



U.S. Coast Guard Auxiliary District 7

Bridge Lighting and Fendering Systems



D7NS 3006

2022



Training Objectives

- To acquire general knowledge of the different types of bridges and the responsibilities of the Auxiliary in reporting bridge discrepancies
- To become familiar with the requirements for bridge lighting, fender and protection systems
- To become familiar with how to determine discrepancies on bridges





Coast Guard Mandate

- The Coast Guard regulates and issues permits for bridges crossing navigable waters of the U.S. (33 U.S.C.)

33 CFR § 114





Coast Guard Mandate

The Coast Guard does not regularly inspect bridges but relies on reports from mariners and the **Auxiliary**.





Bridge Lists

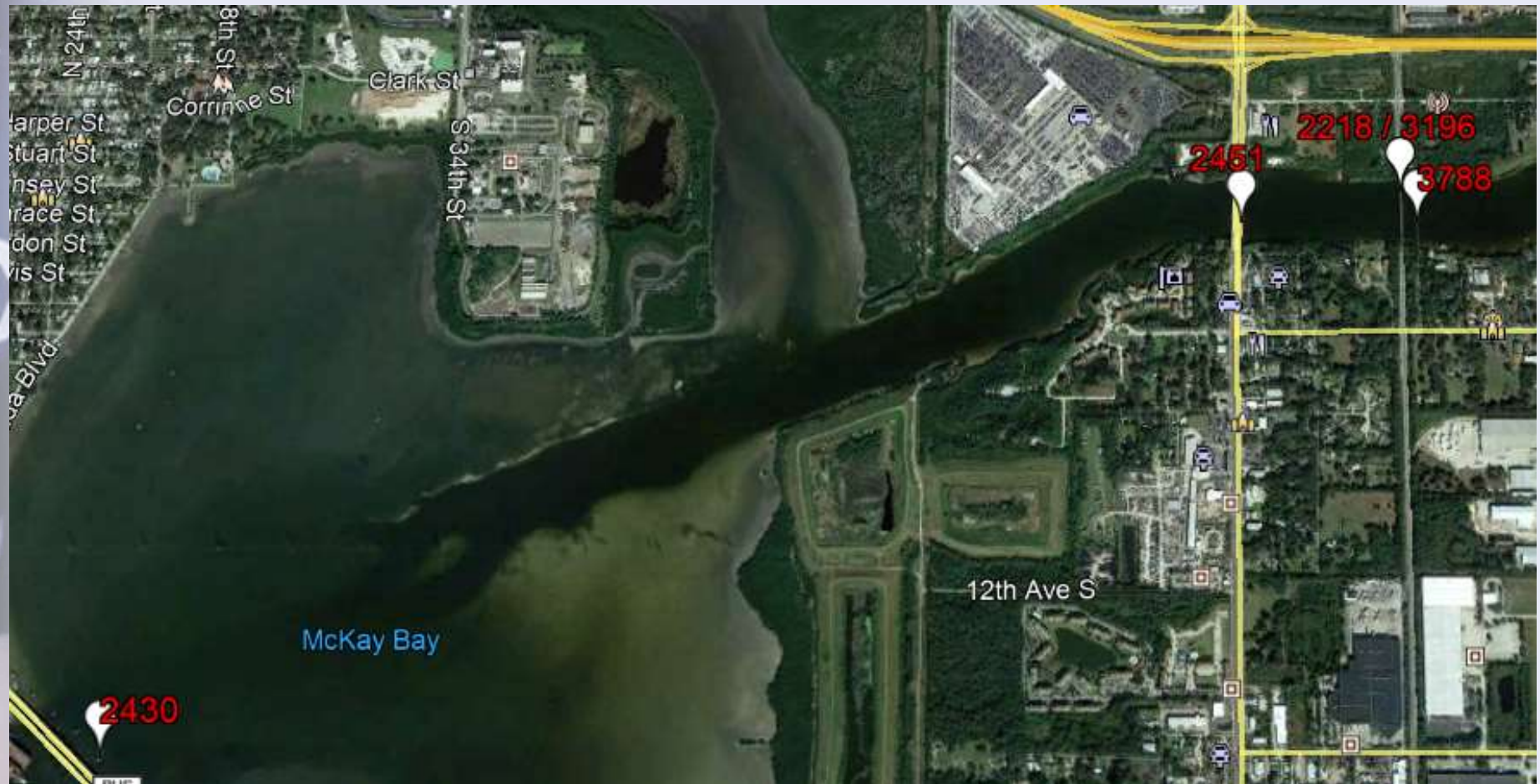
Flotilla	Coast Guard File Number	National Bridge Inventory	NAVAIDS	Bridge Official Name	Bridge Local Name	Bridge Highway Name	Bridge Waterway	County	Mile Marker	Bridge Type
MCKAY BAY - PALM RIVER - TAMPA BYPASS CANAL										
74	2430	100338	YES	22nd Street Bridge (SR 45A)	22nd Street Bridge	SR 45A NB	McKay Bay	Hillsborough	0.0	Fixed
		100299	YES	22nd Street Bridge (SR 45A)	22nd Street Bridge	SR 45A SB	McKay Bay	Hillsborough	0.0	Fixed
74	2891	100718	NO	Tampa S Crosstown Expy	Adamo Drive Bridge	Tampa S Crosstown Expy Bridge	McKay Bay Drainage Ditch	Hillsborough		Fixed
		100839								

Flotilla	Coast Guard File Number	National Bridge Inventory	NAVAIDS	Traffic Type	No of Traffic Lanes	Single or Dble Leaf	Horiz Clear (feet)	MHW Vert Clear (feet)	Bridge Owner	Latitude	Longitude
MCKAY BAY - PALM RIVER - TAMPA BYPASS CANAL											
74	2430	100338	YES	Highway	4	0	75	40	FDOT - District Seven	27-56-00 N	082-25-52 W
		100299	YES	Highway	4	0	75	40	FDOT - District Seven	27-55-59 N	082-25-52 W
74	2891	100718	NO	Highway	2	0	8	2	FDOT - District Seven	27-57-15 N	082-25-33 W
		100839									





