FLORIDA DEPARTMENT OF TRANSPORTATION

HISTORIC HIGHWAY BRIDGES OF FLORIDA, ADDENDUM 2025

FDOT

OCTOBER 2025

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Introduction

In 2024, the Florida Department of Transportation (FDOT) Office of Environmental Management (OEM) retained Stantec and Janus Research to update the decennial bridge survey, called the *Historic Highway Bridges of Florida* (colloquially known as The Bridge Book), that is conducted by FDOT OEM.

The current document provides the updated historic context for bridge development in the state of Florida, covering 1970 to 1980 and National Register of Historic Places (National Register) evaluations for the 50 field visited bridges. This document is intended to complement the earlier editions of the Bridge Book (2002 and 2010/2012). Themes discussed in the context will include the role of the environmental movement, economic slowdown, safety concerns, the rapidly expanding statewide population, and engineering advances on bridge development during this period.

Recommendations

As a result of background research, 50 bridges were field visited and evaluated for eligibility for the National Register. Sixteen (16) of the bridges are individually eligible for the National Register. Eleven (11) of the bridges are eligible for the National Register under Criterion A for their association with the development of Florida during the late twentieth century and Criterion C for their engineering significance. The remaining five (5) bridges are eligible for the National Register under Criterion C for their engineering significance. Ten (10) of the bridges were found to have insufficient information to evaluate for National Register eligibility. Twenty-three (23) bridges are considered National Register ineligible based on their commonality or lack of historic association. Finally, the last bridge identified for field survey in Phase 1 of this project (one of the culverts) was found to have been replaced (Bridge no. 764032). Florida Master Site File (FMSF) forms were completed for all field surveyed bridges that were extant.

Additional bridges were identified that were potentially significant but were not field surveyed. These bridges are associated with the Intracoastal Waterway (IWW) and the modern Overseas Highway.[1] The 10 bridges surveyed that were associated with the IWW and were not found to be individually eligible were evaluated as Insufficient Information. Although the bridges crossing the IWW are a related group according to their use and location, the bridges do not form a cohesive resource group. Bridges constructed to cross the IWW should be individually evaluated for the National Register for their association with local and regional historical themes related to the IWW. Background research revealed the potential for a resource group composed of the modern Overseas Highway, consisting of 43 bridges and the US 1/SR 5 roadway that was constructed between 1973 and 1988 to replace the historic Overseas Highway. One of the bridges in the resource group, the Long Key Bridge (Bridge No. 900094) was field surveyed and evaluated for individual eligibility.

[1] The Intracoastal Waterway has numerous common abbreviations besides the one used in this document, IWW. Other abbreviations for the same waterway include: ICW and ICWW. These abbreviations are synonymous and can be used interchangeably. Only the IWW is used in this document for consistency.

An FMSF form was completed for the Long Key Bridge. Recordation of the modern Overseas Highway Resource Group and individual components is outside of the scope of the current project.

Some of the bridges that are associated with the IWW and the modern Overseas Highway are currently exempt from National Register evaluation under Section 106 because they meet the criteria in the 2012 Program Comment issued by the Advisory Council for Historic Preservation for *Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges*. Based on the results of the current effort, FDOT will add the post-1945 bridges associated with the IWW and the modern Overseas Highway bridges to the list of excluded bridges from the PA, therefore the bridges will be evaluated for National Register listing during Section 106 reviews. Two of the identified bridges (Bridges No. 500086, 500087) are components of Interstate 10 and are therefore exempt from Section 106 review based on the 2005 *Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System*. Based on their evaluation as being National Register eligible, they will be added to the list of elements that are excluded from the 2005 *Exemption.*

The bridges are discussed in the Results chapter in this document. FMSF forms were completed for all field surveyed bridges and are attached in Appendix A. Bridges that were not field surveyed do not have completed FMSF forms. A survey log sheet is attached in Appendix B.

Evaluation Methodology

Florida Master Site File Search (FMSF) and Literature Review

A historical literature and background information search pertinent to the project was conducted to determine the types, chronological placement, and location patterning of potential cultural resources. The available bridge inventories that are compiled by the FDOT and the Federal Highway Administration (FHWA) were reviewed. The FHWA compilation, the National Bridge Inventory (NBI), is available through the Infobridge website (infobridge.fhwa.dot.gov) and through the Florida Geographic Data Library (FGDL). The FDOT also provides a searchable database of bridges in the state, which was consulted by Janus Research.

This information served as a guide for identifying bridges appropriate for field review. It also provided expectations regarding the potential significance of resources. The results of the review of the NBI data are presented in Table 1. Janus Research then conducted a reconnaissance level survey of the 89 bridges constructed between 1970 and 1980 that did not meet the Program Comment exemptions. The results of the reconnaissance survey of the 89 bridges helped guide the decision on which bridges would be surveyed in Phase 2 of the project.

Table 1: Bridges in Florida, Based on the 2023 NBI Data

	Total Number of Bridges (older than 1981)	Bridges older than 1945	Bridges built between 1946 and 1980	Bridges built between 1946 and 1980 that meet the structure type and material exemptions	Bridges that do not meet the age, structure type, or material exemptions	Bridges constructed during the study period (1970 to 1980) that do not meet the age, structure type, or material exemptions
All	6234	413	5819	5566	489	89
State Highway Agency	2999	208	2791	2715	211	23
Non-State agency	3233	205	3028	2851	278	66

The FMSF serves as an archive of information about Florida's recorded cultural resources. It represents an inventory of resources for which available information exists and describes their condition at a point in time. Because the inventory is not all-inclusive on a statewide basis, gaps in data may exist. The FMSF is only as accurate and as comprehensive as the information that is submitted, and users should be aware of the sometimes-uneven quality of the information. The FMSF is an important planning tool that assists in identifying potential cultural resources issues and resources that may warrant further investigation and protection. It can be used as a guide but should not be used to determine the official position of the FDHR or the SHPO regarding the significance of a resource.

Background Research

Janus Research undertook archival research to identify important engineering trends during the study period and to identify any significant historical associations with bridges at this time period. Researchers reviewed a variety of primary and secondary sources including newspapers, engineering magazines, and academic historic contexts. Research resulted in the identification of several engineering advances that occurred in the time period of 1970 to 1980. Researchers also reviewed a variety of bridge engineering awards that were given during the study period to identify any bridges in Florida that were considered important when they were constructed. Three bridges in Florida were given awards by the American Institute of Steel Construction but only one is still extant, a pedestrian overpass in Maderia Beach (Pinellas County). Transportation issues relating to bridges during the study period were also identified by reviewing newspaper articles for the time period. General histories of the period were utilized to understand the economic and cultural influences during the study period. Federal agency and executive histories were also utilized to understand the laws and regulations that were passed during the time period.

Expert Interviews

Janus Research conducted interviews with cultural resource professionals and FDOT bridge engineers via email in Phase 1 of the project. A survey was submitted to private consultants and FDOT offices via email in August 2023. In June 2024, FDOT and consulting engineers were queried. In both surveys, respondents were asked to provide any insight into engineering advances in the study period (1970 and 1980) and to identify potential bridges for field survey and research. Cultural resource professionals were also queried on the content of the Bridge Book.

The cultural resources professionals survey resulted in 10 anonymous responses. Survey respondents reported that they used the 2010 Bridge Book frequently with the significant historic bridges chapter and tabular data consulted the most often. The least frequently used section was the historic context chapter. Respondents overwhelmingly preferred the use of an Excel spreadsheet for a searchable document and suggested the production of a searchable GIS layer. No specific bridges were identified as being worthy of further research.

Engineers from five districts (District 1, District 3, District 4, District 5, and District 7) responded to the 2024 query. Engineers with two of the districts contacted Janus Research staff by telephone in addition to emailing their responses. The responses from the engineers provided important context on engineering advances during the study period. The responses also provided information on unique bridges or bridge engineering in their districts. Several of the responses from the FDOT engineers resulted in the field survey and evaluation of bridges in Phase 2.

Researchers also queried Stantec engineers in October 2023 to identify important engineering advances in the study period and any bridges that would be appropriate for further research.

As a result of background research, additional bridges were identified that were potentially significant but were not field surveyed. These bridges are associated with the IWW and the Overseas Highway. The bridges are discussed in the Results chapter in this document. Bridges that were not field surveyed do not have completed FMSF forms.

Field Survey Methodology

An architectural historian conducted a historic resources survey of bridges constructed between 1970 and 1980 that were identified in Phase 1. Each bridge was properly mapped and photographed. The historic resources survey used standard field methods to identify and record historic resources. In addition, the previous studies of the project area were consulted. Resources received a preliminary visual reconnaissance. Bridge No. 154141 (District 7) was not accessible during field survey due to Hurricane Milton damage, therefore GoogleEarth photographs were utilized for the current report.

Each field surveyed bridge was inspected for distinctive aesthetic or engineering features and were noted. Photographs were taken with a high-resolution digital camera. A log was kept to record the bridge's physical location and compass direction of each photograph.

Each resource's present condition, location relative to other resources, and distinguishing characteristics were noted and photographed for accurate assessment of National Register Historic District eligibility. Historic research also was conducted in order to evaluate any significant associations. Individual resources that were deemed potentially eligible for the National Register were documented and researched according to National Register specifications.

Evaluation of Bridges for Individual Eligibility

Most post-1945 bridges are exempted from National Register evaluation due to the 2012 Program Comment issued by the Advisory Council for Historic Preservation for *Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges*. However, the Program Comment is not applicable to all bridges and the Program Comment does not imply that exempted bridges are ineligible. The following criteria were applied to the bridges evaluated in this current document.

- Criterion A: An individual resource is significant if it's associated with a main historical theme related to national, state, or local history. The main historical themes in the 1970 to 1980 time frame include the role of the environmental movement, safety concerns, economic downturn, the rapidly expanding statewide population, and advances in bridge construction and materials during this period.

- Criterion B: An individual resource would be associated with the productive era in a significant person's life such as a significant bridge engineer or contractor.

- Criterion C: A bridge eligible under this criterion would be associated with a specific engineering or construction techniques, or for incorporating innovative, or novel materials. The significant bridge would be an early example of the type or innovation, or potentially the last remaining example.

- Criterion D: A bridge found to be significant based on this criterion would provide important information in history or prehistory.

Within the evaluation, issues of integrity were also considered. There are seven qualities of integrity that are also identified in the federal regulations, that should be applied to resources while they are being evaluated for National Register eligibility. The seven aspects of integrity are:

1. Location - the location where significant activities occurred, and the resource is located;

2. Design - the composition of the elements comprising the form, plan, and spatial organization of the resource/s;

3. Setting - the physical environment within and surrounding the resource/s;

4. Materials - include the construction materials of the resource/s;

5. Workmanship – is evident in the ways materials have been fashioned for function or decoration. This can also be evident in the setting of the resource/s.

6. Feeling - while intangible, is evoked by the presence of the physical characteristics that convey the sense of past and time of the resource/s;

7. Association - is the direct link between the historic resource/s and the important events that shaped it.

Historic Context: Transportation in Post-Modern Florida (1970 to 1980)

The economic boom of the 1960s ushered in a period of significant development in Florida's transportation infrastructure. Florida experienced an economic and demographic renaissance in the 1960s, with the shift of the economy from agriculture to military and highly skilled industrialization. Development in the 1960s was accomplished with the assistance of the state and federal government, but with little regulatory oversight or local input. In contrast, the United States in the 1970s experienced an economic slow-down that impacted all areas of the economy including funding for the nation's infrastructure. The role of the government in protecting citizens and the environment also expanded in the 1970s and resulted in a growth in laws and regulations related to infrastructure that would have an impact on Florida and local communities.

The 1970s in the United States and Florida are marked by the growing role of the environmental movement in the state and federal government due to the passage of numerous environmental laws. The decade also ushered in a new focus on vehicle and roadway safety. These themes tied with the still increasing statewide population resulted in a vibrant statewide bridge program in Florida. These issues would result in several bridge design and engineering advances during this period.

The 1970s were a time of change in transportation on the federal and state level. These changes modernized and professionalized the transportation industry and would endure into the twenty-first century in the modern FDOT that exists today.

Environmental Movement

Environmental degradation caused by development was increasingly visible in the state along with rising concerns about pollution and the impact of development on communities and animals. The practice of dredging and filling had resulted in mass animal habitat loss, with an estimated 60,000 acres of the habitat destroyed by 1974. The habitat loss resulted in animal die-offs and sickening algae blooms, ruining the bucolic landscapes around the new developments popping up along the coasts. The state had not kept up with the necessary infrastructure to support the growing population, resulting in untreated sewage being released into natural waterways (Barnett 2007: 22-25). The impact of the use of non-renewable resources on the environment for energy production also dovetailed with a serious energy crisis due to conflict in the Middle East. In response, numerous state and federal laws were passed in the late 1960s and 1970s to address environmental impacts of infrastructure projects. The result of these laws was that local authorities and communities were given more authority to direct infrastructure development and provide input on impacts. The new environmental laws also required agencies to weigh a variety of impacts beyond economic impacts of proposed projects.

In 1970, Reubin O'Donovan Askew was elected Florida governor. Askew considered the price of unfettered environmental destruction a risk to the state's tourism-driven economy. In 1972, the Florida Legislature passed the Florida Water Resources Act which created five water management districts that were tasked with water resource management and environmental protection (Figure

1). In addition, Askew also worked on an extensive land-buying program that resulted in the State and federal government purchasing hundreds of thousands of acres of land to set aside for conservation. The Water Resources Act allowed the state to set development standards and guidelines for new major developments (Barnett 2007: 23-28, 54-55).

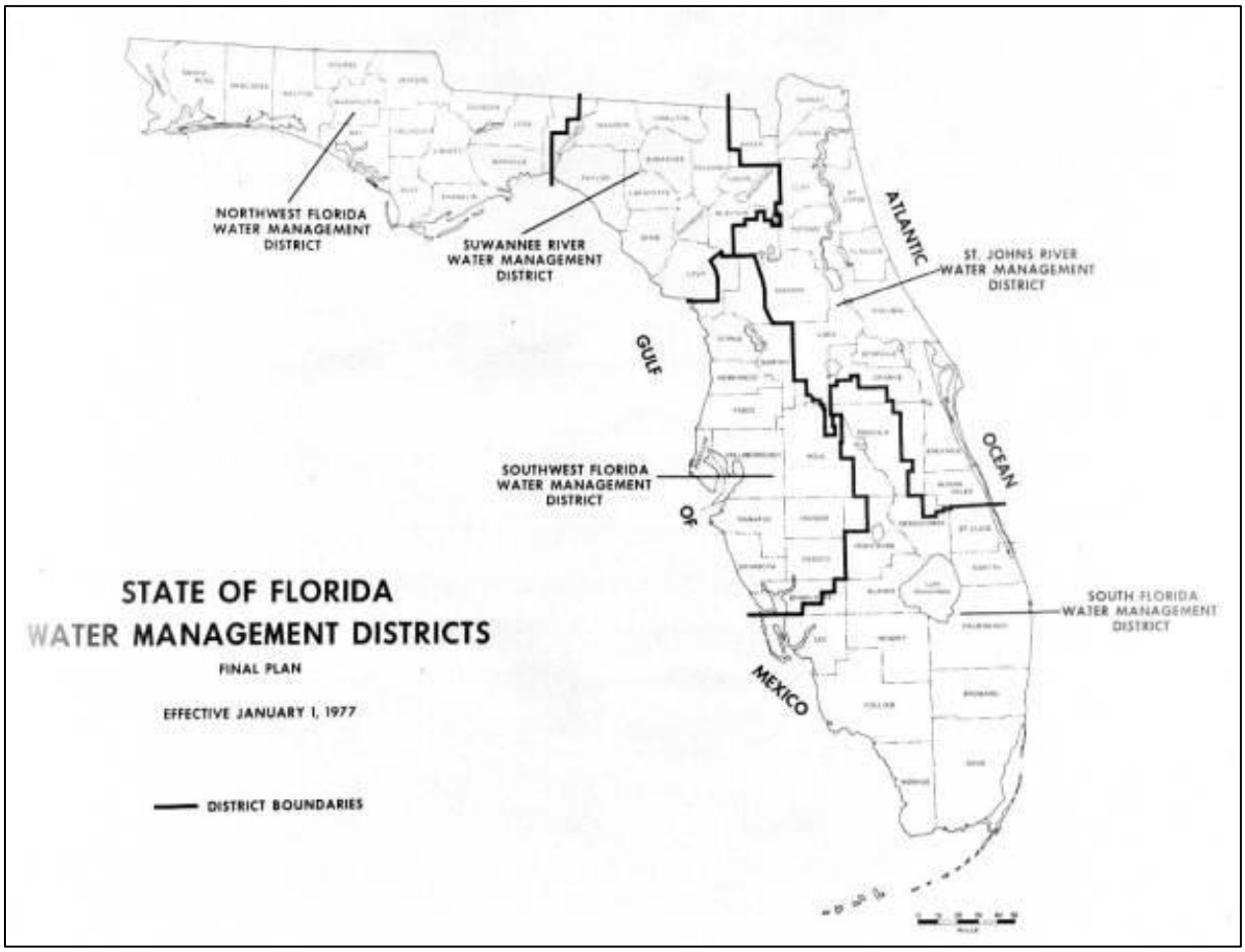


Figure 1: Final Water Management District Boundaries, the districts were established in 1972 by the Florida Legislature. Map Courtesy of the State Archives of Florida, Florida Memory.

