January 2022

Florida Department of Transportation, District Four

Broward Commuter Rail

Project Development and Environment (PD&E) Study
Financial Management #: 417031-5-22-01
Efficient Transportation Decision Making #: 14474

BROWARD COMMUTER RAIL (BCR)
PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY

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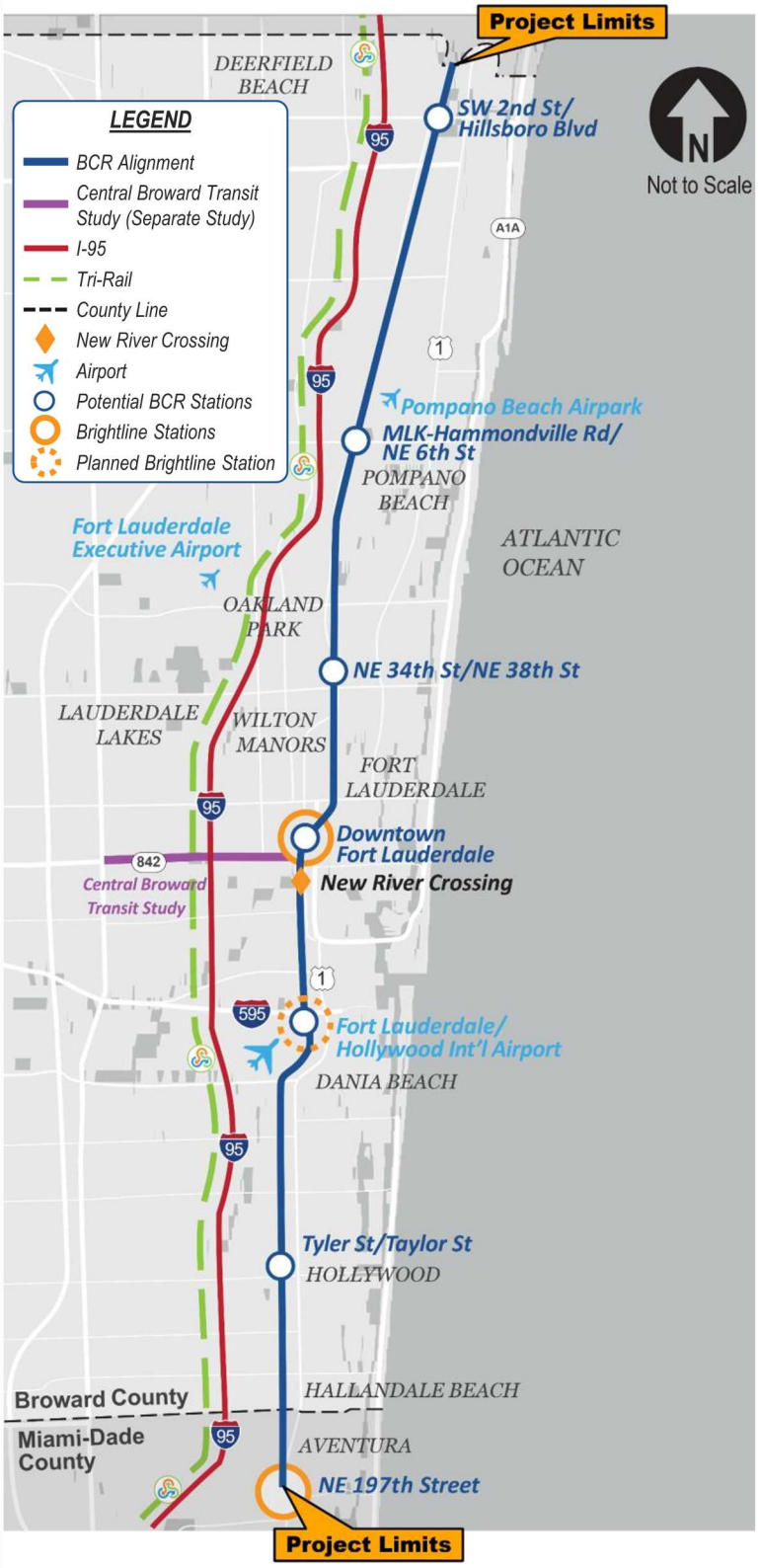
PROJECT UPDATE



The Florida Department of Transportation (FDOT) District Four and Broward County are performing a Project Development and Environment (PD&E) Study for the Broward Commuter Rail (BCR) which will provide commuter rail service along the Florida East Coast (FEC) Railway from Aventura in Miami-Dade County to Deerfield Beach in Broward County (27 miles).

