GPS/INS integrated georeferencing systems are unable to continuously provide highly accurate navigation in urban and forested regions due to limited availability of the GPS signal and the error accumulation of the INS sensor. Terrestrial Laser Scanning (TLS) is a powerful technology that can rapidly map the object space at high spatial resolution with outstanding accuracy. Therefore, if an area is repeatedly mapped by mobile TLS from different locations, the TLS sensor pose changes can be determined based on the common object space. Consequently, GPS/INS/TLS integration offers a possibility to maintain navigation in GPS-challenged areas. Finding correspondence between two TLS scans, however, depends significantly on the properties of the object space. Therefore, to simplify the surface matching process and to improve the matching accuracy, objects of simple shapes, such as spherical objects, could be placed in the navigation area to be used as common targets. This paper introduces a method to support relative navigation of a GPS/INS system aided by a TLS sensor, including spherical target extraction, positioning, and matching. Simulated data with various noise levels and occlusions were used to initially estimate the performance of the method. Later, a prototype GPS/INS/TLS sensor system installed in a vehicle collected test data in an area where spherical targets were placed on the ground. Results have confirmed that the centers of the targets can be determined at millimeter accuracy, and thus, accurate position and attitude data can provide fixes for an INS sensor to maintain accurate navigation in a GPS-challenged environment.