the customer service related responses. The information showed improved passenger ratings for the onboard restrooms, air conditioning, ticket vending machines, park-and-ride availability, and on-time performance/reliability.

**I2. - INFORMATION**: "Speak Up Broward" Public Engagement and Education Program

Ms. Lynda Mifsud of Jacobs Engineering presented this item, noting that the Broward MPO initiated a public engagement and education program, known as Speak Up Broward on February 15, 2013. Ms. Mifsud stated that the Speak Up Broward effort involves public opinion research, transportation planning, and multi-media outreach to further the transportation planning process. Speak Up Broward will build on the Broward MPO's Commitment 2040 Financially Feasible Plan (2040 Long Range Transportation Plan).

Ms. Mifsud stated the initiative consists of research, planning and marketing components. She provided an overview of the project schedule, noting that some revenue analysis is expected towards the August time frame and we are looking for some additional activity to determine needs in the fall. She explained that a Broward Partnership Group was formed and met on April 30th , with the next meeting tentatively scheduled for September 30th. The project also involves development of a speakers group which will be called the "GrassRoots Forum." Ms. Mifsud noted that the team is looking for people that want to come forward and tell their story about why transportation is important to them. We want to make this relevant to the average person out there and we are going to use street teams to go to events, festivals, malls, places where people are.

Ms. Mifsud also spoke about the scenario planning component of the project. She explained that the project will create two additional scenarios that build off the LRTP Financially Feasible Plan and include some financial options to pay for these needs. She also described the project's recent efforts to conducted a baseline survey of what people's opinions and values are. Full details of the survey are available online at www.SpeakUpBroward.org. Some of the key findings were that 52% say they have no other option but to drive, 83% say they drive all the time. A slight majority say that traffic congestion affects them and that the current transportation system is inadequate. Public transportation in general is viewed as a social good. There was a strong preference for maintaining and improving the existing highway system rather than adding new highways. New passenger rail services ranked fairly low, while new tolled highway lanes ranked at the bottom.

Ms. Mifsud concluded by explaining some of the key issues going forward. Understanding public sentiments is important, and expectations may not hold true. There is a sense from the public that you can't stop growth but need to wisely plan for it. New funding sources may not appear immediately and it may take 2 to 3 attempts to get such a source approved. Accountability and trust is a critical issue to gaining public confidence. Communications must be easy to understand, with simple maps and visuals, and grass roots support can make the difference. She also noted a sentiment that the public doesn't want to wait decades for improvements to materialize.

**OTHER BUSINESS:**

Ms. Loraine Cargill informed committee members of the upcoming Rail~Volution Conference in Seattle, October 20 -23, 2013. Ms. Cargill provided members with Rail~Volution Conference brochures and also stated that we will also e-mail this electronically to all members. The conference will have over 80 sessions with 21 mobile tours. She noted that South Florida will be well represented, with Broward Mayor Kristin Jacobs and SFRTA Chair and Palm Beach County Mayor Steve Abrams planning to attend, along with some staff from SFRTA, SFRPC, and TCRPC.

## PTAC MEMBER COMMENTS

None

## ADJOURNMENT

The meeting was adjourned at 12:20 PM.

AGENDA ITEM NO. I1

SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY
PLANNING TECHNICAL ADVISORY COMMITTEE (PTAC)
MEETING: SEPTEMBER 18, 2013

INFORMATION ITEM REPORT

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☐ Information Item ☒ Presentation

MIAMI RIVER-MIAMI INTERMODAL CENTER
CAPACITY IMPROVEMENT (MR-MICCI)

SUMMARY EXPLANATION AND BACKGROUND:

The 72-mile Tri-Rail corridor traverses the tri-county region of Miami-Dade, Broward, and Palm Beach counties. The Double Track Corridor Improvement Program, completed in 2006, added a second mainline track to all but the southernmost 1.25 miles of the Tri-Rail corridor, which is the subject of this effort. The South Florida Regional Transportation Authority (SFRTA), in cooperation with the Florida Department of Transportation (FDOT) and consistent with the Miami-Dade Metropolitan Planning Organization (MPO) Long Range Transportation Plan, has identified this section of single track for additional rail capacity, to improve access and connectivity to the Miami Intermodal Center (MIC).

SFRTA is managing a multi-year project, commonly referred to by its acronym - MR-MICCI, to evaluate potential corridor improvements, including track, signals, Miami River bridge and connections with the new MIC Tri-Rail Station. Benefits of the MR-MICCI Project include: improved connectivity to the Miami International Airport; improved passenger access to the numerous transit connections at the Miami Central Station; and relieving bottlenecks for Tri-Rail, Amtrak, and freight services in the area, resulting in improved operational efficiencies.

The planning portion of the Project has been divided into two phases. Phase 1 activities were completed in 2011 and included data collection and bridge inspections; environmental screening; and coordination with various agencies and stakeholders. Phase 2 activities initiated a Project Development and Environment (PD&E) Study for the Project and began in September 2012.

SFRTA staff will provide an update of the Phase 2 activities to the PTAC on September 18 and SFRTA Governing Board on September 27. Additionally, as part of the PD&E Study, a Public Workshop is scheduled for November 6 at 5:30 p.m. at the Miami-Dade Expressway Authority in Miami-Dade County to brief the pubic on the Project, solicit feedback and answer any questions.

EXHIBITS ATTACHED: MR-MICCI Project Fact Sheet

# Miami River-Miami Intermodal Center Capacity Improvements (MR-MICCI)

## BACKGROUND

The South Florida Rail Corridor (SFRC) is an economic engine for the millions of South Floridians who depend on its freight and commuter rail transit connections. The Miami Intermodal Center (MIC) anchors the south end of the corridor and connects to the Miami International Airport (MIA). The MIC is the key intermodal transportation hub in Miami-Dade County, accommodating Tri-Rail, Metrorail, and future Amtrak service. However, Tri-Rail traverses the Miami River on a single track bridge. The MR-MICCI project will add rail capacity across the Miami River and the last 1.25 miles of the SFRC and will greatly improve access and connectivity to the MIC.

## DESCRIPTION

The MR-MICCI project will evaluate improved track connections across the Miami River, including bridge, track, and signal upgrades. This project will improve SFRC capacity for Tri-Rail and freight trains, potentially accommodate new Amtrak intercity rail service accessing the MIC, and improve connections between rail and air travel. Extensive study coordination will occur among numerous transportation partner agencies. This project is included in the Miami-Dade Metropolitan Planning Organization's 2035 Long-Range Transportation Plan.

## MR MICCI BENEFITS:

- **Improve connectivity to MIA and associated employment centers.**
- **Improve passenger access to the MIC and its numerous transit connections.**
- **Relieve potential bottlenecks for Tri-Rail, future Amtrak, and freight services.**

### For More Information, Please Contact:

Loraine Cargill
Project Manager OR MRMICCI.com
954-788-7921

revised December 6, 2012

RTA SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY

# Miami River - Miami Intermodal Center Capacity Improvements

Project Location Map

AGENDA ITEM NO. I2

SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY
PLANNING TECHNICAL ADVISORY COMMITTEE (PTAC)
MEETING: SEPTEMBER 18, 2013

INFORMATION ITEM REPORT

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☐ Information Item ☒ Presentation

SFRTA SHUTTLE BUS SYSTEM UPDATE

SUMMARY EXPLANATION AND BACKGROUND:

In recent years, various aspects of SFRTA's Shuttle Bus services have been brought to the PTAC for review, guidance, and endorsement. One of the outcomes of these efforts is that the SFRTA Planning Department is now responsible for developing a new SFRTA Five Year Shuttle Bus Service and Financial Plan on an annual basis. Approval of the most recent Five Year Plan occurred at the PTAC meeting held on March 20.

Various SFRTA shuttle bus initiatives have progressed since the PTAC adoption of the Five Year Plan in March. At the September 18 meeting, SFRTA Planning and Operations staff will provide a "mid-year" update that will consist of:

- Latest systemwide performance data
- Improvements to existing SFRTA shuttle bus routes
- New partnerships with local governments
- New Tri-Rail connecting services being implemented and proposed by private sector entities

EXHIBITS ATTACHED: None

AGENDA ITEM NO. I3

SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY
PLANNING TECHNICAL ADVISORY COMMITTEE (PTAC)
MEETING: SEPTEMBER 18, 2013

INFORMATION ITEM REPORT

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☐ Information Item ☒ Presentation

BCT CONNECTED – THE BROWARD COUNTY TRANSIT FY 2014-2023
TRANSIT DEVELOPMENT PLAN (TDP) MAJOR UPDATE

SUMMARY EXPLANATION AND BACKGROUND:

Broward County Transit (BCT) recently submitted its draft Transit Development Plan, *BCT Connected*, to the Florida Department of Transportation. BCT will be presenting an overview of this document to the PTAC on September 18. The presentation will include information on goals, new services, ridership projections, and financial impacts.

EXHIBITS ATTACHED: BCT Connected slideshow

# BCT *Connected*

## *2014-2023 Transit Development Plan*

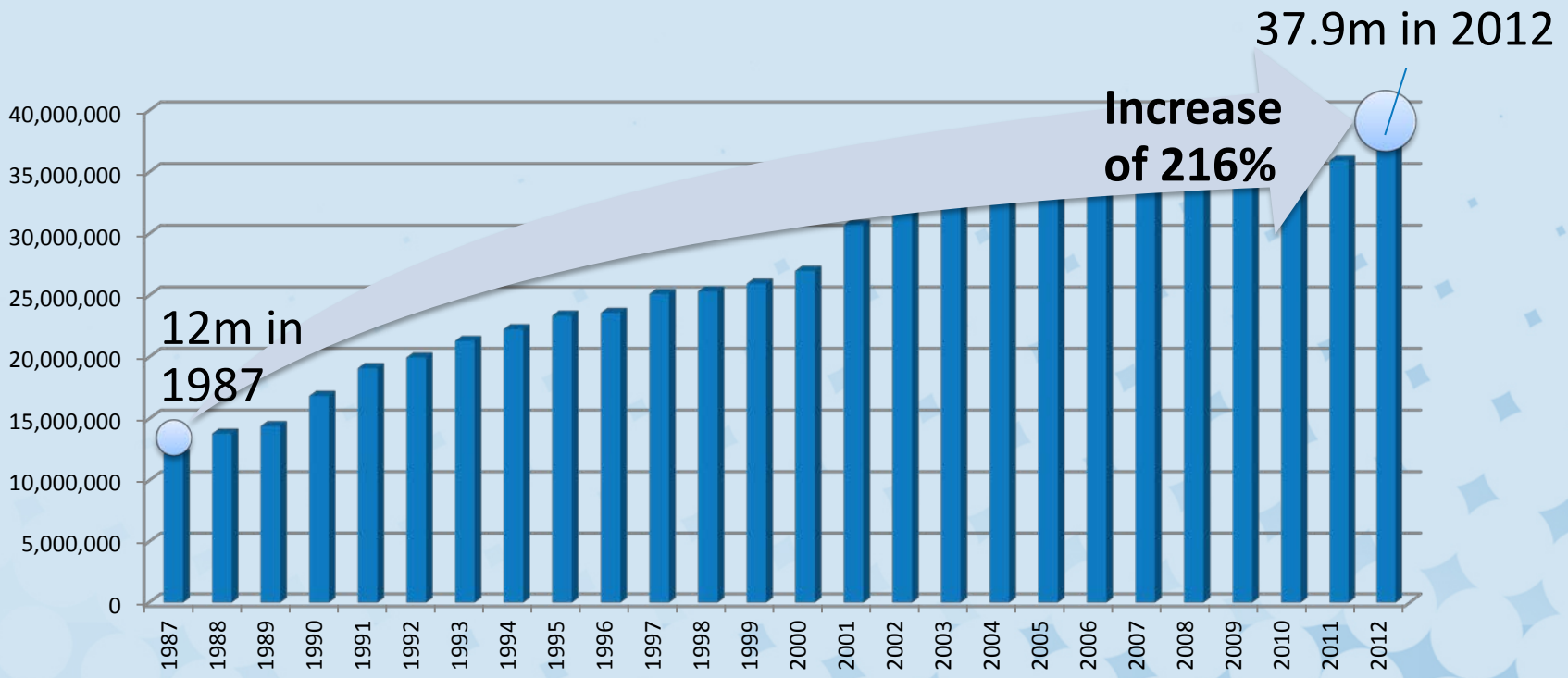
*PTAC*

September 18, 2013

# TDP Process

- 10-year timeframe
- Annual Progress Report
- Major Update every 5 years
- Assess previous plan
- Prioritize improvements
- Update financial plan
- Meet FDOT requirement

# BCT Ridership (1987-2012)




Source: National Transit Database

# Public Involvement

| Type of Outreach | Number of Events |
|---|---|
| Advisory Review Committee Meeting | 4 |
| Stakeholder Interview | 16 |
| Discussion Group | 6 |
| Community Drop-in | 20 |
| Presentation | 12 |
| Total Number of Events | 58 |

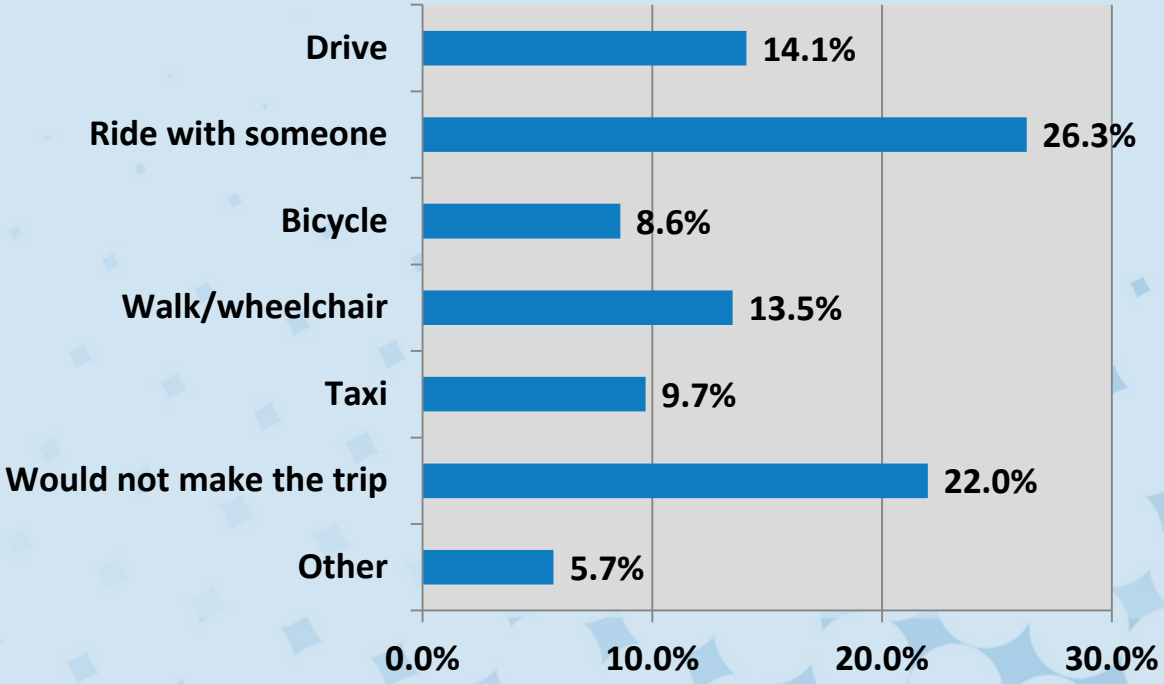
| Surveys | Number of Surveys |
|---|---|
| On-board | 8,913 |
| In-person | 352 |
| Online | 185 |
| Telephone | 500 |
| Total Number of Surveys | 9,950 |

# Public Involvement

## General Comments

- Connection for bicycle and pedestrians
- Real-time passenger information
- Increased service and improved service frequency
- Increased system awareness
- Hybrid vehicles
- Overall BCT is doing a good job

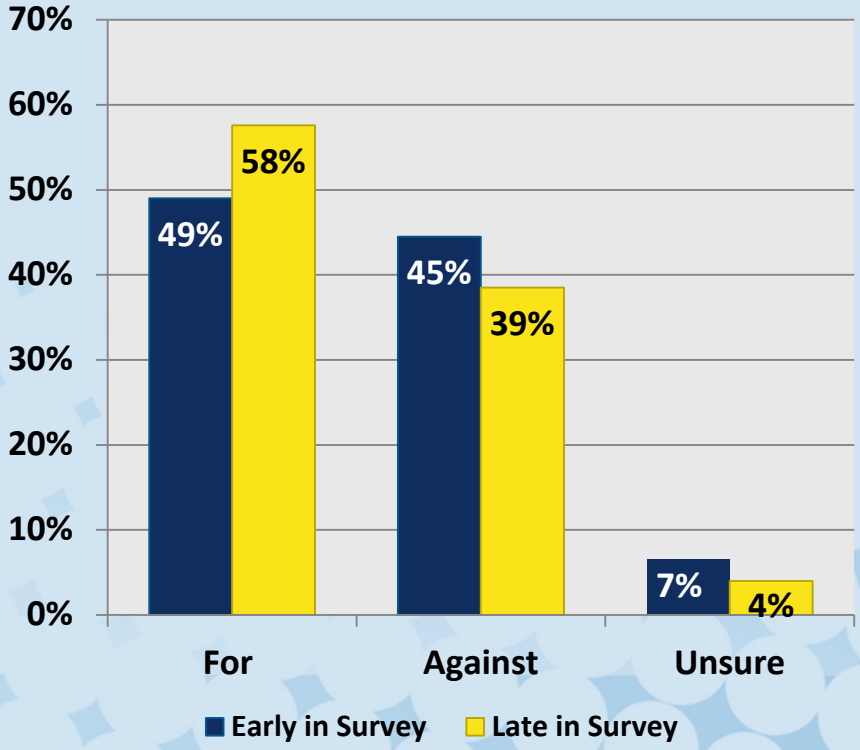
## Alternative to BCT



# Public Involvement

## Telephone Survey

- 500 registered voters
- 37 questions
- ±4.38% margin of error
- Would you vote for or against a ½-cent increase in sales tax, in order to pay for expanded and improved bus services?



