call—in essence, asks the mobile positioning system to recalculate and retransmit the phone's location.

In summary, if a caller calls from a traditional landline phone, the building's address is transmitted with the voice call in a text string, which is captured and displayed by the call taking and mapping software. If the caller calls from a wireless phone, the coordinates representing the tower (Phase I call) or caller's device (Phase II call) are transmitted in the text string, and the location is displayed on the call taking screen as a pair of numbers—latitude and longitude. On the mapping, a Phase II call is displayed as a point representing that coordinate, as the nearest actual address point to that coordinate, or even as an interpolated address based on the position of that coordinate relative to the closest road. While the tower location is mapped for a Phase I call, this location is of little use to the dispatcher as the actual caller could be directly under the tower or miles away.

But exactly how accurate is the mapped position of a Phase II call?

Per FCC rules, two-thirds of all Phase II calls placed from carriers using the handset solution must be within 50 meters (164 feet) of the true location of the caller, measured on a PSAP or county level. Virtually all Phase II calls must be within 150 meters (492 feet). While some carriers use the network solution to resolve location, the following scenarios assume Phase II call location was determined with the handset solution.

In a rural area, with low population density, a call that locates 492 feet from actual caller location may be readily locatable. A dispatcher with adequate map data—mapped road and structure locations and ortho imagery—should be able to quickly scan the map, which has centered on the coordinate or interpolated location of the caller based on the coordinates in the ALI, and locate the address the caller has given. If the caller has given an intersection, there may be only one, two or three intersections in a rural area within that supposed potential error distance.

The PSAP, and its call takers, should also know what technology each wireless carrier uses to resolve Phase II call location, as the handset solution generally yields more precise and accurate locations than the network solution, but needs more time to determine position and is more accurate outside than inside. The handset solution comes in as Phase I and 25 seconds or longer is needed to resolve position. A position is resolved rather quickly with a network solution but is less reliable. Network-solution locations are better when there are multiple towers in close proximity to each other, which is seldom possible in rural areas.

Knowing what location solution is used by each carrier also gives the call taker tools to get an even better location. If using the handset location in a PSAP, a call taker dealing with a Phase I call and needing a better location might ask the caller to move closer to a window, or even outside if they can't provide a locatable address or other information. Calls from mobile phones indoors, especially in large buildings or basements, are often not locatable because of the physical obstructions between the GPS chip in the phone and the GPS satellites above. Other obstacles include natural features like cliffs and canyons, heavy tree-cover and even "urban canyons" created by rows of tall buildings. However, rebidding the call even in these circumstances *can* yield a Phase II position and a set of coordinates for the caller that will get the responders close.