Bridge Lists





Types of Bridges



Fixed span





Types of Bridges



Double Leaf / Opening Bascule





Types of Bridges



Single Leaf / Opening Bascule





Types of Bridges



Vertical Lift





Types of Bridges



Swing





Types of Bridges

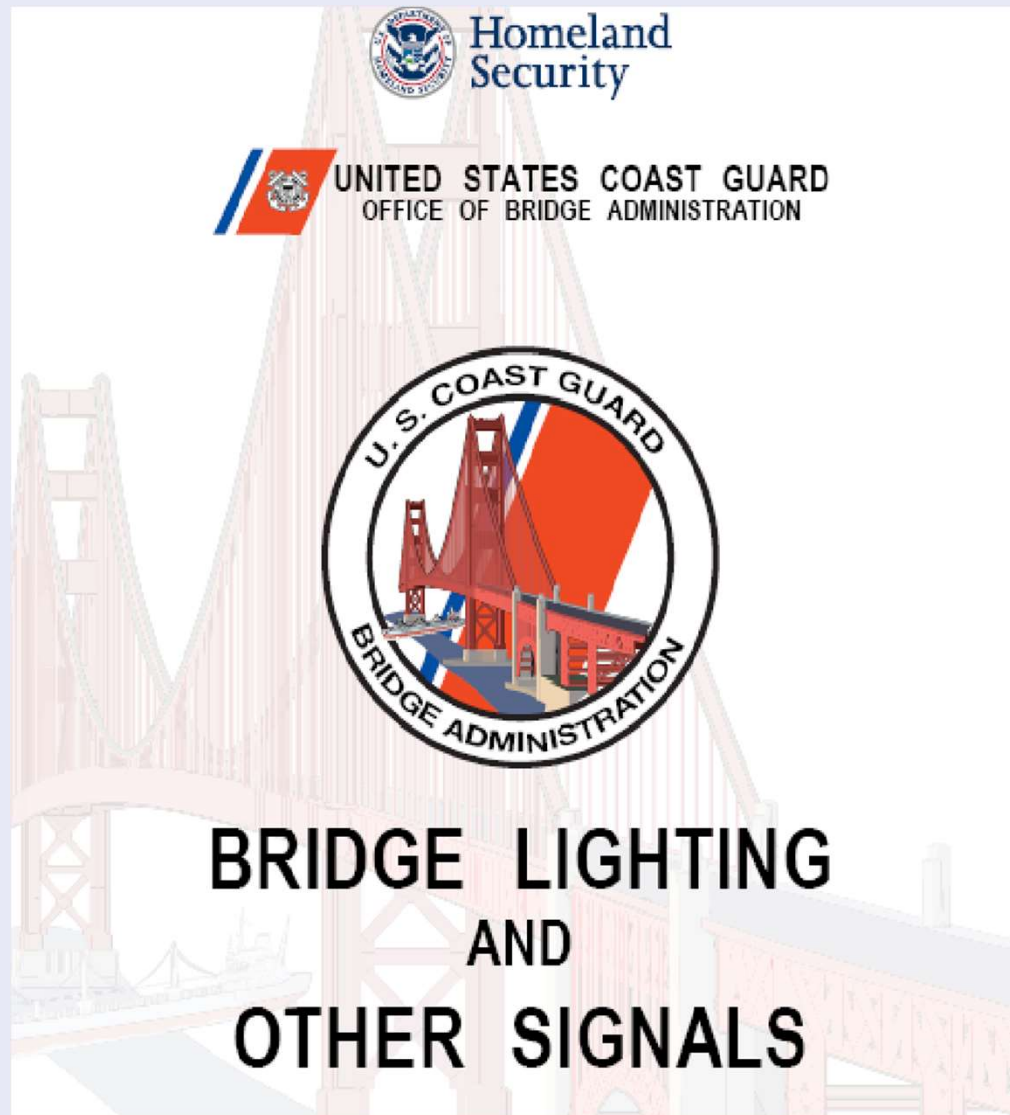


Pontoon



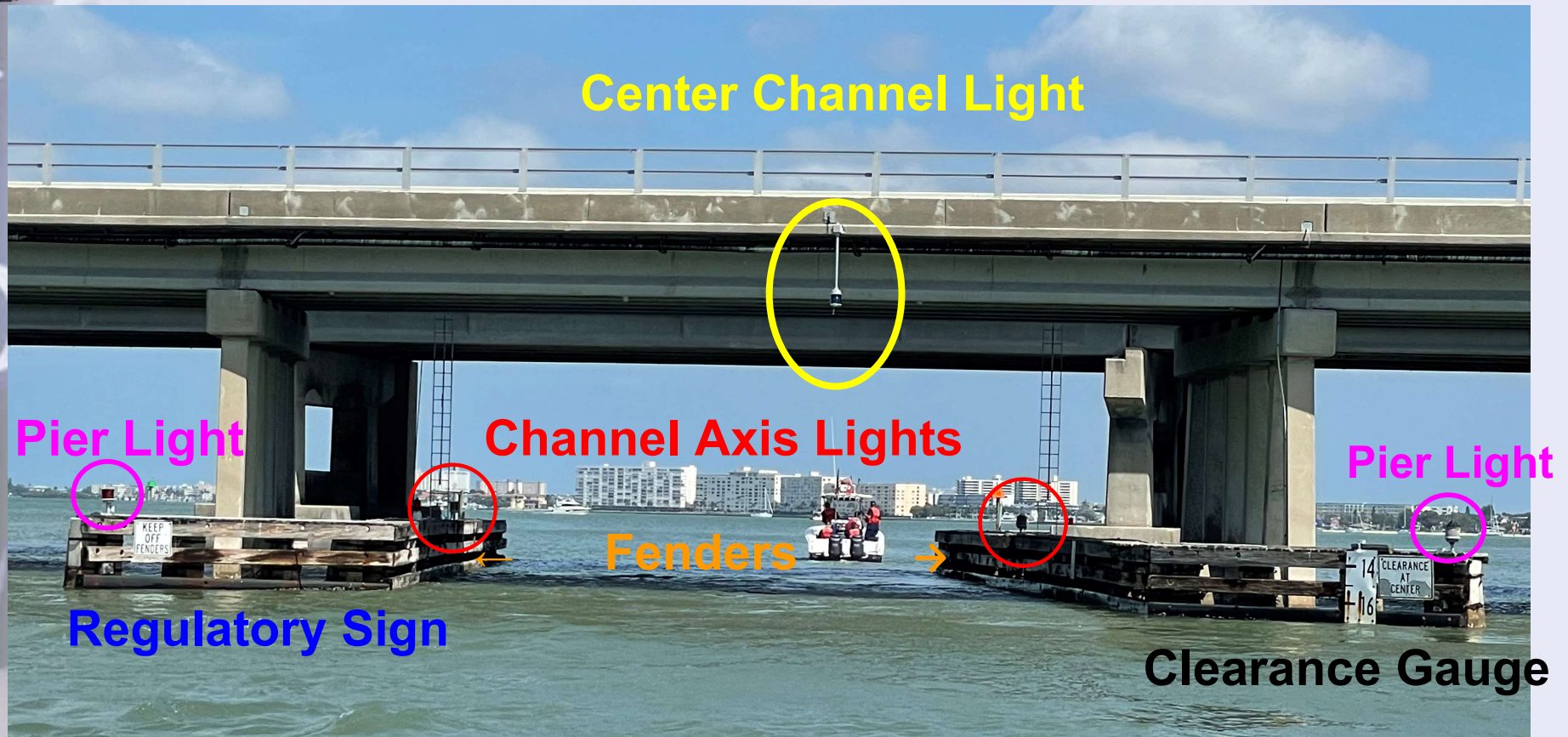


Bridge Lights



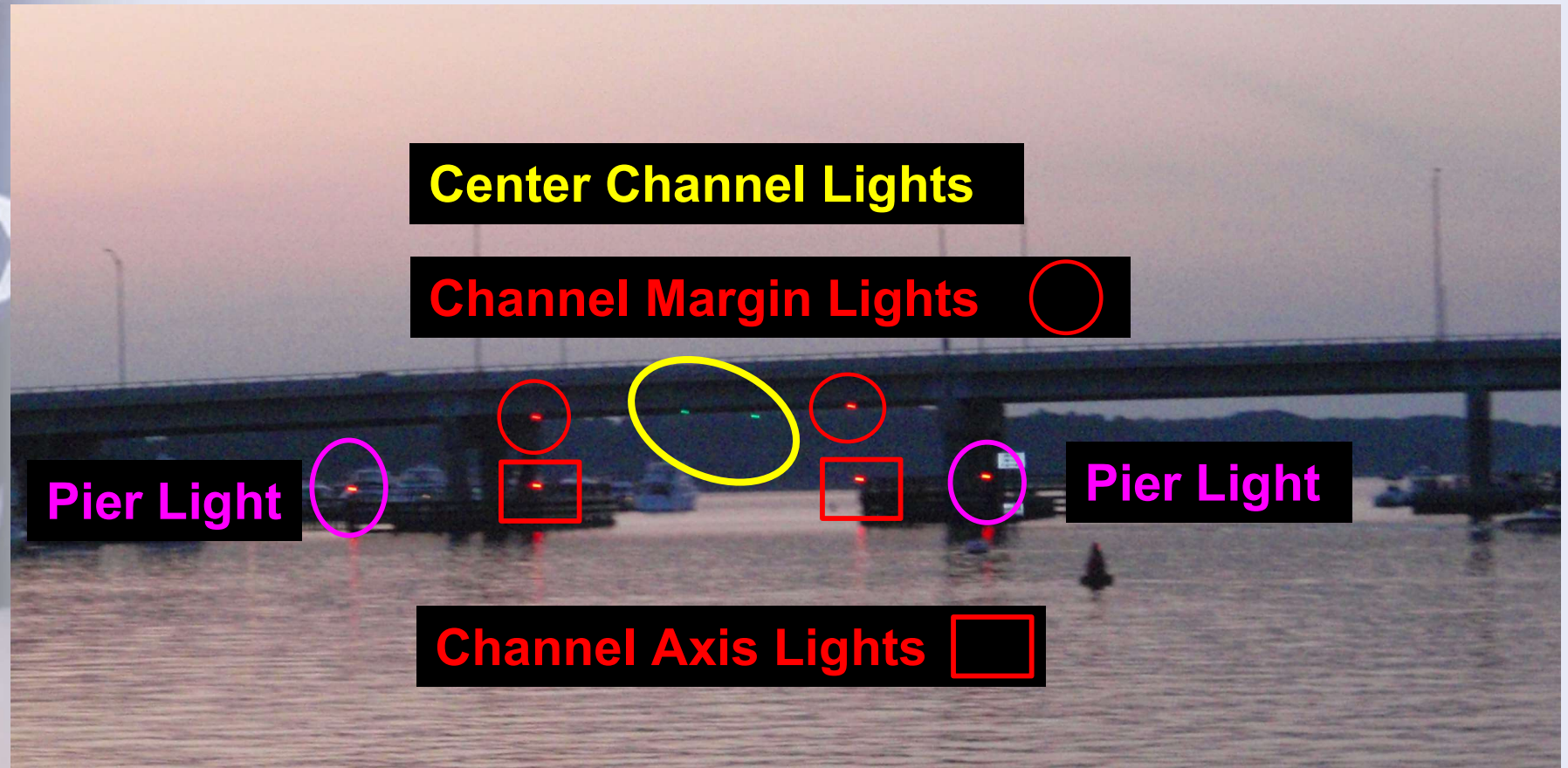


Bridge Lights





Bridge Lights





Bridge Lights



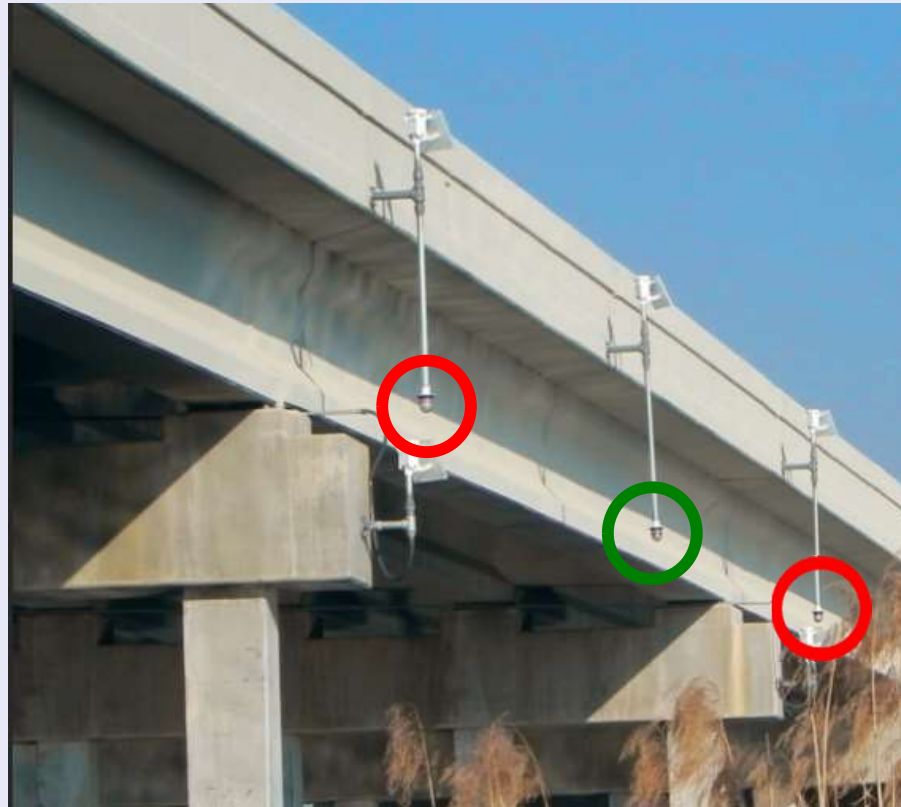
Center Channel Lights

A Range of 2 green 360° lights, mounted below the outermost edge of the bridge structure, marking the center of the channel.





