

ABOUT TIG

TECHNOLOGY IMPLEMENTATION GROUP

Dedicated to sharing high-payoff, market-ready technologies among transportation agencies across the United States, TIG promotes technological advancements in transportation, sponsors technology transfer efforts, and encourages implementation of those advancements.

For more information visit

www.aashtotig.org

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WHAT DOES THE LEAD STATES TEAM OFFER?

- Knowledge and experience related to LRS implementation.
- Customized state visits, as time and money permit.
- Webinars to share experiences and educate others
- Iowa's LRS Maintenance Tool at no charge

LEAD STATES TEAM

TIG's Lead States Team on the Multi-Level Linear Referencing System includes DOT and FHWA representatives who can help you evaluate the use of the technology in your agency. Turn to team members for insight, expertise, and advice.

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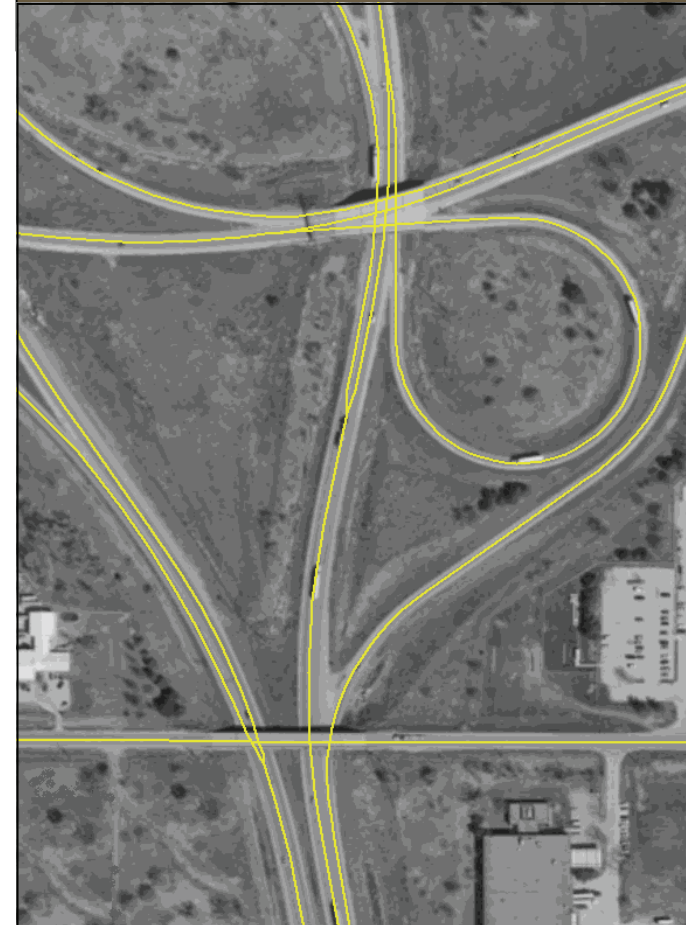
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MULTI-LEVEL LINEAR REFERENCING SYSTEM



MANAGING TRANSPORTATION
DATA EFFECTIVELY

NCHRP 20-27 (2) LRS Model

“The NCHRP 20-27(2) linear referencing system data model was developed in response to a growing awareness of the need to integrate increasing amounts of linearly referenced data used by the transportation community . The 20-27(2) data model includes multiple linear referencing methods, multiple cartographic representations, and multiple network representations. Data integration is supported through transformations among methods, networks, and cartographic representations by associating with a central object referred to as a "linear datum.”¹

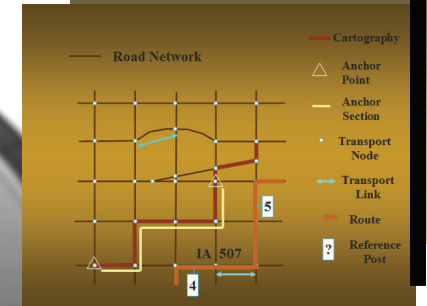
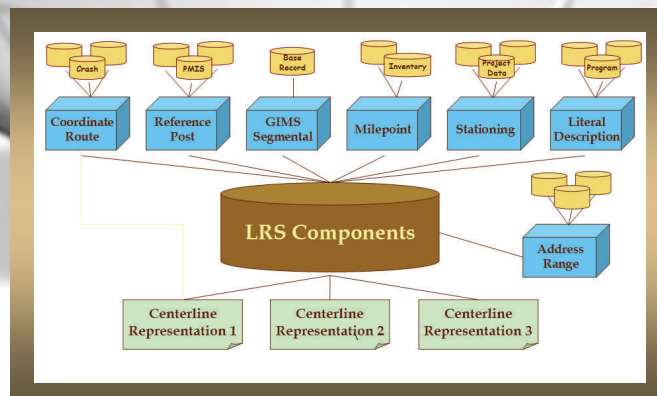
¹Adams, T. M.; Koncz, N. A.; Vonderohe, A. P. (2001) "Guidelines for the Implementation of Multimodal Transportation Location Referencing Systems" NATIONAL ACADEMY PRESS WASHINGTON, D.C.

WHY ADD COMPLEXITY?

Why add the complexity required by the “linear datum”? Because it is the most stable part of the linear referencing system. Route paths and names change, and new network links are built, modified and combined over time. As long as the transportation system’s location remains the same regardless of modifications to routes, network links or changes to business data the datum location remains stable.

WHAT DOES THE NCHRP 20-27 (2) SYSTEM CONTAIN?

1. Spatial representations of transportation system
 - Accurate Centerline
 - Multiple cartographic abstraction layers
2. Datum layer (stable over time)
3. Network layer
 - Links and nodes that define the network
4. Location Referencing Methods (LRM)
 - Data required for these methods
 - Programs and interfaces to supply a LRS cartographic location to business data that uses a supported LRM.



WHAT THE NCHRP 20-27 (2) SYSTEM DOES NOT CONTAIN?

Business data is separated from the NCHRP 20-27 (2) model in order to minimize the system’s impact on existing business data. The only items required are those needed by the LRM’s. Typically, only enough information to specify a route and any data specifically required by the supported LRM, such as milepost and offset for the Milepost LRM are needed.

WHY DO IT?

1. A single source for spatial location for transportation systems is provided.
2. Metadata and business rules for spatial locations are managed in a central location.
3. A navigable network is included.
4. As many cartographies and routes as needed can be included.
5. Supports multiple transportation systems—roads, pipelines, rail, navigable rivers, etc.
6. Minimizes changes to existing business data.