MONMOUTH COUNTY
Local Preliminary Engineering Phase for Monmouth County Bridge S-32
on Rumson Road (CR520) over the Shrewsbury River
Borough of Rumson and Borough of Sea Bright, Monmouth County, NJ

STAKEHOLDERS FOCUS GROUP MEETING
Rumson Road & Ward Avenue Intersection Improvements, Cul-de-sac
MEETING REPORT

DATE: Thursday May 21, 2015

TIME: 6:00 p.m. – 8:00 p.m.

LOCATION: Bingham Hall, 40 Bingham Avenue, Rumson, NJ

ATTENDEES:

First Name	Last Name	Representing
		Community Stakeholders
Yvonne	Boggs	Resident
Mark	Brown	Resident
Thomas	Calvanico	Resident
Wendy	Cettina	Resident
Betty	Croft	Resident
Avira	DeVito	Resident
John	Grossarth	Resident
Nancy	Haaren	Resident
John & Mary	Healy	Resident
Sallie	Kabash	Resident
Harry	Kegelman	Resident
Nancy	Kegelman	Resident
Louise	Larsen	Resident
Mary	Lindston	Resident
Kate	McBride	Resident
Scott	Milsom	Resident
Lawrence & Annette	Taylor	Resident
Pete	Zillger	Resident
Mell	Zillger	Resident
		Project Team
Martine	Culbertson	M.A Culbertson, LLC
Inkyung	Englehart, P.E.	Monmouth County Engineering
Joseph	Ettore, P.E.	Monmouth County Engineering

First Name	Last Name	Representing
		Project Team
Pamela	Garrett	NJDOT Environmental
Daria	Jakimowska, P.E.	Monmouth County Engineering
Sarbjit	Kahlon	NJTPA
John	Kosciuch, P.E.	NJDOT Local Aid District 3
Bruce	Riegel, P.E.	Hardesty & Hanover, LLC
Glen	Schetelich, P.E.	Hardesty & Hanover, LLC
Wendy	Smith	NJDOT Local Aid District 3
Michael	Swietanski, P.E.	Hardesty & Hanover, LLC

PURPOSE OF MEETING

The purpose of this meeting is to review proposed improvements to the Rumson Road and Ward Avenue intersection, discuss the proposed cul-de-sac and other improvements, provide input and suggestions for intersection improvements, and present the next steps for the LPE Phase.

MEETING SUMMARY

1. Martine Culbertson, Community Involvement Facilitator, opened the meeting on behalf of Monmouth County. After introductions by the Project Team, Martine reviewed the agenda and handouts, which have been updated since the Community Stakeholders Meeting: Project Team List, Community Stakeholders List and Project Information Sheet.

(a) Project Portfolios were distributed to new stakeholders and those unable to attend the first meeting.

(b) A Stakeholders Survey Summary Handout (yellow paper) was distributed which is a summary of comments received for each question to date. A map submitted with a completed survey intended to be attached to the summary was missing; Martine noted that a revised Survey Summary would be sent via email to include the map. (action item)

2. Prior to presenting the project schedule and status, attendees raised numerous questions and concerns as the priority for the meeting. The agenda was adjusted to listen to comments and questions as expressed by attendees.

(a) *Question:* How was the cul-de-sac included as part of the design?
Response: Both the County and the Borough of Rumson identified safety concerns with the unconventional 5 legged Rumson Road & Ward Avenue intersection during the Concept Development Phase of the project. It was agreed by Local Officials, Community Stakeholders, and the general public, during the development of the Project Purpose & Need Statement, that improvements to this intersection would be included in the scope of work for the Bridge S-32 replacement project. At the Community Stakeholders Meeting held in late June 2012, options were presented to address safety concerns with the 5 point intersection including a round-about, a cul-de-sac, moving the entrance further over within West Park, and doing no improvements other than adding sidewalks. Due to impacts to the Park and right-of-way, the

cul-de-sac option was preferred over the other options by the Community Stakeholders. Subsequently, the cul-de-sac was included with the Preliminary Preferred Alternative (PPA) in association with the bridge replacement. The County and the Borough of Rumson also supported the cul-de-sac solution. However, it was agreed that the Project Team would reconsider the cul-de-sac option in coordination with the Community Stakeholders due to opposition of many attending the Public Information Center held in January 2013; who were either unaware or unable to attend the meeting held in June 2012.

(b) *Question:* Why wasn't everyone from the Ward Avenue neighborhood notified?
Response: The February 2012 and January 2013 Public Information Center meeting notices were placed in the newspapers and posted on the County and Borough (Rumson and Sea Bright) web sites. The requirement for public meeting notification is for property owners within 200 feet of the project area to receive the meeting notice in the mail. The Community stakeholders list was developed from input received from the County and both the Boroughs of Rumson and Sea Bright. The Stakeholders included on the list were also to represent their neighbors, businesses and/or organizations having an interest and/or being impacted by the project at the Stakeholder Meetings held in February and June 2012. The project team also sent meeting notifications via email for those who provided email addresses.

(c) *Question/Comment:* How many people voted for the cul-de-sac?
Response: There was not a vote taken for the cul-de-sac. The exercise conducted at the stakeholders meeting was to provide insight which options were more favored than others. The decision to accept, reject or further study options and alternatives was based upon examining the comments received and also from input from the project team engineers and the County. The Borough of Rumson passed a resolution of support for the PPA which included the cul-de-sac with the understanding that further investigation of this option would be performed in the next phase; which is the purpose for this Focus Group meeting.

3. Proposed Cul-de-Sac Design Concerns. Attendees requested to share their concerns regarding the proposed cul-de-sac and intersection improvements input before breaking into table discussions. The following comments were noted on newsprint:

• No sidewalks on South Ward - concern for pedestrians.

• Never seen an accident at intersection.

• Parking issue exists and the cul-de-sac would make it worse.

• ½ hour out of South Ward.

• This intersection is a nightmare, 2 routes in to spread out.

