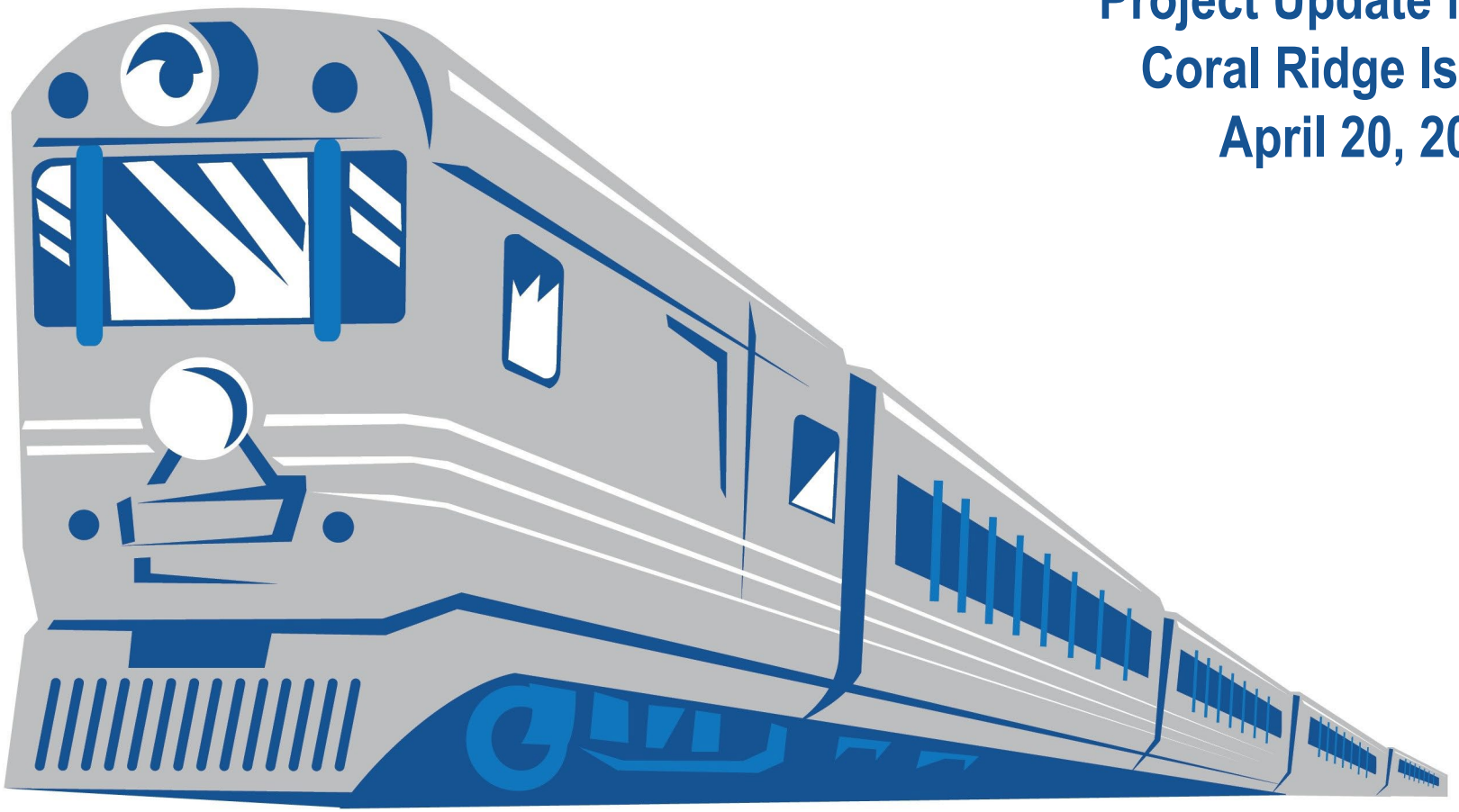
BROWARD COMMUTER RAIL (BCR)

PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY

FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), DISTRICT 4

BROWARD COUNTY, FLORIDA • FPID: 448942-1



Project Update for:
Coral Ridge Isles
April 20, 2022

Benefits of Commuter Rail

MOBILITY – More and enhanced Transit options can increase transit use, improve travel times and provide congestion relief on roadways

ENHANCE QUALITY OF LIFE - Enhances quality of life by increasing mobility, transportation choices, and access to jobs and services

ECONOMIC & RESIDENTIAL GROWTH - Economic development increases tax base, affordable/workforce housing incentives, and funding and use of overall transit facilities

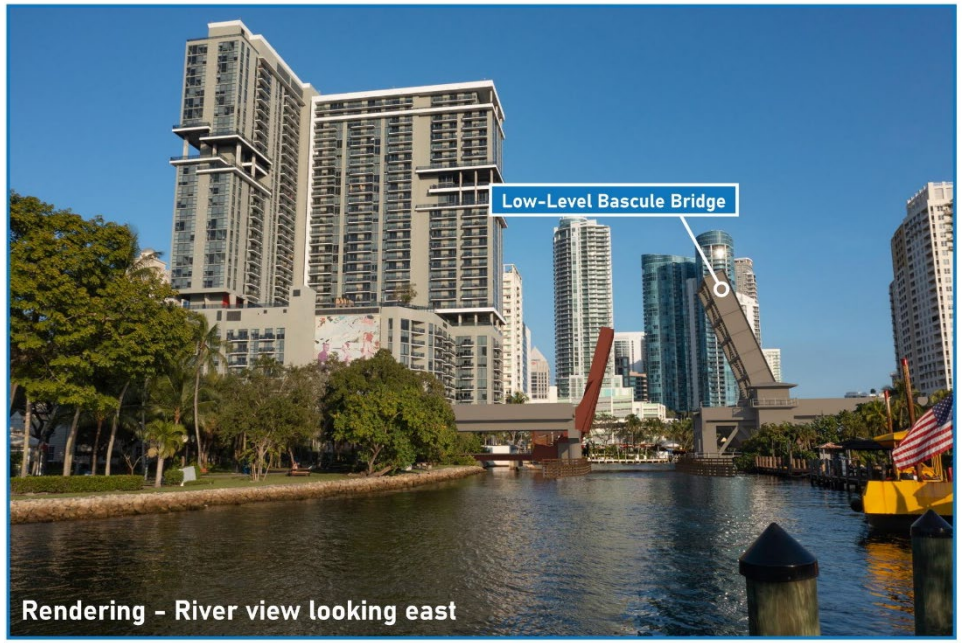
COMMUTER RAIL BENEFITS FOR EMPLOYERS - Employer benefits include access to a wider talent pool and enhanced productivity

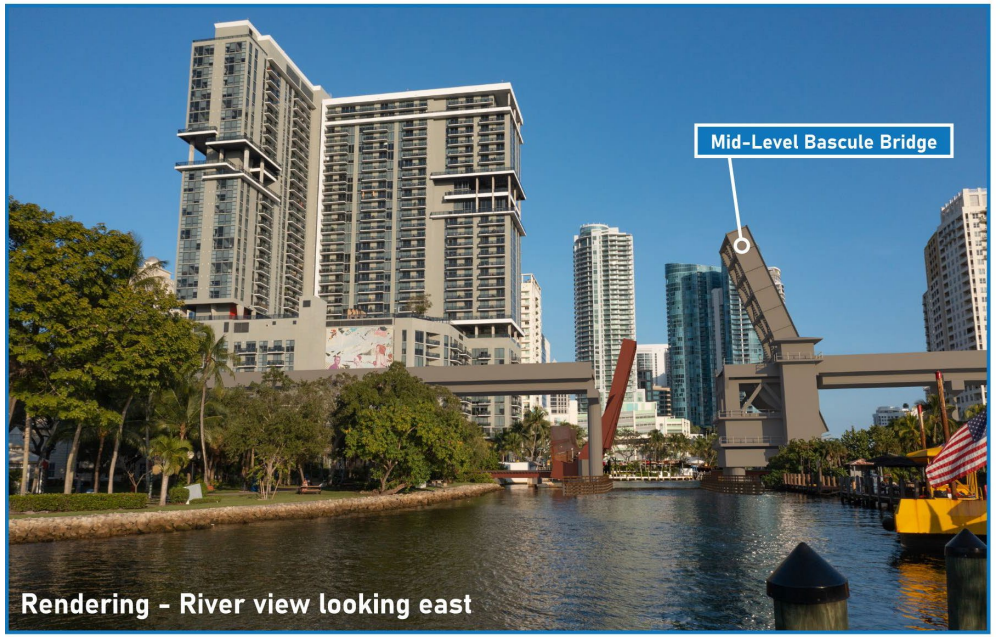
ENVIRONMENTAL - Environmental benefits include sustainability, reduced vehicle emissions, and cleaner air

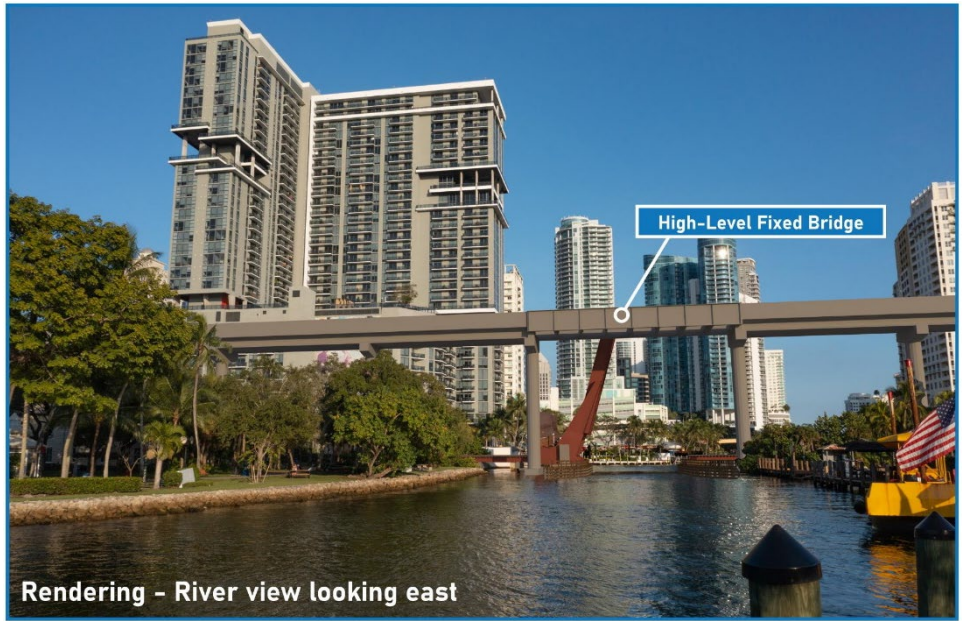
Overview of Project

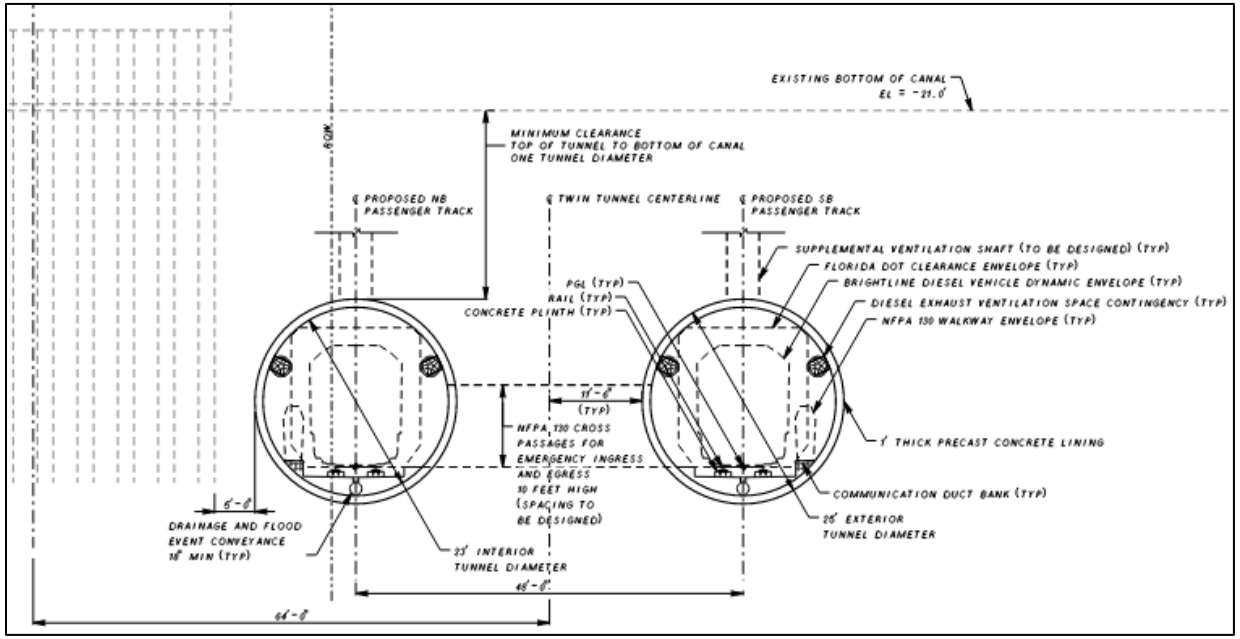
- Broward MPO endorsed the Tri-Rail Coastal Link (TRCL) in 2010 and is unfunded in needs plan (MTP)
- Miami-Dade has advanced the NE Corridor Project from Aventura to Downtown Miami with FTA
- Per Memorandum of Understanding (MOU)
  - FDOT will lead the environmental study and technical analysis
  - Broward County is responsible for the Finance Plan, access fee, maintenance, operations as well as Consensus Building
- Aventura to Deerfield Beach (27 miles of the FEC corridor)
- Technical recommendations have been made for 6 station locations (general) in Broward
- Coordination with Brightline, FECR, USCG, FTA, MPO, municipalities, Broward and Miami-Dade Counties
- Stakeholder meetings and workshop focused on the New River Crossing (4 alternatives- Low and Mid-Level Bascule Bridges, High Fixed Bridge and a Tunnel)

