

5.3.2

Advanced Linear Referencing for Transportation Data Models

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Transportation data models and Geospatial Information Systems have long employed Linear Referencing Systems (LRS) to store and disseminate roadway attribution and roadside assets. Most transportation data models that are used store information in a single-centerline format, which served well for the years leading-up to the "GIS age". However, due to increased precision and accuracy requirements of roadway data and the inclusion of multi-centerline GIS information, Linear Referencing Systems are now required to follow suite, while still retaining their simplified view of the roadway. To accommodate this need, NJDOT has devised a comprehensive multi-centerline model that combines the accuracy of modern GIS systems with the simplicity of single-centerline LRS, as well as created custom tools and techniques to manage this model. As an added value, the model has allowed for system integration along many different disciplines including: GIS centerlines, Pavement, Traffic Monitoring System (TMS), Highway Performance Monitoring System (HPMS), Highway Maintenance Management System (HMMS), and additional disciplines. Due to its effectiveness, the model has also been adopted by the New Jersey Transportation Authority (NJTA) for managing the NJ Turnpike (TPK) and Garden State Parkway (GSP) roadways. Attendees will learn the basic concepts of LRS, the particular advantages of an advanced multi-centerline model, and how this model is supporting several transportation agencies.