# Goals

1. Promote and Advocate Economic Development and Livability Through Transit Investments
2. Make BCT a Transportation Provider of Choice for Current and Potential Customers
3. Achieve Financial Stability and Efficiency
4. Develop a Workforce that is Highly Qualified, Efficient, Productive, and Motivated to Customer Service Excellence
5. Implement Capital Program Plan to Maintain State of Good Repair and Introduce New Technologies

# Status Quo Plan

| Investments |
| --- |
| Maintenance of Current Service |
| Reliability/Capacity Adjustments |
| The Wave Streetcar |
| IT Improvements |
| Cypress Creek Tri-Rail Station Accessibility |
| Lauderhill Mall Transit Center |
| Miramar & Westgate Park-n-Ride Lots |
| Copans Road Facility Rehabilitation |
| B-Cycle Expansion |
| Bus Shelter/Stop Replacement |

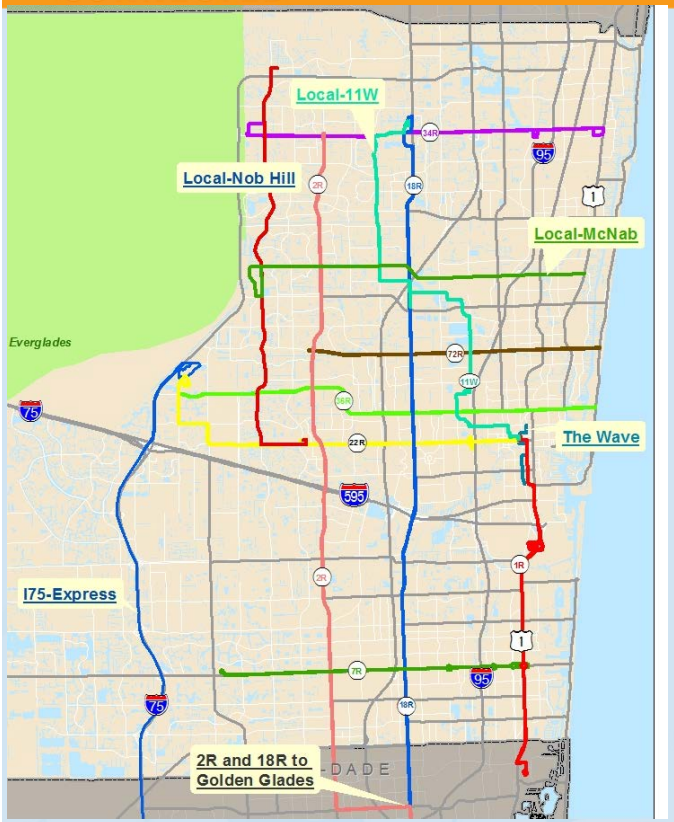
# Vision Plan – New Service

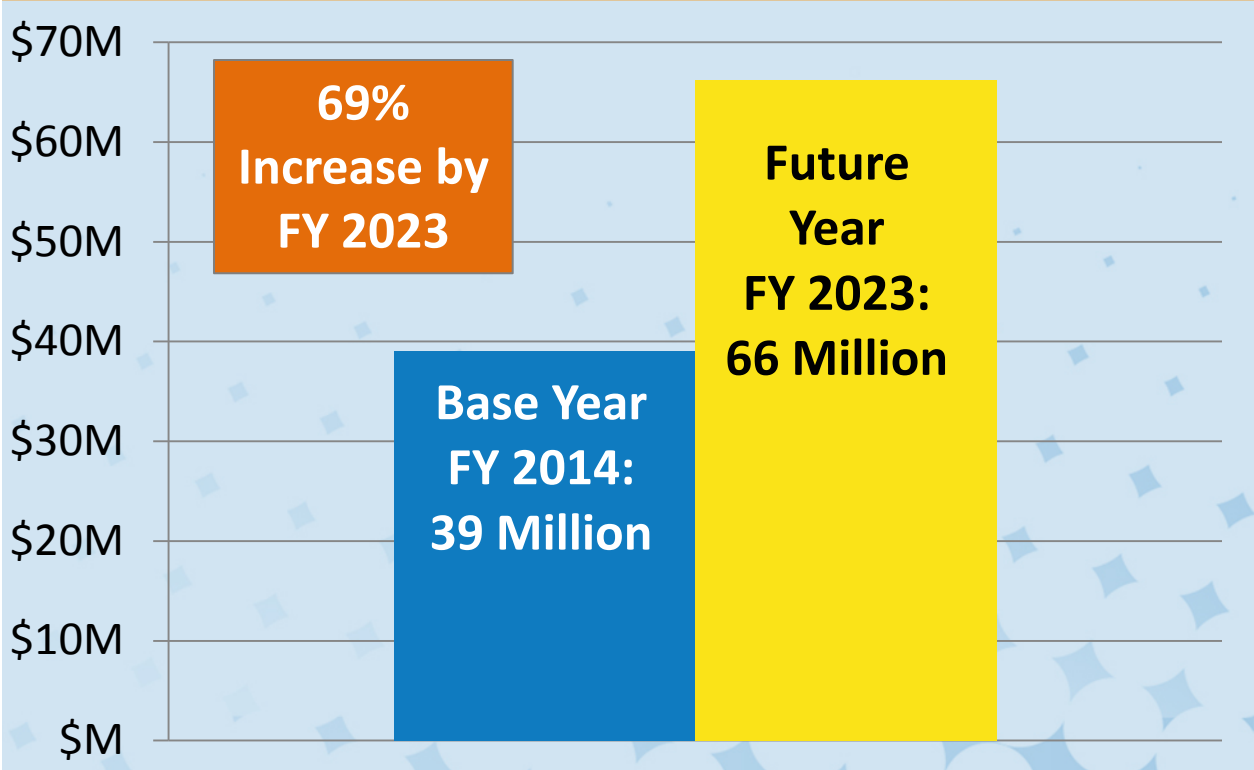
| New Service |
| --- |
| Nob Hill Road (Fixed Route) |
| McNab Road (Fixed Route) |
| I-75 Extension (Express) |
| Community Bus – Improved Frequency |

| New Enhanced Bus Routes |
| --- |
| US 441 |
| Oakland Park Boulevard |
| Federal Highway (US 1) |
| University Drive |
| Broward Boulevard |
| Sunrise Boulevard |
| Pines/Hollywood Boulevard |
| Sample Road |

| Capital Improvements |
| --- |
| Downtown Intermodal Center |
| Third Maintenance/Operations Facility |
| Park-n-Ride Lots |
| Transit Intermodal Centers |
| Bus Shelters/Bus Stops/ Pedestrian Improvements |
| Vehicle Purchases |