Alternatives Overview









Low-Level Alternative: Technical Take-aways

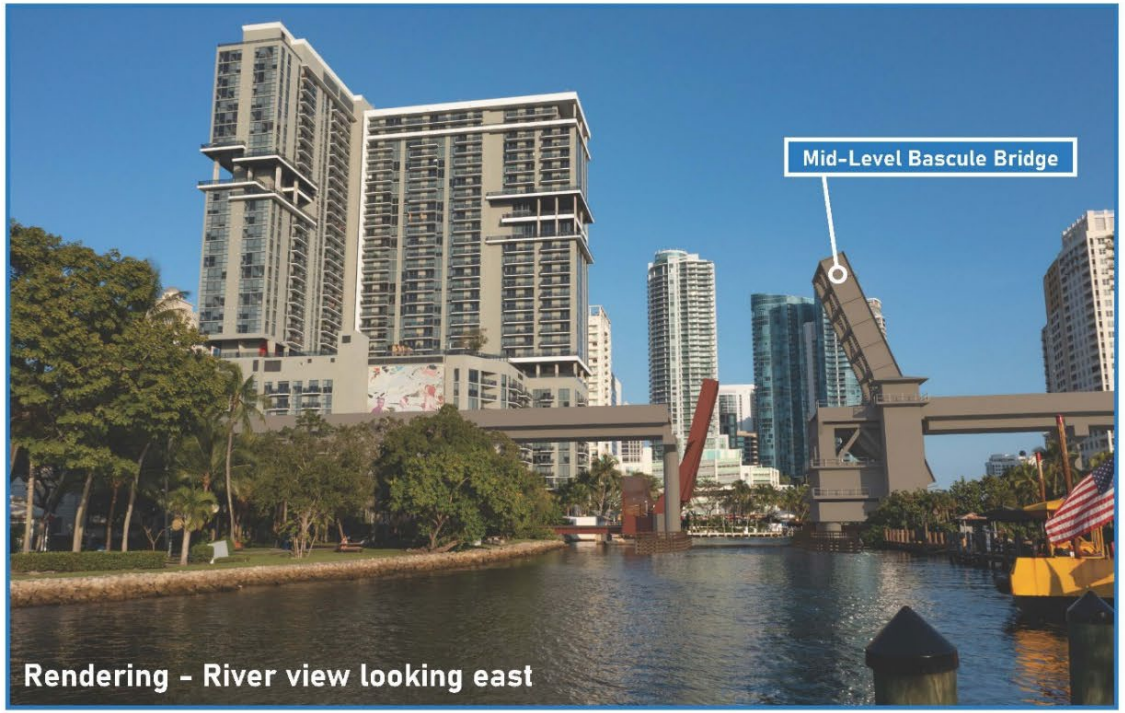
- Freight Trains remain on existing tracks and will continue to use existing bridge that will be shifted east
- $240 M for Construction and no private Right-of-Way required
- No bridge throughout the downtown area
- Closes Grade Crossing at SW 5th Street
- Does not By-Pass the Broward Boulevard (a separate road project could be evaluated to place Broward Blvd under the tracks and potentially re-purpose some of the area above)
- Does accommodate 90% of Navigation and will most likely operate on a schedule that will reduce boat congestion at the crossing and provide for a known bridge operating schedule

Rendering - River view looking east

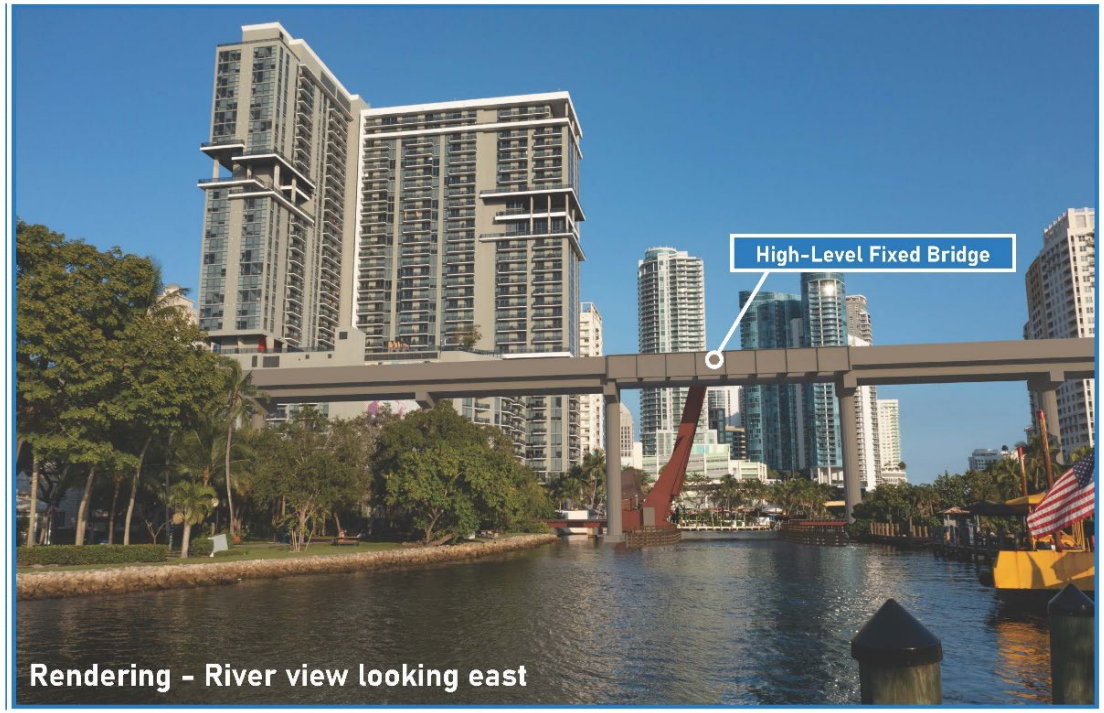
Rendering - Apartment view looking west

Mid-Level and Fixed Alternative: Technical Take-aways

- Freight Trains remain on existing tracks and will continue to use existing bridge that will be shifted east Mid-Level and High-Level Bridges By-Pass Broward Boulevard
- Mid and High Level require bridge structure throughout the downtown area (charettes and aesthetic design of structures most likely will be required if these alternatives move forward)
- Mid and High Level do not close any grade crossings
- Mid Level will have a large bascule pier and requires additional maintenance and a full-time bridge tender
- Has full support of the Marina community with the Mid-Level accommodating 99% of boats when closed
- $444M for construction of the Mid-Level and $452M for the High-Level and both require $98M in Right of Way



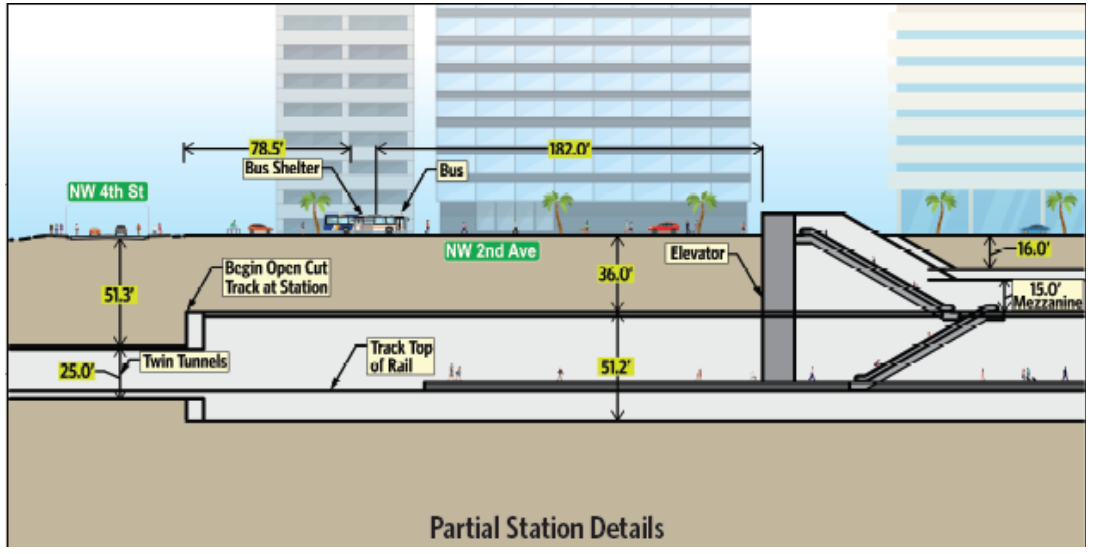
Rendering - River view looking east



Rendering - River view looking east

Tunnel Alternative: Overview

- Supported by many City of Fort Lauderdale stakeholders, including the city commission
- Will provide the best noise protection and least visual concerns in the areas between the portals
- Bypasses both Broward and Davie Boulevards with passenger rail
- $1.8 Billion for construction and $150M in Right of Way,
- Lengthy permitting and construction schedule
- Larger local disruptions for trucking of excavation and dewatering as well as concern for the protection of the existing structures in the area with the tunneling operations
- Higher risks for contamination, permitting, construction and resiliency than the other alternatives

