



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Ocean Service  
Center for Operational Oceanographic Products and Services  
Silver Spring, MD 20910

September 3, 2020

Edward G. Henderson  
Senior Director - Finance and Administration  
Philadelphia Regional Port Authority  
3460 N. Delaware Avenue  
Philadelphia PA 19134

Dear Mr. Henderson,

Thank you for being an active partner with the National Oceanic and Atmospheric Administration (NOAA) in the Physical Oceanographic Real-Time System, or PORTS®, program. This letter documents the current installation and data dissemination parameters associated with the Ben Franklin Bridge air gap sensor, included in the Delaware River and Bay PORTS®. It is important that these parameters are clearly understood by those using the air gap data, and to that end, we ask that you assist us in sharing the enclosed information broadly among the local maritime community.

**This letter is an update from the July 1, 2020 version in order to reflect long-term bridge construction, expected to last through 2024.**

Prior to installation of an air gap sensor and dissemination of the resulting real-time air gap data, NOAA works closely with our partner and other local users to define the point on the bridge from which the distance to the water's surface will be displayed as the air gap measurement on the PORTS® webpage. This "air gap reference point" on the bridge might or might not differ from low steel, as defined by the USCG. It is also important for the community to understand that the real-time air gap measurement on the PORTS® webpage will vary from the fixed vertical bridge clearance value displayed on the associated NOAA Nautical Chart.

The point on the bridge designated as the air gap reference point is not necessarily directly below the location of the air gap sensor, since the sensor's location is often restricted by available bridge infrastructure. If the position of the air gap reference point designated by our partner is not co-located with the sensor (i.e., within a few feet), a precise elevation offset between the two positions must be obtained and measured using proper techniques. NOAA adjusts the air gap value reported on the PORTS® web page accordingly. The air gap reference point, the sensor location, and the offset parameters specific to the Ben Franklin Bridge air gap sensor are detailed below.

It is important to note that there may be other non-structural components – such as navigation lights, radar beacons/RACON, etc. – attached to the bridge that extend below the point designated

as the air gap reference point. Further, non-structural components may be newly installed, moved, or adjusted after the time of sensor installation and air gap reference point designation. It is a collective responsibility of the bridge owner and funding partner (if different from the bridge owner) to be aware of and communicate changes to such non-structural components, so that all users are aware and any necessary changes to the air gap measurement can be discussed, agreed to, and implemented on the Delaware River and Bay PORTS® webpage by NOAA.

NOAA understands that real-time air gap measurements at the Ben Franklin Bridge are important for marine navigation decisions. In the case of a data outage, NOAA will first work to resolve the issue remotely by calling into the air gap sensor platform. If remote intervention is not successful, NOAA will work to arrange a site visit to the air gap sensor as soon as feasible. Typically, this requires close coordination with the bridge owner/manager to arrange access and any necessary lane closures.

### Ben Franklin Bridge

The PORTS® air gap sensor is located on the Ben Franklin Bridge, linking Philadelphia, PA and Camden, NJ. The air gap sensor is installed on the south side of the bridge, 13.16 meters east of the east red navigation channel light, near Camden, NJ. See Images 1 and 2 for photographs of the air gap sensor installation on the Ben Franklin Bridge. See Image 3 for the location of the air gap sensor on the Ben Franklin Bridge.

At the time of installation in August 2016, NOAA worked with our Delaware River and Bay PORTS® program partner, the Philadelphia Regional Port Authority, and the local maritime community to determine that the air gap reference point for the air gap measurement of the Ben Franklin Bridge would be the bottom of the track beam for the traveling maintenance cart at the green center channel navigation light on the southern side of the bridge. This reference point is located 74.16 meters west of the air gap sensor. NOAA determined the offset value at the air gap reference point by measuring the vertical distance from the air gap sensor leveling plate to the bottom of the track beam at the sensor. NOAA then calculated the vertical relationship between the bottom of the track beam at the sensor and the bottom of the track beam at the green center channel navigation light using an official, detailed 2014 engineering survey of the Ben Franklin Bridge.