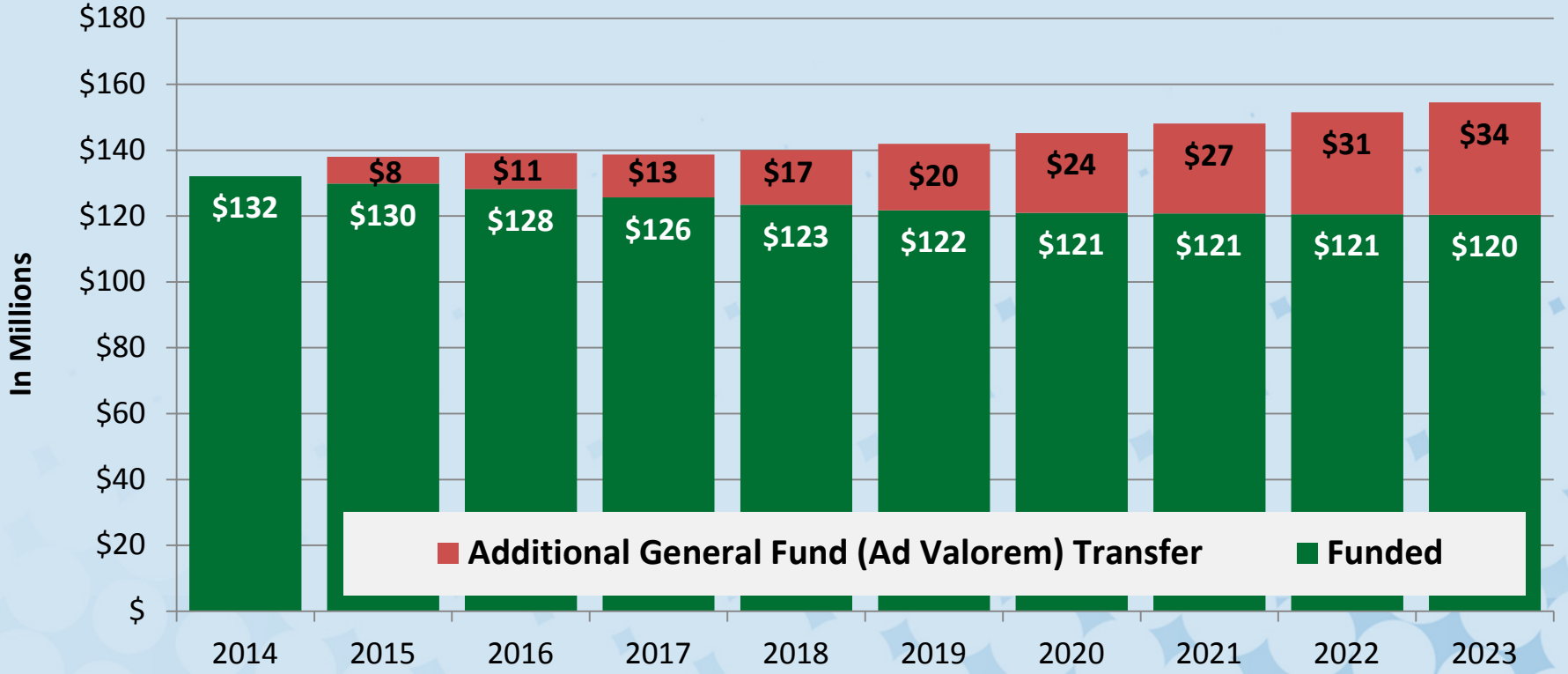
# Annual Ridership Projections



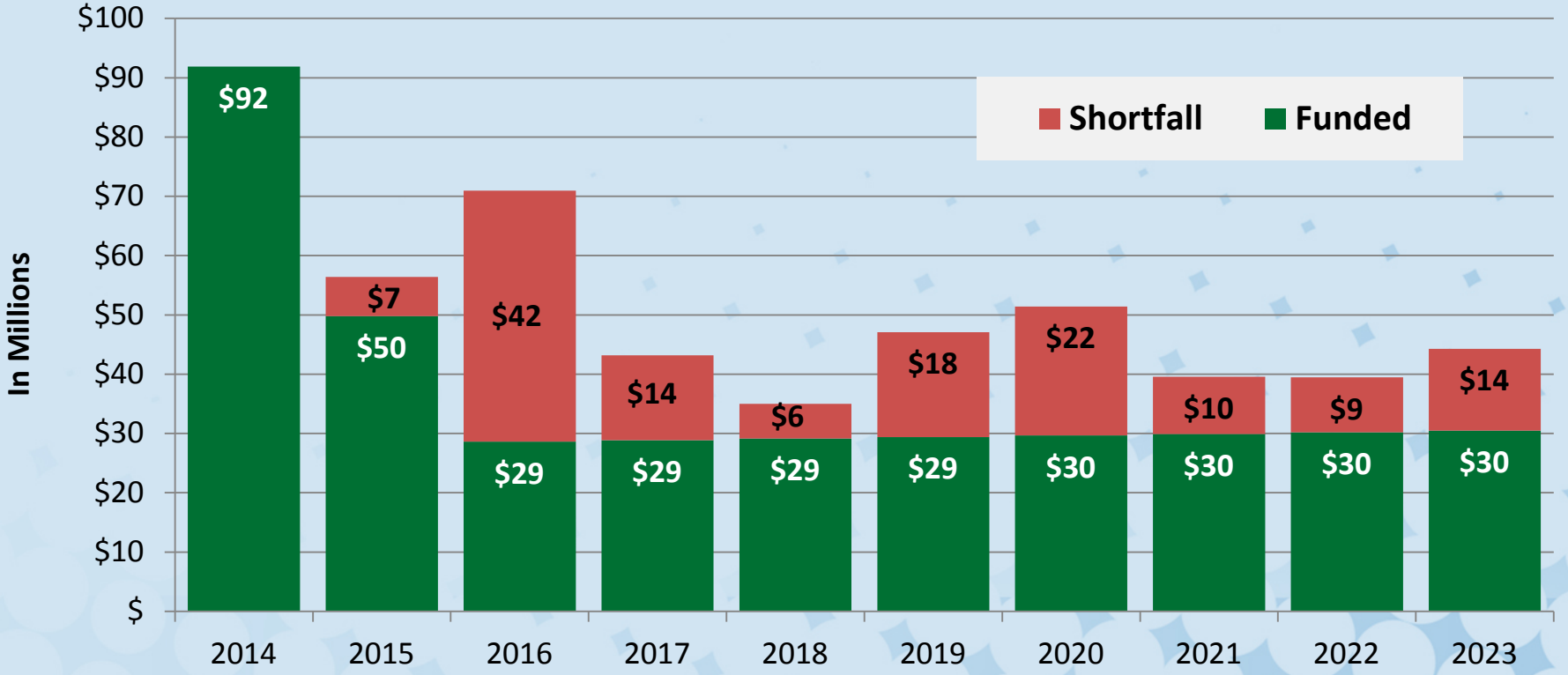




Source: TBEST

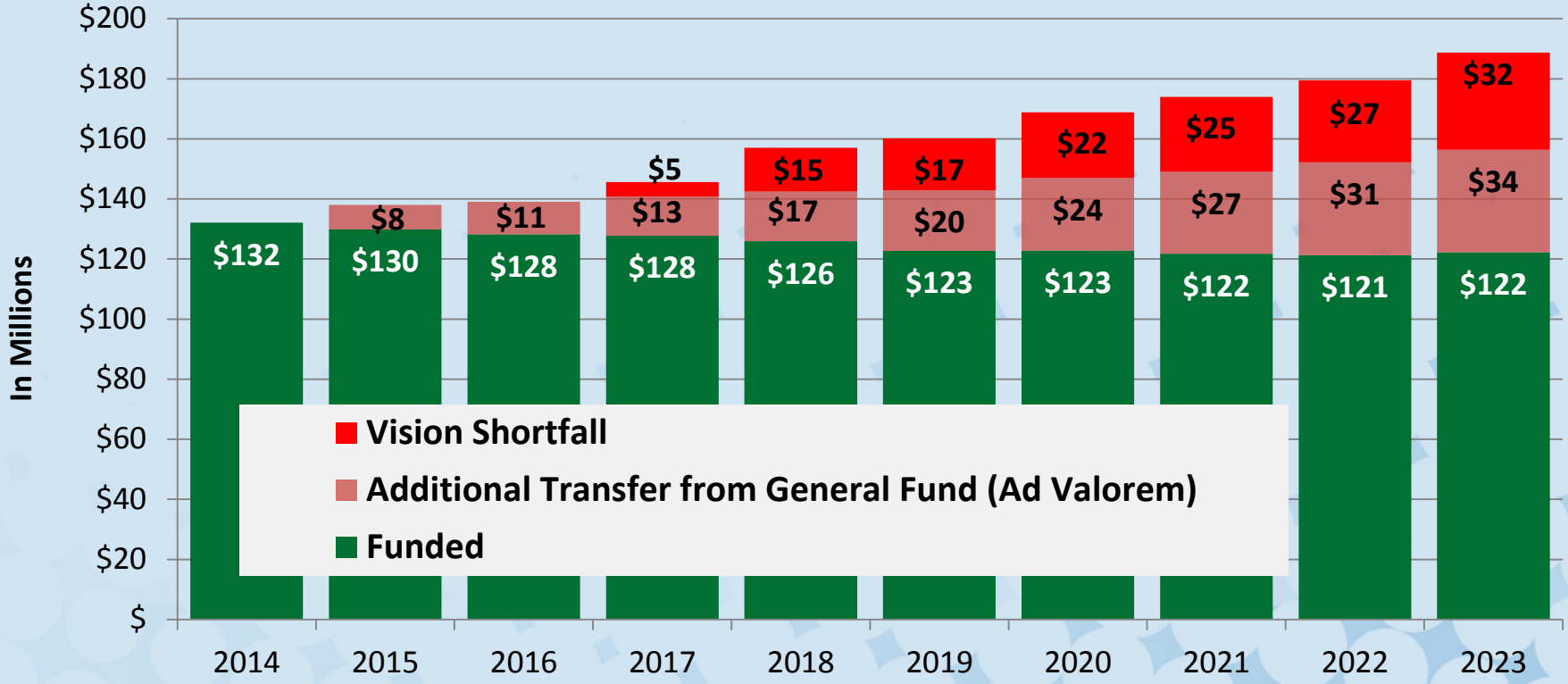
# Status Quo Operating



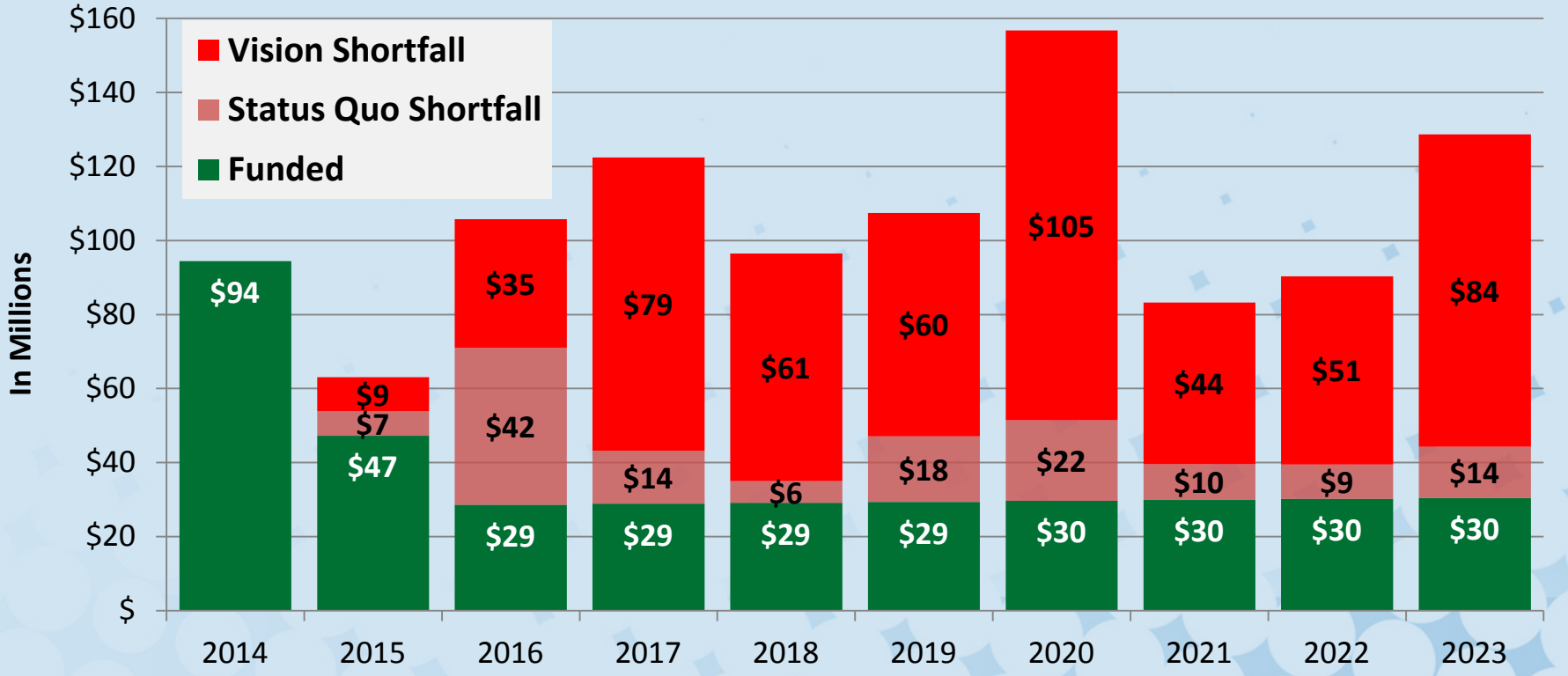
# Status Quo Capital



# Vision Operating



# Vision Capital



# Questions/ More Information

**Web Address:**

www.broward.org/BCT/Pages/TransitDevelopmentPlan.aspx

**Email:**

BCTConnected@broward.org

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BCT Project Manager
954-357-8338
jroberson@broward.org

Laura Everitt, Esq., AICP, LEED GA
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AGENDA ITEM NO. I4

SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY
PLANNING TECHNICAL ADVISORY COMMITTEE (PTAC)
MEETING: SEPTEMBER 18, 2013

INFORMATION ITEM REPORT

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☐ Information Item ☒ Presentation

RAILROAD CROSSING DELAY AND TRUCK VOLUME MONITORING

SUMMARY EXPLANATION AND BACKGROUND:

In anticipation of increased freight activity, Florida Department of Transportation (FDOT) District 4 began to investigate its ability to monitor and track growth in freight movements throughout the region. In 2006, the District established static classification count locations so that Truck Counts could be obtained at the same location on an annual basis. In 2012, the District funded a study to look at all of these locations (197) and analyze growth rates and patterns that will be useful in transportation planning.

At same time, the District was seeking a methodology to monitor rail activity's impacts on cross street delay. A number of detection and information sources were attempted and the District finally went with video data collection. The detection devices were used to collect data at 12 locations along the SFRC and FEC corridors and that was expanded to 20 locations in 2012.

FDOT District 4 staff and consultants will present the information for discussion.

EXHIBITS ATTACHED: 2009 Railroad Crossing Delay Analysis Report
2011 Railroad Crossing Delay Analysis Report
2012 Railroad Crossing Delay Analysis Report

**Railroad Crossing Delay Analysis**

South Florida has two primary railroad corridors passing through developed urbanized areas:

- South Florida Rail Corridor (SFRC) / CSX corridor
- Florida East Coast (FEC) railroad

The purpose of the railroad crossing delay analysis is to update a similar analysis conducted in 2006 and to use the results in additional analysis to estimate the potential reduction in delay that would occur if crossing events were reduced or eliminated through improvements such as re-routing freight trains to a new western rail corridor alignment or grade-separated crossing improvements. When comparing the 2006 data with the 2009 data, it is important to recognize (1) the increase in the number of daily Tri-Rail train operations from 40 to 50, and (2) the potential decrease in traffic volumes in 2009 due to economic recession.

***Data Collection***

Field surveys of each of the fourteen (14) data collection sites within the SFRFP region were conducted during a 12-hour period (6:00 AM to 6:00 PM) on a typical weekday (Tuesday, Wednesday, or Thursday) using video cameras. Information collected from the video data at each crossing included the number of times the cross bar lowered to close automobile traffic; the maximum, median, and minimum total queue lengths in each direction of travel; the maximum, median, and minimum duration of time that the cross bar was lowered; and the maximum, median, and minimum total delay (in vehicle-minutes) experience by motorists in each direction of travel due to the closure.

***Results***

Results indicate that of the two railroads, the SFRC (CSX) is more heavily utilized, primarily because of the number of Tri-Rail passenger trains that utilize the corridor. However, because FEC trains are primarily long-haul freight trains, the number of train cars per train is generally greater and the speed is typically slower on the FEC. Table 3 presents the median result of the vehicle delay experienced per gate closure in the peak direction. Delay for railroad crossing closures is expressed in vehicle-minutes, which accounts for both the volume of vehicular traffic that is delayed and the duration of the delay. Table 4 demonstrates that the duration of the gate closure is generally twice as long at FEC crossings than CSX crossings. Table 5 demonstrates that Broward County typically experiences greater impact from railroad gate closures than Miami-Dade or Palm Beach Counties.

On average, the median result of the vehicle delay experienced per gate closure is equivalent to a level of service (LOS) F intersection for vehicles that are impacted.

**Table 1: Railroad Crossing Median Peak Direction Delay per Gate Closing (vehicle-minutes)**

| Roadway Crossing Location | County | Railroad | Vehicle Delay 2006 | Vehicle Delay 2009 |
|---|---|---|---|---|
| NW 36th Street | Miami-Dade | CSX | (a) | 14 |
| NW 27th Avenue | Miami-Dade | FEC | (a) | 51 |
| NE 79th Street | Miami-Dade | FEC | (a) | 68 |
| NE 125th Street | Miami-Dade | FEC | (a) | 48 |
| NW 135th Street | Miami-Dade | CSX | (a) | 25 |
| Sunny Isles Boulevard | Miami-Dade | FEC | (a) | 70 |
| Hollywood Boulevard | Broward | FEC | 41 | 58 |
| Hollywood Boulevard | Broward | CSX | 123 | 78 |
| Commercial Boulevard | Broward | FEC | 145 | 86 |
| Commercial Boulevard | Broward | CSX | 17 | 40 |
| Atlantic Avenue | Palm Beach | FEC | 20 | 36 |
| Atlantic Avenue | Palm Beach | CSX | 10 | 15 |
| Blue Heron Boulevard | Palm Beach | FEC | 74 | 61 |
| Haverhill Road | Palm Beach | CSX | 2 | 2 |

Note:
(a) – Data for Miami-Dade County Railroad Crossings were not collected in 2006.

**Table 2: Vehicle Delay per Gate Closing by Railroad Corridor (vehicle-minutes)**

| Railroad Corridor | Vehicle Delay 2006 | Vehicle Delay 2009 |
|---|---|---|
| FEC | 70 | 60 |
| CSX | 38 | 29 |

**Table 3: Vehicle Delay per Gate Closing by County (vehicle-minutes)**

| County | Vehicle Delay 2006 | Vehicle Delay 2009 |
|---|---|---|
| Miami-Dade | (a) | 46 |
| Broward | 82 | 66 |
| Palm Beach | 27 | 29 |

Note:
(a) – Data for Miami-Dade County Railroad Crossings were not collected in 2006.

# Florida Department of Transportation (FDOT) District Four
# Railroad Crossing Delay Analysis 2011
# Kimley-Horn and Associates, Inc.; Contract No. C-8W35

## Introduction

At-grade railroad crossings represent one of the primary issues facing freight rail in the Southeast Florida region. Although freight rail is vital to the movement of goods in Southeast Florida, at-grade railroad crossings create traffic delays on highways and railroads, as well as noise and safety concerns. Florida has one of the largest numbers of at-grade railroad crossings and Southeast Florida is no exception. These rail/roadway bottlenecks create significant delays for passenger and freight traffic.

The Southeast Florida region has two primary railroad corridors passing through developed urbanized areas:

- South Florida Rail Corridor (SFRC) / (CSX) corridor
- Florida East Coast (FEC) railroad

The objective of the railroad crossing delay analysis for the year 2011 is to update the similar analyses conducted in 2006 and 2009. Similar to the traffic count program, as more data points are added to the body of knowledge, a better assessment can be made regarding trends in railroad crossing delay. Furthermore, the results can be used in additional analyses to estimate the potential reduction in delay that would occur if crossing events were reduced or eliminated through improvements such as re-routing freight trains to a new western rail corridor alignment or implementing grade-separated crossing improvements.

## Data Collection

In order to allow comparison to prior years' data collection efforts, video camera recordings were collected at the same eighteen (18) railroad crossing locations as in 2009. The railroad crossing locations were spread across Miami-Dade, Broward, Palm Beach, Martin, St. Lucie, and Indian River Counties. It should be noted that twelve (12) railroad crossing locations were collected in 2006 in District Four Counties (Miami-Dade was not added until 2009). Video recordings were made for a 12-hour period (6:00 AM to 6:00 PM) on a typical weekday (Tuesday, Wednesday, or Thursday), which provided accurate information that was reviewed and analyzed regarding the following key aspects:

- Number of times the railroad gate blocked vehicle traffic (gate closing event)

- Duration of time the railroad gate blocked vehicle traffic (including minimum, median and maximum)
- Total queue lengths (number of vehicles stopped during each gate closing event) in each direction of travel (including minimum, median, and maximum)
- Total vehicle delay (measured in vehicle-minutes) experienced by motorists due to each gate closing event (including minimum, median and maximum)

Table 1 presents a summary of the at-grade railroad crossing locations studied.

Table 1. At-Grade Railroad Crossings Studied

| Roadway Crossing Location | County | Railroad |
|---|---|---|
| NW 36th Street | Miami-Dade | CSX |
| NW 27th Avenue | Miami-Dade | FEC |
| NE 79th Street | Miami-Dade | FEC |
| NE 125th Street | Miami-Dade | FEC |
| NW 135th Street | Miami-Dade | CSX |
| Sunny Isles Boulevard | Miami-Dade | FEC |
| Hollywood Boulevard | Broward | FEC |
| Hollywood Boulevard | Broward | CSX |
| Commercial Boulevard | Broward | FEC |
| Commercial Boulevard | Broward | CSX |
| Atlantic Avenue | Palm Beach | FEC |
| Atlantic Avenue | Palm Beach | CSX |
| Blue Heron Boulevard | Palm Beach | FEC |
| Haverhill Road | Palm Beach | CSX |
| SR 708 / SE Bridge Road | Martin | FEC |
| SR 76 / Kanner Highway (near Indiantown) | Martin | CSX |
| SR A1A / North Beach Causeway | St. Lucie | FEC |
| SR 60 / 20th Street | Indian River | FEC |

## Results

In general, there are two primary factors that lead to greater total delay (vehicle-minutes) – roadways with higher traffic volumes and longer gate closure events. Freight trains tend to be longer than passenger trains; therefore, each gate closure event due to a freight train is more likely to produce greater delay than a gate closure event due to a passenger train.

