



SOUTH FLORIDA FREIGHT AND PASSENGER
RAIL ENHANCEMENT PROJECTS
(South Florida Rail Corridor and FEC Railway)

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SOUTH FLORIDA FREIGHT AND PASSENGER RAIL ENHANCEMENT PROJECTS

(Between South Florida Rail Corridor and FEC Railway)

Phases 1A – Rehabilitate Northwood Connection
Phase 2 – New Northwood Connection
Phase 1B – IRIS NE Connection

FPID numbers: 434948-1, 434948-2 and 433514-1



2016 Design Training Expo



Presentation by
Florida Department of Transportation
District Four

June 13, 2016

Project Locations

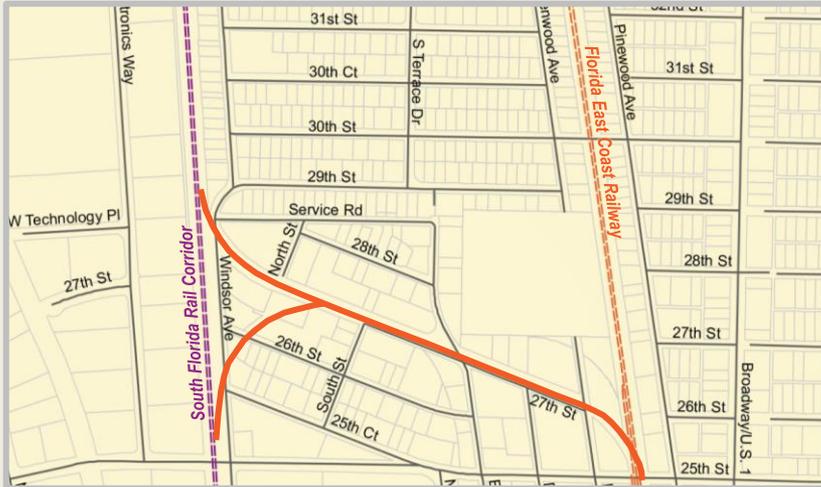
- **85 Mile Corridor between Miami and Jupiter**
- **Over 20 Freight Connection Locations were studied and evaluated under Tri-Rail Coastal Link Project**
- **Three locations identified for connections:**
 - Northwood
 - Pompano
 - IRIS (on the Little River sub)
- **Northwood and IRIS locations were selected for early completion and TIGER Grant Funding**

FREIGHT RATIONALIZATION OPPORTUNITIES

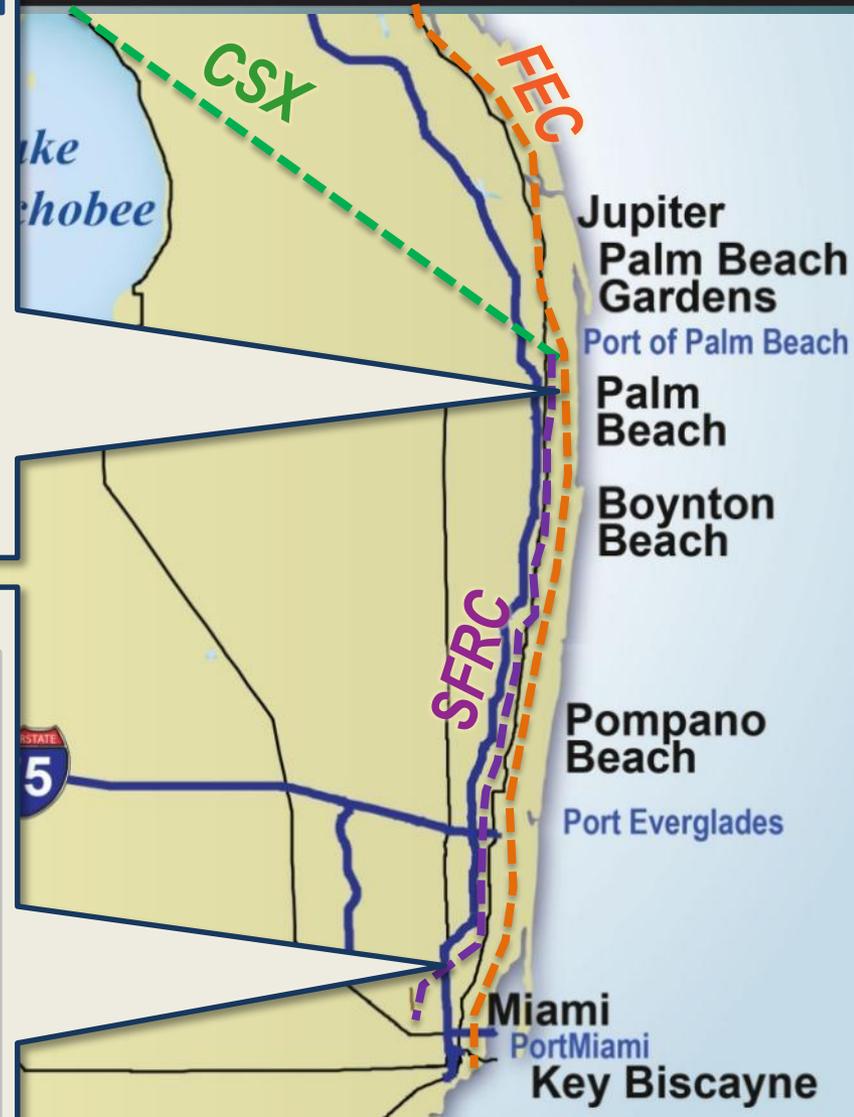
Between FEC and CSX (SFRC)

NORTHWOOD CONNECTION

Funded for Construction



IRIS CONNECTION

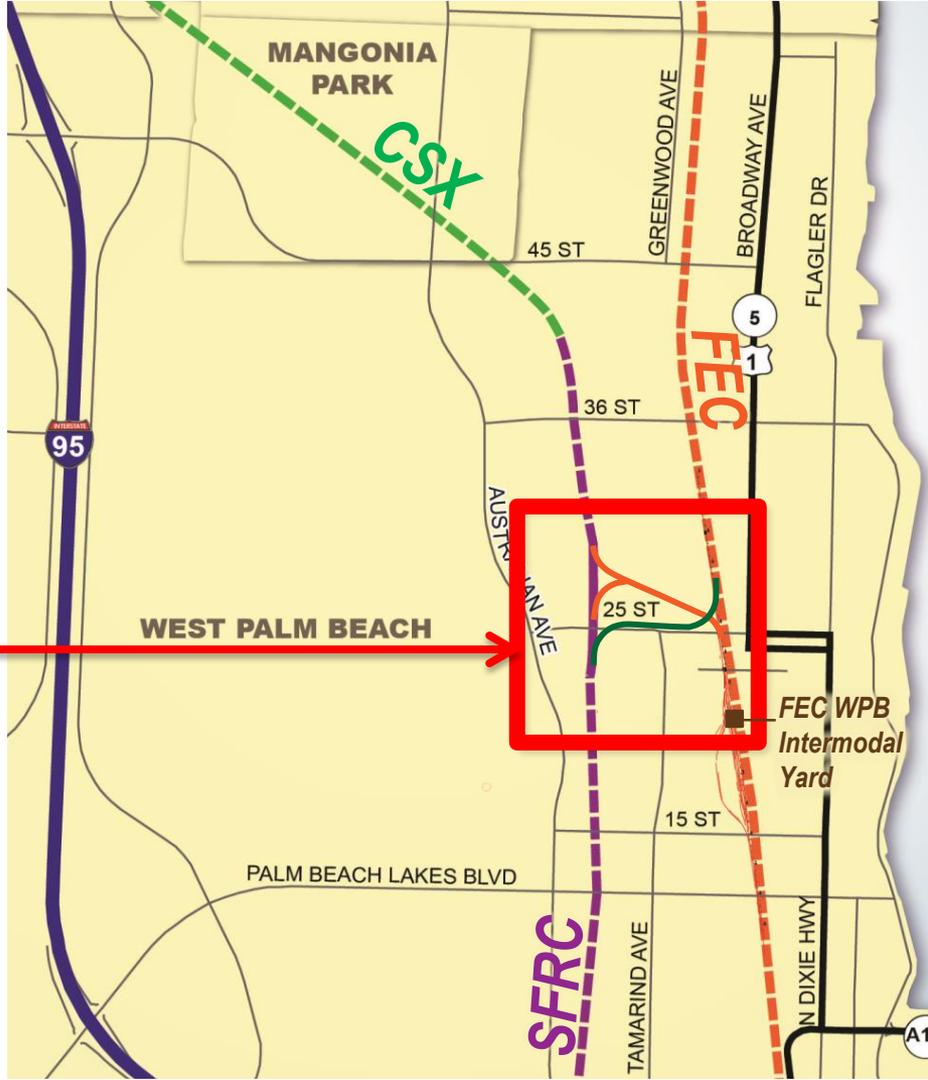


FREIGHT RATIONALIZATION OPPORTUNITIES Between FEC and CSX (SFRC)

