

Technical Training Workshop: Quiet Zones



August 27 & 28, 2013

For Handouts:

Please email

admin@tcrpc.org

Subject: FRA handouts

The background of the slide is a collage of three images. The top left shows a white and blue passenger train with the number '805' on its front. The top right shows a multi-lane highway filled with cars, with a city skyline in the distance. The bottom right shows a modern, white and blue bus. The text is overlaid on a green rectangular background in the center.

How Will We Move?
Passenger Rail Update
for Southeast Florida

TREASURE COAST REGIONAL PLANNING COUNCIL

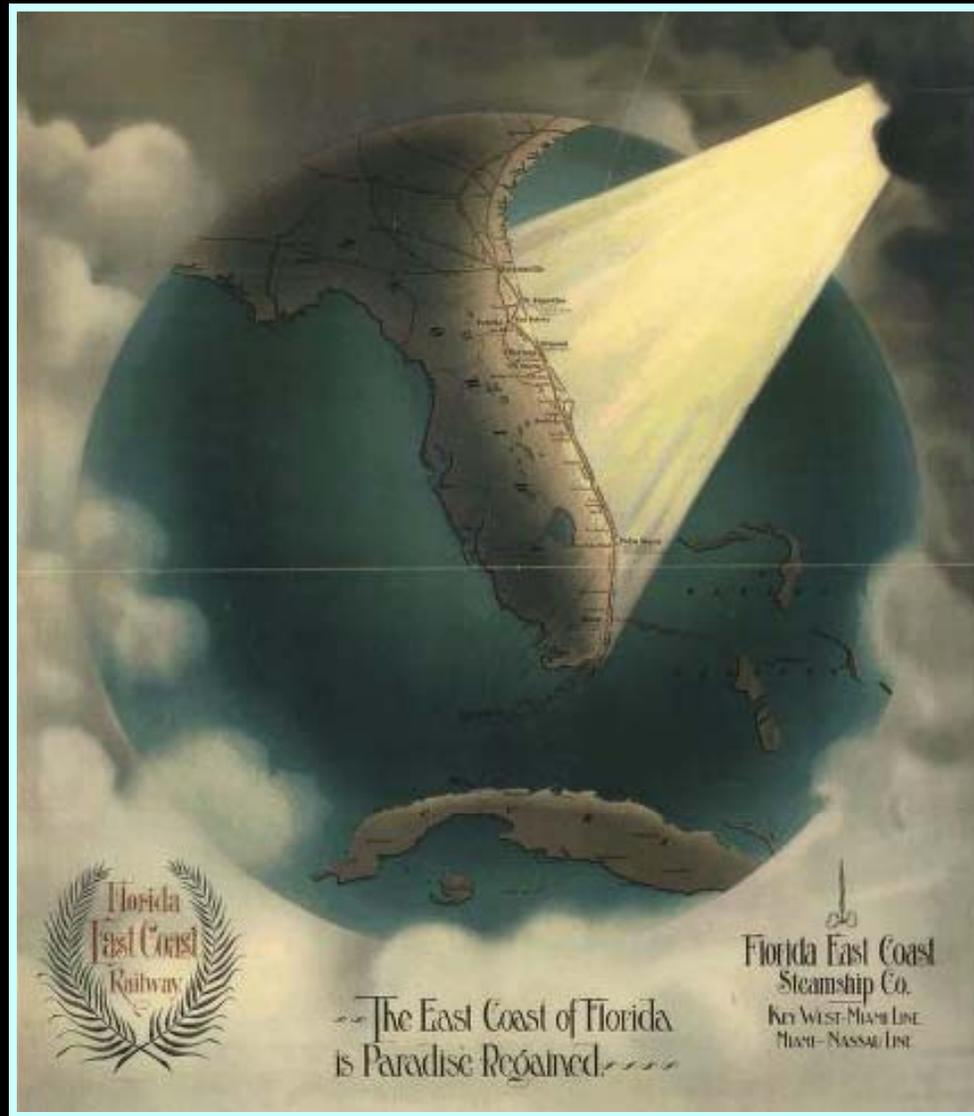
August 2013

Kim DeLaney, Ph.D.
Strategic Development Coordinator
Treasure Coast Regional Planning Council

kdelaney@tcrpc.org



Florida's Long History with Rail ...

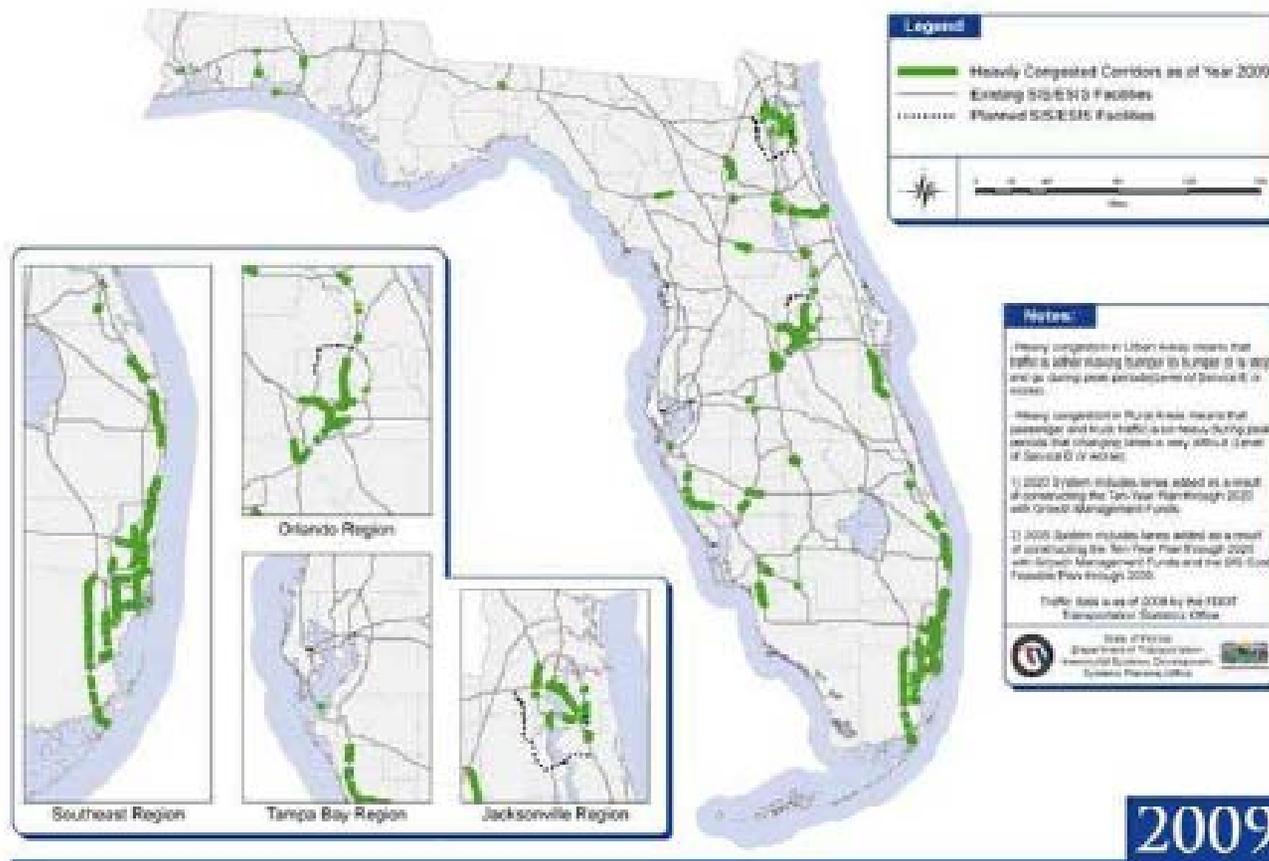


... The East
Coast of
Florida is
Paradise
Regained ...