Five (5) summary tables are presented (Tables 2 – 6) that describe the results of the 2011 Railroad Crossing Delay Analysis.

- Table 2. Duration of Gate Closing Events
- Table 3. Peak Direction Traffic Queue (vehicles)
- Table 4. Peak Direction Traffic Delay (minutes)
- Table 5. Data Summary by Location (6:00 AM – 6:00 PM)
- Table 6. Data Summary by Location (Peak Hour of Delay)

Appendix A presents the data summary sheets for each railroad crossing in each direction of travel. There are 36 data summary tables in Appendix A – two for each of the eighteen (18) railroad crossings studied (one table for each direction of travel at each railroad crossing).

Table 2. Duration of Gate Closing Events

| Roadway Crossing Location | County | Railroad | Total Number of Gate Closing Events (6:00 AM – 6:00 PM) | Minimum Duration (min:sec) | Median Duration (min:sec) | Maximum Duration (min:sec) |
|---|---|---|---|---|---|---|
| NW 36th Street | Miami-Dade | CSX | 51 | 00:33 | 00:53 | 03:35 |
| NW 27th Avenue | Miami-Dade | FEC | 9 | 00:26 | 02:53 | 03:36 |
| NE 79th Street | Miami-Dade | FEC | 10 | 00:52 | 02:57 | 03:48 |
| NE 125th Street | Miami-Dade | FEC | 8 | 01:04 | 02:57 | 03:29 |
| NW 135th Street | Miami-Dade | CSX | 43 | 00:34 | 00:55 | 04:02 |
| Sunny Isles Boulevard | Miami-Dade | FEC | 9 | 00:20 | 02:36 | 03:14 |
| Hollywood Boulevard | Broward | FEC | 5 | 00:43 | 02:04 | 03:04 |
| Hollywood Boulevard | Broward | CSX | 61 | 00:21 | 01:16 | 01:34 |
| Commercial Boulevard | Broward | FEC | 6 | 00:19 | 01:21 | 03:32 |
| Commercial Boulevard | Broward | CSX | 40 | 00:40 | 00:47 | 01:00 |
| Atlantic Avenue | Palm Beach | FEC | 4 | 01:56 | 02:25 | 03:28 |
| Atlantic Avenue | Palm Beach | CSX | 40 | 00:38 | 01:15 | 02:01 |
| Blue Heron Boulevard | Palm Beach | FEC | 8 | 00:23 | 02:36 | 05:33 |
| Haverhill Road | Palm Beach | CSX | 5 | 00:48 | 00:49 | 00:52 |
| SR 708 / SE Bridge Road | Martin | FEC | 6 | 00:45 | 01:39 | 03:16 |
| SR 76 / Kanner Highway | Martin | CSX | 4 | 00:51 | 00:57 | 01:02 |
| SR A1A / North Beach Causeway | St. Lucie | FEC | 2 | 02:17 | 02:43 | 03:08 |
| SR 60 / 20th Street | Indian River | FEC | 3 | 01:47 | 02:07 | 02:58 |

Table 3. Peak Direction Traffic Queue (Vehicles)

| Roadway Crossing Location (Peak Direction) | County | Railroad | Total Number of Vehicles Stopped (6:00 AM – 6:00 PM) | Minimum Queue (vehicles) | Median Queue (vehicles) | Maximum Queue (vehicles) |
|---|---|---|---|---|---|---|
| NW 36th Street (WB) | Miami-Dade | CSX | 467 | 0 | 9 | 25 |
| NW 27th Avenue (SB) | Miami-Dade | FEC | 445 | 3 | 50 | 100 |
| NE 79th Street (EB) | Miami-Dade | FEC | 400 | 10 | 43 | 60 |
| NE 125th Street (EB) | Miami-Dade | FEC | 355 | 30 | 43 | 80 |
| NW 135th Street (WB) | Miami-Dade | CSX | 578 | 0 | 14 | 28 |
| Sunny Isles Boulevard (EB) | Miami-Dade | FEC | 339 | 12 | 39 | 57 |
| Hollywood Boulevard (EB) | Broward | FEC | 79 | 13 | 16 | 19 |
| Hollywood Boulevard (EB) | Broward | CSX | 2148 | 17 | 34 | 73 |
| Commercial Boulevard (WB) | Broward | FEC | 146 | 15 | 24 | 36 |
| Commercial Boulevard (EB) | Broward | CSX | 821 | 1 | 21 | 40 |
| Atlantic Avenue (EB) | Palm Beach | FEC | 40 | 5 | 11 | 14 |
| Atlantic Avenue (EB) | Palm Beach | CSX | 439 | 1 | 10 | 30 |
| Blue Heron Boulevard (WB) | Palm Beach | FEC | 190 | 8 | 24 | 42 |
| Haverhill Road (NB) | Palm Beach | CSX | 14 | 1 | 2 | 6 |
| SR 708 / SE Bridge Road (EB) | Martin | FEC | 66 | 6 | 11 | 17 |
| SR 76 / Kanner Highway (EB) | Martin | CSX | 7 | 0 | 2 | 4 |
| SR A1A / North Beach Causeway (WB) | St. Lucie | FEC | 25 | 10 | 13 | 15 |
| SR 60 / 20th Street (WB) | Indian River | FEC | 65 | 16 | 17 | 32 |

Ranking of Top 5 Total Number of Vehicles Stopped.

1. Hollywood Boulevard (EB) @ CSX
2. Commercial Boulevard (EB) @ CSX
3. NW 135th Street (WB) @ CSX
4. NW 36th Street (WB) @ CSX
5. NW 27th Avenue (SB) @ FEC

Table 4. Peak Direction Traffic Delay (Minutes)

| Roadway Crossing Location (Peak Direction) | County | Railroad | Total Delay (veh-min) (6:00 AM – 6:00 PM) | Minimum Delay (veh-min) | Median Delay (veh-min) | Maximum Delay (veh-min) |
|---|---|---|---|---|---|---|
| NW 36th Street (WB) | Miami-Dade | CSX | 343.47 | 0.00 | 4.79 | 85.83 |
| NW 27th Avenue (SB) | Miami-Dade | FEC | 935.14 | 1.06 | 96.94 | 284.17 |
| NE 79th Street (EB) | Miami-Dade | FEC | 802.83 | 3.17 | 94.35 | 150.75 |
| NE 125th Street (EB) | Miami-Dade | FEC | 680.54 | 22.00 | 83.27 | 200.00 |
| NW 135th Street (WB) | Miami-Dade | CSX | 333.56 | 0.00 | 6.95 | 18.20 |
| Sunny Isles Boulevard (EB) | Miami-Dade | FEC | 795.52 | 4.00 | 83.20 | 168.15 |
| Hollywood Boulevard (EB) | Broward | FEC | 166.20 | 10.03 | 39.27 | 52.13 |
| Hollywood Boulevard (EB) | Broward | CSX | 3364.08 | 6.60 | 44.20 | 216.57 |
| Commercial Boulevard (WB) | Broward | FEC | 266.40 | 3.25 | 28.08 | 123.00 |
| Commercial Boulevard (EB) | Broward | CSX | 394.20 | 0.03 | 8.54 | 26.17 |
| Atlantic Avenue (EB) | Palm Beach | FEC | 77.98 | 8.92 | 15.98 | 37.10 |
| Atlantic Avenue (EB) | Palm Beach | CSX | 346.56 | 0.38 | 7.21 | 28.61 |
| Blue Heron Boulevard (WB) | Palm Beach | FEC | 600.62 | 3.07 | 63.03 | 233.10 |
| Haverhill Road (NB) | Palm Beach | CSX | 6.46 | 0.25 | 1.23 | 2.63 |
| SR 708 / SE Bridge Road (EB) | Martin | FEC | 107.76 | 4.70 | 16.96 | 40.80 |
| SR 76 / Kanner Highway (EB) | Martin | CSX | 3.93 | 0.00 | 0.70 | 2.53 |
| SR A1A / North Beach Causeway (WB) | St. Lucie | FEC | 33.92 | 12.25 | 16.96 | 21.67 |
| SR 60 / 20th Street (WB) | Indian River | FEC | 93.93 | 14.80 | 21.53 | 57.60 |

Ranking of Top 5 Total Delay.

1. Hollywood Boulevard (EB) @ CSX
2. NW 27th Avenue (SB) @ FEC
3. NE 79th Street (EB) @ FEC
4. Sunny Isles Boulevard (EB) @ FEC
5. NE 125th Street (EB) @ FEC

Table 5. Data Summary by Location (6:00 AM – 6:00 PM)

| Roadway Crossing Location | County | Railroad | Total Number of Gate Closing Events by Location | Total Duration of Gate Closures by Location (min:sec) | Total Number of Vehicles Stopped by Location | Total Delay by Location (veh-min) |
|---|---|---|---|---|---|---|
| NW 36th Street | Miami-Dade | CSX | 51 | 49:13 | 467 | 343.47 |
| NW 27th Avenue | Miami-Dade | FEC | 9 | 20:27 | 445 | 935.14 |
| NE 79th Street | Miami-Dade | FEC | 10 | 25:40 | 400 | 802.83 |
| NE 125th Street | Miami-Dade | FEC | 8 | 21:00 | 355 | 680.54 |
| NW 135th Street | Miami-Dade | CSX | 43 | 43:13 | 578 | 333.56 |
| Sunny Isles Boulevard | Miami-Dade | FEC | 9 | 19:06 | 339 | 795.52 |
| Hollywood Boulevard | Broward | FEC | 6 | 10:13 | 79 | 166.20 |
| Hollywood Boulevard | Broward | CSX | 61 | 74:12 | 2148 | 3364.08 |
| Commercial Boulevard | Broward | FEC | 6 | 10:48 | 146 | 266.40 |
| Commercial Boulevard | Broward | CSX | 40 | 31:55 | 821 | 394.20 |
| Atlantic Avenue | Palm Beach | FEC | 4 | 10:15 | 40 | 77.98 |
| Atlantic Avenue | Palm Beach | CSX | 40 | 47:11 | 439 | 346.56 |
| Blue Heron Boulevard | Palm Beach | FEC | 8 | 22:27 | 190 | 600.62 |
| Haverhill Road | Palm Beach | CSX | 5 | 04:08 | 14 | 6.46 |
| SR 708 / SE Bridge Road | Martin | FEC | 8 | 14:29 | 66 | 107.76 |
| SR 76 / Kanner Highway | Martin | CSX | 4 | 03:47 | 7 | 3.93 |
| SR A1A / North Beach Causeway | St. Lucie | FEC | 2 | 05:25 | 25 | 33.92 |
| SR 60 / 20th Street | Indian River | FEC | 3 | 06:52 | 65 | 93.93 |

Ranking of Top 5 Total Duration of Gate Closings.

1. Hollywood Boulevard @ CSX
2. NW 36th Street @ CSX
3. Atlantic Avenue @ CSX
4. NW 135th Street @ CSX
5. Commercial Boulevard @ CSX

Table 6. Data Summary by Location (Peak Hour of Delay)

| Roadway Crossing Location (Peak Direction) | County | Railroad | Peak Hour Period (Time) | Total Number of Peak Hour Closing Events | Total Duration of Gate Closures (min:sec) | Percentage of Hour | Total Number of Vehicles Stopped | Total Delay in the Peak Hour (veh-min) |
|---|---|---|---|---|---|---|---|---|
| NW 36th Street (WB) | Miami-Dade | CSX | 16:05 - 17:05 | 9 | 07:59 | 13.31% | 91 | 48.01 |
| NW 27th Avenue (SB) | Miami-Dade | FEC | 12:30 - 13:30 | 2 | 05:10 | 8.61% | 125 | 191.52 |
| NE 79th Street (EB) | Miami-Dade | FEC | 13:20 - 14:20 | 3 | 06:47 | 11.31% | 114 | 202.02 |
| NE 125th Street (EB) | Miami-Dade | FEC | 13:15 - 14:15 | 3 | 06:56 | 11.56% | 120 | 209.50 |
| NW 135th Street (WB) | Miami-Dade | CSX | 6:56 - 7:56 | 7 | 06:15 | 10.42% | 92 | 44.94 |
| Sunny Isles Boulevard (EB) | Miami-Dade | FEC | 13:10 - 14:10 | 3 | 06:27 | 10.75% | 145 | 339.15 |
| Hollywood Boulevard (EB) | Broward | FEC | 13:15 - 14:15 | 2 | 02:47 | 4.64% | 33 | 49.30 |
| Hollywood Boulevard (EB) | Broward | CSX | 8:00 - 9:00 | 10 | 12:05 | 20.14% | 408 | 699.25 |
| Commercial Boulevard (WB) | Broward | FEC | 9:10 - 10:10 | 2 | 02:42 | 4.50% | 47 | 56.15 |
| Commercial Boulevard (EB) | Broward | CSX | 7:00 - 8:00 | 5 | 04:00 | 6.67% | 101 | 42.51 |
| Atlantic Avenue (EB) | Palm Beach | FEC | 14:30 - 15:30 | 1 | 02:50 | 4.72% | 14 | 37.10 |
| Atlantic Avenue (EB) | Palm Beach | CSX | 16:57 - 17:57 | 7 | 09:35 | 15.97% | 79 | 74.33 |
| Blue Heron Boulevard (WB) | Palm Beach | FEC | 6:20 - 7:20 | 3 | 12:22 | 20.61% | 72 | 312.35 |
| Haverhill Road (NB) | Palm Beach | CSX | 16:00 - 17:00 | 2 | 01:39 | 2.75% | 8 | 3.86 |
| SR 708 / SE Bridge Road (EB) | Martin | FEC | 7:20 - 8:20 | 2 | 05:18 | 8.83% | 30 | 61.93 |
| SR 76 / Kanner Highway (EB) | Martin | CSX | 16:30 - 17:30 | 2 | 02:00 | 3.33% | 7 | 3.93 |
| SR A1A / North Beach Causeway (WB) | St. Lucie | FEC | 15:00 - 16:00 | 1 | 03:08 | 5.22% | 10 | 21.67 |
| SR 60 / 20th Street (WB) | Indian River | FEC | 15:00 - 16:00 | 1 | 02:58 | 4.94% | 32 | 57.60 |

Ranking of Top 5 Total Delay (Peak Hour Only).

1. Hollywood Boulevard (EB) @ CSX (8:00 AM – 9:00 PM)
2. Sunny Isles Boulevard (EB) @ FEC (1:10 PM – 2:10 PM)
3. Blue Heron Boulevard (WB) @ FEC (6:20 AM – 7:20 AM)
4. NE 125$^{th}$ Street (EB) @ FEC (1:15 PM – 2:15 PM)
5. NE 79$^{th}$ Street (EB) @ FEC (1:20 PM – 2:20 PM)

## Comparison to Prior Years

The data provided n Table 7 refers to the median result of vehicle delay generated by gate closures in the peak direction; the values represent the volume of vehicular traffic and the duration of the delay expressed in vehicle-minutes. Table 7 compares the results from the three different data collection efforts – 2006, 2009, and 2011.

When comparing the 2011 data with prior years' data, it appears that the effects of having a greater percentage of passenger trains as compared to freight trains are noticeable and the relative decrease in motor vehicle traffic volumes (possibly due to economic recession) has caused a slight downward trend in delay, although some locations have experienced delay increases.