Bridge Lights



Channel Margin Lights

Red 180° lights, visible 90° from each direction, mounted below the outermost edge of the bridge structure, marking each margin of the channel.





Bridge Lights



Maintenance gondolas
to access lights

LED Tube Lights for Center Channel & Channel Margin





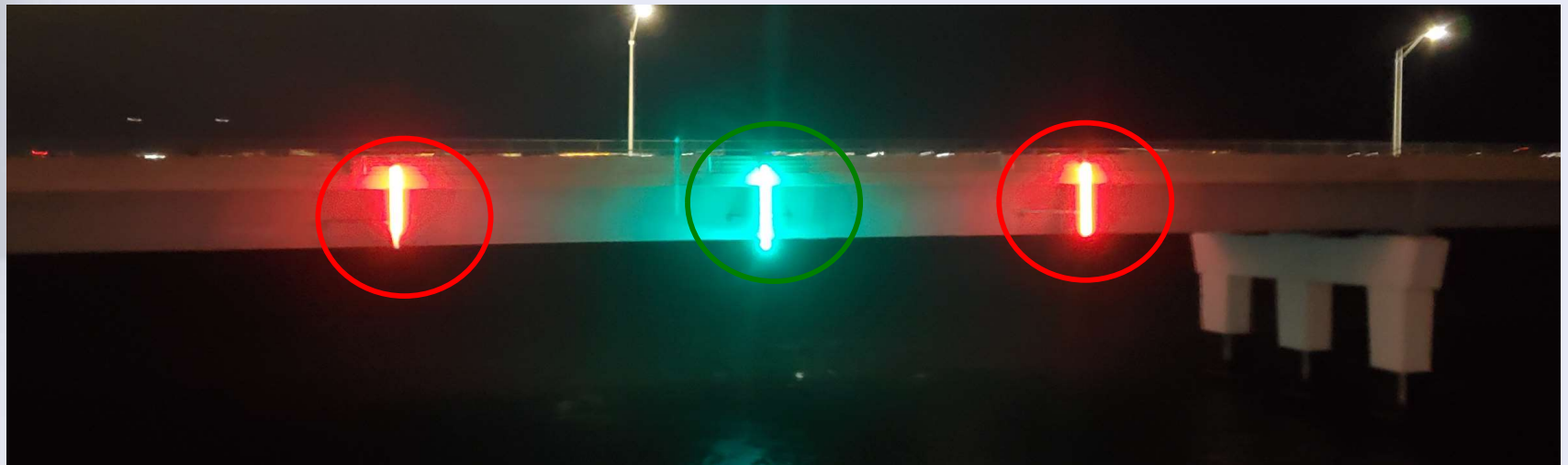
Channel Center Lights

Bridge Lights



Center Channel Light

Channel Margin Lights



LED Tube Lights





Bridge Lights



Pier Lights

Red 180° lights, visible 90° from each direction, mounted on piers that define or are within the channel.





