New River Crossing Feasibility Study

FDOT

Presented to: Broward MPO
December 13, 2019

Feasibility Study Directive

Legislative Specific Appropriation 1939

- Passed July 2019
- Provide a solution meeting reasonable needs of navigation, freight trains, and passenger trains

Provide Timeline

- Project Development and Environment (PD&E) Study
- Engineering Design
- Construction

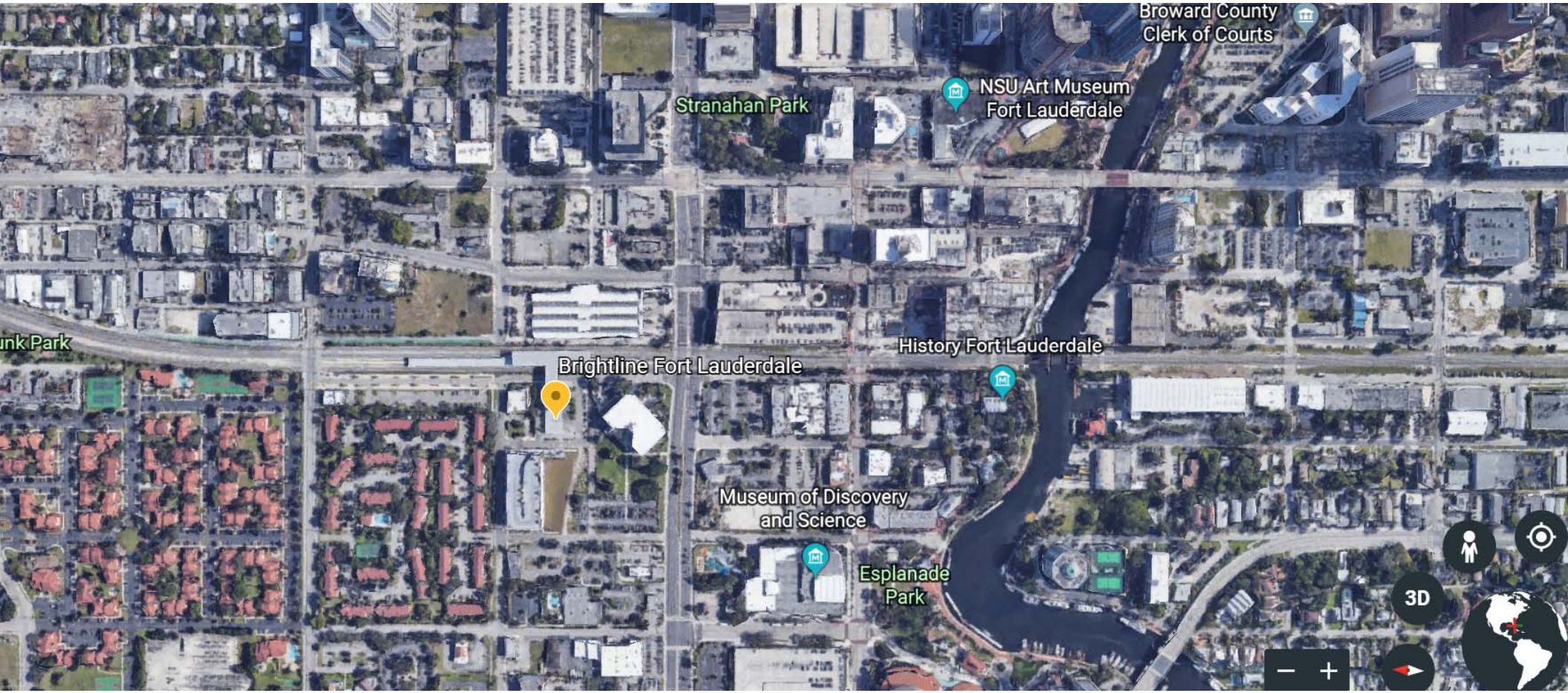
Recommend Alternatives to Advance into PD&E Study Phase

Identify Potential Funding Sources

Define Next Steps for Implementation

Submit to Legislature January 2, 2020

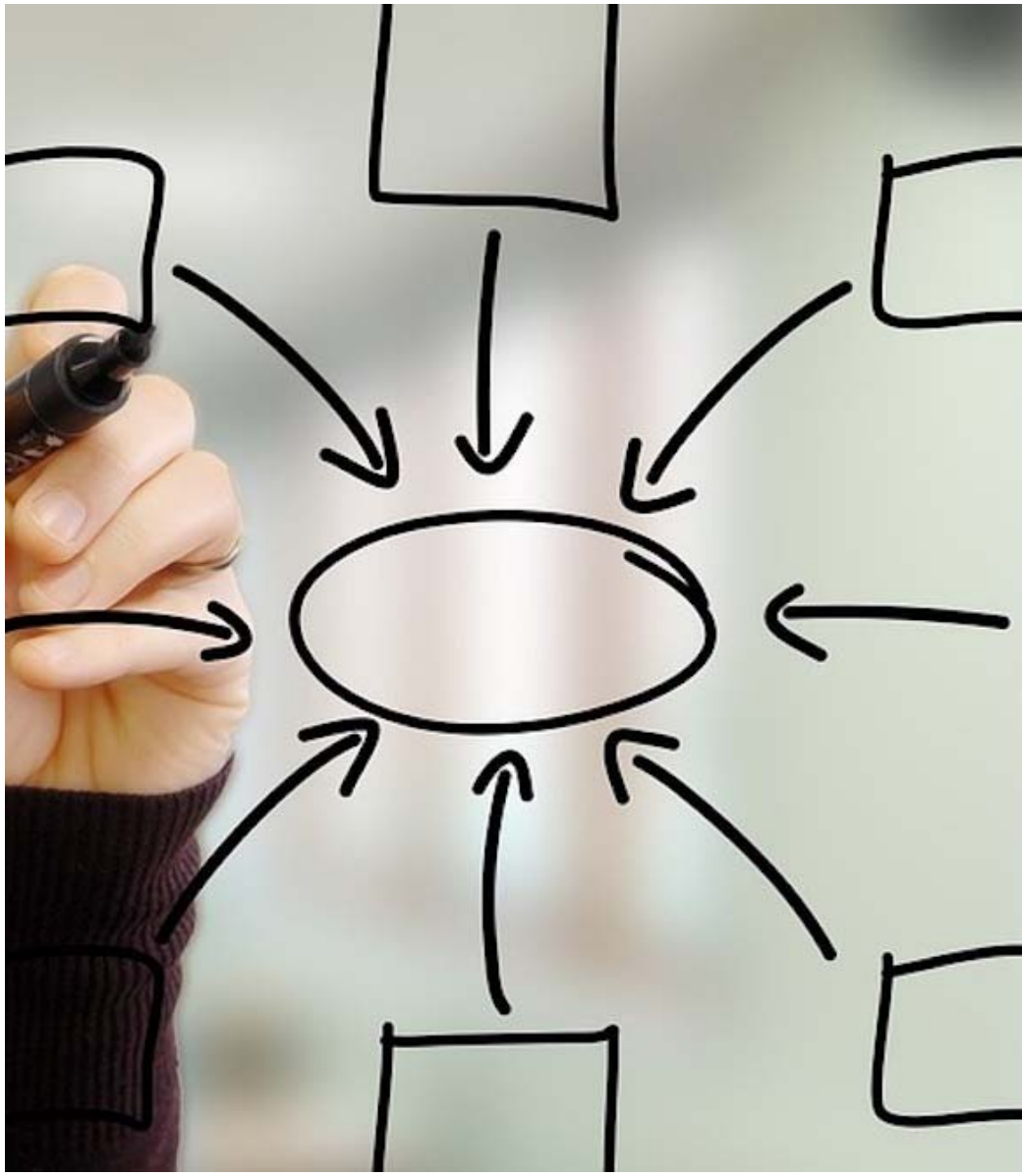
Location Map



Agency Coordination

Meetings with Stakeholders:

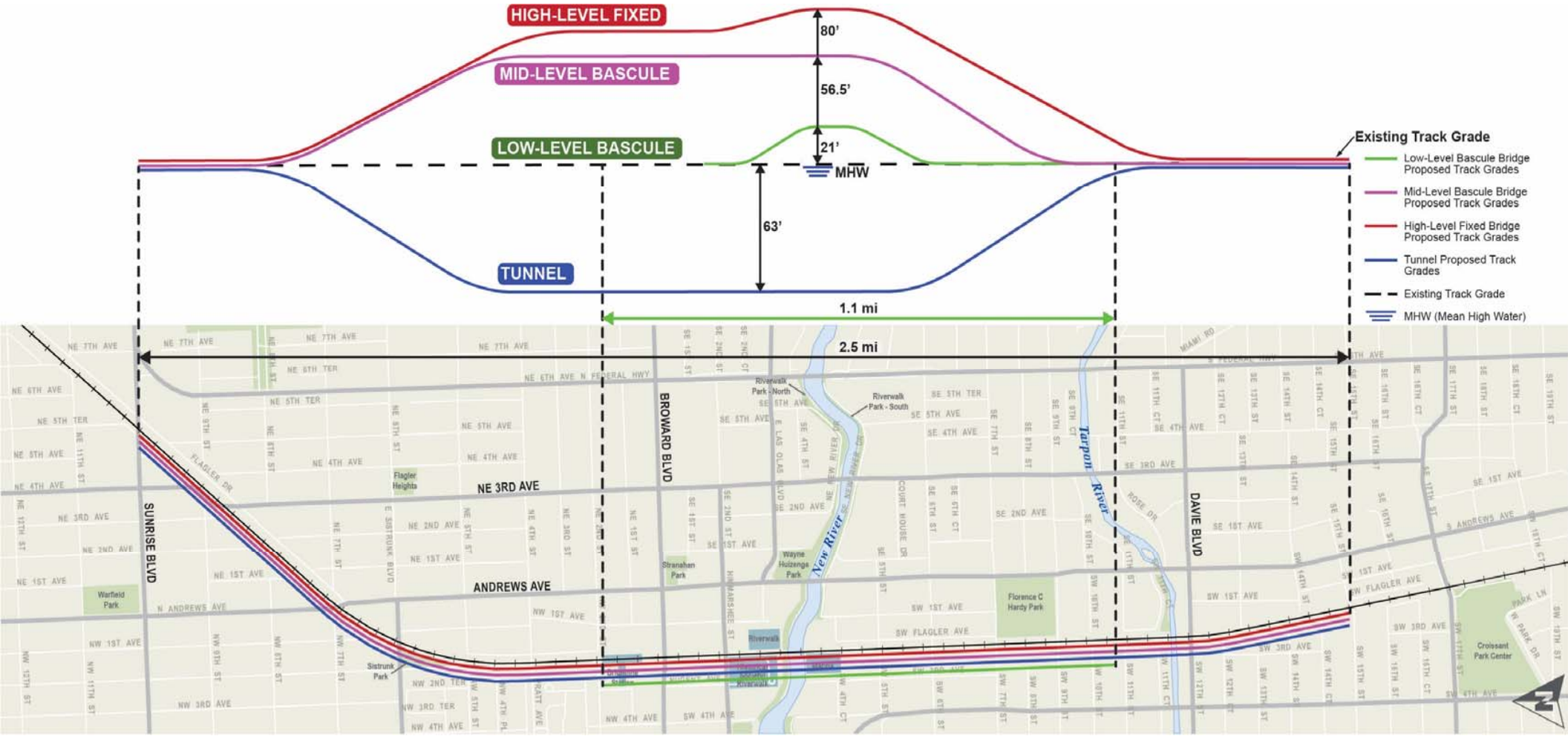
- USCG
- Brightline/Virgin Trains
- FECRWY
- Marine Industry Association
- Marine Advisory Board
- City of Fort Lauderdale
- Downtown Development Authority
- Broward County
- Broward MPO



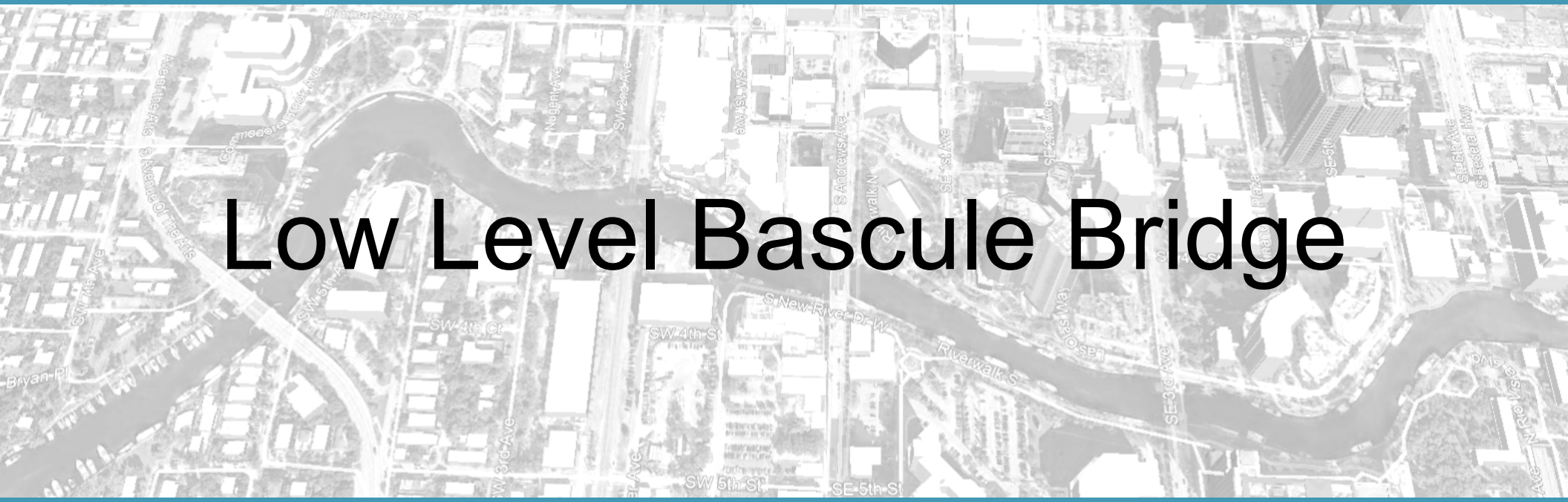
Alternatives Development

- Low Level Bascule Bridge
  - 21 feet clearance
- Medium Level Bascule Bridge
  - 56.5 feet clearance
- High Level Fixed Bridge
  - 80 feet clearance
- Tunnel

