



CALTRANS DIVISION OF RESEARCH,
INNOVATION AND SYSTEM INFORMATION

Research



Notes



Executive

NOVEMBER 2023

Project Title:
Applications of Enterprise GIS for
Transportation, Guidance for a
National Transportation Framework
(AEGIST)

Task Number: 4183

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Applications of Enterprise GIS in Transportation (AEGIST) Pooled Fund Study TPF-5(431)

This project plans to develop guidance for Departments of Transportation (DOTs) to establish one geospatial transportation standard.

WHAT IS THE NEED?

There are many advantages to adopting an enterprise perspective to the roadway inventory for those states that have not yet done so. DOTs are taking a more integrated approach to transportation system management. Adopting such an approach requires business rules that address data quantity, quality, and the need to integrate data across and between multiple levels of government. This is a massive undertaking, even for those DOTs that already have an integrated highway inventory. Most DOTs operate as a collection of independent groups that focus on a single aspect of the state's transportation system (e.g., pavement management, bridges, traffic operations, planning, project development, etc.). Many DOTs are struggling to deploy and integrate an enterprise Linear Referencing System (LRS) that will relate work processes, transportation system data editing, and publication (data reporting, distribution, and sharing). Most DOTs are struggling with questions such as; what are the data business rules and who is responsible for them, who owns or acts as a steward for what data, should the DOT's LRS be extended to non-DOT facilities, how does the LRS support non-DOT functions, like local road traffic, local road traveler information (511) and other essential functions, etc.

WHAT ARE WE DOING?

This pooled-fund project plans to assist DOTs, metropolitan planning organizations, and local governments to create enterprise geographic information system (GIS) data management systems based on data governance best practices that support collaboration through shared business rules and standards with the goal of a single roadway dataset that meets the needs of multiple groups. This project will develop guidance for DOTs to establish one geospatial transportation standard



DRISI provides solutions and
knowledge that improves
California's transportation system



and assist participating states to implement the guidance.

WHAT IS OUR GOAL?

The project team plans to develop guidance for DOTs to build one consistent standard relating to development and management of a linear referencing system and the data and systems that relate to it, as well as assisting participating states to implement the resulting enterprise GIS guidance.

WHAT IS THE BENEFIT?

Consistent standards improve collaboration and data sharing between transportation stakeholders. Enterprise GIS data management systems helps improve business process and efficiency by reducing the duplication of effort, due to redundant data collection, storage, management, and distribution.

WHAT IS THE PROGRESS TO DATE?

As of November 2023, here is the progress to date:

The Caltrans technical representative along with FHWA and contractor (WSP) established objectives and identified activities to be undertaken for Caltrans. The contractor has developed a "Technical Services Work Plan" of tasks and activities (cross-agency activities and state-specific activities) that will be carried out as part of this project.

Contractor reviewed roads data modeling practices and rules at Caltrans, CalOES, and Merced County, and developed roads data modeling rules for implementation in Caltrans.

Contractors developed draft report for roads data modeling architecture and reviewed content in the report with Caltrans, CalOES, and Merced.

Contractors analyzed road centerline data from Merced County (NG911) and Caltrans roads and highways system to determine road centerline geometry differences.

Contractor continued conducting quarterly meetings with participating state DOTs. The contractor has held planning meetings with State DOTs and FHWA to finalize agenda, presenters and discussion topics for peer exchanges.