On the federal level, President Lyndon Johnson was an early supporter of using the federal government to address inequality and environmental degradation. Johnson in his Great Society agenda passed numerous bills to address transportation issues in the late 1960s. In 1966, he signed the US Department of Transportation (DOT) bill that placed several transportation-related agencies under one Department. The DOT bill of 1966, colloquially called Section 4(f), also established the requirement that agencies must prove there was no feasible or prudent alternative to using recreation or historic sites (Weingroff 2016). Other laws that were passed in the late 1960s and 1970s included the National Historic Preservation Act (NHPA) (passed 1966), the National Environmental Policy Act (NEPA) (passed 1970), and the Endangered Species Act (passed 1973). These laws required project sponsors to consider the impacts of the project on a variety of resources and required a thorough review of alternatives to minimize impacts to resources. The Clean Air

Amendments of 1970 set air quality standards and implemented actions to minimize air pollution from automobiles.

Also during this period, local transportation planning authorities, referred to as Municipal Planning Office (MPO) or Transportation Planning Office (TPO), were funded by the federal government. These authorities were provided with the opportunity to plan major transportation projects in a way that provided local input and considered the future development of the area.

The concern for the impacts of transportation projects and the economic downtown, also resulted in a new focus of the federal government in funding and encouraging alternatives to limited access highways designed for automobiles. Presidents for decades had been attempting to increase federal funds for transit projects, but the Highway Trust Fund was designated for only roadways. President Richard Nixon was the first president who was successful in providing significant funding to transit projects and would eventually pass legislation under his administration to allow transit projects to be funded from the Highway Trust Fund. The new focus on transit projects enabled large urban areas to begin developing modern transit systems.

The impacts of the environmental movement on transportation development in Florida varied. Some projects such as the Everglades Jetport and the Cross Florida Barge Canal were completely abandoned. Other projects were designed in a way to minimize the impacts to resources or communities. For example, in downtown Pensacola, the design of the southern end of Interstate 110 through downtown Pensacola included the innovative use of steel tub girders to provide a less visually obtrusive corridor and the area underneath the bridges was designated to serve as a community gathering location (Figure 2). Another set of bridges that were impacted by state environmental laws were the bridges carrying Interstate 10 over the Apalachicola River. The river has a wide flood plain and the state environmental authority required the new bridges to span the entire flood plain for 5,800 feet. In contrast, FDOT's initial design would have spanned 4,300 feet of the river's flood plain. After some compromise, the bridges were constructed at 5,500 feet over the river's flood plain (Newman 1974). An unintended consequence of the increasing environmental reviews of projects was the delay of projects from proposal to construction and the increased costs of completing the necessary reviews.

Economic Downturn of the 1970s and the Rise of Federal Transit Funding

The rise of private automobile ownership in the mid twentieth century depended on inexpensive petroleum to produce cars and to power them. The United States enjoyed healthy domestic oil production and inexpensive imported petroleum in the early to mid-twentieth century. However, this changed over time with domestic production decreasing while demand increased. In 1973, the Arab-Israeli War touched off a series of oil embargos placed by the members of the Organization of Petroleum Exporting Countries (OPEC). The resulting increase in the cost of oil contributed to significant inflation on goods in the United States. The resulting gas and petroleum shortages in the United States had a profound impact on transportation funding and planning as the cost of materials soared. The impact of inflation impacted projects planned and budgeted for in the 1960s and new projects into the 1970s. In the 1960s, the Florida Inland Navigation District (FIND) and

Figure 2: Southern portion of Interstate 110 under construction, 1977. The southern portion of the roadway was designed in a way to limit the impacts of the roadway on the African-American community it bisected. Photograph courtesy of the University of West Florida Archives.

FDOT had agreed to share the costs to build the 79th Street Causeway bridge in Miami, estimating the cost to be $1.5 million. By the time the final design and bids were opened in 1970, the costs had soared to $3.6 million (*Fort Pierce Tribune* 1970). The increasing cost of constructing infrastructure impacted the number of projects that could be completed and motivated FDOT to work on finding innovative uses of materials to lower construction costs. Discussion on the construction innovations is discussed in the Bridge Design and Engineering Advances in Transportation section.

In 1973, President Nixon announced Project Independence, which was a variety of initiatives to minimize the country's dependence on foreign oil and to expand domestic oil production. One of the biggest results was a new focus in the federal government on fuel conservation through the advocacy for intermodal transportation, speed limits, and fuel economy standards (Weingroff 2013).

By the late 1960s and early 1970s, the economic and cultural impacts of interstates were also being felt by communities. In 1968, a newspaper article on the negative impacts of Interstate 10 to the Florida panhandle was printed in the *Pensacola News Journal*. The article described the significant loss of business to those communities that were bypassed by the interstate (Brock 1969). An article on the same page described the impacts of Interstate 110 on African-American neighborhoods in Pensacola and historic structures (*Pensacola News-Journal* 1969). FDOT consulted extensively with local agencies to design the southern part of the I-110 corridor to minimize visual impacts to the surrounding area. Eventually between 300 and 400 families were relocated due to the I-110 corridor, and many were moved to new public housing complexes in the county (Taylor 1969). Even so, the design of the southern portion of I-110 was innovative for its consideration for the community being impacted by the new roadway (Dye 1977).

When the Highway Trust Fund was established in the 1950s, the funds were earmarked for interstate highway construction. The federal government chose the location of the highways, with some input from state officials. The interstate system was first constructed in urban areas, catering to new suburbanites traveling between downtowns to their homes in the suburbs. The locations of the interstates were largely determined by state and federal officials, with very little local input or consideration for impacts to local communities. In general, the location of interstates was determined by economics – which path would cost the least. This resulted in interstates impacting neighborhoods with lower property values and recreational areas. The negative impacts of this type of planning was untenable as communities became increasingly vocal on the impacts.

As a result of fiscal issues and the need to shift planning decisions to local governments, the federal government and FDOT initiated a system of roadway organization based on use, and in turn used the categories to determine funding. In 1975, FDOT began the process of classifying roads in the state into five categories according to their use: arterial, minor arterial, collector, interstate, and minor collector roadways. The new classification resulted in minor collector roads no longer being eligible for federal funding. This resulted in counties and cities becoming responsible for the funding of improvements to these roads (*Sentinel Star* 1975). The state also discussed possible ways of collecting additional revenue to meet the federal matching funds requirements. In 1972,

FDOT's director suggested adding a one cent tax to gasoline or adding tolls to bridges (Lamont 1972).

Meanwhile, transit infrastructure was a local or private endeavor, leaving transit systems chronically underfunded and underutilized. As complaints about the impacts of interstates increased, the federal government became aware of the issues arising from lacking a comprehensive plan and not including state or local officials in planning. President Lyndon Johnson established the Urban Mass Transportation Administration (UMTA) in 1964 and charged the new Administration with funding transit projects. However, the federal investment in transit was relatively minor until 1970 with the passage of the Urban Mass Transportation Assistance Act. The Act committed $10 billion over 12 years to upgrade existing systems. In the 1973 Federal-Aid Highway Act, local governments for the first time could opt out of interstates and instead use Highway Trust Fund monies for intermodal transportation (Weingroff 2013). As a result of this change in use of the Highway Trust Fund, cities and counties requested to cancel interstates and shift the funds to other types of transportation.

The state of Florida recognized the importance of transit on relieving the crowded roads in the state. In 1969, Governor Kirk renamed the State Road Department to State Department of Transportation, reflecting the need in the state to expand the forms of transportation beyond roadways. In the new Department there was a new Division of Mass Transportation (Holloway 1969). In 1974, Florida Representative Grover Robinson (D-Pensacola) noted that due to the energy crisis, the federal government would likely prioritize transit projects over interstate highways and that would impact Florida (Bogan 1974).

The UMTA, which eventually became a part of the US Department of Transportation, was tasked with funding transit projects. In contrast to the beginning of the interstate system, UMTA worked closely with local governments to conduct alternative assessments and study the impacts of a project on the community. UMTA also studied existing transit systems and funded test projects before expanding funding.[2] Between 1973 and 1975, the UMTA undertook studies of existing Automated Guideway Transit (AGT) systems in the United States and Europe to determine the best system to fund. The AGT systems at Tampa International Airport and Disney World were two of the six AGT system's chosen as case studies (SRI International 1977) (Figures 3-4).

In 1976, the UMTA initiated a study of the impact of downtown people movers (driverless vehicles operating on fixed guideways) in lowering air pollution and relieving downtown congestion. Although the study called for three cities to be chosen, the UMTA ended up choosing eleven cities to at least partially fund their downtown people mover projects. Two cities in Florida were chosen for funding, Miami and Jacksonville (UMTA 1976; Parsons Brinckerhoff/Flood and Associates: 1979). The first phase of the Miami people mover system, named the Metromover System, was approved in 1979 and the Final Environmental Impact Statement was approved in 1980, and the first phase of the system opened in 1986 (Figure 5).

[2] THE UMTA was renamed the Federal Transit Administration in 1991.

Figure 3: The Tampa Airport AGT, 1975, which was used by the UMTA to study AGT systems. Photograph Courtesy of the State Archives of Florida, Florida Memory.

Figure 4: The Monorail at Disney World, 1974, which was used by the UMTA to study AGT systems. Photograph Courtesy of the State Archives of Florida, Florida Memory.

Miami was also the location for an experimental Bus Rapid Transit system funded by the UMTA. The project began in 1973 and was operational by 1976. The bus system ran for 10 miles between the Golden Glades Interchange in north Miami-Dade County to downtown Miami and the Miami International Airport (UMTA 1976; Parsons Brinckerhoff/Flood and Associates: 1979). Through federal funding in the 1970s, the transit systems in Florida metropolitans modernized and expanded in the same way that the interstates had in the previous decades.

Figure 5: Transit system in Miami, late 1970s or early 1980s, showing light-rail (upper), People Mover (middle), and a bus. Photograph Courtesy of the State Archives of Florida, Florida Memory.

Rise of Vehicular and Roadway Safety

Presidents John Kennedy and Lyndon Johnson were concerned with the high rate of traffic fatalities in the country. In 1966, Johnson reported to Congress a list of his concerns with transportation in the country and included the fact that the country had experienced 50,000 highway deaths that year. Traffic safety concerns in the mid-twentieth century were typically addressed with roadway design and driver training, with the federal government hesitant to regulate automobile manufacturers. Highway designers also worked on safety improvements to the infrastructure.

However, as cars became ubiquitous and heavier, traffic fatalities increased. In 1965, Congress studied the federal government's role in traffic safety, spearheaded by Senator Abraham Ribicoff and Assistant Secretary of Labor, Daniel Patrick Moynihan. Moynihan had long been concerned about the role of vehicular safety systems and had hired Ralph Nader to research the issue. That same year, Nadar published his book *Unsafe at Any Speed: The Designed-in Dangers of the American Automobile*, which called for safer vehicles (Figure 6). In 1966, the Motor Vehicle Safety Bill and the Vehicle Safety Bills were passed by Congress. These bills established the National Traffic Safety Agency (NTSA) and a National Highway Safety Agency within the Department of Commerce. In 1970, with the passing of the Highway Safety Act of 1970, the NTSA became the National Highway Traffic Safety Administration (NHTSA) and was an independent administration within the federal Department of Transportation (Weingroff 2021). That same year, the federal government mandated that all new vehicles come equipped with three-point seatbelts in the front seats and lap seatbelts in the rear seats. However, seatbelt usage was voluntary and public relations efforts to encourage their use was ineffective. Seat belt laws were not passed until the 1980s (Wetmore 2015). The peak of automobile-related fatalities occurred in 1973 with 55,600 deaths that year. After 1973, the number of fatalities decreased, with the three-pronged approach of improved highway design, safer vehicles, and better driver training (Weingroff 2021). The Highway Safety Act of 1973 was the first time that mandated a portion of the Highway Trust Fund be used for highway safety purposes and created funds for non-Federal aid highway projects related to safety (Ross 1995).

In 1968, Florida began mandating yearly automobile inspections. These inspections were conducted at inspection stations that were administered by the Florida Highway Patrol. The inspections were intended to identify automobiles that were unsafe. In an article in 1968, a sheriff's deputy explained that while the inspections would catch mechanical issues that could lead to accidents, that inspections would not solve mistakes by drivers (Parker 1968). Figure 7 shows a vehicle inspection station in Tallahassee.

A series of bridges collapses in the United States in the late 1960s also put pressure on the state and federal government to better inspect and maintain transportation infrastructure. In West Virginia in 1967, 46 people were killed when a bridge over the Ohio River collapsed. In Florida, the importance of bridge safety was especially acute in December 1968 when the US 19 bridge spanning the Anclote River collapsed, killing one person and seriously injuring several others.

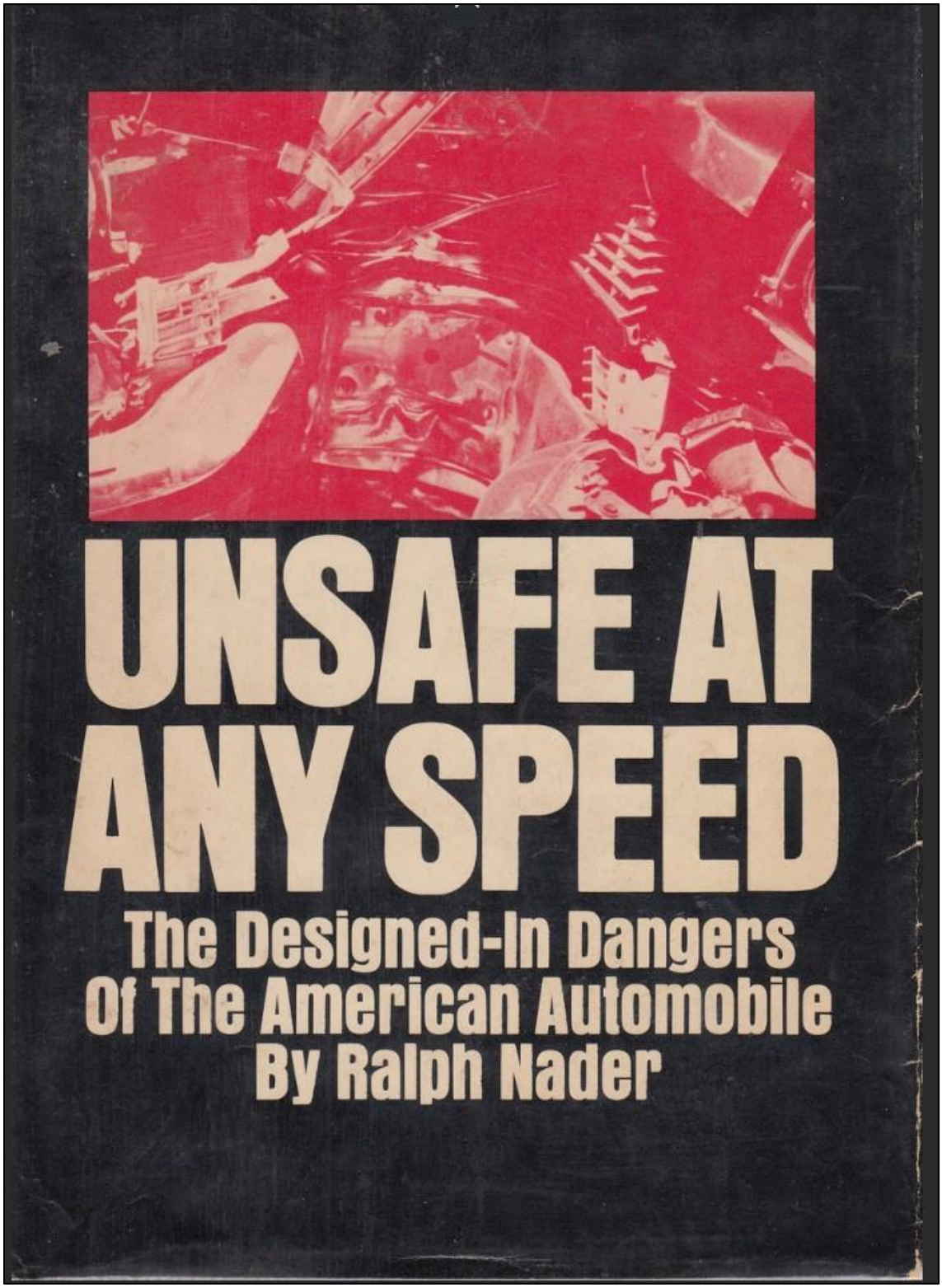


Figure 6: Vehicle safety was brought to the forefront by advocate, Ralph Nader who worked with the US Congress to pass laws regulating safer vehicles.

Figure 7: Car inspection station in Tallahassee, June 1968. Photograph Courtesy of the State Archives of Florida, Florida Memory.

Soon after the Anclote River bridge collapse, a bridge in Saraota County at Longboat Key developed a major structural crack, requiring the bridge to be temporarily closed for repairs. In response to the West Virginia bridge collapse, President Johnson established a task force to investigate ways to ensure the nation's bridges were safe. As a result of the taskforce, FHWA began requiring states to inspect all state bridges to maintain federal funding for infrastructure. Florida already had an inspection program, which had recently been strengthened in 1968, and it was used as an example for other states that had to establish an inspection program. The new federal program required an inspection of bridges built before 1935 by November 1, 1968, and newer bridges (post-1935) by January 1, 1970. Florida was able to meet the inspection deadlines (Stafford 1969).

The collapse of the Anclote River bridge spurred several investigations in the state and a review of FDOT's processes. In 1969, state legislators passed legislation requiring state-owned bridge inspections to be conducted every five years (*Tampa Bay Times* 1969). After it was revealed that the Anclote Bridge collapse was due to corrosion in the pilings and that the Sunshine Skyway Bridge had a major structural defect, FDOT worked to re-inspect bridges that were constructed with the same type of metal supports (Stublen 1969). In 1972, Governor Askew requested $30 million from the state legislature to rehabilitate or replace bridges that were found to be unsafe. The legislature did not provide all of the money requested, but did allow FDOT to use alternative

funds. The state also requested funds from the FHWA to help fund the bridge work (Purvis 1972). Eventually the state legislature expanded out the required bridges to be inspected to include county and city-maintained bridges (O'Hara 1979). The state bridge inspections before 1968 were minimal but with improved inspections after 1968 FDOT began conducting underwater inspections of bridges (Cosdon 1995).

