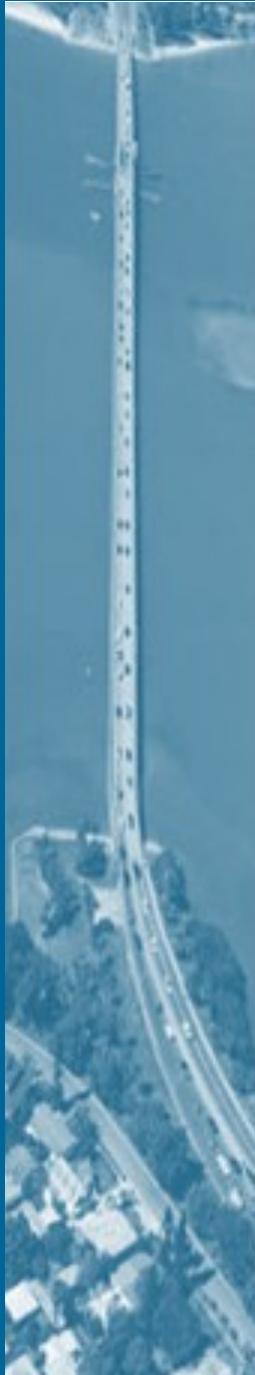




**Pinellas
BAYWAY**



TIGER Grant Submission

Pinellas Bayway Bridge Replacement

Pinellas County, Florida

Submitted by the Florida Department of Transportation, District Seven

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Date: September 15, 2009

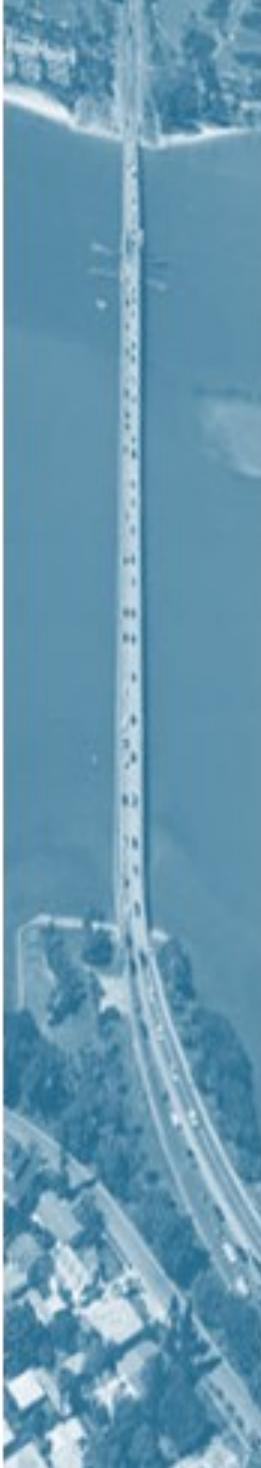
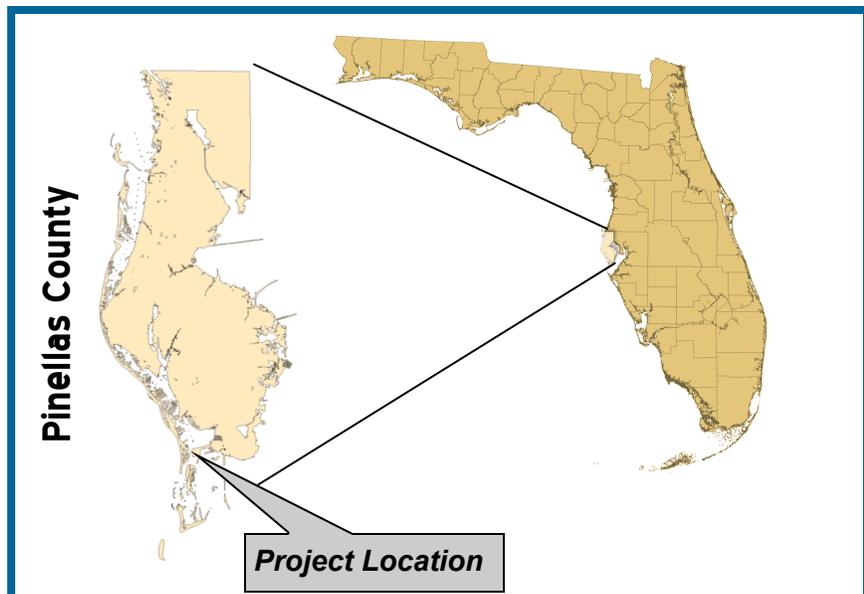


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Project Profile

Project Type:	Replace a 2-lane drawbridge with a 4-lane high-level fixed span bridge
State:	Florida
City:	St. Petersburg and St. Pete Beach
County:	Pinellas
Congressional District:	Congressman C.W. Young, District 10
Project Area:	Urban
TIGER Grant Amount Requested:	\$27.6 million

Project Description

The Florida Department of Transportation, District Seven is submitting the replacement of Pinellas Bayway Bridge (SR 682) Structure "C" for consideration of a TIGER Grant award of \$27.6 million. TIGER funds will allow the Department to replace a 47 year old, functionally obsolete, 2-lane drawbridge with a 4-lane high-level bridge from S.R. 682 to S.R. 699 in Pinellas County. This bridge replacement project is "shovel ready". All right-of-way has been acquired, environmental permits have been issued, and design has been completed. Project construction, currently estimated at \$67 million, can begin in early 2010 with the needed \$27.6 million of TIGER funds and budgetary approval by the Florida Legislature.



