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### **Asphalt Solution On Fragile Florida Islands**

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When Lee County, Florida, road engineers had to find a structural and environmental solution to raise the Sanibel-Captiva Islands Road by two feet with minimum environmental, residential and tourist disruption, they chose a 24-inch thick hot-mix asphalt overlay.

The road had to be raised to serve as an acceptable storm evacuation route. The difficulty: accomplish this and satisfy each private group and public agency concerned with the project.

Both Sanibel and Captiva Islands are environmentally fragile. Not only do sea and bird life abound, but the mangrove trees in the wetlands next to the road are critical to the islands' marine life. Calling Captiva and Sanibel home are a wide variety of fish and fowl and loggerhead sea turtles.

The loggerheads were a special consideration in this interaction between man and nature. Toward the end of the summer these huge sea turtles begin nesting along the beach at Sanibel and Captiva. "We knew we couldn't work while they were nesting so we watched for turtle tracks every day during the project," says Joel Chambers, Project Supervisor for APAC Florida Inc., the general contractor. "We finished the project about mid-July, just ahead of the nesting season."

The mangrove trees were another special consideration, says Mitch Momtaz, Lee County, Florida, Transportation Engineer. "The water management permit to provide proper drainage would have allowed us to cut a lot of the mangrove trees, but the residents of Sanibel and Captiva Islands asked us to do everything we could do to save the trees." Instead of cutting them, APAC modified the configuration of the roadside drainage ditches for intermittent open drainage rather than a continuous ditch. APAC also brought in a tree trimming crew and pruned the mangroves vertically along the right of way. Keeping them pruned will require periodic maintenance, but no trees were cut down. APAC installed drains under the road and under the raised private driveways to equalize the flow of water between San Carlos Bay and the Gulf of Mexico.

Construction began in August 1992 and was suspended in mid-November 1992 to accommodate the busy winter and spring tourist season on Sanibel and Captiva. APAC resumed construction in late May 1993, after the tourist season, and completed the project in July 1993, ahead of schedule and under cost.

Proper elevation along the entire 2.3-mile, two-lane road was achieved by placing layers of hot-mix asphalt base course 1.5 to 3 inches thick on the existing asphalt road. The approximately 2-foot thick asphalt build-up was then topped with a 1.5-inch Florida DOT surface course.

The agencies involved in this environmentally sensitive project-the Lee County Department of Environmental Protection, the South Florida Water Management Agency and the Lee County Department of Transportation-agree that quality construction was accomplished with a minimum or no environmental disruption. The people of Sanibel and Captiva are happy because they have a safe evacuation route and the same number of mangrove trees as when the project began.

The loggerhead turtle, named for its large head, is the most common sea turtle in Florida. Its powerful jaws crush mollusks, crabs and sea life attached to reefs and rocks. An adult turtle weighs between 200 and 350 pounds and measures about 3 feet in length. The hatchlings are 2 inches long. The loggerheads nest on Sanibel and Captiva from late April until September. When nesting, the female digs a nest cavity in the sand with her rear flippers and deposits about 100 eggs. The eggs incubate in the warm sand for two months before hatching. Since the contractor agreed not to work during nesting, APAC supervisors watched daily for turtle tracks. The project was completed a few days before the turtles began nesting.

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