

Validating Remote Sensing Data and Spatial Information Technologies for
Enhancing Environmental Features Evaluated in Transportation Corridor
Environmental Impact Assessments

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Abstract

For transportation projects, an Environmental Impact Assessment (EIA) analyzes impacts of a project on the environment. The EIA process ensures that environmental impacts are considered and disclosed before important decisions are made. The intent is to encourage transportation projects suited to the local environment. The EIA process evaluates a set of possible roadway alignments, buffers alignments by a specific width(s), and considers features within the buffered area to quantify impacts. The process considers relevant features such as wetlands, rivers, settlements, archeological sites, and cultural sites. Buffering alignments and selecting features within buffered areas is highly suited to geospatial information processing. However, the availability, quality, and completeness of environmental layers are uncertainties.

Transportation projects cover substantial area and often include areas with limited access. Ongoing studies seek to validate remote sensing technologies to improve geodata representation of environmental features, to streamline methods of analysis, and to enable easy, efficient use of data and methods to streamline transportation projects. This paper presents methods to enhance selected environmental features using remote sensing data. Existing national databases of hydrology, soils, and land use will be used as baseline layers. These layers will be enhanced using remotely sensed data to illustrate and validate methods to determine impacted features. Results will be compared for alignments, results compiled in a matrix of impacts, and a preferred alignment will be selected. The matrix of impacts will present the results of the analysis and compare results against those obtained and documented in the recently completed FEIS for SIU-9 of I-69/I-269.

Keywords: Geographic data, EIA, corridor planning, streamlining, land use, remote sensing.