

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Safety and Maintenance Policies and Procedures
Compliance Audit

February 6, 2017

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EXECUTIVE SUMMARY



Overview

The Central Florida Expressway Authority (CFX) is responsible for the maintenance and safety of 118 centerline miles (including the new Wekiva Parkway), 815 lane miles (including ramps), 69 interchanges, 335 bridges, and 14 mainline toll plazas. In addition to the daily maintenance and safety activities, CFX developed a Wrong-Way Driving Detection Program in partnership with the University of Central Florida. Currently, there are 35 exit-ramp locations out of approximately 120 system-wide locations that are equipped with Wrong-Way Driving countermeasures developed under this program.

In accordance with the 2018 Internal Audit Plan, Internal Audit reviewed the maintenance and inspection procedures around CFX's roadways and bridges for compliance with standards set by the Federal government and the Florida Department of Transportation as highlighted within this report, and the internally developed maintenance and inspection policies and procedures established by CFX staff.



Objectives, Scope, and Approach

The objectives of the audit were to 1) evaluate CFX's compliance with the safety and maintenance policies and procedures, including compliance with federal and state standards; 2) review recent technological enhancements to safety within the system, with emphasis on new technology measures to help reduce the risk of wrong-way driving, and 3) evaluate the vendor performance management process for safety and maintenance vendors.

Roadways and Bridges

Components of CFX's roadways and bridges that were in scope for this audit were:

Roadways

- Roadways/Pavement
- Roadside
- Traffic Services
 - Lighting
 - Guardrails
 - Barrier walls

Bridges

- Substructure
- Superstructure
- Deck

EXECUTIVE SUMMARY



Objectives, Scope, and Approach (continued)

To execute this audit, Internal Audit performed the following procedures around the areas in scope:

1. Evaluated CFX's compliance with internally developed maintenance and inspection standards;
2. Evaluated CFX's compliance with the following federal and FDOT maintenance and inspection standards:
 1. Federal Statutes, Title 23. Highways, Section 106(c). Assumption by States of Responsibilities of the Secretary,
 2. Federal Highway Administration 23 Code of Federal Regulations (CFR) Part 650, Subpart C, Section 650.307 Bridge Inspection Organization,
 3. Federal Statutes, Title 23. Highways, Section 116. Maintenance,
 4. Florida Statutes, Title 26. Public Transportation, Chapter 334.048,
 5. Florida Statutes, Title 26. Public Transportation, Chapter 335.074 Safety Inspection of Bridges,
 6. FDOT Safety Bridge Inspection Team Leader Requirements in Florida,
 7. FDOT Bridges and Other Structures Inspection and Reporting Procedures (Topic No.: 850-010-030-i), and
 8. FDOT Maintenance Rating Program Procedures (Topic No.: 850-065-002-j);
3. Evaluated key controls surrounding asset tracking, inspection schedules and reporting, repairs and replacements, and incident response management;
4. Verified inspections, repairs, and replacements were performed and reported within applicable deadlines; and
5. Reviewed CFX's vendor management process. Safety and Maintenance vendors include the following:

Vendor	Service
Ayres and Associates	Overhead Sign Inspection Services
Kisinger Campo and Associates	Bridge Inspection Services
Jorgensen Contract Services, LLC ("JCS")	Roadway and Bridge Maintenance Services; S.R. 408, S.R. 417, S.R. 528, and Goldenrod Road Extension
Infrastructure Corporation of America ("ICA")	Roadway and Bridge Maintenance Services; S.R. 429, S.R. 414, and S.R. 451
Traffic Engineering and Management dba/ Control Specialists	Traffic Signal Maintenance Services

EXECUTIVE SUMMARY



Objectives, Scope, and Approach (continued)

Wrong-Way Driving Detection

To review CFX's safety technological enhancements to reduce the risk of wrong-way driving, Internal Audit:

1. Evaluated CFX's compliance with the program's preventative maintenance plan, and
2. Evaluated management's procedures for responding to safety trends identified by third-party reports.

Determining the adequacy of the maintenance procedures being performed by CFX to help ensure customer safety was NOT in scope for this audit.

EXECUTIVE SUMMARY



Summary of Results

Internal Audit identified risks and tested key controls within the roadway, bridge, and wrong-way driving detection maintenance and inspection processes. Where applicable, a sample of detailed maintenance and inspection activity was reviewed and tested for compliance. As a result of these procedures performed, Internal Audit identified five opportunities that would strengthen the control environment around the maintenance and safety program. Each observation and related recommendation is designed to help CFX transform its maintenance and safety management processes to a higher level of maturity, often from ad-hoc state to a more defined, managed, or optimized state.

