HEAVY MOVABLE STRUCTURES, INC.
ELEVENTH BIENNIAL SYMPOSIUM

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Unique Florida Swing Bridge Replacement

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Project Overview

Introduction

Mathers Bridge connects the southern tip of Merritt Island to Indian Harbour Beach, traversing the Banana River just before the Banana River empties into the Intracoastal Waterway. The existing bridge was a 200' center pivot swing span bridge that opened 90 degrees to allow two 90 foot channels for marine traffic. The bridge's average daily traffic (ADT) is 1460 vehicles per day (VPD). The bridge opens for marine traffic approximately 340 to 420 times a month with anywhere from 650 to 1300 boats passing through per month. Mathers Bridge is one of only 9 fully operational swing bridges remaining in the state of Florida.

Existing Mathers Swing Bridge Prior to Reconstruction

There are four principle types of movable bridges in use in the state of Florida.

- Double leaf bascule span bridge
- Single leaf bascule span bridge
- Vertical lift span bridge
- Swing span bridge

Of these four types, there are fewer swing span bridges built today than any other kind. According to Brevard County, the last new complete swing span built in Florida was the Boca Grande swing bridge, erected in 1952-58 to replace ferry service to the three barrier islands known as North, Cole and Gasparilla Island.

Mathers Bridge is located just northeast of Melbourne, Florida. Melbourne, Florida is at the southern tip of Brevard County which is along the central eastern part of the state of Florida and encompasses Titusville, Cape Canaveral, and Cocoa Beach.

History

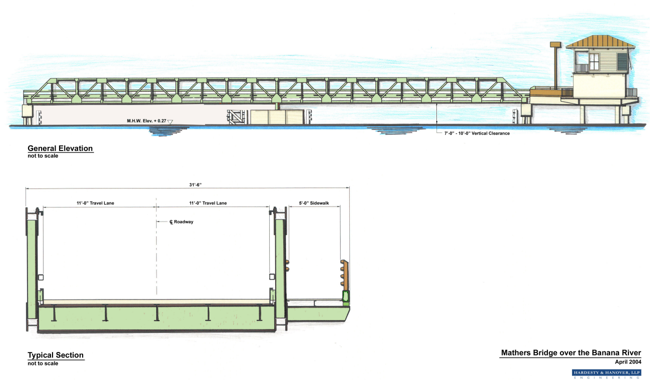
The original Mathers Bridge was a wooden draw bridge privately built by local businessman John Mathers. In 1952 the FDOT took over ownership, and replaced the wooden structure with a refurbished steel swing span (Circa 1927) barged in from Marion county. The steel bridge served well for the next thirty years and in 1982 the steel structure was repaired and the operating machinery, electrical system, control house, and approach spans were replaced extending the bridge life for another twenty three years.

The service life of a movable bridge is in the range of 50 to 80 years. When a movable bridge reaches the end of its' usable life, a difficult decision must be made as to what type of bridge should replace it. Where aesthetics, impacts to the community, or historic significance prevail and a low enough demand of vehicular traffic allows, the choice for replacement-in-kind may be a preferred choice.

Due to several factors: a physical limit of available approach length to accommodate a leaf bascule or high level bridge, a lack of available funds, and a desire to retain the aesthetics of the existing swing span, Brevard County pursued design of a complete swing bridge replacement. The chosen Engineer of Record was Hardesty and Hanover.

Project Description

With a completed design and final procurement of funds, Brevard County accepted sealed bids in November 2004 for the Mathers Bridge Rehabilitation Project. The project description read in part "… removal and replacement of the existing movable swing span and pivot pier and all associated machinery and electrical equipment, renovation of the existing control house, modifying the existing fender system and widening the north side approach spans and approach roadway sidewalks." In addition, to facilitate shortest bridge out-of-service time, the original specification called for a float-in plan: "The swing span shall be fully assembled off-site, including trusses and truss bracing, floor system steel, steel railings, roadway grating, concrete fill and sidewalk grating, and painted as shown on the plans prior to float-in."



