



Dunedin Causeway Bridge Replacements

2019 BUILD APPLICATION



Submitted by:
Pinellas County Board of County Commissioners
City of Dunedin

Location:
Pinellas County, FL

Project Cost:
Total \$89,023,130
Grant Request \$25,000,000 (28.08%)
Local Match \$64,023,130 (71.92%)



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I. Project Location

Located in central Florida along the Gulf of Mexico, Pinellas County is part of the Tampa – St. Petersburg – Clearwater, Florida Metropolitan Statistical Area. Pinellas County is 38 miles long, and 15 miles at its broadest point, for a total of 280 square miles, including 588 miles of coastline. The County is comprised of a series of barrier islands and a land peninsula that runs the length of Tampa Bay to the east and the Gulf of Mexico to the west. The intermingling of the County’s land area with multiple waterways creates a heavy reliance on the area’s many bridges for all modes of transportation. **The Dunedin Causeway, the focus of this application and project area, provides connection between mainland Pinellas County and Honeymoon Island, a barrier island containing a 385 acre state park with four miles of beach, as well as private residences.** The Causeway includes two bridges and roadways that provide critical evacuation routes and linkages for one of the Tampa Bay region’s premier recreational amenities, the Pinellas Trail.





Despite the fact that Pinellas is it is the 2nd smallest county in the State of Florida by land area, the County is the 6th most populous. According to the most recent Census (2010), 916,542 residents make Pinellas County home, making it the most densely populated County in the State. Within its 280 square miles, there are 24 incorporated municipalities and the County has a residential density of 3,347 people per square mile. Females constitute 52% of the population, with males making up the remaining 48%. The average age of a citizen in Pinellas is 43. Pinellas County's top key business sectors are health services, tourism services, manufacturing and financial services. Over 40,000 businesses call Pinellas County home. Over 390,562 people are currently employed in Pinellas County, and the median household income is \$45,891.

Elevation in the County ranges from mean sea level to its highest natural point of 110 feet near the intersection of SR 580 and Countryside Boulevard in Clearwater. Due to its small size and high population, by the early 21st century Pinellas County has been mostly built out, with very little developable land left available. The County has maintained a fairly large system of parks and preserves that provide residents and visitors retreat from the city and a glimpse of the peninsula's original state. In fact, the Pinellas County Parks Department maintains 4,242 acres of the county's most beautiful examples of pristine Florida landscapes. Sun-drenched beaches, tranquil lakes, and lush emerald green expanses of native habitat along with playgrounds, learning centers, and convenience facilities provide park visitors immeasurable opportunities for relaxation and recreation! In addition, Pinellas County has 15,525 acres of preserves.

Geologically, Pinellas is underlain by a series of limestone formations, the Hawthorne limestone and the Tampa limestone. The limestone is porous and stores a large quantity of water. The Hawthorne formation forms a prominent ridge down the spine of the County, from east of Dunedin, south to the Walsingham area and east towards St. Petersburg.

Pinellas County includes 35 miles of beaches and dunes which make up the County's 11 barrier islands, provide habitat for coastal species, serve as critical storm protection for the inland communities, and form the basis of the area's thriving tourism industry. For swimming, boating and fishing, you can't beat Pinellas County's powdery white beaches which span nearly 588 miles of coastline. And, with an average of 361 days of sunny weather each year, residents and visitors can enjoy the surf, sun and sand just about whenever they would like. Three of the top ten beaches in the nation are located in Pinellas County: Fort De Soto Park, Clearwater Beach and Caladesi Island State Park, which is adjacent to and connected to the mainland by the project area, the Dunedin Causeway.

The islands are dynamic, with wave action building some islands further up, eroding others, and forming entirely new islands over time. Though hurricanes are infrequent on this part of Florida's coast, they have had a major impact on the islands, including the project area and subject of this application. A hurricane in 1921 creating Hurricane Pass and cleaving Hog Island into Honeymoon and Caladesi Islands. Between the barrier islands and the peninsula are several bodies of water, through which traverses a section of the Gulf Intracoastal Waterway. Within the project area, St. Joseph Sound, lies between the islands and the mainland.



Recreation and Tourism impacts every aspect of the Pinellas community and represents the most impactful industry in the County. With an annual economic impact of more than \$10.3 billion, its revenue is vital to the success of all County businesses. In fiscal year 2017, St. Pete/Clearwater was the leading destination on the Gulf Coast in the U.S., drawing more than 6.5 million overnight visitors to the area. More than 17,852,361 visitors enjoy Pinellas County Parks annually, and represent both local and non-local tourism. **Tourism on Honeymoon Island alone brings over \$122 million to the County each year.** Robust recreational use on the Causeway leading to the island includes fishing, sailing and motorized watercraft and brings significant funds to the community. Commercial fishing is another industry which relies heavily on the transportation network serving the project area. In just ONE DAY, Commercial fisherman haul in 82,000 pounds of fish (5,345,683/yr), 1,769 pounds of crabs, clams and lobsters (645,694/yr) and 2,128 pounds of shrimp (776,732/yr) (source: Florida Wildlife Commission).

Pinellas County includes an impressive multi-modal transportation network. There are 4,521 miles of paved roads in the county, which cross 142 bridges. The first bridge to span Tampa Bay was the Gandy Causeway in 1924, and shortened the traveling distance between St. Petersburg and Tampa from 43 to 19 miles. Pinellas connected with Manatee County when the Sunshine Skyway bridge opened in 1954. Beyond personal vehicles, Pinellas affords residents and visitors alike a variety of modes of travel and maintains an extensive transit network. There are 1,077 miles of sidewalks within the County, as well as 5,735 PSTA bus stops, serviced by 208 buses, and 16 trolleys. More than 11.4 million public transportation riders annually (39,000 daily) traverse 8.6 million transit miles each year.

II. Project Description

Pinellas County is requesting \$25,000,000 in FY2019 BUILD Grant funds to design and reconstruct the two existing bridges of the Dunedin Causeway. This project will address critical structural and functional deficiencies of the two existing Dunedin Causeway Bridges along Causeway Boulevard from west of Royal Stewart Parkway to Gary Place/Gary Circle.

Both bridges, the Main Bridge [Bridge Identification Number 150068] and the West Tide Relief Bridge [Bridge Identification Number 150067] were constructed in 1963. The Main Bridge is a two-lane, undivided low-level bascule bridge which spans the Gulf Intracoastal Waterway (ICWW) [a designated Florida Strategic Intermodal System (SIS) facility and navigable waterway] and connects Ward Island to the Dunedin Causeway. The West Tide Relief Bridge is a two-lane, undivided low-level fixed bridge which spans the relief channel connecting the Dunedin Causeway to Honeymoon Island. The current typical section for both bridges includes one 11-foot wide travel lane with a two-foot wide outside shoulder in each direction. A six-foot wide sidewalk functions as a multi-use trail (as part of the Pinellas Trail spur) on the south side, and a three-foot six-inch wide sidewalk exists on the north side. The total width of each bridge is 40 feet 1 inch. Dedicated bicycle lanes are currently not provided. For a depiction of the current typical section present on the Main and Tide Relief Bridges, see figure on page 6.



