2.2 Existing Environmental Conditions

As part of the Beach Corridor analysis, the existing environmental conditions of the two conceptual bay crossings were evaluated: the I-195/Julia Tuttle Causeway bay crossing and the SR A1A/ MacArthur Causeway bay crossing. The desktop analysis involved downloading the most recent data layers from the Florida Geographic Data Library (FGDL) for each environmental resource and clipping the data to a buffer surrounding each corridor in ArcGIS. The buffer radius used in the analysis varied for each environmental resource and is specified in the sections below.

A matrix was developed to compare the impacts and benefits to resources between the two alternative bay crossings (**Table 2-1**). Positive impacts, or benefits were assigned a "+" and negative impacts were assigned a "-". If there was no involvement or no impact or benefit, a "0" was assigned. The following describes the findings of the desktop analysis.

2.2.1 Social and Economic

2.2.1.1 Demographics

The demographic data was obtained by conducting a search in the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST), using a one-quarter mile buffer for each bay crossing. Data was obtained from the 2017 American Community Survey. The population is slightly greater for the MacArthur Causeway bay crossing (5,700) compared to the I-195 bay crossing (4,033). However, it is important to note that the population and demographic data does not include residents on Hibiscus Island or part of Star Island, both of which connect directly to the MacArthur Causeway. Within the one-quarter mile buffer, the percentage of persons between the ages of 20 and 64 who experience a disability in the MacArthur Causeway bay crossing area is 5.59%, which is very close to the 5.36% of those in the I-195 bay crossing. However, the percentage of persons who identify as minorities within the MacArthur Causeway bay crossing is 54.98%, compared to 61.64% within the I-195 bay crossing area. The MacArthur Causeway bay crossing has a slightly higher median income ($77,500) and a slightly higher median housing value ($387,500) compared to that of the I-195 bay crossing ($69,500 and $321,700, respectively). Despite this, 54.69% of the population over the age of 25 within the MacArthur Causeway bay crossing have college degrees or higher, compared to 57.82% within the I-195 bay crossing. In addition, 20.61% of the households within the vicinity of the MacArthur Causeway bay crossing do not have access to a vehicle compared to 10.15% of those within the I-195 bay crossing buffer area. Based on this data, the benefit to the surrounding community would be the greatest for the MacArthur Causeway bay crossing.

2.2.1.2 Community Facilities

The presence of community facilities in each alternative corridor was gauged using a one-quarter mile buffer. A map of these facilities is shown in **Figure 2-1**. Based on the data, the I-195 bay crossing has a greater number of community facilities within the buffer than the MacArthur Causeway crossing, 96 compared to 32, respectively. Within the vicinity of the I-195 bay crossing, there are 40 healthcare centers, 21 laser facilities, nine cultural centers, eight schools, six group care facilities, five religious centers, three community center, one hospital, one government building, one assisted housing, one social services and no civic centers. The MacArthur Causeway bay crossing contains three healthcare centers, two laser facilities, four cultural centers, eight schools, five group care facilities, three religious centers, two community centers, three assisted housing, two civic centers and no hospitals, government buildings or social services. The I-195 bay crossing connects to the Miami Design District whereas the MacArthur Causeway bay crossing connects with Downtown Miami. Therefore, even though the I-195 bay crossing connects to more facilities, both crossings are similarly important in terms of accessibility to social, cultural, civic or community centers.

