GIS Data, Technology, and Models to Integrate Information and Improve Transportation Decision-Making within the Eco-Logical Framework for Oregon

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In June of 2008, the Institute for Natural Resources at Oregon State University, working with staff from the Oregon Department of Transportation (ODOT) initiated a project to integrate complex spatial data to improve conservation planning and support transportation decision-making. The effort was selected by FHWA to receive funding to implement Using the EcoLogical* Approach to Develop and Implement Conservation and Mitigation Priorities for Oregon and is a complement to other efforts underway in Oregon. The approach includes advancements in the use of GIS data and technology and models.

The effort grew out of a complex set of conservation plans, priorities, and GIS datasets developed by state agencies, federal agencies, non-profit organizations, and universities. Existing plans and data exist within a variety of scales, such as the statewide Oregon Conservation Strategy. Many plans and data sets focus on the Willamette Valley, the geographic area where most Oregonians live, and where most transportation projects occur.

An extensive amount of geospatial data is available online through the efforts of the Oregon Geospatial Enterprise Office (GEO) and its partners (summarized at: http://www.oregon.gov/DAS/EISPD/GEO/index.shtml) including NavigatOR and the Oregon Explorer accessible at: www.oregonexplorer.info. This online geospatial data and other GIS data will be utilized. The objective is to integrate existing data to take advantage of the most up-to-date and most accurate information available resulting in a single, comprehensive data base of conservation priorities in Oregon.

Geospatial data for priority wildlife habitats and species in Oregon are being updated, based on new landcover and Ecological System data and maps along with new species distribution and GIS data put together via the U.S. Geological Survey (USGS) Gap Analysis Project. A particular focus is improving information and data for the legally protected resources of wetlands and endangered species. GIS and computer models are being used to model the locations of potentially occupied wildlife habitat for state and federally protected species. These GIS models were originally developed for use in endangered species recovery plans for Willamette Valley species in Oregon. This information is valuable for transportation decision-making in planning, project development, and mitigation.

In a US EPA and state funded effort, the state wetlands National Wetlands Inventory (NWI) database is being digitized, integrated with local wetland inventories (LWIs), wetland soil maps, and detailed wetland vegetation maps to create a comprehensive wetlands GIS spatial database. This database is being combined with conservation priorities identified within the Oregon Conservation Strategy to create a wetland priority map that will be used to coordinate with regulatory and conservation organizations. The goal is to provide an online wetland priority map and tool that would be available to support conservation and transportation decision-making and integration.

This GIS-T session will highlight the use and updating of existing GIS data, integration of diverse data sets and spatial scales, and use of GIS and modeling to support and strengthen conservation and transportation decision-making and integration within Oregon.

Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects' is a multi-agency initiative and publication (downloadable at: http://www.environment.fhwa.dot.gov/ecological/eco_entry.asp)