• If cul-de-sac would be built, neighborhood would have severe traffic problems; would like analysis of traffic flow.

• There is crash data collected from incidents at the intersection, 5 crashes.

• Four point intersections are standard, the 5th leg off Rumson Road is a concern.

• Presently there are two ways for ingress, cul-de-sac eliminates one
  - Flooding – (one way access), could allow other direction
  - Emergency vehicles can access if designed with mountable curbing

• Creep up for line of sight – normally with a traffic light 4 pt.

• Signage – directional indication of what intersection.

• Double parking – look at traffic flow at Lincoln, Waterman, and Packer.

• Cul-de-sac reduces 5th leg to provide 4 pt intersection.

• Accident data – provide summary of information or reports.

• One way minimizes pts of conflict maintain

• St Georges Church at Lincoln – one way traffic, parking along side of street is narrow.

• Improve Signage - to direct motorists to bridge rather than straight.

• Re-examine roundabout – smaller with less right-of-way impact.

• Consider other improvements for Rumson Road and Ward Avenue intersection
  - Traffic signal at the intersection (*has to meet warrants, seasonal*)
  - Blinking lights to slow down motorists
  - Pedestrian crossing – striped and signage
  - Peak lights operating during school hours and church services
  - Create lane for left hand turn onto north Ward Avenue

• Look at using speed bumps near intersection to slow traffic down.

• Signage – pedestrian crossing, directional for bridge, and local traffic only for old Rumson Rd.

• Painting indication in the roadway – to indicate yield or priority to enter intersection.

• Clean up intersection – improve sight distance, build out curbs.

• Lighting improvements – roadway and pedestrian enhancement.

4. Group Discussions on Intersection Improvements. After comments were made by attendees regarding concerns for the cul-de-sac, Martine asked each table of attendees to then discuss, with at least 2 project team members per table, any suggestions for possible improvements to the intersection other than the cul-de-sac to improve safety.

Each table was provided with an aerial map showing the existing conditions (including deficiencies) at the intersection, the conceptual plan developed in the Concept Development phase for the cul-de-sac (PPA), the conceptual plan developed in the Concept Development

Phase for the roundabout alternative, and the conceptual plan for the No Build (add sidewalk only) alternative.

After 30-45 minutes of group discussion, Martine then asked for each table to share a summary of the comments discussed. The following points were listed on newsprint and from notes taken during the table discussion:

Table 1 – Project Team members: Glen Schetelich, Joe Ettore

• Don't like cul-de-sac

• Sign EB Rumson Road before split triangular yellow sign at fork

• Dead end, no outlet sign

• Children catch bus, less safe bus pull off improvement - Lincoln Ave school bus / NJ Transit

• NJ Transit – stops at intersection, review proposed design

Table 2 – Project Team members: Bruce Riegel, Mike Swietanski

• No support for cul-de-sac alternative

• Look at reducing speed limit before intersection

• Add directional signage to keep people on Rumson Road as there is confusion with some people bearing right on Old Rumson Road

• Bridge signals tied to each other

• Motion signal

• Too tight to make turn on South Ward Ave. if coming out Rumson West
  - Sight distance (out)
  - Radius too tight (in)

• Look at adding dedicated left turn lane from Rumson Road EB to Ward Ave. North; heavy turn movement for school buses

• Intersection gets blocked during bridge openings; add signage to not block intersection

• Determine if traffic warrants a seasonal signal

• Install no outlet sign

Table 3 – Project Team Members: Pamela Garrett, Wendy Smith, and Sarbjit Kahlon

• Angle at S. Ward Ave. is a problem

• Sight distance @ Holy Cross

• Cul-de-sac more traffic

• Holy Cross access to West Park, to both areas

• Lighter use - look at roundabout
- Access to Rumson
- Improve traffic flow
- Reduce right of way
- Better pedestrian crossing

• Add signage entering the area

• Add signage speed limit

Table 4 - Project Team members: Inkyung Englehart, Daria Jakimowska

• Drivers do creep out of S. Ward to make left turn on Rumson Rd.

• Have guided line/dotted towards Rumson Rd. & away from Old Rumson Rd.

• Clean up the fifth leg so the drivers accidentally don't end up at Old Rumson Rd.

• Old Rumson is one of the charms of the neighborhood.

• Making a right to S. Ward from Rumson is dangerous – tight turn.

• Don't want one side parking, keep parking on both sides.

• Bring back overflow parking at North West Park.

• Holy Cross Church will not allow parking at their lot on Saturday afternoons and Sunday after services. Can they bring that back?

• Need to preserve the character of the neighborhood. Bridge must stay at proposed location, need the park on the south side.

• When the parking really gets bad, police are occupied and don't have ability to manage the parking issues.

• Construct half of the bridge, move the traffic, remove existing, construct the other half of the bridge. Attendee provided a copy of article, "Construction on the PGA Boulevard Bascule Bridge, Ryam Marick, PCL Civil Constructors, Inc." (*see Attachment #1 at end of report*).

• Clean up Old Rumson Road signage to direct to bridge, not neighborhood
  - Road markings
  - Signage

• Apply signage - neighborhood traffic only, no connection (to Sea Bright)

• Table 4 provided a sketch of an alternative entrance for Old Rumson Rd further from intersection with S. Ward Avenue (*see Report Attachment #2 at end of report*).

5. Other Issues. During the meeting and in summary, Martine noted comments attendees shared regarding other community concerns and issues about the bridge replacement project as follows:

Alternative Concepts

Comment: Build half of old bridge and build new bridge beside it would have less impact to neighborhood.

Response: This alternative was examined during Concept Development and dismissed due to the additional $10M in construction cost as the result of the longer (one year) construction duration. This alternative was also dismissed due to the staged construction alternative reducing the bridge width to one 11' lane in each direction for at least a two year duration (and likely for two full summer seasons). The traffic impacts associated with this alternative were unacceptable to both Boroughs, Community Stakeholders, and the general public; given the congestion occurring during the summer season with seasonal traffic volumes in combination with bridge openings every half hour on a bridge with 40' roadway width.

