CONWAY BYPASS PROJECT



Quarterly Project Update

September 1 - November 30, 1999



Hurricane Floyd and the rising waters impact bridge construction over the Waccamaw River.



Hurricane Floyd passed up the South Carolina coast on September 16th producing high winds and near record levels of rainfall. Hurricane Irene followed in October.

Although the rain that fell in the Myrtle Beach area caused significant damage, the amount of rain that fell in and around the Wilmington, N.C. area resulted in near record flooding along the Waccamaw River and through the town of Conway. The Waccamaw crested at just over thirteen feet, which was five feet above flood stage. Many area roads were closed due to the flooding, alternate routes were established, and much effort was directed toward protecting the remaining open roads.

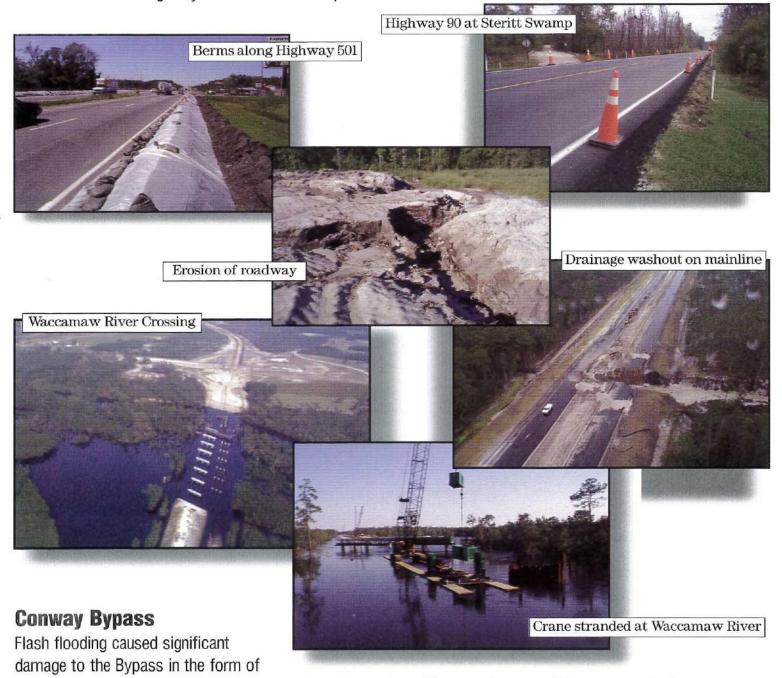
The Conway Bypass suffered many washouts along the mainline. Bridge construction in Segment II was halted until the waters receded.



Spotlight for the Quarter Hurricane Floyd

Horry County Roads

Hurricane Floyd brushed the South Carolina coastline on September 16th with over sixteen inches of rain in the Myrtle Beach area and over twenty inches of rain in coastal North Carolina. As the rainfall made its way into the rivers and flood plains, Horry County braced for record flooding. SCDOT and Area Emergency Management Personnel took decisive actions to mitigate the hazards associated with the flooding. Fluor Daniel assisted the SCDOT with personnel and equipment to construct temporary berms along Highway 501 and to raise the road elevation one foot on Highway 90 at Steritt Swamp.



drainage washouts and erosion adjacent to the new roadway. The actual extent of damages to the bypass will not be available until floodwaters recede to normal levels and final inspections are completed.

Construction Progress

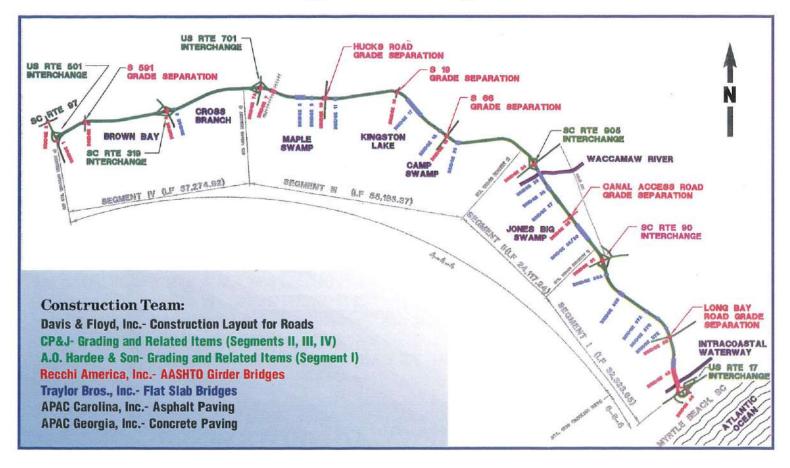
As the tourist season ended, work at the Highway 17 Interchange intensified. Steel girders for the spans crossing the highway were delivered and set into place. In order to place the girders with minimum disruption to the public, Highway 17 was closed and traffic was rerouted during the late night and early morning hours. Recchi America continued forming and pouring bridge decks and caps on the interchange ramps and the approaches to the bridge over the Intracoastal Waterway. Paving operations continued with the opening of the new Kings Road onto Highway 17 and surfacing for the Briarcliffe Mall access road. Storm drainage and utility work continued.