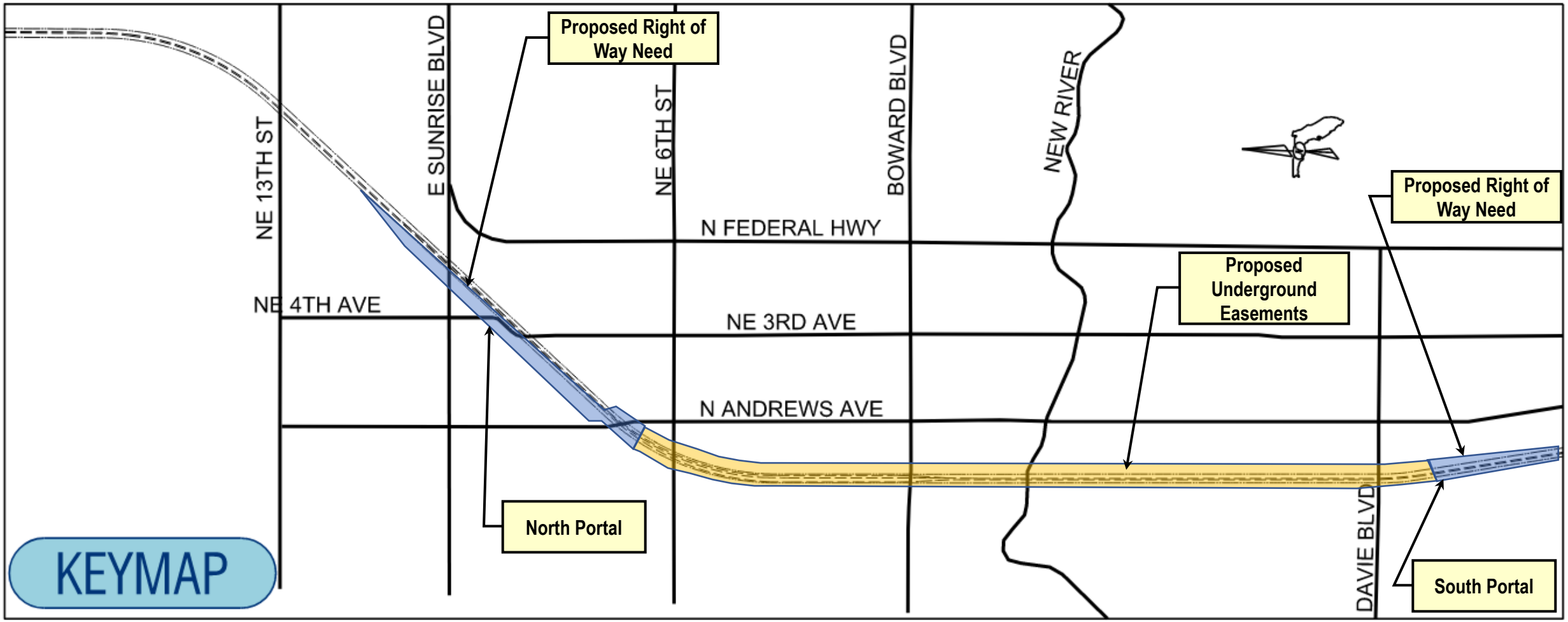


Preliminary Right of Way Impacts

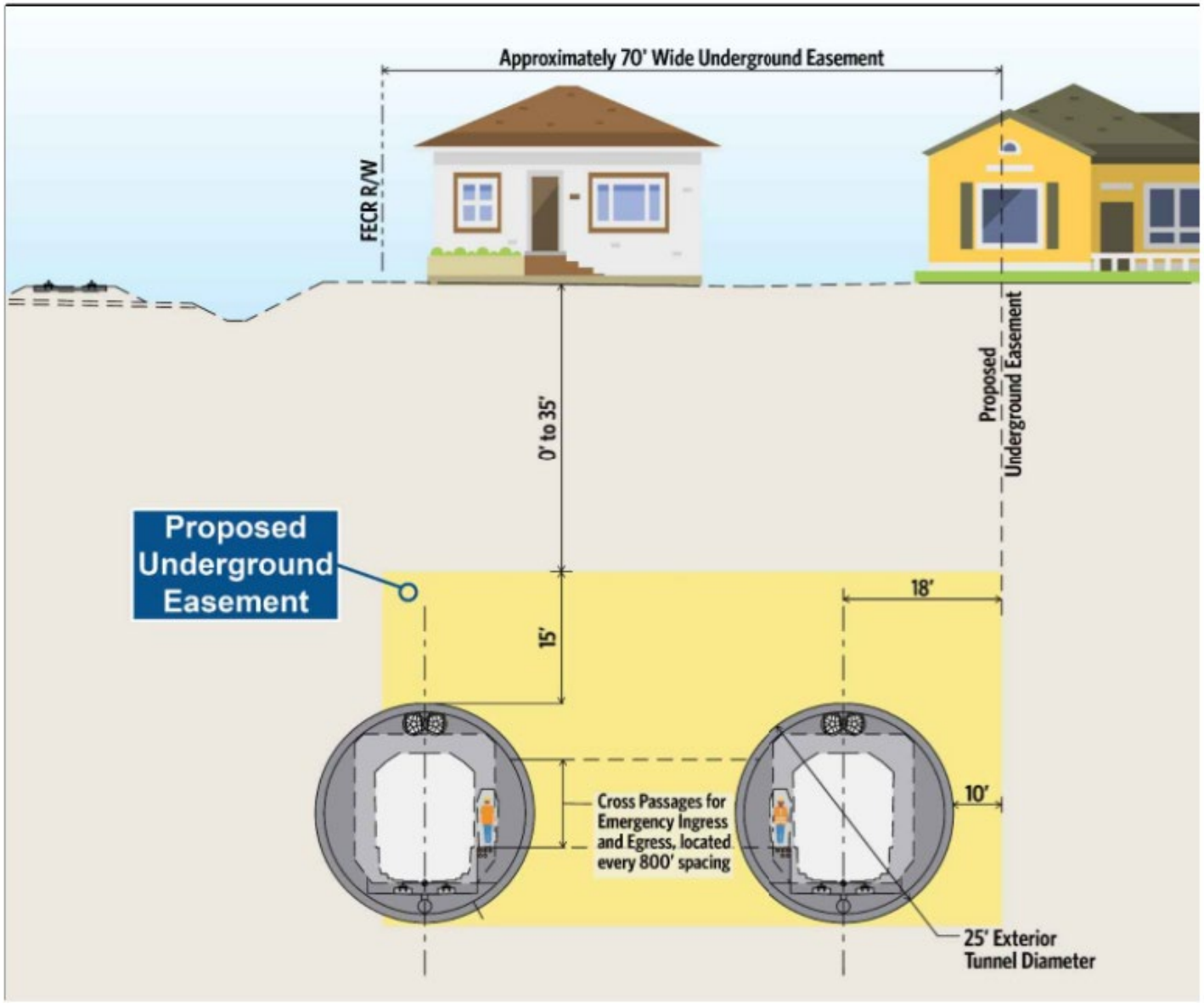
- **Proposed Right of Way** – Purchase of full property rights of the area needed to construct, secure, and operate the Broward Commuter Rail
- **Aerial Easement** – Purchase of rights to construct, operate and maintain the Broward Commuter Rail above the property, that will allow the property owner to use the area below the structure overhang
- **Underground Easement** – Purchase of rights to construct, operate and maintain a tunnel below the property, that will allow the property owner to use the property above the tunnel

			New River Crossing Alternatives							
Description/Alternative	**BCR Corridor**		**Low-Level Alternative**		**Mid-Level Alternative**		**High-Level Alternative**		**Tunnel Alternative**	
Number of Properties Affected (Private Owners)	36		0		34		34		103	
Type of Property Impact	**Number**	**Area (Acres)**	**Number**	**Area (Acres)**	**Number**	**Area (Acres)**	**Number**	**Area (Acres)**	**Number**	**Area (Acres)**
Proposed Right of Way (Slivers) (From Private Owners)	36	7.5	0	0	32	2.4	32	2.4	58	5.1
Proposed Aerial Easements (From Private Owners)	0	0	0	0	11	0.3	11	0.3	0	0
Proposed Underground Easements	0	0	0	0	0	0	0	0	48	12.3

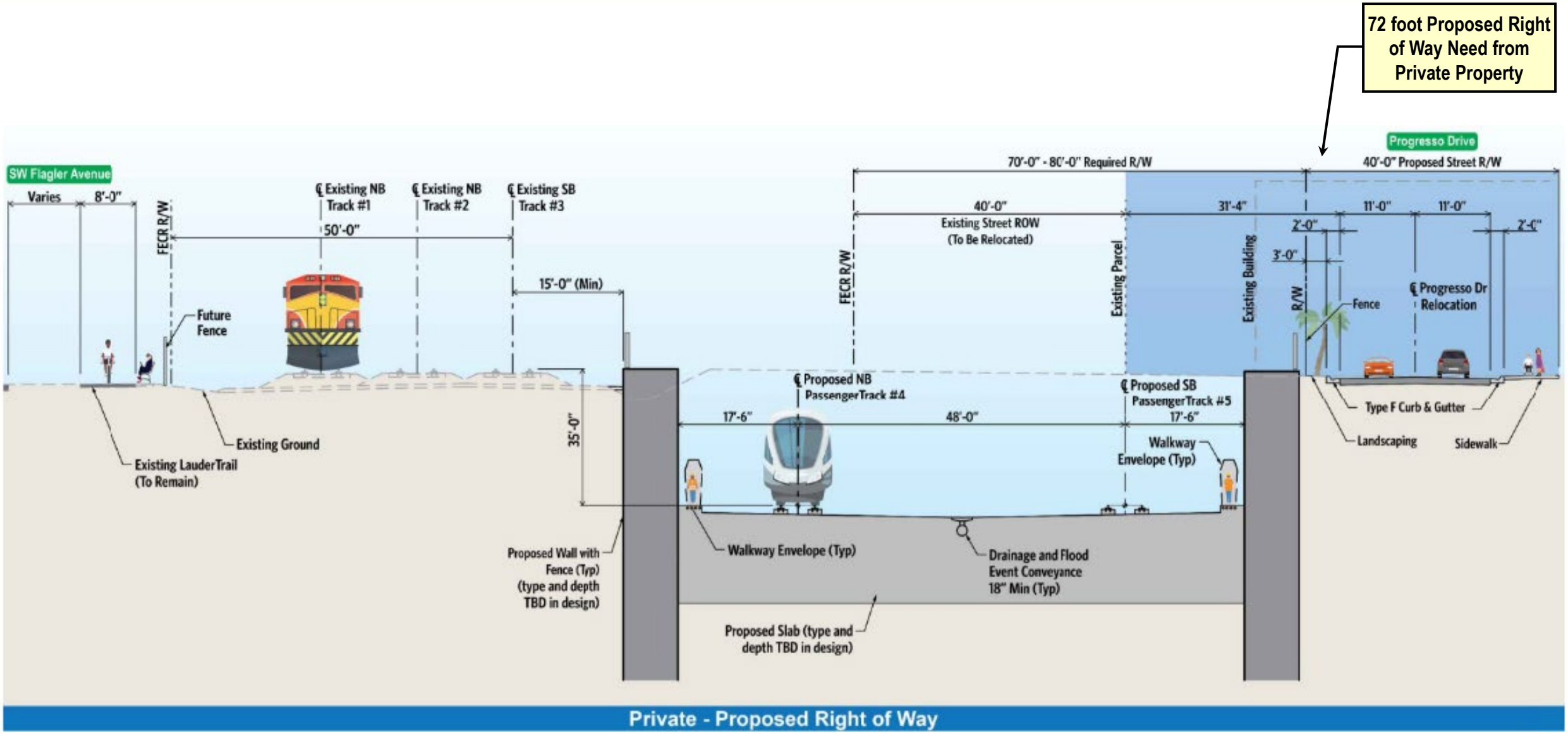
Preliminary Right of Way Impacts (Tunnel)



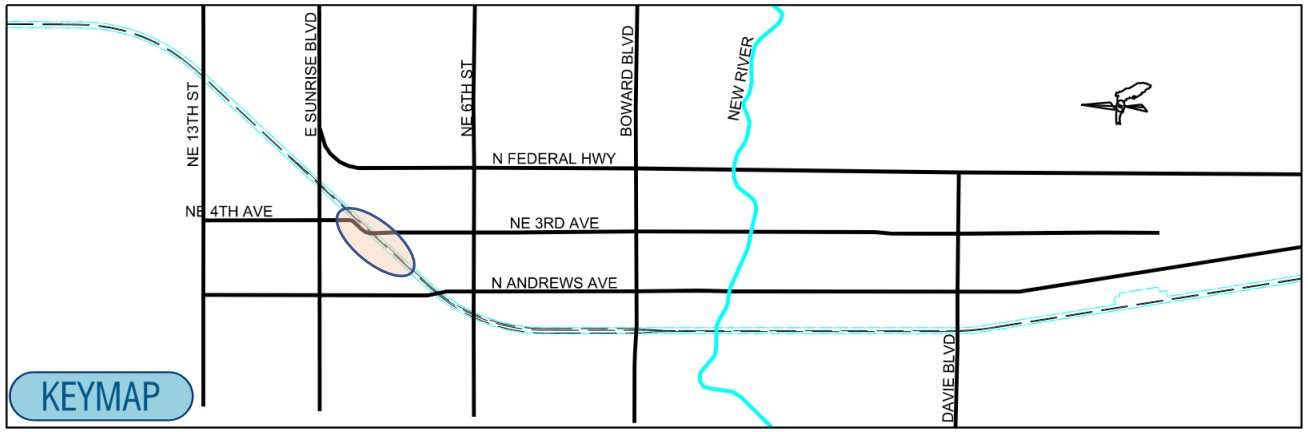
Preliminary Right of Way Impacts (Tunnel South Portal)