Area	Procedures Performed	Observations	Observation Reference
Maintenance & Inspection Standards	<ul style="list-style-type: none">Evaluated CFX's compliance with federal and state inspection and maintenance regulations,Reviewed CFX maintenance and inspection contracts for inclusion of pertinent regulatory requirements, andEvaluated CFX's internally developed standards for compliance with regulatory requirements.	1	2
Asset & Activity Monitoring	<ul style="list-style-type: none">Evaluated CFX's asset tracking process, monitoring of inspections and maintenance activities, and record retention	1	5
Maintenance & Inspection Contract Management	<ul style="list-style-type: none">Evaluated CFX's quality review of contractor performance and prioritization of maintenance activities.	3	1,3,4
Wrong-Way Driving Detection System	<ul style="list-style-type: none">Evaluated CFX's compliance with the program's preventative maintenance plan, andEvaluated management's procedures for responding to safety trends identified by third-party reports.	0	NA

DETAILED OBSERVATIONS

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Observation 1 – Quality Assurance Procedures

Relative Priority: *Moderate*



When a maintenance work order is completed, the contractor notifies the CFX Senior Roadway Inspector of completion by phone or e-mail and may attach photos as evidence that the work was performed. If the work order relates to a significant safety concern or a large project, the Senior Roadway Inspector may physically observe or confirm that the work was completed. However, CFX does not have a formal quality assurance review process to verify the work was completed and to confirm it was completed at a satisfactory level.

Recommendation

CFX should consider implementing a quality assurance review process to formalize review of work performed by maintenance contractors. As part of this quality assurance process, CFX should inspect a sample of completed FDOT and internal work orders to verify the maintenance work performed meets the expected standards set by CFX and the FDOT. Implementing a quality assurance review process will enhance CFX's vendor performance management and move the review process to a more managed, optimized state.

Management Response

Management concurs.

Management Action Plan

The Director of Maintenance has included a Quality Assurance Program contractor within the fiscal 2019 budget request. The contractor would conduct quality assurance reviews of work performed by maintenance contractors, review Right of Entry permits, conduct daytime and nighttime inspections, oversee major repairs, and conduct field verification for compliance with utility permits in order to enhance the Maintenance and Safety Quality Assurance process.

Action Plan Owner / Due Date

Donald Budnovich, Director of Maintenance / 12/31/2018

DETAILED OBSERVATIONS

Observation 2 – Lack of Internal Maintenance & Safety Policies and Procedures

Relative Priority: *Moderate*



Written policies and procedures do not exist for CFX's maintenance and inspection program. Written policies and procedures are an integral component of each business process within an operating environment. The objective of policies and procedures is to document an organization's policy for operations and the procedures necessary to fulfill that policy. Policies and procedures provide guidance in the pursuit of achieving the objectives of the process and help reduce misunderstanding and increase distribution of pertinent information to those involved in the process.

Recommendation

CFX should develop written policies and procedures that clearly document CFX's maintenance and inspection program, including:

- Internal standards for managing and maintaining CFX's roadways and bridges;
- Asset tracking;
- Role of third party maintenance and inspection agreements (scheduling of inspections, repairs, and replacements; outputs of preventative maintenance);
- Maintenance contract performance monitoring;
- Work order, maintenance request, and deficiency response deadlines;
- Incident and Emergency Response process;
- Maintenance Rating Program (MRP) process and requirements;
- GEC Annual Inspection process.

Once developed, CFX should review and update the maintenance and safety policies and procedures for changes in processes, FDOT or Federal requirements, and any internally modified standards on an annual basis. The Director of Maintenance should approve the written policies and procedures and provide evidence of the review. The final document should also be stored on a shared site to ensure the policies and procedures are available and accessible throughout the department.

DETAILED OBSERVATIONS

Observation 2 – Lack of Internal Maintenance & Safety Policies and Procedures (Continued)

Relative Priority: *Moderate*

	<p><u>Management Response</u> Management concurs.</p> <p><u>Management Action Plan</u> The Director of Maintenance will document written policies and procedures for CFX's maintenance and inspection program in the Maintenance and Safety Procedures Manual. The Manual will be published on SharePoint and reviewed and updated at least annually.</p> <p><u>Action Plan Owner / Due Date</u> Donald Budnovich, Director of Maintenance / 12/31/2018</p>
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DETAILED OBSERVATIONS

Observation 3 – MRP Deduction Calculation Review – Document Retention

Relative Priority: **Moderate**



The Maintenance Rating Program (MRP) is a uniform evaluation system for maintenance features on the State Highway System. It is defined as a method of conducting a visual and mechanical evaluation of routine highway maintenance conditions. The inspection process occurs three times annually and CFX is awarded Maintenance Rating Program (MRP) scores for several categories. The maintenance contracts with its vendors, JCS and ICA, include an annual MRP score requirement as outlined in Section 5.8 "Evaluation and Acceptance of Work" of the Scope of Services with each vendor. A vendor payment deduction is assessed if the MRP score is not met by the vendor.