Fine grading, installation of stone base, and asphalt paving continued in Segment I. Work continued on all bridges in Segments I and II except for the bridges near the Waccamaw River. Road widening and resurfacing continued at the Highway 90 Interchange.

Final clearing, grading, and embankment fill continued in Segments II, III, and IV. Test piles were driven and load tests performed at Highway 501 in preparation for bridges at the interchange. Coordination of utility relocations around the Highway 501 Interchange continued.

The Conway Bypass Project contractors are approaching 1.5 safe million hours worked and are proud of the project safety record to date. Our recordable accident rate for the year ending October 30, 1999 was 1.5 compared to the national average of 9.5.

Project Layout



Community Activities

Traffic Detours

Shown below, Jim Wiley, Ray Pendleton and Herb Hannon, explain the details of the diversion of traffic from Highway 17 to Hilton Road and Kings Road. Representatives from local news, radio, and television media were present for this advanced briefing.



The work was performed at night and the Horry County Police Department assisted with traffic control.

Better Business Bureau

Fluor Daniel has recently received membership in the local Better Business Bureau of Coastal Carolina, Inc. Their mission is to promote and foster the highest ethical relationship between businesses and the public through voluntary self-regulation, consumer and business education, and service excellence.

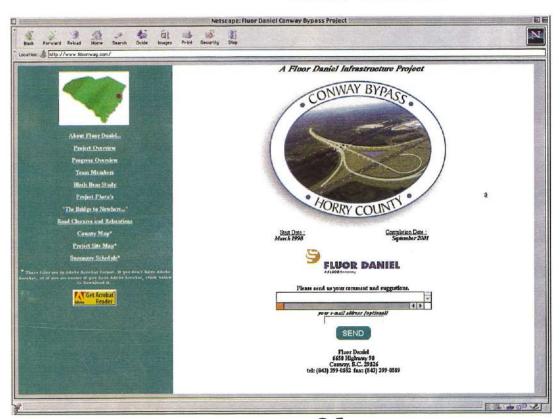
Black Bear Study

Clemson University has concluded their 1999 season for trapping, tagging and monitoring of black bears in this area. A total of 22 bears were captured during the season. Eighteen were equipped with radio-transmitters for ongoing monitoring.



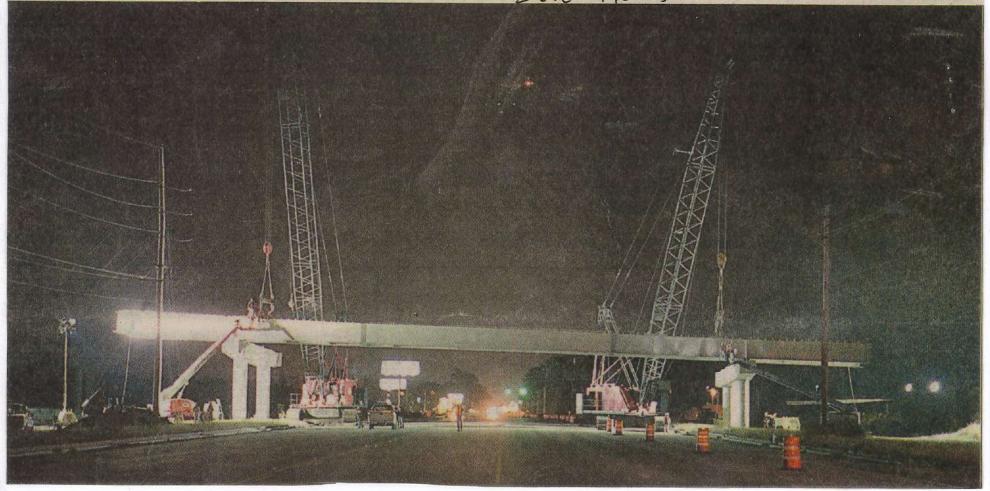
Bypass Updates Presented to:

- American Society of Civil Engineers- Columbia Chapter- September 9th
- South Carolina Society of Professional Engineers-Greenville-Piedmont Chapter- October 9th
- American Society of Civil Engineers Conference and Exposition- Charlotte- October 19th
- South Carolina Transportation Infrastructure Bank-Columbia- October 29th.