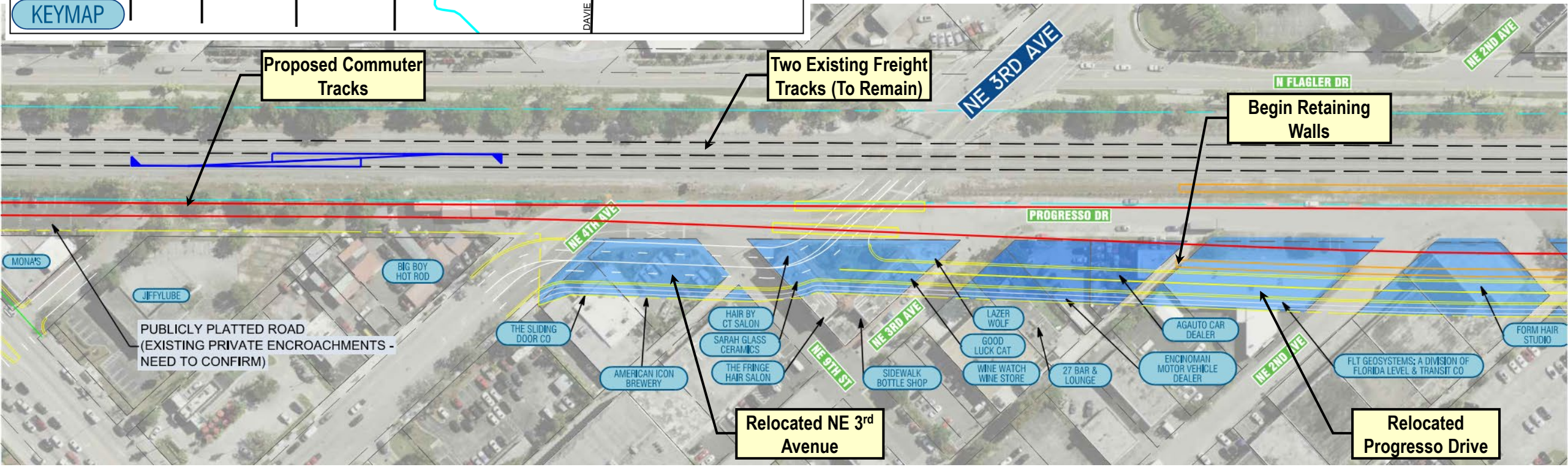


Preliminary Right of Way Impacts (Tunnel)



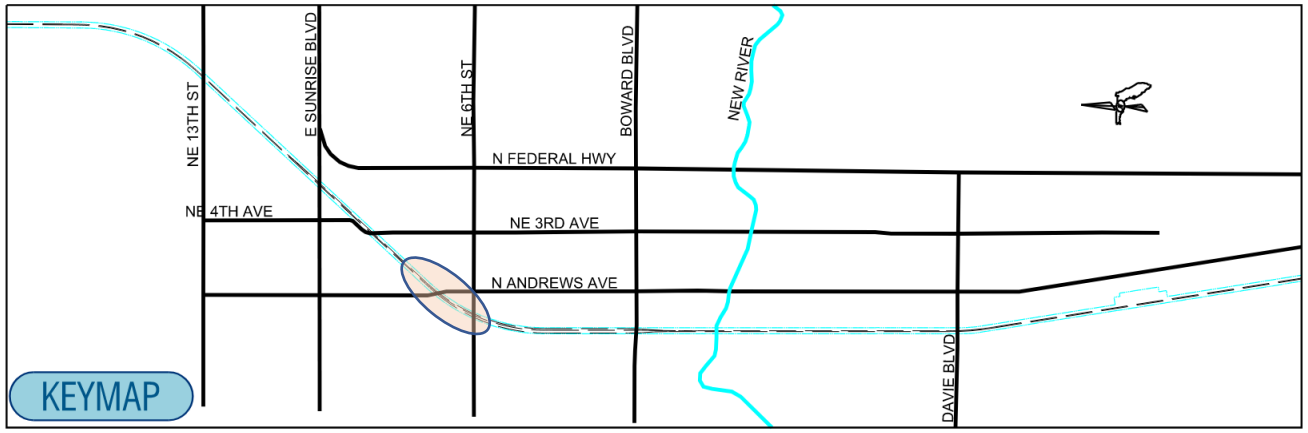
Preliminary Right of Way Impacts (Tunnel North Portal)

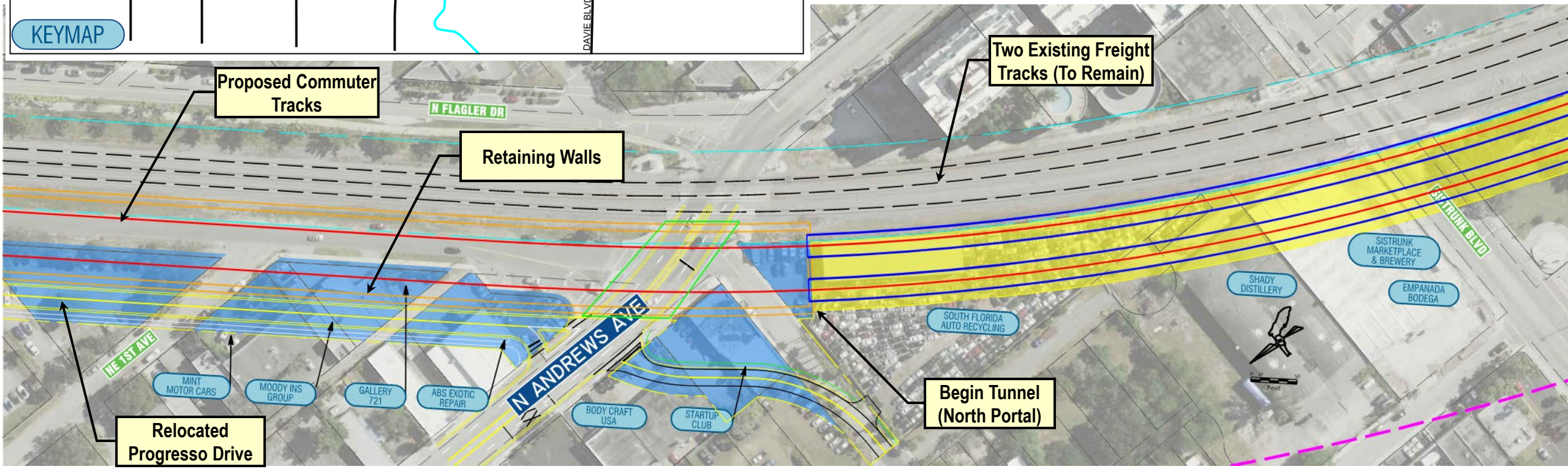




NE 4th Avenue to NE 2nd Avenue

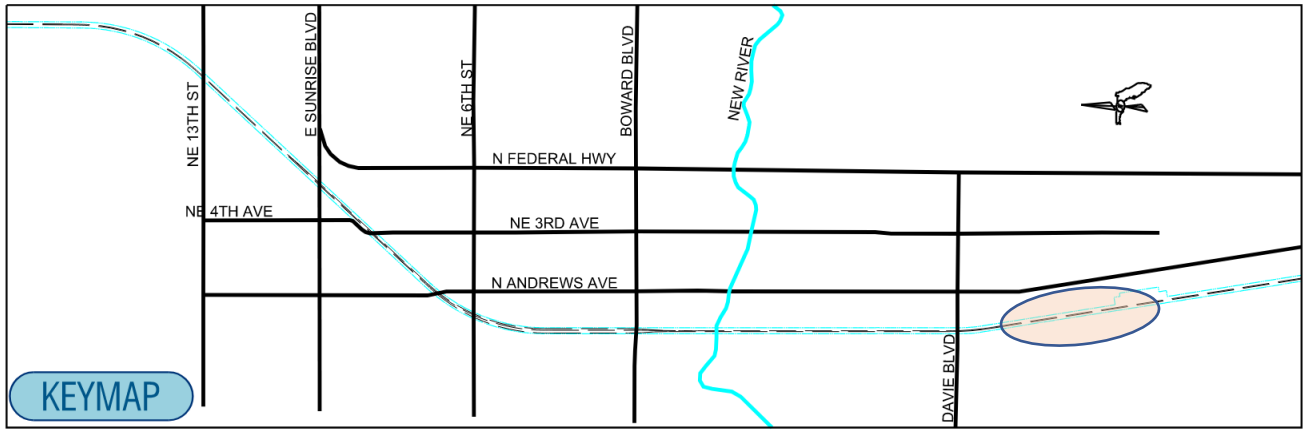
Preliminary Right of Way Impacts (Tunnel North Portal)

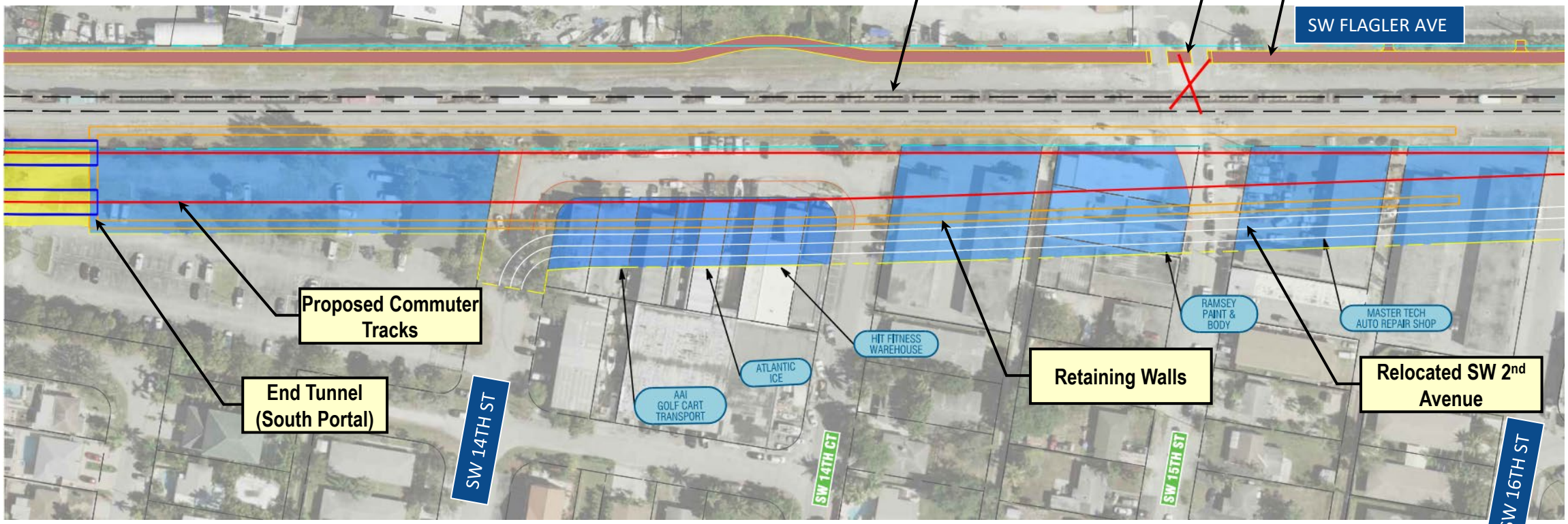




NE 2nd Avenue to Sistrunk Boulevard

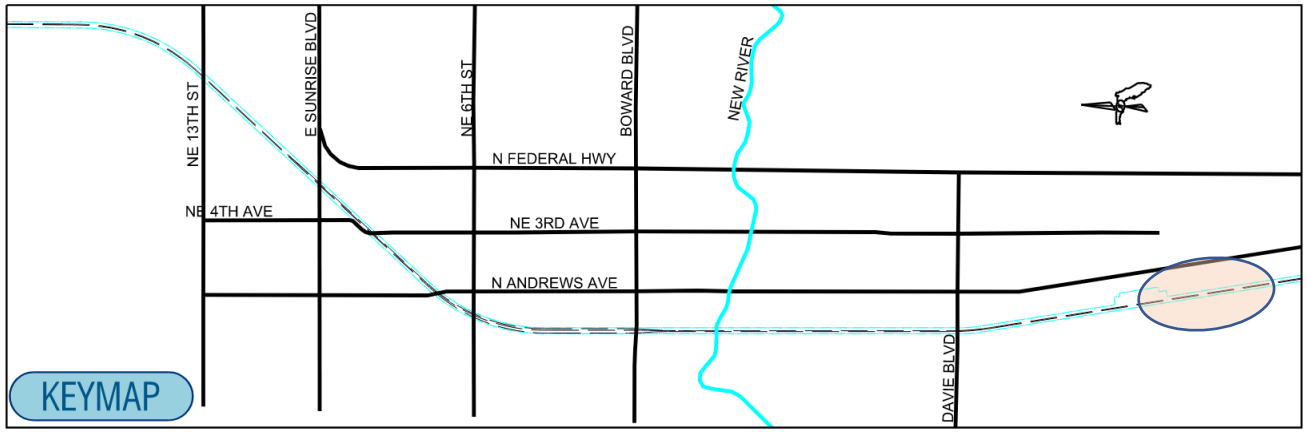
Preliminary Right of Way Impacts (Tunnel South Portal)

