

# Typical drawbridge sequence of operation

Here is a typical sequence in how any of the drawbridges of the Pinellas beaches operate when a boat requests passage. Procedures may vary from drawbridge to drawbridge but the operating concept is basically the same.

1. A tall mast sailboat approaches the drawbridge. The captain of the boat will do one of two things to request the opening of a drawbridge:

- A. Radio call-up via marine VHF Channel 9.
- B. Sounding of the boat horn, one long blast and one short blast.

2. The bridge tender will acknowledge the boat's request to open the bridge. If the bridge tender is able to open the bridge right away, the request will be acknowledged by replying via radio in the affirmative or replying via horn with one long blast and one short blast. However, if the bridge tender cannot open the bridge right away (such as a time schedule like :20 past the hour) then the bridge tender will reply that fact via radio or sound five short horn blasts.

3. The bridge tender will begin by activating the traffic control signals on the roadway. This will cause the traffic signals mounted on the mast arm with the sign "Drawbridge Signal" to change from green to yellow and then to red, much like a conventional traffic signal. (At the Beckett Bridge, two red lights with the sign "Stop Here On Red" in the middle are used due to that bridge's prior notice operation). Once the signal turns red motorists must stop at the marked stop line before the gates and not proceed further.

4. Next the bridge tender will activate the bells located on the drawbridge gates to alert pedestrians and bicyclists to stop. Shortly after that the bridge tender will lower the railroad crossing style gates to stop all traffic.

5. The drawbridge gates on the opposite side are lowered to prevent motorists and pedestrians from entering the center movable section of the bridge. As soon as all gates are lowered then the bells will stop ringing.

6. The bridge tender will make a physical check to see that the movable span area – typically the steel grid deck – is clear of everyone including pedestrians, bicyclists and motorists. No bridge tender wants a repeat of the incident that occurred in 1972 on the old Treasure Island Causeway when a vehicle was trapped on the steel grid deck as the bridge was rising.

7. After the physical center span check the bridge tender will activate a series of levers that will unlock the two bascule leaves. (Beckett Bridge in Tarpon Springs uses only one bascule leaf). This permits the bascule leaves to move freely.

8. Now the big moment arrives. The bridge tender will throw the two major levers to one side, one for each bascule leaf. This makes the motors located in the drawbridge pits on either end turn the massive gear assemblies which in turn will raise the bridge.

When you see a drawbridge's steel grid deck high in the air as the bridge rises, you are only looking at just a part of the movable span. As the bridge rises a part of the bridge lowers down into the drawbridge pit; the part of the drawbridge you do not see that lowers is part of a counterweight akin to the counterweight of an elevator.

According to United States Coast Guard regulations, a drawbridge when opened must open to its full upright position to allow boats to pass. As the bridge leaves reach their full upright position the bridge tender will stop the bascule leaves by turning the two major levers upright to stop the motors and the bridge.

9. At this moment the boat requesting the opening will then pass through the bridge, thanking the bridge tender by radio or horn signal as the boat passes through. Any other boats waiting for passage through the bridge will pass through at this time.

10. Traffic on the highway is beginning to back up waiting for the bridge. After a minute or two it is time for the bridge tender to lower the bridge. The bridge tender will sound a short blast of the horn followed by a long blast. However, if the bridge must be lowered immediately then a series of five short blasts of the horn will be sounded.

11. The bridge tender will throw the two major levers in the other direction. This will start the motors going the other way which will turn the gear assemblies to lower the bridge.

12. Just before the bridge leaves are fully lowered the bridge tender will stop the bridge. Then the bridge tender will lower each leaf individually to assure that the two leaves close perfectly. The two leaves must be in perfect alignment or the bascule span locks will not work.

13. Once the bascule span leaves are aligned perfectly then the bridge tender will activate the controls to lock the bascule span leaves in place. This prevents any movement of the bascule leaves as traffic crosses the bridge creating a bumpy ride for motorists.

14. The bells on the drawbridge gates are activated once more and the drawbridge gates begin to rise. The gates that prevent traffic from approaching the movable span from the wrong direction are opened first.

15. Next the drawbridge gates that stop traffic are raised. Traffic must stay in place until the gates are fully raised and the traffic signals turn green.

16. Finally the bridge tender will press a button turning the traffic signal from red to green. This releases motor vehicle and pedestrian traffic onto the bridge.

17. The bridge tender documents the types of boats that have passed through the bridge on paperwork designed for that purpose. This paperwork has to be kept on file for a predetermined period, especially for U.S. Coast Guard reporting requirements.