Visit our website at www.fdconway.com

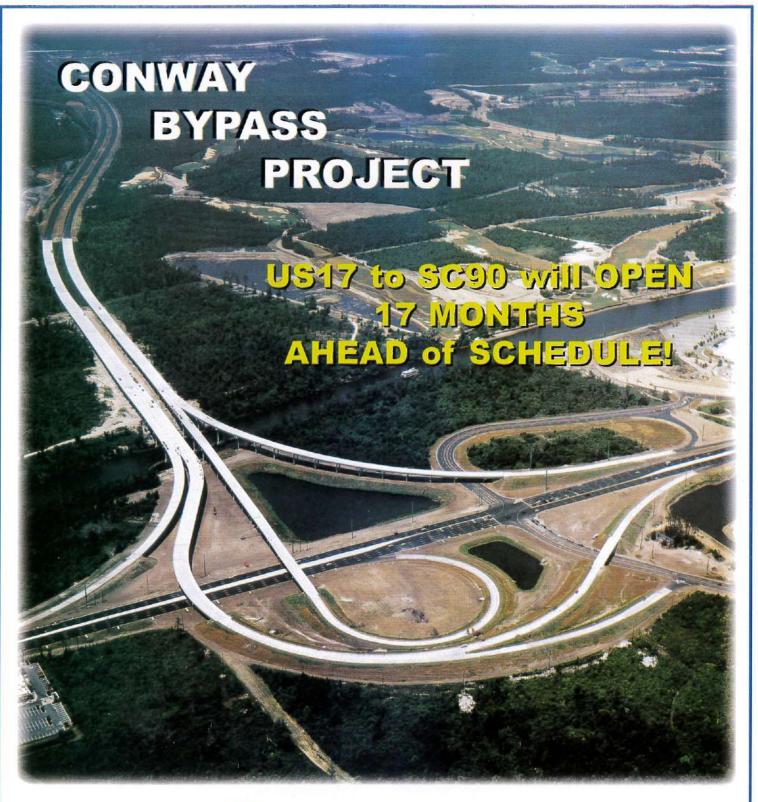
Progress by night: Bypass construction moves along 10/15/99



Above: Workers check the placement of two connected steel beams, each 220 feet long, weighing a total of 145,000 pounds, onto the concrete pilings that form the base of the overpass at the Conway Bypass-U.S. 17 Interchange at 2 a.m. Wednesday. Traffic on U.S. 17 is being diverted from 10 p.m. to 6:30 a.m., and on Wednesday two drivers ran the barricades and were ticketed by police. Running a barricade is a four-point violation.

Below: Two 150-ton cranes start to lift the two connected steel beams onto the pilings that form the base of the overpass early Wednesday morning.









FLUOR DANIEL

A FLUOR Compan

Quarterly Project Update - Issue 6 March 1 - May 31, 2000





First Segment Opens!

Ron Oakley, President of Fluor Daniel Infrastructure Business Unit, announced in the April 17th Myrtle Beach COMBO meeting that Segment 1, from Highway 90 to Highway 17 in North Myrtle Beach, will be opened to the public by July 4, 2000. The opening date is **seventeen months** earlier than the contractual requirement. The new segment represents almost one-third of this project's total 28 mile route.



The 'Bridge to Nowhere', May1998.



Going somewhere, October 1999.



The 'Billy Alford' Bridge, May 2000

Largest Design-Build Project in South Carolina

The Conway Bypass Project is the first and largest design-build project of South Carolina's Partners in Progress Program that was designed to accelerate the completion of five significant projects within the state. The design-build concept has allowed Fluor Daniel to begin building the road in some areas while design is still proceeding in others. Had the project followed traditional project delivery procedures, contruction of the Bypass could have taken 25 years to complete.



"This project has been an outstanding example of how the public-private partnership process can benefit the citizens of South Carolina," said Ron Oakley, President of Fluor Daniel's Infrastructure Unit. "Had we not had the visionary leadership in the governors' offices, state's general assembly, SCDOT and the RIDE group, as well as other Horry County

leadership, this project might still be referred to as the 'Bridge to Nowhere,'" he added.

Weathering the storms

Despite facing three major hurricanes during the project, the team implemented a recovery schedule that allowed for the early completion of this first and vital link, which will allow an additional means of evacuation from the Grand Strand in the event of any future hurricanes. New evacuation signs have already been ordered and the route will be implemented before the upcoming hurricane season.

PROJECT HISTORY

Project Conceived 1984
Billy Alford Bridge 1994

Design-Build Contractor Selected January 1995

Referendum Failed April 1996

Infrastructure Bank Established Summer 1997

Revised Ride Plan Approved December 1997

Notice To Proceed March 1998 Phase II Approved March 1999

Final Completion Prior to December 2001

A New Name

With the opening of Segment I also comes a new name for the Conway Bypass. The Senate has approved a plan to rename the highway in honor of veterans. The bypass will be called **Veterans Highway**, and separate interchanges will honor state recipients of the Medal of Honor in each branch of the armed forces.