Engineer's Rendering

The project was awarded to PCL Civil Constructors, Tampa, FL partnering with Florida Structural Steel, a Tampa based AISC certified Major Bridge Fabricator for the fabrication and erection of the bridge structural steel, and partnering with Steward Machine Company of Birmingham, AL for the manufacturing of all the mechanical components. An aggressive schedule was required and initial plans were to satisfy the specifications and fully assemble the span off-site and barge in one piece from Tampa Florida (west coast) to the installation point, Merritt Island (east coast). The specifications allowed for a thirteen month schedule (three for submittals, ten for construction), of which six months were allowed for complete bridge closure to vehicular traffic as demolition and reconstruction occurred.

Project Details Regarding Functionality / Ease of Use

Friendlier Bridge Can Lead to More Problems

Mathers Bridge enjoys a high volume of pedestrian, bicyclist and fishermen traffic. The quiet, serene, semi-secluded bridge location and the wooded, winding path along the thin peninsula of mega homes with views of water on all sides, coupled with a relatively low volume of vehicular traffic encourages walkers, roller skaters, bicyclists, fishermen and loitering teenagers to utilize the area.

This recreational use can cause problems for a movable bridge, and with the additional improvements of the new bridge, these problems are only going to increase. The old bridge did not have a sidewalk across the swing span, so pedestrians were required to walk in the roadway. The new bridge however has a nice five foot sidewalk continuously across the span and both approaches on the north. The south side still only has a five foot sidewalk on the approaches. The new bridge also has protective aluminum railing continuously on the barrier wall to further separate the pedestrians from the traffic.

As you can imagine the increased safety and real estate draws lots of fishermen to the bridge. However, there is a local ordinance forbidding fishing from the bridge. This ordinance apparently wasn't enforced much prior to the contractor being onsite, and the local fishermen (some with history dating back several decades to fishing from the bridge) weren't going to go away easily. The contractor and their bridge tenders enforced the safety requirements of the bridge and left the ordinance policing to the authorities.

Due to improved engineering requirements for movable bridges, there were two sets of gates on each approach, and the location of these were further back from the span than the original gates which existed just steps from the drop hazard. This relocation of gates and the addition of the sidewalk on the span introduced a new problem for the bridge – getting individuals behind the traffic gates prior to operation of the span.

As stated before, the contractor enforced the safety requirements of the bridge, which is that all vehicles and pedestrians/fishermen must be behind the initial warning gate prior to bridge operation. Through persistence, patience and instruction the contractor's bridge tenders were able to teach the local users this requirement and this requirement is believed to continue to be enforced by the County bridge tenders.

Another set of changes to the bridge that increased possible problems were the major improvements to the fender system, including much larger platforms for maintenance crews to access the underside of the bridge. These same platforms that are meant to improve maintenance operations also provided areas for fishermen/pedestrians to climb around on and possibly bump limit switches, mess with the brakes, inadvertently leave an obstacle on the track, wedges or shoes, which naturally increases the amount of non-routine maintenance. Fortunately the project location is not as populated as some other areas of the state. In locations where they have more frequent disturbances, the owners/designers have started to include cameras with monitors in the control house to allow the tenders to view the troublesome areas before operating the bridge and either injuring someone or damaging the bridge. As all of Florida continues to grow and people continue to be curious or devious, these safety features will continue to be popular and increasingly more necessary.

County Provides Community with A Little More

The improvement to the swing span to include a sidewalk on one half of the bridge created an engineering dilemma, an out of balance structure. To combat this, the engineer called for the roadway grating on the south side of the bridge to be concrete filled. Not only was this a possible solution to the out-of-balance problem, but it also provided a much smoother, bicyclist friendly surface from which to ride. Due to the high volume of serious bicyclists in the area and popularity of the route that included the bridge, the County and Engineer approached the contractor about a relatively new grating product that was bicycle friendly. The contractor's supplier had just completed design and approval to provide a new steel bridge deck grating that had the transverse bars much closer in spacing that the standard star configuration. The new grating had associated costs to it as it was slightly more expensive to produce and fairly more difficult to install because the close spacing limited the contractors ability to weld the grating to the stringers, floor beams and curb channel. The County approved the change order and the special grating was provided on the north half of the north lane of traffic, ultimately providing the bicyclists with an improved riding surface in both directions in comparison to the previous bridge structure.