REGIONAL MAP

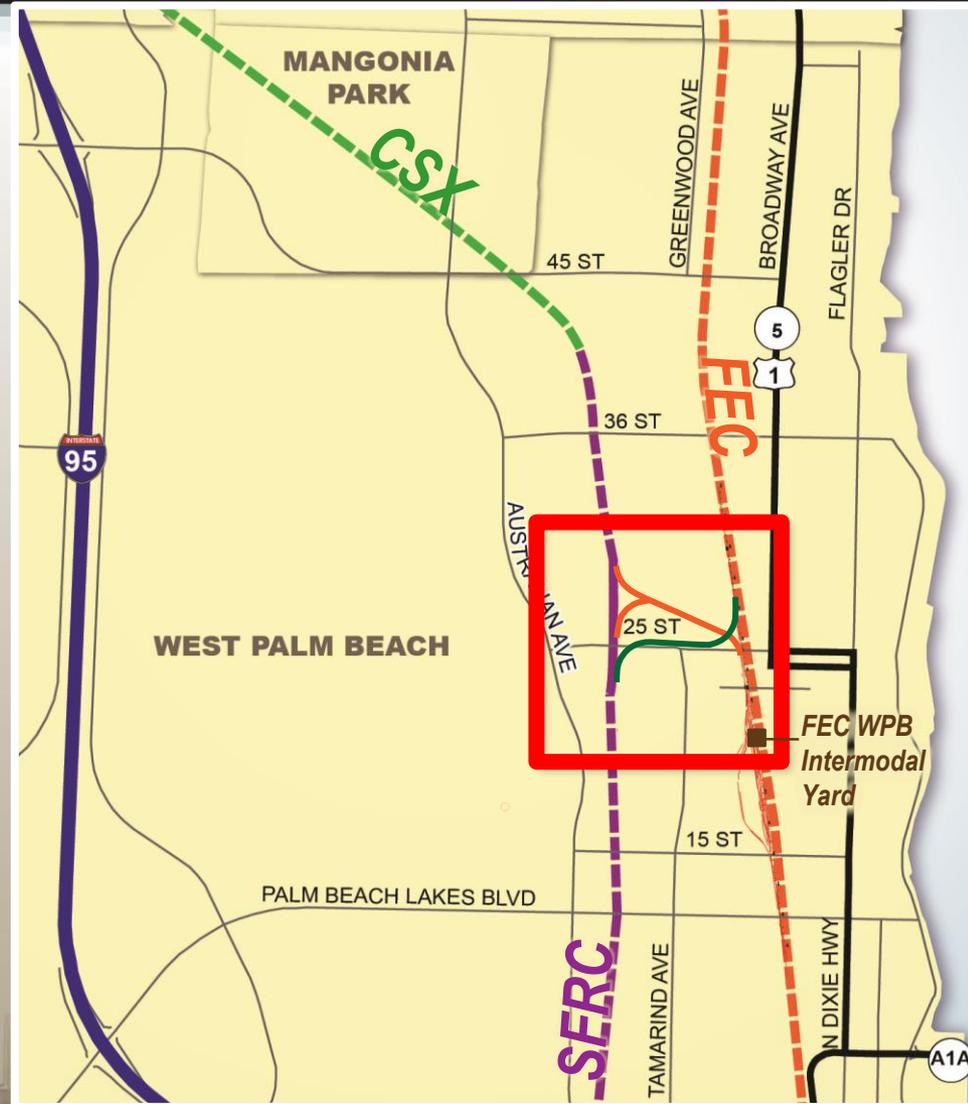


STUDY AREA MAP



Northwood

- City of West Palm Beach
- Between Florida East Coast (FEC) Railway and South Florida Railroad Corridor (SFRC)
- FEC serves freight and future All Aboard Florida & Tri-Rail passenger service
- SFRC serves Amtrak, Tri-Rail, CSX freight



Project Location Map

IRIS Northeast (NE)



Purpose and Need

- Active connection needed between SFRC and FEC
- Improved freight mobility
- Connects major ports to intermodal centers
- Serve existing and future freight (*not higher than historical freight levels*)
- Other goals:
 - Enhance capacity on roadway network due to freight efficiency
 - Potentially serve Tri-Rail Coastal Link future passenger rail and potential Tri-Rail extension to Jupiter



Project Development

- **Federal Involvement**

- **NEPA Documents (Categorical Exclusion)**
- **FRA Oversight through post-construction**
 - Monthly Progress Meetings
 - Monthly Reporting
 - Annual Site Visits
 - Pre- and Post-Construction Reporting

Project Development

- **Phase 1A and 1B**

- **Draft 30% Plans and Design Build Packages**

- Handed to FEC and SFRTA for Procurement
 - Pending Utilities Relocation for Phase 1B

- **FEC/SFRC Construction (Design/Build) – Summer/Fall 2016**

- **Open to traffic 2017**

- **FDOT and FRA Oversight through post-construction**

- **Phase 2**

- **60% Plans – Summer 2016**

- **FDOT Letting – Summer 2017**

- **Construction – Early 2018**

- **Open to traffic – Late 2018**



Phased Construction

- **Phase 1A**

- Interim: serves all freight traffic (up to six trains/day/per direction; majority shifts to Phase 2 tracks once open)
- Ultimate: serves freight to the north (estimated one train/day/per direction)
- Evening operations (after 7 p.m.)

- **Phase 1B**

- Up to six trains/day
- Evening operations (after 7 p.m.)

- **Phase 2**

- Up to six trains/day
- Evening operations (after 7 p.m.)

Northwood Connection



Proposed Improvements

Northwood – Phase 1A



- Rehabilitate existing single track (approx. 0.75 miles)
- NW to SE orientation
- New gate arms/signal equipment at six crossings
- Existing FDOT right-of-way



Proposed Improvements Northwood – Phase 2

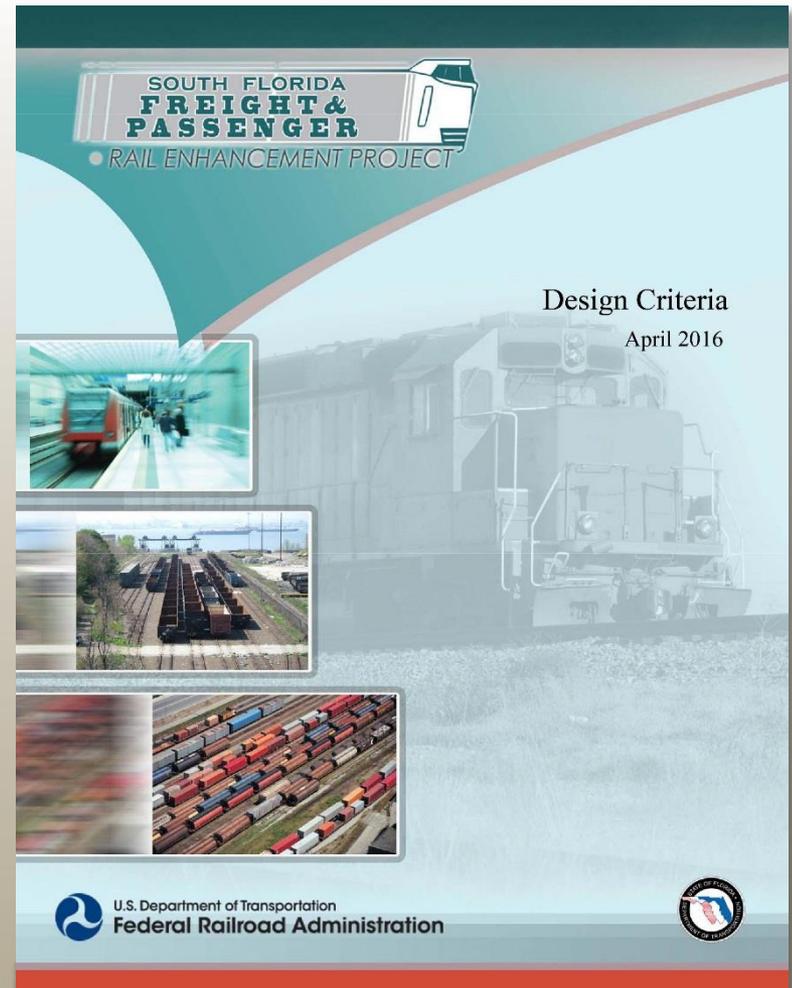


- Construct new single track (approx. 0.5 miles)
- NE to SW orientation
- New gate arms/signal equipment at 5 new crossings
- Approx. 2.4 acres of new railroad right-of-way