Opening Ceremonies

Opening ceremonies and ribbon cutting for the first segment of the Conway Bypass will be held on June 29, 2000 at 10:00 am at the US17 interchange. State and local representatives are expected to join in the celebration of this landmark event.

BYPASS FACT: BRIDGES = 8.5 miles with 63 miles of piles and 188,000 cy of concrete
Did you know that ... if all concrete trucks used on the Conway Bypass Project were lined up, bumper to bumper, they would span 125 miles? That's approximately the distance between Myrtle Beach and Columbia, SC!







BYPASS FACT: ASPHALT = 618,000 tons

Did you know that . . . if all asphalt dump trucks used on the Conway Bypass Project were lined up, bumper to bumper, they would span 150 miles? That's approximately the distance between Myrtle Beach and Charlotte, NC!



Thermal plastic striping with reflective glass beads.



Jack and boring for a drainage line at the Highway 17 interchange.

Final Preparations

With most of the heavy construction in Segment 1 complete, many of the final details can now be implemented. This last stage in the construction process includes the addition of guardrails and the relocation of many utilities; new road signs are ordered and some are erected; thermal plastic striping with reflective glass beads is being applied, but only after the asphalt has cured for at least 20 days.

Guardrails are installed along Segment 1.



Relocation of utility poles by Santee Cooper at the Highway 17 interchange.



Highway 17 Interchange

The key to opening the first segment of the project was the completion of the interchange at Highway 17. This included a combination of 7 bridges and 6 ramps connecting the existing bridges over the Intracoastal Waterway with the new highway.

There was a considerable amount of coordination between constructors and the adjacent businesses and tourists in order to complete the work with minimal disruptions. The steel girders that span Highway 17 were lifted at night while traffic was routed around the construction. Another construction method used to ease the process was to jack-bore drain lines under Highway 17 so that traffic could continue to flow.

Steel girders being lifted at night over Highway 17.



Final preparations for the opening of Segment 1 include the installation of road signs.

"Teamwork is the key to an effort like this. Every contractor on the project has cooperated and pulled together to complete this segment of the road early," said Ray Pendleton, Construction Manager of the Conway Bypass Project.

BYPASS FACT: EARTHWORK = 9,000,000 cubic yards

Did you know that . . . if all dump trucks used on the Conway Bypass Project were lined up, bumper to bumper, they would span 2,650 miles? That's approximately the distance between Myrtle beach and San Francisco, CA!

Or that . . . the 9,000,000 cy of earthwork moved could fill the Empire State Building 2.2 times or a baseball stadium over 20 times?





Community Events

NORTH MYRTLE BEACH RESCUE SQUAD

On Friday, April 7th, Jim Wiley, Project Manager presented a donation in the amount of \$3,000 to the North Myrtle Beach Rescue Squad. Their Rescue Squad has been voted #1 in South Carolina by all the ER Physicians throughout the State, and they were recently voted #1 Rescue Squad in the Nation by EMS Magazine. This donation will help to purchase four automatic external defibrillators and will help maintain their current level of excellence.



Project manager Jim Wiley accepts plaque from Ed Vaitis, Public Information Officer

AYNOR CUB SCOUTS

One of the requirements for the Aynor Cub Scouts to earn an Engineer Activity Badge was to speak with a Civil Engineer. Brian Tolbert attended a den meeting recently during which he explained how engineers use computers and drawings at a construction site. Using Fluor Daniel's miniature model, he showed them the types of bridges being used on the Bypass and explained the differences.



Area Manager Brian Tolbert explains construction techniques to the Aynor Cub Scouts.

DAISY ELEMENTARY SCHOOL



Students from the Daisy Elementary School in Loris paid their third visit to the jobsite on April 14th. Shown above Bill Sult describes the construction of a girder type bridge.

SAFETY AWARDS

Fluor Daniel received the South Carolina Occupational Safety Council's Safety Performance Certificate at the 63rd Annual Conference held at Kingston Plantation in Myrtle Beach on April 28th. The Conway Bypass project also received the South Carolina's Chamber of Commerce Commendation of Excellence. In addition, the project earned Fluor Daniel's Safety Excellence Award for 2,000,000 safe work hours.