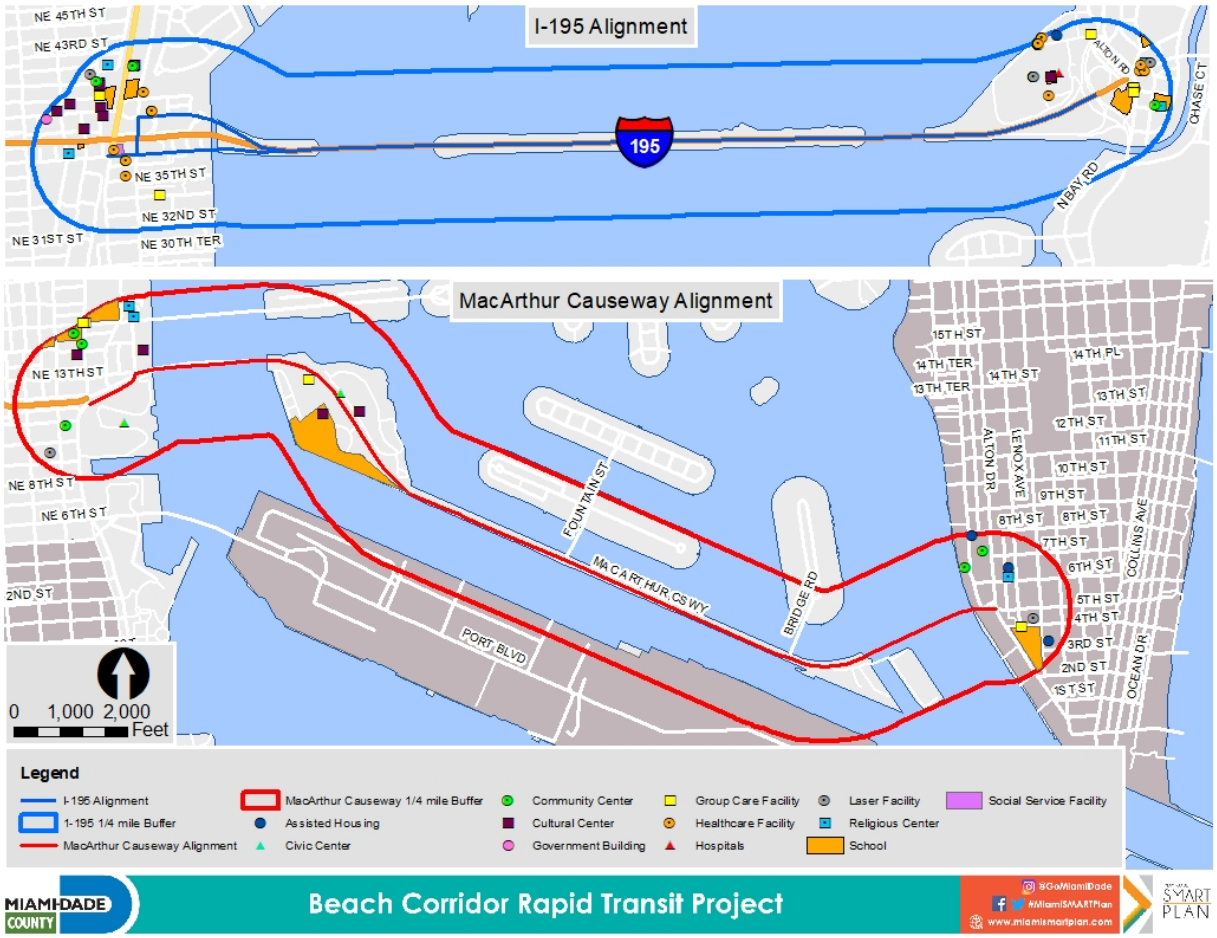

Figure 2-1. Community facilities present within a one-quarter mile of each bay crossing.

2.2.1.3 Mobility

The proposed bay crossings run parallel to each other and link Miami to Miami Beach, providing greater accessibility to core areas in both cities. Each alternative presented would be compliant with safety and Americans with Disabilities Act (ADA) guidelines, proving equally viable in this regard. The purpose of the project is to increase the person-throughput to the Beach Corridor's major origins and destinations via rapid transit technology. Both Miami and Miami Beach have or propose bus transit circulators and express bus is also proposed in several areas of Miami-Dade County. However, the MacArthur Causeway Bay Crossing would also allow connection to the Metromover at the Museum Park Station. Connection to the Omni Loop of the Metromover system would allow connections to the Inner and Brickell Loops as well as to Metrorail and Brightline transits. Therefore, the MacArthur Causeway bay crossing has better potential for increased mobility.

2.2.1.4 Aesthetic Effects

Both Light Rail Transit/Modern Streetcar (LRT) and Bus Rapid Transit (BRT) would occur within at-grade, dedicated lanes. Therefore, the aesthetic effect for each bay crossing would be similar. There are more residences with a view of MacArthur Causeway than there are with a view of I-195. In addition, recreational facilities are present on Watson Island on the MacArthur Causeway and there are none on I-195. Still, due to the at-grade bay crossings in an urbanized area, aesthetic effects are anticipated to be minimal.

2.2.1.5 Relocation Potential

The two proposed bay crossings are anticipated to generally occur within the existing rights-of-way. No residential or business relocations are proposed along either of the bay crossings.