Existing Main Bridge

Project funding needs are critically important. A bridge inspection conducted in July 2015 determined the Main Bridge and West Tide Relief Bridge to be Functionally Obsolete with sufficiency ratings of 48.6 and 58.0, respectively. Both bridge structures exhibit evidence of corrosion and are at risk for further damage from storm waves and vessel collisions. Due to the naturally corrosive environment, the substructure of the bridges will also continue to degrade and need further repair in the future. The bridges are also susceptible to scour during major storm events. The Main Bridge is considered Scour Susceptible and the West Tide Relief Bridge is considered Scour Critical with risk of foundation instability without scour countermeasures.



Existing Tide Relief Bridge



The Dunedin Causeway provides a critical connection between the urban areas of mainland Florida (City of Dunedin), a 2.5 mile spur of the 58-mile long Pinellas Trail, a Pinellas County linear park, is also located along the causeway and rural Honeymoon Island. **Causeway Boulevard (which includes both bridges) is a designated state and county evacuation route and provides the sole access for the 475 residents of Honeymoon Island and over one million annual visitors capitalizing on a myriad of recreation and tourism facilities the island offers.** Tourism on Honeymoon Island contributes \$122 million per year to the local economy. Public recreational amenities on the island accessed solely by the project bridges include:

- Honeymoon Island State Park
- Three Florida marine facilities (boat ramps and one marina located within Honeymoon Island State Park which serves the ferry boats between Honeymoon Island and Caladesi Island)
- One existing recreational trail (Honeymoon Island spur of the Pinellas Trail)
- Office of Greenways and Trails (OGT) paddling trail opportunity (Caladesi Island Paddling Trail)
- Public beach areas located directly along the causeway (that are used extensively for recreational purposes)
- Rotary Park (owned by Pinellas County and maintained by the City of Dunedin)
- The entire Dunedin Causeway (which has been designated by both the City of Dunedin and Pinellas County as a "Significant Pinellas County Greenway")
- Additionally, fishing is permitted on the narrow sidewalks on the north side of both bridges

III. Grant Funds, Sources and Uses of Project Funds

The proposed project requires a financial commitment of \$89,023,130. Pinellas County is requesting \$25,000,000 in FY2019 BUILD Grant funding to supplement \$64,023,130 in local funds in the replacement of the Dunedin Causeway bridges. The budget table below details the itemized costs of each project task and the distribution of cost share by funding source.

Project Task	Cost	Source of Funds
Main Bridge Design	\$5,300,453	Local fund; BUILD grant
Main Bridge Construction	\$68,843,250	Local fund; BUILD grant
Main Bridge CEI	\$5,300,453	Local fund; BUILD grant
Tide Relief Bridge Design	\$567,115	Local fund; BUILD grant
Tide Bridge Construction	\$8,444,744	Local fund; BUILD grant
Tide Bridge CEI	\$567,115	Local fund; BUILD grant
Total	\$89,023,130	\$64,023,130 (Local funds) \$25,000,000 (BUILD Grant)

The local portion of funds is provided the Penny for Pinellas Sales Tax revenues, a local Pinellas County fund directed for transportation and infrastructure needs.

IV. Selection Criteria

A. Primary Selection Criteria

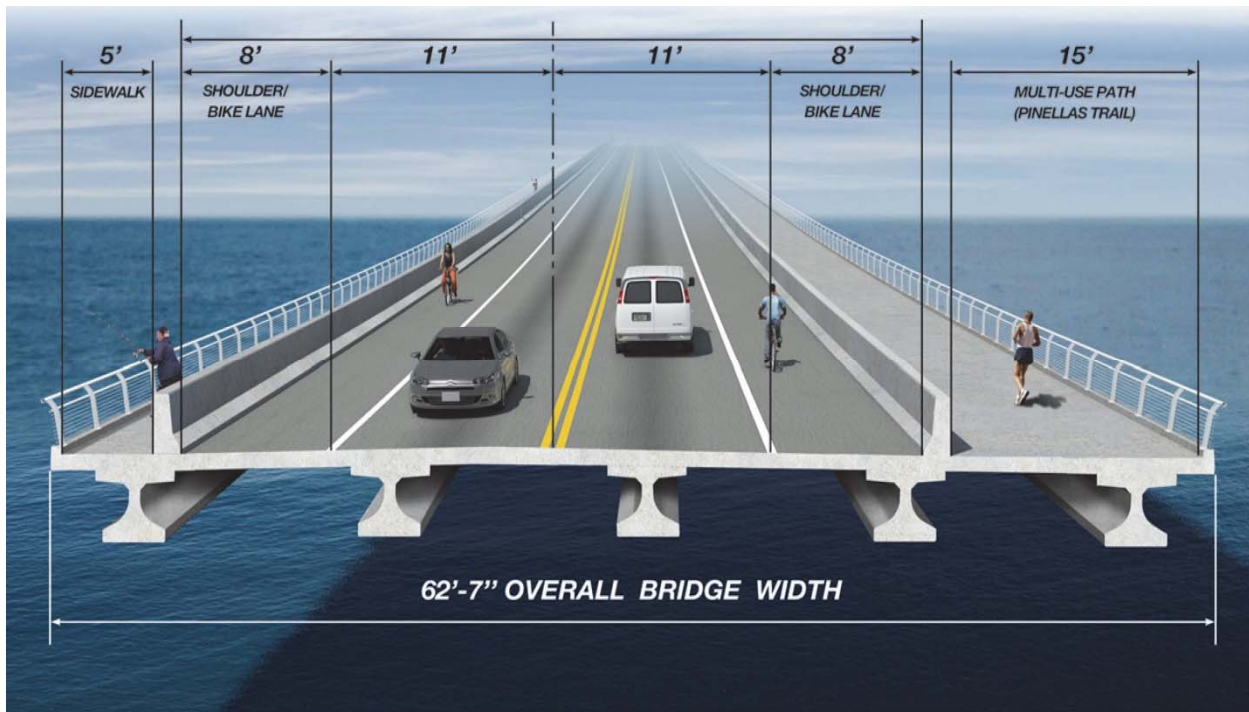
i. Safety

The proposed project will ensure that a safe connection exists between Honeymoon Island and mainland Florida. Today, over 6,000 vehicles per day cross these dangerous bridges. In addition, recreational vessels and freight move along the ICWW below. This project addresses gross deficiencies caused by a combination of age and substandard design. The proposed project will promote safety in three main categories; bridge width, navigation and emergency evacuation.

Bridge Width The existing bridge cross section is narrow with limited shoulders, no bike lanes, and a deficient sidewalk on the north side of the bridge. The lack of sufficient shoulders means that an accident or disabled vehicle within the travel lanes can virtually shut down the bridge, preventing emergency service vehicles from reaching the causeway’s recreational areas or Honeymoon Island. The lack of bicycle lanes means that bicyclists are forced to ride in the narrow travel lane or on the narrow and congested sidewalk.



The new bridge cross section will provide expanded shoulders that will serve as buffered bicycle lanes. These shoulders also can serve as an emergency refuge for accident vehicles while still allowing emergency vehicles to access the incident on the bridge and any needs on the causeway or Honeymoon Island. The expanded sidewalk on the bridge’s north side and the expanded trail on the south side will safely accommodate the heavy pedestrian traffic that currently uses the bridges.