Increasing numbers of waterborne craft in Florida (discussed in further detail below) also lead to an increase of damage to bridge substructure due to boat-bridge collisions. While some loss of life and injury occurred during the 1970s due to watercraft-bridge collisions, the most noteworthy collision occurred in May 1980, when a barge collided with the Skyway Bridge and resulted in the loss of 35 lives. After the collision, bridge design and ship impact requirements were implemented (Garcia 1993: 35). Before the Skyway tragedy, FDOT implemented some safety improvements to newly constructed bridges in the state during this time period and are discussed in a later section.

Several of the bridges constructed during the study period replaced bridges that were found to be unsafe during the increased bridge inspections conducted in the period. Several of the engineering advances during this period were also a result of FDOT's work to build safer infrastructure for the public. These advances are discussed in a later section.

Florida's Population and Traffic Continues to Boom

The population boom in Florida that began at the end of World War II continued into the 1970s with the state continuing to provide a low-tax haven with a tropical climate and a flourishing economy. In the 1970 census, there were nine standard metropolitan areas: Fort Lauderdale-Hollywood, Gainesville, Jacksonville, Miami, Orlando, Pensacola, Tallahassee, Tampa-St. Petersburg, and West Palm Beach. By the 1980 census, the number had more than doubled to 19 standard metropolitan areas: Bradenton, Daytona Beach, Fort Lauderdale-Hollywood, Fort Myers-Cape Coral, Fort Walton Beach, Gainesville, Jacksonville, Lakeland-Winter Haven, Melbourne-Titusville-Cocoa, Miami, Ocala, Orlando, Panama City, Pensacola, Sarasota, Tallahassee, Tampa-St. Petersburg, and West Palm Beach-Boca Raton. The increase in total population between 1970 and 1980 was 43.5 percent (Table 2).

Table 2: Statewide Population Totals (US Census Bureau, Florida Housing)

Census Year	Population	Percent Change Over 10 Years - Population
1970	6,789,443	37.12%
1980	9,746,342	43.5%

The continued development of the state put a significant strain on the existing infrastructure which was not adequate to accommodate the traveling public. In 1972, the FDOT Director of Road Operations requested $75 million to make necessary immediate repairs to the existing infrastructure. In a Senate committee meeting, FDOT explained that the infrastructure's use was heavier than the state had anticipated, and that maintenance was not able to keep up with the damage (Lamont 1972). As discussed in the previous section, the state worked to find ways to add revenue to the transportation budget to meet the increasing needs of the state.

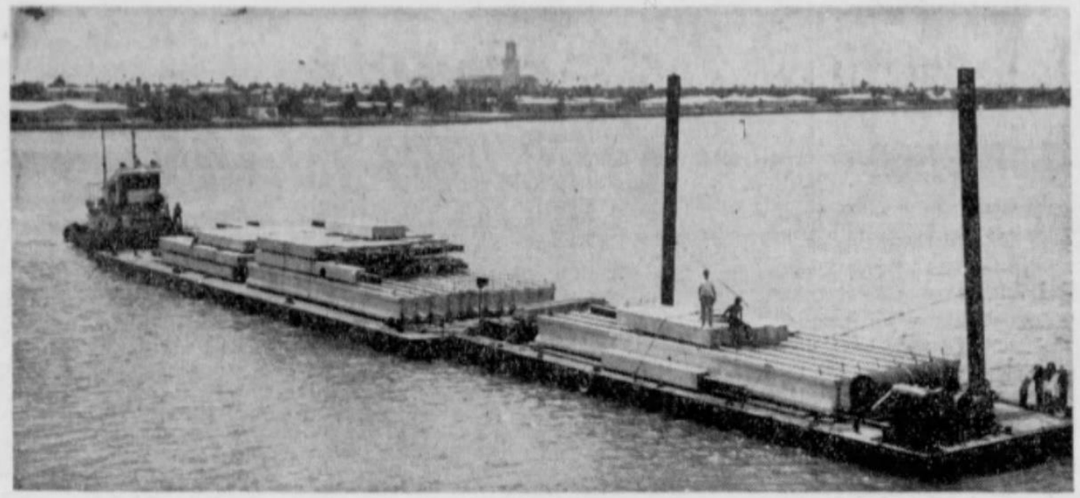
Increase in Roadway and Waterway Traffic

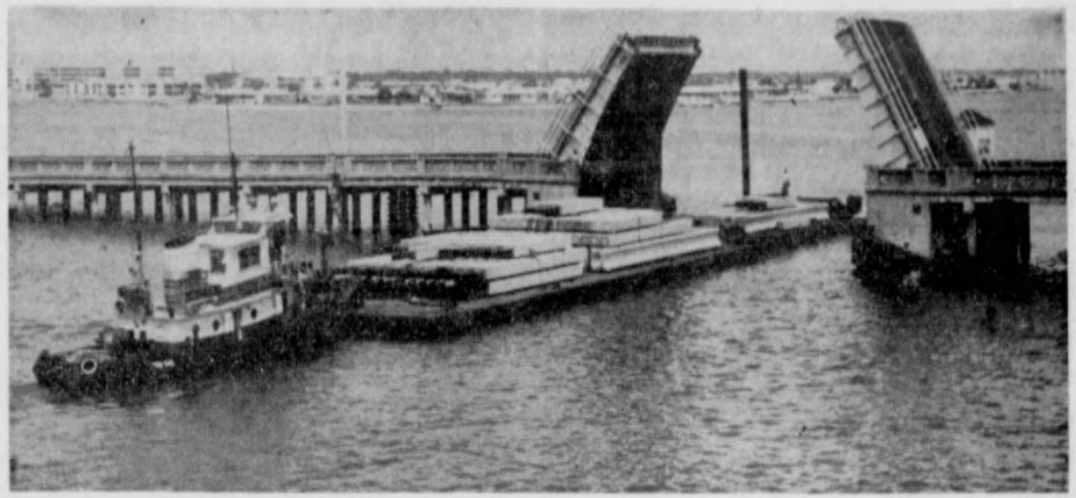
The need for a safe, interior shipping route along the coast of Florida was demonstrated during World War II when German U-boats patrolled off of the coast of Florida, threatening commercial and military shipments. In response, the federal government completed an inland navigation route, the IWW, that not only protected ships from enemies, but would also protect ships from the rigors of the Gulf of Mexico and Atlantic Ocean. The IWW was eventually managed by the US Corps of Engineers, who worked on maintaining a 12-foot channel that could accommodate large ships and smaller recreational boats. While some areas of the IWW utilize human-made waterways, other sections use natural waterways that separate the Florida mainland from the barrier islands or peninsulas. Recreational boating increased in Florida after World War II with Americans having additional disposable income, and boating and fishing becoming a social marker in the growing middle class. The growth in boating is demonstrated in the increase in power boat registrations in the state. In 1964, the state of Florida had 149,000 registered power boats and by 1976 there were 436,348 registered power boats. The increase in boating meant that government agencies were increasing their infrastructure catering to the boating public such as docks, signage, fishing piers, and additional waterborne craft for rescues and law enforcement (Morris 1977). The IWW was also a popular shipping route, with large barges and container ships utilizing the calmer waters (*Tampa Bay Times* 1967). The mix of waterborne traffic further exacerbated the risk of damage to infrastructure and required longer bridge openings.

As a result of increased boating traffic on Florida waterways, including the IWW, movable bridges increasingly stopped vehicular traffic to allow for boat traffic, further aggravating traffic congestion. It was a significant concern in the state on how to balance the needs for these two forms of transportation, both essential to the economy of the state. Boaters were stymied by frequent bridge maintenance issues and unscheduled openings that required boaters to wait in dangerous conditions and burn fuel. Drivers were frustrated by the frequent bridge openings and safety concerns. In addition, the IWW is a dynamic environment that experiences significant waterway traffic, increasing the rate of infrastructure deterioration and threats of watercraft-bridge collisions (Garcia 1993). Figures 8 and 9 are photographs of the IWW.

This combination resulted in a push by the state government in the 1970s to replace aging bridges that crossed over the IWW with either higher fixed bridges or higher movable bridges. Several new crossings of the IWW were also established during this period to accommodate the rapidly growing population and tourism-based economy. In general, the state focused on constructing bridges that connected the mainland with beaches, instead of completing roadways connecting islands (Bleyer 1970). The new bridges over the IWW addressed both the increasing vehicular traffic and waterborne traffic in a dynamic environment.

Figure 8: Photograph of the IWW near Jacksonville, 1972.





Staff Photo by Dick Morgan

Highway Construction Materials Moved By Barges

The newly completed West Coast Intracoastal Waterway is proving a boon to Misener Marine Construction Inc. of St. Petersburg Beach. The firm is building a State Road Department highway bridge in the Florida Keys and is transporting construction material to the site by barge and tug. The pre-stressed concrete pilings and deck beams are manufactured in Lakeland, then trucked to the Misener yards in St. Petersburg Beach where they are loaded onto barges. Two barges pushed by a tug, moved through the St. Petersburg Beach Causeway bridge on their way down the waterway to Fort Myers Beach where the convoy moved into the Gulf for the remainder of the trip. Company president, Richard Misener, says the water route is cheaper and faster than trucking the material to the Keys. He predicts the waterway will play an important role in Suncoast economy.

Figure 9: The IWW was used for private boating and commercial shipping. This article reports on it being used to transport construction material for a bridge in the Florida Keys. St. Petersburg Times, July 19, 1967.

Bridge Design and Engineering Advances in Transportation

FDOT was a leading innovator in the use of materials and construction methodology during the 1970s. Working with state universities, FDOT developed new uses of post and pre-tensioning of concrete and steel for construction.[3] FDOT also developed new construction methodologies to address the dynamic environment in the state. Finally, the 1970s were also a time of utilizing new safety features in infrastructure, reflecting the greater emphasis on safety for the traveling public.

Advances in Materials and Construction Methodologies

Prestressed concrete was a technique that first appeared in the United States after World War II. Florida's monumental Sunshine Skyway was the second bridge in the country to be constructed with prestressed concrete and the state continued to be an early adopter of this technology. The state developed a type of prestressed concrete beam, the I-beam, that would be used throughout the state in the mid-twentieth century (Zollman 1981: 34-67; Edwards 1981: 104-5). The use of concrete for bridges was especially popular in Florida after investigations of the Anclote Bridge collapse revealed that it was due to corrosion in the metal pilings. FDOT worked to re-inspect and replace bridges that were constructed with the same type of metal supports (Stublen 1969). Concrete was also significantly less expense of a material than metal, which was important during the economic decline of the 1970s.

The popular prestressed concrete I-beam was only feasible for spans up to 150 feet, thus limiting its use for long spans (Garcia 1993: 36). In 1971 during a routine inspection, the Sunshine Skyway bridge was found to have corrosion in some of the girders due to insufficient concrete coverage on metal inside the concrete. As a result, in 1973 six of the beams were removed and replaced (Corven Engineering, Inc. 2002 :7). Eventually the bridge was replaced after a ship collision in 1980.

The development of prestressed concrete construction continued into the 1970s with the first precast prestressed, post-tensioned girder bridge being constructed in 1979 carrying New Hope Road over Interstate 10 in Jackson County (Bridge No. 530085) (Figure 10). The bridge was the first to utilize spliced post-tensioned girders. This type of concrete allowed for longer spans and fewer supports, thus minimizing the amount of concrete (Ronald 2001: 45; Corven Engineering, Inc. 2002 :9).

Further advances in the use of prestressed post-tensioned concrete construction occurred in the late 1970s. Beginning in 1976, FDOT engineers began designing an economical construction method for replacing the Long Key bridge (Bridge No. 900094) in Monroe County, which spanned over 12,000 feet. In 1978, the contract was released for bids with four different alternative construction schemes and designs. One design utilized the precast, pre-tensioned I-girders developed by FDOT. The other three designs used precast segmental construction that was developed by the consultant, Figg and Muller Engineers, Inc. The bid was awarded to Michael Construction Company, which had chosen the segmental span-by-span construction methodology. Since this was the first time that this type of construction was used, FDOT provided detailed guidance on how to execute the

[3] Prestressed concrete is accomplished through either pre-tensioning or post-tensioning metal rods inside the concrete structure. Prestressed concrete is less likely to change shape due to future loading that creates tension.

project. In 1981, after years of intense design, the bridge was completed, serving as the first span-by-span precast segmental bridge utilizing trapezoidal box girders in the United States (Figure 11).

Figure 10: Bridge No. 530085, facing Southwest

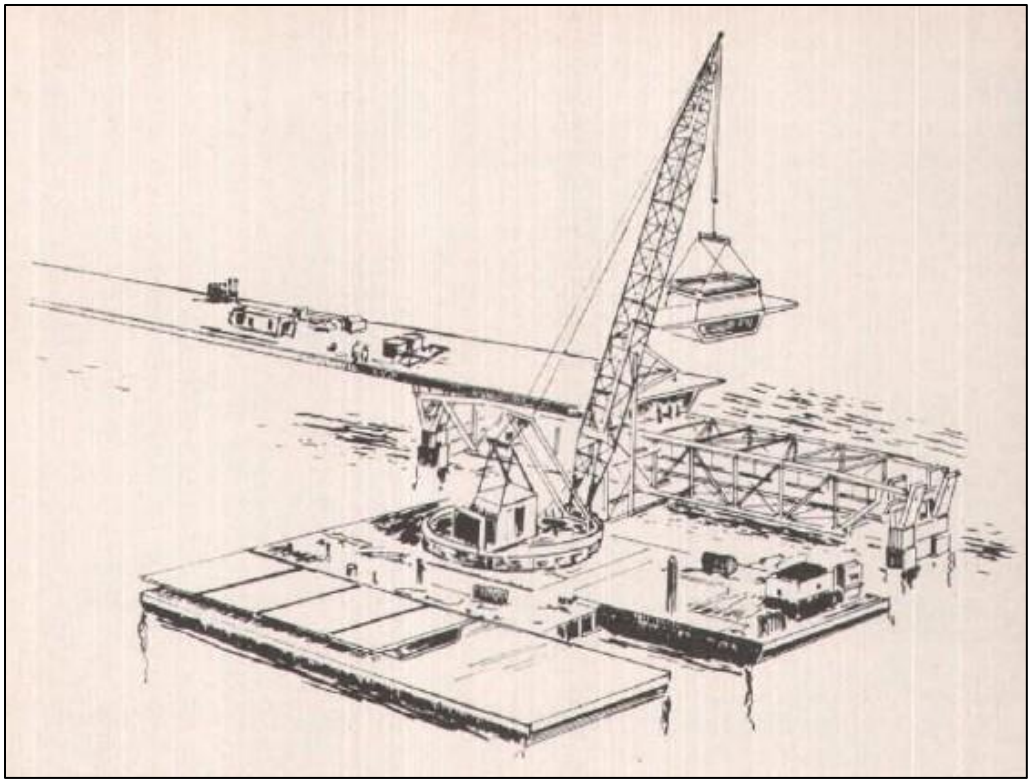


Figure 11: Artist rendering of span-by-span segmental construction methodology to be used on the Long Key bridge.

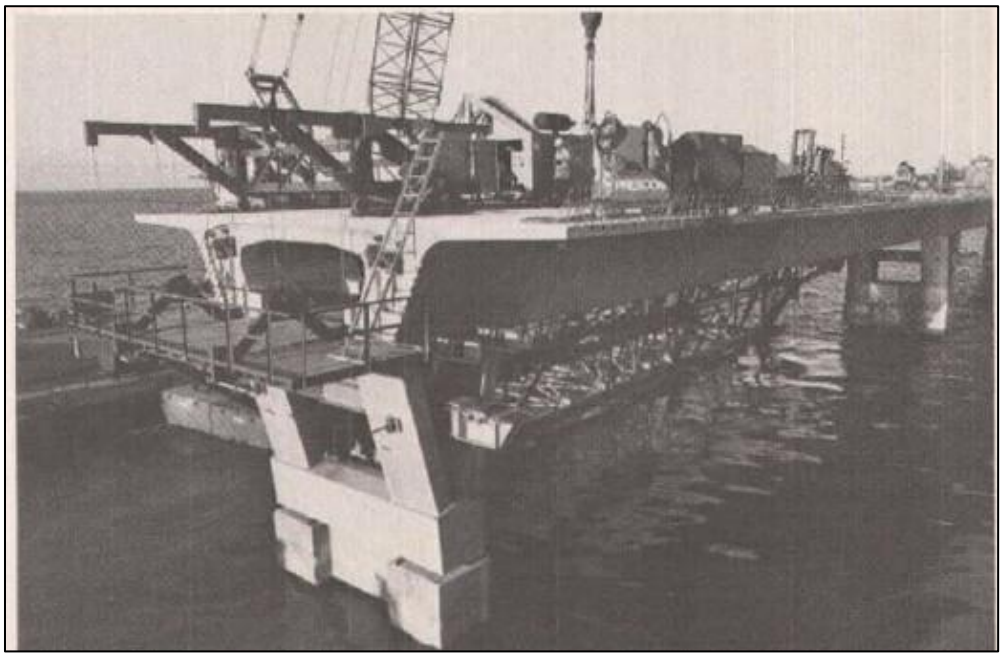


Figure 12: Photograph of the construction of the Long Key bridge showing the support truss and a section of the box girder being placed on a V-pier, 1978-1981.

The same design and construction methodology was subsequently utilized for four other bridges on the Overseas Highway: Seven Mile Bridge (Bridge No. 900101), Niles Channel (Bridge No. 900117), and Channel Five (Bridge No. 900098) (Corven Engineering, Inc. 2002 :9-10; Muller 1980: 97-111).

