4.3.2   **NCHRP 20-27 to ISO 19148 18 Years of Progress in Linear Referencing**

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On August 6, 1994, forty-two transportation professionals, systems developers, and academics came together in a workshop in Milwaukee, Wisconsin with the objective of preparing a draft consensus conceptual data model, at the entity-relationship level, for linear referencing systems. So reads the report from NCHRP 20-27.

Since then, further discussion has ensued in various software standards organizations, both nationally and internationally. Now, some 18 years later, the international community has officially adopted the Generalized Model for Linear Referencing as the basis of ISO IS 19148 Linear Referencing. As the dust settles, that brings to ten the number of software standards which have adopted or are in the process of adopting this approach.

Developed in open public forums across the globe, the Generalized Model grew out of the need to support, yet simplify the NCHRP model. It was originally motivated by the need to develop a COTS solution to a problem being solved differently in every organization with each organization having multiple solutions of their own.

By generalizing the NCHRP Model into a few basic concepts, translation between various Linear Referencing Methods (LRM) and the types of linear elements being measured has been reduced to a single, reflexive, transitive, closed and deterministic algorithm. So existing systems and databases using disparate LRMs no longer have to be migrated to a single LRM, sacrificing the advantage of the LRM originally selected for that problem and the subsequent investment in systems and expertise.

Instead of mandating that a single LRM be used by an organization (there simply is no single best LRM for all applications and databases), each database can keep whatever LRM works best for its applications, including external ones beyond the control of the organization. Yet data can still be combined using run-time LRM translation or GIS projection.