*(slogan from Florida
East Coast Railway
advertising poster,
1898)*

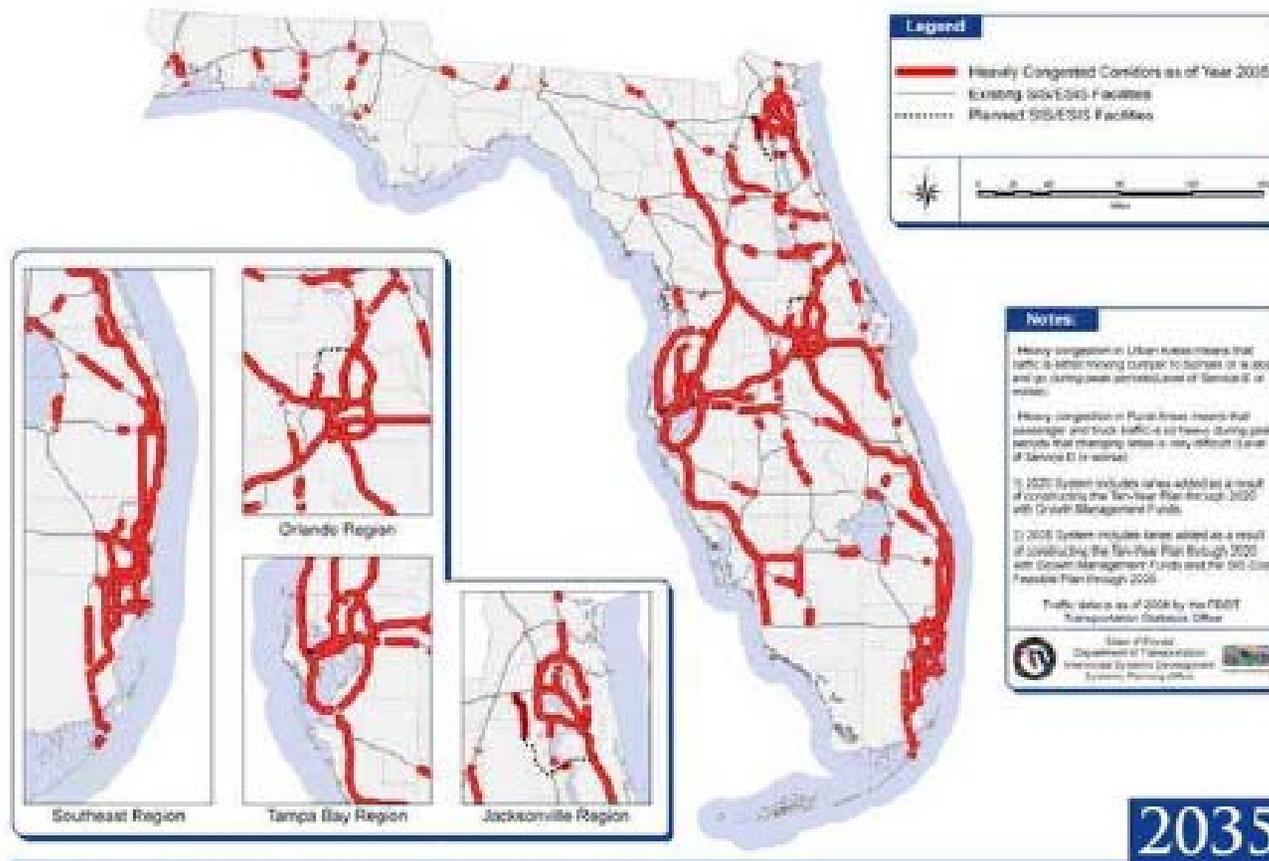
Today's Transportation System Cannot Meet Increase in Demand

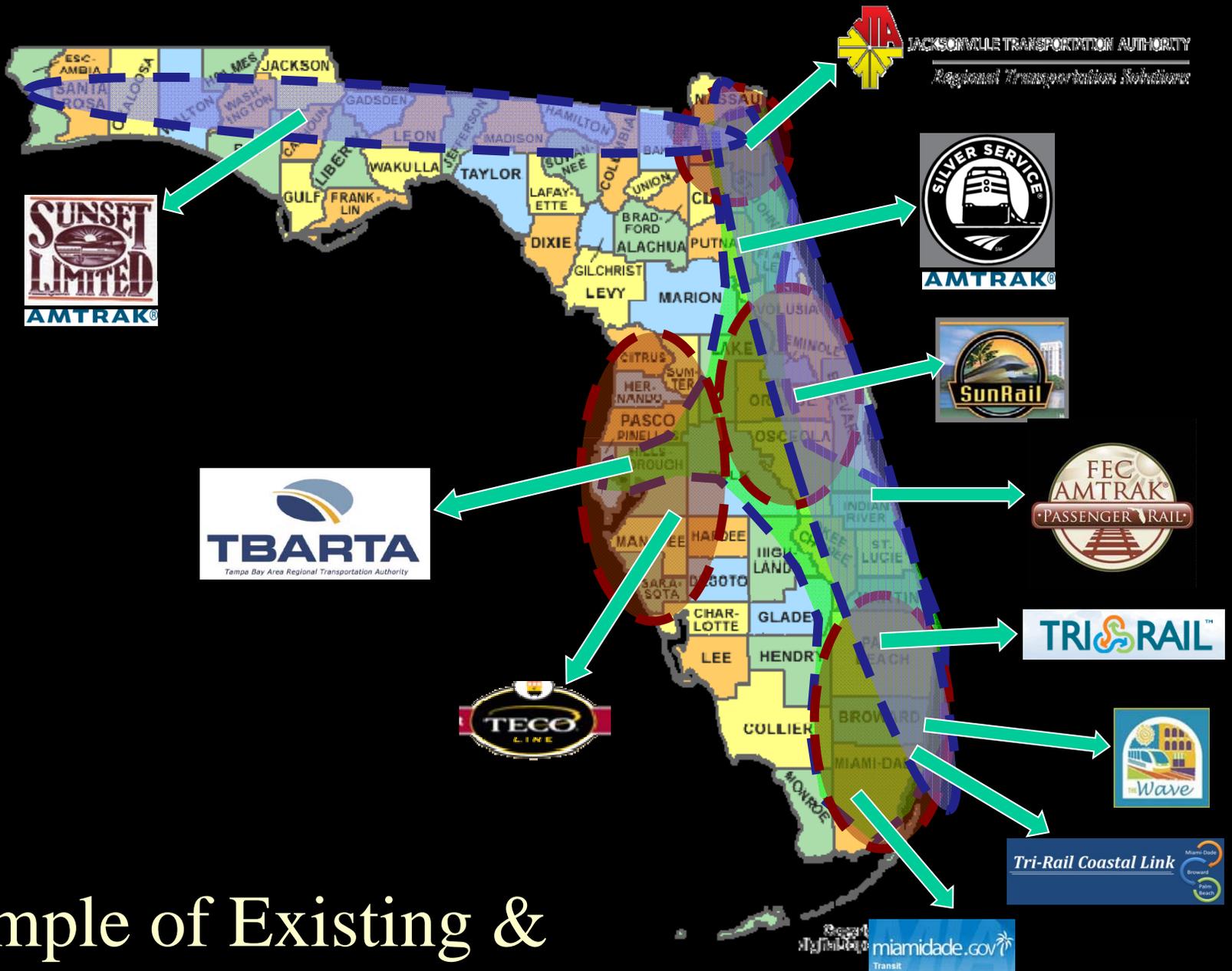
CURRENT & FUTURE HEAVILY CONGESTED CORRIDORS