Safety Innovations

The development of roadway and bridge safety innovations accelerated in the 1970s with the federal government taking an active role in promoting roadway safety and promulgating guidance on safety. It was during this period that the guardrail breakaway cable terminal was developed. This technology continues to be used in modern guardrails. The updated *Highway Design and Operations Practices Related to Highway Safety* was published, which superseded the first edition published in 1967. The second edition provided updated guidance on best practices for roadway safety, reflecting the continuing research conducted by state and federal agencies. The first publication by AASHTO that addressed traffic barriers was published. The federal government also worked on developing bridge railings that could withstand impacts by large vehicles (Ross 1995: 6-7). A 1975 newspaper article described two recent fatalities that occurred when bridge railings in Tampa Bay were not able to stop large trucks. The article describes the continuing efforts by the federal government to develop crash-tested bridge railings that were designed to withstand large vehicles (Bentayou 1975).

The design for the tender houses on the new movable bridges designed during this period, especially on the busy IWW, were a direct result of safety concerns. Multiple articles during this period described the limited viewshed from older tender houses, which had small windows that resulted in blind spots for the bridge tender. The new tender houses constructed on movable bridges during this period are very similarly designed with pyramidal roofs and windows that ran the entire length of the four walls, providing an unobstructed view of the waterway and bridge. The tender houses were also placed higher than previous houses, providing an elevated point of view for bridge tenders. A 1973 article on the safety of new tender houses provides comparison photographs of the visibility in an older tender house and a new tender house (Figures 13 and 14). Figure 15 shows a typical tender house constructed during this time period (*Tampa Bay Times* 1973).

The engineering, materials, and safety advances during this period led to new infrastructure that remains a vital part of modern Florida.

Wall At Left May Have Blocked Treasure Island Bridgetender's View
. . . causing him to fail to see the car he elevated last week.

Figure 13: Excerpt from a 1973 newspaper article on accidents on movable bridges caused by limited vision in older tender houses. (*Tampa Bay Times*, February 2, 1973)

The Old View From The Bridge House, St. Petersburg Causeway At Left, Vs. The New View, On Sunshine Skyway

Figure 14: Photograph comparing the visibility of an older style tender house (left) and a newer tender house (right) from a newspaper article in 1973. (*Tampa Bay Times*, February 2, 1973)

Figure 15: Typical 1970s tender house with a pyramidal roof and expansive windows on all four sides. Pictured is Bridge No. 110077 (8LA5712), built in 1980.

Results and Conclusions

As a result of the background research, 50 bridges were field visited and evaluated for eligibility for the National Register. Sixteen (16) of the bridges are individually eligible for the National Register. Eleven (11) of these bridges are eligible for the National Register under Criterion A for their association with the development of Florida during the late twentieth century and Criterion C for their engineering significance. The remaining five (5) bridges are eligible for the National Register under Criterion C for their engineering significance. Ten (10) of the bridges were found to have insufficient information to evaluate for National Register eligibility. Twenty-three (23) bridges are considered National Register ineligible based on their commonality or lack of historic association. Finally, the last bridge identified for field survey in Phase 1 of this project (one of the culverts) was found to have been replaced (Bridge no. 764032). FMSF forms were completed for all field surveyed bridges.

As a result of background research, additional bridges were identified that were potentially significant but were not field surveyed. These bridges are associated with the IWW and the modern Overseas Highway. The 10 bridges surveyed that were associated with the IWW and were not found to be individually eligible were evaluated as Insufficient Information. Although the bridges crossing the IWW are a related group according to their use and location, the bridges do not form a cohesive resource group. However, bridges constructed to cross the IWW should be individually evaluated for the National Register for their association with local and regional historical themes related to the IWW. Background research revealed the potential for a resource group composed of the modern Overseas Highway, consisting of 43 bridges and the US 1/SR 5 roadway that was constructed between 1973 and 1988 to replace the historic Overseas Highway. One of the bridges in the resource group, the Long Key Bridge (Bridge No. 900094) was field surveyed and evaluated for individual eligibility. Recordation of the modern Overseas Highway Resource Group and individual components is outside of the scope of the current project. Bridges that were not field surveyed do not have completed FMSF forms.

Some of the bridges that are associated with the IWW and the modern Overseas Highway are currently exempt from National Register evaluation under Section 106 because they meet the criteria in the 2012 Program Comment issued by the Advisory Council for Historic Preservation for *Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges*. Based on the results of the current effort, FDOT will add the post-1945 bridges associated with the IWW and the modern Overseas Highway bridges to the list of excluded bridges from the PA, therefore the bridges will be evaluated for National Register listing during Section 106 reviews. Two of the identified bridges (Bridges No. 500086, 500087) are components of Interstate 10 and are therefore currently exempt from Section 106 review based on the 2005 *Exemption Regarding Historic Preservation Review Process for Effects to the Interstate Highway System*. Based on their evaluation as being National Register eligible, they will be added to the list of elements that are excluded from the 2005 *Exemption.*

Narratives and photographs for each bridge recommended National Register eligible is provided below. Photographs for bridges recommended National Register ineligible are also provided below (Figures 64-86).

Table 3 below provides the 50 bridges and their recommended eligibility. Maps providing the locations of the bridges by FDOT District are provided in Figures 16-22.

Table 3: Recommended National Register evaluations. Highlighted bridges are recommended National Register eligible.

FMSF Number	Structure Number	Year Built	Ownership	Recommended National Register Evaluation
District 1				
HR01167	064035	1970	County	Ineligible
LL03072	124058	1970	County	Ineligible
LL03071	125205	1970	City or Municipality	Ineligible
SO15321	170061	1972	FDOT	Eligible - Criteria A and C
SO15320	170113	1980	FDOT	Eligible - Criterion C
SO15319	176002	1980	City or Municipality	Ineligible
District 2				
DU24183	720933	1973	City or Municipality	Eligible - Criteria A and C
DU24184	720934	1973	City or Municipality	Eligible - Criteria A and C
	764032	1974	County	Demolished
SJ08251	780090	1975	FDOT	Insufficient Information
CO01528	0805040 00002002	1976	US Forest Service	Ineligible
District 3				
ES06170	480087	1973	County	Ineligible
ES06171	480117	1970	County	Ineligible
ES06165	480159	1979	FDOT	Eligible - Criteria A and C
ES06166	480162	1979	FDOT	Eligible - Criteria A and C
ES06168	480163	1980	FDOT	Eligible - Criteria A and C
ES06169	480164	1980	FDOT	Eligible - Criteria A and C
ES06167	480165	1979	FDOT	Eligible - Criteria A and C
FR3121	490037	1965	FDOT	Ineligible
GD03497/ JA07705	500086	1978	FDOT	Eligible - Criteria A and C
GD03498/ JA07706	500087	1978	FDOT	Eligible - Criteria A and C
GD03496	500108	1976	County	Ineligible
HO00621	524507	1971	County	Ineligible
JA07707	530085	1979	FDOT	Eligible - Criteria A and C
LE07008	550068	1974	FDOT	Ineligible
LE07007	550085	1974	FDOT	Ineligible
SR02782	580005	1970	FDOT	Ineligible
WA02770	590801	1980	State Park or Forest	Ineligible
District 4				
BD09961	860230	1976	FDOT	Insufficient Information
BD09962	864074	1980	County	Ineligible
PB20680	930104	1973	FDOT	Eligible - Criterion C
PB20678	930154	1971	FDOT	Insufficient Information
PB20679	930226	1971	FDOT	Insufficient Information
PB20681	930318	1973	FDOT	Eligible - Criterion C
District 5				
LA05712	110077	1980	FDOT	Ineligible
VO10937	796000	1979	City or Municipality	Ineligible
District 6				
DA23360	870082	1972	FDOT	Insufficient Information
DA23358	870085	1973	FDOT	Insufficient Information
DA23137	870551	1973	FDOT	Insufficient Information
DA23359	870554	1972	FDOT	Insufficient Information
MO6833	900094	1981	FDOT	Eligible - Criterion C
District 7				
HE01083	085003	1980	City or Municipality	Ineligible
HI15838	109907	1970	Local Agency	Ineligible
HI15839	109908	1970	Local Agency	Ineligible
HI15840	109909	1970	Local Agency	Ineligible
PI12057	150030	1966	FDOT	Insufficient Information
PI16460	150135	1975	FDOT	Insufficient Information
PI16461	154140	1977	County	Ineligible
PI16462	154141	1977	County	Ineligible
PI16463	159001	1975	FDOT	Eligible- Criterion C