Pinellas Bayway Bridge opens to traffic in 1962. The bridge sufficiency rating today is 42.5.

The requested \$27.6 million in TIGER funds will add to \$39.4 million the Department has available in a project Construction Reserve Account. This reserve account was established by Florida Law specifically for the widening of the Pinellas Bayway Bridge Structure “C” as shown on Illustration 1. Investing \$27.6 million of TIGER funds provides the community, tourists and local businesses with a safe, reliable, and modern high-level bridge with a design service life of 75 years. The new bridge brings stimulated economic growth in south Pinellas County by replacing the gateway bridge to numerous beachfront parks, boat ramps and bicycle trails. The bridge replacement improves mode choices that in turn increases tourism, employment and mobility for residents and tourists.

The Pinellas Bayway opened to traffic in 1962 as a 2-lane drawbridge connecting the main land to the barrier islands and the Gulf of Mexico. Annual revenues from the Pinellas Bayway Toll System are used to finance system operations and annual maintenance.

Any available revenue after these expenses are paid is deposited in a Construction Reserve Account that was established in 1985 by the Florida Legislature. The law was revised in 1995 to require the widening of Blind Pass Road, a project that has been completed. The Phase II widening of the Pinellas Bayway from S.R. 679 west to Gulf Boulevard (S.R. 699) including Structure “C” has not completed.

In the mid-1980s, the Pinellas Bayway roadway (S.R. 682) was widened from a 2-lane to a 4-lane facility from S.R. 679 to 41st Street to accommodate the increase in traffic. District Seven completed a Project Development and Environment (PD&E) Study and the National Environmental Policy Act (NEPA) process for the Pinellas Bayway Bridge (Bridge No. 150050) replacement. The recommended alternative is to replace the existing 2-lane, drawbridge with a 4-lane, fixed span high-level bridge. The high-level bridge alternative reduces air emissions; causes little or no delay to boaters; and provides un-interrupted access to and from the Cities of St. Pete Beach and St. Petersburg.

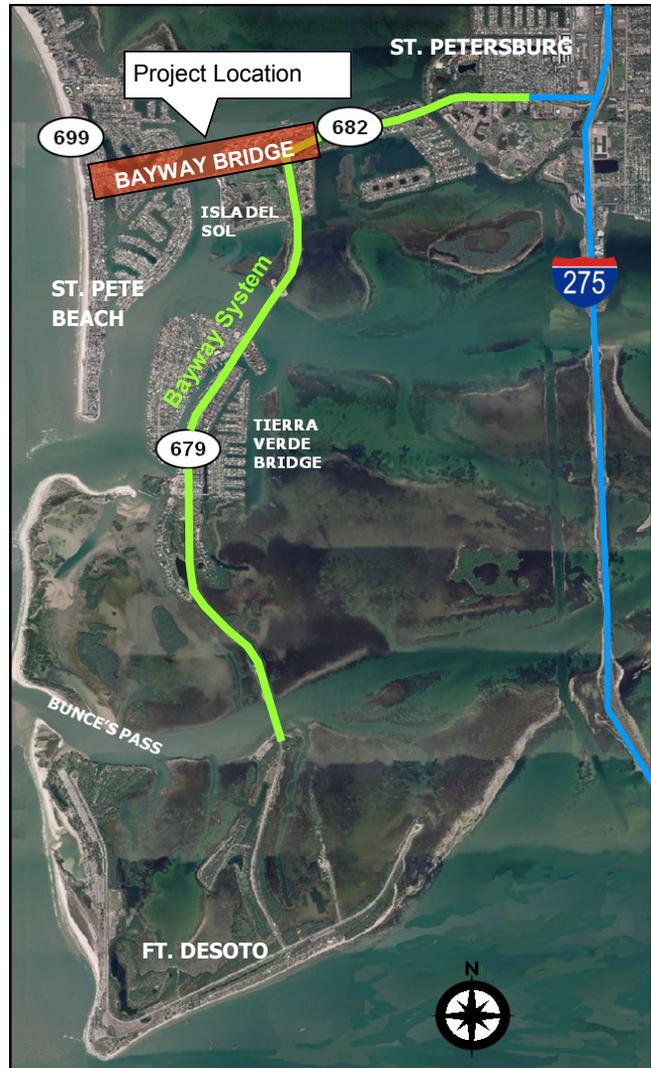


Illustration 1

The project was let for construction in 2004 and a single bid was received. The Department rejected the single bid received and then resolved a protest of the bid rejection. Since 2005 the Department has not been able to add the project to the Five Year Adopted Work Program due to a lack of funding. Sufficient funding is required by Florida law before any project can be added to the Five Year Work Program.

