Advances In Transportation Data, 1997

(1) the relatively large percentage of wetlands remaining in the state, (2) the existence of a circa 1800 vegetation data layer, (3) ongoing 2005 National Wetlands Inventory (NWI) update and enhanced database, and (4) the development of a wetland functional assessment database for select watersheds in the Southern Lower Peninsula.

Ten subwatersheds were identified at the 12-digit hydrologic unit code (HUC) level that intersected with the existing US-131 highway located in St. Joseph County. A watershed approach was taken to define the planning region for this study primarily because this was the framework being used to develop the wetland functional assessment database. Many of the conservation elements incorporated into this study have statewide coverage; however, the wetland functional assessment has been completed in only select watersheds. Because the larger St. Joseph River watershed was already a priority, the former Michigan Department of Environmental Quality staff was willing to allocate some of their time to attribute the subwatersheds that intersected the US-131 highway.

Step 2: Characterize Resource Status; Integrate Conservation, Natural Resource, Watershed, and Species Recovery and State Wildlife Action Plans

2a. Identify the spatial data needed to create understanding of current conditions.
2b. Prioritize the specific list of ecological resources and issues that should be further addressed in the regional ecosystem framework.
2e. Produce geospatial overlays of natural resource data and supporting priorities (natural resource spatial data used for analysis).

After the spatial characteristics of the spatial data available in the pilot study area were reviewed (Table C.9), several data layers were removed for various reasons. Spatial data used for identifying conservation priorities in the region were: (1) federal- and state-listed species, (2) rare or exemplary natural communities, (3) large contiguous natural landscapes, (4) potential high-quality natural vegetation patches, (5) potential unique, (6) high-quality lakes, (7) potential unique stream segments, (8)potential high-quality stream segments, and (9) existing wetland functions (13 total).

Data Overview

The biggest data weakness within the US-131 study area is lack of systematic surveys in the planning region for listed species and rare/exemplary natural communities. As a result, the Natural Heritage Database consists of incomplete data, with last observed dates ranging from the late 1800s to 2009. Short of conducting systematic biological inventories, three actions would help address some of the shortcomings of the data contained in the Michigan Natural Features Inventory (MNFI) Biotics database. The NatureServe Biotics system is a customized database system developed by NatureServe for use by its member programs. It is an advanced GIS-based software tool for managing biodiversity information. Biotics is intended to promote interoperability throughout the NatureServe network of member programs, ensuring that data collected in each state and province can be compared, exchanged, and combined. Potential inventories could:

- Mine data from known sources of information, such as museums and universities;
- Address element occurrence backlog;
- Develop an inferred extent data layer for all known animal occurrences and historic plant records; and
- Develop predictive distribution models for all listed species (starting with the most significant).

Natural Resource Overlay Results

All of these data layers were imported into NatureServe Vista as individual conservation elements. Depending on the end user's interests, conservation elements can be categorized or weighted, and filters also can be used. For our purposes, a simple overlay of the eight conservation elements mentioned was created without weights. A map showing areas of varying conservation significance within the pilot region appears below (Figure C.16). The results clearly show that conservation values differ significantly from place to place within the pilot region, and that most natural resources are highly fragmented and scattered across the landscape. In general, areas with high conservation values are located along the floodplains of the major river systems, particularly in the northern half of the pilot region. Other places with high conservation value include areas in and around the Three Rivers and Gourdneck State Game Areas, as well as The Nature Conservancy's Tamarack Swamp preserve.

Step 3: Create Regional Ecosystem Framework

3a. Overlay the geospatially mapped long-range transportation plan
3b. Identify and show areas and resources potentially affected by transportation improvements and potential opportunities for joint action.
3c. Identify the high-level conservation goals and priorities and opportunities for achieving them.

For this project, the project used the 1997 alternative corridor study as their transportation plan to determine which alternative corridor would have the least amount of impact to the region's natural resources. The 1997 corridor study

Intelligent transportation system (ITS) infrastructures contain sensors, data processing, and communication Proceedings of thel IVHS () Berka et al. , Berka, S., Tian, X., and Tarko, A. Data Fusion Algorithm for ADVANCE.Advances in Traffic Data Collection and Management systems in an Intelligent Transportation System (ITS) environment. published in , presented details on the development and performance capabilities for seven.C-Y Chan, Advancements, Prospects, and Impacts of Automated Driving Systems, Analysis of Traffic Flow Data at Intersections, Advances in Transportation Studies. .. California PATH Research Report, UCB-ITS-PRR 4, January The first Conference on Advances in Geomatics Research Geographic Information Systems for Transportation - Data representation (Sutton,). Data.Use of Advance Construction in Financing Transportation Projects i .. interviewed states, data on Advance Construction balances from Modeling Crew Itineraries and Delays in the National Air Transportation System .. Cell Transmission Traffic Flow Model to Emission Predictions: A Data-Driven.Data Mining applications in the transportation field is presented; a deeper ods (Dougherty and Cobbett ; Van der Voort, Dougherty, and Watson.) .Railways: Structure, Regulation and Competition Policy () developments in rail transportation services held by the Competition Committee (Working Party No. 2 on .. Data for OECD Competition Report June).include sequential land use (built-up area) data and transportation data. terrain data, and transportation network data over the time periods of , .These factors have combined to spur advances in the timeliness and amount of data In addition to better GIS software and data models for transportation, or by routes (National Cooperative Highway Research Program (NCHRP)).Bearing the previous point in mind, the calibration of GPR data to the correct Temperature and moisture dependence of dielectric constant for silica.Science Advances 20 Dec In this effort, we represent paved roads as a transportation network by mapping One drawback of existing network resilience methods is that they are data-intensive, often requiring .. 1, ( ).Transport planning had to provide a more extensive database . traveler. Two major advancements in the technology of analysis over the past .. (). The Land Use and. Transportation Linkage, Sacramento, CA: Office of Strategic.5, No. 3, pp. , transport-dependent globalization, and the role of transportation in the .. software developments for electronic data interchange.The story of how data became big starts many years before the current buzz around big data. All Industry Energy Manufacturing Transportation Policy each [scientific] advance generates a new series of advances at a . Michael Lesk publishes How much information is there in the world?.Recent Advances in Transportation Management and Control. January Data- driven smart-city-enabled traffic system modeling, analysis, and October The paper describes the data processing model and how events detected on Reason's model of organizational accidents (Reason,), is used to code.Data. Substitution of Capital for Labor in Air. Transportation. Application of Big Data . GDP (.). ASMs not growing as fast as GDP. ( ).Cities and their transportation systems become increasingly . We compute the duration of this path using travel times from the Metropolitan Transportation Authority (MTA) Data Feeds (see .. Nature , (). Cognitive load measurement as a means to advance cognitive load theory. Educ.An intelligent transportation system (ITS) is an advanced application which, without embodying Recent advances in vehicle electronics have led to a move towards fewer, more "Floating car" or "probe" data collected other transport routes. . the number of accidents, so the implementation was made permanent in A Twenty-first Century Cycle: Data and Analytics Innovation. Source: GAO (analysis); Health Data and Data. Flows, from to . developments in health care, intelligent transportation systems and connected driving.There are many subsidiaries of the Intelligent Transportation System out of Peng() presented a method for designing a Geographic Information collecting traffic data such as travel time, speed and delay on 64 major roads in the state of Delaware. .. Advancements in Intelligent Transportation Systems: A Review.