# Session 3.4.3  Advancements in GIS and Tools to Include Environmental Factors in Transportation Program and Project Delivery

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Tools to support analyses and decision-making to fulfill environmental responsibilities are vital to effectively delivering transportation to local, state, regional, national, and international levels. One of the challenges faced by transportation and environmental practitioners is to keep pace with advancements and capitalize upon new tools and methods as they become available. This GIS-T 2007 presentation will highlight workshop discussions on example methods and use of GIS tools as advancements to support environmental responsibilities and transportation program and project delivery.

FHWA Headquarters Project Development and Environmental Review Office, FHWA Divisions, state departments of transportation, Defenders of Wildlife, and NatureServe hosted workshops in 3 pilot states.  One of the key topics of workshop discussion was unveiling of a new GIS-based, Decision Support System (DSS) tool developed by NatureServe, called NatureServe Vista.   NatureServe is a not-for-profit organization that offers more that 30 years of expertise with environmental factors and standardized methods and data within an international and nationwide natural heritage network for rare and endangered species and threatened ecosystems.

The NatureServe Vista tool delivers decision support system (DSS) and GIS capabilities to integrate environmental information with transportation and land use patterns and policies. The Vista software supports decision-making to create, evaluate, implement, and monitor plans and "what-if" scenarios that can include factors within transportation, economic, social, environmental, and political contexts to achieve goals.

The workshops discussed availability of a variety of tools and data formats. NatureServe Vista was highlighted as one example DSS tool. The workshops demonstrated a case study of how NatureServe Vista can work together with other tools based on data inputs and outputs for analysis and decision support using a diversity of environmental and transportation factors.  The emphasis was data interoperability. NatureServe research efforts will explore software interoperability capabilities between Vista and other tools.

Workshops demonstrated and discussed how the NatureServe Vista Decision Support System helps bring together multiple environmental and transportation factors to:
- evaluate scenarios and create plans that reflect unique situations and multiple values
- develop mitigation plans and options for land use and management plans
- enhance the consistency and repeatability of transportation program and project delivery efforts
- improve stakeholder communications and build consensus with partners
- develop documentation that supports decisions
- manage projects through their complete lifecycle, including analysis, planning, implementation, and maintenance
- reduce costly legal and land use conflicts