Bridge Factors Factual Report Attachment 46 – Email from Mr. Tom Andres of FDOT to Mr. Dan Walsh of NTSB dated May 3, 2018

Miami, FL

HWY18MH009

(9 pages)

Dan – see responses to your questions below:

NTSB Question: Please send me an official response on why FDOT reviewed the FIGG design plans with limited involvement in the project.

Answer: The FIU pedestrian bridge project was a local agency project, pursuant to a Local Agency Program Agreement between FIU and the Florida Department of Transportation (the "Department"). In this instance, the Department acted as a pass-through of the federal monies coming in via the TIGER Grant to FIU, with the receipt and disbursement as to these grant funds.

Since the FIU pedestrian bridge goes over a State Road, it would be considered a "Class A" Project per the Local Agency Program Manual, TABLE 1: Project Classifications. Class A Projects utilize Design Criteria set forth in the Plans Preparation Manual. See attached excerpt. Plans Preparation Manual Section 26.3.2 defines Category 2 Bridges. Plans Preparation Manual Section 26.5 (blue box) sets forth the responsibility for reviewing "Category 2" bridges to the State Structures Design Office. See attached PPM excerpt. The review performed on this project by the State Structures Design Office was consistent with reviews performed on all projects; it consisted of a high-level review only. We did not perform calculations or review EOR calculations. This project, like all FDOT projects, require that the Firm performing the design follow a Quality Control/ Quality Assurance Plan. In addition, this project, like all FDOT Design-Build Category 2 Bridge Projects, required an Independent Peer Review of the bridge design which consists of an independent design verification utilizing different computer software than was used for the design.

NTSB Question: Did Louis Berger send a 100% peer review certification letter addressed to the FDOT?

Answer: No, the 100% peer review certification letter dated February 10, 2017 was addressed to Florida International University.

Tom Andres

TABLE 1: Project Classifications

**Full Manual titles and Topic Numbers are identified in the following paragraphs and Chapter 20*

Project Classifications	Design Criteria and Standards*	Specifications*	Materials*
Class A On the State or National Highway Systems	*FDOT Plans Preparation Manual* and *FDOT Design Standards*	FDOT Standard Specifications for Road & Bridge Construction	Samples Testing and Reporting Guide and ***FDOT Materials Manual***
Class B Off the State and National Highway Systems with an estimated construction value of $10 million or greater.	*FDOT Plans Preparation Manual* and *FDOT Design Standards*	FDOT Standard Specifications for Road & Bridge Construction	Samples Testing and Reporting Guide and ***FDOT Materials Manual***
Class C Off the State and National Highway Systems and includes structural components: • a vehicular bridge • pedestrian bridge over a roadway • box culvert meeting the definition of a bridge as stated in 23 CFR 305	1) For structures components, use the *FDOT Plans Preparation Manual* and *FDOT Design Standards* 2) For all other components, use the *Florida Greenbook*	1) For the structures components, FDOT Standard Specifications 2) For all other components, LAP Big 4 or approved Local Agency Specs	1) For structures components, use the Samples Testing and Reporting Guide and ***FDOT Materials Manual*** 2) For all other components, use Local Agency materials testing process
Class D Off the State and National Highway Systems, may include structural components: • pedestrian bridges not over a roadway • bridges on shared use path not over a roadway • box culverts that do not meet the definition of a bridge as stated in 23 CFR 305	*Florida Greenbook* -Or- Approved Minimum Design Standards chosen by local agency which conform to the minimum criteria provided in *Florida Greenbook*	LAP Big 4 or approved Local Agency Specs	Local Agency materials testing process

For **Class A** construction projects, **Class B** construction projects and the structures components in **Class C** projects apply the ***Plans Preparation Manual*** (***Topic No. 625-000-007)*** (commonly referred to as the ***PPM***), ***Design Standards (Topic No. 625-010-003)***, and the ***Utility Accommodation Manual*** ***(Topic No. 710-020-001***) (commonly referred to as the ***UAM***).

26.3 Definitions

All structures are grouped into the following two categories based upon design difficulty, structural complexity, type of construction materials used and history of use in Florida.

26.3.1 Category 1 Structures

The following structure types are classified as Category 1 Structures:

1. Box or three-sided culverts
2. Bridges with simple or continuous span reinforced concrete slab superstructures
3. Bridges with prestressed concrete slab superstructures
4. Bridges with simple span non-posttensioned concrete beam or girder superstructures with cast in place decks
5. Widenings for the structure types listed above
6. Steel truss pedestrian bridges utilizing proprietary designs
7. Retaining walls
8. Roadway signing, signalization and lighting supports
9. Overhead sign structures and toll gantries
10. Noise walls and perimeter walls

26.3.2 Category 2 Structures

All structure types not listed above are classified as Category 2 Structures unless exempted by the SDO. In addition to, or in lieu of, the criteria listed above, a structure is classified as a Category 2 Structure when any of the following are present:

1. Bridge substructures containing post-tensioned components, straddle piers and/or integral caps
2. Bridges designed for vessel collision
3. Bridges with non-redundant foundations
4. Any component designed using Fiber Reinforced Polymer (FRP) composite materials

5. Design concepts, components, details or construction techniques not normally used by Florida DOT including but not limited to:
    a. New bridge types
    b. New materials used to construct bridge components
    c. New bridge construction methods
    d. Non-standard or unusual bridge component-to-component configurations and connection details
    e. Department issued Developmental Design Standards or modified versions of Developmental Design Standards
    f. Items not covered by the Department's Standard Construction Specifications

Modification for Non-Conventional Projects:
Items listed in Numbers 4 and 5 above must be submitted for approval through the Alternative Technical Concept process unless they are specifically addressed in the RFP.

