

### 4.1.3 Google Earth Implementation at CalTrans

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Eighteen years after the advent of GIS at the California Department of Transportation (Caltrans), a new generation of web-based data access and viewing tools are available, among which are the Google Earth suite of software products.

Most department data are associated with spatial location. Google Earth Enterprise provides a robust interface for the viewing and presentation of spatially referenced data, wherein the user has rapid and intuitive access to spatially referenced information. Existing data are converted into keyhole markup language (KML) format, enabling information related to highways, transit facilities, environmental resources, current and planned projects, and transportation assets to be viewed and presented within a three dimensional (3-D) rendering of the earth's surface. This greatly increases the Department's ability to present and communicate issues related to Department business.

For persons unfamiliar with GIS, Google Earth is sometimes seen as a wholesale replacement for existing GIS systems, which it is not. Google Earth is a data viewing, and data-mining tool that brings the opportunity to expand data viewing capabilities, and improve access to data through a common medium.

Google Earth significantly moves the Department forward in terms of data integration and awareness of data sources. Both GIS and computer aided design (CAD) data can be viewed together within a rich dimensional context of aerial photography. The ability to integrate current digital imagery, CAD, and GIS data in a relatively easy manner allows users to overcome many of the "learning curve" related issues. Users will have the ability to link KML files to external metadata documents, informing users of data quality and vintage, and enabling further data drilling into linked data sources and web services such as the Caltrans post mile calculator and Photolog.

Phase 1 of the Google Earth implementation occurred in 2006, wherein Caltrans purchased 74 licenses for Google Earth Pro which are actively in use by the Aeronautics, Design, Maintenance, Rail, Research and Innovation, Right of Way, Surveys, Traffic Operations, and Transportation System Information divisions, as well as several districts. Phase 2 includes the implementation of Google Earth Enterprise, to be completed in February 2007. Google Earth Enterprise places the functionality of Google Earth completely inside the Caltrans organization. It is loaded on Caltrans servers, and accesses internal Caltrans imagery and data. The system will not access data from offsite Google servers.

Google Earth improves decision making processes as Caltrans business programs are better able to present and communicate issues and concepts by sharing and displaying key information in a realistic spatial/location context. Staff will have ability to incorporate use of Google Earth Enterprise into their regular workflows, using existing GIS and CAD data. The opportunity for enhanced viewing may also encourage the development of new or improved data layers, which is consistent with continual improvement strategies for Caltrans GIS data offerings.