Navigation The existing horizontal clearance for the Main Bridge over the ICWW is 90 feet; the existing vertical clearance is 20 feet above the mean high-water elevation at the face of the fenders. Based on these conditions, the horizontal and vertical clearances of the Main Bridge do not meet current United States Coast Guard guide clearances. These substandard navigational clearances add to the further deficiency of the existing bridge structure.

Hurricane evacuation Causeway Boulevard, which includes the Dunedin Causeway Bridges, serves as part of the emergency evacuation route network designated by the Florida Division of Emergency Management and Pinellas County. The Dunedin Causeway Bridges are critical in facilitating traffic flows during emergency evacuation periods as they provide the only link to the mainland for residents of approximately 475 condominium units located at the eastern end of Honeymoon Island. The closure of one or both bridges resulting from the on-going superstructure deterioration or substructure scour could trap residents on the island.

ii. State of Good Repair

The proposed project will greatly improve both the condition and resiliency of critical transportation facilities.

Current Conditions Both the Main and Tide Relief Bridges were constructed in 1963 with a life expectancy of 50 years and do not meet current engineering standards for resisting damage from high waves during significant storms and vessel impact. The Main Bridge and West Tide Relief Bridge have been determined to be 'Functionally Obsolete' with sufficiency ratings of 48.6 and 58.0, respectively. The shoulders on the bridges are only two feet wide, and the sidewalks on the north side are only three and a half feet wide. The multi-use path on the south side of the bridge is only six feet wide. Ongoing maintenance and repair of the Main (basculer) Bridge machinery also affects reliability and results in traffic delays. Major rehabilitation or replacement of both bridges



is needed to keep the bridges open and the Main (bascule) Bridge operating efficiently. Both bridge structures exhibit evidence of corrosion and are at risk for further damage from storm waves and vessel collisions. These conditions are anticipated to further deteriorate. Due to the naturally corrosive environment, the substructure of the bridges will also continue to degrade and need further repair in the future.

Resilience The bridges are also susceptible to scour during major storm events. The Main Bridge is considered ‘Scour Susceptible’ and the West Tide Relief Bridge is considered 'Scour Critical' with risk of foundation instability without scour countermeasures. The replacement bridges will be designed to withstand the wind, wave, and current forces of major storm events.

Navigation Current U.S. Coast Guard navigational clearance guidelines for movable bridges at this location on the ICWW are 21 feet in the closed position and unlimited clearance in the open position. The existing bridge provides only 20 feet of vertical clearance at the fenders in the closed position. Unlimited navigational clearance is provided in the open position. Similarly the existing horizontal clearance is 90 feet while the United States Coast Guard guidelines require 100 feet. A major failure of the mechanical components of the existing movable bridge could cause the stranding of vehicular traffic or the suspension of pleasure boat and vital freight traffic on the ICWW. A replacement bridge will ensure the uninterrupted flow of vessels utilizing this critical section of the ICWW.

Life Cycle Cost Analysis The table below demonstrates the long-term value of the proposed bridge replacement. The scour concerns of the existing bridges demand the immediate installation of scour countermeasures. Bridge rehabilitation is tremendously expensive, only extends the service life of the existing bridges a fraction of the design life of the proposed replacement structures and does not correct the substandard design. Both the no-build and rehabilitation alternatives include \$4 million in scour countermeasures and the replacement alternatives include \$9.5 million for the Tide Relief Bridge.

Alternative	Cost	Annual O&M	Service Life
No-Build	\$4.0 million	\$303 k	13 years
Rehabilitation	\$41.3 million	\$228 k	25 years
Replacement (low-level movable)	\$82.4 million	\$230 k	75 years
Replacement (mid-level movable)	\$89,0 million	\$231 k	75 years
Replacement (fixed)	\$63.3 million	\$9.3 k	75 years



iii. Economic Competitiveness

The proposed project provides critical support to the economic vitality of the local and regional economy. The islands, accessed solely by the project bridges, as well as the inter-coastal waterways that flow beneath them are a tremendous ecological and economic resource to the region.

Honeymoon and neighboring Caladesi Island were originally part of a large barrier island that split in half during a major hurricane in 1921. The waterway between the islands is known as Hurricane Pass. Honeymoon Island was introduced to the American public in the early 1940s through newsreels and magazines. Honeymoon Island was formerly known as Hog Island. In the early 1940s, honeymoon-type huts were built on the island for vacationing, and the name was changed. World War II began and the thatched huts fell into disuse. The structures were torn down as the island was turned into a state park, but the name stuck. Today, visitors can drive across Dunedin Causeway (project area) to enjoy the Gulf beaches, mangrove swamps and tidal flats. Nature lovers will find osprey nests, a wide variety of shorebirds, and one of the few remaining virgin slash pine forests in South Florida. The park boasts several nature trails and bird observation areas. Visitors can swim, fish, and snorkel in the warm waters of the Gulf or picnic while they enjoy the beautiful scenery. Shelling is particularly good on the beach, as the Gulf currents deposit an incredible variety of seashells on the shore.

As a 2019 Gold Medal award winner honoring the Nation's Best State Park Service, Florida's state park system is one of the largest in the country with 164 parks and 11 trails spanning more than 800,000 acres and more than 100 miles of sandy white beach. From swimming and diving in rivers and springs to birding and fishing or hiking and riding on natural scenic trails, Florida's state parks offer year-around outdoor activities for all ages. Statewide, Florida State Parks contribute more than \$2.4 billion in direct economic impact to local communities annually, generating more than 13,000 jobs and welcoming more than 28 million visitors and supporting 33,587 jobs. Honeymoon Island in Dunedin ranked No. 2 for its contributions with a direct economic impact of over \$122 million. In addition to revenues and tax dollars, Honeymoon Island State Park supports 1,716 local jobs.

"Florida's state parks provide inexpensive, high-quality recreation and education in a natural setting," said Department of Environmental Protection Secretary Colleen M. Castile. "State parks protect our environment, entertain and inform millions of visitors and contribute more than half a billion dollars to the economy every year."

The causeway leading to the island was constructed in 1963. There is ferry service from Honeymoon Island to Caladesi Island. The two bridges provide the only access from the mainland to the residential community on Honeymoon Island. In addition, the bridges connect residential communities on Honeymoon Island and Ward Island within the City of Dunedin to the causeway. The eastern approach of the Main Bridge is surrounded by medium density residential uses with pockets of commercial/marine activities (including the Marker 1 Marina and boat ramps) and recreational features (including Rotary Park). Recreational uses (predominantly beaches) also border the western approach of the Main Bridge. While recreational features additionally exist at



the eastern and western approaches of the West Tide Relief Bridge (including Honeymoon Island State Park), the north side of the western bridge approach includes high density residential uses. Further, the Main Bridge crosses the Gulf Intracoastal Waterway (which is a navigable waterway that supports interstate commerce and is listed as part of Florida's Strategic Intermodal System).

Traffic will be maintained on both bridges during construction of replacement bridges if selected. However, very limited, short-term, temporary closures of each bridge may be necessary. Overall, the replacement bridges are anticipated to maintain important access to businesses and tourist attractions between coastal communities of the City of Dunedin and the mainland of Pinellas County. Construction of a new movable bridge with more vertical clearance than the existing bridge could reduce the number of required openings and result in less vehicular and boat traffic delays. While the project alternatives will be developed primarily utilizing the right-of-way of the existing bridges, access to adjacent businesses, residences, and recreational areas could temporarily be affected and/or modified due to potential shifts in the bridge alignments. For these reasons, negative economic effects as a result of the project are anticipated to be minimal.