Since the Pinellas Bayway drawbridge has not been replaced to safely accommodate the future traffic demand, the current mobility needs of the community, businesses and visitors are not being met. The national impact of the rise in bridge construction costs in 2006 combined with ongoing decline in toll revenue due to the continuing economic recession in Florida is continuing to prevent the Department from proceeding with replacement of the Pinellas Bayway Bridge.

The Pinellas Bayway Bridge provides a vital regional and local connection between I-275, the City of St. Petersburg and the City of St. Pete Beach. With an annual average daily traffic volume of 20,300 vehicles, this is the primary route for residents, employees and visitors to access local beaches and I-275 for regional travel. The southern segment of the



Graphic rendering of the 4-lane Pinellas Bayway Bridge replacement.

Pinellas Bayway System serves the island of Tierra Verde and Fort DeSoto Park, a 1,136 acre Pinellas County public park that averages 2.7 million visitors per year. The park is a major beach destination and was named as the #1 beach in the nation in 2005. The beach attracts visitors both regionally and nationally.

The proposed new high level Pinellas Bayway Bridge increases vehicle and marine traffic capacity, reduces congestion and provides local and regional mobility between the coastal communities and businesses and the interstate. Adding two additional travel lanes eliminates the traffic backups created by the frequent opening of the existing drawbridge for marine traffic. A fixed span, 4-lane bridge significantly improves hurricane evacuation for coastal residents and tourists. The project also reconstructs and resurfaces the roadway portion of S.R. 682 in the projects limits. Signing, lighting, and landscaping is included in the project along with the construction of a 1.3 mile multi-use path for pedestrians and bicyclists.

Long Term Outcome

Economic Competitiveness

Pinellas County land area is 280 square miles with a total population of 944,772. Land area includes 588 miles of coastline and 35 miles of sandy beaches. Pinellas County is home to one of the first urban rails-to-trails attracting almost 700,000 users in 2006. With the natural vistas and trail network, Pinellas County opens its doors to 13.5 million visitors each year.

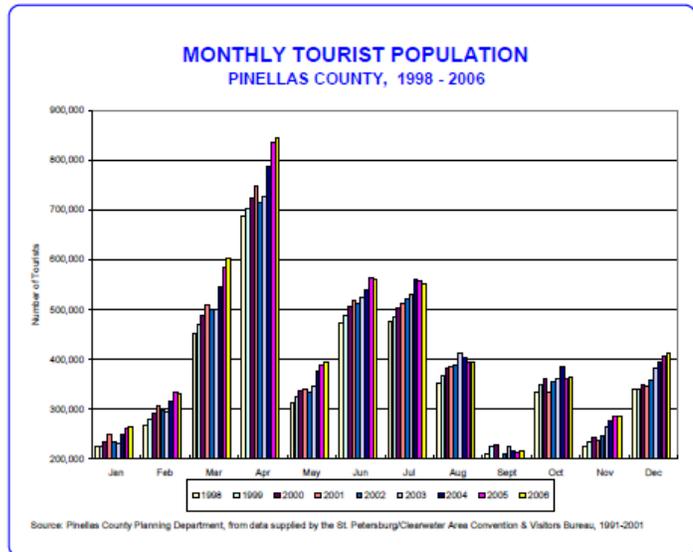
The Cities of St. Pete Beach and St. Petersburg are located at the southern end of Pinellas County. They have a combined population of 258,161 with a seasonal and

tourist population of 54,274. The main employment is in retail, accommodation, and food services industries due to the influx of large numbers of tourists and seasonal residents to the area. The construction of a new bridge increases economic growth and prosperity by providing easier access to the coastal community increasing tourism and seasonal resident populations. The current unemployment rate in Pinellas County is 11% and is above the national average. Investing \$67 million in the bridge construction will **generate \$341.6 million in economic benefits** over a 25 year period for residents and businesses. Project construction has a significant direct and indirect impact on local unemployment, by **creating/supporting an estimated 2,000 jobs**. Improving the capability for more traffic to travel in less time to and from the beaches ensures the continued economic viability of numerous tourist related businesses for these communities.

The project will be constructed consistent with all applicable state and federal programs. This includes apprenticeship programs, disadvantage business enterprises and community business networking opportunities.

State of Good Repair

This drawbridge has operated in a marine environment for the last 47 years, just short of the 50 year design service life that the bridge was designed for in the 1960s. A major rehabilitation project is required in three years to repair large areas of the bridge deck, bridge piers, and rehabilitate the bridge structural, mechanical, and electrical



systems. The Florida DOT will be required to spend \$35.7 million in 2012 for a major rehabilitation if bridge replacement is not funded with a TIGER Grant.