Alternatives Overview



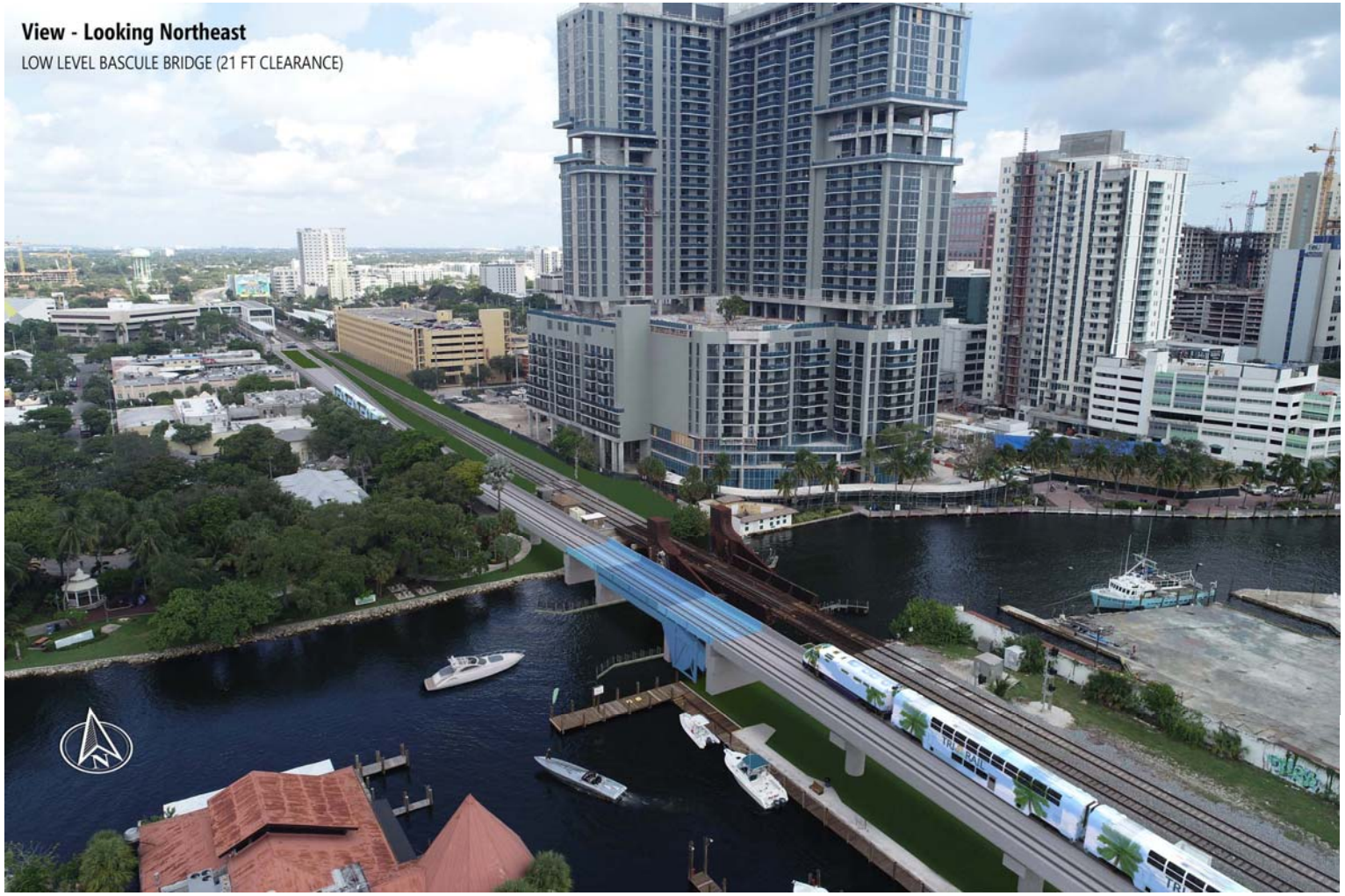
Low Level Bascule Bridge



Low Level Bascule Bridge

- Length of Bridge = 1,020 feet (.19 miles)
- Length of Track Modification = 5,740 feet (1.1 miles)
- Clearance of 21 feet in closed position; consistent with other bascule bridges on river

Low Level Bascule Bridge – Looking Northeast



Low level Bascule Bridge – River View Looking East

Low Level Bascule Bridge

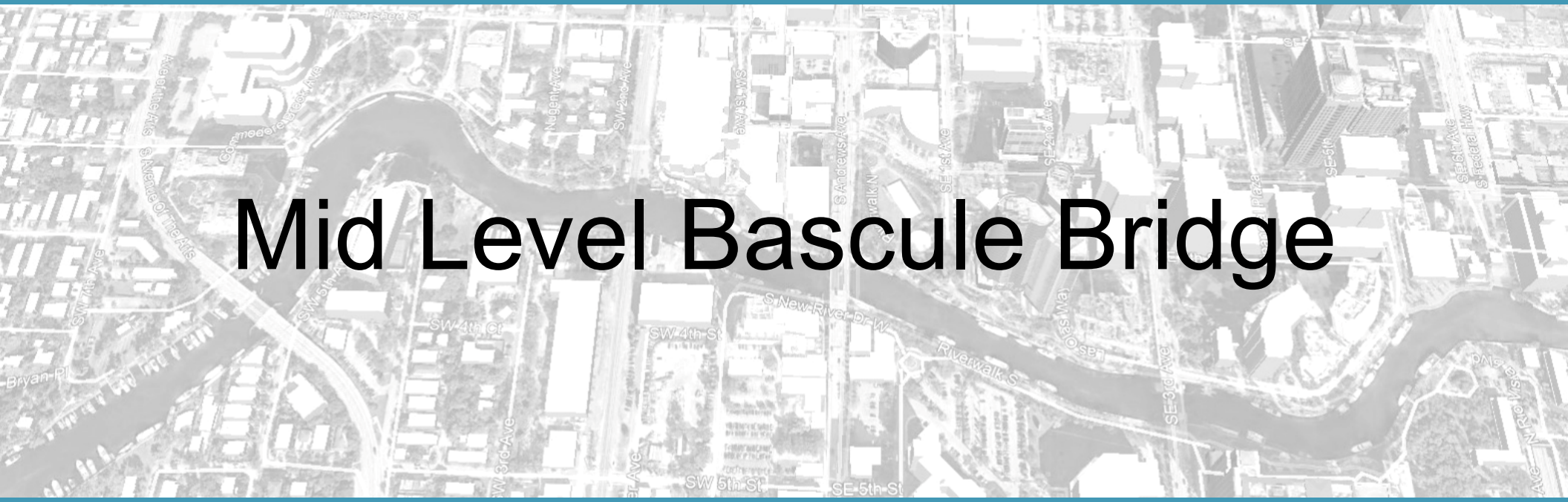
PROS

- No impact on Broward Boulevard
- No impact on existing Brightline/Virgin Trains Station
- Maximizes use of existing track
- Consistent vertical clearance with other river crossings, such as Andrews Avenue bridge
- Minimal visual and noise impacts relative to other alternatives