Table 7. Summary of Median Peak Direction Vehicle Delay per Gate Closing

| Roadway Crossing Location | County | Railroad | Median Vehicle Delay 2006 (veh-mins) | Median Vehicle Delay 2009 (veh-mins) | Median Vehicle Delay 2011 (veh-mins) |
|---|---|---|---|---|---|
| NW 36th Street | Miami-Dade | CSX | (a) | 14 | 5 |
| NW 27th Avenue | Miami-Dade | FEC | (a) | 51 | 97 |
| NE 79th Street | Miami-Dade | FEC | (a) | 68 | 94 |
| NE 125th Street | Miami-Dade | FEC | (a) | 48 | 83 |
| NW 135th Street | Miami-Dade | CSX | (a) | 25 | 7 |
| Sunny Isles Boulevard | Miami-Dade | FEC | (a) | 70 | 83 |
| Hollywood Boulevard | Broward | FEC | 41 | 58 | 39 |
| Hollywood Boulevard | Broward | CSX | 123 | 78 | 44 |
| Commercial Boulevard | Broward | FEC | 145 | 86 | 31 |
| Commercial Boulevard | Broward | CSX | 17 | 40 | 9 |
| Atlantic Avenue | Palm Beach | FEC | 20 | 36 | 16 |
| Atlantic Avenue | Palm Beach | CSX | 10 | 15 | 7 |
| Blue Heron Boulevard | Palm Beach | FEC | 74 | 61 | 69 |
| Haverhill Road | Palm Beach | CSX | 2 | 2 | 1 |
| SR 708 / SE Bridge Road | Martin | FEC | 20 | 19 | 17 |
| SR 76 / Kanner Highway | Martin | CSX | 2 | 1 | 1 |
| SR A1A / North Beach Causeway | St. Lucie | FEC | 18 | 20 | 17 |
| SR 60 / 20th Street | Indian River | FEC | 26 | 22 | 22 |

Note (a) – Data for Miami-Dade County Railroad Crossings were not collected in 2006.

Table 8 shows the difference in vehicle delay between FEC crossings and CSX crossings; the results imply a difference of almost 5 times longer delays per closing for FEC crossings compared to CSX crossings for the year 2011. However, it should be noted that there are far fewer gate closing events per day on FEC crossings.

Table 8. Summary of Vehicle Delay per Gate Closing by Railroad Corridor

| Railroad Corridor | Vehicle Delay 2006 (veh-mins) | Vehicle Delay 2009 (veh-mins) | Vehicle Delay 2011 (veh-mins) |
|---|---|---|---|
| FEC | 31 | 49 | 52 |
| CSX | 22 | 25 | 11 |

Values from Table 9 reveal a significant impact from railroad closures in Miami-Dade County as compared to the other five counties consider in this study.

Table 9. Summary of Vehicle Delay per Gate Closing by County

| County | Vehicle Delay 2006 (veh-mins) | Vehicle Delay 2009 (veh-mins) | Vehicle Delay 2011 (veh-mins) |
|---|---|---|---|
| Miami-Dade | (a) | 46 | 62 |
| Broward | 82 | 66 | 31 |
| Palm Beach | 27 | 29 | 23 |
| Martin | 11 | 10 | 9 |
| St. Lucie | 18 | 20 | 17 |
| Indian River | 26 | 22 | 22 |

Note (a) – Data for Miami-Dade County Railroad Crossings were not collected in 2006.

# Appendix A

## Data Summary Tables for Each Railroad Crossing

(available from the Kimley-Horn ShareFile site at the following link…)

https://kimley-horn.securevdr.com/d/s58110c470f34ae39

**Florida Department of Transportation (FDOT) District Four**
**Railroad Crossing Delay Analysis 2012**
**Kimley-Horn and Associates, Inc.; Contract No. C-8W35**

## Executive Summary

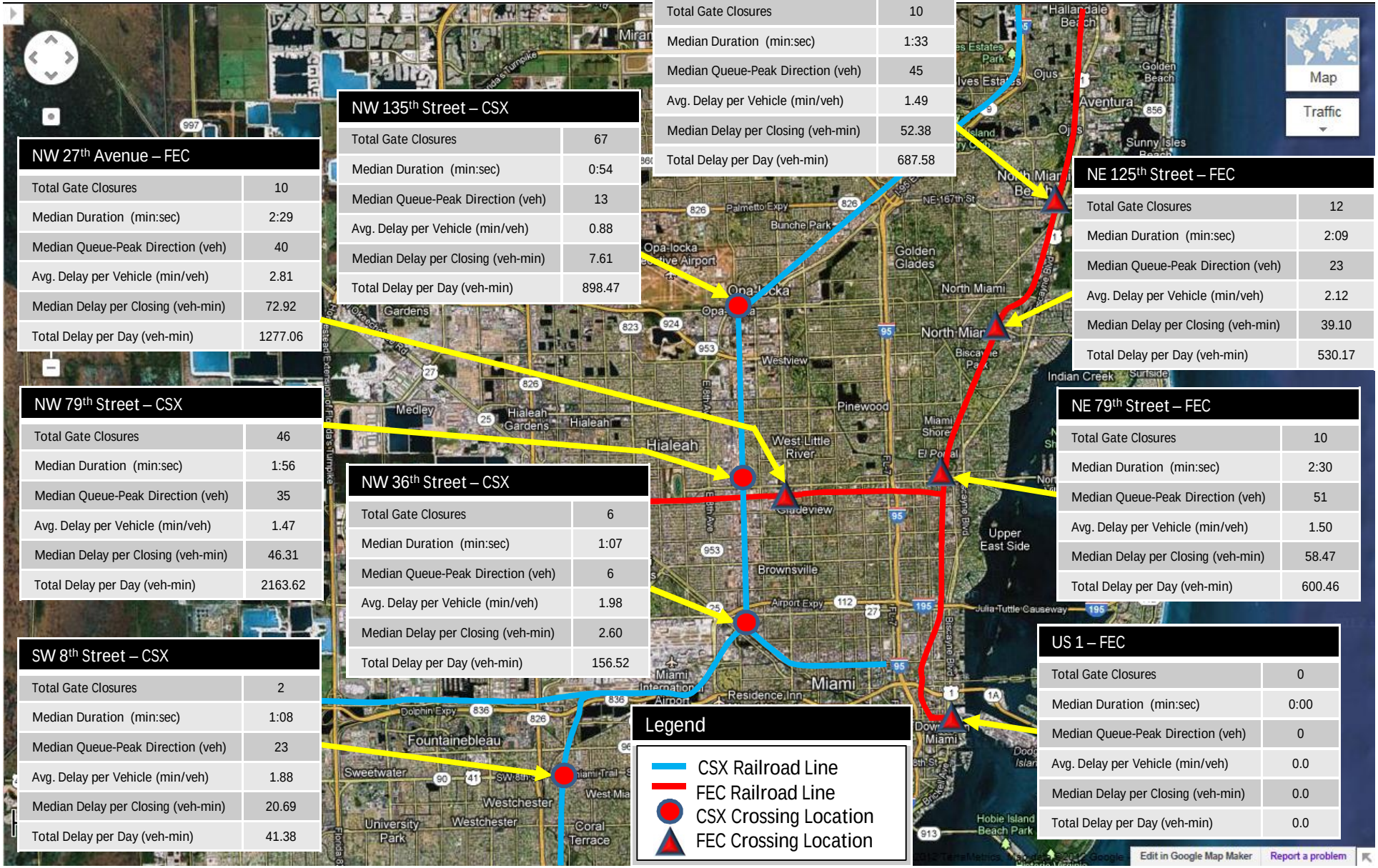
At-grade roadway/railroad crossings create significant delays for both people- and goods-movement. FDOT District Four conducts an annual analysis of vehicle delay associated with railroad grade crossings at key locations around the Southeast Florida region. This report describes the data analysis from the fourth such data collection event in recent years. The results can be used to analyze delay patterns associated with railroad gate closures and to estimate the potential benefit from reduction in delay that would occur if gate closure events were reduced or eliminated. Table ES-1 presents key findings from the 2012 analysis.

**Table ES-1. Regional Summary of Key Railroad Crossing Delay Data from 21 Analysis Sites**

| Data | Least | Average | Most |
|---|---|---|---|
| Number of Gate Closures in a Day | 0 (U.S. 1/Bisc. Blvd – FEC) | 18 | 67 (NW 135th St – CSX) |
| Median Duration of Gate Closure Event (min:sec) | 0:00 (U.S. 1/Bisc. Blvd – FEC) | 1:42 | 3:28 (A1A/N Bch Cswy St. Lucie – FEC) |
| Median Queue in the Peak Direction (vehicles) | 0 (U.S. 1/Bisc. Blvd – FEC) | 23.2 | 60 (Commercial Blvd – FEC) |
| Average Delay Per Vehicle (minutes/vehicle) | 0 (U.S. 1/Bisc. Blvd – FEC) | 1.56 | 2.81 (NW 27th Ave – FEC) |
| Median Delay Per Closing, all vehicles (vehicle-minutes) | 0 (U.S. 1/Bisc. Blvd – FEC) | 32.92 | 92.25 (Commercial Blvd – FEC) |
| Total Delay Per Day, all vehicles, all closings (vehicle-minutes) | 0 (U.S. 1/Bisc. Blvd – FEC) | 845.91 | 6950.11 (Hollywood Blvd – CSX) |

- NW 36th Street @ CSX/SFRC closures significantly reduced in 2012 due to Tri-Rail service change associated with the Miami Intermodal Center (MIC) construction.
- Slightly fewer gate closure events per hour were observed in 2012 as compared to 2011.
- Gate closure events tend to be trending shorter in duration (3 % shorter than in 2011).
- CSX/SFRC crossings exhibit the most total delay as measured in vehicle-minutes (accounting for the number of closings per day, traffic volume, and minutes of delay).
- FEC crossings remain the longest closure events and exhibit the most delay per vehicle.

# Railroad Crossing Delay Analysis 2012
# Miami-Dade Locations




**NW 27th Avenue – FEC**

| | |
|---|---|
| Total Gate Closures | 10 |
| Median Duration (min:sec) | 2:29 |
| Median Queue-Peak Direction (veh) | 40 |
| Avg. Delay per Vehicle (min/veh) | 2.81 |
| Median Delay per Closing (veh-min) | 72.92 |
| Total Delay per Day (veh-min) | 1277.06 |

**NW 135th Street – CSX**

| | |
|---|---|
| Total Gate Closures | 67 |
| Median Duration (min:sec) | 0:54 |
| Median Queue-Peak Direction (veh) | 13 |
| Avg. Delay per Vehicle (min/veh) | 0.88 |
| Median Delay per Closing (veh-min) | 7.61 |
| Total Delay per Day (veh-min) | 898.47 |

**Sunny Isles Boulevard – FEC**

| | |
|---|---|
| Total Gate Closures | 10 |
| Median Duration (min:sec) | 1:33 |
| Median Queue-Peak Direction (veh) | 45 |
| Avg. Delay per Vehicle (min/veh) | 1.49 |
| Median Delay per Closing (veh-min) | 52.38 |
| Total Delay per Day (veh-min) | 687.58 |

**NE 125th Street – FEC**

| | |
|---|---|
| Total Gate Closures | 12 |
| Median Duration (min:sec) | 2:09 |
| Median Queue-Peak Direction (veh) | 23 |
| Avg. Delay per Vehicle (min/veh) | 2.12 |
| Median Delay per Closing (veh-min) | 39.10 |
| Total Delay per Day (veh-min) | 530.17 |

**NW 79th Street – CSX**

| | |
|---|---|
| Total Gate Closures | 46 |
| Median Duration (min:sec) | 1:56 |
| Median Queue-Peak Direction (veh) | 35 |
| Avg. Delay per Vehicle (min/veh) | 1.47 |
| Median Delay per Closing (veh-min) | 46.31 |
| Total Delay per Day (veh-min) | 2163.62 |

**NW 36th Street – CSX**

| | |
|---|---|
| Total Gate Closures | 6 |
| Median Duration (min:sec) | 1:07 |
| Median Queue-Peak Direction (veh) | 6 |
| Avg. Delay per Vehicle (min/veh) | 1.98 |
| Median Delay per Closing (veh-min) | 2.60 |
| Total Delay per Day (veh-min) | 156.52 |

**NE 79th Street – FEC**

| | |
|---|---|
| Total Gate Closures | 10 |
| Median Duration (min:sec) | 2:30 |
| Median Queue-Peak Direction (veh) | 51 |
| Avg. Delay per Vehicle (min/veh) | 1.50 |
| Median Delay per Closing (veh-min) | 58.47 |
| Total Delay per Day (veh-min) | 600.46 |

**SW 8th Street – CSX**

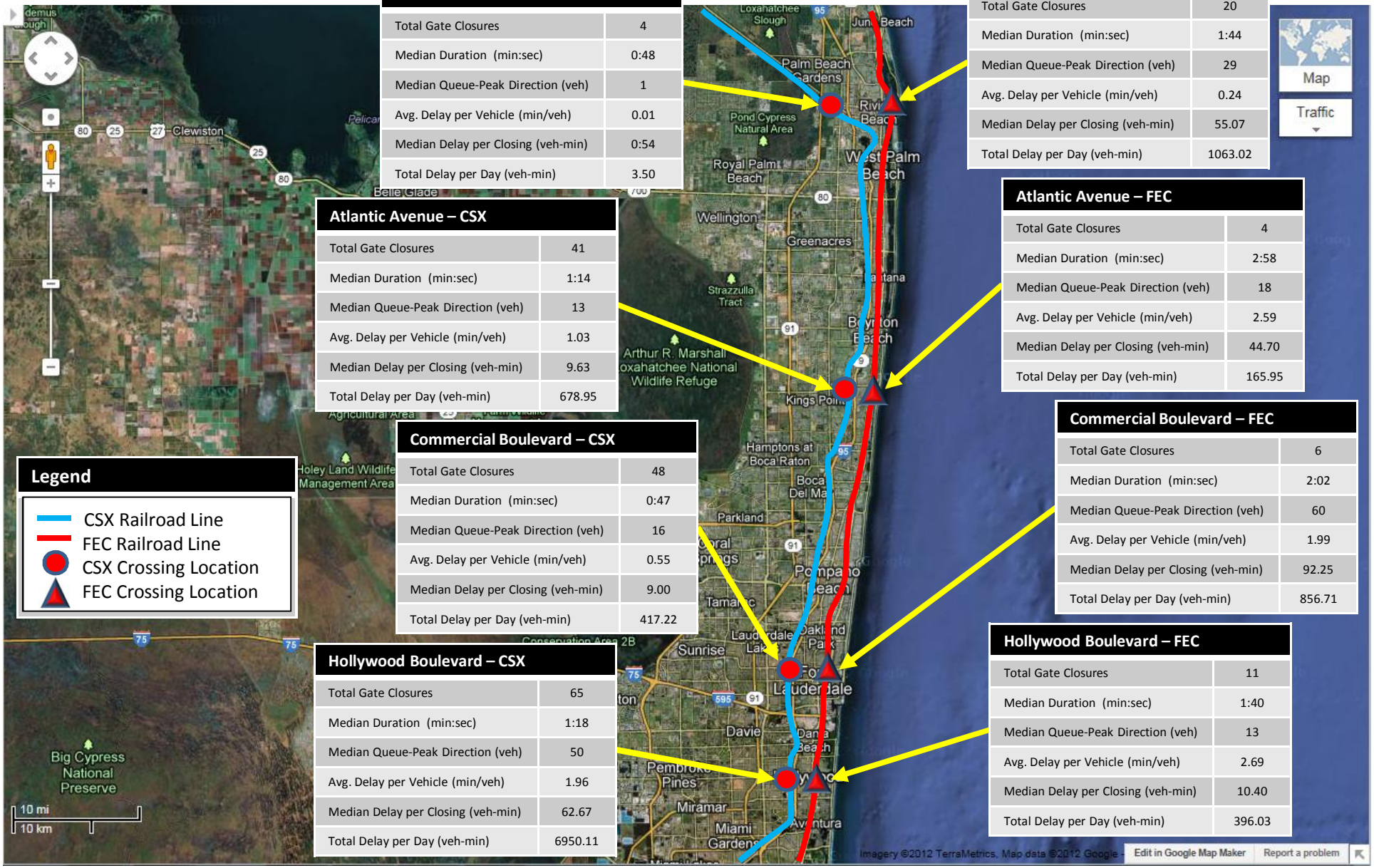
| | |
|---|---|
| Total Gate Closures | 2 |
| Median Duration (min:sec) | 1:08 |
| Median Queue-Peak Direction (veh) | 23 |
| Avg. Delay per Vehicle (min/veh) | 1.88 |
| Median Delay per Closing (veh-min) | 20.69 |
| Total Delay per Day (veh-min) | 41.38 |