2.2.2 Cultural

2.2.2.1 Historical/Archaeological

In regard to historical and archaeological features within the alternative corridors, a 300-foot buffer was used. The locations of these features can be seen in **Figure 2-2**. The I-195 bay crossing has a greater number of features eligible for listing in the National Register of Historic Places (NRHP) and resources that have not been evaluated by the State Historic Preservation Officer (SHPO). The I-195 bay crossing has two features that are eligible for NRHP and eight features that have not been evaluated by SHPO. The MacArthur Causeway bay crossing has no features eligible for NRHP and five features that have not been evaluated by SHPO. To reduce disruption to potentially historic resources, the MacArthur Causeway bay crossing may be preferred.

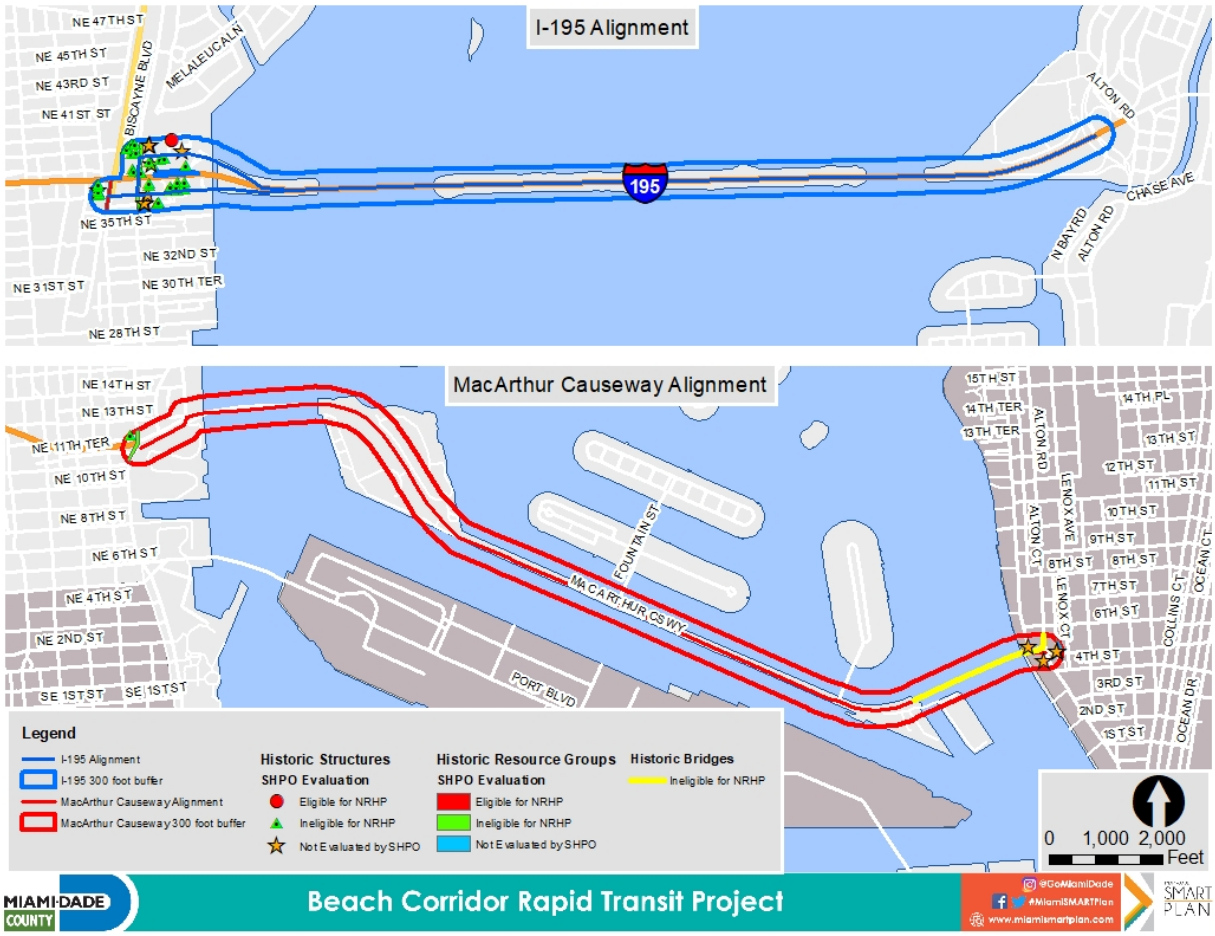

Figure 2-2. Historical features within a 300-foot buffer of each bay crossing.