Marine Traffic Right-Of-Way Frustrates Motorists

An existing condition if changed that could improve the ease of use of the bridge and ultimately the maintenance is the fact that the bridge is not on timed openings. Marine traffic and the Coast Guard have the ultimate right-of-way vs. vehicular traffic. Currently the bridge opens on demand, and during busy weekends or seasonal highs, the bridge will be open more often than it is closed. It takes longer for a boat to pass through a swing bridge opening as it does to pass through a leaf or lift bridge because the boat has to wait till the span clears the channel in the same plane as the boat. So the majority of the time lost is due to operation, not boat traffic, as only a few or even just one boat passes per opening. With the bridge not being on a timer, the same numbers of boats arrive at their leisure and increase the number of openings and time lost for vehicular crossings. During construction, the contractor had to place the bridge on some timed openings for safety reasons when activities were occurring that would have been risky to operate the bridge. The contractor noticed that the boating community in the area, being that it is predominately recreational and not commercial, was cooperative with a timed schedule. In addition, likely for the same predominantly recreational reason, the Coast Guard was very understanding of the contractor's schedules. And changes in notices, though rare, were granted with little impact to the boaters or the contractor. The County is attempting to petition the Coast Guard to put the bridge on some sort of schedule. A schedule, it is believed, will increase the user satisfaction on one end without jeopardizing any satisfaction from the other.

Project Specifics

Some information specific to the bridge openings is that the bridge operates at a speed of 0.2 rpm's at 264ft-kips. Also, the height clearance from the existing bridge to the new bridge stayed relatively the same with a clearance approximately of six feet depending on water elevation.

There was an allowed six month closure to vehicular traffic to perform the complete demolition and reconstruction of the structural steel, machinery, electrical, pivot pier, pivot pier piling, roadway grating, and painting. There was no closure allowed to vessel traffic except for certain specific instances where prior approval was gained from the Coast Guard and closures were required because operations dictated that vessels needed to stay a safe distance away. For example during the span removal pick and pile driving. During the six month closure, a five to ten minute drive became a forty to fifty minute drive for the citizens on Merritt Island.

Control House User Improvements

The revamped control house improved the size, living conditions, aesthetics, hurricane preparedness and functionality of the bridge. The new control house more than doubled the old house in size allowing for more equipment to be included in doors and providing a much sturdier structure in hurricanes. The living conditions were vastly improved. The old house was so deteriorated that inside the walls and above the few remaining ceiling tiles there were thousands of cockroaches and a few bird nests that had gained access through the old stucco. The County tenders joking admitted that they use to stand under specific ceiling tiles to avoid having random cockroaches drop on them. As deconstruction started on the second floor, it was found that excessive mold growth existed in the walls and insulation. It also was found that the steel framework was completely rusted through in some locations. All of this was initially found by mistake, as the electrical subcontractor was removing some old equipment and bumped into the wall, he partially went all the way through the wall. The contractor was issued a change order to remove more sections of wall, insulation, etc to rid the house of contaminants and provide a solid foundation from which to build.

Old Control House

Considering the poor condition of the house, it should be no surprise that the aesthetics were improved with the reconstruction. However, the County went above and beyond, by including heavy input from the local community and a local architect. The input dictated specific colors atypical to the control house elements that would be pleasing to the eye and compliment the surrounding landscape. This made it a little more difficult for the contractor to procure; with the solution being for most items, to paint them specifically in the field: including piping, shutters, trim, slabs, louvers, doors and shutters.

New Control House

In addition, the color of the structural steel bridge was picked to coincide with some local history. The west side of the bridge accesses the south tip of Merritt Island. Only a small thin peninsula exists south of the bridge, on which the community decades ago decided to put a monument on the point, the monument ended up being a green dragon statue. The green dragon monument was chosen from some local folklore about how that body of water's spirit rose up as a dragon to protect the original natives from pirates. As time passed the point became known as dragon point although the dragon is mostly deteriorated. To preserve some of this local history for the future, the green color from the dragon was chosen by the local community to be the new color of the bridge.

Naturally with the reconstruction, the control house's hurricane preparedness was greatly improved by code. In addition, the County made slight improvement above the code requirement. The Florida Building code requirement for the area that the structure existed (outside of Miami/Dade but within reasonable distance of the coastline) called for as a minimum that 5/8" plywood cut specifically to match the size of the windows with specified fasteners be made available in the house. Since all the windows are on the second floor, the County issued a change order to upgrade the hurricane preparedness. Hurricane strength windows were provided on the south side of the control house which has no access to the windows and removable aluminum hurricane shutters on permanent tracks were supplied on the other three sides.