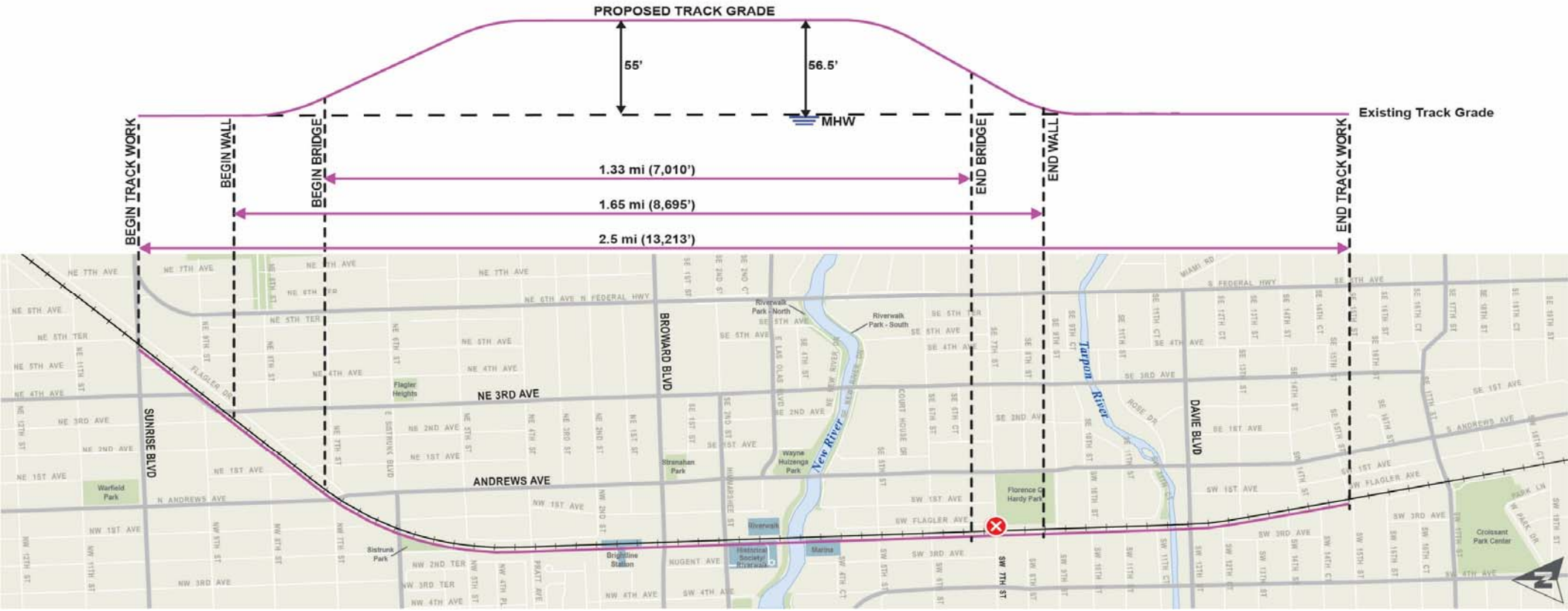
CONS

- Closed Cross Streets - Himmarshee Street and SW 5th Street
- Constructability - Significant temporary track to maintain freight and passenger operations
- New interim signal system during construction
- Significant permanent impact to NW 2nd and SW 2nd Avenue and fronting businesses; Riverfront park, historic site, boat storage/marina
- Cultural resources impacts
- Minimal maritime operational improvements

Mid Level Bascule Bridge

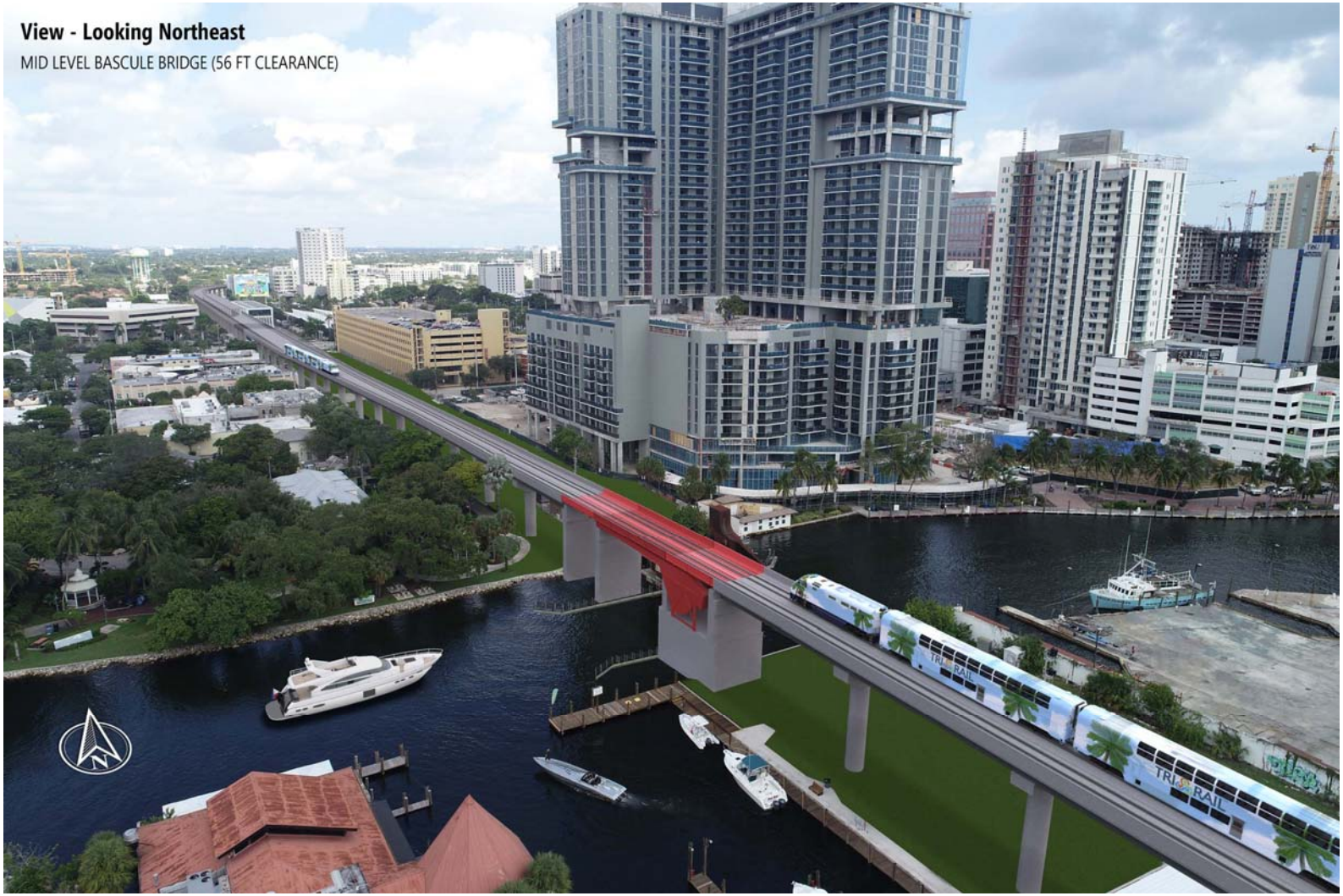


Mid Level Bascule Bridge Alternative



- River clearance at 56.5 feet in bridge closed position
- Length of Bridge = 7,010 feet
- Length of Track Modification = 13,213 feet
- Places New Brightline/Virgin Trains Station Platform 55 feet (3rd level) above existing at-grade platform