2.2.2.2 Recreational Sites

A 200-foot buffer was used to analyze potential impacts to recreational sites (**Figure 2-3**). There are several recreational sites that are within a 200-foot radius of the two bay crossings. The All Aboard Florida Rail with Trail parallels the Florida East Coast (FEC) Railway. The M-Path, which parallels the Metrorail and the East Coast Greenway, coincide within the buffer for the MacArthur Causeway in Miami. The M-Path is a 10-mile, urban trail only in Miami-Dade County underneath the Metrorail line, whereas, the East Coast Greenway is a 3,000-mile, mostly off-road trail from Key West, Florida to Calais, Maine. The East Coast Greenway is also present in Miami Beach. In addition, the Florida Circumnavigational Saltwater Paddling Trail crosses under bridges at both I-195 and the MacArthur Causeway. No impact to the trails is anticipated.

Each bay crossing also neighbors several parks, as shown in **Figure 2-3**. Bicentennial Park, now called Maurice A. Ferré Park, Watson Island Park and the Watson Island Baywalk and Boat Ramp are present on MacArthur Causeway. Albert Pallot Park, Stearns Parks, Martell Park and Woodson/MIAI Design are present adjacent to I-195. No direct impacts to parks are anticipated; however, project effects to parks would be similar for both bay crossings.