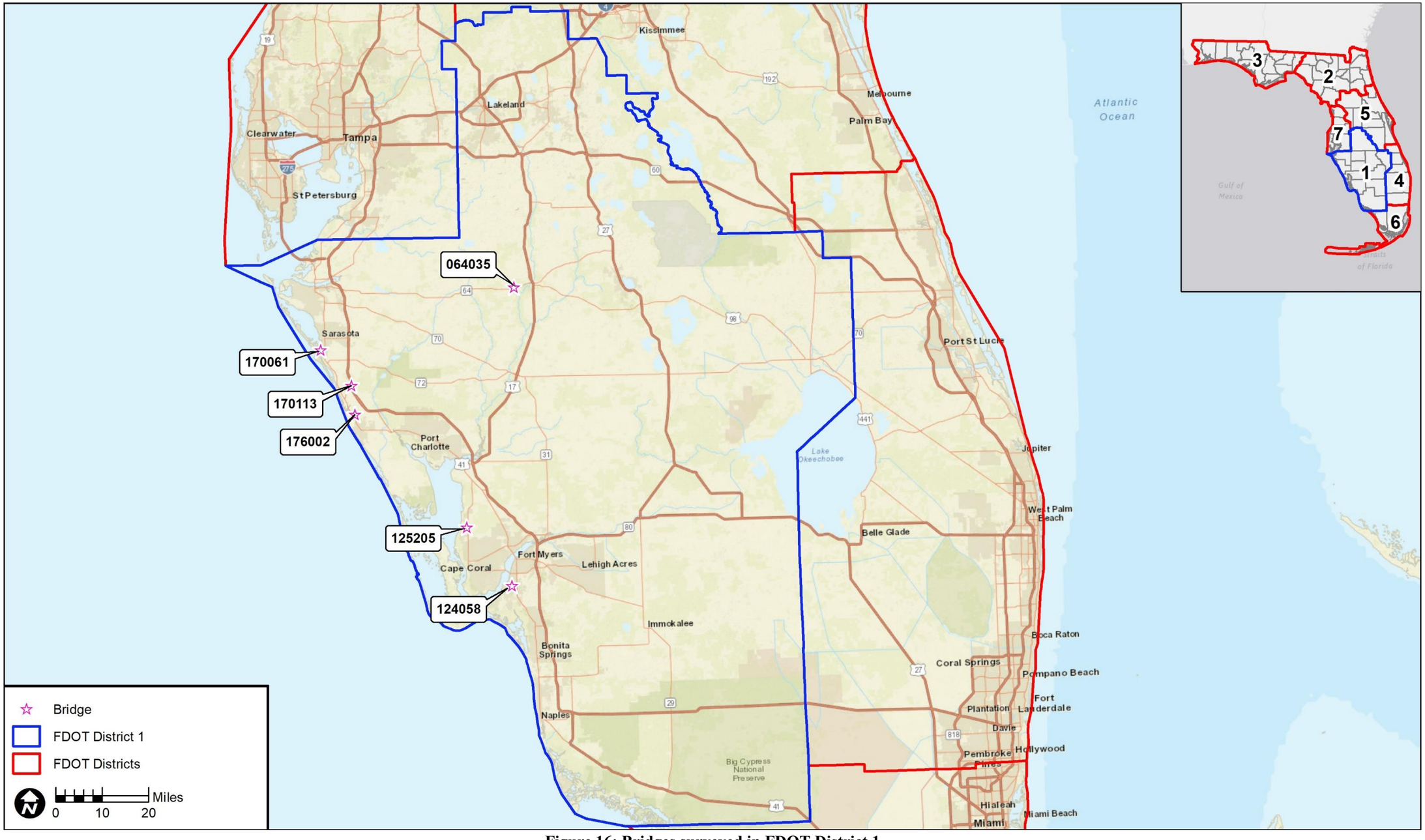


Figure 16: Bridges surveyed in FDOT District 1

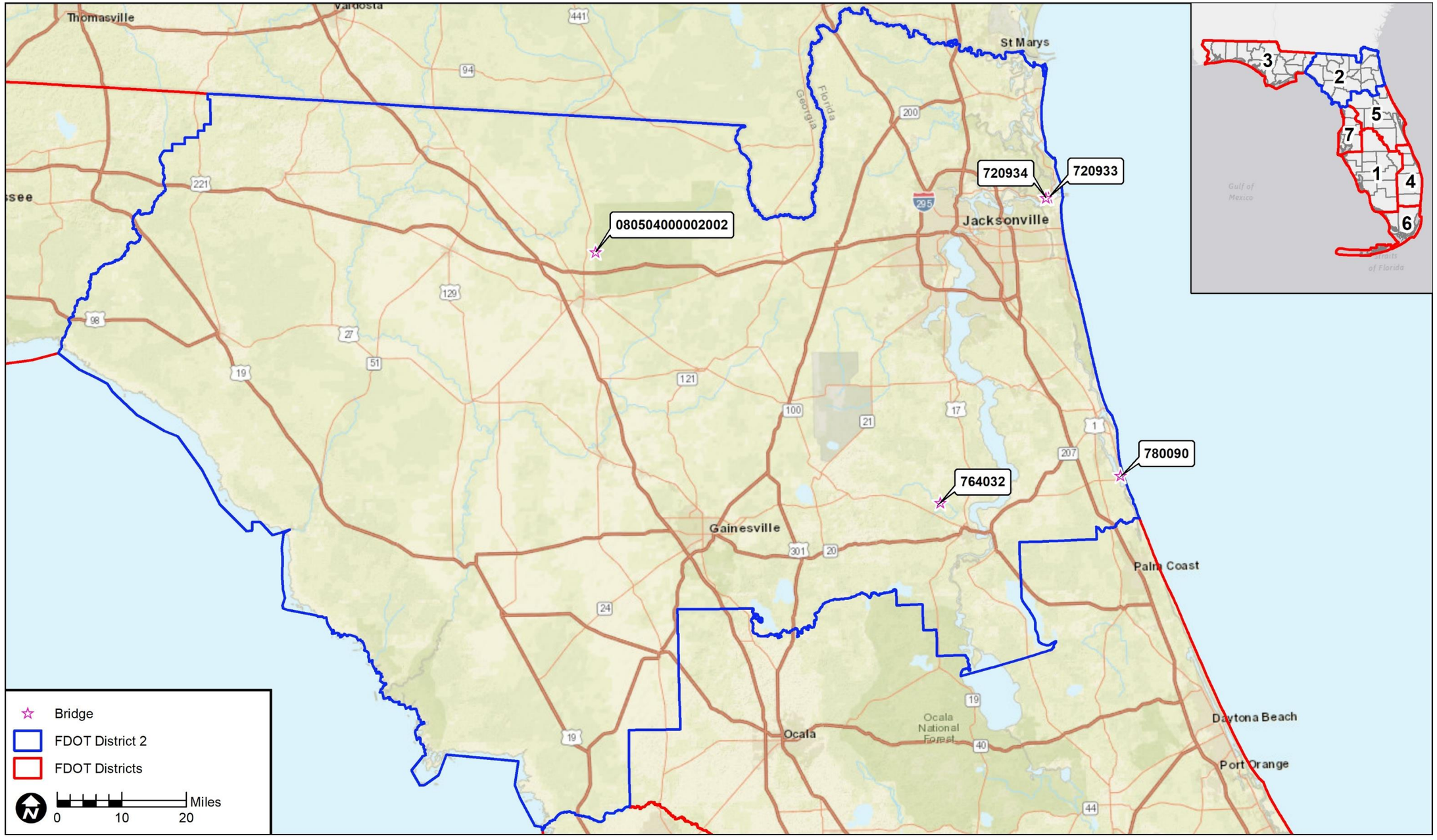


Figure 17: Bridges surveyed in FDOT District 2

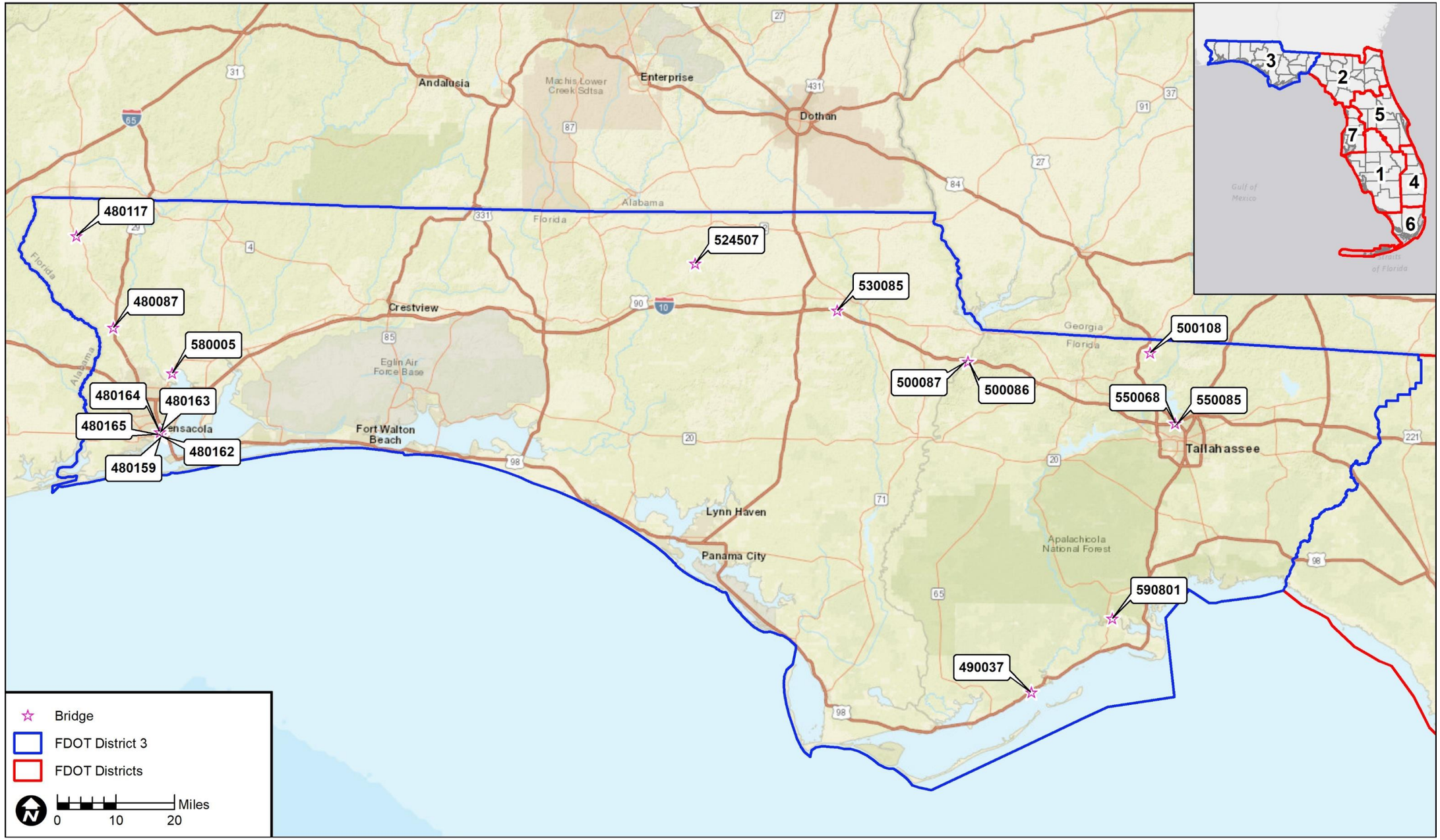


Figure 18: Bridges surveyed in FDOT District 3

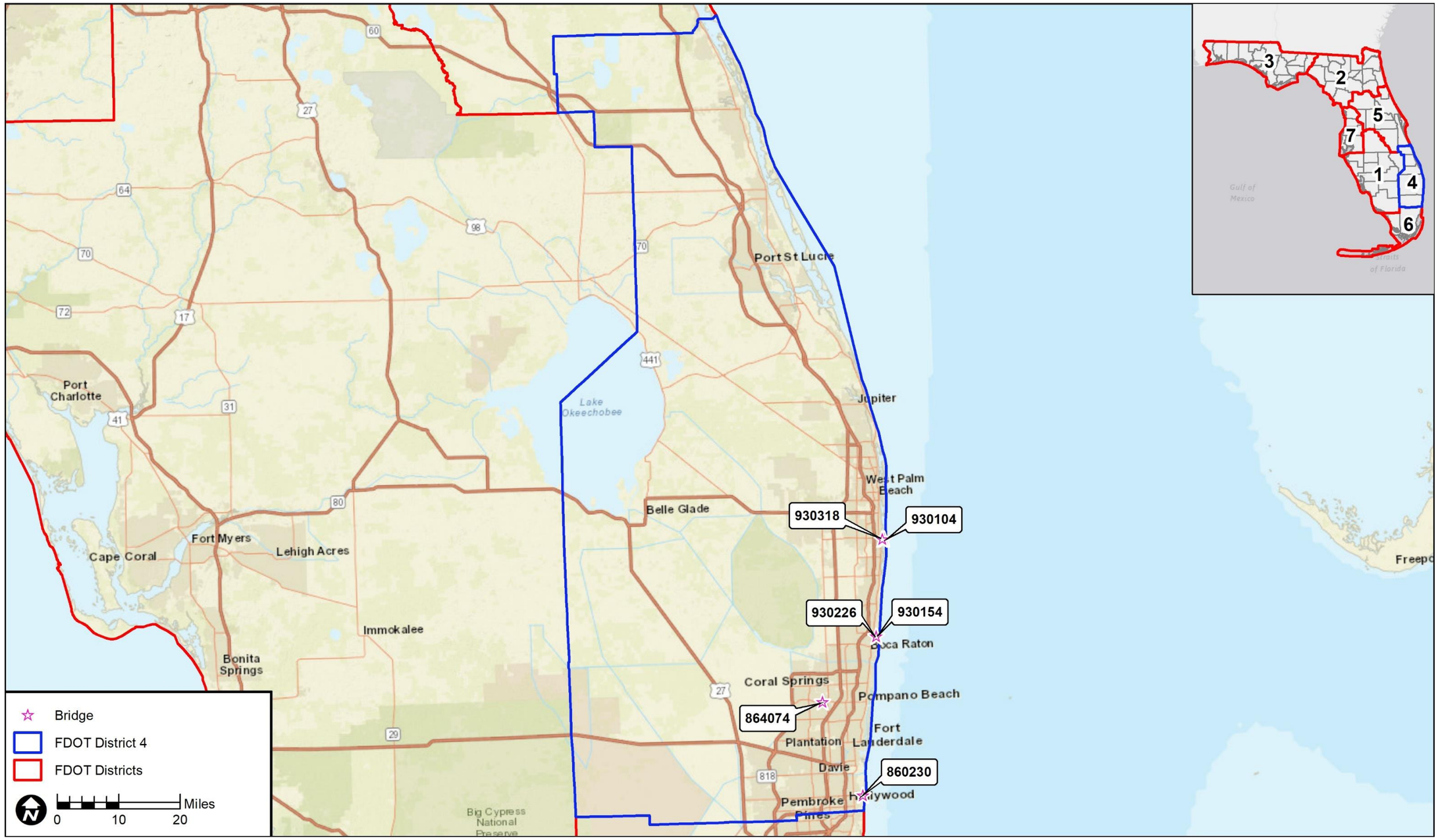


Figure 19: Bridges surveyed in FDOT District 4

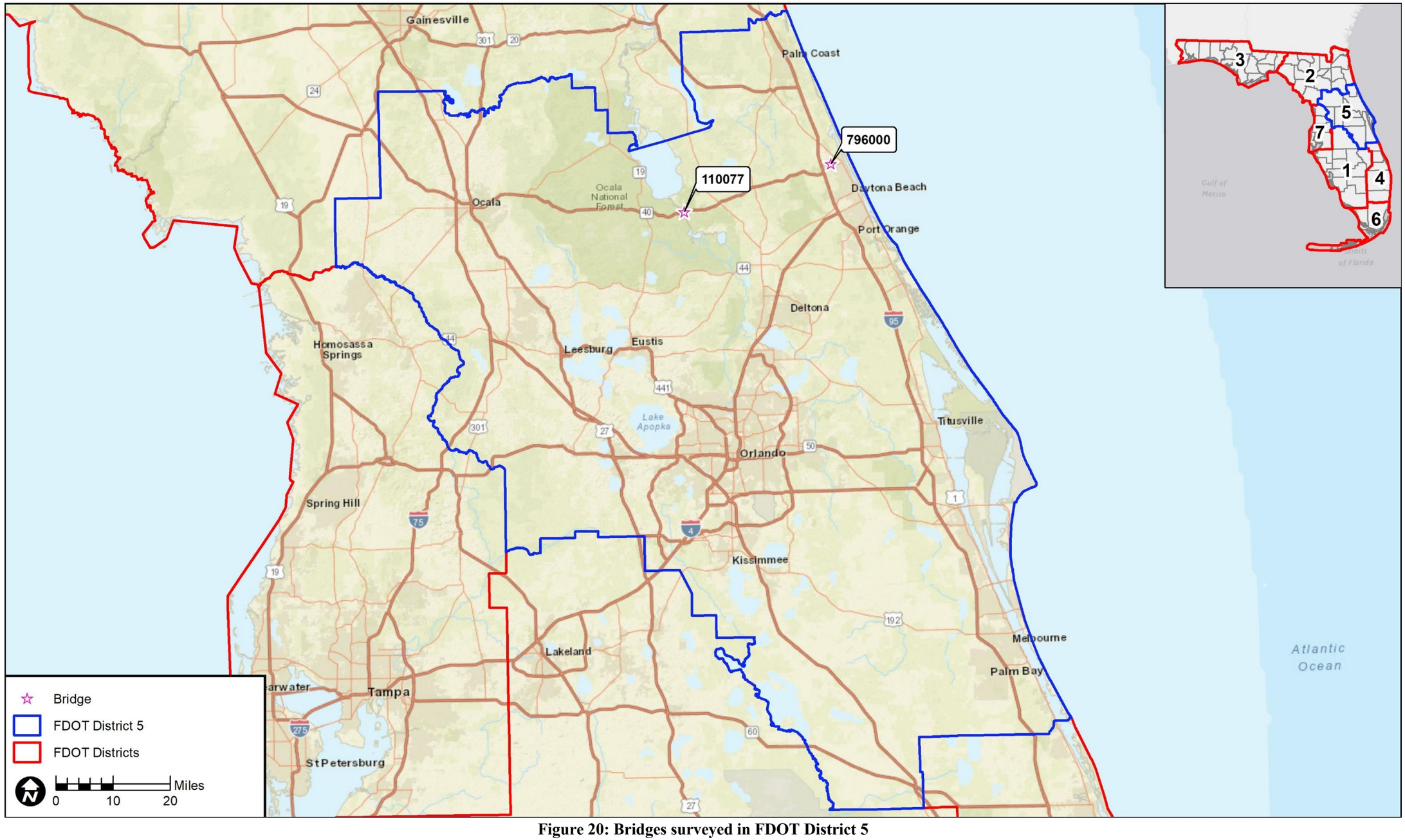


Figure 20: Bridges surveyed in FDOT District 5

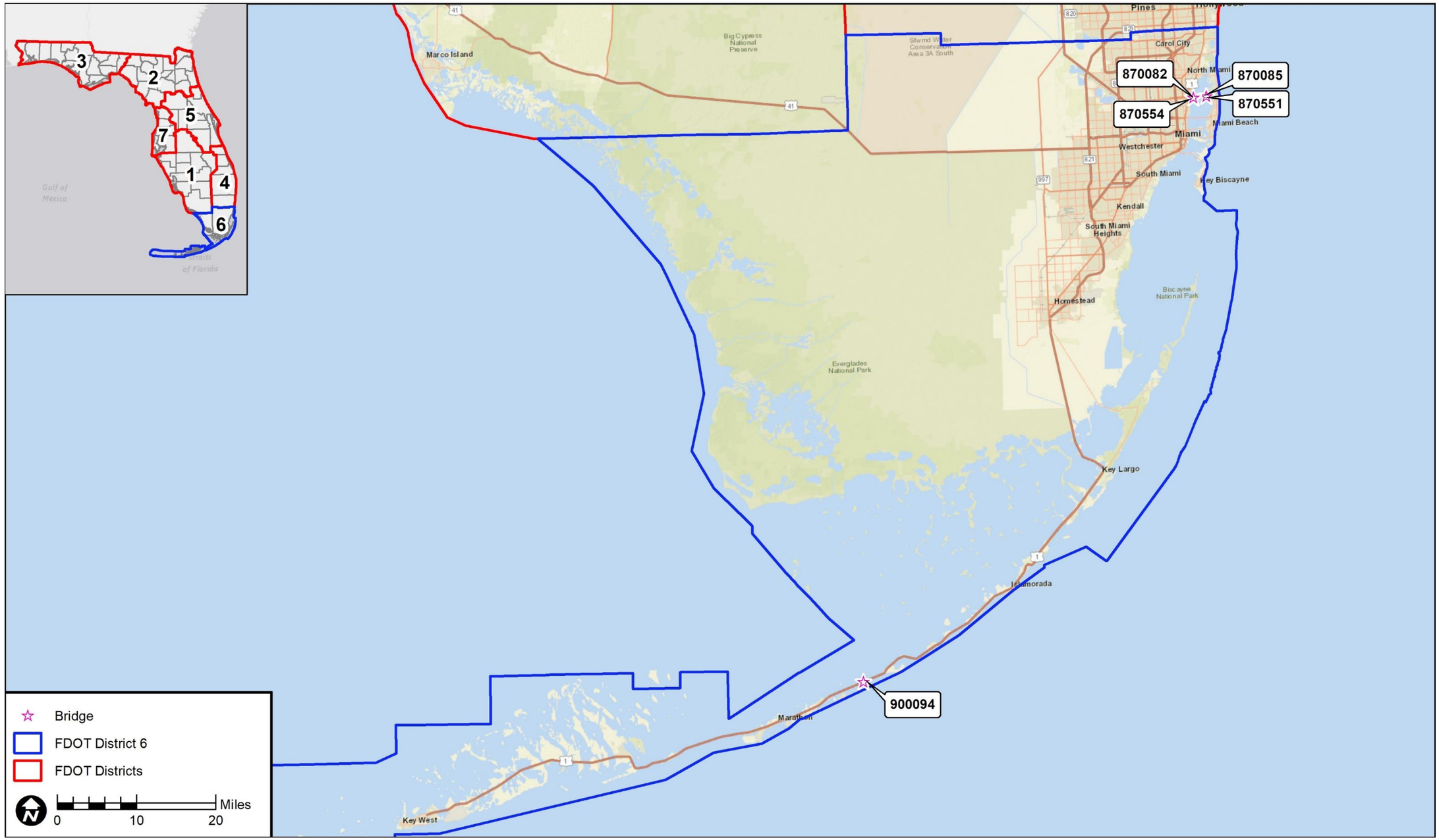


Figure 21: Bridges surveyed in FDOT District 6

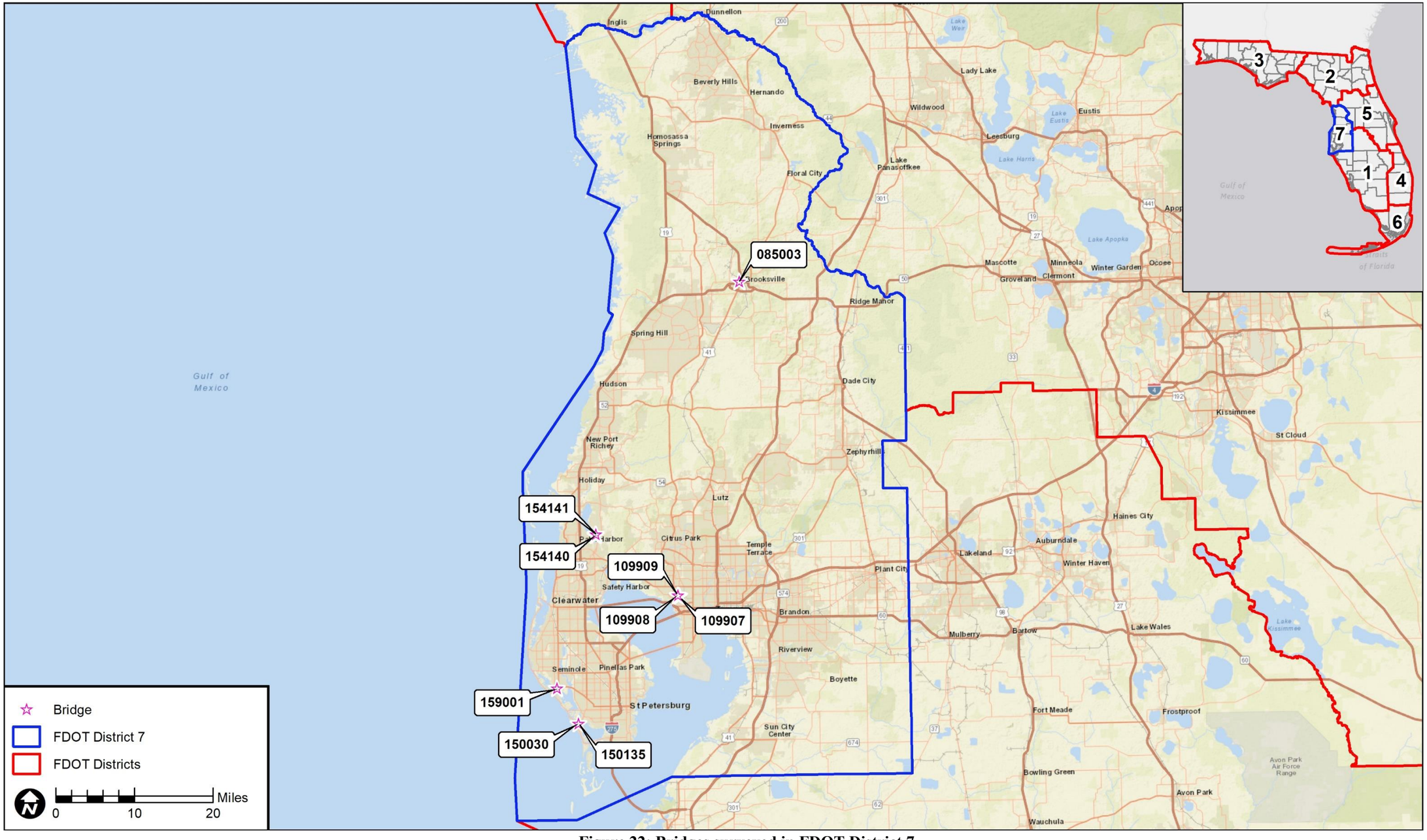


Figure 22: Bridges surveyed in FDOT District 7

Bridges Recommended Eligible for the National Register:

District 1

Figure 23: Bridge No. 170061/8SO15321, facing East

Bridge 170061, 8SO15321, constructed in 1972:

This bridge is located in Sarasota County and carries State Road 758 over Sarasota Bay onto Siesta Key (Figures 23-24). Sarasota Bay in this location is a component of the Intracoastal Waterway. The bridge is owned by the State of Florida. The bridge is 1,278 feet long with 22 spans. It has two travel lanes and a sidewalk on the south side. The bridge has a double-leaf bascule span with a metal grating deck. The tender house is located on the south side and is a two-story concrete building with a pyramidal roof and metal casement windows. The substructure is composed of concrete girders and concrete piers.