Mid Level Bascule Bridge – Looking Northeast



Mid Level Bascule Bridge – River View Looking East

Mid Level Bascule Bridge

PROS

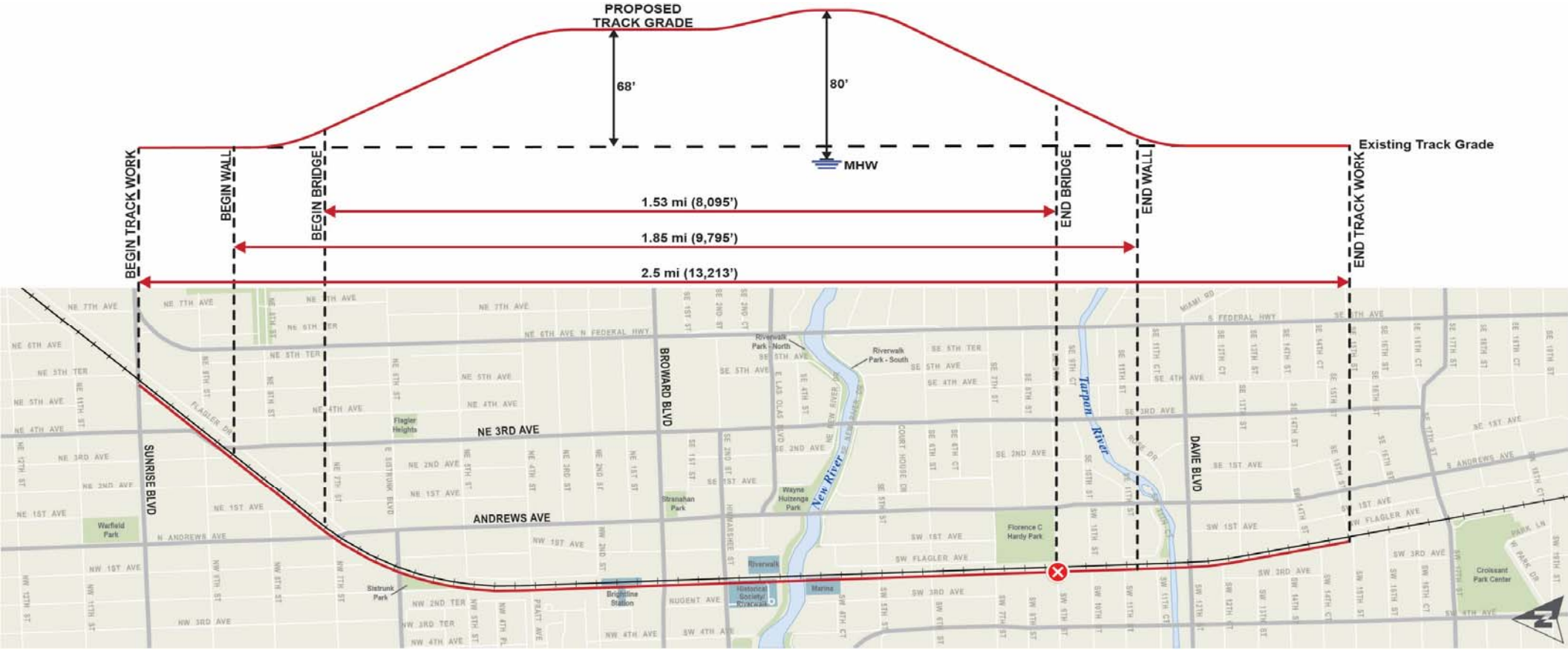
- Improved maritime navigation with the bridge in a closed position relative to the low level bascule
- At grade passenger rail crossings eliminated from North Andrews Avenue through SW 6th Street improving safety and traffic operations

CONS

- SW 7th Street Closed
- Elevated station platform at 3rd level
- Temporary construction impacts with structure foundations, permanent impacts at bridge support columns
- Aerial right of way impacts over boat storage/marina, park and historic site
- Visual, noise and environmental impacts
- Cultural Resources impacts

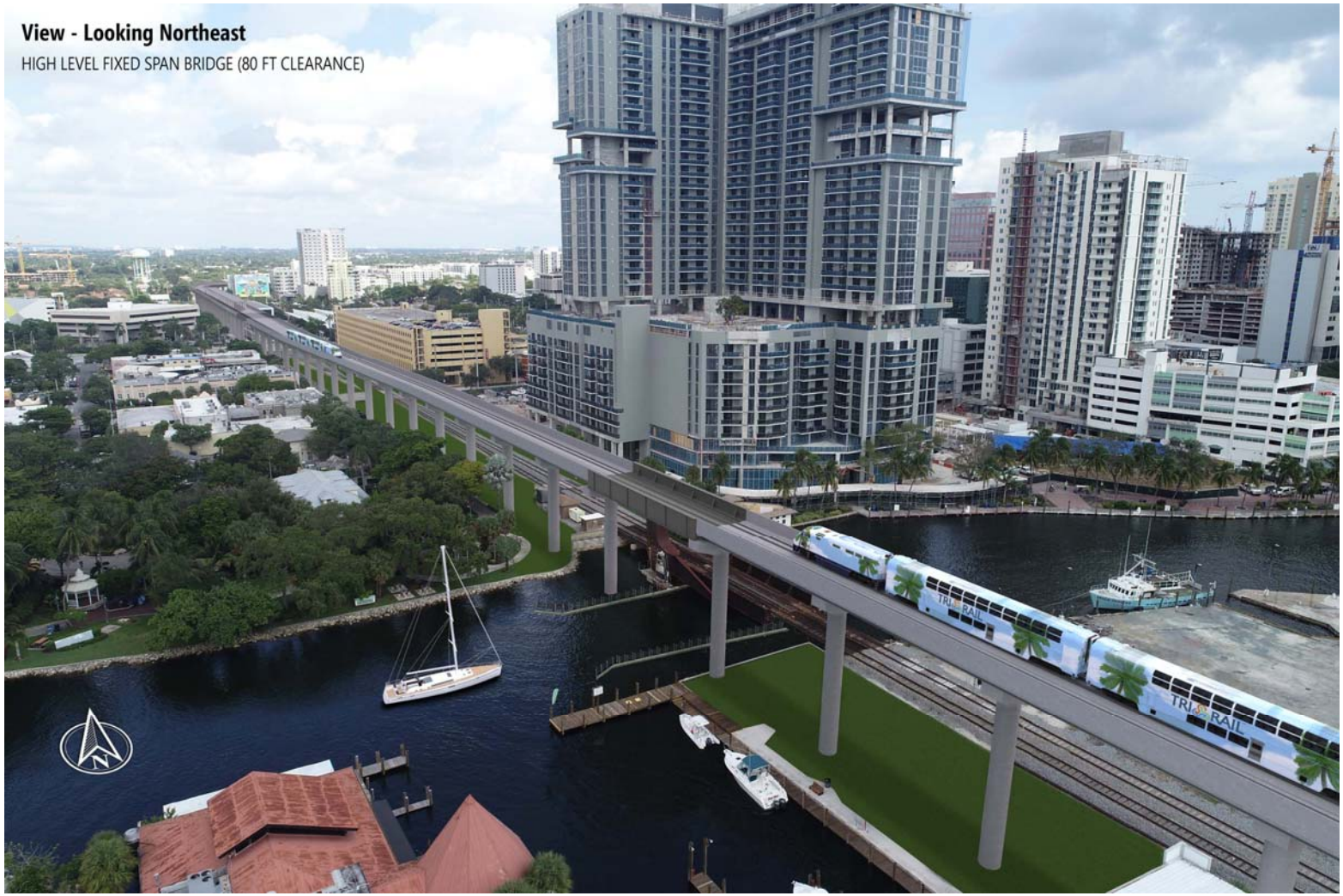
High Level Fixed Bridge

High Level Fixed Bridge Alternative



- 80 foot clearance - No bridge openings
- Length of Bridge Structure = 8,095 feet
- Length of Track Modification = 13,213 feet
- Places New Brightline/Virgin Trains Station Platform 68 feet above existing at-grade platform

High Level Fixed Bridge – Looking Northeast



High Level Fixed Bridge – Looking Northeast

High Level Fixed Bridge

PROS

- At-grade passenger rail crossings eliminated from Andrews Avenue through SW 7th Street improving traffic operations
- 80 foot clearance - No bridge openings
- Consistent with fixed vertical clearance control point (power lines) on the river

