

6.3.3

Free LRS from GIS with LRS Data Framework

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A cursory survey reveals that LRS tools are often categorized as GIS or spatial functions. However, a quarter century of GIS-T efforts have failed to adequately meet LRS data needs in terms of functionality and accessibility.

The author contends that GIS isn't necessarily the right tool for addressing LRS challenges that predate GIS. In fact, many DOTs' LRS systems were rooted in the mainframe era before GIS appeared. While GIS adds mostly spatial representation to LRS assets, LRS remains fundamentally in the non-spatial IT domain.

The high level LRS Data Framework proposed encompasses both the GIS and the non-GIS domains, with a focus on the latter. The framework classifies different LRS asset types from the perspectives of spatial and/or temporal dimensions as well as topological constraints. The framework defines the types of CRUD operations that are necessary for the maintenance of the different asset types. The author proposes the basic LRS analysis operations and functions that are essential to the viability of the framework.

Finally, the author will demonstrate a non-GIS-based implementation of LRS Data Framework functions such as segment overlay, segment density and segment cluster etc.

Bio(s):

Dr. Guo has over 20 years of IT experience, primarily in transportation. He is the founder of Gistic Research, Inc, developer of the LinearBench Product Suite for exploration and management of LRS data infrastructure and assets. Gistic Research also provides enterprise GIS integration services through research and innovation.