Bridge Lights



Bascule Bridge Lights

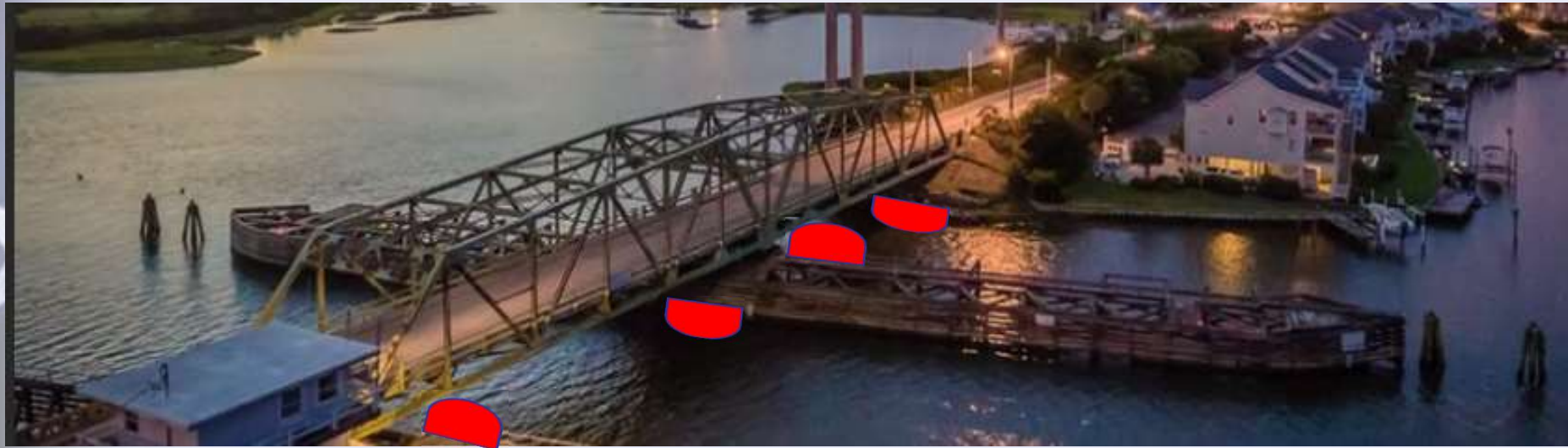
180° lights visible from each direction, mounted at the free end of each span. The lights show **RED** unless the bridge is **fully open** when they show **GREEN**.







Bridge Lights



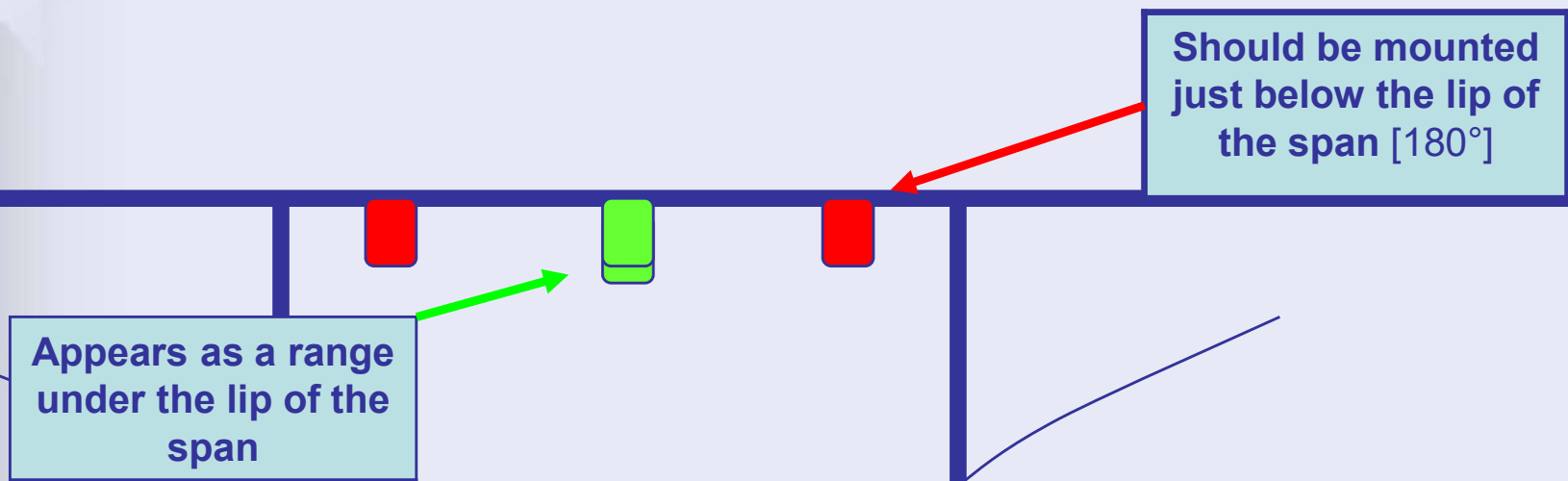
Swing Bridge Axis Lights

Red 180° lights, visible 90° from each direction, mounted on each side of the pivot pier and the channel side of each draw pier.