Once a Department owned bridge structure is identified for replacement, the maintenance plan is customized to primarily perform routine maintenance activities. For Pinellas Bayway Bridge Structure “C”, non-routine or rehabilitation work will only be performed when it is absolutely necessary to maintain the operational reliability of the bridge.

The FHWA Sufficiency Rating (SR) is a tangible indicator of the bridge condition and one of the qualifying factors for federal replacement or rehabilitation funding. In general, bridges that are structurally deficient, functionally obsolete and exhibit a SR of less than 50 can be proposed for replacement. Bridge SR is determined based on the following:

- Structural adequacy and safety of the load carrying capacity of the bridge accounts for 55% of the SR.
- Serviceability and functionality, or how the bridge compares to current design standards accounts for up to 30%.
- Essentiality for public use, or the impact of its operational reliability to the public and national needs for up to 15%.

The FHWA SR formula also allows for special reductions that will lower the SR up to 13% for other intangible factors. However, FHWA will not allow for these reductions once the SR is below 50, which explains why the SR may increase unexpectedly as a bridge ages and deteriorates (see NBI Ratings Table year 2007 below). At this point in the service life of a bridge the primary cause for SR reduction will be its structural adequacy and safety.

Table 1

NBI Ratings				
BIR Date	Deck	Superstructure	Substructure	SR
06/29/09	6	5	5	42.5
06/26/08	6	5	5	42.5
06/20/07	6	6	6	53.5
06/29/06	6	6	6	42.5
06/29/05	6	5	6	39.3
06/09/04	6	5	6	43.1
06/11/03	7	5	6	43.1
06/06/02	7	5	6	43.1
06/05/01	7	5	6	43.1
06/30/00	7	5	6	43.1

The June 2009 Sufficiency Rating for Pinellas Bayway Bridge Structure “C” is 42.5. Table 1 shows the history of the SR for this bridge since 2000.

Table 2

Sufficiency Rating Projection					
Year	Deck	Sup	Sub	Inventory Rating	SR
2009	6	5	5	29.3	42.5
2011	6	5	5	26.3	46.9
2014	6	5	4	26.3	30.9
2014	6	4	4	22.0	24.8

Table 2 is a forecast of the SR for Structure “C” based on the deterioration that is typically expected for a bridge of this type, age, condition, environmental

exposure and under a routine maintenance plan.

Recent test results of cored concrete samples taken from the piles of Pinellas Bayway Structure “C” indicate that Sufficiency Rating projections noted in the table above for 2011-2014 may be optimistic. The Department’s Materials Office Corrosion Laboratory is conducting a statewide concrete corrosion study titled “Characterization of New and Old Concrete Structures Using Surface Resistivity Measurements”. This research study is being conducted by Florida Atlantic University and is scheduled for completion in 2010. The test results to date have revealed a concrete with extremely low corrosion resistance. Structure “C” concrete pile samples have a high chloride diffusion coefficient, typical of 1960’s concrete technology, and chloride contents that far exceed the onset of corrosion thresholds.

These samples were collected at pile elevations that are in the splash zone. However, similar results can be expected because the concrete superstructure is at a low elevation. Once corrosion thresholds are exceeded, corrosion of the embedded reinforcing steel can occur at any time, even if aggressive corrosion control measures are implemented. The Department’s customized routine maintenance plan does not include aggressive corrosion control measures for Structure “C”. The recent tests increase the probability that corrosion related deterioration will negatively impact the operational reliability and structural capacity of the bridge and lower the Sufficiency Rating.

In September 2004 Hurricane Ivan made landfall near Gulf Shores Alabama with 130 mph winds and a storm surge of 10 to 13 feet. The storm surge and wave forces generated by this Category 4 Hurricane damaged a total of 124 bridge spans and required the complete closure and ultimately replacement of the eastbound and westbound I-10 bridges over Escambia Bay. As a result of this storm event the Department is completing a pilot study to develop guidelines and new design and retrofit criteria to account for the wave impact vulnerability of bridges. The Pinellas Bayway Structure “C” has been identified as a bridge that is highly susceptible to wave impact. The new bridge design incorporates shear blocks to resist these wave forces.

Another factor is the age and reliability of the 47-year old electrical and mechanical components that will affect performance of the bascule systems, the maintenance costs, and the operational reliability of the bridge because replacement components are becoming extremely difficult to locate. Delaying bridge replacement will result in a

decrease of the structural adequacy of Structure “C” and result in load capacity reductions that will degrade the mobility of people and goods in a coastal area with limited emergency access and hurricane evacuation routes.

Annual toll revenue pays for a bridge tender to open the drawbridge 24 hours a day, 365 days per year, in addition to other operations and routine maintenance to maintain operational reliability. However, a new fixed span, high-level bridge has a design service life of 75 years, and significantly lowers operational and maintenance costs.