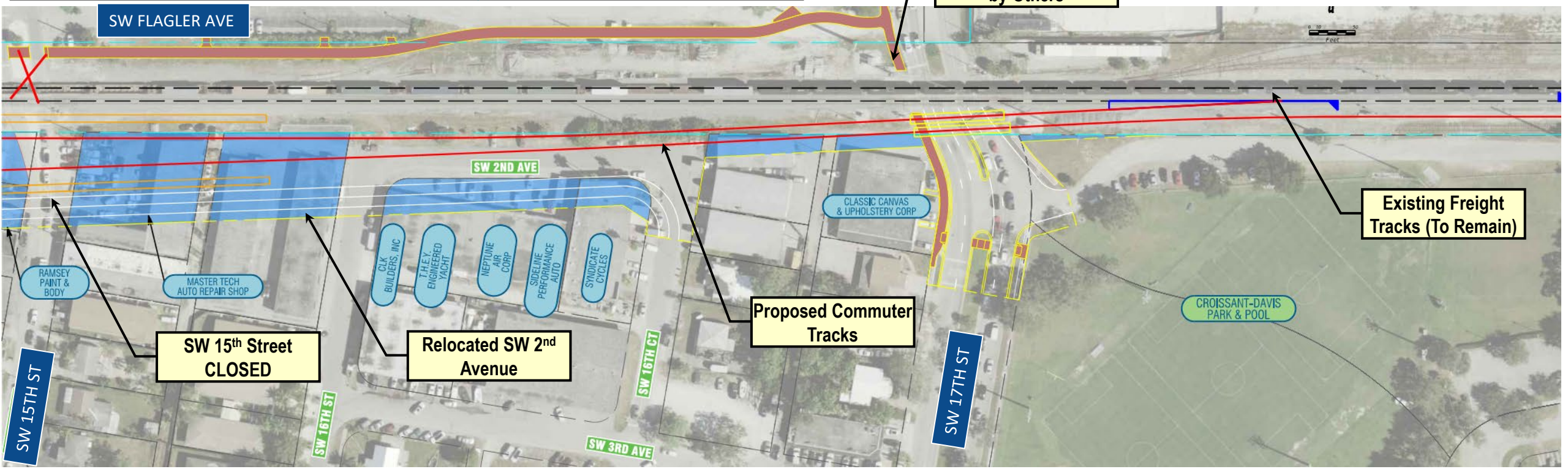




South of Davie Boulevard to SW 16th Street

Preliminary Right of Way Impacts (Tunnel South Portal)

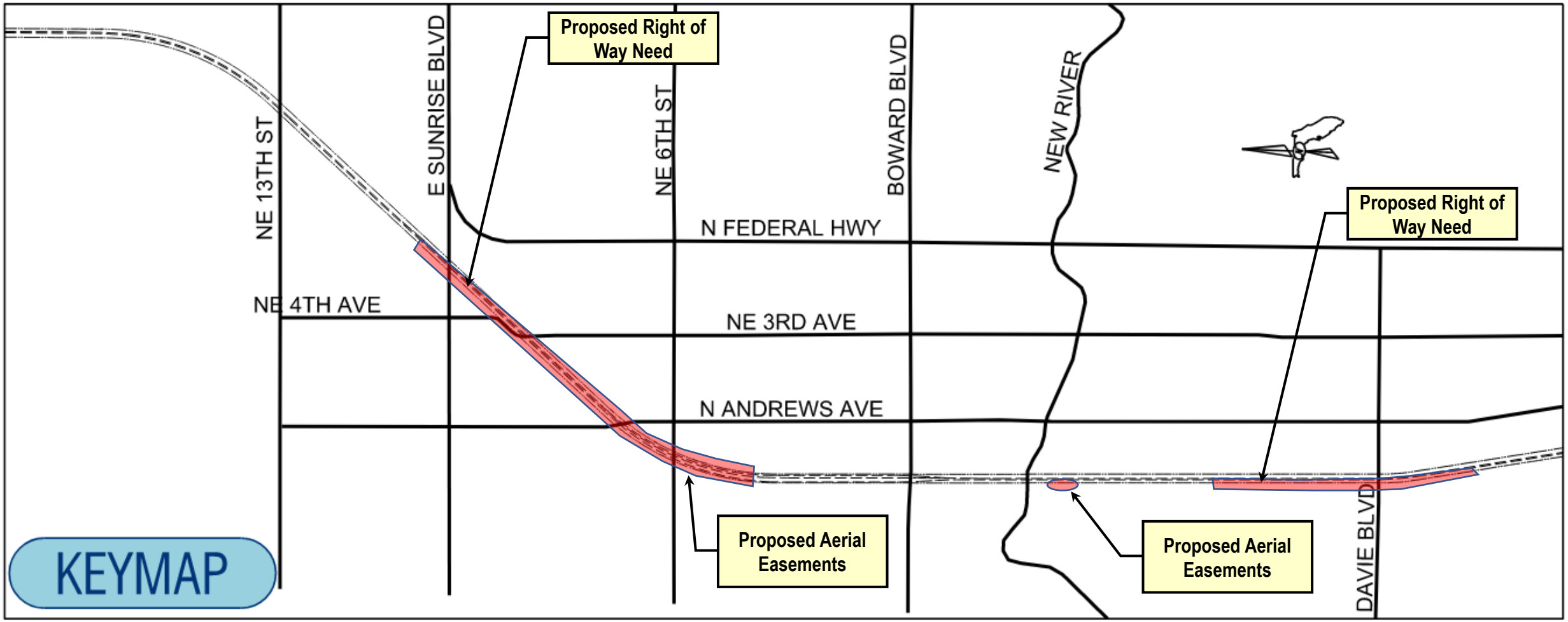




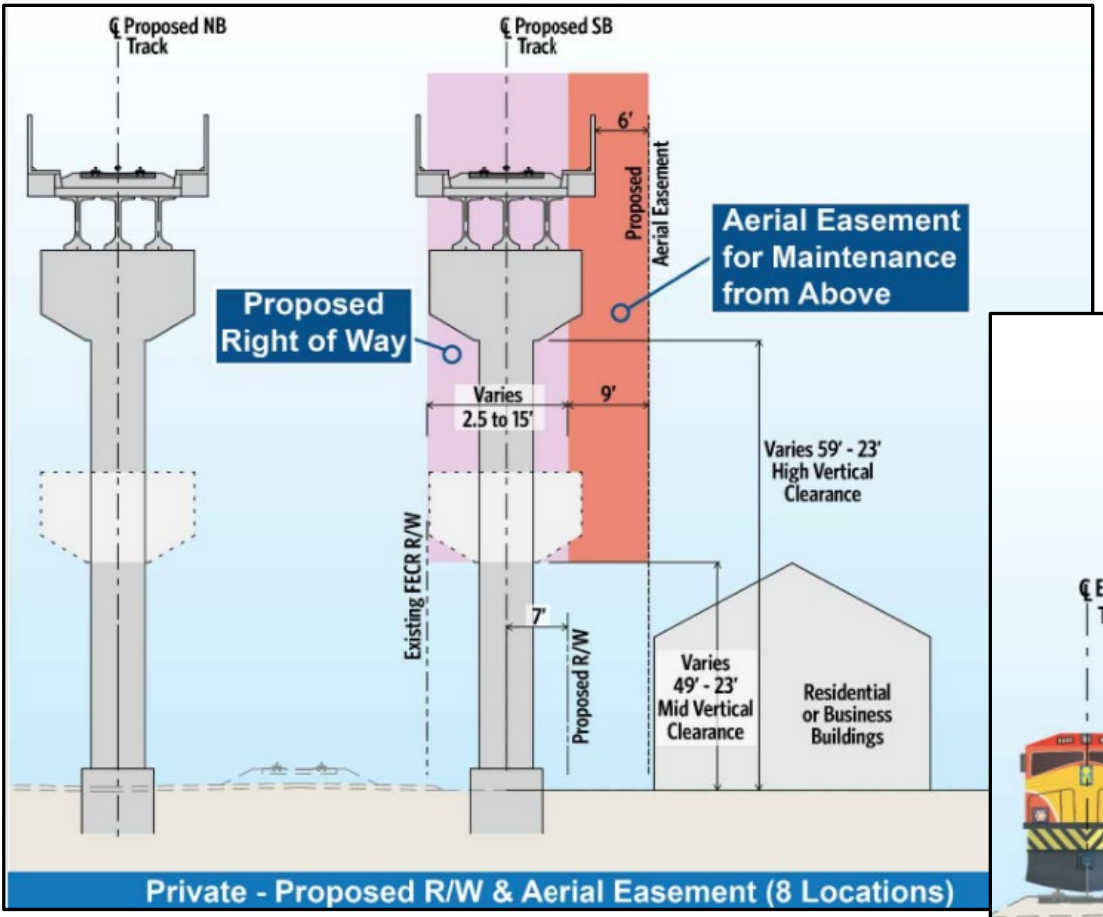
SW 15th Street to South of SW 17th Street

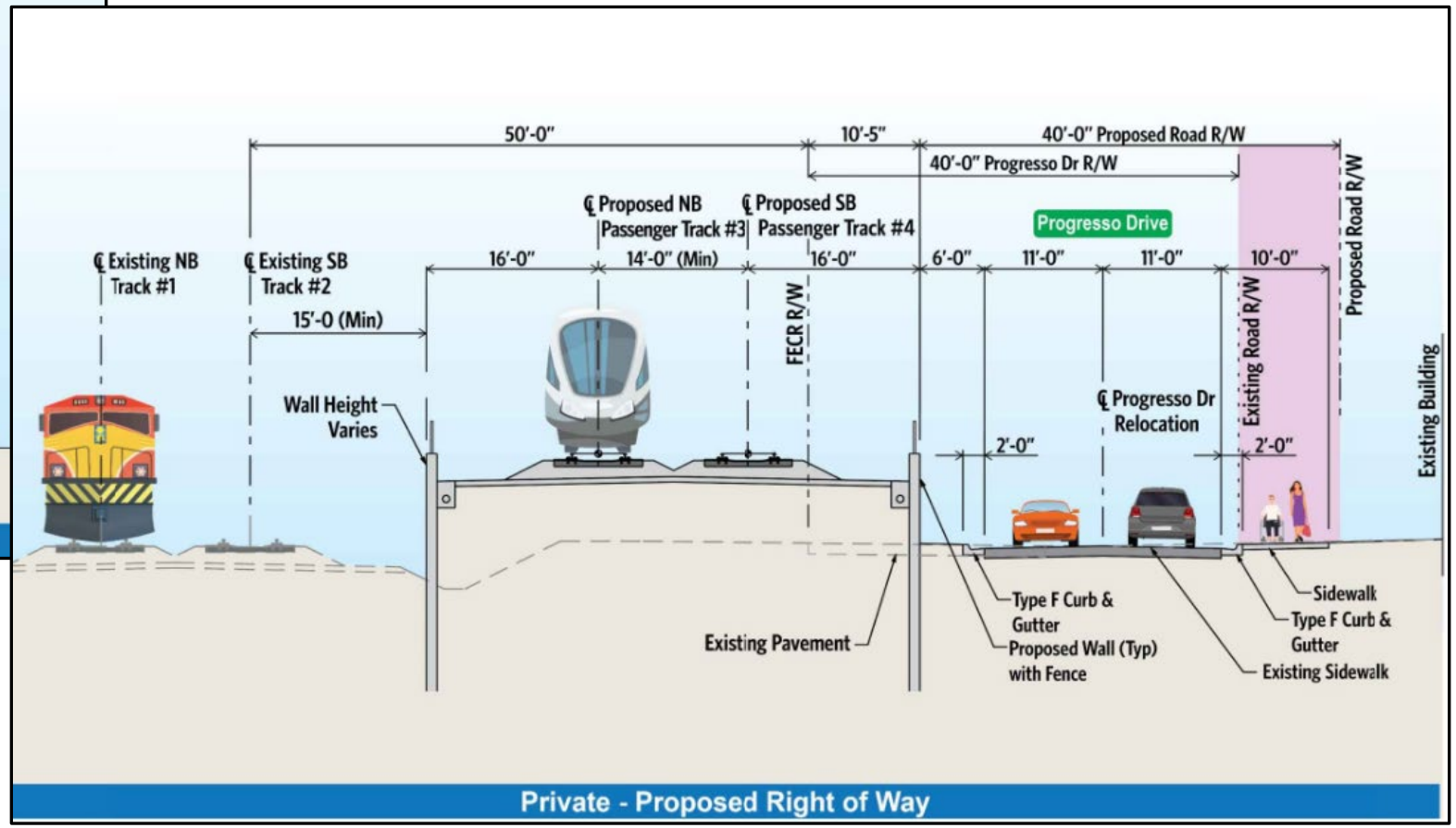
Preliminary Right of Way Impacts

Begin Project to Andrews Avenue – Proposed Right of Way Needs
Andrews Avenue to NW 4th Street – Both Proposed Right of Way and Aerial Easements
Near SW 5th Street – Proposed Aerial Easement
SW 9th Street to SW 15th Street – Proposed Right of Way Needs