SINGLE SPAN FIXED BRIDGE



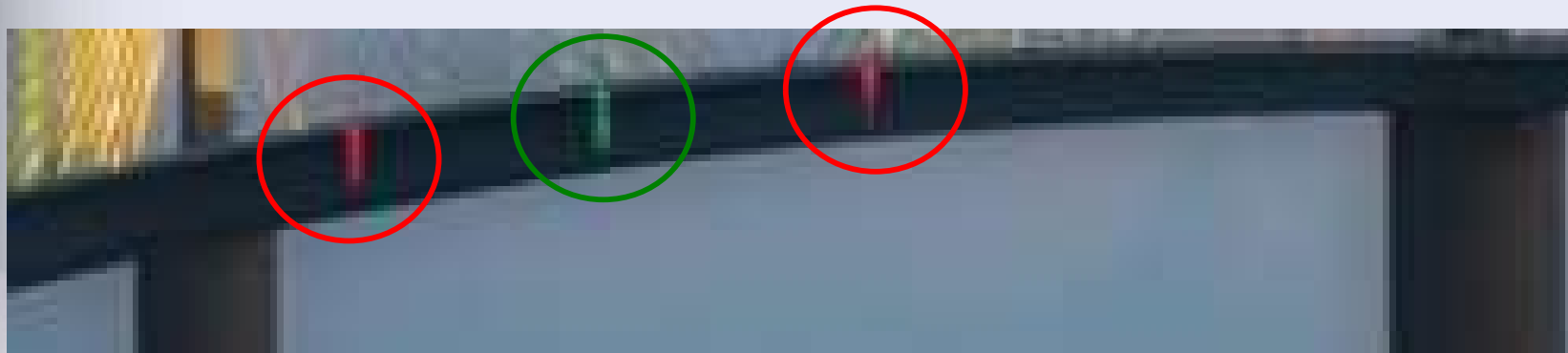
360° GREEN
Channel Center Lights

180° RED Channel Margin Lights each side





SINGLE SPAN FIXED BRIDGE

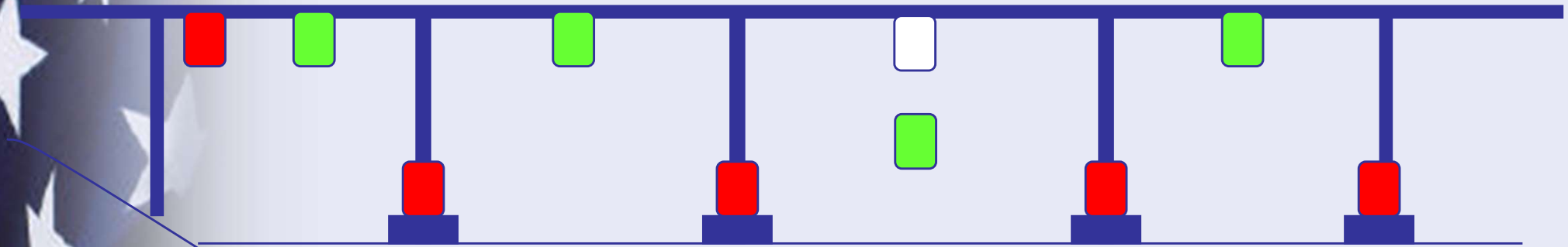


LED TUBE LIGHTS





MULTIPLE SPAN FIXED BRIDGE



3 - 180° White
Preferred Channel Lights
10 – 15 ft above the Green



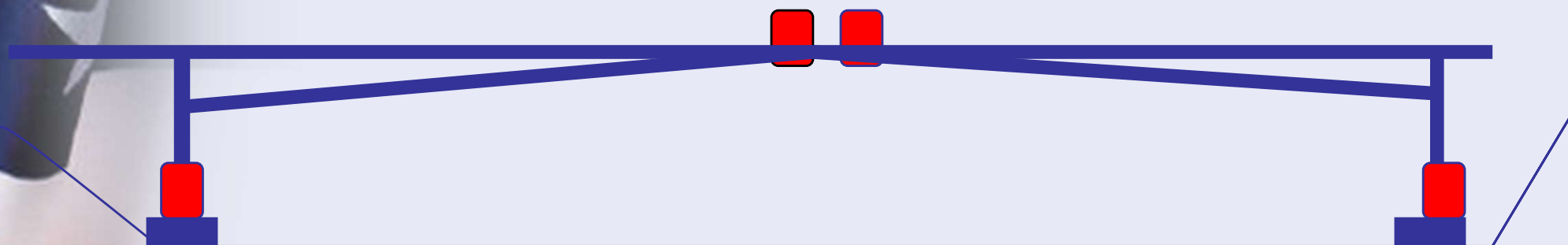


DOUBLE LEAF BASCULE BRIDGE

SPAN is CLOSED

180° Green Moveable Span Light is out.

180° Red Moveable Span Light is ON.



180° Red Pier Lights

180° Red Pier Lights





DOUBLE LEAF BASCULE BRIDGE

Open

180° Green Moveable Span Light is ON.
180° Red Moveable Span Light is out.

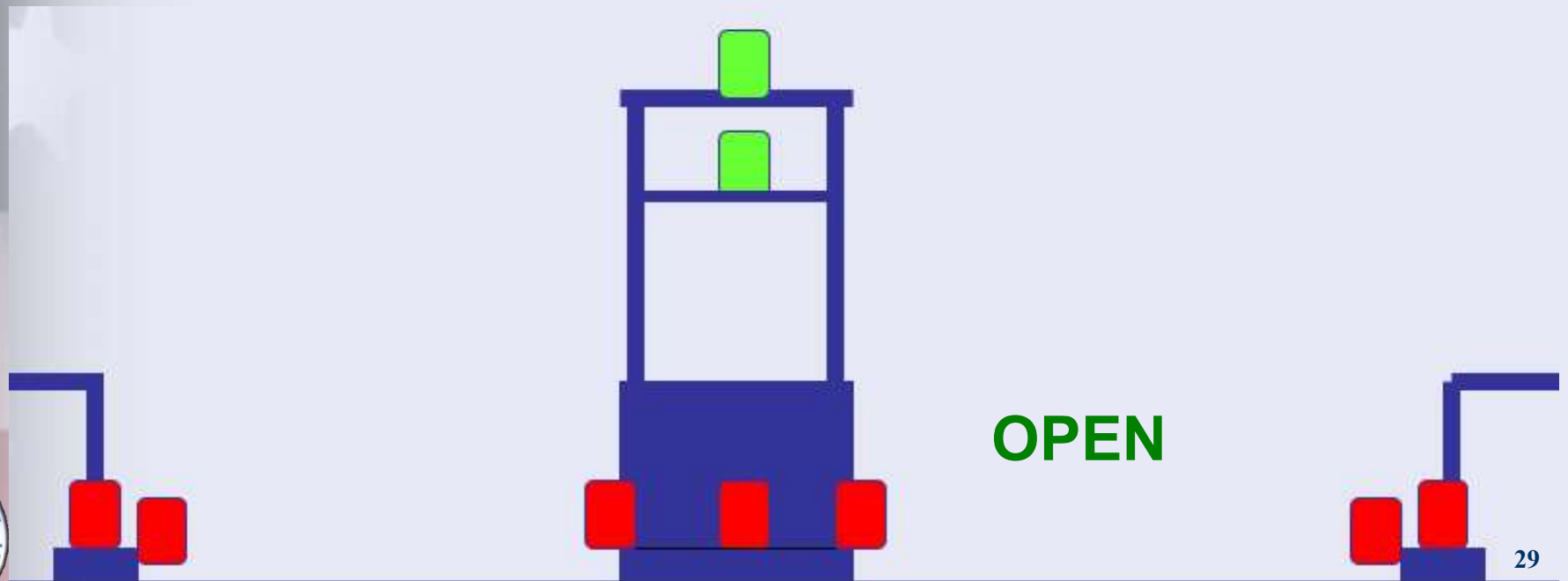
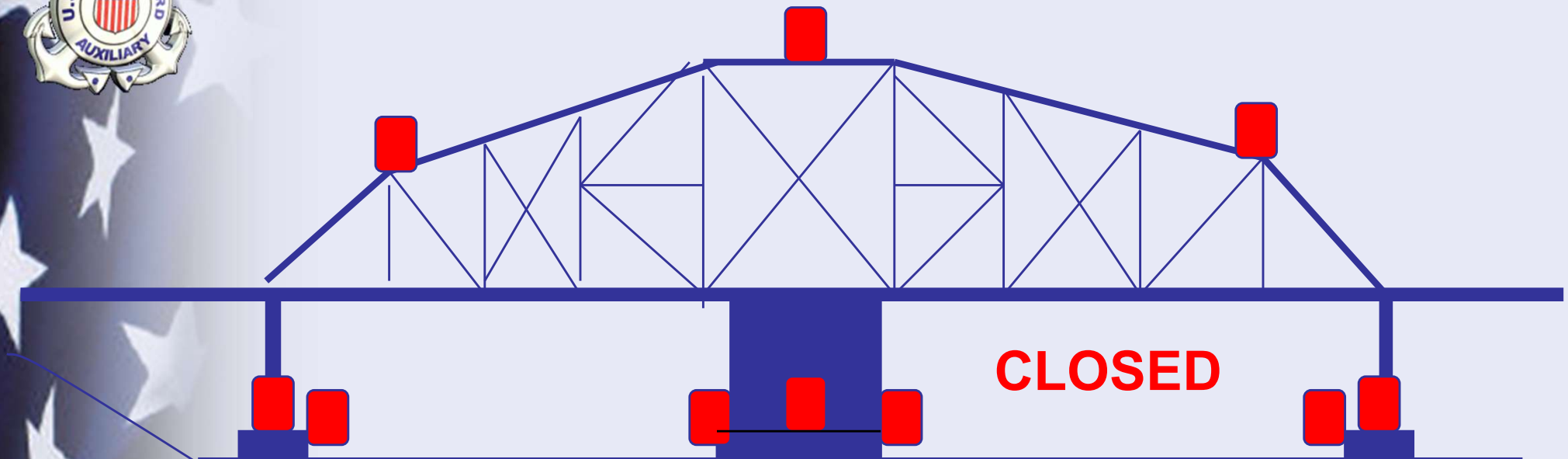
180° Red Pier Lights