Today's Transportation System Cannot Meet Increase in Demand

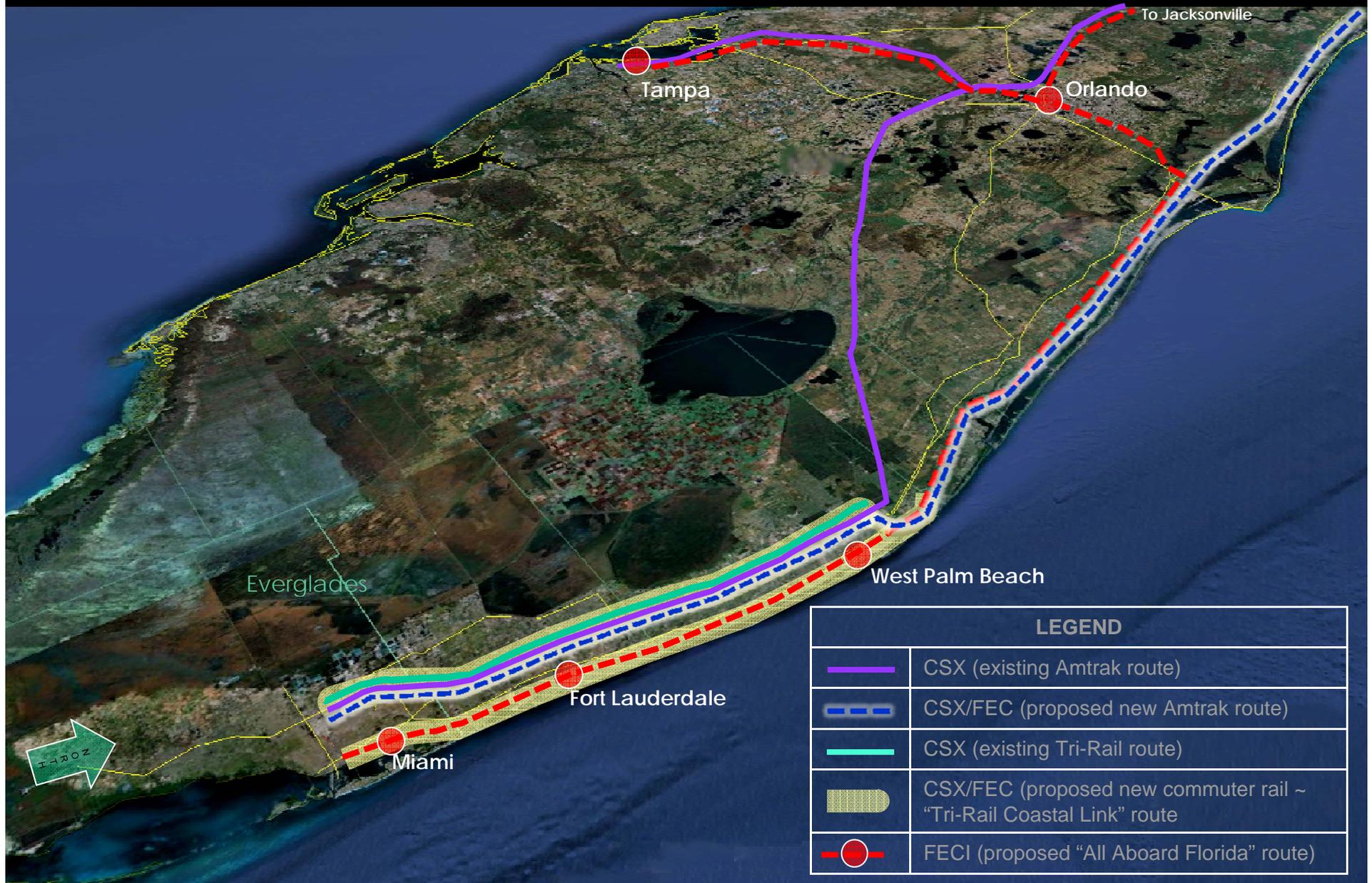
CURRENT & FUTURE HEAVILY CONGESTED CORRIDORS





A Sample of Existing & Emerging Rail Projects in Florida

SE Florida ~ Passenger Rail Options



“Silver Star” Existing Service (Amtrak)

Intercity Passenger Rail



“FEC/Amtrak” Proposal (FDOT)

Intercity Passenger Rail



PLANNED NEW STATIONS (East Coast)

- St Augustine
- Daytona Beach
- Titusville
- Cocoa (Port Canaveral)
- Melbourne
- Vero Beach
- Fort Pierce
- Stuart

EXISTING STATIONS (East Coast)

Jacksonville West Palm Beach,
Delray Beach, Deerfield Beach,
Fort Lauderdale, Hollywood, Miami

- Miami International Airport /MIC

*Other Existing Stations include Orlando, Tampa,
Winter Park, Sanford, Lakeland, and more.*

“Tri-Rail” Existing Service (SFRTA)

Regional Commuter Rail

Palm Beach County

Broward County

Miami-Dade County



Proposed South FL Passenger Rail Services

Regional Commuter Rail

South FL East Coast Corridor Service

- Commuter Passenger Rail
 - Service TBD
- Commuters and Local Travelers
- Miami to Jupiter (Phased)
 - Miami to Pompano Beach
 - Tri-Rail Extension to Jupiter
 - Miami to Jupiter via FEC Corridor
- 85 miles (Three Phases likely)
- Stations Every 3-5 Miles
- Integrated with Tri-Rail
- Funding TBD



Intercity Passenger Rail

"All Aboard Florida"

- Intercity Passenger Rail Service
 - 16 Round-trip Trains per Day
- Tourists and Regional Travelers
- Miami to Orlando
- 240 miles (One Phase)
- 3 Stations in Southeast Florida
- Connections to Local Transit
- Privately funded



TRI-RAIL COASTAL LINK MEMORANDUM OF UNDERSTANDING

- Eight Signatory Parties



- Carries Project through Operations



Initiated Dec 2012
Fully Executed May 2013

**PALM BEACH METROPOLITAN
PLANNING ORGANIZATION (MPO)**



Chair

5/16/2013

**BROWARD METROPOLITAN
PLANNING ORGANIZATION (MPO)**



Richard Blattner, Chair

5/9/2013

**MIAMI-DADE METROPOLITAN
PLANNING ORGANIZATION (MPO)**



Rebeca Sosa, Chairwoman

5/23/2013

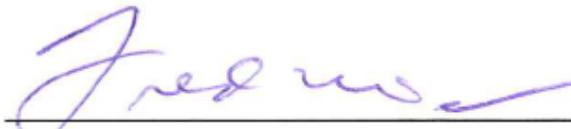
**SOUTHEAST FLORIDA
TRANSPORTATION COUNCIL (SEFTC)**



Susan Haynie, Chair

4/22/2013

**FLORIDA RAIL ENTERPRISE
(FDOT)**



Fred Wise, Executive Director

4/22/2013

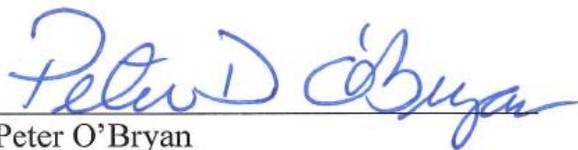
**SOUTH FLORIDA REGIONAL
TRANSPORTATION AUTHORITY (SFRTA)**



Steven L. Abrams, CHAIR

4/26/2013

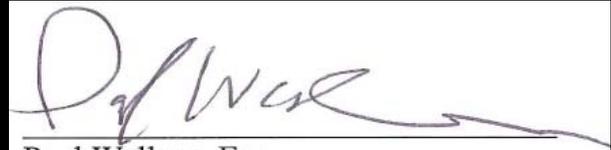
**TREASURE COAST
REGIONAL PLANNING COUNCIL (TCRPC)**



Peter O'Bryan
Chairman

5/17/2013

**SOUTH FLORIDA
REGIONAL PLANNING COUNCIL (TCRPC)**



Paul Wallace, Esq.
Chairman

5/6/2013

“All Aboard Florida” Proposal (FEC Industries)

Intercity Commuter Express Rail



All Aboard Florida, the first privately owned, operated and maintained intercity passenger rail system in the nation, will give Florida's residents and visitors a new and reliable transportation solution between Central and South Florida.