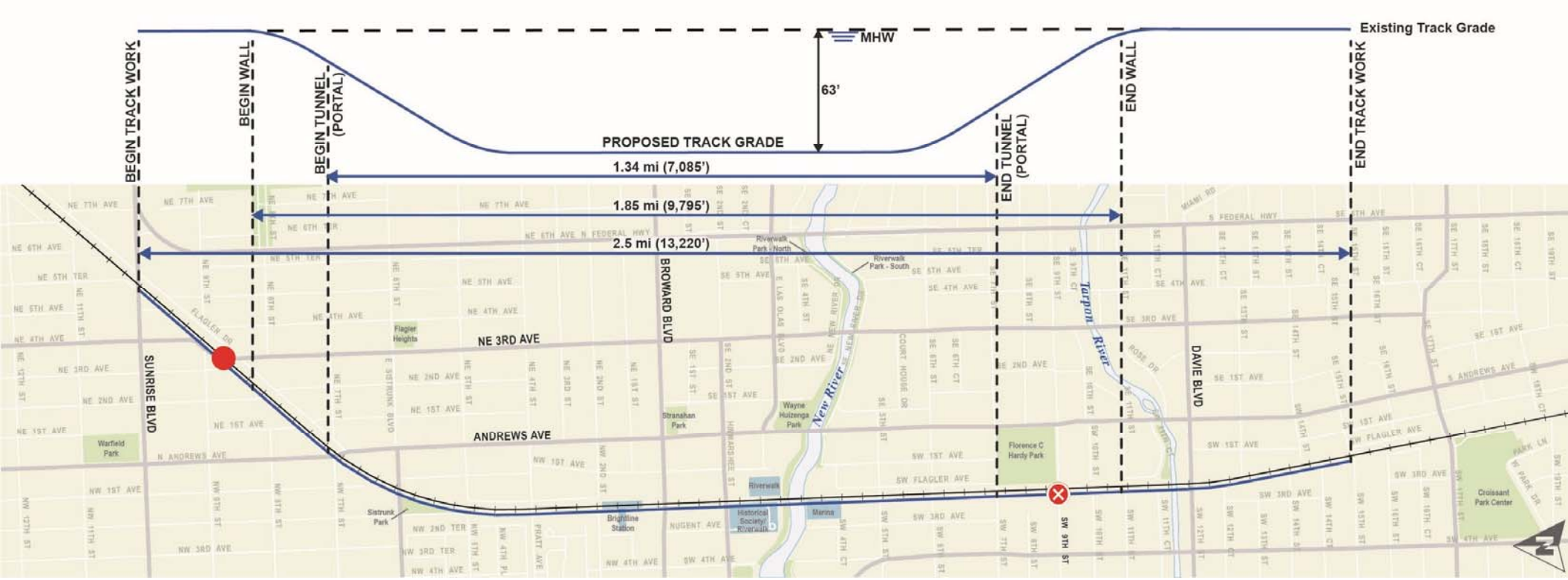
CONS

- SW 9th Street Closed
- Elevated station platform at 3rd level
- Tallest vessels need to lower their masts as currently required at power lines
- Temporary construction impacts with structure foundations, permanent impacts at bridge support columns
- Aerial right of way impacts over boat storage/marina, park and historic site
- Visual, noise and environmental impacts
- Cultural Resources impacts

Tunnel

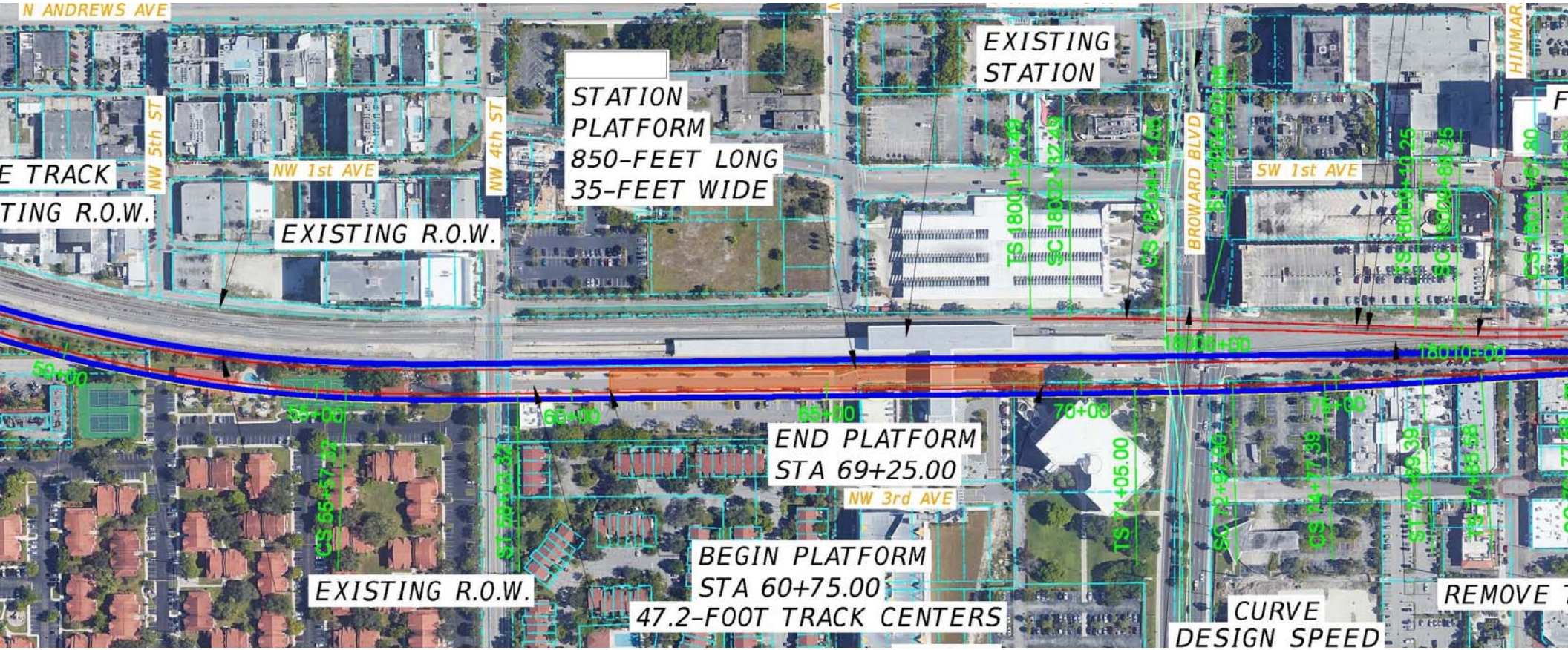

SW 4th Ave
S Andrews Ave
SE 1st Ave
SE 2nd Ave
SE 4th St
Financial Plaza
SE 5th
SE 6th Ave
S Federal Hwy
SW 5th Ave
SW 4th Ct
S New River Dr W
SW 4th St
Riverwalk S
SW 3rd Ave
SW 5th St
SE 5th St