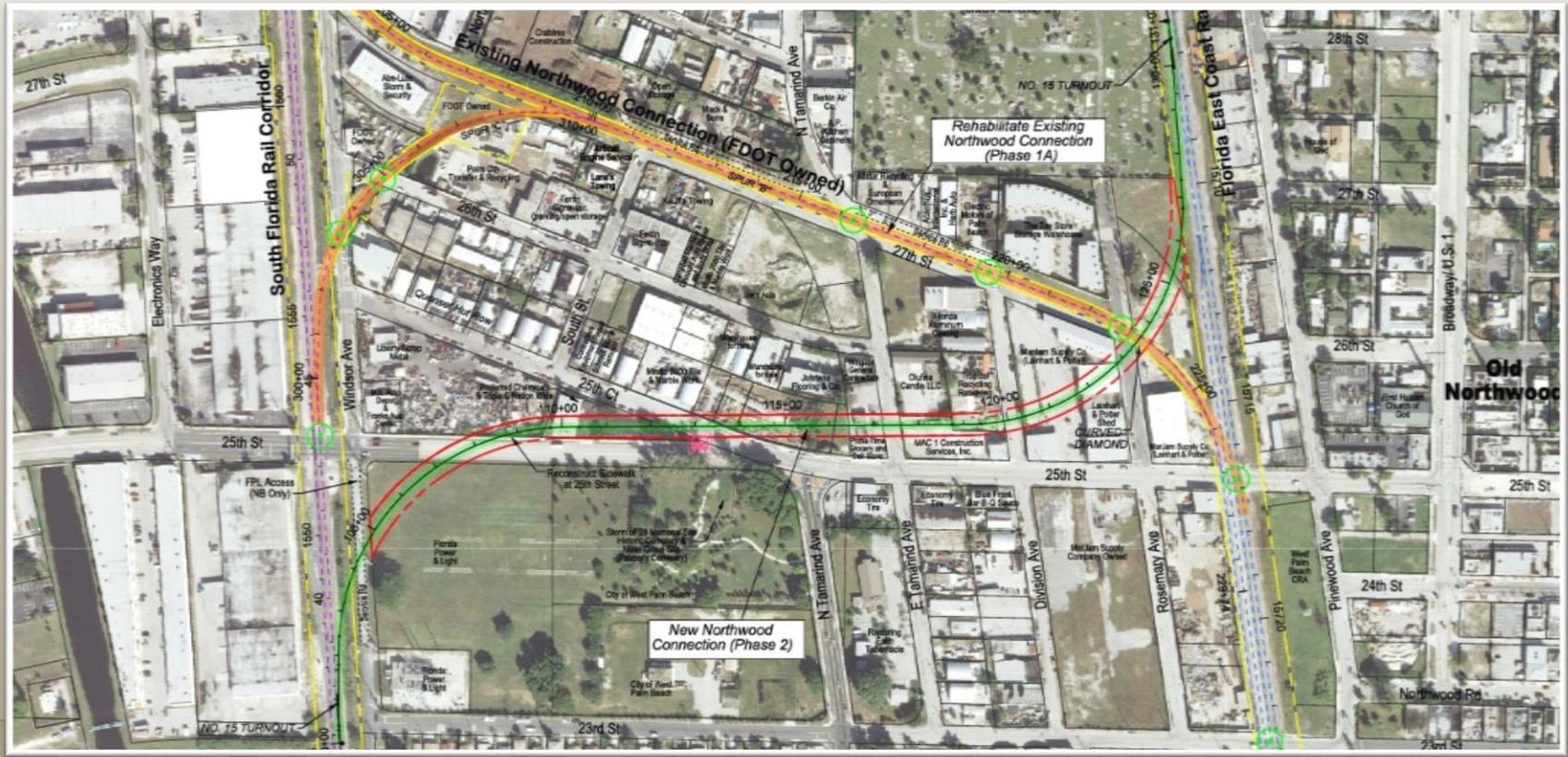
Design Criteria

- **CSX Criteria applicable per SFOMA**
- **AREMA Industry Standards**
- **SFRTA, FEC, CSX, Amtrak – controlling criteria is most conservative**



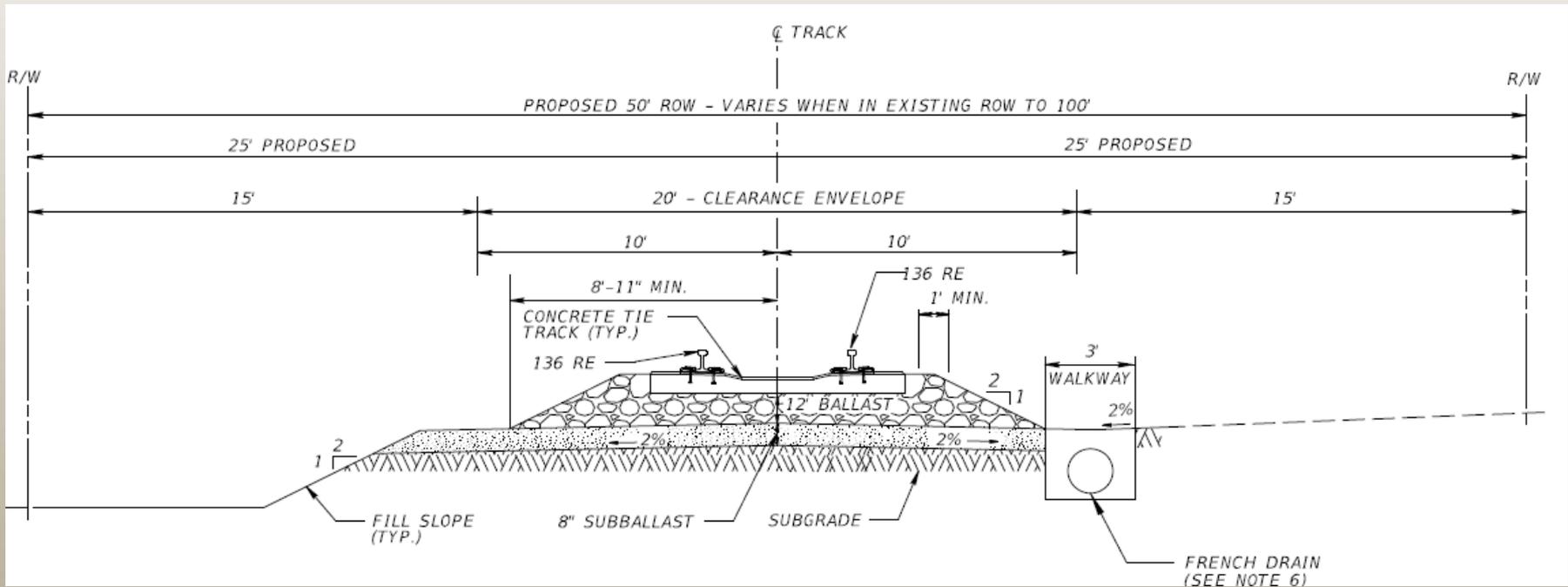
Project Elements

- 3,150 feet of proposed track
- 5 new grade crossings
- Curved Diamond Crossing
- 1 - #15 turnout on SFRC
- 1 - #20 turnout on FEC



Typical Section Phase 2

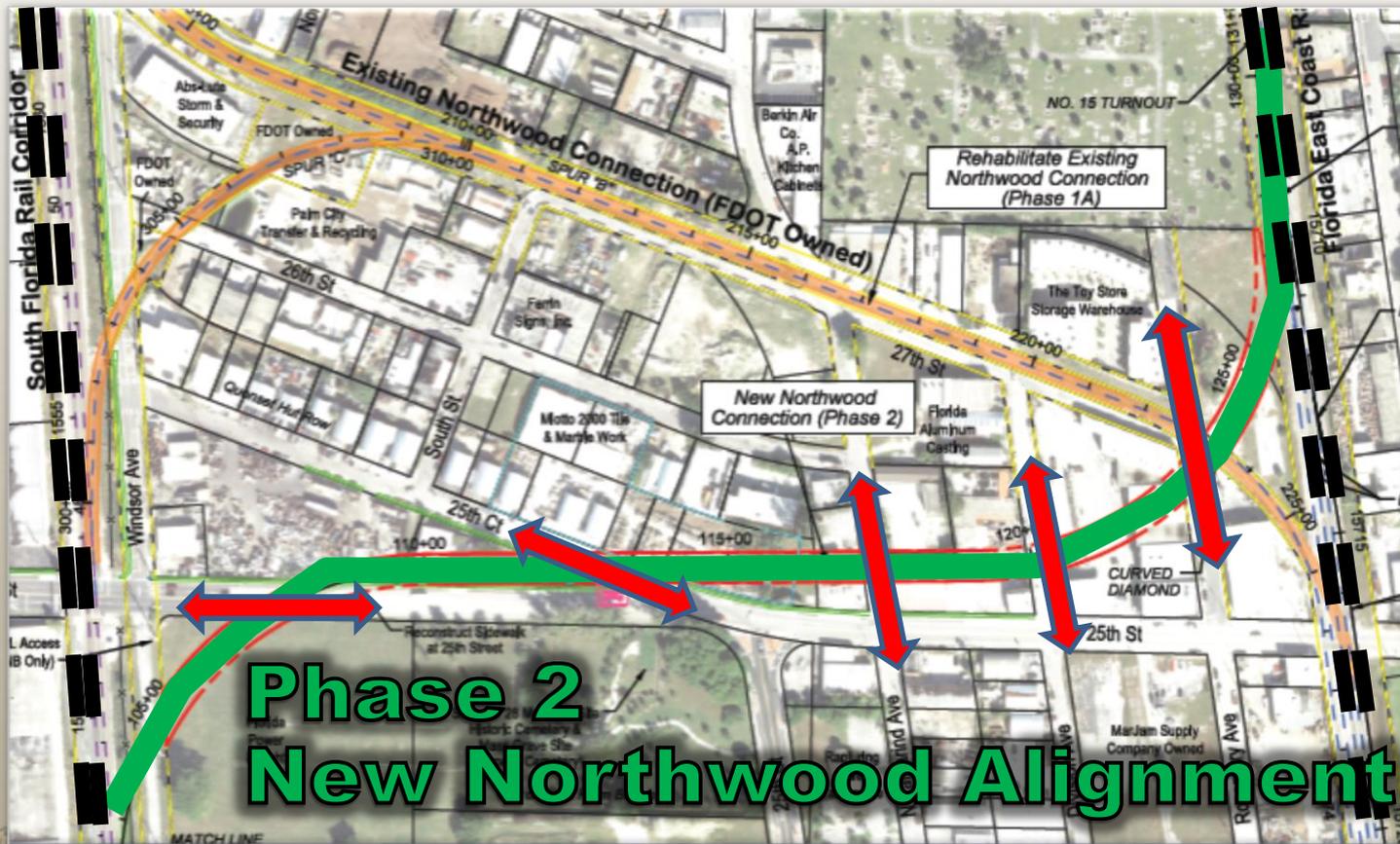
- Single Track New Alignment
- 50' Right of Way