Benefits of Commuter Rail include:

- Enhances quality of life by increasing mobility, transportation choices, and access to jobs and services
- Transit options can improve travel times and provide congestion relief on roadways
- Economic development increases tax base, affordable/workforce housing incentives, and funding for transit
- Environmental benefits include sustainability, reduced vehicle emissions, and cleaner air
- Employer benefits include access to a wider talent pool and enhanced productivity

The station locations and determining how the passenger rail facility will cross the New River in Fort Lauderdale are key aspects to consider in the recommendation of a Locally Preferred Alternative (LPA). The LPA is the alternative that will be selected by the Broward County Commission and endorsed by the Broward Metropolitan Planning Organization (MPO). Once the LPA is determined, the alternative will be refined, and additional stakeholder meetings will be held as the LPA is further analyzed and compared to the No-Build Alternative as part of the Federal Transit Administration (FTA) National Environmental Policy Act (NEPA) process.

The study goals for each alternative include:

- Improve connectivity and mobility
- Avoid, minimize, or mitigate potential impacts to environmental and community resources
- Enhance aesthetic/visual effects by including themes, decorative walls, landscaping, streetscaping, and architectural features for structure designs
- Minimize and mitigate any temporary impacts
- Evaluate cost effectiveness and cost feasibility

Florida Department of Transportation Mission Statement

The Department will provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities.

STATIONS

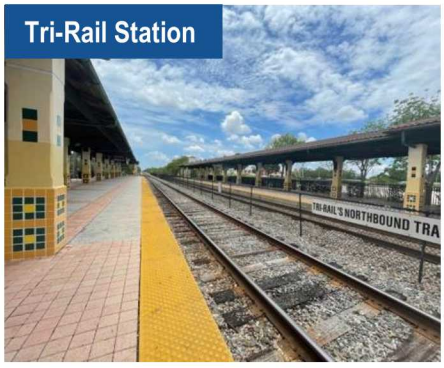
Commuter rail stations are similar to Tri-Rail and SunRail stations and typically include:

- Platform (500 feet long)
- Canopy
- Ticket Vending Machines (TVM)
- Schedule Handouts and Boards
- Wayfinding Signs & Audio
- Benches, Bike Racks, and Garbage Cans
- Security Cameras
- Protection Railings
- Stairs and ADA Ramps
- Parking

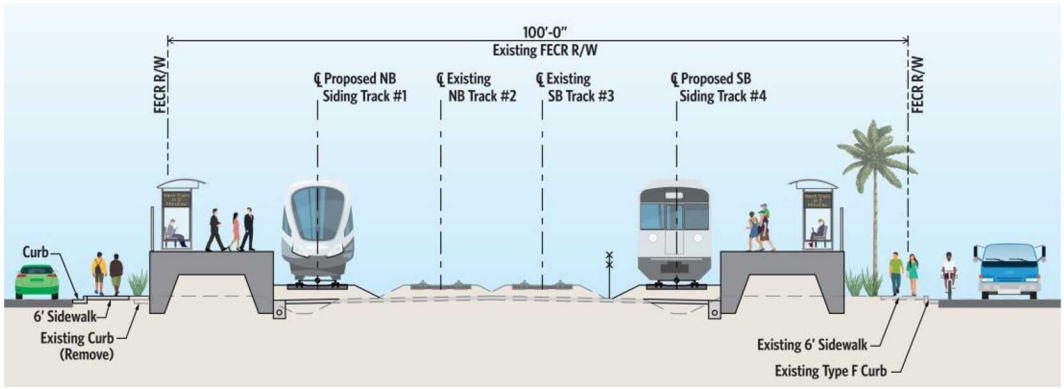
Pedestrian access bridges are not anticipated but will be evaluated.