THOUSANDS OF JOBS

100%
PRIVATE

PRIVATELY OWNED, OPERATED
AND MAINTAINED



HOURLY SCHEDULED SERVICE

3

HOUR TRAVEL TIME



ADVANCED, CONVENTIONAL
TECHNOLOGY



Orlando

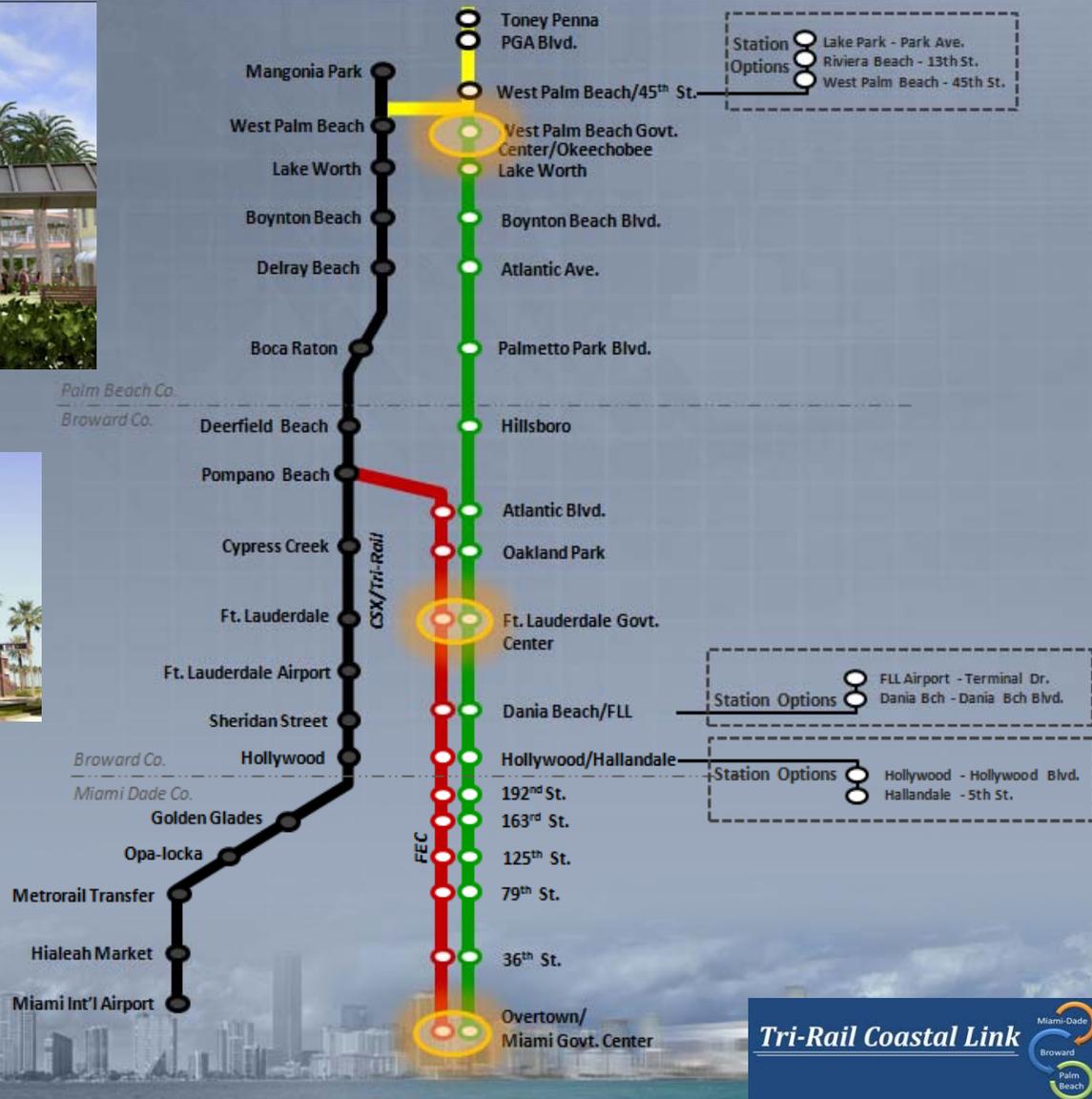
West Palm Beach

Fort Lauderdale

Miami

“Tri-Rail “Coastal Link” Service

Regional Commuter Rail



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Florida Department of Transportation**

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FDOT Rail Office Programs

- Highway-Rail Grade Crossing Inventory
- Highway-Rail Grade Crossing Safety Improvement
- Highway-Rail Grade Crossing Construction and Maintenance
- Grade Crossing Opening / Closure
- Railroad Safety Inspection
- Florida Rail System Plan
- Rail Emergency Mgmt. Plan
- Use of Locomotive Horns and Quiet Zone Application Process

FDOT Programs Overview & History

- Highway-Rail Grade Crossing Safety Improvement
 - Created in the 1970's
 - Authority – Sect. 335.141(2)(a), F.S.
 - Funding – Sect. 130, 23 USC
- Use of Locomotive Horns and Quiet Zone Application Process
 - Created in 2011
 - Authority – 49 CFR 222 and 229
 - Funding – Locally Funded

Quiet Zone Program Overview & History

LOCOMOTIVE HORN RULE
49 CFR 222

Quiet Zone Program Overview & History

Quiet Zones are authorized by the feds and as such, are Federal Quiet Zones. FDOT's role is strictly as the roadway authority to ensure safe roadway conditions and compliance with the MUTCD.

Diagnostic Field Reviews

- FDOT
 - Purpose
 - Recommend Safety Improvements in compliance with FAC and MUTCD
 - Process
 - Schedule
 - Typically Summer (May – Aug.)
- All Aboard Florida
 - Purpose
 - Determine improvements to achieve minimal level of safety for High speed facility
 - Process
 - Similar to FDOT
 - Schedule
 - Fall 2013

Quiet Zone Responsibilities

- Municipal Role
 - Pending Diagnostics
 - Application Process
- FDOT Role
 - Preparation
 - Support
- FRA Authority

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U.S. Department of Transportation
Federal Railroad Administration

Federal Railroad Administration

Region 3
Atlanta, GA



LOCOMOTIVE HORN RULE 49 CFR 222

Background and History

IT'S ALL ABOUT SAFETY!



- NOT the Quiet Zone Rule
- PERMITS Quiet Zones
- Does NOT PROMOTE them



Why?