180° Red Pier Lights





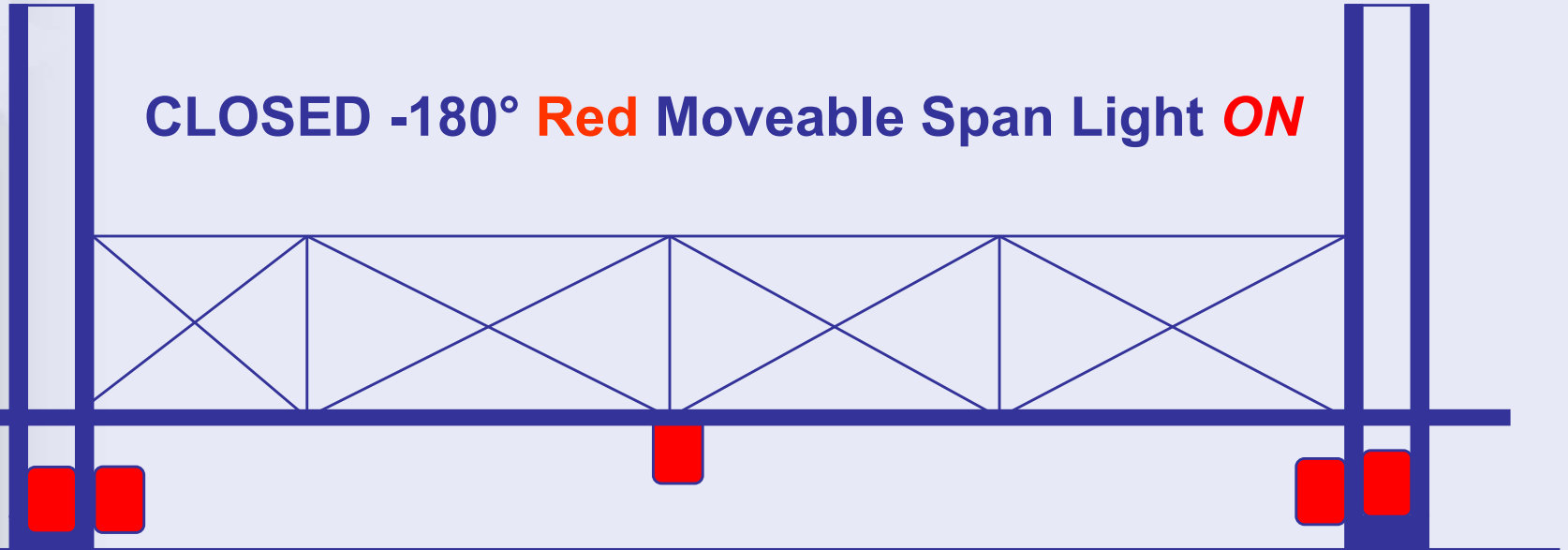
SWING BRIDGE



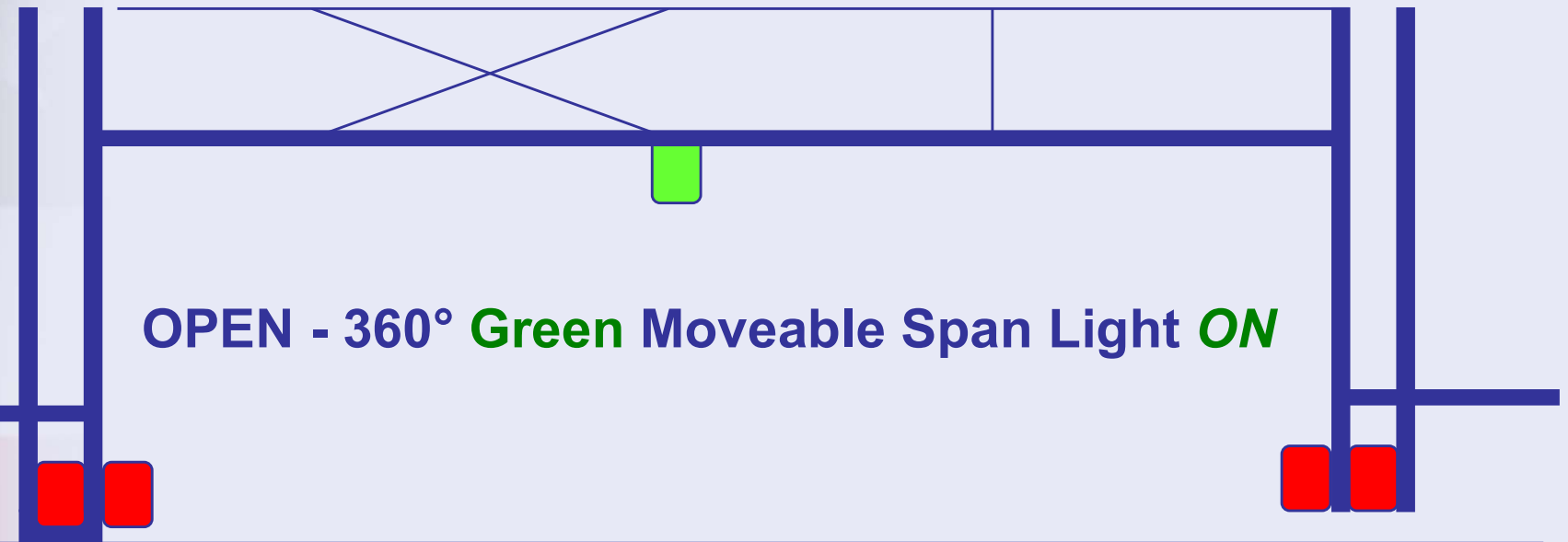
VERTICAL LIFT BRIDGE



CLOSED -180° **Red** Moveable Span Light **ON**



OPEN - 360° **Green** Moveable Span Light **ON**



Bridge Lights



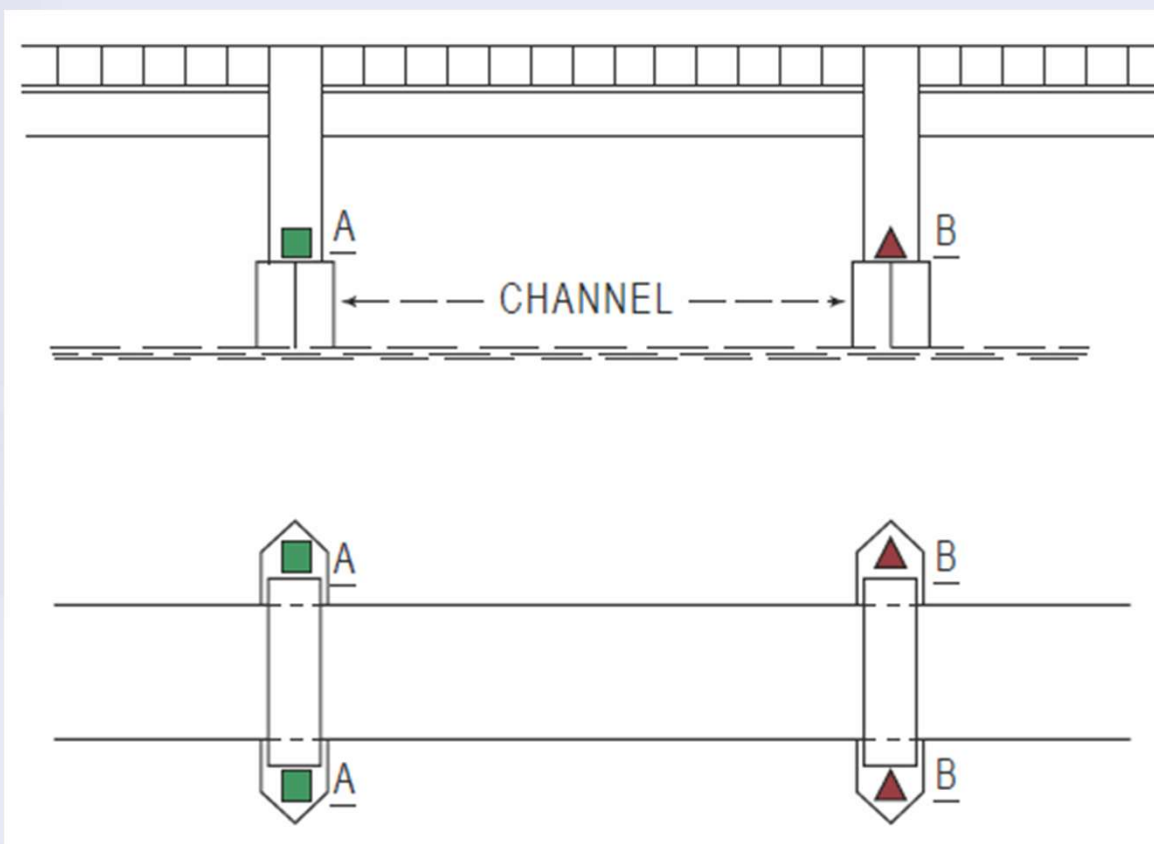
- Bridge lights must be displayed from sunset to sunrise or during times of visibility of less than 1 mile.
- Must be visible for >2000 yds 90% of nights of year.





Retro-reflective Tape

Retro-reflective panels may also be required as a backup for lighting.





BRIDGE FENDERS



Wales

bolts

Piles





BRIDGE FENDERS





BRIDGE DOLPHINS



Protect bridge piers from collision





CLEARANCE GAUGES



**On some fixed bridges
(determined by the Coast Guard)**

Required on bascule bridges

**Show the vertical distance from
the water to the “low steel”**

**On the right side of both
approaches to the bridge**

Readable from ½ mile

Lights are optional





SPECIAL REGULATION SIGNS



Located on both sides of bridge

Must be readable