This bridge is classified as functionally obsolete based on bascule operations and limited horizontal dimensions that provide no shoulders. The functionally obsolete bridge does not provide appropriate pedestrian and bicycle accommodations along with transit pads and shelters that would provide the traditionally underserved with alternative transportation options to gain access to jobs. Costs for Rehabilitation and Replacement are as follows:

30 year service life – Rehabilitation:

Bridge Rehabilitation	\$ 35.7 million
Operation and Maintenance Costs (including Bridge Tender)	\$ 16.1 million
User Delay (AADT based on 5-year average)	<u>\$320.7 million</u>
Total	\$372.8 million

75 year service life – Replacement:

Bridge Replacement	\$ 67.0 million
Maintenance	\$ 1.7 million
User Delay (AADT based on 5-year average)	<u>\$104.8 million</u>
Total	\$173.5 million

Livability

Community collaboration, communication and cooperation are a significant component for the bridge replacement design. The Department recognizes that the bridge is an integral part of the community and community dynamics in defining who they are - that includes traditionally underserved population groups of women and age 65 and older groups as defined by the 2000 Census. With the residents of St. Pete Beach, St. Petersburg, and the adjacent communities, the Department sponsored and supported the Bayway Bridge Beautification Committee (BBBC). The first meeting was held on June 26, 2001 to work toward context sensitive solutions. The 17 member committee

spent the next several months with the Department and their design consultant sharing information and creating a community landmark.

The committee provided guidance to the Department on aesthetic design features and landscaping for the project. Special community design features include concrete structural wall systems depicting a raised nautical dolphin scene with smooth walls and a sandstone color. Landscaping includes low foliage along the recreational trail with a variety of palms along the Pinellas Bayway. Florida native plants, tolerant to a coastal environment, were selected for this project based upon hardiness, drought resistance, minimal nutrition, and low maintenance. Benches and bicycle racks were added to compliment the 12-foot wide multi-use trail that traverses over Boca Ciega Bay on the south side.

The project provides a link connecting a network of community and regional trails that link residential, commercial and institutional land uses. This network of community and regional trails as shown in Illustration 2 provides the critical linkages that connect neighborhoods throughout Pinellas County to its beaches, parks, natural areas, and downtowns. The City of St. Pete Beach and its many sister beach communities connect the City of St. Petersburg via the Pinellas Trail Loop facilities on the mainland. Presently, the City of St. Petersburg Bicycle – Pedestrian Master Plan and the Pinellas County MPO Trailways Plan represents an aggressive, coordinated strategy to improve access by non-motorized modes between the vibrant downtown scene of St. Petersburg and the gulf beaches. Recreational and commuter users greatly benefit by this crucial link between the existing and planned extensive trail networks, and other bicycle and pedestrian ways on both sides of the waterway.



Illustration 2

Sustainability

The Air Quality Report was developed as a component of the Environmental Assessment (EA)/Finding of No Significant Impact (FONSI). The document assessed air quality effects generated by highway traffic associated with the build and no-build alternatives. Primary pollutants are CO, HC, and NOx generated by motor vehicles. The amount of emissions depends on the vehicle miles traveled, operating mode and

operating speed. Generally, emissions are the highest when vehicles are idling - stopped or delayed. When the bridge opens to marine traffic, vehicles using the bridge today are delayed on average 3 minutes and 40 seconds, 5,480 times per year. With the construction of a high-level fixed bridge, the emissions reductions are as follows:

NOx 88,637.84 lbs/yr
HC 228,117.75 lbs/yr
CO 1,094,574.2 lbs/yr

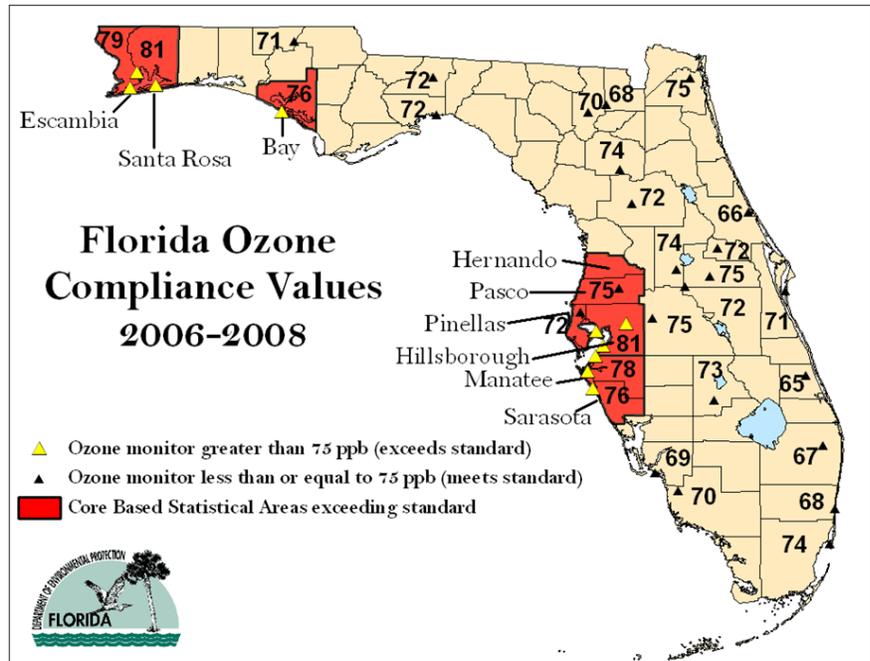


Illustration 3: Recommendation for the Non-attainment CBSA includes Pinellas County.