FLUOR DANIEL WEBSITE

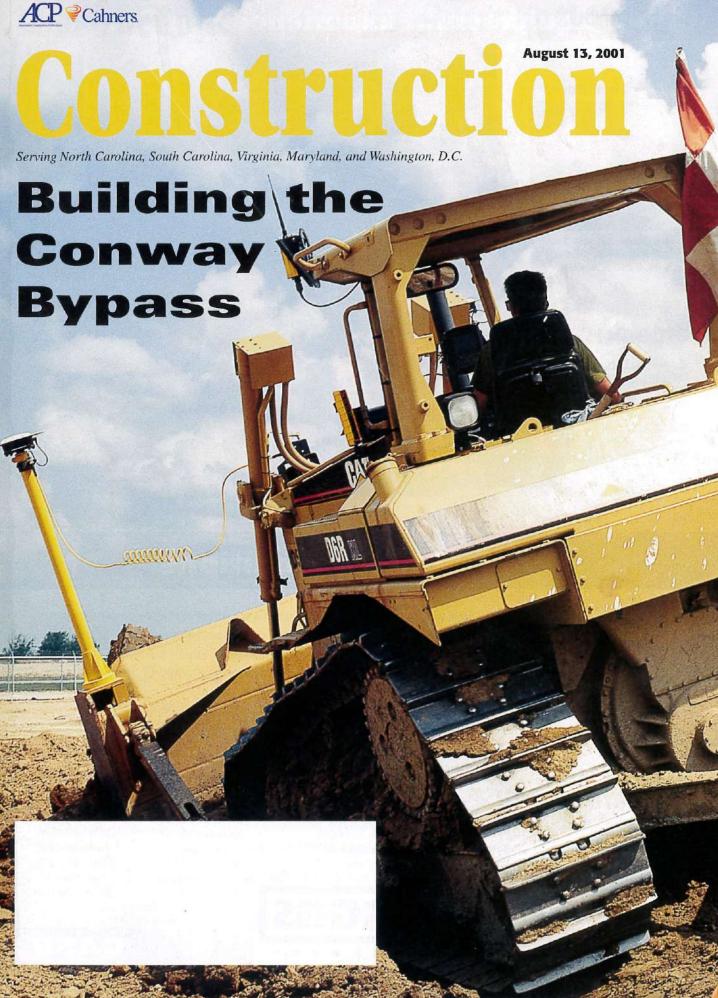
Please remember to visit our website. Your comments are always welcome and will be responded to appropriately.



www.fdconway.com







The Success

of the Conway Bypass

Innovative techniques, new technology and cooperation all contributed to the successful debut of the Conway Bypass, which opened seven months ahead of schedule.

By Christina Fisher

here is always planning involved when building any project. Years of study, detailed reports and careful consideration of all parties involved with a project must take place before the first piece of equipment arrives on the site. But when this process is done thoroughly and well, great things can happen – like completing a project months ahead of schedule and over \$300,000 under budget.

Such was the case with the Conway Bypass project, which runs from US 501 in Conway, South Carolina, to Highway 17 in North Myrtle Beach. According to Jim Wiley, the project manager with Fluor Daniel, the setup was the key to the success of the project, in addition to the South Carolina Department of Transportation's (SCDOT) willingness to approach the project differently and employ innovative techniques.

The Conway Bypass was the first design-build highway construction project to be built under the Horry County RIDE program and the South Carolina Partners in Progress Program, which was designed to accelerate the completion of five significant projects within the state. By employing the design-build concept, the total responsibility for the project was turned over to the team headed by Fluor Daniel and allowed them to combine their extensive resources and expertise to move the project along quickly.

Employing the design-build philosophy also allowed the team to do things in terms of what would be best for the project. In addition, Fluor Daniel put a sole-source project manager on the job and allowed the office to work independently. As Jim said, "We put the

people in the field and give them the authority to make the decisions at the site. We don't have to go through the home office for the day-to-day decisions, just the major ones." Questions were answered quickly, saving valuable time.

In addition to the unique design-build structure of the project, several innovative techniques were employed and new technology was used, some of it for the first time in South Carolina. "Computerizing" the grading process, using geotextile material and erecting flat slab bridges were just three ways in which the team reduced costs, limited the impact on the environment, and saved time.

Spectra Precision, a Trimble Company, installed five 3-D machine control systems that used Global Positioning Systems (GPS) or Robotic Total Station controls during the grading and earthmoving portions of the project. As Joe McNamara, regional manager and machine control specialist for Spectra Integrated Systems, Inc. in Charlotte, N.C., explained, a 3-D model of the blueprints was loaded into an onboard computer that sat in front of the operator on the motorgrader. Using GPS or a robotic total station, the position of the motorgrader could be determined and

compared to the design on the blueprints. The operator would then see his dozer or motorgrader moving across the blueprints in real time. The system also guided the blade automatically, feeding information to the hydraulics several times a second and directing the position of the blade. These systems eliminate the surveying and staking that is usually required on highway projects, saving thousands of dollars and hundreds of additional work hours.

Although training on the high-tech systems was provided, Ron Ciccarone, Spectra Precision's vice president of client services at the time of the project, explained that there were a couple of issues on the bypass site. Most of the United States uses the U.S. survey foot, but South Carolina uses the international foot, which is slightly different in length. All of the measurements on the blueprints, which had been drawn years before construction began on the site, had to be converted. The engineer would

The on-board computer displays plan view, cross-section and coordinate information, eliminating the need for stakes.