During planned, long-term bridge construction through 2024, the new air gap reference point will be the bottom of the Safespan scaffolding, below the track beam at the green center channel navigation light. Through collaboration among the bridge contractors, harbor pilots and NOAA, this group determined that NOAA will add an additional 0.6096 meters/ 2 feet to the total air gap offset. This 0.6096 meters accounts for Safespan scaffolding placement and maximum potential sag over the navigation channel during construction. This information has been provided to the USCG, in its 'notification of work' submission documents. The total offset is now determined to be 3.2056 meters. See Image 4 for a schematic of the air gap sensor elevation offset for at the Ben Franklin Bridge, during long-term construction.

Therefore, the PORTS® air gap sensor measurement on the south side of the Ben Franklin Bridge currently displayed, and which will continue to be displayed during long-term construction, on the NOAA PORTS® Delaware River and Bay website (<https://tidesandcurrents.noaa.gov/ports/index.html?port=db>) represents the distance between the

surface of the Delaware River and the bottom of Safespan scaffolding at the green center channel navigation light. This measurement does not account for additional non-structural components hanging below the bridge.

Please reach out to our Maritime Services Program Manager, Christopher DiVeglio, at [christopher.diveglio@noaa.gov](mailto:christopher.diveglio@noaa.gov) or 240-533-0571, with questions about the present state of the Ben Franklin Bridge air gap sensor included in the Delaware River and Bay PORTS®, or if adjustments to the data dissemination parameters will better suit the needs of the pilots and local maritime community.

Sincerely,

Rich Edwing, Director  
NOAA Center for Operational Oceanographic Products and Services

cc:

Captain J. Stuart Griffin, Chair, Mariners Advisory Committee  
Scott Anderson, Mariners Advisory Committee  
Captain Johnathan Kemmerley, Pilots' Association for the Bay and River Delaware  
Captain David K Cuff, Pilots' Association for the Bay and River Delaware  
Delaware River and Bay Pilots Dispatch  
Maritime Exchange for the Delaware River and Bay, Ops  
Capt. Jonathan D. Theel, USCG Sector Commander  
Ben Walsh, Command Sector Chief, USCG Delaware Bay  
USCG, Sector Delaware Bay Waterways Management  
Petty Officer Thomas Welker, USCG Sector Delaware Bay, WMB  
USCG District 5 Bridges  
CDR Hal Pitts, USCG District 5 Bridges  
Mr. Ricardo DeOliveira, Delaware River Port Authority  
Mr. Mark Wachowski, Delaware River Port Authority  
Daniel J. Fleming, Delaware River Port Authority  
Skanska Construction  
Corcon, Inc.  
Mr. Chris Metzger, NOAA CO-OPS Field Division  
Ms. Lucy Hick, Acting NOAA Navigation Manager



Images 1 and 2. Air Gap Sensor Installation on the Ben Franklin Bridge.

