



**Comments to the National Telecommunications and Information Administration**

**U.S. Department of Commerce**

**Federal Register Docket No. 221202-0260**

**Public Wireless Supply Chain Innovation (PWSCI) Fund Implementation**

**January 27, 2023**

## **Introduction**

NextNav Inc. (Nasdaq: NN) is a leader in next generation Global Positioning System (GPS) enabling a whole new ecosystem of applications and services that rely upon vertical location and resilient geolocation technology. The company's Pinnacle network delivers highly accurate vertical positioning to transform location services, reflecting the 3D world around us and supporting innovative, new capabilities. NextNav's TerraPoiNT network delivers accurate, reliable, and resilient 3D positioning, navigation and timing (PNT) services to support critical infrastructure and other GPS-reliant systems in the absence or failure of GPS.

NextNav provides two technology service offerings:

The Pinnacle network delivers precise vertical location in 4,400 cities and towns – capturing 90 percent of buildings greater than three stories – in the United States (U.S.). NextNav's Pinnacle powers applications across the public safety community to support stronger situational awareness for first responders. Last year, a tier-one wireless carrier in the U.S. selected NextNav Pinnacle to bring z-axis capabilities to wireless 9-1-1 phone calls to enhance caller geolocation and emergency response outcomes. This technology is also being deployed in Japan in partnership with MetCom

NextNav's TerraPoiNT terrestrial-based network has an initial footprint across 47 major markets in the U.S., including a commercial scale deployment in the San Francisco market. TerraPoiNT is deployed much like a cellular network but offers consistent PNT services to every point within a covered metropolitan area, as well as accurate timing, horizontal positioning, and altitude information – particularly important capabilities for urban and indoor areas where GPS systems tend to be most challenged. TerraPoiNT provides a resilient, complementary layer to GPS, with signals 100,000 times stronger and an ability to operate independent of GPS. TerraPoiNT also has signal encryption, making it far less vulnerable to jamming or spoofing as is often the case with GPS signals. With an agile signal design, it can operate on a variety of spectrum bands.

NextNav is also adding LTE/5G capabilities that will allow TerraPoiNT to intelligently combine signals from existing terrestrial LTE/5G networks to deliver near nationwide resilient 3D position, navigation and timing (“PNT”) capabilities, while dramatically lowering deployment costs.

## **Introduction**

NextNav believes that the investment being delivered by the Public Wireless Supply Chain Innovation Fund (referred to subsequently herein as the “Innovation Fund”) provides a unique opportunity to provide opportunities for many new entrants into this important market, severing both a resilient and secure alternative to GPS.

These investments will build upon a vulnerability the Government has already identified (Question 2/Public Sector initiative). For example, Executive Order (EO)13905, signed in 2020, states that it is essential to achieve national infrastructure resilience by backing up GPS with complementary PNT sources and promulgating best practices in cybersecurity through the responsible use of PNT.

NextNav believes that true resiliency requires the widest possible diversity, and that is why usage of the Innovation Fund must make certain that government requirements for PNT are sufficiently broad and include a range of technological solutions.

With the scope, complexity, and severity of disruptions and vulnerabilities of GPS evolving continuously, the combination of wide-ranging PNT solutions and emerging technologies offers superior protection to current and future threats by providing and offering non-GPS forms of complementary PNT that improve national resilience.

Protecting critical infrastructure such as 5G networks and the supply chain will require having multiple technologies to work alongside GPS or function in situations where GPS is degraded or denied, and to do so with the requisite properties of performance quality and operational resilience. Full deployments of such technologies, and not just more studies, should be a key objective of the Innovation Fund.

Many of these technologies have already been tested by the Department’s of Transportation and Homeland Security (<https://www.transportation.gov/administrations/assistant-secretary-research-and-technology/complementary-pnt-and-gps-backup>)

Note results below:

PNT Technology Vendor	Demo Site	72-hr Bench Static Timing	Static Outdoor Timing	Static Indoor Timing	Static Basement Timing	Reference Station Offset (eLoran Timing)	Dynamic Outdoor Positioning with Holds	Static Outdoor Positioning	Static Indoor Positioning	Airborne Positioning
Echo Ridge LLC	LaRC					N/A	8			
Hellen Systems, LLC	JBCC	8			8	8				
NextNav LLC	LaRC	9	9	9	9	N/A	9	9	9	9
OPNT B.V.	LaRC	9				N/A				
PhasorLab Inc.	JBCC	8	8	8		N/A	7	7		7
Satelles, Inc.	JBCC	9	9	9	9	N/A	9			
Serco Inc.	JBCC					N/A	5	5		
Seven Solutions S.L.	LaRC	9				N/A				
Skyhook Wireless, Inc.	LaRC					N/A	9	9	9	9
TRX Systems, Inc.	LaRC					N/A	7	7	7	
UrsaNav Inc.	JBCC	9		9	9	9				
GPS (SPS PS)	All	9	9			9	9	9		9

Rubric: level

9
8
7
6
5

Figure ES.1. MoE-1: Technical Readiness–System Government Consensus Scorecard

### Support Open PNT Industry Alliance (OPIA) Comments

NextNav is a member of the OPIA and supports the comments submitted on the Innovation Fund. Specifically, coordinating goals and objectives of the Innovation Fund with E.O. 13905 will ensure investments made will meet the requirements of providing alternative and resilient PNT services in government procurements. We also highlight the comments on trials, use cases

and market development (Questions 13-16) in which the Innovation Fund be used to provide increased resiliency to 5G by providing alternative PNT services to GPS.

### **Importance of Location Capabilities for 5G**

NextNav believes funding from the Innovation Fund should include technologies that provide Z-axis capabilities for 5G deployments. X/Y axis location of 911 callers has been provided by wireless carriers for more than a decade with improving accuracy, but this information has been of limited value in certain situation, notably in dense urban locations with tall buildings. In these scenarios, specifically public-safety personnel often have lost precious time in their response efforts, because they must search multiple floors in a structure to locate a 911 caller.

This Z-axis technology is being leveraged by FirstNet to locate first responders. The Federal Communications Commission is requiring all phone carriers to utilize this technology and recommend the Innovation Fund build upon that requirement.

### **Conclusion**

NextNav appreciates the opportunity to provide feedback on the implementation of the Innovation Fund and stand ready to assist and support this important effort to provide resiliency and improved safety with this program.

Submitted by:

Ed Mortimer

Vice President, Government Affairs

NextNav

1775 Tyson's Blvd. 5<sup>th</sup> Floor, Tysons, VA 22102

(E) [emortime@nextnav.com](mailto:emortime@nextnav.com)

(M) 202-836-2263