

6.1.2 HAS-GIS Interface: Build an Enterprise Geodatabase at Alaska DOT&PF

Presenter

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The Alaska Department of Transportation and Public facilities (ADOT&PF) is developing an interface for the department's legacy transportation database, the Highway Analysis System (HAS), that will integrate Geographic Information System (GIS) technology with HAS. The objective of the project is to develop targeted upgrade strategies that will establish HAS as a foundation for linear reference based GIS within the agency, unified processing, management, maintenance, and output of transportation spatial data and road centerline network data in an integrated system, and improve data access, display, analysis and output. A HAS-GIS Interface geodatabase (hereafter called the Geodatabase) was designed for storing and managing road centerline spatial data and HAS transportation data (e.g., route attributes, accident data, and traffic data) in a GIS environment. The presentation will cover the design of the physical database, the implementation of the geodatabase model, the migration of transportation-oriented data features, and the development of GIS applications in support of the geodatabase. A Universal Modeling Language (UML) schema was produced to define data entities and their relationships that will accommodate the needs for transportation GIS data in the ADOT&PF. Three major applications were developed to facilitate the maintenance and application of the geodatabase: a GPS Data Conversion Application to convert GPS data to transportation network and features into the formats required by the geodatabase, a Maintenance Application primarily for the GIS and database managers to manage the centerline network and geodatabase, and a Desktop End Use Mapping Application for non-GIS specialists who need a user friendly mapping interface to query and display projects and other business data. This paper will present these experiences and discuss major issues in building an Enterprise GIS infrastructure in support of transportation data management and planning.