The on-board computer displays plan view, cross-section and coordinate information, eliminating the need for stakes.

Send the coordinates from the job to Ron Ciccarone's group in Atlanta, who

Ron Ciccarone's group in Atlanta, who would then apply the correction and build a computer model of the road. This information was then loaded into the onboard computer that sat in front of the operator at the bypass.

Jimmy Bell, project manager and vice president at A.O. Hardee and Son, who performed the grading on Segment 1 of the project, employed two motorgrader systems. He said the systems helped save time, money, materials, and wear and tear on the equipment, as well as allowed the first segment of the project to open 17 months ahead of schedule.

The contract did not require any early turnover, Jim Wiley said, but when the team arrived they saw that Horry County needed Segments 1 and 2 as another means of hurricane evacuation, so they

Positioning information is recieved by the onboard computer via a radio link from the robotic total station.

decided to concentrate on these two segments first. Although the team faced three major hurricanes during construction, these two segments will provide a vital route to safety in the event of any future severe weather.

Despite the hurricanes and the associated floods which shut down operations for three months, Segment 2 of the Conway Bypass opened 13 months

ahead of schedule. Again, the GPS technology and its associated systems saved valuable time on the grading portion of the work. Crawford Moore, a project manager with Cherokee, Phillips and Jordan (CPJ), who performed the grading on Segments 2 through 4 of the project, used three Global Positioning Systems (two dozers and one scraper) and two robotic total stations (both controlling motorgraders) throughout the project. Crawford pointed out that in August of 2000, CPJ fine graded the sub-grade on five miles of four-lane highway, placing 79,000 tons of base stone - in one month. This was the most his company had ever done in that amount of time.

Segment 2 also employed the use of a geotextile fabric in order to help preserve the fragile wetlands in the area. As Jim Wiley explained, the coastal area of South Carolina has what are called Carolina Bays, which were probably the result of meteorites that hit the East

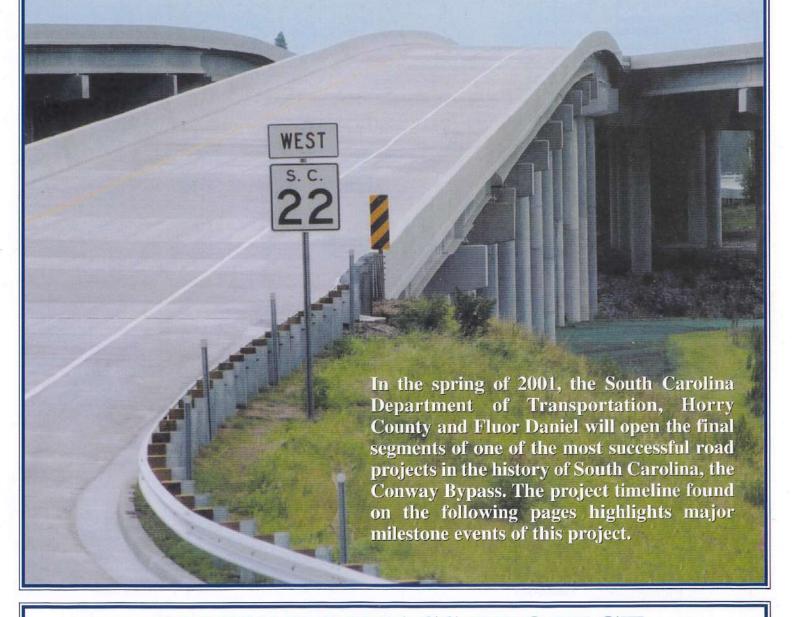
Coast and formed depressions. Swamps and the associated plant life formed in these depressions. "When we came along and tried to build on top of it, there was all of this organic matter 20 to 30 feet down. If we tried to dig it out, we encountered all kinds of problems. So, we used the geotextile material over top of it, and we didn't have to do any excavation at all."

The 9 million cubic yards of earthwork used on the

project came from borrow pits. Because the coastal area is so flat, there was no cut and fill. Therefore, the team dug about 45 borrow pits all along the project, which became farm ponds or scenic ponds for subdivisions.

