Linear referencing a New paradigm

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Key words: Geoinformation/GI; Positioning; Reference systems

SUMMARY

Since there were assets to manage on linear features like roads, pipes and railways, systems of chainage or continuous measure along the feature have been used to identify, locate, and report on condition or costs. In the roads domain this method has many names SLK, RAMS or Standard Road Referencing System (SRRS) although ultimately achieve the same outcome, the ability to represent assets and attributes in relative location and analyse across dataset. In Department of Transport and Planning (DTP) we have maintained a non-spatial database for the recording the driven length of the roads. The rationale for the continued maintenance of the database has always been to improve the accuracy by calibration of the GIS representation. My thesis is that the map base we now have is of a far greater accuracy than the application of driven length to the linear representation and rather than improve spatial accuracy it introduces significant errors. DTP have recently adopted OpenStreetMap (OSM) geometry with a high frequency update cycle as a result the manual maintenance of chainage is just not practical. We are changing from a route and measure location reference to a geographic coordinate system, the approach will allow integration with GPS coordinates from phones or browser-based apps and allow the field staff to use the chainage practices they have used for ever and are comfortable. The fundamental premise is that "coordinate is king" and the assets and attributes are managed by geographic location and the measure along a route is dynamically calculated depending on the target route. This offers a far greater adaptable approach as information collected on one route can easily be reported against another or the geometry of road changed without affecting the locational accuracy.