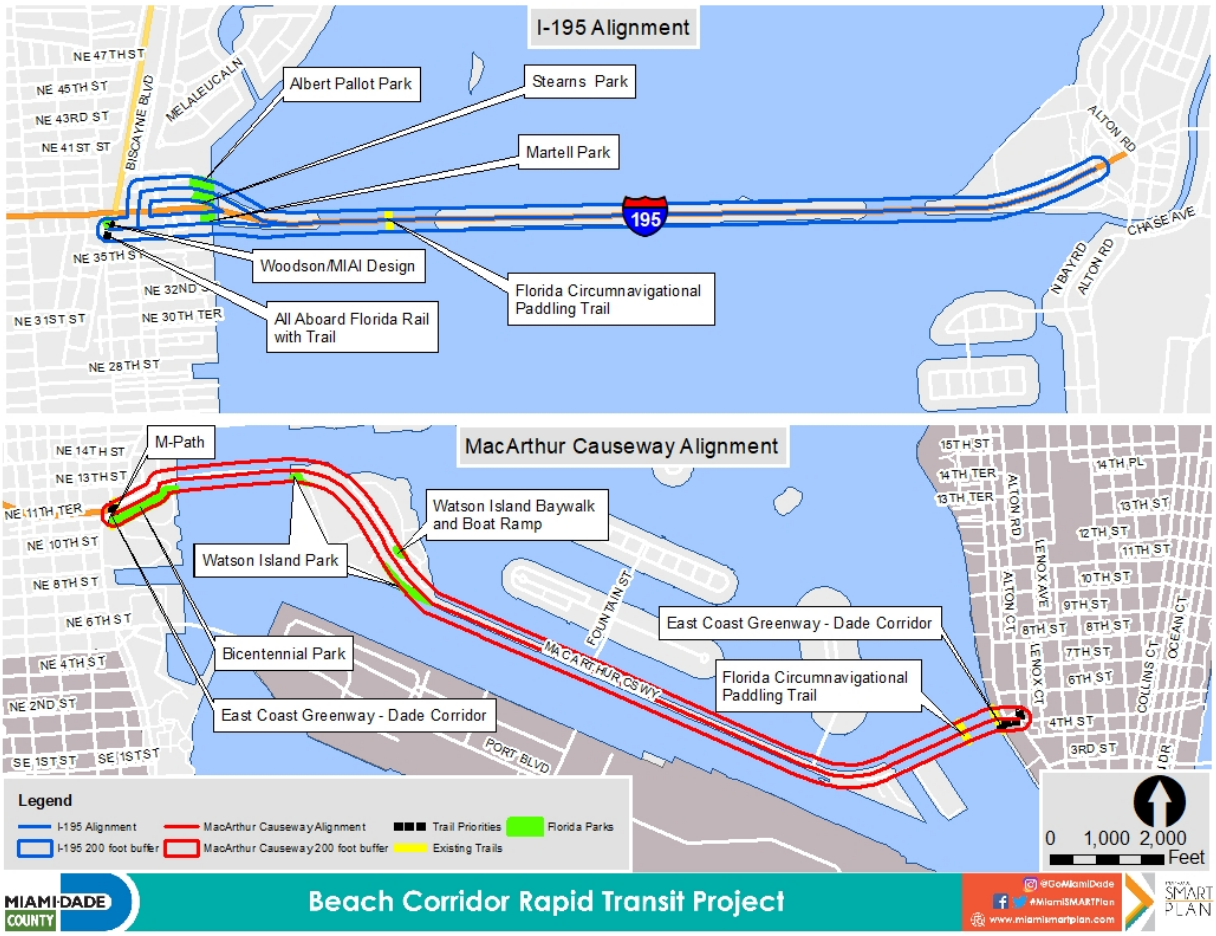

Figure 2-3. Recreational facilities present within a 200-foot radius of each bay crossing.

2.2.3 Natural

2.2.3.1 Wetlands and Other Surface Waters / Coastal and Marine

According to the National Wetlands Inventory, there are no wetlands present within a 200-foot buffer of the two bay crossings. No mangrove areas were identified in the desktop analysis, although white mangroves may be present on the uplands on both causeways. Both I-195 and MacArthur Causeway fall

within Biscayne Bay Aquatic Preserve, an Outstanding Florida Water. Seagrass areas and Critical Habitat for Johnson's seagrass are also present within the buffer for each corridor (**Figure 2-4**). Forty-six percent of the MacArthur Causeway bay crossing falls within the critical habitat for Johnson's seagrass compared to 29 percent of the I-195 bay crossing. Despite this, more of the I-195 bay crossing area falls within identified seagrass areas (17 percent) compared to the MacArthur Causeway bay crossing (seven percent). Coral species may also be present adjacent to the causeways and under the bridges. Involvement with aquatic resources and coastal and marine designations and habitats are anticipated to be similar for both crossings.