26.4 Abbreviations and Acronyms Used in Structures Design

Terminology used in the area of Structures Design for the Florida Department of Transportation often is written or spoken in the form of abbreviations and/or acronyms. Following is a list of acronyms frequently encountered in this manual and in other references used in structures design and include those commonly used for offices, organizations, materials, systems, features, equipment, conditions, and expertise:

AASHTO	***American Association of State Highway and Transportation Officials***
ACI	***American Concrete Institute***
ACIA	***Assigned Commercial Inspection Agency***
ADA	***Americans with Disabilities Act***
AISC	***American Institute of Steel Construction***
ANSI	***American National Standards Institute***
APL	***Approved Products List***
AREMA	***American Railway Engineering and Maintenance Association***
ASTM	***American Society for Testing and Materials***
AWS	***American Welding Society***
BBS	***Bulletin Board System***
BDR	***Bridge Development Report***
BHR	***Bridge Hydraulics Report***
BHRS	***Bridge Hydraulics Recommendation Sheet***
CADD	***Computer Aided Design and Drafting***
CEI	***Construction Engineering and Inspection***
C.I.P. (C-I-P)	***Cast-in-Place (Concrete)***
CSIP	***Cost Savings Initiative Proposal***
CPAM	***Construction Project Administration Manual***
CVN	***Charpy V-Notch (Impact Testing)***
DSDE	***District Structures Design Engineer***
DSDO	***District Structures Design Office***
DSME	***District Structures Maintenance Engineer***
EMO	***Environmental Management Office***
EOR	***Engineer of Record***
FDOT	***Florida Department of Transportation***
FHWA	***Federal Highway Administration***
LRS	***Low-relaxation Strands***
LRFD	***Load and Resistance Factor Design***
MHW	***Mean High Water***
MSE	***Mechanically Stabilized Earth (Walls)***
MUTCD	***Manual on Uniform Traffic Control Devices***

NBR	***Nominal Bearing Resistance***
NHS	***National Highway System***
NHW	***Normal High Water***
NOAA	***National Oceanic and Atmospheric Administration***
OIS	***Office of Information Systems***
OSHA	***Occupational Safety and Health Administration***
PDA	***Pile Driving Analyzer***
PD&E	***Project Development and Environment***
PPD	***Plans Production Date***
PPM	***Plans Preparation Manual***
RDR	***Required Driving Resistance***
SDO	***Structures Design Office***
SIP (S-I-P)	***Stay-in-Place (Forms)***
SRS	***Stress-relieved Strands***
SSDE	***State Structures Design Engineer***
TAG	***Technical Advisory Group (SDO and DSDEs)***
TFE (PTFE)	***Polytetrafluorethylene (Teflon)***
TRB	***Transportation Research Board***
TTCP	***Temporary Traffic Control Plans***
UBC	***Ultimate Bearing Capacity***
UV	***Ultraviolet***

Modification for Non-Conventional Projects:
Expand ***PPM*** 26.4 with the following abbreviation. ***RFP*** ***Request For Proposal***

26.5 Responsibility

The District Structures Design Office has total project development and review responsibility for projects involving Category 1 Structures. The Structures Design Office has total project development and review responsibility for projects involving Category 2 Structures. This responsibility for Category 2 Structures extends to widening and rehabilitation projects and repairs of bridge components that qualify the structure as a Category 2 Structure. For large projects with multiple bridges, review responsibilities will be coordinated between the District Structures Design Office and the Structures Design Office based on the category of the individual bridge, work load demands and project make-up. In general, where the majority of the structures on a large multi-bridge project are Category 2, the Structures Design Office will have total project development and review responsibility for the entire project; where the majority of the structures are Category 1, the Structures Design Office will have project development and review responsibility for the Category 2 bridges only, and the District Structures Design Office will have project development and review responsibility for the Category 1 bridges.

The District Project Manager shall coordinate with the District Structures Design Engineer who shall review and concur with the bridge aspect of all projects during the PD&E process in accordance with ***Chapter 4*** of the ***PD&E Manual***.

The District Structures Design Engineer or the State Structures Design Engineer, as appropriate, shall concur/approve all bridge related work after location design approval is granted.

To assure a uniform approach to a project, the engineer shall coordinate with the appropriate Structures Design Office to discuss structures related phase review comments and get concurrence on how to proceed.

Modification for Non-Conventional Projects:
Delete ***PPM*** 26.5 and replace with the following: **26.5 Responsibility** RFP's on those projects where it is anticipated that Category 2 bridges will be designed and constructed shall be submitted to the State Structures Design Engineer for review and approval. RFP's on those projects where it is anticipated that Category 1 bridges will be designed and constructed shall be submitted to the District Structures Design Engineer for review and approval.

The District Structures Design Office has total component structure plan review responsibility for projects involving Category 1 Structures. The Structures Design Office has total component structure plan review responsibility for projects involving Category 2 Structures. This responsibility for Category 2 Structures extends to widening and rehabilitation projects and repairs of bridge components that qualify the structure as a Category 2 Structure. The District Structures Design Engineer or the State Structures Design Engineer, as appropriate, shall determine when structure component plans should be "Released for Construction."

The District Project Manager shall coordinate with the District Structures Design Engineer who shall review and concur with the bridge aspect of all projects during the PD&E process in accordance with Chapter 4 of the ***PD&E Manual***.

26.6 FHWA Oversight

See ***Chapter 24*** of this volume for FHWA requirements.