The proposed project contributes substantially to the continued functioning and growth of the local Pinellas economy, which is based in tourism. Continued access for residents and millions of tourists (both local and non-local) is contingent upon the replacement of the two caseway bridges. Both bridges service gaps in rural areas that are otherwise unfilled, particularly in the event of evacuation as the project area serves as the sole route.

iv. Environmental Sustainability

The proposed project has been designed to mitigate impacts to sensitive populations and environments, including estuarine wetlands. Improved stormwater containment and treatment supported by the proposed will improve impacts to water quality, while preserving access to a natural treasure and refuge for numerous species of plants and animals. The barrier island park is a refuge for a number of species of plants and animals including south Florida slash pines, mangroves, and several threatened and endangered species. Osprey and various species of tern, plover, and wading birds reside on the island or stop during spring and fall migration. Recreational activities include birding, fishing, hiking, and sunbathing. Amenities include picnic pavilions, bathhouses, a park concession, nature trails, bird observation areas, a beach for pets, and a passenger ferry to Caladesi Island State Park. The Rotary Centennial Nature Center features exhibits about the natural and cultural history of Honeymoon and Caladesi Islands and an elevated observation deck.

Estuarine Wetlands The National Wetlands Inventory database identifies 42.0 acres of estuarine wetlands within the 200-foot project buffer. Areas of dense, submerged aquatic vegetation in the form of seagrass meadows occur on the north and south side of the causeway and adjacent to both bridges. National Marine Fisheries Service noted that seagrasses; estuarine water column; and mud, sand, shell, and rock substrates are specific categories of Essential Fish Habitat (EFH), particularly within St. Joseph Sound, that may be directly impacted by the project. In addition, based on a feasibility study conducted in September of 2009, concentrations of black and white mangroves are present in protected areas leading up to both bridges.



The Southwest Florida Water Management District (SWFWMD) stated that a delineation of the landward extent of wetland and surface water features will be required on the construction plans as part of the permit review. SWFWMD noted that the Uniform Mitigation Assessment Method (UMAM) should be utilized to determine the wetland mitigation required to offset impacts; mitigation banks located within the Upper Coastal Basin Watershed can be used. An Environmental Resource Permit will be required and a Formal Wetland Determination Petition be submitted prior to submittal of the Environmental Resource Permit application. Additionally, a Submerged Aquatic Vegetation Survey will need to be conducted and reviewed as part of the permit application process as well as an Endangered Species Act Section 7 Consultation be conducted for smalltooth sawfish, swimming sea turtles, and Gulf sturgeon.

The United States Army Corps of Engineers (USACE) has indicated that discharges of fill material incidental to the construction of a new bridge across navigable waters of the United States are required (that includes, cofferdams, abutments, foundation piers, and temporary construction and access), then the new bridge replacements may meet the criteria of Nationwide Permit 15 (United States Coast Guard Approved Bridges) providing the United States Coast Guard permits the new bridges under Section 9 of the Rivers and Harbor Act of 1899. For these reasons and due to the proximity of wetlands to the existing bridges and potential impacts that would ultimately result with the construction of a new bridge, a Summary Degree of Effect of Substantial has been assigned to the Wetlands issue.

All necessary measures will be taken to avoid and/or minimize impacts to wetlands to the greatest extent practicable during project design. Should avoidance and/or minimization not be practicable, a Mitigation Plan will be prepared. In addition, existing compensatory mitigation sites within the area of influence will be identified and reviewed. Further, best management practices will be utilized during project construction and all applicable permits (including an Environmental Resource Permit) will be obtained in accordance with federal, state, and local laws and regulations.

Complete avoidance of additional Estuarine wetlands could possibly be completed if the new bridge abutments are designed and constructed within the existing abutment and causeway footprint. If, after avoidance and minimization are applied, and if, there are unavoidable Estuarine wetland impacts that are not de minimus, mitigation opportunities maybe could be sought with the Pinellas County Aquatic Preserve. There are no Estuarine wetland mitigation bank service areas covering the proposed project area.

Wetlands Wetlands are a critical natural resource and serve several functions, including filtration/treatment of surface water runoff, flood control, erosion control, groundwater recharge/discharge, wildlife and species habitat, carbon control, and recreation and tourism opportunities.

Seagrass is a vital part of marine ecosystems by providing food, habitat, and nursery areas for numerous species. Seagrasses perform functions such as stabilizing the sea bottom, providing food and habitat for other marine organisms, maintaining water quality, and supporting local economies.



Mangroves serve several important ecosystem functions. They provide nursery habitat for fishes, crustaceans, and shellfish and they provide food for several types of marine species. Both recreational and commercial fisheries in Florida are dependent upon healthy mangrove forests. Mangroves also provide shelter and nesting areas for coastal birds.

The project design should avoid or minimize impacts to wetlands and seagrass beds to the greatest extent practicable. The project may lead to additional shading in seagrass areas. Shading limits photosynthesis, growth, and depth distribution of seagrass. In coastal areas, there is concern that shading from docks and other structures negatively impacts seagrasses through shading.

Wetlands within the project area provide species habitat and other stormwater runoff and capacity functions. Wetlands associated with water bodies are of a higher value and function and should be avoided to the greatest extent practicable. Estuarine marsh and seagrass are utilized by a variety of marine species. EPA is assigning a moderate degree of effect to the wetlands issue for the project. A bridge design and approach alignments which provides avoidance and minimization of direct impacts to wetlands and seagrass should be considered. Coordination and consultation with other resource agencies is recommended and may be required.

The environmental phase should focus on identifying wetlands areas to be potentially impacted by the project. The wetlands study should include a delineation of wetlands; functional analysis of wetlands to determine their value and function; an evaluation of stormwater pond sites to determine their impact on wetlands; avoidance and minimization strategies for wetlands; and mitigation plans to compensate for adverse impacts.

Water Quality The Pinellas County Aquatic Preserve and Honeymoon Island State Recreation Area [designated Outstanding Florida Waters (OFW)], are afforded the highest level of protection under Florida Administrative Code; the proposed stormwater system must meet the design and performance criteria established for the treatment and attenuation of discharges to OFWs.

Pinellas County will conduct a Water Quality Impact Evaluation and coordinate with all relevant agencies for the design of the proposed stormwater system and the requirements for stormwater treatment. Existing stormwater treatment adequacy and details on the future stormwater treatment facilities will be evaluated during Project Development. The proposed stormwater system will be developed to meet the design and performance criteria for the treatment and attenuation of discharges to impaired waters and OFWs. The project alternatives will ultimately be designed to meet state water quality and quantity standards, and best management practices will be utilized during construction. All necessary permits will be obtained in accordance with federal, state, and local laws and regulations during subsequent phases.

Potential pollutant sources to surface water quality from roadways and bridges include stormwater runoff into nearby surface water bodies via drainage ditches or other conveyance systems. Stormwater runoff from urban sources, including roadways, carries pollutants such as volatile organics, petroleum hydrocarbons, heavy metals, and pesticides/herbicides. Proper stormwater conveyance, containment, and treatment will be required in accordance with state and federal



regulations and guidelines. Engineering design features and hydrological drainage structures should be such that stormwater transport, flow, and discharge meet or exceed requirements.