Finally and quite possibly most importantly, all components to the bridge were updated and improved. Specifically in the control house all the electrical components and power was replaced. In addition a new backup generator is inside the lower level of the building increasing the lifespan of both the generator and the bridge.

Obstacles for Constructability

Schedule Falls into Hurricane Season

The general timing of the contract award coupled with a slight delay in the award placed the "float in" schedule for the bridge in September/October, which is prime time for hurricane season. The 2004 hurricane season, with four major storms hitting Florida, made the construction team very conservative and concerned about the 2005 season. The bridge was to be fabricated and erected on the central west coast of Florida in Tampa, barged south to Lake Okeechobee and across, then back north up to central east Florida in Melbourne. This route traversed much of the at risk state of Florida and would take several weeks to transport.

Single Pick Removal

The contractor received the Engineer's approval to perform "erect in place" which would add 4-6 weeks of onsite work to still be performed in the six month closure period. The contractor decided to absorb the additional direct and indirect costs to perform this task in place to mitigate the perceived risks of barging the structure across state in hurricane season. To squeeze the schedule back to the allowable six months, the contractor solicited a crane company to remove the existing bridge and pivot pier in one pick each. This helped expedite the demolition schedule by two weeks, but the majority of schedule was made up in overtime and continuous monitoring and pushing for field improvements, especially on the pile driving and pier reconstruction which the contractor was experienced at performing.

Erecting in Place

Ultimately the decision to erect in place was the correct one, as tropical storm Wilma was upgraded to a hurricane on the Wednesday that the bridge's first truss section was going to be trucked to site. Had the original barge-in schedules been kept, the structure likely would have been in route and quite possibly overturned on the planned flexi-float configuration. Wilma struck the project the following Monday with much more force than was anticipated. The winds were parallel to the river which forced the wider river at the north, south to the project and into the narrower section of the river. This caused the river to rise four to five feet and have substantial flows. The dynamic river flooded the construction office, mobilized the 40' x 120' onsite barge, pinning a smaller mobile barge against the bridge, which rubbed the bridge and destroyed the barge motor. The river splashed violently above the pivot pier and it was an additional good decision to hold off beginning erection until after the storm.

Fortunately no other storms came through the area during the subsequent 6 weeks of erection. The most vulnerable time of the erection procedure was when the six truss sections (3 to each side) were being placed prior to the floor beam connections being made. To secure the trusses during erection, the contractor placed diagonal support bracing from the trusses down to the falsework support system that the contractor had installed to support the erect-in-place procedures. Once the floor beams were installed the diagonal bracing could be removed. Utilizing the 'erect in place' option required the contractor to do additional construction engineering to come up with a falsework support system that would facilitate erecting in the field and also absorb the necessary loads of the structure prior to it being lowered onto the pivot pier assembly.

Engineering / Construction Concerns of Erect in Place

The float in process would have allowed complete assembly of all members and deflection could have been checked at the Port of Tampa. Knowing the achieved deflection would allow the contractor to set the pivot assembly within the shimming tolerances prior to the structure being onsite. The erect in place procedure forced the team to consider setting the pier assembly additionally low to anticipate a lack of full deflection. After much discussion in house and with the Engineer of Record, the team decided to stick with the Engineer's plan elevation when epoxying in the pivot assembly bolts and grouting the assembly to initial elevation. Ultimately once the structure was completely built and loaded, it was found that the deflection was slightly greater than anticipated and the appropriate pivot assembly shims were added to get the end spans to the approach span elevations.

Lower Wedge Prior To ½" Beveling

As the contractor was wrestling with the elevations and balancing, a concern developed that if the temperature affects on the bridge are greater than anticipated, then the shoes of the actuators may not drive because they would be lower in elevation unsupported than the lower wedge elevation on the approach rest bents. As the contractor was setting the final elevations in January, it was impossible to know what the true effects of the extremely hot summer months of July and August would be on the nice new 200' by 30' bridge deck and trusses. The engineer/contractor came up with a relatively simple solution for this undeterminable problem by beveling the lower approach wedges by ½" to increase its acceptance capabilities of the driving shoe by 33% (the shoe height differential was 1 ½" by design). The drivability of the shoe in the summer months may never have been a problem, but the team planned ahead and mitigated the concern in advance.