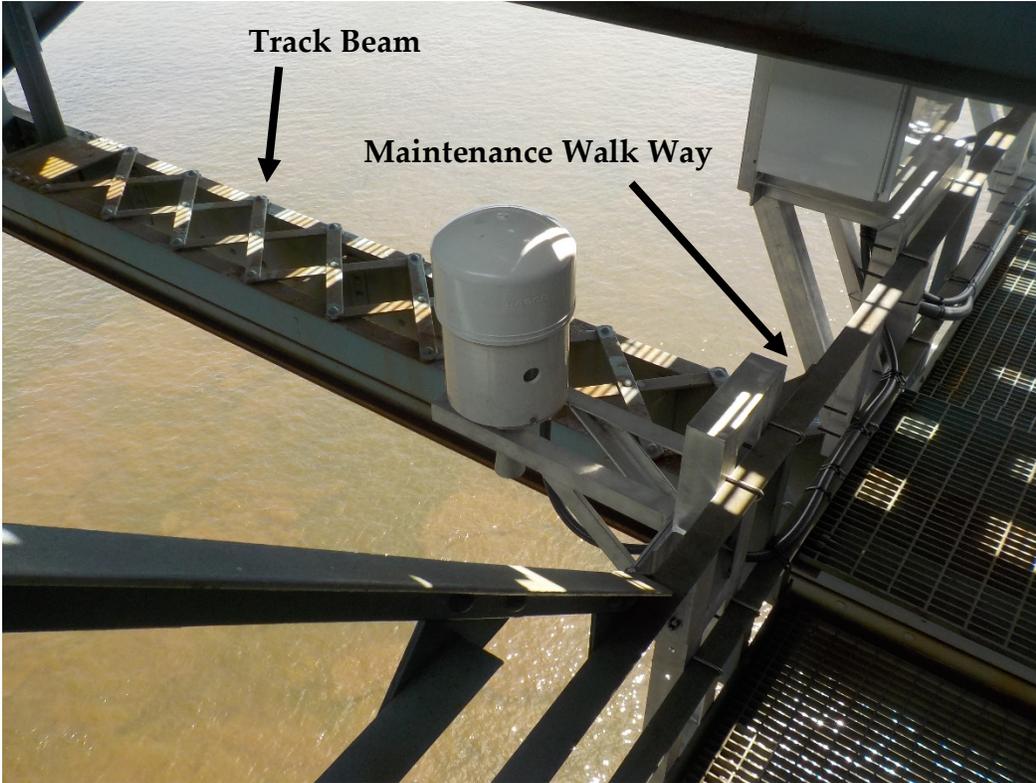
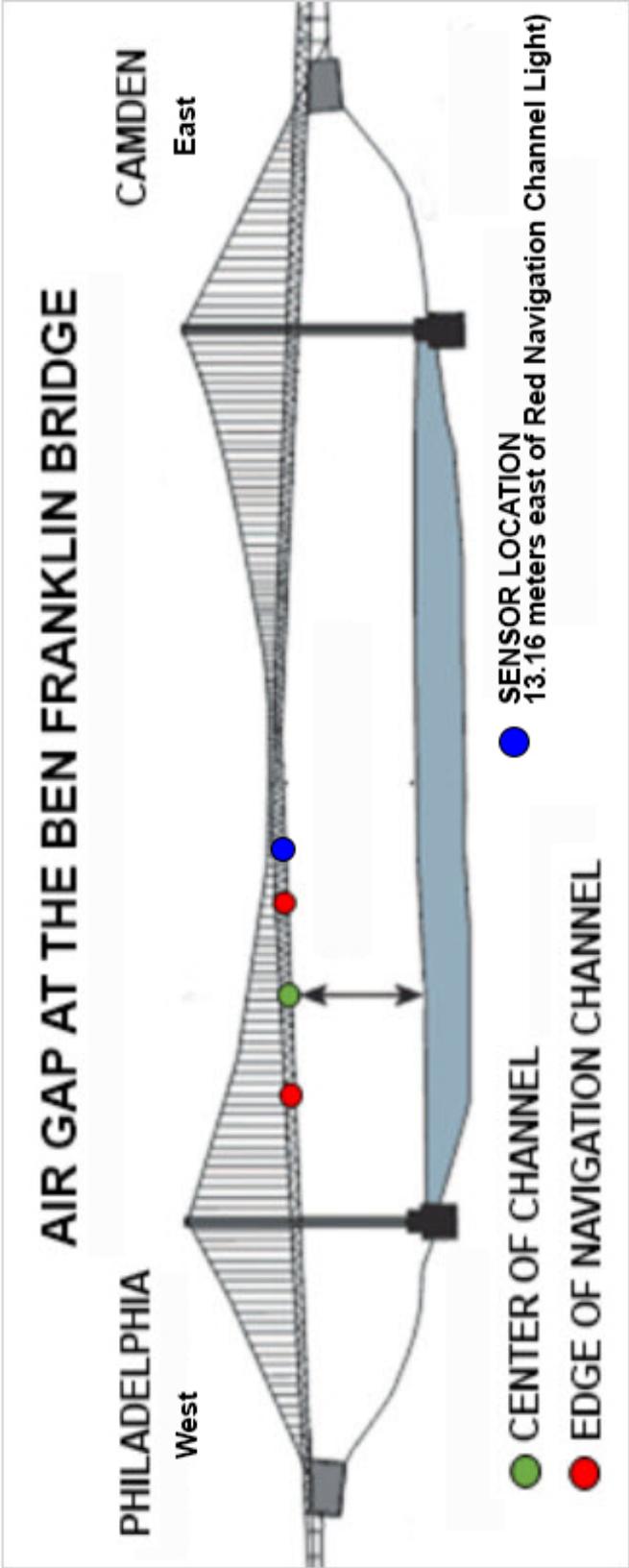


Image 3. Location of the Air Gap Sensor Installation on the Ben Franklin Bridge.



**Image 4. Schematic of the Air Gap Sensor Elevation Offset at the Ben Franklin Bridge.**  
**Air gap measurement OFFSET has been adjusted to account for Safespan scaffolding underneath the bridge.**