The bridge was constructed after significant community input on a location for an additional crossing of Sarasota Bay to Siesta Key. The decision on the bridge location was controversial based on environmental and ROW impacts. The final location of this bridge was the location of an existing bridge. It also reflected the focus of FDOT on making mainland to island connections rather than island to island connections. Finally, the construction of the bridge over the IWW, replacing a shorter bridge, reflected the increasing need to carry traffic to islands and minimizing traffic disruptions due to bridge openings.

The bridge is eligible for the National Register under Criteria A – Community Planning and Development and Criteria C – Engineering.

Figure 24: Bridge No. 170061/8SO15321, facing Southeast.

Figure 25: Bridge No. 170113/8SO15320, facing Southwest

Bridge 170113, 8SO15320, constructed in 1980:

This bridge is located in Sarasota County and is an on-ramp to State Road 681 that carries traffic over Interstate 75 (Figures 25-26). The bridge is owned by the State of Florida. The bridge is 850 feet long with 7 spans. It has two travel lanes. The bridge is fixed with continuous boxed steel girders and triangular-shaped twin concrete support piers.

The bridge received an award for its design and is a unique engineering and aesthetic design.

The bridge is eligible for the National Register under Criteria C – Engineering.

Figure 26: Bridge No. 170113/8SO15320, facing Southwest

District 2

Figure 27: Bridge No. 720933/8DU24183 (Mayport Ferry), facing Southeast

<u>Bridges 720933/720934, 8DU24183/8DU24184, constructed in 1973:</u>

These structures are the two slips associated with the SR A1A ferry that carries the roadway across the St. Johns River in Duval County (Figures 27-29). The ferry on the south bank of the St. Johns River (referred to as the Mayport ferry) is structure 720933 and the ferry on the north bank of the St. Johns River (referred to as the St. George Ferry) is structure 720934. A ferry was located at this location since 1951, but the current ferry slips were constructed in 1973 by the Florida DOT. In 1999 the City of Jacksonville took over operation of the ferry from FDOT. Currently they are owned and managed by the Jacksonville Transportation Authority. The headworks are composed of metal supports with a chain mechanism for the springline. The apron is metal with guide boards to assist with loading vehicles onto the ferry. The apron is supported by concrete capped concrete piers. Metal and rubber bollards are located at the front of the slips to assist the ferry dock. The slips were rehabilitated by the FDOT in 2018.

The ferry is the only remaining ferry on the St. Johns River and the only public ferry in the state of Florida that carries a state route over a waterway. It is the last remaining type of waterway crossing that was common in Florida, especially across the St. Johns River. Although the ferry infrastructure has been updated, it maintains integrity of use, location, setting, and association.

The bridge is eligible for the National Register under Criteria A – Community Planning and Development and Criteria C – Engineering.

Figure 28: Bridge No. 720933/8DU24183 (Mayport Ferry), facing West

Figure 29: Bridge No. 720934/8DU24184 (St. George Ferry), facing Northwest

District 3

Figure 30: I-110 Bridges, facing East-Northeast

I-110 Bridges (FDOT Bridges 480159, 480162-5), 8ES6165-8ES6169, constructed in 1979-1980:

This is a series of five bridges that are components of Interstate 110 (I-110), which connects Interstate 10 (I-10) with downtown Pensacola, Escambia County (Figures 30-34). The bridges are owned by the State of Florida. The bridges are an early utilization of steel tub girders. The tub girders support a concrete deck with two travel lanes and wide shoulders. The substructure is composed of concrete caps and piers.

This series of bridges were constructed in 1979-1980 and act as an important transportation route from the major I-10 corridor to the historic Pensacola downtown and the nearby barrier island. The design of the bridges resulted in the bridges being awarded a Governor's Design Award in 1982 for the "graceful and unobtrusive transportation design while maximizing potential for public open space." These bridges reflect the growing considerations for the impacts of these large infrastructure projects on the communities in which they were being placed. These are also one of the first uses of metal tub girders in Florida. Bridges 480164 and 480165 are a combination of concrete beam and girder at the northern segments and metal tub girders at the southern segments.

The bridges are eligible for the National Register under Criteria A – Community Planning and Development and Criteria C – Engineering.

Figure 31: Bridge No. 480159/8ES6165, facing West-Northwest

Figure 32: Bridge No. 480162/8ES6166, facing Northeast

Figure 33: Bridge No. 480163/8ES6168 (foreground) and 480164/8ES6169 (background) on the northern beam and girder sections, facing Northeast

Figure 34: Bridge No. 480165/8ES6167, facing North-Northwest

Figure 35: Bridge No. 500086/8GD3497/8JA7705, facing West

I-10 Bridges (FDOT Bridges 500086, 500087), 8GD3497/8JA7705 and 8GD3498/8JA7706 constructed in 1978:

This is a set of paired bridges that carry Interstate 10 (I-10) over the Apalachicola River in Jackson County and Gadsden County (Figures 35-36). Bridge 500086 carries westbound traffic and Bridge 500087 carries eastbound traffic. The bridges are owned by the State of Florida. The bridges are concrete and steel girders. Bridge 500086 has 57 spans with a length of 5,479.0 feet. Bridge 500087 has 50 spans and a length of 6,100.1 feet. The bridges carry two travel lanes with curbs and concrete railings. The substructure is composed of concrete supports.

These bridges were the last portion of I-10 between Jacksonville and California to open. The first portion of I-10 in Florida to begin construction was in 1958 in Jacksonville. The bridges were one of the largest projects in the state up to that point and their construction cost was $19.6 million. Their design was particularly difficult because of the large expanse of floodplain of the Apalachicola River. Environmental agencies required the state to expand the design of the bridge to accommodate the floodplain. Originally FDOT designed the bridge to extend 4,600 feet but state environmental agencies requested them to extend the bridges to 5,800 feet. Eventually a compromise was reached and the spans are 5,5000-6,100 feet. The bridges were also designed to minimize impacts to nearby cultural sites.

The I-10 bridges over the Apalachicola River were the final piece in completing the route across the United States, connecting the Atlantic Ocean and Pacific Ocean with a high-speed, limited access roadway. This completed a major federal project that began before World War II. The

placement and design of the bridges are also a testament to the rise of the environmental movement and government regulations related to the environmental impact of projects.

The bridges are eligible for the National Register under Criteria A – Community Planning and Development and Criteria C – Engineering.

Figure 36: Bridge No. 500087/8GD3498/8JA7706, facing East

Figure 37: Bridge No. 530085/8JA7707, facing Southwest

<u>Bridge 530085, 8JA7707, constructed in 1979:</u>

This bridge is located in Jackson County and carries New Hope Road over I-10 (Figures 37-38). The bridge is owned by the State of Florida. The bridge is 2,980 feet long with 45 spans. It has two travel lanes and concrete railings. The substructure is composed of concrete girders and one center concrete pier.

The bridge was constructed in 1979. The bridge was the first to utilize spliced post-tensioned girders in Florida. During the 1960s and 1970s, FDOT worked to develop bridge designs and materials that could provide long spans with economy and durability. It was during this period that FDOT first developed post-tensioned bridges including prestressed, post-tensioned girder bridges. This project is the first use of the new technology. The development of new bridge technology was necessitated by the increasing infrastructure needs of the growing state and the economic decline of the 1970s that drove the need for economically conservative solutions to the infrastructure needs of the state.

The bridge is eligible for the National Register under Criteria A – Community Planning and Development and Criteria C – Engineering.

Figure 38: Bridge No. 530085/8JA7707, facing North

District 4

Figure 39: Bridges No. 930104/930318 (8PB20680/8PB20681), facing Northeast

Bridges 930104/930318, 8PB20680/8PB20681, constructed in 1973:

These paired bridges are located in Palm Beach County and carry Lake Avenue over Lake Worth, which is a component of the Intracoastal Waterway (Figures 39-42). The bridges are owned by the State of Florida. Bridge 930104 carries westbound traffic and Bridge 930318 carries eastbound traffic. Both bridges are 1565.9 feet long with 21 spans. Each bridge has two travel lanes and a double-leaf bascule span with a metal grating deck. The tender house is located on the South side, which is Bridge 930318.

The bridges were constructed in 1973 and replaced a metal span constructed in 1934. When the bridges were completed in 1973, they were the largest single-span bascule bridges in the state of Florida and were considered a model for other similar bridges (Fort Lauderdale News 1973). The construction of the larger bascule spans on these bridges reflected the growing size and number of waterborne traffic on the IWW. They also reflect the increasing need for a safe and reliable transportation route across the IWW.

The bridges are eligible for the National Register under Criterion C – Engineering due to their length.

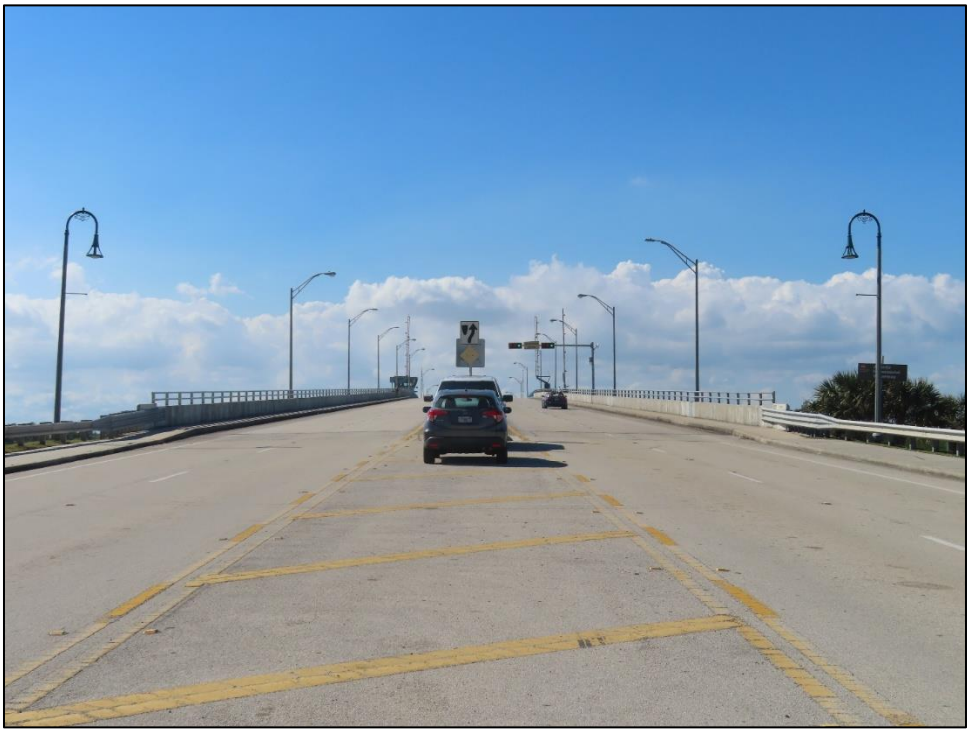


Figure 40: Bridges No. 930104/930318 (8PB20680/8PB20681), facing West

Figure 41: Bridges No. 930104/930318 (8PB20680/8PB20681), facing Northwest

Figure 42: Tender house on Bridges No. 930318 (8PB20681), facing West

District 6

Figure 43: Bridge No. 900094/8MO6833, facing West

Bridge 900094, 8MO6833, constructed in 1981:

This bridge, commonly referred to as Long Key Bridge, is located in Monroe County and carries State Road 5/US 5 over the Florida Straits between Grassy Key and Long Key (Figures 43-44). The bridge is owned by the State of Florida and is 12,176 feet long with 103 spans. It has two travel lanes and bike lanes. The bridge is fixed. The substructure is composed of concrete piers.

In the 1970s, FDOT began replacing the original Overseas Highway bridges that connected Key West to the mainland. The original Overseas Highway consisted of a two-lane paved road that carried traffic over the Florida Straits via the converted bridges that had originally been constructed by Henry Flagler. By the 1970s, the converted bridges were experiencing structural and operational issues and FDOT began constructing new bridges to the east of the original bridges. Along with new bridges, FDOT also shifted the alignment of the main roadway, US 1/SR 5 east, abandoning the original Overseas Highway roadway and bridges at the same time. In 1978 FDOT began to design the replacement of one of the longer spans, the Long Key bridge that connects Grassy Key with Long Key. The Long Key span was particularly difficult because of its significant length and the dynamic environment found in the keys. FDOT embarked on a project to research a variety of designs and construction methodologies to address the environmental and economic challenges in replacing the bridge. As a result of the design study, FDOT chose to use a segmental bridge construction methodology and a bridge design utilizing a precast concrete box girder for the first time. Since this was the first time this design was being used, FDOT developed specific guidance for the contractor of the bridge, the Michael Construction Company.

The segmental construction method employed the use of temporary supports to align the pre-cast box girder segments which were then post-tensioned together. The construction methodology minimized the dead load of the superstructure spans which subsequently minimized the required substructure. Since the segments were pre-cast off-site, construction time and waste was minimized. The success of the span-by-span method of segmental bridge construction for the Long Key bridge lead to its use in three other new Overseas Highway Bridges: the new Seven Mile bridge (FDOT Bridge No. 900101), the Niles Channel bridge (FDOT Bridge No. 9000117), and the Channel Five bridge (FDOT Bridge No. 900098), and several other major bridges in the state including portions of the Sunshine Skyway Bridge (Pinellas/Manatee/Hillsborough Counties), the Howard Frankland Bridge (Pinellas/Hillsborough Counties), and the Edison Bridge (Lee County).

The innovative use of segmental construction of the Long Key bridge resulted in a new and efficient construction methodology that is still employed in 2025. The Long Key bridge (FDOT Bridge No. 900094) of the modern Overseas Highway is individually eligible for the National Register under Criteria C – Engineering due to the innovative use of segmental pre-cast post-tensioned box girder construction methodology.

Figure 44: Bridge No. 900094/8MO6833, facing West

District 7

Figure 45: Bridge No. 159001/8PI16463, facing Northeast

<u>Bridge 159001, 8PI16463, constructed in 1975:</u>

This bridge is located in Pinellas County and carries a pedestrian path over the Tom Stuart Causeway/SR 666 (Figures 45-47). The bridge is owned by the State of Florida. The main span of the bridge is 174 feet and 6 inches long and the bridge is approxiametly10 feet wide. The bridge has circular ramps at each end to provide access to the main span over the roadway. The substructure is composed of a metal tub girder and concrete piers. The approach spans (circular ramps) are concrete.

The bridge was constructed in 1975 and received an award in 1975 by the American Institute of Steel Construction. The awards were given "To promote a more widespread appreciation of the aesthetics of steel bridges and to honor the architectural excellent of modern bridge design. [Awarded bridges are the] most beautiful of those opened to traffic in the US during the previous year.". The bridge was designed with an unusually long main span length, which is paired with a tub girder, which provides it with a graceful appearance. This is also an early use of a tub girder in the state.

The bridge is eligible for the National Register under Criteria C – Engineering.

Figure 46: Bridge No. 159001/8PI16463, facing West

Figure 47: Bridge No. 159001/8PI16463, facing Northwest

Bridges Associated with the Intracoastal Waterway

The population in Florida significantly increased in the post-World War II era necessitating improved transportation routes. In addition, the economy of Florida grew increasingly dependent on tourism, requiring increased access to tourist areas. Frequent bridge openings impeded traffic across major waterways in the state and frustrated drivers. The IWW was established to provide a safe and reliable interior waterway route for goods and military waterway traffic, making it an important component of the country's economy and national security. However, its location between the beaches and mainland meant that significant vehicular traffic needed to cross the IWW. FDOT had to balance the needs of the traveling public and the importance of the waterway traffic.

Residents and tourists generally preferred the placement of fixed bridges over the IWW to avoid the delays inherent with movable bridges. However, the costs of purchasing the necessary real estate for fixed bridges limited their economic feasibility. The design of bridges over the IWW also had to take into consideration the extreme environment of the waterway and minimizing the potential for a catastrophic failure of the structure in the event of a vessel strike. During the 1970s, a greater emphasis was placed on safety after several high-profile bridge collapses.

Bridges along the IWW that were constructed in the 1970s followed a typical design. They were constructed of either a concrete or steel girder substructure, and a concrete substructure with two travel lanes. The movable spans were double-leaf and had a metal grating deck. The tender houses are concrete with a pyramidal roof and metal casement windows. Oftentimes the bridges were constructed as parallel pairs.

The bridges associated with the IWW are an important connection between inland Florida and beach communities. The construction of bridges over the IWW reflected the increasing needs to carry traffic to islands and the need to minimize traffic disruptions due to bridge openings. They were designed in a specific manner to accommodate both waterway and automotive traffic.

Although the bridges crossing the IWW are a related group according to their use and location, the bridges do not form a cohesive resource group. Bridges constructed to cross the IWW should be individually evaluated for the National Register for their association with local and regional historical themes related to the IWW. The bridges associated with the IWW will be added to the list of exempted bridges from the Program Comment related to common types of Post-1945 bridges.

As part of the current study, 12 movable bridges that cross the IWW that were constructed between 1970 and 1980 were chosen in Phase 1 to be field visited and evaluated for National Register eligibility. Of the 12 bridges that were field visited as part of the current effort, all but one of the bridges maintain a high degree of integrity of design, materials, and workmanship. The Hollywood Boulevard Bridge (Bridge No. 860230) is the only bridge that has undergone major rehabilitation including replacement of the tender house, railings, and lighting. One additional bridge, Bridge No. 150030, was also surveyed because it is paired with one of the 12 original bridges chosen for field survey. Three of the bridges that cross the IWW were found to be individually eligible for

the National Register (Bridge Nos. 170061, 930104, and 930318) and were discussed earlier. Based on the scope of the current document, the remaining field-surveyed bridges associated with the IWW bridges (10) were not evaluated for local or regional significance but because of their association with the IWW they are evaluated as insufficient information. Table 4 provides a listing of the bridges over the IWW that were identified for field survey in the current effort and were not individually evaluated. This list does not include all of the IWW bridges in the state. Below are narratives for the 10 surveyed bridges and Figure 48 is a map that shows the location of the surveyed bridges.