As mentioned previously, the bridge had a unique out-of-balance situation as there was only a sidewalk on one side of the bridge. Typically swing bridges are symmetrical in both directions to allow for easier balancing. The initial calculations and plan for the balancing of the structure did not completely satisfy the condition. The concrete filled grating did not accept as much concrete, i.e. provide enough volume, as the plan anticipated. An additional hidden block was formed and poured under the roadway section on the south side of the bridge, on either side of the center pivot floor beam.

In addition, the specifications called for the balancing and the final elevation of the pivot assembly to be set in a manner the provided 12 kips of force on each of the wedge shoes. The contractor was initially replicating this procedure on the falsework shoring system, which was necessary because an initial elevation had to be set to allow the structure lowered onto the pivot assembly and rotated 90 degrees to verify the location, elevation and balance in relationship to the two approaches. Naturally the bridge could not be rotated until the pivot assembly was set to an elevation and worthy of accepting the structure's full load. Although the specifications called for the 12 kip load, which in theory was probably the pre-determined resultant uplift force that would occur with original design weights, loads, conditions, etc to mobilize the shoes the 1 ½" on the wedges, the contractor found the process impossible to perfect and unhelpful for the contractors true goal – make sure the shoes can drive and the elevations work. Ultimately the contractor worked the elevations off of the known structure dimensions and the known driven shoe delta of 1 ½" to determine the elevation to which to set the pivot assembly.

Another aspect that increased the difficulty of constructability on the project was the variable elevations. The existing drawings from the 1982 project plans were used by the Engineer of Record to set the elevations for the new plan sheets because the project was a rehabilitation and the approach spans were to remain. However, it was discovered once the contractor's surveyor was onsite that the elevations did not add up. It was found that the 1982 plans used a datum that existed since 1927. Since 1982 a revised global survey datum was created and they differed by approximately 1.2 feet where the project was located, however the difference can vary slightly within even our project limits.

In addition, the existing approach spans differed in elevation by .01 feet and the planned sidewalk / roadway elevations ended up differing by ½" because the steel roadway grating did not sit perfectly flush on the structural steel like the much lighter uniform aluminum sidewalk grating. These additional differences required the contractor to make minor field adjustments at each interface between swing span and approach for the best fit to eliminate tripping hazards. Ultimately, the contractor worked the elevations on the project relative to within itself to make sure everything worked properly.

Hurricanes Effect Submarine Cable

The original submarine cable that provides the power to the bridge was originally scheduled to be received in mid September. The provider was 80% complete with the order when Hurricane Katrina hit New Orleans on August 29, 2005. The supplier's offices and fabrication plant were located in the heart of New Orleans. For the first few weeks after Katrina it was unknown what kind of damage the supplier's business, homes and lives endured. It certainly was unknown if the supplier could deliver by our anticipated installation date of mid October. Communication was finally made two-three weeks after the event. It was positive to know that the individuals had survived, but the impacts to the plant were still undeterminable because the area was inaccessible at best and no one was allowed to re-enter the devastation zone without approval and escorts.

Considering the above, the contractor and their electrical subcontractor, Edwards Electric, pursued contingency plans. Due to the contractor's established relationship with FDOT District 6, the contractor was granted the opportunity to borrow an existing emergency submarine cable if necessary. The contractor got the engineered drawings from FDOT District 6 and had the EOR review the cable for possible inclusion in the bridge. It was determined that the cables would meet the requirements with minimal loss of spares. The contractor would need to purchase replacement cables for those borrowed and return to District 6 as soon as possible. The cost of replacing the borrowed cables was anticipated to be greater than the amount that was going to be paid to the original supplier so there were additional costs for the owner if the owner decided to direct the contractor to pursue the backup plan.