Tunnel Alternative

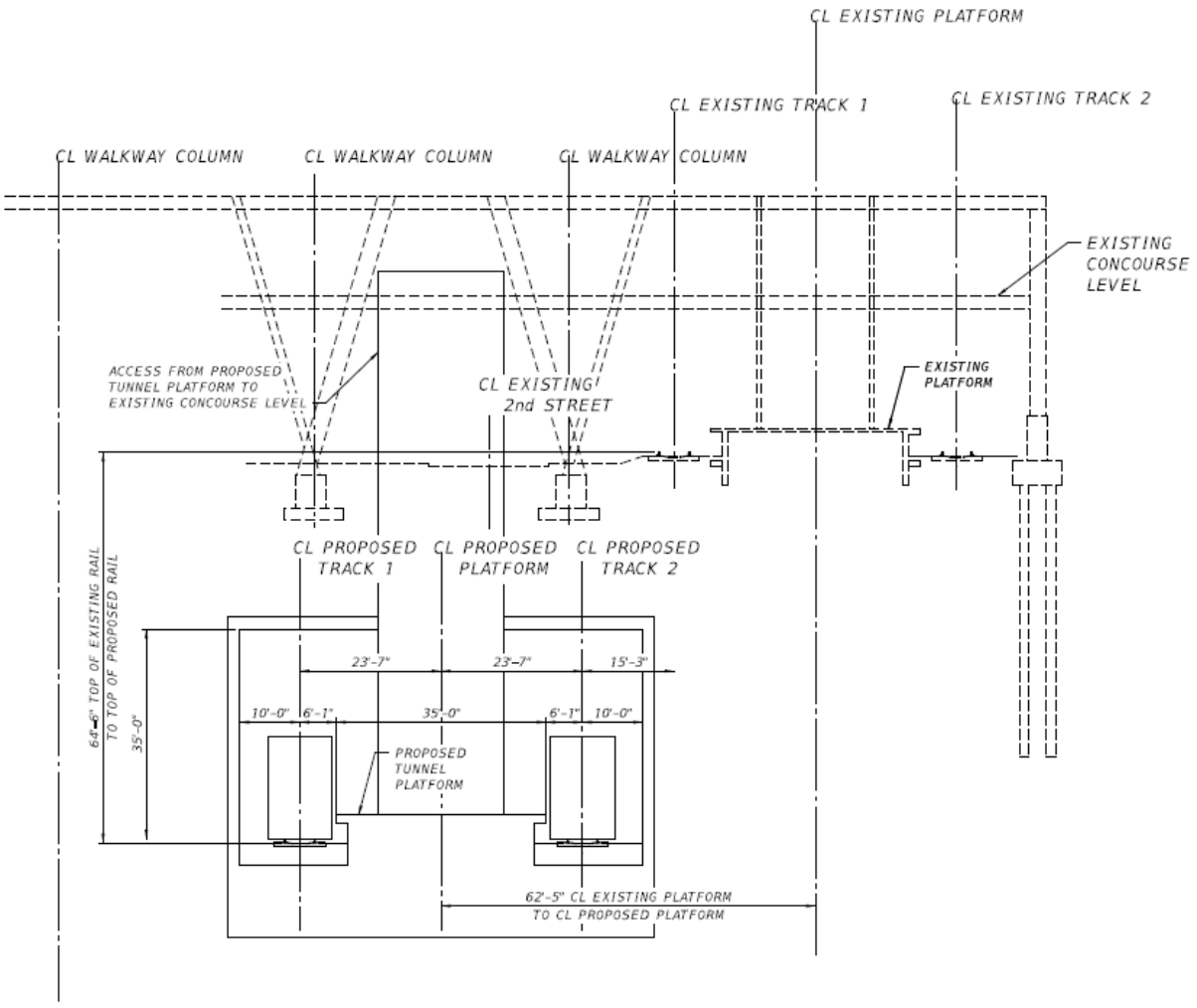


- Length of tunnel = 7,085 feet
- North portal between NE 3rd and Andrews – South Portal between SW 7th and SW 11th
- Length of Track Modification = 13,220 feet Sunrise Blvd to SW 15th Street
- Places New Brightline/Virgin Trains Station Platform underground, approximately 65 feet below existing platform

Cut and Cover View



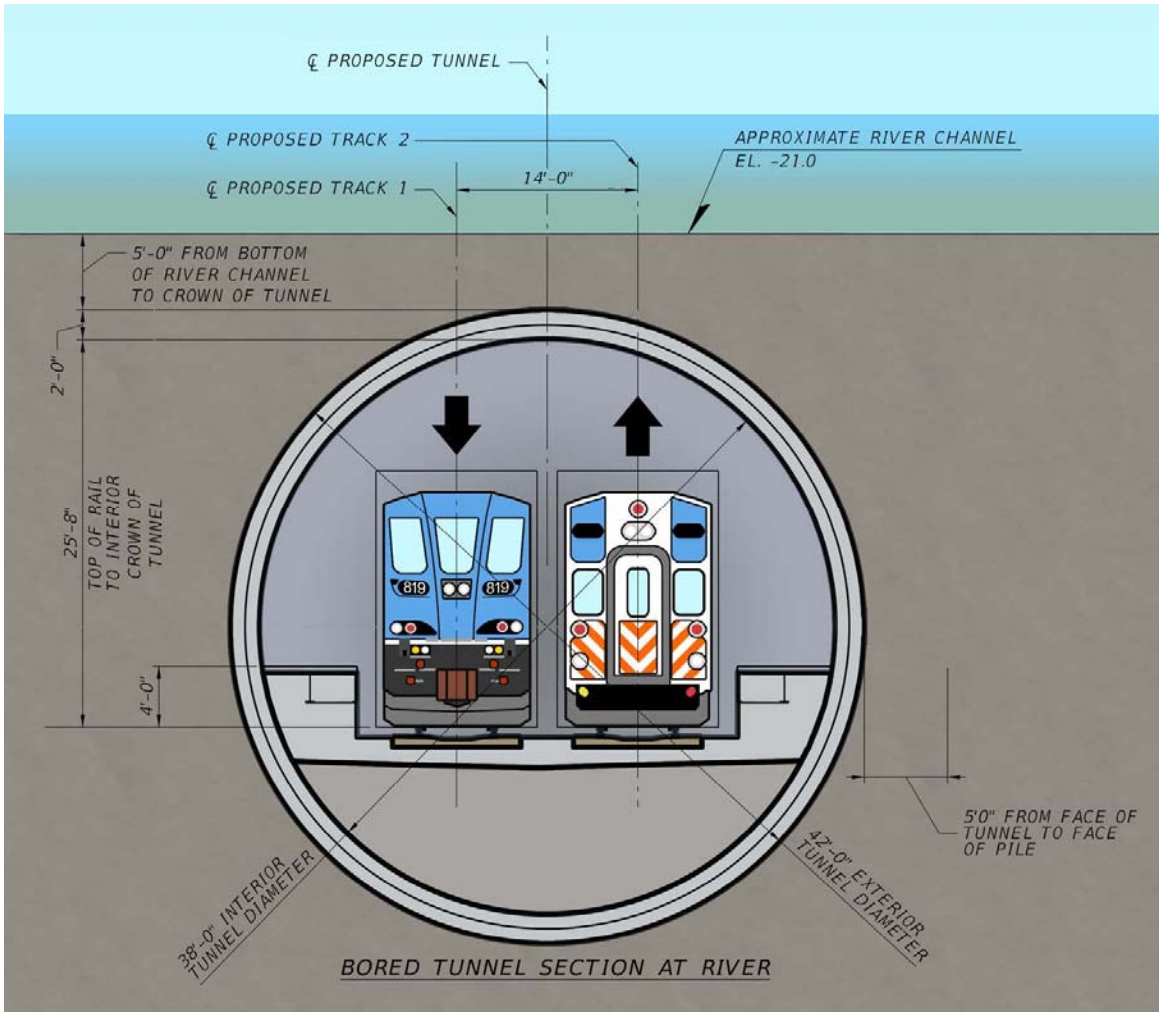
Cut and Cover



BORED TUNNEL AT STATION

Tunnel View Looking North

Tunnel Cross-Section



Tunnel

PROS

- Minimal surface impacts once construction is completed
- Passenger rail crossings eliminated from Andrews Avenue through SW 7th Street improving safety and traffic operations
- No impact to marine navigation
- Tunnel results in minimal visual and noise impacts

CONS

- Cut and cover construction at station, approximately 70 feet wide underground platform
- SW 9th Street Closed; regrade SE 3rd Ave.
- Constructability: cut and cover station, temporary impacts from south of Broward Boulevard to north of 5th Street
- Longest construction duration
- Severe disruption to downtown traffic circulation and business operations during construction
- Highest construction cost and annual O&M cost
- Fire and life safety measures
- Freight (hazmat) trains cannot use tunnel

