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Department of Transportation

## **MOVABLE BRIDGE OPERATIONS**

### **AUTHORITY:**

Sections 20.23(3)(a) and 334.048(3), Florida Statutes;

### **STATEMENT OF POLICY:**

To establish procedures and guidelines for the safe, efficient and effective operation of movable bridges under the responsibility of the Florida Department of Transportation.

### **SCOPE:**

The principal users of this procedure will be all persons involved with movable bridge operations, maintenance, inspection, and repair.

### **GENERAL:**

This procedure and the user **Handbooks** referenced in this procedure provide methods and systems designed to efficiently, effectively, and safely conduct the activities associated with Bridge Management.

### **REFERENCES**

The following publications are available on the Office of Maintenance internet site and from the Florida Department of Transportation Maps and Publication Sales, 605 Suwannee Street, Mail Station 12, Tallahassee, Florida 32399-0450, (850) 414-4050, unless stated otherwise.

**Bridge Maintenance, Planning, and Repair Handbook** - Defines standard maintenance and repair details.

**AASHTO Movable Bridge Inspection, Evaluation and Maintenance Manual** - Provides guidelines for the inspection, preventive maintenance, operation

and repair of movable bridges. This document is available from the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, N.W., Suite 249 Washington, D.C. 20001. This document is not available from the Department.

**Sample Preventative Maintenance Schedule**- An excel spread sheet that provides an example of movable bridge preventative maintenance schedules.

**FDOT Standard Plans for Road and Bridge Construction** – provides standard plans for various road and bridge designs.

**AASHTO Manual for Uniform Traffic Control Devices** – provides guidelines for traffic control, including signage for temporary closures due to work activities. This document is available from the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, N.W., Suite 249 Washington, D.C. 20001. This document is not available from the Department.

**Safety and Loss Prevention Manual (Topic No. 500-000-15)** - establish a uniform loss prevention program to minimize the number and severity of work-related injuries to employees and damage to materials and property; establish uniform operational safety plans; and define responsibilities for maintaining a safe working environment for all employees of the Department.

## PROCEDURE

The District Director of Transportation Operations, or his designee, is responsible for coordination and compliance with the following requirements:

### 1.0 MOVABLE BRIDGE OPERATIONS AND MAINTENANCE

Movable bridge operation and maintenance shall be in full compliance with the applicable portions of the ***AASHTO Movable Bridge Inspection, Evaluation and Maintenance Manual*** except as noted in this procedure.

### 2.0 OPERATIONS MANUAL

A bridge-specific operations manual shall be developed for each movable bridge. The ***Operations Manual*** shall cover all aspects of normal bridge operation and emergency procedures as defined in ***Chapter 4.7*** of the above referenced manual.

### 3.0 BRIDGE TENDER

Any person operating a movable bridge shall meet the following criteria:

- must be at least 18 years of age, have a corrected vision of 20/40 or better, as verified by a periodic eye exam performed at intervals not to exceed two years;
- be able to distinguish primary colors (red, green and blue), as verified by an initial eye exam;
- be able to hear frequencies from 500 to 6,000 Hertz between 15 and 50 decibels (DB) with hearing sensitivity in normal situations, as determined by an initial exam and at intervals not to exceed 5 years; and
- successfully complete a minimum 32 hours of classroom and on-site training based on the specific and current operational characteristics of the bridge.
- be able to climb bridge stairs and ladders.

### 4.0 MAINTENANCE

The activities discussed in **Chapter 5** of the **AASHTO Movable Bridge Inspection, Evaluation and Inspection Manual** shall be considered preventative maintenance and periodic maintenance and repair except for complete repainting or complete deck replacement.

**4.1 Preventative Maintenance Schedule** - By July 1, 2019 each state owned movable bridge shall have a bridge specific Preventative Maintenance Schedule. Refer to the Sample Preventative Maintenance Schedule on the Office of Maintenance's Internet site.

**4.2 Limited Service Life Component List** – Certain Movable Bridge Components have limited service life. In addition, some of these components may be obsolete when replacement is required. For example, programmable logic controllers (PLC) have a definite service life, and at the end of their service life the existing PLC may no longer be manufactured. By July 1, 2019 each state owned movable bridge shall have a list of these components with the date installed and the dates of any major repairs to these components.

### 5.0 INSPECTION

Perform an in-depth inspection of movable bridges every 24 months. Perform an interim inspection of movable bridges every 12 months. Inspect movable bridges in poor condition more frequently as required by Procedure 850-010-030 "Bridge and Other Structures Inspection and Reporting Procedure."