Roadway/Grade Crossings

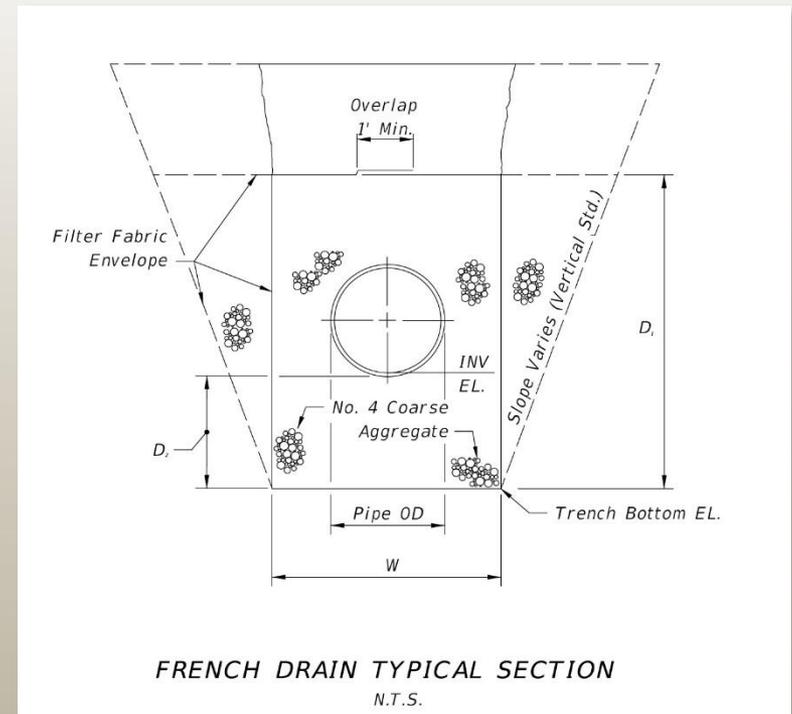
- **Five New Public Crossings**

- 25th Street – No change in roadway profile
- 25th Court – Roadway profile increases to match rail profile
- E. Tamarind Avenue – No change in roadway profile
- Division Avenue – Roadway profile increases to match rail profile
- Rosemary Avenue – Roadway profile increases to match rail profile



Drainage

- No swales – limitations at grade crossings and ROW constraints
- SFRTA desires no sod/landscaping within right of way
- High percolation rate
- Underdrain proposed parallel to rail corridor



Utility Involvement

| Utility Owner | Utility Involvement |
|--------------------------------------------|-------------------------------------|
| City of West Palm Beach – Public Utilities | Subsurface water and sanitary sewer |
| Florida Power & Light Distribution | Overhead |
| Florida Power & Light Transmission | To remain |
| Florida Public Utilities Co. | To remain |
| Level 3 Communications | Buried Fiber Optic |
| MCI Communications/Sprint | Buried Fiber Optic |
| Palm Beach County Traffic Operations (ITS) | To remain |
| Palm Beach County Communications (BFO) | Overhead Fiber Optic |

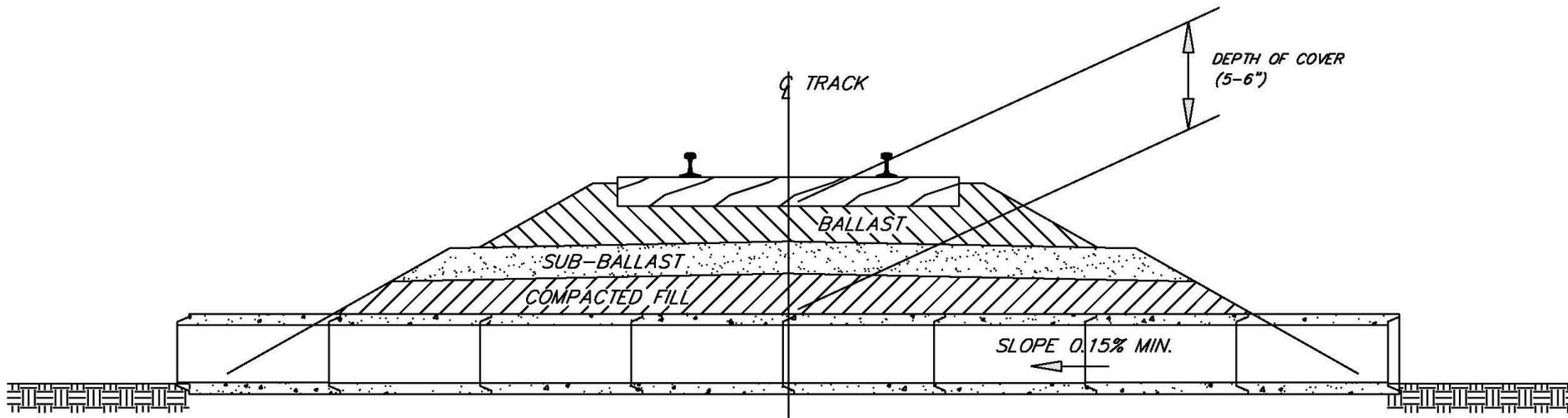
Key Design Considerations



Utility Design Criteria

- **Governing Criteria**

- **FEC Drawing ES8037.1: Requires 5.5' from bottom of tie to top of conveyance pipes**
- **Total vertical clearance from top of rail to top of pipe = 6' 10 5/16"**



TYPICAL SECTION RCP

SCALE: NONE

Environmental Impact Analysis

| Evaluation Criteria | Potential Impacts/Benefits |
|------------------------------------------------|--------------------------------------------|
| Right-of Way | Approximately 2.39 acres |
| Residential Property Impacts | 0 |
| Non-Residential Property Impacts | 15 parcels (3 vacant) |
| Property Owners | 11 |
| Community Facilities Impacted | 0 |
| Bicycle/Pedestrian Improvements | Enhanced |
| Cemetery Impacts | None |
| Cultural Resources | 0.27 acres (no adverse effect anticipated) |
| Potential Involvement with Contamination Sites | Moderate |
| Noise Impacts | Up to 20 residences (Moderate Impacts) |
| Vibration Impacts | None |
| Natural Features (Wetlands/Floodplains) | None |
| Threatened and Endangered Species Habitat | None |