- 49 CFR 222.1—PURPOSE
- The purpose of this part is to provide for safety at public highway-rail grade crossings by requiring locomotive horn use at public highway grade crossings except in quiet zones established and maintained in accordance with this part



Basics

- The Final Rule was effective on June 24, 2005

What You Need to Know

- BE FAMILIAR WITH:
 - Summary
 - Quick Facts
 - Glossary
 - Appendix C - Final Rule
- www.fra.dot.gov



What is a Quiet Zone?

- A quiet zone is a section of a rail line at least one-half mile in length that contains one or more public crossings at which locomotive horns are not routinely sounded



Who Can Apply for a QZ?

- Only the public authority can apply to the FRA for a Quiet Zone
 - If more than one public authority is involved, all must agree to the QZ
 - If any public authority does not want to pay for improvements, they can refuse but there can still be QZ

Railroad Responsibility

- Railroads can not prohibit the creation of a QZ
- Railroads may sound the horn in a QZ at the sole judgement of the engineer
- The railroad is not required to sound the horn in the event of an emergency



Liability

- FRA Preemption of most State and Local laws regarding Locomotive Horns at public crossings
- FRA Preemption Attorney
Colleen Brennan---202-493-6028
- FRA Grade Crossing Attorney:
Kathy Shelton---202-493-6063



Helping Yourself

- Public authorities need to work with railroads regarding the cost of additional safety measures and their subsequent maintenance
- Public Authorities must provide a 60 day comment period for the State DOT and Railroad-Notice of Intent (NOI)



New Quiet Zones

- All public crossings must have gates, lights, Constant Warning Time (where practical), and Power Out Indicator
- The inventory information for each crossing in the QZ must be accurate and complete prior to establishing the QZ



Specify Signs:

Specify Signals:

ST/RR A

ST/RR B

ST/RR C

ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: **(800)946-4744**

Railroad Contact:

State Contact:

(404)635-8120

Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day: **No**

Total Trains: **27** Total Switching: **0**

Day Thru: **9**

Typical Speed Range Over Crossing: From **35** to **55** mph Maximum Time Table Speed: **79**

Type and Number of Tracks: Main: **2** Other: **0** Specify:

Does Another RR Operate a Separate Track at Crossing? **No**

Does Another RR Operate Over Your Track at Crossing? **Yes: ATK**



U.S. DOT - CROSSING INVENTORY INFORMATION
Continued

Crossing **717825R**

Effective Begin-Date of Record: **05/06/04**

End-Date of Record:

Part III: Traffic Control Device Information

Signs:

Crossbucks:	2	Highway Stop Signs:	0
Advanced Warning:	Yes	Hump Crossing Sign:	
Pavement Markings:	Stop Lines and RR Xing Symbols	Other Signs:	0 Specify:
			0

Train Activated Devices:

Gates:	2	4 Quad or Full Barrier:	
Mast Mounted FL:	2	Total Number FL Pairs:	0
Cantilevered FL (Over):	0	Cantilevered FL (Not over):	0
Other Flashing Lights:	0	Specify Other Flashing Lights:	
Highway Traffic Signals:	0	Wigwags:	0 Bells: 1
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	Constant Warning Time
Track Equipped with Train Signals?	Yes	Traffic Light Interconnection/Preemption:	

Part IV: Physical Characteristics

Type of Development:	Commercial	Smallest Crossing Angle:	30 to 59 Degrees
Number of Traffic Lanes Crossing Railroad:	2	Are Truck Pullout Lanes Present?	No



Part IV: Physical Characteristics

Type of Development:	Commercial	Smallest Crossing Angle:	30 to 59 Degrees
Number of Traffic Lanes Crossing Railroad:	2	Are Truck Pullout Lanes Present?	No
Is Highway Paved?	Yes	If Other:	
Crossing Surface:	Asphalt	Is it Signalized?	No
Nearby Intersecting Highway?	Less than 75 feet	Is Crossing Illuminated?	
Does Track Run Down a Street?	No		
Is Commercial Power	Yes		

Part V: Highway Information

Highway System:	Other FA Highway - Not NHS	Functional Classification of Road at Crossing:	Urban Minor Arterial
Is Crossing on State Highway System:	No	AADT Year:	2006
Annual Average Daily Traffic (AADT):	002560	Avg. No of School Buses per Day:	6
Estimated Percent Trucks:	02		
Posted Highway Speed:	35		



- State DOTs or Railroads officially update crossing inventories
- Must comply with the Manual of Uniform Traffic Control Devices (MUTCD)



Funding of Improvements

- GENERALLY, all QZ improvements must be locally funded
- Unless otherwise qualified, Section 130 funds may not be used for QZ improvements
- When proposing a QZ, look at the whole corridor to determine the most cost-effective methods



Safety Measures

- SSM-Supplementary Safety Measures
(Public Authority DESIGNATION)
- ASM-Alternative Safety Measure
(Public Authority APPLICATION)



SSM

- 4 quad gates
 - Channelization and median barriers
 - One way roads
 - Temporary closure
 - Permanent closure
-
- SSMs do not need approval from FRA
 - All other safety measures are ASMs