**5.1 In-depth Inspections** – Perform a complete inspection of the structure including the electrical, hydraulic, and mechanical components. Since movable bridges

are fracture critical, perform a fracture critical inspection. Prior to starting the inspection of the electrical, hydraulic, and mechanical components, review the preventative maintenance records. Measurements and testing routinely performed during maintenance do not have to be repeated during the inspection, but shall be assessed in the inspection report. Inspect the electrical, hydraulic, and mechanical components according to the requirements for an in-depth inspection in Section 2.2.3 of the AASHTO Movable Bridge Inspection, Evaluation and Maintenance Manual. Obtain approval of the District Structures Maintenance Engineer prior to performing inspection activities that restrict the operation of the movable bridge. Document any portions of the movable bridge inspection that are not performed for operational reasons. Do not disassemble the hydraulic and pneumatic systems as part of the inspection without the approval of the District Structures Maintenance Engineer.

**5.2 Interim Inspections** – Perform an interim inspection of the electrical, hydraulic, and mechanical components according to the requirements for routine inspections in Section 2.2.2 AASHTO Manual.

**5.3 Qualifications of Inspection Personnel** – Refer to the Bridge and Other Structures Inspection and Reporting Procedure 850-010-030 for requirements for movable bridge inspection team leaders.

## **5.0 HURRICANES AND OTHER NATURAL DISASTERS**

Federal Regulations authorize drawbridges to remain closed to marine traffic during a natural disaster, such as a hurricane, unless the Coast Guard specifically directs otherwise.

**5.1** The State Emergency Operations Center (SEOC) and the District Emergency Operation Center (DEOC) will coordinate with the Coast Guard to schedule the closure of movable bridges to marine traffic prior to hurricane landfall to facilitate evacuations.

**5.2** The bridge-specific operations manual shall address considerations for securing the bridge for closure; such as removing traffic gates and shutting down and securing the control house.

## **6.0 HIGH WINDS**

High winds may make a movable bridge inoperable or subject to damage. Drawbridges are authorized to remain closed to marine traffic while experiencing sustained winds of 34 knots (39 mph) or more if the Department has determined that closure is required to prevent damage to the bridge. Requests to close movable bridges to marine traffic at wind speeds less than 34 knots (39 mph) to prevent damage will be considered by the Coast Guard. Such requests should

be accompanied by an engineering analysis showing the maximum wind the bridge could be expected to experience without damage while in an opened or partially opened position. Any closure to marine traffic due to high winds should be reported to the Coast Guard, to the SEOC if the SEOC is activated, and to the Office of Maintenance.

## 7.0 SPECIAL REGULATIONS

- 7.1** In the absence of specific opening regulations a movable bridge is required to open promptly on signal. Schedules for all movable bridge operations can be found in **CFR 33, Part 117**.
- 7.2** Except as provided by a particular bridge's opening schedule, movable bridges shall be opened promptly and fully for the passage of vessels when a request to open has been given in accordance with the signaling procedures. The bridge tender shall not question the vessel operator as to need for a bridge opening. The bridge tender shall open the draw span if the pilot signals for a bridge opening. If a bridge tender is required to open a movable bridge for a vessel because of a non-structural fixture on that vessel, which is not essential to navigation or which is easily lowered, then the bridge tender shall complete **Form No. 850-010-20, Bridge Tender's Report on Unnecessary Bridge Opening/Approach of Vessel** and submit to the bridge tender supervisor and the District Structures Maintenance Engineer.
- 7.3** The Department shall obtain permission from the Coast Guard if it is necessary to temporarily alter the schedule or to temporarily close a bridge to marine traffic. Notify the bridge tender when permission is obtained, the bridge tender shall comply with the temporary opening regulations.

## 8.0 MOVABLE BRIDGE QUALITY CONTROL PLANS

Each district with movable bridges shall have a quality control plan for the maintenance and operation of movable bridges in their district. The quality control plan shall include items to be reviewed and frequency of review. The quality control plan shall cover the following items:

- The training of bridge tenders
- Staffing of bridge
- Routine maintenance.
- Adherence to standards and regulations
- Bridge work orders
- Record keeping
- Monthly submitted maintenance and inspection reports
- Safety standards
- Lane closures and other Maintenance of Traffic

- Contingency plans in the event of primary system failure

## **9.0 TRAINING**

None required.

## **10.0 FORMS**

The following forms may be accessed in the Department's Forms Library:

- Bridge Tender's Report on Unnecessary Bridge Opening/Approach of Vessel (850-010-20)
- Vehicle Accident on Bridge (850-010-21)
- Bridge Tender Supervisor Inspection Form (850-010-23)
- Monthly Equipment Check List (850-010-24)
- Bridge Maintenance Log (850-010-25)
- Telephone Log (850-010-26)
- Bi-annual emergency Generator Check List (850-010-27)
- Bridge Tender's Comment Log (850-010-28)
- Bridge Tender Safety Equipment Checklist (850-010-29)
- Bridge Tender Shift Change Checklist (850-010-30)
- Bridge Information (850-010-31)
- Drawbridge Malfunction Report (850-010-32)
- Report of Bridge Accident Caused by Waterborne Traffic (850-010-33)
- Report of Drawbridge Openings (850-010-34)