Comment: Some attendees would like to revisit the option of building half of the bridge and questioned the southern alignment over the northern alignment as the preferred alternative.

Response: The determination of the preferred alternative was through the concurrence of the cooperating agencies of FHWA, NJTPA, NJDOT and the County during the Concept Development (CD) Phase. It involved careful consideration of the conceptual alternatives analysis matrix to identify the option which satisfies the project purpose and need while minimizing impacts. Resolutions of Support for the Preliminary Preferred Alternatives were received from the Borough of Rumson, Borough of Sea Bright, and Monmouth County Board of Chosen Freeholders. The CD Report is available for viewing from Monmouth County Engineering and provides detailed information on the alternatives studied and determination of the PPA.

West Park

Comment/Question: The new bridge alignment will be closer to the playground in West Park. What type of barrier or protection from vehicles will there be?

Response: The discussion of design elements for West Park such as sidewalks, lighting, fencing or plantings will be part of the next project phase which is Final Design. The Preliminary Engineering Phase primarily involves establishing the footprint for the bridge replacement along with the approach roadways in order to determine environmental, cultural resources, and right of way impacts.

Super Storm Sandy

Comment: The West Park neighborhood incurred a lot of damage from Super Storm Sandy and is still dealing with impacts as a result of storm damage. The neighborhood has concern for further change that may occur with the bridge replacement project.

Response: The County is aware of on-going issues in the West Park neighborhood as a result of Super Storm Sandy impacts and will work respectfully with the community regarding any concerns with the bridge project. The County is still addressing housing, business, roadway and bridge problems in many communities within its jurisdiction. The existing Rumson-Sea Bright Bridge S-32 required emergency repairs after the storm which served as a vital emergency access and coastal evacuation route and in that regard, is why this project must be completed as soon as possible.

6. Next Steps and Feedback. The project schedule and status is listed on the Project Information handout. The comments received at the focus group meeting will be taken into consideration by the County and the Project Team. Environmental studies are on-going in this phase.

(a) The Meeting Report will be posted to the Monmouth County website once drafted, reviewed and finalized.
(b) A report from the meeting held with local clergy earlier will also be prepared and posted to the County website.
(c) A public meeting will be scheduled near the end of this phase to present the engineering and environmental studies and is anticipated to be held in early 2016.
(d) In summary, Martine asked attendees for feedback. The following comments were noted on newsprint:

Feedback Comments

- No roundabout, too much easement, right-of-way taking
- Excellent feedback and discussion
- Appreciate comments
- Life savers work well, next time Pizza
- Borough representative should attend
- Upgrade/upload diagram
- Appropriate and important questions answered
- More meetings, important dialogue, a lot of issues
- Very constructive
- Haven't had capacity/impaired
- Priorities
- Thank you for coming and listening to our concerns
- All information helpful, feel free to contact us
- Thank you for presentation

7. Inkyung Englehart, Monmouth County Project Manager, thanked attendees for their input and noted that the meeting report will be posted once finalized. An email will be sent to notify all Stakeholders when the reports are posted on the County website.

8. Joe Ettore thanked attendees and the Borough for providing this facility to host the meeting. The County looks forward to continuing to work with the West Park neighborhood, both the Borough of Rumson and Borough of Sea Bright, as well as the general public on this important transportation improvement project.

9. For any questions or to provide additional input, please contact Inkyung Englehart, Monmouth County Project Manager, or Bruce Riegel, H&H Project Manager. Contact information is on the Project Team List in the Project Portfolio. Please note the NJDOT email address has changed as noted on the Project Team List handout. The meeting adjourned at 9:00 p.m.

KEY ACTION ITEMS

1. H&H project team will review input received at the focus group meeting, and will continue the engineering, environmental and cultural resources studies and field work; H&H will review the traffic analysis and crash data from the intersection with the County.
2. Attendees to review the handouts and visit the Monmouth County website for further information.
3. Martine Culbertson will provide an updated Stakeholders Survey Summary, the meeting summary report, update Community Stakeholders List, notify community stakeholders when reports are posted to the County website and provide email notices in scheduling future stakeholders and public meetings.

NEXT MEETING

<u>LPE Stakeholders Meeting / Public Information Center (PIC) Meeting</u>

Date: Fall 2015 / February/March 2016

Time: PIC afternoon and evening sessions (*specific times to be determined)*

Location: Borough of Sea Bright and Borough of Rumson (*facility locations to be determined*)

We believe the foregoing to be an accurate summary of discussions and related decisions. We would appreciate notification of exceptions or corrections to the minutes within three (3) working days of receipt. Without notification, these minutes will be considered to be record of fact.

Inkyung Englehart, Monmouth County Project Manager
Sarbjit Kahlon, NJTPA Project Manager
Bruce Riegel, Hardesty & Hanover Project Manager
Martine Culbertson, Bridge S32 Community Involvement Facilitator

Focus Group Meeting - Rumson Road Intersection Improvements, Cul-de-Sac Thursday, May 21, 2015

Bingham Hall, 40 Bingham Avenue, Rumson, NJ, 6:00 p.m. - 8:00 p.m.

AGENDA

The purpose of this meeting is to review proposed improvements to the Rumson Road and Ward Avenue intersection, discuss the proposed cul-de-sac and other improvements, provide input and suggestions for intersection improvements, and present the next steps for the LPE Phase.