Stations are recommended at:

- Deerfield Beach
- Pompano Beach
- Oakland Park
- Downtown Fort Lauderdale
- Fort Lauderdale-Hollywood International Airport
- Hollywood



Example Station Platform Typical Section



NEW RIVER CROSSING ALTERNATIVES

The New River is located in downtown Fort Lauderdale. In response to the state legislative action, a New River Feasibility Study was completed in 2020 to evaluate a New River crossing connection as part of the Broward Commuter Rail project. The study, which included extensive stakeholder and agency coordination, resulted in the following primary considerations for passenger rail operations:

- Maintain maritime, freight, and passenger operations
- Keep the freight bascule bridge in service
- Accommodate the planned Premium Transit on Broward Boulevard
- Connect to the Brightline station in downtown Fort Lauderdale
- Improve connectivity in downtown Fort Lauderdale
- Mitigate, minimize, or avoid impacts to historic resources, neighborhoods, and private properties

As a result, four New River crossing alternatives are under evaluation:

❑ **Low-Level Bascule Bridge**

- 25-foot clearance over the New River water surface
- 1,400-foot-long bridge
- Bridge limits extend from south of Broward Boulevard to SW 6th Street (1.1-miles)

❑ **Mid-Level Bascule Bridge**

- 56.5-foot clearance over the New River water surface
- 8,000-foot-long-bridge
- Bridge limits extend from north of Andrews Avenue to south of SW 9th Street (2.8-miles)

❑ **High-Level Fixed Bridge**

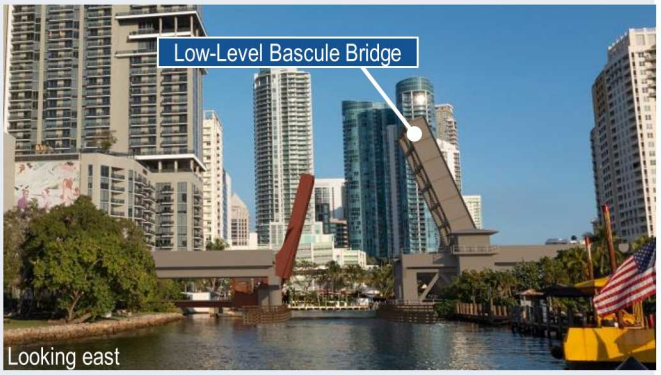
- 80-foot clearance over New River water surface
- 8,000-foot-long bridge
- Bridge limits extend from north of Andrews Avenue to south of SW 9th Street (2.8-miles)

❑ **Tunnel**

- 66 feet below New River water surface
- 9,400-foot-long tunnels (twin 25-foot diameter tunnels)
- Tunnel limits extend from south of Sunrise Boulevard to SW 15th Steet (3.25 miles)
- Portals are required at tunnel openings

A bascule bridge is a type of drawbridge. The Low-Level and Mid-Level Alternatives are both proposed bascule bridges (similar to the existing freight bridge) that would remain in the open position until a train needs to cross the New River. A portal is an approach to the tunnel opening which is approximately 40 feet in depth and 1,200 feet in length that requires walls surrounding the opening to provide support and protection. Each of the New River crossing alternatives has advantages and disadvantages which are described on the following pages.