The use of flat slab bridges also offered many benefits. There are a total of 17 flat slab bridges on the bypass that range from 120 feet to 3,980 feet. This type of bridge design can be constructed rapidly, economically, and from the top down, which minimizes impact to the wetlands. Although SCDOT had used

THE HISTORY OF A SUCCESSFUL PROJECT



CONWAY BYPASS PROJECT



QUARTERLY PROJECT UPDATE December 1, 2000 – February 28, 2001 Issue 9



FLUOR DANIEL



1997

SIB Used First on Bypass Landmark Project Runs Smoothly

By Barbie Perkins-Cooper

Construction on the Conway Bypass in North Myrtle Beach, South Carolins is off to an incredible start Funded by the State Infrastructure Bank (SIB), construction on the 28-milelong expressway began in January 1998 at an estimated cost of approximately \$291 million. The bypass is the

June 1997

South Carolina established the State Infrastructure Bank in June of 1997 to provide financial assistance and loans to the SCDOT to improve highways and economic development in S.C. Under the recommendation of Horry County's RIDE committee, the Conway Bypass Project was the first undertaking of the State Infrastructure Bank.



March 1999

Fluor Daniel sponsored a 'safety slogan' contest for students from the North Myrtle Beach Elementary School. Project staff visited the school to teach the students about construction safety. Each student then created a safety slogan poster. The posters were displayed in the main project office. Winners received a pizza party and a tour of the project. Over 17 schools have visited the site since the beginning of the project.



March 2000

The North Carolina Department of Transportation visited the Conway Bypass Project in March of 2000. The department wanted to learn more about the project's accomplishments and how the design/build process could be successfully utilized and implemented in North Carolina. Many divisions of the South Carolina Department of Transportation have also toured the site.



March 1998

Key project leaders, the SCDOT and state environmental officials met and walked the length of the project to evaluate wetlands. Their efforts enabled 4 miles of unnecessary bridges to be eliminated from the project design. The funding saved through this unique endeavor was instrumental to the state's purchase and protection of Sandy Island.



May 1999

Fluor Daniel, the SCDOT and Clemson University teamed up to provide research on the coastal black bear population. Research was progressing when a car hit a local black bear in May of 1999. Clemson researchers aided in capturing the injured bear, transporting it to the Columbia Zoo for rehabilitation and later returning it back to its original habitat here in Conway.

Senate OKs name for Conway Bypass

COLUMBIA — The Senate has approved a plan to name the Conway Bypass in honor of veterans.

The bypass would be called Veterans Highway, and separate interchanges would honor state recipients of the medal of honor in each branch of the armed forces.

The House already has approved the plan.

April 2000

The Conway Bypass was officially named 'Veterans Highway' in April of 2000. Each interchange of the bypass is to be named after state recipients of the Medal of Honor in each branch of the armed forces. The bridges at the interchange of Veterans Highway and U.S. 17 were officially named after former Highway Commisioner Billy Alford, who was instrumental in their construction.



March 1998

Notice to Proceed on the Conway Bypass Project was given in March of 1998. Partnering sessions between the SCDOT, Horry County and the project team were held to promote team building. Several weeks later the construction team met in the field for their first day of work.



September 1999

Hurricanes Irene & Floyd hit Conway in September and dumped record levels of rain on the area. The resulting floodwater rose to an astonishing 18 feet, a 500-year flood. Work was halted in the Waccamaw River basin area of Segment 2 for several months until the floodwaters receded. Recovery plans included supplying additional equipment and increasing workhours.



June 2000

Segment 1 of the Conway Bypass Project opened on June 29, 2000, which was 17 months ahead of schedule. Dedication ceremonies were held atop the U.S. 17 Interchange Bridge. State and local dignitaries and officials attended the landmark event. Segment 1 connects U.S. 17 with S.C. 90 and provides an emergency evacuation corridor in the event of hurricanes.



2000



June 1998



July 1998



October 1998

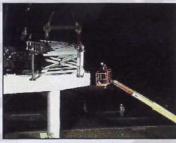
Pile driving testing operations began in June of 1998. Results from static load tests and Pile Driving Analysis (PDA) provided designers with information needed to determine pile lengths. Over 63 miles of pre-cast concrete piles were eventually driven on the project.

Traylor Brothers completed the construction of a concrete casting yard and began operations in July of 1998. The casting yard would eventually have a peak work force of approximately 150 people. All components of the flat slab bridges were cast here, providing a more cost effective and timely delivery.

On October 14, 1998, leaders of the SCDOT and Federal Highway Administration (FHWA) met in Myrtle Beach for a public information forum to dicuss area road projects. The following day they toured the Conway Bypass to view construction progress.



September 1999



October 1999



December 1999

Hurricane floodwaters threatened to spill over Highway 501, one of Myrtle Beach's main access routes. Fluor Daniel was called in by the SCDOT to help provide emergency services. Construction crews worked throughout the night to build temporary berms alongside the highway. The berms protected the highway from the rising floodwaters, which allowed traffic to continue into Myrtle Beach.

Extensive planning was required in order to minimize the impact of bridge construction over U.S. 17, one of the most congested highways in Myrtle Beach. Steel girders were lifted over the highway at night in an effort to minimize disruption to traffic flow and lessen the effect on area businesses. Two 150-ton cranes were required to lift 220-foot long girders. The girders weighed a total of 145,000 pounds.