I. *WELCOME AND INTRODUCTION*

- Project Status and Schedule
- Community Stakeholders Survey Summary

II. *MONMOUTH COUNTY BRIDGE S-32 APPROACH ROADWAY INTERSECTION*

- Proposed New Bridge Alignment Layout with Bike & Ped. Access Improvements
- Ward Avenue and Rumson Road Intersection Improvements
- Group Table Discussions on Intersection, Proposed Cul-de-Sac
- Group Recommendations - Key Points
- Other Community Issues & Interests

III. *COMMENTS AND NEXT STEPS*

- Community Stakeholders Update & Feedback
- Action Items - LPE Phase Next Steps
- Closing Comments

ATTACHMENT 1
Comparison of PGA Blvd. Bridge to Rumson Road Bridge

The PGA Boulevard Bridge reconstruction project was an on-line replacement of the eastbound portion of the bridge from the riding surface down to the waterline. The PGA Blvd. bridge is a bascule type drawbridge consisting of twin, parallel double leaf bascule spans (the Rumson Road Bridge is a double leaf bascule bridge, but has a single set of leafs, not twin leafs).

There are two critical differences between the PGA Boulevard project and the Rumson Road project. The PGA Bridge has four main support girders while the Rumson Road Bridge has only two girders. In addition, the PGA project demolishes the bascule piers down to the waterline while the Rumson Road project builds entirely new bascule piers.
For the PGA Bridge, removing half the structure while maintaining traffic on the other half is achievable because the remaining two girders will support the bridge (In fact the PGA Bridge is actually two independent bridges). Since the Rumson Road Bridge only has two girders, removing half the bridge will involve removing one girder rendering the remaining portion of the bridge unstable. Putting a temporary girder along the line where the bridge is cut is not feasible in that a pile supported foundation with mechanical components to operate the drawbridge cannot be constructed due to overhead restriction with the bridge in place above where piles and foundations need to be built.

The fact that the piers for the PGA Bridge are partially demolished and not completely new allows the bridge to be built on-line. In order to keep the existing Rumson Road Bridge stable during construction, the piles for the new pier footings need to be constructed far enough away from the existing foundations for safe construction. If the new piles are driven too close to the existing bridge, then the existing piles and surrounding soil could become unstable causing the existing bridge to become unstable. For the Rumson Road Bridge, an estimated 25 foot minimum offset from existing to new piles is adequate to maintain stability to the existing bridge with proper construction techniques.

During Concept Development, a partially off-line alignment concept plan was developed that would build half the proposed Rumson Road Bridge then demolish the existing bridge and construct the second half of the new bridge in the footprint of the old bridge. This alternate was called Concept 3E (Note that the Preferred Alternative is Concept 3F, which is full off-line bridge with one stage construction). Concept 3E was dismissed because it was more costly (+$10M) than 3F due to staged construction and longer (1 year) duration with one lane of traffic in each direction for 2-2 ½ years. In addition, the difference in impacts to West Park between concepts 3E and 3F were minimal.

Under Concept 3E, the proposed Rumson Road (CR 520) west roadway approach could be shifted about 26' further to the north at the western bridge abutment, heading west from that point, the variation diminishes as the alignment transitions to meet the existing roadway. Approximately 400' west of the proposed western bridge abutment, there is no difference in the Concept 3E and 3F roadway alignments. The proposed Rumson Road (CR 520) east roadway approach and the proposed intersection with Route 36 could be shifted about 14' further to the north under Concept 3E.

Differential of right-of-way impacts to West Park between Concept 3E and 3F is negligible with net loss in acreage being between 0.067 and 0.070 acres.

HEAVY MOVABLE STRUCTURES, INC.
ELEVENTH BIENNIAL SYMPOSIUM

NOVEMBER 6-9, 2006

Construction on the PGA Boulevard Bascule Bridge

Ryan Hamrick

PCL Civil Constructors, Inc.

DOUBLETREE UNIVERSAL STUDIOS
ORLANDO, FLORIDA

Background

The PGA Boulevard Bascule Bridge Rehabilitation Project in West Palm Beach, Florida involves two existing three lane bridge structures that are side by side (Figure 1). The owner of the bridge is the Florida Department of Transportation, District Four. The Engineer of Record for the design is Hardesty and Hanover, LLP. The project commenced in April 2005 and is scheduled to be complete in March 2007. The westbound bridge is scheduled to receive minor structural modifications and repairs, while the eastbound bridge will be systematically demolished down to water level and reconstructed. The demolition will consist of both eastbound bascule leaves, both bascule piers and both eastbound flanking spans. The PGA Blvd Bascule Bridge has four bascule leaves and five fixed approach spans. Currently, the existing eastbound bridge has been demolished and the new eastbound bridge is being reconstructed. Listed below are some of the major items of work:

- Removal and replacement of bascule structural steel and roadway grating
- Demolition and construction of new eastbound concrete bascule piers
- Construction of raised concrete sidewalks on existing approach span bridge decks
- Removal and replacement of steel and concrete traffic railing barriers
- Removal and replacement of electrical drive motors, machinery, motor brakes, and limit switches
- Replacement of bridge expansion joints
- Abatement of lead based paint and recoating of structural steel on the movable bridge spans
- Cleaning and coating of concrete surfaces
- Construction of temporary access bridge to control tower