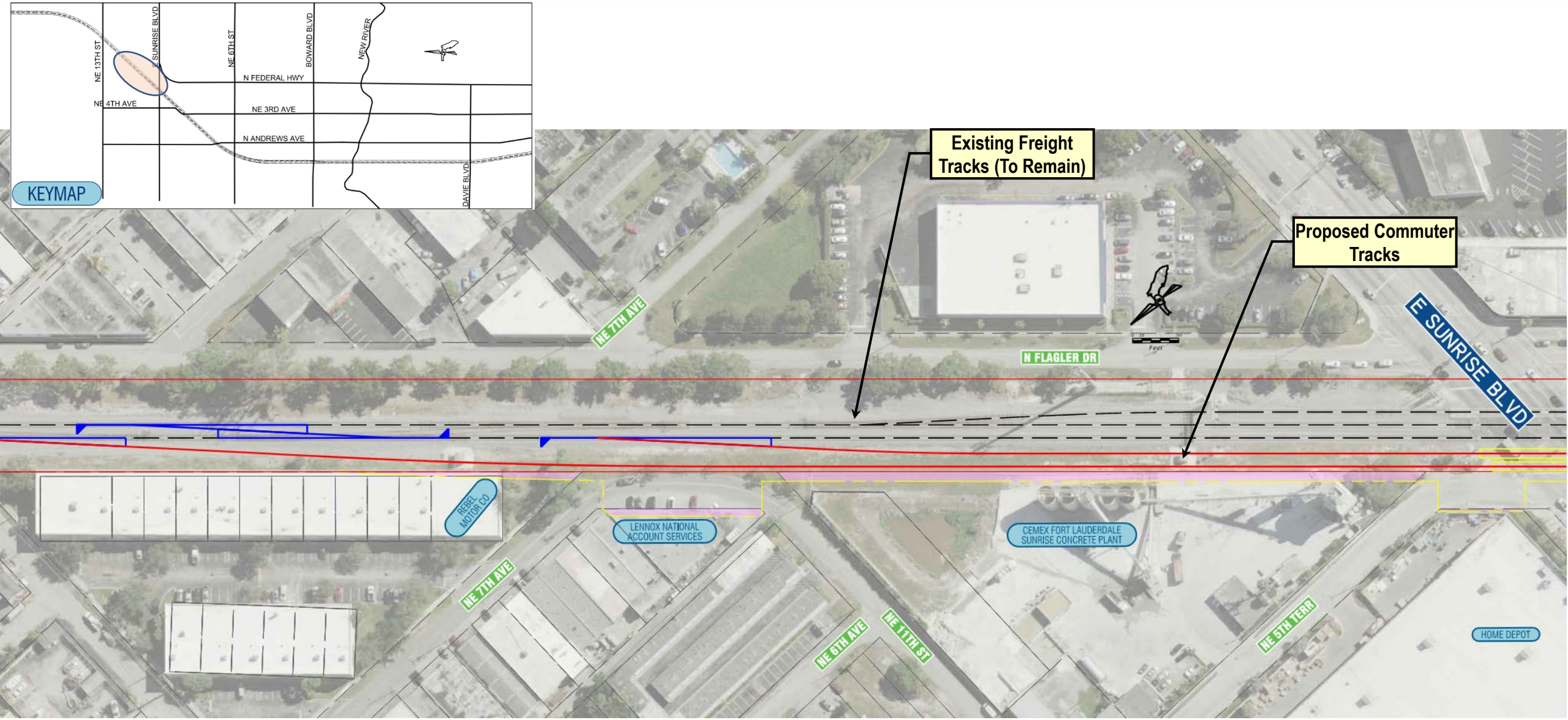


Preliminary Right of Way Impacts (Mid / High Bridge)



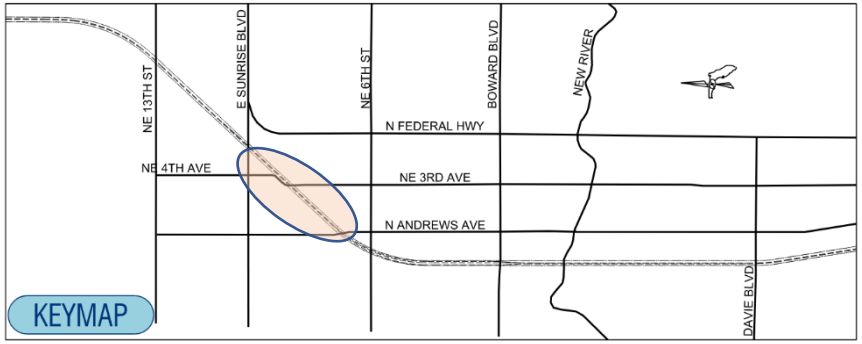


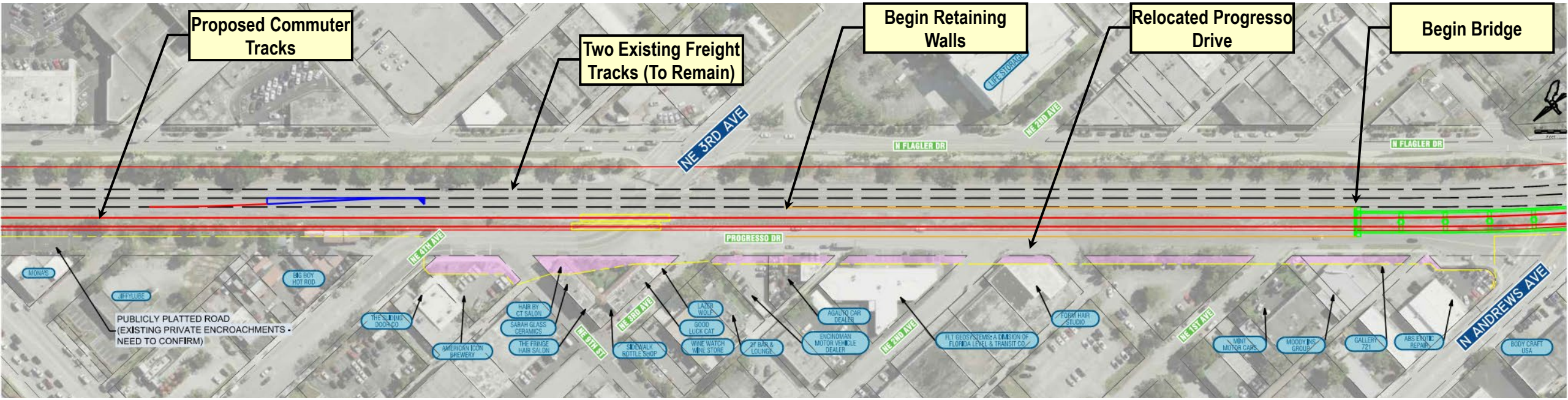
Preliminary Right of Way Impacts (Mid / High Bridge)



Begin Project to Sunrise Boulevard

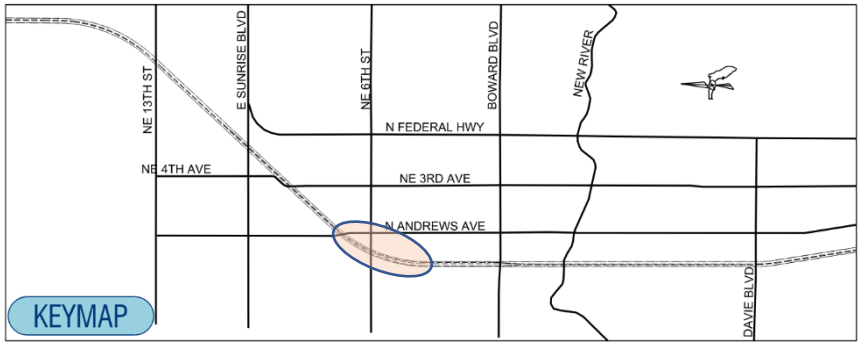
Preliminary Right of Way Impacts (Mid / High Bridge)

