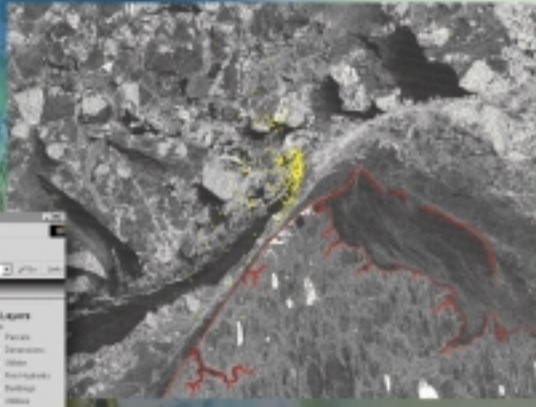
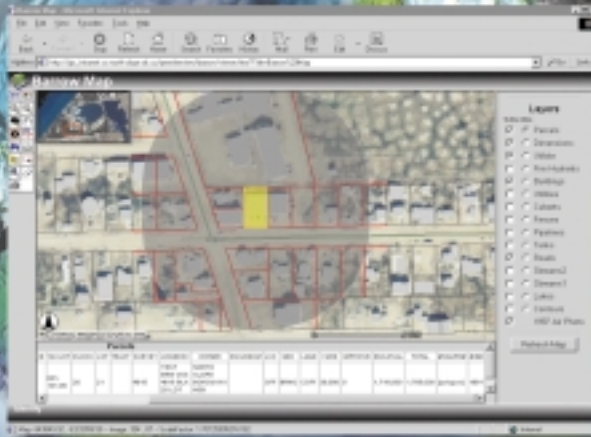


# ESRI and Microsoft Solutions: Alaska's North Slope Borough Brings GIS to Bear



gis solutions

## The Business Challenge

Alaska's North Slope Borough (NSB) had a goal of finding the right tools and information to track and assess cumulative impacts to marine and terrestrial subsistence resources and to support Arctic science research in the Borough. This daunting task—the NSB spans an area of approximately 89,000 square miles, all of it in the high Arctic—was made even more difficult by first establishing the geographic information system (GIS) program in Anchorage, Alaska, and 10 years later moving the entire operation to Barrow, Alaska, approximately 250 miles north of the Arctic Circle.



National Oceanic and Atmospheric Administration, and the Army Corps of Engineers that GIS would become an essential tool for meeting the requirements of NSB code in terms of resource mapping, zoning, tax assessment, census information, and documenting traditional land use. GIS technology has truly become integrated into the decision-making process of this local government.

## Current Projects

**Barrow Symposium on Sea Ice**—The NSB/GIS was a co-principal investigator in a project funded by the National Science Foundation to host a workshop in Barrow in late 2000. This symposium showcased five case studies in which satellite imagery and traditional knowledge of sea ice events have been synthesized. ERDAS IMAGINE® and ESRI® ArcView® Image Analysis were the tools of choice for this project.

## Finding Solutions

The NSB was one of the first in the world to use GIS in a local government's decision-making process. Its GIS division was established in 1982 as a result of the foresight of the late Mayor Eben Hopson. He was convinced by early geoprocessing enthusiasts from ESRI, the State of Alaska Department of Natural Resources, the

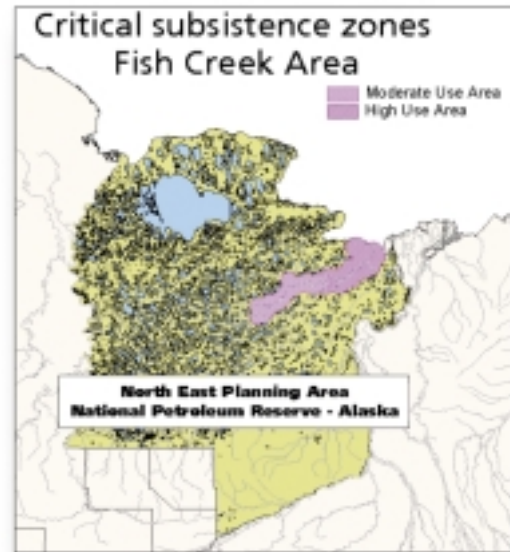


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**NSB Tax Maps**—The NSB/GIS has created tax maps for the Borough with ArcInfo™ for more than a decade. The GIS office is responsible for inputting approved plats using the ARC COGO™ module and then assigning and entering unique tax identification numbers with ArcInfo.

**National Petroleum Reserve-Alaska, Draft Environmental Impact Statement (NPR-A, DEIS)**—The NSB/GIS contributed to the production of the NPR-A, DEIS and had significant input in the development of the DEIS basemaps. In addition, ArcView GIS was used to generate a series of transparent overlays to show base and natural resource data and a combination of subsistence hunting and traditional knowledge information in a region where seven of the eight North Slope villages would be impacted by proposed lease sale activity.

**Traditional Land Use Inventory (TLUI)**—The NSB/GIS is working to develop planning tools to input, query, and report traditional knowledge through close coordination with Inupiat elders and the Commission for Inupiat History, Language, and Culture. MapObjects® and Visual Basic® were used to develop a user-friendly interface for the TLUI database. The database contains place names and descriptive text about traditional sites stored both in English and Inupiat. This tabular information is linked to a map view showing the site location. The application uses Crystal Reports™ to generate reports that are used during the permit review process to ensure that cultural resources are considered in light of proposed development.



Windows NT® platform in 1997. Several desktop applications have been developed with Microsoft® Visual Basic, ArcView GIS, and MapObjects.

The NSB/GIS includes a hardware environment with two Windows NT servers, six Windows NT workstations, five laptops, three large-format plotters, a color laser printer, a scanner, CD burners, and zip drives for data distribution.

*Text and screen shots courtesy of Allison Graves, North Slope Department of Planning and Community Services.*

## Using the System

The NSB/GIS program is thriving. In addition to collecting data, creating maps, and performing analysis in support of Planning Department activities, the NSB/GIS provides information and products to many other NSB departments. The GIS creates products that effectively communicate NSB concerns to federal and state agencies, contributes work to several international Arctic research

efforts and private entities such as the Alaska Geographic Atlas and the Barrow Arctic Science Consortium, and supports climate research projects within the Barrow Environmental Observatory. GIS services and products are also available to all NSB residents.

## A Thriving GIS Based on Windows NT

Since its earliest days, the NSB/GIS has used a wide range of ESRI software to accomplish its day-to-day and long-term projects. ArcInfo was migrated from a UNIX® to a

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