During the fiscal year 2017, JCS and ICA did not meet MRP Score requirements for certain criteria. As such, the Senior Roadway Inspector appropriately calculated the recommended payment deductions based on details outlined in the contracts and presented them to the CFX Director of Maintenance for review. However, documentation of the payment deduction review and approval by the Director of Maintenance could not be provided for the ICA contract.

Recommendation

CFX should formalize the MRP deduction review and approval process to ensure evidence of the review is retained and the deduction is appropriately applied to the subsequent vendor payment.

Management Response

Management concurs.

Management Action Plan

The Director of Maintenance will incorporate a procedure to document MRP deduction recommendations and actual deductions applied into the Maintenance and Safety Procedures Manual.

Action Plan Owner / Due Date

Donald Budnovich, Director of Maintenance / 9/30/2018

DETAILED OBSERVATIONS

Observation 4 – Delinquent Work Order Review

Relative Priority: *Moderate*



Contracts with CFX maintenance vendors include a provision that the contractor will be assessed a \$200 per day penalty for delinquent work orders not completed within the deadlines outlined in the contracts. Although Internal Audit gained comfort that CFX is performing a review of delinquent work orders to identify potential vendor penalties, the review process is not formalized and is performed on an as-needed, ad-hoc basis. As a result, there is increased risk that reviews on an ad-hoc basis may not include complete sets of final work orders, and vendor payment deductions may be missed.

Recommendation

CFX should formalize the frequency of the delinquent work order review to improve the review process from an ad-hoc to a more defined, managed state. At each quarter end, CFX should perform a review of all work orders completed during the quarter to determine if a penalty needs to be assessed. The Director of Maintenance should maintain evidence of his review of the analysis, and the recommended deductions should be provided to the Accounting and Finance department to be applied against subsequent vendor payments, as necessary.

Management Response

Management concurs.

Management Action Plan

The Director of Maintenance will incorporate a procedure into the Maintenance and Safety Procedures Manual for the Senior Roadway Inspector to review all completed work orders at quarter-end and provide recommendations of any penalties to the Director of Maintenance for review and sign-off. The review is anticipated to be completed by 30 days after each quarter-end.

Action Plan Owner / Due Date

Donald Budnovich, Director of Maintenance / 9/30/2018

DETAILED OBSERVATIONS

Observation 5 – Asset Tracking

Relative Priority: Low



CFX utilizes Microsoft Excel spreadsheets to track structures, assets, and bridge inspection dates. The Florida Department of Transportation (FDOT) tracks assets and inspection reporting within the FDOT Bridge Management (BrM) system. Currently, CFX does not have a process in place to reconcile the structures and assets included within the FDOT BrM system to the internally maintained asset tracking spreadsheets. Upon performing this reconciliation, Internal Audit identified nine CFX High Mast Structures in the FDOT BrM system that were not included in the CFX asset tracking files. Maintaining incomplete asset listings could hinder CFX from appropriately monitoring inspection due dates.

Recommendation

CFX should perform an annual reconciliation between the FDOT BRM system and its internal asset tracking files to verify its internal asset files are complete and to enhance the inspection report management process.

Further, CFX should consider leveraging an information management tool, such as a Microsoft Access Database, to store and maintain asset information for reference, reporting, and analysis. Such a tool would better enable CFX to manage required inspections, retain inspection data, and generate valuable reports for monitoring purposes.

Management Response

Management concurs with the recommendation to verify internal asset files are complete. For the specific issue identified during the audit, management determined that the High Mast Structures not included in the CFX asset tracking files are currently being removed, but will not be deleted from the FDOT BrM system until completely decommissioned.

Management Action Plan

CFX will develop an annual process to verify asset accuracy and update the asset tracking spreadsheet for ongoing construction projects. The process will be recorded in the Maintenance and Safety Procedures Manual.

In addition, CFX will determine the best information management tool or options to store and maintain asset information.

Action Plan Owner / Due Date

Donald Budnovich, Director of Maintenance / 6/30/2019

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