In September 2008, Pinellas County was identified as a potential non-attainment area based on the 2008 revised national ambient air quality standard (NAAQS) for ozone in Florida shown in Illustration 3. The Environmental Protection Agency Administrator determines final designations no later than March 12, 2010. Health impacts of ozone include premature death in people with heart and lung disease, increased hospital visits for respiratory diseases, reduced lung function and susceptibility to infection, and aggravation of chronic lung diseases. Recognizing the importance of reducing air emissions and correlating reduction in greenhouse gases, replacing the low-level drawbridge that delays vehicles and increases the need to accelerate and decelerate, future construction of the high-level fixed bridge has the potential to drastically reduce the vehicle delays, provide free flow traffic, and improve air quality.

Maintain/Protect Environment - NEPA

The Environmental Assessment (EA)/Finding of No Significant Impact (FONSI) was approved by the United States Coast Guard (USCG) on November 30, 1983. The updated Design Reevaluation was approved on October 24, 1994, and the Design Change Reevaluation was approved on March 21, 2000.

The environmental documentation for the project was reevaluated as required by Title 23 Code Federal Regulation (CFR) 771 (23 CFR 772) and the *Project Development*

and *Environment Manual* of the Florida Department of Transportation. It was determined that no substantial changes have occurred in the social, economic, or environmental effects of the proposed action that would significantly affect the quality of the human environment. Therefore, the original Administrative Action remains valid. The reevaluation awaits FHWA concurrence and adoption as its own document once TIGER funding is awarded and the project is amended immediately into the current Transportation Improvement Program/State Transportation Improvement Program (TIP/STIP) based on MPO Board actions to streamline the amendment process when funds become available. The project remains in the long range transportation plan and on the Pinellas MPO ARRA priority list as #2.

Safety

The Pinellas Bayway Structure “C” Bridge is on the western end of Pinellas County and is designated as a Hurricane Evacuation Route and an important Emergency Medical Service route. Replacing the existing 2-lane, drawbridge with a 4-lane, high-level bridge improves evacuation capability for both residents and tourists by reducing travel time.

The new bridge allows vehicle operations with a greater degree of forgiveness for driver error by constructing a facility that complies with current safety design criteria. These criteria include bridge vertical geometry, driver sight distance, and adequate roadway shoulder pavement for vehicle emergencies. The multi-use trail feature separates from vehicular traffic for added safety for bicyclist and pedestrians.

The new bridge also reduces the number of rear end collisions, which is likely due to the drawbridge opening and intermittent traffic stops. These collisions make up about 84% of the crashes at this location. Anticipated cost **savings from the crash reductions would be \$582,764 annually.**

Event (2004-2008)	Crashes	Cost Per Crash	5-Year Total	Annual
Rear End Collisions	32	\$91,057	\$2,913,824	\$582,764

Secondary Selection Criteria

Innovation

As part of this project there are three unique design elements:

- The new bridge design incorporates a new pre-stressed structural beam, the Florida I-Beam. This new beam has been engineered in cooperation with the pre-stressed industry to provide a more efficient structural shape than the older

AASHTO beam types. Pinellas Bayway Structure “C” will be one of the first bridge replacement projects in Florida to use this new Florida DOT statewide standard.

- Innovative “landings”, horizontal platforms will be provided on the multi-use path to harmonize the vehicular grades of the bridge with ADA design criteria to provide wheelchair access.
- A portion of the structure will be extended over the seawall to provide sufficient clearance between the new bridge structure and pedestrians and bicyclists using the multi-use path on both sides of the corridor.

Partnership

The Pinellas Bayway is the main connector between I-275 and the Cities of St. Pete Beach and of St. Petersburg. It is a vital link for the residents and tourists because it is the designated hurricane evacuation route from the most popular beaches in Pinellas County. Construction of the new bridge will allow the Florida DOT to comply with state law that requires this bascule bridge to be widened to four lanes. Replacing the existing 47 year old bridge will provide a continuous four lane roadway on S.R. 682 from the south Pinellas County beaches to I-275. This project has been a collaborative effort between numerous governments and agencies including:

- Pinellas Bayway Bridge Beautification Committee (local neighborhood associations and civic organizations)
- City of St. Pete Beach
- City of St. Petersburg
- Pinellas County MPO
- Pinellas County
- District Seven, Florida Department of Transportation

Transportation Planning Process

The Pinellas Metropolitan Planning Organization identified the need to improve capacity of the Pinellas Bayway Bridge in the 2025 Long Range Transportation Plan. The project listing can be found at <http://www.pinellascounty.org/mpo/lrtp/CFP.pdf> on page 78, table 7-1, T42.