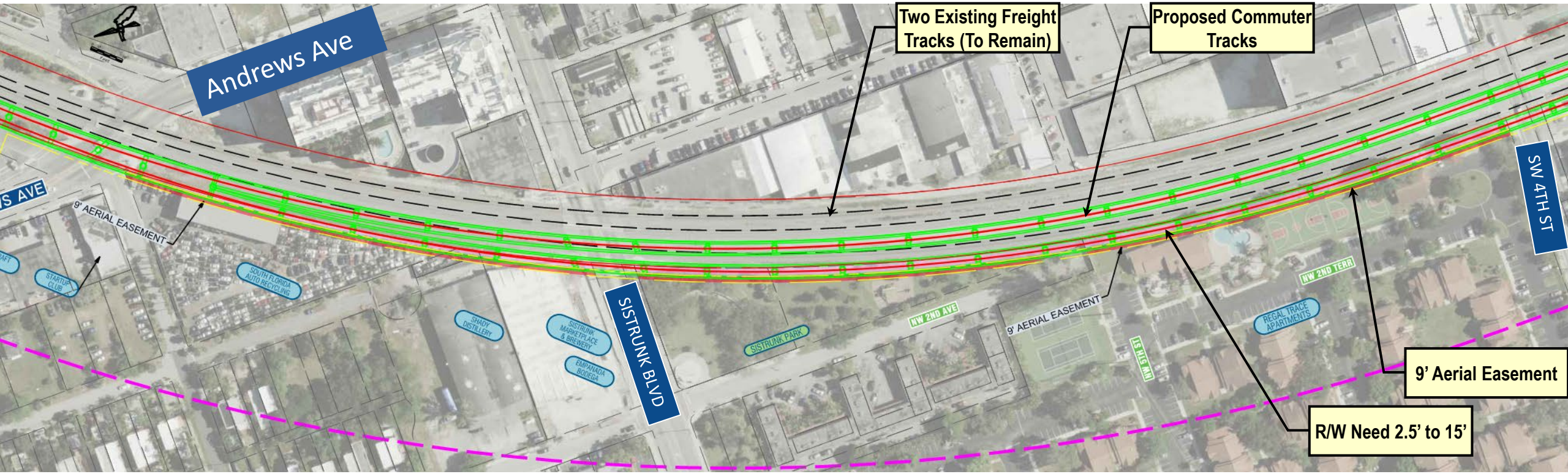




Sunrise Boulevard to Andrews Ave

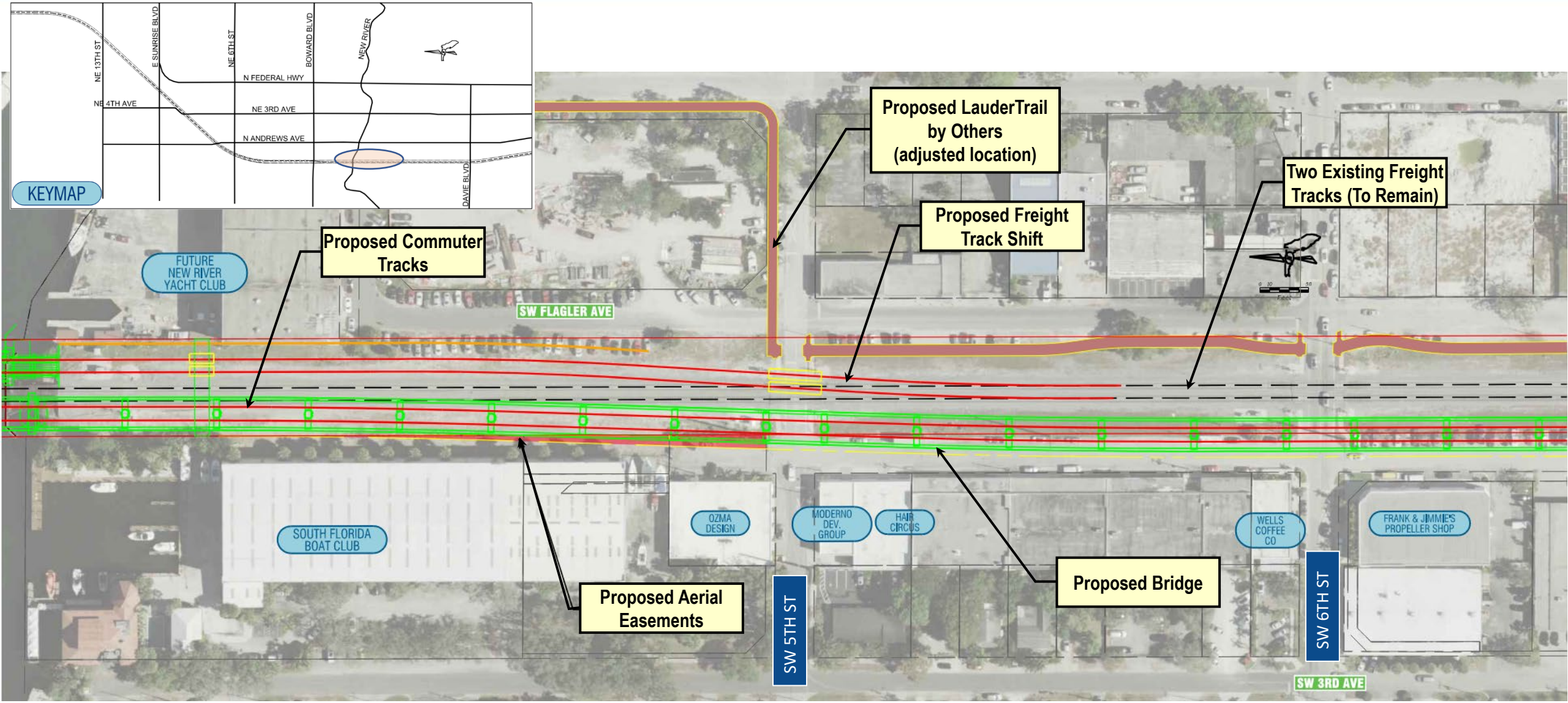
Preliminary Right of Way Impacts (Mid / High Bridge)





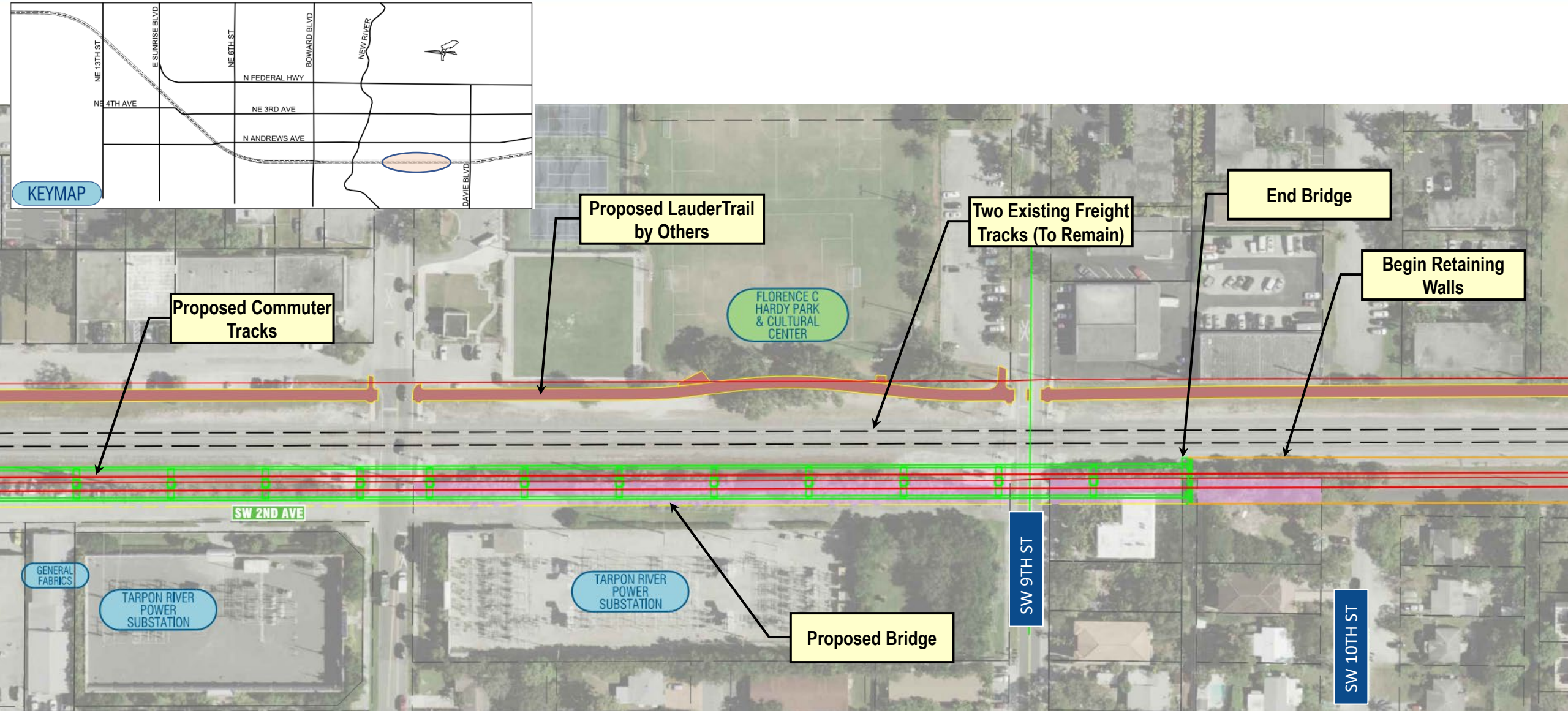
Andrew Ave to NW 4th Street

Preliminary Right of Way Impacts (Mid / High Bridge)



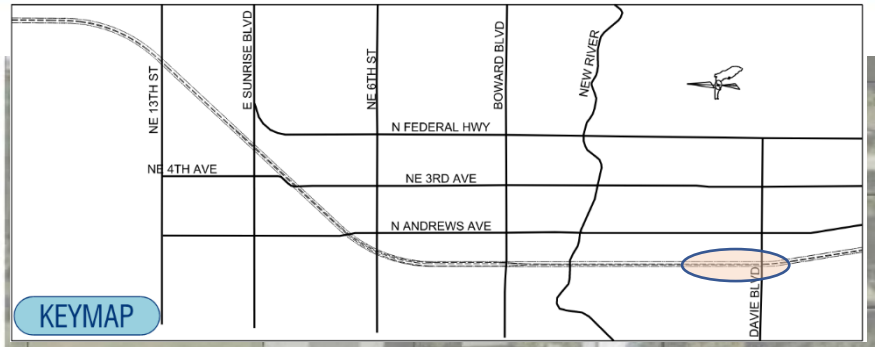
New River to SW 6th Street

Preliminary Right of Way Impacts (Mid / High Bridge)



SW 6th Street to SW 10th Street

Preliminary Right of Way Impacts (Mid / High Bridge)



Proposed LauderTrail by Others

Two Existing Freight Tracks (To Remain)

Begin Retaining Walls

Proposed Commuter Tracks

TARPON RIVER PARK

DAVIE BLV

MAUS LAW FIRM

KWIK STOP

KHAN INTERNAL MEDICINE

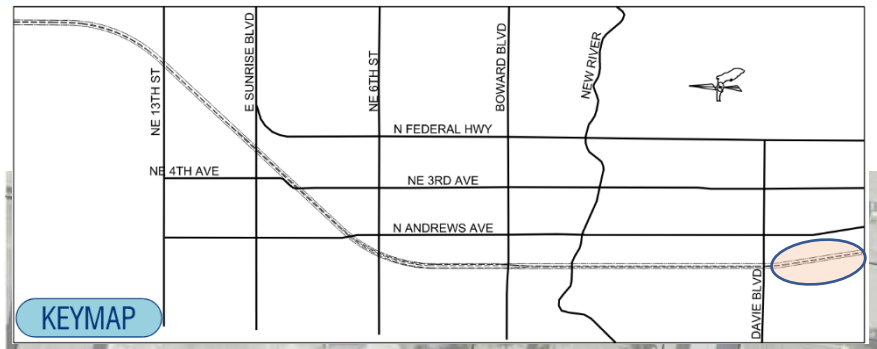
SW 11TH ST

SW 11TH CT

SW 12TH CT

SW 10th Street to SW 12th Court

Preliminary Right of Way Impacts (Mid / High Bridge)



Existing Freight Tracks (To Remain)

Proposed LauderTrail by Others

End Project

Proposed Commuter Tracks

SW 15TH ST

SW 12TH CT

SW 13TH ST

PUBLIC STORAGE

KHAN INTERNAL MEDICINE

AAI GOLF CART TRANSPORT

ATLANTIC ICE

HIT FITNESS WAREHOUSE

RAMSEY PAINT & BODY

MASTER TECH AUTO REPAIR SHOP

SW 12th Court to SW 15th Street (End of Project)

Financial Analysis: Preliminary Cost Estimate

New River Crossing Alternative Cost Table ($2021)				
Alternative	**Low-Level Bascule**	**Mid-Level Bascule**	**High-Level Fixed**	**Tunnel**
New River Crossing	$240 M	$444 M	$452 M	$1.82 B[4]
Right-of-Way (Private)	$0	$98 M	$98 M	$148 M
Operations & Maintenance[1]	- Bridge Tender - Mechanical Systems	- Bridge Tender - Mechanical Systems	- Regular Maintenance	- Underground Station - Ventilation Systems
Corridor Cost Table ($2021)				
Corridor Capital Cost[2]	$495 M			
Right-of-Way (Stations)	Under Analysis will be the same for each alternative			
Total Capital Cost	$735 M	$1.04 B	$1.05 B	$2.46 B
Other Project Cost Table ($2021)				
Operations & Maintenance[1]	$18 - $28 M	$18 - $28 M	$17 - $27 M	$18 - $28 M
Access Fee and Agreements[3]	TBD			

[1] O&M costs are per year and are not calculated in the total cost. There are differences among the NRC alternatives , with the tunnel O&M costs expected to increase in the outer years.

[2] Capital Cost Includes Construction, Stations, Vehicles, Yards, Parking, etc. (Costs shown are in 2021 dollars and will need to be escalated for year of expenditure

[3] Access Fee and Agreements - A negotiated fee to allow commuter trains to use the Brightline passenger easement on the FEC corridor, also may need to cover potential compensation for temporary and permanent operational impacts associated with the New River Crossing and station impacts

[4] Tunnel construction cost does not address potential need for resiliency infrastructure that may be necessary, such as portal covers, additional pumps, salt water intrusion protection

Constructability / Disruption

Bridge Alternatives

- Shift the Existing Freight bridge to the east
- Traditional Bridge Consturction from the ground up
  - Foundation
  - Concrete pier pours and Girder placement with cranes during off peak traffic windows.
  - Typically performed with progressive crews or multiple crews / shifts.
- Track work deliveries by rail then built from one end of the bridge to the other.
- Downtown aerial station modifications tie into mid- and high-level bridges at platform level above existing station.
- Bridge construction impacts are fewer and less disruptive. A bridge can be built faster than a tunnel.

