

Fire Service: start using US National Grid

by
Al Studt

A major benefit to [US National Grid](#) (USNG) is that literally everyone can be on the same page; local Fire Rescue responders, dispatchers, EMS, law enforcement, Forestry, Emergency Operations Centers, out-of-area strike teams, National Guard, USAR, Red Cross, CERT, ham radio operators, Salvation Army, etc. Citizens could be easily trained how to use it. USNG coordinates can be used to reference locations with or without a GPS. If users have a GPS, they can relate their present position to a map. If users are issued a coordinate, they can find it. What does not work is Street Addresses in times when Street or Address designators are gone, obscured by smoke, flooding or instead are completely unfamiliar to the responding crew. Street addresses are also not relative to any off-road or wilderness emergency.

The fire service needs to take steps to implement US National Grid. Eight steps are identified as follows;

1) Begin using free USNG web tools as training aids and start referring to positions such as training sites, command posts, helispots, meeting locations, pre-plan information, etc. routinely with USNG coordinates. A primary web tool can be [Larry Moore's google mash up](#). In seconds, any user can determine the coordinates of any address or any position that has no affiliation with a postal /street address. The web tool has many functions which are familiar due to it being google map based. [Florida](#) has a web tool and so does [New Jersey](#).

2) Change fire department map books to employ US National Grid instead of any proprietary or random "bingo" grids. Having A-Z and 1-9 on the margins is an example of a "bingo" grid; they are not [interoperable](#).

3) Engage each jurisdiction's [GIS](#) department. Most cities or counties will have a GIS section and they can print maps and map atlases with US National Grid. There are maps at the [Delta State](#) site for [\(14\) states](#). There are standards for these maps atlases. The 1:25000 scale has 20 square kilometers of display with overlap. A 1:6000 scale map has a single 1 kilometer square in the center of the page with overlap. The overlaps are intentional so a user can pull pages on scene and even tape them together to make a large area map, to document the incident, etc. When done, since the maps are PDF files, back in quarters the necessary pages are printed and replaced. In addition, there are [GeoPDF tools](#) which allow files to be edited, icons added, areas determined, fire lines drawn, etc. by the user. Regardless of in-vehicle mapping systems, paper maps are always of value and can be 'Plan B' if away from the vehicle or during failure during daily operations. More importantly, make US National Grid atlases so they are available to be issued to incoming mutual aid.

4) Understand that the daily use of street addresses alone to dispatch units serves to set that process in stone. Many systems seemingly have insufficient flexibility. Surely you have heard a field unit call in by radio to report an incident and have heard the communications center operator requesting a street address, perhaps multiple times, in order to enter it, then dispatch it - delaying response time. The reliance on street address alone is a plan to fail when large mutual aid, wide area or wilderness incidents occur. Emergency personnel must be familiar with a geospatial reference system and should be hearing it daily. If their map books or in-vehicle software is properly configured, then dispatches not unlike: *"Rescue-1, Engine-1, respond to 527 Main Street, grid 38 60, for a motor vehicle crash"* become possible. How many Main Streets are in your first due area, county, state or the nation? By *adding* the national grid component, *not* replacing street address altogether, the incident location becomes unique. The normal first due crew may know exactly where 527 Main Street is and not need the grid portion. But what if their quarters are back-filled with mutual aid from a neighboring department or even from out-of-state? Those units can first key in on the routinely provided grid portion of the dispatch information and

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by doing so would be expedited to the location, providing faster service perhaps to your customers/citizens. The common geospatial referencing that USNG provides, once known, works in MS, NY, CA, MT, FL, NC, MN, HI and obviously nation-wide equally.

5) Add US National Grid to [E911](#) databases. Each phone number/street address can have a specific USNG coordinate. Each cell tower is in a specific grid. Rural, suburban, city; start doing it now. It may take years and that is fine. Realizing the value and establishing the local requirement is the major step forward. All public service answering points (PSAPs) should have the web tools, should know USNG and should be able to receive coordinates and process them easily.

6) Understand that Latitude & Longitude, though having a long maritime and aeronautical history, is not interoperable and has been superseded for [land-based operations by US National Grid](#). Using any one of the three versions of Latitude and Longitude just means that they will need to be converted in the future, perhaps real-time, when an error could put responders miles away from the proper location, as occurred during the [Trooper 2 search](#). Dual display with USNG is fine. There is only one version of Lat/Long to standardize to: DD-MM.mmm per the [National Search & Rescue Committee](#).

7) Specify full US National Grid functionality in any/all mapping and dispatch software purchases, including upgrades. Many vendors are not aware of US National Grid; it is buyer beware - make USNG a hard requirement. Recently the [National Park Service did this](#). Vendors including but not limited to [ESRI](#), [ExpertGPS](#), [mytopo.com](#) & [Alesa Geospatial](#) have made substantial USNG enhancements.

8) Purchase new GPS devices, either hand-helds or vehicle type with US National Grid functions. If a GPS does not have USNG, check for MGRS ([Military Grid Reference System](#)). One such device, the [Garmin Nuvi 500](#) has US National Grid functions such as direct coordinate entry. This allows for one example of closure-of-the-loop. A dispatcher using the web tool could determine a coordinate for an incident with no relationship to street address and issue it to field personnel who could put it in the GPS in mere seconds and then are routed to the location. Consider a USNG capable GPS on the dash of every emergency vehicle, over time, of course.

In summary, US National Grid is here. It origins are with a [citizen's committee](#). It is not being forced upon you - it is a very good idea, that being standardization and interoperability learned during previous events, disasters or failures. USNG has full compatibility with US Military's and NATO's grid - hundreds of thousands of persons already know it. Your ex-military personnel likely already know it. Nationally, persons in multiple states are doing all they can to get US National Grid implemented. [Florida](#) started in 2006 and is still progressing. [Minnesota](#) started after the I-35 bridge collapse and probably leads the nation presently with implementation efforts. Spend a half-hour researching US National Grid and the benefits will be more than obvious.

For more information, to include the specifics of US National Grid which were not included in this article, see the [FDE library](#) or contact the author at USNG08@gmail.com.

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