As time passed, the ability of the original supplier to get his plant up and running and supply the required cables became increasingly unlikely. The contractor shared this information with the owner and Engineer and stated clearly that if the owner did not want an increase to the bridge closure period by six to twelve months, they should heavily consider commencing the backup plan. After some time and consideration, the contractor finally got verbal direction to initiate the backup plan on October 19, 2005. The approved change order arrived on October 27, 2005. To maintain the original six month closure schedule, the contractor needed to install the cables by mid November. With this date quickly approaching, PCL contacted FDOT District 6 after the verbal direction and was encouraged to pick the cable up immediately because Hurricane Wilma was tracking towards south Florida. Edwards Electric picked the cable up and delivered to the jobsite on Friday, Oct. 21. On Monday, Oct. 24, Wilma hit south Florida and the project site stronger than anticipated.

Hurricane Wilma damaged PCL's submarine cable installer's tug and barge. The subcontractor would be unable to perform. The contractor acquired the services of a diving operation to install the cable in mid November, but the crew could not meet the drawings minimum requirements of 6' embedment due to much construction debris from previous projects in the same location. The contractor did an as-built and submitted for acceptance. The County was firm in wanting to meet the specification, but also did not have the funds to cover these unforeseen impacts. Finally, the EOR found the Army Corps of Engineers general permit that allowed 4' embedment on waterways that were non federal waterways, which applied to this project.

After installation was complete, the team re-focused their efforts on replacing the submarine cable. The contractor was instructed to 'replace in kind'; however, when the contractor provided the new supplier's engineering drawings, matching that which was installed, the Department was unsatisfied that they were going to be sent a cable that did not match their engineered drawings. After sending 6" sample sections of the cable to the EOR, FDOT District 6, and the electrical subcontractor, it was finally determined and agreed that in the haste of pending Hurricane Wilma, the supplied/picked up submarine cable was different than the drawings had shown. Fortunately, upon receipt of the cable at site the electrical subcontractor reviewed the cable and discussed with the EOR to make sure it would satisfy the Mathers Bridge requirements prior to the installation in the channel. The contractor got final approval to fabricate the replacement cables in January 2006.

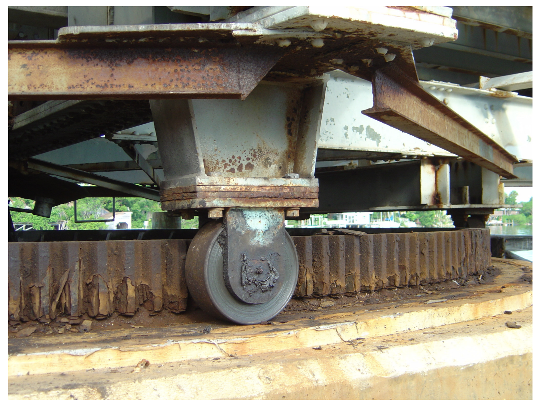
Submarine Cable

The replacement cables were finally received by FDOT District 6 in July, 2006. The graciousness of FDOT District 6 saved Brevard County an 8 month delay on their bridge closure.

Improvements on Serviceability and Safety

Old Bridge Was At Its End

The previous Mathers Bridge which had components that dated as far back as 1927 had seen its end. The structural steel portions were severely rusted so the bridge had a relatively low capacity rating. The signs for the bridge allowable capacity were lowered during the first three months that the contractor was onsite but the bridge was still in operation. The bridge scored 4 out of 100 in the last grading done by the government. The seasoned director and professional engineer for the County commented that after each major storm or hurricane, he was surprised to still see the bridge and control house still in place. The bridge was consistently out of service and continually being 'maintained' just to keep it in operation. The bridge wheel arm which set the location of the bridge had lost its hydraulics and allowed the bridge to roll past the centerline easily. The bridge tenders would line up the swing span to the approaches on their own and to the best of their ability.

