US 98 (SR 533) Dade City Bypass
WPI Segment No. 256423 1
FAP No. 3112 017 P

LOCATION HYDRAULIC REPORT

Technical Memorandum
September 18, 2001

Introduction

Protection of floodplains and floodways is required by Executive Order 11988, "Floodplain Management", USDOT Order 5650.2, "Floodplain Management and Protection", and Federal-Aid Policy Guide 23 CFR 650A, Subchapter G, Part 650, Subpart A, Section 650.111, December 9, 1991. This Location Hydraulic Report memorandum is prepared in accordance with the requirements set forth in the Florida Department of Transportation (FDOT) PD&E Manual, Part 2, Chapter 24, revised April 22, 1998. This document supports the US 98 Dade City Bypass PD&E Study. It is intended to determine the effects of the encroachment within the 100-year base floodplain of the recommended alternative and, where practicable, avoid supporting land use development that is incompatible with floodplain values as the result of the proposed improvements.

Proposed Improvements

The FDOT is proposing improvements to the US 98 Dade City Bypass from the vicinity of the US 301 South intersection to the vicinity of the US 301 North intersection, in Dade City, Pasco County, a distance of about 1.6 miles. The proposed improvements consist of widening the existing two-lane rural roadway to a four lane divided highway to accommodate present and future traffic demand.

The proposed typical section would contain a 22-foot wide raised median, four 12-foot lanes (two in each direction), 4-foot bike lanes in each direction, and 12-foot borders (containing a 2-foot curb and gutter, a 3-foot utility strip, a 5-foot sidewalk, and a 2-foot back-of-sidewalk buffer) in both directions. This would require a minimum typical section width of 102 feet.

Project Description

The US 98 Dade City Bypass is located within the Duck Lake sub-basin of the Withlacoochee River drainage basin. The proposed improvements encroach into the 100-year base floodplain of the Withlacoochee River.

Flooding History

The Duck Lake Stormwater Management Master Plan (Duck Lake Study), December 1987, FDOT drainage maps, United States Geological Survey (USGS) Quadrangle maps, Southwest Florida Water Management District (SWFWMD) topographic maps, and Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) were used to identify flood-prone areas within the US 98 Dade City Bypass corridor. Field inspections were conducted to identify obvious drainage problems. Additionally, people knowledgeable about local drainage conditions (residents, FDOT

maintenance personnel, and Pasco County and Dade City operations personnel) were interviewed.

Typically, the US 98 Dade City Bypass roadway is perched above the floodplain. However, an area from the intersection with Pasco Avenue to south of Martin Luther King Boulevard is below the 100-year base flood elevation. The lowest point of the US 98 Dade City Bypass is at elevation 76.6 feet. Storm sewers and curb and gutter have been installed in this area to alleviate the potential for roadway flooding.

Dade City has very few storm sewer systems and as a result, most stormwater runoff flows in the street gutters or overland sheet flow towards the US 98 Dade City Bypass. Heavy rainfall causes ponding to occur in low areas and roadside ditches along the west right-of-way of the US 98 Dade City Bypass. However, according to the Dade City Public Works Department, the roadway has not been overtopped in recent memory. No other flooding problems associated with FDOT drainage structures have been identified for the length of this project.

FEMA FIRMs

FEMA has prepared a Flood Insurance Study for Dade City, February 17, 1981. The accompanying FIRMs are dated August 17, 1981. Coordination with local FEMA representatives for Dade City and Pasco County, made in July 1999, revealed that no revisions have been made to the effective FIRMs within the US 98 Dade City Bypass project limits.

FEMA has designated the 100-year base floodplain in the US 98 Dade City Bypass project corridor as Zone AH (El 78 feet). Zone AH is described as areas of potential 100-year shallow flooding where flood depths are between 1 and 3 feet and base flood elevations are shown.

There are no FEMA regulatory floodways within the US 98 Dade City Bypass project corridor**.**

Duck Lake Stormwater Management Master Plan

The study area includes 40.2 square miles of the Withlacoochee River drainage basin in east-central Pasco County. Dade City lies in the approximate center of the study area. Coordination with SWFWMD indicates that 100-year base flood elevations shown in the Duck Lake Study should be used to estimate floodplain encroachments. The peak water surface elevations were predicted to rise to elevation 78.8 feet within the flood prone areas of the US 98 Dade City Bypass PD&E Study area south of River Road and elevation 78.6 feet north of River Road.

Floodplain Encroachment

The proposed improvements encroach into the floodplain at various locations along the project length. The floodplain storage displacement volume is estimated to be about 16.67 acre-feet.

Risk Assessment

The floodplain involvement has been categorized by level of significance and project activity. The level of significance is determined to be Minimal and the project activity is Category 4. A preliminary hydraulic evaluation was used as a means of selecting the project activity category for each floodplain encroachment location.

Floodplain Evaluation Category 4 - Projects on existing alignment involving replacement of existing drainage structures with no record of drainage problems.

Conclusion

The proposed improvements to the US 98 Dade City Bypass are consistent with the existing watershed and floodplain management programs for Pasco County and Dade City as defined by the Dade City, June 1989, and Pasco County, July 3, 1989, Revised April 5, 1995, Comprehensive Plans.

It has been determined through consultation with local, state, and federal water resource and floodplain management agencies that there is no regulatory floodway involvement on the proposed project. In addition, the project will not support base floodplain development that is incompatible with existing floodplain management programs.

The proposed improvements include adequate drainage design and compensation for loss of floodplain storage. Compensation for loss of floodplain storage will be accomplished in sites adjacent to the stormwater management ponds. The floodplain compensation sites will be designed to provide direct connections to the floodplain at or below the 100-year base flood elevation.

The proposed structures will perform hydraulically in a manner equal to or greater than the existing structures, and backwater surface elevations are not expected to increase. As a result, there will be no adverse impacts on natural and beneficial floodplain values. There will be no significant change in flood risk, and there will not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore it has been determined that this encroachment is not significant.