BENEFITS AND CHALLENGES OF NEW RIVER CROSSING ALTERNATIVES

Benefits	Challenges	Rendering
Low-Level Bascule Bridge		
• 90% of vessels pass when bridge is closed. Note: 80% of vessels serviced by marinas require bridge to be open • Existing Brightline station can remain at-grade, requires minor modifications • Lowest construction cost • Lowest construction disruption • Least number of right-of-way impacts	• Bascule bridge requires annual operations and maintenance (O&M) • Full-time bridge tender required • Large pier to support bascule • Closes SW 5th Street • Passenger Trains remain at-grade across Broward Blvd	
Mid-Level Bascule Bridge		
• 99% of vessels pass when bridge is closed • No cross street closures • Passenger train passes over these cross streets: N Andrews Ave, Sistrunk Blvd, NW 4th St, Broward Blvd, Himmarshee St, SW 5th St, SW 6th St, SW 7th St, and SW 9th St	• Bascule bridge requires annual O&M • Full-time bridge tender required • Large pier to support bascule • Higher costs and more right-of-way impacts than Low-Level • Requires elevated station • Requires reconstruction of Brightline Station • Segment of SW 2nd Ave closed between SW 10th and SW 11th St	
High-Level Fixed Bridge		
• 100% of vessels able to pass under bridge. • No additional permanent impediment to navigation • No cross street closures • No bascule bridge pier or O&M • Passenger train passes over these cross streets: N Andrews Ave, Sistrunk Blvd, NW 4th St, Broward Blvd, Himmarshee St, SW 5th St, SW 6th St, SW 7th St, and SW 9th St	• Higher costs and more right-of-way impacts than Low-Level • Requires elevated station • Requires reconstruction of Brightline Station • Segment of SW 2nd Ave closed between SW 10th and SW 11th St	
Tunnel		
• 100% of vessels can traverse New River • No additional permanent impediment to navigation • Passenger train passes under these cross streets: N Andrews Ave, Sistrunk Blvd, NW 4th St, Broward Blvd, Himmarshee St, SW 5th St, SW 6th St, SW 7th St, SW 9th St, and Davie Blvd	• Highest construction cost • Most right-of-way impacts • Requires underground station • Requires reconstruction of Brightline Station • Closes SW 15th St • Closes NE 5th Terr at Sunrise Blvd • Additional O&M requirements (e.g. jets fans, air conditioners, ventilation, etc.) • Portals require more right-of-way and longer walled approaches	

ENVIRONMENTAL SUMMARY OF NEW RIVER CROSSING ALTERNATIVES

The previous page explained the engineering differences between the four New River Crossing (NRC) Alternatives. This page highlights the environmental considerations for each of the NRC Alternatives. The alternatives have been and will continue to be designed to avoid and minimize impacts to adjacent properties, mitigate for impacts where avoidance is not feasible, and enhance features that bring value to the community.

Community Cohesion

The NRC alternatives are not anticipated to divide communities or disrupt community cohesion. The bridge alternatives parallel the existing FEC railroad but are elevated, allowing cross movement of vehicles, pedestrians, and cyclists below the structure, at dedicated crossings. Similarly, the tunnel alternative does not further divide communities, since it is located underground, other than at the north and south portals. The portals require approximately 1,200 feet of wall at each location. The bridge alternatives require approximately 600 feet of wall to tie-into the existing ground. The NRC Alternatives take Brightline trains above/below Downtown Fort Lauderdale, further enhancing east-west connectivity.

Historic Properties

The NRC alternatives avoid direct impacts to adjacent historic properties listed on the National Register of Historic Places. However, the bridge alternatives may cause indirect impacts due to viewshed changes (i.e., a bridge will be visible from the historic properties). One way to mitigate this potential impact is to design the bridge in an aesthetic manner in close coordination with the City and the Historic Districts.

Aesthetics

Aesthetic preferences are unique to each community, and therefore, whichever alternative is selected as the LPA will be designed with input from the communities, the City, the Historic Districts, elected and appointed officials, and stakeholders to ensure the selected alternative complements the City and its vision for redevelopment.

Contamination

Encountering contaminated properties is possible with any of the NRC Alternatives. The Mid-Level and High-Level Bridge Alternatives have similar risks for contamination due to the amount of soil excavation and dewatering required. The Tunnel Alternative has considerably more soil excavation and dewatering required to bore the twin tunnels and construct the underground station and the portals, and therefore, has a more significant risk of encountering contamination.

Noise

The existing freight trains generate noticeably higher noise levels than passenger rail trains and over a longer period of time. Based on the noise modeling analysis, the elevation of the proposed passenger rail does not result in substantially higher noise levels adjacent to the corridor. The overall predicted noise levels are similar between NRC Alternatives and the total amount of noise generated is comparable to the existing condition. The Tunnel Alternative will shield the adjacent properties from the passenger rail activity between the tunnel portals, resulting in the lowest predicted noise levels downtown, but there is some additional noise at the tunnel portals.