**US 1 – FEC**

| | |
|---|---|
| Total Gate Closures | 0 |
| Median Duration (min:sec) | 0:00 |
| Median Queue-Peak Direction (veh) | 0 |
| Avg. Delay per Vehicle (min/veh) | 0.0 |
| Median Delay per Closing (veh-min) | 0.0 |
| Total Delay per Day (veh-min) | 0.0 |

# Railroad Crossing Delay Analysis 2012

## Broward & Palm Beach Locations




**Haverhill Road – CSX**

| | |
|---|---|
| Total Gate Closures | 4 |
| Median Duration (min:sec) | 0:48 |
| Median Queue-Peak Direction (veh) | 1 |
| Avg. Delay per Vehicle (min/veh) | 0.01 |
| Median Delay per Closing (veh-min) | 0:54 |
| Total Delay per Day (veh-min) | 3.50 |

**Blue Heron Boulevard – FEC**

| | |
|---|---|
| Total Gate Closures | 20 |
| Median Duration (min:sec) | 1:44 |
| Median Queue-Peak Direction (veh) | 29 |
| Avg. Delay per Vehicle (min/veh) | 0.24 |
| Median Delay per Closing (veh-min) | 55.07 |
| Total Delay per Day (veh-min) | 1063.02 |

**Atlantic Avenue – CSX**

| | |
|---|---|
| Total Gate Closures | 41 |
| Median Duration (min:sec) | 1:14 |
| Median Queue-Peak Direction (veh) | 13 |
| Avg. Delay per Vehicle (min/veh) | 1.03 |
| Median Delay per Closing (veh-min) | 9.63 |
| Total Delay per Day (veh-min) | 678.95 |

**Atlantic Avenue – FEC**

| | |
|---|---|
| Total Gate Closures | 4 |
| Median Duration (min:sec) | 2:58 |
| Median Queue-Peak Direction (veh) | 18 |
| Avg. Delay per Vehicle (min/veh) | 2.59 |
| Median Delay per Closing (veh-min) | 44.70 |
| Total Delay per Day (veh-min) | 165.95 |

**Commercial Boulevard – CSX**

| | |
|---|---|
| Total Gate Closures | 48 |
| Median Duration (min:sec) | 0:47 |
| Median Queue-Peak Direction (veh) | 16 |
| Avg. Delay per Vehicle (min/veh) | 0.55 |
| Median Delay per Closing (veh-min) | 9.00 |
| Total Delay per Day (veh-min) | 417.22 |

**Commercial Boulevard – FEC**

| | |
|---|---|
| Total Gate Closures | 6 |
| Median Duration (min:sec) | 2:02 |
| Median Queue-Peak Direction (veh) | 60 |
| Avg. Delay per Vehicle (min/veh) | 1.99 |
| Median Delay per Closing (veh-min) | 92.25 |
| Total Delay per Day (veh-min) | 856.71 |

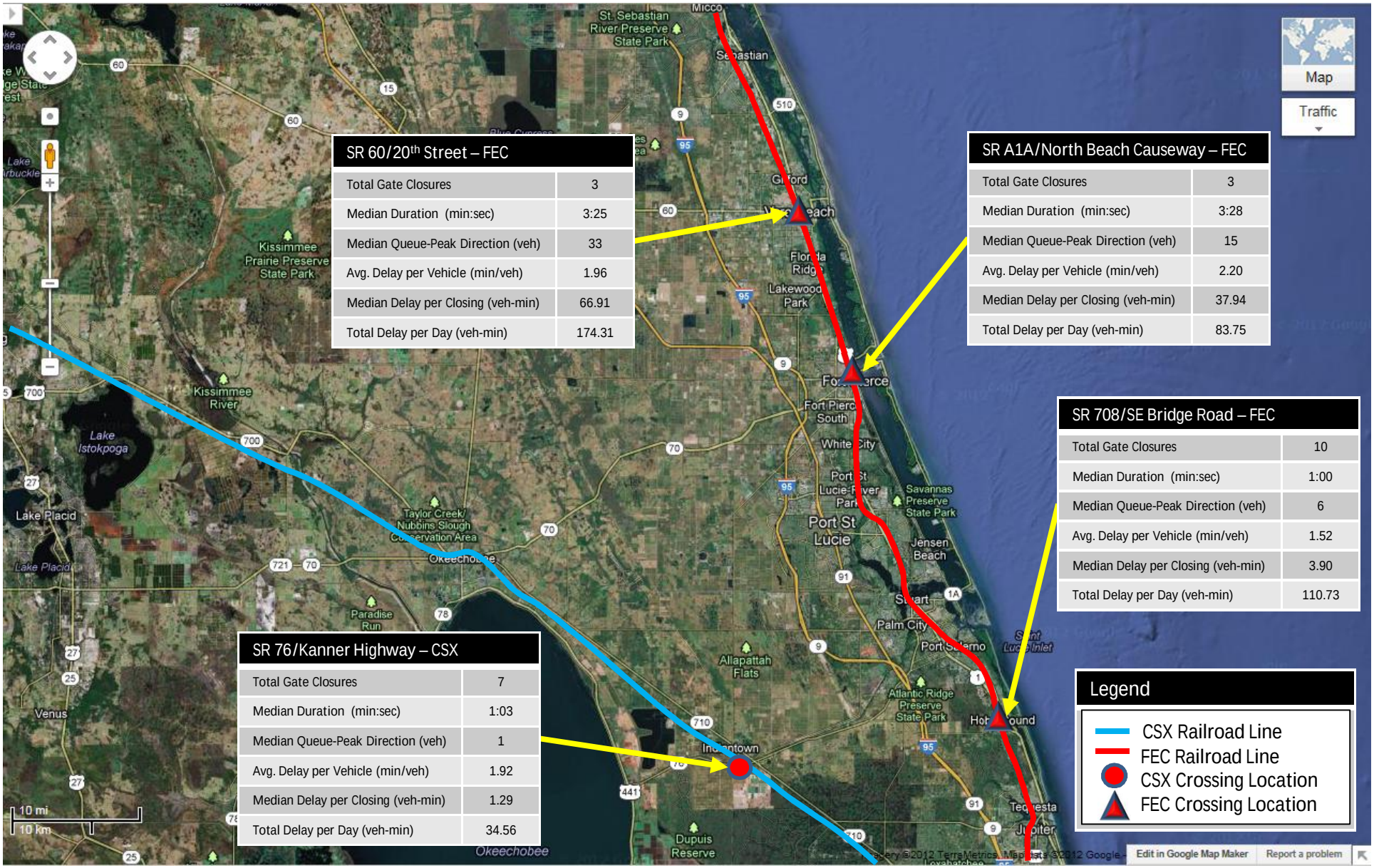
**Hollywood Boulevard – CSX**

| | |
|---|---|
| Total Gate Closures | 65 |
| Median Duration (min:sec) | 1:18 |
| Median Queue-Peak Direction (veh) | 50 |
| Avg. Delay per Vehicle (min/veh) | 1.96 |
| Median Delay per Closing (veh-min) | 62.67 |
| Total Delay per Day (veh-min) | 6950.11 |

**Hollywood Boulevard – FEC**

| | |
|---|---|
| Total Gate Closures | 11 |
| Median Duration (min:sec) | 1:40 |
| Median Queue-Peak Direction (veh) | 13 |
| Avg. Delay per Vehicle (min/veh) | 2.69 |
| Median Delay per Closing (veh-min) | 10.40 |
| Total Delay per Day (veh-min) | 396.03 |

# Railroad Crossing Delay Analysis 2012
# Treasure Coast Locations




| SR 60/20th Street – FEC | |
|---|---|
| Total Gate Closures | 3 |
| Median Duration (min:sec) | 3:25 |
| Median Queue-Peak Direction (veh) | 33 |
| Avg. Delay per Vehicle (min/veh) | 1.96 |
| Median Delay per Closing (veh-min) | 66.91 |
| Total Delay per Day (veh-min) | 174.31 |

| SR A1A/North Beach Causeway – FEC | |
|---|---|
| Total Gate Closures | 3 |
| Median Duration (min:sec) | 3:28 |
| Median Queue-Peak Direction (veh) | 15 |
| Avg. Delay per Vehicle (min/veh) | 2.20 |
| Median Delay per Closing (veh-min) | 37.94 |
| Total Delay per Day (veh-min) | 83.75 |

| SR 708/SE Bridge Road – FEC | |
|---|---|
| Total Gate Closures | 10 |
| Median Duration (min:sec) | 1:00 |
| Median Queue-Peak Direction (veh) | 6 |
| Avg. Delay per Vehicle (min/veh) | 1.52 |
| Median Delay per Closing (veh-min) | 3.90 |
| Total Delay per Day (veh-min) | 110.73 |

| SR 76/Kanner Highway – CSX | |
|---|---|
| Total Gate Closures | 7 |
| Median Duration (min:sec) | 1:03 |
| Median Queue-Peak Direction (veh) | 1 |
| Avg. Delay per Vehicle (min/veh) | 1.92 |
| Median Delay per Closing (veh-min) | 1.29 |
| Total Delay per Day (veh-min) | 34.56 |

**Legend**

- CSX Railroad Line
- FEC Railroad Line
- CSX Crossing Location
- FEC Crossing Location

## Introduction

At-grade railroad crossings represent one of the primary issues facing freight rail in the Southeast Florida region. Crossings create significant delays for both people- and goods-movement, as well as safety and noise concerns. FDOT District Four conducts an annual analysis of vehicle delay associated with railroad grade crossings at key locations around the Southeast Florida region. This report describes the data analysis from the fourth such data collection event in recent years. The results can be used to analyze delay patterns associated with railroad gate closures and to estimate the potential benefit from reduction in delay that would occur if gate closure events were reduced or eliminated.

The Southeast Florida region has two primary railroad corridors passing through developed urbanized areas:

- South Florida Rail Corridor (SFRC) / (CSX) corridor
- Florida East Coast (FEC) railroad

The objective of the railroad crossing delay analysis for the year 2012 is to update the similar analyses conducted in 2006, 2009, and 2011. In 2006, FDOT District 4 completed the *Analysis of Railroad Crossing Delay*, which documented the delays at twelve (12) crossing sites. As part of the first *South Florida Regional Freight Plan*, FDOT updated the Railroad Crossing Delay Analysis in 2009 and added six (6) data collection and analysis sites in Miami-Dade County. In 2011, FDOT again conducted the Railroad Crossing Delay Analysis and results began to start showing some definite patterns and trends. The 2011 Railroad Crossing Delay Analysis served as input to several other ongoing FDOT studies.

Similar to the traffic count program, as more data points are added to the body of knowledge, a better assessment can be made regarding trends in railroad crossing delay. Furthermore, the results can be used in additional analyses to estimate the potential reduction in delay that would occur if crossing events were reduced or eliminated through improvements such as re-routing freight trains to a new western rail corridor alignment or implementing grade-separated crossing improvements.

## Data Collection

Field data for assessing at-grade rail crossing traffic delay impacts were collected using portable video cameras mounted near select at-grade railroad crossings. In order to allow comparison to prior years' data collection efforts, the data collection locations included all the eighteen (18) 2011 locations. In addition, three (3) sites were added in 2012 in Miami-Dade County through coordination with FDOT District Six staff in part to gather "before" data in advance of the re-

introduction of rail traffic in the FEC Railroad corridor to Port Miami. In total, the twenty-one (21) railroad crossing locations studied were distributed throughout Miami-Dade, Broward, Palm Beach, Martin, St. Lucie, and Indian River Counties. It should be noted that twelve (12) railroad crossing locations were collected in 2006 in District Four Counties (Miami-Dade was not added until 2009).

The Blue Heron Boulevard FEC Crossing in Palm Beach County was studied for a period of five (5) consecutive days (Monday through Friday) instead of one day to measure variability that has been reported by local stakeholders associated with the train switching operations at the Port of Palm Beach.

Video recording durations were increased from 12 hours to 14 hours in 2012 in order to include effects of evening gate closure events between 6:00 PM and 8:00 PM. The video recordings were analyzed for a 14-hour period (6:00 AM to 8:00 PM) on a typical weekday (Tuesday, Wednesday, or Thursday), which provided accurate information that was reviewed and analyzed regarding the following key aspects:

- Number of times the railroad gate blocked vehicle traffic (gate closing event)
- Duration of time the railroad gate blocked vehicle traffic (including minimum, median and maximum)
- Total queue lengths (number of vehicles stopped during each gate closing event) in each direction of travel (including minimum, median, and maximum)
- Total vehicle delay (measured in vehicle-minutes) experienced by motorists due to each gate closing event (including minimum, median and maximum)

A summary of the data collection **methodology changes in 2012** is provided below.

- Three (3) new sites added in Miami-Dade County
    - U.S. 1 (Biscayne Boulevard) @ FEC Railroad near Port Miami
    - SW 8th Street @ CSX/Homestead Subdivision south of Miami Int'l Airport
    - NW 79th Street @ CSX/SFRC near Metrorail/Tri-Rail Transfer Station
- Blue Heron Boulevard @ FEC Railroad counted for five (5) consecutive days
- Video data collection recording durations increased from 12 hours to 14 hours

**Table 1** presents a summary of the at-grade railroad crossing locations studied.

**Table 1. At-Grade Railroad Crossings Studied**

| Roadway Crossing Location | County | Railroad |
|---|---|---|
| SW 8th Street | Miami-Dade | CSX/Homestead (CSX/H) |
| U.S. 1 | Miami-Dade | FEC/Port Miami (FEC/PM) |
| NW 36th Street | Miami-Dade | CSX/SFRC (CSX/S) |
| NW 27th Avenue | Miami-Dade | FEC |
| NW 79th Street | Miami-Dade | CSX/SFRC (CSX/S) |
| NE 79th Street | Miami-Dade | FEC |
| NE 125th Street | Miami-Dade | FEC |
| NW 135th Street | Miami-Dade | CSX/SFRC (CSX/S) |
| Sunny Isles Boulevard | Miami-Dade | FEC |
| Hollywood Boulevard | Broward | FEC |
| Hollywood Boulevard | Broward | CSX/SFRC (CSX/S) |
| Commercial Boulevard | Broward | FEC |
| Commercial Boulevard | Broward | CSX/SFRC (CSX/S) |
| Atlantic Avenue | Palm Beach | FEC |
| Atlantic Avenue | Palm Beach | CSX/SFRC (CSX/S) |
| Blue Heron Boulevard | Palm Beach | FEC |
| Haverhill Road | Palm Beach | CSX |
| SR 708 / SE Bridge Road | Martin | FEC |
| SR 76 / Kanner Highway (near Indiantown) | Martin | CSX |
| SR A1A / North Beach Causeway | St. Lucie | FEC |
| SR 60 / 20th Street | Indian River | FEC |

**Results**

In general, there are two primary factors that lead to greater total delay (vehicle-minutes) – roadways with higher traffic volumes and longer gate closure events. Freight trains tend to be longer than passenger trains; therefore, each gate closure event due to a freight train is more likely to produce greater delay than a gate closure event due to a passenger train. However, passenger trains operate with greater frequency on the CSX/SFRC Railroad than freight trains; therefore, there are more but shorter gate closure events due to passenger trains on the CSX/SFRC Railroad.

Five (5) summary tables are presented **(Tables 2 – 6)** that describe the results of the 2012 Railroad Crossing Delay Analysis.

