PNT ADVISORY BOARD
REFAAT RASHAD
SURFACE TRANSPORTATION REPORT
Subcommittee Membership

• Member 1: Mr. Shields
• Member 2: Refaat Rashad
• Based on the PNT AB Topics Paper to develop Recommendations
Road Transportation

• **Scope**
  
  GPS and other GNSS are in practice the only source of PNT data for surface navigation, road transportation including smart vehicles, traffic information, mapping and guidance. Public transportation, V2V communication and automated driving present dependents on GNSS is a single point of failure.

• **Recommendation**
  
  Keep spectrum for ground communication adequately distant from GPS spectrum.
**Scope**

The International Convention for the Safety of Life at Sea (SOLAS), which mandates a range of safety systems for ships, including those that depend on GPS for functionality such as AIS, voyage data recorders (VDRs), emergency positioning indicating radio beacons (EPIRBs), and the Global Maritime Distress Safety System (GMDSS), thus ships' safety systems depend on GNSS for positioning and precise timing. Port operations include logistics, cargo, cranes and containers movements are hinged to GPS.

**Recommendation**

eloran is approved by IMO and IALA and considered the best GNSS back-up option for PNT.
• **Scope**

Commercial benefits motivate receivers manufactures to make less robust receivers vulnerable to interferences

• **Recommendation**

Adopt manufacture code of ethics to harden GPS devices to recognize cyber attacks and counteract them.
• **Scope**

PNTAB is well positioned to act as the bridge between the USG and industry as an education campaign is initiated and feedback is solicited from users.

• **Recommendation**

PNTAB Chairs members to participate in similar clusters such as UAG, RPNT and CGSIC to tie and extend the cooperation for PNT Assurance.
FUTURE ACTIVITIES

Cybersecurity

GPS Adjacent Band

Keep Nocking

Domains

Agriculture, Aviation, Critical Infra., Military Policy, Science Transportation

Protect

Toughen

Augment

Set for Policy and Strategy

Golden Standard
Thank you