4 Quad Gates



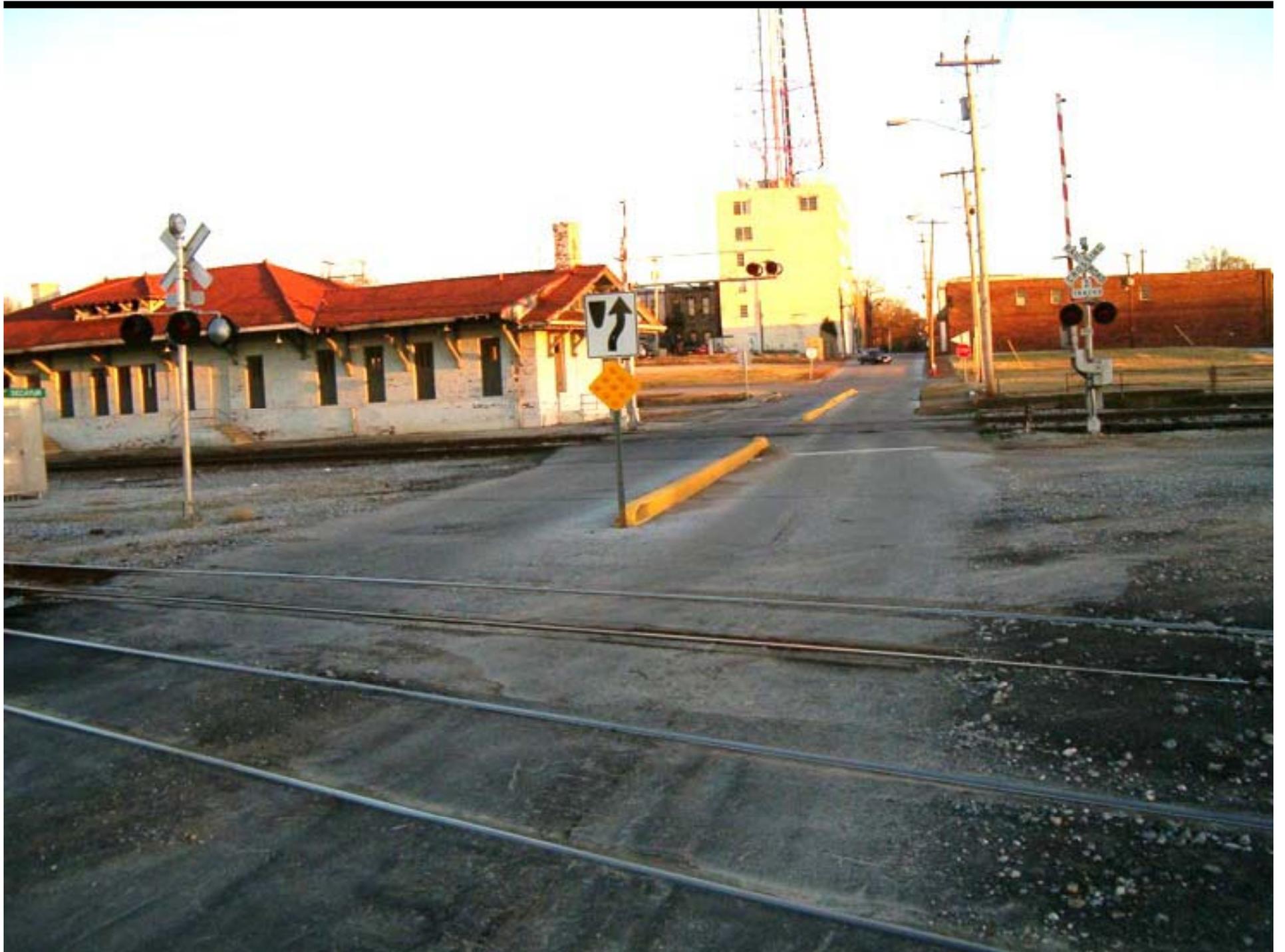




Non-Traversable Median









NO TRAIN HORN



Traversable Channelization



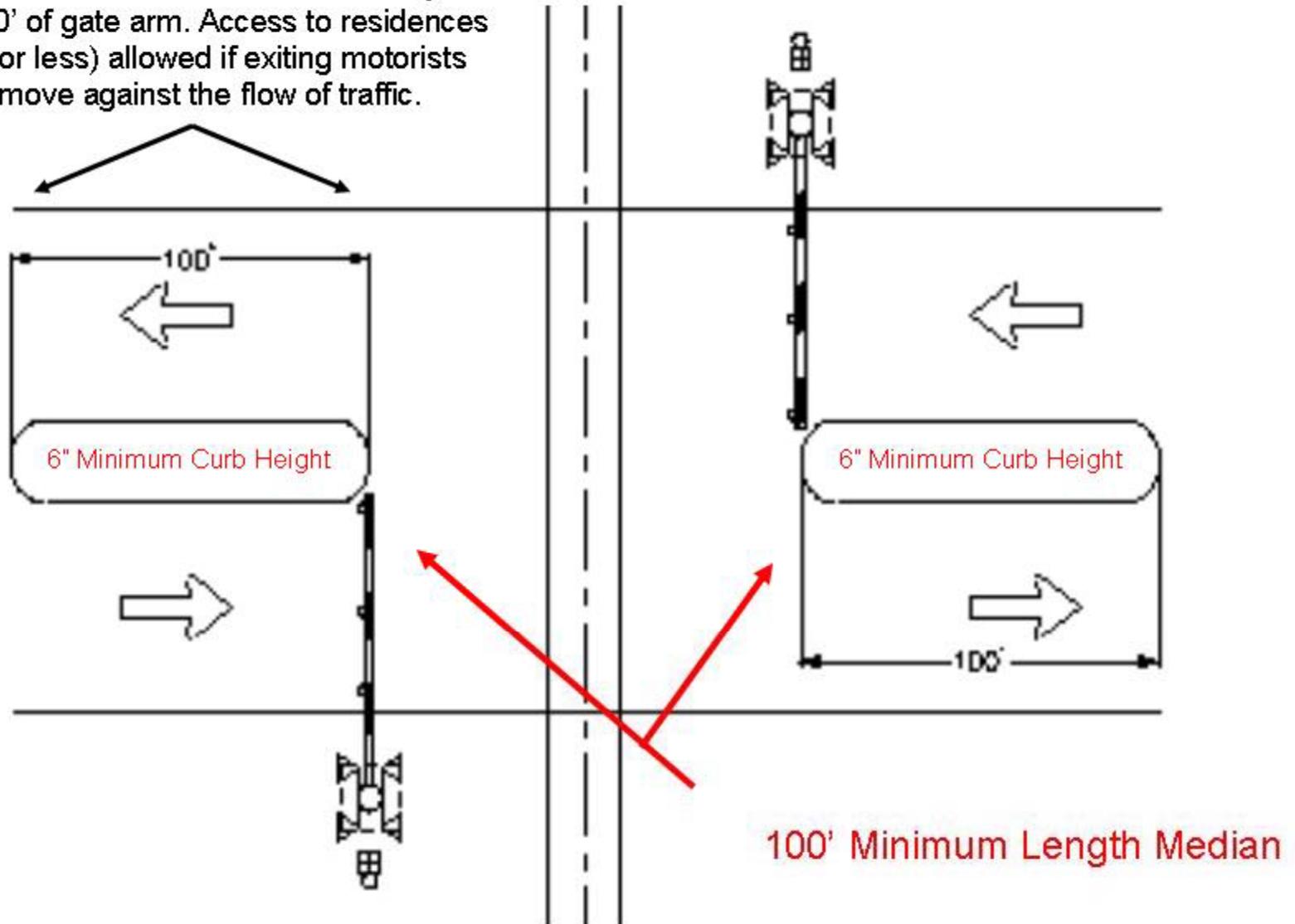




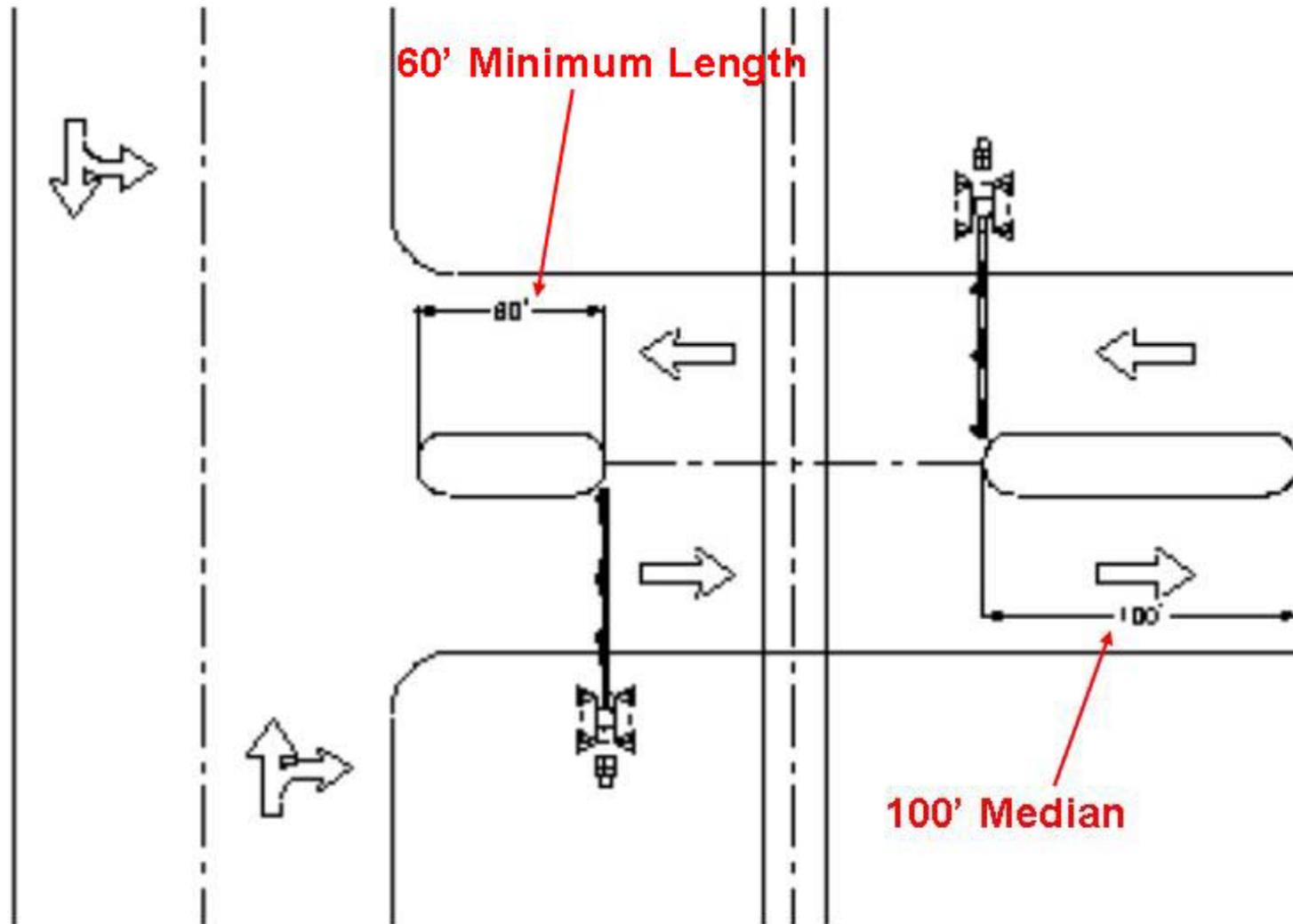
10 20 2004

Gates with Medians or Channelization Devices

No intersections or commercial driveways within 60' of gate arm. Access to residences (4 units or less) allowed if exiting motorists can not move against the flow of traffic.



Gates with Medians or Channelization Devices



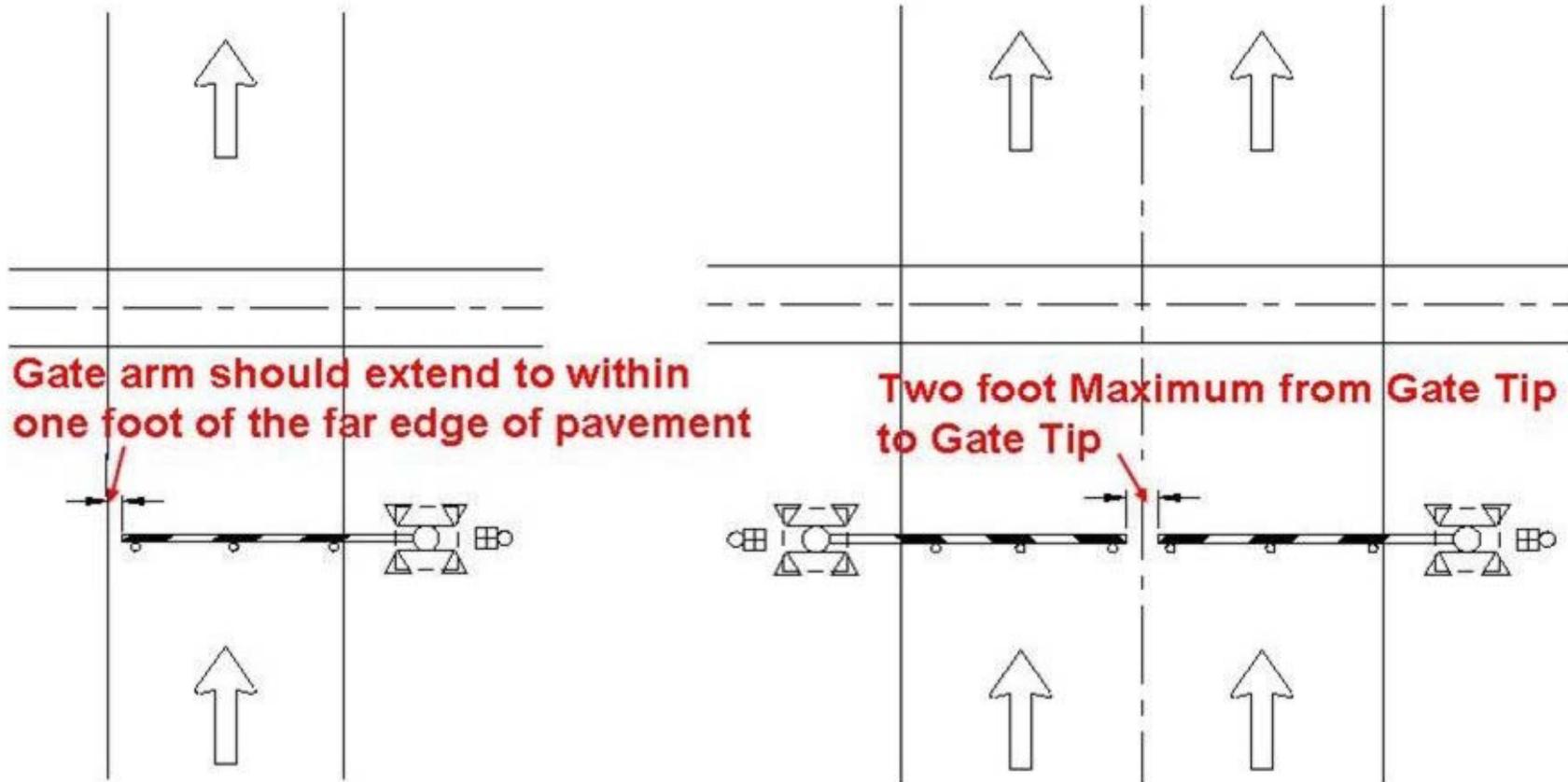
One Way Streets





100' curb on tip end required

One Way Street with Gate(s)



Temporary Closures

- Only times permitted are between 10 p.m. and 7 a.m.
- Must be enforced 7 days per week



ASM

- Any modified SSMs (e.g. medians less than 60 feet in length)
- Education and/or law enforcement programs (including photo enforcement)
- Any combination of above
 - All ASMs and modified SSMs must be approved by FRA in writing
 - Some ASMs must be tested prior to approval and data provided to show their effectiveness

Safety Goal

- QZRI for proposed quiet zone corridor must be:
 - Less than or equal to the risk with train horn sounding (RIWH)
- OR
- Less than the National Significant Risk Threshold (NSRT)



Important Concepts

- RIWH - Risk Index With Horns
- QZRI - Quiet Zone Risk Index
- NSRT - National Significant Risk Threshold
 - CURRENTLY 13,772, recalculated annually

- NSRT is the average risk at gated crossings where train horns are sounding. This number can fluctuate up or down each year based on accident statistics
- NSRT is computed annually by HQ



- If the NSRT number goes down after a QZ is established, a QZ based on NSRT may be canceled if their QZRI is not low enough to stay qualified
- Collisions in the QZ may cause the QZRI to be larger than the NSRT and thus not qualified



Quiet Zone Calculator

- AVAILABLE ON FRA WEBSITE
 - MUST DISABLE POP-UP BLOCKERS TO USE
 - REGISTER AND GET PASSWORD
 - FRA will assist in use of the calculator

Using the Calculator

- Select pertinent crossings and print out from inventory database
- Temporarily update any out-of-date information, adding gates if needed
- Calculate QZRI
- Experiment with safety scenarios to estimate what is necessary to achieve QZ