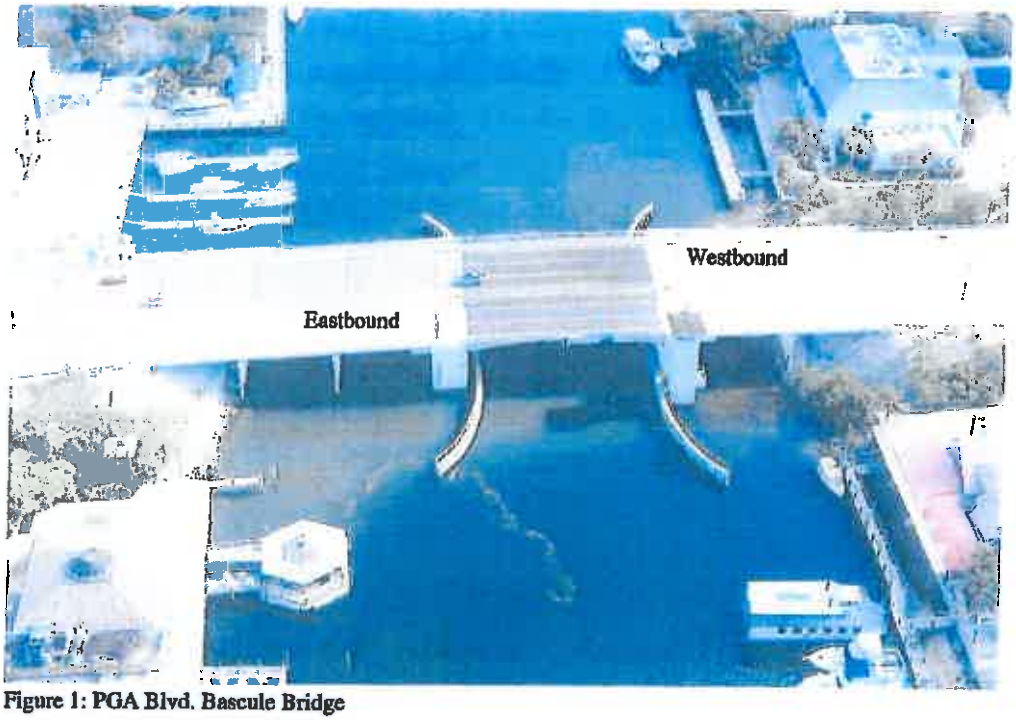

Figure 1: PGA Blvd. Bascule Bridge

Plan of Construction

Prior to the commencement of any demolition or reconstruction activities, work plans were developed to detail the plan of action for each item of work. The demolition plan was created to evaluate different styles of demolition, different pieces of equipment, personnel assignments, manpower requirements, and demolition schedule. Upon the evaluation and analysis of different styles and options, the final demolition plan was formally outlined for the project team to follow. A similar plan was created for the reconstruction of the new eastbound bridge.

Demolition

The demolition of the eastbound bridge was a very strategic and calculated process. All of the demolition and reconstruction activities were completed using a crane on barge. A great deal of calculation and thought was put into the demolition plan due to the critical crane picks that were required. The demolition began with the dismantling of the two eastbound bascule leaves. Each leaf was just over 80'-0" long and 36'-0" wide. The leaves were removed while in the down position and in sections small enough to place in dumpsters or hauled any for steel recycling. The leaves were secured with a tie down system designed to sit between the trunnion and floor beam 4 (Figure 3). Throughout the demolition process, we were required by the United States Coast Guard to maintain single leaf operations for marine traffic, thus demolishing one leaf at a time. The process began on the west bascule leaf, where the roadway grating and structural steel was precut by demolition crews in preparation of installing the leaf tie down system. This was required so that the leaf would not rotate once the steel on the forward side of the trunnion was removed. The first priority here was to demolish the leaf back to floorbeam four. At that point we were out of the navigable channel and did not disrupt the flow of marine traffic.

A great deal of caution was taken while torching the structural steel members due to the fact that the existing structure was coated with a lead based paint system. For the safety of the workers, supplied air units were used by the individuals that were cutting any lead coated material. This protected the worked from exposure to toxic lead fumes. While cutting in areas where ventilation or air flow was not high, all workers other than the individual performing the cutting were out of the work area to prevent exposure to the fumes.

Figure 2: Demolition of Bascule Leaf

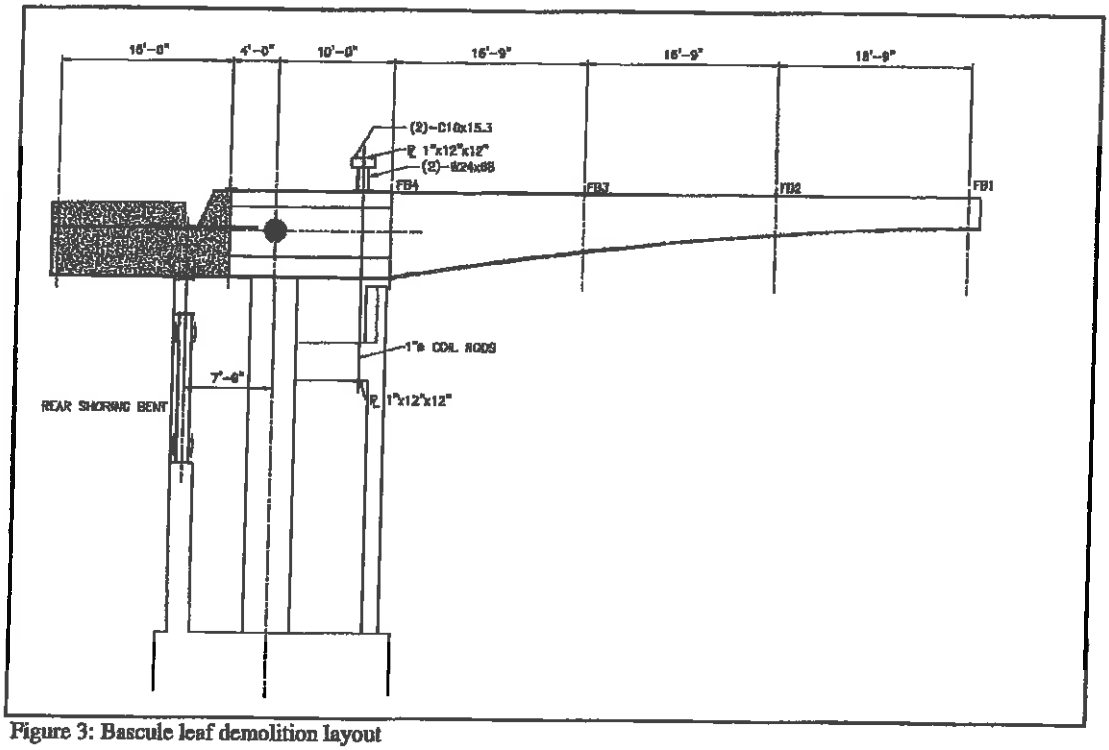

Figure 3: Bascule leaf demolition layout

Once the leaf steel was removed, the flanking span deck and beams were removed. The flanking span stretches 52 feet and is made up of six stringers set beneath a 7.5" concrete slab with a sidewalk and median curb. The span was cut longitudinally by a concrete deck saw in specific locations that allowed the deck to rest on top of the flanking span beams after being cut. A sequence was developed to maximize the efficiency of the saw cuts and crane picks required to remove the deck. The concrete deck sections were removed and placed on a material barge for placement at an offshore artificial reef, while the steel beams were cut up and recycled.