Neighborhood Connectivity

The Mid-Level and High-Level bridges provide the best multimodal connectivity by maintaining all connections under and over the railroad. Only short segments of planned trails would have to be relocated to the adjacent block with these alternatives. The Low-Level Alternative provides the next best connectivity, but it requires the closure of SW 5th Street, for both pedestrians and vehicles. SW 7th Street would be the alternate route. Similar to the Mid-Level and High-Level Alternatives, short segments of planned trails would need to be relocated. The Tunnel Alternative requires the closure of SW 15th Street south of Davie Boulevard and NW 5th Terrace at the Sunrise Boulevard intersections. The tunnel requires the most roadway closures due to the length and depth of the tunnel openings (portals)

Resiliency

The NRC bridge alternatives are more resilient than the Tunnel Alternative. Bridges can sustain flooding and storm surge events with little to no impacts. Tunnels are more challenging, as sea-level rise, saltwater intrusion, hurricanes, and storm surges can cause extensive water intrusion and damage. For example, Hurricane Sandy flooded New York City's subway system, taking weeks to restore service and billions of dollars to repair. Boston's Central Artery Project, known as the "Big Dig," is another example of a tunnel that has experienced water intrusion and corrosion issues. Resiliency measures such as pump systems and floodgates, similar to those at PortMiami tunnel, can be designed into the Tunnel Alternative but result in additional capital and O&M costs.

PRELIMINARY RIGHT-OF-WAY IMPACTS

There are three types of property rights that may be purchased from private property owners (right-of-way). These include the purchase of full property rights, aerials easements, and underground easements.

1. Proposed Right-of-Way (full property rights) – The purchase of full property rights of the area needed in order to construct, secure, and operate the Broward Commuter Rail.
2. Aerial Easements – The purchase of rights to construct, operate, and maintain the Broward Commuter Rail above a property, that will allow the property owner to use the property under the overhang.
3. Underground Easements – The purchase of rights to construct, operate, and maintain a tunnel below a property, that will allow the property owner to use the property above the tunnel.

The below table shows the breakdown of the private property right-of-way required for each of the New River Crossing Alternatives.

	BCR Corridor		Low-Level Bascule		Mid-Level Bascule		High-Level Fixed		Tunnel	
Number of Properties Affected (private properties)	**36**		**0**		**34**		**34**		**103**	
Type of Right-of-Way	***No.***	***Acres***	***No.***	***Acres***	***No.***	***Acres***	***No.***	***Acres***	***No.***	***Acres***
Proposed Right-of-Way	*36*	*7.5*	*0*	*0*	*32*	*2.4*	*32*	*2.4*	*58*	*5.1*
Aerial Easements	*0*	*0*	*0*	*0*	*8*	*0.3*	*11*	*0.3*	*0*	*0*
Underground Easements	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*48*	*12.3*

PROJECT COSTS

Modifications to the existing Brightline Station north of Broward Boulevard is a key component of the New River Crossing alternatives' costs. Both the Mid and High-Level bridge alternatives require elevated stations with passenger platforms above the existing station. The tunnel encounters similar, but much costlier challenges as it requires an underground station. The tunnel is approximately 9,400 feet long and must be extended to the north to connect with the existing tracks.

The construction cost estimates for the four New River Crossing alternatives shown below are in addition to the corridor cost of the 27-mile project. The Federal Transit Administration (FTA) Capital Improvement Grant (CIG) funding is competitive. Therefore, the capital cost must meet FTA's cost effectiveness requirements for this project to be competitive. The New River Crossing capital cost may not be included in the CIG cost effectiveness formula and separate funding sources will be needed.

	Low-Level Bascule	Mid-Level Bascule	High-Level Fixed	Tunnel
	New River Crossing Alternative Costs			
New River Crossing	$240 M	$444 M	$452 M	$1.82 B
Right-of-Way (private)	$0 M	$98 M	$98 M	$148 M
Operations & Maintenance [1]	- Bridge Tender - Mechanical Systems	- Bridge Tender - Mechanical Systems	- Regular Maintenance	- Underground Station - Ventilation Systems
	Corridor Costs			
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 Costs			
Operations & Maintenance (O&M) [1]	$18 - $28 M	$18 - $28 M	$17 - $27 M	$18 - $28 M
Access Fee [3]	TBD			

[1] O&M costs are per year and are not included in the total capital cost. O&M differences are shown for the New River Crossing Alternatives.
[2] Capital Costs include construction, stations, vehicles, yards, parking, etc.
[3] Access fees are a negotiated fee to allow commuter trains on the Brightline passenger easement on the FEC corridor.