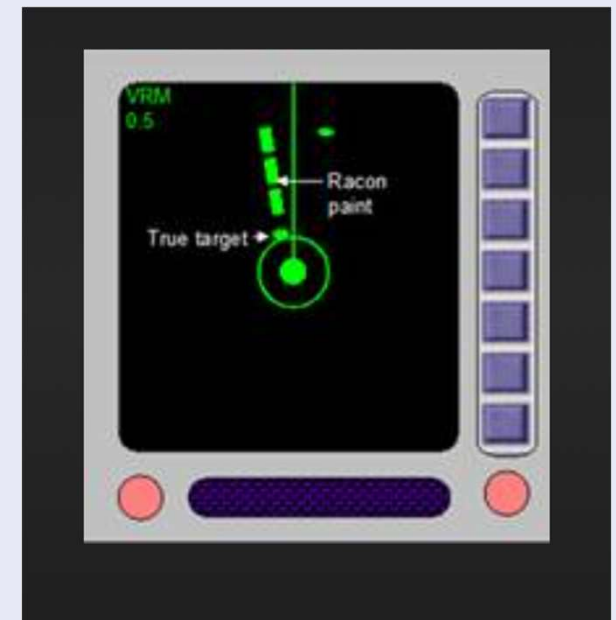
**If phone call is required to open bridge –
the number must be on the sign**





RACONS

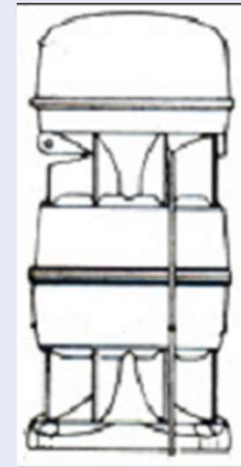
- Radar transponder beacons.
- Mounted at center of main channel on some major fixed bridges.
- Provides enhanced Morse coded echo on radar display.
- Will be listed on chart if installed.
- Use boat's radar to verify proper operation of RACON.





Fog Horns

- Mounted at center of main channel on some major fixed bridges.
- Will be listed on chart if installed.
- Normally only sound when fog is present – can only be verified in fog!
- May be activated by radio signal in some areas.
- May also be a Private aid to Navigation – PATON.





Bridge Operation

- Is the moveable bridge operational?
- Did the bridge tender respond immediately?
- If a phone was required, was the phone number correct, and was it answered?
- Was the person answering the phone responsive?





BRIDGE DISCREPANCIES





LIGHT:

- EXTINGUISHED
- MISSING
- WRONG COLOR
- DAMAGED





CLEARANCE GUAGE:

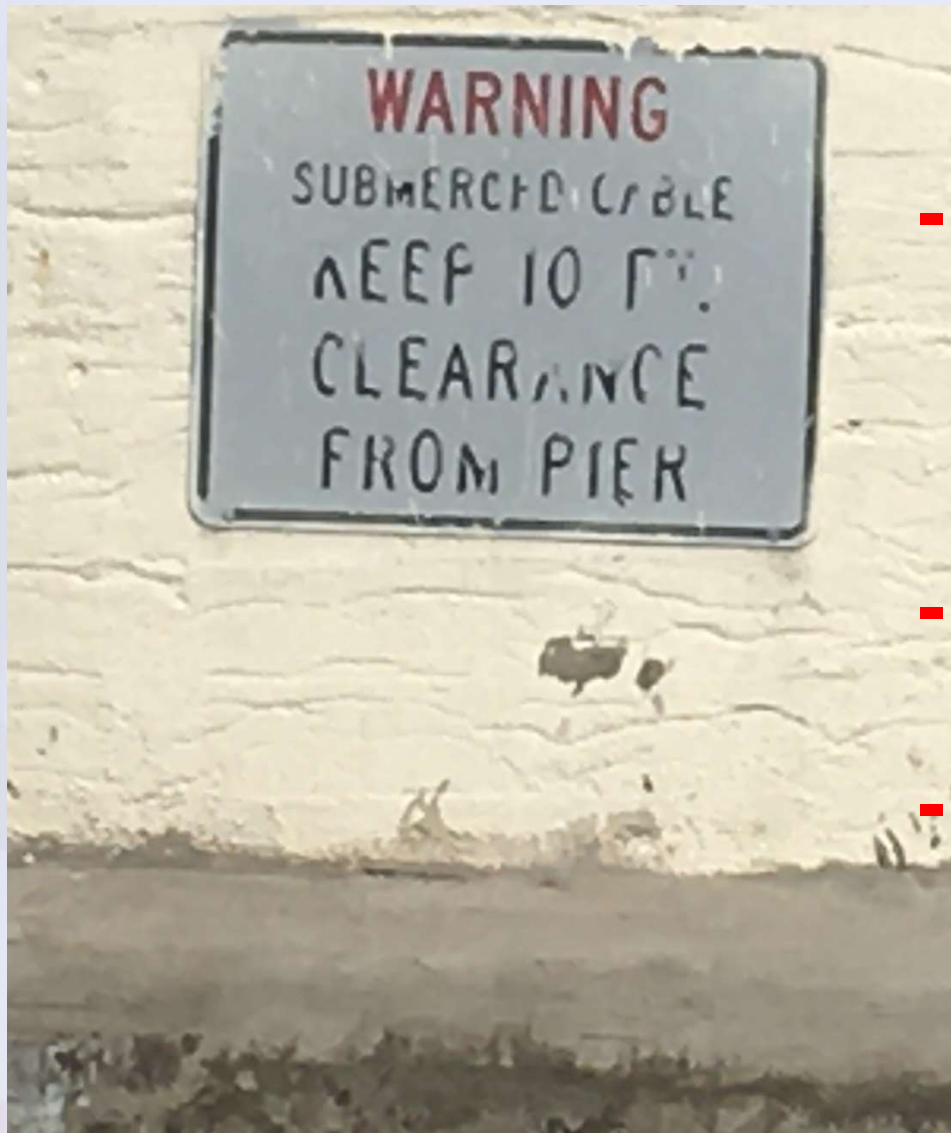


-DAMAGED
-UNREADABLE
-MISSING





REGULATORY SIGNS:



- UNREADABLE

- DAMAGED

- MISSING





SIGNALING DEVICE:



- INOPERATIVE**
- RADIO GARBLED & UNREADABLE**





FENDERS ROTTING:





FENDERS DETERIORATED:





WALES MISSING:





WALES PROTRUDING INTO CHANNEL:





DAMAGED BY VESSEL ALLISION:





DOLPHIN DAMAGED / ROTTED





DOLPHIN LEANING / SUBMERGED





EXPOSED BOLTS PROTRUDE INTO CHANNEL:






OBSTRUCTIONS TO THE CHANNEL:

- Nothing may hang down from the bridge into the navigable channel.
- Report any shoaling or other obstructions in the channel. Is the channel navigable?
- Is any debris caught in the fenders or piers and obstructing the channel?





Bridge Reports:

COAST GUARD AUXILIARY PREVENTION DEPT Form NS-7055			U.S. COAST GUARD AUXILIARY 7055 - BRIDGE REPORT		Check the report type: <input checked="" type="checkbox"/> Discrepancy Report <input type="checkbox"/> Verification Report	
					Report as a Mission 32 to AUXDATA	
SECTION 1 - MEMBER INFORMATION						
REPORTER'S LAST NAME, FIRST NAME, MIDDLE INITIAL HOOPER, ANTHONY Q.				AV QUAL AV	TELEPHONE NUMBER 314-322-1519	DIST-DIV-FLO 070-07-02
DATE OBSERVED 20-Apr-21	TIME OBSERVED 1330	OPCON NUMBER or CG UNIT NAME 07-30308		EMAIL ADDRESS AHOOPERAUX@GMAIL.COM		
SECTION 2 - COAST GUARD NOTIFICATION (Fill in only if you already reported by phone, radio or e-mail to a CG unit.)						
COAST GUARD UNIT NOTIFIED		DATE REPORTED 20-Apr-21	TIME REPORTED 1800	COMMUNICATION METHOD USED FOR REPORTING TO CG UNIT Email		
SECTION 3 - BRIDGE IDENTIFICATION						
BRIDGE NUMBER 2931	BRIDGE NAME 1-275 EB & WB BRIDGES OVER FRENCHMAN'S CREEK				BRIDGE TYPE FIXED	BRIDGE USE Highway
NAME OF WATERWAY FRENCHMAN CREEK		MILES ABOVE MOUTH 0.5	LOCATION (FROM)		LOCATION (TO)	
LATITUDE [DDMMSS.SSS] 27-42-49	N/S N	LONGITUDE [DDMMSS.SSS] 082-40-47	E/W W	# ATTACHED PHOTOS 4		





Bridge Reports:

SECTION 4 - OBSERVED BRIDGE DISCREPANCY(S)

1. LIGHT SURVEY

Check each type of light observed

- ☒ Pier Lights
- ☒ Center Channel Lights
- ☐ Center Margin Lights
- ☐ Preferred Channel Lights
- ☐ Channel Axis Lights
- ☐ Swing Span Lights
- ☐ Lift Span Lights

Check the light discrepancies that apply.

- ☒ Light is extinguished
- ☐ Light is wrong color
- ☐ Lantern is damaged
- ☒ Lantern is missing

2. CLEARANCE GAUGES

- ☐ Clearance Gauge is damaged
- ☐ Clearance Gauge is unreadable

3. REGULATORY SIGNS

- ☐ Regulatory sign is missing
- ☐ Regulatory sign is unreadable
- ☐ Regulatory sign is damaged
- ☐ Regulatory sign colors faded

4. BRIDGE SIGNALING DEVICES

- ☐ Bridge signaling device is inoperative
- ☐ Bridge communication sign missing
- ☐ Bridge radio is garbled and unreadable

5. FENDER SYSTEM

- ☐ Fenders deteriorated or rotted
- ☐ Fender is damaged by fire
- ☐ Vessel allision evident on fender system
- ☐ Wales are missing
- ☐ Wales protrude into the navigable channel
- ☐ Metal corner plates
- ☐ Exposed bolts protrude into the channel
- ☐ Debris protrudes into channel
- ☐ Protective dolphin(s) is damaged

6. OBSTRUCTIONS IN NAVIGABLE CHANNEL

- ☐ Obstructions hang below the span
- ☐ Cable(s) hangs into navigable channel

SECTION 5 - COMMENTS Fully describe the discrepancy in this section - all reports must have comments filled in.

Use Alt+Enter for additional lines

CHECKED THIS BRIDGE AT 1330 HOURS WITH THE LIGHTS ON. EACH SIDE OF THE BRIDGE HAS 4 PIER LIGHTS. THERE ARE CENTRE CHANNEL LIGHTS ON BOTH EAST AND WEST SIDES OF THE BRIDGE. THERE ARE LIGHTS ON THE CLEARANCE GAUGES ON BOTH SIDES OF THE BRIDGE. ALL LIGHTS WERE FUNCTIONING EXCEPT: ON THE NORTH PIER, RECKONING FROM THE WEST SIDE OF THE BRIDGE, THE SECOND PIER IS EXTINGUISHED AND THE THIRD PIER LIGHT IS MISSING.





Bridge Lighting and Fendering Systems

QUESTIONS?