Temporary shoring beams were then placed beneath the counterweight for support while the large concrete section was wiresaw cut into seven pieces. Steel posts were installed on the back wall of the pier and existing flanking span beams were used as temporary shoring beams for the counterweight removal. The counterweight was shimmed to rest on the temporary beams and a series of holes were cored through the concrete section for rigging and placement of the diamond laced wiresaw strand. The coring of the holes for the counterweight removal was performed 24 hours a day for approximately four days. Following that was the wiresaw cutting process that was performed 24 hours a day for approximately eight days. Depending on the location of the cut, the durations varied due to cutting through steel. Wiresaw cutting is designed for concrete cutting and anytime the cut has to go through steel, the process is prolonged. The placement of the cut was determined based on the size of the counterweight section that could be safely removed by our crane. Based on previous experience, the density of older counterweight concrete varies greatly. We did not want to have a situation where the actual weight of a section was significantly larger than the calculated weight and our crane would not have the capacity to remove the section. We also had to be careful not to make the sections too large for the removal process on the material barge. The plan for removing the sections at the artificial reef site was to place a large long reach excavator on the material barge and push the counterweight sections off the barge. We had to ensure that the sections were not too large and could be pushed off with the excavator. As a result, we

added a cut on the counterweight to reduce the size and weight to ensure the sections could be safely removed. The counterweight was cut into seven sections, which averaged 23 tons each.

Figure 4: Counterweight section being removed.

After the completion of the wiresaw cutting, the tie down system was then dismantled and the remainder of the leaf, which consisted of floorbeam four and trunnion girders, was removed. The machinery within the pier, which was a Hopkins frame, was then removed. At this point, the only thing left of the eastbound demolition was that of the bascule piers. To do this, a 3D model of the pier was created to help with layout and to visualize the task of demolishing the pier. The model was developed in AutoCAD and was created from existing drawings and field measurements.

The 3D model of the bascule pier was a highly beneficial tool that greatly impacted the project. The model was able to provide a visual interpretation for our field supervision of what needed to take place. It also allowed us to try many different scenarios of layout to achieve the most efficient and cost effective way of the concrete cutting. Once the layout was finalized, the cut lines were transferred to the pier. Holes were cored through the pier sections to allow for wiresaw strands to be pulled as well as rigging to be placed through the section for removal. Some of the sections were over six feet thick so the coring took several days. Afterwards the wiresaw machines were setup and the process was started. The cuts were organized so that a majority of the sections could be cut without removing any of the concrete. The edges were beveled so that the sections could rest on each other and stay in place. Approximately 90% of the pier was cut prior to any removal. We were able to remove all the sections on one pier in two days.

There were around 30 concrete pier sections removed for each pier, totaling approximately 560 tons. The average section weight was 29 tons. The process of picking the concrete sections off of the pier was very delicate. It was critical that the crane operator, rigging foreman, and barge foreman were in constant communication during the picks. The crane operator had a limited sight line for many of the picks and the lines of communication were critical while picking and setting the pier sections.

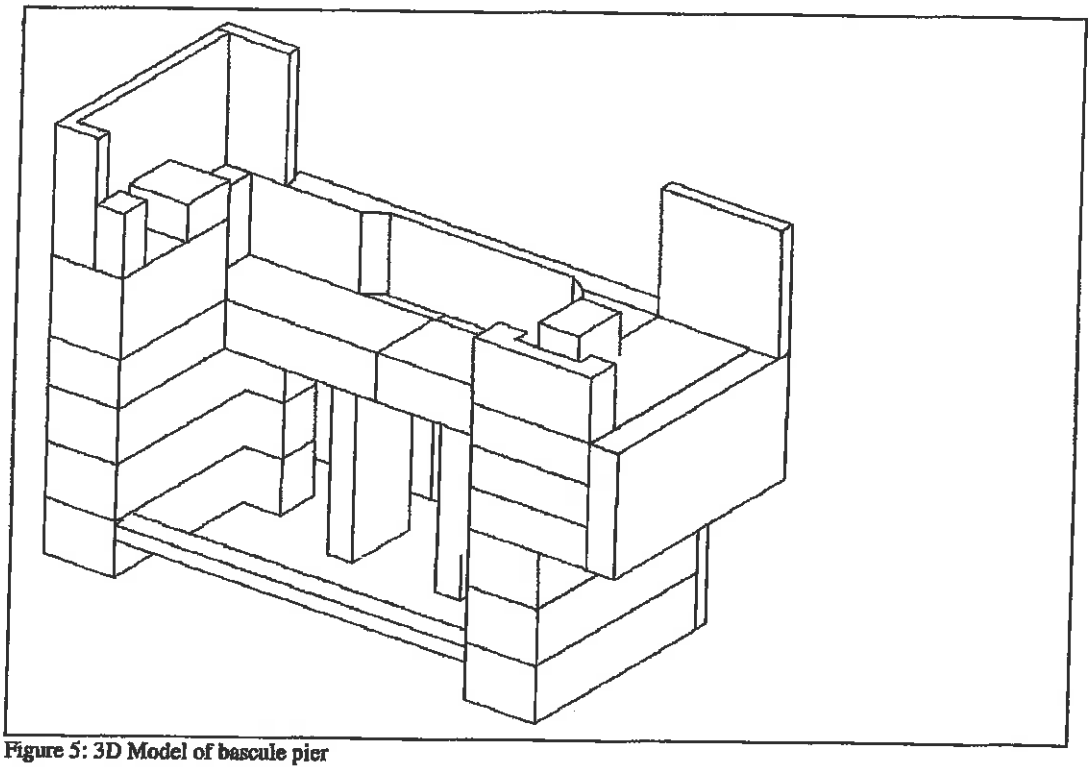

Figure 5: 3D Model of bascule pier

The piers were demolished to elevation 1.0', which was near the water line elevation. This presented several issues for the demolition crews, as the water elevations changed with the tides. The wiresaw cutting equipment could not be installed beneath the water, so the time frame for cutting the lower sections was limited. All of the other sections were cut and cored 24 hours a day, seven days a week to maintain the projects accelerated schedule.