- Table 2. Duration of Gate Closing Events
- Table 3. Peak Direction Traffic Queue (vehicles)
- Table 4. Peak Direction Traffic Delay (minutes)
- Table 5. Data Summary by Location (6:00 AM – 6:00 PM)
- Table 6. Data Summary by Location (Peak Hour of Delay)

**Appendix A** presents the data summary sheets for each railroad crossing in each direction of travel. There are 50 data summary tables in Appendix A – one table for each direction of travel for each day at each railroad crossing.

**Table 2. Duration of Gate Closing Events**

| Roadway Crossing Location | County | Railroad | Total Number of Gate Closing Events (6:00 AM – 8:00 PM) | Minimum Duration (min:sec) | Median Duration (min:sec) | Maximum Duration (min:sec) |
|---|---|---|---|---|---|---|
| SW 8th Street | Miami-Dade | CSX/H | 2 | 00:51 | 01:08 | 01:25 |
| U.S. 1 | Miami-Dade | FEC/PM | 0 | 00:00 | 00:00 | 00:00 |
| NW 36th Street | Miami-Dade | CSX/S | 6 | 00:28 | 01:07 | 02:10 |
| NW 27th Avenue | Miami-Dade | FEC | 10 | 00:48 | 02:29 | 08:43 |
| NW 79th Street | Miami-Dade | CSX/S | 46 | 00:49 | 01:56 | 03:09 |
| NE 79th Street | Miami-Dade | FEC | 10 | 00:43 | 02:30 | 04:09 |
| NE 125th Street | Miami-Dade | FEC | 12 | 00:54 | 02:09 | 03:40 |
| NW 135th Street | Miami-Dade | CSX/S | 68 | 00:20 | 00:59 | 02:48 |
| Sunny Isles Boulevard | Miami-Dade | FEC | 10 | 00:43 | 01:33 | 03:59 |
| Hollywood Boulevard | Broward | FEC | 11 | 00:28 | 01:40 | 05:57 |
| Hollywood Boulevard | Broward | CSX/S | 65 | 00:20 | 01:18 | 05:22 |
| Commercial Boulevard | Broward | FEC | 6 | 00:39 | 02:02 | 03:20 |
| Commercial Boulevard | Broward | CSX/S | 48 | 00:40 | 00:47 | 01:20 |
| Atlantic Avenue | Palm Beach | FEC | 4 | 01:08 | 02:58 | 04:40 |
| Atlantic Avenue | Palm Beach | CSX/S | 43 | 00:12 | 01:12 | 02:13 |
| Blue Heron Boulevard | Palm Beach | FEC | 20 | 00:39 | 01:44 | 06:57 |
| Haverhill Road | Palm Beach | CSX | 4 | 00:41 | 00:48 | 00:53 |
| SR 708 / SE Bridge Road | Martin | FEC | 10 | 00:28 | 01:00 | 04:36 |
| SR 76 / Kanner Highway | Martin | CSX | 7 | 00:56 | 01:03 | 03:45 |
| SR A1A / N Beach Causeway | St. Lucie | FEC | 3 | 02:49 | 03:28 | 03:50 |
| SR 60 / 20th Street | Indian River | FEC | 3 | 02:28 | 03:25 | 03:44 |

**Table 3. Peak Direction Traffic Queue (Vehicles)**

| Roadway Crossing Location (Peak Direction) | County | Railroad | Total Number of Vehicles Stopped (6:00 AM – 8:00 PM) | Minimum Queue (vehicles) | Median Queue (vehicles) | Maximum Queue (vehicles) |
|---|---|---|---|---|---|---|
| SW 8th Street (WB) | Miami-Dade | CSX/H | 46 | 20 | 23 | 26 |
| U.S. 1 | Miami-Dade | FEC/PM | 0 | 0 | 0 | 0 |
| NW 36th Street (WB) | Miami-Dade | CSX/S | 79 | 2 | 6 | 50 |
| NW 27th Avenue (SB) | Miami-Dade | FEC | 455 | 15 | 40 | 80 |
| NW 79th Street (EB) | Miami-Dade | CSX/S | 1475 | 2 | 35 | 62 |
| NE 79th Street (EB) | Miami-Dade | FEC | 399 | 3 | 51 | 54 |
| NE 125th Street (EB) | Miami-Dade | FEC | 250 | 10 | 23 | 30 |
| NW 135th Street (WB) | Miami-Dade | CSX/S | 1021 | 1 | 13 | 50 |
| Sunny Isles Boulevard (EB) | Miami-Dade | FEC | 463 | 31 | 45 | 70 |
| Hollywood Boulevard (EB) | Broward | FEC | 155 | 10 | 12 | 30 |
| Hollywood Boulevard (EB) | Broward | CSX/S | 3547 | 5 | 50 | 150 |
| Commercial Boulevard (WB) | Broward | FEC | 430 | 40 | 60 | 120 |
| Commercial Boulevard (EB) | Broward | CSX/S | 757 | 1 | 16 | 32 |
| Atlantic Avenue (WB) | Palm Beach | FEC | 64 | 5 | 18 | 24 |
| Atlantic Avenue (WB) | Palm Beach | CSX/S | 660 | 0 | 13 | 60 |
| Blue Heron Boulevard (WB) | Palm Beach | FEC | 628 | 5 | 29 | 80 |
| Haverhill Road (NB) | Palm Beach | CSX | 7 | 1 | 1 | 4 |
| SR 708 / SE Bridge Road (WB) | Martin | FEC | 73 | 0 | 6 | 17 |
| SR 76 / Kanner Highway (WB) | Martin | CSX | 18 | 0 | 1 | 7 |
| SR A1A / North Beach Causeway (WB) | St. Lucie | FEC | 38 | 4 | 15 | 19 |
| SR 60 / 20th Street (EB) | Indian River | FEC | 89 | 19 | 33 | 37 |

Ranking of Top 5 Total Number of Vehicles Stopped.

1. Hollywood Boulevard (EB) @ CSX/S 3,547
2. NW 79th Street (EB) @ CSX/S 1,475
3. NW 135th Street (WB) @ CSX/S 1,021
4. Commercial Boulevard (EB) @ CSX/S 757
5. Atlantic Avenue (WB) @ CSX/S 660

**Table 4. Peak Direction Traffic Delay (Minutes)**

| Roadway Crossing Location (Peak Direction) | County | Railroad | Total Delay (veh-min) (6:00 AM – 8:00 PM) | Minimum Delay (veh-min) | Median Delay (veh-min) | Maximum Delay (veh-min) |
|---|---|---|---|---|---|---|
| SW 8th Street (WB) | Miami-Dade | CSX/H | 41.38 | 14.38 | 20.69 | 26.54 |
| U.S. 1 | Miami-Dade | FEC/PM | 0.00 | 0.00 | 0.00 | 0.00 |
| NW 36th Street (WB) | Miami-Dade | CSX/S | 156.52 | 0.33 | 2.60 | 141.67 |
| NW 27th Avenue (SB) | Miami-Dade | FEC | 1277.06 | 11.00 | 72.92 | 480.00 |
| NW 79th Street (EB) | Miami-Dade | CSX/S | 2163.62 | 1.93 | 46.31 | 144.67 |
| NE 79th Street (EB) | Miami-Dade | FEC | 600.46 | 1.23 | 58.47 | 131.95 |
| NE 125th Street (EB) | Miami-Dade | FEC | 530.17 | 7.21 | 39.10 | 92.13 |
| NW 135th Street (WB) | Miami-Dade | CSX/S | 333.56 | 0.33 | 7.61 | 134.14 |
| Sunny Isles Boulevard (EB) | Miami-Dade | FEC | 687.58 | 18.47 | 52.38 | 194.73 |
| Hollywood Boulevard (EB) | Broward | FEC | 366.17 | 4.67 | 22.50 | 121.25 |
| Hollywood Boulevard (EB) | Broward | CSX/S | 6950.11 | 1.31 | 62.67 | 805.00 |
| Commercial Boulevard (WB) | Broward | FEC | 856.71 | 24.50 | 92.25 | 350.00 |
| Commercial Boulevard (EB) | Broward | CSX/S | 417.22 | 0.25 | 9.00 | 19.07 |
| Atlantic Avenue (WB) | Palm Beach | FEC | 165.95 | 4.56 | 44.70 | 72.00 |
| Atlantic Avenue (WB) | Palm Beach | CSX/S | 678.95 | 0.00 | 9.63 | 108.25 |
| Blue Heron Boulevard (WB) | Palm Beach | FEC | 1063.02 | 6.83 | 55.07 | 272.73 |
| Haverhill Road (NB) | Palm Beach | CSX | 3.50 | 0.00 | 0.18 | 0.93 |
| SR 708 / SE Bridge Road (WB) | Martin | FEC | 110.73 | 0.00 | 3.90 | 49.16 |
| SR 76 / Kanner Highway (WB) | Martin | CSX | 34.56 | 0.00 | 1.29 | 19.89 |
| SR A1A / North Beach Causeway (WB) | St. Lucie | FEC | 83.75 | 4.48 | 37.94 | 41.33 |
| SR 60 / 20th Street (EB) | Indian River | FEC | 174.31 | 28.34 | 66.91 | 79.06 |

Ranking of Top 5 Total Delay.

1. Hollywood Boulevard (EB) @ CSX/S 6950.11
2. NW 79th Street (EB) @ CSX/S 2163.62
3. NW 27th Avenue (SB) @ FEC 1277.06
4. Blue Heron Boulevard (WB) @ FEC 1063.02
5. Commercial Boulevard (WB) @ FEC 856.71

**Table 5. Data Summary by Location (6:00 AM – 8:00 PM)**

| Roadway Crossing Location | County | Railroad | Total Number of Gate Closing Events by Location | Total Duration of Gate Closures by Location (min:sec) | Total Number of Vehicles Stopped by Location | Total Delay by Location (veh-min) |
|---|---|---|---|---|---|---|
| SW 8th Street | Miami-Dade | CSX/H | 2 | 02:16 | 46 | 41.38 |
| U.S. 1 | Miami-Dade | FEC/PM | 0 | 00:00 | 0 | 0.00 |
| NW 36th Street | Miami-Dade | CSX/S | 6 | 06:51 | 79 | 156.52 |
| NW 27th Avenue | Miami-Dade | FEC | 10 | 32:41 | 455 | 1277.06 |
| NW 79th Street | Miami-Dade | CSX/S | 46 | 82:53 | 1475 | 2163.62 |
| NE 79th Street | Miami-Dade | FEC | 10 | 24:42 | 399 | 600.46 |
| NE 125th Street | Miami-Dade | FEC | 12 | 26:59 | 250 | 530.17 |
| NW 135th Street | Miami-Dade | CSX/S | 68 | 77:18 | 1021 | 333.56 |
| Sunny Isles Boulevard | Miami-Dade | FEC | 10 | 18:00 | 463 | 687.58 |
| Hollywood Boulevard | Broward | FEC | 11 | 25:57 | 155 | 366.17 |
| Hollywood Boulevard | Broward | CSX/S | 65 | 90:18 | 3547 | 6950.11 |
| Commercial Boulevard | Broward | FEC | 6 | 12:01 | 430 | 856.71 |
| Commercial Boulevard | Broward | CSX/S | 48 | 38:53 | 757 | 417.22 |
| Atlantic Avenue | Palm Beach | FEC | 4 | 11:44 | 64 | 165.95 |
| Atlantic Avenue | Palm Beach | CSX/S | 43 | 47:53 | 660 | 678.95 |
| Blue Heron Boulevard | Palm Beach | FEC | 20 | 38:04 | 628 | 1063.02 |
| Haverhill Road | Palm Beach | CSX | 4 | 03:10 | 7 | 3.50 |
| SR 708 / SE Bridge Road | Martin | FEC | 10 | 17:22 | 73 | 110.73 |
| SR 76 / Kanner Highway | Martin | CSX | 7 | 13:59 | 18 | 34.56 |
| SR A1A / North Beach Causeway | St. Lucie | FEC | 3 | 10:07 | 38 | 83.75 |
| SR 60 / 20th Street | Indian River | FEC | 3 | 09:37 | 89 | 174.31 |

Ranking of Top 5 Total Duration of Gate Closings.

1. Hollywood Boulevard @ CSX/S 1 hr, 30 min, 18 sec
2. NW 79th Street @ CSX/S 1 hr, 22 min, 53 sec
3. NW 135th Street @ CSX/S 1 hr, 17 min, 18 sec
4. Atlantic Avenue @ CSX/S 47 min, 53 sec
5. Commercial Boulevard @ CSX/S 38 min, 53 sec

## Table 6. Data Summary by Location (Peak Hour of Delay)

| Roadway Crossing Location (Peak Direction) | County | Railroad | Peak Hour Period (Time) | Total Number of Peak Hour Closing Events | Total Duration of Gate Closures (min:sec) | Percentage of Hour | Total Number of Vehicles Stopped | Total Delay in the Peak Hour (veh-min) |
|---|---|---|---|---|---|---|---|---|
| SW 8th Street (WB) | Miami-Dade | CSX/H | 16:00 - 17:00 | 2 | 02:16 | 3.77% | 46 | 41.38 |
| U.S. 1 | Miami-Dade | FEC/PM | N/A | N/A | N/A | N/A | N/A | N/A |
| NW 36th Street (WB) | Miami-Dade | CSX/S | 6:25 - 7:25 | 3 | 02:51 | 4.75% | 14 | 5.54 |
| NW 27th Avenue (SB) | Miami-Dade | FEC | 8:00 - 9:00 | 2 | 10:19 | 17.19% | 140 | 560.00 |
| NW 79th Street (EB) | Miami-Dade | CSX/S | 11:52 - 12:52 | 5 | 06:59 | 11.64% | 194 | 376.63 |
| NE 79th Street (EB) | Miami-Dade | FEC | 11:57- 12:57 | 2 | 06:58 | 11.61% | 81 | 170.74 |
| NE 125th Street (EB) | Miami-Dade | FEC | 18:00 - 19:00 | 2 | 05:50 | 9.72% | 50 | 139.79 |
| NW 135th Street (WB) | Miami-Dade | CSX/S | 16:44 - 17:44 | 9 | 09:29 | 15.81% | 300 | 275.80 |
| Sunny Isles Boulevard (EB) | Miami-Dade | FEC | 8:00 - 9:00 | 2 | 04:48 | 8.00% | 98 | 217.97 |
| Hollywood Boulevard (WB) | Broward | FEC | 16:50 - 17:50 | 2 | 06:42 | 11.17% | 43 | 182.31 |
| Hollywood Boulevard (EB) | Broward | CSX/S | 18:20 - 19:20 | 7 | 13:00 | 21.67% | 655 | 1770.00 |
| Commercial Boulevard (WB) | Broward | FEC | 7:00 - 8:00 | 1 | 03:20 | 5.55% | 120 | 350.00 |
| Commercial Boulevard (EB) | Broward | CSX/S | 17:20 - 18:20 | 6 | 04:38 | 7.72% | 152 | 88.86 |
| Atlantic Avenue (WB) | Palm Beach | FEC | 16:00 - 17:00 | 1 | 03:22 | 5.61% | 24 | 72.00 |
| Atlantic Avenue (WB) | Palm Beach | CSX/S | 17:00 - 18:00 | 7 | 08:52 | 14.78% | 183 | 227.71 |
| Blue Heron Boulevard (WB) | Palm Beach | FEC | 7:47 - 8:47 | 5 | 15:42 | 26.17% | 196 | 958.70 |
| Haverhill Road (NB) | Palm Beach | CSX | 10:00 - 11:00 | 1 | 00:44 | 1.22% | 4 | 2.00 |
| SR 708 / SE Bridge Road (EB) | Martin | FEC | 15:00 - 16:00 | 1 | 04:14 | 7.05% | 20 | 61.17 |
| SR 76 / Kanner Highway (WB) | Martin | CSX | 07:00 - 08:00 | 2 | 06:18 | 10.50% | 12 | 30.06 |
| SR A1A / North Beach Causeway (WB) | St. Lucie | FEC | 18:00 - 19:00 | 1 | 03:50 | 6.39% | 19 | 41.33 |
| SR 60 / 20th Street (WB) | Indian River | FEC | 16:00 - 17:00 | 1 | 03:25 | 5.69% | 46 | 96.79 |

Ranking of Top 5 Total Delay (Peak Hour Only).