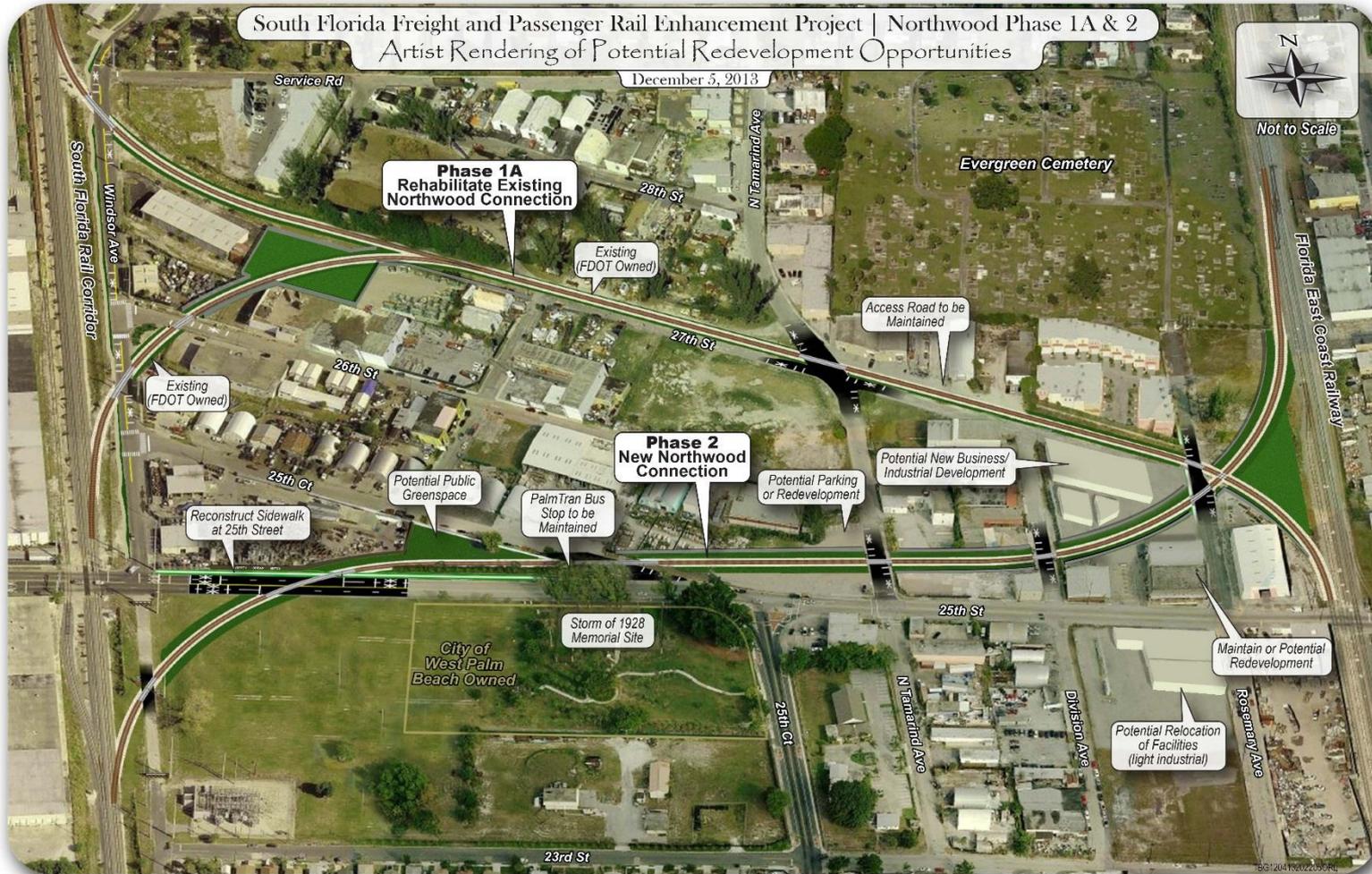
Driveway Impacts

| Parcel Business Name | Parcel Address | Existing Access | Potential Impacts |
|-----------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Preferred Chemicals | 955 25 th Street | The main access is from 25 th Court and 25 th Street | Direct impacts to existing structure used for storage. The proposed alignment will close the access from 25 th Street but will leave access from 25 th Court |
| Miotto 2000 File and Marble Work | 921 25 th Court | The main access is from 25 th Court and from an adjacent property (935 25 th Court) | The proposed alignment will close the access from 25 th Court but will leave access through the adjacent property. |
| Miotto 2000 File and Marble Work | 915 25 th Street | The main access is from 25 th Street and an from an adjacent property (911 25 th Court) | The proposed alignment travels through the center of the parcel leaving remnants on both sides. The proposed alignment will close the access from 25 th Court but will leave access through the adjacent property. |
| Vacant | 907 25 th Street | The main access is from an adjacent property (901 25 th Street) | The proposed alignment travels through the center of the parcel leaving remnants on both sides. Both sides will still have access from the adjacent property |
| Prime Time Grocery and Deli Store | 901 25 th Street | The main access is from 25 th Street and E Tamarind Ave | Direct impacts to existing structure. The proposed alignment travels through the center of the parcel leaving remnants on both sides. One side will still have access from 25 th Street and the remaining remnant will have access from E Tamarind Avenue |
| MAC 1 Construction Services, Inc. | 805 25 th Street | The main access is from E Tamarind Ave and 25 th Stre | The proposed alignment travels through the center of the parcel leaving remnants on both sides. One side will still have access from 25 th Street. The remaining remnant will have access from E Tamarind Avenue |
| MarJam Supply Co | 715 25 th Street | The main access is from 25 th Street and 27 th Street | Direct impacts to existing ancillary structure. The proposed alignment travels through the center of the parcel leaving remnants on both sides. One side will still have access from 25 th Street. The remaining remnant will still have access from 27 th Street |

Local Commitments

- **Consideration of Infrastructure to support future Quiet Zones**
 - Four-quad gates proposed for vehicular safety
- **Pedestrian Safety**
- **ROW impact minimization**
- **Review Local Ordinances related to potential business damages (remnant parcels, ROW impacts)**
- **Maintain on-street parking**
- **Public Workshop/City Commission meeting during Design Phase**

Potential Redevelopment Opportunities

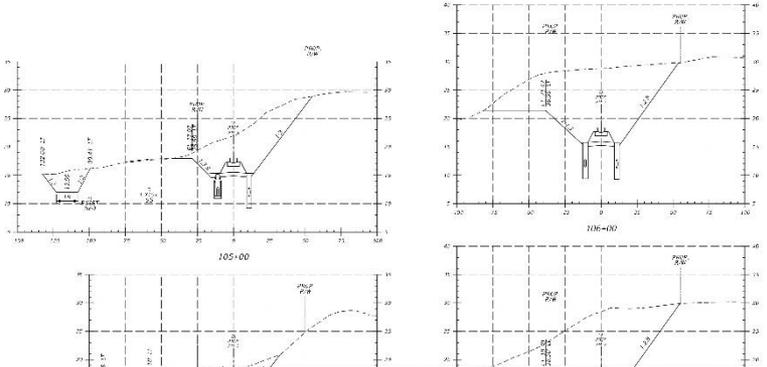


Public Involvement Summary

- **2009 - 2010 – FEC AMTRAK Passenger Rail Study**
- **January/February 2009 – Tri-Rail Coastal Link Study Phase 2 Public Kick-off Workshops**
- **October 2009 – Tri-Rail Coastal Link Study Phase 2 Public Alternatives Workshops**
- **January 9 - 15, 2010 – Public Design Workshop (CSX-FEC Connector Charrette); West Palm Beach**
- **June 24, 2010 – Public Workshop for FEC Amtrak Passenger Rail Study held at West Palm Beach City Hall (Northwood Connection presented)**
- **September 2010 – Public Hearings for Tri-Rail Coastal Link Study**
- **2012 - 2013 – Coordination meetings West Palm Beach Planning, Historic Preservation and CRA Departments**
- **December 2013 – City Commission, Public Workshop**
- **May 12th, 2015 - Public Design Workshop; West Palm Beach**

Phase 2 Right-of-Way Impacts

PARCEL 101/700 Railway Elevations



PARCEL 101/700 Florida Power & Light Co.



PARCEL 101/700 Historical Development

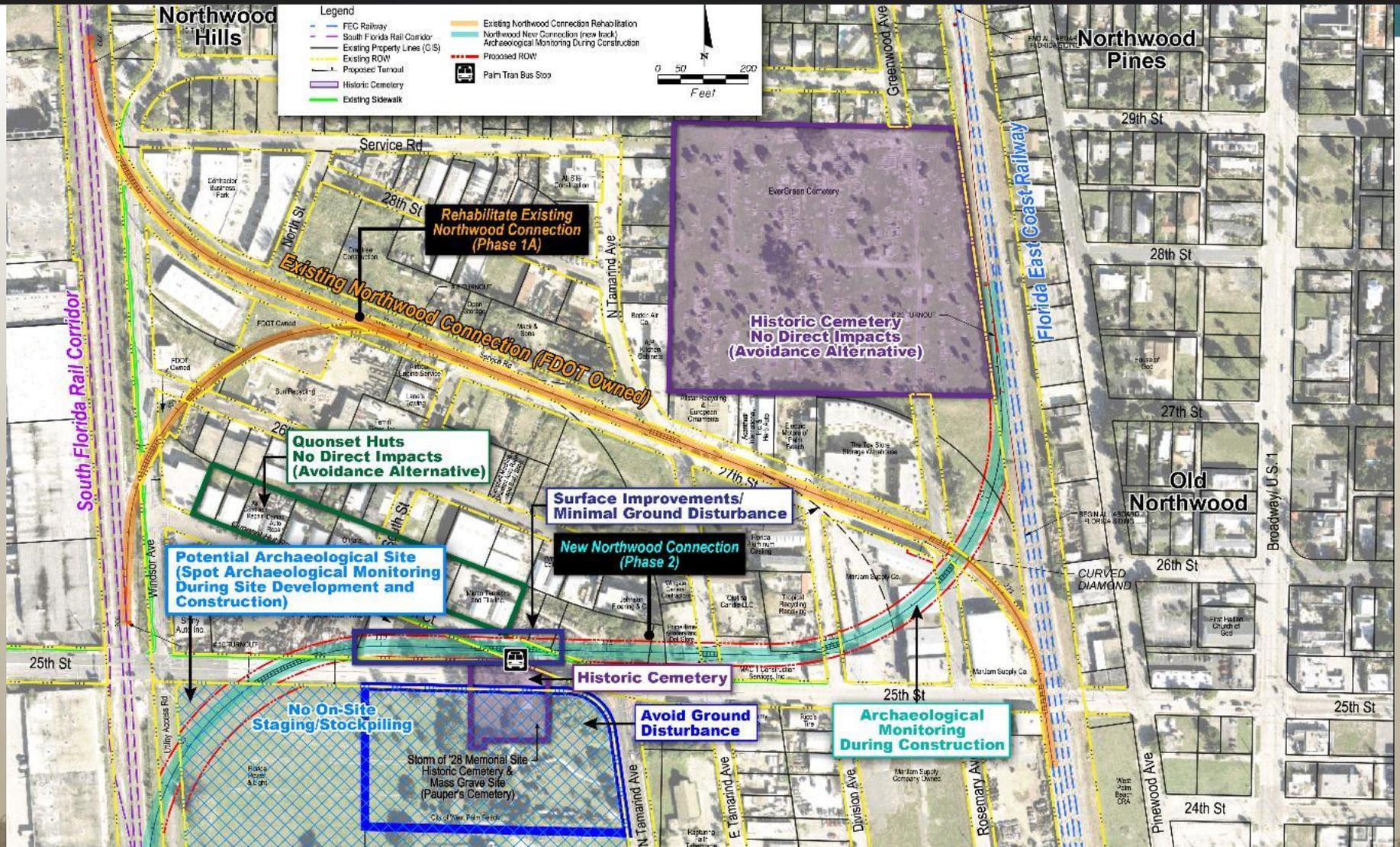


PARCEL 101/700 Florida Power & Light Co.