Bridge - Cranes Setting Girders

Retaining Walls at the end of Bridge

Tunnel Alternatives

- Extensive Laydown areas and dewatering
- Extensive conveyor systems for removal and treatment during tunneling with increased number of trucks hauling on City streets.
- Build the portal walls and then TBM bores through it.
- Underground station construction requires deep excavation and would last longer and be more disruptive than bridge construction.
- Requires special geotechnical work due to Karst Limestone soils

Tunnel - Large Footprint for Material Preparation

Operations and Maintenance

The difference in O&M costs are focused on the additional activities needed to maintain a bascule bridge as well as a tunnel:

1) High-Level Fixed Bridge - this will have the lowest O&M costs.

2) Low-Level and Mid-Level Bridges - this requires efforts to operate and maintain the mechanical and electrical equipment of a bascule bridge. This will also require a bridge tender to be on-site full time but may be able to be shared with the existing freight bascule bridge that will remain in service.

3) Tunnel - this requires maintenance of the ventilation building and systems needed to operate the tunnel. Security for the Underground Station.


VENTILATION REQUIRED AT EITHER END OF UNDERGROUND STATION


Bascule Bridge Control Tower

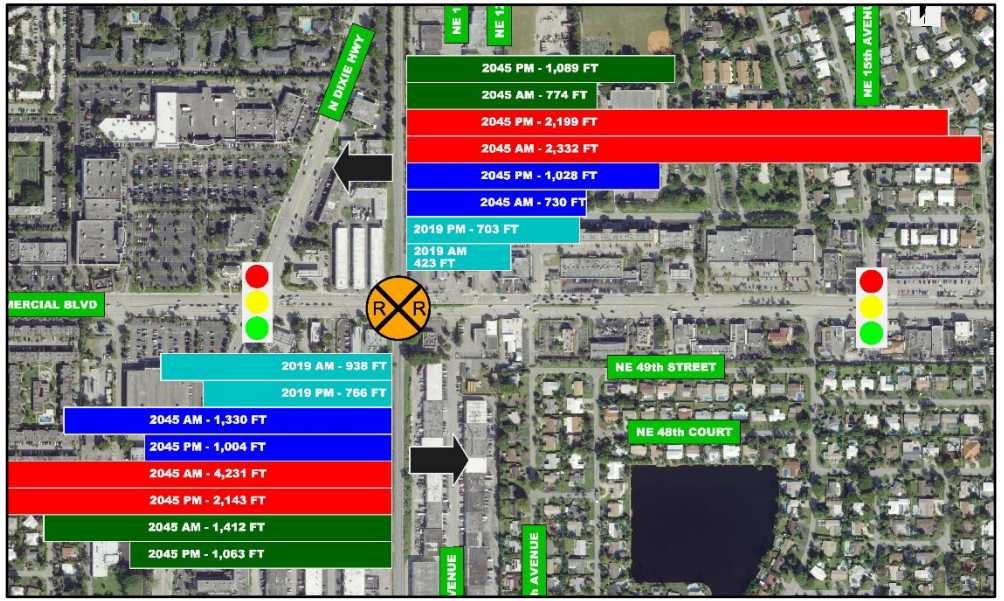
Resiliency

PORT MIAMI TUNNEL

- Tunnels are more challenging than bridges to address resiliency
  - Sea level rise
  - Hurricanes, storm surges
- Hurricane Sandy flooded NYC's subway system, taking weeks to restore and $ billions in repairs and longer term infrastructure hardening measures
- Review of the NOAA high sea level curves
  - 54" by year 2070
  - 136" by year 2120
- Mitigation possible, but expensive
- Bridges can be shut down during severe storms, but normally do not suffer major damages as a result of flooding/storm surge, (unless foundations are unprotected and exposed to strong currents/erosion)

Traffic Analysis – Preliminary Results

- Total roadway closure time at each railroad crossing will be less than 90 seconds (advanced warning time + crossing time + clearance time)
- On average, 3 to 5 BCR Trains will traverse each crossing during the AM and PM peak hours on a typical weekday
- BCR Train travel times, delays, and queuing impacts along the railroad crossings are similar to the current Brightline service.
- At-grade railroad crossings will experience no significant change in intersections LOS, speeds, or queuing when compared to the No-Build Alternative
- Grade separated railroad crossings (Mid/High Level Bridge or Tunnel) will experience improved operating conditions when compared to the No-Build Alternative



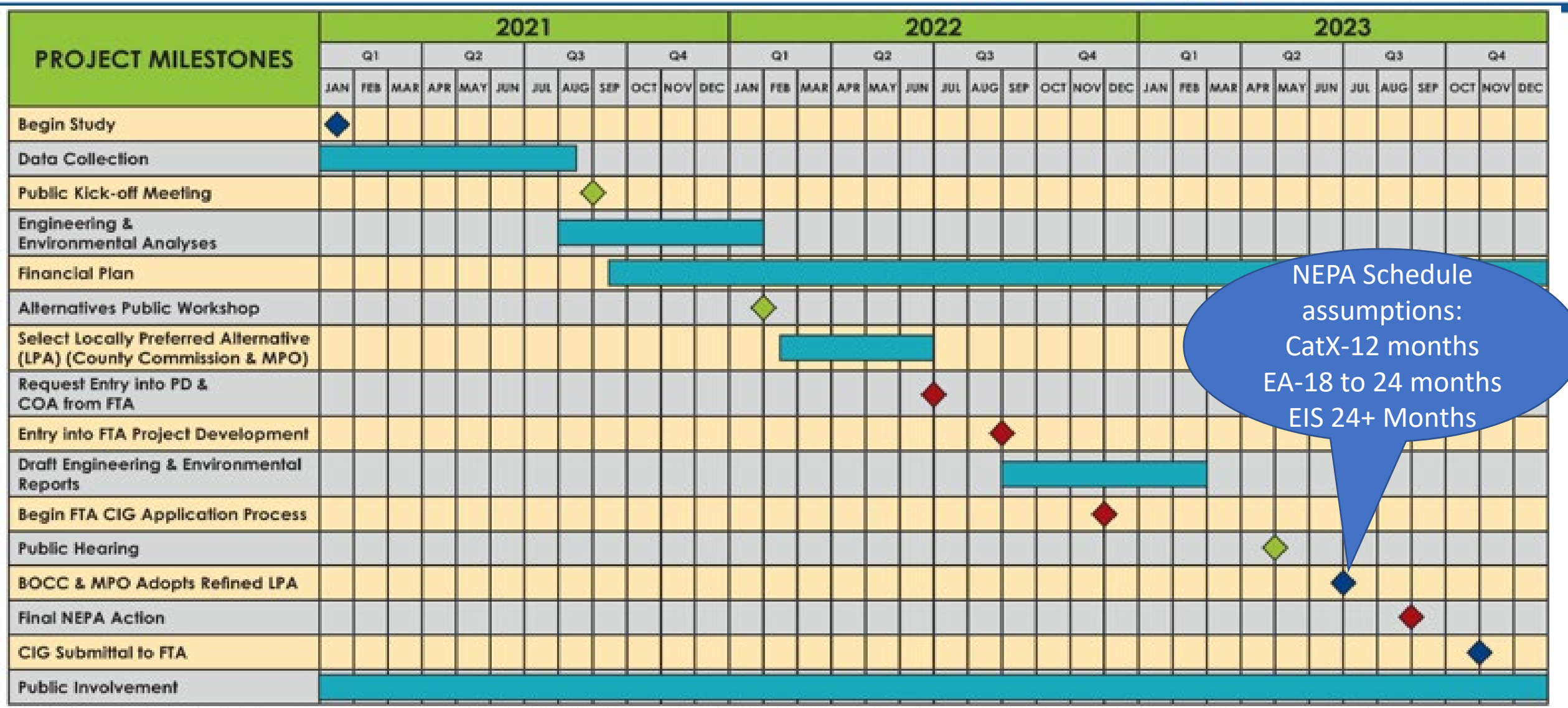
LEGEND - FEC TRAIN EVENTS
2045 Brightline
2045 Freight
2045 BCR

Connectivity

Note: Freight will remain at-grade and on existing tracks(that may be shifted within the existing rail Right of Way)

- **Low Level**
  - **Closes SW 5th Street**
- **Mid-Level Bascule and High-Level Fixed Bridges**
  - **No Road Closures**
  - **Closure of 2nd Avenue between SW 10th and SW 11th Street (they will be cul-de sacs)**
  - **Visual Impact of 8050-foot-long Bridge and +/- 1700 feet of approach walls to the bridge**
- **Tunnel**
  - **Closure of SW 15th Street**
  - **Closure of NW 5th Terrace at Sunrise Blvd (will be cul-de sac)**
  - **Visual Impact of Portals/Trenches +/- 2600 feet short walls with protective fencing/barrier surrounding the portals**

PD&E Study Milestone Schedule



NOTE: Design can begin in 2023, with R/W acquisition and construction could begin in 2025 with initial operations potentially starting in 2028, depending upon adoption of the Refined LPA and associated access agreement, funding and implementation plans and FTA approvals.

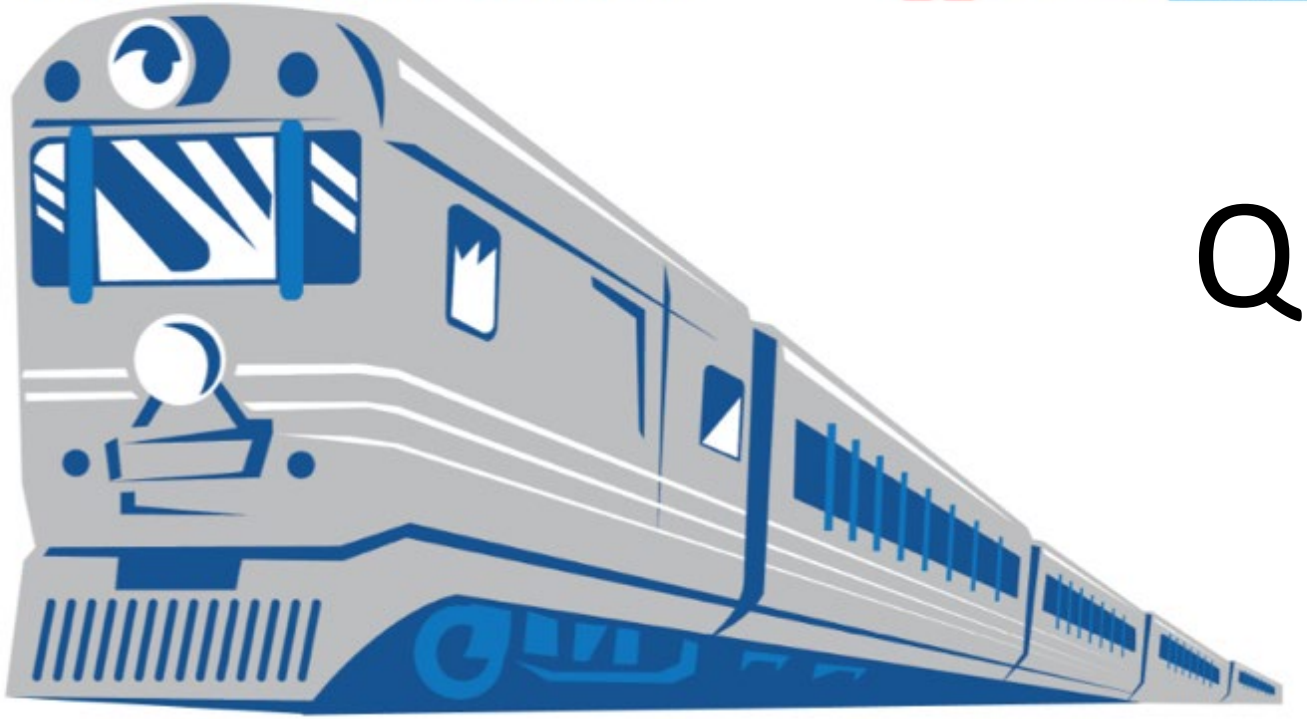
General Project Tasks *Public Meetings* *General Project Milestones* *Critical Project Milestones*

BROWARD COMMUTER RAIL (BCR)

PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY

FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), DISTRICT 4
BROWARD COUNTY, FLORIDA • FPID: 448942-1

FDOT
BROWARD COUNTY FLORIDA



Questions???