1. Hollywood Boulevard (EB) @ CSX/S (6:20 PM – 7:20 PM) 1770.00
2. Blue Heron Boulevard (WB) @ FEC (7:47 AM – 8:47 AM) 958.70
3. NW 27th Avenue (SB) @ FEC (8:00 AM – 9:00 AM) 560.00
4. NW 79th Street (EB) @ CSX/S (11:52 AM – 12:52 PM) 376.53
5. Commercial Boulevard (WB) @ FEC (7:00 AM – 8:00 AM) 350.00

**Comparison to Prior Years**

The data provided in **Table 7** refers to the median result of vehicle delay generated by gate closures in the peak direction; the values represent the volume of vehicular traffic and the duration of the delay expressed in vehicle-minutes. **Table 7** compares the results from the four different data collection efforts – 2006, 2009, 2011, and 2012.

When comparing the 2012 data with prior years' data, it appears that median vehicle delay reduced slightly on the FEC corridor and increased slightly on the CSX corridor. Significant increases were observed on Hollywood Boulevard at the CSX/SFRC crossing and Commercial Boulevard at the FEC crossing.

**Table 7. Summary of Median Peak Direction Vehicle Delay per Gate Closing**

| Roadway Crossing Location | County | Railroad | Median Vehicle Delay 2006 (veh-mins) | Median Vehicle Delay 2009 (veh-mins) | Median Vehicle Delay 2011 (veh-mins) | Median Vehicle Delay 2012 (veh-mins) |
|---|---|---|---|---|---|---|
| SW 8th Street | Miami-Dade | CSX/H | (a) | (b) | (b) | 21 |
| U.S. 1 | Miami-Dade | FEC/PM | (a) | (b) | (b) | 0 |
| NW 36th Street | Miami-Dade | CSX/S | (a) | 14 | 5 | 3 |
| NW 27th Avenue | Miami-Dade | FEC | (a) | 51 | 97 | 73 |
| NW 79th Street | Miami-Dade | CSX/S | (a) | (b) | (b) | 46 |
| NE 79th Street | Miami-Dade | FEC | (a) | 68 | 94 | 58 |
| NE 125th Street | Miami-Dade | FEC | (a) | 48 | 83 | 39 |
| NW 135th Street | Miami-Dade | CSX/S | (a) | 25 | 7 | 8 |
| Sunny Isles Boulevard | Miami-Dade | FEC | (a) | 70 | 83 | 52 |
| Hollywood Boulevard | Broward | FEC | 41 | 58 | 39 | 23 |
| Hollywood Boulevard | Broward | CSX/S | 123 | 78 | 44 | 63 |
| Commercial Boulevard | Broward | FEC | 145 | 86 | 31 | 92 |
| Commercial Boulevard | Broward | CSX/S | 17 | 40 | 9 | 9 |
| Atlantic Avenue | Palm Beach | FEC | 20 | 36 | 16 | 45 |
| Atlantic Avenue | Palm Beach | CSX/S | 10 | 15 | 7 | 10 |
| Blue Heron Boulevard | Palm Beach | FEC | 74 | 61 | 69 | 21 |
| Haverhill Road | Palm Beach | CSX | 2 | 2 | 1 | 1 |
| SR 708 / SE Bridge Road | Martin | FEC | 20 | 19 | 17 | 4 |
| SR 76 / Kanner Highway | Martin | CSX | 2 | 1 | 1 | 1 |
| SR A1A / North Beach Causeway | St. Lucie | FEC | 18 | 20 | 17 | 38 |
| SR 60 / 20th Street | Indian River | FEC | 26 | 22 | 22 | 67 |

Notes (a) – Data for Miami-Dade County crossings were not collected in 2006.
(b) – Data for three sites in Miami-Dade County were added in 2012.

**Table 8** shows the difference in median vehicle delay per closing between FEC crossings and CSX crossings; the results imply a difference of almost 2.5 times longer delays per gate closing for FEC crossings compared to CSX crossings for the year 2012. However, it should be noted that there are far fewer gate closing events per day on FEC crossings (average of 8 per day) than CSX crossings (average of 38 per day).

**Table 8. Summary of Median Vehicle Delay per Gate Closing by Railroad Corridor**

| Railroad Corridor | Vehicle Delay 2006 (veh-mins) | Vehicle Delay 2009 (veh-mins) | Vehicle Delay 2011 (veh-mins) | Vehicle Delay 2012 (veh-mins) |
|---|---|---|---|---|
| FEC | 31 | 49 | 52 | 47 |
| CSX | 22 | 25 | 11 | 18 |

Values from **Table 9** reveal less of an impact from railroad gate closures in Miami-Dade County as compared to previous years, possibly due to the inclusion of three new Miami-Dade sites (two of which have infrequent train service) combined with the reduction in delay at NW 36th Street due to the temporary truncation of Tri-Rail service north of the NW 36th Street crossing.

The vehicle delay increase in Broward County is attributed to an increase in delay at the Hollywood Boulevard @ CSX/SFRC crossing, where both the duration of gate closures and number of cars delayed increased.

It should be noted that the increase in vehicle delay for Indian River County is from a small sample size (3 gate closing events at SR 60). By comparison, 163 gate closing events were studied in Miami-Dade County and 130 closings were studied in Broward County.

**Table 9. Summary of Median Vehicle Delay per Gate Closing by County**

| County | Vehicle Delay 2006 (veh-mins) | Vehicle Delay 2009 (veh-mins) | Vehicle Delay 2011 (veh-mins) | Vehicle Delay 2012 (veh-mins) |
|---|---|---|---|---|
| Miami-Dade | (a) | 46 | 62 | 38 |
| Broward | 82 | 66 | 31 | 41 |
| Palm Beach | 27 | 29 | 23 | 19 |
| Martin | 11 | 10 | 9 | 3 |
| St. Lucie | 18 | 20 | 17 | 38 |
| Indian River | 26 | 22 | 22 | 67 |

Note (a) – Data for Miami-Dade County crossings were not collected in 2006.

**Blue Heron Boulevard Variability Analysis**

The 2012 Railroad Crossing and Delay Analysis included five (5) consecutive days of data collection for the FEC Railroad crossing at Blue Heron Boulevard in order to assess variability of crossing delay from day-to-day. The findings reported in **Table 10** show that the number of gate closing events ranged from 11 (Friday) to 20 (Thursday). However, the total delay experienced by all stopped vehicles (measured in vehicle-minutes) remained remarkably consistent on each day.

**Table 10. Blue Heron Boulevard @ FEC Railroad Crossing – Variation between Days**

| Day | Total Number of Gate Closing Events | Total Duration of Gate Closing Events (min:sec) | Peak Direction Total Number of Vehicles Stopped (vehicles) | Total Delay (veh-mins) | Median Total Delay per Gate Closing (veh-mins) |
|---|---|---|---|---|---|
| Monday, Dec 10 | 14 | 36:16 | 427 | 1030.57 | 34.18 |
| Tuesday, Dec 11 | 14 | 34:40 | 492 | 1055.50 | 47.55 |
| Wednesday, Dec 12 | 13 | 35:21 | 467 | 1056.68 | 55.07 |
| Thursday, Dec 13 | 20 | 38:04 | 628 | 1063.03 | 21.31 |
| Friday, Dec 14 | 11 | 27:09 | 422 | 1033.04 | 66.67 |

- Total delay (vehicle-minutes) never deviated more than 3 percent from day-to-day. Total delay is a measure of the total number of minutes of delay experienced by all delayed vehicles throughout the 6:00 AM to 8:00 PM study period. This relative consistency from day-to-day may indicate that total delay (vehicle-minutes) is the most effective metric to compare crossing delay data.

- The highest number of gate closure events occurred on Thursday, December 13. However, the gate closures on this day were also the shortest in duration on average (1:54 on average).

- The median of total delay per gate closing varied widely from day-to-day due to the wide range of total delay per gate closing measurements.

- The impact of the Port of Palm Beach train switching operations can be observed in the videos for this site and is described in the "Notes" column of the data summary tables in Appendix A for this site. For example, on Wednesday December 12, three of the thirteen gate closures involved trains that stopped on the crossing or reversed direction. Another four of the thirteen gate closures were for train engines only. No train crossed for two of the thirteen gate closures.

# Appendix A

## Data Summary Tables for Each Railroad Crossing

(available from the Kimley-Horn ShareFile site at the following link…)

https://kimley-horn.securevdr.com/d/s0f537d36b014cc38

SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY
PLANNING TECHNICAL ADVISORY COMMITTEE (PTAC)
MEETING: SEPTEMBER 18, 2013

OTHER BUSINESS

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## PTAC/RTTAC MEETING LOCATIONS

Since mid 2012, SFRTA has worked with its MPO partners on a periodic rotation of meeting locations for the SFRTA Planning Technical Advisory Committee (PTAC) and SEFTC Regional Transportation Technical Advisory Committee (RTTAC). Thus far, the PTAC and RTTAC meetings have been held in Downtown Miami in July 2012 and June 2013, and in Downtown West Palm Beach in January 2013.

Continued periodic rotation of the PTAC and RTTAC meetings is anticipated. PTAC member feedback will be sought on the details of meeting locations through the end of 2013 and into early 2014.

EXHIBITS ATTACHED: None

SOUTH FLORIDA REGIONAL TRANSPORTATION AUTHORITY
PLANNING TECHNICAL ADVISORY COMMITTEE (PTAC)
MEETING: SEPTEMBER 18, 2013

OTHER BUSINESS

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UPCOMING TRANSPORTATION RELATED EVENTS

A variety of transportation related events will be held in the coming weeks. A list and summary of some of these events can be found below.

1. ***Joint Welcome Reception for Nick Uhren*** – WTS South Florida Chapter, COMTO Fort Lauderdale Chapter, and Gold Coast ITE are jointly hosting a welcome reception for new Palm Beach MPO Executive Director (and PTAC member) Nick Uhren. The reception will be held on Wednesday, October 2 from 5:30 PM to 7:30 PM at Brewzzi (in CityPlace) in Downtown West Palm Beach. Further details and registration information can be found online at http://us6.campaign-archive2.com/?u=2d6933312268b19d43616845a&id=912586e9ed&e=89d9e05325.

2. ***Climate Change Planning Workshop and Green Infrastructure Master Clas***s – The Florida Chapter of the American Planning Association (APA FL), Miami-Dade County, and the Southeast Florida Regional Climate Change Compact are sponsoring a full-day workshop and training session. The event will be held on Thursday, October 3 from 8:30 AM to 3:30 PM at the Overtown Transit Village in Miami. Further details and registration information can be found online at https://www.eventbrite.com/event/8088267225 and in the attached "Save the Date" flier.

3. ***Sustainable Authentic Florida Conference*** – The 2nd annual Sustainable Authentic Florida Conference will be held on October 23-25 in Miami Beach. Further conference details and registration information is available online at http://sustainableauthenticflorida.com.

EXHIBITS ATTACHED: "Save the Date" flier for Climate Change Planning Workshop

Date: October 3, 2013

Location: Overtown Transit Village
701 NW 1st Ct.
Miami, FL 33136

8:30 am to 1:15 pm
Climate Change Planning Workshop ($10)
2nd Floor Training room
Continental Breakfast Provided

This interactive workshop will share new climate change related CDMP language with local planners, policy makers, and practitioners. Breakout sessions will follow focusing on policy implementation.

1:15 to 1:30 pm: Box Lunch ($11.00)

1:30pm to 3:30 pm
Green Infrastructure Master Class ($15.00)

Directions: Metrorail to the Overtown Metrorail Station. Onsite Parking is $5.

Register at:
https://www.eventbrite.com/event/8088267225

AICP CM Credits Pending

Complete agenda to follow prior to event.

# SAVE THE DATE

## OCTOBER 3, 2013

## Climate Change Planning Workshop and Green Infrastructure Master Class

## Featured Presenters:

**Principal Workshop Presenter:**
**Mark R. Woerner, AICP**

**Assistant Director for Planning**

**Miami-Dade County**

Mark oversees the administration, maintenance and updates of the County's adopted Comprehensive Development Master Plan (CDMP), and has been with Miami-Dade County since 1987. He guided the recent CDMP amendments that incorporate climate change policies throughout the document. He also serves on the Steering Committee of the SE Florida Regional Climate Change Compact.

**Master Class Instructor:**
**Eric Tamulonis, ASLA, LEED AP**
**Principal, WRT, Philadelphia, PA**

Eric's class aims to demystify green infrastructure, and focus on its challenges and practical applications here in South Florida. He is a landscape architect who has lectured at national conferences and is a contributor to the recent APA book "Green infrastructure: A Landscape Approach."

APA FL

MIAMI-DADE COUNTY
Greener Every Day

SOUTHEAST FLORIDA REGIONAL COMPACT
CLIMATE CHANGE

*An event designed in support of Regional Climate Action Plan implementation*

WRT

PTAC Attendance, January 2012-Present

| | 2013 | | | | | | | 2012 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jul | Jun | May | Apr | Mar | Feb | Jan | Dec | Oct | Sep | Jul | May | Apr | Feb |
| BCT | | | | | | | | | | | | | | |
| Member | | | | | | | | | | | | x | | |
| Alt | x | x | x | x | x | x | x | x | x | x | | | x | x |
| Other | | | | | | | | x | x | | | | | |
| Broward MPO | | | | | | | | | | | | | | |
| Member | | x | | x | | | x | | | x | | x | x | x |
| Alt | | x | x | | x | x | | x | x | | x | x | x | x |
| Other | | | | | | | | | | | | | | |
| FDOT D4 OMD | | | | | | | | | | | | | | |
| Member | x | x | | | x | | x | | | | x | | | x |
| Alt | x | x | x | x | x | x | x | x | x | x | | | x | |
| Other | x | | | | | | | | | | | | | |
| FDOT D4 PLEM | | | | | | | | | | | | | | |
| Member | | | | | | | | x | | x | x | | x | x |
| Alt | | | | x | | x | | | | | | | | |
| Other | | | | | | | | | | | x | | | |
| FDOT D6 | | | | | | | | | | | | | | |
| Member | | x | x | x | x | x | x | | x | x | x | x | x | x |
| Alt | | | | | | | | x | | | | | | |
| Other | | | | | x | | | | x | | | | | |
| Miami-Dade MPO | | | | | | | | | | | | | | |
| Member | | x | | | | x | x | | | x | x | | | |
| Alt | | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Other | | | | | | | | x | | x | x | | | |
| MDT | | | | | | | | | | | | | | |
| Member | | | | x | x | x | | | | | x | x | x | x |
| Alt | x | x | x | | | | x | x | | x | x | | x | x |
| Other | | | | x | | | | | | | | | | |
| Palm Beach MPO | | | | | | | | | | | | | | |
| Member | x | x | | x | x | x | x | x | x | x | x | x | x | x |
| Alt | | | | | | x | x | x | | | | | | x |
| Other | | | | | | | | | | | | | | |
| Palm Tran | | | | | | | | | | | | | | |
| Member | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Alt | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | |
| South Florida RPC | | | | | | | | | | | | | | |
| Member | x | x | x | | x | | | x | x | x | x | | | |
| Alt | | | | | | x | | | | | | | | |
| Other | | | | | | | | | | | | | | |
| South Florida RTA | | | | | | | | | | | | | | |
| Member | | x | | x | x | x | x | x | x | x | x | x | x | x |
| Alt | x | x | x | x | x | x | x | x | x | x | | x | x | x |
| Other | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Treasure Coast RPC | | | | | | | | | | | | | | |
| Member | | | | | | | | | | | | | | |
| Alt | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| Other | | | | | | | | | | | | x | | x |