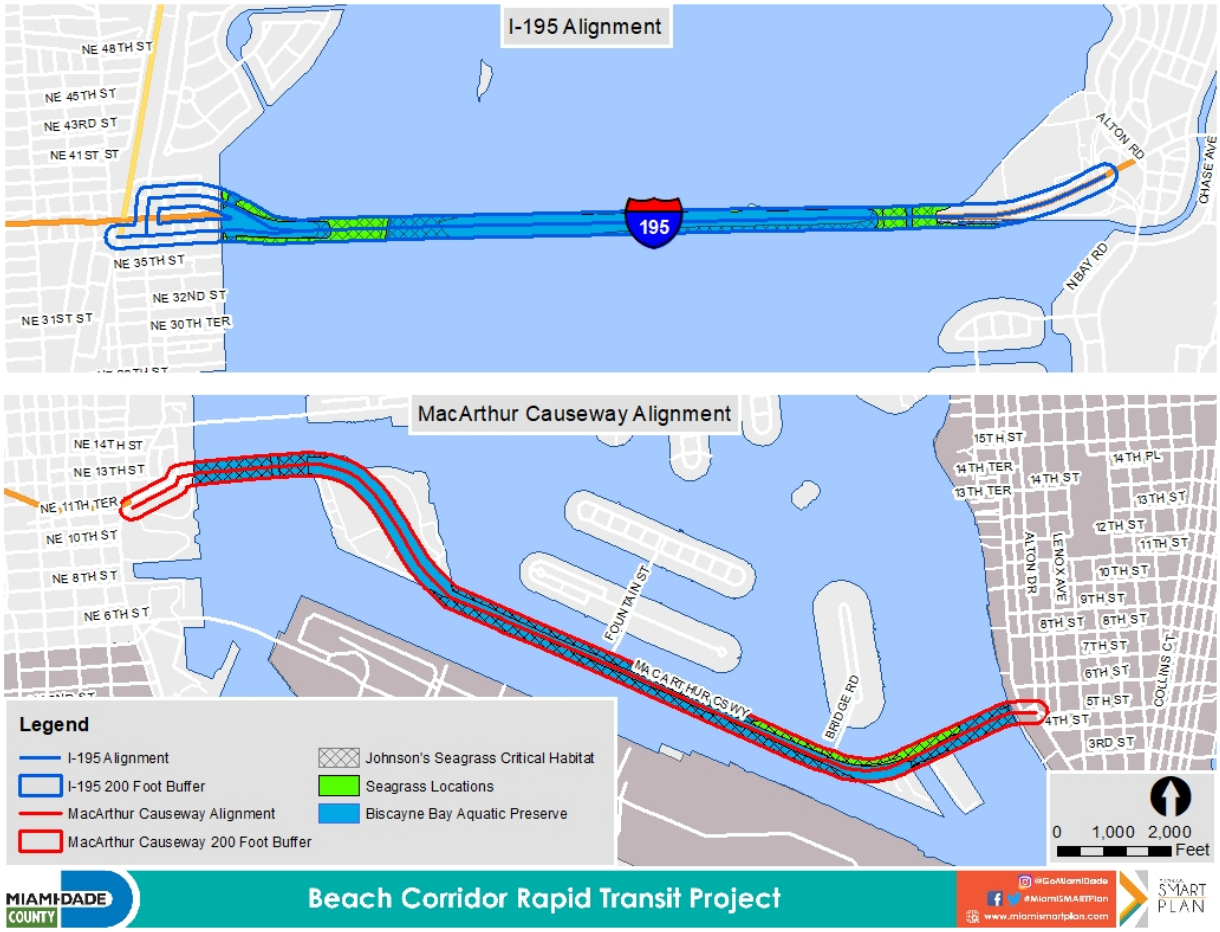

Figure 2-4. Seagrass and Aquatic Preserve Areas for each bay crossing.

2.2.3.2 Protected Species and Habitat

Each bay crossing falls entirely within the United States Fish and Wildlife Service (USFWS) Consultation Areas for the West Indian manatee, piping plover, American crocodile, Florida bonneted bat and Atlantic

Coast Plants. Construction conditions for protected species will be implemented as part of the project. Impacts to protected species are anticipated to be similar for both crossings.

2.2.3.3 Floodplains

Federal Emergency Management Agency (FEMA) floodplain data was evaluated for a 200-foot buffer around each alternative alignment. According to FEMA floodplain maps, the entire MacArthur Causeway bay crossing lies within the 100-year floodplain. Approximately, 20 percent of the I-195 bay crossings lies outside of the 100-year floodplain. Considerations for transit within a 100-year floodplain would be required for both bay crossings. Therefore, the effect of the project on the floodplain is anticipated to be similar for both bay crossings.

2.2.4 Physical

2.2.4.1 Noise and Vibration

Residences were considered the primary noise-sensitive receptors and community features were of secondary importance. Of the two bay crossings, the I-195 bay crossing has a lower population within a one-quarter mile buffer; the MacArthur Causeway has approximately 40 percent more residents within a quarter mile of the proposed corridor. Despite this, there are three times the number of community features within the I-195 bay crossing that may potentially be sensitive to noise and vibration effects during construction. Therefore, noise and vibration may have a larger effect on residents along MacArthur Causeway and a larger potential effect to community features in the I-195 alternative corridor.

2.2.4.2 Air Quality

The current data on the United States Environmental Protection Agency (USEPA) website indicates that the three alternative corridors are not located within a USEPA-designated Air Quality Maintenance or Non-Attainment Area. Therefore, the Clean Air Act conformity requirements do not apply at this time. Neither LRT or BRT are anticipated to have a negative impact on air quality.

2.2.4.3 Contamination

Three buffers were used for the review of contaminated sites: 500 feet for contaminated and Brownfield sites; 1,000 feet for non-landfill solid waste sites and one-half mile for landfills, National Priority List (NPL) and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Superfund sites. There are no solid waste sites within 1,000 feet of either bay crossing. Additionally, there

are no landfill, NPL or CERCLA Superfund sites within a one-half mile radius of either bay crossing. Sites within the 500-foot buffer for each bay crossing are shown in **Figure 2-5**.

Regarding Brownfields, both bay crossings are within the Miami Area Brownfields and contain two additional Brownfield sites within 500 feet. Regarding potential contamination sites, the I-195 bay crossing has only one contaminated site compared to nine in the MacArthur Causeway bay crossing. A more detailed analysis of contamination in the existing right-of-way would be required to determine the impacts of Brownfields or contaminated sites on the project.