Wildlife and Habitat The following wildlife and habitat resources are identified within the 200-foot project buffer: Springs Coast Ecosystem Management Area, designated Rare and Imperiled Fish habitat for the gulf sturgeon, Pinellas County Aquatic Preserve, Honeymoon Island State Park/Florida Managed Area, and three Core Foraging Areas for wood stork nesting colonies. The following federally listed species are within the project area: West Indian (Florida) manatee [Endangered/Critical Habitat Designated], wood stork, green/Kemp's ridley/leatherback sea turtles [Endangered and loggerhead sea turtle [Threatened]], and piping plover. The United States Fish and Wildlife Service noted that piping plover wintering ground critical habitat has been identified southeast of Dunedin Causeway. The project area also contains environmentally sensitive shorelines, mangrove swamp habitat, submerged subtidal seagrass beds/meadows, intertidal saltwater marshes, and intertidal flats (serving as Essential Fish Habitat for several federally-managed fish species and their prey). The agencies indicated the following adverse impacts as a result of the project: loss of mangrove, salt marsh, or seagrass habitat; potential adverse effects to a significant number of listed species; potential for water quality impacts during construction; and potential for injury to manatees, sea turtles, and other aquatic life during in-water construction. While the project alternatives will be developed primarily utilizing the right-of-way of the existing bridges, a Summary DOE of Moderate has been assigned to the Wildlife and Habitat issue due to the number of sensitive resources located within proximity to the project.

v. **Quality of Life**

The proposed project will provide multiple improvement in quality of life for area residents and tourists to the community, including; increased multi-modal transportation choices for individuals, expanded access and improved connectivity to essential services, jobs, and health care, and improved disaster preparedness by safeguarding the sole evacuation route for residents in the event of tropical weather common to the area.

The two bridges in the project area connect communities on Honeymoon Island and Ward Island within the City of Dunedin to each other, ultimately providing the sole access route to the mainland of Pinellas County. Condominiums (such as Royal Stewart Arms) are located immediately adjacent to the western approach of the West Tide Relief Bridge. Condominiums (such as Sunset Harbour) and commercial/marine facilities (including boat ramps) are also immediately adjacent to the eastern approach of the Main Bridge. Expanded access for pedestrians and bicycles are provided in the proposed project, thereby enhancing multi-modal options for residents and tourists. The bridges currently include a narrow sidewalk on the north side and no bicycle lanes. An existing recreational trail (Honeymoon Island spur of the Pinellas Trail) extends along the south side of Causeway Boulevard, including the two bridges; the trail segment on each bridge is also narrow. However, as exhibited in the typical drawings provided, the replacement bridges will expand these facilities. The Main Bridge also crosses the Gulf Intracoastal Waterway (which is a navigable



waterway that supports interstate commerce and is listed as part of Florida's Strategic Intermodal System). Further, access is provided by the project bridges to one Office of Greenways and Trails (OGT) paddling trail opportunity (Caladesi Island Paddling Trail) and two transportation disadvantaged service provider areas (Pinellas Suncoast Transit Authority and TMS of Brevard, Inc.).

Mainlanders are likewise connected to the many community assets the project area offers by the two bridges at the focus of this application. Recreation areas/features reported within the 200-foot EST GIS analysis buffer for the project include: Honeymoon Island State Park, three Florida marine facilities (boat ramps and one marina located within Honeymoon Island State Park which serves the ferry boats between Honeymoon Island and Caladesi Island), one existing recreational trail (Honeymoon Island spur of the Pinellas Trail), and one Office of Greenways and Trails (OGT) paddling trail opportunity (Caladesi Island Paddling Trail). The beach areas located directly along the causeway are owned by Pinellas County and the City of Dunedin and are used daily for public recreational purposes. There is also land signed as Rotary Park on the south side of the causeway near the eastern approach of the Main Bridge that is owned by the County and maintained by the City of Dunedin. Rotary Park provides informational signs about the natural ecosystem of the causeway. In addition, fishing is permitted on the narrow sidewalks on the north side of both bridges but is prohibited on the wider recreational trail on the south side during daylight hours. Further, the City of Dunedin and Pinellas County passed resolutions in 2008 which designate the entire Dunedin Causeway as a "Significant Pinellas County Greenway."

Critical Facility - The project area, Causeway Boulevard (which includes both bridges), is a designated state and county evacuation route; it is critical in facilitating traffic during emergency evacuation periods as **it provides the only link to the mainland for residents on Honeymoon Island.**

Traffic will be maintained on both bridges during construction of replacement bridges if selected. However, very limited, short-term, temporary closures of each bridge may be necessary. Construction of a new movable bridge with more vertical clearance than the existing bridge could reduce the number of required openings and result in less vehicular and boat traffic delays. The mid-level movable bridge alternative reduces the number of openings by 50%. This improves vehicle traffic flows and improves emergency evacuation/response times. The replacement bridge is also expected to enhance access/mobility options (including the safety and comfort of pedestrians and bicyclists) as standard sidewalks, bicycle lanes, and a multi-use trail will be incorporated into the final designs. For these reasons, mobility is anticipated to be greatly enhanced as a result of the project.

The project alternatives will be developed utilizing existing County right-of-way. Therefore, no further neighborhood division or social/cultural isolation is expected to occur. While access to proximate businesses, residences, and recreational assets could temporarily be affected and/or modified as a result of bridge replacement alternatives, the proposed improvements are anticipated to enhance access to tourist attractions between coastal communities and the mainland of Pinellas County, as well as improve pedestrian/bicycle safety and mobility through the provision of



sidewalks and bicycle lanes. Therefore, overall impacts on the social environment and community cohesion are anticipated to be minimal. A Sociocultural Effects Evaluation will be conducted to better determine potential impacts to adjoining communities.

This project will be developed in accordance with the Civil Rights Act of 1964, the Civil Rights Act of 1968, along with Title VI of the Civil Rights Act, Executive Order 12898 (Environmental Justice), which ensures that minority and/or low-income households are neither disproportionately adversely impacted by major transportation projects, nor denied reasonable access to them by excessive costs or physical barriers (Environmental Protection Agency [EPA], 1994).