15 Parcels Impacted

Cultural Resource Constraints



Noise/Vibration Assessment

- **No significant impacts**
 - Based on surrounding noise and existing/historical trains
 - No noise abatement measures proposed



Environmental Mitigation and Commitments

- **Mitigation – not required**
- **Commitments:**
 - Avoidance of NRHP-eligible Sites
 - Minimization of Archaeological Site Involvement
 - Archaeological Monitoring
 - Unanticipated Finds Plan (FRA/SHPO approval) prior to construction
 - # of trains per day (up to six)
 - # of train crossings (max 2 per hour)
 - Evening freight railroad operations

Supplemental Safety Measures

- Pedestrian Handrail
- Supports Quiet Zone Implementation
 - Phase 2: Four-Quad Gates at public crossings
 - Phase 1A: Four-Quad Gates at two crossings
- Meets FRA's current requirements for City to file for Quiet Zone
- Coordination with City/FEC ongoing

Phase 2 looking south along Rosemary Avenue



Phase 2 looking north along Rosemary Avenue



Traffic

- **Freight trains proposed at night**
 - Minimizes traffic delays
 - No significant impacts anticipated



Phase 2 looking east along 25th Street west of Tamarind Avenue

- **Traffic enhancements**
 - Connectivity with adjacent grade crossings
 - Pre-emption at 25th Street/Tamarind Avenue signal

Rail Operations on Proposed Connections

- Project is shifting freight from FEC to SFRC not adding more freight
- Early 2017: Up to 6 freight trains (in each direction) on the Phase 1A Rehabilitated Northwood Connection (until Phase 2 is built)



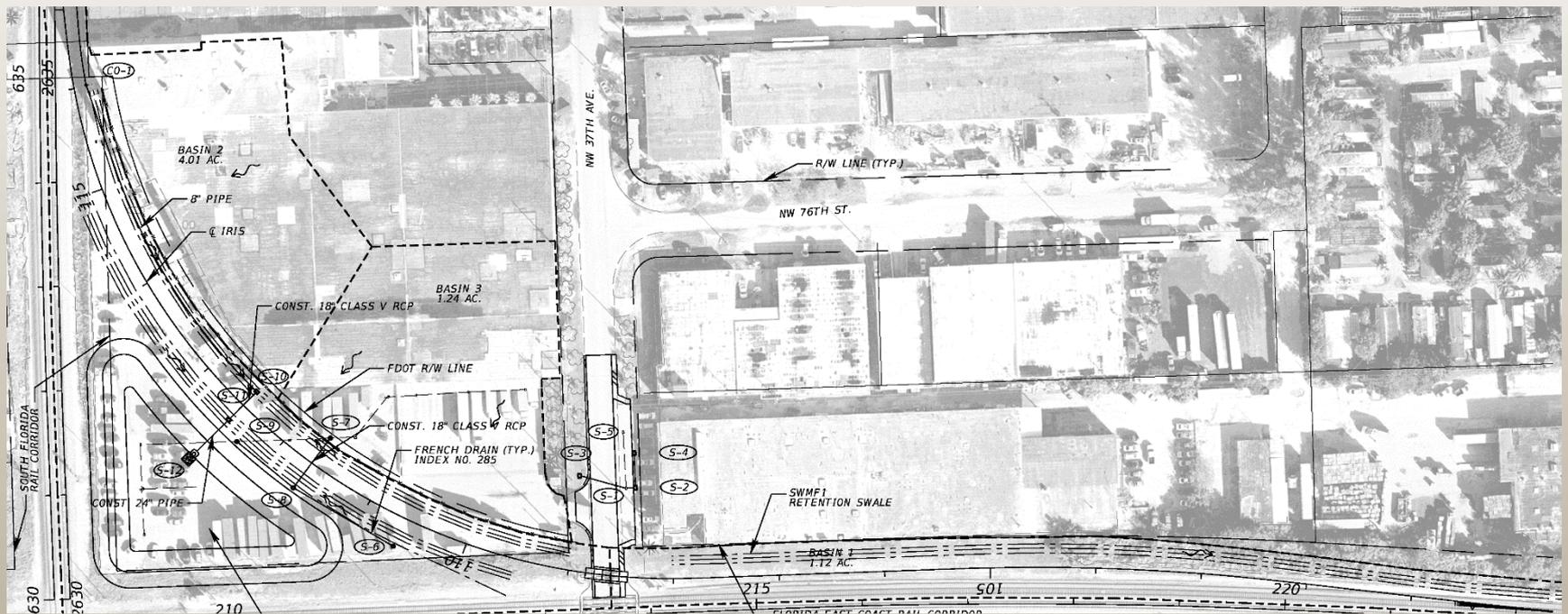
- Late 2018: Up to 6 freight trains on the Phase 2 New Northwood Connection
 - One (1) freight train (in each direction) on Phase 1A in ultimate condition
- Freight trains will operate after 7 p.m.
- Maximum design speeds are 15-20 mph

Rail Operations on Proposed Connections



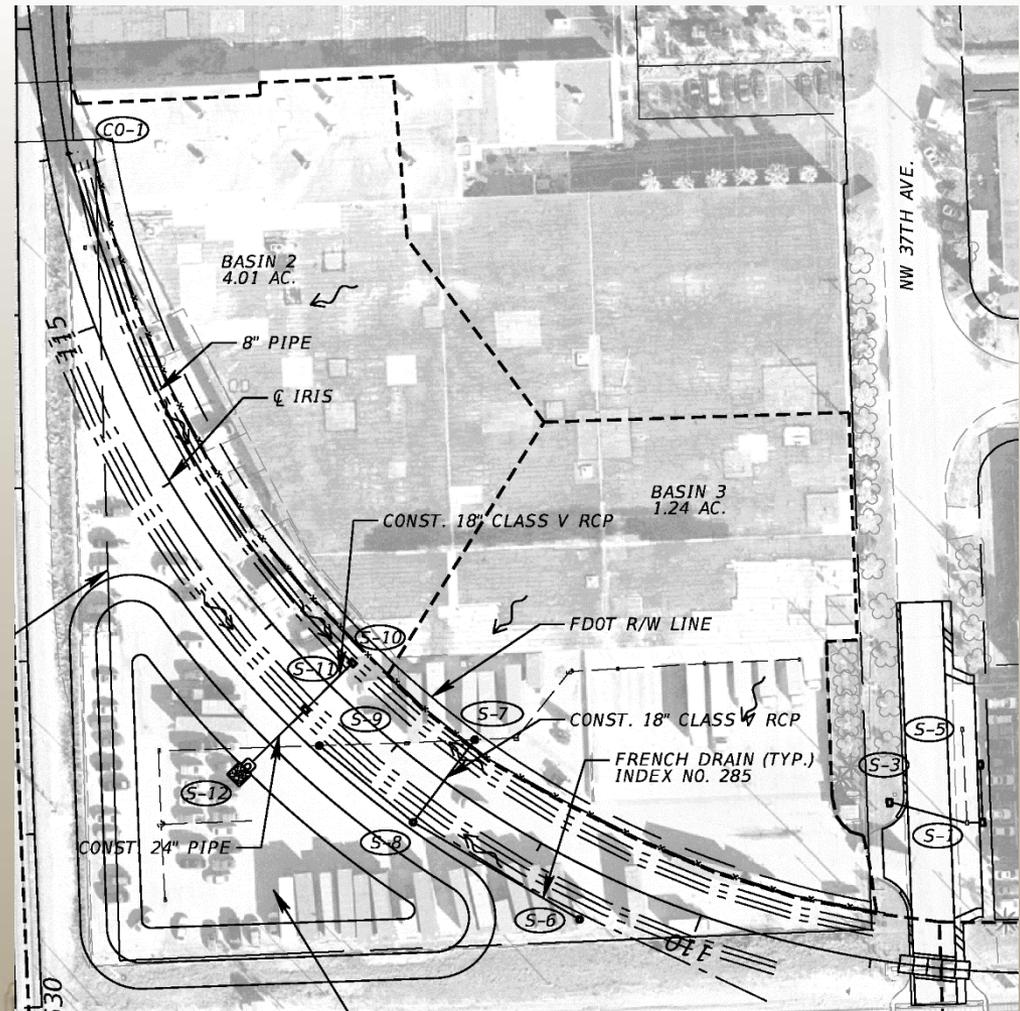
Phase 1B – IRIS NE Connection

Phase 1B



Phase 1B

- FDOT-owned
- Coordination with leased tenant
- Programmed widening of NW 37th Avenue (Miami-Dade County) – Fall 2016