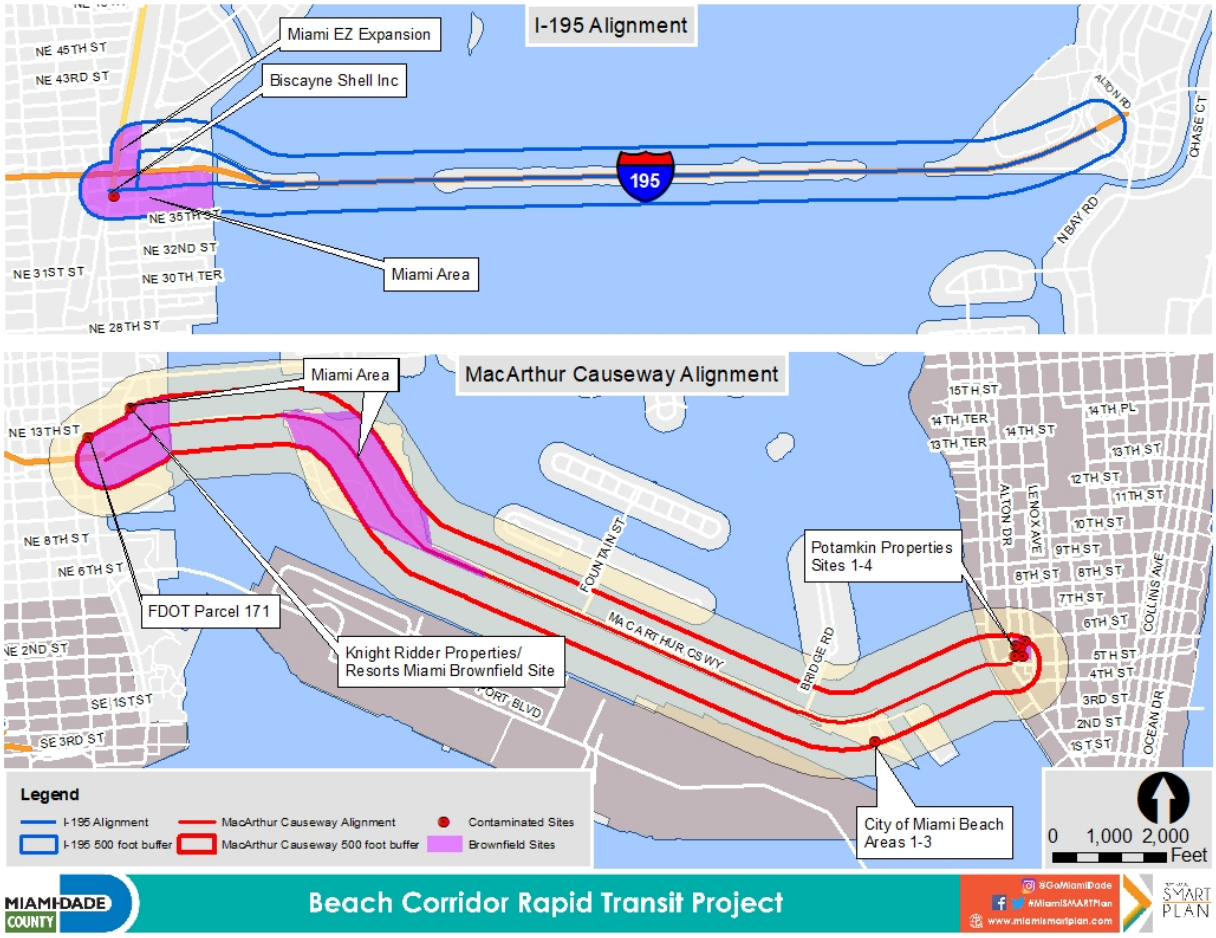

Figure 2-5. Brownfields and contaminated sites within 500 feet of each bay crossing.

Table 2-1 contains an evaluation matrix of the environmental factors affecting the bay crossing corridor analysis.

Table 2-1. Relative Environmental Impacts and Benefits for Each Bay Crossing

ALTERNATIVE	I-195	MacArthur Causeway
Social and Economic		
Demographics	+	+ +
Community Facilities	+ +	+ +
Mobility	+	+ +
Aesthetic Effects	0	0
Relocation Potential	0	0
Cultural		
Historical/Archeological Resources	— —	—
Recreational Facilities	0	0
Natural		
Wetlands / Coastal and Marine	—	—
Protected Species and Habitat	—	—
Floodplain	0	0
Physical		
Noise and Vibration	—	— —
Air Quality	0	0
Contamination	—	— —

+ or ++ = Relative Benefit, - or -- = Relative Adverse Impact, 0 = No Impact or Benefit