During the flooding from the September hurricanes, approximately 2028 dwellings suffered damage. In an effort to help the local community, Fluor Daniel donated money to the American Red Cross Hurricane Disaster Relief fund. Fluor Daniel also gave jackets and clothing to the Salvation Army's Emergency and Disaster Services for hurricane and flood victims in North and South Carolina.



July 2000



November 2000



November 2000

The Fluor Daniel Conway Bypass Project celebrated its achievement of 2.25 MILLION SAFE WORK HOURS without a lost time accident with a barbecue cookout. A prize drawing was held as a reward and 37 people received prizes. The ultimate prize drawing was for a 2000 Chevy GMC truck. Kirk Moore was the lucky winner.

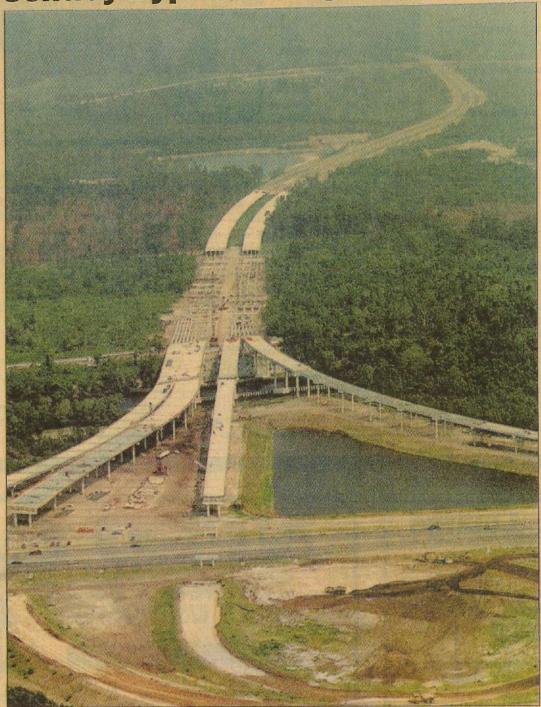
Segment 2 of the Conway Bypass Project opened on November 6, 2000. The opening took place 13 months ahead of the contractual due date. Segment 2 extends from S.C. 90 to S.C. 905. It is perhaps the most scenic segment of the project because it spans the Waccamaw River Basin.

LPA Group, Inc. won the Engineering Excellence Award in the Structural Systems Catergory from the CESC (Consulting Engineers of South Carolina) on November 9, 2000 for their work with Flat Slab Bridges on the Conway Bypass. LPA also won the Best of Show award over all of the categories submitted.





Conway Bypass taking shape



Crews continue to work on the Conway Bypass. When steel beams arrive, builders will reroute traffic on U.S. 17 to install ramps to the bypass.

Work continues on road

Builders prepare to install ramps over U.S. 17

By Zane Wilson THE SUN NEWS

Clearing and earth-moving on the Conway Bypass is under way mostly out of sight west of the Waccamaw River, but soon builders will take on a highly visible task.

Contractor Fluor Daniel is awaiting delivery of the steel girders to build the rampways over U.S. 17 at the terminus of the road near Briarcliffe Acres.

"That's kind of a milestone, to get that done," said Jim Wiley, project manager for the

When the steel arrives for the U.S. 17 ramps, "we will be closing Highway 17 and doing some detours in the off-hours, Wiley said.

Most of the work will be done at night, and the rerouting won't last long because it will be only

to set the large pilings that the ramps will rest on, he said.

The rest of the work can be done without interfering with traffic.

Work on the 28-mile eastwest bypass began in April 1998. It runs between the intersection near Briarcliffe Acres and a point on U.S. 501 between Conway and Aynor.

The highway will be four lanes between U.S. 501 and the north-south Carolina Bays Parkway, which will run west of the Intracoastal Waterway. From the parkway to U.S. 17, the road will have six lanes.

More details on the closings will be announced later, Wiley

West of the Waccamaw, crews are going full-steam to finish the clearing and grading for the road.

Six million cubic yards of

dirt, three-fourths of the expected 8 million total for the project, have so far been moved.

"We're about flat-out as far as manpower," with 570 people working on the road, Wiley said.

Meanwhile, work is also moving rapidly on the bypass bridge over the Waccamaw River, another major element of the project. Crews are working six days a week on the bridge.

At the same time, work is under way on the overpass for S.C. 90. Workers are paving the slopes that will be underneath the structure.

In about a year, motorists could be riding on the segment between U.S. 17 and S.C. 90.

Zane Wilson covers state government. She can be reached at the South Bureau, 520-0397, or at zwilson@thesunnews.com