B. Secondary Selection Criteria

i. Innovation

The proposed project incorporates innovative strategies in three main categories: (a) Innovative Technologies, (b) Innovative Project Delivery, or (c) Innovative Financing detailed below.

a. Innovative Technologies

The proposed project incorporates the use of innovative technology in both materials and method of construction. **Materials** - The proposed bridges will utilize composite reinforcing bars on susceptible concrete elements in order to extend the life of these structures. The initial cost of composite reinforcing bars are higher than mild steel, but the reduced maintenance cost and extended life span helps to justify this additional cost. In addition to the wind and wave forces that these bridges may experience during an extreme event such as a hurricane, the coastal location subjects the bridges to a very aggressive salt water environment. This corrosive environment is particularly corrosive for the reinforced concrete portions of the bridge as the embedded mild reinforcing steel will corrode and cause cracking in the concrete. **Method** - Another innovative solution that will be incorporated on this project is Accelerated Bridge Construction (ABC). ABC seeks to minimize mobility impacts which occur due to onsite construction activities. Instead, the ABC approach seeks to use prefabricated elements and systems, innovative structural placement methods, and ultra-high performance concrete for prefabricated elements. ABC techniques will accommodate aggressive construction staging by building around the existing bridge while maintaining traffic and bridge operation or by utilizing float out/float in techniques for rapid span replacement. Bridge operating systems can be designed to be shop assembled, aligned, palletized and adapted to ABC methods, thereby reducing impacts to bridge users. These innovative approaches can facilitate bridge replacement and minimize impacts to stakeholders.

b. Innovative Project Delivery

In order to expedite the replacement of these critical structures, Pinellas County is proposing to use Adjusted Score Design-Build (ASDB) where the contract award is based upon the lowest adjusted score, which is determined by dividing the price proposal by the sum of the technical score of the Letter of Interest and the technical proposal score. This method of alternative delivery ensures that a highly qualified design-build team is selected to design and construct a cost-effective project. Value added elements are considered during the proposal phase to ensure that the final product produces the best value to all of the stakeholders.

c. Innovative Financing



On Nov. 7, 2017, voters chose to renew the one cent sales tax that funds long-term capital infrastructure projects that support the local community. Dubbed the “Penny for Pinellas”, this sales tax was first approved by voters in 1989 and remains so popular that nearly 83 percent of voters countywide voted for its renewal. While this tax is collected by Pinellas County, it is shared with the cities within the county. This innovative infrastructure funding source combines with sales tax revenue to fund much of the county’s Capital Improvement Program.

ii. Partnership

Pinellas County is fortunate to have the support of committed project partners, including private sector organizations, non-profit groups, as well as federal, state and local government agencies. A list of all project parties and details of the role pledged by public and private parties who are involved in delivering the project is provided below.

Project Partner	Role in Project
Federal Partners	
FHWA	Approving Agency
USCG	Jurisdictional Agency
USACE	Jurisdictional Agency
State Partners	
FDEP	Jurisdictional Agency
SWFWMD	Jurisdictional Agency
FDOT	Project guidance through PD&E Study phase
Local Partners	
City of Dunedin	Collaborative Stakeholder
Tampa Bay Regional Planning Council	ETDM Participant
Forward Pinellas	Advisory Stakeholder
Florida State Parks	Ad-Hoc Committee Member-dependent stakeholder
Royal Stewart Arms Condominiums	Ad-Hoc Committee Member-island residents
Sail Honeymoon	Ad-Hoc Committee Member-causeway vendor

As detailed in section V.C.1.e below, significant public involvement has been undertaken on this project since 2014, including kick-off and alternatives workshop results. Every effort has been made to involve, inform and engage stakeholders in this process. Meetings and workshops have



been well attended and productive. Community input pertaining to bridge aesthetics, recreation amenities, and noise concerns was carefully considered in alternative selection.

V. Project Readiness

The proposed project is primed to begin the procurement process for Design Build contractors, therefore, construction can reasonably expected to begin in a timely manner.

A. Technical Feasibility

Pinellas County and the project partners have extensive experience with the planning and implementation of significant bridge structures including the Belleair Causeway Bridge over the ICWW which was recently replaced by Pinellas County (photo below).



Design Criteria

The project Design Criteria was set forth in the Preliminary Engineering Report and establishes criteria including:

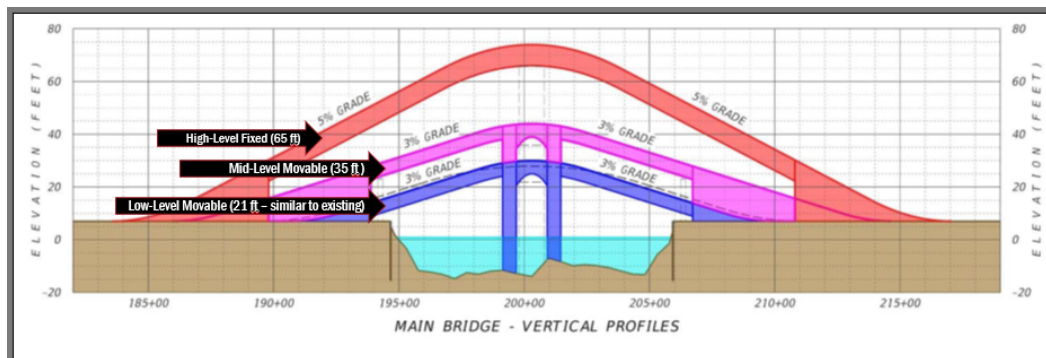
- Channel Clearance Requirements
- Design Methodology
- Design Loads and Load Factors
- Movable Span Operation Requirements
- Environmental Classification
- Roadway Minimum Design Controls and Standards

Engineering

Engineering feasibility has been met through the development of the Project Development and Environment Study, Concept Plans and the Preliminary Engineering Report that explored replacement alternatives for both the Main Bridge and the Tide Relief Bridge.

Three bridge types were considered for the Main Bridge replacement:

1. A new, two lane, movable span bridge (with 21 feet of vertical clearance)
2. A new, two lane, movable span bridge (with 35 feet of vertical clearance)
3. A new, two lane, high-level fixed span bridge (with 65 feet of vertical clearance)



The total length of the proposed 21-foot high and 35-foot high movable span bridges is 1,200'-0" and 1,741'-2" respectively. The bridges include a 196'-8" long bascule span. Approach spans will comprise the balance of the bridge lengths. Continuous approach span superstructures are proposed to reduce future deck joint maintenance and provide for a smoother ride. The substructure will consist of piers supported on prestressed concrete piles or drilled shafts. A wall system will retain embankment fill at the abutments.

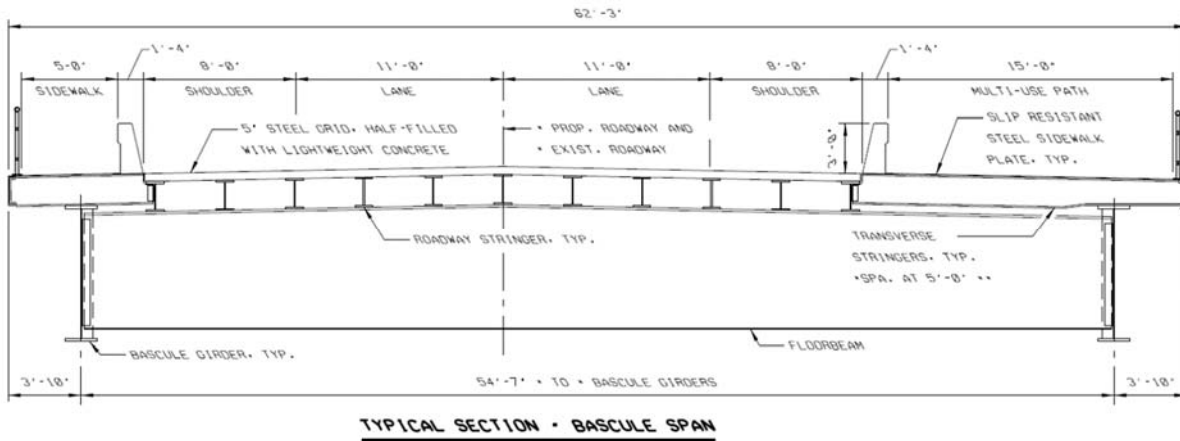
A double-leaf bascule span is proposed. The proposed configuration is similar to that of the existing bridge. The bascule leaves rotate about a horizontal axis located on each side of the channel to provide unlimited vertical clearance over the channel with the leaf in the fully open position. The bascule leaves will consist of steel main girders, floor beams, stringers, and a solid surface deck. The counterweights will be located inside the bascule piers and consist of concrete with steel ballast blocks for balancing the leaves. The bascule piers, approximately 46 feet by 70 feet will be supported by prestressed concrete piles or drilled shafts and feature concrete pier walls to enclose the machinery and counterweights.