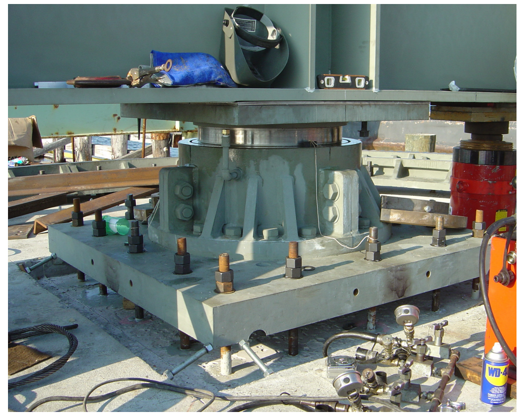


Old Track and Balance Wheel

Needless to say, the new construction brought about great improvements to the serviceability and safety of the bridge. Earlier some improvements were discussed that also provided new concerns. They were the improved fender system access platforms, and the crash and advance warning gates. To address the gate issues and provide more awareness to the public of the hazards, signs were placed prior to each of the advance warning gates. These signs instructed the users to stay behind that location when the bridge is operating. A white stop bar was painted on the sidewalk to clearly indicate where to stop, similar to the white stop bar that indicates where to stop in the roadway for the vehicular traffic. In addition a yellow X was painted directly under the gate arm to indicate where the hazard is during operation.

Design Improvements

There were current design requirements and preferences required by the County in the design phase that dictated improvements for the structures serviceability and safety and naturally improved the user friendliness and aesthetics. One of these guidelines was that the bridge needed to be a replica replacement of the swing span but it was desired that there be an addition of a sidewalk. Since design standards required the lanes be updated to two eleven foot lanes and the sidewalk to be five feet wide, the overall project approaches had to be widened two feet to the north to accommodate the dimensions. Naturally one of the improvements was to install a reliable mechanical and electrical system. Another requirement was that the new structure had to have no posted load restrictions. All of these requirements made the finished bridge not only a site to see, but a safe and reliable one as well.



New Pivot Assembly

There were substantial upgrades to the bridge structural, mechanical and electrical system. As this paper is prepared from the contractor's perspective, we can not speak fully to many of these improvements. However, we plan to have the EOR available at the presentation to field such questions and the EOR has provided a brief list of some of the major improvements to the structure:

- Dual span mechanical and electrical drives offering tandem load sharing operation or switching to single drive operation
- Locating the span drive reducer closer to the pivot girder with roadway hatch for future removal
- Pivot assembly included a larger spherical bronze pivot bearing with oil bath
- (2) 90 degree rack segments integrated with balance wheel track
- (2) more additional balance wheels for a total of (8) and (2) additional center rollers mounted under the center of the main girders for live load support
- Individually mechanical actuated wedges with emergency hand wheel operation eliminating long hydraulic piping runs from center to span to ends of bridge which were prone to leaks
- End pier mounted rigid stop for accurate and consistent positioning of span seating in closed position
- Larger backup power generator

Conclusion

Celebrate a Successful Project

To commemorate the re-opening of the Mathers Bridge with the new span, improved approaches and control house, a local resident approached the County and the Contractor to have a celebratory dedication party. The contractor was initially concerned about having fifty or so people in an active work site, but decided a little extra house keeping and diligence would be worth it for the workers to see the community's appreciation. The individual who wanted to plan the event was the local community college President and lived on Merritt Island. The contractor and EOR agreed to co-sponsor the event financially and the gentleman proceeded with his plans in conjunction with some input from the County.

The date was set and despite the tight schedule and some set backs due to the weather; the contractor completed the work in time for the event on February 2, 2006 at 3 PM. There were over 200 people who showed up to enjoy food, beverages, balloons, dancing and a t-shirt that had a picture of the new bridge and a commemorative slogan. There was a live steel drum band from a local high school which performed. The County, EOR, contractor, community leaders, police and even descendents of the original bridge's namesake John Mathers were in attendance. There was a dedication and ribbon cutting done by the grandson of the late John Mathers. Immediately afterwards everyone made a celebratory trip across the bridge, walked around and enjoyed the new structure in there own special way. There were people on foot, on bicycle, on skates, kids in strollers, people in wheelchairs, people with fishing pole in hand all enjoying the bridge prior to vehicular traffic. Following the event, the bridge was opened to operation and vehicular traffic at 6 PM that evening.

In summary, the project met a tight closure schedule and overall project schedule, stayed within the County's tight budget for change orders and gained praise for the satisfaction that was provided. The owner was very satisfied and wrote an extremely impressive letter praising the entire team of builders, subcontractors, engineers and all involved with the project. There were excellent relationships built between the County, Engineer of Record, contractor, subcontractors and suppliers that won't be easy to duplicate again. The Mathers Bridge Rehabilitation project was certainly an enjoyable, successful and unique Florida Swing bridge project.

Completed Operational Bridge