Table 4: Bridges that span the Intracoastal Waterway that were surveyed in the current document, organized in pairs, if applicable.

FMSF Number	Structure Number	FDOT District/County	Year	National Register Evaluation
8PI16460	150135	7/Pinellas	1975	Insufficient Information
8PI12057	150030	7/Pinellas	1966	Insufficient Information
8PB20678	930154	4/Palm Beach	1971	Insufficient Information
8PB20679	930226	4/Palm Beach	1971	Insufficient Information
8DA23359	870554	6/Miami-Dade	1972	Insufficient Information
8DA23360	870082	6/Miami-Dade	1972	Insufficient Information
8DA23137	870551	6/Miami-Dade	1973	Insufficient Information
8DA23358	870085	6/Miami-Dade	1973	Insufficient Information
8SJ8251	780090	2/St. Johns	1975	Insufficient Information
8BD9961	860230	4/Broward	1976	Insufficient Information

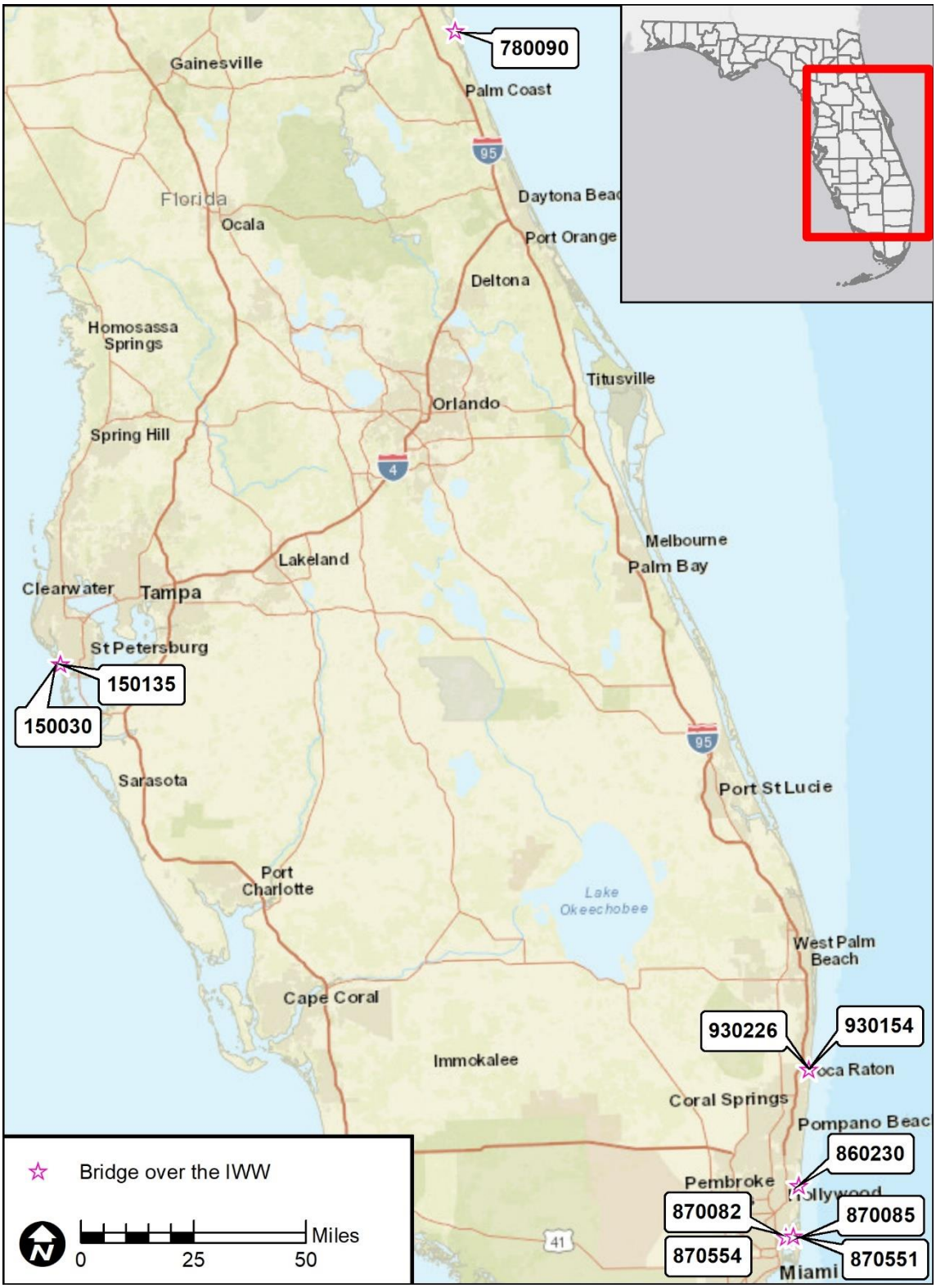


Figure 48: Locations of the 10 bridges that cross the IWW that were surveyed as part of this effort and evaluated as insufficient information.

Figure 49: Bridge No. 150135/8PI16460 (left) and Bridge No. 150030/8PI12057 (right), facing Southwest

Bridges 150030/150135, 8PI12057/8PI16460, constructed in 1966/1975 (District 7):

These paired bridges are located in Pinellas County and carry 75th Avenue/SR 693 over the Intracoastal Waterway (Figures 49-51). The bridges are owned by the State of Florida and are known as the St. Petersburg Beach Causeway. Bridge 150030 is 949.5 feet long with 15 spans and carries westbound traffic. Bridge 150135 is 1074.5 feet long with 17 spans and carries eastbound traffic. Each bridge has two travel lanes and a double-leaf bascule span with a metal grating deck. The tender house is located on the South side, which is Bridge 150135. Bridge 150030 is lower than Bridge 150135.

Bridge 150030 was constructed first in 1966 and was paired with an earlier span that was located south of Bridge 150030. In 1975, the parallel span to Bridge 150030 was demolished and Bridge 150135 was constructed immediately south of Bridge 150030 to carry eastbound traffic.

Figure 50: Bridge No. 150030/8PI12057, facing Northeast

Figure 51: Bridge No. 150135/8PI16460, facing Northwest

Figure 52: Bridges No. 930154/930226, facing Southeast

<u>Bridges 930154/930226, 8PB2678/8PB20679, constructed in 1971 (District 4):</u>

These paired bridges are located in Palm Beach County and carry Spanish River Boulevard over the Intracoastal Waterway (Figures 52-53). The bridges are owned by the State of Florida. Both bridges are 486.9 feet long with seven spans. Bridge 930154 carries westbound traffic and Bridge 930226 carries eastbound traffic. Each bridge carries two travel lanes and a double-leaf bascule span with a metal grating deck. The tender house is located on the South side on Bridge 930154.

The bridges were constructed in 1971.

Figure 53: Bridges No. 930154/930226 (8PB2678/8PB20679), facing Southwest

Figure 54: Bridges No. 870082/870554 (8DA23360/8DA23359), facing East

Bridges 870082/870554, 8DA23360/8DA23359, constructed in 1972 (District 6):

These paired bridges are located in Miami-Dade County and carry NE 79th Street over the Intracoastal Waterway (Figures 54-55). The bridges are owned by the State of Florida. Bridge 870554 carries eastbound traffic and is 968.2 feet long. Bridge 870082 carries westbound traffic and is 973.8 feet long. Each bridge has 14 spans that carry three travel lanes, and a double-leaf bascule span with a metal grating deck. The tender house is located on the North side bridge, Bridge 870554.

The bridges were constructed in 1972 and replaced an older four-lane bridge.

Figure 55: Bridges No. 870082/870554 (8DA23360/8DA23359), facing East

Figure 56: Bridges No. 870085/870551 (8DA23358/8DA23137), facing Southwest

<u>Bridges 870085/870551, 8DA23358/8DA23137, constructed in 1973 (District 6):</u>

These paired bridges are located in Miami-Dade County and carry SR 943/John F. Kennedy Causeway over the Intracoastal Waterway (Figures 56-57). The bridges are owned by the State of Florida. Bridge 870551 carries eastbound traffic and Bridge 870085 carries westbound traffic. Each bridge is 1028.5 feet long and has 17 spans that carry three travel lanes, and a double-leaf bascule span with a metal grating deck. The tender house is located on the South side bridge, Bridge 870551.

The bridges were constructed in 1973 and replaced an older four-lane bridge.

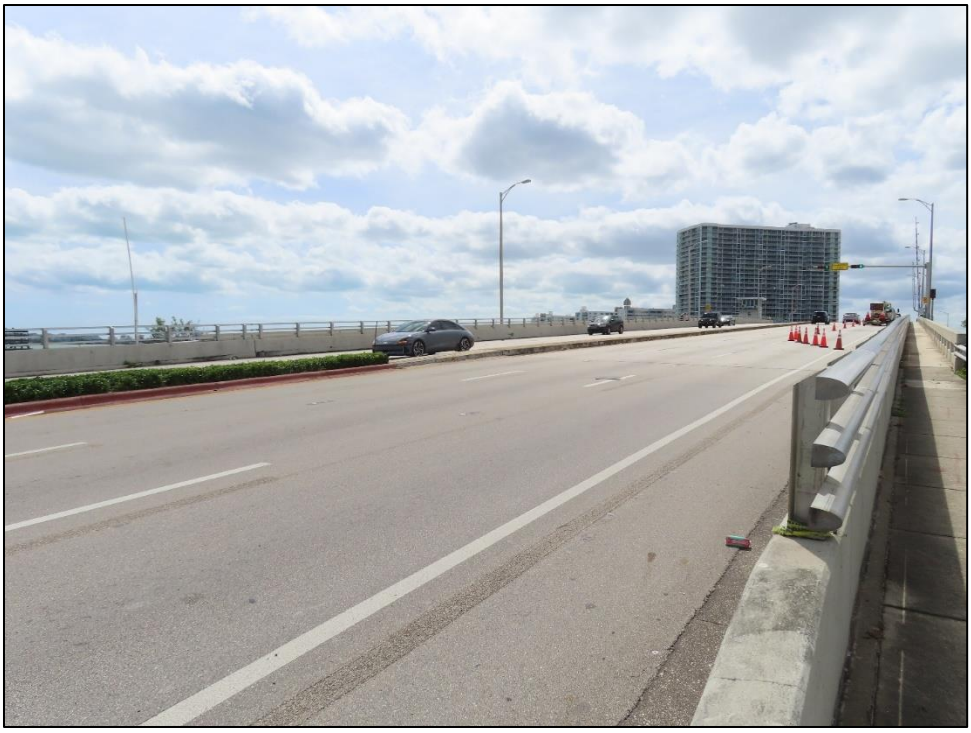


Figure 57: Bridges No. 870085/870551 (8DA23358/8DA23137), facing Southwest

Figure 58: Bridge No. 780090/8SJ8251, facing Southwest

Bridge 780090, 8SJ8251, constructed in 1975 (District 2):

This bridge is located in St. Johns County and carries State Road 206 over the Matanzas River (Figures 58-59). The Matanzas River in this location is a component of the Intracoastal Waterway. The bridge is owned by the State of Florida. The bridge is 2,980 feet long with 45 spans. It has two travel lanes and a double-leaf bascule span with a metal grating deck. The tender house is located on the North side.

The bridge was constructed in 1975 and replaced a metal span constructed in 1955.

Figure 59: Bridge No. 780090/8SJ8251, facing West

Figure 60: Bridge No. 860230/8BD9961, facing South

Bridge 860230, 8BD9961, constructed in 1976 (District 4):

This bridge is located in Broward County and carries State Road 820/Hollywood Boulevard over the Intracoastal Waterway (Figures 60-62). The bridge is owned by the State of Florida. The bridge is 1,284.1 feet long with 28 spans. It has two travel lanes and a double-leaf bascule span with a metal grating deck. The original tender house was replaced with two tender houses, located on both sides of the bridge.

The bridge was constructed in 1976 and replaced a smaller, movable bridge constructed in 1925. In 2006, the bridge underwent a major rehabilitation that included replacement of the bridge tender house, replacement of the mechanical and electrical components of the bascule spans, replacement of the metal grating on the movable spans, and new railings and lighting.

Figure 61: Bridge No. 860230/8BD9961, facing North

Figure 62: Bridge No. 860230/8BD9961, facing North

Bridges Associated with the Modern Overseas Highway

In the early twentieth century, the State Road Department (predecessor to FDOT) converted the original Florida East Coast (FEC) railroad bridges, the Overseas Railroad, into automotive-use bridges, turning them into the Overseas Highway. The Overseas Highway carried the main roadway from mainland Florida to Key West utilizing 43 bridges and the railroad grade. As Florida increasingly developed and tourism boomed, the Overseas Highway was an important component of the development of the Keys.

The popularity of the Keys and the resulting heavy traffic on the Overseas Highway led FDOT to begin exploring their replacement with new, modern bridges in the late twentieth century. However, just as Flagler discovered, building long expanses of bridges over the Florida Straits, a dynamic environment, was challenging. In order to maintain traffic as the bridges were replaced, FDOT realigned the main roadway and in some cases abandoned the original main roadway. The abandoned main roadway was renumbered SR 4A and the new roadway was assigned the US 1/SR 5 designation. FDOT replaced some of the smaller older Overseas Highway bridges in the early to late 1970s.

Of the longer expanses, FDOT chose to replace the Long Key Bridge first, embarking on a project to research a variety of designs and construction methodologies to address the environmental and economic challenges in replacing the bridge. FDOT decided to use a precast concrete box girder segmental bridge construction methodology for the first time with the Long Key Bridge. FDOT developed specific guidance for the contractor of the bridge, the Michael Construction Company, since the type of construction had never been utilized before.

The successful use of segmental pre-cast box girder post-tensioned construction methodologies in four of the new Overseas Highway bridges lead to the utilization of the same methods on several major bridges in the state including portions of the Sunshine Skyway Bridge (Pinellas/Manatee/Hillsborough Counties), the Howard Frankland Bridge (Pinellas/Hillsborough Counties), and the Edison Bridge (Lee County). Just as with the construction of the first FEC bridges, the environmental challenges of the Florida Straits led to innovative advances in bridge construction and materials.

The modern Overseas Highway Bridges are eligible as contributing resources to the overall Modern Overseas Highway Resource Group. The Modern Overseas Highway Resource Group is eligible under Criteria A for its association with the modern development of Florida and the Florida Keys in the late twentieth century. The population increase and tourism-based economy of Florida necessitated the updating of infrastructure such as roadways and bridges. The Overseas Highway provided the only overland route from mainland Florida to Key West since its completion in the 1930s, it was an essential route for Floridians and tourists. The realignment of the roadway and construction of the new bridges of the Overseas Highway was a significant event in the late twentieth century and the resources maintain their integrity of location, use, and setting. Recordation of the individual bridges and resource group is outside of the scope of this project.

Table 5 provides a listing of the bridges of the modern Overseas Highway including the date they were built. Figure 63a-d is a series of maps that show the location of the bridges. The Long Key Bridge was field visited and evaluated for individual eligibility for the National Register. An FMSF form was completed for the bridge and is included in Appendix A. FMSF forms were not completed for the 47 other bridges associated with the modern Overseas Highway or the overall resource group.

The bridges associated with the Modern Overseas Highway Resource Group will be added to the list of exempted bridges from the Program Comment related to common types of Post-1945 bridges.

Table 5: The modern Overseas Highway Bridges constructed in the late twentieth century, organized by structure number. The Long Key Bridge (highlighted) was evaluated individually.

