

## **Locating Crashes Spatially from the National Park Service Service-wide Traffic Accident Reporting System (STARS) Database**

### **Presenter**

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The National Park Service (NPS) has a crash reporting system in place called the Servicewide Traffic Accident Reporting System (STARS). This system is based on the collection and reduction of crash information by NPS law enforcement in each Park. The crash information is entered into a database by use of the DOS-based STARS application.

The crashes are located by a referencing system developed for each park that locates control points, called nodes, in the field at defined locations, such as intersections, bridges, milepost signs or other defined physical features. These nodes are used as references by law enforcement to attempt to describe the location of a crash by storing in the database the reference node, the distance from the crash to the reference node, and the cardinal direction from the crash location to the reference node. Each park also maintains maps of the park roadways with the locations of the nodes shown on the maps. Law enforcement uses these maps to assist them with node names and locations to use as references to the crashes they report. Other than this referencing system, there is no spatial reference for the crashes stored in the database.

The Federal Lands Highway (FLH) in coordination with the NPS has developed a Transportation Geographic Information System (GIS-T) for the paved routes for the Park Roads and Parkway Program (PRPP) for all of the national parks. The linear referenced routes utilize a linear referencing system (LRS) based on the collection of asset data from the Roadway Inventory Program. Some small paved routes and parking areas are not stored in the GIS in this manner due to the collection methods utilized for those type assets. The linear referenced routes enable GIS users to utilize ArcGIS tools to identify spatial locations along the routes and also identify the milepost of the route at any point along that route.

The FLH has developed a methodology to utilize the linear referenced routes along with the node maps for each park and the crash referencing information stored in the STARS database to locate STARS crashes spatially. Once the crashes have been located spatially GIS analysis can be performed on the data to look for patterns of crashes and crash types. Also the data can be combined with other asset management data to see how crashes relate to road surface condition, bridge condition, congestion and other physical characteristics.

The presentation will demonstrate the methodology and the data.