



Resilient Navigation & Timing Foundation
Board of Directors

September 24, 2014

I. Convening

The meeting was held at 6:30 at Clyde's restaurant, Tysons Corner. Mr. Dana Goward, Mr. Martin Faga, Mr. Larry Kiern and Mr. Charles Schue attended.

II. Approval of the minutes from last meeting

The minutes from the previous meeting (August 7th) were reviewed and approved.

III. Open Issues: Detailed information on the foundation's recent activities and finances was provided in advance of the meeting. The board discussed these written reports.

IV. New Business

- a) The board voted (Mr. Goward abstaining from the discussion and vote) to reimburse the Executive Director for local travel in the amount of \$144.48, funds permitting.
- b) The board voted (Mr. Goward abstaining from the discussion and vote) to reimburse the Executive Director for travel to the ION Council meeting in Tampa, and a Navigator's Forum dinner in the amount of \$436.17, funds permitting.
- c) The board decided to modify and establish the foundation's goals, objectives and PTA recommendations as per the document attached to these minutes.
- d) Discussion – various other issues of general interest were discussed.

V. Adjournment

The meeting was adjourned at 8:30 p.m.

A handwritten signature in blue ink, appearing to read "L. I. Kiern", is written over a horizontal line.

L. I Kiern, Secretary

RNT Foundation Goals and Objectives 2014-15

A Global Effort, Beginning in the United States

Goal: *Public & Leader Education*

Objective 1: The US government recognizing navigation and timing services as critical infrastructure. This will include designating and empowering a federal official with the responsibility and authority to ensure navigation and timing resilience.

Objective 2: Establish as a best practice for owners and operators of critical infrastructure, having multiple sources of precise navigation and timing information, with different failure modes, that ensure continuity of operations for proof of time and proof of location during extended GNSS disruptions.

Goal: *Stronger Laws & Better Enforcement*

Objective 3: A national statute making intentional possession of jamming and spoofing devices a misdemeanor, and intentional use of jamming and spoofing devices a felony. This law should also be enforceable at the state and local level so as to empower those authorities and leverage their much greater enforcement capabilities.

Objective 4: Establishment of a national system to detect and rapidly locate jamming and spoofing.

Objective 5: Sufficient enforcement personnel to respond to all detected jamming and spoofing incidents, and quickly apprehend and prosecute perpetrators.

Goal: *Terrestrial System to Pair with GPS*

Objective 6: Creation of appropriate public, private, or cooperative partnerships to build and operate resilient terrestrial navigation and timing systems.

Objective 7: Establishment of resilient terrestrial navigation and timing systems, and broad use of their services across all commercial sectors.

Protect, Toughen, Augment

*Policy Recommendations for Global Navigation Satellite Systems**

Protect GPS/GNSS

- Recognize PNT as critical infrastructure
- Designate and empower a lead federal official
- Protect the adjacent bands to GNSS as “quiet” neighborhoods
- Make ownership of jammers a misdemeanor
- Make use of jammers a felony
- Make anti-jamming and anti-spoofing laws enforceable at all levels of government
- Establish a national system to detect & rapidly locate jamming
- Ensure sufficient enforcement personnel to detect, prevent, respond to and prosecute jamming

Toughen Receivers & Users

- Develop standards for jam-resistant receivers to include ARAIM and RAIM
- Establish as an industry best practice having more than one source of precise Position, Navigation and Timing (PNT) for critical infrastructure
- For critical infrastructure that uses space-based PNT, establish as an industry best practice being able to continue normal operations in the event of an extended GNSS service disruption.

Augment GPS/GNSS Services

- Provide a wide-area, difficult to disrupt, diverse non-space PNT service (GPS-Earth/eLoran)
Develop standards for seamless use with space-based PNT
- Encourage development of numerous, complementary terrestrial PNT services to increase resilience (integrated radar, local positioning systems, inertial, etc.)

*Adapted from presentations and positions advocated by Dr. Brad Parkinson and discussed at the US government’s Position, Navigation and Timing Advisory Board. The Resilient Navigation and Timing Foundation heartily supports these policies and initiatives.