The new movable bridge will feature traffic control safety devices that are required for movable bridges. These elements include traffic signals and traffic warning gates on both approaches. The bridge will also feature a fender system equipped with standard navigation lights and clearance signs.

The proposed high-level fixed span bridge would provide 65 feet of vertical clearance at the fenders and 100 feet of horizontal clearance between fenders for vessels traveling on the waterway. The 2,340 foot long bridge would use proposed maximum grade is 4.75% which meets ADA requirements. Roadway reconstruction is limited to the bridge approaches. The approach roadway will return to existing grade in advance of the intersections with Woodette Drive and Gary

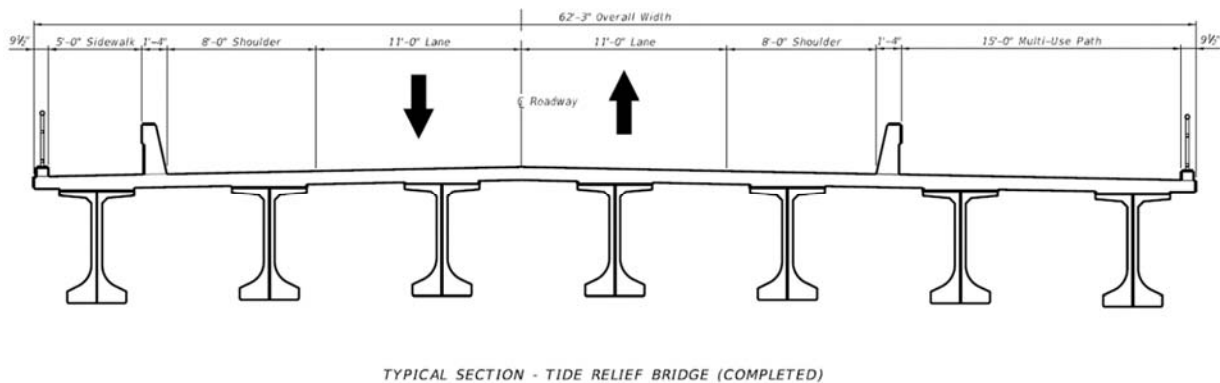
Place/Gary Circle on the east side of the bridge. Access to recreational areas along Causeway Boulevard will still be maintained.

The PD&E preferred alternative is the mid-level movable bridge (35 feet high). This alternative was established by the local community as the most effective replacement structure for all users. The proposed mid-level movable bridge and approaches can be constructed within the existing right-of-way. Purchase of additional right-of-way is not required.



The proposed tide relief bridge will provide 14.5 feet of minimum vertical navigation clearance and 18 feet at the center span. The horizontal clearance between the piers will be 115 feet. The proposed maximum grade is 4.75% which meets ADA requirements. Roadway reconstruction is limited to the bridge approaches. The approach roadway will return to existing grade in advance of the intersections with Gateshead Drive on the west side of the bridge. Access to recreational areas along Causeway Boulevard will still be maintained. The proposed improvements can be constructed within the existing right-of-way. Purchase of additional right-of-way is not required.

The total length of the proposed tide relief bridge is 452'-10½". A continuous span superstructure is proposed to reduce future deck joint maintenance and provide for a smoother ride. The substructure will consist of piers supported on pre-stressed concrete piles or drilled shafts. A wall system will retain embankment fill at the abutments.





Estimated Construction Costs

Construction cost estimates are based on the baseline structure described for each alternative. Contingencies are added to each alternative in accordance with engineering judgment and experience. Contingencies account for miscellaneous items that are not quantifiable at the conceptual design stage.

	Main Bridge				Tide Relief Bridge
	Rehabilitation (25-30 Year)	New Low-Level Bascule Bridge	New Mid-Level Bascule Bridge	New High-Level Fixed Bridge	New Low-Level Fixed Bridge
Bridge Construction	\$24,080,224	\$47,711,238	\$51,751,883	\$35,227,103	\$4,638,058
Roadway Construction	N/A	\$836,973	\$1,252,642	\$907,025	\$1,033,095
Site Adjustment Factor (Over Water)	\$722,407 (3%)	\$1,431,337 (3%)	\$1,552,556 (3%)	\$1,056,813 (3%)	\$1,273,372 (3% + 20% Phased Construction)
Mobilization	\$1,685,616 (7%)	\$3,398,375 (7%)	\$3,710,317 (7%)	\$2,529,389 (7%)	\$396,981 (7%)
Maintenance of Traffic	\$2,408,022 (10%)	\$3,883,857 (8%)	\$4,240,362 (8%)	\$2,529,389 (7%)	\$396,981 (7%)
Aesthetic Enhancements	N/A	\$954,225 (2%)	\$1,035,038 (2%)	\$704,542 (2%)	\$139,142 (3%)
Contingency	\$3,612,034 (15%)	\$4,854,821 (10%)	\$5,300,453 (10%)	\$3,613,413 (10%)	\$567,115 (10%)
Construction Total	\$32,508,302	\$63,070,826	\$68,843,250	\$46,567,674	\$8,444,744
Design	\$2,408,022 (10%)	\$4,854,821 (10%)	\$5,300,453 (10%)	\$3,613,413 (10%)	\$567,115 (10%)
CEI	\$2,408,022 (10%)	\$4,854,821 (10%)	\$5,300,453 (10%)	\$3,613,413 (10%)	\$567,115 (10%)
Right-of-Way	N/A	N/A	N/A	N/A	N/A
Project Total	\$37,324,347	\$72,780,468	\$79,444,155	\$53,794,499	\$9,578,974

B. Project Schedule

Should a BUILD grant be awarded for this project, the Dunedin Causeway bridge replacements will follow a schedule comprised of four major tasks with construction beginning at the start of 2023 and 100 percent completion by Summer 2026. Following the award notification, the four major tasks include initiating the administration plan, dispersing the BUILD grant funds, procurement of a design-build firm, and construction of the project.