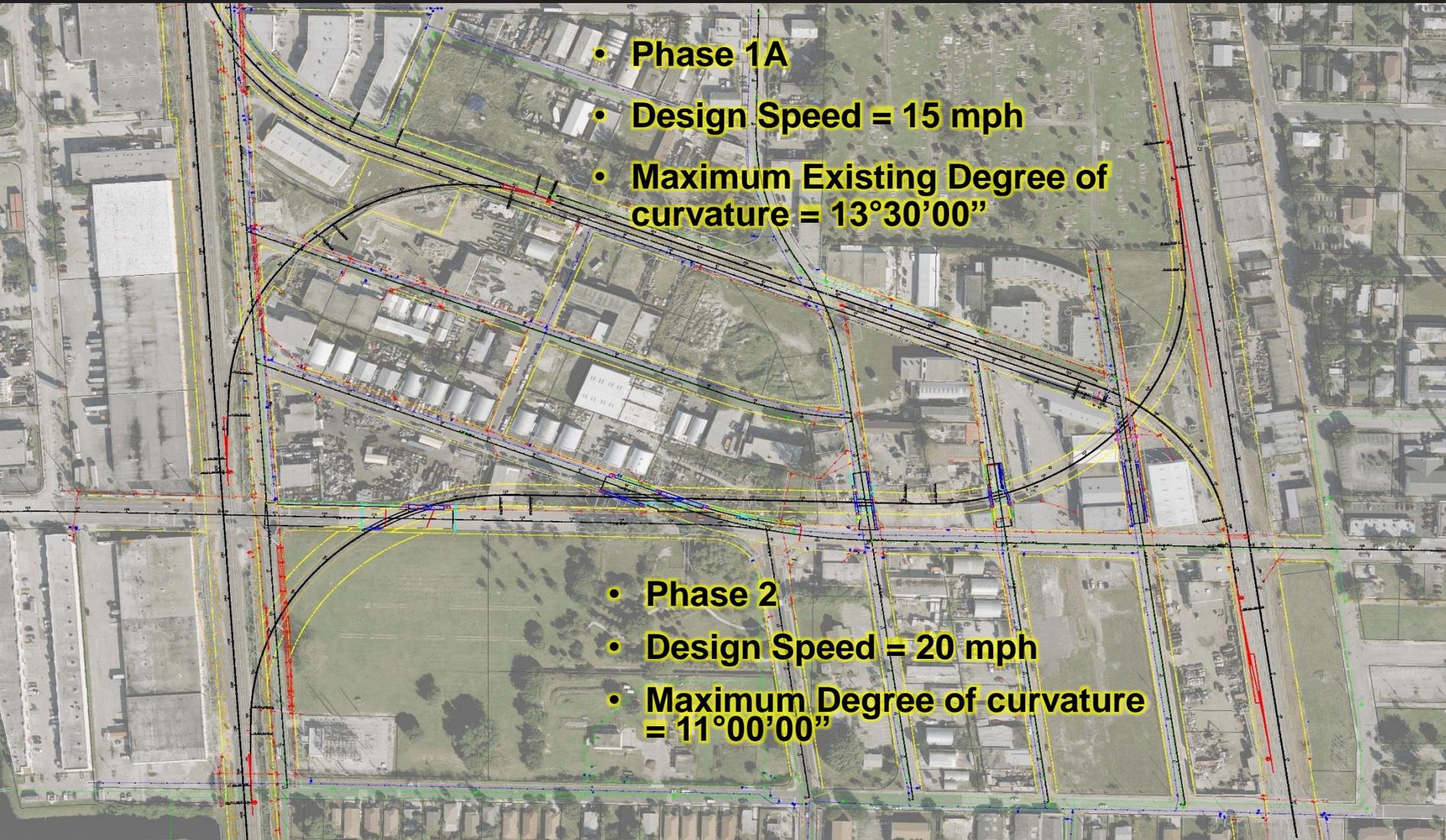
Complex Railroad Engineering Issues



Playing the hand we were dealt

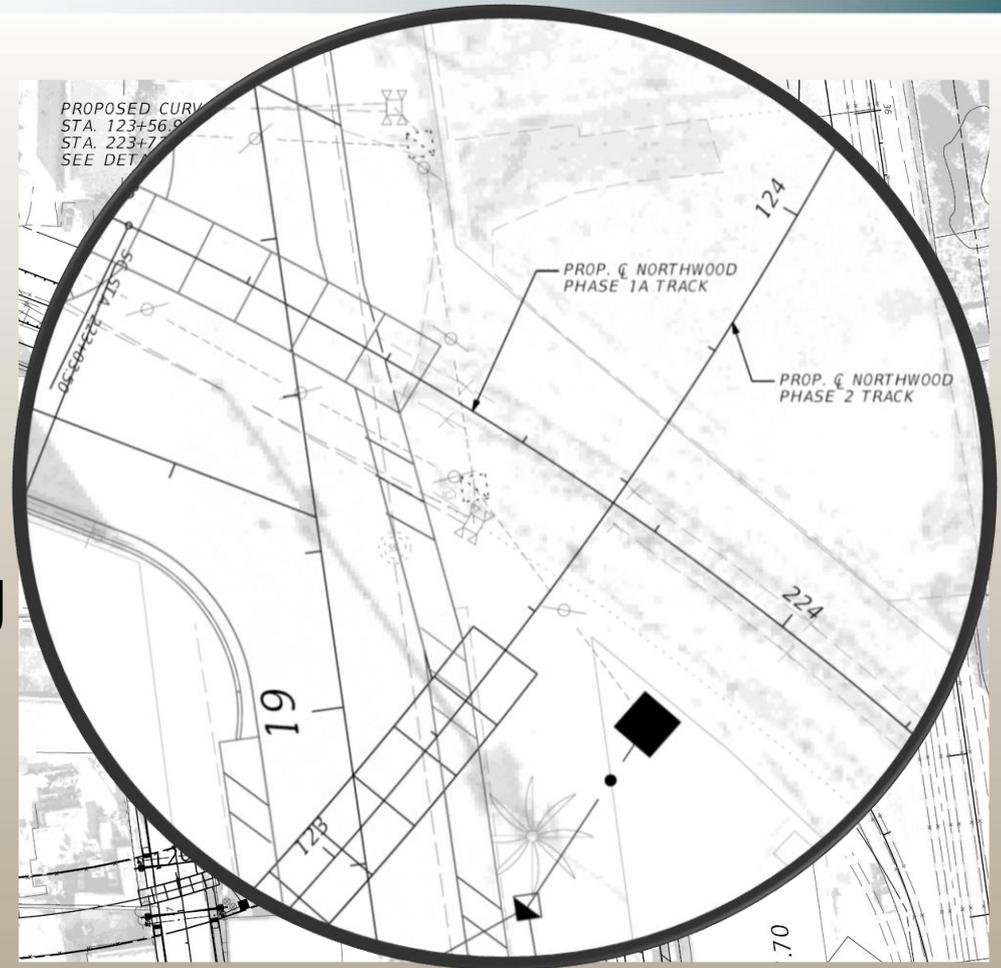
- **Constraints Controlled Geometry**
 - Geometry no worse than existing
 - Improved geometry where possible
- **Design with future maintenance in mind**
 - Attention to Details
 - Premium Components
 - Applying the best proven new techniques
- **Maintain Operations**
 - Signal for Operations
 - Interconnect SFRC and FEC
 - Maintain Primacy at IRIS

Rail Alignment



Northwood Diamond Crossing

- Curved Diamond
- $89^{\circ}49'4.50$ angle between Phase 1A track and Phase 2 track
- Maintain AREMA Flangeway and Frog Dimensions



Northwood Diamond Crossing

- **Other Diamonds within the Project Area**

- Four diamonds at IRIS

- **Design to Reduce Maintenance**

- Careful attention to Drainage
- Employ Hot Mixed Asphalt underlayment
- Heavy duty Timbering plan
- Heavy duty Plates
- Manganese Inserts
- Huck Fasteners to eliminate bolt maintenance