PRELIMINARY NEW RIVER CROSSING EVALUATION MATRIX

Below is the preliminary evaluation matrix for the New River Crossing (NRC) Build Alternatives. One or more of these alternatives will be evaluated against the No-Build Alternative during the NEPA environmental process. The evaluation matrix is preliminary and subject to change pending additional analysis that will be completed during the study.

Evaluation Category	Low-Level Bascule	Mid-Level Bascule	High-Level Fixed	Tunnel
Navigational Accommodations				
Vehicular Traffic Operations				
Socio-Cultural Resources - Historic				
Contamination Risk				
Resiliency				
Right-of-Way Impacts				
Noise				
Neighborhood Connectivity – Bicycle/Pedestrian/Vehicle Local Connections				
Operations and Maintenance Costs				
Capital Costs	See Cost Table on Page 5			

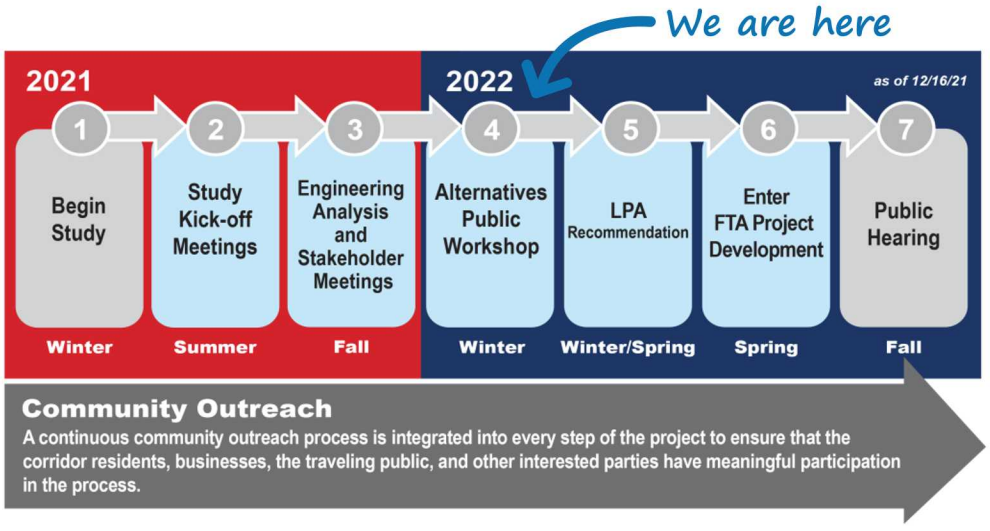
Comparative Rating: Worst | Better | Best

PUBLIC INVOLVEMENT

The project has had extensive public participation since inception. In August 2021, over 300 people attended hybrid Public Kickoff Meetings. At these meetings, the project team explained the PD&E process and associated analyses that will be completed during the study or had already been completed. Technical recommendations for station locations including the evaluation report, meeting materials, and recordings of those sessions are available on the project website. The project website (www.browardcommuterrailstudy.com) serves as the most up to date resource on the project progress, documents, and upcoming public involvement opportunities. At the NRC Workshop in November 2021, over 60 in-person and 100 virtual attendees provided comments to help guide the NRC alternative development and analysis process. In addition to public meetings, dozens of stakeholder meetings are held monthly. If you are interested in having the project team present the project to your business or homeowner group, please contact our Project Manager below.

SCHEDULE / NEXT STEPS

The Broward County Commission and the Metropolitan Planning Organization (MPO) will vote on a Locally Preferred Alternative (LPA) in the spring, which will identify the general station locations and an alternative for the New River Crossing. The LPA is necessary to enter the FTA Project Development process, complete the NEPA environmental phase, and allow the project to compete for federal funds through the FTA Capital Improvement Grant program.



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Public participation is solicited without regard to race, color, national origin, age, sex, disability, or family status.