Project Activity	2019	2020	2021	2022	2023	2024	2025	2026
Completion of NEPA	█							
Design-Build Procurement		█	█					
Permitting			█					
Design				█	█	█		
Specification Development					█			
BUILD Grant Funds Obligated				█	█	█	█	█
Construction					█	█	█	█
Project Open								◆

C. Required Approvals

1. Environmental Permits and Reviews

Pinellas County has received or is anticipating receipt of all environmental approvals and permits necessary for the project to proceed to construction on the timeline specified in the project schedule and necessary to meet the statutory obligation deadline, including satisfaction of all Federal, State and local requirements and completion of the National Environmental Policy Act (NEPA) process.

a. NEPA The Federal Highway Administration (FHWA) is the lead agency for NEPA for this project. Cooperating agencies include the US Army Corps of Engineers and the United States Coast Guard. Additionally, the National Marine Fisheries Service and the Southwest Florida Water Management District are participating agencies. The Class of Action was approved as a Type 2 Categorical Exclusion on July 21, 2016. The NEPA documentation is currently under development and is anticipated to be completed by November 2019.

b. Reviews, Approvals & Permitting On September 6, 2016, the FHWA approved the project Section 4(f) Determination of Applicability submittal based upon the following resources:

- Dunedin Causeway
- Rotary Park
- The Fred Marquis Pinellas Trail
- Honeymoon Island State Park
- Pinellas County Aquatic Preserve

In order to facilitate expedited permitting on this project, team members have coordinated with key agencies and have held pre-application meetings dating back to the beginning of the PD&E study. These agencies have been updated as the project has developed. On-going permitting efforts will be completed during the design/build procurement phase of the project.

- Unites States Coast Guard – Bridge Permit – March 2015
- Unites States Army Corps of Engineers – Nationwide Permit – October 2015

c. Environmental Review Numerous environmental studies and reports have been undertaken to evaluate known and potential project impacts. All impacts have been considered with steps taken to mitigate those impacts.

- Contamination Screening Evaluation Report – November 12, 2015
- Cultural Resources Assessment Survey - approved May 11, 2016
- Natural Resources Evaluation – July 2019 – approval pending
- Air Quality Technical Memorandum – July 2019 – approval pending
- Noise Study Report – July 2019 – approval pending

- d. **DOT** Pinellas County has coordinated with DOT regarding the project’s compliance with NEPA and other applicable Federal environmental reviews and approvals.
- Design Traffic Technical Memorandum – December 1, 2015
 - Location Hydraulics Technical Memorandum – July 2019 – approval pending
 - Pond Siting Technical Memorandum – July 2019 – approval pending
 - Preliminary Engineering Report – August 2019
- e. **Public Engagement** Significant public involvement has been undertaken on this project including kick-off and alternatives workshop results presentations to:
- Forward Pinellas Board – January 14, 2015
 - Dunedin City Commission – July 9, 2015
 - Pinellas County Board of County Commissioners
 - Citizens Action Committee – December 4, 2014
 - Technical Coordinating Committee – December 3, 2014
 - Bicycle Ped. Advisory Committee – January 27, 2015
 - Alternatives Workshop Results Screening – June 8, 2016
 - Bicycle Ped. Advisory Committee – August 15, 2016

A project kick-off open house was held on March 31, 2015, to enlist community input for bridge aesthetics, recreation amenities, and noise concerns. The open house was well received by the public and 239 attendees were present.



As a follow-up to the project kick-off, an alternatives workshop was held on March 29, 2016 and was attended by 379 local residents. This workshop presented world-class graphics to help residents visualize the bridge alternatives being considered. This animation can be viewed online using the following link:

<https://www.youtube.com/watch?v=ehF7zsPgI8g>



Additionally, preliminary screening coordination meetings have been held with County and City Staff as well as the Ad-Hoc Advisory Committee. The Ad-Hoc Advisory Committee consists of seven citizen members who were appointed by the Dunedin City Commission on June 19, 2014 (with two alternate members). Members appointed were citizens with stakeholder and business interest in the PD&E outcome. In addition to reviewing draft elements of the PD&E study, the Committee prepared a written brief outlining the cultural and recreational aspects of Dunedin Causeway for consideration in design.

2. State and Local Approvals

The project has received approval from local governments and regional transportation planning agencies. Letters of support for this grant application have been provided by:

- Pinellas County Board of County Commissioners
- City of Dunedin
- Forward Pinellas
- Florida Department of Transportation

3. Federal Transportation Requirements

As part of the PD&E Study, the County has prepared a Determination of Applicability (DOA) to determine if the proposed improvements use property that functions as a significant public park, recreation area, wildlife or waterfowl refuge. This DOA was approved by FHWA on September 6, 2016.

Assessment of Project Risks and Mitigation Strategies

Significant efforts have been taken to reduce project risks. A significant risk was identified early in the project during the alternatives analysis phase. The public was strongly divided in the selection of the preferred alternative for the Main Bridge. This concern and risk was mitigated through extensive public information efforts including the development of high-definition animations showing each alternative from different perspectives. The recent renewal of the Penny for Pinellas funding source virtually eliminates the risk of local grant match. This robust source of resources will ensure that project design and construction activities are adequately funded. Procurement delays have been addressed through the innovative design/build method of project delivery discussed previously. Pinellas County has significant experience with design/build projects including grant funded design/build projects. Finally, no right-of-way acquisition is required for this project. This significantly reduces risk by eliminating the need for condemnation and legal settlements.

VI. Benefit Cost Analysis

There are many factors that contribute to the calculated financial benefit that results from the proposed bridge replacements. Of course, the new bridges would increase the safety of the crossing, the recommended mid-level movable structure will reduce the number of openings daily which consequently reduces the potential for rear-end crashes and delays, and there are environmental benefits associated with reduced openings and associated reduced automobile



emissions. Due to the very narrow bridges, the most common crash type – hitting a fixed object – would similarly be reduced. However, these typical factors are minor compared to the inability of the 475 residents to reach their homes or the ability of the 1.5 million annual visitors to reach Honeymoon Island.

Even if the County undertook an aggressive rehabilitation effort including crutch bents to alleviate the on-going scour concerns, the existing bridges are well past their design-life and replacement is unavoidable. The table below evaluates the direct (capital) costs of the three Main Bridge replacement alternatives. Indirect costs such as user delay and accident costs were not included in the analysis.

Discount Rate (%)	Alternative					
	Low-Level Movable Bridge	Mid-Level Movable Bridge	High-Level Fixed Bridge	Low-Level Movable Bridge	Mid-Level Movable Bridge	High-Level Fixed Bridge
	Present Value (\$Millions)			Annual Worth (\$Millions)		
1	110.0	118.1	69.2	10.6	11.4	7.6
3	67.5	72.4	44.8	9.5	10.2	6.9
7	43.2	46.6	30.7	8.1	8.8	6.0
10	34.6	37.4	25.2	7.4	8.0	5.6

In compliance with the latest Benefit Cost Analysis (BCA) Guidance for Discretionary Grant programs, the Benefit-Cost Ratio was calculated as (Benefits-O&M Costs)/Capital Costs. In addition to using the \$46.6 million Present Value for the mid-level movable alternative above, the BCA uses a Present Value for the Tide Relief replacement bridge of \$5.5 million and an annual O&M cost of the mid-level movable bridge replacement of \$231,000. In terms of Present Value, this O&M cost over 20 years at 7% will be \$4.3 million. The design life of the improvements is 75 years, but for the purposes of the BCA, the project’s useful life will be considered as 20 years after the completion of construction. The present value of the economic impact of Honeymoon Island State Park over 20 years and at a 7% discount rate is \$1.3 billion. As a result, the BCA for this project is a robust **24.8**.

For documentation supporting this grant application, please see the project website:

<http://www.pinellascounty.org/dunedincauseway/>