Structure Number	Bridge Name	Year	Bridge Length (feet)
900003	Boca Chica Channel	1973	2634.8
900016	Big Spanish Channel	1972	6733.9
900045	Big Spanish Channel	1972	6733.9
900073	Marvin D. Adams Waterway/Key Largo	1973	119.1
900074	Boca Chica Channel	1982	2634.8
900077	Snake Creek Canal/Plantation Key	1981	850.1
900078	Tavernier Key	1978	319.9
900080	Rockland Channel	1979	1413.1
900081	Shark Channel	1979	2070.5
900086	Cow Key Channel	1978	360.6
900088	Tea Table Relief/Matecumbe Key	1979	283.1
900089	Tea Table Channel/Matecumbe Key	1980	737.9
900090	Saddle Bunch #5	1980	878.0
900091	Saddle Bunch #4	1980	878.0
900092	Saddle Bunch #3	1981	737.9
900093	Saddle Bunch #2	1981	633.2
900094	Long Key	1981	12175.9
900095	Indian Key	1981	2037.1
900096	Lignumvitae Channel	1981	901.9
900097	Channel Two	1981	1882.9
900098	Channel Five	1982	4923.9
900099	Toms Harbor Cut	1980	1333.0
900100	Toms Harbor Channel	1980	1519.0
900101	Seven Mile/Moser Channel/Marathon Key	1982	35867.8

Structure Number	Bridge Name	Year	Bridge Length (feet)
900102	Lower Sugarloaf Channel	1981	12881.1
900103	Missouri Little Duck Channel	1981	904.9
900104	Ohio Missouri Channel	1981	1478.0
900105	Ohio-Bahia Honda Channel	1981	1110.6
900106	Spanish Harbor Channel	1982	3484.3
900107	Harris Channel	1982	438.0
900108	Harris Gap Channel	1982	109.9
900109	North Harris Channel	1981	438.0
900110	North Pine Channel	1982	746.4
900111	South Pine Channel	1982	928.1
900112	Park Channel	1982	820.9
900113	Torch Channel	1982	824.1
900114	Torch Ramrod Channel	1982	655.8
900115	Bow Channel	1982	1491.1
900116	Kemp Channel	1982	1116.1
900117	Niles Channel	1981	4557.1
900125	Cow Key Channel	1985	360.6
900126	Vaca Cut	1982	415.0
900129	Naval Base Boulevard	1988	135.5

Figure 63a: Modern Overseas Highway Bridges (Map 1 of 4)

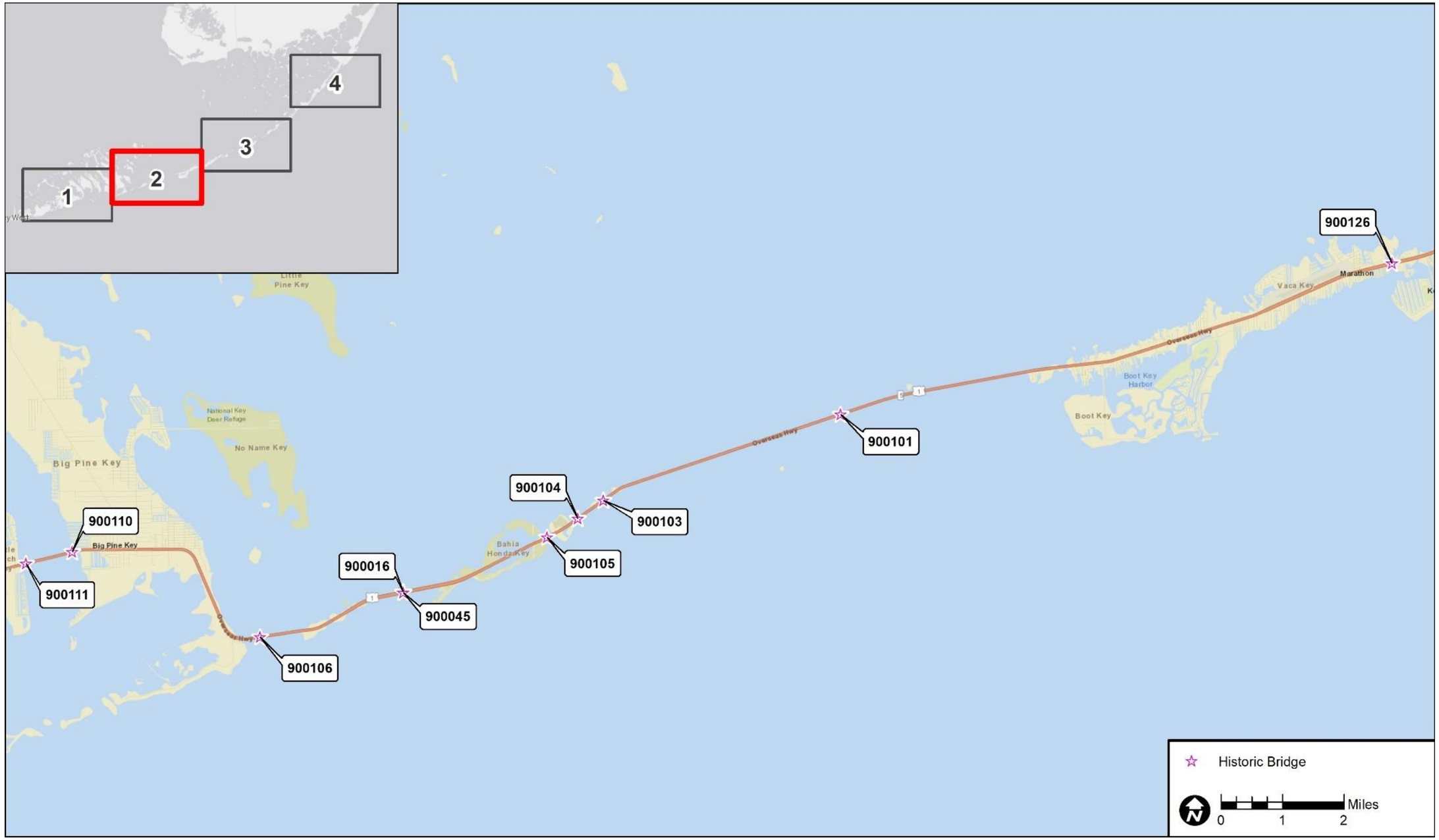


Figure 63b: Modern Overseas Highway Bridges (Map 2 of 4)

Figure 63c: Modern Overseas Highway Bridges (Map 3 of 4)

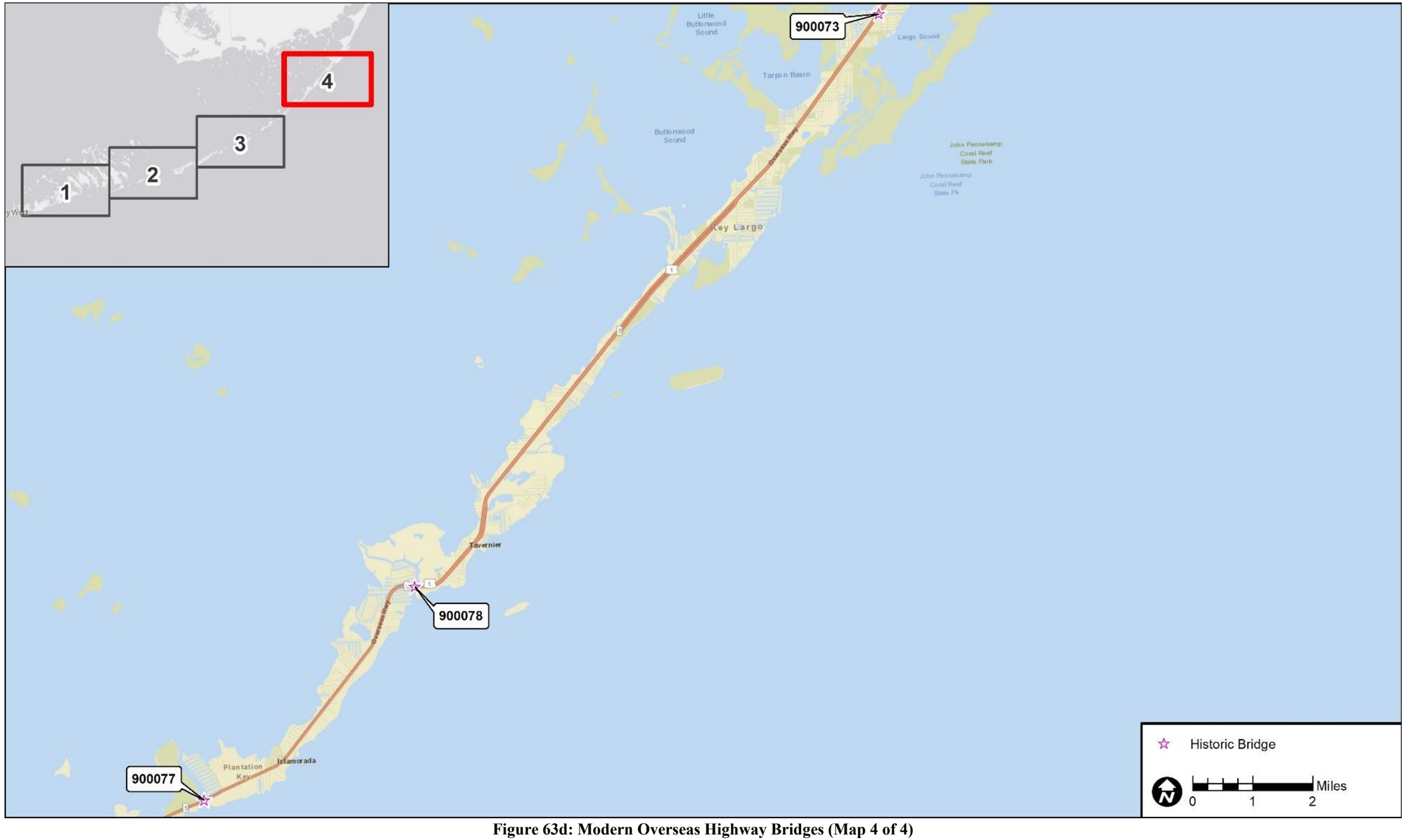


Figure 63d: Modern Overseas Highway Bridges (Map 4 of 4)

Bridges Recommended Ineligible for the National Register

The following bridges were field visited and are recommended National Register ineligible. Background research did not identify any significant historical associations with the bridges and their types are not rare or unique. Many of the bridges show signs of alterations including new materials. FMSF forms were completed for all of the following bridges.

Figure 64: Bridge No. 064035/8HR1167, facing Northwest

Figure 65: Bridge No. 124058/8LL3072, facing Northeast

Figure 66: Bridge No. 125205/8LL3071, facing Southwest

Figure 67: Bridge No. 176002/8SO15319, facing Southwest

Figure 68: Bridge No. 080504000002002/8CO1528, facing East

Figure 69: Bridge No. 480087/8ES6170, facing Northwest

Figure 70: Bridge No. 480117/8ES6171, facing West

Figure 71: Bridge No. 490037/8FR3121, facing Southwest

Figure 72: Bridge No. 500108/8GD3496, facing North

Figure 73: Bridge No. 524507/8HO621, facing North

Figure 74: Bridge No. 550068/8LE7008, facing North-Northeast

Figure 75: Bridge No. 550085/8LE7007, facing West

Figure 76: Bridge No. 580005/8SR2782, facing South

Figure 77: Bridge No. 590801/8WA2770, facing Northeast

Figure 78: Bridge No. 864074/8BD9962, facing West

Figure 79: Bridge No. 110077/8LA5712, facing Northeast

Figure 80: Bridge No. 796000/8VO10937, facing East

Figure 81: Bridge No. 085003/8HE1083, facing Northwest

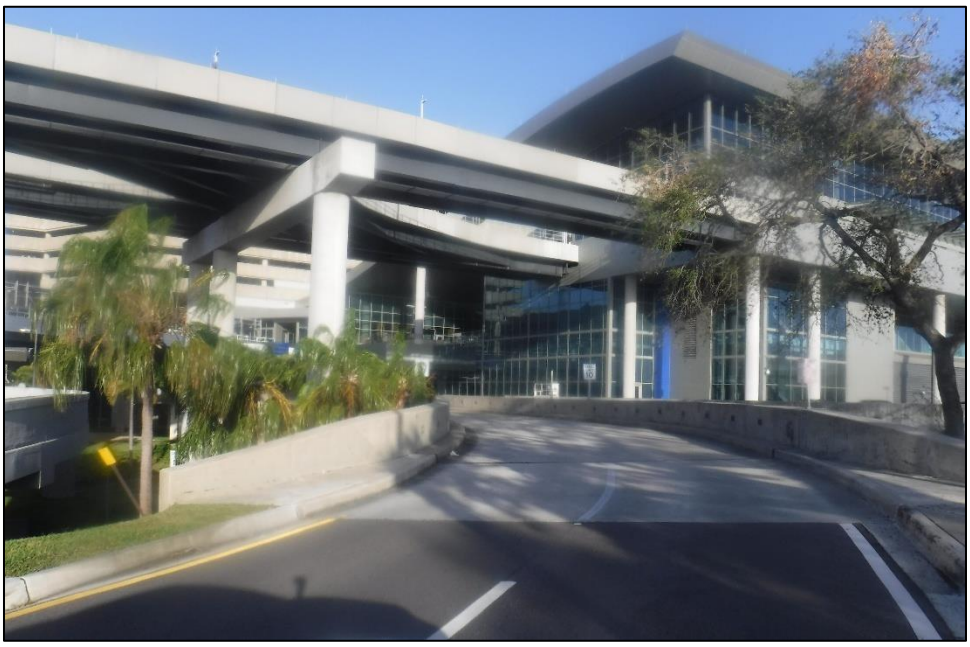


Figure 82: Bridge No. 109907/8HI15838, facing Northwest

Figure 83: Bridge No. 109908/8HI15839, facing Northeast

Figure 84: Bridge No. 109909/8HI15840, facing West

Figure 85: Bridge No. 154140/8HI16461, facing Northwest (Photograph courtesy of GoogleEarth due to Hurricane Milton damage)

Figure 86: Bridge No. 15141/8HI16462, facing Southwest

References

Barnett, Cynthia
2007 *Mirage: Florida and the Vanishing Water of the Eastern U.S*. University of Michigan Press, Ann Arbor.

Bentayou, Frank
1975 "New Bridge Rail Truck Stopper: Better Bridge Rail Available." In Tampa Tribune-Times, July 6, 1975, B1, B13.

Bleyer, Jim.
1970 "State Gets Sarasota Requests for 20-Year Road Program." *Tampa Tribune*, February 12, 1970.

Bogan, Eugene.
1974 "More I-110 Funds Needed." *Pensacola News-Journal,* January 9, 1974.

Brock, Ira.
1969 "Progress and Anguish, Brought By Interstate." *Pensacola News-Journal* June 1, 1969.

Comptroller General
1980 "Report to the Congress of the United States: Better Justifications Needed for Automated People Mover Demonstration Projects." Accessed at HathiTrust.org.

Corven Engineering, Inc.
2002 *New Directions in Florida Post-Tensioned Bridges, Volume 1*. Tallahassee, Florida.

Cosdon, Christina K.
1995 "Watery Business Surfaces." *Tampa Bay Times*, October 11, 1995.

Dye, Rick.
1977 "Interstate Spur 110-A Highway With A Plan." *Pensacola News-Journal,* April 3, 1977.

Edwards, Harry.
1981 "The Innovators of Prestressed Concrete in Florida (Part 3)." In *Reflections on the Beginnings of Prestressed Concrete in America*, pages 104-112.

Fort Lauderdale News
1973 "Lake Worth Bridge Open." Fort Lauderdale News, October 29, 1970.

Fort Pierce Tribune
1970 "FIND Won't Fight Bill to 'Forget' Tiny Tax Charges." *Fort Pierce Tribune,* April 6, 1970.

Garcia, Antonio M.
1993 "Florida's Long Span Bridges: New Forms, New Horizons." *PCI Journal*, July- August 1993.

Holloway, Vernon
1969 "Mass Transit Planned; Roads Still Being Built." *Tampa Bay Times*, July 11, 1969.

Lamont, Sanders
1972 "Roads, bridges need repairing, says director." *Pensacola News,* January 11, 1972.

Morris, Betty
1977 "Boating has grown without help from the City." *Boca Raton News*, October 30, 1977.

Muller, Jean
1980 "Construction of Long Key Bridge." *PCI Journal*, November/December 1980, pages 97-110.

Newman, Bud
1974 "Compromise Worked Out." *Pensacola News,* January 7, 1974.

O'Hara, Tom
1979 "Inspectors Guard Against More 'Surprise' Closings of Bridges." *Miami Herald*, January 27, 1979.

Parker, Everett
1968 "Car Checks MAY Cut Road Deaths." *The Evening Tribune*, May 15, 1968.

Parsons Brinckerhoff/Flood and Associates
1979 *Jacksonville Downtown People Mover Feasibility and Impact Studies. Technical Report No. 3 Alternatives Evaluation Process*. April 1979. Accessed at HathiTrust.org.

Pensacola News-Journal
1969 "Elevated Spur Sought." *Pensacola News-Journal,* June 1, 1969.

Purvis, Bill
1972 "$7.5 Million Set for Area Bridge Fixup." *Tampa Tribune*, May 11, 1972.

Ross, Hayes E.
1995 "Evolution of Roadside Safety." *Roadside Safety Issues*, Transportation Research Circular no. 435., Transportation Research Board, Washington D. C., January 1995, 10-11.

Sentinel Star
1975 "Road Fund May Not Hurt Orange County Project." *Sentinel Star*, August 1, 1975.

SRI International
1977 *Assessment of the passenger shuttle system (PSS) at Tampa International Airport: final report.* Washington D.C.: Urban Mass Transportation Administration. Accessed at HathiTrust.org.

Stafford, Charles
1969 "Florida Bridge Inspection Plan Model for U.S." *St. Petersburg Times*, January 23, 1969.

Stublen, Nash
1969 "After Reports of Corrosion State Rushes to Check Strength of Steel Supports for Bridges." *Tampa Tribune*, July 12, 1969.

Tampa Bay Times
1967 "Highway Construction Materials Moved By Barges." July 19, 1967.
1969 "Young Says Inspection Needed." April 23, 1969.
1973 "View From Bridge House: Lonely, Not Always Clear." February 2, 1973.

Taylor, Bill
1969 "Interstate Spur Brings Many Changes." *Pensacola News-Journal*, June 22, 1969.

US Census Bureau
Various "Decennial Reports" Accessed at: https://www2.census.gov/library/publications/decennial/.
1961 "Our Growing Population" Graphic Pamphlet, GP 60-1, US Government Printing Office, Washington D.C. Accessed at https://www2.census.gov/library/publications/decennial/

Urban Mass Transportation Administration (UMTA)
1976 "News: A project to Demonstrate the Benefits of Fully Automated People Mover System." April 6, 1976. Accessed at HathiTrust.org.

Weingroff, Richard F.
2013 "Busting the Trust." *Public Roads,* July/August 2013. FHWA-HRT-13-005, volume 77, no. 1.
2016 "A Great Day in America: USDOT's 50th Anniversary." *Public Roads,* September/October 2016. FHWA-HRT-16-006, volume 80, no. 2.
2021 "A Moment in Time: Highway Safety Breakthrough." *FHWA News,* 2021.

Wetmore, Jameson M.
2015 "Delegating to the Automobile: Experimenting with Automotive Restraints in the 1970s." In *Technology and Culture*, April 2015, volume 56, no. 2, pages 440-463.

Zollman, Charles C.
1981 "Dynamic American Engineers Sustain Magnel's Momentum." In *Reflections on the Beginnings of Prestressed Concrete in America,* 1981, pages 34-67.

Appendix A: FMSF forms for field surveyed bridges

Appendix B: Survey Log Sheet