Reconstruction

Once the bascule pier demolition was complete, the reconstruction process commenced. The first task was to widen the existing foundation by adding to the footer. This proved to be one of the greatest challenges for our concrete crews. The underwater nature of the work was difficult to predict due to the extreme late summer tides. The production rates of our concrete forming and placement accelerated significantly after we were above the water line. We were required to modify work schedules to correspond with the areas tide charts.

To expedite the reconstruction schedule, the formwork was prefabricated to minimize the durations of formwork installation. The east pier construction was able to commence three weeks prior to the west

pier, but rather than wait for the east pier to be completed before moving on to the west pier, additional crews were brought in to begin the west pier construction directly following the demolition. This accelerated our schedule by approximately four weeks. The east bascule pier was completed and ready for structural steel erection within eight weeks after the first concrete pour.

The main support for the bascule leaf was structural steel columns erected within the bascule piers. The unique column design was connected with trunnion and forward columns. The anchor bolts for the steel columns were cast deep within the concrete and placement of the bolts was critical. Survey layout was completed prior to placing the bolts and was verified throughout the placement of concrete and structural steel. The survey for the entire bridge had to be complete to ensure the two bascule leaves would operate correctly with each other and with the existing westbound bridge.

Following the installation of the bascule pier steel, the leaf structural steel was erected. A great deal of planning and coordination was required for the installation of the bascule girders and counterweight. For the leaf installation activities, a larger crane was obtained due to the very large weight of the steel counterweight box. The largest possible crane for our barge was used to set the bascule girders and counterweight box during a complete bridge and channel closure. The first girder was delivered to the bridge on a special delivery dolly and prepared for the installation. All of the delivered loads of the bascule girders and counterweight boxes were trucked to the site with the use of special permits that restricted the travel times and routs that were made. Communication with the delivery contractor was vital to ensure the material was on site for the scheduled closure dates. The girders weighted around 84,000 lbs and were well below the capacity of the crane. The highly anticipated first bascule girders were set on the east pier. Floorbeam four was then installed to add some rigidity to the girders and allow for the counterweight box. The counterweight, which was delivered on a special low level, wide load trailer, was then moved into place. The steel box consisted of mostly 2 inch thick

material and weight over 130,000 lbs. The process of installing the box was very intense due to the critically heavy pick. Not only did the crane have to pick the large counterweight box, it had to hold the box for a lengthy period of time before being bolted to the girders. The entire process of erecting the two bascule girders and the counterweight box took approximately 12 hours. Within the following week, the remainder of the floorbeams were installed, followed by the stringers and all of the miscellaneous steel support members. The roadway grating was then welded to the leaf and sidewalk railing was installed.

It was now time for concrete placement into the roadway grating and counterweight box. This posed a challenge to the project team due to several construction phase changes. The project team completed detailed balance calculations that uncovered an error in the contract drawings and required us to add weight to the counterweight section prior to adding concrete to the counterweight. The original project scope involved erecting the bridge as far as the north bascule girder and completing everything north of that during a subsequent phase. While keeping with that thinking, the counterweight concrete was placed and temporary shoring posts were used to support the heavily unbalanced leaf. It was then discovered that critical alignment problems were possible if the current procedures were maintained, therefore construction was ceased until the decision was made to revise the current MOT plan and create enough work are to complete the eastbound bascule spans and flanking spans in one single phase. Work was then resumed and after the installation of the remaining structural steel and roadway grating, concrete was placed in the roadway grating and flanking span.

Crane and Barge

The major construction activities throughout the project were completed with the use of a crane set atop a 54' wide and 180' long barge. During the demolition activities, a Manitowoc 4100 Series II, a 230 ton crane, was used to dismantle the bascule leaves and remove the concrete sections from the flanking spans

