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**COMMENTS OF THE AMERICAN PILOTS' ASSOCIATION
ON THE NOTICE OF REQUEST FOR PUBLIC COMMENTS
FOR COMPLEMENTARY POSITIONING, NAVIGATION, AND TIMING
CAPABILITY
[DEPARTMENT OF TRANSPORTATION DOCKET NUMBER DOT-OST-2015-
0053]**

May 22, 2015

Introduction

The American Pilots' Association (APA) is pleased to submit the following comments in response to the Notice in the March 23, 2015 *Federal Register*, 80 Fed. Reg. 55, requesting public comments regarding potential plans by the United States Government to implement an enhanced Long Range Navigation (eLoran) system as a complementary positioning, navigation, and timing (PNT) capability to the Global Positioning System (GPS).

The APA is the national association of professional maritime pilots. Virtually all of the nearly 1,200 state-licensed pilots working in the coastal ports and approaches of the United States, as well as all of the U.S. registered pilots operating in the Great Lakes system under authorization by the Coast Guard, belong to APA member pilot groups. These pilots handle over 90 percent of large ocean-going vessels moving in international trade in the waterways of the United States. Their role and official responsibility is to protect the safety of navigation and the marine environment in the waters for which they are licensed. In order to carry out their duties, APA member pilots continually train on, use, and have considerable expertise and experience with, various forms of modern maritime navigation technology, including applications of PNT.

Comments

APA and its members have long been strong supporters of, and active participants in, the development, improvement, and use of continually evolving navigational technology. APA has also collaborated with the Coast Guard, NOAA, and other federal and state agencies on efforts to improve maritime safety on America's waterways.

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Because of this strong interest in continual improvement of marine navigational safety and security, we support the potential implementation of an eLoran system to complement GPS.

In their operations, pilots may use the ship's navigation equipment, alone, or in conjunction with their carried aboard Portable Pilot Units (PPUs). During these operations, pilots require accurate, reliable, repeatable, and real-time positioning information as they safely maneuver very large vessels in narrow channels and in close proximity to other vessels and navigational hazards. APA-member pilots, who are aboard the overwhelming majority of ocean-going vessels that are moving in U.S. waters at any given time, and the public interest served by compulsory pilotage would benefit from the added safety of an eLoran receiver in the event of a disruption to GPS.

The APA wholeheartedly agrees with, and strongly supports DoT's efforts to improve navigational safety by implementing eLoran as a complement to GPS.

We have addressed the specifics of the request for comments under the headings below.

Pilot application of positioning, navigation, and timing services

APA member pilots consistently use all navigational resources at their disposal, including PPUs and the navigation equipment available to them on the ship's bridge. The various technology tools used by pilots are fed by GPS position and timing information. The pilot's carried aboard PPU frequently will use its own navigation receiver in conjunction with a navigation display, but in some ports the PPU relies upon the ship's navigational information obtained through the ship's AIS Pilot Plug.

PNT performance required for a complementary capability to support operations during a disruption of GPS that could last for longer than a day

Since pilot operations generally occur in the most restricted and navigationally challenging waters, the best performance available in a back-up or complement to GPS would be needed. The APA recognizes that GPS has an availability of over 99% with an accuracy on the order of 7.8 meters (2DRMS). We also understand that the Federal Radionavigation Plan considers that navigation in harbor entrances and approaches would require accuracies in the 1-10 meter range. The APA, speaking on behalf of our nationwide membership, is of the strong view that safe navigation in harbor entrances and approaches requires sub-10 meter accuracy.

Availability and coverage area required for a complementary PNT capability

GPS position and timing information is ubiquitous on navigation bridges. With its stated availability of better than 99%, GPS is heavily relied upon, and coverage is essential in all State pilotage waters (e.g., coastal port approaches, connecting rivers, and ports, bays and harbors). Considering the technologies available to the government,

including eLoran, there is no reason that pilots, in the event of a GPS outage, should not have position and timing information available while in pilotage waters, from the sea buoy to the port, with accuracies in the sub-10 meter range.

Willingness to equip with an eLoran receiver to reduce or prevent operational and/or economic consequences from a GPS disruption

APA member pilots would certainly support the fitting of ships' bridges with eLoran receivers to complement GPS. Similarly, pilots – who have consistently been leaders in the development and implementation of new navigational technologies – would certainly be willing to explore the procurement of eLoran receivers to support their PPU's. Such portable eLoran equipment would, of course, need to be of a size and weight to be readily and safely carried aboard ships by the pilots.

Current and planned availability of eLoran capable user equipment

Since eLoran is still a developing technology and there are no international or national standards currently in place for eLoran, we are not aware of a broad availability of eLoran equipment. Since some other countries, including the Trinity House Lighthouse Service in the United Kingdom, have established an eLoran service, it seems likely that eLoran receivers will be available in the near future.

Other non-eLoran PNT technologies or operational procedures, currently available or planned that could be used during a disruption of GPS for longer than a day

With an unparalleled knowledge of the waters upon which they operate, pilots are not wholly reliant on technology to safely conduct their operations. As already discussed above, pilots use all means available to them, including all existing aids to navigation. Navigational technologies, however, are certainly important tools at pilots' disposal. There are some technologies that have the potential to temporarily replace GPS in the event of an outage, including the developing technologies of ranging off of Differential GPS (DGPS) sites and/or AIS base stations, known as R-Mode. Considering the uncertainties regarding the future of the national DGPS system and the positioning inaccuracies often associated with AIS, however, there are questions as to whether these technologies can be relied upon to complement to GPS in the event of a disruption in GPS service.

Conclusion

The APA and its members appreciate the opportunity to offer constructive comments on the potential implementation of eLoran. We strongly support the DoT's efforts to improve navigational safety by implementing a complement to GPS.