The Pinellas MPO board amended the ARRA priority list on July 8, 2009, to include the Pinellas Bayway Bridge Replacement as the number 2 priority and approved amending it into to the TIP when funding is awarded February 1, 2010. The MPO Board approved that the execution of the ARRA approved TIP amendment will occur by

signature of the MPO Chair. Once TIGER funding is awarded, the MPO Chair will sign the amendment to be processed into the STIP. The MPOs foresight ensures that the TIP/STIP amendment process will not delay project production.

Construction Schedule

The Department is completing final reviews of the project contract documents to process them for advertisement on the internet. After the Department is notified of the pending award of TIGER Grant ARRA funds of \$27.6 million for this project we have

FHWA Authorization for Advertisement	March 18, 2010
Advertisement for Competitive Bids	March 18, 2010 – May 2, 2010
Bids Received	May 3, 2010
Construction Contract Award	June 1, 2010
Notice to Proceed	June 29, 2010
Construction Complete	August 12, 2013

assumed that the required Florida legislative budget approval can occur by March 17, 2010. The project team will provide the Florida Division of the FHWA all of the required project certifications in advance. Our project schedule will then be as follows:

The Department will pay construction contract invoices with TIGER Grant ARRA funds first to ensure that these funds are expended prior to February 2012. The estimated construction contract duration for this project is 1,130 days. The Department is continuing to receive very favorable bids for all of our state and local ARRA and Work Program projects. We are confident that there will be significant competition for this project.

Financial commitment

The \$27.6 million TIGER funds will be added to the \$39.4 million set aside in a Construction Reserve Account established by Florida Law for the Pinellas Bayway System to include Structure C Bridge. **Investing \$27.6 million of ARRA TIGER funds will complete funding for the bridge replacement.** This would provide the community with a reliable, safe, and updated transportation structure with a design-service life of 75 years.