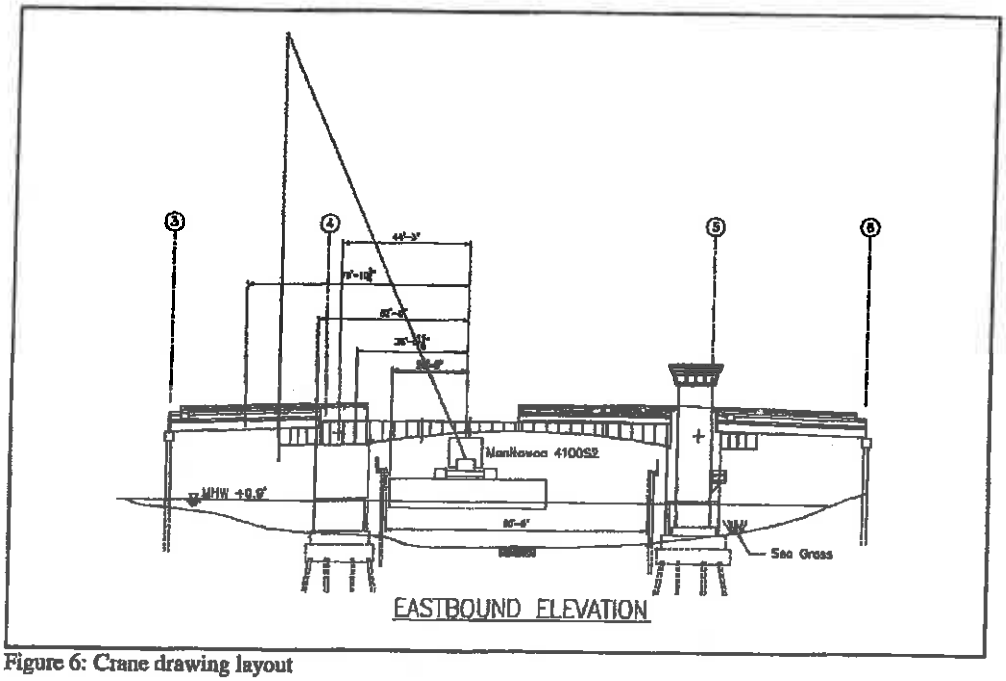

Figure 6: Crane drawing layout

and bascule piers. As previously noted, the 3D model for demolition provided a means of layout for the pier concrete cutting, while the weights were calculated based on the capacity of the crane. Specific crane layout drawings were created to depict actual picking locations to verify crane radius and capacity. While removing the structural steel components of the bridge, the steel was placed on the approach spans and then placed in recycling bins and scrap. The concrete sections of the flanking span decks and bascule piers were placed on the crane barge and once the barge was fully loaded, the material was offloaded on to a material barge.

For typical demolition activities, the material barge would be located at the site and the material would be placed directly on the barge, however, due to the limited space surrounding the PGA Blvd Bridge, this was not an option. After the crane barge was full of material, the barge was moved to an open area within the channel and the concrete sections were transferred to the material barge. This was repeated until the material barge was full of concrete, then the barge was pushed to the offshore artificial reef.

When the reconstruction phase of the project began, the Manitowoc 4100 Series II crane no longer had the capacity to perform all of the required picks. We then demobilized the 4100 Series II crane and acquired a Manitowoc 2250 Series III, a 330 ton crane. This much larger crane posed serious concerns throughout the project team. The physical size of the crane was significantly larger than the previous crane and the largest crane we have had on a 54 feet wide barge. There was a time period in which the crane operator and workers had to adjust to the size of the crane and its capacities. The crane, for example, had to be boomed down or the massive counterweight sections would cause the barge to list. Once the crews were adjusted to the new crane, the picks were made efficiently and safely.

There were restrictions that had to be followed while working with the barge inside the navigable channel. Because the channel was over 50% blocked with the barge in place, we were required to relocate the barge at the end of every shift. Imagine relocating a 54'x180' barge that was loaded with a

crane and material. There are not too many places along the Intracoastal Waterway in Palm Beach County where a barge of this size can be parked. The few places where it can actually fit, is undesirable for the residents. The project team had a challenging task at the start of the project of finding a location for the barge to park during no work hours. Each time we found a location, local residents voiced there displeasure with the choice. A decision was finally made where to place the barge and the FDOT public relations office had to attend several meetings with us to persuade the local residents to not fight the decision. This challenging situation persisted throughout the project while the barge was on site. It was a celebrated day when we were able to demobilize the crane and barge from the site.

Rehabilitation

The rehabilitation process in this project will consist of the westbound bridge and will focus primarily on the bascule span. There will be new bicycle railings installed on the approach spans and roadway joints will be repaired. Many of the rehabilitation activities for the bascule span will overlap and occur simultaneously. Some of the activities have already been started in the effort to minimize the length of the rehabilitation phase of construction, which is scheduled for eight weeks. The activities will involve structural steel, concrete, mechanical and electrical repairs. The major structural steel repairs involve the removal and installation of new lateral bracing in the bascule leaves, sidewalk brackets, roadway and sidewalk grating, installation of new light poles and traffic gate relocation. The counterweight pits will also be cleaned of any debris and existing concrete blocks. New cast iron blocks will be placed into the pits to rebalance the leaf once all major rehabilitation has occurred. The major concrete repairs include new pilasters for roadway lights, new foundations for relocated traffic gates and the pouring of concrete wheel paths within the newly installed roadway grating. Mechanical and electrical repairs will include the installation of new limit switches, brakes, motors, lockbars and the replacement of the spans centering guide.

Safety

The most important aspect of all the construction activities on this project and all of PCL projects is safety. The project team strives to create a safety culture that encourages our workers to work safely and with zero incidents. We strive for continuous improvements to achieve and maintain our goal of zero incidents. Before each shift and prior to any major change of work activity, we perform pre-job safety instructions that identify safety concerns of potential dangers. We also complete job hazard analysis prior to any major work item, such as structural steel or concrete demolition. This analysis provides a detailed look at the work ahead and outlines safety hazards as well as proper measures that will be taken to avoid an incident. Safety inspections are completed weekly, at a minimum. Quarterly safety meetings are held with senior management to ensure that all projects are maintaining the safety goals.

We actively enforce our safety culture to all of our workers and subcontractors. If someone is not 100% dedicated to our safety policies, no matter how important they are to the projects success, they will be removed from the project. Our safety goals are a team effort. No work is so important, that it cannot be done safely.

Summary

The PGA Blvd Bascule Bridge project has provided many challenges as we progress through the different construction phases. We are currently on schedule to be completed with the project by early March 2007, several months ahead of schedule. The reconstruction of the eastbound bridge is scheduled to be completed by the end of November 2006.

The demolition of the eastbound bridge required a great deal of planning and coordination within the project team. The plans were made months prior to the work being performed. Once the demolition is underway, the planning and coordination begins for the reconstruction phase of the project. The planning throughout the project was completed ahead of all the construction activities to maintain proper productivity. The challenges that were faced throughout the project were collectively resolved with the coordinated help of the construction team, the designer, and the owner. The positive relationship that has been created as a result of the project will carry on for years to come.

ATTACHMENT 2