Comparative Matrix

Evaluation Criteria	No Build	Alternative 1 Low Level Bascule Bridge (21 feet)	Alternative 2 Mid-Level Bascule Bridge (56.5 feet)	Alternative 3 High-Level Fixed Bridge (80 Feet)	Alternative 4 Tunnel
Corridor Considerations					
Length of Track Improvements	○	◔	◑	◕	●
Length of Structure	○	◔	◑	◕	●
# of Street Closures	○	◑	◔	◔	◔
Constructability					
Construction Staging	○	●	◕	◕	●
Freight Operational Impacts	○	◑	◑	◑	◔
Passenger Operational Impacts	○	◔	◑	◑	◕
Impacts to Business	○	◕	◑	◑	●
Cross Street Impacts (During Construction)	○	●	◕	◕	●
Construction Duration	○	◔	◕	◕	●
Right of Way					
Impacts	○	●	◕	◕	●

Legend:

○ None ◔ Low ◑ Medium ◕ Medium High ● High

Comparative Matrix

Evaluation Criteria	No Build	Alternative 1 Low Level Bascule Bridge (21 feet)	Alternative 2 Mid-Level Bascule Bridge (56.5 feet)	Alternative 3 High-Level Fixed Bridge (80 Feet)	Alternative 4 Tunnel
Environmental Issues					
Cultural Resources	○	◕	◕	◕	◕
Noise	◕	◕	●	◕	◔
Visual / Aesthetics	○	◑	◕	●	◔
Maritime Impacts					
Maritime Operations	●	◕	◑	○	○

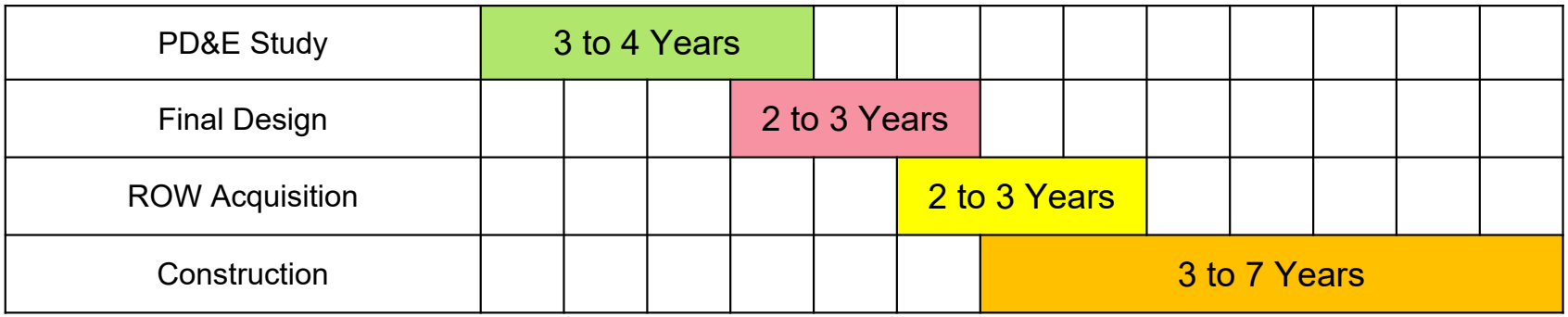
Legend:

○ None ◔ Low ◑ Medium ◕ Medium High ● High

Planning Level Construction Cost Estimates

Alternative	Construction Cost Range
No Build	N/A
Low Level Bascule (21 feet)	$100M - $150M
Mid Level Bascule (56.5 feet)	$350M - $400M
High Level Fixed (80 Feet)	$400M - $450M
Tunnel	$2.7B - $3.3B

Implementation Timeline

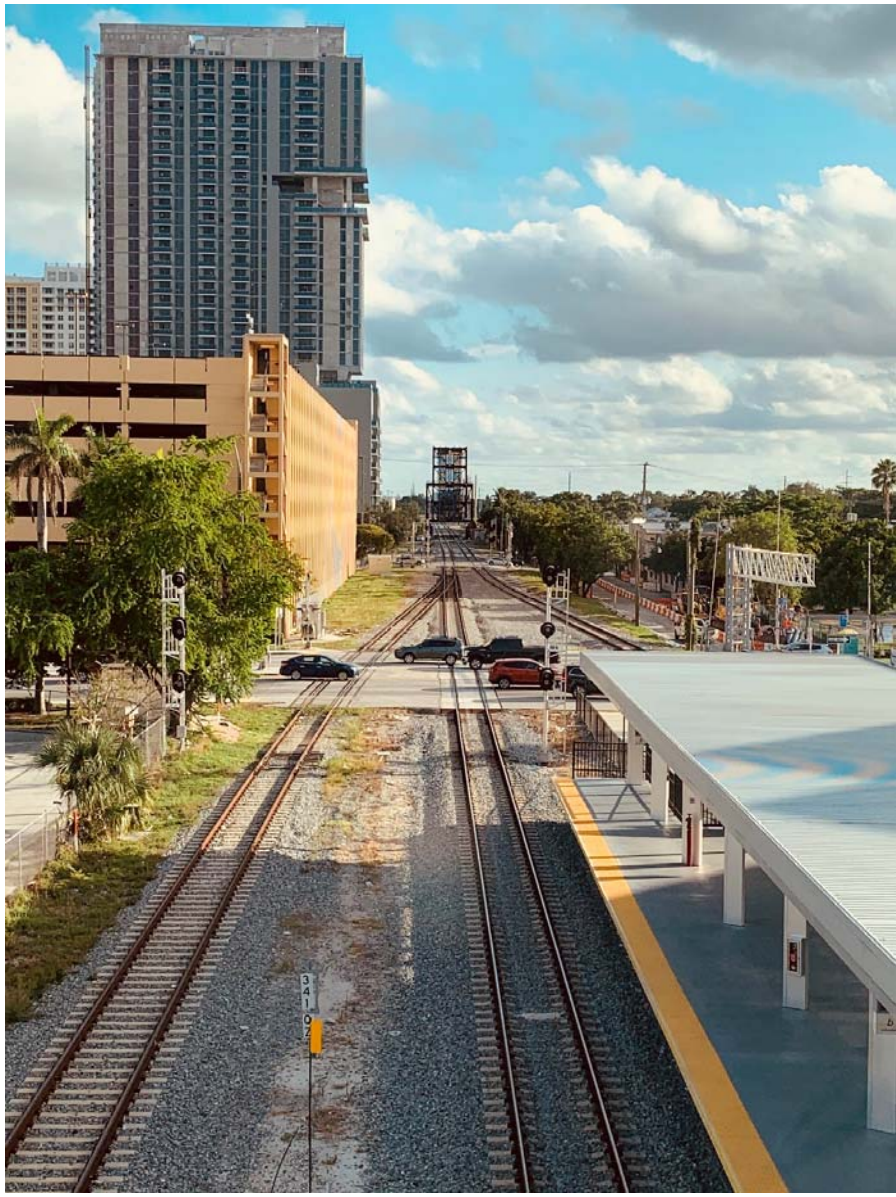


(*) For FDOT to advance this project into the PD&E phase, the following needs to be completed:

1. An agreement must be developed that allows public transit to operate within the rail corridor.
2. Local funding sources must be identified to cover annual O&M cost

Next Steps

- Feasibility Report
  - Recommend Alternatives to advance to PD&E
  - Timeline of Future Project Phases
  - Railroad Access Agreement
  - Potential Funding Sources Identified
- Report to be submitted to Legislature by January 2, 2020



Questions