Program Criteria - Bridge Replacement

2008 AADT

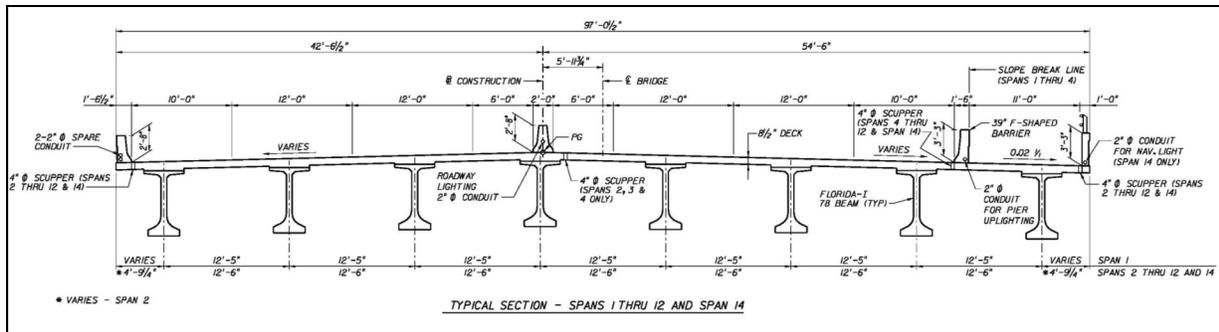
Total AADT: 20,300

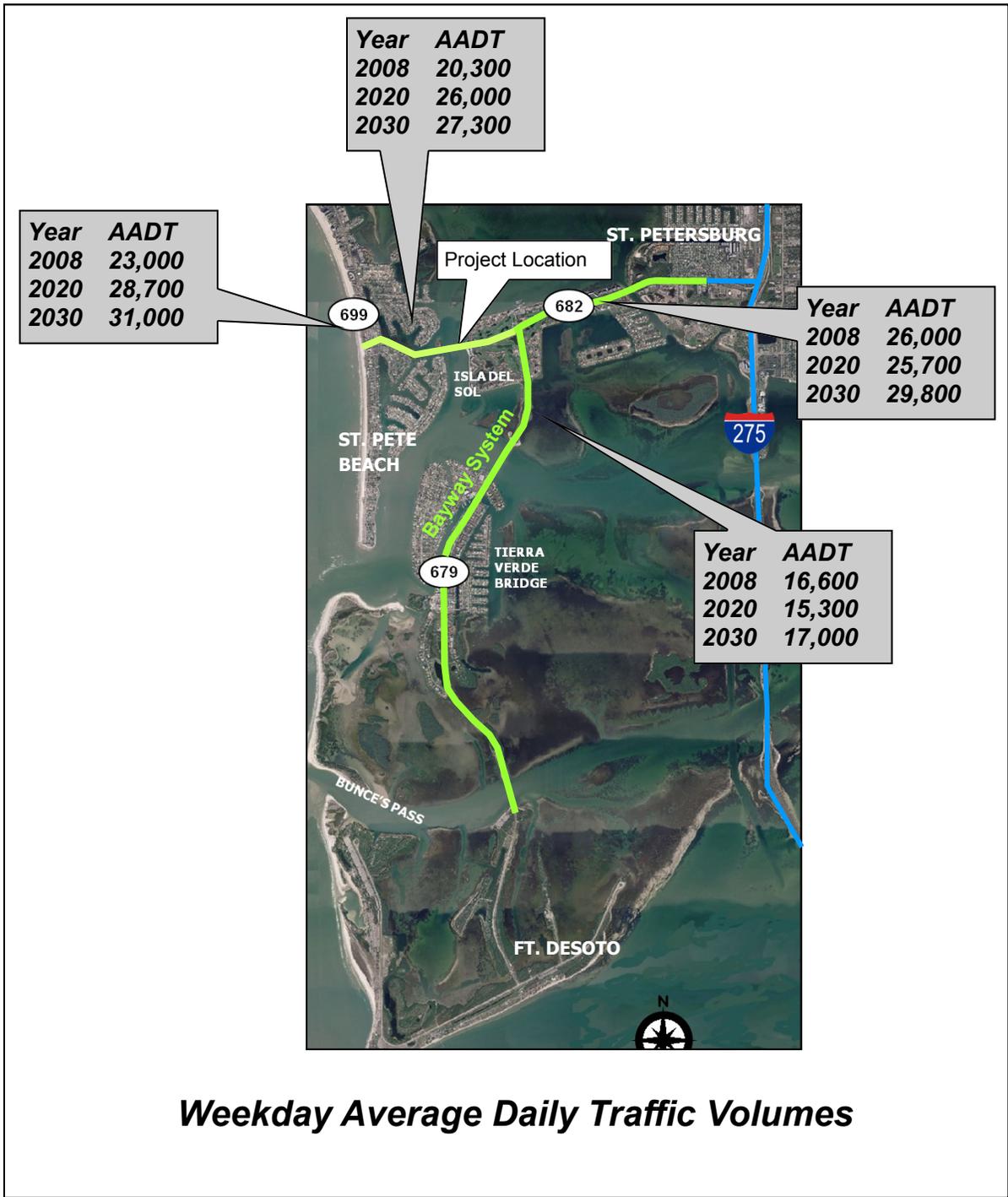
Truck AADT: 568

Non-Truck AADT: 19,732

Bridge Dimensions	Existing Bridge	New High-level Bridge
Minimum Vertical Clearance (fender system of the navigable channel)	21.5 feet	65 feet
Horizontal Clearance (fender system of the navigable channel)	90 feet	100 feet
Travel Lane Width	2 lanes, 12 feet	4 lanes, 12 feet
Inside Shoulder		6 feet
Outside Shoulders	1 foot	10 feet
Multi-Use Path		11 feet on the south side
Sidewalk	3.4 feet	

Proposed Typical Section





Bridge sufficiency rating: 2009 rating is 42.5

Federal Wage Rate Requirement

The Florida Department of Transportation will certify that it will comply with all federal requirements of 40 USC, Subtitle II, Subchapter IV. FHWA-1273 of the *Required Contracts Provisions, Federal-Aid Construction Contracts* is included in the contractual package for federally funded projects.

The contract provisions include:

- Davis-Bacon Act (40 U.S.C. 276a)
- Equal Employment opportunity (EEO) Requirements (28 CFR 35; 29 CFR 1630; 41 CFR 60; 23 U.S.C. 140)
- Equal Opportunity Construction Contract Specifications (41 CFR 60-4.3)
- American Disabilities Act of 1990 (42 U.S.C. 12101 et seq; 28 CFR; 35 and 29 CFR 1630)
- Disadvantaged business enterprises (DBE) (49 CFR 23)
- Copeland Act (40 U.S.C. 276c)

Website Resources

Macroeconomic Impacts of the Florida Department of Transportation Work Program, August 2006:

- <http://www.dot.state.fl.us/planning/Policy/economic/macro.pdf>

Pinellas County Demographics:

- <http://www.pinellascounty.org/Plan/demographics.htm>
- http://www.pinellascounty.org/Plan/pdf_files/Fast%20Facts%20About%20Pinellas%20County.pdf
- http://www.pinellascounty.org/Plan/demographics/Total_Population_by_Sector.pdf

Title VI and Disadvantaged Business Enterprise

- <http://www.pinellascounty.org/mpo/Library.htm#dbe>
- <http://www.dot.state.fl.us/equalopportunityoffice/>

Florida Bridge Information - Pinellas Bayway Bridge Structure C

- <http://www.dot.state.fl.us/statemaintenanceoffice/CBR/Florida%20Bridge%20Information%2007-01-2009.pdf>

Federal Wage Rate Requirements

- <http://www.fhwa.dot.gov/construction/contracts/080625.cfm>

Air Quality Monitoring - New Ozone Standard

- http://www.floridadep.org/air/air_quality/new_ozone_standard.htm

Support Documents

- <http://www.dot.state.fl.us/planning/economicstimulus/baywaybridge>