Signals/Communications

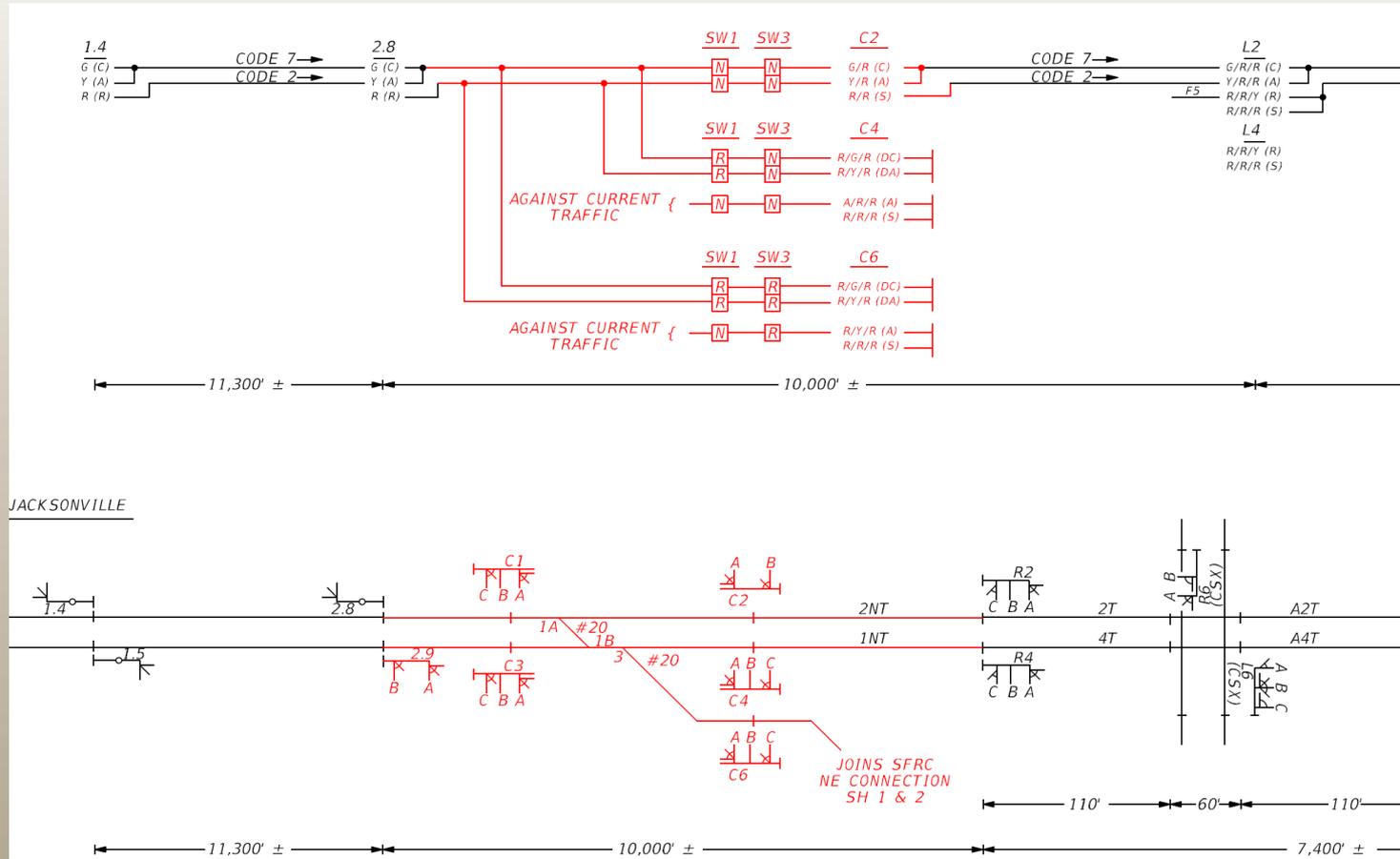
- **Extensive SFRTA, FEC and CSX Operations Coordination**
- **Identification of ultimate PTC Integration, Dispatching and Coordination**
- **Advance Pre-emption (25th Street/E Tamarind Avenue)**
- **Crossing Protection/Pedestrian Signals**

Railroad Signals 101

- **Railroad Signals aren't like Traffic Signals**
 - They are an interconnected system
 - They are remotely controlled
 - Positive Train Control (PTC) required
 - Must provide Safe Braking (Stopping) Distances
- **FEC Signals are Different from SFRC Signals**
 - FEC signals define the route the train is taking, but the operator must know the speed (Route Signaling)
 - SFRC signals define the routes and also defines the speed the train operates (Speed Signaling)

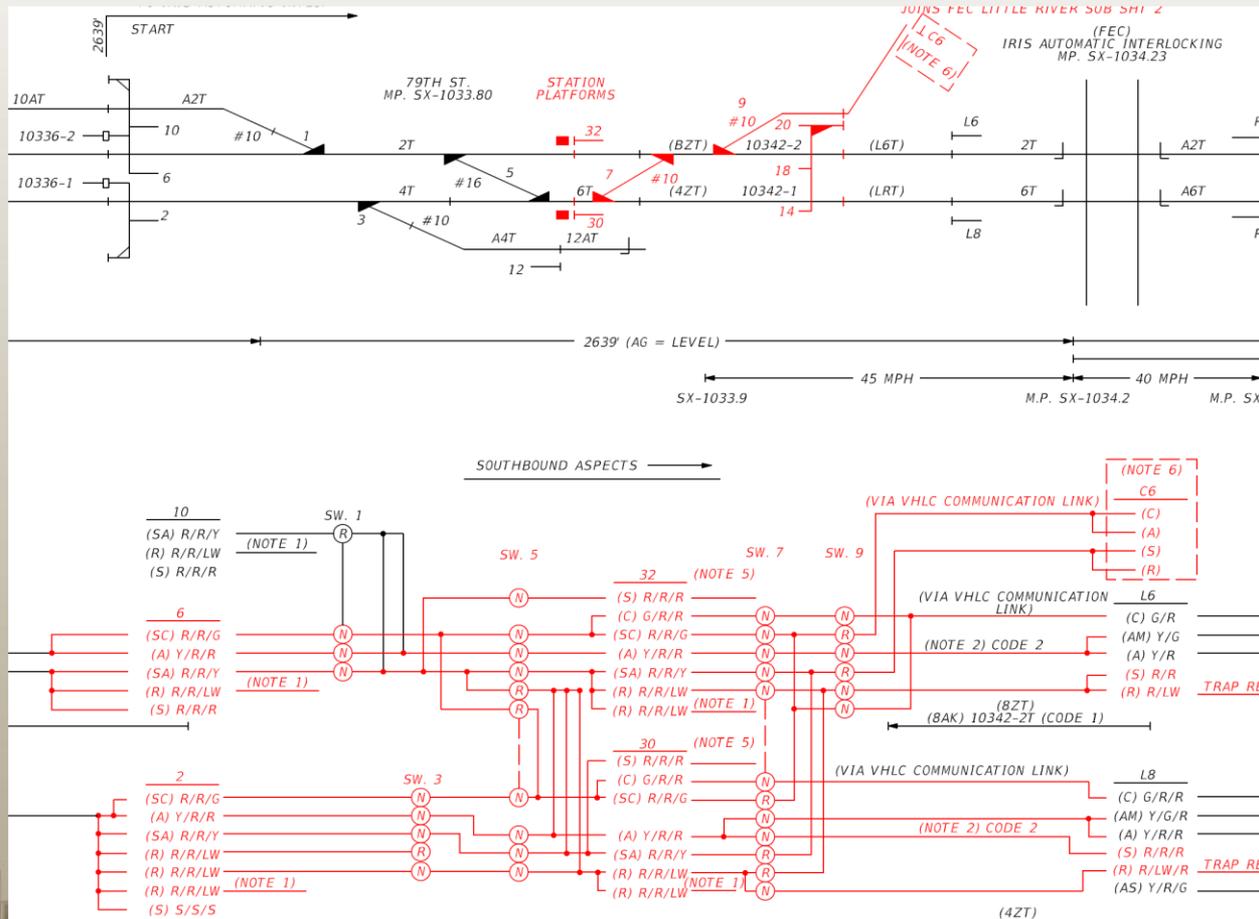
Railroad Signals 101

- All Signals and Operations are defined in a Route and Aspect Chart (Southbound FEC @ IRIS)



Railroad Signals 101

- All Signals and Operations are defined in a Route and Aspect Chart (Southbound SFRC @ IRIS)



Project Funding



Project Funding

- **FRA**
 - Awarded \$13.75 Million 2013 TIGER grant
- **Joint Development Partners**
 - FDOT: \$29.005 M
 - SFRTA: \$2.5 M
 - FEC: \$1 M
 - CSX: \$1 M
- **Memorandum of Understanding**



30% Construction Cost Estimate (July 2015)

| Element | Northwood Phase 1A | IRIS Phase 1B | Northwood Phase 2 |
|----------------------------------|--------------------|-----------------|-------------------|
| Track | \$1.743M | \$2.054M | \$1.757M |
| Roadway | \$583K | \$89K | \$606K |
| Drainage | \$138K | \$88K | \$482K |
| Utilities | \$3.220M | \$90K | \$1.470M |
| Signals & Grade Crossing Warning | \$4.216M | \$1.884M | \$5.524M |
| Miscellaneous | \$2.597M | \$1.638M | \$3.105M |
| Contingencies | \$1.336M | \$841K | \$1.674M |
| Right of Way | --- | --- | \$12.142M |
| Total | \$13.832M | \$6.684M | \$26.760M |

Questions



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Thank you!



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