QZRI w/SSM is higher than RIWH but lower than NSRT

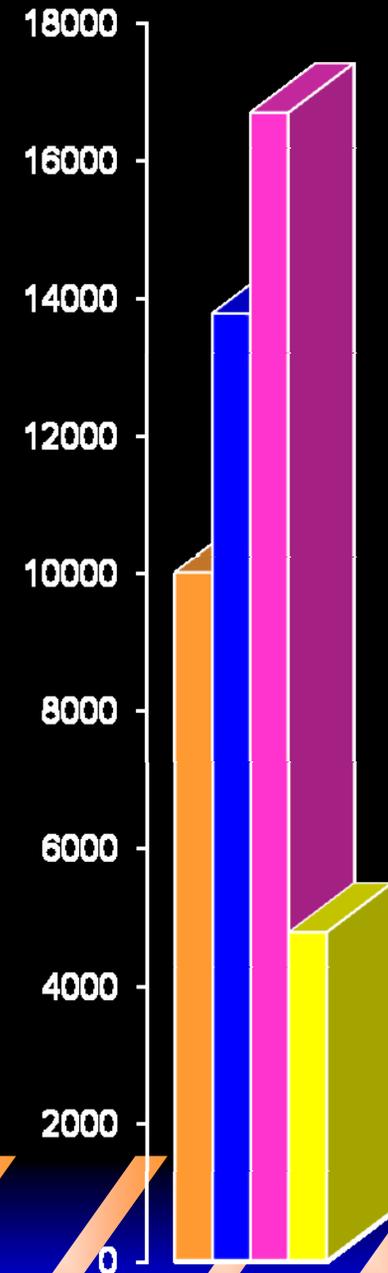
RIWH = 10,000

NSRT = 13,772

QZRI = 16,680

QZRI-SSM = 4765 after SSM

■ RIWH
■ NSRT
■ QZRI
■ QZRI-SSM



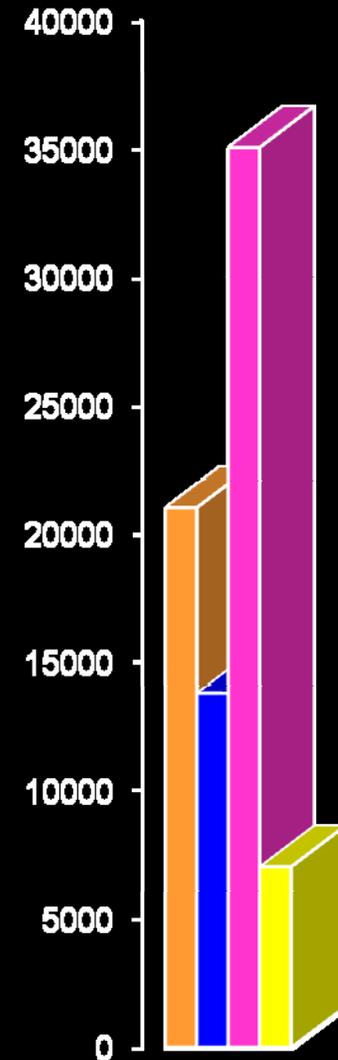
QZRI w/SSM is lower than the NSRT and RIWH

RIWH = 21,000

NSRT = 13,772

QZRI = 35028

QZRI = 7005 after SSM



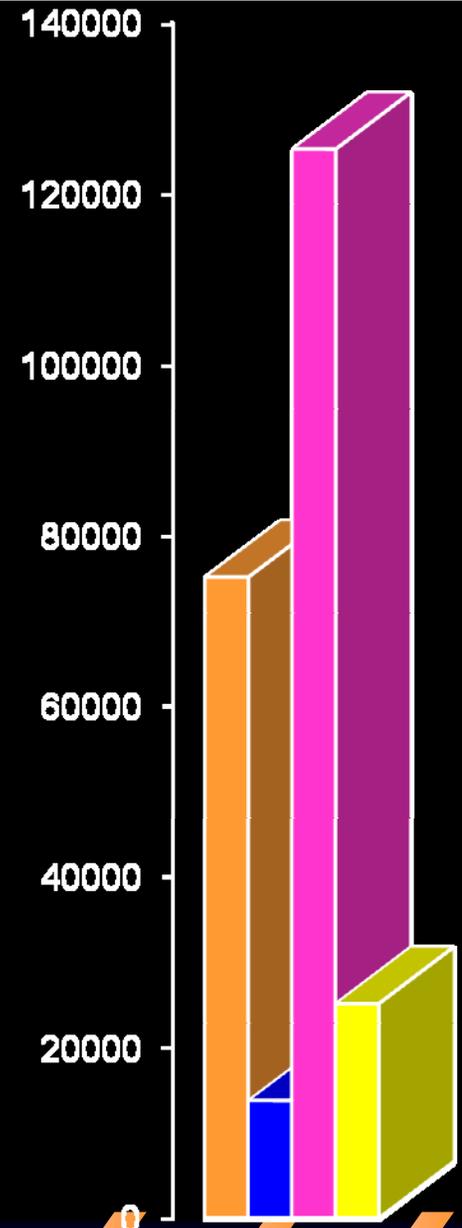
QZRI w/SSM is lower than the RIWH but higher than NSRT

RIWH = 75,000

NSRT = 13,772

QZRI = 125,100

QZRI = 25,020 after SSM



Keeping a Quiet Zone

- QZs must remain below thresholds to stay viable – any future collisions can change the safety level and the QZ status can be lost
- The FRA can inspect and review any QZ at any time
- All SSM's = QZ for life



Private Crossings

- The train horn rule does not generally address private crossings
- If private crossings are included in a QZ, they must have at a minimum crossbucks, stop signs and an advanced warning sign indicating no horn will sound
- Industrial and commercial private crossings must have a diagnostic review and are subject to the recommendations of the diagnostic review team



Pedestrian Crossings

- The train horn rule does not generally address pedestrian crossings
- If pedestrian crossings are included in a QZ, they must have advanced warning signs indicating no horn will sound
- Pedestrian crossings in a QZ must have a diagnostic review and are subject to the recommendations of the diagnostic review team



Notification Requirements for Establishing a QZ (NOE)

- Public road authority must provide written notice to:
 - All railroads that operate over QZ rail line
 - The highway or traffic control authority or law enforcement authority having control over vehicular traffic at the crossings
 - The state agency responsible for highway safety



- The state agency responsible for crossing safety
- If applicable, the landowner of any private crossings within the QZ
- FRA—Washington
- All information goes to all parties



State Involvement

- “State agencies retain their existing roles (which vary from state to state) related to engineering standards and ordering implementation of safety improvements. Further, the primary expertise for highway-rail crossing safety can normally be found at the state level, in a department of transportation or regulatory commission.”



Train Horn Sound Levels

- As of June 24, 2005, train horn sound level must be between 96 dB(A) and 110 dB(A). No exceptions
 - Older locomotives will have 5 years to be tested and certified for compliance
 - New locomotives must be certified as of the date of manufacture. Rebuilt locomotives must be certified at the time they are rebuilt



Train Horn Sounding Distance

- All locomotives must sound the horn starting 15 but no more than 20 seconds before reaching a public highway-rail grade crossing. However, in no case may the horn be sounded more than $\frac{1}{4}$ mile before the crossing
- Horn may be sounded for 25 seconds if engineer is unable to precisely estimate time to the crossing



Wayside Horns

- Classified as a traffic control device
- Regulated by FHWA
- Approved by FRA as a “one-for-one” substitute for a locomotive horn



- Permitted volume 92-110 dB(A)
- Crossing must have Gates, Lights, CWT (when reasonably practical) and Power Out Indicator
- Indicator (signal) to train crew to show that it is operating correctly





Here to Help You

- GX Manager-Tom Drake : 770-251-6186
- GX Manager-Liz Hudd: 770-375-9634
- Toll Free: 800-724-5993



always expect a train

